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THERMODYNAMIC PROPERTIES TO 6000° K FOR 210 SUBSTANCES INVOLVING THE FIRST 18 ELEMENTS

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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CONTENTS

	Page
SUMMARY	1
INTRODUCTION	1
THERMODYNAMIC FUNCTIONS OF IDEAL GASES	2
Internal Partition Function for Diatomic and Polyatomic Molecules	3
General form	3
Closed form for rotation	4
Closed form for rotation and vibration	5
Contributions of higher electronic states	6
Internal Partition Function for Monatomic Gases	6
THERMODYNAMIC FUNCTIONS OF CONDENSED SUBSTANCES	8
DISCUSSION OF TABLES	9
Molecular Constants	9
Estimation techniques	9
Adjustment for isotopes	10
Moments of inertia	10
Thermodynamic Properties	11
Assigned reference elements	12
Assigned enthalpy values	12
Heats of formation	12
Equilibrium constants	13
Physical constants	14
Temperature Coefficients for Thermodynamic Functions	14
APPENDIXES	
A - SYMBOLS	16
B - PARTITION FUNCTIONS AND THEIR DERIVATIVES FOR DIATOMIC AND POLYATOMIC MOLECULES	20
C - DISCUSSION OF PARTICULAR SUBSTANCES	27
REFERENCES	56
TABLES	
I - MOLECULAR CONSTANTS OF DIATOMIC GASES	84
II - MOLECULAR CONSTANTS OF POLYATOMIC GASES	88
III - THERMODYNAMIC PROPERTIES	91
IV - HEATS OF FORMATION	301
V - TEMPERATURE COEFFICIENTS FOR THERMODYNAMIC FUNCTIONS	308
INDEX TO SUBSTANCES	327

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FOR 210 SUBSTANCES INVOLVING

THE FIRST 18 ELEMENTS

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SUMMARY

Consistent tables of thermodynamic properties at temperatures from 0° to 6000° K were compiled for 210 gaseous and condensed species involving the elements with atomic numbers of 1 to 18 (i.e., hydrogen, helium, lithium, beryllium, boron, carbon, nitrogen, oxygen, fluorine, neon, sodium, magnesium, aluminum, silicon, phosphorus, sulfur, chlorine, and argon). The tables give the following thermodynamic functions for the standard state: heat capacity at constant pressure C_p^o, sensible enthalpy $H_T^o - H_0^o$, entropy S_T^o, sensible free energy $-(F_T^o - H_0^o)$, and H_T^o, the sum of sensible enthalpy and chemical energy at 0° K, as well as values of the enthalpy changes and the logarithms of the equilibrium constants. The latter two functions are given for the reactions of formation of the substances from a set of assigned reference elements ($(\Delta H_T^o)_f$ and $\log_{10} K_f$) and from these elements in their atomic gaseous state (ΔH_T^o and $\log_{10} K$). The functions for most of the gases were generated from molecular data, whereas the functions of most of the condensed species are based on selected experimental data that were smoothed and made self-consistent.

INTRODUCTION

Since publication of reference 1, the Lewis Research Center has maintained a constantly revised and up-to-date file of thermodynamic data for use in theoretical rocket and aircraft analysis. Most of the data for ideal gases currently being used have been calculated at Lewis from spectroscopic data by means of several programs for an IBM 7090 computer. Experimental data from the literature for a number of condensed species have been smoothed and the thermodynamic functions made consistent. The results of these calculations are given in a set of consistent tables of thermodynamic properties at temperatures from 0° to 6000° K for 210 gaseous and condensed species involving the elements with atomic numbers of 1 to 18 (i.e., hydrogen (H), helium (He), lithium (Li), beryllium (Be), boron (B), carbon (C), nitrogen (N), oxygen (O), fluorine (F), neon (Ne), sodium (Na), magnesium (Mg), aluminum (Al), silicon (Si), phosphorus (P), sulfur (S), chlorine (Cl), and argon (Ar)).

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The thermodynamic functions included in these tables are heat capacity at constant pressure C_p^o, sensible enthalpy $H_T^o - H_0^o$, entropy S_T^o, sensible free energy $-(F_T^o - H_0^o)$, and H_T^o, the sum of sensible enthalpy and chemical energy at 0° K, as well as the values of the enthalpy changes and the logarithms of the equilibrium constants for the reactions of formation of the substances from a set of assigned reference elements ($(\Delta H_T^o)_f$ and $\log_{10} K_f$) and from these elements in their atomic gaseous state (ΔH_T^o and $\log_{10} K$). For the ideal gases, these data are given from 0° to 6000° K at 100° intervals; for the solids, from 0° to the melting point (or if the substance sublimes, to a temperature somewhat beyond the sublimation point); and for the liquids, from the melting point to a point somewhat beyond the normal boiling point. The values for $(\Delta H_T^o)_f$ and $\log_{10} K_f$ of any substance with reference to condensed elements are given, however, only in the temperature range in which the condensed elements are tabulated.

Also included herein are a discussion of the methods and equations used to obtain various forms of the partition function, tables of molecular constants and heats of formation, polynomial coefficients for C_p^o/R, H_T^o/RT, and S_T^o/R obtained by the method of reference 2, and, when necessary, discussions of individual species.

Other compilations of thermodynamic data have become available in recent years (e.g., refs. 3 to 11). The data herein may differ from those in other investigations for one or more of the following reasons: different form for the partition function, different spectroscopic data, inclusion of excited-state data, inclusion of isotopic effects, different heats of formation, and different smoothing techniques for condensed species.

THERMODYNAMIC FUNCTIONS OF IDEAL GASES

The thermodynamic functions for all except five of the gases considered in this report were calculated at the Lewis Research Center on an IBM 7090 computer. Equations for evaluating thermodynamic functions from the partition function and its first and second derivatives can be found in references such as reference 12 (ch. V). In a form slightly modified from that in reference 12, these equations are

$$\frac{C_p^o}{R} = \frac{T^2}{Q}\frac{d^2Q}{dT^2} - \left(\frac{T}{Q}\frac{dQ}{dT}\right)^2 + \frac{2T}{Q}\frac{dQ}{dT} + \frac{5}{2} \tag{1}$$

$$\frac{H_T^o - H_0^o}{RT} = \frac{T}{Q}\frac{dQ}{dT} + \frac{5}{2} \tag{2}$$

$$\frac{S_T^o}{R} = \frac{T}{Q}\frac{dQ}{dT} + \ln Q + \frac{3}{2}\ln M + \frac{5}{2}\ln T - 1.16511 \tag{3}$$

$$\frac{-\left(F_T^o - H_0^o\right)}{RT} = \frac{S_T^o}{R} - \frac{H_T^o - H_0^o}{RT} = \ln Q + \frac{3}{2}\ln M + \frac{5}{2}\ln T - 3.66511 \tag{4}$$

(Symbols are defined in appendix A.) The internal partition function Q contains vibrational, rotational, and electronic contributions. The terms in equations (1) to (4) that do not contain Q are the translational contributions.

Internal Partition Function for Diatomic and Polyatomic Molecules

Numerous references (e.g., refs. 12 to 19) discuss calculations of thermodynamic functions by using equations the same as or equivalent to equations (1) to (4). The form used to represent the internal partition function in these references, however, varies considerably. The following sections discuss some of these forms and indicate which molecules were calculated with the various forms.

General form. - A general expression for the vibrational and rotational contributions for the ground-state electronic level is given in reference 12 (p. 502). If this expression is slightly modified to include possible contributions of higher electronic states, the following equation is obtained:

$$Q^m = g_e^m\, e^{-T_0^m hc/kT} \sum_v g_v^m\, e^{-G_0^m(v_1,v_2,\ldots)hc/kT} \sum_r g_r^m\, e^{-F_v^m(J,\ldots)hc/kT} \tag{5}$$

where g_e, g_v, and g_r are the electronic, vibrational, and rotational statistical weights, respectively, T_0 is the electronic excitation energy between the lowest vibrational levels of the ground state and of the excited state, and the superscript m indicates the mth electronic state. For diatomic molecules,

$$\left.\begin{aligned}
G_0(v) &= \omega_e\left(v + \frac{1}{2}\right) - \omega_e x_e\left(v + \frac{1}{2}\right)^2 + \omega_e y_e\left(v + \frac{1}{2}\right)^3 + \ldots \\
&\qquad - \frac{1}{2}\omega_e + \frac{1}{4}\omega_e x_e - \frac{1}{8}\omega_e y_e + \ldots \\
F_v(J) &= \left[B_e - \alpha_1\left(v + \frac{1}{2}\right) + \alpha_2\left(v + \frac{1}{2}\right)^2 + \ldots\right]J(J + 1) \\
&\qquad - D_v J(J + 1)^2 + H_v J^3(J + 1)^3 + \ldots
\end{aligned}\right\} \tag{6}$$

For polyatomic molecules, corresponding expressions for G and F are given in reference 12.

The total internal partition function for all electronic states is then

$$Q = \sum_m Q^m \tag{7}$$

Equation (5) is seldom used to calculate partition functions because the spectroscopic data available for most molecules are limited to a few low-lying levels. The resulting spectroscopic constants often give a poor representation of the higher levels.

Thermodynamic data for H_2 (from ref. 8) are the only data in this report based on partition functions of the form of equation (5).

Closed form for rotation. - The rotational stretching factor $e^{-F_v^m(J,\ldots)hc/kT}$ in equation (5) for diatomic molecules can be conveniently expanded into a rapidly convergent series either by a power-series expansion (ref. 17) or by inversion of F_v^m (ref. 20). The Euler-Maclaurin summation formula may then be used to obtain a closed form of the rotational part of the partition function. With a closed form for rotation, it is necessary only to sum over the various vibrational and electronic states.

Two alternative forms for the rotational part of the partition function may be obtained, depending upon whether a finite or an infinite number of rotational levels is used (refs. 13 and 17). The first alternative was used in reference 21 to obtain data for CH. These data are given herein. The second alternative was used to calculate the thermodynamic data for O_2 and HF in this report. It is felt that the considerable spectroscopic data available for these molecules justify the use of this method.

The formulas used for O_2 and HF are exactly those of reference 13 and thus are not repeated herein.

Closed form for rotation and vibration. - By a further expansion of the anharmonic and the vibration-rotation interaction terms, a closed form of the partition function may be obtained for vibration as well as for rotation.

This treatment leads to the following form of the partition function, which is similar to those given in references 14 and 19 for $m = 1$:

$$Q^m = (Q_e Q_V Q_R Q_a Q_{RV} Q_\rho Q_\theta)^m \tag{8}$$

The quantities Q_e, Q_V, and Q_R are the electronic, harmonic-oscillator, and classical-rotation contributions, respectively, as given in standard texts (see refs. 12, 15, 16, and 17). The remaining quantities Q_a, Q_{RV}, Q_ρ, and Q_θ are correction factors for anharmonicity, vibration-rotation interaction, rotational stretching, and low-temperature rigid rotation, respectively, as given by references such as 14, 17, and 19.

With the exception of H_2, CH, O_2, and HF, which were discussed previously, a partition function of the form of equation (8) was used for the remaining gaseous molecules considered in this report. The detailed expressions for the quantities in equation (8) that were used to calculate the partition function for most of these remaining molecules are given in appendix B. Those molecules for which any expression used was different from those of appendix B are discussed in the following paragraphs.

For those diatomic hydrides with a ground state of $^2\Pi$, the rotational partition function should be modified to account for the effect of split rotational levels. Data for CH were taken from reference 21 as discussed previously, and the data for OH, SH, and SiH were taken from reference 9. Techniques used in interpolating and extrapolating these data are discussed in appendix C.

For the polyatomic molecules CO_2, COS, CS_2, ClCN, HCN, H_2O, H_2S, NO_2, N_2O, and SO_2, the method described in reference 19 was used. This method uses equation (8) for the partition function but includes higher-order corrections for the individual correction factors than are given in appendix B. Further details are given in reference 22.

For some of the polyatomic molecules, some or all of the correction factors as given in equation (8) were included; for CF_2, CF_4, CH_4, and ClO_2, corrections included Q_a and Q_θ; for C_2N_2 and NH_3, corrections included Q_ρ and Q_θ; for C_2H_2, all of the corrections were included.

The thermodynamic properties calculated for the remaining polyatomic gaseous molecules given herein were based on the assumption of harmonic oscillation and classical rotation only. Also, excited states were not considered for any of the polyatomic molecules. In this case, the partition function given by equations (7) and (8) reduces to

$$Q = Q^1 = (Q_e Q_V Q_R)^1 \tag{9}$$

Contributions of higher electronic states. - Considerable spectroscopic data exist for excited electronic states of diatomic molecules (e.g., refs. 16 and 23). An excited state was omitted from the calculations, however, if either ω_e or B_e for the state was not available or if the state was so high above the ground state that its contribution would be negligible. In some cases, even when excited-state data were available and their contribution to thermodynamic functions was not negligible, the data were not used if equation (8) was considered to be a poor representation of the excited-state partition function. Equation (8) can give poor results when the potential-energy curve of the excited state is shallow and the fundamental frequency is low or the anharmonic constant is large. As an example, consider the Cl_2 molecule. The following table compares specific-heat values for Cl_2 obtained from data for one state with that for two states (excited-state data from ref. 16):

Temperature, T, °K	Heat capacity at constant pressure, C_p^o, cal/mole °K	
	One state	Two states
298.15	8.1116	8.1116
1000	8.9615	8.9510
3000	9.2999	9.9543
4000	9.4281	13.2094
5000	9.5536	17.9621

For Cl_2 at high temperatures specific-heat data are unreasonably high when obtained by means of equation (8) for two states.

In table I, which represents molecular data for diatomic molecules, excited-state data are given only if they were used in the calculations. Table II presents polyatomic molecular data for the ground state only, inasmuch as excited states were not included in the calculations for polyatomic molecules.

Internal Partition Function for Monatomic Gases

For monatomic molecules, the internal energy consists of electronic energy only, and thus the internal partition function is given by

$$Q = \sum_{m=1}^{L} g_m \, e^{-\epsilon_m/kT} \tag{10}$$

where g_m and ϵ_m are the statistical weight and electronic energy of the mth state, respectively. This partition function diverges if all possible energy states are included because there is an infinite number of bound states that are theoretically possible below the ionization limit ($L = \infty$), and while the exponential factor in equation (10) approaches a finite limit, the statistical weight g_m increases without limit.

Various schemes have been used to overcome this difficulty in the calculation of the partition function. The simplest method is to use a fixed number of terms in the series of equation (10), as was done in the case of lithium in reference 1, where energy levels for principal quantum numbers of 2 and 3 only were used. A fixed number of terms is also used in references such as 4 or 24. The rationalization for this method is, as pointed out in reference 24, that below some temperature (for example, 5000° to $10,000^{\circ}$ K) the first few terms give approximately the same answer as the first hundred. The higher terms can be omitted on the arguments that at ordinary densities the high levels would not exist because of interference of adjacent atoms, and that at low densities it is more probable that an electron is free rather than in a high level.

Another simple method is to halt the summation where the binding energies are of the order of kT (ref. 25). The justification is that collisions involving an atom, the outer electron of which is bound with less than kT energy, will likely result in the release of the electron. The higher the temperature, the fewer the number of higher levels that the electron is permitted to occupy.

Other methods exist that consider volume or density as well as temperature in the calculation of the partition function. References 26 and 27, for example, are early works using a covolume equation of state for the calculation of the properties of hydrogen. In reference 28, this method is used for the calculation of the properties of lithium. With this method, the gas is no longer ideal, but rather an imperfect gas with thermodynamic properties that depend on both temperature and pressure.

The consideration of the effect of volume on the calculation of monatomic properties is perhaps more rigorous than the methods that use a fixed number of levels or a varying number of levels depending on temperature only. The covolume method was not used for this report, however, since only one set of tables of the ideal gas properties was desired for each substance. The method used herein was the temperature-dependent cutoff technique of reference 25. The values of the energy levels used were taken from reference 29 and include the additions or corrections to these values given in references 30 and 31.

For 16 of the 18 elements considered herein, the thermodynamic properties of the monatomic gases for the temperatures tabulated are the same, to at least two or three significant figures, whether calculated

with a fixed number of terms or a varying number depending on temperature. The two exceptions are lithium and sodium. Compared with the data in reference 4, the data herein agree to about 4000° K for lithium and to about 3000° K for sodium and then become increasingly different as the temperature increases. The following table for C_p^o illustrates the difference:

Temperature, °K	Li		Na	
	Reference 4	This investigation	Reference 4	This investigation
3000	5.209	5.209	5.089	5.088
4000	5.818	5.813	5.604	5.564
5000	6.886	6.717	7.147	6.546
6000	8.787	7.940	10.716	8.098

THERMODYNAMIC FUNCTIONS OF CONDENSED SUBSTANCES

Thermodynamic functions are given for the following condensed substances: (1) the elements Li, Be, B, C, Na, Mg, Al, Si, P, and S and (2) the compounds Li_2O, LiOH, LiF, LiCl, BeO, B_2O_3, BN, MgO, MgF_2, Al_2O_3, and AlF_3.

For a few of these substances, C_p^o, $H_T^o - H_0^o$, and S_T^o were all taken from the literature for all or part of the temperature range tabulated herein. In most cases, however, C_p^o data were integrated to obtain enthalpy and entropy. The C_p^o data either were the only data available, or were derived from enthalpy data, or were estimated.

Two methods of integration were used. For low temperatures (between the limits of 0° and approximately 5° to 50° K), one of the following equations was used:

$$C_p^o = AT^n \tag{11}$$

$$C_p^o = AT + BT^3 \tag{12}$$

(In eq. (11), the value of n for different substances varied from 2 to 3.) Values of $H_T^o - H_0^o$ and S_T^o above these initial temperatures were obtained by the second integration method, which analytically fitted a quadratic equation to each set of three successive points (i.e., the first three points and then the second, third, and fourth points, etc.). Each equation was used to calculate enthalpy and entropy increments between the first pair of points in each set. Detailed discussion of the

treatment of data for individual substances is given in appendix C.

DISCUSSION OF TABLES

Tables I and II contain the molecular constants used to calculate thermodynamic functions for the diatomic and the polyatomic gases, respectively. Table III contains the thermodynamic properties of the 210 gaseous and condensed species from 0° to 6000° K. Table IV is a summary of heats of formation at 0° and 298.15° K. Table V lists temperature coefficients for polynomial equations (given subsequently) representing the thermodynamic functions. Each kind of data will be discussed in detail.

Molecular Constants

Molecular constants of diatomic gases are given in table I, of polyatomic gases assumed to be harmonic oscillators in table II(a), and of polyatomic gases with anharmonic constants in table II(b). When available, these constants were taken from the literature; otherwise, the constants were estimated.

Estimation techniques. - Two general techniques were used to estimate molecular constants when they were not available. These are (1) estimation based on known data of the molecule and (2) estimation based on trends evidenced in similar molecules.

Some of the ways that missing constants were estimated from known data of the molecule are

(1) Using the Birge-Sponer linear extrapolation equation (ref. 32):

$$D_0^0 = \frac{\omega_e^2}{4\omega_e x_e} - \frac{1}{2}\omega_e \tag{13}$$

(2) Assuming the proportionality of upper-state to lower-state data (ref. 16):

$$\frac{\omega_e''}{B_e''} = \frac{\omega_e'}{B_e'} \tag{14}$$

$$\frac{\omega_0'' x_0''}{\omega_0''} = \frac{\omega_0' x_0'}{\omega_0'} \tag{15}$$

$$\frac{\alpha_e''}{B_e''} = \frac{\alpha_e'}{B_e'} \tag{16}$$

(3) Using relations involving vibrational, rotational, and correction constants (ref. 16):

$$\alpha_e = \frac{6\sqrt{\omega_e x_e B_e^3}}{\omega_e} - \frac{6B_e^2}{\omega_e} \tag{17}$$

$$D_e = \frac{4B_e^3}{\omega_e^2} \tag{18}$$

$$\omega_e = \nu + 2\omega_e x_e \tag{19}$$

The trends apparent in molecules with similar structures or with the same atoms include the following:

(1) The variation of ω_e or α_e/B_e with atomic number

(2) The variation of force constants with interatomic distances or ionization potentials

(3) The approximate equality of frequencies or structural parameters (bond lengths and angles) in molecules containing the same atoms

Specific estimating techniques for individual species are given in appendix C and in the footnotes to tables I and II.

Adjustment for isotopes. - The spectroscopic constants of the diatomic molecules were adjusted for the presence of the more abundant isotopes. If the constants for the isotopic molecules were not available, these constants were calculated according to the methods described in reference 16 (pp. 141 to 144). The abundances were taken from reference 33. When it was necessary to estimate the constants, no adjustment was made.

Most of the spectroscopic constants for the polyatomic molecules were not adjusted for the presence of isotopes. Occasionally, adjustments were made when separate data for the isotopic molecules were available. The atomic weights (ref. 34) used in the calculation of the molecular weights and the moments of inertia were based on the assumption of an isotopic mixture of the elements.

Moments of inertia. - When the rotational constants A_e, B_e, and C_e were not available from spectroscopic data, they were calculated from the principal moments of inertia I_A, I_B, and I_C by means of the usual definitions; for example,

$$B_e = \frac{h}{8\pi^2 c I_B} = \frac{2.79889\times10^{-39}}{I_B} \qquad (cm^{-1}) \tag{20}$$

The principal moments of inertia about the center of mass were calculated with the atoms assumed to be at their equilibrium positions. For most molecules, the center of mass and the principal axes are easily located from considerations of symmetry. For diatomic molecules, for example,

$$I_B = \mu r_e^2 \tag{21}$$

where μ is the reduced mass and r_e is the equilibrium interatomic distance.

In some cases, however, the molecules are unsymmetric or otherwise structurally complex. The calculation of the moments of inertia was simplified by the method described in reference 35, which was programed for an IBM 7090 computer. Any convenient set of orthogonal axes may be chosen. The program then calculates the moments of inertia and the products of inertia, corrected for displacement of the coordinate system from the center of mass. The symmetric matrix, the diagonal elements of which are the moments of inertia and the off-diagonal elements of which are the products of inertia, was diagonalized to obtain the principal moments.

A systematic technique was employed to minimize the necessary input to the moments-of-inertia program. General equations were derived for each atom coordinate in terms of the corresponding bond lengths and angles. Incorporating these equations into the moments-of-inertia program reduced the input to bond lengths and angles. This technique minimized hand calculations and eliminated consideration of symmetry. In addition to reducing the possibility of error, this method also facilitated the incorporation of refined structural data as they became available. The moments of inertia are listed together with the spectroscopic constants in table II(a).

Thermodynamic Properties

The thermodynamic properties C_p^o, $H_T^o - H_0^o$, S_T^o, $-(F_T^o - H_0^o)$, H_T^o, $(\Delta H_T^o)_f$, $\log_{10} K_f$, ΔH_T^o, and $\log_{10} K$, are given in table III. Data are tabulated at 100° intervals from 0° to 6000° K for the ideal gases. Data for the solids extend up to the melting point, or if the solid sublimes, usually to a temperature somewhat beyond the sublimation point. Data for the liquids are tabulated from the melting point to a temperature somewhat beyond the normal boiling point.

The thermodynamic functions C_p^o, $H_T^o - H_0^o$, S_T^o, and $-(F_T^o - H_0^o)$ have previously been discussed. The remaining quantities are discussed in

the following sections. Since the quantities involve assigned reference elements, a discussion of assigned reference elements is given first.

Assigned reference elements. - The assigned reference elements are the following: the inert gases, He, Ne, and Ar; the diatomic gases, H_2, N_2, O_2, F_2, and Cl_2; and the condensed elements, Li(c,l), Be(c,l), B(c,l), C(graphite), Na(c,l), Mg(c,l), Al(c,l), Si(c,l), P(c IV,c III,l), and S(c II,c I,l) where c is the crystal phase and l is the liquid phase. For the condensed elements with only one crystal phase, the indicated solid phase is the reference element up to the melting point, and the liquid phase is the reference element above the melting point. For phosphorus, the white crystal IV is the reference element up to 195.4° K, and the white crystal III is the reference element from 195.4° K to the melting point. For sulfur, the rhombic II crystal is the reference element up to 368.54° K, and the monoclinic I crystal is the reference element from 368.54° K to the melting point. When a reaction involves formation from condensed elements, the heat of formation and the logarithm of the equilibrium constant are given only in the temperature range in which functions for the condensed elements are tabulated.

Assigned enthalpy values. - For some applications (see ref. 36) it is convenient to combine sensible enthalpy and chemical energies into one numerical value. An arbitrary base may be adopted for assigning values to the enthalpy of the various substances, inasmuch as only differences in enthalpy are measurable. The arbitrary base selected in this report was a value of zero at 298.15° K for the assigned reference elements given in the previous section. This selection was made so that the $H^{\circ}_{298.15}$ values of the various substances would be equal to their heats of formation from the assigned reference elements.

Heats of formation. - Two sets of values for heats of formation are given in table III: one set is for the formation of the various substances from elements in the assigned reference state $(\Delta H^{\circ}_{T})_f$, and the other set is for the formation from elements in an atomic gas state ΔH°_{T}. For CO at 298.15° K, for example,

$$\left(\Delta H^{\circ}_{298.15}\right)_f = \left(H^{\circ}_{298.15}\right)_{CO(g)} - \left(H^{\circ}_{298.15}\right)_{C(graphite)} - \frac{1}{2}\left(H^{\circ}_{298.15}\right)_{O_2(g)} \tag{22}$$

$$\Delta H^{\circ}_{298.15} = \left(H^{\circ}_{298.15}\right)_{CO(g)} - \left(H^{\circ}_{298.15}\right)_{C(g)} - \left(H^{\circ}_{298.15}\right)_{O(g)} \tag{23}$$

For convenience, the heats of formation at 0° and 298.15° K are summarized in table IV.

For most molecules, heats of formation were obtained from experimental measurements reported in the literature. In some cases, the experimental values of heats of formation were obtained directly from reactions involving the reference elements or gaseous atoms. In other cases, they were obtained indirectly from thermochemical measurements involving the substance together with substances of known heats of formation. Experimental data appear in such forms as heats of formation, dissociation, vaporization, sublimation, fusion, polymerization, and solution. It was often necessary to correct the data from the reaction temperature to the convenient temperatures 298.15° or 0° K.

When heats of formation were not available from either direct or indirect measurements, they were estimated from related substances. Heats of formation were estimated, in general, by assuming that the same bonds in similar molecules have equal bond energies. The heat of formation of BOCl, for example, can be estimated by assuming that the B=O bond energy in BOCl is the same as that in BOF and that the B–Cl and the B–F bond energies are one-third of the heat of atomization of BCl_3 and BF_3, respectively. Therefore,

$$\left(\Delta H_T^\circ\right)_{BOCl} = \left(\Delta H_T^\circ\right)_{BOF} - \frac{1}{3}\left(\Delta H_T^\circ\right)_{BF_3} + \frac{1}{3}\left(\Delta H_T^\circ\right)_{BCl_3} \tag{24}$$

Specific techniques for estimation or calculation of heats of formation are discussed for individual molecules in appendix C.

Equilibrium constants. - Two sets of logarithms of the equilibrium constants for the two formation reactions discussed in the previous section are also listed in table III. The equilibrium constant K_f for formation from the assigned reference elements is obtained from the standard free-energy change by means of the equation

$$\log_{10} K_f = \frac{-\left(\Delta F_T^\circ\right)_f}{2.3025851\ RT} \tag{25}$$

where, for example, for CO at 298.15° K,

$$\left(\Delta F_{298.15}^\circ\right)_f = \left(F_{298.15}^\circ\right)_{CO(g)} - \left(F_{298.15}^\circ\right)_{C(graphite)} - \frac{1}{2}\left(F_{298.15}^\circ\right)_{O_2(g)} \tag{26}$$

Values of F_T° may be obtained from table III by means of the equation

$$F_T^\circ = H_T^\circ - TS_T^\circ$$

The equilibrium constant K, for formation from the atomic gases, is obtained from a similar equation:

$$\log_{10} K = \frac{-\Delta F_T^o}{2.3025851\ RT} \tag{27}$$

where, for example, for CO at 298.15° K,

$$\Delta F_{298.15}^o = \left(F_{298.15}^o\right)_{CO(g)} - \left(F_{298.15}^o\right)_{C(g)} - \left(F_{298.15}^o\right)_{O(g)} \tag{28}$$

Physical constants. - Atomic weights were taken from reference 34. The value of R = 1.98726 calories per mole per °K, which was used to convert equations (1) to (4) to dimensional form, and the constants used in the evaluation of the entropy constant were taken from reference 37.

The atomic weights, as well as R, are based on the chemical scale of natural oxygen, O = 16.0000. The more recent 1961 Table of Atomic Weights (ref. 38) is based on the exact weight of 12 for carbon 12. In the 1961 table, natural oxygen has an atomic weight of 15.9994, which implies a revised value of R of 1.98718 calories per mole per °K.

The 1961 atomic weights and the corresponding value of R of 1.98718 calories per mole per °K were not used herein because the calculation of the thermodynamic functions was essentially complete at the time the new weights became available; the effect on the thermodynamic functions is small (of the order of 0.004 percent).

Temperature Coefficients for Thermodynamic Functions

For some applications, the expression of thermodynamic data in functional form may be convenient. The program described in reference 36 for the calculation of equilibrium compositions and rocket performance, for example, uses thermodynamic data in functional form. Coefficients have been obtained and are presented in table V for the following polynomial equations in T:

$$\frac{C_p^o}{R} = a_1 + a_2T + a_3T^2 + a_4T^3 + a_5T^4 \tag{29}$$

$$\frac{H_T^o}{RT} = a_1 + \frac{a_2}{2}T + \frac{a_3}{3}T^2 + \frac{a_4}{4}T^3 + \frac{a_5}{5}T^4 + \frac{a_6}{T} \tag{30}$$

$$\frac{S_T^o}{R} = a_1 \ln T + a_2T + \frac{a_3}{2}T^2 + \frac{a_4}{3}T^3 + \frac{a_5}{4}T^4 + a_7 \tag{31}$$

$$\frac{F_T^o}{RT} = a_1(1 - \ln T) - \frac{a_2}{2} T - \frac{a_3}{6} T^2 - \frac{a_4}{12} T^3 - \frac{a_5}{20} T^4 + \frac{a_6}{T} - a_7 \tag{32}$$

A set of coefficients was obtained for each of two temperature intervals, 300° to 1000° K and 1000° to 5000° K. Each set was forced to give the same values for the functions at the common point, 1000° K.

Except for a few atomic gases and condensed species, the coefficients were obtained by means of a simultaneous least-squares fit of C_p^o/R, H_T^o/RT, and S_T^o/R, as described in reference 2. For the atomic gases, Ar, H, He, and Ne, $C_p^o/R = 2.5000$ for all temperatures tabulated and, therefore, $a_1 = 2.5000$ and $a_2 = a_3 = a_4 = a_5 = 0$. The least-squares method was not used to obtain coefficients for a temperature range over which a condensed substance had a constant or linear heat capacity.

Table V is the direct output of an IBM 7090 program. For this reason, the numerical parts of the chemical formulas are not printed as subscripts. In addition, in order to accommodate the chemical-equilibrium program of reference 36, numerical coefficients of 1 are also included, whereas in the conventional notation they are not. For example, $H_2O(g)$ appears in table V as H201(G). The values of the coefficients are given in floating-point notation, where the decimal number given by the first sign and the first eight digits is to be multiplied by 10 raised to the power of the sign and the two digits following the letter E; for example, -1.0000000E-03 is $-1.0000000\times10^{-3} = -0.001$. If the number or the exponent is positive, a blank, rather than a plus sign, is used. Some additional examples are as follows: -1.0000000E 03 is $-1.0000000\times10^{3} = -1000.0$ and 1.0000000E 00 is $1.0000000\times10^{0} = 1.0$.

Lewis Research Center
National Aeronautics and Space Administration
Cleveland, Ohio, March 22, 1963

APPENDIX A

SYMBOLS

A_e, B_e, C_e	rotational constants corresponding to equilibrium separation of atoms, cm^{-1}
A_0, B_0, C_0	rotational constants for lowest vibrational state, cm^{-1}
$a_i (i=1,2,\ldots,7)$	temperature coefficients for polynomial equations of thermodynamic functions
C_p^o	heat capacity at constant pressure for standard state, cal/mole ^oK
c	velocity of light, 2.997930×10^{10} cm/sec; or crystal phase of chemical substance
c_2	second radiation constant, hc/k, 1.43880(cm)(deg)
D_e, D_v	spectroscopic constants for rotational stretching, cm^{-1}
D_T^o	bond dissociation energy, cal/mole
D_0, D_{000}	rotational stretching constants for lowest vibrational state, cm^{-1}
D_0^o	dissociation energy measured from lowest vibrational energy level (v = 0)
d_i	degeneracy associated with ν_i
F_e	spectroscopic constant for rotational stretching, cm^{-1}
F_T^o	Gibbs free energy for standard state, cal/mole
$F_T^o - H_0^o$	sensible free energy for standard state, cal/mole
g	gas phase of substance
g_e	electronic statistical weight
g_{ii}	anharmonicity constant for doubly degenerate vibrations in linear molecules, cm^{-1}
H_e, H_v	spectroscopic constants for rotational stretching, cm^{-1}
H_T^o	sum of sensible enthalpy and chemical energy at 0° K for standard state, cal/mole

H_0^o	chemical energy at 0° K for standard state, cal/mole
$H_T^o - H_0^o$	sensible enthalpy for standard state, cal/mole
ΔH_T^o	enthalpy change for formation of substance from elements in atomic gas state, cal/mole
$(\Delta H_T^o)_f$	enthalpy change for formation of substance from elements in assigned reference state, cal/mole
$(\Delta H_T^o)_s$	heat of sublimation, cal/mole
$(\Delta H_T^o)_v$	heat of vaporization, cal/mole
h	Planck's constant, 6.62517×10^{-27} (erg)(sec)
I_A, I_B, I_C	principal moments of inertia, (g)(cm^2)/molecule
J	rotational quantum number
K	equilibrium constant for reaction of formation from elements in atomic gas state
K_f	equilibrium constant for reaction of formation from elements in assigned reference state
k	Boltzmann constant, 1.38044×10^{-16} erg/deg
$k_i, k_\delta/l^2, k_\delta/l_1 l_2, k_\Delta/l^2, k_\Delta/l_1 l_2$	force constants, dynes/cm
l	liquid phase of substance; or bond length, cm
M	molecular weight based on chemical scale of natural oxygen
n	number of unique frequencies
p	partial pressure, atm
Q	internal partition function
Q_a	anharmonic correction factor to partition function
Q_e	electronic partition function
Q^m	internal partition function for m^{th} electronic state
Q_R	classical-rotation partition function

Q_{RV}	vibration-rotation interaction correction factor to partition function
Q_V	harmonic-oscillator partition function
Q_θ	low-temperature rotational correction factor to partition function
Q_ρ	rotational-stretching correction factor to partition function
R	universal gas constant, 1.98726 cal/mole ^oK
r	internuclear distance, A
r_e	equilibrium internuclear distance, A
S_T^o	entropy for standard state, cal/mole ^oK
T	temperature, ^oK
T_e	electronic energy transition between potential curve minimums of ground and excited state, cm^{-1}
T_0	electronic excitation energy between lowest vibrational states (v = 0) of ground and excited state, cm^{-1}
u_i	$c_2\nu_i/T$
v	vibrational quantum number
W_0	Fermi resonance constant, cm^{-1}
$x_{ij}, y_{ijk}, x_{ll}, y_{333}^o, y_{ill}, z_{3333}$	anharmonicity constants for polyatomic molecules, cm^{-1}
α_e, α_i	vibration-rotation interaction constants for diatomic molecules, cm^{-1}
$\alpha_i^A, \alpha_i^B, \alpha_i^C$	vibration-rotation interaction constants for polyatomic molecules, cm^{-1}
β_i	rotational-stretching - vibration interaction constant, cm^{-1}
γ_{ij}	vibration-rotation interaction constants, cm^{-1}
ν_i	observed fundamental frequency, cm^{-1}

ρ	rotational-stretching spectroscopic constant, $^{o}K^{-1}$
σ	symmetry number
ω_e	zero-order vibrational frequency for diatomic molecule, cm^{-1}
$\omega_e x_e, \omega_e y_e, \omega_e z_e$	anharmonicity constants for diatomic molecules, cm^{-1}
ω_0	$\omega_e - \omega_e x_e + \frac{3}{4}\omega_e y_e + \frac{1}{2}\omega_e z_e$
$\omega_0 x_0$	$\omega_e x_e - \frac{3}{2}\omega_e y_e - \frac{3}{2}\omega_e z_e$

Superscripts:

'	upper electronic state
"	lower electronic state

APPENDIX B

PARTITION FUNCTIONS AND THEIR DERIVATIVES FOR DIATOMIC AND POLYATOMIC MOLECULES

The general form of the partition function used for most of the gases considered herein is given by equation (8), which is repeated for convenience:

$$Q^m = (Q_e Q_V Q_R Q_a Q_{RV} Q_\rho Q_\theta)^m \tag{8}$$

The first three factors Q_e, Q_V, and Q_R are finite quantities. The other four factors in equation (8) are actually nonconvergent infinite series, but for the practical purpose of numerical evaluation they must be terminated at some point. For Q_θ, four terms are used. The series for any one of the remaining three factors can be represented by Q_φ as follows:

$$Q_\varphi = 1 + \varphi + \frac{\varphi^2}{2} + \frac{\varphi^3}{6} + \ . \ . \ . + R_n \tag{B1}$$

where R_n contains the remaining terms (not all of them simple powers of φ).

From equation (B1), Q_φ may be approximated as

$$\left.\begin{aligned} Q_\varphi &= e^\varphi \\ \text{or} \qquad \ln Q_\varphi &= \varphi \end{aligned}\right\} \tag{B2}$$

The form of the partition function in (B2) is used herein for Q_a, Q_{RV}, and Q_ρ, inasmuch as it is a better approximation to equation (B1) than a truncated form of equation (B1), such as

$$Q_\varphi = 1 + \varphi + \frac{\varphi^2}{2} \tag{B3}$$

Detailed expressions for the seven factors in equation (8) and their derivatives are given as follows:

Electronic partition function:

$$Q_e = g_e \exp\left(\frac{-c_2 T_0}{T}\right) \tag{B4}$$

$$T \frac{d(\ln Q_e)}{dT} = \frac{c_2 T_0}{T} \tag{B5}$$

$$T^2 \frac{d^2(\ln Q_e)}{dT^2} = \frac{-2c_2T_0}{T} \tag{B6}$$

where

g_e electronic statistical weight

$c_2 = hc/k = 1.43880$ (cm)(deg)

T_0 excitation energy, cm^{-1}

Harmonic oscillator partition function:

$$Q_V = \prod_{i=1}^{n} \left(1 - e^{-u_i}\right)^{-d_i} \tag{B7}$$

$$T \frac{d(\ln Q_V)}{dT} = \sum_{i=1}^{n} \frac{d_i u_i}{e^{u_i} - 1} \tag{B8}$$

$$T^2 \frac{d^2(\ln Q_V)}{dT^2} = \sum_{i=1}^{n} \frac{d_i u_i^2 e^{u_i}}{\left(e^{u_i} - 1\right)^2} - 2T \frac{d(\ln Q_V)}{dT} \tag{B9}$$

where

n number of unique frequencies

d_i degeneracy

$u_i = c_2\nu_i/T$

For diatomic molecules (n = 1), ν_1 is calculated from the relation

$$\nu_1 = \omega_e - 2\omega_e x_e + 3.25\ \omega_e y_e + 5\omega_e z_e \tag{B10}$$

Classical-rotator partition function for diatomic and linear polyatomic molecules:

$$Q_R = \frac{T}{c_2 B_0} \tag{B11}$$

$$T \frac{d(\ln Q_R)}{dT} = 1 \tag{B12}$$

$$T^2 \frac{d^2(\ln Q_R)}{dT^2} = -1 \tag{B13}$$

where

$$B_0 = B_e - \frac{\alpha_1}{2} + \frac{\alpha_2}{4} + \frac{\alpha_3}{8}$$

(Note that α_1 and α_2 are given as α_e and γ_e in ref. 16.)

Classical-rotator partition function for nonlinear polyatomic molecules:

$$Q_R = \left(\frac{T}{c_2}\right)^{3/2}\left(\frac{\pi}{A_0B_0C_0}\right)^{1/2} \frac{1}{\sigma} \tag{B14}$$

$$T \frac{d(\ln Q_R)}{dT} = \frac{3}{2} \tag{B15}$$

$$T^2 \frac{d^2(\ln Q_R)}{dT^2} = -\frac{3}{2} \tag{B16}$$

where

σ symmetry number

$$A_0 = A_e - \frac{1}{2}\sum_{i=1}^{n} d_i\alpha_i^A$$

$$B_0 = B_e - \frac{1}{2}\sum_{i=1}^{n} d_i\alpha_i^B$$

$$C_0 = C_e - \frac{1}{2}\sum_{i=1}^{n} d_i\alpha_i^C$$

Anharmonic correction factor:

$$\ln Q_a = \sum_{i\leq j}^{n} \frac{d_i(d_j + \delta_{ij})X_{ij}}{(e^{u_i} - 1)(e^{u_j} - 1)} \tag{B17}$$

$$T\,\frac{d(\ln Q_a)}{dT} = \sum_{i\leq j}^{n} \frac{d_i(d_j + \delta_{ij})X_{ij}}{(e^{u_i} - 1)(e^{u_j} - 1)}\left(\frac{u_i e^{u_i}}{e^{u_i} - 1} + \frac{u_j e^{u_j}}{e^{u_j} - 1} - 1\right) \qquad \text{(B18)}$$

$$T^2\,\frac{d^2(\ln Q_a)}{dT^2} = \sum_{i\leq j}^{n} \frac{d_i(d_j + \delta_{ij})X_{ij}}{\left(e^{u_i} - 1\right)\left(e^{u_j} - 1\right)}\left[\frac{2u_i^2 e^{2u_i}}{\left(e^{u_i} - 1\right)^2} + \frac{2u_i u_j e^{u_i} e^{u_j}}{\left(e^{u_i} - 1\right)\left(e^{u_j} - 1\right)}\right.$$

$$\left. + \frac{2u_j^2 e^{2u_j}}{\left(e^{u_j} - 1\right)^2} - \frac{u_i e^{u_i}(u_i + 4)}{e^{u_i} - 1} - \frac{u_j e^{u_j}(u_j + 4)}{e^{u_j} - 1} + 2\right] \qquad \text{(B19)}$$

where

$$\delta_{ij} = \begin{cases} 0 & \text{for } i \neq j \\ 1 & \text{for } i = j \end{cases}$$

For polyatomic molecules,

$$X_{ii} = \frac{-c_2}{T}\left(x_{ii} + \frac{g_{ii} + B_0}{3}\right)$$

which was derived in reference 14 ($g_{ii} + B_0 = 0$ for $d_i \neq 2$), and

$$X_{ij} = \frac{-c_2 x_{ij}}{T}$$

(Note that the g_{ii} appearing in the expression for X_{ii} is the one generally given by the spectroscopist in which the $-Bl^2$ term is included in the expression for $G_0(v_1,v_2, \ldots)$. See footnote 5 of ref. 14 and p. 371 of ref. 12.)

For diatomic molecules ($i = j = 1$), X_{11} is analogous to $(c_2/T)\omega_e x_e$. When the higher-order anharmonic constants $\omega_e y_e$ and $\omega_e z_e$ are available, an adjusted value for the first-order anharmonicity in equations (B17) to (B19) can be obtained, by defining X_{11} to be

$$X_{11} = \frac{c_2}{T}(\omega_e x_e)^* = \frac{c_2}{T}(\omega_e x_e - 4.5\,\omega_e y_e - 14.5\,\omega_e z_e) \qquad \text{(B20)}$$

Equation (B20) was derived to give an adjusted value $(\omega_e x_e)^*$ so that for the vibrational levels $v = 1$ and 2 the same frequencies for $G_0(v)$ in equation (6) are obtained with ω_e and $(\omega_e x_e)^*$ as with ω_e, $\omega_e x_e$, $\omega_e y_e$, and $\omega_e z_e$.

Vibration-rotation interaction factor:

$$\ln Q_{RV} = \sum_{i=1}^{n} \frac{d_i r_i}{e^{u_i} - 1} \tag{B21}$$

$$T \frac{d(\ln Q_{RV})}{dT} = \sum_{i=1}^{n} \frac{d_i r_i u_i e^{u_i}}{\left(e^{u_i} - 1\right)^2} \tag{B22}$$

$$T^2 \frac{d^2(\ln Q_{RV})}{dT^2} = \sum_{i=1}^{n} \frac{d_i r_i u_i e^{u_i}}{\left(e^{u_i} - 1\right)^2} \left(\frac{2u_i e^{u_i}}{e^{u_i} - 1} - u_i - 2\right) \tag{B23}$$

For diatomic molecules,

$$r_1 = b_1 + b_1^2$$

For linear polyatomic molecules,

$$r_i = b_i + b_i^2$$

For nonlinear molecules,

$$r_i = \frac{a_i + b_i + c_i}{2} + \frac{a_i^2 + b_i^2 + c_i^2}{4} + \frac{(a_i + b_i + c_i)^2}{8}$$

where

$a_i = \alpha_i^A / A_0$

$b_i = \alpha_i^B / B_0$

$c_i = \alpha_i^C / C_0$

For diatomic molecules, α_1^B is obtained from

$$\alpha_1^B = \alpha_1 - 2\alpha_2 - 3.25\ \alpha_3 \tag{B24}$$

Analogously with equation (B20) for anharmonicities, equation (B24) was derived to give an adjusted value for the first-order vibration-rotation interaction term α_1^B so that for the vibrational levels $v = 0$ and 1, the same B_v values are obtained from equation (6) with B_e and α_1^B as with B_e, α_1, α_2, and α_3 (B_v is the coefficient of $J(J + 1)$ in eq. (6)).

Rotational-stretching correction factor:

$$\ln Q_\rho = \rho T \tag{B25}$$

$$T \frac{d(\ln Q_\rho)}{dT} = \rho T \tag{B26}$$

$$T^2 \frac{d^2(\ln Q_\rho)}{dT^2} = 0 \tag{B27}$$

For diatomic and linear polyatomic molecules,

$$\rho = \frac{2D}{c_2 B_0^2}$$

where

$$D = \begin{cases} D_e + \frac{\beta_1}{2} + \frac{\beta_2}{4} + \frac{\beta_3}{8} & \text{for diatomic molecules} \\ D_{000} & \text{for linear polyatomic molecules} \end{cases}$$

For nonlinear molecules, ρ is taken directly from the literature.

Low-temperature rigid-rotator correction factor:

$$\ln Q_\theta = \frac{\theta_1}{T} + \frac{\theta_2}{T^2} + \frac{\theta_3}{T^3} \tag{B28}$$

$$T \frac{d(\ln Q_\theta)}{dT} = -\frac{\theta_1}{T} - \frac{2\theta_2}{T^2} - \frac{3\theta_3}{T^3} \tag{B29}$$

$$T^2 \frac{d^2(\ln Q_\theta)}{dT^2} = \frac{2\theta_1}{T} + \frac{6\theta_2}{T^2} + \frac{12\theta_3}{T^3} \tag{B30}$$

For diatomic and linear polyatomic molecules,

$$\theta_1 = \frac{c_2 B_0}{3}$$

$$\theta_2 = \frac{(c_2 B_0)^2}{15}$$

$$\theta_3 = \frac{4(c_2 B_0)^3}{315}$$

For nonlinear molecules,

$$\theta_1 = \frac{c_2}{12}\left[2(A_0 + B_0 + C_0) - \frac{A_0 B_0}{C_0} - \frac{A_0 B_0}{B_0} - \frac{B_0 C_0}{A_0}\right]$$

$$\theta_2 = \frac{c_2^2}{480}\left[10\left(A_0^2 + B_0^2 + C_0^2\right) + 12(A_0 B_0 + B_0 C_0 + A_0 C_0) - 12\left(\frac{A_0^2 B_0 + A_0 B_0^2}{C_0} + \frac{B_0^2 C_0 + B_0 C_0^2}{A_0} + \frac{A_0^2 C_0 + A_0 C_0^2}{B_0}\right) + 7\left(\frac{A_0^2 B_0^2}{C_0^2} + \frac{A_0^2 C_0^2}{B_0^2} + \frac{B_0^2 C_0^2}{A_0^2}\right)\right]$$

(The θ_3/T^3 term was ignored for nonlinear molecules.)

APPENDIX C

DISCUSSION OF PARTICULAR SUBSTANCES

Special treatments of data for particular substances are described herein. These details provide further explanation of the tables and of certain discussions in the text. The following three general areas are included:

(1) Smoothing, interpolation, or extrapolation of thermodynamic functions for condensed substances and a few gases

(2) Estimation techniques to obtain vibrational frequencies and structural parameters

(3) Estimation techniques to obtain heats of formation or details involved in the indirect calculation of heats of formation, (including, when needed, heats of formation not given in table IV)

Al (Crystal, Liquid)

Heat-capacity data for the crystal were taken from a curve drawn to follow closely the data of reference 39 from 15° to 290° K and reference 40 from 340° to 932° K, the melting point. See page 8 for discussion of integration for enthalpy and entropy.

The heat of fusion, 2570 calories per mole, and the constant heat capacity of the liquid, 7 calories per mole per °K, were taken from reference 40.

$AlCl_3$ (Gas)

The frequency ν_3 was taken from reference 41. The remaining frequencies were obtained by using equations (II,210), (II,211), and (II,212) in reference 12 with some estimated force constant relations obtained from the boron trihalides. The constants k_δ/l^2, k_Δ/l^2, and k_1 were calculated from ν_3 and from the assumptions that $k_\delta/l^2 = (1/25)k_1$ (ref. 41) and $k_\Delta/l^2 = (1/10)k_1$. Thus, $k_1 = 2.476\times10^5$ dynes per centimeter, $k_\delta/l^2 = 0.0990\times10^5$ dynes per centimeter, and $k_\Delta/l^2 = 0.2476\times10^5$ dynes per centimeter.

A plane symmetrical structure was assumed (ref. 41). The bond length $r = 2.14$ A was estimated from AlCl.

AlF_3 (Gas)

The frequencies were estimated by using equations (II,210), (II,211), and (II,212) in reference 12. The force constant k_1 was assumed to be in the same ratio to the AlF force constant as the force constant of $AlCl_3$ is to that of AlCl. The same relations between this stretching constant and the bending force constants assumed for the $AlCl_3$ molecule were assumed for AlF_3. Thus $k_1 = 5\times10^5$ dynes per centimeter, $k_\delta/l^2 = 0.2\times10^5$ dynes per centimeter, and $k_\Delta/l^2 = 0.5\times10^5$ dynes per centimeter.

A plane symmetrical structure was assumed. The bond length r = 1.7 A was estimated from AlF.

The heat of formation was calculated from the heat of sublimation.

AlF_3 (α, β)

Below 300° K, the heat capacity was taken from reference 42, and the enthalpy and entropy increments were obtained by the analytical method described on page 8. From 400° to the transition point, 727° K, C_p°, $H_T^\circ - H_0^\circ$, and S_T° were derived from the enthalpy equation for the alpha phase of reference 43. The heat-capacity data from these two references join smoothly.

For the beta phase (above 727° K), C_p°, $H_T^\circ - H_0^\circ$, and S_T° were also obtained from the appropriate enthalpy equation of reference 43.

Al_2O (Gas)

The Al—O bond length, 1.6 A, was estimated from the diatomic molecule, AlO. The AlOAl bond angle, 110°, was estimated by reference 44.

Al_2O_2 (Gas)

A planar ring structure was assumed (ref. 44). The Al—O bond length length, 1.6 A, and the AlOAl bond angle, 110°, were considered to be the same as the estimates for Al_2O.

Al_2O_3 (Crystal, Liquid)

For the solid, C_p°, $H_T^\circ - H_0^\circ$, and S_T° at temperatures up to 1200° K were taken directly from reference 45. The C_p° data join smoothly to those calculated from the heat-capacity equation given in reference 46. Above 1200° K to the melting point, 2318° K, C_p°, $H_T^\circ - H_0^\circ$, and S_T° were calculated from the heat-capacity equation of reference 46 and the

associated enthalpy and entropy equations.

The heat of fusion, 26,000 calories per mole, was taken from reference 47.

For the liquid, a constant heat capacity, 35 calories per mole per ^{o}K, was estimated for temperatures up to 6000° K.

AlOCl (Gas)

The frequencies were estimated by using equations (II,198), (II,199), and (II,200) of reference 12. The stretching force constants k_1 and k_2 were assumed to be the same as the $AlCl_3$ and AlO constants, respectively. By comparison with other molecules, $k_\delta/l_1 l_2 \approx 0.03(k_1 k_2)^{1/2}$; thus, $k_1 = 2.5\times10^5$ dynes per centimeter, $k_2 = 5.5\times10^5$ dynes per centimeter, and $k_\delta/l_1 l_2 = 0.11\times10^5$ dynes per centimeter.

The structure was assumed to be linear with r(Al–Cl) = 2.14 A from the $AlCl_3$ molecule and r(Al–O) = 1.62 A from AlO.

The heat of formation was calculated from estimated bond dissociation energies:

$$D^{o}_{298}(\text{Cl–AlO}) \approx \frac{1}{3} D^{o}_{298}(AlCl_3) = 102 \text{ kcal/mole}$$

$$D^{o}_{298}(\text{ClAl=O}) \approx D^{o}_{298}(\text{AlOF}) - \frac{1}{3} D^{o}_{298}(AlF_3) = 156 \text{ kcal/mole}$$

AlOF (Gas)

The frequencies were estimated by using equations (II,198), (II,199), and (II,200) in reference 12. The stretching force constants k_1 and k_2 were assumed to be the same as the AlF_3 and AlO constants, respectively. By comparison with other molecules, $k_\delta/l_1 l_2 \approx 0.03(k_1 k_2)^{1/2}$; thus, $k_1 = 5.0\times10^5$ dynes per centimeter, $k_2 = 5.5\times10^5$ dynes per centimeter, and $k_\delta/l_1 l_2 = 0.16\times10^5$ dynes per centimeter.

The structure was assumed to be linear with r(Al–F) = 1.7 A from the AlF_3 molecule and r(Al–O) = 1.62 A from AlO.

B (Amorphous, Liquid)

At temperatures up to 300° K, C^{o}_{p}, $H^{o}_{T} - H^{o}_{0}$, and S^{o}_{T} were taken from reference 48 and in the range 300° to 1000° K, from reference 49. From 1100° to 2379° K, the calculated transition point, the heat capacities calculated in reference 49 from a Debye-Einstein equation were used.

The $H_T^o - H_0^o$ values were converted to H_T^o(amorphous) - H_0^o(c) by use of the heats of formation of B(c) and B(amorphous) from reference 50. Enthalpy and entropy increments at temperatures above 1000° K were obtained by integration as described on page 8.

The free-energy data for the amorphous and the liquid phases imply a transition point at 2379° K and a heat of transition of 4918.5 calories per mole.

For the heat capacity of the liquid, the estimate of 7.5 calories per mole per °K taken from reference 51 was used from 2379° to 6000° K.

B (Crystal, Liquid)

At temperatures up to 300° K, C_p^o, $H_T^o - H_0^o$, and S_T^o were taken from reference 48, and in the range 300° to 1100° K, from reference 49. From 1400° to 2313° K, the melting point (ref. 50), heat capacities calculated in reference 49 from a Debye-Einstein equation were used. Heat-capacity data from 1100° to 1400° K were obtained from a curve joining the heat-capacity data selected for the other temperature ranges. Enthalpy and entropy increments above 1100° K were obtained by integration as described on page 8.

The heat of fusion, 5319.9 calories per mole, was calculated from the estimate of entropy of fusion, 2.3 calories per mole per °K, given in reference 51.

The estimate of 7.5 calories per mole per °K for the heat capacity of the liquid was taken from reference 51.

BCl_2 (Gas)

Frequencies were taken from corresponding BCl_3 frequencies. The bond angle was assumed to be 120°, since the bond angles of NO_2 and NO_3^-, SO_2 and SO_3, and BCl_3 are all 120°. The B–Cl bond length, 1.73 A, was also assumed the same as that in BCl_3.

The heat of formation was estimated from the average bond energy of BCl_3, D_0^o(B–Cl) = 105.4 kilocalories per mole.

BF_2 (Gas)

Frequencies and structure were estimated from BF_3 in a manner analogous to that described for BCl_2.

The bond angle and the bond length were thus estimated to be 120° and 1.295 A, respectively.

The heat of formation was estimated from the average bond energy of BF_3, $D_0^o(B-F)$ = 152.8 kilocalories per mole.

BFCl (Gas)

The frequencies were estimated to be the geometric mean of the corresponding BCl_2 and BF_2 frequencies. (This estimation method using CO_2 and CS_2 frequencies yields frequencies for COS in good agreement with spectroscopic measurements.)

The bond angle and the bond lengths were taken from BF_2 and BCl_2.

The heat of formation was estimated from the average bond energies for BF_2 and BCl_2.

BN (Crystal)

At temperatures below 300° K, C_p^o, $H_T^o - H_0^o$, and S_T^o were taken from reference 52. From 350° to 1650° K, C_p^o was taken from reference 53.

Since C_p^o is constant between 1450° and 1650° K, this value was assumed to apply up to 6000° K. Above 300° K, enthalpy and entropy increments were obtained by integration as described on page 8.

BO_2 (Gas)

The heat of formation was calculated from the following room-temperature reaction reported by reference 54:

$$OH(g) + HBO_2(g) = H_2O(g) + BO_2(g) + 16 \text{ kcal}$$

B_2O_3 (Gas)

Frequencies were taken from reference 55. Of two possible values given for ν_4, the higher value was chosen arbitrarily.

Reference 55 suggests a C_{2v} (symmetry group) structure with an apex angle between 95° and 150°. An intermediate angle of 120° was used herein.

B_2O_3 (Glass, Liquid)

From 298.15° to 500° K, C_p^o, $H_T^o - H_{298}^o$, and S_T^o for the glass phase were obtained from equation (1) of reference 56. A constant value of C_p^o of 30.45 calories per mole per °K for the liquid was assumed from

560° to 6000° K. This value is given by equation (2) of reference 56 for temperatures from 900° to 1800° K and is almost exactly that given by reference 57 for temperatures from 560° to 625° K.

Reference 57 shows that heat capacity has a rapid rise and a peak in the temperature range of about 500° to 560° K that is due to the change in the material from a glass to a liquid. Heat capacities in this range were so selected as to integrate numerically to an enthalpy value of 1564.7 calories per mole and at the same time to have a similar rapid increase and peak as the data of reference 57. The value of $H^{\circ}_{560} - H^{\circ}_{500} = 1564.7$ calories per mole was obtained from the difference of $H^{\circ}_{560} - H^{\circ}_{298}$ and $H^{\circ}_{500} - H^{\circ}_{298}$ given by equations (2) and (1), respectively, of reference 56.

The values of $(H^{\circ}_{T} - H^{\circ}_{298.15})$(glass) were converted to H°_{T}(glass) - H°_{0}(c) by adding the value of $H^{\circ}_{298.15}$(glass) - H°_{0}(c) = 6578.3 calories per mole. This value was obtained from $(H^{\circ}_{298.15} - H^{\circ}_{0})$(c) = 2218.3 calories per mole (ref. 58) and $H^{\circ}_{298.15}$(glass) - $H^{\circ}_{298.15}$(c) = 4360 calories per mole (ref. 56).

The derived value for entropy at 298.15° K is 18.64 calories per mole per °K compared with the value of 18.9 given in reference 56.

B_2O_3 (Crystal, Liquid)

A heat-capacity curve drawn through the data of references 56 and 58 showed that the values from reference 58 in the range from 100° to 300° K joined smoothly with those from reference 56 in the range from 400° to 723.15° K. From 100° to 300° K, C°_{p}, $H^{\circ}_{T} - H^{\circ}_{0}$, and S°_{T} were taken from reference 58. From 300° to 400° K, the enthalpy and entropy increments were obtained by the analytical method described on page 8. From 400° to 723.15° K, C°_{p} and increments of enthalpy and entropy were derived from equation (1) of reference 56.

The implied heat of fusion and the entropy of fusion are 5626.7 calories per mole and 7.781 calories per mole per °K, respectively, compared with the values of 5270 calories per mole and 7.3 calories per mole per °K, respectively, given in reference 56.

BOCl (Gas)

The bending frequency was assumed to be the average of the bending frequencies of the isoelectronic molecules, COS and ClCN. The two stretching frequencies were obtained from estimated force constants by using equations (II,198) and (II,199) of reference 12. The force constant, $k_2(B{=}O) = 13.86\times10^5$ dynes per centimeter, is taken from B_2O_2 in reference 55. The force constant $k_1(B{-}Cl)$ is expected to be slightly larger than the constant for BCl_3 (4.63×10^5 dynes/cm, ref. 12) and was taken to be 4.8×10^5 dynes per centimeter.

The structure was assumed to be linear with bond lengths, r(B–Cl) = 1.73 A from BCl_3 and r(B=O) = 1.2 A from HOBO.

The heat of formation was estimated from average bond energies. From BCl_3, D_0^o(B–Cl) = 105.4 kilocalories per mole; an average D_0^o(B=O) = 204 kilocalories per mole was calculated from HOBO by using H_3BO_3 data for the B–O bond and from BOF.

$(BOCl)_3$ (Gas)

Five frequencies were taken from the Raman spectrum measurements of reference 333. The remaining frequencies were taken either from similar molecules (refs. 333 and 334) or from molecules assumed to have similar frequencies.

The structure was assumed to be analogous to $(HBO_2)_3$ with r(B–O) = 1.36 A from $(HBO_2)_3$ and r(B–Cl) = 1.73 A from BCl_3.

The equilibrium study of the reaction

$$B_2O_3(l) + BCl_3(g) = (BOCl)_3$$

yielded a heat of formation of -396.7 kilocalories per mole at 298.15° K (information received from J. A. Blauer of Rocket Power, Inc.).

BOF (Gas)

The frequencies were estimated in a manner similar to that for BOCl. The bending frequency was estimated to be the average of the HOBO estimate and an estimate for the isoelectronic molecule, FCN (ν_2 = 450 cm^{-1}). The force constant, k_1(B–F) = 9×10^5 dynes per centimeter, is slightly larger than the constant for BF_3 (8.83×10^5 dynes/cm in ref. 12).

The structure is assumed to be linear with r(B–F) = 1.295 A from BF_3 and r(B=O) = 1.2 A from HOBO.

$(BOF)_3$ (Gas)

Five frequencies were taken from reference 334; four of these frequencies were obtained from infrared measurements. The remaining frequencies were taken either from similar molecules (ref. 333) or from molecules assumed to have similar frequencies.

The structure was assumed to be analogous to that of $(HBO_2)_3$ with r(B–O) = 1.36 A from $(HBO_2)_3$ and r(B–F) = 1.30 A from BF_3.

Be (Crystal, Liquid)

The heat-capacity data for the crystal were obtained from a smooth curve drawn to follow closely the data of reference 59 from 5° to 300° K, reference 60 from 400° to 900° K, and reference 61 from 900° to 1560° K, the melting point. A discussion of integration for enthalpy and entropy is on page 8.

The heat of fusion, 3520 calories per mole, was taken from reference 61. The constant heat-capacity value of 7.2 calories per mole per $^{\circ}$K for the liquid was estimated from the enthalpy data of reference 61.

BeCl (Gas)

The heat of formation was obtained from the following reaction at a temperature of 1500° K:

$$BeCl_2(g) + Be(c) = 2BeCl(g) - 67 \text{ kcal}$$

This heat of reaction is reported by reference 303 as a preliminary value.

$BeCl_2$ (Gas)

The frequency ν_1 was estimated by using equation (II,195) of reference 12 and the force constant, $k_1(Be-Cl) = 2.9\times10^5$ dynes per centimeter, given in reference 62.

The heat of formation was calculated from the heat of sublimation, 34±1 kilocalories per mole, in the range of 496° to 578° K (ref. 63). The correction of the heat of sublimation to 298.15° K is 0.3 kilocalorie per mole, which is less than the uncertainty in the heat of sublimation and was therefore omitted. The heat of formation of the crystal given in reference 64 is $(\Delta H^{\circ}_{298.15})_f = -118.03$ kilocalorie per mole.

BeF (Gas)

A molecular flow effusion study was made of the reaction

$$BeF_2(g) + Be(c,l) = 2BeF(g)$$

that yielded thermodynamic second- and third-law heats of formation at 298.15° K of -48.3 and -50.9 kilocalories per mole (information received from R. E. Yates of Rocket Power, Inc.). These values were averaged to give -49.6 kilocalories per mole.

BeF_2 (Gas)

The frequency ν_1 was estimated by using equation (II,195) of reference 12 and the force constant, $k_1 = 5.0 \times 10^5$ dynes per centimeter, given in reference 62.

BeFCl (Gas)

The frequencies were estimated by using equations (II,198), (II,199), and (II,200) from reference 12 and the force constants for BeF_2 and $BeCl_2$ given in reference 62. The force constant, $k_\delta = 1.13 \times 10^{-11}$ dyne centimeter, was estimated to be the average of the values of k_δ for BeF_2 and $BeCl_2$.

The r(Be—Cl) and r(Be—F) bond distances were assumed to be the same as those given in reference 65 for $BeCl_2$ and BeF_2: r(Be—Cl) = 1.75 A and r(Be—F) = 1.40 A.

The heat of formation was estimated to be the average of the values for $BeCl_2$ and BeF_2.

BeO (Crystal, Liquid)

A heat-capacity curve was faired through the three sets of data reported in the following three references: reference 66 (55.5° to 292.4° K), reference 67 (500° to 700° K), and reference 68 (1200° to the melting point, 2843° K, ref. 69). The heat-capacity data of reference 66 were taken directly, and enthalpy and entropy increments were obtained by the analytical integration technique described on page 8. The enthalpy data of reference 67 from 374° to 1175° K were fitted by the method of least squares to an equation of the form

$$H_T^\circ - H_0^\circ = \frac{a_1}{T} + a_2 + a_3T + a_4T^2$$

Enthalpy from this equation and the heat capacity and the entropy calculated from the corresponding equations were taken in the range of 500° to 700° K. The high-temperature heat capacity was calculated from the equation given in reference 68. The heat capacities at the intermediate temperatures were read from the curve, and enthalpy and entropy increments were obtained analytically.

For the liquid, C_p° was estimated to be constant at 15 calories per mole per °K. The heat of fusion, 17,058 calories per mole, was calculated from an entropy of fusion, $\Delta S_{2843}^\circ = 6$ calories per mole per °K, as suggested in reference 70 for polyatomic molecules.

$(BeO)_2$ (Gas), $(BeO)_3$ (Gas), and $(BeO)_4$ (Gas)

The frequencies for these polymers are the approximate estimates of references 4 (Dec. 31, 1960) and 5.

Also, the planar cyclic structures with r(Be–O) = 1.63 A assumed by these references were used herein.

The heats of formation were calculated from the following heats of vaporization at 2150° K reported by reference 71: 172±8, 161±6, and 177±8 kilocalories per mole for $(BeO)_2$, $(BeO)_3$, and $(BeO)_4$, respectively.

$Be(OH)_2$ (Gas)

The heat of formation was obtained from the following reaction at 1400° K reported in reference 72:

$$BeO(c) + H_2O(g) = Be(OH)_2(g) - 41.5 \text{ kcal}$$

C (Gas)

The heat of formation was calculated from the dissociation energy of CO given in reference 73, D_0° = 256.176 kilocalories per mole.

C (Graphite)

Heat-capacity data were taken from a curve drawn to follow closely the data from the following references: from 13° to 300° K, reference 74; from 300° to 1100° K, reference 75; from 1100° to 2100° K, reference 76; and from 2100° to 3200° K, reference 77. From 3200° to 4000° K the curve was extrapolated to an estimated value of 6.5 calories per mole per °K at 4000° K.

Values of $H_T^\circ - H_0^\circ$ and S_T° at temperatures up to 300° K were taken from reference 74. Above 300° K, enthalpy and entropy increments were obtained by integration as described on page 8.

Reference 78 suggests a method of including the effects of the anisotropy of graphite in the Debye extrapolation of the heat capacity at constant volume. This suggestion was not followed because of uncertainties in converting to C_p° at the higher temperatures.

Although data for the liquid are not included in this report, reference 79 reports a heat of fusion of 10,000 calories per mole at 4000° K.

CCl_4 (Gas)

A regular tetrahedral model was assumed with the bond length, r(C—Cl) = 1.760 A, from reference 80.

CF_2 (Gas)

The frequency ν_3 was estimated by using equations (II,189), (II, 190), and (II,191) of reference 12. The latter two equations and the values of ν_1 and ν_2 (ref. 81) were used to solve for the force constant necessary in solving equation (II,189) for ν_3. Choosing an angle of at least 130° was necessary in order to obtain real solutions to these equations. The assumed angle of 130° gives 1440 cm^{-1} for ν_3. The same value of ν_3 may be estimated from a correlation of CF_2 frequencies with those of NO_2. The following equation was used to estimate the anharmonic constants:

$$\frac{x_{ij}(CF_2)}{x_{ij}(NO_2)} = \frac{\nu_i\nu_j(CF_2)}{\nu_i\nu_j(NO_2)}$$

This relation is usually used for estimating the anharmonicities of an isotopically substituted species (see eq. (II,307) of ref. 12). The spectroscopic constants of NO_2 were used in this case because of the similarity of the two molecules.

The C—F bond length, 1.30 A, was estimated from the structures of other molecules.

The heat of formation, -30 kilocalories per mole, is taken from reference 82. This value implies a C=C bond dissociation energy in C_2F_4 of 93 kilocalories per mole, which is lower than the C=C bond values of 142 kilocalories per mole in C_2H_4 and 149 kilocalories per mole in C_2Cl_4 (quoted in ref. 82). The suggested heat of formation of -46 kilocalories per mole in reference 4 implies the much lower C=C bond value in C_2F_4 of 60 kilocalories per mole.

CF_3 (Gas)

The frequencies ν_1, ν_3, and ν_4 were estimated by averaging corresponding frequencies in CF_2 and CF_4. The remaining frequency ν_2 was estimated to be an average of the BF_3 and COF_2 bending frequencies.

The molecule was assumed to be planar with a C—F bond length of 1.30 A, which was estimated from the structures of other molecules.

The statistical weight was assumed to be 2.

CF_4 (Gas)

Anharmonicities were calculated from the observed frequencies and band assignments given in reference 83. Since many more bands were observed than were necessary, the values obtained could vary, depending on the bands chosen to obtain the constants. In this case, the simpler combination bands were, in general, preferred; for example, $2\nu_4$ was chosen in preference to $3\nu_4$ to evaluate x_{44}.

CH (Gas)

Thermodynamic functions were taken directly from reference 21. Of the two sets of data given, the set including the $^4\Sigma^-$ state was used. It was necessary to subtract the entropy of nuclear spin, R ln 2 = 1.3775 calories per mole per $^{\circ}K$, from the values of S_T°.

CH_2 (Gas)

Of the two most probable bending frequencies observed (1362 and 1114 cm^{-1} from ref. 84), the value of 1362 cm^{-1} was used because it was closer to the estimated value, 1480 cm^{-1}, of reference 84.

The bond dissociation energy, $D_0^{\circ}(CH_2\text{—}H)$ = 86.49 kilocalories per mole, was taken from reference 85.

CH_3 (Gas)

The bending frequency ν_2 was taken from reference 86. The other frequencies were estimated from the frequencies of CH_2.

The heat of formation was calculated from the bond dissociation energy, $D_0^{\circ}(CH_3\text{—}H)$ = 101.9 kilocalories per mole, reported in reference 85.

C_2N_2 (Gas)

The heat of formation was obtained from the following room-temperature reaction reported by reference 87:

$$C_2N_2(g) + 2O_2(g) = 2CO_2(g) + N_2(g) + 261.94 \text{ kcal}$$

COF_2 (Gas)

The heat of formation was inferred from the following room-temperature reaction (ref. 88):

$$COF_2(g) + H_2O(l) = 2HF(\text{aqueous}) + CO_2(g) + 26.73 \text{ kcal}$$

where $\left(\Delta H^{\circ}_{298.15}\right)_{f,HF(\text{aqueous})}$ = -75.7 kilocalories per mole and $\left(\Delta H^{\circ}_{298.15}\right)_{f,H_2O(l)}$ = -68.3174 kilocalories per mole (ref. 50).

COFCl (Gas)

Interatomic distances and bond angles were estimated from the structures of $COCl_2$ and COF_2. The structure was considered planar with the C=O, C—Cl, and C—F bonds and the angle ClCF equal to 1.17 A, 1.746 A, 1.32 A, and 112°, respectively.

The heat of formation of COFCl was estimated to be the average of the values of $COCl_2$ and COF_2.

ClCN (Gas)

The heat of formation was obtained from the following room-temperature reaction (ref. 89):

$$CNCl(g) + 2NaOH(2000H_2O) = NaCNO(2000H_2O) + H_2O(l) + NaCl(2000H_2O) + 66.326 \text{ kcal}$$

where $\left(\Delta H^{\circ}_{298.15}\right)_{f,NaOH(2000H_2O)}$ = -112.162 kilocalories per mole (ref. 50), $\left(\Delta H^{\circ}_{298.15}\right)_{f,NaCl(2000H_2O)}$ = -97.242 kilocalories per mole (ref. 50), $\left(\Delta H^{\circ}_{298.15}\right)_{f,H_2O(l)}$ = -68.3174 kilocalories per mole (ref. 50), and $\left(\Delta H^{\circ}_{298.15}\right)_{f,NaCNO(2000H_2O)}$ = -93.45 kilocalories per mole (ref. 89).

ClF_3 (Gas)

The heat of formation was obtained from the following heat of reaction at 573° K reported by reference 90:

$$ClF(g) + F_2(g) = ClF_3(g) + 25 \text{ kcal}$$

H_2 (Gas)

Thermodynamic functions at temperatures up to 5000° K were taken directly from reference 8. The data of reference 1 were used from 5000° to 6000° K and were adjusted to coincide with reference 8 at 5000° K.

H_3BO_3 (Gas)

The heat of formation was obtained from the following room-temperature reaction (ref. 91):

$$\frac{1}{2} B_2O_3(\text{glass}) + \frac{3}{2} H_2O(l) = H_3BO_3(c) + 9.130 \text{ kcal}$$

where $\left(\Delta H^{\circ}_{298.15}\right)_{f,H_2O(l)} = -68.3174$ kilocalories per mole (ref. 50). The heat of sublimation $\left(\Delta H^{\circ}_{413}\right)_{s,H_3BO_3}$ is 23.43 kilocalories per mole (ref. 92).

HCN (Gas)

The heat of formation was obtained from the heat of combustion at 298.15° K reported in reference 93:

$$HCN(g) + \frac{5}{2} O_2(g) = \frac{1}{2} H_2O(l) + CO_2(g) + \frac{1}{2} N_2(g) + 159.4 \text{ kcal}$$

where $\left(\Delta H^{\circ}_{298.15}\right)_{f,H_2O(l)} = -68.3174$ kilocalories per mole (ref. 50).

HCO (Gas)

The heat of formation was calculated from the dissociation energy $D^{\circ}_0(HCO\text{—}H) = 75.1$ kilocalories per mole (ref. 94).

HF (Gas)

Thermodynamic functions were calculated by using the method described in reference 13. (See section entitled "Closed form for rotation" in this report.) Vibrational energy was cut off after 20 levels.

The heat of formation given in reference 95, $\left(\Delta H^{\circ}_{298.15}\right)_f = -64.4$ kilocalories per mole, and the heat of formation derived from the dissociation energy, $D^{\circ}_0 = 135.15$ kilocalories per mole, given in reference 96 were averaged.

HS (Gas)

Thermodynamic functions for HS, OH, and SiH were taken from reference 9. In order to extrapolate the data from 5000° to 6000° K, a least-squares fit of the C°_p data between 3000° and 5000° K was made by using the equation

$$C_p^o = A + BT + \frac{C}{T^2}$$

This equation was integrated with respect to T and ln T in order to obtain enthalpy and entropy increments, respectively. Three-point Lagrangian interpolation was used to obtain data at temperatures not tabulated in reference 9.

Li (Crystal, Liquid)

Between 1.5° and 298.15° K, heat-capacity data were taken from a curve drawn to follow closely the data from reference 97 in the range from 1.5° to 20° K and from reference 98 in the range from 20° to 298.15° K. From 298.15° to 453.70° K, the melting point, an assumed linear equation for heat capacity was fitted to the enthalpy increment reported by reference 99 for this range.

The heat of fusion, 717.1 calories per mole, and the heat capacities from the melting point to 1200° K were taken from reference 99. The linear temperature dependence of heat capacities given in this reference for the range from 693° to 1173° K was assumed to apply up to 2500° K.

See page 8 for discussion of integration for enthalpy and entropy.

LiCl (Gas)

The rotational constant was calculated from the high estimate of the interatomic distance given by reference 100, r = 2.022 A. The high estimate for LiF in reference 100 compares well with the experimental value.

LiCl (Crystal, Liquid)

From 100° to 300° K, C_p^o, $H_T^o - H_0^o$, and S_T^o were taken from reference 101. From 400° to 883° K, C_p^o, $H_T^o - H_0^o$, and S_T^o were derived from equation (1) of reference 102. The heat-capacity data from these two references join smoothly.

For the liquid, a constant heat capacity of 15 calories per mole per °K, estimated from equation (2) of reference 102, was assumed up to 6000° K.

The heat of fusion, 4760 calories per mole, was taken from reference 103.

LiF (Crystal, Liquid)

Below 200° K, the heat-capacity data were taken from reference 104, and the enthalpy and entropy increments were obtained by the analytical method described on page 8. From 298.15° to the melting point of 1121.3° K, C_p^o, $H_T^o - H_0^o$, and S_T^o were taken from reference 105. The heat-capacity data from these two references join smoothly.

The constant heat capacity, 15.51 calories per mole per °K, reported by reference 105 for the liquid from 1121.3° to 1200° K was assumed up to 6000° K. The heat of fusion, 6471.0 calories per mole, was taken from reference 105.

LiO (Gas)

Two possible ground-state assignments are suggested for LiO, the $^2\Pi$ state of OH and the $^2\Sigma$ state of Group III oxides. Since the halides and the hydrides of Groups I and III have the same ground-state configurations, a $^2\Sigma$ state was assumed for LiO and NaO. The interatomic distance, r = 1.82 A, was assumed to be the same as that for Li_2O. The values of ω_e and $\omega_e x_e$ were estimated from comparisons with other light-element diatomic molecules.

Li_2O (Gas)

The frequencies were estimated according to equations (II,189), (II,190), and (II,191) of reference 12. The force constant k_1 was assumed to be the same as the LiO diatomic force constant, 3.14×10^5 dynes per centimeter, while the k_δ/l^2 constant was estimated to be 0.65×10^5 dynes per centimeter by comparison with similar molecules (see table 40 of ref. 12).

The heat of formation was obtained from the heat of sublimation at 0° K, 106.1±5 kilocalories per mole (ref. 106).

Li_2O (Crystal, Liquid)

For the crystal, values of C_p^o, $H_T^o - H_0^o$, and S_T^o were taken from reference 107 for temperatures from 100° to 300° K and from the equations in reference 108 for temperatures from 400° K to the melting point, 1700° K (ref. 109). The data from the two references join smoothly.

It was assumed that the entropy of fusion was equal to that of Na_2O, 8.4 calories per mole per °K (ref. 109), which gives an enthalpy of fusion of 14,280 calories per mole. The heat capacity for the liquid was estimated to be 21.5 calories per mole per °K.

LiOH (Gas)

The frequencies were estimated by taking an average of the two Li_2O stretching frequencies, an average of the two H_2O stretching frequencies, and an average of the bending frequencies of both the Li_2O and the H_2O molecules.

Bond lengths were assumed to be those of Li_2O and H_2O with an assumed bond angle of 105°.

The heat of formation was obtained from the following reaction reported by reference 110 at 1300° K:

$$Li_2O(c) + H_2O(g) = 2LiOH(g) - 79.0 \pm 2.0 \text{ kcal}$$

LiOH (Crystal, Liquid)

Values of C_p°, $H_T^\circ - H_0^\circ$, and S_T° were taken from reference 111 for temperatures from 100° to 300° K and from the equations given in reference 108 for temperatures from 400° to 744.3° K, the melting point. The data from these two references join smoothly.

A heat of fusion of 5010 calories per mole was taken from reference 108.

The constant value of heat capacity of the liquid, 20.74 calories per mole per $^\circ$K, given in reference 108 for temperatures to 900° K is assumed to apply to 6000° K.

$(LiOH)_2$ (Gas)

The frequencies and the structure were assigned according to the suggestions of reference 110. Six frequencies were taken from $(LiF)_2$; the remaining O–H stretching and Li–OH bending frequencies are from the monomer, LiOH.

The trans configuration was assumed with the H atoms 60° above and below the plane.

The heat of formation was calculated from the heat of dimerization at 1300° K reported by reference 110:

$$2LiOH(g) = (LiOH)_2(g) + 60 \text{ kcal}$$

Mg (Crystal, Liquid)

Heat-capacity data were taken from a curve drawn to follow closely

the data of reference 112 from 5° to 15° K, reference 113 from 15° to 298.15° K, reference 114 from 330° to 543° K, and reference 115 from 700° to 923° K, the melting point. The heat of fusion, 2140 calories per mole, was taken from reference 115. See page 8 for discussion of integration for enthalpy and entropy.

A constant heat capacity for the liquid of 8 calories per mole per $^{\circ}$K was estimated for the range from 923° to 2500° K from the enthalpy data of reference 115 in the range 923° to 1100° K.

MgCl (Gas)

The interatomic distance, r = 2.18 A, was assumed to be the same as that in $MgCl_2$.

$MgCl_2$ (Gas)

The values of ν_2 and ν_3 were taken from reference 62; ν_1 was estimated by using equation (II,195) of reference 12 with the force constant, $k_1 = 1.9 \times 10^5$ dynes per centimeter, given in reference 62.

MgF_2 (Gas)

Frequencies were assumed to be in the same proportion to respective $MgCl_2$ frequencies as BeF_2 is to $BeCl_2$.

MgF_2 (Crystal, Liquid)

The heat-capacity data taken from reference 116 in the range from 54° to 246° K joined smoothly to the data calculated from the heat-capacity equation given in reference 40 for the range from 400° to the melting point, 1536° K. The heat capacities at 298.15° and 300° K were read from a plot of these data. From 0° to 300° K, enthalpy and entropy increments were obtained by the analytical method described on page 8. From 400° to 1536° K, C_p° and increments of enthalpy and entropy were derived from the equations of reference 40.

For the liquid, the enthalpy data of reference 117 in the range from 1539° to 1760° K were fitted by the method of least squares to the equation of a straight line. The resulting constant heat capacity, 22.664 calories per mole per $^{\circ}$K, was assumed up to 6000° K.

From the crystal and the liquid enthalpy data, the implied heat of fusion is 13,884.0 calories per mole.

MgFCl (Gas)

The frequencies were estimated by taking an average of the two MgF_2 stretching frequencies, an average of the two $MgCl_2$ stretching frequencies, and an average of the bending frequencies of both the MgF_2 and the $MgCl_2$ molecules.

The bond lengths, r(Mg—F) = 1.77 A and r(Mg—Cl) = 2.18 A, were taken from MgF_2 and $MgCl_2$.

The heat of formation was estimated to be the average of the $MgCl_2$ and MgF_2 values.

MgO (Crystal)

A heat-capacity curve drawn through the data of reference 118 in the range from 20° to 300° K joined smoothly to the data calculated from the heat-capacity equation given in reference 40 in the range from 400° to 1500° K. Above 1500° K the heat-capacity curve was extrapolated to an estimated maximum value of 14.5 calories per mole per °K at 3000° K. From 0° to 300° K the enthalpy and entropy increments were obtained by the analytical method described on page 8. From 400° to 1500° K, C_p^o and increments of enthalpy and entropy were derived from the equations of reference 40. From 1500° to 3000° K, values of C_p^o were read from the curve and the enthalpy and entropy increments were obtained analytically.

MgOH (Gas)

One stretching frequency and the bending frequency were taken to be the same as the corresponding NaOH values. The remaining frequency was estimated to be 750±50 cm^{-1} by examining the frequencies for NaO, NaF, NaOH, LiO, LiF, LiOH, BeO, BeF, BeF_2, MgO, MgF, and MgF_2.

Bond lengths were assumed to be those of MgO(c) (ref. 119) and $H_2O(g)$ with the bond angle taken to be 105°.

The heat of formation was obtained from the bond dissociation energy of MgOH reported by reference 120, D_0^o(Mg—OH) = 56±5 kilocalories per mole.

MgS (Gas)

The A state spectroscopic constants reported in reference 16 were assumed to be those for a $^1\Sigma$ ground state. The rotational constant was calculated from the estimated bond length, r = 2.15 A, obtained from a correlation of force constants and internuclear distances in similar molecules.

NF (Gas)

The fundamental frequency was estimated to be the average of the stretching frequencies of NF_3.

The interatomic distance, r = 1.371 A, was assumed to be the same as the N—F bond length in NF_3.

The dissociation energy was assumed to be one-third the heat of atomization of NF_3.

NF_2 (Gas)

The heat of formation was obtained from the N_2F_4 dissociation energy, $D^{\circ}_{298.15}(NF_2—NF_2)$ = 20 kilocalories per mole, which is an average value from references 121 and 122. The heat of formation of N_2F_4 was taken from reference 122, $\left(\Delta H^{\circ}_{298.15}\right)_f$ = -2 kilocalories per mole.

N_2F_2 (Gas)

Rotational and vibrational data are for the chemically inactive trans isomer (ref. 123).

NO_2 (Gas)

The heat of formation was calculated from the following reaction at 0° K reported by reference 124:

$$NO_2 = NO + \frac{1}{2} O_2 - 12.795 \text{ kcal}$$

N_2O_4 (Gas)

The heat of formation was calculated from the dissociation energy of N_2O_4, $D^{\circ}_0(NO_2—NO_2)$ = 12.71 kilocalories per mole. This value was obtained from a third-law treatment of the vapor-pressure data of reference 124 by using the free-energy data herein for NO_2 and N_2O_4.

Na (Gas)

The heat of formation was computed from the equation

$$\left(\Delta H_0^\circ\right)_f = -\left(F_T^\circ - H_0^\circ\right)_{Na(g)} + \left(F_{T_{Na(l)}}^\circ - H_{0_{Na(c)}}^\circ\right) - RT \ln p_{Na}$$

Partial pressures of monatomic sodium were computed at the boiling points of 1154.61° and 896.6° K (ref. 125) corresponding to saturated pressures of 1.0 and 0.05 atmosphere, respectively. These values yielded an average heat of formation of 25.65 kilocalories per mole at 0° K.

Na (Crystal, Liquid)

Heat-capacity data were taken from the following sources: from 1.5° to 20° K, reference 126; from 35° to 300° K, reference 127 (by using data from the highly pure cast sample); from 350° to 370.98° K (the melting point), reference 128. These data fit together smoothly.

The heat of fusion, 621.8 calories per mole, and heat capacities for the liquid between 370.98° and 1200° K were taken from reference 128. The C_p° curve was then graphically extrapolated. Enthalpy and entropy for the solid and the liquid were analytically integrated as described on page 8.

$(NaCl)_2$ (Gas)

The heat of formation was calculated from the heat of dimerization at 1000° K reported in reference 129:

$$2NaCl(g) = (NaCl)_2(g) + 48.5 \text{ kcal}$$

NaF (Gas)

The fundamental frequency ω_e was calculated from an estimated force constant by using equation (III,91) of reference 16. Force constants of the alkali halides were plotted against interatomic distance and against ionization potentials to obtain this estimate (see ref. 130).

The rotation constant B_e was calculated from the interatomic distance, r = 1.840 A, given in reference 100. A plot of the values of α_e/B_e for the alkali halides obtained from reference 100 was used to obtain an estimate for α_e.

The heat of formation was calculated from an average heat of sublimation, 65.7 kilocalories per mole, at 298.15° K. This average is obtained from seven independent values, six of which are selected in reference 131 from a third-law treatment of the data, while the seventh is inferred from the dissociation energy measured in reference 132. The heat of formation of NaF(c), $\left(\Delta H_{298.15}^\circ\right)_f$ = -136.3 kilocalories per mole, was taken from reference 133.

$(NaF)_2$ (Gas)

The bond length, r(Na–F) = 2.02 A, was taken to be 10 percent higher than that of the monomer, since the LiF dimer distance is 10 percent greater than the monomer distance. The angles were considered equal to those of $(LiF)_2$ since $(LiCl)_2$ and $(NaCl)_2$ have equal angles.

The heat of formation was calculated from the heat of dimerization at 1000° K reported in reference 129:

$$2NaF(g) = (NaF)_2(g) + 56.9 \text{ kcal}$$

NaO (Gas)

The ground state was assumed to be a $^2\Sigma$ state (see LiO (Gas)).

NaOH (Gas)

The frequency ν_1 was taken from reference 134, ν_3 was estimated to be the same as the corresponding LiOH frequency, and the bending frequency was estimated to be somewhat less than the LiOH frequency.

The structure is assumed to be analogous to LiOH. The Na–O bond length, 2.16 A, was estimated by using the following bond-length ratio:

$$\frac{r_{NaOH}(Na\text{–}O)}{r_{NaF}(Na\text{–}F)} = \frac{r_{Li_2O}(Li\text{–}O)}{r_{LiF}(Li\text{–}F)}$$

The heat of formation was calculated from the heat of sublimation reported by reference 135, $(\Delta H^o_{298.15})_s$ = 46.4 kilocalories per mole.

$(NaOH)_2$ (Gas)

The frequencies and the structure were assigned by analogy to $(LiOH)_2$. Six dimer frequencies are from $(NaF)_2$; the remaining two, O–H stretching and Na–OH bending, are from the monomer.

The Na–O bond length (r = 2.25 A) was estimated by using the following bond-length ratio:

$$\frac{r_{(NaOH)_2}(Na\text{–}O)}{r_{NaOH}(Na\text{–}O)} = \frac{r_{(LiOH)_2}(Li\text{–}O)}{r_{LiOH}(Li\text{–}O)}$$

The heat of formation was calculated from the heat of dimerization at 800° K reported in reference 136:

$$2NaOH(g) = (NaOH)_2(g) + 54 \text{ kcal}$$

O_2 (Gas)

Thermodynamic functions were calculated by using the method described in reference 13 (see section entitled "Closed form for rotation" in this report). Vibrational energy was cut off at 41,260 cm^{-1} for all states except the $B^3\Sigma_u^-$ state, which was cut off at 57,127.5 cm^{-1}.

OH (Gas)

Thermodynamic functions were taken from reference 9. (See HS for interpolation and extrapolation techniques.)

P (Crystal, Liquid)

For the solid, heat capacities from 15° to 315° K were taken from reference 137. Values of $H_T^\circ - H_0^\circ$ and S_T° up to 317.30° K, the melting point, were integrated from these data by the analytical method described on page 8.

The heat of fusion, 157.43 calories per mole, was taken from reference 137.

The heat capacity for the liquid at 320.15° K (ref. 137) was assumed to be constant from 317.30° to 2500° K.

PCl_3 (Gas)

The heat of formation of PCl_3 was obtained from the heat of formation of the liquid, $(\Delta H^\circ_{298.15})_f = -79.4$ kilocalories per mole, reported in reference 138 and the heat of vaporization, $(\Delta H^\circ_{298.15})_v = 7.78$ kilocalories per mole, reported in reference 50.

PF_3 (Gas)

The dissociation energy was calculated from an average bond energy given in reference 139, $D_0^\circ(P-F) = 117$ kilocalories per mole.

PH_3 (Gas)

The heat of formation was taken to be the average of two values, $(\Delta H^{o}_{298.15})_f$ = 1.3±0.4 kilocalories per mole (ref. 140) and $(\Delta H^{o}_{298.15})_f$ = 2.21 kilocalories per mole (ref. 50).

S (Gas)

The heat of formation was calculated from the dissociation energy of S_2, D^{o}_{0} = 101 kilocalories per mole (ref. 141).

S (Crystal, Liquid)

Heat capacities up to 300° K were taken from reference 142. Values of $H^{o}_{T} - H^{o}_{0}$ and S^{o}_{T} up to 300° K were analytically integrated as described on page 8.

Values of C^{o}_{p}, $H^{o}_{T} - H^{o}_{298.15}$, and $S^{o}_{T} - S^{o}_{298.15}$ from 400° to 700° K were interpolated from data given in reference 143. Reference 143 gives data at very close temperature intervals to show the effect of heat-capacity transitions occurring at 368.54°, 388.36° (the melting point), and 432.25° K.

The heat of fusion, 410.5 calories per mole, was taken from reference 143.

The heat capacity, 7.694 calories per mole per °K, given in reference 143 at the normal boiling point, 717.75° K, was assumed to be constant up to 2500° K.

SCl (Gas)

The vibrational frequency was estimated from SCl_2.

The interatomic distance, r = 1.99 A, was assumed to be the same as that in S_2Cl_2 and SCl_2.

The heat of formation was calculated from the heat of formation of S_2Cl_2 and from the bond energy, $D^{o}_{298.15}(S\text{—}S)$ = 69.1 kilocalories per mole, assumed for S_2F_2.

SCl_2 (Gas)

A bond length of 1.99 A and a bond angle of 102° were selected from the data given in reference 119.

The heat of formation was calculated from the average free-energy change estimated from the following equilibrium-constant equation reported by reference 144 as a function of temperature:

$$\log_{10} \frac{p_{SCl_2}}{p_{S_2}^{1/2} p_{Cl_2}} = \frac{4478}{T} - 2.82 \qquad (760^\circ \text{ K} < T < 1100^\circ \text{ K})$$

S_2Cl_2 (Gas)

A C_2 (symmetry group) configuration with the S—Cl bonds at right angles was assumed from reference 145. Average bond angles and lengths are from reference 119: r(S—Cl) = 1.99 A, r(S—S) = 2.05 A, and angle ClSS = 104°.

The heat of formation was calculated from the heat of formation of the liquid, $(\Delta H^\circ_{298.15})_f$ = -14.4 kilocalories per mole (ref. 50), and the heat of vaporization, $(\Delta H^\circ_{411.2})_v$ = 8.61 kilocalories per mole (ref. 50). The adjustment of the heat of vaporization at 411.2° K to 298.15° K was estimated to be 1.04 kilocalories per mole.

SF (Gas)

The vibrational frequency was estimated from SF_2.

The interatomic distance, r = 1.56 A, was assumed to be the same as that in SF_6.

The dissociation energy, $D^\circ_{298.15}$(S—F) = 78 kilocalories per mole, was estimated to be one-sixth the total bond energies in SF_6.

SF_2 (Gas)

The frequencies were estimated from S—F group bending and stretching frequencies in SF_4, SF_6, and SO_2F_2.

A bond angle of 95° and a bond length of 1.56 A are average values from SOF_2 and SO_2F_2.

The heat of formation was calculated from an average S—F bond energy, 78 kilocalories per mole at 298.15° K, estimated to be one-sixth the heat of atomization of SF_6.

SF_4 (Gas)

The heat of formation was calculated from an average S—F bond energy, 78 kilocalories per mole at 298.15° K, estimated to be one-sixth the heat of atomization of SF_6.

SF_6 (Gas)

The interatomic distance, r(S—F) = 1.56 A, was assumed to be the same as the interatomic distance measured for S_2F_{10} in an electron diffraction study reported in reference 146.

S_2F_2 (Gas)

The frequencies were estimated from corresponding frequencies of other molecules.

A C_2 (symmetry group) structure analogous to S_2Cl_2 was assumed with an S—F bond length of 1.56 A.

The heat of formation was calculated from the S—S bond dissociation energy, $D^{o}_{298.15}$ (FS—SF) = 69.1 kilocalories per mole, estimated from H_2S_2 as suggested by reference 6. Values of the heat of formation of liquid H_2S_2, $(\Delta H^{o}_{298.15})_f$ = -5.5 kilocalories per mole, and heat of vaporization of liquid H_2S_2, $(\Delta H^{o}_{343.5})_v$ = 8.4 kilocalories per mole, were taken from reference 50. In order to obtain the heat of formation of the gas at 298.15° K, heat capacities for the liquid and the gas, 29 and 18 calories per mole per °K, respectively, were estimated by the method described in reference 147. The S—F bond energy, 78 kilocalories per mole at 298.15° K, was estimated to be one-sixth the heat of atomization of SF_6.

SOCl (Gas)

The frequencies were estimated by taking the average stretching frequency of SO_2, the average stretching frequency of SCl_2, and the average bending frequency of both molecules.

The bond angle, 106°, and bond lengths, r(S—O) = 1.45 A and r(S—Cl) = 2.07 A, were taken from the $SOCl_2$ structure given in reference 148.

The heat of formation was calculated from the S—Cl bond energy obtained by assuming both S—Cl bond energies in $SOCl_2$ to be equal (see

SOF (Gas)), that is, $D^{o}_{298.15}$(ClOS—Cl) = 54.8 kilocalories per mole.

$SOCl_2$ (Gas)

The heat of formation was obtained from the heat of formation of the liquid, $(\Delta H^{o}_{295.65})_f$ = 58.5 kilocalories per mole (ref. 149), which was assumed to be the same at 298.15° K, the heat of vaporization, $(\Delta H^{o}_{348.9})_v$ = 7.41 kilocalories per mole (ref. 50), and the heat capacity of the liquid, C^{o}_{p} = 28.8 calories per mole per °K (ref. 50).

SOF (Gas)

The frequencies were estimated from SO_2 and SF_2 according to the procedure described for SOCl.

The bond angle, 107°, and the bond length, r(S—O) = 1.41 A, were taken to be the same as those reported for SOF_2 (ref. 150). The S—F bond length, 1.56 A, was considered to be an average bond length from SOF_2 and SO_2F_2.

The heat of formation was calculated from an average S—F bond dissociation energy, $D^{o}_{298.15}$ (FOS—F) = 86 kilocalories per mole, which was estimated from the following reaction obtained from ion appearance potential measurements of reference 151:

$$SO_2F_2(g) = SO_2(g) + 2F(g) - 7.46 \text{ ev}$$

Both bond energies in SOF_2 were assumed to be equal, although it was suggested in reference 151 that the first bond may be 10 times stronger than the second. Based on the previous assumptions, the following heat of reaction was calculated at 298.15° K:

$$SOF_2(g) = SOF(g) + F(g) - 86 \text{ kcal}$$

SOF_2 (Gas)

The heat of formation was calculated by assuming that the S=O bond energy was the same as that for $SOCl_2$, that is, $D^{o}_{298.15}(F_2S{=}O) = D^{o}_{298.15}(Cl_2S{=}O)$ = 104.8 kilocalories per mole.

Si (Crystal, Liquid)

For the solid, heat capacities from 2.5° to 300° K were taken from reference 152 and from 400° to 1685° K (the melting point) they were computed from the following equation (ref. 153, eq. (4)):

$$C_p^o = 5.551 + 0.8785(10^{-3})T - \frac{0.90737(10^5)}{T^2}$$

The data from these two references join smoothly. Enthalpy and entropy were analytically integrated as described on page 8.

For the liquid, the enthalpy data of reference 154 in the range 1688° to 1825° K were fitted by the method of least squares to a linear equation:

$$H_T^o(l) - H_{298.15}^o(c) = 6.143\ T + 10{,}334.8$$

This equation, which differs slightly from the equation in reference 154, was used to extrapolate the thermodynamic properties of liquid silicon up to 6000° K. The heat of fusion implied by the difference in enthalpy between solid and liquid at 1685° K is 12,031.6 calories per mole.

SiCl (Gas)

The interatomic distance, r = 2.01 A, for the ground state was assumed to be the same as the Si–Cl bond length in $SiCl_4$ (ref. 119).

$SiCl_2$ (Gas)

The frequencies were taken to be in the same proportion to the corresponding $SiCl_4$ frequencies as SiF_2 is to SiF_4.

An average bond length of 2.03 A and bond angle of 110° were taken from similar molecules (ref. 119).

The heat of formation was calculated from the heat of reaction obtained from a thermodynamic third-law treatment of the vapor-pressure data of reference 155:

$$SiCl_4(g) + Si(c) = 2SiCl_2(g) - 77.42 \text{ kcal}$$

A second-law treatment of the data supported this value of the heat of reaction. The corrected vapor-pressure data of reference 156 were also considered; however, while the third-law treatment of their data gave results in good agreement with those of reference 155, the second-law treatment gave values that differed significantly. The data of reference 155 were therefore preferred to those of reference 156.

SiF_2 (Gas)

The heat of formation was calculated from an estimated dissociation

energy of SiF_4, $D^{o}_{298.15}(SiF_2-2F)$ = 298.2 kilocalories per mole. This value was estimated by assuming the first three Si—F bond energies in SiF_4 to be equal and the last to be the SiF dissociation energy.

SiH (Gas)

Thermodynamic functions were taken from reference 9. See HS (Gas) for interpolation and extrapolation techniques.

SiO_2 (Gas)

The heat of formation was calculated from the heat of sublimation of α-quartz, $(\Delta H^{o}_{298.15})_s$ = 136±8 kilocalories per mole (ref. 157), where the heat of formation of α-quartz was taken from reference 158, $(\Delta H^{o}_{298.15})_f$ = -217.74±0.33 kilocalories per mole.

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TABLE I. - MOLECULAR CONSTANTS OF DIATOMIC GASES

[Numbers in braces were estimated by reference quoted; numbers in brackets were estimated for this report (see appendix C or indicated footnote).]

Gas	Molecular weight	Symmetry number	Electronic state	Statistical weight	T_0, cm^{-1}	ω_e, cm^{-1}	$\omega_e x_e$, cm^{-1}	$\omega_e y_e$, cm^{-1}	$\omega_e z_e$, cm^{-1}	B_e, cm^{-1}	α_1, cm^{-1}	α_2, cm^{-1}	α_3, cm^{-1}	D_e, cm^{-1}	β_1, cm^{-1}	β_2, cm^{-1}	Reference
Al_2	53.96	2	$X^1\Sigma$	1	0	{278}	{1.76}	--------	---------	{0.194}	[a][0.0016]	----------	----------	[b][0.378]×10^{-6}	----------	----------	159
AlCl	62.437	1	$X^1\Sigma$	1	0	479.91	1.94	--------	---------	.241	.002	----------	----------	[b][.243]	----------	----------	23
			$a^3\Pi$	2	24,542	522.83	2.162	--------	---------	.249	.002	----------	----------	[b][.226]	----------	----------	--
			$a^3\Pi$	2	24,615	522.83	2.162	--------	---------	.249	.002	----------	----------	[b][.226]	----------	----------	--
			$a^3\Pi$	2	24,680	522.83	2.162	--------	---------	.249	.002	----------	----------	[b][.226]	----------	----------	--
AlF	45.98	1	$X^1\Sigma$	1	0	801.95	4.70	--------	---------	.55228	.00483	----------	----------	.97	----------	----------	160, 161, 162
AlH	27.988	1	$X^1\Sigma$	1	0	1682.498	29.088	0.2389	---------	6.39023	.18579	0.00161	----------	357.02	-5.73×10^{-6}	0.282×10^{-6}	163
AlO	42.98	1	$X^2\Sigma$	2	0	979.15	6.97	0	---------	.64126	.00580	----------	----------	1.08	.02	----------	164, 165
			$A^2\Sigma$	2	20,635.18	869.98	3.52	--------	---------	.60399	.00447	----------	----------	1.16	----------	----------	--------
			$B^2\Pi$	4	33,085	728.3	7.5	--------	---------	.6026	.0036	----------	----------	[b][1.65]	----------	----------	--------
B_2	21.64	2	$X^3\Sigma$	3	0	1061.4	9.6	--------	---------	1.236	.014	----------	----------	[b][6.70]	----------	----------	16
			$A^3\Sigma$	3	30,518.1	946.4	2.7	--------	---------	1.183	.011	----------	----------	[b][7.39]	----------	----------	--
BCl	46.277	1	$^1\Sigma$	1	0	843.90	5.17	--------	---------	.6918	.00658	----------	----------	1.76	.07	----------	166, 32
BF	29.82	1	$X^1\Sigma$	1	0	1410.65	11.99	.057	---------	1.5293	.0168	-.00015	----------	7	----------	----------	167
			$A^1\Pi$	2	51,088.68	1272.64	12.68	-.247	---------	1.4381	.0168	-.00058	----------	7	----------	----------	---
BH	11.828	1	$X^1\Sigma$	1	0	2368	49	--------	---------	12.037	.413	----------	----------	1244	-40	----------	16
BN	24.828	1	$X^3\Pi$	6	0	1522.7	12.4	--------	---------	1.684	.025	----------	----------	[b][8.24]	----------	----------	168, 32
			$A^3\Pi$	6	27,775.8	1324.5	15.1	--------	---------	1.572	.010	----------	----------	[b][8.86]	----------	----------	-------
BO	26.82	1	$X^2\Sigma$	2	0	1896.32	11.945	--------	---------	1.8024	.0169	----------	----------	6.47	.02	----------	169
			$A^2\Pi$	4	[c]23,585.34	1267.81	11.285	--------	---------	1.4294	.0199	----------	----------	7.26	----------	----------	---
			$B^2\Sigma$	2	42,872.26	1288.91	10.78	--------	---------	1.5345	.0214	----------	----------	8.7	----------	----------	---
BS	42.886	1	$X^2\Sigma$	2	0	1188.16	6.40	--------	---------	.80586	.00618	----------	----------	1.44	----------	----------	170
			$A^2\Pi_{1/2}$	2	15,662.73	758.45	4.68	--------	---------	.63151	.00604	----------	----------	[b][1.75]	----------	----------	---
			$A^2\Pi_{3/2}$	2	15,996.34	758.45	4.68	--------	---------	.63151	.00604	----------	----------	[b][1.75]	----------	----------	---
			$C^2\Pi_{1/2}$	2	38,781.93	898.68	6.83	--------	---------	.71223	[a][.00710]	----------	----------	[b][1.79]	----------	----------	---
			$C^2\Pi_{3/2}$	2	38,897.28	898.68	6.83	--------	---------	.71223	[a][.00710]	----------	----------	[b][1.79]	----------	----------	---
BeCl	44.470	1	$X^2\Sigma$	2	0	844.14	4.818	--------	---------	{.8}	[a][.007]	----------	----------	[b][2.87]	----------	----------	304, 16
			$A^2\Pi$	4	27,959.5	821.66	5.482	--------	---------	[d][.8]	[d][.007]	----------	----------	[b][3.03]	----------	----------	---
BeF	28.013	1	$X^2\Sigma$	2	0	1265.61	9.234	.02259	---------	1.4877	.01685	----------	----------	8.209	----------	----------	23, 171
			$A^2\Pi$	4	33.187.21	1171.36	8.523	-.00497	---------	1.4187	.0161	----------	----------	8.301	----------	----------	-------
BeH	10.021	1	$X^2\Sigma$	2	0	2058.5	35.5	-.5	---------	10.307	.3	----------	----------	980	----------	----------	16
BeO	25.013	1	$X^1\Sigma$	1	0	1487.256	11.8286	.02235	---------	1.6509	.0190	----------	----------	8.197	-.0096	----------	16, 23
			$A^1\Pi$	2	9,234.92	1144.186	8.4137	.03389	---------	1.3660	.01628	.000055	----------	7.79	-.044	----------	------
			$B^1\Sigma$	1	21,196.70	1370.755	7.7448	-.00027	---------	1.5757	.0154	----------	----------	8.41	-.07	----------	------
			$C^1\Sigma$	1	29,683.0	1081.5	9.1	--------	---------	1.308	.010	----------	----------	[b][7.65]	----------	----------	------

[a]Approximated by assuming relation in ref. 16, p. 108: $\alpha_e = \frac{6\sqrt{\omega_e x_e B_e^3}}{\omega_e} - \frac{6B_e^2}{\omega_e}$.

[b]Calculated by assuming relation in ref. 16, p. 107: $D_e = 4B_e^3/\omega_e^2$.

[c]Calculated from T_e.

[d]Constants assumed to be same as for ground state.

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TABLE I. - Continued. MOLECULAR CONSTANTS OF DIATOMIC GASES

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Gas	Molecular weight	Symmetry number	Electronic state	Statistical weight	T_0, cm^{-1}	ω_e, cm^{-1}	$\omega_e x_e$, cm^{-1}	$\omega_e y_e$, cm^{-1}	$\omega_e z_e$, cm^{-1}	B_e, cm^{-1}	α_1, cm^{-1}	α_2, cm^{-1}	α_3, cm^{-1}	D_e, cm^{-1}	β_1, cm^{-1}	β_2, cm^{-1}	Reference
C_2	24.022	2	$^1\Sigma_g$	1	0	1854.83	14.07	--------	--------	1.8189	0.01830	----------	----------	[b][7.00]×10^{-6}	----------	----------	16, 172, 173
			$^3\Pi_u$	6	610	1640.64	11.66	--------	--------	1.6312	.01681	----------	----------	7.01	-0.15×10^{-6}	----------	----------
			$^3\Sigma_g$	3	6,243.5	1469.82	11.18	.02	--------	1.4972	.01632	----------	----------	[b][6.21]	----------	----------	----------
			$^1\Pi_u$	2	8,268.5	1607.64	12.13	--------	--------	1.6156	.01718	----------	----------	[b][6.53]	----------	----------	----------
CCl	47.468	1	$X^2\Pi_{1/2}$	2	0	874.1	4.6	--------	--------	.6942	.00669	----------	----------	1.87	----------	----------	174
			$X^2\Pi_{3/2}$	2	133.64	870.5	3.4	--------	--------	.6942	.00669	----------	----------	1.87	----------	----------	---
			$B^2\Delta$	4	36,003.92	863.6	----------	--------	--------	.70337	----------	----------	----------	1.828	----------	----------	---
CF	31.011	1	$X^2\Pi$	2	0	1308.1	10.85	--------	--------	1.4183	.0190	----------	----------	6.7	----------	----------	175
			$X^2\Pi$	2	77	1308.1	10.85	--------	--------	1.4183	.0190	----------	----------	6.7	----------	----------	---
CH[e]	------	--	------	--	----------	----------	----------	--------	--------	----------	----------	----------	----------	----------	----------	----------	---
CN	26.019	1	$X^2\Sigma$	2	0	2068.107	13.136	--------	--------	1.8985	.01734	----------	----------	6.4	.0095	----------	16
			$A^2\Pi$	4	9,114.59	1813.91	12.876	--------	--------	1.7155	.01745	----------	----------	[b][6.14]	----------	----------	--
			$B^2\Sigma$	2	25,797.85	2163.50	20.24	--------	--------	1.9690	.02213	----------	----------	[b][6.52]	----------	----------	--
CO	28.011	1	$X^1\Sigma$	1	0	2169.56	13.453	.0308	--------	1.93024	.017470	----------	----------	6.42	.04	----------	16
CP	42.986	1	$X^2\Sigma$	2	0	1239.28	6.86	--------	--------	.79814	.00596	----------	----------	1.324	----------	----------	23
			$A^2\Pi$	2	6,806.30	1061.66	6.031	--------	--------	.6976	.0077	----------	----------	[b][1.20]	----------	----------	--
			$A^2\Pi$	2	6,964.57	1061.66	6.031	--------	--------	.6976	.0077	----------	----------	[b][1.20]	----------	----------	--
			$B^2\Sigma$	2	28,898.92	836.06	5.913	--------	--------	.68247	.00627	----------	----------	1.819	----------	----------	--
CS	44.077	1	$X^1\Sigma$	1	0	1284.2	6.5	--------	--------	.8189279	.0059102	----------	----------	[b][1.33]	----------	----------	16, 176
			$A^1\Pi$	2	38,804.8	1071.6	10.3	--------	--------	.7794	.0085	----------	----------	[b][1.65]	----------	----------	-------
Cl_2	70.914	2	$X^1\Sigma$	1	0	561.1	3.9	--------	--------	.2406	.0017	----------	----------	[b][.177]	----------	----------	16
ClF	54.457	1	$X^1\Sigma$	1	0	784.5	6.20	--------	--------	.514076	.0043282	----------	----------	[b][.883]	----------	----------	177, 178
ClO	51.457	1	$X^2\Pi$	4	0	866	7.5	--------	--------	.6431	[a][.0069]	----------	----------	2.2	----------	----------	179, 180
F_2	38.00	2	$X^1\Sigma$	1	0	923	15.6	--------	--------	.8909	[a][.0162]	----------	----------	[b][3.32]	----------	----------	181, 182
H_2[e]	------	--	------	--	----------	----------	----------	--------	--------	----------	----------	----------	----------	----------	----------	----------	---------
HCl	36.465	1	$^1\Sigma$	1	0	2989.07	52.03	.056	--------	10.5877	.3036	----------	----------	530.1	-5.7	----------	16, 183
HF[e]	20.008	1	$^1\Sigma$	1	0	4138.57	90.04	.932	[f]-0.0142	20.9541	.7957	.01182	[g]-0.000311	[h]2153	62.3	-2.06×10^{-6}	184, 185
HS[e]	------	--	------	--	----------	----------	----------	--------	--------	----------	----------	----------	----------	----------	----------	----------	---------
Li_2	13.880	2	$X^1\Sigma$	1	0	353.558	2.624	-.0059	--------	.68103	.00717	-.00008	----------	10.11	.029	----------	16
LiCl	42.397	1	$X^1\Sigma$	1	0	641.1	4.2	--------	--------	[e]{.7102}	[.0087]	----------	----------	[b][3.49]	----------	----------	186, 100
LiF	25.940	1	$X^1\Sigma$	1	0	910.2	7.971	--------	--------	1.390	.01998	----------	----------	[b][13.0]	----------	----------	187
LiH	7.948	1	$X^1\Sigma$	1	0	1406.685	23.235	.1637	--------	7.5243	.2137	.00075	----------	864.3	-16.0	-.05	16, 188
LiO	22.940	1	$X^2\Sigma$ [e]	2	0	[1050]	[11]	--------	--------	[1.05]	[a][.014]	----------	----------	[b][4.20]	----------	----------	-------

[a]Approximated by assuming relation in ref. 16, p. 108: $\alpha_e = \frac{6\sqrt{\omega_e x_e B_e^3}}{\omega_e} - \frac{6B_e^2}{\omega_e}$.

[b]Calculated by assuming relation in ref. 16, p. 107: $D_e = 4B_e^3/\omega_e^2$.

[e]See appendix C.

[f]$-0.00059\left(v + \frac{1}{2}\right)^5$.

[g]$-0.0000058\left(v + \frac{1}{2}\right)^4$.

[h]$H_v = \left[1.68 - 0.065\left(v + \frac{1}{2}\right)\right]\times10^{-7}$.

$F_e = -1.9\times10^{-11}$.

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MgCl	59.777	1	$X^2\Sigma$	2	0	462.4	2.02	--------	---------	[0.243]	[a][0.0014]	---------	---------	[b][0.268]$\times 10^{-6}$	----------	----------	16
			$A^2\Pi$	2	26,533.3	488.3	2.50	--------	---------	[i][.257]	[a][.0017]	---------	---------	[b][.285]	----------	----------	--
			$A^2\Pi$	2	26,478.3	488.3	2.50	--------	---------	[i][.257]	[a][.0017]	---------	---------	[b][.285]	----------	----------	--
MgF	43.32	1	$X^2\Sigma$	2	0	715.6	3.82	--------	---------	.515	[a][.004]	---------	---------	[b][1.07]	----------	----------	16
			$A^2\Pi$	2	27,829.4	743.9	3.95	--------	---------	.526	[a][.004]	---------	---------	[b][1.05]	----------	----------	--
			$A^2\Pi$	2	27,863.7	743.9	3.95	--------	---------	.526	[a][.004]	---------	---------	[b][1.05]	----------	----------	--
			$B^2\Sigma$	2	37,187.4	755.7	6.20	--------	---------	.534	[a][.005]	---------	---------	[b][1.07]	----------	----------	--
			$C^2\Sigma$	2	42,579.9	819.6	4.79	--------	---------	[i][.559]	[a][.004]	---------	---------	[b][1.04]	----------	----------	--
MgH	25.328	1	$X^2\Sigma$	2	0	1495.3	31.5	-0.15	---------	5.8147	.1667	-0.0073	---------	325	10×10^{-6}	----------	16, 23
			$A^2\Pi$	4	19,278.3	1610.8	40.71	1.48	---------	6.1743	.1881	---------	---------	[b][363]	----------	----------	------
MgO	40.32	1	$X^1\Sigma$	1	0	782.99	5.15	--------	---------	.5713	.0050	---------	---------	1.21	.02	----------	23
			$A^1\Pi$	2	3,503.28	662.69	3.89	--------	---------	.5029	.0046	---------	---------	1.172	-.05	----------	--
			$B^1\Sigma$	1	20,003.57	821.91	4.74	--------	---------	.5791	.0045	---------	---------	1.13	.025	----------	--
MgS	56.386	1	$A^1\Sigma$ [e]	1	0	523	2.91	--------	---------	[.262]	[a][.0018]	---------	---------	[b][.263]	----------	----------	16
N_2	28.016	2	$X^1\Sigma$	1	0	2357.78	14.185	-.0124	---------	1.9978	.01708	-.0000460	---------	[b][5.74]	----------	----------	23, 189
			$A^3\Sigma$	3	49,756.5	1460.19	13.888	-.025	---------	1.440	.013	---------	---------	[b][5.60]	----------	----------	-------
NF	33.008	1	$X^3\Sigma$	3	0	[990]	[j][10.5]	--------	---------	[1.112]	[a][.016]	---------	---------	[b][5.61]	----------	----------	-------
NH	15.016	1	$X^3\Sigma$	3	0	[k][3298.4]	[k][86.5]	--------	---------	16.6670	.646	---------	---------	1685	----------	----------	16, 190, 191
			$a^1\Delta$	2	14,922	3186	[a][29]	--------	---------	16.537	{.17}	---------	---------	[b][1782]	----------	----------	21
			$b^1\Sigma$	1	23,571	3480	----------	--------	---------	[l]16.400	----------	---------	---------	[b][1457]	----------	----------	--
			$A^3\Pi$	6	29,777.09	[k][3232.5]	[k][99.2]	--------	---------	16.6927	.744	---------	---------	1758	40	----------	--
NO	30.008	1	$^2\Pi_{1/2}$	2	0	1903.79	13.97	-.0012	---------	1.7056	.018	---------	---------	[b][5.48]	----------	----------	16, 192
			$^2\Pi_{3/2}$	2	120.9	1903.44	13.97	-.0012	---------	1.7056	.018	---------	---------	[b][5.48]	----------	----------	-------
NS	46.074	1	$X^2\Pi_{1/2}$	2	0	1218.25	7.67	--------	---------	.77287	.00611	---------	---------	1.22	----------	----------	23
			$X^2\Pi_{3/2}$	2	223	1218.25	7.67	--------	---------	.77287	.00611	---------	---------	1.22	----------	----------	--
			$A^2\Pi_{1/2}$	2	39,882.4	961.6	8.64	--------	---------	.6938	.0054	---------	---------	[b][1.44]	----------	----------	--
			$A^2\Pi_{3/2}$	2	39,920.6	939.9	4.80	--------	---------	.6938	.0054	---------	---------	[b][1.51]	----------	----------	--
			$B^2\Sigma$	2	43,383.9	{1402.8}	{8.74}	--------	---------	.82917	[a][.0066]	---------	---------	[b][1.16]	----------	----------	--
Na_2	45.982	2	$X^1\Sigma$	1	0	159.23	.726	-.0027	---------	.15471	.00079	-.00003	---------	.5837	.0047	----------	16, 23
NaCl	58.448	1	$X^1\Sigma$	1	0	365	[a][2.04]	--------	---------	[m].216903	.001597	.000005	---------	[b][.306]	----------	----------	100, 130
NaF	41.991	1	$X^1\Sigma$	1	0	[525]	[a][3.0]	--------	---------	{.4787}	{.0039}	---------	---------	[b][1.59]	----------	----------	100, 130
NaH	23.999	1	$X^1\Sigma$	1	0	1172.2	19.72	.160	-.005	4.9009	.1353	---------	---------	332	-3	----------	16
NaO	38.991	1	$X^2\Sigma$ [e]	2	0	{665}	{4.8}	--------	---------	{.4898}	{.00495}	---------	---------	[b][1.06]	----------	----------	3
O_2 [e]	32.000	2	$X^3\Sigma$	3	[n]-.244	1580.1618	12.070	.0546	-.00143	1.445306	.015785	---------	---------	[o]4.955	.088	----------	23, 13, 32, 193
			$a^1\Delta$	2	[n]7,918.13	1509.1	12.9	--------	---------	1.4260	.0171	---------	---------	[b][5.094]	----------	----------	----------
			$b^1\Sigma$	1	[n]13,195.22	1432.5066	13.94661	-.01075	---------	1.400067	.018163	---------	---------	5.35	.007	----------	----------
			$A^3\Sigma$	3	[n]36,096	818.9	22.49	--------	---------	1.06	[a][.0293]	---------	---------	[b][6.9]	----------	----------	----------
			$B^3\Sigma$	3	[n]49.802.1	700.27	8.0003	-.37521	---------	.819	.011	---------	---------	4.38	----------	----------	----------

[a]Approximated by assuming relation in ref. 16, p. 108: $\alpha_e = \frac{6\sqrt{\omega_e x_e B_e^3}}{\omega_e} - \frac{6B_e^2}{\omega_e}$.

[b]Calculated by assuming relation in ref. 16, p. 107: $D_e = 4B_e^3/\omega_e^2$.

[e]See appendix C.

[i]Approximated by assuming relation given in ref. 16, eq. (VIII,1), p. 456: $\omega_e^u/B_e^u = \omega_e^l/B_e^l$.

[j]Approximated by assuming linear Birge-Sponer relation: $\omega_e x_e \approx \omega_e^2/4D_0^0$.

[k]$\Delta G(1/2)$ given in ref. 190 and the relation in footnote a were used to obtain ω_e and $\omega_e x_e$.

[l]B_0.

[m]Y_{01} (Y_{01} is nearly equal to B_e; see ref. 16).

[n]Values are T_e.

[o]$H_e = 1.387\times 10^{-13}$.
$F_e = -3.22\times 10^{-17}$.

TABLE I. - Concluded. MOLECULAR CONSTANTS OF DIATOMIC GASES

[Numbers in braces were estimated by reference quoted; numbers in brackets were estimated for this report (see appendix C or indicated footnote).]

Gas	Molecular weight	Symmetry number	Electronic state	Statistical weight	T_0, cm^{-1}	ω_e, cm^{-1}	$\omega_e x_e$, cm^{-1}	$\omega_e y_e$, cm^{-1}	$\omega_e z_e$, cm^{-1}	B_e, cm^{-1}	α_1, cm^{-1}	α_2, cm^{-1}	α_3, cm^{-1}	D_e, cm^{-1}	β_1, cm^{-1}	β_2, cm^{-1}	Reference
OH[e]	------	--	------	--	----------	----------	----------	--------	--------	----------	----------	----------	----------	----------	----------	----------	---
P_2	61.950	2	$X^1\Sigma$	1	0	780.89	2.820	-0.00511	--------	0.30359	0.001477	-0.0000032	----------	[b][0.184]×10^{-6}	----------	----------	194
			$A^1\Pi$	2	34,434.30	618.88	{2.97}	--------	--------	.27520	.00169	----------	----------	[b][.218]	----------	----------	---
PH	31.983	1	$X^3\Sigma$	3	0	2415	{35}	--------	--------	8.505	[a][.186]	----------	----------	430	----------	----------	16, 9
			$A^3\Pi$	6	29,321.9	1938	[p][28]	--------	--------	8.114	[p][.177]	----------	----------	[b][569]	----------	----------	-----
PN	44.983	1	$X^1\Sigma$	1	0	1337.13	6.982	--------	--------	.78608	.00557	----------	----------	1.09	----------	----------	23
			$A^1\Pi$	2	39,688.52	1103.00	7.221	--------	--------	.73059	.00663	----------	----------	[b][1.28]	----------	----------	--
PO	46.975	1	$X^2\Pi$	2	0	1233.32	6.57	--------	--------	.7330	.0055	----------	----------	[b][1.04]	----------	----------	195, 196, 197
			$X^2\Pi$	2	222.6	1233.32	6.57	--------	--------	.7330	.0055	----------	----------	[b][1.04]	----------	----------	----------
			$B^2\Sigma$	2	30,696.27	1166.1	14.10	--------	--------	.7475	.0088	----------	----------	[b][1.23]	----------	----------	----------
			$A^2\Sigma$	2	40,485.54	1391.05	6.99	--------	--------	.7800	.0054	----------	----------	[b][.981]	----------	----------	----------
PS	63.041	1	$X^2\Pi$	2	0	739.0	3.0	--------	--------	.29	[a][.0015]	----------	----------	[b][.179]	----------	----------	195
			$X^2\Pi$	2	321.4	739.0	3.0	--------	--------	.29	[a][.0015]	----------	----------	[b][.179]	----------	----------	---
S_2	64.132	2	$X^3\Sigma$	3	0	724.69	2.844	--------	--------	.2948	.00159	----------	----------	.2	----------	----------	16
SCl	67.523	1	$X^2\Pi$	4	0	[535]	[j][5.85]	--------	--------	[.2528]	[a][.00273]	----------	----------	[b][.226]	----------	----------	--
SF	51.066	1	$X^2\Pi$	4	0	[850]	[j][6.30]	--------	--------	[.5807]	[a][.00546]	----------	----------	[b][1.08]	----------	----------	--
SO	48.066	1	$X^3\Sigma$	3	0	1147.57	6.109	--------	--------	.71941	.00561	----------	----------	1.131	-0.00051×10^{-6}	----------	198
Si_2	56.18	2	$X^3\Sigma$	3	0	505.78	1.96	--------	--------	.2367	.00134	----------	----------	[b][.207]	----------	----------	199
SiCl	63.547	1	$X^2\Pi$	2	0	533.3	2.18	--------	--------	[.266]	[a][.0015]	----------	----------	[b][.265]	----------	----------	16, 119
			$X^2\Pi$	2	207.9	533.3	2.18	--------	--------	[.266]	[a][.0015]	----------	----------	[b][.265]	----------	----------	-------
			$B^2\Sigma$	2	34,186.0	698.7	1.39	--------	--------	[i][.348]	[a][.0010]	----------	----------	[b][.345]	----------	----------	-------
			$C^2\Delta$	4	41,241.3	671.5	2.18	--------	--------	[i][.334]	[a][.0015]	----------	----------	[b][.331]	----------	----------	-------
SiF	47.09	1	$X^2\Pi$	2	0	857.0	4.66	--------	--------	.5808	.00565	----------	----------	[b][1.07]	----------	----------	16, 200
			$X^2\Pi$	2	161.92	857.0	4.66	--------	--------	.5808	.00565	----------	----------	[b][1.07]	----------	----------	-------
			$A^2\Sigma$	2	22,787.64	718.04	10.152	.157	--------	.57752	.00939	.00013	----------	[b][1.49]	----------	----------	-------
			$B^2\Sigma$	2	34,638.48	1010.47	4.818	--------	--------	.62613	.00461	----------	----------	[b][.962]	----------	----------	-------
			$C^2\Sigma$	2	39,455.1	890.8	5.8	--------	--------	.6034	.0067	----------	----------	[b][1.11]	----------	----------	-------
			$D^2\Sigma$	2	47,491.2	1002.4	5.63	--------	--------	.624	.0055	----------	----------	[b][.967]	----------	----------	-------
SiH[e]	------	--	------	--	----------	----------	----------	--------	--------	----------	----------	----------	----------	----------	----------	----------	-------
SiN	42.098	1	$X^2\Sigma$	2	0	1150.872	6.5508	--------	--------	.7300	.00566	----------	----------	1.179	.001	----------	16
			$B^2\Sigma$	2	24,236.53	1030.284	16.7194	.11698	--------	.7225	.01035	----------	----------	[b][1.42]	----------	----------	--
SiO	44.09	1	$X^1\Sigma$	1	0	1240.50	5.91	--------	--------	.72620	.00507	----------	----------	1.02	----------	----------	201
			$A^1\Pi$	2	42,640.4	852.06	6.43	--------	--------	.63033	.00693	----------	----------	1.43	----------	----------	---
SiS	60.156	1	$X^1\Sigma$	1	0	748.3	2.55	--------	--------	.30265	.00148	----------	----------	.200	-.001	----------	16
			$D^1\Pi$	2	34,910.1	511.2	2.37	-.045	--------	.26550	.00202	----------	----------	[b][.286]	----------	----------	--

[a]Approximated by assuming relation in ref. 16, p. 108: $\alpha_e = \frac{6\sqrt{\omega_e x_e B_e^3}}{\omega_e} - \frac{6B_e^2}{\omega_e}$.

[b]Calculated by assuming relation in ref. 16, p. 107: $D_e = 4B_e^3/\omega_e^2$.

[e]See appendix C.

[i]Approximated by assuming relation given in ref. 16, eq. (VIII,1), p. 456: $\omega_e''/B_e'' = \omega_e'/B_e'$.

[j]Approximated by assuming linear Birge-Sponer relation: $\omega_e x_e \approx \omega_e^2/4D_0^0$.

[p]Approximated by assuming relation $\frac{\omega_o'' x_o''}{\omega_o''} = \frac{\omega_o' x_o'}{\omega_o'}$ and $\frac{\alpha_e''}{B_e''} = \frac{\alpha_e'}{B_e'}$.

TABLE II. - MOLECULAR CONSTANTS OF POLYATOMIC GASES

[Numbers in braces were estimated by reference quoted; numbers in brackets were estimated for this report (see appendix C or indicated footnote).]

(a) Harmonic oscillators.

Gas	Molecular weight	Symmetry number	Statistical weight	Frequencies, $\nu_i(d_i)$, cm^{-1}	Moments of inertia, (g)(cm^2)			References
					I_A	I_B	I_C	
$AlCl_3$	133.351	6	1	[345], [240], 610(2), [150](2)	[40.438]×10^{-39}	[40.438]×10^{-39}	[80.876]×10^{-39}	41
AlF_3	83.98	6	1	[670], [370], [975](2), [280](2)	[13.67]	[13.67]	[27.35]	--
Al_2O	69.96	2	1	{1079}, {351}, {921}	[1.726]	[15.389]	[17.115]	44
Al_2O_2	85.96	2	1	{1000}(2), {930}(2), {600}, {200}	[4.474]	[15.389]	[19.864]	44
AlOCl	78.437	1	1	[1000], [220](2), [450]	----------	[28.65]	----------	--
AlOF	61.98	1	1	[1090], [270](2), [710]	----------	[15.98]	----------	--
BCl_2	81.734	2	2	[470], [240], [960]	[1.166]	[26.43]	[27.59]	--
BCl_3	117.191	6	1	471, 458.7, 961.9(2), 243.2(2)	26.428	26.428	52.855	119, 202, 203
BF_2	48.82	2	2	[890], [480], [1460]	[.586]	[7.935]	[8.521]	----------
BF_3	67.82	6	1	888, 696.69, 1463.9(2), 480.7(2)	7.9352	[a]7.9352	15.870	12, 204, 205
BFCl	65.277	1	2	[650], [340], [1180]	[.77985]	[14.858]	[15.637]	----------
BH_3	13.844	6	1	{2384}, {802}, {2976}(2), {1765}(2)	{.3378}	{.3378}	{.6756}	206
BO_2	42.82	2	4	1070, 464(2), 1322	----------	[a]8.502	----------	207
B_2O_2	53.64	2	1	{2066}, 1910, {570}, {565}(2), {287}(2)	----------	24.923	----------	55
B_2O_3	69.64	2	1	2073(2), 1240, 730, 457, 259, 460, 522, 480	2.9336	30.545	33.479	[b]55, 208, 209
BOCl	62.277	1	1	[680], [450](2), [2040]	----------	[16.71]	----------	----------
$(BOCl)_3$	186.831	6	1	1037, 807, 333, [1200](2), [720], [450], [740](2), [1390](2), [1450](2), 390(2), 150(2), [330](2), [160](2)	[96.66]	[96.66]	[193.33]	[b]333, 334
BOF	45.82	1	1	[1020], [530](2), [2200]	----------	[9.009]	----------	----------
$(BOF)_3$	137.46	6	1	{1356}, [807], [540], [1200](2), 718, [530], 966(2), 1391(2), 1455(2), [400](2), [160](4), [350](2)	[45.833]	[45.833]	[91.667]	[b]333, 334
$BeCl_2$	79.927	2	1	[370], 482(2), 1113	----------	36.06	----------	62, 65
BeF_2	47.013	2	1	[670], 825(2), 1520	----------	12.37	----------	62, 65
BeFCl	63.47	1	1	[1350], [650](2), [490]	----------	[20.92]	----------	62, 65
$(BeO)_2$	50.026	4	1	{1200}(3), {600}(2), {300}	{3.976}	{7.058}	{11.033}	4(12/31/60), 5
$(BeO)_3$	75.039	6	1	{1200}(6), {600}(6)	{16.55}	{16.55}	{33.10}	5
$(BeO)_4$	100.052	8	1	{1200}(8), {600}(8), {300}(2)	{37.671}	{37.671}	{75.341}	4(12/31/60), 5
$Be(OH)_2$	43.029	2	1	{610}, {620}(2), {1350}, {1595}(4), {3680}(2)	----------	{16.361}	----------	5
C_3	36.033	2	1	1300, 550(2), 2200	----------	[a]6.539	----------	210
CCl_4	153.839	12	1	458, 218(2), 794(3), 310(3)	48.626	48.626	48.626	[b]80, 211
CF_3	69.011	6	2	[1030], [660], [1360](2), [650](2)	[7.997]	[7.997]	[15.99]	--------
CH_2	14.027	2	3	{2918},[b]1362(2), {3173}	----------	.3551	----------	84, 212
CH_3	15.035	6	2	[2920], 580, [3170](2), [1360](2)	.2928	.2928	.5856	86
C_2H_4	28.054	4	1	3019.3, 1623.3, 1342.4, 2989.4, 1443.9, 3069, 1055, 3105.5, 995.0, 825, 943, 949.2	.5759	2.809	3.384	213
C_2N_2	52.038	2	1	2328.5, 850.6, 2157.6, 507.2(2), 235(2)	----------	[a,c]17.768	----------	214, 215
$COCl_2$	98.925	2	1	567, 1827, 285, 849, 440, 580	[d]10.6256	[d]24.4336	[d]35.1018	216, 217
COF_2	66.011	2	1	965, 1928, 626, 1249, 584, 774	[d]7.10284	[d]7.13977	[d]14.2677	119, 218, [e]219
COFCl	82.468	1	1	776, 1868, 501, 1095, 415, 667	[7.0208]	[16.378]	[23.399]	119, 217, 218
ClF_3	92.457	2	1	752, 528, 326, 703, 434, 364	6.1126	18.1791	24.3133	220, 221
Cl_2O	86.914	2	1	688, 320, 969	2.0221	23.081	25.103	222, 223
HBO_2	43.828	1	1	3680, 2030, 1420, {1250}, {600}, {700}	.11549	9.1052	9.2207	224
H_3BO_3	61.844	3	1	3250, 1060, 881, 652, 824, 3150(2), 1440(2), 544(2), 1185(2), 209(2)	8.363	8.363	16.73	225, 226
$(HBO_2)_3$	131.484	3	1	{3500}(3), {1300}(2), {1150}, {1100}, {1000}(4) {950}, {900}(2), {750}(2), {600}(3), {550}, {500}(2), {450}(2), {350}(3), {250}, {200}(2)	44.624	44.624	89.249	224
HCO	29.019	1	2	{3000}, 1860, 1083	[d].12515	[d]1.8729	[d]1.9981	227, 228
$(LiCl)_2$	84.794	4	1	{330}, {296}, {385}, {356}, 335, 460	3.9592	38.358	42.317	229, 230, 231
$(LiF)_2$	51.88	4	1	{465}, {365}, {407}, {385}, 460, 640	{2.943}	{9.858}	{12.80}	229, 230, 232

[a]Calculated from B_e or B_0.

[b]See appendix C.

[c]$D_0 = 4\times10^{-8}$ cm^{-1}.

[d]Calculated from A_0, B_0, or C_0.

[e]Revised rotational constants were received directly from D. F. Smith.

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TABLE II. - Continued. MOLECULAR CONSTANTS OF POLYATOMIC GASES

[Numbers in braces were estimated by reference quoted; numbers in brackets were estimated for this report (see appendix C or indicated footnote).]

(a) Concluded. Harmonic oscillators.

Gas	Molecular weight	Symmetry number	Statistical weight	Frequencies, $\nu_i(d_i)$, cm^{-1}	Moments of inertia, (g)(cm^2)			References
					I_A	I_B	I_C	
$(LiF)_3$	77.82	6	1	{900}(6), {300}(6)	{18.67}×10^{-39}	{18.67}×10^{-39}	{37.34}×10^{-39}	4(12/31/60)
Li_2O	29.88	2	1	[1040], [650], [1100]	1.344	5.121	6.465	233
LiOH	23.948	1	1	[1070], [1120], [3710]	[.13248]	[2.7697]	[2.9022]	---
$(LiOH)_2$	47.896	2	1	{465}, {365}, {407}, {385}, [460], [640], [3710](2), [1120](4)	{3.6450}	{12.740}	{15.969}	110, 229
$MgCl_2$	95.234	2	1	[300], 295(2), 597	----------	55.95	----------	62, 65
MgF_2	62.32	2	1	[540], [500](2), [820]	----------	19.77	----------	65
MgFCl	78.777	1	1	[680], [400](2), [450]	----------	[33.84]	----------	--
MgOH	41.328	1	2	[750], [950], [3710]	[.13319]	[7.4480]	[7.5812]	119
NF_2	52.008	2	2	1069.6, 573.4, 930.7	1.203	7.373	8.576	234
NF_3	71.008	3	1	1031, 642, 907(2), 497(2)	7.8545	7.8545	14.3544	235, 236
N_2F_2	66.016	2	1	1010, 1636, 592, 989, 421, 360	.91905	21.244	22.163	[b]123
NH_3	17.032	3	1	3336.18, 949.87, 3443.381(2), 1626.1(2)	.28146	[a].28146	[f,g].45173	237, 238, 239
N_2O_4	92.016	4	1	1379.5, 808, 266, {50}, 1712, 482, 429, 672, 1748, 381, 1262, 750	12.51	22.61	35.12	240, 241, 242
$(NaCl)_2$	116.896	4	1	265, 159, 226, 155, 222, 260	16.48	48.16	64.65	229, 243
$(NaF)_2$	83.982	4	1	350, 209, 270, 201, 294, 313	[11.54]	[16.20]	[27.75]	229
NaOH	39.999	1	1	437, [950], [3710]	[.13325]	[7.6929]	[7.8261]	134
$(NaOH)_2$	79.998	2	1	{350}, {209}, {270}, {201}, {294}, {313}, [3710](2), [950](4)	[16.178]	[17.640]	[33.399]	229, 110
P_4	123.900	12	1	606, 363(2), 464.5(3)	25.117	25.117	25.117	244, 245
PCl_3	137.346	3	1	507.4, 260.1, 493.5(2), 189.0(2)	32.48	32.48	57.76	246, 247
PF_3	87.975	3	1	892, 487, 860(2), 344(2)	10.43	10.43	17.45	248, 249
PH_3	33.999	3	1	2322.9, 992.0, 2327.7(2), 1122.4(2)	.6263	.6263	.7200	250
SCl_2	102.980	2	1	208, 514, 535	5.75	28.16	33.91	[b]119, 251
S_2Cl_2	135.046	2	1	106, 206, 438, 448, 245, 537	14.853	59.852	65.844	[b]119, 145
SF_2	70.066	2	1	[750], [540], [850]	[3.207]	[8.346]	[11.55]	---------
SF_4	108.066	2	1	889, 715, 557, 239, 401, 867, 532, 728, 463	17.454	19.549	25.719	252
SF_6	146.066	24	1	775, 644(2), 932(3), 613(3), 524(3), 344(3)	30.707	30.707	30.707	[b]146, 253
S_2F_2	102.132	2	1	[825], [580], [420], [725], [310], [230]	[7.4334]	[30.822]	[32.465]	---------
SO_3	80.066	6	1	1068, 495, 1391(2), 529(2)	8.148	8.148	16.296	254, 255
SOCl	83.523	1	2	[525], [360], [1260]	[2.7547]	[18.142]	[20.897]	--------
$SOCl_2$	118.98	1	1	1230, 490, 344, 194, 445, 284	13.499	36.866	47.600	148, 256, 257
SOF	67.066	1	2	[800], [530], [1260]	[2.1169]	[8.3742]	[10.491]	----------
SOF_2	86.066	1	1	1333, 808, 530, 410, 748, 390	[d]9.7404	[d]10.042	[d]16.942	150, 258
SO_2F_2	102.066	2	1	1269, 848, 544, 388(2), 1502, 553, 885, 539	[d]16.343	[d]16.541	[d]16.593	259, 260, 261
Si_3	84.27	2	1	{358}, {281}(2), {620}	----------	{47.22}	----------	262
$SiCl_2$	99.004	2	1	[410], [240], [560]	[4.53]	[32.55]	[37.08]	119
$SiCl_4$	169.918	12	1	424, 150(2), 608(3), 221(3)	63.42	63.42	63.42	12, 119
SiF_2	66.09	2	1	778, 427, 947	1.312	10.92	12.23	263
SiF_4	104.09	12	1	800, 268(2), 1031(3), 391(3)	19.95	19.95	19.95	264
SiH_4	32.122	12	1	2187, 978(2), 2183(3), 910(3)	.97725	.97725	.97725	265
SiO_2	60.09	2	1	{885}, {378}(2), {1295}	----------	{12.27}	----------	266

[a]Calculated from B_e or B_0.

[b]See appendix C.

[d]Calculated from A_0, B_0, or C_0.

[f]Calculated from C_e.

$g_p = 1.450\times10^{-5}$ $^{\circ}K^{-1}$.

TABLE II. - Concluded. MOLECULAR CONSTANTS OF POLYATOMIC GASES

[Numbers in braces were estimated by reference quoted; numbers in brackets were estimated for this report (see appendix C or indicated footnote).]

(b) Anharmonic oscillators

	CF_2	CF_4	CH_4	C_2H_2	CO_2	COS	CS_2	ClCN	ClO_2	HCN	H_2O	H_2S	NO_2	N_2O	SO_2
ν_1, cm^{-1}	1162	904	2916.5	3373.7	[a]1341.54	859	[a]667.22	[a]733.4	945.3	2096.291	3656.65	2614.56	1320.6	[a]1276.522	1151.74
$\nu_2(d_2)$, cm^{-1}	667	435(2)	1534.0(2)	1973.8	667.40(2)	524(2)	395.93(2)	379.9(2)	447.4	713.460(2)	1594.78	1182.68	749.6	589.193(2)	517.69
$\nu_3(d_3)$, cm^{-1}	[1440]	1283(3)	3018.7(3)	3281.93	2349.16	2064	1535.35	2219	1110.5	3311.473	3755.79	2627.48	1617.0	2223.745	1361.76
$\nu_4(d_4)$, cm^{-1}	-------	632(3)	1306(3)	[b]611.58(2)	---------	---------	---------	---------	--------	---------	--------	--------	------	---------	---------
x_{11}, cm^{-1}	[-7.0]	0	-64.6	[c]-24.08	-3.75	-4.0	-.99	[-5]	-4.4	-7.0741	-45.18	-25.09	-9.0	-4.310	-3.99
x_{12}, cm^{-1}	[-7.6]	-4	0	-16.94	3.62	-6.8	.68	[-4]	-3.0	-2.5265	-15.14	-19.69	-9.7	-.838	-2.05
x_{13}, cm^{-1}	[-22]	0	-65.0	-99.01	-19.37	-4.5	-7.28	-2.0	-14.4	-10.4434	-165.48	-94.68	-28.7	-27.843	-13.71
x_{14}, cm^{-1}	--------	2	0	-16.46	---------	---------	---------	---------	--------	---------	---------	---------	------	---------	---------
x_{22}, cm^{-1}	[-.4]	-2	0	-7.92	-.63	-.4	.15	2.1	0.0	-2.6533	-17.04	-5.72	-.5	-.051	-3.00
x_{23}, cm^{-1}	[-2.1]	-1	-15.0	-1.38	-12.53	-11.5	-6.45	-11.0	-13	-19.0055	-19.99	-21.09	-2.7	-14.468	-3.90
x_{24}, cm^{-1}	-------	-6	-11.2	-6.15	---------	---------	---------	---------	--------	---------	---------	---------	------	---------	---------
x_{33}, cm^{-1}	[-13]	-5	-17.5	-25.69	-12.63	-7.0	-6.54	[-17]	-2.0	-52.4901	-44.62	-24.00	-16.4	-15.020	-5.17
x_{34}, cm^{-1}	-------	1	-12.0	-9.06	---------	---------	---------	---------	--------	---------	---------	---------	------	---------	---------
x_{44}, cm^{-1}	-------	-1.5	-6.0	5.38	---------	---------	---------	---------	--------	---------	---------	---------	------	---------	---------
g_{22}, cm^{-1}	-------	-------	---------	(d)	.775	3.2	-.10	-.1	--------	5.160	---------	---------	------	[e].308989	---------
y_{111}, cm^{-1}	-------	-------	---------	---------	.13	---------	---------	---------	--------	-.1889	.47	---------	------	.05	---------
y_{112}, cm^{-1}	-------	-------	---------	---------	-.08	---------	---------	---------	--------	-.0012	-.10	---------	------	-.10	---------
y_{113}, cm^{-1}	-------	-------	---------	---------	0	---------	---------	---------	--------	-.7723	.68	---------	------	-.047	---------
y_{122}, cm^{-1}	-------	-------	---------	---------	-.07	---------	---------	---------	--------	-.0747	-.10	---------	------	0	---------
y_{123}, cm^{-1}	-------	-------	---------	---------	.02	---------	---------	---------	--------	.1240	-1.72	---------	------	.571	---------
y_{133}, cm^{-1}	-------	-------	---------	---------	.07	---------	---------	---------	--------	-1.1010	1.17	---------	------	.015	---------
y_{222}, cm^{-1}	-------	-------	---------	---------	.01	---------	---------	---------	--------	.0285	-.60	---------	------	-.016	---------
y_{223}, cm^{-1}	-------	-------	---------	---------	0	---------	---------	---------	--------	-.0375	1.55	---------	------	-.006	---------
y_{233}, cm^{-1}	-------	-------	---------	---------	.01	---------	---------	---------	--------	.1230	-.81	---------	------	-.007	---------
y_{333}, cm^{-1}	-------	-------	---------	---------	.015	---------	---------	---------	--------	[f].3285	-.45	---------	------	-.009	---------
$\lvert W_0 \rvert$, cm^{-1}	-------	-------	---------	---------	51.31	---------	35.3	31.4	--------	---------	---------	---------	------	30.245	---------
A_e, cm^{-1}	[6.119]	.189985	[g]5.2406	---------	---------	---------	---------	---------	[h]1.7259	---------	27.379	[i]10.351	[g]8.003	---------	[g]2.027359
B_e, cm^{-1}	[.3196]	.189985	[j]5.2406	1.18171	.391625	.203724	.109297	J.199165	[h].3320	[k]1.484869	14.5844	[i]9.023	[j].434	[k].4211101	[j].3441741
C_e, cm^{-1}	[.3037]	.189985	[l]5.2406	---------	---------	---------	---------	---------	[h].2776	---------	9.5256	[i]4.825	[l].412	---------	[l].2935345
α_1^A, cm^{-1}	-------	-------	---------	---------	---------	---------	---------	---------	--------	---------	.750	[i].125	------	---------	---------
α_2^A, cm^{-1}	-------	-------	---------	---------	---------	---------	---------	---------	--------	---------	-2.941	[i]-.346	------	---------	---------
α_3^A, cm^{-1}	-------	-------	---------	---------	---------	---------	---------	---------	--------	---------	1.253	[i].173	------	---------	---------
α_1^B, cm^{-1}	-------	-------	---------	.00685	.00126	.0006044	.000198	---------	--------	[m].010095	.238	[i].159	------	[m].001863	---------
α_2^B, cm^{-1}	-------	-------	---------	.00622	-.00076	-.0003532	-.000256	---------	--------	[m]-.003607	-.160	[i]-.219	------	[m]-.0005534	---------
α_3^B, cm^{-1}	-------	-------	---------	[n].00419	.0030875	.001838	.000710	---------	--------	[m].010419	.078	[i].124	------	[m].003442	---------
α_1^C, cm^{-1}	-------	-------	---------	---------	---------	---------	---------	---------	--------	---------	.2018	[i].069	------	---------	---------
α_2^C, cm^{-1}	-------	-------	---------	---------	---------	---------	---------	---------	--------	---------	.1392	[i].062	------	---------	---------
α_3^C, cm^{-1}	-------	-------	---------	---------	---------	---------	---------	---------	--------	---------	.1445	[i].055	------	---------	---------
D_{000}, cm^{-1}	-------	-------	---------	151×10^{-8}	13.5×10^{-8}	4.24×10^{-8}	1.1×10^{-8}	5.547×10^{-8}	--------	293.6×10^{-8}	---------	--------	------	17.89×10^{-8}	---------
ρ, $^{\circ}K^{-1}$	-------	-------	---------	---------	---------	---------	---------	---------	--------	---------	2.13×10^{-5}	1.7×10^{-5}	------	---------	---------
Molecular weight	50.011	88.011	16.043	26.038	44.011	60.077	76.143	61.476	67.457	27.027	18.016	34.082	46.008	44.016	64.066
Statistical weight	1	1	1	1	1	1	1	1	2	1	1	1	2	1	1
Symmetry number	2	12	12	2	2	1	2	1	2	1	2	2	2	1	2
References	81	83, 119	267, 268	269, 270	271	272, 273, 274	275	276, 277	278, 279	280	281, 282, 283	284, 285	286	287	288, 289

[a]Unperturbed vibrational frequency.

[b]$\nu_5 = 729.25(2)$.

[c]$x_{15} = -11.75$; $x_{25} = -0.85$; $x_{35} = -5.73$; $x_{45} = -12.65$; $x_{55} = -2.27$.

[d]$g_{44} = -1.10$ (incorrect sign reported by ref. 269); $g_{55} = 2.49$.

[e]$g_{22} = x_{ll} - B_0 + \frac{1}{2} y_{1ll} + y_{2ll} + \frac{1}{2} y_{3ll}$.

[f]$y_{333} = y^o_{333} + z_{3333}$.

[g]A_0.

[h]Adjusted for the isotopic mixture.

[i]Derived from moments of inertia given in ref. 284.

[j]B_0.

[k]$B_e = B_0 + \frac{1}{2}\alpha_1 + \alpha_2 + \frac{1}{2}\alpha_3$.

[l]C_0.

[m]$\alpha_1^B = \alpha_1 + 2\gamma_{11} + \gamma_{12} + \frac{1}{2}\gamma_{13}$

$\alpha_2^B = \alpha_2 + 3\gamma_{22} + \frac{1}{2}\gamma_{12} + \frac{1}{2}\gamma_{23}$

$\alpha_3^B = \alpha_3 + 2\gamma_{33} + \gamma_{23} + \frac{1}{2}\gamma_{13}$.

[n]$\alpha_4^B = -1.31\times10^{-3}$ cm^{-1}; $\alpha_5^B = -2.15\times10^{-3}$ cm^{-1}.

TABLE III. - THERMODYNAMIC PROPERTIES

(1) Al (gas); molecular weight, 26.98

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	75760.4	76857.6	-------	0	--------
100	6.0209	588.2	33.3444	2746.3	76354.6	77331.1	-162.0725	0	0
200	5.2899	1144.8	37.2314	6301.5	76911.2	77454.1	-77.4971	0	0
298.15	5.1125	1653.6	39.3038	10064.8	77420.0	77420.0	-49.6388	0	0
300	5.1107	1663.1	39.3354	10137.5	77429.5	77418.7	-49.2889	0	0
400	5.0472	2170.5	40.7956	14147.7	77936.9	77328.6	-35.1966	0	0
500	5.0181	2673.6	41.9184	18285.6	78440.0	77204.5	-26.7528	0	0
600	5.0024	3174.6	42.8318	22524.5	78940.9	77048.6	-21.1340	0	0
700	4.9931	3674.3	43.6021	26847.2	79440.7	76862.0	-17.1293	0	0
800	4.9872	4173.3	44.2685	31241.5	79939.7	76645.0	-14.1338	0	0
900	4.9831	4671.8	44.8556	35698.2	80438.2	76397.9	-11.8109	0	0
[a]1000	4.9802	5170.0	45.3805	40210.5	80936.3	73605.1	-9.9994	0	0
1100	4.9781	5667.9	45.8550	44772.7	81434.2	73403.0	-8.5392	0	0
1200	4.9765	6165.6	46.2881	49380.1	81932.0	73200.8	-7.3256	0	0
1300	4.9752	6663.2	46.6864	54029.1	82429.5	72998.3	-6.3014	0	0
1400	4.9742	7160.6	47.0550	58716.4	82927.0	72795.8	-5.4261	0	0
1500	4.9734	7658.0	47.3982	63439.3	83424.4	72593.2	-4.6696	0	0
1600	4.9728	8155.3	47.7192	68195.3	83921.7	72390.5	-4.0093	0	0
1700	4.9722	8652.6	48.0206	72982.5	84418.9	72187.7	-3.4286	0	0
1800	4.9718	9149.8	48.3048	77798.9	84916.2	71984.9	-2.9137	0	0
1900	4.9714	9646.9	48.5736	82642.9	85413.3	71782.1	-2.4543	0	0
2000	4.9711	10144.1	48.8286	87513.1	85910.4	71579.2	-2.0420	0	0
2100	4.9708	10641.2	49.0711	92408.2	86407.5	71376.3	-1.6702	0	0
2200	4.9706	11138.2	49.3024	97327.0	86904.6	71173.4	-1.3331	0	0
2300	4.9704	11635.3	49.5233	102268.3	87401.7	70970.5	-1.0261	0	0
2400	4.9703	12132.3	49.7348	107231.3	87898.7	70767.5	-0.7456	0	0
2500	4.9702	12629.3	49.9377	112215.0	88395.7	70564.5	-0.4882	0	0
2600	4.9701	13126.3	50.1327	117218.6	88892.7	70361.5	-0.2512	0	0
2700	4.9702	13623.4	50.3203	122241.3	89389.7	70158.5	-0.0324	0	0
2800	4.9703	14120.4	50.5010	127282.4	89886.8	69955.6	0.1700	0	0
2900	4.9705	14617.4	50.6754	132341.3	90383.8	69752.6	0.3581	0	0
3000	4.9709	15114.5	50.8439	137417.3	90880.9	69549.7	0.5330	0	0
3100	4.9715	15611.6	51.0069	142509.9	91378.0	69346.8	0.6963	0	0
3200	4.9723	16108.8	51.1648	147618.5	91875.2	69144.0	0.8489	0	0
3300	4.9735	16606.1	51.3178	152742.7	92372.5	68941.3	0.9916	0	0
3400	4.9750	17103.5	51.4663	157882.0	92869.9	68738.7	1.1257	0	0
3500	4.9769	17601.1	51.6105	163035.8	93367.5	68536.3	1.2517	0	0
3600	4.9794	18098.9	51.7508	168203.9	93865.3	68334.1	1.3705	0	0
3700	4.9824	18597.0	51.8873	173385.9	94363.4	68132.2	1.4824	0	0
3800	4.9862	19095.4	52.0202	178581.3	94861.8	67930.6	1.5883	0	0
3900	4.9908	19594.3	52.1498	183789.8	95360.6	67729.4	1.6883	0	0
4000	4.9964	20093.6	52.2762	189011.1	95860.0	67528.8	1.7831	0	0
4100	5.0030	20593.6	52.3996	194244.9	96359.9	67328.7	1.8729	0	0
4200	5.0107	21094.2	52.5203	199490.9	96860.6	67129.4	1.9581	0	0
4300	5.0188	21595.5	52.6382	204748.9	97361.8	66930.6	2.0392	0	0
4400	5.0291	22097.8	52.7537	210018.5	97864.2	66733.0	2.1164	0	0
4500	5.0403	22601.2	52.8668	215299.5	98367.5	66536.3	2.1900	0	0
4600	5.0535	23105.8	52.9777	220591.8	98872.2	66341.0	2.2601	0	0
4700	5.0685	23611.9	53.0866	225895.0	99378.3	66147.1	2.3272	0	0
4800	5.0854	24119.6	53.1935	231209.0	99886.0	65954.8	2.3910	0	0
4900	5.1035	24628.8	53.2985	236533.6	100395.2	65764.0	2.4523	0	0
5000	5.1243	25140.2	53.4018	241868.6	100906.6	65575.4	2.5110	0	0
5100	5.1473	25653.8	53.5035	247213.9	101420.2	65389.0	2.5670	0	0
5200	5.1727	26169.8	53.6037	252569.3	101936.1	65204.9	2.6208	0	0
5300	5.2004	26688.4	53.7025	257934.6	102454.8	65023.6	2.6725	0	0
5400	5.2307	27209.9	53.7999	263309.7	102976.3	64845.1	2.7220	0	0
5500	5.2636	27734.6	53.8962	268694.6	103501.0	64669.8	2.7696	0	0
5600	5.2992	28262.7	53.9914	274088.9	104029.1	64497.9	2.8154	0	0
5700	5.3376	28794.5	54.0855	279492.8	104560.9	64329.7	2.8595	0	0
5800	5.3774	29329.6	54.1785	284905.9	105096.0	64164.8	2.9021	0	0
5900	5.4214	29869.5	54.2708	290328.4	105635.9	64004.7	2.9430	0	0
6000	5.4402	30398.0	54.3594	295758.6	106164.4	63833.2	2.9823	0	0

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Al, 932° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(2) Al (crystal, liquid); molecular weight, 26.98

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-1091.2	0	-------	-76857.6	--------
100	3.117	114.7	1.651	50.4	-976.5	0	0	-77331.1	162.0725
200	5.160	548.3	4.575	366.7	-542.9	0	0	-77454.1	77.4971
298.15	5.818	1091.2	6.775	928.8	0	0	0	-77420.0	49.6388
300	5.827	1102.0	6.811	941.3	10.8	0	0	-77418.7	49.2889
400	6.124	1699.5	8.528	1711.7	608.3	0	0	-77328.6	35.1966
500	6.420	2326.7	9.926	2636.3	1235.5	0	0	-77204.5	26.7528
600	6.716	2983.5	11.123	3690.3	1892.3	0	0	-77048.6	21.1340
700	7.012	3669.9	12.180	4856.1	2578.7	0	0	-76862.0	17.1293
800	7.308	4385.9	13.136	6122.9	3294.7	0	0	-76645.0	14.1338
900	7.604	5131.5	14.014	7481.1	4040.3	0	0	-76397.9	11.8109
b 932	7.699	5376.4	14.281	7933.5	4285.2	0	0	-76229.1	11.1623
932	7.0	7946.4	17.038	7933.5	6855.2	0	0	-73692.8	11.1623
1000	7.0	8422.4	17.531	9108.6	7331.2	0	0	-73605.1	9.9994
1100	7.0	9122.4	18.199	10896.5	8031.2	0	0	-73403.0	8.5392
1200	7.0	9822.4	18.808	12747.2	8731.2	0	0	-73200.8	7.3256
1300	7.0	10522.4	19.368	14656.0	9431.2	0	0	-72998.3	6.3014
1400	7.0	11222.4	19.887	16619.4	10131.2	0	0	-72795.8	5.4261
1500	7.0	11922.4	20.370	18632.6	10831.2	0	0	-72593.2	4.6696
1600	7.0	12622.4	20.821	20691.2	11531.2	0	0	-72390.5	4.0093
1700	7.0	13322.4	21.246	22795.8	12231.2	0	0	-72187.7	3.4286
1800	7.0	14022.4	21.646	24940.4	12931.2	0	0	-71985.0	2.9137
1900	7.0	14722.4	22.024	27123.2	13631.2	0	0	-71782.1	2.4543
2000	7.0	15422.4	22.383	29343.6	14331.2	0	0	-71579.2	2.0420
2100	7.0	16122.4	22.725	31600.1	15031.2	0	0	-71376.3	1.6702
2200	7.0	16822.4	23.051	33889.8	15731.2	0	0	-71173.4	1.3331
2300	7.0	17522.4	23.362	36210.2	16431.2	0	0	-70970.5	1.0261
2400	7.0	18222.4	23.660	38561.6	17131.2	0	0	-70767.5	0.7456
2500	7.0	18922.4	23.946	40942.6	17831.2	0	0	-70564.5	0.4882
2600	7.0	19622.4	24.220	43349.6	18531.2	0	0	-70361.5	0.2512
2700	7.0	20322.4	24.484	45784.4	19231.2	0	0	-70158.5	0.0324
2800	7.0	21022.4	24.739	48246.8	19931.2	0	0	-69955.6	-0.1700
2900	7.0	21722.4	24.984	50731.2	20631.2	0	0	-69752.6	-0.3581
3000	7.0	22422.4	25.222	53243.6	21331.2	0	0	-69549.7	-0.5330
3100	7.0	23122.4	25.451	55775.7	22031.2	0	0	-69346.8	-0.6953
3200	7.0	23822.4	25.673	58331.2	22731.2	0	0	-69144.0	-0.8489
3300	7.0	24522.4	25.889	60911.3	23431.2	0	0	-68941.3	-0.9916
3400	7.0	25222.4	26.098	63510.8	24131.2	0	0	-68738.7	-1.1257
3500	7.0	25922.4	26.301	66131.1	24831.2	0	0	-68536.3	-1.2517
3600	7.0	26622.4	26.498	68770.4	25531.2	0	0	-68334.1	-1.3705
3700	7.0	27322.4	26.690	71430.6	26231.2	0	0	-68132.2	-1.4824
3800	7.0	28022.4	26.876	74106.4	26931.2	0	0	-67930.6	-1.5883
3900	7.0	28722.4	27.058	76803.8	27631.2	0	0	-67729.4	-1.6883
4000	7.0	29422.4	27.235	79517.6	28331.2	0	0	-67528.8	-1.7831
4100	7.0	30122.4	27.408	82250.4	29031.2	0	0	-67328.7	-1.8729
4200	7.0	30822.4	27.577	85001.0	29731.2	0	0	-67129.4	-1.9581
4300	7.0	31522.4	27.742	87768.2	30431.2	0	0	-66930.6	-2.0392
4400	7.0	32222.4	27.903	90550.8	31131.2	0	0	-66733.0	-2.1164
4500	7.0	32922.4	28.060	93347.6	31831.2	0	0	-66536.3	-2.1900
4600	7.0	33622.4	28.214	96162.0	32531.2	0	0	-66341.0	-2.2601
4700	7.0	34322.4	28.364	98988.4	33231.2	0	0	-66147.1	-2.3272
4800	7.0	35022.4	28.512	101835.2	33931.2	0	0	-65954.8	-2.3910
4900	7.0	35722.4	28.656	104692.0	34631.2	0	0	-65764.0	-2.4523
5000	7.0	36422.4	28.797	107562.6	35331.2	0	0	-65575.4	-2.5110
5100	7.0	37122.4	28.936	110451.2	36031.2	0	0	-65389.0	-2.5670
5200	7.0	37822.4	29.072	113352.0	36731.2	0	0	-65204.9	-2.6208
5300	7.0	38522.4	29.205	116264.1	37431.2	0	0	-65023.6	-2.6725
5400	7.0	39222.4	29.336	119192.0	38131.2	0	0	-64845.1	-2.7220
5500	7.0	39922.4	29.465	122135.1	38831.2	0	0	-64669.8	-2.7696
5600	7.0	40622.4	29.591	125087.2	39531.2	0	0	-64497.9	-2.8154
5700	7.0	41322.4	29.715	128053.1	40231.2	0	0	-64329.7	-2.8595
5800	7.0	42022.4	29.836	131026.4	40931.2	0	0	-64164.8	-2.9021
5900	7.0	42722.4	29.956	134018.0	41631.2	0	0	-64004.7	-2.9430
6000	7.0	43422.4	30.074	137021.6	42331.2	0	0	-63833.2	-2.9823

[a] H_0° refers to crystal state.

[b] Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(3) Al_2 (gas); molecular weight, 53.96

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	114532.8	116715.2	-------	-37000.0	--------
100	7.5893	711.2	44.9583	3784.6	115244.0	117197.0	-247.0179	-37465.1	77.1271
200	8.4503	1520.7	50.5345	8586.2	116053.4	117139.2	-118.9535	-37768.9	36.0406
298.15	8.7508	2367.0	53.9735	13725.2	116899.8	116899.8	-76.8516	-37940.2	22.4261
300	8.7543	2383.2	54.0277	13825.1	116916.0	116894.4	-76.3232	-37942.9	22.2546
400	8.8931	3266.3	56.5673	19360.6	117799.1	116582.5	-55.0599	-38074.7	15.3333
500	8.9748	4160.0	58.5611	25120.6	118692.8	116221.8	-42.3386	-38187.2	11.1671
600	9.0322	5060.5	60.2027	31061.2	119593.2	115808.6	-33.8862	-38288.6	8.3818
700	9.0779	5966.1	61.5986	37153.0	120498.8	115341.4	-27.8714	-38382.5	6.3871
800	9.1171	6875.8	62.8134	43374.9	121408.6	114819.2	-23.3799	-38470.7	4.8876
900	9.1525	7789.4	63.8893	49711.0	122322.1	114241.5	-19.9032	-38554.2	3.7187
[a]1000	9.1855	8706.3	64.8553	56149.1	123239.0	108576.6	-17.2173	-38633.6	2.7816
1100	9.2169	9626.4	65.7323	62679.1	124159.2	108096.8	-15.0651	-38709.3	2.0133
1200	9.2472	10549.6	66.5356	69293.1	125082.4	107620.0	-13.2793	-38781.6	1.3718
1300	9.2768	11475.8	67.2769	75984.2	126008.6	107146.2	-11.7747	-38850.5	0.8281
1400	9.3059	12405.0	67.9655	82746.7	126937.7	106675.3	-10.4910	-38916.3	0.3612
1500	9.3345	13337.0	68.6085	89575.7	127869.7	106207.3	-9.3833	-38979.0	-0.0441
1600	9.3628	14271.8	69.2118	96467.1	128804.6	105742.2	-8.4179	-39038.8	-0.3993
1700	9.3909	15209.5	69.7803	103416.9	129742.3	105279.9	-7.5704	-39095.6	-0.7132
1800	9.4188	16150.0	70.3178	110422.1	130682.8	104820.4	-6.8201	-39149.5	-0.9926
1900	9.4465	17093.3	70.8278	117479.6	131626.0	104363.6	-6.1515	-39200.6	-1.2429
2000	9.4741	18039.3	71.3131	124586.8	132572.1	103909.7	-5.5526	-39248.8	-1.4685
2100	9.5016	18988.1	71.7760	131741.5	133520.9	103458.5	-5.0133	-39294.2	-1.6729
2200	9.5291	19939.6	72.2186	138941.3	134472.4	103010.0	-4.5251	-39336.8	-1.8588
2300	9.5565	20893.9	72.6428	146184.6	135426.7	102564.3	-4.0811	-39376.6	-2.0288
2400	9.5838	21850.9	73.0501	153469.3	136383.7	102121.3	-3.6759	-39413.7	-2.1848
2500	9.6110	22810.7	73.4419	160794.1	137343.4	101681.0	-3.3049	-39448.0	-2.3284
2600	9.6382	23773.1	73.8194	168157.2	138305.9	101243.5	-2.9635	-39479.6	-2.4611
2700	9.6654	24738.3	74.1836	175557.5	139271.1	100808.7	-2.6489	-39508.4	-2.5840
2800	9.6926	25706.2	74.5356	182993.6	140239.0	100376.6	-2.3583	-39534.5	-2.6983
2900	9.7197	26676.8	74.8762	190464.2	141209.6	99947.2	-2.0884	-39558.0	-2.8047
3000	9.7468	27650.2	75.2062	197968.5	142182.9	99520.5	-1.8382	-39578.8	-2.9041
3100	9.7739	28626.2	75.5262	205505.2	143159.0	99096.6	-1.6046	-39597.0	-2.9971
3200	9.8010	29604.9	75.8370	213073.4	144137.7	98675.3	-1.3866	-39612.6	-3.0844
3300	9.8281	30586.4	76.1390	220672.3	145119.2	98256.8	-1.1831	-39625.8	-3.1664
3400	9.8551	31570.6	76.4328	228300.9	146103.3	97840.9	-0.9922	-39636.4	-3.2436
3500	9.8821	32557.4	76.7189	235958.6	147090.2	97427.8	-0.8129	-39644.8	-3.3164
3600	9.9092	33547.0	76.9976	243644.5	148079.7	97017.3	-0.6442	-39650.8	-3.3851
3700	9.9362	34539.2	77.2695	251357.9	149072.0	96609.6	-0.4854	-39654.7	-3.4502
3800	9.9632	35534.2	77.5348	259098.1	150067.0	96204.6	-0.3353	-39656.6	-3.5118
3900	9.9902	36531.9	77.7940	266864.6	151064.6	95802.2	-0.1938	-39656.6	-3.5703
4000	10.0172	37532.2	78.0472	274656.7	152065.0	95402.6	-0.0597	-39655.0	-3.6259
4100	10.0441	38535.3	78.2949	282473.9	153068.1	95005.7	0.0671	-39651.8	-3.6787
4200	10.0711	39541.1	78.5373	290315.5	154073.8	94611.4	0.1872	-39647.4	-3.7290
4300	10.0981	40549.5	78.7746	298181.2	155082.3	94219.9	0.3014	-39641.4	-3.7770
4400	10.1251	41560.7	79.0070	306070.3	156093.5	93831.1	0.4099	-39635.0	-3.8228
4500	10.1520	42574.5	79.2349	313982.4	157107.3	93444.9	0.5134	-39627.8	-3.8665
4600	10.1790	43591.1	79.4583	321917.1	158123.9	93061.5	0.6118	-39620.6	-3.9084
4700	10.2059	44610.3	79.6775	329874.0	159143.1	92680.7	0.7059	-39613.5	-3.9484
4800	10.2329	45632.3	79.8927	337852.5	160165.0	92302.6	0.7953	-39606.9	-3.9868
4900	10.2598	46656.9	80.1039	345852.4	161189.7	91927.3	0.8810	-39600.7	-4.0236
5000	10.2868	47684.2	80.3115	353873.2	162217.0	91554.6	0.9630	-39596.2	-4.0589
5100	10.3137	48714.3	80.5155	361914.5	163247.0	91184.6	1.0411	-39593.3	-4.0928
5200	10.3407	49747.0	80.7160	369976.1	164279.8	90817.4	1.1161	-39592.5	-4.1255
5300	10.3676	50782.4	80.9132	378057.6	165315.2	90452.8	1.1881	-39594.4	-4.1568
5400	10.3945	51820.5	81.1073	386158.7	166353.3	90090.9	1.2570	-39599.3	-4.1871
5500	10.4215	52861.3	81.2982	394279.0	167394.1	89731.7	1.3229	-39607.9	-4.2162
5600	10.4484	53904.8	81.4863	402418.2	168437.6	89375.2	1.3865	-39620.6	-4.2443
5700	10.4754	54951.0	81.6714	410576.1	169483.8	89021.4	1.4475	-39638.1	-4.2715
5800	10.5023	55999.9	81.8538	418752.4	170532.6	88670.2	1.5066	-39659.3	-4.2977
5900	10.5292	57051.5	82.0336	426946.8	171584.2	88321.8	1.5630	-39687.6	-4.3230
6000	10.5561	58105.7	82.2108	435159.0	172638.5	87976.1	1.6172	-39690.2	-4.3474

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Al, 932° K.

C-2

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(4) AlCl (gas); molecular weight, 62.437

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-13808.7	-11620.8	-------	-117026.7	--------
100	7.0577	696.9	46.1583	3918.9	-13111.8	-11386.6	29.6770	-117414.8	251.9774
200	7.7805	1437.6	51.2629	8815.0	-12371.1	-11442.2	17.2253	-117729.7	123.5333
298.15	8.2870	2228.7	54.4744	14012.8	-11580.0	-11580.0	13.0891	-117950.6	81.1486
300	8.2938	2244.0	54.5256	14113.7	-11564.7	-11583.0	13.0368	-117954.4	80.6155
400	8.5634	3088.3	56.9525	19692.7	-10720.4	-11750.9	10.9138	-118147.9	59.1178
500	8.7150	3952.9	58.8812	25487.7	-9855.8	-11940.5	9.6204	-118327.3	46.1987
600	8.8091	4829.4	60.4790	31458.0	-8979.3	-12155.1	8.7434	-118496.2	37.5731
700	8.8729	5713.7	61.8420	37575.7	-8095.0	-12396.5	8.1052	-118655.2	31.4034
800	8.9194	6603.4	63.0300	43820.6	-7205.3	-12665.5	7.6164	-118805.2	26.7701
900	8.9555	7497.2	64.0827	50177.2	-6311.5	-12962.5	7.2277	-118947.0	23.1620
[a]1000	8.9850	8394.3	65.0279	56633.6	-5414.4	-15803.5	6.8688	-119081.3	20.2721
1100	9.0101	9294.1	65.8854	63179.9	-4514.6	-16052.6	6.5522	-119209.1	17.9050
1200	9.0320	10196.2	66.6704	69808.2	-3612.5	-16300.7	6.2845	-119331.1	15.9304
1300	9.0518	11100.4	67.3941	76511.9	-2708.3	-16547.9	6.0545	-119447.9	14.2579
1400	9.0700	12006.5	68.0656	83285.3	-1802.2	-16794.4	5.8543	-119560.1	12.8230
1500	9.0870	12914.4	68.6920	90123.6	-894.3	-17040.0	5.6783	-119668.2	11.5782
1600	9.1031	13823.9	69.2789	97022.4	15.2	-17285.0	5.5222	-119772.5	10.4880
1700	9.1185	14735.0	69.8313	103978.2	926.3	-17529.2	5.3822	-119873.5	9.5253
1800	9.1334	15647.6	70.3529	110987.6	1838.9	-17772.8	5.2562	-119971.3	8.6689
1900	9.1478	16561.6	70.8471	118047.9	2753.0	-18015.6	5.1419	-120066.3	7.9019
2000	9.1619	17477.1	71.3167	125156.2	3668.4	-18257.9	5.0377	-120158.6	7.2112
2100	9.1757	18394.0	71.7640	132310.5	4585.3	-18499.5	4.9419	-120248.3	6.5857
2200	9.1894	19312.3	72.1912	139508.4	5503.6	-18740.4	4.8538	-120335.7	6.0167
2300	9.2029	20231.9	72.6000	146748.1	6423.2	-18980.7	4.7724	-120420.9	5.4968
2400	9.2164	21152.9	72.9919	154027.8	7344.2	-19220.4	4.6967	-120503.9	5.0199
2500	9.2300	22075.2	73.3685	161346.0	8266.5	-19459.4	4.6263	-120584.9	4.5808
2600	9.2438	22998.9	73.7307	168701.0	9190.2	-19697.7	4.5606	-120663.8	4.1753
2700	9.2579	23923.9	74.0799	176091.7	10115.3	-19935.3	4.4989	-120740.8	3.7995
2800	9.2723	24850.5	74.4168	183516.6	11041.8	-20172.1	4.4408	-120815.9	3.4504
2900	9.2874	25778.4	74.7424	190974.6	11969.7	-20408.1	4.3864	-120889.0	3.1251
3000	9.3031	26707.9	75.0576	198464.7	12899.3	-20643.3	4.3347	-120960.2	2.8214
3100	9.3196	27639.1	75.3629	205985.8	13830.4	-20877.5	4.2860	-121029.4	2.5370
3200	9.3372	28571.9	75.6590	213537.0	14763.2	-21110.6	4.2398	-121096.6	2.2703
3300	9.3559	29506.6	75.9466	221117.4	15697.9	-21342.6	4.1958	-121161.8	2.0197
3400	9.3760	30443.1	76.2262	228726.1	16634.4	-21573.3	4.1540	-121224.9	1.7836
3500	9.3976	31381.8	76.4983	236362.4	17573.1	-21802.5	4.1141	-121285.8	1.5609
3600	9.4208	32322.7	76.7634	244025.5	18514.0	-22030.1	4.0761	-121344.4	1.3505
3700	9.4458	33266.0	77.0218	251714.8	19457.3	-22256.0	4.0398	-121400.6	1.1514
3800	9.4727	34211.9	77.2741	259429.7	20403.2	-22479.9	4.0052	-121454.4	0.9626
3900	9.5017	35160.6	77.5205	267169.4	21351.9	-22701.7	3.9718	-121505.5	0.7835
4000	9.5328	36112.3	77.7615	274933.6	22303.6	-22921.1	3.9399	-121554.0	0.6133
4100	9.5661	37067.3	77.9973	282721.6	23258.6	-23137.9	3.9092	-121599.7	0.4512
4200	9.6017	38025.6	78.2282	290532.9	24216.9	-23351.8	3.8796	-121642.4	0.2969
4300	9.6397	38987.7	78.4546	298367.1	25179.0	-23562.8	3.8512	-121681.9	0.1497
4400	9.6801	39953.7	78.6767	306223.6	26145.0	-23770.4	3.8238	-121718.5	0.0091
4500	9.7229	40923.8	78.8947	314102.2	27115.1	-23974.5	3.7975	-121751.7	-0.1253
4600	9.7681	41898.3	79.1089	322002.5	28089.6	-24174.9	3.7721	-121781.8	-0.2538
4700	9.8157	42877.5	79.3194	329923.9	29068.8	-24371.2	3.7477	-121808.5	-0.3769
4800	9.8656	43861.5	79.5266	337866.2	30052.8	-24563.3	3.7238	-121831.8	-0.4949
4900	9.9178	44850.7	79.7306	345829.1	31042.0	-24750.8	3.7010	-121851.4	-0.6081
5000	9.9723	45845.2	79.9315	353812.2	32036.5	-24933.7	3.6789	-121867.7	-0.7168
5100	10.0289	46845.2	80.1295	361815.3	33036.5	-25111.7	3.6574	-121880.6	-0.8213
5200	10.0876	47851.0	80.3248	369838.1	34042.3	-25284.5	3.6366	-121890.0	-0.9217
5300	10.1483	48862.8	80.5175	377880.2	35054.1	-25451.9	3.6166	-121896.0	-1.0184
5400	10.2108	49880.7	80.7078	385941.5	36072.0	-25613.8	3.5970	-121898.7	-1.1115
5500	10.2750	50905.0	80.8958	394021.7	37096.3	-25770.0	3.5780	-121898.1	-1.2012
5600	10.3408	51935.8	81.0815	402120.6	38127.1	-25920.4	3.5597	-121894.4	-1.2877
5700	10.4081	52973.2	81.2651	410237.9	39164.5	-26064.7	3.5419	-121887.6	-1.3711
5800	10.4767	54017.5	81.4467	418373.5	40208.8	-26202.8	3.5248	-121877.3	-1.4517
5900	10.5464	55068.6	81.6264	426527.2	41259.9	-26334.6	3.5079	-121864.8	-1.5295
6000	10.6172	56126.8	81.8043	434698.7	42318.1	-26460.0	3.4916	-121833.7	-1.6047

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Al, 932° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(5) $AlCl_3$ (gas); molecular weight, 133.351

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-144335.7	-139954.3	-------	-302457.1	--------
100	11.8770	936.9	58.9852	4961.7	-143398.9	-140176.1	304.0687	-303598.9	646.8247
200	15.3117	2313.8	68.3925	11364.7	-142021.9	-140321.2	150.8330	-304275.6	314.7629
298.15	17.1405	3915.8	74.8849	18411.2	-140420.0	-140420.0	100.3413	-304691.9	205.2421
300	17.1651	3947.5	74.9910	18549.8	-140388.3	-140421.6	99.7066	-304698.6	203.8649
400	18.1487	5718.2	80.0782	26313.1	-138617.6	-140492.4	74.1274	-305026.3	148.3464
500	18.6982	7563.0	84.1926	34533.3	-136772.7	-140555.7	58.7727	-305307.3	115.0018
600	19.0276	9450.6	87.6332	43129.3	-134885.1	-140628.1	48.5313	-305553.9	92.7526
700	19.2381	11364.6	90.5832	52043.6	-132971.1	-140718.3	41.2119	-305770.4	76.8482
800	19.3797	13295.9	93.1619	61233.6	-131039.8	-140831.0	35.7183	-305960.3	64.9119
900	19.4792	15239.2	95.4506	70666.4	-129096.6	-140969.0	31.4417	-306126.7	55.6227
[a]1000	19.5517	17190.9	97.5069	80316.0	-127144.9	-143649.8	27.9764	-306272.9	48.1875
1100	19.6059	19148.9	99.3730	90161.4	-125186.8	-143738.4	25.1215	-306401.8	42.1015
1200	19.6476	21111.7	101.0808	100185.3	-123224.1	-143826.3	22.7410	-306515.9	37.0278
1300	19.6803	23078.1	102.6548	110373.1	-121257.6	-143914.2	20.7256	-306617.3	32.7331
1400	19.7064	25047.5	104.1143	120712.5	-119288.2	-144002.4	18.9970	-306708.0	29.0508
1500	19.7275	27019.2	105.4746	131192.7	-117316.5	-144091.2	17.4980	-306789.3	25.8586
1600	19.7448	28992.9	106.7484	141804.5	-115342.9	-144181.0	16.1857	-306862.7	23.0647
1700	19.7593	30968.1	107.9458	152539.8	-113367.6	-144271.7	15.0267	-306929.1	20.5989
1800	19.7714	32944.7	109.0756	163391.4	-111391.1	-144363.6	13.9961	-306989.4	18.4067
1900	19.7817	34922.3	110.1449	174352.9	-109413.4	-144456.8	13.0734	-307044.5	16.4448
2000	19.7905	36900.9	111.1598	185418.6	-107434.8	-144551.4	12.2424	-307094.9	14.6789
2100	19.7981	38880.4	112.1255	196583.2	-105455.4	-144647.4	11.4899	-307141.3	13.0808
2200	19.8046	40860.5	113.0467	207842.2	-103475.2	-144744.8	10.8054	-307184.0	11.6279
2300	19.8104	42841.3	113.9272	219191.2	-101494.5	-144843.8	10.1800	-307223.5	10.3011
2400	19.8154	44822.6	114.7704	230626.4	-99513.2	-144944.4	9.6064	-307260.1	9.0847
2500	19.8199	46804.3	115.5794	242144.1	-97531.4	-145046.6	9.0782	-307294.1	7.9655
2600	19.8238	48786.5	116.3568	253741.2	-95549.2	-145150.4	8.5905	-307325.8	6.9323
2700	19.8274	50769.1	117.1050	265414.5	-93566.7	-145255.8	8.1385	-307355.4	5.9755
2800	19.8305	52752.0	117.8262	277161.3	-91583.8	-145362.9	7.7184	-307383.1	5.0869
2900	19.8334	54735.2	118.5221	288978.9	-89600.6	-145471.7	7.3271	-307409.1	4.2596
3000	19.8359	56718.7	119.1945	300864.9	-87617.1	-145582.3	6.9614	-307433.6	3.4874
3100	19.8383	58702.4	119.8450	312817.1	-85633.4	-145694.5	6.6193	-307456.8	2.7649
3200	19.8404	60686.3	120.4749	324833.3	-83649.4	-145808.5	6.2983	-307478.7	2.0876
3300	19.8423	62670.4	121.0854	336911.4	-81665.3	-145924.2	5.9963	-307499.4	1.4512
3400	19.8440	64654.8	121.6778	349049.7	-79681.0	-146041.7	5.7119	-307519.3	0.8523
3500	19.8456	66639.2	122.2530	361246.4	-77696.5	-146160.9	5.4436	-307538.2	0.2875
3600	19.8471	68623.9	122.8121	373499.8	-75711.9	-146281.9	5.1900	-307556.5	-0.2459
3700	19.8485	70608.7	123.3559	385808.3	-73727.1	-146404.7	4.9499	-307574.2	-0.7505
3800	19.8497	72593.6	123.8853	398170.5	-71742.2	-146529.3	4.7224	-307591.4	-1.2286
3900	19.8509	74578.6	124.4009	410584.9	-69757.1	-146655.6	4.5062	-307608.2	-1.6822
4000	19.8519	76563.7	124.9035	423050.3	-67772.0	-146783.7	4.3007	-307624.9	-2.1131
4100	19.8529	78549.0	125.3937	435565.2	-65786.8	-146913.6	4.1050	-307641.6	-2.5231
4200	19.8539	80534.3	125.8721	448128.6	-63801.4	-147045.4	3.9184	-307658.3	-2.9135
4300	19.8547	82519.8	126.3393	460739.3	-61816.0	-147178.9	3.7403	-307675.1	-3.2858
4400	19.8555	84505.3	126.7958	473396.1	-59830.5	-147314.2	3.5702	-307692.5	-3.6412
4500	19.8563	86490.9	127.2420	486098.1	-57844.9	-147451.3	3.4076	-307710.3	-3.9808
4600	19.8570	88476.5	127.6784	498844.2	-55859.2	-147590.2	3.2518	-307729.0	-4.3057
4700	19.8576	90462.3	128.1055	511633.5	-53873.5	-147731.0	3.1027	-307748.6	-4.6168
4800	19.8582	92448.1	128.5236	524465.0	-51887.7	-147873.6	2.9594	-307769.5	-4.9149
4900	19.8588	94433.9	128.9330	537337.9	-49901.8	-148017.9	2.8220	-307791.5	-5.2009
5000	19.8594	96419.8	129.3342	550251.3	-47915.9	-148164.1	2.6900	-307815.3	-5.4754
5100	19.8599	98405.8	129.7275	563204.4	-45930.0	-148312.1	2.5628	-307841.0	-5.7393
5200	19.8604	100391.8	130.1131	576196.6	-43944.0	-148461.9	2.4405	-307868.7	-5.9929
5300	19.8608	102377.9	130.4915	589226.8	-41957.9	-148613.6	2.3228	-307898.8	-6.2371
5400	19.8613	104364.0	130.8627	602294.6	-39971.8	-148767.1	2.2093	-307931.5	-6.4722
5500	19.8617	106350.1	131.2271	615399.2	-37985.6	-148922.4	2.0996	-307967.0	-6.6988
5600	19.8621	108336.3	131.5850	628539.8	-35999.5	-149079.5	1.9939	-308005.8	-6.9173
5700	19.8624	110322.5	131.9366	641715.9	-34013.2	-149238.4	1.8918	-308047.9	-7.1282
5800	19.8628	112308.8	132.2820	654926.9	-32027.0	-149399.2	1.7932	-308093.2	-7.3319
5900	19.8631	114295.1	132.6216	668172.1	-30040.7	-149561.8	1.6977	-308143.0	-7.5286
6000	19.8634	116281.4	132.9554	681451.0	-28054.4	-149726.3	1.6052	-308181.1	-7.7188

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Al, 932° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(6) AlF (gas); molecular weight, 45.98

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-63525.1	-61379.1	-------	-156591.7	--------
100	6.9601	695.1	43.5818	3663.0	-62830.0	-61146.1	138.3449	-156983.3	338.2889
200	7.1783	1398.6	48.4495	8291.3	-62126.6	-61226.3	71.5135	-157362.3	166.5887
298.15	7.6320	2125.1	51.3990	13199.5	-61400.0	-61400.0	49.4637	-157678.2	109.9326
300	7.6404	2139.3	51.4463	13294.6	-61385.9	-61403.6	49.1862	-157683.6	109.2199
400	8.0309	2923.9	53.7008	18556.4	-60601.2	-61601.5	37.9874	-157946.5	80.4807
500	8.3012	3741.4	55.5239	24020.6	-59783.8	-61814.0	31.2457	-158164.2	63.2106
600	8.4845	4581.2	57.0546	29651.5	-58943.9	-62046.6	26.7349	-158350.2	51.6824
700	8.6121	5436.4	58.3726	35424.4	-58088.7	-62303.0	23.5003	-158514.0	43.4388
800	8.7042	6302.5	59.5290	41320.7	-57222.6	-62585.0	21.0637	-158662.0	37.2500
900	8.7731	7176.5	60.5583	47326.0	-56348.6	-62893.9	19.1596	-158798.2	32.4322
[a]1000	8.8266	8056.6	61.4855	53428.9	-55468.5	-65746.3	17.5881	-158925.6	28.5747
1100	8.8694	8941.5	62.3289	59620.3	-54583.6	-66006.4	16.2792	-159046.1	25.4161
1200	8.9047	9830.2	63.1022	65892.4	-53694.9	-66265.4	15.1844	-159160.9	22.7820
1300	8.9344	10722.2	63.8162	72238.8	-52802.9	-66523.6	14.2544	-159271.1	20.5516
1400	8.9601	11617.0	64.4792	78653.9	-51908.1	-66781.2	13.4540	-159377.5	18.6385
1500	8.9826	12514.1	65.0982	85133.1	-51011.0	-67038.3	12.7577	-159480.5	16.9794
1600	9.0028	13413.4	65.6786	91672.3	-50111.7	-67295.0	12.1463	-159580.7	15.5267
1700	9.0212	14314.6	66.2249	98267.7	-49210.5	-67551.5	11.6045	-159678.3	14.2442
1800	9.0380	15217.6	66.7410	104916.3	-48307.5	-67807.6	11.1212	-159773.6	13.1035
1900	9.0537	16122.2	67.2301	111615.0	-47402.9	-68063.6	10.6872	-159866.8	12.0822
2000	9.0684	17028.3	67.6949	118361.5	-46496.8	-68319.4	10.2950	-159958.2	11.1625
2100	9.0824	17935.9	68.1377	125153.3	-45589.3	-68575.0	9.9388	-160047.7	10.3300
2200	9.0957	18844.8	68.5605	131988.3	-44680.4	-68830.6	9.6137	-160135.6	9.5727
2300	9.1084	19755.0	68.9651	138864.8	-43770.1	-69086.0	9.3159	-160221.9	8.8809
2400	9.1208	20666.5	69.3530	145780.8	-42858.7	-69341.4	9.0419	-160306.7	8.2464
2500	9.1327	21579.1	69.7256	152734.9	-41946.0	-69596.7	8.7888	-160390.2	7.6624
2600	9.1443	22493.0	70.0840	159725.5	-41032.2	-69852.0	8.5545	-160472.3	7.1230
2700	9.1556	23408.0	70.4293	166751.2	-40117.2	-70107.2	8.3367	-160553.1	6.6233
2800	9.1667	24324.1	70.7625	173810.9	-39201.0	-70362.5	8.1336	-160632.6	6.1591
2900	9.1775	25241.3	71.0844	180903.4	-38283.8	-70617.7	7.9440	-160710.9	5.7266
3000	9.1882	26159.6	71.3957	188027.4	-37365.5	-70872.8	7.7662	-160788.1	5.3229
3100	9.1987	27078.9	71.6971	195182.2	-36446.2	-71128.0	7.5995	-160864.2	4.9449
3200	9.2091	27999.3	71.9893	202366.6	-35525.8	-71383.2	7.4425	-160939.2	4.5905
3300	9.2194	28920.8	72.2729	209579.7	-34604.4	-71638.4	7.2944	-161013.2	4.2573
3400	9.2295	29843.2	72.5483	216820.9	-33681.9	-71893.6	7.1546	-161086.3	3.9436
3500	9.2396	30766.7	72.8159	224089.1	-32758.5	-72148.8	7.0223	-161158.4	3.6477
3600	9.2496	31691.1	73.0764	231383.8	-31834.0	-72404.0	6.8970	-161229.7	3.3682
3700	9.2595	32616.6	73.3299	238704.2	-30908.5	-72659.2	6.7780	-161300.2	3.1036
3800	9.2693	33543.0	73.5770	246049.6	-29982.1	-72914.5	6.6650	-161370.0	2.8528
3900	9.2790	34470.4	73.8179	253419.4	-29054.7	-73169.7	6.5573	-161439.2	2.6148
4000	9.2888	35398.8	74.0529	260813.0	-28126.3	-73425.0	6.4546	-161507.8	2.3886
4100	9.2984	36328.2	74.2824	268229.8	-27196.9	-73680.4	6.3566	-161576.1	2.1733
4200	9.3080	37258.5	74.5066	275669.3	-26266.6	-73935.7	6.2628	-161644.1	1.9682
4300	9.3176	38189.8	74.7258	283130.9	-25335.3	-74191.1	6.1732	-161711.7	1.7726
4400	9.3271	39122.0	74.9401	290614.3	-24403.1	-74446.5	6.0873	-161779.4	1.5858
4500	9.3366	40055.2	75.1498	298118.8	-23469.9	-74702.0	6.0051	-161847.0	1.4072
4600	9.3461	40989.3	75.3551	305644.1	-22535.8	-74957.4	5.9260	-161915.1	1.2363
4700	9.3555	41924.4	75.5562	313189.7	-21600.7	-75212.9	5.8502	-161983.6	1.0726
4800	9.3649	42860.4	75.7533	320755.2	-20664.7	-75468.5	5.7771	-162052.7	0.9156
4900	9.3743	43797.4	75.9464	328340.2	-19727.7	-75724.1	5.7070	-162122.4	0.7650
5000	9.3836	44735.3	76.1359	335944.3	-18789.8	-75979.7	5.6394	-162193.3	0.6204
5100	9.3930	45674.1	76.3218	343567.3	-17851.0	-76235.4	5.5741	-162265.4	0.4813
5200	9.4023	46613.9	76.5043	351208.6	-16911.3	-76491.1	5.5111	-162338.9	0.3476
5300	9.4116	47554.6	76.6835	358868.0	-15970.6	-76746.8	5.4505	-162414.2	0.2188
5400	9.4209	48496.2	76.8595	366545.2	-15028.9	-77002.6	5.3917	-162491.4	0.0948
5500	9.4301	49438.7	77.0325	374239.8	-14086.4	-77258.4	5.3349	-162570.9	-0.0248
5600	9.4394	50382.2	77.2025	381951.6	-13142.9	-77514.2	5.2800	-162652.8	-0.1402
5700	9.4486	51326.6	77.3696	389680.2	-12198.5	-77770.1	5.2268	-162737.5	-0.2516
5800	9.4578	52271.9	77.5340	397425.4	-11253.2	-78026.1	5.1755	-162824.5	-0.3592
5900	9.4670	53218.2	77.6958	405186.9	-10307.0	-78282.0	5.1255	-162915.4	-0.4632
6000	9.4763	54165.3	77.8550	412964.5	-9359.8	-78538.1	5.0770	-162993.9	-0.5638

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Al, 932° K.

TABLE III - Continued. THERMODYNAMIC PROPERTIES

(7) AlF_3 (gas); molecular weight, 83.98

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-286872.2	-282616.5	-------	-414539.1	--------
100	9.4291	829.2	52.8128	4452.0	-286042.9	-282944.1	616.1846	-415793.7	891.8715
200	12.5048	1936.3	60.3633	10136.3	-284935.8	-283320.9	306.8461	-416820.6	437.0776
298.15	14.6027	3272.2	65.7697	16337.1	-283600.0	-283600.0	204.8860	-417594.5	287.0151
300	14.6360	3299.2	65.8602	16458.8	-283572.9	-283604.5	203.6042	-417607.1	285.1275
400	16.1313	4842.3	70.2891	23273.3	-282029.8	-283814.1	151.9370	-418191.8	209.0237
500	17.1394	6509.2	74.0045	30493.0	-280362.9	-283982.6	120.9161	-418624.3	163.3050
600	17.8181	8259.3	77.1934	38056.7	-278612.9	-284136.5	100.2236	-418949.8	132.7980
700	18.2849	10065.8	79.9772	45918.2	-276806.3	-284291.7	85.4354	-419200.9	110.9923
800	18.6149	11911.7	82.4416	54041.6	-274960.4	-284458.1	74.3378	-419399.0	94.6292
900	18.8548	13785.8	84.6487	62398.0	-273086.3	-284641.7	65.7010	-419558.9	81.8969
[a]1000	19.0337	15680.7	86.6449	70964.3	-271191.5	-287362.4	58.7466	-419690.2	71.7075
1100	19.1701	17591.1	88.4657	79721.1	-269281.0	-287486.7	53.0361	-419799.8	63.3683
1200	19.2764	19513.7	90.1385	88652.5	-267358.5	-287607.5	48.2755	-419892.6	56.4173
1300	19.3606	21445.7	91.6849	97744.6	-265426.5	-287726.2	44.2457	-419972.1	50.5345
1400	19.4283	23385.2	93.1222	106985.8	-263486.9	-287843.7	40.7900	-420040.9	45.4912
1500	19.4836	25330.9	94.4646	116365.9	-261541.2	-287960.8	37.7940	-420101.1	41.1197
1600	19.5293	27281.7	95.7235	125876.0	-259590.5	-288078.1	35.1715	-420154.1	37.2941
1700	19.5674	29236.5	96.9086	135508.2	-257635.6	-288196.1	32.8563	-420201.2	33.9182
1800	19.5996	31194.9	98.0280	145255.5	-255677.2	-288315.1	30.7977	-420243.2	30.9170
1900	19.6270	33156.3	99.0885	155111.8	-253715.9	-288435.4	28.9551	-420281.0	28.2316
2000	19.6504	35120.2	100.0958	165071.4	-251752.0	-288557.3	27.2959	-420315.1	25.8144
2100	19.6707	37086.3	101.0551	175129.4	-249785.9	-288680.8	25.7940	-420346.1	23.6273
2200	19.6884	39054.3	101.9706	185281.0	-247817.9	-288806.2	24.4281	-420374.4	21.6389
2300	19.7038	41023.9	102.8461	195522.1	-245848.3	-288933.5	23.1806	-420400.3	19.8232
2400	19.7174	42995.0	103.6850	205849.0	-243877.2	-289063.0	22.0364	-420424.0	18.1588
2500	19.7294	44967.3	104.4901	216258.0	-241904.8	-289194.6	20.9832	-420446.0	16.6274
2600	19.7401	46940.8	105.2641	226746.0	-239931.4	-289328.5	20.0108	-420466.3	15.2138
2700	19.7496	48915.3	106.0093	237309.9	-237956.9	-289464.7	19.1099	-420485.1	13.9048
2800	19.7582	50890.7	106.7277	247946.9	-235981.5	-289603.3	18.2729	-420502.6	12.6893
2900	19.7658	52866.9	107.4212	258654.6	-234005.3	-289744.3	17.4934	-420519.0	11.5575
3000	19.7728	54843.8	108.0914	269430.4	-232028.3	-289887.8	16.7653	-420534.4	10.5012
3100	19.7791	56821.4	108.7399	280272.1	-230050.7	-290033.8	16.0840	-420548.8	9.5130
3200	19.7848	58799.6	109.3679	291177.7	-228072.5	-290182.3	15.4449	-420562.5	8.5865
3300	19.7900	60778.4	109.9768	302145.1	-226093.8	-290333.4	14.8441	-420575.4	7.7161
3400	19.7947	62757.6	110.5677	313172.5	-224114.6	-290487.1	14.2785	-420587.8	6.8969
3500	19.7991	64737.3	111.1415	324258.1	-222134.9	-290643.4	13.7448	-420599.7	6.1245
3600	19.8031	66717.4	111.6993	335400.2	-220154.8	-290802.3	13.2406	-420611.2	5.3950
3700	19.8068	68697.9	112.2420	346597.4	-218174.3	-290963.8	12.7634	-420622.4	4.7049
3800	19.8102	70678.8	112.7702	357848.1	-216193.4	-291128.1	12.3111	-420633.4	4.0511
3900	19.8133	72659.9	113.2849	369151.0	-214212.2	-291295.0	11.8817	-420644.4	3.4308
4000	19.8162	74641.4	113.7865	380504.7	-212230.7	-291464.6	11.4735	-420655.4	2.8415
4100	19.8189	76623.2	114.2759	391907.9	-210249.0	-291636.8	11.0850	-420666.6	2.2810
4200	19.8214	78605.2	114.7535	403359.5	-208267.0	-291811.9	10.7147	-420678.2	1.7471
4300	19.8238	80587.5	115.2199	414858.2	-206284.7	-291989.6	10.3614	-420690.0	1.2380
4400	19.8260	82569.9	115.6757	426403.1	-204302.2	-292170.0	10.0240	-420702.6	0.7521
4500	19.8280	84552.6	116.1213	437993.0	-202319.5	-292353.2	9.7015	-420715.8	0.2878
4600	19.8299	86535.5	116.5571	449627.0	-200336.6	-292539.1	9.3927	-420730.1	-0.1564
4700	19.8317	88518.6	116.9836	461304.1	-198353.5	-292727.8	9.0970	-420745.5	-0.5817
4800	19.8334	90501.9	117.4011	473023.4	-196370.3	-292919.3	8.8132	-420762.3	-0.9893
4900	19.8350	92485.3	117.8101	484784.1	-194386.9	-293113.5	8.5411	-420780.3	-1.3803
5000	19.8365	94468.9	118.2108	496585.2	-192403.3	-293310.4	8.2796	-420800.3	-1.7556
5100	19.8379	96452.6	118.6036	508426.0	-190419.6	-293510.2	8.0281	-420822.3	-2.1162
5200	19.8392	98436.5	118.9889	520305.7	-188435.7	-293712.7	7.7861	-420846.5	-2.4630
5300	19.8404	100420.4	119.3668	532223.5	-186451.7	-293918.0	7.5532	-420873.2	-2.7968
5400	19.8416	102404.5	119.7377	544178.8	-184467.6	-294126.1	7.3286	-420902.6	-3.1181
5500	19.8427	104388.7	120.1017	556170.8	-182483.4	-294337.0	7.1120	-420934.9	-3.4279
5600	19.8438	106373.1	120.4593	568198.9	-180499.1	-294550.6	6.9031	-420970.6	-3.7265
5700	19.8448	108357.5	120.8105	580262.5	-178514.7	-294767.1	6.7014	-421009.7	-4.0148
5800	19.8457	110342.0	121.1557	592360.8	-176530.1	-294986.3	6.5066	-421052.0	-4.2931
5900	19.8466	112326.6	121.4949	604493.4	-174545.5	-295208.4	6.3181	-421099.0	-4.5620
6000	19.8475	114311.4	121.8285	616659.6	-172560.8	-295433.2	6.1357	-421134.5	-4.8219

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Al, 932° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(8) AlF_3 (α, β); molecular weight, 83.98

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	0	0	-359082.0	-354826.4	-------	-486749.0	--------
100	5.9738	209.9	3.2725	117.4	-358872.1	-355773.3	764.5186	-488622.9	1040.2055
200	13.5870	1214.5	9.9307	771.7	-357867.5	-356252.5	375.5167	-489752.3	505.7483
298.15	17.9500	2782.0	15.6253	1876.7	-356300.0	-356300.0	247.2155	-490294.5	329.3445
300	18.0112	2821.0	16.3834	2094.1	-356261.0	-356292.6	245.7422	-490295.2	327.2656
400	20.2165	4733.8	21.2417	3762.9	-354348.2	-356132.5	180.7292	-490510.1	237.8159
500	21.8300	6839.0	25.9326	6127.3	-352243.0	-355862.6	141.8277	-490504.3	184.2166
600	23.2071	9092.1	30.0368	8929.9	-349989.9	-355513.4	115.9158	-490326.8	148.4902
700	24.4726	11476.8	33.7102	12120.4	-347605.2	-355090.6	97.4275	-489999.7	122.9844
[b]727	24.8027	12142.0	34.6426	13043.2	-346940.0	-353884.9	93.0935	-488408.8	117.0643
727	23.111	12290.9	34.848	13043.2	-346791.1	-357625.9	93.0935	-488942.6	117.0643
800	23.330	13986.0	37.070	15670.0	-345096.0	-354593.6	83.5815	-489534.6	103.8729
900	23.630	16334.0	39.835	19517.5	-342748.0	-354303.4	72.8228	-489220.5	89.0186
[c]1000	23.930	18712.0	42.340	23628.0	-340370.0	-356540.9	64.1824	-488868.6	77.1433
1100	24.230	21120.0	44.635	27978.5	-337962.0	-356167.7	57.1024	-488480.7	67.4346
1200	24.530	23558.0	46.756	32549.2	-335524.0	-355773.0	51.2088	-488058.1	59.3506
1300	24.830	26026.0	48.732	37325.6	-333056.0	-355355.7	46.2278	-487601.6	52.5167
1400	25.130	28524.0	50.583	42292.2	-330558.0	-354914.8	41.9633	-487112.0	46.6645
1500	25.430	31052.0	52.327	47438.5	-328030.0	-354449.6	38.2722	-486589.9	41.5979

[a] H_0° refers to crystal α state.

[b] Transition point.

[c] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Al, 932° K.

TABLE III - Continued. THERMODYNAMIC PROPERTIES

(9) AlH (gas); molecular weight, 27.988

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	59482.9	61586.0	-------	-66900.0	--------
100	6.9607	689.7	37.2592	3036.2	60172.6	61781.6	-129.9000	-67295.2	143.1219
200	6.9677	1386.1	42.0856	7031.0	60869.0	61742.9	-62.3852	-67652.3	69.4315
298.15	7.0197	2071.8	44.8745	11307.5	61554.7	61554.7	-40.2025	-67963.1	45.0470
300	7.0216	2084.8	44.9180	11390.6	61567.7	61550.5	-39.9243	-67968.7	44.7398
400	7.1791	2794.0	46.9571	15988.8	62276.9	61314.9	-28.7343	-68263.8	32.3370
500	7.4070	3523.0	48.5828	20768.4	63005.9	61067.4	-22.0468	-68534.7	24.8639
600	7.6488	4275.8	49.9548	25697.0	63758.7	60813.4	-17.6069	-68779.6	19.8628
700	7.8721	5052.1	51.1509	30753.6	64535.0	60552.2	-14.4490	-68999.9	16.2785
800	8.0660	5849.2	52.2151	35922.8	65332.1	60280.6	-12.0910	-69198.6	13.5820
900	8.2301	6664.3	53.1749	41193.1	66147.2	59994.5	-10.2654	-69378.8	11.4789
[a]1000	8.3680	7494.4	54.0494	46555.0	66977.3	57174.6	-8.8524	-69543.7	9.7923
1100	8.4842	8337.2	54.8525	52000.6	67820.0	56954.2	-7.7189	-69695.7	8.4092
1200	8.5828	9190.7	55.5951	57523.5	68673.5	56739.9	-6.7777	-69836.7	7.2542
1300	8.6672	10053.3	56.2855	63117.9	69536.1	56529.6	-5.9841	-69968.5	6.2749
1400	8.7402	10923.7	56.9306	68779.1	70406.6	56322.0	-5.3068	-70092.3	5.4340
1500	8.8041	11801.0	57.5358	74502.7	71283.9	56115.7	-4.7217	-70209.2	4.7040
1600	8.8606	12684.3	58.1058	80285.0	72167.2	55910.2	-4.2114	-70320.1	4.0642
1700	8.9111	13572.9	58.6445	86122.8	73055.8	55705.3	-3.7631	-70425.5	3.4988
1800	8.9566	14466.3	59.1552	92013.0	73949.2	55500.7	-3.3659	-70526.1	2.9955
1900	8.9981	15364.1	59.6406	97953.0	74847.0	55295.3	-3.0118	-70622.3	2.5445
2000	9.0362	16265.8	60.1031	103940.4	75748.7	55089.5	-2.6944	-70714.5	2.1381
2100	9.0715	17171.3	60.5449	109972.9	76654.1	54883.0	-2.4084	-70803.0	1.7699
2200	9.1044	18080.1	60.9676	116048.7	77563.0	54676.2	-2.1494	-70888.1	1.4348
2300	9.1354	18992.1	61.3730	122165.9	78475.0	54468.5	-1.9135	-70969.9	1.1284
2400	9.1645	19907.1	61.7625	128322.8	79390.0	54260.3	-1.6985	-71048.8	0.8473
2500	9.1923	20824.9	62.1371	134517.9	80307.8	54051.5	-1.5012	-71124.8	0.5884
2600	9.2187	21745.5	62.4982	140749.8	81228.4	53842.2	-1.3198	-71198.0	0.3491
2700	9.2441	22668.7	62.8466	147017.1	82151.5	53632.4	-1.1523	-71268.7	0.1274
2800	9.2685	23594.3	63.1832	153318.7	83077.2	53422.1	-0.9978	-71336.9	-0.0787
2900	9.2921	24522.3	63.5089	159653.4	84005.2	53211.4	-0.8542	-71402.7	-0.2708
3000	9.3150	25452.7	63.8243	166020.1	84935.6	53000.0	-0.7208	-71466.2	-0.4502
3100	9.3372	26385.3	64.1301	172417.9	85868.2	52788.2	-0.5964	-71527.6	-0.6183
3200	9.3589	27320.1	64.4269	178845.8	86803.0	52575.7	-0.4803	-71586.8	-0.7759
3300	9.3801	28257.1	64.7152	185303.0	87740.0	52363.4	-0.3718	-71643.9	-0.9241
3400	9.4008	29196.1	64.9955	191788.6	88679.0	52150.1	-0.2701	-71699.1	-1.0637
3500	9.4211	30137.2	65.2683	198301.9	89620.1	51935.9	-0.1746	-71752.4	-1.1954
3600	9.4411	31080.3	65.5340	204842.0	90563.2	51722.1	-0.0845	-71803.9	-1.3199
3700	9.4608	32025.4	65.7929	211408.4	91508.3	51507.9	0.0001	-71853.7	-1.4378
3800	9.4801	32972.5	66.0455	218000.4	92455.4	51292.4	0.0801	-71901.9	-1.5495
3900	9.4992	33921.4	66.2920	224617.3	93404.3	51077.9	0.1554	-71948.6	-1.6556
4000	9.5181	34872.3	66.5327	231258.6	94355.2	50862.4	0.2270	-71993.9	-1.7564
4100	9.5368	35825.1	66.7680	237923.7	95307.9	50647.2	0.2945	-72037.9	-1.8523
4200	9.5552	36779.7	66.9980	244612.0	96262.5	50431.3	0.3588	-72080.8	-1.9438
4300	9.5735	37736.1	67.2231	251323.1	97219.0	50215.3	0.4196	-72122.4	-2.0310
4400	9.5917	38694.4	67.4434	258056.5	98177.2	49998.6	0.4774	-72163.3	-2.1144
4500	9.6097	39654.4	67.6591	264811.6	99137.3	49782.5	0.5325	-72203.4	-2.1940
4600	9.6275	40616.3	67.8705	271588.2	100099.2	49565.8	0.5849	-72243.0	-2.2703
4700	9.6452	41579.9	68.0778	278385.6	101062.8	49348.8	0.6350	-72282.3	-2.3433
4800	9.6629	42545.3	68.2810	285203.6	102028.2	49131.2	0.6826	-72321.4	-2.4134
4900	9.6804	43512.5	68.4804	292041.7	102995.4	48913.5	0.7282	-72360.3	-2.4806
5000	9.6978	44481.4	68.6762	298899.6	103964.3	48696.3	0.7718	-72399.6	-2.5452
5100	9.7151	45452.0	68.8684	305776.8	104934.9	48478.5	0.8134	-72439.3	-2.6072
5200	9.7324	46424.4	69.0572	312673.1	105907.3	48260.8	0.8532	-72479.7	-2.6669
5300	9.7495	47398.5	69.2428	319588.1	106881.4	48042.7	0.8913	-72521.1	-2.7244
5400	9.7666	48374.3	69.4252	326521.6	107857.2	47824.6	0.9281	-72563.6	-2.7798
5500	9.7837	49351.8	69.6045	333473.1	108834.7	47606.2	0.9630	-72607.6	-2.8332
5600	9.8006	50331.0	69.7810	340442.4	109813.9	47388.1	0.9968	-72653.3	-2.8848
5700	9.8175	51312.0	69.9546	347429.2	110794.8	47170.1	1.0291	-72701.0	-2.9345
5800	9.8344	52294.6	70.1255	354433.2	111777.4	46951.9	1.0603	-72750.3	-2.9826
5900	9.8512	53278.8	70.2937	361454.2	112761.7	46733.5	1.0902	-72802.8	-3.0291
6000	9.8680	54264.8	70.4594	368491.9	113747.7	46515.5	1.1188	-72842.1	-3.0740

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Al, 932° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(10) AlO (gas); molecular weight, 42.98

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	18715.5	20844.1	-------	-115000.0	--------
100	6.9573	695.0	44.4610	3751.1	19410.5	21077.6	-41.2307	-115420.6	247.5738
200	7.0519	1393.5	49.2990	8466.3	20109.0	20994.6	-18.2172	-115836.2	121.2694
298.15	7.3815	2100.5	52.1709	13454.2	20816.0	20816.0	-10.6920	-116160.6	79.5490
300	7.3887	2114.2	52.2166	13550.8	20829.7	20812.4	-10.5979	-116166.1	79.0239
400	7.7654	2872.3	54.3950	18885.7	21587.8	20617.9	-6.8237	-116433.3	57.8454
500	8.0667	3664.6	56.1617	24416.2	22380.2	20417.5	-4.5807	-116654.6	45.1112
600	8.2879	4482.9	57.6531	30108.9	23198.5	20201.4	-3.1007	-116843.6	36.6067
700	8.4488	5320.2	58.9434	35940.2	24035.7	19963.3	-2.0553	-117009.9	30.5228
800	8.5677	6171.3	60.0798	41892.5	24886.8	19699.6	-1.2811	-117160.0	25.9536
900	8.6578	7032.8	61.0943	47952.1	25748.3	19408.4	-0.6874	-117298.0	22.3955
[a]1000	8.7277	7902.2	62.0103	54108.1	26617.7	16573.1	-0.2602	-117427.0	19.5457
1100	8.7835	8777.9	62.8448	60351.4	27493.4	16329.3	0.0666	-117548.9	17.2116
1200	8.8289	9658.6	63.6111	66674.8	28374.1	16085.8	0.3350	-117665.1	15.2645
1300	8.8668	10543.4	64.3193	73071.7	29258.9	15842.2	0.5587	-117776.6	13.6154
1400	8.8989	11431.7	64.9776	79537.0	30147.2	15598.6	0.7475	-117884.3	12.2005
1500	8.9268	12323.0	65.5926	86065.8	31038.6	15354.5	0.9086	-117988.7	10.9732
1600	8.9512	13217.0	66.1695	92654.2	31932.5	15110.0	1.0474	-118090.2	9.8984
1700	8.9731	14113.2	66.7128	99298.6	32828.7	14864.8	1.1677	-118189.3	8.9492
1800	8.9928	15011.5	67.2263	105995.8	33727.0	14618.7	1.2731	-118286.1	8.1048
1900	9.0108	15911.7	67.7130	112743.0	34627.2	14371.7	1.3658	-118380.8	7.3486
2000	9.0276	16813.6	68.1756	119537.6	35529.2	14123.7	1.4478	-118473.8	6.6675
2100	9.0432	17717.2	68.6164	126377.4	36432.7	13874.4	1.5205	-118565.2	6.0508
2200	9.0580	18622.2	69.0375	133260.2	37337.8	13623.9	1.5855	-118655.0	5.4898
2300	9.0722	19528.8	69.4404	140184.2	38244.3	13372.2	1.6438	-118743.4	4.9771
2400	9.0858	20436.7	69.8268	147147.7	39152.2	13119.0	1.6963	-118830.6	4.5068
2500	9.0991	21345.9	70.1980	154149.1	40061.4	12864.6	1.7435	-118916.6	4.0739
2600	9.1123	22256.5	70.5551	161186.9	40972.0	12608.8	1.7865	-119001.6	3.6739
2700	9.1253	23168.4	70.8993	168259.7	41883.9	12351.8	1.8254	-119085.5	3.3033
2800	9.1384	24081.5	71.2314	175366.3	42797.1	12093.5	1.8606	-119168.5	2.9590
2900	9.1517	24996.0	71.5523	182505.6	43711.6	11834.1	1.8930	-119250.7	2.6381
3000	9.1652	25911.9	71.8628	189676.4	44627.4	11573.5	1.9222	-119332.1	2.3385
3100	9.1790	26829.1	72.1635	196877.8	45544.6	11312.1	1.9492	-119412.7	2.0580
3200	9.1934	27747.7	72.4552	204108.8	46463.2	11049.7	1.9739	-119492.7	1.7948
3300	9.2082	28667.8	72.7383	211368.6	47383.3	10786.6	1.9964	-119572.0	1.5474
3400	9.2237	29589.4	73.0134	218656.2	48304.9	10522.9	2.0171	-119650.7	1.3145
3500	9.2399	30512.5	73.2810	225971.0	49228.1	10258.8	2.0362	-119728.8	1.0947
3600	9.2568	31437.4	73.5415	233312.2	50152.9	9994.4	2.0538	-119806.3	0.8869
3700	9.2745	32363.9	73.7954	240679.1	51079.5	9729.8	2.0699	-119883.4	0.6903
3800	9.2930	33292.3	74.0430	248071.1	52007.8	9465.2	2.0850	-119960.0	0.5039
3900	9.3124	34222.6	74.2846	255487.5	52938.1	9200.7	2.0987	-120036.1	0.3269
4000	9.3328	35154.8	74.5207	262927.8	53870.3	8936.6	2.1115	-120111.8	0.1587
4100	9.3542	36089.2	74.7514	270391.5	54804.7	8673.0	2.1232	-120187.1	-0.0014
4200	9.3765	37025.7	74.9770	277877.9	55741.2	8410.1	2.1340	-120262.1	-0.1539
4300	9.3998	37964.5	75.1980	285386.7	56680.0	8147.9	2.1439	-120336.5	-0.2995
4400	9.4242	38905.7	75.4143	292917.4	57621.2	7886.8	2.1532	-120410.9	-0.4386
4500	9.4496	39849.4	75.6264	300469.4	58564.9	7626.7	2.1618	-120484.8	-0.5715
4600	9.4761	40795.6	75.8344	308042.5	59511.2	7368.0	2.1697	-120558.8	-0.6987
4700	9.5036	41744.6	76.0385	315636.2	60460.1	7110.7	2.1771	-120632.7	-0.8206
4800	9.5321	42696.4	76.2388	323250.1	61411.9	6855.1	2.1838	-120706.6	-0.9375
4900	9.5618	43651.1	76.4357	330883.8	62366.6	6601.1	2.1901	-120780.3	-1.0497
5000	9.5924	44608.8	76.6292	338537.1	63324.3	6349.1	2.1959	-120854.4	-1.1575
5100	9.6241	45569.6	76.8194	346209.6	64285.1	6099.1	2.2012	-120928.8	-1.2611
5200	9.6568	46533.6	77.0066	353900.9	65249.1	5851.3	2.2061	-121003.6	-1.3608
5300	9.6904	47501.0	77.1909	361610.8	66216.5	5605.8	2.2107	-121078.9	-1.4568
5400	9.7251	48471.7	77.3724	369339.0	67187.3	5362.7	2.2149	-121154.8	-1.5492
5500	9.7607	49446.0	77.5511	377085.2	68161.6	5122.2	2.2186	-121231.6	-1.6384
5600	9.7972	50423.9	77.7273	384849.1	69139.4	4884.3	2.2222	-121309.3	-1.7245
5700	9.8346	51405.5	77.9011	392630.6	70121.0	4649.3	2.2254	-121388.1	-1.8075
5800	9.8729	52390.9	78.0724	400429.2	71106.4	4417.1	2.2286	-121467.5	-1.8878
5900	9.9121	53380.1	78.2415	408245.0	72095.6	4188.0	2.2313	-121548.9	-1.9654
6000	9.9520	54373.3	78.4085	416077.5	73088.8	3962.0	2.2337	-121616.0	-2.0404

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Al, 932° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(11) Al_2O (gas); molecular weight, 69.96

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-35318.1	-32098.3	-------	-244800.0	--------
100	8.2787	801.4	51.7003	4368.6	-34516.7	-31873.1	75.7088	-245702.4	526.5858
200	9.3145	1681.9	57.7626	9870.6	-33636.1	-32207.6	40.7665	-246492.5	257.7501
298.15	10.2927	2644.3	61.6645	15741.0	-32673.8	-32673.8	29.1093	-247070.4	168.9892
300	10.3106	2663.4	61.7282	15855.1	-32654.7	-32682.8	28.9616	-247080.0	167.8724
400	11.1912	3740.1	64.8197	22187.8	-31578.0	-33156.2	22.9702	-247536.0	122.8359
500	11.8584	4894.3	67.3926	28801.9	-30423.7	-33621.9	19.3239	-247898.5	95.7687
600	12.3370	6105.5	69.5994	35654.2	-29212.6	-34102.0	16.8582	-248195.6	77.6997
700	12.6787	7357.2	71.5283	42712.6	-27960.9	-34612.0	15.0716	-248447.2	64.7789
800	12.9262	8638.1	73.2383	49952.5	-26680.0	-35162.0	13.7106	-248666.5	55.0791
900	13.1090	9940.3	74.7718	57354.4	-25377.8	-35758.0	12.6347	-248862.3	47.5285
[a] 1000	13.2469	11258.4	76.1605	64902.1	-24059.7	-41435.5	11.6782	-249040.7	41.4835
1100	13.3530	12588.6	77.4282	72582.4	-22729.5	-41924.8	10.8499	-249206.0	36.5341
1200	13.4361	13928.2	78.5938	80384.3	-21389.8	-42409.4	10.1519	-249361.0	32.4070
1300	13.5023	15275.3	79.6720	88298.3	-20042.8	-42890.7	9.5546	-249507.9	28.9127
1400	13.5558	16628.3	80.6746	96316.2	-18689.8	-43369.7	9.0367	-249648.4	25.9159
1500	13.5995	17986.1	81.6114	104431.0	-17332.0	-43847.2	8.5829	-249783.6	23.3172
1600	13.6358	19347.9	82.4903	112636.5	-15970.2	-44323.8	8.1819	-249914.6	21.0421
1700	13.6661	20713.1	83.3179	120927.4	-14605.0	-44800.2	7.8236	-250042.0	19.0337
1800	13.6917	22081.0	84.0998	129298.6	-13237.1	-45276.6	7.5020	-250166.3	17.2475
1900	13.7136	23451.3	84.8406	137745.9	-11866.8	-45753.5	7.2114	-250288.2	15.6485
2000	13.7323	24823.6	85.5446	146265.5	-10494.5	-46231.2	6.9470	-250407.9	14.2088
2100	13.7485	26197.7	86.2150	154853.7	-9120.4	-46709.9	6.7050	-250525.8	12.9055
2200	13.7627	27573.2	86.8549	163507.5	-7744.8	-47189.9	6.4828	-250642.2	11.7202
2300	13.7750	28950.1	87.4669	172223.8	-6367.9	-47671.3	6.2780	-250757.3	10.6374
2400	13.7859	30328.2	88.0534	181000.0	-4989.9	-48154.2	6.0883	-250871.4	9.6444
2500	13.7955	31707.3	88.6164	189833.7	-3610.8	-48638.8	5.9119	-250984.6	8.7305
2600	13.8041	33087.3	89.1576	198722.6	-2230.8	-49125.2	5.7478	-251097.1	7.8864
2700	13.8118	34468.1	89.6787	207664.5	-850.0	-49613.3	5.5942	-251209.2	7.1046
2800	13.8186	35849.6	90.1812	216657.7	531.5	-50103.3	5.4499	-251320.9	6.3782
2900	13.8248	37231.8	90.6662	225700.2	1913.7	-50595.0	5.3147	-251432.4	5.7017
3000	13.8304	38614.5	91.1350	234790.4	3296.4	-51088.6	5.1867	-251543.9	5.0700
3100	13.8354	39997.8	91.5886	243926.7	4679.7	-51584.0	5.0663	-251655.6	4.4787
3200	13.8400	41381.6	92.0279	253107.6	6063.5	-52081.2	4.9522	-251767.6	3.9242
3300	13.8442	42765.8	92.4538	262331.8	7447.7	-52580.2	4.8436	-251880.0	3.4031
3400	13.8480	44150.4	92.8672	271598.0	8832.3	-53080.8	4.7407	-251993.1	2.9124
3500	13.8515	45535.4	93.2686	280904.9	10217.3	-53583.2	4.6428	-252107.0	2.4495
3600	13.8548	46920.7	93.6589	290251.3	11602.6	-54087.1	4.5495	-252221.9	2.0121
3700	13.8577	48306.4	94.0386	299636.3	12988.3	-54592.6	4.4602	-252337.9	1.5982
3800	13.8605	49692.3	94.4081	309058.7	14374.2	-55099.7	4.3753	-252455.4	1.2059
3900	13.8630	51078.4	94.7682	318517.6	15760.4	-55608.2	4.2936	-252574.4	0.8335
4000	13.8653	52464.9	95.1192	328012.0	17146.8	-56118.1	4.2154	-252695.3	0.4796
4100	13.8675	53851.5	95.4616	337541.1	18533.4	-56629.4	4.1402	-252818.3	0.1428
4200	13.8696	55238.4	95.7958	347104.1	19920.3	-57142.1	4.0679	-252943.6	-0.1781
4300	13.8714	56625.4	96.1222	356700.1	21307.3	-57656.0	3.9983	-253071.0	-0.4843
4400	13.8732	58012.6	96.4411	366328.3	22694.6	-58171.1	3.9314	-253201.7	-0.7767
4500	13.8748	59400.1	96.7529	375988.0	24082.0	-58687.4	3.8671	-253335.3	-1.0562
4600	13.8764	60787.6	97.0579	385678.6	25469.5	-59204.8	3.8048	-253472.7	-1.3237
4700	13.8778	62175.3	97.3563	395399.4	26857.2	-59723.4	3.7449	-253613.9	-1.5800
4800	13.8792	63563.2	97.6485	405149.7	28245.1	-60243.0	3.6865	-253759.4	-1.8258
4900	13.8805	64951.2	97.9347	414928.9	29633.1	-60763.6	3.6305	-253909.1	-2.0616
5000	13.8817	66339.3	98.2151	424736.4	31021.2	-61285.2	3.5762	-254064.1	-2.2882
5100	13.8828	67727.5	98.4900	434571.7	32409.4	-61807.8	3.5233	-254224.7	-2.5060
5200	13.8838	69115.8	98.7596	444434.3	33797.7	-62331.3	3.4721	-254391.1	-2.7155
5300	13.8848	70504.3	99.0241	454323.5	35186.2	-62855.8	3.4226	-254564.0	-2.9173
5400	13.8858	71892.8	99.2837	464238.9	36574.7	-63381.1	3.3744	-254743.7	-3.1118
5500	13.8867	73281.4	99.5385	474180.1	37963.3	-63907.3	3.3273	-254930.8	-3.2993
5600	13.8875	74670.1	99.7887	484146.5	39352.0	-64434.3	3.2818	-255125.8	-3.4803
5700	13.8884	76058.9	100.0345	494137.7	40740.8	-64962.1	3.2375	-255329.2	-3.6550
5800	13.8891	77447.8	100.2760	504153.2	42129.7	-65490.8	3.1947	-255540.2	-3.8238
5900	13.8898	78836.7	100.5135	514192.7	43518.7	-66020.2	3.1525	-255761.8	-3.9871
6000	13.8905	80225.8	100.7469	524255.8	44907.7	-66550.3	3.1115	-255961.5	-4.1450

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Al, 932° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(12) Al_2O_2 (gas); molecular weight, 85.96

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-97568.9	-93311.8	-------	-365000.0	--------
100	9.0167	829.3	52.4132	4412.0	-96739.6	-93405.4	205.8135	-366402.0	783.4224
200	10.5103	1801.8	59.0960	10017.4	-95767.2	-93996.0	103.5235	-367657.5	382.4965
298.15	12.4959	2929.0	63.6550	16049.8	-94640.0	-94640.0	69.6096	-368593.3	250.0916
300	12.5339	2952.1	63.7324	16167.6	-94616.8	-94651.4	69.1818	-368608.4	248.4255
400	14.3943	4302.1	67.6033	22739.2	-93266.8	-95206.5	51.8968	-369309.1	181.2350
500	15.7804	5814.8	70.9729	29671.7	-91754.1	-95679.5	41.4694	-369823.7	140.8533
600	16.7577	7444.6	73.9417	36920.4	-90124.4	-96118.5	34.4842	-370208.5	113.8991
700	17.4467	9156.8	76.5797	44449.0	-88412.2	-96557.1	29.4723	-370503.5	94.6284
800	17.9411	10927.5	78.9434	52227.2	-86641.5	-97016.0	25.6956	-370735.1	80.1651
900	18.3040	12740.6	81.0785	60230.1	-84828.3	-97508.1	22.7437	-370921.0	68.9094
[a]1000	18.5764	14585.3	83.0218	68436.6	-82983.7	-103073.0	20.2891	-371073.1	59.9008
1100	18.7852	16453.8	84.8026	76829.0	-81115.1	-103443.4	18.2374	-371199.7	52.5274
1200	18.9484	18340.8	86.4444	85392.4	-79228.1	-103804.8	16.5219	-371306.5	46.3809
1300	19.0780	20242.3	87.9663	94113.9	-77326.6	-104160.0	15.0654	-371397.7	41.1787
1400	19.1825	22155.5	89.3841	102982.2	-75413.4	-104510.8	13.8125	-371476.5	36.7186
1500	19.2679	24078.2	90.7106	111987.7	-73490.7	-104858.8	12.7231	-371545.3	32.8524
1600	19.3386	26008.6	91.9565	121121.7	-71560.3	-105205.3	11.7671	-371605.8	29.4689
1700	19.3977	27945.5	93.1307	130376.6	-69623.4	-105551.3	10.9202	-371659.4	26.4830
1800	19.4476	29887.9	94.2409	139745.7	-67681.0	-105897.6	10.1652	-371707.2	23.8285
1900	19.4901	31834.8	95.2935	149222.9	-65734.1	-106245.1	9.4876	-371750.2	21.4532
2000	19.5265	33785.7	96.2942	158802.7	-63783.2	-106594.2	8.8756	-371789.2	19.3151
2100	19.5581	35740.0	97.2477	168480.1	-61829.0	-106945.5	8.3199	-371824.7	17.3805
2200	19.5855	37697.2	98.1582	178250.8	-59871.8	-107299.4	7.8130	-371857.3	15.6216
2300	19.6095	39657.0	99.0293	188110.4	-57912.0	-107656.2	7.3489	-371887.4	14.0155
2400	19.6306	41619.0	99.8643	198055.4	-55950.0	-108016.2	6.9219	-371915.6	12.5431
2500	19.6493	43583.0	100.6661	208082.2	-53985.9	-108379.6	6.5277	-371942.1	11.1884
2600	19.6659	45548.8	101.4371	218187.6	-52020.2	-108746.5	6.1630	-371967.3	9.9378
2700	19.6808	47516.1	102.1796	228368.7	-50052.8	-109117.0	5.8240	-371991.6	8.7798
2800	19.6941	49484.9	102.8955	238622.6	-48084.1	-109491.2	5.5078	-372015.3	7.7045
2900	19.7061	51454.9	103.5868	248946.9	-46114.0	-109869.1	5.2129	-372038.6	6.7032
3000	19.7169	53426.1	104.2551	259339.2	-44142.9	-110250.6	4.9361	-372061.9	5.7686
3100	19.7267	55398.2	104.9018	269797.2	-42170.7	-110635.8	4.6769	-372085.4	4.8943
3200	19.7356	57371.4	105.5282	280318.9	-40197.6	-111024.7	4.4328	-372109.4	4.0746
3300	19.7437	59345.3	106.1356	290902.2	-38223.6	-111417.0	4.2024	-372134.2	3.3045
3400	19.7511	61320.1	106.7251	301545.4	-36248.9	-111812.8	3.9850	-372160.0	2.5796
3500	19.7579	63295.5	107.2978	312246.7	-34273.4	-112212.0	3.7792	-372187.1	1.8961
3600	19.7641	65271.6	107.8545	323004.5	-32297.3	-112614.4	3.5843	-372215.8	1.2506
3700	19.7699	67248.3	108.3961	333817.1	-30320.6	-113020.0	3.3992	-372246.3	0.6399
3800	19.7752	69225.6	108.9234	344683.2	-28343.4	-113428.7	3.2235	-372278.9	0.0612
3900	19.7801	71203.3	109.4371	355601.3	-26365.6	-113840.3	3.0558	-372313.9	-0.4878
4000	19.7846	73181.6	109.9379	366570.2	-24387.4	-114254.8	2.8962	-372351.6	-1.0094
4100	19.7888	75160.3	110.4265	377588.5	-22408.7	-114672.0	2.7436	-372392.2	-1.5056
4200	19.7928	77139.3	110.9034	388655.1	-20429.6	-115091.9	2.5976	-372436.2	-1.9782
4300	19.7964	79118.8	111.3692	399768.8	-18450.1	-115514.3	2.4580	-372483.1	-2.4289
4400	19.7998	81098.6	111.8244	410928.6	-16470.3	-115939.2	2.3243	-372534.4	-2.8592
4500	19.8030	83078.8	112.2694	422133.4	-14490.2	-116366.5	2.1962	-372589.7	-3.2704
4600	19.8060	85059.2	112.7046	433382.1	-12509.7	-116796.0	2.0731	-372649.7	-3.6638
4700	19.8088	87039.9	113.1306	444674.0	-10529.0	-117227.8	1.9550	-372714.7	-4.0405
4800	19.8114	89021.0	113.5477	456008.0	-8548.0	-117661.7	1.8410	-372785.0	-4.4016
4900	19.8139	91002.2	113.9562	467383.2	-6566.7	-118097.7	1.7316	-372860.6	-4.7480
5000	19.8162	92983.7	114.3565	478798.9	-4585.2	-118535.6	1.6263	-372942.7	-5.0806
5100	19.8184	94965.4	114.7490	490254.3	-2603.5	-118975.5	1.5243	-373031.3	-5.4003
5200	19.8204	96947.4	115.1338	501748.5	-621.5	-119417.3	1.4261	-373127.0	-5.7077
5300	19.8224	98929.5	115.5114	513280.8	1360.6	-119860.9	1.3313	-373230.2	-6.0036
5400	19.8242	100911.9	115.8819	524850.5	3342.9	-120306.3	1.2396	-373341.3	-6.2886
5500	19.8259	102894.4	116.2457	536456.9	5325.4	-120753.4	1.1507	-373460.8	-6.5634
5600	19.8276	104877.0	116.6029	548099.4	7308.1	-121202.2	1.0649	-373589.3	-6.8284
5700	19.8291	106859.9	116.9539	559777.3	9290.9	-121652.6	0.9817	-373727.3	-7.0843
5800	19.8306	108842.9	117.2988	571490.0	11273.9	-122104.6	0.9015	-373873.9	-7.3314
5900	19.8320	110826.0	117.6378	583236.9	13257.1	-122558.2	0.8232	-374032.1	-7.5702
6000	19.8334	112809.3	117.9711	595017.4	15240.3	-123013.3	0.7472	-374169.4	-7.8010

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Al, 932° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(13) Al_2O_3 (crystal, liquid); molecular weight, 101.96

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	0	0	-402794.4	-397499.9	-------	-728174.6	--------
100	3.0688	78.0	1.0241	24.5	-402716.4	-398691.6	857.2300	-730855.4	1561.5708
200	12.2228	841.5	5.9465	347.8	-401952.9	-399839.0	421.0514	-732877.2	762.0139
298.15	18.8840	2394.4	12.1750	1235.6	-400400.0	-400400.0	277.1216	-733909.9	498.2058
300	18.9794	2429.3	12.2897	1257.6	-400365.1	-400406.2	275.3114	-733923.1	494.8880
400	22.9876	4545.2	18.3509	2795.2	-398249.2	-400550.6	202.3746	-734375.8	361.1852
500	25.3442	6970.8	23.7524	4905.4	-395823.6	-400476.0	158.6089	-734487.9	280.9319
600	26.8881	9587.5	28.5206	7524.9	-393206.9	-400305.8	129.4413	-734392.2	227.4297
700	27.9685	12333.2	32.7510	10592.5	-390461.2	-400099.9	108.6174	-734157.5	189.2223
800	28.7572	15171.4	36.5392	14060.0	-387623.0	-399890.2	93.0072	-733823.8	160.5777
900	29.3523	18078.4	39.9618	17887.2	-384716.0	-399695.4	80.8722	-733416.9	138.3098
b1000	29.8136	21037.5	43.0784	22040.9	-381756.9	-404559.6	71.0878	-732954.7	120.5060
1100	30.1745	24036.8	45.9393	26496.4	-378757.6	-404218.7	63.0538	-732450.1	105.9496
1200	30.4637	27069.8	48.5779	31223.7	-375724.6	-403858.4	56.3644	-731910.1	93.8274
1300	30.9068	30141.0	51.0360	36205.8	-372653.4	-403472.2	50.7095	-731330.5	83.5780
1400	31.2819	33250.6	53.3402	41425.8	-369543.8	-403058.7	45.8670	-730711.6	74.8000
1500	31.6436	36396.9	55.5109	46869.4	-366397.5	-402618.4	41.6747	-730054.9	67.1991
1600	31.9951	39578.9	57.5644	52524.1	-363215.5	-402151.7	38.0109	-729362.0	60.5544
1700	32.3389	42795.7	59.5144	58378.8	-359998.7	-401659.3	34.7815	-728633.7	54.6972
1800	32.6766	46046.5	61.3724	64423.9	-356747.9	-401141.5	31.9148	-727871.0	49.4961
1900	33.0094	49330.8	63.1481	70650.5	-353463.5	-400598.8	29.3533	-727074.4	44.8474
2000	33.3382	52648.3	64.8496	77051.0	-350146.1	-400031.4	27.0511	-726244.6	40.6683
2100	33.6639	55998.4	66.4841	83618.2	-346796.0	-399439.6	24.9709	-725382.1	36.8916
2200	33.9870	59381.0	68.0576	90345.8	-343413.4	-398823.7	23.0827	-724487.1	33.4624
2300	34.3079	62795.7	69.5755	97227.9	-339998.7	-398183.9	21.3616	-723560.2	30.3354
c2318	34.365	63413.8	69.843	98482.3	-339380.6	-398063.3	21.0672	-723384.9	29.7990
2318	35.0	89413.8	81.060	98482.3	-313380.6	-372051.2	21.0672	-697362.4	29.7990
2400	35.0	92283.8	82.2765	105179.8	-310510.6	-371478.8	19.8703	-696560.4	27.5565
2500	35.0	95783.8	83.7053	113479.4	-307010.6	-370769.9	18.5184	-695549.1	25.0212
2600	35.0	99283.8	85.0780	121919.0	-303510.6	-370068.9	17.2732	-694538.6	22.6843
2700	35.0	102783.8	86.3989	130493.3	-300010.6	-369375.7	16.1223	-693529.1	20.5237
2800	35.0	106283.8	87.6718	139197.2	-296510.6	-368690.1	15.0553	-692520.7	18.5203
2900	35.0	109783.8	88.9000	148026.2	-293010.6	-368012.0	14.0642	-691513.7	16.6578
3000	35.0	113283.8	90.0865	156975.8	-289510.6	-367341.0	13.1404	-690508.3	14.9220
3100	35.0	116783.8	91.2342	166042.2	-286010.6	-366677.1	12.2781	-689504.7	13.3006
3200	35.0	120283.8	92.3454	175221.4	-282510.6	-366020.0	11.4712	-688503.2	11.7827
3300	35.0	123783.8	93.4224	184510.1	-279010.5	-365369.5	10.7141	-687504.0	10.3589
3400	35.0	127283.8	94.4672	193904.8	-275510.6	-364725.3	10.0031	-686507.5	9.0207
3500	35.0	130783.8	95.4818	203402.5	-272010.6	-364087.3	9.3338	-685513.7	7.7509
3600	35.0	134283.8	96.4678	213000.2	-268510.6	-363455.1	8.7029	-684523.1	6.5728
3700	35.0	137783.8	97.4267	222695.2	-265010.6	-362828.5	8.1070	-683535.8	5.4505
3800	35.0	141283.8	98.3601	232484.7	-261510.6	-362207.4	7.5439	-682552.2	4.3888
3900	35.0	144783.8	99.2693	242366.4	-258010.6	-361591.5	7.0101	-681572.5	3.3830
4000	35.0	148283.8	100.1554	252337.8	-254510.6	-360980.6	6.5041	-680597.0	2.4289
4100	35.0	151783.8	101.0196	262396.7	-251010.6	-360374.4	6.0234	-679626.0	1.5226
4200	35.0	155283.8	101.8631	272541.1	-247510.6	-359772.9	5.5663	-678659.9	0.6607
4300	35.0	158783.8	102.6866	282768.7	-244010.6	-359175.7	5.1312	-677698.3	-0.1600
4400	35.0	162283.8	103.4912	293077.7	-240510.6	-358582.8	4.7166	-676742.6	-0.9422
4500	35.0	165783.8	104.2778	303466.3	-237010.6	-357993.9	4.3213	-675792.3	-1.5887
4600	35.0	169283.8	105.0471	313932.7	-233510.6	-357408.9	3.9436	-674848.3	-2.4016
4700	35.0	172783.8	105.7998	324475.2	-230010.6	-356827.7	3.5828	-673910.9	-3.0833
4800	35.0	176283.8	106.5367	335092.2	-226510.6	-356250.0	3.2372	-672980.2	-3.7357
4900	35.0	179783.8	107.2583	345782.0	-223010.6	-355675.8	2.9066	-672056.2	-4.3605
5000	35.0	183283.8	107.9654	356543.3	-219510.6	-355105.0	2.5897	-671140.2	-4.9596
5100	35.0	186783.8	108.6585	367374.6	-216010.6	-354537.5	2.2855	-670232.2	-5.5344
5200	35.0	190283.8	109.3381	378274.6	-212510.6	-353973.0	1.9935	-669332.7	-6.0863
5300	35.0	193783.8	110.0048	389241.8	-209010.6	-353411.7	1.7132	-668442.0	-6.6167
5400	35.0	197283.8	110.6591	400275.1	-205510.6	-352853.2	1.4435	-667560.6	-7.1268
5500	35.0	200783.8	111.3013	411373.3	-202010.6	-352297.6	1.1838	-666689.0	-7.6177
5600	35.0	204283.8	111.9319	422535.0	-198510.6	-351744.8	0.9341	-665827.7	-8.0905
5700	35.0	207783.8	112.5514	433759.3	-195010.6	-351194.7	0.6934	-664977.1	-8.5460
5800	35.0	211283.8	113.1601	445045.0	-191510.6	-350647.2	0.4618	-664136.3	-8.9853
5900	35.0	214783.8	113.7584	456391.0	-188010.6	-350102.3	0.2379	-663308.5	-9.4092
6000	35.0	218283.8	114.3467	467796.3	-184510.6	-349559.9	0.0217	-662460.9	-9.8183

[a] H_0° refers to crystal state.

[b] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Al, 932° K.

[c] Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(14) AlOCl (gas); molecular weight, 78.437

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-95000.4	-91775.1	-------	-256167.6	--------
100	8.9163	753.0	49.3541	4182.5	-94247.4	-91831.5	201.6560	-257027.1	550.6882
200	11.1582	1771.1	56.3216	9493.2	-93229.3	-91957.7	101.2595	-257622.0	269.5569
298.15	12.3149	2927.7	61.0113	15262.9	-92072.7	-92072.7	68.1626	-258000.0	176.8243
300	12.3319	2950.5	61.0876	15375.8	-92049.9	-92074.7	67.7465	-258006.0	175.6581
400	13.0786	4223.6	64.7450	21674.4	-90776.8	-92168.8	50.9701	-258288.5	128.6467
500	13.5709	5557.7	67.7200	28302.3	-89442.6	-92254.4	40.8946	-258508.9	100.4119
600	13.9010	6932.4	70.2254	35202.9	-88068.0	-92348.6	34.1710	-258686.0	81.5742
700	14.1282	8334.5	72.3864	42335.9	-86665.8	-92461.1	29.3632	-258831.0	68.1103
800	14.2890	9755.8	74.2840	49671.4	-85244.5	-92597.3	25.7524	-258951.6	58.0071
900	14.4060	11190.9	75.9741	57185.8	-83809.5	-92760.1	22.9395	-259053.1	50.1457
[a]1000	14.4934	12636.1	77.4967	64860.6	-82364.3	-95466.9	20.6445	-259139.6	43.3543
1100	14.5601	14088.9	78.8813	72680.6	-80911.5	-95582.4	18.7465	-259214.0	38.7052
1200	14.6121	15547.6	80.1505	80633.1	-79452.8	-95698.1	17.1632	-259278.5	34.4131
1300	14.6533	17010.9	81.3218	88707.4	-77989.4	-95814.5	15.8218	-259335.0	30.7805
1400	14.6865	18478.0	82.4090	96894.6	-76522.4	-95932.0	14.6706	-259384.9	27.6662
1500	14.7136	19948.0	83.4232	105186.8	-75052.3	-96050.9	13.6716	-259429.1	24.9666
1600	14.7359	21420.5	84.3736	113577.1	-73579.8	-96171.3	12.7966	-259468.6	22.6041
1700	14.7546	22895.1	85.2675	122059.6	-72105.3	-96293.5	12.0233	-259504.1	20.5193
1800	14.7704	24371.4	86.1113	130629.0	-70629.0	-96417.7	11.3352	-259536.1	18.6658
1900	14.7838	25849.1	86.9103	139280.4	-69151.3	-96544.1	10.7188	-259565.3	17.0073
2000	14.7954	27328.1	87.6689	148009.7	-67672.3	-96672.9	10.1632	-259591.8	15.5145
2100	14.8053	28808.1	88.3910	156813.0	-66192.2	-96804.1	9.6598	-259616.2	14.1637
2200	14.8140	30289.1	89.0799	165686.8	-64711.3	-96937.9	9.2015	-259638.7	12.9355
2300	14.8216	31770.9	89.7386	174627.9	-63229.5	-97074.3	8.7825	-259659.7	11.8141
2400	14.8282	33253.4	90.3696	183633.6	-61747.0	-97213.5	8.3979	-259679.2	10.7861
2500	14.8341	34736.5	90.9750	192701.0	-60263.9	-97355.4	8.0435	-259697.6	9.8402
2600	14.8394	36220.2	91.5569	201827.8	-58780.2	-97500.0	7.7161	-259715.0	8.9670
2700	14.8440	37704.4	92.1170	211011.7	-57296.0	-97647.4	7.4124	-259731.7	8.1585
2800	14.8482	39189.0	92.6570	220250.5	-55811.4	-97797.6	7.1298	-259747.9	7.4077
2900	14.8520	40674.0	93.1781	229542.4	-54326.4	-97950.6	6.8665	-259763.6	6.7086
3000	14.8554	42159.4	93.6816	238885.6	-52841.0	-98106.2	6.6201	-259779.1	6.0560
3100	14.8585	43645.1	94.1688	248278.2	-51355.3	-98264.5	6.3895	-259794.5	5.4456
3200	14.8613	45131.1	94.6406	257718.8	-49869.3	-98425.5	6.1729	-259809.9	4.8732
3300	14.8639	46617.3	95.0979	267205.8	-48383.1	-98589.0	5.9689	-259825.6	4.3355
3400	14.8662	48103.8	95.5417	276737.9	-46896.5	-98755.0	5.7768	-259841.6	3.8294
3500	14.8683	49590.5	95.9727	286313.8	-45409.8	-98923.5	5.5952	-259858.1	3.3522
3600	14.8703	51077.5	96.3915	295932.1	-43922.9	-99094.4	5.4235	-259875.2	2.9015
3700	14.8721	52564.6	96.7990	305591.7	-42435.8	-99267.6	5.2608	-259893.2	2.4751
3800	14.8738	54051.9	97.1956	315291.5	-40948.5	-99443.1	5.1065	-259912.0	2.0711
3900	14.8753	55539.4	97.5820	325030.5	-39461.0	-99620.8	4.9597	-259932.0	1.6879
4000	14.8768	57027.0	97.9586	334807.6	-37973.4	-99800.6	4.8200	-259953.2	1.3237
4100	14.8781	58514.7	98.3260	344621.9	-36485.7	-99982.6	4.6869	-259975.7	0.9773
4200	14.8793	60002.6	98.6845	354472.5	-34997.8	-100166.5	4.5598	-259999.8	0.6473
4300	14.8805	61490.6	99.0347	364358.5	-33509.8	-100352.5	4.4384	-260025.4	0.3327
4400	14.8815	62978.7	99.3768	374279.1	-32021.7	-100540.3	4.3224	-260053.0	0.0323
4500	14.8825	64466.9	99.7112	384233.6	-30533.5	-100730.1	4.2114	-260082.5	-0.2547
4600	14.8835	65955.2	100.0383	394221.1	-29045.2	-100921.6	4.1049	-260114.4	-0.5293
4700	14.8844	67443.6	100.3584	404241.0	-27556.8	-101115.0	4.0029	-260148.6	-0.7923
4800	14.8852	68932.0	100.6718	414292.6	-26068.3	-101310.1	3.9048	-260185.4	-1.0443
4900	14.8860	70420.6	100.9787	424375.2	-24579.8	-101506.9	3.8106	-260224.9	-1.2861
5000	14.8867	71909.2	101.2795	434488.1	-23091.1	-101705.3	3.7201	-260267.5	-1.5182
5100	14.8874	73397.9	101.5743	444630.9	-21602.4	-101905.4	3.6327	-260313.3	-1.7413
5200	14.8880	74886.7	101.8634	454802.8	-20113.7	-102107.1	3.5487	-260362.5	-1.9558
5300	14.8886	76375.5	102.1470	465003.4	-18624.8	-102310.4	3.4677	-260415.6	-2.1623
5400	14.8892	77864.4	102.4253	475232.0	-17135.9	-102515.2	3.3894	-260472.5	-2.3611
5500	14.8898	79353.4	102.6985	485488.3	-15647.0	-102721.6	3.3138	-260533.6	-2.5528
5600	14.8903	80842.4	102.9668	495771.6	-14158.0	-102929.4	3.2409	-260599.1	-2.7377
5700	14.8908	82331.4	103.2303	506081.5	-12668.9	-103138.7	3.1703	-260669.3	-2.9162
5800	14.8912	83820.5	103.4893	516417.5	-11179.8	-103349.4	3.1022	-260743.8	-3.0885
5900	14.8917	85309.7	103.7439	526779.2	-9690.7	-103561.6	3.0361	-260824.1	-3.2550
6000	14.8921	86798.9	103.9942	537166.1	-8201.5	-103775.2	2.9720	-260893.8	-3.4160

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Al, 932° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(15) AlOF (gas); molecular weight, 61.98

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-141934.3	-138750.9	-------	-292950.0	--------
100	8.2481	728.0	47.1507	3987.1	-141206.3	-138831.8	304.3753	-293836.2	631.0512
200	10.2505	1663.1	53.5522	9047.4	-140271.3	-139028.3	152.5923	-294541.0	309.6569
298.15	11.5112	2734.3	57.8935	14526.6	-139200.0	-139200.0	102.5542	-295034.8	203.6253
300	11.5313	2755.6	57.9647	14633.8	-139178.7	-139202.9	101.9250	-295042.7	202.2917
400	12.4475	3957.3	61.4153	20608.8	-137977.1	-139338.9	76.5622	-295406.6	148.5279
500	13.0833	5235.8	64.2656	26897.0	-136698.5	-139455.9	61.3307	-295673.7	116.2347
600	13.5215	6567.4	66.6921	33447.9	-135367.0	-139574.5	51.1678	-295874.4	94.6887
700	13.8280	7935.7	68.8008	40224.9	-133998.6	-139706.6	43.9022	-296028.9	79.2895
800	14.0473	9330.1	70.6624	47199.8	-132604.2	-139859.2	38.4473	-296150.7	67.7346
900	14.2082	10743.3	72.3267	54350.8	-131191.1	-140036.0	34.1997	-296248.9	58.7442
[a] 1000	14.3290	12170.4	73.8302	61659.8	-129763.9	-142755.1	30.7566	-296329.4	51.5496
1100	14.4215	13608.1	75.2004	69112.4	-128326.2	-142881.8	27.9191	-296396.7	45.6617
1200	14.4939	15054.0	76.4585	76696.2	-126880.3	-143007.9	25.5525	-296453.5	40.7541
1300	14.5514	16506.4	77.6210	84400.9	-125427.9	-143134.1	23.5483	-296502.2	36.6008
1400	14.5978	17963.9	78.7011	92217.6	-123970.4	-143260.9	21.8288	-296544.3	33.0402
1500	14.6357	19425.7	79.7096	100138.7	-122508.7	-143388.8	20.3373	-296581.1	29.9540
1600	14.6671	20890.9	80.6552	108157.5	-121043.5	-143518.1	19.0312	-296613.5	27.2533
1700	14.6933	22358.9	81.5452	116267.9	-119575.4	-143649.1	17.8775	-296642.3	24.8700
1800	14.7155	23829.4	82.3857	124464.9	-118104.9	-143782.1	16.8511	-296668.0	22.7513
1900	14.7344	25301.9	83.1818	132743.6	-116632.4	-143917.4	15.9320	-296691.1	20.8555
2000	14.7506	26776.2	83.9380	141099.9	-115158.2	-144055.0	15.1040	-296712.1	19.1492
2100	14.7646	28251.9	84.6581	149530.0	-113682.4	-144195.2	14.3539	-296731.2	17.6053
2200	14.7768	29729.0	85.3452	158030.4	-112205.3	-144338.2	13.6715	-296748.7	16.2016
2300	14.7874	31207.2	86.0023	166598.0	-110727.1	-144483.9	13.0478	-296764.9	14.9199
2400	14.7968	32686.5	86.6318	175230.0	-109247.9	-144632.5	12.4755	-296780.1	13.7450
2500	14.8051	34166.6	87.2360	183923.6	-107767.8	-144784.1	11.9483	-296794.3	12.6640
2600	14.8125	35647.5	87.8169	192676.4	-106286.9	-144938.7	11.4614	-296807.8	11.6661
2700	14.8191	37129.0	88.3760	201486.2	-104805.3	-145096.3	11.0100	-296820.8	10.7421
2800	14.8250	38611.3	88.9151	210350.9	-103323.1	-145256.9	10.5903	-296833.5	9.8840
2900	14.8304	40094.0	89.4354	219268.6	-101840.3	-145420.4	10.1992	-296845.9	9.0851
3000	14.8352	41577.3	89.9382	228237.4	-100357.0	-145587.0	9.8336	-296858.2	8.3395
3100	14.8395	43061.1	90.4248	237255.7	-98873.3	-145756.5	9.4914	-296870.7	7.6419
3200	14.8435	44545.2	90.8960	246321.9	-97389.1	-145928.9	9.1702	-296883.3	6.9878
3300	14.8471	46029.7	91.3528	255434.4	-95904.6	-146104.1	8.8678	-296896.3	6.3734
3400	14.8504	47514.6	91.7961	264592.0	-94419.7	-146282.1	8.5831	-296909.7	5.7951
3500	14.8534	48999.8	92.2266	273793.2	-92934.5	-146462.9	8.3143	-296923.8	5.2499
3600	14.8562	50485.3	92.6450	283036.9	-91449.0	-146646.4	8.0601	-296938.7	4.7348
3700	14.8587	51971.0	93.0521	292321.8	-89963.3	-146832.5	7.8193	-296954.4	4.2477
3800	14.8611	53457.0	93.4484	301646.9	-88477.3	-147021.1	7.5911	-296971.1	3.7861
3900	14.8633	54943.2	93.8345	311011.2	-86991.1	-147212.3	7.3741	-296989.1	3.3481
4000	14.8653	56429.7	94.2108	320413.5	-85504.6	-147405.9	7.1678	-297008.3	2.9321
4100	14.8672	57916.3	94.5779	329853.0	-84018.0	-147601.9	6.9712	-297029.0	2.5363
4200	14.8689	59403.1	94.9362	339328.8	-82531.2	-147800.3	6.7837	-297051.4	2.1593
4300	14.8705	60890.1	95.2861	348840.0	-81044.2	-148000.9	6.6047	-297075.2	1.7998
4400	14.8721	62377.2	95.6279	358385.7	-79557.1	-148203.8	6.4336	-297101.2	1.4567
4500	14.8735	63864.5	95.9622	367965.3	-78069.8	-148408.8	6.2700	-297129.1	1.1287
4600	14.8748	65351.9	96.2891	377577.9	-76582.4	-148616.0	6.1131	-297159.5	0.8150
4700	14.8760	66839.4	96.6090	387222.9	-75094.9	-148825.3	5.9629	-297192.3	0.5146
4800	14.8772	68327.1	96.9222	396899.5	-73607.2	-149036.7	5.8185	-297227.7	0.2267
4900	14.8783	69814.9	97.2290	406607.1	-72119.4	-149250.1	5.6800	-297265.8	-0.0495
5000	14.8793	71302.8	97.5296	416345.1	-70631.6	-149465.4	5.5469	-297307.1	-0.3146
5100	14.8803	72790.8	97.8242	426112.8	-69143.6	-149682.7	5.4186	-297351.7	-0.5694
5200	14.8812	74278.8	98.1132	435909.8	-67655.5	-149902.0	5.2952	-297399.8	-0.8145
5300	14.8821	75767.0	98.3967	445735.3	-66167.3	-150123.1	5.1763	-297451.6	-1.0503
5400	14.8829	77255.2	98.6748	455588.9	-64679.1	-150346.1	5.0615	-297507.4	-1.2775
5500	14.8837	78743.6	98.9479	465470.1	-63190.7	-150570.9	4.9507	-297567.4	-1.4964
5600	14.8844	80232.0	99.2161	475378.3	-61702.3	-150797.6	4.8438	-297631.8	-1.7076
5700	14.8851	81720.5	99.4796	485313.2	-60213.9	-151026.0	4.7405	-297701.0	-1.9114
5800	14.8858	83209.0	99.7385	495274.1	-58725.3	-151256.2	4.6407	-297774.5	-2.1082
5900	14.8864	84697.6	99.9929	505260.7	-57236.7	-151488.2	4.5440	-297853.8	-2.2984
6000	14.8870	86186.3	100.2431	515272.5	-55748.0	-151721.9	4.4503	-297922.7	-2.4822

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Al, 932° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(16) Ar (gas); molecular weight, 39.944

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-1481.3	0	-------	0	--------
100	4.9681	496.8	31.5558	2658.8	-984.4	0	0	0	0
200	4.9681	993.6	34.9994	6006.3	-487.6	0	0	0	0
298.15	4.9681	1481.3	36.9831	9545.3	0	0	0	0	0
300	4.9681	1490.4	37.0138	9613.7	9.2	0	0	0	0
400	4.9681	1987.3	38.4431	13390.0	506.0	0	0	0	0
500	4.9681	2484.1	39.5517	17291.8	1002.8	0	0	0	0
600	4.9681	2980.9	40.4575	21293.6	1499.6	0	0	0	0
700	4.9681	3477.7	41.2233	25378.6	1996.5	0	0	0	0
800	4.9681	3974.5	41.8867	29534.9	2493.3	0	0	0	0
900	4.9681	4471.3	42.4719	33753.4	2990.1	0	0	0	0
1000	4.9681	4968.1	42.9954	38027.2	3486.9	0	0	0	0
1100	4.9681	5465.0	43.4685	42350.8	3983.7	0	0	0	0
1200	4.9681	5961.8	43.9012	46719.6	4480.5	0	0	0	0
1300	4.9681	6458.6	44.2988	51129.9	4977.3	0	0	0	0
1400	4.9681	6955.4	44.6670	55578.4	5474.2	0	0	0	0
1500	4.9681	7452.2	45.0098	60062.4	5971.0	0	0	0	0
1600	4.9681	7949.0	45.3304	64579.6	6467.8	0	0	0	0
1700	4.9681	8445.9	45.6316	69127.9	6964.6	0	0	0	0
1800	4.9681	8942.7	45.9156	73705.3	7461.4	0	0	0	0
1900	4.9681	9439.5	46.1842	78310.5	7958.2	0	0	0	0
2000	4.9681	9936.3	46.4390	82941.7	8455.0	0	0	0	0
2100	4.9681	10433.1	46.6814	87597.8	8951.9	0	0	0	0
2200	4.9681	10929.9	46.9125	92277.6	9448.7	0	0	0	0
2300	4.9681	11426.7	47.1334	96980.0	9945.5	0	0	0	0
2400	4.9681	11923.6	47.3448	101704.0	10442.3	0	0	0	0
2500	4.9681	12420.4	47.5476	106448.7	10939.1	0	0	0	0
2600	4.9681	12917.2	47.7425	111213.3	11435.9	0	0	0	0
2700	4.9681	13414.0	47.9300	115996.9	11932.8	0	0	0	0
2800	4.9681	13910.8	48.1107	120799.0	12429.6	0	0	0	0
2900	4.9681	14407.6	48.2850	125618.9	12926.4	0	0	0	0
3000	4.9681	14904.4	48.4534	130455.8	13423.2	0	0	0	0
3100	4.9681	15401.3	48.6163	135309.4	13920.0	0	0	0	0
3200	4.9681	15898.1	48.7741	140178.9	14416.8	0	0	0	0
3300	4.9681	16394.9	48.9269	145064.0	14913.6	0	0	0	0
3400	4.9681	16891.7	49.0753	149964.1	15410.5	0	0	0	0
3500	4.9681	17388.5	49.2193	154878.9	15907.3	0	0	0	0
3600	4.9681	17885.3	49.3592	159807.9	16404.1	0	0	0	0
3700	4.9681	18382.2	49.4953	164750.6	16900.9	0	0	0	0
3800	4.9681	18879.0	49.6278	169706.8	17397.7	0	0	0	0
3900	4.9681	19375.8	49.7569	174676.1	17894.5	0	0	0	0
4000	4.9681	19872.6	49.8827	179658.1	18391.3	0	0	0	0
4100	4.9681	20369.4	50.0053	184652.5	18888.2	0	0	0	0
4200	4.9681	20866.2	50.1251	189659.1	19385.0	0	0	0	0
4300	4.9681	21363.0	50.2420	194677.4	19881.8	0	0	0	0
4400	4.9681	21859.9	50.3562	199707.4	20378.6	0	0	0	0
4500	4.9681	22356.7	50.4678	204748.6	20875.4	0	0	0	0
4600	4.9681	22853.5	50.5770	209800.8	21372.2	0	0	0	0
4700	4.9681	23350.3	50.6839	214863.9	21869.1	0	0	0	0
4800	4.9681	23847.1	50.7885	219937.5	22365.9	0	0	0	0
4900	4.9681	24343.9	50.8909	225021.5	22862.7	0	0	0	0
5000	4.9681	24840.7	50.9913	230115.7	23359.5	0	0	0	0
5100	4.9681	25337.6	51.0897	235219.7	23856.3	0	0	0	0
5200	4.9681	25834.4	51.1861	240333.5	24353.1	0	0	0	0
5300	4.9682	26331.2	51.2808	245456.9	24849.9	0	0	0	0
5400	4.9682	26828.0	51.3736	250589.6	25346.8	0	0	0	0
5500	4.9682	27324.8	51.4648	255731.6	25843.6	0	0	0	0
5600	4.9682	27821.6	51.5543	260882.5	26340.4	0	0	0	0
5700	4.9682	28318.5	51.6423	266042.4	26837.2	0	0	0	0
5800	4.9682	28815.3	51.7287	271210.9	27334.0	0	0	0	0
5900	4.9682	29312.1	51.8136	276388.1	27830.8	0	0	0	0
6000	4.9682	29808.9	51.8971	281573.6	28327.6	0	0	0	0

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(17) B (gas); molecular weight, 10.82

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	133489.0	133780.7	-------	0	--------
100	4.9931	524.9	31.2109	2596.2	134013.9	134299.5	-286.6542	0	0
200	4.9742	1022.9	34.6638	5909.8	134512.0	134717.7	-139.7586	0	0
298.15	4.9708	1511.0	36.6492	9416.0	135000.0	135000.0	-91.2502	0	0
300	4.9708	1520.2	36.6799	9483.8	135009.2	135004.3	-90.6401	0	0
400	4.9696	2017.2	38.1097	13226.7	135506.2	135174.9	-66.0388	0	0
500	4.9691	2514.1	39.2186	17095.2	136003.1	135262.8	-51.2634	0	0
600	4.9688	3011.0	40.1246	21063.7	136500.0	135298.7	-41.4085	0	0
700	4.9686	3507.9	40.8905	25115.5	136996.9	135295.6	-34.3681	0	0
800	4.9685	4004.7	41.5540	29238.4	137493.8	135261.5	-29.0891	0	0
900	4.9684	4501.6	42.1392	33423.7	137990.6	135197.3	-24.9843	0	0
1000	4.9684	4998.4	42.6626	37664.2	138487.4	135107.1	-21.7024	0	0
1100	4.9683	5495.3	43.1362	41954.5	138984.3	134992.0	-19.0192	0	0
1200	4.9683	5992.1	43.5685	46290.1	139481.1	134853.2	-16.7854	0	0
1300	4.9683	6488.9	43.9662	50667.1	139977.9	134694.7	-14.8972	0	0
1400	4.9683	6985.7	44.3343	55082.3	140474.8	134520.2	-13.2810	0	0
1500	4.9683	7482.6	44.6771	59533.1	140971.6	134332.9	-11.8820	0	0
1600	4.9682	7979.4	44.9978	64017.0	141468.4	134134.9	-10.6596	0	0
1700	4.9682	8476.2	45.2990	68532.0	141965.2	133927.7	-9.5827	0	0
1800	4.9682	8973.0	45.5829	73076.2	142462.1	133712.4	-8.6270	0	0
1900	4.9682	9469.9	45.8516	77648.1	142958.9	133489.7	-7.7733	0	0
2000	4.9682	9966.7	46.1064	82246.1	143455.7	133260.7	-7.0061	0	0
2100	4.9682	10463.5	46.3488	86869.0	143952.5	133026.0	-6.3134	0	0
2200	4.9682	10960.3	46.5799	91515.5	144449.4	132786.4	-5.6848	0	0
2300	4.9682	11457.1	46.8008	96184.6	144946.2	132542.2	-5.1117	0	0
[a] 2400	4.9682	11954.0	47.0122	100875.3	145443.0	126943.8	-4.6059	0	0
2500	4.9683	12450.8	47.2150	105586.7	145939.8	126690.6	-4.1440	0	0
2600	4.9683	12947.6	47.4099	110318.0	146436.7	126437.5	-3.7184	0	0
2700	4.9684	13444.5	47.5974	115068.5	146933.5	126184.3	-3.3252	0	0
2800	4.9685	13941.3	47.7781	119837.3	147430.3	125931.1	-2.9608	0	0
2900	4.9687	14438.2	47.9524	124623.9	147927.2	125678.0	-2.6222	0	0
3000	4.9689	14935.0	48.1209	129427.6	148424.1	125424.9	-2.3070	0	0
3100	4.9693	15431.9	48.2838	134247.9	148921.0	125171.8	-2.0124	0	0
3200	4.9698	15928.9	48.4416	139084.2	149417.9	124918.7	-1.7371	0	0
3300	4.9704	16425.9	48.5945	143936.0	149914.9	124665.7	-1.4786	0	0
3400	4.9712	16923.0	48.7429	148802.9	150412.0	124412.8	-1.2361	0	0
3500	4.9722	17420.1	48.8870	153684.5	150909.2	124160.0	-1.0080	0	0
3600	4.9735	17917.4	49.0271	158580.2	151406.5	123907.3	-0.7928	0	0
3700	4.9750	18414.9	49.1634	163489.8	151903.9	123654.7	-0.5896	0	0
3800	4.9769	18912.4	49.2961	168412.8	152401.5	123402.3	-0.3976	0	0
3900	4.9791	19410.2	49.4254	173348.9	152899.3	123150.1	-0.2158	0	0
4000	4.9818	19908.3	49.5515	178297.7	153397.3	122898.1	-0.0435	0	0
4100	4.9849	20406.6	49.6746	183259.1	153895.7	122646.5	0.1202	0	0
4200	4.9885	20905.3	49.7947	188232.6	154394.3	122395.1	0.2756	0	0
4300	4.9926	21404.3	49.9122	193217.9	154893.4	122144.2	0.4234	0	0
4400	4.9972	21903.8	50.0270	198214.9	155392.8	121893.6	0.5645	0	0
4500	5.0025	22403.8	50.1393	203223.2	155892.8	121643.6	0.6990	0	0
4600	5.0083	22904.3	50.2494	208242.7	156393.4	121394.2	0.8272	0	0
4700	5.0149	23405.5	50.3571	213273.0	156894.5	121145.3	0.9497	0	0
4800	5.0221	23907.3	50.4628	218314.0	157396.4	120897.2	1.0669	0	0
4900	5.0300	24409.9	50.5664	223365.5	157899.0	120649.7	1.1792	0	0
5000	5.0387	24913.3	50.6681	228427.3	158402.4	120403.2	1.2866	0	0
5100	5.0481	25417.7	50.7680	233499.1	158906.7	120157.5	1.3898	0	0
5200	5.0583	25923.0	50.8661	238580.8	159412.0	119912.8	1.4887	0	0
5300	5.0694	26429.4	50.9626	243672.2	159918.4	119669.2	1.5836	0	0
5400	5.0812	26936.9	51.0574	248773.3	160425.9	119426.7	1.6750	0	0
5500	5.0939	27445.6	51.1508	253883.7	160934.7	119185.5	1.7627	0	0
5600	5.1074	27955.7	51.2427	259003.4	161444.7	118945.5	1.8472	0	0
5700	5.1218	28467.2	51.3332	264132.2	161956.2	118707.0	1.9287	0	0
5800	5.1370	28980.1	51.4224	269270.0	162469.1	118469.9	2.0070	0	0
5900	5.1532	29494.6	51.5104	274416.6	162983.6	118234.4	2.0826	0	0
6000	5.1702	30010.7	51.5971	279572.0	163499.8	118000.6	2.1555	0	0

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(18) B (amorphous, liquid); molecular weight, 10.82

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	-----	378.3	-------	------	86.6	378.3	-------	-133402.4	--------
100	0.330	387.1	0.1318	-373.9	95.4	381.0	-0.8215	-133918.5	285.8726
200	1.549	475.2	0.7006	-335.1	183.5	389.2	-0.4007	-134328.5	139.3580
298.15	2.858	691.7	1.5640	-225.4	400.0	400.0	-0.2580	-134600.0	90.9922
300	2.879	697.0	1.5817	-222.5	405.3	400.4	-0.2563	-134603.9	90.3838
400	3.851	1039.3	2.560	-15.3	747.6	416.3	-0.1826	-134758.5	65.8561
500	4.431	1455.3	3.485	287.2	1163.6	423.3	-0.1372	-134839.5	51.1263
600	4.854	1920.3	4.331	678.3	1628.6	427.3	-0.1062	-134871.4	41.3022
700	5.204	2424.3	5.107	1150.6	2132.6	431.3	-0.0837	-134864.3	34.2844
800	5.516	2960.3	5.827	1697.3	2668.6	436.3	-0.0672	-134825.2	29.0219
900	5.804	3526.3	6.489	2313.8	3234.6	441.3	-0.0536	-134756.0	24.9307
1000	6.079	4120.3	7.115	2994.7	3828.6	448.3	-0.0427	-134658.8	21.5597
1100	6.287	4738.9	7.704	3735.5	4447.2	454.9	-0.0338	-134537.1	18.9854
1200	6.463	5376.6	8.259	4534.2	5084.9	457.0	-0.0262	-134396.2	16.7592
1300	6.617	6030.8	8.783	5387.1	5739.1	455.9	-0.0196	-134238.8	14.8776
1400	6.750	6699.2	9.278	6290.0	6407.5	452.9	-0.0143	-134067.3	13.2666
1500	6.867	7380.2	9.748	7241.8	7088.5	449.8	-0.0096	-133883.1	11.8724
1600	6.969	8072.1	10.194	8238.3	7780.4	446.9	-0.0055	-133688.0	10.5541
1700	7.058	8773.6	10.620	9280.4	8481.9	444.4	-0.0018	-133483.3	9.5809
1800	7.137	9483.4	11.025	10361.6	9191.7	442.0	0.0012	-133270.4	8.6282
1900	7.206	10200.6	11.413	11484.1	9908.9	439.7	0.0041	-133050.0	7.7773
2000	7.268	10924.4	11.784	12643.6	10632.7	437.7	0.0066	-132823.0	7.0127
2100	7.322	11653.9	12.140	13840.1	11362.2	435.7	0.0089	-132590.3	6.3222
2200	7.371	12388.6	12.482	15071.8	12096.9	433.9	0.0109	-132352.5	5.6956
2300	7.414	13127.9	12.811	16337.4	12836.2	432.2	0.0129	-132110.0	5.1246
b,c2379	7.445	13714.9	13.061	17358.4	13423.2	430.8	0	-131906.0	4.7080
2379	7.5	18633.4	15.129	17358.4	18341.7	0	0	-126996.4	4.7080
2400	7.5	18790.9	15.195	17677.1	18499.2	0	0	-126943.8	4.6059
2500	7.5	19540.9	15.501	19211.6	19249.2	0	0	-126690.5	4.1440
2600	7.5	20290.9	15.795	20776.1	19999.2	0	0	-126437.5	3.7184
2700	7.5	21040.9	16.078	22369.7	20749.2	0	0	-126184.3	3.3252
2800	7.5	21790.9	16.351	23991.9	21499.2	0	0	-125931.1	2.9608
2900	7.5	22540.9	16.614	25639.7	22249.2	0	0	-125678.0	2.6222
3000	7.5	23290.9	16.869	27316.1	22999.2	0	0	-125424.9	2.3070
3100	7.5	24040.9	17.114	29012.5	23749.2	0	0	-125171.8	2.0124
3200	7.5	24790.9	17.353	30738.7	24499.2	0	0	-124918.7	1.7371
3300	7.5	25540.9	17.583	32483.0	25249.2	0	0	-124665.7	1.4786
3400	7.5	26290.9	17.807	34252.9	25999.2	0	0	-124412.8	1.2361
3500	7.5	27040.9	18.025	36046.6	26749.2	0	0	-124160.0	1.0080
3600	7.5	27790.9	18.236	37858.7	27499.2	0	0	-123907.3	0.7928
3700	7.5	28540.9	18.441	39690.8	28249.2	0	0	-123654.7	0.5896
3800	7.5	29290.9	18.641	41544.9	28999.2	0	0	-123402.3	0.3976
3900	7.5	30040.9	18.836	43419.5	29749.2	0	0	-123150.1	0.2158
4000	7.5	30790.9	19.026	45313.1	30499.2	0	0	-122898.1	0.0435
4100	7.5	31540.9	19.211	47224.2	31249.2	0	0	-122646.5	-0.1202
4200	7.5	32290.9	19.392	49155.5	31999.2	0	0	-122395.1	-0.2756
4300	7.5	33040.9	19.569	51105.8	32749.2	0	0	-122144.2	-0.4234
4400	7.5	33790.9	19.741	53069.5	33499.2	0	0	-121893.6	-0.5645
4500	7.5	34540.9	19.909	55049.6	34249.2	0	0	-121643.6	-0.6990
4600	7.5	35290.9	20.074	57049.5	34999.2	0	0	-121394.2	-0.8272
4700	7.5	36040.9	20.236	59068.3	35749.2	0	0	-121145.3	-0.9497
4800	7.5	36790.9	20.394	61100.3	36499.2	0	0	-120897.2	-1.0669
4900	7.5	37540.9	20.548	63144.3	37249.2	0	0	-120649.8	-1.1792
5000	7.5	38290.9	20.700	65209.1	37999.2	0	0	-120403.2	-1.2866
5100	7.5	39040.9	20.848	67283.9	38749.2	0	0	-120157.5	-1.3898
5200	7.5	39790.9	20.994	69377.9	39499.2	0	0	-119912.8	-1.4887
5300	7.5	40540.9	21.137	71485.2	40249.2	0	0	-119669.2	-1.5836
5400	7.5	41290.9	21.277	73604.9	40999.2	0	0	-119426.7	-1.6750
5500	7.5	42040.9	21.415	75741.6	41749.2	0	0	-119185.5	-1.7627
5600	7.5	42790.9	21.550	77889.1	42499.2	0	0	-118945.5	-1.8472
5700	7.5	43540.9	21.682	80046.5	43249.2	0	0	-118707.0	-1.9287
5800	7.5	44290.9	21.813	82224.5	43999.2	0	0	-118469.9	-2.0070
5900	7.5	45040.9	21.941	84411.0	44749.2	0	0	-118234.4	-2.0826
6000	7.5	45790.9	22.067	86611.1	45499.2	0	0	-118000.5	-2.1555

[a] H_0° refers to crystal state.

[b] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B (crystal), 2313° K.

[c] Melting point of B (amorphous).

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(19) B (crystal, liquid); molecular weight, 10.82

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-291.7	0	-------	-133780.7	--------
100	0.256	6.1	0.081	2.0	-285.6	0	0	-134299.5	286.6942
200	1.447	86.0	0.588	31.6	-205.7	0	0	-134717.7	139.7586
298.15	2.650	291.7	1.403	126.6	0	0	0	-135000.0	91.2502
300	2.667	296.6	1.420	129.4	4.9	0	0	-135004.3	90.6401
400	3.762	623.0	2.355	319.0	331.3	0	0	-135174.9	66.0388
500	4.381	1032.0	3.266	601.0	740.3	0	0	-135262.8	51.2634
600	4.815	1493.0	4.105	970.0	1201.3	0	0	-135298.7	41.4085
700	5.164	1993.0	4.874	1418.8	1701.3	0	0	-135295.6	34.3681
800	5.465	2524.0	5.584	1943.2	2232.3	0	0	-135261.5	29.0891
900	5.741	3085.0	6.244	2534.6	2793.3	0	0	-135197.3	24.9843
1000	5.999	3672.0	6.862	3190.0	3380.3	0	0	-135107.1	21.7024
1100	6.246	4284.0	7.445	3905.5	3992.3	0	0	-134992.0	19.0192
1200	6.460	4919.6	7.998	4678.0	4627.9	0	0	-134853.2	16.7854
1300	6.640	5574.9	8.522	5503.7	5283.2	0	0	-134694.7	14.8972
1400	6.783	6246.3	9.020	6381.7	5954.6	0	0	-134520.2	13.2810
1500	6.897	6930.4	9.492	7307.6	6638.7	0	0	-134332.9	11.8820
1600	6.996	7625.2	9.940	8278.8	7333.5	0	0	-134134.9	10.6596
1700	7.083	8329.2	10.367	9294.7	8037.5	0	0	-133927.7	9.5827
1800	7.160	9041.4	10.774	10351.8	8749.7	0	0	-133712.4	8.6270
1900	7.228	9760.9	11.163	11448.8	9469.2	0	0	-133489.7	7.7733
2000	7.288	10486.7	11.535	12583.3	10195.0	0	0	-133260.7	7.0061
2100	7.341	11218.2	11.892	13755.0	10926.5	0	0	-133026.0	6.3134
2200	7.388	11954.7	12.235	14962.3	11663.0	0	0	-132786.4	5.6848
2300	7.430	12695.7	12.564	16201.5	12404.0	0	0	-132542.2	5.1117
[b]2313	7.435	12818.5	12.618	16366.9	12526.8	0	0	-132509.5	5.0406
2313	7.5	18138.4	14.918	16366.9	17846.7	0	0	-127158.4	5.0406
2400	7.5	18790.9	15.195	17677.1	18499.2	0	0	-126943.8	4.6059
2500	7.5	19540.9	15.501	19211.6	19249.2	0	0	-126690.6	4.1440
2600	7.5	20290.9	15.795	20776.1	19999.2	0	0	-126437.5	3.7184
2700	7.5	21040.9	16.078	22369.7	20749.2	0	0	-126184.3	3.3252
2800	7.5	21790.9	16.351	23991.9	21499.2	0	0	-125931.1	2.9608
2900	7.5	22540.9	16.614	25639.7	22249.2	0	0	-125678.0	2.6222
3000	7.5	23290.9	16.869	27316.1	22999.2	0	0	-125424.9	2.3070
3100	7.5	24040.9	17.114	29012.5	23749.2	0	0	-125171.8	2.0124
3200	7.5	24790.9	17.353	30738.7	24499.2	0	0	-124918.7	1.7371
3300	7.5	25540.9	17.583	32483.0	25249.2	0	0	-124665.7	1.4786
3400	7.5	26290.9	17.807	34252.9	25999.2	0	0	-124412.8	1.2361
3500	7.5	27040.9	18.025	36046.6	26749.2	0	0	-124160.0	1.0080
3600	7.5	27790.9	18.236	37858.7	27499.2	0	0	-123907.3	0.7928
3700	7.5	28540.9	18.441	39690.8	28249.2	0	0	-123654.7	0.5896
3800	7.5	29290.9	18.641	41544.9	28999.2	0	0	-123402.3	0.3976
3900	7.5	30040.9	18.836	43419.5	29749.2	0	0	-123150.1	0.2158
4000	7.5	30790.9	19.026	45313.1	30499.2	0	0	-122898.1	0.0435
4100	7.5	31540.9	19.211	47224.2	31249.2	0	0	-122646.5	-0.1202
4200	7.5	32290.9	19.392	49155.5	31999.2	0	0	-122395.1	-0.2756
4300	7.5	33040.9	19.569	51105.8	32749.2	0	0	-122144.2	-0.4234
4400	7.5	33790.9	19.741	53069.5	33499.2	0	0	-121893.6	-0.5645
4500	7.5	34540.9	19.909	55049.6	34249.2	0	0	-121643.6	-0.6990
4600	7.5	35290.9	20.074	57049.5	34999.2	0	0	-121394.2	-0.8272
4700	7.5	36040.9	20.236	59068.3	35749.2	0	0	-121145.3	-0.9497
4800	7.5	36790.9	20.394	61100.3	36499.2	0	0	-120897.2	-1.0669
4900	7.5	37540.9	20.548	63144.3	37249.2	0	0	-120649.8	-1.1792
5000	7.5	38290.9	20.700	65209.1	37999.2	0	0	-120403.2	-1.2866
5100	7.5	39040.9	20.848	67283.9	38749.2	0	0	-120157.5	-1.3898
5200	7.5	39790.9	20.994	69377.9	39499.2	0	0	-119912.8	-1.4887
5300	7.5	40540.9	21.137	71485.2	40249.2	0	0	-119669.2	-1.5836
5400	7.5	41290.9	21.277	73604.9	40999.2	0	0	-119426.7	-1.6750
5500	7.5	42040.9	21.415	75741.6	41749.2	0	0	-119185.5	-1.7627
5600	7.5	42790.9	21.550	77889.1	42499.2	0	0	-118945.5	-1.8472
5700	7.5	43540.9	21.682	80046.5	43249.2	0	0	-118707.0	-1.9287
5800	7.5	44290.9	21.813	82224.5	43999.2	0	0	-118469.9	-2.0070
5900	7.5	45040.9	21.941	84411.0	44749.2	0	0	-118234.4	-2.0826
6000	7.5	45790.9	22.067	86611.1	45499.2	0	0	-118000.6	-2.1555

[a] H_0° refers to crystal state.

[b] Melting point.

TABLE III - Continued. THERMODYNAMIC PROPERTIES

(20) B_2 (gas); molecular weight, 21.64

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	202978.1	203561.5	-------	-64000.0	--------
100	6.9580	694.5	40.5431	3359.8	203672.6	204243.8	-437.5281	-64355.3	135.8602
200	7.0231	1392.1	45.3761	7683.1	204370.2	204781.5	-214.1047	-64653.8	65.4126
298.15	7.3005	2093.5	48.2261	12285.1	205071.6	205071.6	-140.3883	-64928.4	42.1122
300	7.3071	2107.1	48.2712	12374.3	205085.1	205075.3	-139.4616	-64933.2	41.8187
400	7.6668	2855.9	50.4229	17313.3	205833.9	205171.3	-102.1049	-65178.5	29.9726
500	7.9754	3638.6	52.1682	22445.5	206616.7	205136.1	-79.6873	-65389.6	22.8396
600	8.2116	4448.5	53.6442	27738.0	207426.6	205024.0	-64.7472	-65573.5	18.0698
700	8.3881	5278.9	54.9240	33167.9	208257.0	204854.4	-54.0826	-65736.8	14.6537
800	8.5211	6124.7	56.0531	38717.8	209102.8	204638.2	-46.0927	-65884.8	12.0855
900	8.6232	6982.1	57.0629	44374.5	209960.2	204373.6	-39.8849	-66021.0	10.0837
1000	8.7033	7848.6	57.9758	50127.2	210826.7	204066.1	-34.9257	-66148.2	8.4791
1100	8.7678	8722.3	58.8084	55967.0	211700.3	203715.7	-30.8747	-66268.2	7.1637
1200	8.8207	9601.8	59.5737	61886.6	212579.8	203324.0	-27.5051	-66382.4	6.0656
1300	8.8651	10486.1	60.2815	67879.8	213464.2	202897.8	-24.6595	-66491.7	5.1349
1400	8.9031	11374.6	60.9399	73941.3	214352.7	202443.5	-22.2260	-66596.9	4.3359
1500	8.9361	12266.6	61.5553	80066.4	215244.6	201967.2	-20.1217	-66698.6	3.6423
1600	8.9652	13161.7	62.1330	86251.1	216139.7	201472.7	-18.2846	-66797.1	3.0346
1700	8.9913	14059.5	62.6773	92491.9	217037.6	200962.6	-16.6680	-66892.9	2.4975
1800	9.0150	14959.8	63.1919	98785.6	217937.9	200438.5	-15.2346	-66986.2	2.0194
1900	9.0368	15862.5	63.6799	105129.4	218840.5	199902.1	-13.9554	-67077.3	1.5911
2000	9.0570	16767.2	64.1439	111520.7	219745.2	199355.2	-12.8072	-67166.2	1.2051
2100	9.0758	17673.8	64.5863	117957.4	220651.9	198798.9	-11.7714	-67253.2	0.8554
2200	9.0936	18582.3	65.0089	124437.3	221560.4	198234.4	-10.8325	-67338.4	0.5370
2300	9.1104	19492.5	65.4135	130958.6	222470.6	197662.6	-9.9774	-67421.8	0.2460
[a] 2400	9.1265	20404.3	65.8016	137519.5	223382.4	186384.0	-9.2329	-67503.6	-0.0210
2500	9.1419	21317.8	66.1745	144118.4	224295.8	185797.4	-8.5551	-67583.8	-0.2671
2600	9.1568	22232.7	66.5333	150753.9	225210.8	185212.4	-7.9313	-67662.5	-0.4944
2700	9.1712	23149.1	66.8792	157424.7	226127.2	184628.8	-7.3556	-67739.8	-0.7052
2800	9.1852	24066.9	67.2130	164129.4	227045.0	184046.6	-6.8228	-67815.7	-0.9011
2900	9.1989	24986.1	67.5355	170866.9	227964.2	183465.8	-6.3281	-67890.2	-1.0837
3000	9.2123	25906.7	67.8476	177636.1	228884.8	182886.4	-5.8683	-67963.4	-1.2543
3100	9.2254	26828.6	68.1499	184436.1	229806.7	182308.3	-5.4388	-68035.3	-1.4141
3200	9.2384	27751.8	68.4430	191265.8	230729.9	181731.5	-5.0382	-68106.0	-1.5641
3300	9.2511	28676.3	68.7279	198124.4	231654.3	181155.9	-4.6624	-68175.6	-1.7051
3400	9.2638	29602.0	69.0038	205011.0	232580.1	180581.7	-4.3101	-68244.0	-1.8380
3500	9.2764	30529.0	69.2725	211924.9	233507.1	180008.7	-3.9793	-68311.3	-1.9634
3600	9.2889	31457.3	69.5340	218865.3	234435.3	179436.9	-3.6674	-68377.6	-2.0819
3700	9.3013	32386.8	69.7887	225831.5	235364.9	178866.5	-3.3733	-68442.9	-2.1941
3800	9.3138	33317.5	70.0369	232822.8	236295.6	178297.2	-3.0957	-68507.3	-2.3006
3900	9.3263	34249.5	70.2790	239838.6	237227.6	177729.2	-2.8333	-68570.9	-2.4016
4000	9.3389	35182.8	70.5153	246878.4	238160.9	177162.5	-2.5847	-68633.8	-2.4977
4100	9.3515	36117.3	70.7461	253941.5	239095.4	176597.0	-2.3489	-68695.9	-2.5892
4200	9.3642	37053.1	70.9716	261027.4	240031.2	176032.8	-2.1253	-68757.5	-2.6765
4300	9.3771	37990.2	71.1921	268135.7	240968.2	175469.8	-1.9128	-68818.5	-2.7597
4400	9.3902	38928.5	71.4078	275265.7	241906.6	174908.2	-1.7103	-68879.1	-2.8392
4500	9.4034	39868.2	71.6190	282417.1	242846.3	174347.9	-1.5173	-68939.4	-2.9153
4600	9.4168	40809.2	71.8258	289589.3	243787.3	173788.9	-1.3336	-68999.4	-2.9881
4700	9.4304	41751.6	72.0284	296782.1	244729.7	173231.3	-1.1585	-69059.4	-3.0579
4800	9.4443	42695.3	72.2271	303994.9	245673.4	172675.0	-0.9910	-69119.3	-3.1248
4900	9.4584	43640.4	72.4220	311227.4	246618.5	172120.1	-0.8306	-69179.4	-3.1891
5000	9.4727	44587.0	72.6132	318479.2	247565.1	171566.7	-0.6775	-69239.7	-3.2508
5100	9.4874	45535.0	72.8010	325749.9	248513.1	171014.7	-0.5305	-69300.4	-3.3102
5200	9.5023	46484.5	72.9853	333039.3	249462.5	170464.2	-0.3899	-69361.5	-3.3673
5300	9.5175	47435.5	73.1665	340346.9	250413.5	169915.1	-0.2550	-69423.3	-3.4223
5400	9.5330	48388.0	73.3445	347672.4	251366.1	169367.7	-0.1254	-69485.8	-3.4753
5500	9.5488	49342.1	73.5196	355015.7	252320.1	168821.7	-0.0012	-69549.2	-3.5265
5600	9.5649	50297.8	73.6918	362376.3	253275.8	168277.4	0.1185	-69613.6	-3.5759
5700	9.5814	51255.1	73.8612	369753.9	254233.1	167734.7	0.2339	-69679.2	-3.6236
5800	9.5981	52214.0	74.0280	377148.4	255192.1	167193.7	0.3443	-69746.1	-3.6696
5900	9.6151	53174.7	74.1922	384559.5	256152.8	166654.4	0.4510	-69814.5	-3.7142
6000	9.6325	54137.1	74.3540	391986.8	257115.2	166116.7	0.5537	-69884.4	-3.7573

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(21) BCl (gas); molecular weight, 46.277

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	42940.7	44329.1	-------	-118000.0	--------
100	6.9593	695.0	43.1543	3620.4	43635.7	44670.1	-93.1421	-118326.7	253.7799
200	7.1401	1356.8	48.0124	8205.6	44337.6	44929.2	-44.2106	-118621.9	124.3590
298.15	7.5663	2118.0	50.9403	13069.9	45058.7	45058.7	-28.0245	-118891.9	81.6464
300	7.5745	2132.0	50.9872	13164.2	45072.7	45060.3	-27.8210	-118896.8	81.1090
400	7.9670	2910.0	53.2226	18379.1	45850.7	45097.2	-19.6112	-119146.1	59.4350
500	8.2479	3721.6	55.0325	23794.6	46662.3	45072.9	-14.6845	-119372.4	46.4044
600	8.4420	4556.7	56.5545	29376.0	47497.4	45012.5	-11.4029	-119578.6	37.7013
700	8.5786	5408.1	57.8667	35098.6	48348.8	44924.7	-9.0626	-119767.6	31.4745
800	8.6777	6271.2	59.0190	40944.0	49211.9	44814.1	-7.3117	-119942.2	26.7973
900	8.7523	7142.8	60.0456	46898.2	50083.5	44679.5	-5.9533	-120104.4	23.1544
1000	8.8102	8021.1	60.9708	52949.8	50961.8	44523.5	-4.8701	-120256.3	20.2362
1100	8.8565	8904.5	61.8128	59089.6	51845.2	44346.1	-3.9872	-120399.3	17.8456
1200	8.8947	9792.1	62.5851	65310.0	52732.8	44147.9	-3.2546	-120534.9	15.8512
1300	8.9268	10683.2	63.2983	71604.6	53623.9	43932.3	-2.6375	-120664.1	14.1617
1400	8.9545	11577.3	63.9609	77968.0	54518.0	43702.4	-2.1114	-120787.7	12.7121
1500	8.9789	12474.0	64.5796	84395.4	55414.7	43461.5	-1.6578	-120906.4	11.4545
1600	9.0006	13373.0	65.1598	90882.6	56313.7	43211.2	-1.2631	-121020.8	10.3531
1700	9.0203	14274.1	65.7060	97426.2	57214.8	42953.0	-0.9170	-121131.3	9.3803
1800	9.0383	15177.0	66.2221	104022.8	58117.7	42687.6	-0.6111	-121238.4	8.5148
1900	9.0551	16081.7	66.7113	110669.7	59022.4	42415.8	-0.3392	-121342.4	7.7398
2000	9.0708	16988.0	67.1761	117364.3	59928.7	42138.6	-0.0960	-121443.6	7.0416
2100	9.0857	17895.8	67.6191	124104.2	60836.5	41856.4	0.1225	-121542.1	6.4095
2200	9.0999	18805.1	68.0421	130887.4	61745.8	41570.0	0.3198	-121638.3	5.8343
2300	9.1134	19715.8	68.4469	137712.0	62656.5	41279.8	0.4988	-121732.1	5.3088
[a]2400	9.1265	20627.8	68.8350	144576.2	63568.5	35635.9	0.6431	-121823.9	4.8266
2500	9.1391	21541.1	69.2078	151478.5	64481.8	35337.9	0.7724	-121913.7	4.3828
2600	9.1514	22455.6	69.5665	158417.3	65396.3	35040.4	0.8908	-122001.6	3.9727
2700	9.1634	23371.3	69.9121	165391.4	66312.0	34743.5	0.9994	-122087.8	3.5928
2800	9.1751	24288.2	70.2456	172399.3	67229.0	34447.1	1.0994	-122172.2	3.2397
2900	9.1865	25206.3	70.5677	179440.1	68147.0	34151.2	1.1917	-122255.1	2.9108
3000	9.1978	26125.5	70.8794	186512.5	69066.3	33855.7	1.2770	-122336.4	2.6036
3100	9.2089	27045.9	71.1811	193615.6	69986.6	33560.7	1.3564	-122416.2	2.3160
3200	9.2198	27967.3	71.4737	200748.5	70908.0	33266.2	1.4298	-122494.6	2.0463
3300	9.2306	28889.8	71.7576	207910.1	71830.6	32972.1	1.4985	-122571.6	1.7927
3400	9.2413	29813.4	72.0333	215099.7	72754.2	32678.4	1.5624	-122647.3	1.5539
3500	9.2519	30738.1	72.3013	222316.5	73678.8	32385.2	1.6221	-122721.8	1.3286
3600	9.2624	31663.8	72.5621	229559.7	74604.5	32092.4	1.6780	-122795.1	1.1157
3700	9.2728	32590.6	72.8160	236828.7	75531.3	31799.9	1.7306	-122867.2	0.9141
3800	9.2831	33518.4	73.0634	244122.7	76459.1	31507.9	1.7798	-122938.2	0.7231
3900	9.2933	34447.2	73.3047	251441.2	77387.9	31216.3	1.8260	-123008.2	0.5418
4000	9.3035	35377.0	73.5401	258783.5	78317.7	30925.0	1.8695	-123077.2	0.3694
4100	9.3136	36307.9	73.7700	266149.0	79248.6	30634.2	1.9105	-123145.4	0.2053
4200	9.3237	37239.8	73.9945	273537.3	80180.5	30343.7	1.9492	-123212.6	0.0490
4300	9.3337	38172.6	74.2140	280947.7	81113.3	30053.6	1.9856	-123279.1	-0.1001
4400	9.3437	39106.5	74.4287	288379.9	82047.2	29763.8	2.0202	-123344.9	-0.2426
4500	9.3537	40041.4	74.6388	295833.3	82982.1	29474.5	2.0531	-123410.0	-0.3787
4600	9.3636	40977.2	74.8445	303307.5	83917.9	29185.5	2.0840	-123474.6	-0.5091
4700	9.3735	41914.1	75.0460	310802.1	84854.8	28896.8	2.1132	-123538.7	-0.6339
4800	9.3833	42851.9	75.2434	318316.6	85792.6	28608.5	2.1410	-123602.3	-0.7536
4900	9.3932	43790.8	75.4370	325850.7	86731.5	28320.6	2.1676	-123665.7	-0.8685
5000	9.4030	44730.6	75.6269	333403.9	87671.3	28033.1	2.1926	-123728.7	-0.9788
5100	9.4127	45671.3	75.8132	340975.9	88612.0	27745.9	2.2167	-123791.6	-1.0849
5200	9.4225	46613.1	75.9961	348566.4	89553.8	27459.0	2.2393	-123854.4	-1.1869
5300	9.4322	47555.8	76.1756	356175.0	90496.5	27172.5	2.2610	-123917.2	-1.2852
5400	9.4419	48499.5	76.3520	363801.4	91440.3	26886.4	2.2816	-123980.1	-1.3798
5500	9.4516	49444.2	76.5254	371445.3	92384.9	26600.6	2.3012	-124043.2	-1.4710
5600	9.4613	50389.9	76.6958	379106.4	93330.6	26315.1	2.3200	-124106.6	-1.5591
5700	9.4710	51336.5	76.8633	386784.4	94277.2	26030.0	2.3381	-124170.3	-1.6441
5800	9.4806	52284.1	77.0281	394479.0	95224.8	25745.2	2.3551	-124234.4	-1.7262
5900	9.4903	53232.6	77.1903	402189.9	96173.3	25460.8	2.3715	-124299.1	-1.8055
6000	9.4999	54182.1	77.3498	409916.9	97122.8	25176.7	2.3872	-124364.4	-1.8823

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(22) BCl_2 (gas); molecular weight, 81.734

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-22407.6	-19922.5	-------	-210800.0	--------
100	8.8545	818.9	54.3920	4620.3	-21588.7	-19805.6	45.2848	-211499.6	452.4346
200	10.4314	1788.4	61.0486	10421.4	-20619.3	-19641.7	23.7140	-212026.2	221.0945
298.15	11.4680	2866.3	65.4200	16638.7	-19541.3	-19541.3	16.6676	-212442.6	144.7592
300	11.4840	2887.5	65.4910	16759.8	-19520.1	-19540.0	16.5792	-212449.8	143.7989
400	12.1917	4073.7	68.8986	23485.7	-18333.9	-19509.5	13.0234	-212821.3	105.0772
500	12.6602	5317.9	71.6730	30518.6	-17089.7	-19528.3	10.8908	-213155.9	81.8050
600	12.9730	6600.6	74.0107	37805.8	-15807.0	-19575.4	9.4668	-213458.9	66.2668
700	13.1871	7909.3	76.0276	45310.1	-14498.4	-19645.3	8.4468	-213734.3	55.1530
800	13.3381	9235.9	77.7989	53003.2	-13171.7	-19735.0	7.6783	-213986.0	46.8073
900	13.4476	10575.5	79.3766	60863.4	-11832.1	-19846.9	7.0778	-214217.4	40.3088
1000	13.5292	11924.5	80.7978	68873.3	-10483.1	-19979.3	6.5944	-214431.7	35.1046
1100	13.5914	13280.7	82.0903	77018.7	-9126.9	-20132.8	6.1961	-214631.7	30.8425
1200	13.6398	14642.4	83.2751	85287.8	-7765.3	-20307.2	5.8613	-214819.6	27.2875
1300	13.6781	16008.3	84.3685	93670.7	-6399.3	-20499.4	5.5757	-214997.4	24.2769
1400	13.7089	17377.7	85.3833	102158.9	-5029.9	-20706.4	5.3282	-215166.5	21.6943
1500	13.7341	18749.9	86.3300	110745.0	-3657.7	-20925.4	5.1116	-215328.2	19.4543
1600	13.7549	20124.4	87.2170	119422.9	-2283.2	-21154.6	4.9201	-215483.7	17.4929
1700	13.7722	21500.8	88.0515	128186.7	-906.8	-21392.9	4.7492	-215633.7	15.7610
1800	13.7868	22878.8	88.8391	137031.6	471.1	-21639.5	4.5955	-215779.1	14.2204
1900	13.7993	24258.1	89.5848	145953.1	1850.4	-21893.6	4.4565	-215920.3	12.8412
2000	13.8099	25638.5	90.2929	154947.3	3230.9	-22154.3	4.3299	-216057.9	11.5990
2100	13.8191	27020.0	90.9669	164010.6	4612.4	-22421.3	4.2139	-216192.4	10.4744
2200	13.8272	28402.3	91.6100	173139.7	5994.7	-22693.9	4.1071	-216324.1	9.4515
2300	13.8342	29785.4	92.2248	182331.6	7377.8	-22971.7	4.0086	-216453.3	8.5169
[a]2400	13.8403	31169.1	92.8137	191583.8	8761.5	-28604.4	3.8986	-216580.3	7.6597
2500	13.8458	32553.5	93.3788	200893.6	10145.8	-28892.7	3.7939	-216705.3	6.8706
2600	13.8507	33938.3	93.9220	210258.8	11530.7	-29181.8	3.6964	-216828.6	6.1418
2700	13.8550	35323.6	94.4448	219677.3	12915.9	-29471.9	3.6051	-216950.2	5.4666
2800	13.8589	36709.3	94.9487	229147.1	14301.6	-29762.9	3.5194	-217070.4	4.8393
2900	13.8623	38095.3	95.4351	238666.4	15687.7	-30054.8	3.4390	-217189.4	4.2549
3000	13.8655	39481.7	95.9051	248233.6	17074.1	-30347.8	3.3629	-217307.1	3.7092
3100	13.8684	40868.4	96.3598	257847.0	18460.8	-30641.7	3.2915	-217423.8	3.1984
3200	13.8709	42255.4	96.8001	267505.1	19847.8	-30936.7	3.2235	-217539.5	2.7193
3300	13.8733	43642.6	97.2270	277206.5	21235.0	-31232.7	3.1593	-217654.4	2.2690
3400	13.8755	45030.0	97.6412	286950.0	22622.4	-31529.8	3.0982	-217768.5	1.8450
3500	13.8774	46417.7	98.0434	296734.4	24010.1	-31828.0	3.0399	-217882.0	1.4449
3600	13.8793	47805.5	98.4344	306558.4	25397.9	-32127.2	2.9845	-217994.8	1.0669
3700	13.8809	49193.5	98.8147	316420.9	26785.9	-32427.6	2.9316	-218107.1	0.7092
3800	13.8825	50581.7	99.1849	326321.0	28174.1	-32729.0	2.8810	-218219.0	0.3701
3900	13.8839	51970.0	99.5455	336257.6	29562.4	-33031.6	2.8325	-218330.5	0.0482
4000	13.8852	53358.5	99.8971	346229.8	30950.9	-33335.4	2.7860	-218441.8	-0.2577
4100	13.8865	54747.1	100.2399	356236.7	32339.4	-33640.2	2.7414	-218552.8	-0.5489
4200	13.8876	56135.8	100.5746	366277.5	33728.1	-33946.2	2.6984	-218663.7	-0.8263
4300	13.8887	57524.6	100.9014	376351.3	35117.0	-34253.4	2.6571	-218774.6	-1.0910
4400	13.8897	58913.5	101.2207	386457.5	36505.9	-34561.7	2.6174	-218885.5	-1.3437
4500	13.8906	60302.5	101.5328	396595.2	37894.9	-34871.1	2.5792	-218996.5	-1.5854
4600	13.8914	61691.6	101.8381	406763.8	39284.0	-35181.8	2.5422	-219107.7	-1.8167
4700	13.8923	63080.8	102.1369	416962.7	40673.2	-35493.6	2.5063	-219219.2	-2.0382
4800	13.8930	64470.1	102.4294	427191.0	42062.4	-35806.5	2.4718	-219331.1	-2.2506
4900	13.8937	65859.4	102.7159	437448.3	43451.8	-36120.7	2.4385	-219443.5	-2.4545
5000	13.8944	67248.8	102.9966	447734.0	44841.2	-36436.0	2.4060	-219556.4	-2.6502
5100	13.8950	68638.3	103.2717	458047.5	46230.7	-36752.5	2.3748	-219670.0	-2.8385
5200	13.8956	70027.8	103.5415	468388.2	47620.2	-37070.2	2.3443	-219784.2	-3.0195
5300	13.8962	71417.4	103.8062	478755.6	49009.8	-37389.1	2.3147	-219899.4	-3.1939
5400	13.8967	72807.1	104.0660	489149.2	50399.4	-37709.2	2.2861	-220015.4	-3.3618
5500	13.8973	74196.8	104.3210	499568.6	51789.1	-38030.4	2.2582	-220132.5	-3.5237
5600	13.8977	75586.5	104.5714	510013.3	53178.9	-38352.9	2.2311	-220250.7	-3.6800
5700	13.8982	76976.3	104.8174	520482.8	54568.7	-38676.5	2.2049	-220370.0	-3.8308
5800	13.8986	78366.1	105.0591	530976.6	55958.5	-39001.4	2.1791	-220490.7	-3.9765
5900	13.8990	79756.0	105.2967	541494.4	57348.4	-39327.4	2.1541	-220612.8	-4.1174
6000	13.8994	81146.0	105.5303	552035.8	58738.3	-39654.7	2.1298	-220736.4	-4.2536

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE LII. - Continued. THERMODYNAMIC PROPERTIES

(23) BCl_3 (gas); molecular weight, 117.191

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-100471.8	-96889.9	-------	-316315.8	--------
100	9.7360	841.6	55.9395	4752.4	-99630.2	-97098.3	209.6044	-317489.6	676.9820
200	12.9219	1985.2	63.7389	10762.6	-98486.6	-97123.1	103.4849	-318341.1	329.6763
298.15	14.9949	3361.8	69.3119	17303.4	-97110.0	-97110.0	68.5517	-318961.9	215.0639
300	15.0268	3389.6	69.4043	17431.7	-97082.2	-97109.6	68.1126	-318972.3	213.6221
400	16.4385	4967.6	73.9343	24606.1	-95504.2	-97102.0	50.4275	-319482.2	155.4887
500	17.3734	6661.4	77.7101	32193.6	-93810.4	-97098.1	39.8171	-319908.1	120.5568
600	17.9979	8432.0	80.9365	40129.9	-92039.8	-97091.7	32.7441	-320267.6	97.2399
700	18.4256	10254.5	83.7450	48367.0	-90217.3	-97087.1	27.6925	-320572.8	80.5677
800	18.7273	12113.0	86.2262	56868.0	-88358.8	-97087.6	23.9034	-320833.4	68.0524
900	18.9463	13997.2	88.4453	65603.6	-86474.6	-97100.1	20.9565	-321057.1	58.3109
1000	19.1094	15900.4	90.4503	74550.0	-84571.4	-97125.5	18.5985	-321250.6	50.5126
1100	19.2337	17817.8	92.2777	83687.7	-82654.0	-97166.6	16.6685	-321419.0	44.1286
1200	19.3305	19746.2	93.9556	93000.5	-80725.6	-97224.5	15.0594	-321566.5	38.8059
1300	19.4071	21683.2	95.5060	102474.6	-78788.6	-97297.1	13.6970	-321696.7	34.3002
1400	19.4688	23627.1	96.9466	112098.1	-76844.7	-97382.2	12.5281	-321812.2	30.4367
1500	19.5191	25576.6	98.2915	121860.7	-74895.2	-97477.4	11.5142	-321915.2	27.0872
1600	19.5606	27530.6	99.5526	131753.6	-72941.1	-97581.5	10.6262	-322007.7	24.1555
1700	19.5953	29488.5	100.7396	141768.8	-70983.3	-97693.7	9.8417	-322091.0	21.5680
1800	19.6245	31449.5	101.8605	151899.3	-69022.3	-97813.3	9.1435	-322166.5	19.2674
1900	19.6494	33413.2	102.9222	162138.9	-67058.5	-97939.9	8.5181	-322235.2	17.2085
2000	19.6708	35379.3	103.9306	172482.0	-65092.5	-98072.9	7.9546	-322297.9	15.3551
2100	19.6892	37347.3	104.8908	182923.4	-63124.5	-98211.8	7.4439	-322355.4	13.6780
2200	19.7052	39317.0	105.8071	193458.7	-61154.7	-98356.1	6.9789	-322408.2	12.1530
2300	19.7193	41288.3	106.6834	204083.5	-59183.5	-98505.6	6.5539	-322457.0	10.7604
[a]2400	19.7316	43260.8	107.5229	214794.1	-57210.9	-104010.2	6.1451	-322502.1	9.4837
2500	19.7425	45234.6	108.3286	225587.0	-55237.2	-104170.4	5.7660	-322544.0	8.3090
2600	19.7522	47209.3	109.1031	236458.8	-53262.5	-104331.6	5.4155	-322583.0	7.2245
2700	19.7609	49185.0	109.8487	247406.6	-51286.8	-104494.0	5.0905	-322619.3	6.2202
2800	19.7686	51161.4	110.5675	258427.7	-49310.3	-104657.5	4.7881	-322653.3	5.2876
2900	19.7756	53138.7	111.2614	269519.3	-47333.1	-104822.3	4.5063	-322685.1	4.4191
3000	19.7819	55116.6	111.9319	280679.1	-45355.2	-104988.4	4.2426	-322715.0	3.6085
3100	19.7876	57095.0	112.5806	291905.0	-43376.7	-105155.9	3.9959	-322743.1	2.8501
3200	19.7928	59074.1	113.2090	303194.6	-41397.7	-105324.8	3.7639	-322769.7	2.1391
3300	19.7975	61053.6	113.8181	314546.1	-39418.2	-105495.1	3.5459	-322794.8	1.4711
3400	19.8019	63033.6	114.4092	325957.6	-37438.2	-105666.9	3.3402	-322818.6	0.8424
3500	19.8058	65013.9	114.9832	337427.4	-35457.8	-105840.3	3.1459	-322841.3	0.2495
3600	19.8095	66994.7	115.5412	348953.7	-33477.1	-106015.1	2.9622	-322862.9	-0.3105
3700	19.8128	68975.8	116.0840	360535.1	-31495.9	-106191.6	2.7882	-322883.6	-0.8402
3800	19.8159	70957.3	116.6125	372170.1	-29514.5	-106369.6	2.6230	-322903.4	-1.3421
3900	19.8188	72939.0	117.1272	383857.1	-27532.8	-106549.2	2.4660	-322922.5	-1.8183
4000	19.8214	74921.0	117.6290	395595.1	-25550.8	-106730.5	2.3166	-322941.0	-2.2707
4100	19.8239	76903.3	118.1185	407382.5	-23568.5	-106913.4	2.1743	-322959.0	-2.7010
4200	19.8261	78885.8	118.5962	419218.4	-21586.0	-107097.9	2.0384	-322976.6	-3.1109
4300	19.8283	80868.5	119.0628	431101.4	-19603.3	-107284.2	1.9086	-322993.9	-3.5017
4400	19.8303	82851.4	119.5186	443030.6	-17620.4	-107472.1	1.7847	-323010.9	-3.8748
4500	19.8321	84834.5	119.9643	455004.8	-15637.2	-107661.7	1.6661	-323027.9	-4.2313
4600	19.8338	86817.8	120.4002	467023.1	-13653.9	-107853.0	1.5523	-323044.8	-4.5724
4700	19.8355	88801.3	120.8268	479084.5	-11670.5	-108046.0	1.4430	-323061.8	-4.8989
4800	19.8370	90784.9	121.2444	491188.2	-9686.8	-108240.7	1.3382	-323079.0	-5.2119
4900	19.8384	92768.7	121.6534	503333.1	-7703.1	-108437.2	1.2377	-323096.5	-5.5121
5000	19.8398	94752.6	122.0542	515518.6	-5719.2	-108635.3	1.1408	-323114.3	-5.8003
5100	19.8410	96736.7	122.4471	527743.7	-3735.1	-108835.3	1.0477	-323132.7	-6.0772
5200	19.8422	98720.8	122.8324	540007.7	-1751.0	-109036.9	0.9579	-323151.6	-6.3435
5300	19.8434	100705.1	123.2104	552310.0	233.3	-109240.4	0.8713	-323171.2	-6.5998
5400	19.8444	102689.5	123.5813	564649.6	2217.7	-109445.6	0.7878	-323191.6	-6.8465
5500	19.8455	104674.0	123.9455	577026.0	4202.2	-109652.5	0.7072	-323212.9	-7.0844
5600	19.8464	106658.6	124.3030	589438.5	6186.8	-109861.2	0.6293	-323235.1	-7.3137
5700	19.8473	108643.3	124.6543	601886.4	8171.5	-110071.7	0.5542	-323258.5	-7.5350
5800	19.8482	110628.1	124.9995	614369.1	10156.3	-110284.0	0.4812	-323283.0	-7.7487
5900	19.8490	112612.9	125.3388	626886.1	12141.1	-110498.0	0.4108	-323308.9	-7.9552
6000	19.8498	114597.9	125.6724	639436.7	14126.1	-110713.8	0.3425	-323336.1	-8.1548

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(24) BF (gas); molecular weight, 29.82

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-45210.8	-43864.3	-------	-196000.0	--------
100	6.9571	694.2	40.2688	3332.7	-44516.6	-43523.6	99.4519	-196329.2	424.0175
200	6.9681	1390.2	45.0927	7628.4	-43826.6	-43257.5	52.0169	-196657.1	209.3537
298.15	7.0724	2078.0	47.8896	12200.3	-43132.7	-43132.7	36.4811	-196990.9	138.5614
300	7.0757	2091.1	47.9334	12288.9	-43119.6	-43131.5	36.2860	-196997.1	137.6710
400	7.3084	2809.6	49.9588	17189.9	-42401.2	-43124.5	28.4325	-197315.7	101.7679
500	7.5806	3554.1	51.6588	22275.4	-41656.7	-43191.7	23.7171	-197600.3	80.1926
600	7.8214	4325.0	53.0637	27513.2	-40885.8	-43297.5	20.5674	-197851.2	65.7893
700	8.0414	5119.0	54.2872	32882.1	-40091.8	-43428.7	18.3116	-198073.3	55.4889
800	8.2112	5931.9	55.3725	38366.1	-39278.9	-43578.8	16.6137	-198272.3	47.7554
900	8.3475	6760.1	56.3478	43952.9	-38450.7	-43749.0	15.2887	-198452.7	41.7346
1000	8.4571	7600.5	57.2331	49632.6	-37610.3	-43937.1	14.2242	-198618.5	36.9138
1100	8.5463	8450.8	58.0435	55397.0	-36759.9	-44143.7	13.3494	-198772.4	32.9663
1200	8.6196	9309.2	58.7904	61239.2	-35901.5	-44368.7	12.6167	-198916.7	29.6742
1300	8.6807	10174.3	59.4828	67153.3	-35036.4	-44609.1	11.9936	-199053.1	26.8867
1400	8.7322	11045.1	60.1280	73134.2	-34165.7	-44862.2	11.4564	-199182.8	24.4957
1500	8.7763	11920.5	60.7320	79177.5	-33290.2	-45125.1	10.9882	-199307.0	22.4223
1600	8.8144	12800.1	61.2997	85279.4	-32410.7	-45396.3	10.5762	-199426.4	20.6069
1700	8.8478	13683.3	61.8351	91436.4	-31527.5	-45674.8	10.2103	-199541.6	19.0041
1800	8.8772	14569.5	62.3417	97645.5	-30641.2	-45959.8	9.8831	-199653.3	17.5787
1900	8.9036	15458.6	62.8224	103903.9	-29752.2	-46250.8	9.5885	-199761.7	16.3025
2000	8.9274	16350.2	63.2797	110209.2	-28860.6	-46547.0	9.3218	-199867.2	15.1534
2100	8.9490	17244.0	63.7158	116559.1	-27966.8	-46847.8	9.0788	-199970.2	14.1132
2200	8.9688	18139.9	64.1325	122951.7	-27070.9	-47152.9	8.8564	-200070.9	13.1670
2300	8.9871	19037.7	64.5316	129385.0	-26173.1	-47461.7	8.6522	-200169.3	12.3027
[a] 2400	9.0041	19937.3	64.9145	135857.4	-25273.5	-53124.2	8.4451	-200265.9	11.5100
2500	9.0201	20838.5	65.2824	142367.4	-24372.3	-53441.0	8.2511	-200360.6	10.7804
2600	9.0351	21741.3	65.6364	148913.5	-23469.5	-53757.4	8.0709	-200453.5	10.1066
2700	9.0493	22645.5	65.9777	155494.3	-22565.3	-54073.4	7.9031	-200544.9	9.4825
2800	9.0628	23551.1	66.3070	162108.6	-21659.7	-54389.1	7.7463	-200634.8	8.9026
2900	9.0757	24458.0	66.6253	168755.3	-20752.7	-54704.6	7.5995	-200723.2	8.3625
3000	9.0880	25366.2	66.9332	175433.3	-19844.6	-55019.9	7.4616	-200810.4	7.8582
3100	9.0999	26275.6	67.2314	182141.6	-18935.2	-55335.0	7.3321	-200896.2	7.3862
3200	9.1114	27186.2	67.5205	188879.3	-18024.6	-55650.0	7.2097	-200980.8	6.9435
3300	9.1225	28097.9	67.8010	195645.4	-17112.9	-55964.9	7.0944	-201064.2	6.5275
3400	9.1333	29010.7	68.0735	202439.2	-16200.1	-56279.7	6.9850	-201146.6	6.1358
3500	9.1438	29924.5	68.3384	209259.9	-15286.2	-56594.5	6.8813	-201227.9	5.7663
3600	9.1541	30839.4	68.5961	216106.6	-14371.3	-56909.3	6.7829	-201308.2	5.4173
3700	9.1641	31755.3	68.8471	222978.9	-13455.4	-57224.1	6.6894	-201387.6	5.0869
3800	9.1739	32672.2	69.0916	229875.8	-12538.5	-57538.9	6.6002	-201466.1	4.7738
3900	9.1835	33590.1	69.3300	236797.0	-11620.7	-57853.7	6.5151	-201543.8	4.4767
4000	9.1930	34508.9	69.5626	243741.7	-10701.8	-58168.6	6.4338	-201620.7	4.1943
4100	9.2023	35428.7	69.7898	250709.3	-9782.1	-58483.5	6.3561	-201697.0	3.9256
4200	9.2115	36349.4	70.0116	257699.4	-8861.4	-58798.5	6.2816	-201772.6	3.6695
4300	9.2205	37271.0	70.2285	264711.5	-7939.8	-59113.5	6.2102	-201847.6	3.4253
4400	9.2295	38193.5	70.4406	271745.0	-7017.3	-59428.7	6.1418	-201922.2	3.1922
4500	9.2383	39116.9	70.6481	278799.4	-6093.9	-59743.9	6.0761	-201996.3	2.9692
4600	9.2471	40041.1	70.8512	285874.4	-5169.6	-60059.3	6.0129	-202070.1	2.7559
4700	9.2558	40966.3	71.0502	292969.5	-4244.5	-60374.7	5.9518	-202143.5	2.5517
4800	9.2644	41892.3	71.2451	300084.3	-3318.5	-60690.3	5.8932	-202216.8	2.3558
4900	9.2729	42819.2	71.4362	307218.4	-2391.6	-61005.9	5.8368	-202290.0	2.1679
5000	9.2814	43746.9	71.6237	314371.5	-1463.9	-61321.7	5.7821	-202363.1	1.9874
5100	9.2899	44675.5	71.8076	321543.1	-535.3	-61637.7	5.7296	-202436.2	1.8139
5200	9.2983	45604.9	71.9880	328732.9	394.1	-61953.7	5.6786	-202509.5	1.6471
5300	9.3068	46535.1	72.1652	335940.6	1324.4	-62269.9	5.6293	-202582.9	1.4865
5400	9.3152	47466.2	72.3393	343165.8	2255.4	-62586.2	5.5816	-202656.7	1.3318
5500	9.3235	48398.1	72.5103	350408.3	3187.4	-62902.6	5.5354	-202730.8	1.1826
5600	9.3319	49330.9	72.6783	357667.8	4120.2	-63219.2	5.4907	-202805.4	1.0387
5700	9.3404	50264.5	72.8436	364943.9	5053.8	-63535.8	5.4475	-202880.5	0.8999
5800	9.3488	51199.0	73.0061	372236.4	5988.2	-63852.6	5.4052	-202956.2	0.7657
5900	9.3572	52134.3	73.1660	379545.0	6923.5	-64169.6	5.3644	-203032.6	0.6361
6000	9.3657	53070.4	73.3233	386869.5	7859.7	-64486.6	5.3247	-203109.9	0.5107

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(25) BF_2 (gas); molecular weight, 48.82

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-137510.6	-135109.3	-------	-305600.0	--------
100	8.0451	796.3	49.5190	4155.6	-136714.3	-135013.8	296.9688	-306325.7	659.4059
200	8.8902	1639.0	55.3263	9426.3	-135871.6	-134951.1	149.4700	-307032.6	324.3850
298.15	9.8434	2559.0	59.0563	15048.6	-134951.6	-134951.6	100.9296	-307667.9	213.8399
300	9.8604	2577.2	59.1172	15157.9	-134933.3	-134952.1	100.3194	-307679.0	212.4492
400	10.6594	3606.6	62.0726	21222.5	-133904.0	-135019.3	75.7372	-308226.9	156.3693
500	11.3718	4711.5	64.5355	27556.2	-132799.1	-135128.8	60.9781	-308683.1	122.6656
600	11.8899	5875.8	66.6567	34118.2	-131634.8	-135256.9	51.1302	-309065.5	100.1657
700	12.2833	7085.3	68.5205	40879.0	-130425.2	-135397.7	44.0892	-309391.4	84.0758
800	12.5822	8329.3	70.1811	47815.6	-129181.3	-135548.9	38.8022	-309674.3	71.9964
900	12.8113	9599.5	71.6769	54909.7	-127911.1	-135714.5	34.6857	-309924.6	62.5932
1000	12.9891	10889.8	73.0363	62146.4	-126620.7	-135894.2	31.3882	-310149.7	55.0649
1100	13.1289	12196.0	74.2811	69513.2	-125314.6	-136089.9	28.6866	-310355.2	48.9011
1200	13.2403	13514.7	75.4284	76999.4	-123995.9	-136302.4	26.4317	-310545.1	43.7613
1300	13.3302	14843.4	76.4919	84596.1	-122667.2	-136529.4	24.5209	-310722.5	39.4097
1400	13.4037	16180.2	77.4825	92295.3	-121330.4	-136768.7	22.8800	-310889.8	35.6776
1500	13.4644	17523.7	78.4094	100090.4	-119986.9	-137017.9	21.4554	-311048.8	32.4415
1600	13.5150	18872.7	79.2800	107975.3	-118637.9	-137275.6	20.2067	-311200.9	29.6085
1700	13.5577	20226.4	80.1007	115944.8	-117284.2	-137541.2	19.1026	-311347.1	27.1076
1800	13.5939	21584.0	80.8767	123994.0	-115926.5	-137814.0	18.1194	-311488.5	24.8835
1900	13.6249	22945.0	81.6125	132118.8	-114565.5	-138093.7	17.2379	-311625.7	22.8926
2000	13.6516	24308.9	82.3121	140315.3	-113201.7	-138379.4	16.4430	-311759.2	21.1001
2100	13.6748	25675.2	82.9787	148580.1	-111835.3	-138671.0	15.7222	-311889.7	19.4775
2200	13.6951	27043.8	83.6154	156910.0	-110466.8	-138967.9	15.0654	-312017.4	18.0019
2300	13.7128	28414.2	84.2245	165302.3	-109096.4	-139269.8	14.4647	-312142.8	16.6541
[a]2400	13.7285	29786.2	84.8085	173754.1	-107724.3	-144926.6	13.8942	-312266.1	15.4180
2500	13.7424	31159.8	85.3692	182263.2	-106350.8	-145239.0	13.3658	-312387.5	14.2804
2600	13.7548	32534.7	85.9084	190827.2	-104975.9	-145552.4	12.8770	-312507.3	13.2300
2700	13.7659	33910.7	86.4278	199444.2	-103599.8	-145866.8	12.4234	-312625.6	12.2569
2800	13.7759	35287.8	86.9286	208112.2	-102222.7	-146182.4	12.0012	-312742.7	11.3530
2900	13.7848	36665.9	87.4121	216829.3	-100844.7	-146499.2	11.6074	-312858.5	10.5112
3000	13.7929	38044.8	87.8796	225594.1	-99465.8	-146817.2	11.2389	-312973.3	9.7251
3100	13.8003	39424.4	88.3320	234404.8	-98086.1	-147136.6	10.8937	-313087.2	8.9895
3200	13.8070	40804.8	88.7702	243260.0	-96705.8	-147457.4	10.5690	-313200.2	8.2997
3300	13.8131	42185.8	89.1952	252158.4	-95324.8	-147779.6	10.2637	-313312.5	7.6514
3400	13.8186	43567.4	89.6076	261098.6	-93943.2	-148103.3	9.9755	-313424.1	7.0410
3500	13.8238	44949.5	90.0083	270079.5	-92561.1	-148428.5	9.7031	-313535.1	6.4653
3600	13.8285	46332.1	90.3978	279099.9	-91178.4	-148755.2	9.4455	-313645.7	5.9214
3700	13.8328	47715.2	90.7767	288158.7	-89795.4	-149083.5	9.2012	-313755.8	5.4068
3800	13.8368	49098.7	91.1457	297254.9	-88411.9	-149413.4	8.9693	-313865.5	4.9190
3900	13.8405	50482.6	91.5051	306387.5	-87028.0	-149744.9	8.7486	-313975.0	4.4561
4000	13.8440	51866.8	91.8556	315555.6	-85643.8	-150078.1	8.5386	-314084.2	4.0162
4100	13.8471	53251.3	92.1975	324758.4	-84259.2	-150412.9	8.3384	-314193.4	3.5976
4200	13.8501	54636.2	92.5312	333994.9	-82874.4	-150749.4	8.1473	-314302.4	3.1987
4300	13.8529	56021.4	92.8571	343264.3	-81489.2	-151087.5	7.9646	-314411.5	2.8183
4400	13.8555	57406.8	93.1756	352566.0	-80103.8	-151427.4	7.7899	-314520.7	2.4551
4500	13.8579	58792.4	93.4870	361899.2	-78718.1	-151769.0	7.6227	-314630.1	2.1079
4600	13.8601	60178.3	93.7916	371263.2	-77332.2	-152112.3	7.4623	-314739.7	1.7757
4700	13.8622	61564.5	94.0897	380657.3	-75946.1	-152457.4	7.3082	-314849.7	1.4575
4800	13.8642	62950.8	94.3816	390081.0	-74559.8	-152804.2	7.1603	-314960.1	1.1524
4900	13.8661	64337.3	94.6675	399533.5	-73173.3	-153152.8	7.0183	-315071.1	0.8597
5000	13.8679	65724.0	94.9477	409014.3	-71786.6	-153503.1	6.8815	-315182.6	0.5786
5100	13.8695	67110.9	95.2223	418522.8	-70399.7	-153855.2	6.7499	-315294.8	0.3085
5200	13.8711	68497.9	95.4916	428058.6	-69012.7	-154209.1	6.6229	-315407.8	0.0486
5300	13.8726	69885.1	95.7559	437621.0	-67625.5	-154564.7	6.5004	-315521.7	-0.2015
5400	13.8740	71272.4	96.0152	447209.6	-66238.2	-154922.2	6.3823	-315636.5	-0.4425
5500	13.8753	72659.9	96.2698	456823.8	-64850.7	-155281.5	6.2681	-315752.4	-0.6748
5600	13.8765	74047.5	96.5198	466463.4	-63463.1	-155642.5	6.1578	-315869.4	-0.8989
5700	13.8777	75435.2	96.7654	476127.7	-62075.4	-156005.4	6.0513	-315987.7	-1.1152
5800	13.8788	76823.0	97.0068	485816.3	-60687.6	-156370.1	5.9479	-316107.3	-1.3241
5900	13.8799	78210.9	97.2440	495528.9	-59299.6	-156736.6	5.8480	-316228.3	-1.5260
6000	13.8809	79599.0	97.4773	505265.0	-57911.6	-157104.9	5.7511	-316350.9	-1.7213

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(26) BF_3 (gas); molecular weight, 67.82

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)/T$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-272883.8	-269427.7	-------	-458273.4	--------
100	8.1477	797.7	50.1618	4218.5	-272086.1	-269678.2	586.9571	-459496.2	987.2656
200	10.0200	1697.0	56.3194	9566.8	-271186.8	-269909.0	292.1785	-460672.4	484.6716
298.15	12.0569	2783.8	60.7135	15317.9	-270100.0	-270100.0	195.0598	-461674.5	318.8002
300	12.0914	2806.2	60.7882	15430.3	-270077.7	-270103.3	193.8387	-461691.5	316.7134
400	13.7519	4101.6	64.5036	21699.8	-268782.2	-270289.4	144.6325	-462513.4	232.5613
500	15.0437	5544.2	67.7173	28314.4	-267339.6	-270464.0	115.0889	-463164.0	181.9884
600	16.0297	7100.2	70.5514	35230.7	-265783.6	-270616.2	95.3812	-463679.7	148.2302
700	16.7766	8742.2	73.0811	42414.6	-264141.6	-270749.6	81.2971	-464092.3	124.0929
800	17.3439	10449.5	75.3601	49838.5	-262434.3	-270869.5	70.7285	-464427.0	105.9753
900	17.7791	12206.6	77.4291	57479.6	-260677.2	-270985.6	62.5053	-464702.1	91.8745
1000	18.1169	14002.1	79.3205	65318.4	-258881.7	-271101.7	55.9239	-464931.5	80.5878
1100	18.3827	15827.6	81.0602	73338.7	-257056.2	-271223.0	50.5368	-465125.0	71.3490
1200	18.5947	17676.8	82.6692	81526.1	-255207.0	-271352.7	46.0453	-465290.2	63.6470
1300	18.7658	19545.2	84.1645	89868.7	-253338.6	-271490.3	42.2431	-465432.6	57.1278
1400	18.9057	21429.0	85.5605	98355.7	-251454.8	-271635.0	38.9822	-465556.6	51.5383
1500	19.0213	23325.5	86.8689	106977.9	-249558.3	-271785.4	36.1546	-465665.4	46.6928
1600	19.1178	25232.6	88.0997	115726.9	-247651.2	-271941.1	33.6792	-465761.5	42.4521
1700	19.1990	27148.6	89.2612	124595.5	-245735.3	-272102.1	31.4936	-465847.1	38.7096
1800	19.2680	29072.0	90.3606	133577.1	-243811.8	-272268.2	29.5497	-465923.7	35.3824
1900	19.3271	31001.8	91.4040	142665.8	-241882.0	-272439.6	27.8094	-465992.7	32.4049
2000	19.3781	32937.2	92.3967	151856.2	-239946.7	-272615.8	26.2422	-466055.1	29.7247
2100	19.4223	34877.2	93.3432	161143.6	-238006.6	-272796.8	24.8232	-466111.8	27.2996
2200	19.4609	36821.4	94.2477	170523.5	-236062.4	-272982.4	23.5322	-466163.6	25.0946
2300	19.4948	38769.2	95.1135	179991.8	-234114.6	-273172.6	22.3529	-466211.1	23.0812
[a]2400	19.5247	40720.3	95.9435	189545.0	-232163.6	-278717.3	21.2525	-466254.7	21.2353
2500	19.5513	42674.1	96.7414	199179.5	-230209.7	-278917.5	20.2370	-466295.0	19.5370
2600	19.5749	44630.4	97.5087	208892.3	-228253.4	-279118.6	19.2990	-466332.2	17.9692
2700	19.5960	46589.0	98.2479	218680.3	-226294.8	-279320.7	18.4297	-466366.8	16.5174
2800	19.6150	48549.5	98.9609	228541.0	-224334.3	-279524.1	17.6220	-466399.0	15.1692
2900	19.6321	50511.9	99.6495	238471.7	-222371.9	-279729.0	16.8694	-466429.0	13.9139
3000	19.6476	52475.9	100.3153	248470.1	-220407.9	-279935.4	16.1663	-466457.1	12.7422
3100	19.6616	54441.4	100.9598	258534.0	-218442.4	-280143.5	15.5085	-466483.5	11.6461
3200	19.6744	56408.2	101.5842	268661.4	-216475.6	-280353.4	14.8909	-466508.3	10.6184
3300	19.6860	58376.2	102.1898	278850.3	-214507.6	-280565.2	14.3107	-466531.7	9.6529
3400	19.6967	60345.4	102.7777	289098.8	-212538.5	-280779.0	13.7640	-466553.8	8.7442
3500	19.7064	62315.5	103.3488	299405.2	-210568.3	-280994.8	13.2480	-466574.8	7.8874
3600	19.7154	64286.6	103.9041	309768.0	-208597.2	-281212.7	12.7605	-466594.8	7.0781
3700	19.7237	66258.6	104.4444	320185.6	-206625.2	-281432.8	12.2991	-466613.9	6.3126
3800	19.7313	68231.3	104.9705	330656.4	-204652.5	-281655.1	11.8614	-466632.2	5.5873
3900	19.7384	70204.8	105.4831	341179.2	-202679.0	-281879.7	11.4459	-466649.8	4.8991
4000	19.7450	72179.0	105.9829	351752.6	-200704.8	-282106.6	11.0508	-466666.8	4.2454
4100	19.7510	74153.8	106.4705	362375.4	-198730.0	-282335.9	10.6748	-466683.4	3.6235
4200	19.7567	76129.2	106.9466	373046.3	-196754.6	-282567.5	10.3163	-466699.6	3.0313
4300	19.7620	78105.1	107.4115	383764.3	-194778.7	-282801.5	9.9741	-466715.5	2.4665
4400	19.7669	80081.6	107.8659	394528.3	-192802.2	-283038.0	9.6474	-466731.2	1.9274
4500	19.7715	82058.5	108.3101	405337.1	-190825.3	-283277.0	9.3350	-466746.9	1.4123
4600	19.7758	84035.9	108.7448	416190.0	-188847.9	-283518.5	9.0358	-466762.5	0.9195
4700	19.7799	86013.7	109.1701	427085.8	-186870.2	-283762.4	8.7489	-466778.3	0.4477
4800	19.7837	87991.8	109.5866	438023.7	-184892.0	-284009.0	8.4739	-466794.3	-0.0045
4900	19.7872	89970.4	109.9945	449002.8	-182913.4	-284258.0	8.2100	-466810.7	-0.4383
5000	19.7906	91949.3	110.3943	460022.3	-180934.5	-284509.7	7.9562	-466827.4	-0.8547
5100	19.7938	93928.5	110.7863	471081.4	-178955.3	-284763.9	7.7124	-466844.6	-1.2547
5200	19.7967	95908.0	111.1706	482179.3	-176975.8	-285020.8	7.4776	-466862.5	-1.6395
5300	19.7996	97887.8	111.5478	493315.3	-174996.0	-285280.2	7.2514	-466881.1	-2.0097
5400	19.8022	99867.9	111.9179	504488.7	-173015.9	-285542.3	7.0335	-466900.4	-2.3662
5500	19.8047	101848.3	112.2813	515698.7	-171035.5	-285807.1	6.8233	-466920.7	-2.7097
5600	19.8071	103828.9	112.6381	526944.7	-169054.9	-286074.5	6.6204	-466942.0	-3.0411
5700	19.8094	105809.7	112.9887	538226.1	-167074.1	-286344.5	6.4246	-466964.5	-3.3607
5800	19.8115	107790.8	113.3333	549542.2	-165093.1	-286617.2	6.2351	-466988.1	-3.6694
5900	19.8136	109772.0	113.6720	560892.5	-163111.8	-286892.7	6.0520	-467013.1	-3.9677
6000	19.8155	111753.5	114.0050	572276.4	-161130.3	-287170.8	5.8748	-467039.4	-4.2560

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(27) BFCl (gas); molecular weight, 65.277

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-79959.1	-77515.9	-------	-258200.0	--------
100	8.3266	8020.4	53.3474	4532.3	-79156.7	-77414.9	171.4423	-258917.8	556.2357
200	9.6258	17000.2	59.5180	10203.4	-78258.9	-77309.9	86.8975	-259542.9	273.0453
298.15	10.6908	26999.5	63.5691	16253.6	-77259.6	-77259.6	59.0991	-260068.4	179.6001
300	10.7083	27193.3	63.6353	16371.3	-77239.8	-77259.1	58.7497	-260077.5	178.4245
400	11.5191	38328.8	66.8329	22900.4	-76126.3	-77271.8	44.6788	-260531.5	131.0217
500	12.1041	50156	69.4699	29719.4	-74943.5	-77327.7	36.2325	-260918.6	102.5334
600	12.5201	62480	71.7156	36781.4	-73711.1	-77406.4	30.5970	-261252.4	83.5147
700	12.8179	75157	73.6692	44052.8	-72443.4	-77503.1	26.5672	-261544.5	69.9135
800	13.0246	88089	75.3957	51507.7	-71150.2	-77615.7	23.5403	-261803.9	59.7019
900	13.1954	101200.7	76.9407	59125.9	-69838.4	-77747.4	21.1827	-262037.7	51.7519
1000	13.3172	114466	78.3376	66890.9	-68512.5	-77897.2	19.2931	-262251.2	45.3866
1100	13.4113	127833	79.6114	74789.3	-67175.8	-78066.4	17.7440	-262448.5	40.1744
1200	13.4851	141282	80.7816	82809.7	-65830.9	-78255.0	16.4500	-262632.6	35.8279
1300	13.5441	154798	81.8634	90942.7	-64479.3	-78460.4	15.3524	-262806.0	32.1475
1400	13.5918	168367	82.8690	99179.9	-63122.4	-78679.9	14.4089	-262970.4	28.9908
1500	13.6309	181979	83.8081	107514.3	-61761.2	-78910.6	13.5889	-263127.4	26.2534
1600	13.6634	195626	84.6889	115939.6	-60396.5	-79151.1	12.8694	-263278.2	23.8567
1700	13.6905	209304	85.5181	124450.3	-59028.7	-79400.3	12.2324	-263423.7	21.7408
1800	13.7135	223000.6	86.3013	133041.6	-57658.5	-79657.5	11.6645	-263564.6	19.8590
1900	13.7331	236730	87.0432	141709.2	-56286.1	-79922.2	11.1547	-263701.6	18.1744
2000	13.7500	250471	87.7481	150449.1	-54912.0	-80193.4	10.6943	-263835.1	16.6574
2100	13.7645	264229	88.4193	159257.7	-53536.2	-80470.9	10.2763	-263965.8	15.2843
2200	13.7772	278000	89.0600	168131.9	-52159.1	-80753.9	9.8949	-264093.8	14.0353
2300	13.7884	291783	89.6726	177068.8	-50780.8	-81042.2	9.5456	-264219.6	12.8945
[a]2400	13.7982	305576	90.2597	186065.6	-49401.5	-86685.5	9.2057	-264343.3	11.8482
2500	13.8068	319379	90.8231	195119.9	-48021.2	-86984.6	8.8895	-264465.2	10.8851
2600	13.8145	333190	91.3648	204229.5	-46640.1	-87284.6	8.5965	-264585.5	9.9957
2700	13.8214	347000.8	91.8863	213392.2	-45258.3	-87585.7	8.3244	-264704.3	9.1719
2800	13.8276	360823.2	92.3690	222606.1	-43875.9	-87888.0	8.0707	-264821.9	8.4065
2900	13.8332	374663	92.8744	231869.4	-42492.8	-88191.3	7.8338	-264938.3	7.6936
3000	13.8382	388498	93.3434	241180.4	-41109.3	-88495.9	7.6117	-265053.6	7.0280
3100	13.8428	402339	93.7972	250537.6	-39725.2	-88801.7	7.4036	-265168.0	6.4050
3200	13.8469	416184	94.2368	259939.4	-38340.7	-89108.7	7.2074	-265281.6	5.8207
3300	13.8507	430033	94.6630	269384.5	-36955.8	-89417.1	7.0229	-265394.4	5.2716
3400	13.8541	443888	95.0769	278871.6	-35570.6	-89726.7	6.8484	-265506.5	4.7546
3500	13.8573	457741	95.4781	288399.4	-34185.0	-90037.7	6.6832	-265618.1	4.2669
3600	13.8602	471599	95.8685	297966.8	-32799.2	-90350.1	6.5268	-265729.1	3.8061
3700	13.8629	485461	96.2483	307572.8	-31413.0	-90663.8	6.3785	-265839.7	3.3700
3800	13.8653	499325	96.6181	317216.2	-30026.6	-90978.9	6.2373	-265949.9	2.9567
3900	13.8676	513192	96.9783	326896.1	-28639.9	-91295.4	6.1029	-266059.9	2.5645
4000	13.8697	527060	97.3294	336611.5	-27253.1	-91613.3	5.9747	-266169.6	2.1917
4100	13.8717	540931	97.6719	346361.6	-25866.0	-91932.6	5.8525	-266279.2	1.8369
4200	13.8735	554804	98.0062	356145.6	-24478.7	-92253.4	5.7355	-266388.7	1.4989
4300	13.8752	568678	98.3327	365962.6	-23091.3	-92575.6	5.6236	-266498.2	1.1765
4400	13.8768	582554	98.6517	375811.9	-21703.7	-92899.3	5.5166	-266607.8	0.8686
4500	13.8783	596432	98.9635	385692.7	-20315.9	-93224.4	5.4140	-266717.6	0.5743
4600	13.8797	610311	99.2686	395604.4	-18928.0	-93550.9	5.3154	-266827.6	0.2926
4700	13.8810	624191	99.5671	405546.2	-17540.0	-93879.0	5.2205	-266938.0	0.0229
4800	13.8822	638073	99.8593	415517.6	-16151.8	-94208.5	5.1294	-267048.8	-0.2358
4900	13.8834	651956	100.1456	425517.9	-14763.5	-94539.5	5.0418	-267160.1	-0.4840
5000	13.8845	665840	100.4261	435546.5	-13375.1	-94872.0	4.9572	-267271.9	-0.7223
5100	13.8855	679725	100.7011	445602.9	-11986.6	-95206.0	4.8759	-267384.5	-0.9514
5200	13.8864	693611	100.9707	455686.5	-10598.0	-95541.4	4.7972	-267497.8	-1.1718
5300	13.8874	707497	101.2352	465796.9	-9209.4	-95878.4	4.7213	-267612.0	-1.3840
5400	13.8882	721385	101.4948	475933.4	-7820.6	-96216.9	4.6480	-267727.2	-1.5884
5500	13.8890	735274	101.7496	486095.7	-6431.7	-96556.9	4.5770	-267843.4	-1.7854
5600	13.8898	749163	101.9999	496283.2	-5042.8	-96898.4	4.5084	-267960.7	-1.9755
5700	13.8905	763053	102.2458	506495.5	-3653.8	-97241.4	4.4421	-268079.3	-2.1590
5800	13.8912	776944	102.4874	516732.2	-2264.7	-97585.9	4.3776	-268199.2	-2.3362
5900	13.8919	790836	102.7248	526992.9	-875.5	-97931.9	4.3152	-268320.5	-2.5076
6000	13.8925	804728	102.9583	537277.0	513.7	-98279.5	4.2546	-268443.3	-2.6732

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(28) BH (gas); molecular weight, 11.828

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	114905.5	116209.1	-------	-69200.0	--------
100	6.9616	684.4	33.4382	2659.4	115589.9	116507.9	-249.9907	-69537.3	147.6529
200	6.9655	1380.7	38.2647	6272.2	116286.2	116823.0	-122.5348	-69835.9	71.5435
298.15	6.9743	2064.7	41.0471	10173.5	116970.2	116970.2	-80.4837	-70127.5	46.3772
300	6.9746	2077.6	41.0902	10249.5	116983.1	116971.9	-79.9552	-70133.0	46.0602
400	7.0139	2776.6	43.1010	14463.7	117682.2	116997.2	-58.6499	-70427.8	33.2635
500	7.1081	3482.3	44.6751	18855.3	118387.8	116944.5	-45.8680	-70715.9	25.5532
600	7.2515	4199.9	45.9832	23390.0	119105.5	116851.2	-37.3519	-70992.0	20.3923
700	7.4220	4933.5	47.1136	28046.1	119839.0	116733.6	-31.2744	-71252.1	16.6919
800	7.5990	5684.5	48.1162	32808.5	120590.1	116600.9	-26.7216	-71494.7	13.9067
900	7.7695	6453.0	49.0212	37666.1	121358.6	116452.9	-23.1844	-71719.9	11.7333
1000	7.9269	7238.0	49.8481	42610.1	122143.5	116291.8	-20.3583	-71928.6	9.9893
1100	8.0688	8037.9	50.6104	47633.5	122943.4	116116.5	-18.0497	-72122.3	8.5584
1200	8.1954	8851.2	51.3180	52730.4	123756.8	115926.4	-16.1288	-72302.6	7.3629
1300	8.3076	9676.5	51.9785	57895.6	124582.0	115723.5	-14.5060	-72471.0	6.3488
1400	8.4072	10512.3	52.5979	63124.7	125417.9	115509.8	-13.1180	-72628.8	5.4777
1500	8.4956	11357.6	53.1810	68413.9	126263.1	115287.4	-11.9170	-72777.2	4.7211
1600	8.5744	12211.1	53.7318	73759.8	127116.7	115057.4	-10.8681	-72917.3	4.0578
1700	8.6451	13072.2	54.2538	79159.3	127977.7	114820.9	-9.9446	-73049.9	3.4714
1800	8.7087	13939.9	54.7498	84609.7	128845.5	114578.4	-9.1254	-73175.8	2.9492
1900	8.7664	14813.7	55.2222	90108.5	129719.3	114329.6	-8.3939	-73295.6	2.4813
2000	8.8189	15693.0	55.6732	95653.4	130598.6	114075.5	-7.7372	-73410.0	2.0594
2100	8.8671	16577.4	56.1047	101242.5	131482.9	113816.5	-7.1443	-73519.2	1.6772
2200	8.9115	17466.3	56.5182	106873.8	132371.9	113553.3	-6.6067	-73623.9	1.3291
2300	8.9526	18359.5	56.9153	112545.6	133265.1	113285.8	-6.1166	-73724.3	1.0110
[a] 2400	8.9908	19256.7	57.2971	118256.3	134162.3	107664.6	-5.6873	-73820.8	0.7189
2500	9.0267	20157.6	57.6649	124004.5	135063.2	107388.9	-5.2955	-73913.5	0.4498
2600	9.0604	21062.0	58.0196	129788.9	135967.5	107113.3	-4.9349	-74002.8	0.2012
2700	9.0922	21969.6	58.3621	135608.1	136875.2	106838.1	-4.6018	-74088.8	-0.0293
2800	9.1224	22880.4	58.6933	141460.9	137785.9	106562.8	-4.2935	-74171.7	-0.2436
2900	9.1511	23794.1	59.0139	147346.4	138699.6	106287.7	-4.0070	-74251.7	-0.4433
3000	9.1785	24710.6	59.3246	153263.4	139616.1	106012.6	-3.7404	-74328.9	-0.6300
3100	9.2049	25629.7	59.6260	159211.0	140535.3	105737.2	-3.4915	-74403.5	-0.8047
3200	9.2302	26551.5	59.9187	165188.3	141457.0	105461.8	-3.2591	-74475.5	-0.9687
3300	9.2546	27475.7	60.2031	171194.4	142381.3	105186.8	-3.0409	-74545.1	-1.1229
3400	9.2782	28402.4	60.4797	177228.7	143307.9	104911.0	-2.8363	-74612.3	-1.2682
3500	9.3011	29331.4	60.7490	183290.1	144236.9	104634.7	-2.6441	-74677.3	-1.4052
3600	9.3233	30262.6	61.0113	189378.2	145168.1	104358.9	-2.4626	-74740.2	-1.5348
3700	9.3450	31196.0	61.2671	195492.2	146101.5	104083.1	-2.2916	-74801.0	-1.6575
3800	9.3661	32131.5	61.5166	201631.4	147037.1	103806.2	-2.1300	-74859.9	-1.7738
3900	9.3867	33069.2	61.7601	207795.3	147974.7	103530.3	-1.9774	-74916.8	-1.8842
4000	9.4070	34008.9	61.9980	213983.3	148914.4	103253.6	-1.8324	-74972.0	-1.9892
4100	9.4268	34950.6	62.2306	220194.7	149856.1	102977.4	-1.6951	-75025.5	-2.0892
4200	9.4462	35894.2	62.4580	226429.2	150799.8	102700.5	-1.5644	-75077.3	-2.1844
4300	9.4654	36839.8	62.6805	232686.2	151745.3	102423.7	-1.4404	-75127.6	-2.2753
4400	9.4842	37787.3	62.8983	238965.1	152692.8	102146.2	-1.3222	-75176.4	-2.3621
4500	9.5028	38736.6	63.1116	245265.7	153642.2	101869.4	-1.2095	-75223.8	-2.4451
4600	9.5211	39687.8	63.3207	251587.3	154593.4	101592.0	-1.1022	-75270.0	-2.5245
4700	9.5391	40640.8	63.5256	257929.7	155546.4	101314.4	-0.9998	-75314.9	-2.6007
4800	9.5570	41595.7	63.7267	264292.3	156501.2	101036.2	-0.9017	-75358.8	-2.6736
4900	9.5747	42552.2	63.9239	270674.9	157457.8	100757.9	-0.8079	-75401.6	-2.7437
5000	9.5921	43510.6	64.1175	277077.0	158416.1	100480.1	-0.7183	-75443.5	-2.8109
5100	9.6094	44470.7	64.3076	283498.3	159376.2	100201.8	-0.6321	-75484.6	-2.8756
5200	9.6266	45432.5	64.4944	289938.4	160338.0	99923.5	-0.5498	-75524.9	-2.9378
5300	9.6436	46396.0	64.6779	296397.0	161301.5	99644.8	-0.4709	-75564.6	-2.9977
5400	9.6605	47361.2	64.8583	302873.9	162266.7	99366.1	-0.3946	-75603.7	-3.0555
5500	9.6772	48328.1	65.0358	309368.6	163233.6	99087.1	-0.3218	-75642.4	-3.1111
5600	9.6938	49296.6	65.2103	315880.9	164202.2	98808.3	-0.2515	-75680.7	-3.1648
5700	9.7104	50266.8	65.3820	322410.6	165172.4	98529.7	-0.1838	-75718.8	-3.2166
5800	9.7268	51238.7	65.5510	328957.2	166144.2	98250.7	-0.1190	-75756.7	-3.2667
5900	9.7431	52212.2	65.7174	335520.7	167117.7	97971.5	-0.0562	-75794.5	-3.3151
6000	9.7593	53187.3	65.8812	342100.6	168092.8	97692.7	0.0041	-75832.3	-3.3619

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(29) BH_3 (gas); molecular weight, 13.844

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	15579.1	18906.5	-------	-269759.5	--------
100	7.9516	794.9	35.9836	2803.4	16374.0	18556.9	-40.7024	-270979.9	578.8400
200	8.1588	1597.0	41.5355	6710.1	17176.1	18374.9	-20.4791	-272166.3	282.2385
298.15	8.6573	2420.9	44.8806	10960.2	18000.0	18000.0	-13.9224	-273293.2	184.1597
300	8.6680	2437.0	44.9342	11043.3	18016.0	17992.0	-13.8415	-273314.0	182.9244
400	9.3045	3334.7	47.5123	15670.3	18913.7	17521.4	-10.6041	-274403.8	133.0588
500	10.0477	4301.5	49.6667	20531.9	19880.5	17031.4	-8.7143	-275424.3	103.0225
600	10.8630	5346.6	51.5699	25595.3	20925.7	16565.5	-7.4896	-276366.5	82.9261
700	11.6584	6474.7	53.3073	30840.3	22053.8	16140.3	-6.6383	-277225.7	68.5243
800	12.5096	7685.5	54.9228	36252.7	23264.5	15761.7	-6.0159	-278002.3	57.6908
900	13.2676	8974.9	56.4406	41821.7	24553.9	15423.4	-5.5422	-278700.2	49.2423
1000	13.9576	10336.7	57.8748	47538.1	25915.8	15121.1	-5.1707	-279325.6	42.4674
1100	14.5751	11764.0	59.2346	53394.1	27343.0	14846.7	-4.8734	-279885.7	36.9125
1200	15.1219	13249.4	60.5268	59382.8	28828.4	14593.1	-4.6297	-280387.5	32.2746
1300	15.6033	14786.2	61.7566	65497.4	30365.2	14355.9	-4.4265	-280838.0	28.3436
1400	16.0257	16368.1	62.9287	71732.1	31947.1	14132.2	-4.2563	-281243.4	24.9689
1500	16.3961	17989.6	64.0473	78081.4	33568.6	13918.9	-4.1101	-281609.2	22.0403
1600	16.7210	19645.8	65.1161	84539.9	35224.8	13714.2	-3.9839	-281940.2	19.4745
1700	17.0066	21332.5	66.1385	91103.1	36911.5	13516.2	-3.8745	-282240.8	17.2080
1800	17.2582	23046.0	67.1179	97766.2	38625.0	13323.4	-3.7786	-282514.6	15.1913
1900	17.4803	24783.1	68.0571	104525.3	40362.2	13131.6	-3.6939	-282764.7	13.3853
2000	17.6771	26541.2	68.9588	111376.4	42120.2	12941.1	-3.6192	-282993.9	11.7584
2100	17.8519	28317.8	69.8256	118315.9	43896.9	12750.7	-3.5522	-283204.5	10.2854
2200	18.0077	30110.9	70.6597	125340.4	45690.0	12560.2	-3.4927	-283398.6	8.9453
2300	18.1470	31918.8	71.4633	132446.8	47497.9	12368.0	-3.4383	-283578.0	7.7209
[a]2400	18.2719	33739.9	72.2383	139632.1	49318.9	6824.2	-3.4087	-283744.2	6.5979
2500	18.3843	35572.8	72.9865	146893.6	51151.8	6627.3	-3.3840	-283898.6	5.5641
2600	18.4856	37416.4	73.7096	154228.6	52995.4	6431.1	-3.3622	-284042.3	4.6093
2700	18.5773	39269.6	74.4090	161634.7	54848.6	6235.7	-3.3422	-284176.4	3.7249
2800	18.6604	41131.5	75.0861	169109.6	56710.6	6039.6	-3.3248	-284301.7	2.9032
2900	18.7360	43001.4	75.7423	176651.2	58580.5	5843.3	-3.3088	-284419.1	2.1379
3000	18.8050	44878.5	76.3787	184257.4	60457.6	5645.4	-3.2941	-284529.3	1.4233
3100	18.8680	46762.2	76.9963	191926.3	62341.3	5445.6	-3.2810	-284633.0	0.7546
3200	18.9257	48651.9	77.5963	199656.1	64231.0	5243.6	-3.2695	-284730.7	0.1274
3300	18.9787	50547.2	78.1795	207445.0	66126.3	5041.1	-3.2586	-284822.9	-0.4619
3400	19.0275	52447.5	78.7468	215291.5	68026.6	4834.1	-3.2491	-284910.0	-1.0168
3500	19.0724	54352.6	79.2990	223193.9	69931.6	4623.4	-3.2406	-284992.6	-1.5401
3600	19.1139	56261.9	79.8369	231150.8	71841.0	4411.9	-3.2324	-285071.0	-2.0344
3700	19.1524	58175.2	80.3611	239160.8	73754.3	4197.5	-3.2254	-285145.5	-2.5022
3800	19.1880	60092.3	80.8723	247222.6	75671.3	3976.9	-3.2190	-285216.5	-2.9455
3900	19.2211	62012.8	81.3712	255334.9	77591.8	3756.8	-3.2139	-285284.3	-3.3661
4000	19.2519	63936.4	81.8582	263496.4	79515.5	3531.4	-3.2082	-285349.1	-3.7658
4100	19.2805	65863.1	82.3335	271706.1	81442.1	3304.4	-3.2041	-285411.3	-4.1461
4200	19.3073	67792.5	82.7989	279962.8	83371.5	3072.1	-3.1994	-285471.0	-4.5084
4300	19.3323	69724.5	83.2535	288265.5	85303.5	2837.0	-3.1960	-285528.5	-4.8538
4400	19.3557	71658.9	83.6982	296613.2	87237.9	2596.5	-3.1929	-285584.0	-5.1837
4500	19.3777	73595.6	84.1334	305004.9	89174.6	2354.7	-3.1902	-285637.7	-5.4989
4600	19.3982	75534.4	84.5596	313439.6	91112.4	2107.6	-3.1880	-285689.9	-5.8005
4700	19.4176	77475.2	84.9769	321916.5	93054.2	1856.6	-3.1861	-285740.7	-6.0893
4800	19.4358	79417.8	85.3855	330434.7	94996.9	1600.3	-3.1842	-285790.3	-6.3661
4900	19.4529	81362.3	85.7869	338993.4	96941.3	1340.2	-3.1830	-285838.9	-6.6317
5000	19.4691	83308.4	86.1800	347591.8	98887.5	1077.9	-3.1821	-285886.7	-6.8867
5100	19.4843	85256.1	86.5657	356229.2	100835.1	810.3	-3.1810	-285933.8	-7.1317
5200	19.4987	87205.2	86.9442	364904.7	102784.3	539.2	-3.1806	-285980.4	-7.3674
5300	19.5124	89155.8	87.3158	373617.8	104734.9	263.1	-3.1808	-286026.6	-7.5941
5400	19.5253	91107.7	87.6806	382367.7	106686.7	-16.6	-3.1800	-286072.7	-7.8126
5500	19.5375	93060.8	88.0390	391153.7	108639.9	-301.2	-3.1805	-286118.8	-8.0231
5600	19.5491	95015.2	88.3911	399975.3	110594.2	-589.0	-3.1807	-286164.9	-8.2261
5700	19.5601	96970.6	88.7373	408831.7	112549.7	-880.1	-3.1811	-286211.4	-8.4221
5800	19.5705	98927.2	89.0775	417722.5	114506.2	-1175.9	-3.1821	-286258.2	-8.6113
5900	19.5805	100884.7	89.4122	426647.0	116463.8	-1476.4	-3.1826	-286305.6	-8.7941
6000	19.5900	102843.2	89.7413	435604.8	118422.3	-1779.8	-3.1841	-286353.7	-8.9709

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(30) BN (gas); molecular weight, 24.828

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	152732.4	154060.2	-------	-92300.0	--------
100	6.9571	694.0	43.0957	3615.5	153426.4	154401.3	-332.1981	-92627.7	198.2096
200	6.9636	1389.9	47.9189	8193.9	154122.3	154669.5	-163.3610	-92926.7	96.8692
298.15	7.0369	2076.0	50.7093	13042.9	154808.4	154808.4	-107.6982	-93216.2	63.3970
300	7.0394	2089.1	50.7528	13136.8	154821.4	154810.1	-106.9986	-93221.5	62.9756
400	7.2325	2801.9	52.8020	18319.0	155534.2	154847.9	-78.8015	-93502.6	45.9750
500	7.4825	3527.4	54.4424	23683.8	156269.8	154823.1	-61.8824	-93760.7	35.7448
600	7.7278	4298.2	55.8287	29199.0	157030.5	154766.3	-50.6058	-93993.7	28.9065
700	7.9421	5081.9	57.0365	34843.6	157814.3	154686.5	-42.5545	-94203.6	24.0104
800	8.1203	5885.4	58.1090	40601.9	158617.7	154587.3	-36.5199	-94393.9	20.3306
900	8.2661	6704.9	59.0742	46461.8	159437.3	154466.3	-31.8294	-94568.0	17.4629
1000	8.3851	7537.7	59.9514	52413.8	160270.1	154324.9	-28.0802	-94728.9	15.1646
1100	8.4827	8381.2	60.7554	58449.7	161113.6	154162.3	-25.0157	-94879.0	13.2812
1200	8.5636	9233.7	61.4970	64562.8	161966.1	153979.0	-22.4648	-95020.2	11.7092
1300	8.6313	10053.5	62.1852	70747.3	162825.9	153778.0	-20.3090	-95154.0	10.3772
1400	8.6886	10959.6	62.8270	76998.3	163692.0	153562.3	-18.4639	-95281.6	9.2338
1500	8.7376	11831.0	63.4282	83311.3	164563.3	153335.2	-16.8670	-95403.8	8.2417
1600	8.7801	12706.9	63.9935	89682.7	165439.3	153098.2	-15.4717	-95521.5	7.3724
1700	8.8172	13586.8	64.5269	96109.0	166319.2	152852.9	-14.2426	-95635.3	6.6045
1800	8.8500	14470.2	65.0318	102587.1	167202.6	152600.0	-13.1518	-95745.6	5.9211
1900	8.8793	15356.7	65.5111	109114.5	168089.1	152340.5	-12.1775	-95852.7	5.3089
2000	8.9056	16245.9	65.9673	115688.6	168978.3	152075.2	-11.3021	-95957.2	4.7574
2100	8.9295	17137.7	66.4024	122307.2	169870.1	151804.8	-10.5115	-96059.2	4.2578
2200	8.9514	18031.8	66.8183	128968.4	170764.2	151529.9	-9.7942	-96159.0	3.8032
2300	8.9715	18927.9	67.2166	135670.3	171660.3	151251.1	-9.1402	-96256.8	3.3877
[a]2400	8.9902	19826.0	67.5985	142411.2	172558.4	145618.5	-8.5605	-96352.9	3.0064
2500	9.0077	20725.9	67.9662	149189.6	173458.3	145331.7	-8.0306	-96447.4	2.6553
2600	9.0241	21627.5	68.3198	156004.0	174359.9	145045.4	-7.5424	-96540.6	2.3309
2700	9.0396	22530.7	68.6607	162853.1	175263.1	144759.6	-7.0913	-96632.6	2.0302
2800	9.0544	23435.4	68.9897	169735.7	176167.8	144474.3	-6.6733	-96723.8	1.7507
2900	9.0685	24341.6	69.3077	176650.7	177074.0	144189.6	-6.2848	-96814.2	1.4903
3000	9.0820	25249.1	69.6153	183596.9	177981.5	143905.4	-5.9231	-96904.1	1.2470
3100	9.0951	26158.0	69.9134	190573.4	178890.4	143621.7	-5.5851	-96993.7	1.0192
3200	9.1078	27068.1	70.2023	197579.3	179800.5	143338.6	-5.2692	-97083.3	0.8054
3300	9.1203	27979.5	70.4828	204613.6	180711.9	143056.1	-4.9726	-97173.1	0.6044
3400	9.1324	28892.2	70.7552	211675.6	181624.5	142774.1	-4.6943	-97263.3	0.4150
3500	9.1445	29806.0	71.0201	218764.4	182538.4	142492.8	-4.4325	-97354.2	0.2363
3600	9.1564	30721.1	71.2779	225879.4	183453.4	142212.1	-4.1855	-97446.1	0.0674
3700	9.1683	31637.3	71.5289	233019.8	184369.7	141932.0	-3.9523	-97539.1	-0.0926
3800	9.1801	32554.7	71.7736	240185.0	185287.1	141652.6	-3.7319	-97633.5	-0.2443
3900	9.1921	33473.3	72.0122	247374.3	186205.7	141374.0	-3.5233	-97729.6	-0.3883
4000	9.2041	34393.1	72.2451	254587.2	187125.5	141096.0	-3.3254	-97827.6	-0.5253
4100	9.2163	35314.1	72.4725	261823.1	188046.5	140818.9	-3.1376	-97927.7	-0.6557
4200	9.2286	36236.4	72.6947	269081.5	188968.8	140542.5	-2.9591	-98030.2	-0.7800
4300	9.2412	37159.9	72.9120	276361.9	189892.3	140267.0	-2.7893	-98135.3	-0.8987
4400	9.2540	38084.6	73.1246	283663.8	190817.0	139992.3	-2.6273	-98243.3	-1.0121
4500	9.2672	39010.7	73.3328	290986.7	191743.1	139718.6	-2.4729	-98354.2	-1.1206
4600	9.2806	39938.1	73.5366	298330.2	192670.5	139445.8	-2.3255	-98468.4	-1.2245
4700	9.2943	40866.8	73.7363	305693.9	193599.2	139174.0	-2.1849	-98586.0	-1.3241
4800	9.3084	41797.0	73.9321	313077.3	194529.3	138903.3	-2.0502	-98707.2	-1.4197
4900	9.3229	42728.5	74.1242	320480.2	195460.9	138633.7	-1.9211	-98832.1	-1.5115
5000	9.3378	43661.6	74.3127	327902.0	196393.9	138365.2	-1.7977	-98961.0	-1.5997
5100	9.3530	44596.1	74.4978	335342.6	197328.5	138097.8	-1.6791	-99093.9	-1.6845
5200	9.3686	45532.2	74.6796	342801.5	198264.6	137831.7	-1.5655	-99230.9	-1.7663
5300	9.3847	46469.8	74.8582	350278.4	199202.2	137566.9	-1.4563	-99372.3	-1.8450
5400	9.4012	47409.1	75.0337	357773.0	200141.5	137303.3	-1.3513	-99518.1	-1.9209
5500	9.4180	48350.1	75.2064	365285.1	201082.5	137041.1	-1.2505	-99668.3	-1.9942
5600	9.4353	49292.7	75.3762	372814.2	202025.1	136780.3	-1.1533	-99823.2	-2.0650
5700	9.4530	50237.2	75.5434	380360.2	202969.5	136520.9	-1.0596	-99982.7	-2.1334
5800	9.4711	51183.4	75.7080	387922.8	203915.7	136263.0	-0.9695	-100146.9	-2.1995
5900	9.4896	52131.4	75.8700	395501.7	204863.8	136006.5	-0.8826	-100315.8	-2.2635
6000	9.5084	53081.3	76.0297	403096.7	205813.7	135751.6	-0.7987	-100489.6	-2.3255

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(48) BeF_2 (gas); molecular weight, 47.013

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-193444.9	-190866.6	-------	-304464.1	--------
100	6.9713	695.7	44.0349	3707.8	-192749.2	-190875.5	417.8393	-305262.3	656.7780
200	7.7105	1419.3	49.0218	8385.1	-192025.7	-190991.6	209.2335	-306087.1	322.8706
298.15	9.1338	2244.9	52.3617	13366.7	-191200.0	-191200.0	140.5004	-306816.3	212.6496
300	9.1605	2261.9	52.4183	13463.6	-191183.1	-191204.0	139.6361	-306828.7	211.2628
400	10.4603	3245.4	55.2388	18850.1	-190199.5	-191429.1	104.7960	-307422.2	155.3332
500	11.4538	4343.6	57.6851	24499.0	-189101.4	-191638.4	83.8679	-307885.1	121.7169
600	12.1896	5527.6	59.8418	30377.5	-187917.4	-191828.1	69.9011	-308247.7	99.2756
700	12.7343	6775.1	61.7638	36459.6	-186669.8	-192002.8	59.9154	-308535.5	83.2291
800	13.1416	8069.9	63.4921	42723.8	-185375.1	-192167.9	52.4194	-308767.6	71.1841
900	13.4505	9400.2	65.0586	49152.6	-184044.8	-192329.9	46.5842	-308957.7	61.8093
1000	13.6885	10757.6	66.4886	55731.0	-182687.3	-192494.8	41.9122	-309115.7	54.3052
1100	13.8747	12136.2	67.8024	62446.5	-181308.8	-192667.3	38.0862	-309248.8	48.1626
1200	14.0226	13531.3	69.0162	69288.2	-179913.6	-192850.6	34.8950	-309362.2	43.0418
1300	14.1417	14939.7	70.1435	76246.8	-178505.2	-193047.3	32.1920	-309459.9	38.7072
1400	14.2388	16358.9	71.1952	83314.3	-177086.0	-193259.3	29.8726	-309544.8	34.9908
1500	14.3188	17786.9	72.1804	90483.6	-175658.0	-193488.2	27.8603	-309619.3	31.7691
[a]1600	14.3855	19222.2	73.1067	97748.4	-174222.7	-197232.3	26.0851	-309685.1	28.9495
1700	14.4416	20663.7	73.9805	105103.2	-172781.3	-197426.1	24.4997	-309743.6	26.4611
1800	14.4892	22110.3	74.8074	112543.0	-171334.7	-197617.8	23.0890	-309796.0	24.2488
1900	14.5300	23561.3	75.5919	120063.3	-169883.6	-197807.9	21.8257	-309843.1	22.2690
2000	14.5651	25016.1	76.3381	127660.1	-168428.9	-197996.9	20.6876	-309885.8	20.4870
2100	14.5955	26474.2	77.0495	135329.7	-166970.8	-198185.2	19.6567	-309924.6	18.8744
2200	14.6221	27935.1	77.7291	143068.9	-165509.9	-198373.2	18.7188	-309960.1	17.4083
2300	14.6454	29398.5	78.3796	150874.6	-164046.5	-198561.2	17.8616	-309992.8	16.0695
2400	14.6659	30864.0	79.0033	158743.9	-162580.9	-198749.3	17.0752	-310023.0	14.8422
2500	14.6841	32331.6	79.6024	166674.4	-161113.4	-198937.7	16.3510	-310051.2	13.7130
2600	14.7004	33800.8	80.1786	174663.7	-159644.1	-199126.7	15.6819	-310077.8	12.6705
2700	14.7149	35271.6	80.7337	182709.5	-158173.4	-199316.4	15.0616	-310103.1	11.7051
2800	14.7279	36743.7	81.2691	190809.7	-156701.2	-199506.9	14.4852	-310127.4	10.8087
2900	14.7397	38217.1	81.7861	198962.7	-155227.8	-199698.4	13.9479	-310151.2	9.9740
3000	14.7503	39691.6	82.2860	207166.4	-153753.3	-199890.8	13.4460	-310174.9	9.1949
3100	14.7599	41167.1	82.7698	215419.3	-152277.8	-200084.3	12.9761	-310198.9	8.4660
3200	14.7686	42643.6	83.2386	223719.9	-150801.4	-200279.1	12.5352	-310223.6	7.7826
3300	14.7766	44120.8	83.6932	232066.6	-149324.1	-200475.0	12.1205	-310249.4	7.1405
3400	14.7839	45598.9	84.1344	240458.1	-147846.1	-200672.2	11.7298	-310277.0	6.5362
3500	14.7906	47077.6	84.5630	248893.0	-146367.3	-200870.8	11.3610	-310306.8	5.9664
3600	14.7968	48557.0	84.9798	257370.3	-144887.9	-201070.8	11.0126	-310339.2	5.4281
3700	14.8025	50037.0	85.3853	265888.6	-143408.0	-201272.2	10.6824	-310375.0	4.9189
3800	14.8077	51517.5	85.7801	274447.0	-141927.5	-201475.1	10.3694	-310414.5	4.4365
3900	14.8126	52998.5	86.1648	283044.3	-140446.5	-201679.4	10.0722	-310458.4	3.9787
4000	14.8170	54480.0	86.5399	291679.6	-138965.0	-201885.3	9.7896	-310507.2	3.5437
4100	14.8212	55961.9	86.9058	300352.0	-137483.1	-202092.8	9.5204	-310561.5	3.1299
4200	14.8251	57444.2	87.2630	309060.5	-136000.7	-202301.8	9.2639	-310621.8	2.7358
4300	14.8287	58926.9	87.6119	317804.3	-134518.0	-202512.5	9.0188	-310688.8	2.3599
4400	14.8321	60409.9	87.9529	326582.6	-133035.0	-202724.7	8.7849	-310762.8	2.0009
4500	14.8352	61893.3	88.2862	335394.6	-131551.6	-202938.6	8.5610	-310844.4	1.6579
4600	14.8382	63377.0	88.6123	344239.6	-130068.0	-203154.1	8.3467	-310934.1	1.3297
4700	14.8410	64860.9	88.9314	353116.9	-128584.0	-203371.4	8.1412	-311032.4	1.0153
4800	14.8436	66345.2	89.2439	362025.7	-127099.8	-203590.3	7.9440	-311139.7	0.7140
4900	14.8460	67829.7	89.5500	370965.4	-125615.3	-203810.9	7.7548	-311256.4	0.4248
5000	14.8483	69314.4	89.8500	379935.5	-124130.6	-204033.2	7.5728	-311382.8	0.1471
5100	14.8505	70799.3	90.1440	388935.2	-122645.6	-204257.2	7.3979	-311519.4	-0.1198
5200	14.8525	72284.5	90.4324	397964.1	-121160.5	-204483.0	7.2295	-311666.3	-0.3765
5300	14.8544	73769.8	90.7153	407021.5	-119675.1	-204710.5	7.0673	-311823.9	-0.6237
5400	14.8563	75255.3	90.9930	416107.0	-118189.6	-204939.7	6.9108	-311992.4	-0.8619
5500	14.8580	76741.1	91.2656	425219.9	-116703.9	-205170.7	6.7599	-312171.9	-1.0915
5600	14.8596	78226.9	91.5334	434359.9	-115218.0	-205403.5	6.6142	-312362.6	-1.3131
5700	14.8612	79713.0	91.7964	443526.5	-113732.0	-205638.1	6.4736	-312564.7	-1.5270
5800	14.8627	81199.2	92.0549	452719.1	-112245.8	-205874.4	6.3376	-312778.1	-1.7337
5900	14.8641	82685.5	92.3090	461937.3	-110759.4	-206112.5	6.2061	-313002.9	-1.9335
6000	14.8654	84172.0	92.5588	471180.7	-109273.0	-206352.4	6.0788	-313239.1	-2.1269

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Be, 1560° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(47) BeF (gas): molecular weight, 28.013

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-51682.1	-50158.6	-------	-145401.0	--------
100	6.9575	694.2	41.5155	3457.3	-50987.8	-49821.5	113.4771	-145702.1	314.5443
200	6.9801	1390.5	46.3412	7877.7	-50291.5	-49614.8	59.1422	-146028.4	155.2013
298.15	7.1397	2082.1	49.1523	12572.7	-49600.0	-49600.0	41.3021	-146358.2	102.6212
300	7.1443	2095.3	49.1965	12663.7	-49586.8	-49600.8	41.0778	-146364.2	101.9597
400	7.4310	2823.6	51.2896	17692.3	-48858.5	-49696.1	32.0379	-146672.9	75.2784
500	7.7262	3581.7	52.9801	22908.4	-48100.4	-49842.7	26.6006	-146943.7	59.2375
600	7.9775	4367.3	54.4117	28279.7	-47314.8	-50015.1	22.9639	-147179.7	48.5249
700	8.1776	5175.5	55.6571	33784.5	-46506.6	-50204.1	20.3569	-147387.7	40.8614
800	8.3342	6001.4	56.7597	39406.4	-45680.7	-50405.9	18.3940	-147573.6	35.1061
900	8.4571	6841.2	57.7487	45132.7	-44840.9	-50621.0	16.8610	-147742.4	30.6244
1000	8.5546	7691.9	58.6450	50953.1	-43990.1	-50851.1	15.6292	-147897.8	27.0350
1100	8.6331	8551.4	59.4642	56859.1	-43130.6	-51097.6	14.6166	-148042.5	24.0953
1200	8.6973	9418.1	60.2182	62843.7	-42264.0	-51361.7	13.7685	-148178.6	21.6432
1300	8.7507	10290.6	60.9165	68900.9	-41391.5	-51644.1	13.0471	-148307.5	19.5665
1400	8.7958	11167.9	61.5667	75025.4	-40514.1	-51945.6	12.4250	-148430.6	17.7849
1500	8.8344	12049.5	62.1749	81212.8	-39632.6	-52266.6	11.8829	-148548.7	16.2397
[a]1600	8.8680	12934.7	62.7461	87459.2	-38747.4	-56104.9	11.3932	-148662.5	14.8865
1700	8.8974	13823.0	63.2847	93761.0	-37859.1	-56394.2	10.9413	-148772.6	13.6916
1800	8.9237	14714.0	63.7940	100115.1	-36968.0	-56682.2	10.5375	-148879.4	12.6287
1900	8.9472	15607.6	64.2771	106518.9	-36074.5	-56969.2	10.1744	-148983.3	11.6771
2000	8.9686	16503.4	64.7366	112969.8	-35178.7	-57255.3	9.8461	-149084.7	10.8200
2100	8.9883	17401.3	65.1747	119465.5	-34280.8	-57540.7	9.5473	-149183.7	10.0440
2200	9.0064	18301.0	65.5932	126004.0	-33381.1	-57825.4	9.2744	-149280.7	9.3381
2300	9.0233	19202.5	65.9939	132583.5	-32479.6	-58109.5	9.0241	-149375.8	8.6931
2400	9.0391	20105.6	66.3783	139202.3	-31576.4	-58393.3	8.7935	-149469.2	8.1016
2500	9.0540	21010.3	66.7476	145858.7	-30671.8	-58676.6	8.5803	-149561.2	7.5570
2600	9.0682	21916.4	67.1030	152551.3	-29765.7	-58959.6	8.3827	-149651.9	7.0540
2700	9.0817	22823.9	67.4455	159278.9	-28858.2	-59242.4	8.1986	-149741.7	6.5880
2800	9.0946	23732.7	67.7760	166040.0	-27949.3	-59524.9	8.0269	-149830.7	6.1550
2900	9.1070	24642.8	68.0953	172833.7	-27039.3	-59807.2	7.8663	-149919.3	5.7516
3000	9.1191	25554.1	68.4043	179658.8	-26128.0	-60089.4	7.7157	-150007.8	5.3749
3100	9.1307	26466.6	68.7035	186514.2	-25215.5	-60371.4	7.5742	-150096.5	5.0223
3200	9.1421	27380.2	68.9936	193399.2	-24301.8	-60653.3	7.4410	-150185.8	4.6915
3300	9.1532	28295.0	69.2751	200312.7	-23387.0	-60935.2	7.3151	-150276.0	4.3806
3400	9.1641	29210.9	69.5485	207253.9	-22471.2	-61216.9	7.1962	-150367.7	4.0879
3500	9.1749	30127.8	69.8143	214222.1	-21554.2	-61498.6	7.0834	-150461.2	3.8116
3600	9.1855	31045.9	70.0729	221216.5	-20636.2	-61780.3	6.9767	-150557.1	3.5506
3700	9.1961	31964.9	70.3247	228236.5	-19717.1	-62061.9	6.8749	-150655.9	3.3035
3800	9.2066	32885.1	70.5701	235281.2	-18797.0	-62343.4	6.7783	-150758.0	3.0692
3900	9.2171	33806.3	70.8094	242350.3	-17875.8	-62625.0	6.6861	-150863.9	2.8468
4000	9.2276	34728.5	71.0429	249442.9	-16953.6	-62906.4	6.5983	-150974.3	2.6354
4100	9.2383	35651.8	71.2708	256558.7	-16030.3	-63187.8	6.5142	-151089.5	2.4342
4200	9.2490	36576.2	71.4936	263696.9	-15105.9	-63469.1	6.4339	-151210.2	2.2423
4300	9.2599	37501.6	71.7113	270857.2	-14180.5	-63750.3	6.3568	-151336.7	2.0593
4400	9.2710	38428.1	71.9244	278039.0	-13253.9	-64031.4	6.2832	-151469.6	1.8844
4500	9.2823	39355.8	72.1328	285241.9	-12326.3	-64312.4	6.2123	-151609.4	1.7172
4600	9.2939	40284.6	72.3370	292465.4	-11397.4	-64593.2	6.1443	-151756.5	1.5570
4700	9.3058	41214.6	72.5370	299709.2	-10467.5	-64873.8	6.0788	-151911.3	1.4035
4800	9.3180	42145.8	72.7330	306972.7	-9536.3	-65154.2	6.0158	-152074.2	1.2563
4900	9.3306	43078.2	72.9253	314255.7	-8603.9	-65434.3	5.9552	-152245.5	1.1149
5000	9.3435	44011.9	73.1139	321557.6	-7670.1	-65714.1	5.8966	-152425.6	0.9790
5100	9.3569	44946.9	73.2991	328878.3	-6735.1	-65993.6	5.8403	-152614.7	0.8483
5200	9.3707	45883.3	73.4809	336217.3	-5798.8	-66272.7	5.7857	-152813.1	0.7225
5300	9.3850	46821.1	73.6595	343574.4	-4861.0	-66551.3	5.7331	-153020.9	0.6012
5400	9.3998	47760.3	73.8351	350949.1	-3921.7	-66829.5	5.6821	-153238.3	0.4843
5500	9.4151	48701.1	74.0077	358341.3	-2981.0	-67107.1	5.6328	-153465.5	0.3715
5600	9.4309	49643.4	74.1775	365750.6	-2038.7	-67384.1	5.5851	-153702.5	0.2625
5700	9.4473	50587.3	74.3446	373176.7	-1094.8	-67660.5	5.5389	-153949.4	0.1572
5800	9.4642	51532.9	74.5090	380619.4	-149.2	-67936.2	5.4942	-154206.2	0.0553
5900	9.4817	52480.1	74.6709	388078.4	798.1	-68211.1	5.4507	-154472.8	-0.0432
6000	9.4998	53429.2	74.8305	395553.5	1747.2	-68485.2	5.4085	-154749.2	-0.1387

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Be, 1560° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(46) $BeCl_2$ (gas); molecular weight, 79.927

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-86600.2	-83938.0	-------	-217922.3	--------
100	7.4191	703.4	47.8335	4079.9	-85896.8	-83940.4	184.0005	-218709.3	467.6518
200	9.7224	1560.3	53.6790	9175.5	-85039.9	-83948.6	92.2774	-219347.3	228.3802
298.15	11.3383	2600.2	57.8878	14659.1	-84000.0	-84000.0	62.0734	-219801.3	149.4038
300	11.3620	2621.2	57.9580	14766.2	-83979.0	-84001.1	61.6937	-219808.8	148.4103
400	12.3892	3812.5	61.3782	20738.8	-82787.7	-84077.6	46.3895	-220174.9	108.3483
500	13.0597	5087.3	64.2195	27022.7	-81512.9	-84158.8	37.1983	-220478.8	84.2740
600	13.5104	6417.2	66.6434	33568.9	-80183.0	-84240.0	31.0648	-220734.5	68.2039
700	13.8220	7784.7	68.7509	40340.9	-78815.5	-84323.0	26.6796	-220951.0	56.7129
800	14.0438	9178.6	70.6118	47310.8	-77421.6	-84410.2	23.3873	-221135.4	48.0868
900	14.2059	10591.5	72.2758	54456.7	-76008.7	-84505.2	20.8239	-221293.4	41.3724
1000	14.3273	12018.5	73.7791	61760.7	-74581.7	-84612.0	18.7708	-221429.8	35.9972
1100	14.4203	13456.0	75.1492	69208.1	-73144.2	-84733.2	17.0886	-221548.3	31.5969
1200	14.4930	14901.8	76.4072	76786.8	-71698.3	-84870.8	15.6847	-221652.1	27.9281
1300	14.5507	16354.1	77.5696	84486.3	-70246.1	-85026.0	14.4947	-221743.5	24.8223
1400	14.5972	17811.6	78.6497	92297.9	-68788.6	-85200.1	13.4726	-221824.6	22.1592
1500	14.6352	19273.3	79.6581	100213.9	-67326.9	-85393.8	12.5850	-221896.8	19.8504
[a]1600	14.6667	20738.4	80.6037	108227.5	-65861.8	-89105.0	11.7942	-221961.6	17.8296
1700	14.6930	22206.4	81.4937	116332.8	-64393.7	-89267.6	11.0777	-222020.0	16.0460
1800	14.7152	23676.9	82.3341	124524.6	-62923.3	-89429.5	10.4395	-222072.9	14.4602
1900	14.7341	25149.4	83.1303	132798.1	-61450.8	-89590.9	9.8676	-222120.9	13.0410
2000	14.7503	26623.6	83.8865	141149.3	-59976.6	-89752.1	9.3520	-222164.8	11.7634
2100	14.7644	28099.4	84.6065	149574.2	-58500.8	-89913.3	8.8844	-222205.1	10.6073
2200	14.7766	29576.4	85.2936	158069.5	-57023.8	-90074.7	8.4587	-222242.2	9.5561
2300	14.7873	31054.6	85.9507	166631.9	-55545.6	-90236.3	8.0694	-222276.5	8.5962
2400	14.7967	32533.8	86.5802	175258.7	-54066.4	-90398.3	7.7119	-222308.5	7.7161
2500	14.8050	34013.9	87.1844	183947.1	-52586.3	-90560.9	7.3823	-222338.5	6.9064
2600	14.8124	35494.8	87.7652	192694.8	-51105.4	-90724.0	7.0777	-222366.8	6.1588
2700	14.8190	36976.4	88.3244	201499.5	-49623.8	-90887.7	6.7949	-222393.9	5.4665
2800	14.8249	38458.6	88.8634	210359.0	-48141.6	-91052.2	6.5319	-222419.9	4.8236
2900	14.8303	39941.3	89.3837	219271.5	-46658.8	-91217.5	6.2866	-222445.5	4.2249
3000	14.8351	41424.6	89.8866	228235.2	-45175.6	-91383.5	6.0573	-222470.8	3.6661
3100	14.8394	42908.3	90.3731	237248.3	-43691.9	-91550.4	5.8423	-222496.5	3.1433
3200	14.8434	44392.5	90.8443	246309.3	-42207.7	-91718.2	5.6406	-222522.8	2.6531
3300	14.8470	45877.0	91.3011	255416.7	-40723.2	-91887.0	5.4505	-222550.2	2.1926
3400	14.8503	47361.9	91.7444	264569.1	-39238.3	-92056.6	5.2714	-222579.3	1.7591
3500	14.8533	48847.1	92.1749	273765.1	-37753.1	-92227.2	5.1021	-222610.5	1.3503
3600	14.8561	50332.5	92.5934	283003.6	-36267.7	-92398.9	4.9422	-222644.4	0.9641
3700	14.8587	51818.3	93.0005	292283.4	-34781.9	-92571.5	4.7903	-222681.6	0.5988
3800	14.8610	53304.3	93.3967	301603.4	-33295.9	-92745.1	4.6463	-222722.4	0.2527
3900	14.8632	54790.5	93.7828	310962.4	-31809.7	-92919.8	4.5094	-222767.6	-0.0758
4000	14.8652	56276.9	94.1591	320359.6	-30323.3	-93095.6	4.3791	-222817.7	-0.3879
4100	14.8671	57763.5	94.5262	329794.0	-28836.7	-93272.4	4.2549	-222873.2	-0.6849
4200	14.8689	59250.3	94.8845	339264.6	-27349.9	-93450.3	4.1365	-222934.8	-0.9677
4300	14.8705	60737.3	95.2344	348770.6	-25862.9	-93629.3	4.0232	-223002.8	-1.2375
4400	14.8720	62224.4	95.5763	358311.2	-24375.8	-93809.4	3.9151	-223078.0	-1.4952
4500	14.8734	63711.7	95.9105	367885.6	-22888.5	-93990.6	3.8114	-223160.7	-1.7414
4600	14.8748	65199.1	96.2374	377493.0	-21401.1	-94172.9	3.7121	-223251.4	-1.9771
4700	14.8760	66686.6	96.5573	387132.8	-19913.5	-94356.4	3.6168	-223350.8	-2.2028
4800	14.8772	68174.3	96.8705	396804.3	-18425.9	-94541.0	3.5252	-223459.0	-2.4192
4900	14.8783	69662.1	97.1773	406506.7	-16938.1	-94726.7	3.4374	-223576.7	-2.6269
5000	14.8793	71150.0	97.4779	416239.5	-15450.2	-94913.5	3.3527	-223704.1	-2.8264
5100	14.8803	72637.9	97.7726	426002.1	-13962.3	-95101.5	3.2714	-223841.5	-3.0182
5200	14.8812	74126.0	98.0615	435793.9	-12474.2	-95290.7	3.1929	-223989.3	-3.2027
5300	14.8821	75614.2	98.3450	445614.2	-10986.0	-95481.0	3.1173	-224147.8	-3.3803
5400	14.8829	77102.4	98.6232	455462.7	-9497.8	-95672.5	3.0442	-224317.1	-3.5516
5500	14.8837	78590.8	98.8963	465338.7	-8009.4	-95865.1	2.9738	-224497.4	-3.7167
5600	14.8844	80079.2	99.1644	475241.8	-6521.0	-96058.9	2.9057	-224688.9	-3.8761
5700	14.8851	81567.6	99.4279	485171.4	-5032.6	-96253.9	2.8399	-224891.7	-4.0300
5800	14.8857	83056.2	99.6868	495127.2	-3544.0	-96450.0	2.7763	-225105.8	-4.1787
5900	14.8864	84544.8	99.9413	505108.6	-2055.4	-96647.3	2.7146	-225331.4	-4.3225
6000	14.8870	86033.4	100.1915	515115.3	-566.7	-96845.8	2.6549	-225568.3	-4.4617

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Be, 1560° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(45) BeCl (gas); molecular weight, 44.470

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-9117.9	-7552.4	-------	-112988.3	--------
100	6.9597	694.9	44.1240	3717.5	-8422.9	-7215.3	20.4490	-113287.0	243.8725
200	7.1399	1396.8	48.9822	8399.7	-7721.1	-7015.7	12.6674	-113581.0	119.9592
298.15	7.5655	2117.9	51.9099	13359.1	-7000.0	-7000.0	10.1502	-113850.6	79.0600
300	7.5736	2131.9	51.9567	13455.1	-6986.0	-7000.6	10.1185	-113855.5	78.5453
400	7.9659	2909.8	54.1919	18767.0	-6208.1	-7075.9	8.8382	-114104.7	57.7895
500	8.2468	3721.3	56.0015	24279.5	-5396.6	-7193.3	8.0594	-114330.9	45.3097
600	8.4408	4556.2	57.5233	29957.7	-4561.6	-7335.1	7.5307	-114537.2	36.9739
700	8.5773	5407.5	58.8353	35777.2	-3710.4	-7495.1	7.1452	-114726.3	31.0095
800	8.6764	6270.4	59.9874	41719.5	-2847.4	-7670.5	6.8495	-114900.9	26.5290
900	8.7508	7142.0	61.0138	47770.5	-1975.9	-7861.7	6.6139	-115063.3	23.0390
1000	8.8086	8020.1	61.9389	53918.9	-1097.8	-8070.1	6.4207	-115215.3	20.2433
1100	8.8549	8903.3	62.7807	60155.5	-214.6	-8296.8	6.2582	-115358.5	17.9529
1200	8.8929	9790.8	63.5529	66472.7	672.9	-8542.5	6.1189	-115494.2	16.0419
1300	8.9249	10681.7	64.2660	72864.1	1563.8	-8807.7	5.9974	-115623.6	14.4230
1400	8.9525	11575.6	64.9284	79324.2	2457.7	-9092.9	5.8899	-115747.3	13.0339
1500	8.9767	12472.1	65.5469	85848.3	3354.2	-9398.2	5.7937	-115866.2	11.8288
[a]1600	8.9983	13370.8	66.1270	92432.3	4253.0	-13221.3	5.6944	-115980.9	10.7732
1700	9.0178	14271.7	66.6731	99072.6	5153.8	-13495.8	5.5872	-116091.6	9.8409
1800	9.0358	15174.3	67.1891	105765.9	6056.5	-13769.3	5.4898	-116199.0	9.0115
1900	9.0524	16078.8	67.6780	112509.5	6960.9	-14041.8	5.4010	-116303.3	8.2686
2000	9.0680	16984.8	68.1428	119300.7	7866.9	-14313.5	5.3196	-116404.8	7.5995
2100	9.0827	17892.3	68.5856	126137.3	8774.5	-14584.4	5.2442	-116503.7	6.9935
2200	9.0968	18801.3	69.0084	133017.2	9683.4	-14854.6	5.1746	-116600.3	6.4422
2300	9.1102	19711.7	69.4131	139938.4	10593.8	-15124.2	5.1099	-116694.7	5.9384
2400	9.1232	20623.3	69.8011	146899.3	11505.5	-15393.2	5.0496	-116787.3	5.4762
2500	9.1357	21536.3	70.1738	153898.1	12418.4	-15661.5	4.9930	-116878.2	5.0507
2600	9.1479	22450.5	70.5323	160933.5	13332.6	-15929.3	4.9400	-116967.6	4.6576
2700	9.1599	23365.9	70.8778	168004.1	14248.0	-16196.6	4.8899	-117055.7	4.2933
2800	9.1716	24282.4	71.2111	175108.7	15164.6	-16463.4	4.8427	-117142.9	3.9548
2900	9.1832	25200.2	71.5332	182246.0	16082.3	-16729.7	4.7980	-117229.4	3.6394
3000	9.1947	26119.1	71.8447	189415.0	17001.2	-16995.4	4.7556	-117315.5	3.3448
3100	9.2061	27039.1	72.1464	196614.6	17921.2	-17260.7	4.7154	-117401.6	3.0691
3200	9.2176	27960.3	72.4388	203843.9	18842.4	-17525.5	4.6772	-117487.9	2.8103
3300	9.2291	28882.6	72.7226	211102.1	19764.8	-17789.8	4.6406	-117575.0	2.5671
3400	9.2407	29806.1	72.9983	218388.2	20688.2	-18053.6	4.6057	-117663.3	2.3380
3500	9.2525	30730.8	73.2664	225701.5	21612.9	-18316.8	4.5722	-117753.1	2.1218
3600	9.2645	31656.6	73.5272	233041.2	22538.8	-18579.5	4.5404	-117844.9	1.9175
3700	9.2768	32583.7	73.7812	240406.7	23465.8	-18841.6	4.5095	-117939.3	1.7241
3800	9.2894	33512.0	74.0287	247797.2	24394.1	-19103.1	4.4800	-118036.6	1.5407
3900	9.3024	34441.6	74.2702	255212.2	25323.7	-19364.0	4.4517	-118137.4	1.3666
4000	9.3158	35372.5	74.5059	262651.1	26254.6	-19624.2	4.4244	-118242.2	1.2010
4100	9.3296	36304.7	74.7361	270113.2	27186.9	-19883.7	4.3981	-118351.4	1.0434
4200	9.3440	37238.4	74.9611	277598.1	28120.6	-20142.3	4.3728	-118465.6	0.8931
4300	9.3589	38173.6	75.1811	285105.3	29055.7	-20400.2	4.3481	-118585.2	0.7497
4400	9.3745	39110.2	75.3965	292634.2	29992.4	-20657.1	4.3245	-118710.6	0.6126
4500	9.3906	40048.5	75.6073	300184.4	30930.6	-20913.1	4.3016	-118842.3	0.4815
4600	9.4074	40988.4	75.8139	307755.5	31870.5	-21168.1	4.2794	-118980.7	0.3560
4700	9.4249	41930.0	76.0164	315347.1	32812.1	-21422.0	4.2578	-119126.2	0.2356
4800	9.4431	42873.4	76.2150	322958.7	33755.5	-21674.7	4.2369	-119279.0	0.1202
4900	9.4620	43818.6	76.4099	330590.0	34700.8	-21926.2	4.2167	-119439.7	0.0093
5000	9.4817	44765.8	76.6013	338240.5	35647.9	-22176.4	4.1969	-119608.3	-0.0973
5100	9.5021	45715.0	76.7892	345910.1	36597.1	-22425.2	4.1779	-119785.2	-0.1999
5200	9.5233	46666.3	76.9740	353598.3	37548.4	-22672.5	4.1593	-119970.6	-0.2987
5300	9.5452	47619.7	77.1556	361304.8	38501.8	-22918.3	4.1413	-120164.6	-0.3939
5400	9.5679	48575.3	77.3342	369029.3	39457.5	-23162.5	4.1236	-120367.4	-0.4857
5500	9.5914	49533.3	77.5100	376771.5	40415.4	-23405.1	4.1065	-120579.1	-0.5744
5600	9.6156	50493.6	77.6830	384531.2	41375.8	-23645.8	4.0897	-120799.7	-0.6600
5700	9.6405	51456.4	77.8534	392308.0	42338.6	-23884.7	4.0736	-121029.3	-0.7428
5800	9.6661	52421.7	78.0213	400101.8	43303.9	-24121.8	4.0577	-121267.9	-0.8229
5900	9.6924	53389.7	78.1868	407912.2	44271.8	-24356.8	4.0423	-121515.4	-0.9004
6000	9.7194	54360.3	78.3499	415739.1	45242.4	-24589.8	4.0272	-121771.7	-0.9755

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Be, 1560° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(44) Be (crystal, liquid); molecular weight, 9.013

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	0	0	-468.7	0	-------	-76887.4	--------
100	0.437	9.8	0.130	3.2	-458.9	0	0	-77374.5	163.1957
200	2.400	149.3	1.018	54.3	-319.4	0	0	-77731.8	78.4808
298.15	3.932	468.7	2.297	216.2	0	0	0	-77900.0	50.4891
300	3.950	475.8	2.321	220.5	7.1	0	0	-77902.1	50.1370
400	4.765	914.3	3.577	516.5	445.6	0	0	-77960.4	35.9438
500	5.249	1416.3	4.695	931.2	947.6	0	0	-77955.2	27.4249
600	5.585	1958.6	5.683	1451.2	1489.9	0	0	-77909.7	21.7475
700	5.848	2530.6	6.564	2064.2	2061.9	0	0	-77834.5	17.6953
800	6.066	3126.3	7.359	2760.9	2657.6	0	0	-77735.7	14.6596
900	6.284	3743.8	8.086	3533.6	3275.1	0	0	-77615.0	12.3018
1000	6.502	4383.1	8.759	4375.9	3914.4	0	0	-77472.5	10.4187
1100	6.720	5044.2	9.389	5283.7	4575.5	0	0	-77308.2	8.8811
1200	6.938	5727.1	9.983	6252.5	5258.4	0	0	-77122.1	7.6026
1300	7.156	6431.8	10.547	7279.3	5963.1	0	0	-76914.2	6.5236
1400	7.374	7158.3	11.086	8362.1	6689.6	0	0	-76684.6	5.6015
1500	7.592	7906.6	11.602	9496.4	7437.9	0	0	-76433.1	4.8047
[b]1560	7.723	8366.0	11.902	10201.5	7897.3	0	0	-76250.3	4.3765
1560	7.2	11886.0	14.159	10201.5	11417.3	0	0	-72748.0	4.3765
1600	7.2	12174.0	14.341	10771.6	11705.3	0	0	-72662.5	4.1222
1700	7.2	12894.0	14.777	12226.9	12425.3	0	0	-72439.3	3.5392
1800	7.2	13614.0	15.189	13726.2	13145.3	0	0	-72216.1	3.0227
1900	7.2	14334.0	15.578	15264.2	13865.3	0	0	-71993.0	2.5619
2000	7.2	15054.0	15.947	16840.0	14585.3	0	0	-71769.8	2.1484
2100	7.2	15774.0	16.299	18453.9	15305.3	0	0	-71546.7	1.7757
2200	7.2	16494.0	16.634	20100.8	16025.3	0	0	-71323.7	1.4378
2300	7.2	17214.0	16.954	21780.2	16745.3	0	0	-71100.8	1.1302
2400	7.2	17934.0	17.260	23490.0	17465.3	0	0	-70878.1	0.8491
2500	7.2	18654.0	17.554	25231.0	18185.3	0	0	-70655.6	0.5913
2600	7.2	19374.0	17.836	26999.6	18905.3	0	0	-70433.6	0.3541
2700	7.2	20094.0	18.108	28797.6	19625.3	0	0	-70212.1	0.1352
2800	7.2	20814.0	18.370	30622.0	20345.3	0	0	-69991.3	-0.0674
2900	7.2	21534.0	18.623	32472.7	21065.3	0	0	-69771.5	-0.2554
3000	7.2	22254.0	18.867	34347.0	21785.3	0	0	-69552.8	-0.4304
3100	7.2	22974.0	19.103	36245.3	22505.3	0	0	-69335.7	-0.5936
3200	7.2	23694.0	19.331	38165.2	23225.3	0	0	-69120.4	-0.7463
3300	7.2	24414.0	19.553	40110.9	23945.3	0	0	-68907.3	-0.8890
3400	7.2	25134.0	19.768	42077.2	24665.3	0	0	-68696.8	-1.0230
3500	7.2	25854.0	19.977	44065.5	25385.3	0	0	-68489.3	-1.1489
3600	7.2	26574.0	20.179	46070.4	26105.3	0	0	-68285.2	-1.2677
3700	7.2	27294.0	20.377	48100.9	26825.3	0	0	-68085.2	-1.3794
3800	7.2	28014.0	20.569	50148.2	27545.3	0	0	-67889.6	-1.4851
3900	7.2	28734.0	20.756	52214.4	28265.3	0	0	-67699.0	-1.5851
4000	7.2	29454.0	20.938	54298.0	28985.3	0	0	-67513.8	-1.6799
4100	7.2	30174.0	21.116	56401.6	29705.3	0	0	-67334.7	-1.7697
4200	7.2	30894.0	21.289	58519.8	30425.3	0	0	-67162.1	-1.8551
4300	7.2	31614.0	21.459	60659.7	31145.3	0	0	-66996.5	-1.9362
4400	7.2	32334.0	21.624	62811.6	31865.3	0	0	-66838.4	-2.0136
4500	7.2	33054.0	21.786	64983.0	32585.3	0	0	-66688.3	-2.0872
4600	7.2	33774.0	21.944	67168.4	33305.3	0	0	-66546.7	-2.1576
4700	7.2	34494.0	22.099	69371.3	34025.3	0	0	-66414.0	-2.2248
4800	7.2	35214.0	22.251	71590.8	34745.3	0	0	-66290.6	-2.2889
4900	7.2	35934.0	22.399	73821.1	35465.3	0	0	-66177.0	-2.3506
5000	7.2	36654.0	22.545	76071.0	36185.3	0	0	-66073.3	-2.4095
5100	7.2	37374.0	22.687	78329.7	36905.3	0	0	-65980.1	-2.4662
5200	7.2	38094.0	22.827	80606.4	37625.3	0	0	-65897.4	-2.5205
5300	7.2	38814.0	22.964	82895.2	38345.3	0	0	-65825.7	-2.5727
5400	7.2	39534.0	23.099	85200.6	39065.3	0	0	-65765.1	-2.6229
5500	7.2	40254.0	23.231	87516.5	39785.3	0	0	-65715.7	-2.6713
5600	7.2	40974.0	23.361	89847.6	40505.3	0	0	-65677.8	-2.7178
5700	7.2	41694.0	23.488	92187.6	41225.3	0	0	-65651.3	-2.7629
5800	7.2	42414.0	23.613	94541.4	41945.3	0	0	-65636.4	-2.8063
5900	7.2	43134.0	23.736	96908.4	42665.3	0	0	-65633.1	-2.8482
6000	7.2	43854.0	23.857	99288.0	43385.3	0	0	-65641.3	-2.8888

[a] H_0° refers to crystal state.

[b] Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(43) Be (gas); molecular weight, 9.013

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	76418.7	76887.4	-------	0	--------
100	4.9681	496.8	27.1178	2215.0	76915.6	77374.5	-163.1957	0	0
200	4.9681	993.6	30.5614	5118.7	77412.4	77731.8	-78.4808	0	0
298.15	4.9681	1481.3	32.5451	8222.1	77900.0	77900.0	-50.4891	0	0
300	4.9681	1490.4	32.5759	8282.3	77909.2	77902.1	-50.1370	0	0
400	4.9681	1987.3	34.0051	11614.8	78406.0	77960.4	-35.9438	0	0
500	4.9681	2484.1	35.1137	15072.8	78902.8	77955.2	-27.4249	0	0
600	4.9681	2980.9	36.0195	18630.8	79399.6	77909.7	-21.7475	0	0
700	4.9681	3477.7	36.7854	22272.0	79896.4	77834.5	-17.6953	0	0
800	4.9681	3974.5	37.4488	25984.5	80393.3	77735.7	-14.6596	0	0
900	4.9681	4471.3	38.0339	29759.2	80890.1	77615.0	-12.3018	0	0
1000	4.9681	4968.1	38.5574	33589.2	81386.9	77472.5	-10.4187	0	0
1100	4.9681	5465.0	39.0309	37469.0	81883.7	77308.2	-8.8811	0	0
1200	4.9681	5961.8	39.4632	41394.0	82380.5	77122.1	-7.6026	0	0
1300	4.9682	6458.6	39.8608	45360.5	82877.3	76914.2	-6.5236	0	0
1400	4.9682	6955.4	40.2290	49365.2	83374.2	76684.6	-5.6015	0	0
1500	4.9682	7452.2	40.5718	53405.5	83871.0	76433.1	-4.8047	0	0
[a]1600	4.9682	7949.0	40.8924	57478.8	84367.8	72662.5	-4.1222	0	0
1700	4.9682	8445.9	41.1936	61583.3	84864.6	72439.3	-3.5392	0	0
1800	4.9683	8942.7	41.4776	65717.0	85361.4	72216.1	-3.0227	0	0
1900	4.9684	9439.5	41.7462	69878.3	85858.3	71993.0	-2.5619	0	0
2000	4.9688	9936.4	42.0011	74065.8	86355.1	71769.8	-2.1484	0	0
2100	4.9693	10433.3	42.2435	78278.1	86852.0	71546.7	-1.7757	0	0
2200	4.9703	10930.3	42.4747	82514.1	87348.0	71323.7	-1.4378	0	0
2300	4.9718	11427.3	42.6957	86772.7	87846.1	71100.8	-1.1302	0	0
2400	4.9740	11924.6	42.9073	91052.9	88343.4	70878.1	-0.8491	0	0
2500	4.9773	12422.2	43.1104	95353.9	88840.9	70655.6	-0.5913	0	0
2600	4.9820	12920.1	43.3057	99674.7	89338.9	70433.6	-0.3541	0	0
2700	4.9882	13418.6	43.4939	104014.8	89837.4	70212.1	-0.1352	0	0
2800	4.9965	13917.9	43.6754	108373.3	90336.6	69991.3	0.0674	0	0
2900	5.0072	14418.0	43.8509	112749.7	90836.8	69771.5	0.2554	0	0
3000	5.0206	14919.4	44.0209	117143.3	91338.1	69552.8	0.4304	0	0
3100	5.0372	15422.2	44.1858	121553.7	91841.0	69335.7	0.5936	0	0
3200	5.0572	15926.9	44.3460	125980.3	92345.7	69120.4	0.7463	0	0
3300	5.0811	16433.8	44.5020	130422.7	92852.6	68907.3	0.8890	0	0
3400	5.1092	16943.3	44.6541	134880.6	93362.1	68696.8	1.0230	0	0
3500	5.1417	17455.8	44.8026	139353.4	93874.6	68489.3	1.1489	0	0
3600	5.1789	17971.8	44.9480	143841.0	94390.5	68285.2	1.2677	0	0
3700	5.2210	18491.8	45.0905	148342.9	94910.5	68085.2	1.3794	0	0
3800	5.2680	19016.2	45.2303	152859.0	95434.9	67889.6	1.4851	0	0
3900	5.3203	19545.5	45.3678	157388.9	95964.3	67699.0	1.5851	0	0
4000	5.3777	20080.4	45.5032	161932.5	96499.1	67513.8	1.6799	0	0
4100	5.4403	20621.2	45.6368	166489.5	97040.0	67334.7	1.7697	0	0
4200	5.5080	21168.6	45.7687	171059.8	97587.4	67162.1	1.8551	0	0
4300	5.5808	21723.0	45.8991	175643.2	98141.8	66996.5	1.9362	0	0
4400	5.6585	22284.9	46.0283	180239.6	98703.7	66838.4	2.0136	0	0
4500	5.7409	22854.9	46.1564	184848.8	99273.6	66688.3	2.0872	0	0
4600	5.8278	23433.3	46.2835	189470.8	99852.0	66546.7	2.1576	0	0
4700	5.9190	24020.6	46.4098	194105.5	100439.3	66414.0	2.2248	0	0
4800	6.0141	24617.2	46.5354	198752.7	101035.9	66290.6	2.2889	0	0
4900	6.1129	25223.5	46.6604	203412.5	101642.3	66177.0	2.3506	0	0
5000	6.2150	25839.9	46.7849	208084.8	102258.6	66073.3	2.4095	0	0
5100	6.3202	26466.6	46.9090	212769.5	102885.4	65980.1	2.4662	0	0
5200	6.4279	27104.0	47.0328	217466.6	103522.7	65897.4	2.5205	0	0
5300	6.5379	27752.3	47.1563	222176.1	104171.0	65825.7	2.5727	0	0
5400	6.6498	28411.6	47.2795	226897.9	104830.4	65765.1	2.6229	0	0
5500	6.7632	29082.3	47.4026	231632.0	105501.0	65715.7	2.6713	0	0
5600	6.8777	29764.3	47.5255	236378.4	106183.1	65677.8	2.7178	0	0
5700	6.9931	30457.9	47.6482	241137.1	106876.6	65651.3	2.7629	0	0
5800	7.1089	31162.9	47.7709	245908.0	107581.7	65636.4	2.8063	0	0
5900	7.2247	31879.6	47.8934	250691.2	108298.4	65633.1	2.8482	0	0
6000	7.3404	32607.9	48.0158	255486.7	109026.6	65641.3	2.8888	0	0

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Be, 1560° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(42) BS (gas); molecular weight, 42.886

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	80338.8	81684.2	-------	-118000.0	--------
100	6.9567	694.8	43.9988	3705.0	81033.6	82208.2	-170.7251	-118329.2	253.9325
200	6.9884	1391.3	48.8252	8373.8	81730.0	82432.1	-80.7781	-118668.1	124.4956
298.15	7.1825	2085.2	51.6457	13312.9	82424.0	82424.0	-51.1211	-119016.8	81.7544
300	7.1877	2098.5	51.6901	13408.5	82437.3	82422.4	-50.7488	-119023.2	81.2164
[a] 400	7.4593	2832.6	53.7997	18687.3	83171.3	81731.6	-35.7619	-119347.2	59.5131
500	7.7993	3597.9	55.5062	24155.2	83936.6	81150.0	-26.8589	-119628.2	46.4575
600	8.0441	4390.5	56.9507	29779.9	84729.3	80624.9	-20.9656	-119871.0	37.7345
700	8.2337	5204.9	58.2056	35539.1	85543.6	80139.3	-16.7823	-120083.7	31.4918
800	8.3791	6035.8	59.3150	41416.2	86374.6	79669.0	-13.6639	-120273.3	26.8020
900	8.4915	6879.6	60.3087	47398.2	87218.3	79182.3	-11.2527	-120445.3	23.1488
1000	8.5795	7733.3	61.2081	53474.8	88072.1	78679.6	-9.3358	-120603.6	20.2223
1100	8.6496	8594.9	62.0292	59637.2	88933.6	78159.8	-7.7776	-120751.2	17.8248
1200	8.7064	9462.8	62.7843	65878.4	89801.5	77622.7	-6.4879	-120890.4	15.8245
1300	8.7533	10335.8	63.4831	72192.2	90674.6	77071.1	-5.4042	-121022.7	14.1300
1400	8.7925	11213.2	64.1333	78573.4	91551.9	76507.6	-4.4821	-121149.6	12.6761
1500	8.8260	12094.2	64.7411	85017.4	92432.9	75935.1	-3.6888	-121272.1	11.4147
1600	8.8552	12978.2	65.3116	91520.4	93317.0	75355.0	-2.9999	-121391.1	10.3099
1700	8.8812	13865.1	65.8493	98078.7	94203.8	74768.4	-2.3968	-121507.3	9.3341
1800	8.9049	14754.4	66.3576	104689.2	95093.2	74176.1	-1.8649	-121621.3	8.4659
1900	8.9274	15646.0	66.8397	111349.3	95984.8	73578.9	-1.3928	-121733.7	7.6884
2000	8.9493	16539.9	67.2981	118056.4	96878.6	72977.5	-0.9713	-121844.7	6.9880
2100	8.9716	17435.9	67.7353	124808.2	97774.7	72372.6	-0.5931	-121954.6	6.3537
2200	8.9948	18334.2	68.1532	131602.8	98673.0	71765.0	-0.2523	-122063.5	5.7766
2300	9.0197	19234.9	68.5536	138438.3	99573.7	71155.3	0.0565	-122171.6	5.2492
[a] 2400	9.0469	20138.2	68.9380	145313.0	100477.0	65194.1	0.3185	-122278.7	4.7653
2500	9.0770	21044.4	69.3079	152225.4	101383.2	64580.8	0.5549	-122384.6	4.3197
2600	9.1104	21953.7	69.6646	159174.1	102292.5			-122489.3	3.9080
2700	9.1474	22866.6	70.0091	166157.9	103205.3			-122592.3	3.5266
2800	9.1886	23783.4	70.3425	173175.6	104122.1			-122693.4	3.1720
2900	9.2339	24704.4	70.6657	180226.1	105043.2			-122792.1	2.8417
3000	9.2837	25630.3	70.9796	187308.4	105969.0			-122888.0	2.5331
3100	9.3379	26561.3	71.2848	194421.7	106900.1			-122980.6	2.2442
3200	9.3965	27498.0	71.5822	201565.1	107836.8			-123069.5	1.9732
3300	9.4595	28440.8	71.8723	208737.9	108779.5			-123154.2	1.7184
3400	9.5266	29390.0	72.1557	215939.4	109728.8			-123234.2	1.4785
3500	9.5978	30346.2	72.4329	223168.8	110685.0			-123309.1	1.2521
3600	9.6726	31309.7	72.7043	230425.7	111648.5			-123378.4	1.0382
3700	9.7509	32280.9	72.9704	237709.5	112619.6			-123441.7	0.8357
3800	9.8323	33260.0	73.2315	245019.6	113598.8			-123498.7	0.6438
3900	9.9163	34247.4	73.4880	252355.7	114586.2			-123549.1	0.4616
4000	10.0028	35243.4	73.7401	259717.1	115582.1			-123592.4	0.2885
4100	10.0912	36248.0	73.9882	267103.5	116586.8			-123628.5	0.1238
4200	10.1811	37261.6	74.2324	274514.6	117600.4			-123657.1	-0.0331
4300	10.2723	38284.3	74.4731	281949.9	118623.1			-123678.2	-0.1828
4400	10.3642	39316.1	74.7103	289409.1	119654.9			-123691.5	-0.3256
4500	10.4566	40357.2	74.9442	296891.8	120695.9			-123696.9	-0.4622
4600	10.5490	41407.4	75.1751	304397.8	121746.2			-123694.5	-0.5928
4700	10.6411	42466.9	75.4029	311926.8	122805.7			-123684.3	-0.7178
4800	10.7325	43535.6	75.6279	319478.3	123874.4			-123666.3	-0.8376
4900	10.8231	44613.4	75.8501	327052.3	124952.2			-123640.5	-0.9525
5000	10.9124	45700.2	76.0697	334648.3	126039.0			-123607.1	-1.0628
5100	11.0002	46795.8	76.2867	342266.1	127134.6			-123566.3	-1.1687
5200	11.0863	47900.2	76.5011	349905.5	128238.9			-123518.2	-1.2705
5300	11.1705	49013.0	76.7131	357566.2	129351.8			-123463.0	-1.3684
5400	11.2526	50134.2	76.9226	365248.1	130473.0			-123401.0	-1.4627
5500	11.3324	51263.5	77.1299	372950.7	131602.2			-123332.4	-1.5534
5600	11.4097	52400.6	77.3347	380673.9	132739.4			-123257.6	-1.6409
5700	11.4845	53545.3	77.5374	388417.6	133884.1			-123176.7	-1.7253
5800	11.5566	54697.4	77.7377	396181.3	135036.2			-123090.1	-1.8067
5900	11.6260	55856.6	77.9359	403965.0	136195.3			-122998.2	-1.8852
6000	11.6926	57022.5	78.1318	411768.4	137361.3			-122901.2	-1.9612

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K and of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(41) $(BOF)_3$ (gas); molecular weight, 137.46

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-573044.3	-565892.7	-------	-1199259.5	--------
100	14.3536	1020.2	60.5943	5039.2	-572024.1	-566973.2	1225.3380	-1202892.0	2579.2307
200	21.6561	2841.1	72.9241	11743.7	-570203.3	-567486.0	605.5605	-1205814.9	1263.5392
298.15	27.1430	5244.4	82.6280	19391.2	-567800.0	-567800.0	401.3803	-1208044.4	829.4277
300	27.2374	5294.7	82.7962	19544.2	-567749.7	-567804.6	398.8134	-1208080.9	823.9672
400	31.8995	8258.8	91.2915	28257.7	-564785.5	-568040.1	295.3845	-1209781.9	603.8082
500	35.6532	11644.1	98.8299	37770.8	-561400.2	-568186.7	233.3059	-1211015.3	471.5496
600	38.5467	15360.7	105.5980	47998.1	-557683.6	-568233.1	191.9136	-1211883.2	383.2998
700	40.7377	19330.0	111.7124	58868.7	-553714.3	-568206.2	162.3477	-1212473.7	320.2261
800	42.3966	23490.5	117.2655	70321.9	-549553.8	-568131.4	140.1739	-1212855.4	272.9017
900	43.6639	27796.3	122.3356	82305.7	-545248.0	-568041.8	122.9312	-1213078.6	236.0847
1000	44.6443	32213.8	126.9889	94775.1	-540830.5	-567951.4	109.1391	-1213180.4	206.6272
1100	45.4134	36718.2	131.2815	107691.4	-536326.2	-567876.3	97.8564	-1213187.6	182.5244
1200	46.0251	41291.2	135.2602	121021.0	-531753.1	-567826.0	88.4550	-1213120.2	162.4394
1300	46.5181	45919.3	138.9643	134734.3	-527125.1	-567799.6	80.5008	-1212993.0	145.4456
1400	46.9203	50591.8	142.4269	148805.8	-522452.5	-567794.3	73.6826	-1212817.5	130.8814
1500	47.2520	55301.0	145.6757	163212.6	-517743.4	-567806.3	67.7737	-1212602.3	118.2611
1600	47.5286	60040.4	148.7344	177934.6	-513003.9	-567834.7	62.6035	-1212354.2	107.2205
1700	47.7613	64805.2	151.6230	192953.8	-508239.1	-567879.1	58.0409	-1212078.6	97.4809
1800	47.9588	69591.5	154.3587	208254.1	-503452.8	-567939.9	53.9850	-1211779.7	88.8255
1900	48.1277	74396.0	156.9563	223820.9	-498648.3	-568017.1	50.3556	-1211461.1	81.0831
2000	48.2733	79216.3	159.4287	239641.2	-493828.1	-568110.0	47.0889	-1211125.6	74.1169
2100	48.3996	84050.1	161.7871	255702.9	-488994.3	-568218.7	44.1325	-1210775.6	67.8159
2200	48.5098	88895.6	164.0413	271995.1	-484148.7	-568342.6	41.4441	-1210413.1	62.0895
2300	48.6065	93751.6	166.1998	288507.9	-479292.8	-568481.6	38.9894	-1210039.8	56.8625
[a]2400	48.6918	98616.6	168.2703	305232.1	-474427.8	-584685.8	36.6830	-1209657.3	52.0727
2500	48.7674	103489.6	170.2596	322159.3	-469554.7	-584857.8	34.5531	-1209266.7	47.6674
2600	48.8348	108369.8	172.1736	339281.5	-464674.6	-585034.0	32.5866	-1208869.3	43.6023
2700	48.8950	113256.3	174.0178	356591.7	-459788.0	-585215.0	30.7651	-1208466.0	39.8396
2800	48.9490	118148.6	175.7970	374082.9	-454895.8	-585401.1	29.0729	-1208057.7	36.3469
2900	48.9978	123046.0	177.5155	391749.0	-449998.4	-585592.8	27.4973	-1207645.4	33.0961
3000	49.0418	127948.0	179.1774	409584.1	-445096.4	-585790.3	26.0256	-1207229.7	30.0630
3100	49.0817	132854.2	180.7861	427582.7	-440190.2	-585993.7	24.6494	-1206811.3	27.2267
3200	49.1180	137764.2	182.3450	445739.7	-435280.1	-586203.4	23.3576	-1206390.9	24.5685
3300	49.1512	142677.7	183.8569	464050.2	-430366.7	-586419.2	22.1448	-1205969.1	22.0723
3400	49.1815	147594.3	185.3247	482509.6	-425450.0	-586641.2	21.0023	-1205546.5	19.7238
3500	49.2093	152513.9	186.7508	501113.7	-420530.4	-586869.6	19.9244	-1205123.5	17.5102
3600	49.2348	157436.1	188.1374	519858.4	-415608.2	-587104.2	18.9065	-1204700.6	15.4204
3700	49.2584	162360.8	189.4867	538740.0	-410683.5	-587345.0	17.9433	-1204278.4	13.4442
3800	49.2801	167287.7	190.8006	557754.6	-405756.6	-587592.1	17.0302	-1203857.2	11.5726
3900	49.3002	172216.8	192.0810	576899.0	-400827.6	-587845.2	16.1634	-1203437.5	9.7977
4000	49.3188	177147.7	193.3294	596169.7	-395896.6	-588104.4	15.3397	-1203019.6	8.1121
4100	49.3362	182080.5	194.5474	615563.8	-390963.8	-588369.5	14.5559	-1202604.0	6.5093
4200	49.3523	187014.9	195.7365	635078.2	-386029.4	-588640.5	13.8089	-1202191.0	4.9833
4300	49.3673	191950.9	196.8979	654710.2	-381093.4	-588917.4	13.0961	-1201780.9	3.5288
4400	49.3813	196888.3	198.0330	674457.0	-376156.0	-589199.9	12.4160	-1201374.1	2.1409
4500	49.3944	201827.1	199.1429	694316.0	-371217.2	-589488.2	11.7658	-1200971.0	0.8152
4600	49.4066	206767.2	200.2287	714284.7	-366277.1	-589781.9	11.1432	-1200571.7	-0.4526
4700	49.4181	211708.4	201.2914	734360.9	-361335.9	-590081.2	10.5465	-1200176.7	-1.6659
4800	49.4289	216650.8	202.3319	754542.3	-356393.6	-590385.9	9.9746	-1199786.2	-2.8283
4900	49.4390	221594.2	203.3512	774826.6	-351450.1	-590696.0	9.4264	-1199400.5	-3.9430
5000	49.4486	226538.6	204.3501	795211.8	-346505.8	-591011.3	8.8990	-1199019.8	-5.0127
5100	49.4576	231483.9	205.3294	815695.9	-341560.4	-591331.9	8.3927	-1198644.5	-6.0401
5200	49.4660	236430.1	206.2898	836277.1	-336614.3	-591657.7	7.9050	-1198274.8	-7.0277
5300	49.4740	241377.1	207.2322	856953.3	-331667.3	-591988.6	7.4357	-1197911.0	-7.9777
5400	49.4816	246324.9	208.1570	877722.9	-326719.5	-592324.5	6.9836	-1197553.2	-8.8923
5500	49.4888	251273.4	209.0650	898584.2	-321770.9	-592665.5	6.5474	-1197201.9	-9.7733
5600	49.4956	256222.6	209.9568	919535.4	-316821.7	-593011.4	6.1268	-1196857.1	-10.6227
5700	49.5020	261172.5	210.8329	940575.0	-311871.8	-593362.3	5.7212	-1196519.2	-11.4420
5800	49.5081	266123.0	211.6939	961701.5	-306921.3	-593718.1	5.3285	-1196188.4	-12.2328
5900	49.5139	271074.1	212.5402	982913.3	-301970.2	-594078.7	4.9493	-1195864.8	-12.9967
6000	49.5194	276025.8	213.3725	1004209.0	-297018.6	-594444.2	4.5825	-1195548.8	-13.7348

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(40) BOF (gas); molecular weight, 45.82

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-146349.9	-143966.0	-------	-355088.2	--------
100	7.0684	697.0	44.7207	3775.0	-145652.9	-143969.2	315.4147	-355942.1	766.7122
200	8.3596	1461.4	49.9669	8531.9	-144888.4	-143982.7	158.0937	-356759.0	377.4199
298.15	9.6840	2349.9	53.5635	13620.1	-144000.0	-144000.0	106.3002	-357414.8	248.9827
300	9.7053	2367.8	53.6234	13719.2	-143982.1	-144000.4	105.6492	-357425.8	247.3671
400	10.6809	3389.8	56.5569	19232.9	-142960.0	-144044.9	79.4206	-357958.9	182.2285
500	11.3982	4495.4	59.0210	25015.1	-141854.4	-144116.6	63.6772	-358392.8	143.0917
600	11.9562	5664.2	61.1504	31026.0	-140685.7	-144202.1	53.1760	-358752.2	116.9714
700	12.4057	6883.1	63.0284	37236.8	-139466.8	-144297.4	45.6706	-359053.3	98.2967
800	12.7732	8142.6	64.7097	43625.1	-138207.2	-144399.8	40.0372	-359307.8	84.2798
900	13.0753	9435.6	66.2322	50173.4	-136914.3	-144512.3	35.6528	-359524.5	73.3706
1000	13.3247	10755.9	67.6232	56867.2	-135593.9	-144634.2	32.1424	-359710.5	64.6384
1100	13.5312	12099.1	68.9031	63694.4	-134250.8	-144767.5	29.2677	-359871.3	57.4903
1200	13.7030	13461.0	70.0881	70644.7	-132888.8	-144913.2	26.8697	-360011.2	51.5312
1300	13.8468	14838.7	71.1908	77709.3	-131511.1	-145069.3	24.8387	-360133.8	46.4869
1400	13.9679	16229.6	72.2215	84880.4	-130120.2	-145234.2	23.0957	-360241.9	42.1619
1500	14.0704	17631.7	73.1887	92151.4	-128718.2	-145405.8	21.5834	-360337.8	38.4125
1600	14.1578	19043.2	74.0997	99516.3	-127306.7	-145583.6	20.2586	-360423.4	35.1310
1700	14.2327	20462.8	74.9603	106969.7	-125887.0	-145767.1	19.0882	-360500.2	32.2348
1800	14.2973	21889.4	75.7757	114506.9	-124460.5	-145956.2	18.0465	-360569.4	29.6600
1900	14.3534	23322.0	76.5503	122123.5	-123027.9	-146150.8	17.1132	-360632.1	27.3557
2000	14.4022	24759.8	77.2878	129815.7	-121590.0	-146350.7	16.2722	-360689.2	25.2815
2100	14.4450	26202.2	77.9915	137579.9	-120147.6	-146555.8	15.5101	-360741.4	23.4046
2200	14.4828	27648.7	78.6644	145412.9	-118701.2	-146765.8	14.8163	-360789.3	21.6981
2300	14.5161	29098.7	79.3089	153311.8	-117251.2	-146980.8	14.1821	-360833.6	20.1398
[a]2400	14.5458	30551.8	79.9273	161273.8	-115798.1	-152550.8	13.5812	-360874.6	18.7111
2500	14.5722	32007.7	80.5217	169296.5	-114342.2	-152776.5	13.0252	-360912.8	17.3966
2600	14.5959	33466.1	81.0937	177377.4	-112883.8	-153003.6	12.5112	-360948.7	16.1831
2700	14.6171	34926.8	81.6449	185514.5	-111423.1	-153232.1	12.0346	-360982.4	15.0594
2800	14.6363	36389.5	82.1769	193705.8	-109960.4	-153462.2	11.5912	-361014.4	14.0159
2900	14.6537	37854.0	82.6908	201949.3	-108495.9	-153694.0	11.1779	-361044.9	13.0442
3000	14.6694	39320.2	83.1878	210243.4	-107029.7	-153927.7	10.7914	-361074.2	12.1372
3100	14.6837	40787.8	83.6691	218586.4	-105562.0	-154163.2	10.4296	-361102.4	11.2887
3200	14.6968	42256.9	84.1355	226976.7	-104093.0	-154400.7	10.0896	-361129.9	10.4932
3300	14.7088	43727.2	84.5879	235413.0	-102622.7	-154640.2	9.7699	-361156.9	9.7458
3400	14.7197	45198.6	85.0272	243893.8	-101151.3	-154881.7	9.4685	-361183.4	9.0423
3500	14.7298	46671.1	85.4540	252418.0	-99678.8	-155125.2	9.1837	-361209.8	8.3790
3600	14.7391	48144.5	85.8691	260984.3	-98205.3	-155370.7	8.9145	-361236.2	7.7525
3700	14.7477	49618.9	86.2731	269591.5	-96731.0	-155618.2	8.6595	-361262.6	7.1598
3800	14.7556	51094.0	86.6665	278238.5	-95255.8	-155867.7	8.4174	-361289.4	6.5982
3900	14.7629	52570.0	87.0498	286924.4	-93779.9	-156119.1	8.1873	-361316.5	6.0654
4000	14.7698	54046.6	87.4237	295648.2	-92303.3	-156372.5	7.9684	-361344.3	5.5593
4100	14.7761	55523.9	87.7885	304408.9	-90826.0	-156627.9	7.7599	-361372.7	5.0777
4200	14.7820	57001.8	88.1446	313205.6	-89348.1	-156885.1	7.5609	-361401.9	4.6191
4300	14.7875	58480.3	88.4925	322037.5	-87869.6	-157144.2	7.3708	-361432.1	4.1817
4400	14.7927	59959.3	88.8325	330903.8	-86390.6	-157405.2	7.1893	-361463.3	3.7643
4500	14.7975	61438.8	89.1650	339803.8	-84911.1	-157668.0	7.0155	-361495.6	3.3653
4600	14.8020	62918.8	89.4903	348736.6	-83431.1	-157932.7	6.8489	-361529.3	2.9836
4700	14.8062	64399.2	89.8087	357701.6	-81950.7	-158199.1	6.6889	-361564.3	2.6182
4800	14.8102	65880.0	90.1204	366698.1	-80469.8	-158467.3	6.5355	-361600.7	2.2679
4900	14.8140	67361.2	90.4259	375725.5	-78988.6	-158737.2	6.3883	-361638.7	1.9319
5000	14.8175	68842.8	90.7252	384783.1	-77507.1	-159008.9	6.2465	-361678.4	1.6093
5100	14.8208	70324.7	91.0186	393870.3	-76025.1	-159282.3	6.1102	-361719.8	1.2993
5200	14.8240	71807.0	91.3065	402986.6	-74542.9	-159557.4	5.9788	-361763.1	1.0012
5300	14.8269	73289.5	91.5889	412131.4	-73060.4	-159834.1	5.8521	-361808.3	0.7143
5400	14.8297	74772.3	91.8660	421304.2	-71577.5	-160112.5	5.7300	-361855.5	0.4380
5500	14.8324	76255.5	92.1382	430504.4	-70094.4	-160392.6	5.6120	-361904.7	0.1718
5600	14.8349	77738.8	92.4054	439731.7	-68611.1	-160674.3	5.4981	-361956.2	-0.0850
5700	14.8373	79222.4	92.6680	448985.4	-67127.4	-160957.6	5.3882	-362009.9	-0.3329
5800	14.8396	80706.3	92.9261	458265.1	-65643.6	-161242.5	5.2816	-362065.9	-0.5722
5900	14.8417	82190.3	93.1798	467570.5	-64159.5	-161529.0	5.1786	-362124.4	-0.8034
6000	14.8438	83674.6	93.4293	476900.9	-62675.3	-161817.1	5.0788	-362185.3	-1.0270

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(39) $(BOCl)_3$ (gas); molecular weight, 186.831

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-402244.6	-394967.2	-------	-1058914.2	--------
100	15.0705	1043.5	64.0641	5362.9	-401201.1	-396026.2	851.0493	-1062518.2	2272.0110
200	23.1540	2983.0	77.1848	12453.9	-399261.6	-396458.6	418.0981	-1065242.1	1109.7751
298.15	28.8075	5544.6	87.5307	20552.6	-396700.0	-396700.0	275.4500	-1067221.8	726.2692
300	28.9017	5598.0	87.7092	20714.7	-396646.6	-396703.3	273.6564	-1067254.0	721.4452
400	33.4409	8724.0	96.6708	29944.3	-393520.6	-396865.8	201.3939	-1068763.8	526.9501
500	36.9720	12252.5	104.5298	40012.4	-389992.1	-396941.9	158.0231	-1069880.4	410.1069
600	39.6428	16089.7	111.5183	50821.3	-386155.0	-396923.8	129.1076	-1070686.2	332.1407
700	41.6434	20158.8	117.7869	62292.1	-382085.9	-396839.5	108.4570	-1071250.0	276.4147
800	43.1481	24401.9	123.4505	74358.6	-377842.8	-396713.9	92.9717	-1071626.2	234.6017
900	44.2926	28776.4	128.6017	86965.1	-373468.2	-396579.1	80.9326	-1071856.4	202.0713
1000	45.1755	33251.7	133.3161	100064.4	-368992.9	-396447.9	71.3045	-1071972.2	176.0428
1100	45.8665	37805.2	137.6555	113615.8	-364439.5	-396335.4	63.4294	-1071997.1	154.7453
1200	46.4153	42420.3	141.6708	127584.7	-359824.4	-396250.4	56.8683	-1071949.1	136.9976
1300	46.8570	47084.7	145.4041	141940.6	-355160.0	-396191.3	51.3180	-1071842.0	121.9814
1400	47.2170	51789.0	148.8902	156657.2	-350455.7	-396154.8	46.5606	-1071686.4	109.1120
1500	47.5138	56526.0	152.1582	171711.4	-345718.6	-396136.7	42.4380	-1071490.5	97.9603
1600	47.7611	61290.1	155.2328	187082.4	-340954.5	-396135.8	38.8311	-1071261.0	88.2045
1700	47.9690	66076.9	158.1348	202752.2	-336167.7	-396151.3	35.6482	-1071003.1	79.5984
1800	48.1454	70882.9	160.8817	218704.2	-331361.8	-396183.5	32.8189	-1070721.0	71.9505
1900	48.2963	75705.1	163.4889	234923.9	-326539.5	-396232.1	30.2871	-1070418.2	65.1095
2000	48.4262	80541.4	165.9696	251397.8	-321703.2	-396296.4	28.0083	-1070097.7	58.9544
2100	48.5389	85389.8	168.3351	268114.0	-316854.8	-396376.3	25.9460	-1069761.8	53.3872
2200	48.6372	90248.7	170.5955	285061.3	-311995.9	-396471.2	24.0706	-1069412.6	48.3277
2300	48.7235	95116.8	172.7594	302229.8	-307127.8	-396580.7	22.3582	-1069051.9	43.7097
[a]2400	48.7996	99993.1	174.8347	319610.2	-302251.6	-412755.0	20.7324	-1068681.1	39.4780
2500	48.8670	104876.5	176.8282	337194.1	-297368.2	-412896.6	19.2289	-1068301.7	35.5862
2600	48.9271	109766.2	178.7460	354973.4	-292478.4	-413041.9	17.8405	-1067914.8	31.9951
2700	48.9808	114661.7	180.5936	372940.9	-287583.0	-413191.2	16.5545	-1067521.4	28.6711
2800	49.0290	119562.2	182.3758	391089.9	-282682.4	-413345.1	15.3597	-1067122.6	25.5858
2900	49.0724	124467.3	184.0970	409414.0	-277777.3	-413503.9	14.2471	-1066719.2	22.7143
3000	49.1116	129376.5	185.7613	427907.4	-272868.1	-413667.7	13.2077	-1066311.9	20.0353
3100	49.1472	134289.5	187.3723	446564.5	-267955.1	-413836.8	12.2361	-1065901.6	17.5300
3200	49.1796	139205.9	188.9332	465380.2	-263038.7	-414011.2	11.3236	-1065488.8	15.1823
3300	49.2091	144125.3	190.4469	484349.6	-258119.3	-414191.1	10.4672	-1065074.3	12.9777
3400	49.2361	149047.6	191.9164	503468.1	-253197.0	-414376.4	9.6602	-1064658.5	10.9036
3500	49.2609	153972.5	193.3440	522731.5	-248272.1	-414567.2	8.8986	-1064242.1	8.9487
3600	49.2837	158899.7	194.7320	542135.6	-243344.9	-414763.4	8.1796	-1063825.5	7.1032
3700	49.3046	163829.2	196.0826	561676.6	-238415.5	-414965.0	7.4993	-1063409.3	5.3582
3800	49.3240	168760.6	197.3978	581350.9	-233484.0	-415171.9	6.8541	-1062993.8	3.7056
3900	49.3419	173693.9	198.6792	601155.1	-228550.7	-415384.1	6.2416	-1062579.6	2.1384
4000	49.3585	178629.0	199.9287	621085.7	-223615.7	-415601.4	5.6595	-1062167.0	0.6501
4100	49.3739	183565.6	201.1477	641139.8	-218679.0	-415823.7	5.1056	-1061756.4	-0.7650
4200	49.3883	188503.7	202.3376	661314.3	-213740.9	-416051.1	4.5776	-1061348.2	-2.1122
4300	49.4016	193443.2	203.4999	681606.4	-208801.4	-416283.4	4.0737	-1060942.7	-3.3963
4400	49.4141	198384.0	204.6358	702013.4	-203860.6	-416520.5	3.5930	-1060540.4	-4.6215
4500	49.4258	203326.0	205.7464	722532.7	-198918.6	-416762.3	3.1335	-1060141.5	-5.7919
4600	49.4367	208269.1	206.8328	743161.8	-193975.5	-417008.8	2.6932	-1059746.3	-6.9109
4700	49.4469	213213.3	207.8961	763898.5	-189031.3	-417259.8	2.2711	-1059355.3	-7.9819
4800	49.4565	218158.5	208.9373	784740.3	-184086.1	-417515.3	1.8668	-1058968.5	-9.0079
4900	49.4656	223104.6	209.9571	805685.2	-179140.0	-417775.3	1.4791	-1058586.5	-9.9917
5000	49.4741	228051.6	210.9565	826731.1	-174193.0	-418039.6	1.1060	-1058209.4	-10.9358
5100	49.4821	232999.4	211.9363	847875.9	-169245.2	-418308.2	0.7480	-1057837.5	-11.8426
5200	49.4896	237948.0	212.8973	869117.7	-164296.6	-418581.0	0.4029	-1057471.1	-12.7141
5300	49.4968	242897.3	213.8400	890454.7	-159347.3	-418858.0	0.0708	-1057110.5	-13.5525
5400	49.5035	247847.4	214.7653	911885.1	-154397.3	-419139.1	-0.2490	-1056755.8	-14.3596
5500	49.5099	252798.0	215.6737	933407.2	-149446.6	-419424.3	-0.5578	-1056407.4	-15.1370
5600	49.5159	257749.3	216.5658	955019.3	-144495.3	-419713.5	-0.8554	-1056065.5	-15.8865
5700	49.5217	262701.2	217.4423	976719.9	-139543.4	-420006.7	-1.1423	-1055730.4	-16.6094
5800	49.5271	267653.6	218.3036	998507.3	-134591.0	-420303.8	-1.4205	-1055402.3	-17.3072
5900	49.5323	272606.6	219.1503	1020380.1	-129638.0	-420604.8	-1.6888	-1055081.4	-17.9811
6000	49.5372	277560.1	219.9828	1042336.9	-124684.6	-420909.7	-1.9485	-1054767.9	-18.6323

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(38) BOCl (gas); molecular weight, 62.277

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-90510.1	-88084.3	-------	-309400.0	--------
100	7.2239	699.6	46.8935	3989.7	-89810.5	-88085.6	193.2749	-310249.5	666.9288
200	9.0902	1511.0	52.4412	8977.3	-88999.2	-88064.8	97.0290	-310992.7	327.5880
298.15	10.5555	2481.1	56.3680	14325.1	-88029.1	-88029.1	65.3580	-311536.4	215.6310
300	10.5765	2500.6	56.4334	14429.4	-88009.5	-88028.4	64.9599	-311545.3	214.2228
400	11.4695	3606.4	59.6083	20237.0	-86903.8	-88018.8	48.9292	-311984.8	157.4479
500	12.0709	4785.0	62.2359	26332.9	-85725.1	-88041.7	39.3103	-312354.6	123.3382
600	12.5280	6015.8	64.4787	32671.4	-84494.3	-88083.9	32.8955	-312671.4	100.5732
700	12.8952	7287.6	66.4384	39219.3	-83222.5	-88140.4	28.3111	-312943.9	84.2970
800	13.1954	8592.7	68.1806	45951.8	-81917.5	-88207.9	24.8699	-313178.6	72.0799
900	13.4417	9924.9	69.7495	52849.6	-80585.2	-88288.9	22.1915	-313381.3	62.5711
1000	13.6444	11279.5	71.1766	59897.0	-79230.6	-88382.3	20.0466	-313557.0	54.9594
1100	13.8117	12652.6	72.4851	67081.0	-77857.5	-88489.5	18.2897	-313710.1	48.7284
1200	13.9505	14040.9	73.6930	74390.7	-76469.2	-88611.2	16.8237	-313844.1	43.5335
1300	14.0662	15441.9	74.8143	81816.7	-75068.2	-88745.3	15.5816	-313962.2	39.1360
1400	14.1633	16853.6	75.8604	89351.0	-73656.6	-88889.6	14.5150	-314066.8	35.3655
1500	14.2454	18274.1	76.8405	96986.6	-72236.0	-89042.1	13.5892	-314160.0	32.0966
1600	14.3151	19702.2	77.7621	104717.2	-70807.9	-89201.7	12.7777	-314243.4	29.2355
1700	14.3748	21136.8	78.6318	112537.3	-69373.3	-89367.9	12.0604	-314318.4	26.7104
1800	14.4262	22576.9	79.4550	120442.0	-67933.2	-89540.5	11.4215	-314386.3	24.4654
1900	14.4707	24021.8	80.2362	128426.9	-66488.3	-89719.2	10.8488	-314447.9	22.4563
2000	14.5094	25470.9	80.9794	136488.0	-65039.3	-89903.7	10.3324	-314504.1	20.6477
2100	14.5433	26923.5	81.6882	144621.6	-63586.6	-90093.8	9.8641	-314555.6	19.0111
2200	14.5732	28379.4	82.3654	152824.6	-62130.7	-90289.2	9.4373	-314603.0	17.5231
2300	14.5995	29838.1	83.0138	161093.7	-60672.1	-90489.7	9.0470	-314646.8	16.1642
[a]2400	14.6229	31299.2	83.6357	169426.4	-59210.9	-96045.4	8.6699	-314687.5	14.9184
2500	14.6438	32762.6	84.2331	177820.1	-57747.6	-96257.1	8.3197	-314725.4	13.7722
2600	14.6624	34227.9	84.8078	186272.3	-56282.3	-96470.1	7.9958	-314761.0	12.7139
2700	14.6792	35695.0	85.3614	194780.9	-54815.2	-96684.6	7.6951	-314794.6	11.7340
2800	14.6943	37163.7	85.8956	203343.9	-53346.5	-96900.7	7.4153	-314826.5	10.8240
2900	14.7079	38633.8	86.4115	211959.4	-51876.3	-97118.5	7.1542	-314857.0	9.9766
3000	14.7203	40105.2	86.9103	220625.6	-50404.9	-97338.1	6.9098	-314886.2	9.1857
3100	14.7316	41577.8	87.3932	229340.9	-48932.3	-97559.5	6.6811	-314914.5	8.4457
3200	14.7419	43051.5	87.8610	238103.8	-47458.6	-97782.8	6.4657	-314942.0	7.7519
3300	14.7512	44526.2	88.3148	246912.7	-45984.0	-98007.9	6.2633	-314969.0	7.1001
3400	14.7599	46001.7	88.7553	255766.3	-44508.4	-98234.9	6.0721	-314995.6	6.4866
3500	14.7678	47478.1	89.1833	264663.3	-43032.0	-98463.7	5.8914	-315022.0	5.9081
3600	14.7750	48955.3	89.5994	273602.6	-41554.9	-98694.4	5.7205	-315048.4	5.3617
3700	14.7818	50433.1	90.0043	282582.8	-40077.0	-98926.9	5.5585	-315075.0	4.8448
3800	14.7880	51911.6	90.3986	291603.1	-38598.5	-99161.2	5.4045	-315101.8	4.3550
3900	14.7937	53390.7	90.7828	300662.2	-37119.5	-99397.2	5.2581	-315129.1	3.8903
4000	14.7991	54870.3	91.1574	309759.3	-35639.8	-99635.0	5.1187	-315156.9	3.4489
4100	14.8041	56350.5	91.5229	318893.4	-34159.7	-99874.6	4.9858	-315185.4	3.0289
4200	14.8087	57831.1	91.8797	328063.6	-32679.0	-100115.7	4.8588	-315214.8	2.6289
4300	14.8130	59312.2	92.2282	337269.0	-31197.9	-100358.6	4.7374	-315245.0	2.2474
4400	14.8170	60793.7	92.5688	346509.0	-29716.4	-100603.0	4.6214	-315276.4	1.8833
4500	14.8208	62275.6	92.9018	355782.6	-28234.5	-100849.1	4.5104	-315308.8	1.5353
4600	14.8243	63757.9	93.2276	365089.1	-26752.3	-101096.7	4.4037	-315342.6	1.2024
4700	14.8277	65240.5	93.5465	374427.8	-25269.7	-101345.8	4.3013	-315377.7	0.8836
4800	14.8308	66723.4	93.8587	383798.2	-23786.7	-101596.5	4.2030	-315414.2	0.5781
4900	14.8337	68206.6	94.1645	393199.4	-22303.5	-101848.6	4.1086	-315452.3	0.2850
5000	14.8365	69690.1	94.4642	402630.8	-20820.0	-102102.2	4.0175	-315492.1	0.0036
5100	14.8391	71173.9	94.7580	412092.0	-19336.2	-102357.2	3.9300	-315533.7	-0.2668
5200	14.8415	72657.9	95.0462	421582.3	-17852.2	-102613.7	3.8455	-315577.0	-0.5269
5300	14.8439	74142.2	95.3289	431101.1	-16367.9	-102871.5	3.7640	-315622.3	-0.7771
5400	14.8461	75626.7	95.6064	440647.9	-14883.4	-103130.7	3.6854	-315669.6	-1.0181
5500	14.8481	77111.4	95.8788	450222.2	-13398.7	-103391.3	3.6093	-315719.0	-1.2504
5600	14.8501	78596.3	96.1464	459823.5	-11913.8	-103653.2	3.5359	-315770.6	-1.4745
5700	14.8520	80081.4	96.4093	469451.3	-10428.7	-103916.5	3.4650	-315824.4	-1.6907
5800	14.8537	81566.7	96.6676	479105.2	-8943.4	-104181.0	3.3961	-315880.5	-1.8995
5900	14.8554	83052.2	96.9215	488784.7	-7458.0	-104446.9	3.3295	-315939.1	-2.1012
6000	14.8570	84537.8	97.1712	498489.3	-5972.3	-104714.0	3.2650	-316000.1	-2.2963

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(37) B_2O_3 (crystal, liquid); molecular weight, 69.64

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-307558.3	-303862.8	-------	-748383.8	--------
100	4.987	181.6	2.624	80.8	-307376.7	-304733.7	652.9309	-750834.5	1606.5150
200	10.499	967.3	7.850	602.7	-306591.0	-305151.5	319.7453	-752717.0	785.2309
298.15	15.050	2218.3	12.870	1618.9	-305340.0	-305340.0	209.9439	-754009.9	514.2509
300	15.137	2246.9	12.976	1645.9	-305311.4	-305340.7	208.5658	-754028.8	510.8450
400	18.43	3936.3	17.813	3188.9	-303622.0	-305369.3	152.9530	-754887.2	373.4480
500	21.12	5920.1	22.233	5196.4	-301638.2	-305300.3	119.5885	-755428.8	290.9327
600	23.26	8142.1	26.273	7621.7	-299416.2	-305133.1	97.3526	-755719.7	235.8899
700	25.15	10564.4	30.003	10437.7	-296993.9	-304877.8	81.4819	-755802.6	196.5645
[b]723.15	25.57	11151.5	30.833	11145.4	-296406.8	-304062.0	78.2709	-753962.7	188.6046
723.15	30.45	16778.2	38.614	11145.4	-290780.1	-298623.9	78.2709	-748818.2	188.6046
800	30.45	19118.3	41.6893	14233.1	-288440.0	-298582.3	69.7589	-749748.9	167.2400
900	30.45	22163.3	45.2758	18584.9	-285395.0	-297880.4	60.7067	-749200.7	144.4911
1000	30.45	25208.3	48.4840	23275.7	-282350.0	-297250.9	53.4812	-748650.1	126.3053
1100	30.45	28253.3	51.3862	28271.5	-279305.0	-296688.3	47.5812	-748097.6	111.4370
1200	30.45	31298.3	54.0357	33544.5	-276260.0	-296187.2	42.6733	-747543.8	99.0560
1300	30.45	34343.3	56.4730	39071.6	-273215.0	-295737.8	38.5273	-746989.0	88.5875
1400	30.45	37388.3	58.7296	44833.1	-270170.0	-295331.6	34.9784	-746433.2	79.6211
1500	30.45	40433.3	60.8304	50812.3	-267125.0	-294960.9	31.9069	-745876.9	71.8561
1600	30.45	43478.3	62.7956	56994.7	-264080.0	-294620.9	29.2227	-745319.9	65.0668
1700	30.45	46523.3	64.6416	63367.5	-261035.0	-294308.2	26.8567	-744762.6	59.0807
1800	30.45	49568.3	66.3821	69919.5	-257990.0	-294020.7	24.7559	-744204.9	53.7637
1900	30.45	52613.3	68.0285	76640.8	-254945.0	-293756.2	22.8779	-743647.1	49.0099
2000	30.45	55658.3	69.5903	83522.4	-251900.0	-293512.8	21.1893	-743089.1	44.7348
2100	30.45	58703.3	71.0760	90556.3	-248855.0	-293289.2	19.6626	-742531.1	40.8697
2200	30.45	61748.3	72.4925	97735.3	-245810.0	-293083.9	18.2756	-741973.2	37.3586
2300	30.45	64793.3	73.8461	105052.7	-242765.0	-292895.8	17.0103	-741415.6	34.1552
[c]2400	30.45	67838.3	75.1420	112502.6	-239720.0	-303424.2	15.8141	-740858.4	31.2210
2500	30.45	70883.3	76.3851	120079.4	-236675.0	-303270.3	14.7093	-740301.7	28.5235
2600	30.45	73928.3	77.5793	127778.0	-233630.0	-303124.3	13.6899	-739745.9	26.0355
2700	30.45	76973.3	78.7285	135593.7	-230585.0	-302986.1	12.7465	-739191.0	23.7334
2800	30.45	80018.3	79.8359	143522.3	-227540.0	-302855.5	11.8707	-738637.2	21.5974
2900	30.45	83063.3	80.9045	151559.6	-224495.0	-302732.3	11.0559	-738084.9	19.6102
3000	30.45	86108.3	81.9368	159702.0	-221450.0	-302616.4	10.2953	-737534.1	17.7569
3100	30.45	89153.3	82.9352	167945.8	-218405.0	-302507.5	9.5847	-736985.1	16.0244
3200	30.45	92198.3	83.9020	176287.9	-215360.0	-302405.4	8.9180	-736438.1	14.4014
3300	30.45	95243.3	84.8390	184725.2	-212315.0	-302309.9	8.2926	-735893.4	12.8779
3400	30.45	98288.3	85.7480	193254.8	-209270.0	-302220.7	7.7038	-735351.1	11.4451
3500	30.45	101333.3	86.6306	201873.9	-206225.0	-302137.6	7.1486	-734811.5	10.0951
3600	30.45	104378.3	87.4884	210580.1	-203180.0	-302060.4	6.6248	-734274.8	8.8211
3700	30.45	107423.3	88.3227	219370.8	-200135.0	-301988.9	6.1294	-733741.2	7.6168
3800	30.45	110468.3	89.1348	228243.9	-197090.0	-301922.8	5.6601	-733210.9	6.4767
3900	30.45	113513.3	89.9257	237197.1	-194045.0	-301861.9	5.2149	-732684.1	5.3959
4000	30.45	116558.3	90.6967	246228.4	-191000.0	-301805.9	4.7920	-732161.0	4.3698
4100	30.45	119603.3	91.4486	255335.8	-187955.0	-301754.8	4.3899	-731641.8	3.3945
4200	30.45	122648.3	92.1823	264517.5	-184910.0	-301708.2	4.0069	-731126.6	2.4663
4300	30.45	125693.3	92.8988	273771.7	-181865.0	-301666.1	3.6416	-730615.7	1.5819
4400	30.45	128738.3	93.5989	283096.7	-178820.0	-301628.1	3.2933	-730109.2	0.7383
4500	30.45	131783.3	94.2832	292491.0	-175775.0	-301594.3	2.9607	-729607.2	-0.0673
4600	30.45	134828.3	94.9524	301952.9	-172730.0	-301564.3	2.6422	-729110.0	-0.8373
4700	30.45	137873.3	95.6073	311480.9	-169685.0	-301538.0	2.3371	-728617.6	-1.5740
4800	30.45	140918.3	96.2484	321073.9	-166640.0	-301515.4	2.0450	-728130.3	-2.2796
4900	30.45	143963.3	96.8762	330730.2	-163595.0	-301496.2	1.7651	-727648.1	-2.9559
5000	30.45	147008.3	97.4914	340448.7	-160550.0	-301480.4	1.4960	-727171.2	-3.6048
5100	30.45	150053.3	98.0944	350228.1	-157505.0	-301467.8	1.2378	-726699.7	-4.2278
5200	30.45	153098.3	98.6857	360067.2	-154460.0	-301458.4	0.9892	-726233.8	-4.8264
5300	30.45	156143.3	99.2657	369964.8	-151415.0	-301452.0	0.7501	-725773.6	-5.4021
5400	30.45	159188.3	99.8349	379919.9	-148370.0	-301448.6	0.5200	-725319.2	-5.9561
5500	30.45	162233.3	100.3936	389931.4	-145325.0	-301448.0	0.2981	-724870.8	-6.4897
5600	30.45	165278.3	100.9422	399998.3	-142280.0	-301450.2	0.0842	-724428.3	-7.0039
5700	30.45	168323.3	101.4812	410119.6	-139235.0	-301455.1	-0.1218	-723992.0	-7.4997
5800	30.45	171368.3	102.0108	420294.2	-136190.0	-301462.6	-0.3214	-723562.0	-7.9781
5900	30.45	174413.3	102.5313	430521.4	-133145.0	-301472.7	-0.5138	-723138.3	-8.4401
6000	30.45	177458.3	103.0431	440800.2	-130100.0	-301485.2	-0.6999	-722721.1	-8.8864

[a] H_0° refers to crystal state.

[b] Melting point.

[c] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(36) B_2O_3 (glass, liquid); molecular weight, 69.64

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
298.15	14.25	6578.3	18.64	-1020.8	-300980.0	-300980.0	208.0091	-749649.9	512.3161
300	14.35	6604.3	18.73	-985.3	-300954.0	-300983.3	206.6490	-749671.4	508.9282
400	18.43	8261.8	23.47	1126.2	-299296.5	-301043.8	151.8261	-750561.7	372.3210
500	21.12	10245.6	27.88	3694.4	-297312.7	-300974.8	118.9320	-751103.3	290.2762
[b]560	30.45	11810.3	30.8285	5453.7	-295748.0	-300160.1	104.6632	-749908.4	254.6578
560	30.45	11810.3	30.8285	5453.7	-295748.0	-300160.1	104.6632	-749908.4	254.6578
600	30.45	13028.3	32.9294	6729.3	-294530.0	-300246.9	97.0276	-750833.5	235.5649
700	30.45	16073.3	37.6233	10263.0	-291485.0	-299368.9	81.4274	-750293.7	196.5100
800	30.45	19118.3	41.6893	14233.1	-288440.0	-298582.3	69.7589	-749748.9	167.2400
900	30.45	22163.3	45.2758	18584.9	-285395.0	-297880.4	60.7067	-749200.7	144.4911
1000	30.45	25208.3	48.4840	23275.7	-282350.0	-297250.9	53.4812	-748650.1	126.3053
1100	30.45	28253.3	51.3862	28271.5	-279305.0	-296688.3	47.5812	-748097.6	111.4370
1200	30.45	31298.3	54.0357	33544.5	-276260.0	-296187.2	42.6733	-747543.8	99.0560
1300	30.45	34343.3	56.4730	39071.6	-273215.0	-295737.8	38.5273	-746989.0	88.5875
1400	30.45	37388.3	58.7296	44833.1	-270170.0	-295331.6	34.9784	-746433.2	79.6211
1500	30.45	40433.3	60.8304	50812.3	-267125.0	-294960.9	31.9069	-745876.9	71.8561
1600	30.45	43478.3	62.7956	56994.7	-264080.0	-294620.9	29.2227	-745319.9	65.0668
1700	30.45	46523.3	64.6416	63367.5	-261035.0	-294308.2	26.8567	-744762.6	59.0807
1800	30.45	49568.3	66.3821	69919.5	-257990.0	-294020.7	24.7559	-744204.9	53.7637
1900	30.45	52613.3	68.0285	76640.8	-254945.0	-293756.2	22.8779	-743647.1	49.0099
2000	30.45	55658.3	69.5903	83522.4	-251900.0	-293512.8	21.1893	-743089.1	44.7348
2100	30.45	58703.3	71.0760	90556.3	-248855.0	-293289.2	19.6626	-742531.1	40.8697
2200	30.45	61748.3	72.4925	97735.3	-245810.0	-293083.9	18.2756	-741973.2	37.3586
2300	30.45	64793.3	73.8461	105052.7	-242765.0	-292895.8	17.0103	-741415.6	34.1552
[c]2400	30.45	67838.3	75.1420	112502.6	-239720.0	-303424.2	15.8141	-740858.4	31.2210
2500	30.45	70883.3	76.3851	120079.4	-236675.0	-303270.3	14.7093	-740301.7	28.5235
2600	30.45	73928.3	77.5793	127778.0	-233630.0	-303124.3	13.6899	-739745.9	26.0355
2700	30.45	76973.3	78.7285	135593.7	-230585.0	-302986.1	12.7465	-739191.0	23.7334
2800	30.45	80018.3	79.8359	143522.3	-227540.0	-302855.5	11.8707	-738637.2	21.5974
2900	30.45	83063.3	80.9045	151559.6	-224495.0	-302732.3	11.0559	-738084.9	19.6102
3000	30.45	86108.3	81.9368	159702.0	-221450.0	-302616.4	10.2953	-737534.1	17.7569
3100	30.45	89153.3	82.9352	167945.8	-218405.0	-302507.5	9.5847	-736985.1	16.0244
3200	30.45	92198.3	83.9020	176287.9	-215360.0	-302405.4	8.9180	-736438.1	14.4014
3300	30.45	95243.3	84.8390	184725.2	-212315.0	-302309.9	8.2926	-735893.4	12.8779
3400	30.45	98288.3	85.7480	193254.8	-209270.0	-302220.7	7.7038	-735351.1	11.4451
3500	30.45	101333.3	86.6306	201873.9	-206225.0	-302137.6	7.1486	-734811.5	10.0951
3600	30.45	104378.3	87.4884	210580.1	-203180.0	-302060.4	6.6248	-734274.8	8.8211
3700	30.45	107423.3	88.3227	219370.8	-200135.0	-301988.9	6.1294	-733741.2	7.6168
3800	30.45	110468.3	89.1348	228243.9	-197090.0	-301922.8	5.6601	-733210.9	6.4767
3900	30.45	113513.3	89.9257	237197.1	-194045.0	-301861.9	5.2149	-732684.1	5.3959
4000	30.45	116558.3	90.6967	246228.4	-191000.0	-301805.9	4.7920	-732161.0	4.3698
4100	30.45	119603.3	91.4486	255335.8	-187955.0	-301754.8	4.3899	-731641.8	3.3945
4200	30.45	122648.3	92.1823	264517.5	-184910.0	-301708.2	4.0069	-731126.6	2.4663
4300	30.45	125693.3	92.8988	273771.7	-181865.0	-301666.1	3.6416	-730615.7	1.5819
4400	30.45	128738.3	93.5989	283096.7	-178820.0	-301628.1	3.2933	-730109.2	0.7383
4500	30.45	131783.3	94.2832	292491.0	-175775.0	-301594.3	2.9607	-729607.2	-0.0673
4600	30.45	134828.3	94.9524	301952.9	-172730.0	-301564.3	2.6422	-729110.0	-0.8373
4700	30.45	137873.3	95.6073	311480.9	-169685.0	-301538.0	2.3371	-728617.6	-1.5740
4800	30.45	140918.3	96.2484	321073.9	-166640.0	-301515.4	2.0450	-728130.3	-2.2796
4900	30.45	143963.3	96.8762	330730.2	-163595.0	-301496.2	1.7651	-727648.1	-2.9559
5000	30.45	147008.3	97.4914	340448.7	-160550.0	-301480.4	1.4960	-727171.2	-3.6048
5100	30.45	150053.3	98.0944	350228.1	-157505.0	-301467.8	1.2378	-726699.7	-4.2278
5200	30.45	153098.3	98.6857	360067.2	-154460.0	-301458.4	0.9892	-726233.8	-4.8264
5300	30.45	156143.3	99.2657	369964.8	-151415.0	-301452.0	0.7501	-725773.6	-5.4021
5400	30.45	159188.3	99.8349	379919.9	-148370.0	-301448.6	0.5200	-725319.2	-5.9561
5500	30.45	162233.3	100.3936	389931.4	-145325.0	-301448.0	0.2981	-724870.8	-6.4897
5600	30.45	165278.3	100.9422	399998.3	-142280.0	-301450.2	0.0842	-724428.3	-7.0039
5700	30.45	168323.3	101.4812	410119.6	-139235.0	-301455.1	-0.1218	-723992.0	-7.4997
5800	30.45	171368.3	102.0108	420294.2	-136190.0	-301462.6	-0.3214	-723562.0	-7.9781
5900	30.45	174413.3	102.5313	430521.4	-133145.0	-301472.7	-0.5138	-723138.3	-8.4401
6000	30.45	177458.3	103.0431	440800.2	-130100.0	-301485.2	-0.6999	-722721.1	-8.8864

[a]H_0 refers to crystal state.

[b]Melting point.

[c]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(35) B_2O_3 (gas); molecular weight, 69.64

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-205343.4	-201647.9	-------	-646169.0	--------
100	9.0459	819.0	53.7820	4559.2	-204524.4	-201881.4	439.3382	-647982.1	1392.9223
200	12.9699	1918.5	61.2435	10330.2	-203425.0	-201985.5	218.6848	-649551.0	684.1704
298.15	15.8476	3343.4	67.0021	16633.2	-202000.0	-202000.0	146.0273	-650669.9	450.3343
300	15.8903	3372.8	67.1003	16757.3	-201970.6	-201999.9	145.1140	-650688.0	447.3932
400	17.7836	5062.4	71.9480	23716.8	-200281.0	-202028.3	108.3235	-651546.2	328.8184
500	19.1571	6912.5	76.0707	31122.8	-198430.9	-202093.0	86.2445	-652221.5	257.5886
600	20.2369	8884.2	79.6625	38913.3	-196459.2	-202176.1	71.5201	-652762.7	210.0574
700	21.1118	10953.1	82.8500	47041.9	-194390.3	-202274.2	60.9983	-653199.0	176.0809
800	21.8262	13101.2	85.7173	55472.7	-192242.2	-202384.6	53.1020	-653551.1	150.5831
900	22.4106	15314.0	88.3230	64176.7	-190029.4	-202514.8	46.9574	-653835.1	130.7418
1000	22.8896	17579.8	90.7098	73130.0	-187763.6	-202664.5	42.0383	-654063.7	114.8625
1100	23.2839	19889.1	92.9105	82312.4	-185454.3	-202837.6	38.0103	-654246.9	101.8662
1200	23.6101	22234.3	94.9509	91706.7	-183109.1	-203036.3	34.6506	-654392.9	91.0333
1300	23.8815	24609.3	96.8518	101297.9	-180734.1	-203256.9	31.8049	-654508.1	81.8651
1400	24.1090	27009.2	98.6301	111073.0	-178334.2	-203495.9	29.3627	-654597.5	74.0055
1500	24.3009	29429.9	100.3002	121020.4	-175913.5	-203749.4	27.2437	-654665.4	67.1929
1600	24.4638	31868.4	101.8739	131129.8	-173475.0	-204015.9	25.3874	-654715.0	61.2314
1700	24.6031	34321.9	103.3613	141392.3	-171021.5	-204294.7	23.7470	-654749.1	55.9710
1800	24.7229	36788.4	104.7710	151799.5	-168555.1	-204585.7	22.2870	-654770.0	51.2948
1900	24.8266	39266.0	106.1106	162344.1	-166077.5	-204888.7	20.9787	-654779.5	47.1108
2000	24.9168	41753.2	107.3864	173019.5	-163590.2	-205203.0	19.7997	-654779.3	43.3451
2100	24.9958	44249.0	108.6040	183819.5	-161094.5	-205528.7	18.7310	-654770.5	39.9381
2200	25.0652	46752.1	109.7685	194738.5	-158591.4	-205865.2	17.7579	-654754.6	36.8409
2300	25.1265	49261.7	110.8840	205771.5	-156081.7	-206212.5	16.8682	-654732.3	34.0131
[a]2400	25.1809	51777.1	111.9546	216913.8	-153566.3	-217270.5	16.0141	-654704.7	31.4210
2500	25.2293	54297.7	112.9835	228161.1	-151045.7	-217641.1	15.2221	-654672.5	29.0364
2600	25.2727	56822.8	113.9739	239509.2	-148520.6	-218014.9	14.4898	-654636.5	26.8354
2700	25.3117	59352.1	114.9284	250954.6	-145991.3	-218392.5	13.8106	-654597.3	24.7975
2800	25.3467	61885.0	115.8496	262493.8	-143458.4	-218773.9	13.1786	-654555.6	22.9053
2900	25.3784	64421.3	116.7396	274123.5	-140922.1	-219159.5	12.5894	-654512.0	21.1437
3000	25.4072	66960.6	117.6005	285840.8	-138382.8	-219549.2	12.0380	-654466.9	19.4996
3100	25.4334	69502.7	118.4340	297642.7	-135840.7	-219943.3	11.5221	-654420.8	17.9618
3200	25.4572	72047.2	119.2419	309526.7	-133296.2	-220341.6	11.0367	-654374.3	16.5201
3300	25.4790	74594.1	120.0256	321490.3	-130749.4	-220744.3	10.5806	-654327.8	15.1659
3400	25.4990	77143.0	120.7865	333531.1	-128200.5	-221151.2	10.1503	-654281.6	13.8915
3500	25.5173	79693.8	121.5259	345646.8	-125649.6	-221562.3	9.7435	-654236.2	12.6900
3600	25.5343	82246.4	122.2450	357835.6	-123097.0	-221977.5	9.3590	-654191.9	11.5553
3700	25.5499	84800.6	122.9448	370095.2	-120542.8	-222396.7	8.9946	-654149.0	10.4820
3800	25.5643	87356.3	123.6264	382423.9	-117987.1	-222819.9	8.6486	-654108.0	9.4653
3900	25.5776	89913.4	124.2906	394819.9	-115430.0	-223246.9	8.3197	-654069.1	8.5007
4000	25.5900	92471.8	124.9383	407281.5	-112871.6	-223677.6	8.0066	-654032.6	7.5845
4100	25.6016	95031.4	125.5704	419807.1	-110312.0	-224111.8	7.7083	-653998.8	6.7130
4200	25.6123	97592.1	126.1874	432395.1	-107751.3	-224549.6	7.4235	-653968.0	5.8830
4300	25.6223	100153.8	126.7902	445044.1	-105189.6	-224990.7	7.1513	-653940.3	5.0916
4400	25.6317	102716.6	127.3794	457752.6	-102626.9	-225435.0	6.8913	-653916.1	4.3363
4500	25.6404	105280.2	127.9555	470519.5	-100063.3	-225882.5	6.6425	-653895.5	3.6146
4600	25.6486	107844.6	128.5191	483343.3	-97498.8	-226333.1	6.4037	-653878.8	2.9242
4700	25.6563	110409.9	129.0708	496222.9	-94933.6	-226786.6	6.1744	-653866.2	2.2633
4800	25.6636	112975.9	129.6110	509157.1	-92367.6	-227242.9	5.9545	-653857.8	1.6299
4900	25.6704	115542.6	130.1403	522144.8	-89800.9	-227702.1	5.7434	-653853.9	1.0224
5000	25.6768	118109.9	130.6589	535184.8	-87233.5	-228163.9	5.5399	-653854.7	0.4391
5100	25.6828	120677.9	131.1675	548276.2	-84665.5	-228628.4	5.3444	-653860.3	-0.1212
5200	25.6885	123246.5	131.6662	561418.0	-82096.9	-229095.4	5.1556	-653870.8	-0.6601
5300	25.6939	125815.6	132.1556	574609.1	-79527.8	-229564.9	4.9737	-653886.5	-1.1786
5400	25.6990	128385.3	132.6359	587848.8	-76958.2	-230036.8	4.7983	-653907.4	-1.6779
5500	25.7038	130955.4	133.1075	601136.0	-74388.0	-230511.0	4.6287	-653933.8	-2.1590
5600	25.7084	133526.0	133.5707	614470.0	-71817.4	-230987.6	4.4650	-653965.7	-2.6230
5700	25.7127	136097.1	134.0258	627849.9	-69246.4	-231466.4	4.3071	-654003.4	-3.0708
5800	25.7168	138668.5	134.4730	641274.9	-66674.9	-231947.5	4.1536	-654046.9	-3.5031
5900	25.7207	141240.4	134.9127	654744.3	-64103.0	-232430.7	4.0055	-654096.3	-3.9208
6000	25.7245	143812.7	135.3450	668257.2	-61530.7	-232916.0	3.8618	-654151.9	-4.3247

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(34) B_2O_2 (gas); molecular weight, 53.64

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-114358.1	-111700.0	-------	-497234.5	--------
100	8.1962	723.8	46.1670	3892.9	-113634.3	-111681.9	245.0761	-498615.4	1071.9283
200	11.5147	1713.4	52.8924	8865.1	-112644.7	-111547.9	123.0893	-499736.7	526.5855
298.15	13.6873	2960.1	57.9350	14313.2	-111398.1	-111398.1	82.9909	-500511.4	346.6958
300	13.7178	2985.4	58.0197	14420.5	-111372.7	-111395.5	82.4872	-500523.8	344.4334
400	15.0225	4427.2	62.1585	20436.2	-109930.9	-111316.7	62.2068	-501111.8	253.2292
500	15.9441	5977.5	65.6142	26829.5	-108380.6	-111315.5	50.0434	-501576.4	198.4485
600	16.6852	7610.2	68.5888	33543.1	-106748.0	-111360.1	41.9333	-501950.3	161.8972
700	17.3045	9310.6	71.2087	40535.5	-105047.6	-111437.7	36.1376	-502251.3	135.7714
800	17.8226	11067.7	73.5543	47775.7	-103290.4	-111540.2	31.7863	-502492.2	116.1664
900	18.2538	12872.2	75.6791	55239.0	-101486.0	-111671.8	28.3991	-502683.5	100.9115
1000	18.6116	14716.0	77.6215	62905.5	-99642.1	-111829.6	25.6857	-502833.8	88.7034
1100	18.9085	16592.5	79.4097	70758.2	-97765.7	-112016.1	23.4623	-502950.3	78.7124
1200	19.1556	18496.0	81.0659	78783.0	-95862.1	-112232.2	21.6060	-503038.7	70.3848
1300	19.3622	20422.2	82.6075	86967.6	-93935.9	-112473.3	20.0323	-503103.8	63.3373
1400	19.5359	22367.4	84.0490	95301.2	-91990.7	-112734.9	18.6801	-503149.4	57.2959
1500	19.6828	24328.5	85.4020	103774.4	-90029.6	-113012.7	17.5055	-503178.6	52.0596
1600	19.8078	26303.2	86.6764	112378.9	-88054.9	-113304.5	16.4753	-503193.8	47.4777
1700	19.9148	28289.5	87.8805	121107.3	-86068.7	-113609.1	15.5636	-503197.2	43.4348
1800	20.0069	30285.7	89.0215	129952.9	-84072.5	-113926.0	14.7512	-503190.5	39.8410
1900	20.0868	32290.5	90.1054	138909.7	-82067.7	-114254.6	14.0222	-503175.0	36.6257
2000	20.1563	34302.7	91.1375	147972.3	-80055.4	-114594.0	13.3642	-503152.0	33.7320
2100	20.2172	36321.4	92.1224	157135.7	-78036.7	-114943.9	12.7670	-503122.4	31.1140
2200	20.2708	38345.9	93.0642	166395.3	-76012.2	-115303.5	12.2223	-503087.3	28.7341
2300	20.3181	40375.4	93.9663	175747.2	-73982.8	-115672.6	11.7237	-503047.3	26.5614
[a]2400	20.3601	42409.3	94.8320	185187.4	-71948.8	-126751.1	11.2280	-503003.1	24.5699
2500	20.3976	44447.3	95.6639	194712.4	-69910.9	-127140.6	10.7657	-502955.3	22.7379
2600	20.4311	46488.7	96.4646	204319.1	-67869.4	-127531.8	10.3377	-502904.4	21.0470
2700	20.4612	48533.4	97.2362	214004.4	-65824.8	-127925.0	9.9401	-502851.1	19.4815
2800	20.4884	50580.9	97.9808	223765.5	-63777.3	-128320.4	9.5696	-502795.6	18.0279
2900	20.5129	52631.0	98.7002	233599.7	-61727.2	-128718.2	9.2238	-502738.6	16.6748
3000	20.5352	54683.4	99.3960	243504.7	-59674.8	-129118.5	8.8996	-502680.2	15.4120
3100	20.5554	56737.9	100.0697	253478.2	-57620.2	-129521.4	8.5962	-502620.9	14.2308
3200	20.5739	58794.4	100.7226	263518.0	-55563.7	-129926.8	8.3100	-502561.1	13.1236
3300	20.5908	60852.7	101.3560	273622.1	-53505.5	-130334.9	8.0410	-502501.0	12.0836
3400	20.6062	62912.5	101.9709	283788.6	-51445.6	-130745.6	7.7867	-502441.0	11.1049
3500	20.6204	64973.9	102.5684	294015.7	-49384.3	-131158.8	7.5460	-502381.4	10.1823
3600	20.6335	67036.6	103.1495	304301.7	-47321.6	-131574.7	7.3183	-502322.4	9.3110
3700	20.6456	69100.5	103.7150	314645.0	-45257.6	-131993.0	7.1023	-502264.3	8.4869
3800	20.6568	71165.7	104.2658	325044.2	-43192.5	-132413.8	6.8968	-502207.4	7.7062
3900	20.6672	73231.9	104.8025	335497.7	-41126.3	-132837.0	6.7011	-502151.9	6.9657
4000	20.6768	75299.1	105.3258	346004.3	-39059.1	-133262.5	6.5147	-502098.0	6.2623
4100	20.6857	77367.2	105.8365	356562.5	-36990.9	-133690.3	6.3369	-502045.9	5.5932
4200	20.6940	79436.2	106.3351	367171.1	-34922.0	-134120.3	6.1669	-501995.9	4.9561
4300	20.7018	81506.0	106.8221	377829.1	-32852.2	-134552.4	6.0041	-501948.2	4.3487
4400	20.7090	83576.5	107.2981	388535.2	-30781.6	-134986.5	5.8486	-501903.0	3.7689
4500	20.7158	85647.8	107.7636	399288.4	-28710.4	-135422.7	5.6996	-501860.4	3.2150
4600	20.7222	87719.7	108.2190	410087.6	-26638.5	-135860.8	5.5563	-501820.7	2.6852
4700	20.7281	89792.2	108.6647	420931.8	-24565.9	-136300.8	5.4185	-501784.0	2.1780
4800	20.7337	91865.3	109.1011	431820.2	-22492.8	-136742.6	5.2862	-501750.6	1.6919
4900	20.7390	93938.9	109.5287	442751.8	-20419.2	-137186.2	5.1592	-501720.6	1.2257
5000	20.7440	96013.1	109.9478	453725.7	-18345.1	-137631.5	5.0364	-501694.1	0.7782
5100	20.7487	98087.7	110.3586	464741.1	-16270.4	-138078.5	4.9185	-501671.4	0.3482
5200	20.7531	100162.8	110.7615	475797.1	-14195.3	-138527.1	4.8044	-501652.6	-0.0652
5300	20.7573	102238.3	111.1569	486893.1	-12119.8	-138977.3	4.6943	-501637.8	-0.4630
5400	20.7612	104314.3	111.5449	498028.3	-10043.9	-139429.1	4.5881	-501627.3	-0.8460
5500	20.7649	106390.6	111.9259	509201.8	-7967.6	-139882.4	4.4852	-501621.2	-1.2151
5600	20.7685	108467.2	112.3001	520413.2	-5890.9	-140337.2	4.3858	-501619.6	-1.5710
5700	20.7719	110544.3	112.6677	531661.6	-3813.9	-140793.4	4.2899	-501622.7	-1.9145
5800	20.7750	112621.6	113.0290	542946.5	-1736.5	-141251.1	4.1964	-501630.6	-2.2461
5900	20.7781	114699.3	113.3842	554267.2	341.1	-141710.1	4.1062	-501643.5	-2.5664
6000	20.7810	116777.2	113.7334	565623.2	2419.1	-142170.5	4.0186	-501661.5	-2.8761

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(33) BO_2 (gas); molecular weight, 42.82

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-87014.2	-84647.8	-------	-336401.5	--------
100	7.1794	698.9	45.8030	3881.4	-86315.3	-84648.5	185.9355	-337282.5	726.0936
200	8.7126	1490.4	51.2271	8755.0	-85523.8	-84632.7	93.4437	-338103.8	357.1812
298.15	10.0595	2414.2	54.9672	13974.3	-84600.0	-84600.0	63.0064	-338713.3	235.4610
300	10.0821	2432.8	55.0295	14076.0	-84581.4	-84599.3	62.6239	-338723.2	233.9300
400	11.1712	3497.7	58.0853	19736.4	-83516.5	-84571.0	47.2188	-339191.3	172.2025
500	12.0111	4658.7	60.6726	25677.6	-82355.5	-84550.1	37.9786	-339548.2	135.1203
600	12.6379	5892.8	62.9208	31859.7	-81121.4	-84532.3	31.8202	-339823.8	110.3756
700	13.1013	7180.9	64.9055	38253.0	-79833.3	-84522.1	27.4222	-340040.2	92.6879
800	13.4461	8509.1	66.6786	44833.8	-78505.1	-84522.6	24.1235	-340213.2	79.4145
900	13.7062	9867.3	68.2780	51582.9	-77146.9	-84539.5	21.5579	-340353.9	69.0860
1000	13.9055	11248.3	69.7329	58484.6	-75765.9	-84573.1	19.5048	-340470.2	60.8201
1100	14.0607	12646.9	71.0658	65525.4	-74367.3	-84625.4	17.8241	-340567.6	54.0549
1200	14.1834	14059.4	72.2947	72694.3	-72954.9	-84697.0	16.4225	-340650.4	48.4158
1300	14.2818	15482.8	73.4340	79981.4	-71531.4	-84785.6	15.2355	-340721.4	43.6432
1400	14.3619	16915.1	74.4954	87378.5	-70099.1	-84888.7	14.2167	-340783.0	39.5515
1500	14.4277	18354.7	75.4886	94878.2	-68659.5	-85003.9	13.3327	-340836.9	36.0048
1600	14.4824	19800.3	76.4215	102474.2	-67212.9	-85130.0	12.5582	-340884.4	32.9010
1700	14.5284	21250.9	77.3009	110160.7	-65763.3	-85266.3	11.8736	-340926.7	30.1620
1800	14.5673	22705.7	78.1325	117932.8	-64308.5	-85412.4	11.2642	-340964.4	27.7270
1900	14.6006	24164.2	78.9210	125785.8	-62850.1	-85567.8	10.7179	-340998.5	25.5482
2000	14.6292	25625.7	79.6707	133715.7	-61388.5	-85732.1	10.2254	-341029.3	23.5870
2100	14.6540	27089.9	80.3850	141718.7	-59924.3	-85905.0	9.7788	-341057.5	21.8124
2200	14.6756	28556.4	81.0673	149791.6	-58457.8	-86086.1	9.3720	-341083.5	20.1991
2300	14.6946	30024.9	81.7200	157931.2	-56989.3	-86275.2	8.9999	-341107.6	18.7259
[a]2400	14.7113	31495.2	82.3458	166134.7	-55519.0	-91822.1	8.6394	-341130.2	17.3754
2500	14.7261	32967.1	82.9467	174399.5	-54047.1	-92027.6	8.3046	-341151.7	16.1328
2600	14.7393	34440.4	83.5245	182723.3	-52573.8	-92237.0	7.9949	-341172.2	14.9858
2700	14.7511	35914.9	84.0810	191103.7	-51099.3	-92450.3	7.7075	-341192.1	13.9237
2800	14.7617	37390.6	84.6176	199538.8	-49623.6	-92667.6	7.4398	-341211.7	12.9373
2900	14.7712	38867.2	85.1358	208026.6	-48147.0	-92888.8	7.1902	-341231.2	12.0190
3000	14.7798	40344.8	85.6367	216565.4	-46669.4	-93114.0	6.9564	-341250.8	11.1618
3100	14.7876	41823.2	86.1215	225153.4	-45191.1	-93343.0	6.7375	-341270.8	10.3599
3200	14.7947	43302.3	86.5911	233789.2	-43711.9	-93575.8	6.5315	-341291.4	9.6080
3300	14.8012	44782.1	87.0464	242471.2	-42232.1	-93812.3	6.3377	-341312.7	8.9017
3400	14.8071	46262.5	87.4884	251198.0	-40751.7	-94052.5	6.1548	-341335.1	8.2369
3500	14.8125	47743.5	87.9177	259968.4	-39270.7	-94296.1	5.9817	-341358.7	7.6100
3600	14.8175	49225.0	88.3350	268781.2	-37789.2	-94543.1	5.8180	-341383.6	7.0179
3700	14.8221	50707.0	88.7411	277635.1	-36307.3	-94793.5	5.6628	-341410.1	6.4578
3800	14.8263	52189.4	89.1364	286529.0	-34824.8	-95047.0	5.5152	-341438.3	5.9271
3900	14.8302	53672.2	89.5216	295462.0	-33342.0	-95303.5	5.3749	-341468.3	5.4236
4000	14.8339	55155.4	89.8971	304433.0	-31858.8	-95563.0	5.2411	-341500.4	4.9452
4100	14.8372	56639.0	90.2634	313441.1	-30375.2	-95825.4	5.1137	-341534.6	4.4901
4200	14.8404	58122.8	90.6210	322485.4	-28891.4	-96090.5	4.9918	-341571.0	4.0567
4300	14.8433	59607.0	90.9703	331565.0	-27407.2	-96358.2	4.8753	-341609.9	3.6433
4400	14.8460	61091.5	91.3115	340679.2	-25922.7	-96628.4	4.7639	-341651.2	3.2487
4500	14.8486	62576.2	91.6452	349827.1	-24438.0	-96901.1	4.6572	-341695.2	2.8716
4600	14.8510	64061.2	91.9716	359008.0	-22953.0	-97176.1	4.5548	-341741.9	2.5108
4700	14.8532	65546.4	92.2910	368221.2	-21467.8	-97453.4	4.4562	-341791.4	2.1654
4800	14.8553	67031.8	92.6037	377466.0	-19982.4	-97732.9	4.3617	-341843.8	1.8343
4900	14.8573	68517.5	92.9100	386741.7	-18496.7	-98014.5	4.2709	-341899.1	1.5166
5000	14.8591	70003.3	93.2102	396047.8	-17010.9	-98298.1	4.1832	-341957.6	1.2116
5100	14.8609	71489.3	93.5045	405383.5	-15524.9	-98583.7	4.0990	-342019.2	0.9185
5200	14.8625	72975.5	93.7931	414748.5	-14038.7	-98871.3	4.0175	-342084.0	0.6366
5300	14.8641	74461.8	94.0762	424142.0	-12552.4	-99160.7	3.9390	-342152.0	0.3654
5400	14.8656	75948.3	94.3540	433563.5	-11065.9	-99451.9	3.8632	-342223.4	0.1041
5500	14.8670	77434.9	94.6268	443012.6	-9579.3	-99744.9	3.7898	-342298.2	-0.1478
5600	14.8683	78921.7	94.8947	452488.7	-8092.5	-100039.6	3.7190	-342376.5	-0.3907
5700	14.8695	80408.6	95.1579	461991.4	-6605.6	-100336.0	3.6506	-342458.3	-0.6251
5800	14.8707	81895.6	95.4165	471520.2	-5118.6	-100634.0	3.5840	-342543.6	-0.8515
5900	14.8719	83382.7	95.6707	481074.6	-3631.5	-100933.5	3.5197	-342632.5	-1.0703
6000	14.8729	84869.9	95.9207	490654.2	-2144.3	-101234.7	3.4573	-342725.1	-1.2819

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(32) BO (gas); molecular weight, 26.82

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	3670.9	5000.0	-------	-187767.3	--------
100	6.9566	693.9	41.0015	3406.3	4364.8	5341.0	-7.2529	-188125.7	406.1732
200	6.9582	1389.6	45.8238	7775.2	5060.5	5608.9	-1.2935	-188485.5	200.4546
298.15	6.9782	2073.2	48.6044	12418.2	5744.1	5744.1	0.7500	-188812.5	132.6024
300	6.9791	2086.1	48.6476	12508.2	5757.0	5745.6	0.7759	-188818.5	131.7490
400	7.0683	2787.8	50.6656	17478.4	6458.7	5765.8	1.8248	-189131.8	97.3360
500	7.2299	3502.2	52.2591	22627.3	7173.1	5705.7	2.4521	-189424.8	76.6546
600	7.4273	4234.9	53.5945	27921.8	7905.9	5599.8	2.8644	-189695.3	62.8463
700	7.6267	4987.7	54.7545	33340.4	8658.7	5463.6	3.1527	-189943.2	52.9697
800	7.8100	5759.7	55.7851	38868.4	9430.7	5305.8	3.3628	-190170.2	45.5528
900	7.9708	6549.0	56.7145	44494.1	10219.9	5127.0	3.5214	-190378.9	39.7776
1000	8.1086	7353.1	57.5617	50208.5	11024.1	4930.3	3.6436	-190571.8	35.1525
1100	8.2256	8170.0	58.3401	56004.1	11840.9	4715.7	3.7396	-190751.4	31.3646
1200	8.3248	8997.7	59.0602	61874.6	12668.6	4483.6	3.8158	-190919.7	28.2052
1300	8.4090	9834.5	59.7300	67814.5	13505.4	4236.7	3.8770	-191078.6	25.5295
1400	8.4808	10679.0	60.3559	73819.1	14350.0	3977.9	3.9263	-191229.4	23.2342
1500	8.5424	11530.3	60.9431	79884.4	15201.2	3709.7	3.9663	-191373.3	21.2434
1600	8.5957	12387.3	61.4962	86006.6	16058.2	3433.4	3.9989	-191511.3	19.5002
1700	8.6420	13249.2	62.0187	92182.6	16920.1	3149.9	4.0254	-191644.2	17.9609
1800	8.6825	14115.5	62.5138	98409.5	17786.4	2859.6	4.0469	-191772.6	16.5918
1900	8.7183	14985.5	62.9843	104684.6	18656.5	2563.0	4.0642	-191897.2	15.3660
2000	8.7501	15859.0	63.4323	111005.6	19529.9	2260.6	4.0782	-192018.3	14.2620
2100	8.7785	16735.4	63.8599	117370.3	20406.4	1952.8	4.0891	-192136.5	13.2626
2200	8.8042	17614.6	64.2689	123776.9	21285.5	1639.9	4.0975	-192252.0	12.3535
2300	8.8275	18496.2	64.6608	130223.5	22167.1	1322.2	4.1040	-192365.1	11.5229
[a]2400	8.8489	19380.0	65.0369	136708.5	23051.0	-4350.2	4.0901	-192476.2	10.7611
2500	8.8687	20265.9	65.3985	143230.4	23936.9	-4678.0	4.0737	-192585.3	10.0598
2600	8.8872	21153.7	65.7467	149787.8	24824.7	-5006.5	4.0575	-192692.8	9.4121
2700	8.9048	22043.3	66.0825	156379.4	25714.3	-5335.8	4.0414	-192798.9	8.8121
2800	8.9217	22934.7	66.4066	163003.9	26605.6	-5666.0	4.0255	-192903.6	8.2546
2900	8.9381	23827.7	66.7200	169660.3	27498.6	-5996.9	4.0098	-193007.1	7.7353
3000	8.9544	24722.3	67.0233	176347.6	28393.2	-6328.6	3.9942	-193109.5	7.2504
3100	8.9707	25618.5	67.3172	183064.7	29289.5	-6661.1	3.9791	-193210.9	6.7965
3200	8.9873	26516.4	67.6022	189810.7	30187.4	-6994.2	3.9639	-193311.3	6.3707
3300	9.0043	27416.0	67.8791	196584.9	31086.9	-7327.8	3.9492	-193410.8	5.9705
3400	9.0221	28317.3	68.1481	203386.3	31988.3	-7661.7	3.9346	-193509.4	5.5937
3500	9.0407	29220.5	68.4099	210214.2	32891.4	-7995.9	3.9201	-193607.2	5.2383
3600	9.0604	30125.5	68.6649	217068.0	33796.4	-8330.1	3.9060	-193704.0	4.9024
3700	9.0813	31032.6	68.9134	223947.0	34703.5	-8664.2	3.8922	-193799.9	4.5845
3800	9.1036	31941.8	69.1559	230850.5	35612.7	-8997.9	3.8785	-193894.7	4.2832
3900	9.1274	32853.3	69.3926	237778.0	36524.3	-9331.1	3.8649	-193988.5	3.9972
4000	9.1528	33767.3	69.6240	244728.9	37438.3	-9663.5	3.8516	-194081.2	3.7254
4100	9.1799	34684.0	69.8504	251702.6	38354.9	-9994.8	3.8385	-194172.6	3.4667
4200	9.2088	35603.4	70.0719	258698.8	39274.3	-10324.8	3.8256	-194262.7	3.2202
4300	9.2396	36525.8	70.2890	265716.9	40196.7	-10653.4	3.8128	-194351.3	2.9851
4400	9.2723	37451.4	70.5018	272756.4	41122.3	-10980.2	3.8004	-194438.4	2.7606
4500	9.3070	38380.3	70.7105	279817.1	42051.2	-11304.9	3.7882	-194523.8	2.5459
4600	9.3437	39312.8	70.9155	286898.4	42983.8	-11627.4	3.7761	-194607.3	2.3405
4700	9.3824	40249.1	71.1168	294000.1	43920.1	-11947.4	3.7640	-194689.0	2.1437
4800	9.4230	41189.4	71.3148	301121.7	44860.3	-12264.6	3.7523	-194768.6	1.9551
4900	9.4656	42133.8	71.5095	308262.9	45804.7	-12578.8	3.7409	-194846.0	1.7741
5000	9.5101	43082.6	71.7012	315423.5	46753.5	-12889.7	3.7294	-194921.0	1.6003
5100	9.5565	44035.9	71.8900	322603.1	47706.8	-13197.2	3.7183	-194993.7	1.4332
5200	9.6047	44993.9	72.0760	329801.4	48664.9	-13501.0	3.7072	-195063.8	1.2725
5300	9.6547	45956.9	72.2594	337018.2	49627.8	-13800.9	3.6964	-195131.2	1.1178
5400	9.7064	46924.9	72.4404	344253.2	50595.9	-14096.7	3.6858	-195195.9	0.9687
5500	9.7597	47898.2	72.6190	351506.2	51569.2	-14388.2	3.6752	-195257.7	0.8251
5600	9.8146	48876.9	72.7953	358776.9	52547.9	-14675.3	3.6649	-195316.5	0.6865
5700	9.8708	49861.2	72.9695	366065.2	53532.1	-14957.6	3.6550	-195372.3	0.5528
5800	9.9284	50851.1	73.1417	373370.7	54522.1	-15235.2	3.6449	-195425.0	0.4236
5900	9.9873	51846.9	73.3119	380693.4	55517.8	-15507.8	3.6351	-195474.5	0.2988
6000	10.0472	52848.6	73.4803	388033.1	56519.6	-15775.3	3.6254	-195520.7	0.1781

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(31) BN (crystal); molecular weight, 24.828

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-60931.0	-59603.1	-------	-305963.4	--------
100	1.280	48.3	0.747	26.4	-60882.7	-59907.8	126.8967	-306936.8	657.3044
200	2.994	259.4	2.143	169.2	-60671.6	-60124.4	61.3398	-307720.5	321.5699
298.15	4.783	641.0	3.673	454.1	-60290.0	-60290.0	39.6863	-308314.6	210.7815
300	4.815	649.8	3.702	460.8	-60281.2	-60292.5	39.4136	-308324.2	209.3878
400	6.28	1204	5.288	911.2	-59727	-60413.4	28.4225	-308763.8	153.1990
500	7.50	1896	6.826	1517.0	-59035	-60481.7	21.8167	-309065.6	119.4439
600	8.42	2695	8.279	2272.4	-58236	-60500.2	17.4097	-309260.3	96.9220
700	9.09	3571	9.628	3168.6	-57360	-60487.8	14.2621	-309377.9	80.8270
800	9.66	4509	10.880	4195.0	-56422	-60452.4	11.9020	-309433.6	68.7525
900	10.2	5502	12.050	5343.0	-55429	-60400.0	10.0681	-309434.3	59.3604
1000	10.6	6542	13.145	6603.0	-54389	-60334.2	8.6022	-309387.9	51.8470
1100	10.9	7620	14.172	7969.2	-53311	-60262.3	7.4042	-309303.6	45.7011
1200	11.2	8728	15.136	9435.2	-52203	-60190.1	6.4071	-309189.2	40.5812
1300	11.4	9858	16.040	10994.0	-51073	-60120.9	5.5644	-309052.9	36.2506
1400	11.6	11008	16.892	12640.8	-49923	-60052.6	4.8427	-308896.5	32.5404
1500	11.7	12176	17.698	14371.0	-48755	-59983.2	4.2182	-308722.2	29.3268
1600	11.7	13346	18.453	16178.8	-47585	-59926.1	3.6723	-308545.8	26.5164
1700	11.7	14516	19.162	18059.4	-46415	-59881.3	3.1909	-308369.5	24.0380
1800	11.7	15686	19.831	20009.8	-45245	-59847.6	2.7634	-308193.1	21.8363
1900	11.7	16856	20.464	22025.6	-44075	-59823.6	2.3812	-308016.8	19.8676
2000	11.7	18026	21.064	24102.0	-42905	-59808.1	2.0372	-307840.5	18.0967
2100	11.7	19196	21.635	26237.5	-41735	-59800.3	1.7260	-307664.3	16.4954
2200	11.7	20366	22.179	28427.8	-40565	-59799.2	1.4430	-307488.1	15.0404
2300	11.7	21536	22.699	30671.7	-39395	-59804.2	1.1848	-307312.1	13.7127
[a]2400	11.7	22706	23.197	32966.8	-38225	-65164.9	0.9295	-307136.3	12.4964
2500	11.7	23876	23.675	35311.5	-37055	-65181.6	0.6922	-306960.7	11.3781
2600	11.7	25046	24.134	37702.4	-35885	-65199.5	0.4731	-306785.5	10.3464
2700	11.7	26216	24.575	40136.5	-34715	-65218.5	0.2700	-306610.7	9.3915
2800	11.7	27386	25.001	42616.8	-33545	-65238.5	0.0815	-306436.6	8.5055
2900	11.7	28556	25.411	45135.9	-32375	-65259.4	-0.0942	-306263.1	7.6809
3000	11.7	29726	25.808	47698.0	-31205	-65281.1	-0.2582	-306090.6	6.9118
3100	11.7	30896	26.191	50296.1	-30035	-65303.7	-0.4116	-305919.1	6.1926
3200	11.7	32066	26.563	52935.6	-28865	-65326.9	-0.5556	-305748.8	5.5190
3300	11.7	33236	26.923	55609.9	-27695	-65350.9	-0.6906	-305580.0	4.8864
3400	11.7	34406	27.272	58318.8	-26525	-65375.4	-0.8180	-305412.9	4.2913
3500	11.7	35576	27.611	61062.5	-25355	-65400.6	-0.9383	-305247.6	3.7305
3600	11.7	36746	27.941	63841.6	-24185	-65426.4	-1.0516	-305084.5	3.2013
3700	11.7	37916	28.262	66653.4	-23015	-65452.7	-1.1587	-304923.7	2.7010
3800	11.7	39086	28.574	69495.2	-21845	-65479.4	-1.2605	-304765.6	2.2272
3900	11.7	40256	28.877	72364.3	-20675	-65506.7	-1.3573	-304610.3	1.7777
4000	11.7	41426	29.174	75270.0	-19505	-65534.5	-1.4489	-304458.1	1.3512
4100	11.7	42596	29.463	78202.3	-18335	-65562.7	-1.5362	-304309.2	0.9456
4200	11.7	43766	29.745	81163.0	-17165	-65591.3	-1.6195	-304164.0	0.5595
4300	11.7	44936	30.020	84150.0	-15995	-65620.3	-1.6991	-304022.6	0.1915
4400	11.7	46106	30.289	87165.6	-14825	-65649.7	-1.7748	-303885.3	-0.1596
4500	11.7	47276	30.552	90208.0	-13655	-65679.5	-1.8471	-303752.3	-0.4949
4600	11.7	48446	30.809	93275.4	-12485	-65709.6	-1.9165	-303623.9	-0.8156
4700	11.7	49616	31.061	96370.7	-11315	-65740.2	-1.9830	-303500.2	-1.1223
4800	11.7	50786	31.307	99487.6	-10145	-65771.0	-2.0468	-303381.5	-1.4163
4900	11.7	51956	31.548	102629.2	-8975	-65802.2	-2.1079	-303268.0	-1.6982
5000	11.7	53126	31.784	105794.0	-7805	-65833.8	-2.1668	-303159.9	-1.9688
5100	11.7	54296	32.016	108985.6	-6635	-65865.6	-2.2230	-303057.3	-2.2285
5200	11.7	55466	32.243	112197.6	-5465	-65897.8	-2.2774	-302960.5	-2.4782
5300	11.7	56636	32.466	115433.8	-4295	-65930.3	-2.3297	-302869.5	-2.7184
5400	11.7	57806	32.685	118693.0	-3125	-65963.2	-2.3800	-302784.6	-2.9496
5500	11.7	58976	32.900	121974.0	-1955	-65996.3	-2.4285	-302705.8	-3.1723
5600	11.7	60146	33.110	125270.0	-785	-66029.8	-2.4755	-302633.3	-3.3872
5700	11.7	61316	33.317	128590.9	385	-66063.6	-2.5206	-302567.2	-3.5944
5800	11.7	62486	33.521	131935.8	1555	-66097.8	-2.5643	-302507.6	-3.7943
5900	11.7	63656	33.721	135297.9	2725	-66132.2	-2.6064	-302454.6	-3.9874
6000	11.7	64826	33.918	138682.0	3895	-66167.1	-2.6472	-302408.2	-4.1741

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(49) BeFCl (gas); molecular weight, 63.470

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-136393.6	-133773.3	-------	-257564.2	--------
100	7.0714	697.1	47.3669	4039.6	-135696.5	-133781.4	293.3076	-258359.2	554.6026
200	8.5637	1468.8	52.6558	9062.4	-134924.8	-133862.1	147.0983	-259109.2	271.9682
298.15	10.2088	2393.6	56.3955	14420.9	-134000.0	-134000.0	98.9259	-259708.8	178.6658
300	10.2353	2412.5	56.4591	14525.3	-133981.1	-134002.6	98.3202	-259718.8	177.4918
400	11.4386	3499.8	59.5788	20331.7	-132893.8	-134153.6	73.9036	-260198.8	130.1516
500	12.2797	4688.1	62.2271	26425.4	-131705.4	-134296.8	59.2374	-260580.2	101.6997
600	12.8740	5947.5	64.5215	32765.4	-130446.0	-134429.9	49.4497	-260886.9	82.7065
700	13.3008	7257.4	66.5399	39320.5	-129136.2	-134556.4	42.4518	-261136.8	69.1253
800	13.6132	8603.9	68.3374	46066.0	-127789.7	-134680.4	37.1985	-261342.8	58.9305
900	13.8465	9977.4	69.9549	52982.0	-126416.1	-134807.0	33.1087	-261515.0	50.9955
1000	14.0242	11371.3	71.4234	60052.1	-125022.2	-134941.1	29.8339	-261660.5	44.6436
1100	14.1620	12780.9	72.7668	67262.5	-123612.6	-135086.4	27.1516	-261784.7	39.4439
1200	14.2706	14202.7	74.0039	74601.9	-122190.8	-135245.5	24.9138	-261892.0	35.1089
1300	14.3576	15634.3	75.1497	82060.3	-120759.2	-135420.3	23.0180	-261985.3	31.4394
1400	14.4281	17073.7	76.2163	89629.2	-119319.8	-135612.3	21.3907	-262067.2	28.2931
1500	14.4861	18519.5	77.2138	97301.2	-117874.0	-135822.6	19.9784	-262139.6	25.5655
[a]1600	14.5343	19970.6	78.1503	105069.9	-116422.9	-139549.3	18.7283	-262204.0	23.1782
1700	14.5747	21426.1	79.0327	112929.5	-114967.4	-139726.8	17.6065	-262261.7	21.0713
1800	14.6089	22885.3	79.8668	120874.8	-113508.2	-139902.9	16.6079	-262313.6	19.1981
1900	14.6281	24347.7	80.6574	128901.4	-112045.8	-140078.0	15.7134	-262360.6	17.5218
2000	14.6633	25812.8	81.4089	137005.0	-110580.7	-140252.5	14.9074	-262403.3	16.0128
2100	14.6850	27280.3	82.1249	145182.0	-109113.3	-140426.7	14.1770	-262442.3	14.6473
2200	14.7040	28749.7	82.8085	153428.9	-107643.8	-140600.9	13.5123	-262478.1	13.4058
2300	14.7206	30221.0	83.4625	161742.7	-106172.6	-140775.3	12.9047	-262511.2	12.2721
2400	14.7353	31693.8	84.0893	170120.5	-104699.7	-140949.9	12.3472	-262541.9	11.2327
2500	14.7483	33168.0	84.6911	178559.7	-103225.5	-141125.0	11.8334	-262570.6	10.2764
2600	14.7598	34643.4	85.2698	187058.0	-101750.1	-141300.7	11.3587	-262597.7	9.3936
2700	14.7702	36119.9	85.8270	195613.0	-100273.6	-141477.1	10.9185	-262623.5	8.5761
2800	14.7794	37597.4	86.3643	204222.7	-98796.1	-141654.3	10.5093	-262648.4	7.8168
2900	14.7878	39075.8	86.8831	212885.2	-97317.8	-141832.4	10.1277	-262672.8	7.1099
3000	14.7953	40554.9	87.3846	221598.7	-95838.6	-142011.3	9.7712	-262697.0	6.4501
3100	14.8021	42034.8	87.8698	230361.6	-94358.7	-142191.3	9.4373	-262721.6	5.8327
3200	14.8084	43515.3	88.3399	239172.2	-92878.2	-142372.3	9.1240	-262746.8	5.2539
3300	14.8140	44996.5	88.7956	248029.1	-91397.1	-142554.4	8.8291	-262773.3	4.7102
3400	14.8192	46478.1	89.2379	256930.9	-89915.4	-142737.7	8.5512	-262801.4	4.1983
3500	14.8240	47960.3	89.6676	265876.2	-88433.3	-142922.1	8.2889	-262831.7	3.7157
3600	14.8283	49442.9	90.0853	274864.0	-86950.6	-143107.7	8.0410	-262864.7	3.2598
3700	14.8323	50925.9	90.4916	283892.9	-85467.6	-143294.5	7.8059	-262900.9	2.8285
3800	14.8360	52409.4	90.8872	292961.9	-83984.2	-143482.6	7.5830	-262941.0	2.4198
3900	14.8395	53893.1	91.2726	302070.0	-82500.4	-143672.0	7.3713	-262985.3	2.0320
4000	14.8427	55377.3	91.6484	311216.1	-81016.3	-143862.6	7.1700	-263034.6	1.6636
4100	14.8456	56861.7	92.0149	320399.4	-79531.9	-144054.6	6.9781	-263089.4	1.3130
4200	14.8484	58346.4	92.3727	329618.8	-78047.2	-144247.9	6.7953	-263150.2	0.9791
4300	14.8509	59831.3	92.7221	338873.6	-76562.2	-144442.6	6.6205	-263217.5	0.6606
4400	14.8533	61316.6	93.0635	348163.0	-75077.0	-144638.7	6.4536	-263292.0	0.3565
4500	14.8555	62802.0	93.3974	357486.1	-73591.5	-144836.1	6.2938	-263374.0	0.0659
4600	14.8576	64287.7	93.7239	366842.2	-72105.9	-145034.9	6.1409	-263464.2	-0.2122
4700	14.8596	65773.5	94.0434	376230.6	-70620.0	-145235.1	5.9942	-263562.8	-0.4786
4800	14.8614	67259.6	94.3563	385650.7	-69134.0	-145436.8	5.8533	-263670.5	-0.7339
4900	14.8632	68745.8	94.6628	395101.7	-67647.7	-145639.8	5.7181	-263787.6	-0.9790
5000	14.8648	70232.2	94.9630	404583.0	-66161.3	-145844.3	5.5880	-263914.4	-1.2143
5100	14.8663	71718.8	95.2574	414094.1	-64674.8	-146050.2	5.4631	-264051.3	-1.4406
5200	14.8678	73205.5	95.5461	423634.3	-63188.1	-146257.6	5.3426	-264198.6	-1.6582
5300	14.8691	74692.3	95.8293	433203.1	-61701.2	-146466.4	5.2266	-264356.5	-1.8678
5400	14.8704	76179.3	96.1073	442800.0	-60214.3	-146676.7	5.1146	-264525.3	-2.0697
5500	14.8716	77666.4	96.3801	452424.4	-58727.2	-146888.4	5.0066	-264705.2	-2.2644
5600	14.8728	79153.6	96.6481	462075.9	-57239.9	-147101.6	4.9022	-264896.2	-2.4523
5700	14.8739	80641.0	96.9114	471753.9	-55752.6	-147316.3	4.8015	-265098.5	-2.6337
5800	14.8749	82128.4	97.1701	481458.0	-54265.2	-147532.5	4.7041	-265312.2	-2.8090
5900	14.8759	83615.9	97.4244	491187.7	-52777.6	-147750.1	4.6099	-265537.3	-2.9785
6000	14.8769	85103.6	97.6744	500942.7	-51290.0	-147969.2	4.5186	-265773.8	-3.1425

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Be, 1560° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(50) BeH (gas); molecular weight, 10.021

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	76035.2	77515.8	-------	-51000.0	--------
100	6.9617	686.0	34.6252	2776.5	76721.3	77812.6	-165.1774	-51307.6	108.9677
200	6.9664	1382.4	39.4519	6508.0	77417.6	78068.1	-80.0219	-51604.9	52.7786
298.15	6.9841	2066.8	42.2358	10525.8	78102.0	78102.0	-51.9295	-51895.7	34.1702
300	6.9848	2079.7	42.2790	10604.0	78114.9	78101.5	-51.5766	-51901.2	33.9357
400	7.0592	2781.3	44.2968	14937.4	78816.5	78017.3	-37.3590	-52193.2	24.4595
500	7.2042	3493.9	45.8865	19449.3	79529.2	77878.6	-28.8407	-52474.2	18.7420
600	7.3929	4223.6	47.2162	24106.2	80258.8	77716.0	-23.1730	-52738.2	14.9103
700	7.5933	4972.9	48.3709	28886.7	81008.1	77542.2	-19.1334	-52982.5	12.1600
800	7.7852	5742.0	49.3976	33776.1	81777.2	77362.8	-16.1107	-53207.1	10.0881
900	7.9592	6529.3	50.3248	38762.9	82564.6	77177.1	-13.7651	-53413.3	8.4701
1000	8.1129	7333.1	51.1715	43838.4	83368.4	76982.5	-11.8931	-53603.2	7.1709
1100	8.2470	8151.3	51.9512	48995.0	84186.5	76776.3	-10.3658	-53778.7	6.1042
1200	8.3635	8981.9	52.6739	54226.7	85017.2	76556.3	-9.0964	-53941.6	5.2125
1300	8.4650	9823.5	53.3474	59528.1	85858.7	76320.2	-8.0254	-54093.7	4.4558
1400	8.5537	10674.5	53.9780	64894.8	86709.7	76066.7	-7.1109	-54236.3	3.8054
1500	8.6317	11533.9	54.5709	70322.5	87569.1	75794.2	-6.3205	-54370.6	3.2403
[a]1600	8.7009	12400.5	55.1302	75807.8	88435.8	72004.8	-5.6438	-54497.5	2.7447
1700	8.7625	13273.8	55.6596	81347.5	89309.0	71764.4	-5.0661	-54617.9	2.3063
1800	8.8179	14152.8	56.1620	86938.8	90188.1	71525.5	-4.5545	-54732.5	1.9158
1900	8.8681	15037.2	56.6402	92579.1	91072.4	71286.7	-4.0981	-54841.8	1.5658
2000	8.9138	15926.3	57.0962	98266.1	91961.6	71048.2	-3.6889	-54946.4	1.2501
2100	8.9558	16819.8	57.5322	103997.7	92855.1	70809.9	-3.3199	-55046.6	0.9639
2200	8.9946	17717.4	57.9497	109772.0	93752.6	70571.7	-2.9856	-55142.8	0.7033
2300	9.0307	18618.7	58.3503	115587.1	94653.9	70333.3	-2.6811	-55235.4	0.4649
2400	9.0645	19523.4	58.7354	121441.5	95558.7	70094.9	-2.4032	-55324.8	0.2461
2500	9.0962	20431.5	59.1061	127333.7	96466.7	69856.3	-2.1483	-55411.1	0.0444
2600	9.1262	21342.6	59.4634	133262.3	97377.9	69617.5	-1.9138	-55494.7	-0.1420
2700	9.1546	22256.7	59.8084	139226.0	98291.9	69378.7	-1.6974	-55576.0	-0.3149
2800	9.1817	23173.5	60.1418	145223.6	99208.7	69139.5	-1.4973	-55655.2	-0.4757
2900	9.2077	24093.0	60.4645	151254.0	100128.2	68900.2	-1.3116	-55732.7	-0.6256
3000	9.2326	25015.0	60.7770	157316.1	101050.2	68660.6	-1.1387	-55808.8	-0.7657
3100	9.2566	25939.5	61.0802	163409.1	101974.7	68420.6	-0.9777	-55884.1	-0.8969
3200	9.2799	26866.3	61.3744	169531.9	102901.5	68180.2	-0.8271	-55958.7	-1.0201
3300	9.3024	27795.4	61.6603	175683.7	103830.7	67940.0	-0.6863	-56033.3	-1.1360
3400	9.3242	28726.7	61.9384	181863.7	104762.0	67698.9	-0.5542	-56108.3	-1.2452
3500	9.3455	29660.2	62.2090	188071.1	105695.5	67457.2	-0.4302	-56184.1	-1.3483
3600	9.3663	30595.8	62.4725	194305.2	106631.1	67215.8	-0.3131	-56261.3	-1.4458
3700	9.3867	31533.5	62.7294	200565.4	107568.7	66974.2	-0.2033	-56340.4	-1.5382
3800	9.4066	32473.2	62.9800	206850.9	108508.4	66731.4	-0.0994	-56422.0	-1.6258
3900	9.4261	33414.8	63.2246	213161.2	109450.0	66489.5	-0.0013	-56506.5	-1.7091
4000	9.4453	34358.4	63.4635	219495.6	110393.6	66246.7	0.0919	-56594.6	-1.7883
4100	9.4642	35303.8	63.6970	225853.7	111339.1	66004.3	0.1798	-56686.8	-1.8638
4200	9.4828	36251.2	63.9252	232234.8	112286.4	65761.1	0.2638	-56783.7	-1.9358
4300	9.5012	37200.4	64.1486	238638.6	113235.6	65517.9	0.3431	-56885.7	-2.0046
4400	9.5193	38151.4	64.3672	245064.4	114186.7	65274.0	0.4187	-56993.4	-2.0703
4500	9.5372	39104.2	64.5814	251511.9	115139.5	65030.6	0.4905	-57107.3	-2.1333
4600	9.5549	40058.8	64.7912	257980.5	116094.1	64786.6	0.5591	-57227.9	-2.1936
4700	9.5724	41015.2	64.9968	264470.0	117050.5	64542.4	0.6244	-57355.7	-2.2516
4800	9.5898	41973.3	65.1986	270979.8	118008.6	64297.5	0.6868	-57491.0	-2.3072
4900	9.6070	42933.2	65.3965	277509.5	118968.4	64052.5	0.7464	-57634.3	-2.3607
5000	9.6241	43894.7	65.5907	284058.9	119930.0	63807.9	0.8033	-57785.9	-2.4121
5100	9.6410	44858.0	65.7815	290627.6	120893.2	63562.7	0.8581	-57946.2	-2.4617
5200	9.6578	45822.9	65.9689	297215.1	121858.2	63317.6	0.9103	-58115.5	-2.5096
5300	9.6745	46789.5	66.1530	303821.2	122824.8	63071.9	0.9603	-58293.9	-2.5557
5400	9.6911	47757.8	66.3340	310445.6	123793.1	62826.4	1.0084	-58481.8	-2.6003
5500	9.7076	48727.7	66.5119	317087.9	124763.0	62580.4	1.0545	-58679.4	-2.6434
5600	9.7240	49699.3	66.6870	323747.9	125734.6	62334.6	1.0988	-58886.6	-2.6851
5700	9.7403	50672.5	66.8593	330425.2	126707.8	62089.0	1.1415	-59103.8	-2.7255
5800	9.7566	51647.4	67.0288	337119.7	127682.6	61843.1	1.1824	-59330.8	-2.7646
5900	9.7728	52623.9	67.1957	343830.9	128659.1	61596.8	1.2219	-59567.8	-2.8026
6000	9.7889	53601.9	67.3601	350558.7	129637.2	61350.9	1.2597	-59814.8	-2.8394

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Be, 1560° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(51) BeO (gas); molecular weight, 25.013

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	28367.9	29874.0	-------	-106000.0	--------
100	6.9571	694.1	39.5933	3265.3	29062.0	30211.5	-61.9230	-106330.2	228.0046
200	6.9647	1390.0	44.4167	7493.4	29757.9	30420.0	-28.8059	-106688.5	111.6644
298.15	7.0465	2076.6	47.2088	11998.7	30444.5	30444.5	-17.8553	-107012.2	73.2360
300	7.0492	2089.6	47.2524	12086.1	30457.5	30443.9	-17.7177	-107018.0	72.7522
400	7.2537	2804.0	49.3061	16918.5	31171.9	30364.7	-12.1789	-107318.4	53.2373
500	7.5103	3542.1	50.9520	21933.9	31909.9	30235.2	-8.8672	-107587.6	41.4968
600	7.7571	4305.7	52.3435	27100.5	32673.5	30078.9	-6.6699	-107827.2	33.6511
700	7.9698	5092.3	53.5557	32396.7	33460.2	29904.5	-5.1090	-108041.2	28.0351
800	8.1451	5898.4	54.6318	37807.1	34266.2	29716.1	-3.9454	-108234.2	23.8151
900	8.2878	6720.2	55.5997	43319.5	35088.1	29513.4	-3.0464	-108410.1	20.5273
1000	8.4046	7555.1	56.4791	48924.1	35923.0	29295.1	-2.3322	-108572.3	17.8930
1100	8.5020	8400.5	57.2849	54612.8	36768.4	29060.0	-1.7524	-108723.3	15.7345
1200	8.5859	9255.0	58.0283	60379.0	37622.9	28807.4	-1.2733	-108864.8	13.9333
1300	8.6616	10117.4	58.7186	66216.7	38485.3	28536.7	-0.8716	-108998.0	12.4073
1400	8.7336	10987.2	59.3631	72121.2	39355.1	28248.0	-0.5307	-109123.6	11.0977
1500	8.8055	11864.1	59.9681	78088.0	40232.0	27941.3	-0.2383	-109241.8	9.9615
[a]1600	8.8801	12748.4	60.5388	84113.7	41116.3	24119.7	0.0024	-109352.5	8.9663
1700	8.9596	13640.3	61.0795	90194.8	42008.2	23850.2	0.1953	-109455.4	8.0873
1800	9.0451	14540.5	61.5940	96328.7	42908.4	23586.0	0.3646	-109550.0	7.3052
1900	9.1374	15449.6	62.0855	102512.8	43817.5	23327.9	0.5145	-109635.5	6.6049
2000	9.2365	16368.2	62.5567	108745.1	44736.1	23076.5	0.6481	-109711.5	5.9742
2100	9.3421	17297.1	63.0098	115023.6	45665.0	22832.6	0.7674	-109777.4	5.4032
2200	9.4534	18236.8	63.4470	121346.5	46604.7	22596.8	0.8748	-109832.4	4.8838
2300	9.5693	19187.9	63.8697	127712.5	47555.8	22369.6	0.9719	-109876.3	4.4093
2400	9.6888	20150.8	64.2795	134120.0	48518.7	22151.5	1.0601	-109908.8	3.9742
2500	9.8105	21125.8	64.6775	140568.0	49493.7	21942.7	1.1404	-109929.6	3.5739
2600	9.9333	22113.0	65.0647	147055.2	50480.9	21743.6	1.2140	-109938.9	3.2042
2700	10.0559	23112.4	65.4419	153580.6	51480.3	21554.1	1.2813	-109936.7	2.8620
2800	10.1772	24124.1	65.8098	160143.2	52492.0	21374.3	1.3433	-109923.5	2.5442
2900	10.2960	25147.8	66.1690	166742.3	53515.7	21204.1	1.4005	-109899.6	2.2484
3000	10.4116	26183.2	66.5200	173376.8	54551.1	21043.1	1.4536	-109865.7	1.9724
3100	10.5230	27230.0	66.8632	180046.0	55597.9	20891.2	1.5029	-109822.5	1.7142
3200	10.6297	28287.6	67.1990	186749.2	56655.5	20747.9	1.5489	-109770.9	1.4724
3300	10.7310	29355.7	67.5277	193485.6	57723.6	20612.8	1.5916	-109711.8	1.2452
3400	10.8267	30433.7	67.8494	200254.5	58801.5	20485.5	1.6316	-109646.2	1.0316
3500	10.9163	31520.9	68.1646	207055.2	59888.7	20365.4	1.6691	-109575.2	0.8303
3600	10.9999	32616.7	68.4733	213887.2	60984.6	20252.0	1.7045	-109499.9	0.6403
3700	11.0772	33720.6	68.7758	220749.7	62088.5	20144.7	1.7374	-109421.5	0.4607
3800	11.1483	34831.9	69.0721	227642.1	63199.8	20043.1	1.7687	-109341.1	0.2907
3900	11.2133	35950.1	69.3626	234563.9	64318.0	19946.5	1.7982	-109259.8	0.1295
4000	11.2723	37074.4	69.6472	241514.4	65442.3	19854.5	1.8261	-109179.0	-0.0235
4100	11.3256	38204.3	69.9262	248493.2	66572.2	19766.5	1.8525	-109099.6	-0.1689
4200	11.3733	39339.3	70.1997	255499.5	67707.2	19682.0	1.8776	-109022.8	-0.3073
4300	11.4157	40478.8	70.4679	262532.9	68846.7	19600.5	1.9012	-108949.7	-0.4392
4400	11.4532	41622.3	70.7307	269592.9	69990.2	19521.7	1.9239	-108881.3	-0.5650
4500	11.4859	42769.3	70.9885	276678.9	71137.2	19445.0	1.9454	-108818.6	-0.6851
4600	11.5143	43919.4	71.2413	283790.4	72287.3	19370.0	1.9660	-108762.5	-0.8000
4700	11.5386	45072.0	71.4892	290927.0	73439.9	19296.4	1.9855	-108713.9	-0.9099
4800	11.5591	46227.0	71.7323	298088.1	74594.8	19223.9	2.0040	-108673.6	-1.0152
4900	11.5761	47383.7	71.9708	305273.3	75751.6	19152.1	2.0220	-108642.3	-1.1162
5000	11.5900	48542.1	72.2048	312482.1	76910.0	19080.7	2.0389	-108620.8	-1.2130
5100	11.6009	49701.6	72.4345	319714.1	78069.5	19009.4	2.0553	-108609.6	-1.3061
5200	11.6092	50862.2	72.6598	326968.9	79230.1	18938.1	2.0709	-108609.3	-1.3956
5300	11.6151	52023.4	72.8810	334245.9	80391.3	18866.5	2.0860	-108620.3	-1.4818
5400	11.6188	53185.1	73.0982	341544.9	81553.0	18794.3	2.1002	-108643.2	-1.5647
5500	11.6206	54347.1	73.3114	348865.4	82715.0	18721.5	2.1141	-108678.2	-1.6447
5600	11.6207	55509.2	73.5208	356207.1	83877.1	18647.9	2.1273	-108725.6	-1.7218
5700	11.6193	56671.2	73.7264	363569.5	85039.1	18573.2	2.1401	-108785.7	-1.7962
5800	11.6164	57833.0	73.9285	370952.2	86200.9	18497.5	2.1524	-108858.7	-1.8682
5900	11.6124	58994.5	74.1270	378355.1	87362.3	18420.6	2.1642	-108944.7	-1.9377
6000	11.6074	60155.4	74.3222	385777.5	88523.3	18342.4	2.1756	-109043.8	-2.0050

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Be, 1560° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(52) BeO (crystal, liquid); molecular weight, 25.013

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-143790.8	-142284.7	-------	-278158.7	--------
100	0.672	17.9	0.2428	6.3	-143772.8	-142623.3	307.1894	-279165.0	597.1170
200	3.416	222.8	1.5534	87.9	-143568.0	-142905.9	151.2194	-280014.4	291.6897
298.15	6.090	690.8	3.4926	350.6	-143100.0	-143100.0	99.7964	-280556.7	190.8877
300	6.110	702.0	3.5304	357.1	-143088.7	-143102.3	99.1495	-280564.3	189.6195
400	7.920	1405.4	5.5412	811.1	-142385.4	-143192.6	73.0795	-280875.7	138.4957
500	9.236	2265.9	7.4560	1462.1	-141524.9	-143199.6	57.4319	-281022.5	107.7959
600	10.100	3235.2	9.2210	2297.4	-140555.6	-143150.2	47.0017	-281056.3	87.3227
700	10.717	4277.5	10.8266	3301.1	-139513.3	-143068.9	39.5551	-281014.7	72.6992
800	11.100	5369.5	12.2841	4457.8	-138421.3	-142971.5	33.9737	-280921.7	61.7343
900	11.350	6492.3	13.6064	5753.4	-137298.5	-142873.2	29.6356	-280796.7	53.2093
1000	11.560	7637.8	14.8131	7175.2	-136153.0	-142780.8	26.1675	-280648.3	46.3926
1100	11.770	8804.3	15.9247	8712.8	-134986.5	-142694.9	23.3317	-280478.2	40.8185
1200	11.979	9991.8	16.9578	10357.6	-133799.0	-142614.5	20.9699	-280286.7	36.1765
1300	12.188	11200.1	17.9249	12102.2	-132590.7	-142539.2	18.9725	-280074.0	32.2514
1400	12.397	12429.4	18.8357	13940.7	-131361.4	-142468.5	17.2612	-279840.1	28.8897
1500	12.606	13679.5	19.6982	15867.7	-130111.3	-142402.0	15.7790	-279585.1	25.9788
b1600	12.815	14950.6	20.5184	17878.9	-128840.2	-145836.8	14.4703	-279309.0	23.4341
1700	13.024	16242.5	21.3016	19970.2	-127548.3	-145706.3	13.2992	-279011.9	21.1912
1800	13.233	17555.4	22.0519	22138.1	-126235.4	-145557.8	12.2590	-278693.8	19.1996
1900	13.442	18889.1	22.7730	24379.6	-124901.7	-145391.2	11.3294	-278354.7	17.4198
2000	13.651	20243.8	23.4678	26691.8	-123547.0	-145206.6	10.4938	-277994.7	15.8200
2100	13.860	21619.3	24.1389	29072.4	-122171.5	-145003.8	9.7387	-277613.8	14.3745
2200	14.069	23015.8	24.7885	31518.9	-120775.0	-144782.9	9.0532	-277212.2	13.0622
2300	14.278	24433.1	25.4185	34029.4	-119357.7	-144543.9	8.4284	-276789.8	11.8658
2400	14.487	25871.4	26.0306	36602.0	-117919.4	-144286.7	7.8568	-276346.9	10.7709
2500	14.696	27330.5	26.6262	39235.0	-116460.3	-144011.2	7.3317	-275883.6	9.7651
2600	14.905	28810.6	27.2067	41926.7	-114980.2	-143717.5	6.8481	-275400.0	8.8384
2700	15.114	30311.5	27.7731	44675.9	-113479.3	-143405.5	6.4011	-274896.3	7.9818
2800	15.323	31833.4	28.3265	47480.9	-111957.4	-143075.1	5.9870	-274372.9	7.1879
c2843	15.413	32494.2	28.5608	48704.0	-111296.6	-142925.8	5.8179	-274138.8	6.8639
2843	15.0	49552.2	34.5608	48704.0	-94238.6	-125868.1	5.8179	-257081.2	6.8639
2900	15.0	50407.2	34.8585	50682.5	-93383.6	-125695.2	5.6281	-256798.9	6.4759
3000	15.0	51907.2	35.3670	54193.9	-91883.6	-125391.6	5.3127	-256300.4	5.8315
3100	15.0	53407.2	35.8589	57755.4	-90383.6	-125090.3	5.0184	-255804.0	5.2298
3200	15.0	54907.2	36.3351	61365.2	-88883.6	-124791.2	4.7433	-255310.0	4.6668
3300	15.0	56407.2	36.7967	65021.9	-87383.6	-124494.4	4.4853	-254819.0	4.1389
3400	15.0	57907.2	37.2445	68724.1	-85883.6	-124199.7	4.2430	-254331.3	3.6431
3500	15.0	59407.2	37.6793	72470.4	-84383.6	-123907.0	4.0152	-253847.5	3.1764
3600	15.0	60907.2	38.1019	76259.5	-82883.6	-123616.2	3.8007	-253368.1	2.7366
3700	15.0	62407.2	38.5128	80090.3	-81383.6	-123327.4	3.5979	-252893.6	2.3212
3800	15.0	63907.2	38.9129	83961.7	-79883.6	-123040.4	3.4065	-252424.5	1.9285
3900	15.0	65407.2	39.3025	87872.6	-78383.6	-122755.1	3.2252	-251961.4	1.5566
4000	15.0	66907.2	39.6823	91821.9	-76883.6	-122471.4	3.0535	-251504.9	1.2040
4100	15.0	68407.2	40.0527	95808.7	-75383.6	-122189.4	2.8905	-251055.4	0.8691
4200	15.0	69907.2	40.4141	99832.1	-73883.6	-121908.8	2.7357	-250613.6	0.5508
4300	15.0	71407.2	40.7671	103891.2	-72383.6	-121629.8	2.5882	-250180.0	0.2478
4400	15.0	72907.2	41.1119	107985.3	-70883.6	-121352.1	2.4480	-249755.1	-0.0409
4500	15.0	74407.2	41.4490	112113.4	-69383.6	-121075.9	2.3142	-249339.4	-0.3164
4600	15.0	75907.2	41.7787	116274.8	-67883.6	-120800.9	2.1865	-248933.4	-0.5794
4700	15.0	77407.2	42.1013	120468.9	-66383.6	-120527.1	2.0645	-248537.4	-0.8308
4800	15.0	78907.2	42.4171	124694.9	-64883.6	-120254.6	1.9478	-248152.1	-1.0714
4900	15.0	80407.2	42.7264	128952.1	-63383.6	-119983.2	1.8363	-247777.6	-1.3018
5000	15.0	81907.2	43.0294	133239.9	-61883.6	-119712.9	1.7293	-247414.4	-1.5227
5100	15.0	83407.2	43.3265	137557.8	-60383.6	-119443.7	1.6269	-247062.7	-1.7345
5200	15.0	84907.2	43.6177	141905.0	-58883.6	-119175.6	1.5286	-246722.9	-1.9380
5300	15.0	86407.2	43.9035	146281.1	-57383.6	-118908.4	1.4342	-246395.2	-2.1335
5400	15.0	87907.2	44.1838	150685.5	-55883.6	-118642.3	1.3434	-246079.8	-2.3215
5500	15.0	89407.2	44.4591	155117.7	-54383.6	-118377.1	1.2562	-245776.8	-2.5025
5600	15.0	90907.2	44.7294	159577.2	-52883.6	-118112.8	1.1723	-245486.3	-2.6768
5700	15.0	92407.2	44.9948	164063.4	-51383.6	-117849.5	1.0916	-245208.4	-2.8448
5800	15.0	93907.2	45.2557	168576.0	-49883.6	-117587.0	1.0138	-244943.2	-3.0068
5900	15.0	95407.2	45.5121	173114.4	-48383.6	-117325.3	0.9388	-244690.6	-3.1631
6000	15.0	96907.2	45.7642	177678.3	-46883.6	-117064.5	0.8665	-244450.7	-3.3141

[a] H_0° refers to crystal state.

[b] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Be, 1560° K.

[c] Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(53) $(BeO)_2$ (gas); molecular weight, 50.026

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-107366.0	-104353.8	-------	-376101.7	--------
100	8.5096	807.1	49.0135	4094.2	-106558.8	-104259.8	229.4565	-377343.2	809.3118
200	10.4106	1750.1	55.4737	9344.6	-105615.8	-104291.6	115.5366	-378508.6	396.4771
298.15	12.3009	2866.0	59.9879	15019.4	-104500.0	-104500.0	77.9927	-379413.3	260.1752
300	12.3348	2888.7	60.0641	15130.5	-104477.2	-104504.4	77.5202	-379428.3	258.4602
400	14.0113	4208.7	63.8499	21331.2	-103157.2	-104771.6	58.4664	-380137.7	189.2989
500	15.3351	5679.1	67.1254	27883.6	-101686.9	-105036.4	47.0046	-380682.1	147.7326
600	16.3262	7264.6	70.0134	34743.4	-100101.3	-105290.7	39.3442	-381102.9	119.9862
700	17.0576	8935.7	72.5879	41875.9	-98430.3	-105541.6	33.8595	-381433.1	100.1477
800	17.6002	10669.9	74.9028	49252.4	-96696.1	-105796.4	29.7361	-381696.9	85.2572
900	18.0083	12451.2	77.0005	56849.2	-94914.7	-106064.1	26.5211	-381911.2	73.6685
1000	18.3202	14268.3	78.9147	64646.4	-93097.6	-106353.3	23.9424	-382088.2	64.3927
1100	18.5627	16113.0	80.6726	72626.9	-91253.0	-106669.8	21.8265	-382236.4	56.8002
1200	18.7541	17979.2	82.2963	80776.4	-89386.8	-107017.8	20.0577	-382362.2	50.4709
1300	18.9074	19862.5	83.8037	89082.3	-87503.4	-107400.6	18.5559	-382470.2	45.1136
1400	19.0319	21759.7	85.2096	97533.8	-85606.3	-107820.4	17.2636	-382563.7	40.5205
1500	19.1342	23668.2	86.5263	106121.3	-83697.8	-108279.2	16.1393	-382645.5	36.5389
[a]1600	19.2192	25586.0	87.7640	114836.4	-81780.0	-115773.2	15.1266	-382717.6	33.0543
1700	19.2906	27511.6	88.9313	123671.7	-79854.4	-116170.5	14.1950	-382781.7	29.9790
1800	19.3510	29443.7	90.0357	132620.6	-77922.2	-116567.0	13.3638	-382839.0	27.2451
1900	19.4025	31381.5	91.0834	141677.0	-75984.5	-116963.7	12.6178	-382890.5	24.7986
2000	19.4469	33324.0	92.0798	150835.5	-74042.0	-117361.1	11.9441	-382937.3	22.5964
2100	19.4853	35270.6	93.0295	160091.4	-72095.3	-117760.1	11.3321	-382980.0	20.6038
2200	19.5188	37220.9	93.9368	169440.0	-70145.1	-118160.9	10.7741	-383019.4	18.7921
2300	19.5482	39174.3	94.8051	178877.4	-68191.7	-118564.1	10.2630	-383056.0	17.1377
2400	19.5741	41130.4	95.6376	188399.8	-66235.5	-118970.0	9.7930	-383090.5	15.6211
2500	19.5970	43089.0	96.4371	198003.8	-64277.0	-119378.8	9.3589	-383123.6	14.2257
2600	19.6174	45049.7	97.2061	207686.2	-62316.2	-119790.8	8.9570	-383155.7	12.9376
2700	19.6356	47012.4	97.9469	217444.1	-60353.6	-120206.0	8.5833	-383187.7	11.7447
2800	19.6520	48976.8	98.6613	227274.7	-58389.2	-120624.5	8.2352	-383220.1	10.6370
2900	19.6667	50942.7	99.3511	237175.6	-56423.2	-121046.5	7.9098	-383253.7	9.6055
3000	19.6800	52910.1	100.0181	247144.2	-54455.9	-121471.8	7.6053	-383289.4	8.6428
3100	19.6921	54878.7	100.6636	257178.5	-52487.3	-121900.6	7.3194	-383328.0	7.7421
3200	19.7030	56848.4	101.2890	267276.3	-50517.5	-122332.8	7.0506	-383370.4	6.8975
3300	19.7130	58819.3	101.8954	277435.6	-48546.7	-122768.3	6.7968	-383417.5	6.1041
3400	19.7222	60791.0	102.4840	287654.7	-46574.9	-123207.1	6.5572	-383470.4	5.3572
3500	19.7306	62763.7	103.0559	297931.9	-44602.3	-123649.0	6.3304	-383530.2	4.6530
3600	19.7383	64737.1	103.6118	308265.4	-42628.8	-124094.1	6.1159	-383597.9	3.9877
3700	19.7454	66711.3	104.1527	318653.7	-40654.7	-124542.3	5.9117	-383674.6	3.3583
3800	19.7519	68686.2	104.6794	329095.5	-38679.8	-124993.3	5.7177	-383761.6	2.7618
3900	19.7580	70661.7	105.1925	339589.2	-36704.3	-125447.2	5.5331	-383859.9	2.1959
4000	19.7636	72637.7	105.6928	350133.5	-34728.2	-125903.8	5.3572	-383970.7	1.6580
4100	19.7688	74614.4	106.1809	360727.3	-32751.6	-126363.1	5.1890	-384095.2	1.1463
4200	19.7736	76591.5	106.6573	371369.3	-30774.5	-126825.0	5.0286	-384234.5	0.6588
4300	19.7782	78569.1	107.1227	382058.4	-28796.9	-127289.3	4.8746	-384389.7	0.1937
4400	19.7824	80547.1	107.5774	392793.5	-26818.8	-127755.9	4.7275	-384561.9	-0.2504
4500	19.7863	82525.5	108.0220	403573.6	-24840.4	-128224.9	4.5861	-384752.0	-0.6749
4600	19.7900	84504.4	108.4569	414397.6	-22861.6	-128696.1	4.4506	-384961.1	-1.0812
4700	19.7935	86483.5	108.8826	425264.6	-20882.4	-129169.4	4.3202	-385190.1	-1.4705
4800	19.7967	88463.0	109.2993	436173.8	-18902.9	-129644.8	4.1947	-385439.8	-1.8437
4900	19.7997	90442.9	109.7076	447124.2	-16923.1	-130122.2	4.0742	-385711.0	-2.2020
5000	19.8026	92423.0	110.1076	458115.0	-14943.0	-130601.6	3.9577	-386004.5	-2.5462
5100	19.8053	94403.4	110.4998	469145.5	-12962.6	-131082.8	3.8458	-386320.8	-2.8771
5200	19.8079	96384.0	110.8844	480214.7	-10981.9	-131565.8	3.7375	-386660.6	-3.1956
5300	19.8103	98365.0	111.2617	491322.1	-9001.0	-132050.7	3.6331	-387024.2	-3.5024
5400	19.8126	100346.1	111.6320	502466.9	-7019.8	-132537.2	3.5319	-387412.2	-3.7980
5500	19.8147	102327.5	111.9956	513648.3	-5038.5	-133025.5	3.4342	-387824.8	-4.0833
5600	19.8168	104309.0	112.3526	524865.8	-3056.9	-133515.4	3.3395	-388262.3	-4.3586
5700	19.8187	106290.8	112.7034	536118.6	-1075.1	-134006.9	3.2482	-388724.8	-4.6246
5800	19.8205	108272.8	113.0481	547406.2	906.8	-134499.9	3.1595	-389212.4	-4.8817
5900	19.8223	110254.9	113.3869	558728.0	2889.0	-134994.5	3.0735	-389725.1	-5.1304
6000	19.8239	112237.2	113.7201	570083.4	4871.3	-135490.5	2.9900	-390263.0	-5.3712

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Be, 1560° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(54) $(BeO)_3$ (gas); molecular weight, 75.039

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-258335.3	-253817.1	-------	-661439.0	--------
100	8.1075	796.7	52.6427	4467.5	-257538.6	-254090.1	553.1358	-663715.1	1422.9188
200	11.1534	1732.7	59.0090	10069.1	-256602.6	-254616.3	275.2956	-665941.8	696.7064
298.15	15.3690	3035.3	64.2520	16121.4	-255300.0	-255300.0	183.6016	-667669.9	456.8754
300	15.4455	3063.8	64.3473	16240.3	-255271.5	-255312.3	182.4475	-667698.1	453.8574
400	19.1973	4802.7	69.3237	22926.8	-253532.6	-255954.2	135.8964	-669003.4	332.1453
500	22.1031	6874.7	73.9352	30092.9	-251460.6	-256484.9	107.9007	-669953.4	258.9926
600	24.2502	9197.9	78.1650	37701.1	-249137.4	-256921.4	89.2011	-670639.7	210.1641
700	25.8220	11705.6	82.0275	45713.6	-246629.7	-257296.7	75.8234	-671134.0	175.2557
800	26.9822	14348.7	85.5551	54095.4	-243986.7	-257637.2	65.7761	-671487.9	149.0577
900	27.8516	17092.4	88.7857	62814.8	-241242.9	-257967.1	57.9513	-671737.7	128.6724
1000	28.5147	19912.1	91.7560	71843.9	-238423.2	-258306.7	51.6836	-671909.1	112.3590
1100	29.0290	22790.4	94.4989	81158.4	-235544.9	-258670.2	46.5483	-672020.1	99.0089
1200	29.4346	25714.3	97.0428	90737.0	-232621.0	-259067.6	42.2626	-672084.2	87.8824
1300	29.7592	28674.6	99.4121	100561.1	-229660.7	-259506.5	38.6304	-672110.8	78.4670
1400	30.0225	31664.1	101.6275	110614.3	-226671.2	-259992.4	35.5111	-672107.3	70.3965
1500	30.2388	34677.6	103.7064	120882.1	-223657.8	-260530.0	32.8029	-672079.3	63.4022
[a]1600	30.4184	37710.7	105.6639	131351.5	-220624.6	-271614.4	30.3911	-672031.1	57.2826
1700	30.5690	40760.3	107.5127	142011.2	-217575.1	-272049.2	28.2074	-671966.0	51.8834
1800	30.6966	43823.7	109.2636	152850.8	-214511.6	-272478.8	26.2627	-671886.7	47.0846
1900	30.8054	46899.0	110.9263	163861.0	-211436.4	-272905.1	24.5203	-671795.4	42.7915
2000	30.8990	49984.3	112.5089	175033.4	-208351.0	-273329.8	22.9499	-671694.0	38.9283
2100	30.9801	53078.4	114.0184	186360.4	-205257.0	-273754.1	21.5261	-671584.0	35.4335
2200	31.0507	56180.0	115.4613	197834.9	-202155.4	-274179.1	20.2301	-671466.8	32.2570
2300	31.1127	59288.2	116.8430	209450.6	-199047.1	-274605.8	19.0451	-671343.6	29.3572
2400	31.1672	62402.3	118.1683	221201.6	-195933.1	-275034.8	17.9574	-671215.6	26.6996
2500	31.2155	65521.5	119.4416	233082.5	-192813.9	-275466.7	16.9548	-671083.8	24.2551
2600	31.2585	68645.2	120.6667	245088.3	-189690.1	-275902.0	16.0281	-670949.4	21.9990
2700	31.2970	71773.0	121.8472	257214.4	-186562.3	-276340.9	15.1684	-670813.5	19.9105
2800	31.3314	74904.5	122.9860	269456.3	-183430.9	-276783.9	14.3688	-670677.2	17.9715
2900	31.3624	78039.2	124.0860	281810.3	-180296.2	-277231.0	13.6231	-670541.9	16.1667
3000	31.3905	81176.8	125.1497	294272.3	-177158.5	-277682.4	12.9262	-670408.8	14.4825
3100	31.4159	84317.2	126.1794	306839.1	-174018.1	-278138.2	12.2732	-670279.2	12.9072
3200	31.4390	87460.0	127.1772	319507.2	-170875.4	-278598.3	11.6603	-670154.7	11.4307
3300	31.4601	90604.9	128.1450	332273.5	-167730.4	-279062.8	11.0830	-670036.6	10.0440
3400	31.4793	93751.9	129.0844	345135.2	-164583.4	-279531.6	10.5390	-669926.6	8.7390
3500	31.4970	96900.7	129.9972	358089.5	-161434.6	-280004.7	10.0250	-669826.4	7.5088
3600	31.5132	100051.3	130.8847	371133.8	-158284.1	-280482.0	9.5395	-669737.6	6.3471
3700	31.5282	103203.3	131.7484	384265.7	-155132.0	-280963.4	9.0784	-669661.9	5.2483
3800	31.5420	106356.9	132.5894	397482.7	-151978.5	-281448.8	8.6414	-669601.2	4.2075
3900	31.5547	109511.7	133.4089	410782.8	-148823.6	-281938.0	8.2260	-669557.0	3.2201
4000	31.5666	112667.8	134.2079	424163.8	-145667.6	-282431.0	7.8309	-669531.3	2.2822
4100	31.5775	115825.0	134.9875	437623.8	-142510.3	-282927.7	7.4540	-669525.8	1.3900
4200	31.5878	118983.3	135.7486	451160.7	-139352.1	-283427.8	7.0950	-669542.2	0.5403
4300	31.5973	122142.5	136.4920	464772.9	-136192.8	-283931.4	6.7513	-669582.1	-0.2699
4400	31.6062	125302.7	137.2185	478458.5	-133032.6	-284438.3	6.4234	-669647.2	-1.0434
4500	31.6145	128463.7	137.9288	492216.0	-129871.6	-284948.4	6.1091	-669739.0	-1.7825
4600	31.6222	131625.6	138.6238	506043.8	-126709.8	-285461.5	5.8081	-669859.1	-2.4897
4700	31.6295	134788.2	139.3039	519940.3	-123547.2	-285977.7	5.5192	-670008.7	-3.1669
4800	31.6363	137951.5	139.9699	533904.1	-120383.9	-286496.8	5.2417	-670189.2	-3.8160
4900	31.6428	141115.4	140.6223	547933.8	-117219.9	-287018.6	4.9755	-670401.9	-4.4388
5000	31.6488	144280.0	141.2616	562028.1	-114055.3	-287543.2	4.7189	-670647.6	-5.0369
5100	31.6545	147445.2	141.8884	576185.7	-110890.2	-288070.5	4.4727	-670927.6	-5.6118
5200	31.6599	150610.9	142.5031	590405.4	-107724.4	-288600.4	4.2349	-671242.5	-6.1648
5300	31.6649	153777.1	143.1062	604686.0	-104558.2	-289132.7	4.0060	-671593.1	-6.6972
5400	31.6697	156943.9	143.6982	619026.3	-101391.5	-289667.6	3.7847	-671980.0	-7.2101
5500	31.6743	160111.1	144.2793	633425.2	-98224.3	-290204.8	3.5715	-672403.7	-7.7047
5600	31.6786	163278.7	144.8501	647881.8	-95056.6	-290744.3	3.3652	-672864.6	-8.1820
5700	31.6826	166446.8	145.4108	662394.9	-91888.6	-291286.1	3.1662	-673363.0	-8.6429
5800	31.6865	169615.2	145.9619	676963.6	-88720.1	-291830.2	2.9736	-673898.9	-9.0881
5900	31.6902	172784.1	146.5036	691587.0	-85551.3	-292376.4	2.7871	-674472.4	-9.5187
6000	31.6937	175953.3	147.0362	706264.1	-82382.1	-292924.8	2.6065	-675083.5	-9.9353

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Be, 1560° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(55) $(BeO)_4$ (gas); molecular weight, 100.052

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-384184.4	-378160.1	-------	-921656.0	--------
100	9.1757	820.6	55.6727	4746.7	-383363.9	-378765.8	821.7118	-924932.6	1981.4224
200	14.9556	2004.5	63.6474	10725.0	-382179.9	-379531.5	407.5309	-927965.6	969.4120
298.15	21.1897	3784.4	70.8054	17326.2	-380400.0	-380400.0	270.8732	-930226.6	635.2383
300	21.2587	3823.7	70.9368	17457.3	-380360.7	-380415.1	269.1535	-930262.8	631.0335
400	26.5570	6227.1	77.8146	24898.7	-377957.3	-381186.0	199.8077	-931918.4	461.4728
500	30.5578	9092.8	84.1926	33003.5	-375091.6	-381790.6	158.1238	-933082.0	359.5797
600	33.4914	12303.0	90.0374	41719.4	-371881.4	-382260.1	130.2948	-933884.5	291.5787
700	35.6306	15764.7	95.3694	50993.9	-368419.7	-382642.4	110.3950	-934425.4	242.9714
800	37.2060	19410.4	100.2352	60777.8	-364774.0	-382974.7	95.4563	-934775.6	206.4985
900	38.3850	23192.7	104.6888	71027.2	-360991.7	-383290.5	83.8274	-934984.7	178.1222
1000	39.2832	27078.1	108.7816	81703.5	-357106.3	-383617.7	74.5168	-935087.5	155.4174
1100	39.9796	31042.7	112.5597	92773.0	-353141.7	-383975.3	66.8920	-935108.7	136.8395
1200	40.5284	35069.1	116.0628	104206.3	-349115.3	-384377.4	60.5317	-935066.2	121.3581
1300	40.9675	39144.7	119.3248	115977.5	-345039.7	-384834.0	55.1439	-934973.1	108.2594
1400	41.3235	43259.9	122.3743	128064.2	-340924.5	-385352.9	50.5194	-934839.4	97.0333
1500	41.6159	47407.3	125.2356	140446.1	-336777.1	-385940.0	46.5064	-934672.5	87.3056
[a]1600	41.8587	51581.4	127.9294	153105.7	-332603.0	-400589.4	42.9401	-934478.3	78.7955
1700	42.0623	55777.7	130.4734	166027.0	-328406.7	-401038.8	39.7202	-934261.2	71.2882
1800	42.2346	59992.8	132.8826	179195.9	-324191.6	-401481.2	36.8541	-934025.0	64.6167
1900	42.3817	64223.8	135.1702	192599.5	-319960.6	-401918.9	34.2875	-933772.7	58.6490
2000	42.5082	68468.5	137.3474	206226.3	-315715.9	-402354.3	31.9751	-933506.6	53.2796
2100	42.6177	72724.9	139.4241	220065.6	-311459.5	-402789.0	29.8797	-933228.9	48.4230
2200	42.7131	76991.5	141.4089	234108.0	-307192.9	-403224.6	27.9734	-932941.5	44.0092
2300	42.7967	81267.1	143.3094	248344.6	-302917.3	-403662.2	26.2310	-932646.0	39.9805
2400	42.8704	85550.6	145.1324	262767.3	-298633.9	-404102.8	24.6324	-932343.8	36.2887
2500	42.9357	89840.9	146.8839	277368.7	-294343.5	-404547.2	23.1596	-932036.7	32.8934
2600	42.9938	94137.5	148.5690	292141.9	-290047.0	-404996.1	21.7991	-931725.9	29.7602
2700	43.0457	98439.5	150.1926	307080.4	-285744.9	-405449.8	20.5374	-931413.1	26.8602
2800	43.0922	102746.4	151.7589	322178.5	-281438.0	-405908.7	19.3645	-931099.8	24.1681
2900	43.1341	107057.8	153.2718	337430.4	-277126.6	-406373.1	18.2712	-930787.7	21.6626
3000	43.1720	111373.1	154.7348	352831.2	-272811.3	-406843.2	17.2499	-930478.4	19.3249
3100	43.2063	115692.0	156.1509	368375.8	-268492.4	-407319.1	16.2934	-930173.8	17.1388
3200	43.2375	120014.3	157.5232	384059.9	-264170.2	-407800.7	15.3960	-929875.9	15.0899
3300	43.2659	124339.5	158.8541	399879.1	-259845.0	-408288.1	14.5512	-929586.6	13.1658
3400	43.2920	128667.4	160.1461	415829.4	-255517.0	-408781.3	13.7554	-929308.0	11.3555
3500	43.3158	132997.8	161.4014	431907.1	-251186.6	-409280.2	13.0040	-929042.4	9.6491
3600	43.3377	137330.5	162.6219	448108.5	-246853.9	-409784.6	12.2944	-928792.0	8.0379
3700	43.3579	141665.3	163.8096	464430.4	-242519.2	-410294.4	11.6210	-928559.1	6.5143
3800	43.3765	146002.0	164.9662	480869.4	-238182.4	-410809.5	10.9829	-928346.0	5.0711
3900	43.3938	150340.5	166.0931	497422.6	-233843.9	-411329.7	10.3768	-928155.1	3.7023
4000	43.4097	154680.7	167.1920	514087.1	-229503.7	-411855.0	9.8004	-927988.8	2.4022
4100	43.4246	159022.4	168.2640	530860.1	-225162.0	-412385.1	9.2511	-927849.3	1.1657
4200	43.4383	163365.6	169.3106	547739.1	-220818.8	-412919.8	8.7278	-927739.0	-0.0118
4300	43.4512	167710.1	170.3329	564721.4	-216474.3	-413459.1	8.2273	-927660.0	-1.1344
4400	43.4632	172055.8	171.3320	581804.9	-212128.6	-414002.8	7.7499	-927614.7	-2.2058
4500	43.4744	176402.7	172.3088	598987.1	-207781.7	-414550.7	7.2925	-927604.9	-3.2297
4600	43.4849	180750.7	173.2645	616265.9	-203433.8	-415102.8	6.8547	-927632.8	-4.2090
4700	43.4947	185099.6	174.1998	633639.3	-199084.8	-415658.8	6.4347	-927700.1	-5.1467
4800	43.5039	189449.6	175.1156	651105.2	-194734.8	-416218.7	6.0315	-927808.6	-6.0454
4900	43.5126	193800.4	176.0127	668661.8	-190384.0	-416782.3	5.6449	-927959.9	-6.9076
5000	43.5208	198152.1	176.8919	686307.2	-186032.3	-417349.5	5.2724	-928155.4	-7.7354
5100	43.5285	202504.6	177.7538	704039.6	-181679.9	-417920.3	4.9150	-928396.4	-8.5309
5200	43.5357	206857.8	178.5991	721857.4	-177326.6	-418494.5	4.5702	-928684.0	-9.2961
5300	43.5426	211211.7	179.4284	739758.9	-172972.7	-419072.1	4.2382	-929019.2	-10.0326
5400	43.5490	215566.3	180.2424	757742.6	-168618.1	-419652.9	3.9176	-929402.9	-10.7422
5500	43.5552	219921.5	181.0415	775806.9	-164262.9	-420236.9	3.6087	-929835.5	-11.4262
5600	43.5610	224277.3	181.8264	793950.4	-159907.1	-420824.0	3.3101	-930317.8	-12.0861
5700	43.5665	228633.7	182.5974	812171.7	-155550.7	-421414.2	3.0222	-930850.0	-12.7232
5800	43.5717	232990.6	183.3552	830469.4	-151193.8	-422007.3	2.7436	-931432.3	-13.3388
5900	43.5766	237348.0	184.1000	848842.3	-146836.4	-422603.3	2.4740	-932064.6	-13.9338
6000	43.5813	241705.9	184.8325	867289.0	-142478.5	-423202.1	2.2129	-932747.1	-14.5094

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Be, 1560° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(56) $Be(OH)_2$ (gas); molecular weight, 43.029

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-159072.1	-154504.8	-------	-452622.1	--------
100	7.0213	696.3	44.3331	3737.0	-158375.8	-155270.8	334.6115	-454471.2	973.1699
200	8.4005	1454.9	49.5364	8452.4	-157617.2	-155950.3	164.6758	-456317.9	475.7748
298.15	10.2849	2372.1	53.2425	13502.2	-156700.0	-156700.0	108.4622	-457908.8	311.3768
300	10.3200	2391.1	53.3062	13600.7	-156680.9	-156713.8	107.7535	-457936.7	309.3070
400	12.1947	3517.4	56.5332	19095.9	-155554.7	-157430.8	79.1528	-459336.8	225.7909
500	13.9607	4826.5	59.4471	24897.1	-154245.6	-158053.4	61.9182	-460539.1	175.5368
600	15.5238	6302.6	62.1341	30977.8	-152769.5	-158574.8	50.3861	-461566.1	141.9521
700	16.8597	7923.6	64.6303	37317.5	-151148.4	-159006.0	42.1239	-462443.2	117.9131
800	17.9926	9667.8	66.9576	43898.3	-149404.3	-159360.7	35.9119	-463193.9	99.8519
900	18.9581	11516.6	69.1340	50704.0	-147555.5	-159654.6	31.0707	-463837.6	85.7831
1000	19.7877	13454.9	71.1755	57720.6	-145617.2	-159901.4	27.1913	-464390.2	74.5135
1100	20.5060	15470.4	73.0959	64935.1	-143601.7	-160112.3	24.0122	-464864.3	65.2827
1200	21.1316	17553.0	74.9076	72336.1	-141519.1	-160296.7	21.3599	-465270.5	57.5830
1300	21.6789	19694.2	76.6212	79913.3	-139377.9	-160462.8	19.1133	-465617.5	51.0626
1400	22.1595	21886.6	78.2457	87657.4	-137185.5	-160616.9	17.1850	-465912.6	45.4699
1500	22.5826	24124.1	79.7893	95559.8	-134948.0	-160765.5	15.5129	-466162.1	40.6200
[a]1600	22.9562	26401.5	81.2589	103612.8	-132670.6	-164409.9	14.0363	-466371.6	36.3742
1700	23.2871	28714.0	82.6607	111809.3	-130358.1	-164487.5	12.7151	-466545.5	32.6265
1800	23.5808	31057.6	84.0003	120142.9	-128014.5	-164548.6	11.5401	-466688.1	29.2940
1900	23.8422	33429.0	85.2824	128607.4	-125643.1	-164597.8	10.4886	-466802.8	26.3114
2000	24.0755	35825.1	86.5113	137197.6	-123247.0	-164636.9	9.5417	-466892.8	23.6266
2100	24.2843	38243.3	87.6911	145908.1	-120828.8	-164668.0	8.6849	-466960.7	21.1970
2200	24.4716	40681.3	88.8252	154734.3	-118390.8	-164692.6	7.9058	-467009.0	18.9880
2300	24.6402	43137.0	89.9168	163671.7	-115935.1	-164712.8	7.1948	-467039.8	16.9710
2400	24.7922	45608.8	90.9688	172716.3	-113463.3	-164729.5	6.5424	-467055.1	15.1219
2500	24.9297	48095.0	91.9837	181864.2	-110977.1	-164743.9	5.9425	-467056.5	13.4207
2600	25.0544	50594.3	92.9639	191111.9	-108477.8	-164757.1	5.3885	-467045.8	11.8504
2700	25.1677	53105.5	93.9116	200455.9	-105966.6	-164769.5	4.8757	-467024.3	10.3965
2800	25.2708	55627.5	94.8288	209893.2	-103444.6	-164782.5	4.3992	-466993.6	9.0465
2900	25.3651	58159.3	95.7173	219420.7	-100912.7	-164796.0	3.9556	-466954.8	7.7897
3000	25.4513	60700.2	96.5787	229035.7	-98371.9	-164811.2	3.5419	-466909.2	6.6168
3100	25.5303	63249.4	97.4145	238735.6	-95822.7	-164828.4	3.1545	-466858.0	5.5197
3200	25.6030	65806.1	98.2262	248517.8	-93266.0	-164848.1	2.7914	-466802.4	4.4912
3300	25.6699	68369.8	99.0151	258380.1	-90702.3	-164869.2	2.4502	-466743.3	3.5252
3400	25.7316	70939.9	99.7824	268320.1	-88132.2	-164894.5	2.1290	-466682.1	2.6162
3500	25.7886	73515.9	100.5291	278335.9	-85556.2	-164923.6	1.8260	-466619.5	1.7592
3600	25.8414	76097.5	101.2563	288425.3	-82974.6	-164954.5	1.5404	-466556.8	0.9499
3700	25.8904	78684.1	101.9650	298586.5	-80388.0	-164988.7	1.2694	-466494.8	0.1845
3800	25.9359	81275.4	102.6561	308817.7	-77796.6	-165028.4	1.0130	-466434.5	-0.5405
3900	25.9783	83871.2	103.3304	319117.2	-75200.9	-165069.1	0.7692	-466376.8	-1.2283
4000	26.0177	86471.0	103.9886	329483.3	-72601.1	-165114.7	0.5384	-466322.7	-1.8816
4100	26.0545	89074.6	104.6315	339914.4	-69997.5	-165162.7	0.3179	-466272.9	-2.5030
4200	26.0889	91681.8	105.2597	350409.1	-67390.3	-165215.6	0.1089	-466228.4	-3.0947
4300	26.1211	94292.3	105.8740	360965.9	-64779.7	-165271.7	-0.0912	-466189.9	-3.6589
4400	26.1513	96906.0	106.4749	371583.4	-62166.1	-165332.7	-0.2821	-466158.2	-4.1973
4500	26.1796	99522.5	107.0629	382260.4	-59549.5	-165395.9	-0.4648	-466133.9	-4.7118
4600	26.2062	102141.9	107.6386	392995.6	-56930.2	-165463.9	-0.6395	-466117.7	-5.2039
4700	26.2313	104763.7	108.2024	403787.7	-54308.3	-165535.7	-0.8068	-466110.3	-5.6751
4800	26.2548	107388.1	108.7550	414635.7	-51684.0	-165612.2	-0.9671	-466112.2	-6.1266
4900	26.2770	110014.7	109.2965	425538.4	-49057.4	-165692.5	-1.1211	-466124.0	-6.5597
5000	26.2980	112643.4	109.8276	436494.7	-46428.7	-165775.6	-1.2691	-466146.1	-6.9755
5100	26.3178	115274.2	110.3486	447503.6	-43797.9	-165863.2	-1.4109	-466178.9	-7.3750
5200	26.3365	117907.0	110.8598	458564.1	-41165.1	-165954.4	-1.5478	-466222.8	-7.7592
5300	26.3543	120541.5	111.3616	469675.2	-38530.6	-166050.0	-1.6797	-466278.2	-8.1289
5400	26.3711	123177.8	111.8544	480836.1	-35894.3	-166149.1	-1.8062	-466345.3	-8.4850
5500	26.3870	125815.7	112.3385	492045.8	-33256.4	-166252.7	-1.9287	-466424.3	-8.8281
5600	26.4021	128455.2	112.8140	503303.5	-30616.9	-166359.5	-2.0466	-466515.5	-9.1591
5700	26.4165	131096.1	113.2815	514608.3	-27976.0	-166469.4	-2.1605	-466618.9	-9.4785
5800	26.4301	133738.4	113.7410	525959.5	-25333.7	-166583.7	-2.2707	-466734.7	-9.7870
5900	26.4431	136382.1	114.1929	537356.3	-22690.0	-166702.1	-2.3769	-466862.9	-10.0852
6000	26.4555	139027.0	114.6375	548797.9	-20045.1	-166823.5	-2.4802	-467003.5	-10.3734

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Be, 1560° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(57) C (gas); molecular weight, 12.011

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	169738.6	169989.8	-------	0	--------
100	5.0847	570.2	32.2829	2658.1	170308.8	170545.3	-365.7033	0	0
200	4.9965	1072.8	35.7699	6081.2	170811.4	170970.1	-179.1627	0	0
298.15	4.9807	1562.3	37.7613	9696.2	171300.9	171300.9	-117.6084	0	0
300	4.9806	1571.5	37.7921	9766.1	171310.1	171306.4	-116.8341	0	0
400	4.9751	2069.2	39.2241	13620.4	171807.8	171557.1	-85.6146	0	0
500	4.9726	2566.6	40.3340	17600.4	172305.2	171735.5	-66.8590	0	0
600	4.9712	3063.8	41.2404	21680.5	172802.4	171855.5	-54.3443	0	0
700	4.9704	3560.9	42.0067	25843.8	173299.5	171928.5	-45.4001	0	0
800	4.9699	4057.9	42.6703	30078.4	173796.5	171965.5	-38.6898	0	0
900	4.9695	4554.9	43.2557	34375.3	174293.5	171975.7	-33.4700	0	0
1000	4.9693	5051.8	43.7793	38727.5	174790.4	171965.9	-29.2941	0	0
1100	4.9694	5548.7	44.2529	43129.5	175287.3	171940.4	-25.8779	0	0
1200	4.9697	6045.7	44.6853	47576.7	175784.3	171901.5	-23.0315	0	0
1300	4.9706	6542.7	45.0831	52065.4	176281.3	171850.8	-20.6237	0	0
1400	4.9722	7039.8	45.4515	56592.3	176778.4	171789.7	-18.5605	0	0
1500	4.9748	7537.2	45.7947	61154.8	177275.8	171719.6	-16.7731	0	0
1600	4.9785	8034.8	46.1158	65750.5	177773.4	171641.7	-15.2098	0	0
1700	4.9835	8532.9	46.4178	70377.4	178271.5	171557.4	-13.8311	0	0
1800	4.9901	9031.6	46.7028	75033.5	178770.2	171467.3	-12.6062	0	0
1900	4.9981	9531.0	46.9728	79717.4	179269.6	171372.2	-11.5108	0	0
2000	5.0078	10031.3	47.2295	84427.6	179769.9	171272.5	-10.5255	0	0
2100	5.0190	10532.6	47.4740	89162.9	180271.2	171169.0	-9.6346	0	0
2200	5.0316	11035.1	47.7078	93922.1	180773.7	171062.4	-8.8251	0	0
2300	5.0456	11539.0	47.9318	98704.2	181277.5	170953.3	-8.0866	0	0
2400	5.0607	12044.3	48.1468	103508.2	181782.9	170842.0	-7.4100	0	0
2500	5.0769	12551.1	48.3538	108333.2	182289.7	170729.2	-6.7879	0	0
2600	5.0940	13059.7	48.5532	113178.7	182798.3	170615.2	-6.2141	0	0
2700	5.1118	13570.0	48.7458	118043.7	183308.6	170500.2	-5.6831	0	0
2800	5.1301	14082.1	48.9320	122927.6	183820.7	170384.6	-5.1904	0	0
2900	5.1488	14596.0	49.1124	127829.9	184334.6	170268.5	-4.7320	0	0
3000	5.1677	15111.8	49.2872	132749.9	184850.4	170152.0	-4.3044	0	0
3100	5.1867	15629.5	49.4570	137687.1	185368.1	170035.3	-3.9047	0	0
3200	5.2057	16149.2	49.6220	142641.1	185887.8	169918.4	-3.5303	0	0
3300	5.2245	16670.7	49.7824	147611.4	186409.3	169801.9	-3.1787	0	0
3400	5.2430	17194.0	49.9387	152597.5	186932.6	169684.8	-2.8481	0	0
3500	5.2612	17719.3	50.0909	157599.0	187457.9	169568.3	-2.5366	0	0
3600	5.2790	18246.3	50.2394	162615.5	187984.9	169452.0	-2.2426	0	0
3700	5.2963	18775.0	50.3843	167646.8	188513.6	169335.8	-1.9647	0	0
3800	5.3131	19305.5	50.5257	172692.3	189044.1	169219.9	-1.7016	0	0
3900	5.3294	19837.7	50.6640	177751.8	189576.2	169104.1	-1.4521	0	0
4000	5.3450	20371.4	50.7991	182825.0	190110.0	168988.5	-1.2153	0	0
4100	5.3601	20906.6	50.9313	187911.5	190645.2			0	0
4200	5.3745	21443.4	51.0606	193011.1	191182.0			0	0
4300	5.3884	21981.5	51.1872	198123.5	191720.1			0	0
4400	5.4016	22521.0	51.3113	203248.5	192259.6			0	0
4500	5.4141	23061.8	51.4328	208385.7	192800.4			0	0
4600	5.4261	23603.8	51.5519	213535.0	193342.4			0	0
4700	5.4375	24147.0	51.6687	218696.0	193885.6			0	0
4800	5.4483	24691.3	51.7833	223868.6	194429.9			0	0
4900	5.4585	25236.7	51.8958	229052.6	194975.3			0	0
5000	5.4682	25783.0	52.0061	234247.7	195521.6			0	0
5100	5.4774	26330.3	52.1145	239453.8	196068.9			0	0
5200	5.4861	26878.5	52.2210	244670.6	196617.1			0	0
5300	5.4943	27427.5	52.3255	249897.9	197166.1			0	0
5400	5.5021	27977.3	52.4283	255135.6	197715.9			0	0
5500	5.5094	28527.9	52.5293	260383.5	198266.5			0	0
5600	5.5164	29079.2	52.6287	265641.4	198817.8			0	0
5700	5.5229	29631.2	52.7264	270909.2	199369.8			0	0
5800	5.5292	30183.8	52.8225	276186.6	199922.4			0	0
5900	5.5351	30737.0	52.9171	281473.6	200475.6			0	0
6000	5.5407	31290.8	53.0101	286770.0	201029.4			0	0

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(58) C (graphite); molecular weight, 12.011

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	0	0	-251.2	0	-------	-169989.8	--------
100	0.3963	14.7	0.2275	8.0	-236.5	0	0	-170545.3	365.7033
200	1.180	92.5	0.7384	55.2	-158.7	0	0	-170970.1	179.1627
298.15	2.038	251.2	1.3718	157.8	0	0	0	-171300.9	117.6084
300	2.053	254.9	1.3846	160.5	3.7	0	0	-171306.4	116.8341
400	2.860	501.9	2.0897	334.0	250.7	0	0	-171557.1	85.6146
500	3.500	820.9	2.7988	578.5	569.7	0	0	-171735.5	66.8590
600	4.025	1198.1	3.4850	892.9	946.9	0	0	-171855.5	54.3443
700	4.439	1622.1	4.1379	1274.4	1370.9	0	0	-171928.5	45.4001
800	4.748	2082.2	4.7517	1719.2	1831.0	0	0	-171965.5	38.6898
900	4.978	2568.9	5.3248	2223.4	2317.7	0	0	-171975.7	33.4700
1000	5.152	3075.7	5.8585	2782.8	2824.5	0	0	-171965.9	29.2941
1100	5.294	3598.1	6.3564	3393.9	3346.9	0	0	-171940.4	25.8779
1200	5.420	4133.9	6.8225	4053.1	3882.7	0	0	-171901.5	23.0315
1300	5.532	4681.6	7.2608	4757.5	4430.4	0	0	-171850.8	20.6237
1400	5.631	5239.9	7.6745	5504.4	4988.7	0	0	-171789.7	18.5605
1500	5.717	5807.4	8.0660	6291.6	5556.2	0	0	-171719.6	16.7731
1600	5.791	6382.9	8.4374	7116.9	6131.7	0	0	-171641.7	15.2098
1700	5.857	6965.3	8.7905	7978.5	6714.1	0	0	-171557.4	13.8311
1800	5.917	7554.1	9.1270	8874.5	7302.9	0	0	-171467.3	12.6062
1900	5.973	8148.6	9.4484	9803.4	7897.4	0	0	-171372.2	11.5108
2000	6.025	8748.5	9.7561	10763.7	8497.3	0	0	-171272.5	10.5255
2100	6.071	9353.4	10.0512	11754.2	9102.2	0	0	-171169.0	9.6346
2200	6.111	9962.5	10.3346	12773.6	9711.3	0	0	-171062.4	8.8251
2300	6.148	10575.5	10.6071	13820.7	10324.3	0	0	-170953.3	8.0866
2400	6.182	11192.0	10.8694	14894.6	10940.8	0	0	-170842.0	7.4100
2500	6.212	11811.7	11.1224	15994.3	11560.5	0	0	-170729.2	6.7879
2600	6.239	12434.3	11.3666	17118.8	12183.1	0	0	-170615.2	6.2141
2700	6.265	13059.5	11.6025	18267.4	12808.3	0	0	-170500.2	5.6831
2800	6.289	13687.2	11.8308	19439.1	13436.0	0	0	-170384.6	5.1904
2900	6.312	14317.3	12.0519	20633.3	14066.1	0	0	-170268.5	4.7320
3000	6.334	14949.6	12.2663	21849.2	14698.4	0	0	-170152.0	4.3044
3100	6.355	15584.1	12.4743	23086.3	15332.9	0	0	-170035.3	3.9047
3200	6.375	16220.6	12.6764	24343.9	15969.4	0	0	-169918.4	3.5303
3300	6.393	16859.0	12.8728	25621.4	16607.8	0	0	-169801.5	3.1787
3400	6.409	17499.1	13.0639	26918.3	17247.9	0	0	-169684.8	2.8481
3500	6.425	18140.8	13.2499	28234.0	17889.6	0	0	-169568.3	2.5366
3600	6.441	18784.1	13.4312	29568.1	18532.9	0	0	-169452.0	2.2426
3700	6.457	19429.0	13.6079	30920.1	19177.8	0	0	-169335.8	1.9647
3800	6.472	20075.5	13.7803	32289.6	19824.3	0	0	-169219.9	1.7016
3900	6.486	20723.4	13.9486	33676.0	20472.2	0	0	-169104.1	1.4521
4000	6.500	21372.7	14.1129	35079.1	21121.5	0	0	-168988.5	1.2153

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(59) C_2 (gas); molecular weight, 24.022

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	197497.6	198000.0	-------	-141979.6	--------
100	7.1142	695.7	37.9208	3096.4	198193.2	198666.2	-425.9761	-142424.4	305.4304
200	9.6701	1523.4	43.5509	7186.8	199021.0	199338.4	-208.6216	-142601.8	149.7039
298.15	10.3130	2528.3	47.6302	11672.7	200025.8	200025.8	-136.8064	-142575.9	98.4104
300	10.3022	2547.3	47.6940	11760.9	200044.9	200037.5	-135.9024	-142575.3	97.7659
400	9.4777	3537.5	50.5484	16681.8	201035.1	200533.6	-99.4278	-142580.6	71.8015
500	8.8784	4452.1	52.5917	21843.8	201949.6	200810.2	-77.4998	-142660.8	56.2182
600	8.6060	5324.2	54.1825	27185.3	202821.8	200928.0	-62.8667	-142783.0	45.8219
700	8.5157	6179.3	55.5008	32671.3	203676.8	200934.9	-52.4112	-142922.1	38.3890
800	8.5114	7030.2	56.6370	38279.4	204527.7	200865.8	-44.5708	-143065.2	32.8088
900	8.5459	7882.8	57.6412	43994.3	205380.4	200744.9	-38.4756	-143206.5	28.4644
1000	8.5977	8739.9	58.5442	49804.3	206237.5	200588.5	-33.6029	-143343.3	24.9854
1100	8.6575	9602.6	59.3664	55700.5	207100.2	200406.3	-29.6195	-143474.5	22.1363
1200	8.7214	10471.5	60.1225	61675.4	207969.1	200203.6	-26.3032	-143599.5	19.7599
1300	8.7876	11347.0	60.8231	67723.1	208844.5	199983.6	-23.5000	-143718.0	17.7474
1400	8.8551	12229.1	61.4768	73838.5	209726.7	199749.2	-21.1000	-143830.2	16.0210
1500	8.9232	13118.0	62.0901	80017.1	210615.6	199503.2	-19.0225	-143936.0	14.5237
1600	8.9912	14013.7	62.6682	86255.3	211511.3	199247.9	-17.2070	-144035.5	13.2126
1700	9.0587	14916.2	63.2153	92549.7	212413.8	198985.6	-15.6072	-144129.2	12.0550
1800	9.1250	15825.4	63.7349	98897.5	213323.0	198717.3	-14.1870	-144217.3	11.0253
1900	9.1896	16741.2	64.2300	105295.9	214238.7	198444.0	-12.9181	-144300.4	10.1035
2000	9.2519	17663.3	64.7030	111742.7	215160.8	198166.2	-11.7776	-144378.9	9.2734
2100	9.3117	18591.5	65.1559	118235.8	216089.1	197884.7	-10.7472	-144453.3	8.5220
2200	9.3685	19525.5	65.5904	124773.3	217023.1	197600.5	-9.8118	-144524.3	7.8385
2300	9.4221	20465.1	66.0080	131353.3	217962.6	197314.1	-8.9590	-144592.5	7.2141
2400	9.4724	21409.8	66.4101	137974.4	218907.4	197025.7	-8.1784	-144658.3	6.6416
2500	9.5193	22359.5	66.7977	144634.9	219857.0	196735.9	-7.4613	-144722.4	6.1146
2600	9.5628	23313.6	67.1719	151333.5	220811.2	196444.9	-6.8003	-144785.4	5.6279
2700	9.6029	24271.9	67.5336	158068.8	221769.5	196152.8	-6.1892	-144847.7	5.1770
2800	9.6396	25234.1	67.8835	164839.8	222731.6	195859.5	-5.6226	-144909.7	4.7582
2900	9.6731	26199.7	68.2224	171645.2	223697.3	195565.1	-5.0958	-144971.9	4.3682
3000	9.7034	27168.6	68.5508	178483.9	224666.1	195269.3	-4.6050	-145034.7	4.0039
3100	9.7309	28140.3	68.8695	185355.0	225637.9	194972.1	-4.1464	-145098.4	3.6630
3200	9.7555	29114.6	69.1788	192257.5	226612.2	194673.5	-3.7172	-145163.3	3.3433
3300	9.7775	30091.3	69.4793	199190.5	227588.9	194373.3	-3.3147	-145229.7	3.0428
3400	9.7971	31070.1	69.7715	206153.1	228567.6	194071.8	-2.9364	-145297.7	2.7599
3500	9.8144	32050.7	70.0558	213144.5	229548.2	193769.0	-2.5802	-145367.5	2.4930
3600	9.8296	33032.9	70.3325	220164.0	230530.4	193464.6	-2.2444	-145439.3	2.2408
3700	9.8428	34016.5	70.6020	227210.8	231514.1	193158.5	-1.9272	-145513.2	2.0021
3800	9.8543	35001.4	70.8646	234284.2	232498.9	192850.4	-1.6273	-145589.3	1.7759
3900	9.8642	35987.3	71.1207	241383.5	233484.9	192540.6	-1.3431	-145667.6	1.5611
4000	9.8726	36974.2	71.3706	248508.1	234471.7	192228.8	-1.0736	-145748.2	1.3570
4100	9.8796	37961.8	71.6144	255657.4	235459.3			-145831.1	1.1627
4200	9.8854	38950.0	71.8526	262830.8	236447.6			-145916.4	0.9776
4300	9.8902	39938.8	72.0852	270027.7	237436.4			-146003.9	0.8010
4400	9.8940	40928.0	72.3127	277247.7	238425.6			-146093.7	0.6323
4500	9.8969	41917.6	72.5350	284490.1	239415.2			-146185.7	0.4710
4600	9.8990	42907.4	72.7526	291754.5	240405.0			-146279.9	0.3166
4700	9.9004	43897.4	72.9655	299040.5	241394.9			-146376.3	0.1687
4800	9.9013	44887.5	73.1739	306347.5	242385.0			-145474.8	0.0269
4900	9.9016	45877.6	73.3781	313675.1	243375.2			-146575.4	-0.1093
5000	9.9014	46867.8	73.5781	321023.0	244365.3			-146677.9	-0.2401
5100	9.9008	47857.9	73.7742	328390.6	245355.4			-146782.4	-0.3658
5200	9.8999	48847.9	73.9665	335777.7	246345.5			-146888.7	-0.4868
5300	9.8987	49837.8	74.1550	343183.8	247335.4			-146996.8	-0.6033
5400	9.8972	50827.6	74.3400	350608.6	248325.2			-147106.7	-0.7156
5500	9.8955	51817.3	74.5216	358051.7	249314.8			-147218.2	-0.8239
5600	9.8936	52806.7	74.6999	365512.8	250304.3			-147331.3	-0.9284
5700	9.8916	53796.0	74.8750	372991.5	251293.5			-147446.0	-1.0293
5800	9.8895	54785.0	75.0470	380487.7	252282.6			-147562.1	-1.1268
5900	9.8873	55773.9	75.2161	388000.8	253271.4			-147679.7	-1.2211
6000	9.8851	56762.5	75.3822	395530.8	254260.1			-147798.7	-1.3123

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(60) C_3 (gas); molecular weight, 36.033

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	187346.3	188099.9	-------	-321869.5	--------
100	7.0465	696.7	41.9865	3502.0	188043.0	188752.5	-403.4720	-322883.5	693.6378
200	8.2075	1452.7	47.1798	7983.2	188799.1	189275.2	-196.9939	-323635.1	340.4943
298.15	9.3883	2319.0	50.6880	12793.7	189665.3	189665.3	-128.8439	-324237.4	223.9813
300	9.4075	2336.4	50.7462	12887.5	189682.7	189671.6	-127.9867	-324247.6	222.5157
400	10.3107	3324.2	53.5818	18108.5	190670.5	189918.3	-93.4219	-324753.0	163.4220
500	11.0295	4392.4	55.9625	23586.8	191738.8	190029.7	-72.6628	-325176.9	127.9142
600	11.6225	5525.9	58.0275	29290.5	192872.3	190031.7	-58.8192	-325534.9	104.2136
700	12.1153	6713.6	59.8573	35186.5	194059.9	189947.1	-48.9330	-325838.5	87.2673
800	12.5240	7946.2	61.5026	41255.9	195292.5	189799.7	-41.5229	-326096.9	74.5465
900	12.8620	9216.1	62.9979	47482.0	196562.4	189609.2	-35.7647	-326318.0	64.6453
1000	13.1415	10516.7	64.3680	53851.3	197863.0	189389.5	-31.1631	-326508.2	56.7193
1100	13.3730	11842.7	65.6317	60352.1	199189.1	189148.3	-27.4027	-326672.9	50.2309
1200	13.5655	13190.0	66.8038	66974.6	200536.3	188888.1	-24.2733	-326816.5	44.8213
1300	13.7266	14554.8	67.8961	73710.2	201901.1	188609.8	-21.6290	-326942.7	40.2421
1400	13.8620	15934.4	68.9185	80551.5	203280.8	188314.6	-19.3660	-327054.5	36.3156
1500	13.9766	17326.5	69.8789	87491.8	204672.8	188004.2	-17.4078	-327154.5	32.9116
1600	14.0741	18729.2	70.7841	94525.4	206075.5	187680.5	-15.6973	-327244.8	29.9321
1700	14.1577	20140.9	71.6399	101647.0	207487.2	187344.8	-14.1907	-327327.3	27.3026
1800	14.2298	21560.3	72.4512	108851.9	208906.7	186998.1	-12.8539	-327403.8	24.9646
1900	14.2922	22986.5	73.2223	116135.9	210332.8	186640.7	-11.6601	-327475.9	22.8722
2000	14.3467	24418.5	73.9568	123495.1	211764.8	186272.8	-10.5878	-327544.7	20.9887
2100	14.3943	25855.6	74.6580	130926.2	213201.9	185895.4	-9.6195	-327611.6	19.2842
2200	14.4363	27297.2	75.3286	138425.7	214643.5	185509.6	-8.7411	-327677.6	17.7344
2300	14.4734	28742.7	75.9712	145990.9	216089.0	185116.2	-7.9407	-327743.6	16.3190
2400	14.5064	30191.7	76.5878	153619.1	217538.1	184715.6	-7.2086	-327810.5	15.0213
2500	14.5358	31643.9	77.1806	161307.7	218990.2	184308.6	-6.5365	-327879.0	13.8272
2600	14.5621	33098.8	77.7513	169054.5	220445.1	183895.8	-5.9175	-327949.7	12.7247
2700	14.5857	34556.2	78.3013	176857.3	221902.5	183477.6	-5.3457	-328023.1	11.7037
2800	14.6070	36015.9	78.8321	184714.1	223362.2	183054.1	-4.8159	-328099.8	10.7553
2900	14.6263	37477.5	79.3451	192623.1	224823.9	182625.6	-4.3238	-328179.9	9.8722
3000	14.6438	38941.1	79.8412	200582.6	226287.4	182192.2	-3.8656	-328263.9	9.0477
3100	14.6597	40406.3	80.3216	208590.8	227752.6	181754.0	-3.4380	-328351.8	8.2762
3200	14.6742	41873.0	80.7873	216646.4	229219.3	181311.2	-3.0381	-328444.0	7.5528
3300	14.6875	43341.1	81.2391	224747.8	230687.4	180864.0	-2.6633	-328540.4	6.8729
3400	14.6997	44810.4	81.6777	232893.8	232156.8	180413.1	-2.3114	-328641.2	6.2329
3500	14.7108	46281.0	82.1040	241082.9	233627.3	179958.5	-1.9805	-328746.3	5.6293
3600	14.7211	47752.6	82.5185	249314.2	235098.9	179500.2	-1.6688	-328855.7	5.0590
3700	14.7307	49225.2	82.9220	257586.3	236571.5	179038.1	-1.3747	-328969.4	4.5194
3800	14.7394	50698.7	83.3150	265898.2	238045.0	178572.2	-1.0967	-329087.4	4.0079
3900	14.7476	52173.0	83.6979	274248.9	239519.4	178102.9	-0.8338	-329209.4	3.5226
4000	14.7552	53648.2	84.0714	282637.5	240994.5	177630.1	-0.5846	-329335.4	3.0613
4100	14.7622	55124.0	84.4358	291062.9	242470.4			-329465.3	2.6224
4200	14.7687	56600.6	84.7917	299524.4	243946.9			-329599.0	2.2041
4300	14.7749	58077.8	85.1392	308021.0	245424.1			-329736.3	1.8052
4400	14.7806	59555.5	85.4790	316552.0	246901.9			-329877.0	1.4243
4500	14.7859	61033.9	85.8112	325116.5	248380.2			-330021.0	1.0601
4600	14.7909	62512.7	86.1362	333714.0	249859.1			-330168.3	0.7116
4700	14.7956	63992.0	86.4544	342343.6	251338.4			-330318.5	0.3778
4800	14.8000	65471.8	86.7659	351004.6	252818.2			-330471.6	0.0577
4900	14.8042	66952.0	87.0711	359696.5	254298.4			-330627.4	-0.2494
5000	14.8081	68432.7	87.3703	368418.6	255779.0			-330785.8	-0.5444
5100	14.8118	69913.7	87.6635	377170.4	257260.0			-330946.7	-0.8279
5200	14.8153	71395.0	87.9512	385951.2	258741.3			-331109.9	-1.1007
5300	14.8185	72876.7	88.2334	394760.4	260223.0			-331275.2	-1.3633
5400	14.8217	74358.7	88.5104	403597.7	261705.0			-331442.7	-1.6164
5500	14.8246	75841.0	88.7824	412462.4	263187.4			-331612.1	-1.8603
5600	14.8274	77323.6	89.0496	421354.0	264670.0			-331783.4	-2.0957
5700	14.8300	78806.5	89.3120	430272.1	266152.8			-331956.4	-2.3229
5800	14.8326	80289.6	89.5700	439216.3	267636.0			-332131.1	-2.5424
5900	14.8349	81773.0	89.8236	448186.0	269119.3			-332307.4	-2.7545
6000	14.8372	83256.6	90.0729	457180.8	270602.9			-332485.1	-2.9597

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(61) CCl (gas); molecular weight, 47.468

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	120160.3	121508.2	-------	-77030.0	--------
100	7.7764	743.7	45.3594	3792.2	120904.0	121889.3	-261.4465	-77353.3	164.4845
200	7.4825	1501.5	50.6248	8623.4	121661.8	122206.4	-128.1131	-77597.1	79.8605
298.15	7.7055	2244.7	53.6451	13749.6	122405.0	122405.0	-84.1203	-77846.5	51.9088
300	7.7115	2259.0	53.6928	13848.9	122419.2	122408.0	-83.5670	-77851.2	51.5569
400	8.0260	3046.2	55.9552	19335.9	123206.4	122533.5	-61.2632	-78092.0	37.3589
500	8.2747	3861.9	57.7744	25025.3	124022.1	122603.3	-47.8701	-78314.6	28.8144
600	8.4535	4698.8	59.2997	30881.1	124859.0	122628.6	-38.9377	-78519.3	23.1023
700	8.5818	5550.9	60.6130	36878.2	125711.1	122617.4	-32.5571	-78707.9	19.0120
800	8.6760	6414.0	61.7654	42998.3	126574.3	122577.8	-27.7727	-78882.5	15.9371
900	8.7471	7285.3	62.7916	49227.1	127445.6	122517.1	-24.0529	-79045.2	13.5404
1000	8.8024	8162.9	63.7162	55553.3	128323.2	122440.7	-21.0788	-79197.8	11.6192
1100	8.8467	9045.4	64.5573	61967.6	129205.7	122352.0	-18.6471	-79341.9	10.0444
1200	8.8831	9932.0	65.3286	68462.4	130092.2	122252.5	-16.6222	-79478.7	8.7297
1300	8.9136	10821.9	66.0409	75031.3	130982.1	122143.2	-14.9103	-79609.2	7.6154
1400	8.9399	11714.6	66.7025	81668.9	131874.8	122025.1	-13.4444	-79734.5	6.6587
1500	8.9628	12609.7	67.3200	88370.3	132770.0	121899.3	-12.1751	-79855.3	5.8283
1600	8.9832	13507.0	67.8992	95131.6	133667.3	121766.7	-11.0657	-79972.2	5.1007
1700	9.0016	14406.3	68.4443	101949.1	134566.5	121628.1	-10.0879	-80085.8	4.4577
1800	9.0184	15307.3	68.9593	108819.5	135467.6	121484.3	-9.2198	-80196.7	3.8853
1900	9.0339	16209.9	69.4473	115740.0	136370.2	121335.4	-8.4440	-80305.3	3.3725
2000	9.0484	17114.0	69.9111	122708.1	137274.3	121181.8	-7.7466	-80412.1	2.9104
2100	9.0621	18019.6	70.3529	129721.5	138179.8	121024.0	-7.1164	-80517.5	2.4917
2200	9.0750	18926.4	70.7748	136778.0	139086.7	120862.6	-6.5443	-80621.7	2.1106
2300	9.0874	19834.6	71.1784	143875.8	139994.8	120697.8	-6.0227	-80725.2	1.7622
2400	9.0992	20743.9	71.5654	151013.2	140904.1	120530.0	-5.5452	-80828.1	1.4424
2500	9.1107	21654.4	71.9371	158188.4	141814.6	120359.4	-5.1065	-80930.7	1.1478
2600	9.1218	22566.0	72.2947	165400.1	142726.3	120186.5	-4.7021	-81033.3	0.8755
2700	9.1326	23478.7	72.6391	172646.9	143639.0	120011.4	-4.3282	-81135.9	0.6231
2800	9.1431	24392.5	72.9715	179927.6	144552.8	119834.1	-3.9815	-81238.7	0.3884
2900	9.1534	25307.3	73.2925	187240.8	145467.6	119654.8	-3.6592	-81341.9	0.1696
3000	9.1635	26223.2	73.6030	194585.7	146383.5	119473.7	-3.3589	-81445.5	-0.0348
3100	9.1734	27140.0	73.9036	201961.1	147300.3	119290.8	-3.0784	-81549.6	-0.2253
3200	9.1832	28057.9	74.1950	209366.1	148218.1	119106.1	-2.8158	-81654.3	-0.4061
3300	9.1929	28976.7	74.4777	216799.8	149136.9	118919.9	-2.5695	-81759.5	-0.5752
3400	9.2025	29896.5	74.7523	224261.4	150056.7	118732.3	-2.3380	-81865.4	-0.7345
3500	9.2119	30817.2	75.0192	231750.0	150977.4	118543.4	-2.1201	-81971.8	-0.8850
3600	9.2213	31738.8	75.2788	239265.0	151899.1	118353.2	-1.9147	-82078.9	-1.0272
3700	9.2306	32661.4	75.5316	246805.6	152821.7	118161.8	-1.7207	-82186.5	-1.1620
3800	9.2399	33585.0	75.7779	254371.1	153745.2	117969.0	-1.5372	-82294.7	-1.2898
3900	9.2491	34509.4	76.0180	261960.9	154669.7	117775.1	-1.3633	-82403.4	-1.4113
4000	9.2583	35434.8	76.2523	269574.5	155595.0	117580.1	-1.1985	-82512.6	-1.5268
4100	9.2675	36361.1	76.4810	277211.2	156521.3			-82622.2	-1.6368
4200	9.2767	37288.3	76.7045	284870.5	157448.6			-82732.2	-1.7417
4300	9.2860	38216.4	76.9229	292551.9	158376.7			-82842.5	-1.8419
4400	9.2952	39145.5	77.1365	300255.0	159305.7			-82953.1	-1.9377
4500	9.3045	40075.5	77.3455	307979.1	160235.7			-83064.0	-2.0293
4600	9.3138	41006.4	77.5501	315723.9	161166.6			-83175.0	-2.1170
4700	9.3232	41938.2	77.7505	323489.0	162098.5			-83286.1	-2.2012
4800	9.3326	42871.0	77.9468	331273.9	163031.3			-83397.2	-2.2819
4900	9.3421	43804.8	78.1394	339078.2	163965.0			-83508.4	-2.3594
5000	9.3517	44739.4	78.3282	346901.6	164899.7			-83619.5	-2.4340
5100	9.3614	45675.1	78.5135	354743.7	165835.4			-83730.5	-2.5057
5200	9.3713	46611.7	78.6954	362604.2	166772.0			-83841.3	-2.5747
5300	9.3812	47549.4	78.8740	370482.7	167709.6			-83951.8	-2.6413
5400	9.3913	48488.0	79.0494	378378.9	168648.2			-84062.1	-2.7054
5500	9.4015	49427.6	79.2218	386292.5	169587.9			-84172.1	-2.7673
5600	9.4118	50368.3	79.3913	394223.2	170528.5			-84281.7	-2.8271
5700	9.4223	51310.0	79.5580	402170.6	171470.2			-84390.8	-2.8848
5800	9.4329	52252.7	79.7220	410134.7	172413.0			-84499.4	-2.9406
5900	9.4437	53196.6	79.8833	418114.9	173356.8			-84607.6	-2.9946
6000	9.4546	54141.5	80.0421	426111.2	174301.7			-84715.1	-3.0469

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(62) CCl_4 (gas); molecular weight, 153.839

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-29618.9	-24980.8	-------	-309164.2	--------
100	11.3356	884.5	57.0531	4820.8	-28734.4	-25502.9	48.4178	-310837.2	655.0323
200	16.7122	2311.3	66.7281	11034.3	-27307.6	-25605.1	20.4771	-311909.0	314.8836
298.15	19.8658	4118.9	74.0395	17955.9	-25500.0	-25500.0	11.2797	-312603.4	202.5707
300	19.9116	4155.7	74.1625	18093.0	-25463.2	-25496.9	11.1643	-312614.5	201.1577
400	21.8471	6251.8	80.1792	25819.9	-23367.2	-25306.6	6.5359	-313137.4	144.1805
500	23.0272	8500.2	85.1914	34095.5	-21118.7	-25085.0	3.7817	-313550.0	109.9423
600	23.7734	10842.9	89.4607	42833.5	-18776.0	-24857.1	1.9621	-313882.1	87.0895
700	24.2663	13246.5	93.1649	51968.9	-16372.4	-24634.7	0.6743	-314150.0	70.7504
800	24.6055	15691.1	96.4287	61451.8	-13927.8	-24420.8	-0.2831	-314365.4	58.4866
900	24.8475	18164.4	99.3415	71243.0	-11454.5	-24215.1	-1.0213	-314537.2	48.9421
1000	25.0255	20658.5	101.9691	81310.6	-8960.4	-24016.7	-1.6069	-314673.1	41.3028
1100	25.1600	23168.1	104.3609	91628.9	-6450.9	-23824.9	-2.0822	-314779.1	35.0501
1200	25.2639	25689.5	106.5548	102176.2	-3929.5	-23640.2	-2.4752	-314860.2	29.8379
1300	25.3457	28220.1	108.5803	112934.3	-1398.8	-23463.0	-2.8051	-314920.3	25.4266
1400	25.4113	30758.1	110.4611	123887.5	1139.1	-23293.5	-3.0859	-314962.9	21.6449
1500	25.4645	33302.0	112.2162	135022.3	3683.0	-23131.2	-3.3275	-314990.6	18.3670
1600	25.5084	35850.7	113.8611	146327.0	6231.7	-22975.8	-3.5374	-315005.8	15.4987
1700	25.5450	38403.4	115.4086	157791.3	8784.5	-22826.8	-3.7214	-315010.3	12.9678
1800	25.5757	40959.5	116.8696	169405.9	11340.5	-22684.1	-3.8839	-315005.9	10.7180
1900	25.6018	43518.4	118.2532	181162.6	13899.5	-22547.5	-4.0284	-314993.8	8.7052
2000	25.6242	46079.7	119.5670	193054.2	16460.8	-22417.0	-4.1577	-314975.3	6.8937
2100	25.6435	48643.1	120.8176	205073.9	19024.2	-22292.4	-4.2741	-314951.5	5.2548
2200	25.6603	51208.3	122.0110	217215.8	21589.4	-22173.1	-4.3792	-314923.2	3.7651
2300	25.6750	53775.1	123.1519	229474.4	24156.2	-22059.0	-4.4747	-314891.1	2.4050
2400	25.6879	56343.3	124.2449	241844.6	26724.3	-21949.8	-4.5619	-314856.1	1.1584
2500	25.6992	58912.6	125.2938	254321.9	29293.7	-21845.4	-4.6416	-314818.6	0.0117
2600	25.7094	61483.1	126.3020	266902.0	31864.2	-21745.5	-4.7149	-314779.2	-1.0467
2700	25.7184	64054.5	127.2724	279581.0	34435.5	-21650.0	-4.7824	-314738.3	-2.0266
2800	25.7265	66626.7	128.2079	292355.3	37007.8	-21558.9	-4.8449	-314696.3	-2.9364
2900	25.7337	69199.7	129.1108	305221.5	39580.8	-21471.9	-4.9028	-314653.5	-3.7833
3000	25.7403	71773.4	129.9833	318176.5	42154.5	-21389.2	-4.9566	-314610.2	-4.5736
3100	25.7462	74347.8	130.8274	331217.2	44728.9	-21310.6	-5.0068	-314566.5	-5.3129
3200	25.7516	76922.7	131.6449	344341.1	47303.8	-21236.1	-5.0537	-314522.7	-6.0058
3300	25.7565	79498.1	132.4374	357545.4	49879.2	-21165.6	-5.0976	-314479.0	-6.6567
3400	25.7610	82074.0	133.2064	370827.7	52455.0	-21098.9	-5.1387	-314435.5	-7.2692
3500	25.7651	84650.3	133.9532	384185.9	55031.4	-21035.9	-5.1774	-314392.2	-7.8466
3600	25.7689	87227.0	134.6791	397617.7	57608.1	-20976.6	-5.2138	-314349.3	-8.3918
3700	25.7724	89804.1	135.3852	411121.1	60185.1	-20921.2	-5.2482	-314306.8	-8.9075
3800	25.7756	92381.5	136.0725	424694.1	62762.5	-20869.6	-5.2807	-314264.8	-9.3961
3900	25.7786	94959.2	136.7421	438335.0	65340.2	-20821.6	-5.3114	-314223.3	-9.8594
4000	25.7813	97537.2	137.3948	452042.0	67918.2	-20777.2	-5.3406	-314182.3	-10.2996
4100	25.7839	100115.4	138.0314	465813.4	70496.5			-314141.9	-10.7182
4200	25.7862	102693.9	138.6528	479647.7	73075.0			-314102.0	-11.1169
4300	25.7884	105272.7	139.2596	493543.5	75653.7			-314062.7	-11.4970
4400	25.7905	107851.6	139.8525	507499.2	78232.7			-314023.9	-11.8597
4500	25.7924	110430.8	140.4321	521513.5	80811.8			-313985.7	-12.2063
4600	25.7942	113010.1	140.9990	535585.2	83391.2			-313948.0	-12.5378
4700	25.7959	115589.6	141.5537	549712.9	85970.7			-313910.7	-12.8551
4800	25.7975	118169.3	142.0968	563895.5	88550.4			-313874.0	-13.1591
4900	25.7990	120749.1	142.6288	578131.9	91130.2			-313837.7	-13.4508
5000	25.8004	123329.1	143.1500	592420.9	93710.2			-313801.9	-13.7307
5100	25.8017	125909.2	143.6609	606761.5	96290.3			-313766.4	-13.9996
5200	25.8029	128489.4	144.1620	621152.8	98870.5			-313731.4	-14.2582
5300	25.8041	131069.8	144.6535	635593.6	101450.8			-313696.7	-14.5069
5400	25.8052	133650.2	145.1358	650083.2	104031.3			-313662.4	-14.7464
5500	25.8063	136230.8	145.6093	664620.5	106611.9			-313628.5	-14.9772
5600	25.8073	138811.5	146.0743	679204.8	109192.6			-313594.8	-15.1998
5700	25.8082	141392.3	146.5311	693835.1	111773.3			-313561.5	-15.4144
5800	25.8091	143973.1	146.9800	708510.7	114354.2			-313528.4	-15.6217
5900	25.8099	146554.1	147.4212	723230.8	116935.2			-313495.6	-15.8219
6000	25.8108	149135.1	147.8550	737994.7	119516.2			-313463.1	-16.0155

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(63) CF (gas); molecular weight, 31.011

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	72524.8	73830.8	-------	-114514.0	--------
100	7.4125	748.9	43.0291	3554.0	73273.7	74217.7	-157.2878	-114833.8	246.2869
200	7.1170	1470.8	48.0444	8138.1	73995.6	74511.7	-76.0570	-115140.3	120.6839
298.15	7.1843	2170.6	50.8904	13002.3	74695.4	74695.4	-49.2226	-115463.6	79.2159
300	7.1877	2183.9	50.9348	13096.5	74708.7	74698.1	-48.8850	-115469.6	78.6940
400	7.4317	2914.1	53.0338	18299.4	75438.9	74796.2	-35.2720	-115777.3	57.6393
500	7.7089	3671.3	54.7222	23689.8	76196.1	74831.7	-27.0968	-116049.6	44.9743
600	7.9546	4454.8	56.1501	29235.2	76979.6	74822.3	-21.6457	-116288.1	36.5121
700	8.1546	5260.6	57.3919	34913.7	77785.4	74778.9	-17.7534	-116498.6	30.4560
800	8.3134	6084.4	58.4915	40708.9	78609.1	74710.5	-14.8363	-116687.0	25.9060
900	8.4391	6922.2	59.4783	46608.2	79447.0	74624.3	-12.5699	-116857.9	22.3617
1000	8.5396	7771.3	60.3728	52601.5	80296.1	74525.1	-10.7590	-117015.0	19.5223
1100	8.6210	8629.5	61.1907	58680.2	81154.3	74415.9	-9.2794	-117161.2	17.1961
1200	8.6878	9495.1	61.9437	64837.4	82019.8	74297.8	-8.0483	-117298.5	15.2553
1300	8.7436	10366.7	62.6414	71067.1	82891.5	74171.5	-7.0083	-117428.5	13.6112
1400	8.7907	11243.5	63.2911	77364.1	83768.3	74037.7	-6.1185	-117552.5	12.2004
1500	8.8313	12124.6	63.8991	83724.0	84649.4	73897.1	-5.3487	-117671.5	10.9765
1600	8.8665	13009.6	64.4702	90142.7	85534.3	73750.5	-4.6765	-117786.4	9.9045
1700	8.8975	13897.8	65.0086	96616.9	86422.6	73598.7	-4.0845	-117897.8	8.9577
1800	8.9252	14789.0	65.5180	103143.5	87313.7	73442.0	-3.5594	-118006.4	8.1153
1900	8.9501	15682.7	66.0013	109719.6	88207.5	73280.7	-3.0906	-118112.7	7.3609
2000	8.9727	16578.9	66.4609	116342.9	89103.7	73115.0	-2.6697	-118217.1	6.6813
2100	8.9935	17477.2	66.8992	123011.1	90002.0	72945.2	-2.2897	-118320.1	6.0659
2200	9.0127	18377.5	67.3180	129722.1	90902.3	72772.0	-1.9450	-118422.0	5.5060
2300	9.0306	19279.7	67.7191	136474.1	91804.5	72595.5	-1.6311	-118523.2	4.9943
2400	9.0474	20183.6	68.1038	143265.4	92708.4	72416.1	-1.3440	-118623.8	4.5249
2500	9.0632	21089.2	68.4734	150094.4	93613.9	72233.9	-1.0806	-118724.3	4.0926
2600	9.0782	21996.2	68.8292	156959.6	94521.0	72049.3	-0.8380	-118824.6	3.6933
2700	9.0926	22904.8	69.1721	163859.8	95429.6	71862.4	-0.6140	-118925.2	3.3232
2800	9.1063	23814.7	69.5030	170793.6	96339.5	71673.3	-0.4066	-119025.9	2.9793
2900	9.1195	24726.0	69.8228	177760.0	97250.8	71482.1	-0.2139	-119127.1	2.6588
3000	9.1323	25638.6	70.1321	184757.8	98163.4	71288.9	-0.0346	-119228.7	2.3595
3100	9.1446	26552.5	70.4318	191786.1	99077.2	71093.8	0.1327	-119330.9	2.0792
3200	9.1566	27467.5	70.7223	198843.9	99992.3	70896.7	0.2891	-119433.7	1.8162
3300	9.1683	28383.8	71.0043	205930.3	100908.6	70698.0	0.4356	-119537.1	1.5689
3400	9.1797	29301.2	71.2781	213044.5	101826.0	70497.6	0.5731	-119641.1	1.3360
3500	9.1909	30219.7	71.5444	220185.6	102744.5	70295.8	0.7024	-119745.8	1.1162
3600	9.2018	31139.3	71.8035	227353.1	103664.1	70092.5	0.8242	-119851.1	0.9084
3700	9.2125	32060.1	72.0557	234546.1	104584.8	69887.6	0.9390	-119957.0	0.7117
3800	9.2231	32981.8	72.3015	241764.0	105506.6	69681.2	1.0475	-120063.6	0.5251
3900	9.2335	33904.7	72.5413	249006.2	106429.5	69473.5	1.1501	-120170.6	0.3480
4000	9.2438	34828.5	72.7752	256272.1	107353.3	69264.3	1.2472	-120278.2	0.1796
4100	9.2539	35753.4	73.0035	263561.1	108278.2			-120386.3	0.0192
4200	9.2639	36679.3	73.2266	270872.6	109204.1			-120494.8	-0.1336
4300	9.2738	37606.2	73.4447	278206.2	110131.0			-120603.6	-0.2795
4400	9.2836	38534.1	73.6581	285561.4	111058.8			-120712.8	-0.4189
4500	9.2933	39462.9	73.8668	292937.7	111987.7			-120822.3	-0.5522
4600	9.3029	40392.7	74.0712	300334.6	112917.5			-120932.0	-0.6798
4700	9.3125	41323.5	74.2713	307751.8	113848.3			-121041.9	-0.8021
4800	9.3220	42255.2	74.4675	315188.7	114780.0			-121151.9	-0.9194
4900	9.3314	43187.9	74.6598	322645.2	115712.7			-121262.0	-1.0320
5000	9.3408	44121.5	74.8484	330120.6	116646.3			-121372.1	-1.1402
5100	9.3501	45056.0	75.0335	337614.7	117580.8			-121482.3	-1.2443
5200	9.3593	45991.5	75.2151	345127.2	118516.3			-121592.3	-1.3444
5300	9.3686	46927.9	75.3935	352657.6	119452.7			-121702.3	-1.4409
5400	9.3777	47865.2	75.5687	360205.8	120390.0			-121812.1	-1.5339
5500	9.3869	48803.5	75.7409	367771.3	121328.2			-121921.8	-1.6235
5600	9.3960	49742.6	75.9101	375353.8	122267.4			-122031.2	-1.7101
5700	9.4050	50682.6	76.0765	382953.2	123207.4			-122140.4	-1.7937
5800	9.4140	51623.6	76.2401	390569.0	124148.4			-122249.3	-1.8744
5900	9.4230	52565.5	76.4011	398201.1	125090.2			-122357.9	-1.9526
6000	9.4320	53508.2	76.5596	405849.2	126033.0			-122466.1	-2.0281

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(64) CF_2 (gas); molecular weight, 50.011

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-32465.4	-30104.6	-------	-236804.4	--------
100	7.9615	794.7	48.1287	4018.1	-31670.7	-30019.3	67.1787	-237577.0	508.6249
200	8.3719	1606.3	53.7379	9141.3	-30859.2	-29985.7	34.3947	-238319.7	248.7137
298.15	9.1676	2465.4	57.2225	14595.4	-30000.0	-30000.0	23.6077	-239017.2	162.8762
300	9.1840	2482.4	57.2792	14701.3	-29983.0	-30000.6	23.4720	-239029.6	161.7958
400	10.0641	3445.2	60.0428	20571.9	-29020.3	-30055.0	18.0045	-239644.8	118.2125
500	10.8438	4491.7	62.3749	26695.7	-27973.7	-30132.8	14.7166	-240159.8	91.9997
600	11.4743	5608.9	64.4100	33037.1	-26856.5	-30224.3	12.5184	-240589.6	74.4897
700	11.9668	6782.0	66.2174	39570.1	-25683.4	-30325.5	10.9433	-240952.1	61.9619
800	12.3488	7998.6	67.8413	46274.5	-24466.9	-30433.1	9.7579	-241262.6	52.5528
900	12.6471	9249.0	69.3137	53133.4	-23216.5	-30544.2	8.8325	-241532.8	45.2258
1000	12.8827	10525.9	70.6589	60133.0	-21939.5	-30657.1	8.0895	-241771.5	39.3580
1100	13.0716	11824.0	71.8959	67261.5	-20641.5	-30771.4	7.4794	-241985.1	34.5526
1200	13.2254	13139.1	73.0401	74509.1	-19326.4	-30887.7	6.9690	-242178.7	30.5447
1300	13.3525	14468.2	74.1039	81866.9	-17997.3	-31006.7	6.5355	-242355.9	27.1508
1400	13.4589	15808.9	75.0974	89327.5	-16656.6	-31129.0	6.1624	-242519.6	24.2397
1500	13.5494	17159.4	76.0292	96884.3	-15306.0	-31254.5	5.8379	-242672.1	21.7151
1600	13.6272	18518.3	76.9062	104531.5	-13947.1	-31383.1	5.5527	-242815.1	19.5047
1700	13.6950	19884.5	77.7344	112263.9	-12580.9	-31514.6	5.3000	-242950.1	17.5533
1800	13.7547	21257.1	78.5189	120076.9	-11208.4	-31649.0	5.0745	-243078.4	15.8177
1900	13.8078	22635.3	79.2640	127966.4	-9830.2	-31786.5	4.8718	-243201.0	14.2641
2000	13.8555	24018.5	79.9735	135928.5	-8447.0	-31927.0	4.6886	-243318.7	12.8651
2100	13.8988	25406.2	80.6506	143960.0	-7059.2	-32070.6	4.5221	-243432.2	11.5987
2200	13.9383	26798.1	81.2981	152057.7	-5667.3	-32216.7	4.3701	-243542.3	10.4470
2300	13.9747	28193.8	81.9185	160218.7	-4271.7	-32365.3	4.2306	-243649.4	9.3949
2400	14.0084	29592.9	82.5140	168440.5	-2872.5	-32516.4	4.1022	-243754.1	8.4301
2500	14.0399	30995.4	83.0864	176720.7	-1470.1	-32669.7	3.9835	-243856.7	7.5420
2600	14.0694	32400.9	83.6377	185057.1	-64.6	-32825.0	3.8734	-243957.6	6.7220
2700	14.0973	33809.2	84.1692	193447.6	1343.8	-32982.3	3.7710	-244057.1	5.9624
2800	14.1238	35220.3	84.6824	201890.3	2754.8	-33141.6	3.6754	-244155.4	5.2567
2900	14.1490	36633.9	85.1784	210383.5	4168.5	-33302.9	3.5860	-244252.7	4.5995
3000	14.1731	38050.0	85.6585	218925.5	5584.6	-33466.0	3.5021	-244349.3	3.9858
3100	14.1962	39468.5	86.1236	227514.7	7003.1	-33631.0	3.4233	-244445.1	3.4115
3200	14.2185	40889.3	86.5747	236149.8	8423.8	-33798.0	3.3490	-244540.5	2.8729
3300	14.2401	42312.2	87.0126	244829.2	9846.8	-33966.7	3.2789	-244635.3	2.3667
3400	14.2610	43737.3	87.4380	253551.9	11271.8	-34137.0	3.2126	-244729.7	1.8901
3500	14.2813	45164.4	87.8517	262316.4	12698.9	-34308.9	3.1497	-244823.8	1.4406
3600	14.3011	46593.5	88.2543	271121.8	14128.1	-34482.4	3.0901	-244917.6	1.0159
3700	14.3204	48024.6	88.6464	279966.9	15559.1	-34657.6	3.0334	-245011.0	0.6140
3800	14.3393	49457.6	89.0285	288850.8	16992.1	-34834.4	2.9794	-245104.1	0.2331
3900	14.3578	50892.4	89.4012	297772.3	18427.0	-35012.9	2.9279	-245196.9	-0.1284
4000	14.3760	52329.1	89.7650	306730.7	19863.7	-35192.9	2.8787	-245289.4	-0.4720
4100	14.3938	53767.6	90.1202	315725.0	21302.2			-245381.5	-0.7989
4200	14.4114	55207.9	90.4672	324754.5	22742.4			-245473.3	-1.1104
4300	14.4287	56649.9	90.8065	333818.2	24184.4			-245564.7	-1.4075
4400	14.4457	58093.6	91.1384	342915.5	25628.1			-245655.6	-1.6912
4500	14.4626	59539.0	91.4633	352045.7	27073.6			-245746.0	-1.9623
4600	14.4793	60986.1	91.7813	361207.9	28520.7			-245835.9	-2.2218
4700	14.4957	62434.9	92.0929	370401.7	29969.4			-245925.3	-2.4704
4800	14.5120	63885.2	92.3982	379626.3	31419.8			-246014.1	-2.7086
4900	14.5282	65337.3	92.6976	388881.2	32871.8			-246102.3	-2.9373
5000	14.5442	66790.9	92.9913	398165.7	34325.4			-246189.8	-3.1568
5100	14.5601	68246.1	93.2795	407479.2	35780.7			-246276.6	-3.3679
5200	14.5759	69702.9	93.5624	416821.4	37237.5			-246362.7	-3.5708
5300	14.5915	71161.3	93.8402	426191.5	38695.8			-246448.1	-3.7662
5400	14.6071	72621.2	94.1130	435589.2	40155.8			-246532.6	-3.9545
5500	14.6226	74082.7	94.3812	445014.0	41617.2			-246616.3	-4.1359
5600	14.6379	75545.7	94.6448	454465.3	43080.3			-246699.1	-4.3109
5700	14.6532	77010.3	94.9041	463942.8	44544.8			-246781.0	-4.4798
5800	14.6684	78476.4	95.1590	473446.0	46010.9			-246862.1	-4.6430
5900	14.6836	79944.0	95.4099	482974.5	47478.5			-246942.1	-4.8007
6000	14.6986	81413.1	95.6568	492527.8	48947.6			-247021.3	-4.9531

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(65) CF_3 (gas); molecular weight, 69.011

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-122151.8	-118736.1	-------	-343790.9	--------
100	7.9928	795.4	51.5869	4363.3	-121356.4	-118997.6	257.9402	-345061.4	737.2578
200	9.2566	1643.5	57.4159	9839.7	-120508.3	-119277.5	127.7907	-346293.3	359.6880
298.15	11.3004	2651.8	61.4904	15681.6	-119500.0	-119500.0	84.8488	-347375.4	234.9475
300	11.3384	2672.7	61.5604	15795.4	-119479.1	-119503.5	84.3086	-347393.8	233.3773
400	13.2161	3903.5	65.0883	22131.8	-118248.2	-119674.9	62.5303	-348281.1	170.0350
500	14.6939	5302.4	68.2037	28799.4	-116849.4	-119803.2	49.4466	-348975.9	131.9417
600	15.8039	6830.0	70.9858	35761.4	-115321.7	-119899.9	40.7159	-349520.1	106.5007
700	16.6283	8453.7	73.4870	42987.2	-113698.1	-119975.7	34.4752	-349951.4	88.3029
800	17.2440	10148.8	75.7496	50450.9	-112003.0	-120036.9	29.7920	-350298.4	74.6394
900	17.7097	11897.5	77.8087	58130.4	-110254.3	-120087.1	26.1478	-350582.1	64.0027
1000	18.0674	13687.1	79.6940	66006.9	-108464.7	-120128.8	23.2313	-350817.4	55.4869
1100	18.3465	15508.4	81.4296	74064.2	-106643.4	-120164.8	20.8443	-351015.2	48.5152
1200	18.5675	17354.5	83.0358	82288.5	-104797.3	-120197.9	18.8546	-351183.7	42.7024
1300	18.7451	19220.4	84.5293	90667.6	-102931.3	-120230.3	17.1705	-351328.7	37.7817
1400	18.8895	21102.4	85.9239	99191.0	-101049.4	-120263.6	15.7267	-351454.8	33.5623
1500	19.0085	22997.5	87.2313	107849.5	-99154.3	-120298.9	14.4750	-351565.5	29.9043
1600	19.1074	24903.4	88.4613	116634.7	-97248.3	-120336.4	13.3794	-351663.7	26.7025
1700	19.1906	26818.4	89.6223	125539.4	-95333.3	-120376.8	12.4124	-351751.4	23.8767
1800	19.2610	28741.1	90.7212	134557.1	-93410.6	-120420.2	11.5525	-351830.7	21.3643
1900	19.3213	30670.3	91.7643	143681.8	-91481.5	-120467.2	10.7829	-351902.9	19.1159
2000	19.3731	32605.1	92.7567	152908.3	-89546.7	-120518.1	10.0899	-351969.3	17.0919
2100	19.4181	34544.7	93.7030	162231.6	-87607.1	-120573.0	9.4627	-352031.0	15.2603
2200	19.4573	36488.5	94.6073	171647.5	-85663.2	-120631.6	8.8922	-352088.8	13.5949
2300	19.4916	38436.0	95.4730	181151.8	-83715.8	-120694.1	8.3711	-352143.6	12.0742
2400	19.5220	40386.7	96.3032	190740.9	-81765.0	-120760.5	7.8931	-352196.1	10.6799
2500	19.5488	42340.3	97.1006	200411.3	-79811.5	-120830.6	7.4531	-352246.6	9.3970
2600	19.5727	44296.4	97.8678	210160.0	-77855.4	-120904.4	7.0468	-352295.8	8.2126
2700	19.5941	46254.7	98.6069	219984.0	-75897.0	-120982.0	6.6703	-352344.1	7.1158
2800	19.6133	48215.1	99.3199	229880.5	-73936.6	-121063.3	6.3204	-352391.7	6.0972
2900	19.6306	50177.3	100.0084	239847.1	-71974.4	-121148.4	5.9945	-352439.0	5.1487
3000	19.6462	52141.2	100.6742	249881.4	-70010.6	-121237.3	5.6901	-352486.2	4.2634
3100	19.6603	54106.5	101.3186	259981.3	-68045.2	-121330.0	5.4051	-352533.5	3.4350
3200	19.6732	56073.2	101.9430	270144.5	-66078.6	-121426.5	5.1377	-352581.1	2.6583
3300	19.6849	58041.1	102.5486	280369.2	-64110.6	-121526.9	4.8863	-352629.1	1.9286
3400	19.6957	60010.2	103.1364	290653.6	-62141.6	-121630.8	4.6495	-352677.6	1.2417
3500	19.7055	61980.2	103.7075	300996.0	-60171.5	-121738.4	4.4260	-352726.7	0.5940
3600	19.7146	63951.3	104.2627	311394.6	-58200.5	-121849.7	4.2147	-352776.5	-0.0178
3700	19.7229	65923.1	104.8030	321848.0	-56228.6	-121964.8	4.0147	-352827.0	-0.5967
3800	19.7306	67895.8	105.3291	332354.7	-54256.0	-122083.7	3.8251	-352878.3	-1.1451
3900	19.7377	69869.2	105.8417	342913.4	-52282.5	-122206.2	3.6450	-352930.3	-1.6655
4000	19.7443	71843.3	106.3415	353522.6	-50308.4	-122332.5	3.4737	-352983.1	-2.1600
4100	19.7505	73818.1	106.8291	364181.3	-48333.7			-353036.6	-2.6304
4200	19.7562	75793.4	107.3051	374888.1	-46358.3			-353090.9	-3.0784
4300	19.7615	77769.3	107.7701	385641.9	-44382.5			-353146.0	-3.5057
4400	19.7664	79745.7	108.2244	396441.7	-42406.1			-353201.8	-3.9137
4500	19.7711	81722.6	108.6687	407286.5	-40429.2			-353258.3	-4.3036
4600	19.7754	83699.9	109.1033	418175.1	-38451.9			-353315.5	-4.6765
4700	19.7795	85677.7	109.5286	429106.8	-36474.1			-353373.4	-5.0337
4800	19.7833	87655.8	109.9451	440080.6	-34496.0			-353431.9	-5.3760
4900	19.7869	89634.3	110.3530	451095.5	-32517.5			-353491.0	-5.7045
5000	19.7902	91613.2	110.7528	462150.9	-30538.6			-353550.7	-6.0198
5100	19.7934	93592.3	111.1447	473245.8	-28559.4			-353610.9	-6.3228
5200	19.7964	95571.8	111.5291	484379.6	-26579.9			-353671.7	-6.6143
5300	19.7993	97551.6	111.9062	495551.4	-24600.1			-353732.9	-6.8947
5400	19.8019	99531.7	112.2764	506760.6	-22620.1			-353794.6	-7.1649
5500	19.8045	101512.0	112.6397	518006.5	-20639.8			-353856.8	-7.4252
5600	19.8069	103492.6	112.9966	529288.3	-18659.2			-353919.3	-7.6763
5700	19.8091	105473.4	113.3472	540605.6	-16678.4			-353982.3	-7.9186
5800	19.8113	107454.4	113.6917	551957.6	-14697.4			-354045.6	-8.1527
5900	19.8134	109435.6	114.0304	563343.7	-12716.1			-354109.3	-8.3788
6000	19.8153	111417.1	114.3634	574763.5	-10734.7			-354173.4	-8.5974

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(66) CF_4 (gas); molecular weight, 88.011

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-220249.5	-215779.0	-------	-459188.8	--------
100	8.3045	800.2	50.7467	4274.5	-219449.3	-216383.1	466.1354	-460953.1	983.3244
200	11.3474	1767.3	57.3282	9698.3	-218482.2	-216894.0	229.4602	-462591.7	478.9356
298.15	14.6958	3049.5	62.4995	15584.7	-217200.0	-217200.0	151.3883	-463933.6	312.3170
300	14.7534	3076.7	62.5906	15700.4	-217172.8	-217204.2	150.4065	-463955.8	310.2199
400	17.5043	4695.5	67.2286	22195.9	-215553.9	-217372.6	110.8345	-464995.2	225.6359
500	19.5859	6555.2	71.3696	29129.6	-213694.3	-217442.9	87.0779	-465761.3	174.7851
600	21.1297	8594.8	75.0840	36455.6	-211654.7	-217443.3	71.2376	-466318.4	140.8359
700	22.2791	10768.0	78.4317	44134.2	-209481.5	-217394.7	59.9244	-466719.4	116.5613
800	23.1491	13041.3	81.4661	52131.5	-207208.1	-217309.7	51.4421	-467003.2	98.3421
900	23.8222	15391.3	84.2331	60418.6	-204858.2	-217196.0	44.8477	-467197.5	84.1642
1000	24.3551	17801.1	86.7717	68970.6	-202448.4	-217059.1	39.5753	-467321.9	72.8181
1100	24.7870	20258.9	89.1139	77766.3	-199990.5	-216903.5	35.2644	-467390.6	63.5330
1200	25.1447	22756.1	91.2864	86787.7	-197493.4	-216733.3	31.6747	-467413.9	55.7946
1300	25.4470	25286.0	93.3113	96018.7	-194963.4	-216551.9	28.6397	-467399.5	49.2467
1400	25.7075	27844.1	95.2069	105445.6	-192405.4	-216361.6	26.0406	-467353.2	43.6345
1500	25.9356	30426.5	96.9885	115056.3	-189823.0	-216163.8	23.7900	-467279.4	38.7713
1600	26.1386	33030.4	98.6690	124840.0	-187219.1	-215959.4	21.8225	-467181.7	34.5168
1700	26.3216	35653.5	100.2592	134787.1	-184596.0	-215749.2	20.0882	-467062.9	30.7637
1800	26.4888	38294.2	101.7685	144889.1	-181955.3	-215533.8	18.5481	-466925.3	27.4285
1900	26.6430	40950.8	103.2048	155138.4	-179298.6	-215313.9	17.1715	-466770.7	24.4453
2000	26.7868	43622.4	104.5751	165527.9	-176627.1	-215089.9	15.9339	-466600.6	21.7613
2100	26.9218	46307.9	105.8854	176051.4	-173941.6	-214862.0	14.8153	-466416.4	19.3339
2200	27.0497	49006.5	107.1408	186703.1	-171243.0	-214630.3	13.7995	-466219.2	17.1281
2300	27.1715	51717.6	108.3459	197477.9	-168531.8	-214394.9	12.8730	-466009.8	15.1149
2400	27.2882	54440.7	109.5048	208370.8	-165808.8	-214155.8	12.0247	-465789.2	13.2704
2500	27.4006	57175.1	110.6210	219377.4	-163074.3	-213913.0	11.2451	-465558.0	11.5743
2600	27.5094	59920.7	111.6978	230493.7	-160328.8	-213666.5	10.5263	-465316.6	10.0094
2700	27.6149	62676.9	112.7380	241715.7	-157572.6	-213416.5	9.8615	-465065.8	8.5612
2800	27.7177	65443.6	113.7442	253040.1	-154805.9	-213162.8	9.2449	-464805.8	7.2172
2900	27.8181	68220.4	114.7186	264463.5	-152029.1	-212905.7	8.6716	-464537.0	5.9666
3000	27.9164	71007.1	115.6633	275982.8	-149242.4	-212645.2	8.1371	-464259.7	4.8000
3100	28.0130	73803.6	116.5803	287595.2	-146445.9	-212381.2	7.6377	-463974.2	3.7094
3200	28.1079	76609.7	117.4712	299298.0	-143639.8	-212114.0	7.1701	-463680.5	2.6876
3300	28.2014	79425.1	118.3375	311088.7	-140824.4	-211843.4	6.7314	-463379.2	1.7283
3400	28.2936	82249.9	119.1808	322964.8	-137999.6	-211569.3	6.3191	-463070.1	0.8260
3500	28.3848	85083.8	120.0023	334924.1	-135165.7	-211291.7	5.9308	-462753.3	-0.0241
3600	28.4749	87926.8	120.8032	346964.5	-132322.7	-211010.7	5.5645	-462429.1	-0.8264
3700	28.5641	90778.8	121.5846	359084.1	-129470.7	-210726.4	5.2186	-462097.4	-1.5849
3800	28.6526	93639.6	122.3475	371280.8	-126609.9	-210438.7	4.8912	-461758.3	-2.3028
3900	28.7403	96509.3	123.0929	383553.0	-123740.2	-210147.8	4.5811	-461411.8	-2.9835
4000	28.8274	99387.7	123.8216	395898.8	-120861.8	-209853.4	4.2869	-461058.0	-3.6297
4100	28.9139	102274.7	124.5345	408316.8	-117974.8			-460696.9	-4.2438
4200	28.9998	105170.4	125.2323	420805.2	-115079.1			-460328.5	-4.8282
4300	29.0853	108074.7	125.9157	433362.8	-112174.8			-459952.8	-5.3851
4400	29.1703	110987.5	126.5853	445987.9	-109262.0			-459569.8	-5.9161
4500	29.2549	113908.7	127.2418	458679.4	-106340.8			-459179.5	-6.4231
4600	29.3392	116838.4	127.8857	471435.9	-103411.1			-458781.8	-6.9077
4700	29.4231	119776.5	128.5176	484256.1	-100472.9			-458376.8	-7.3713
4800	29.5067	122723.0	129.1379	497139.0	-97526.5			-457964.4	-7.8151
4900	29.5900	125677.9	129.7472	510083.3	-94571.6			-457544.6	-8.2404
5000	29.6730	128641.0	130.3458	523088.1	-91608.5			-457117.4	-8.6484
5100	29.7558	131612.5	130.9342	536152.2	-88637.0			-456682.7	-9.0399
5200	29.8384	134592.2	131.5128	549274.6	-85657.3			-456240.6	-9.4161
5300	29.9208	137580.1	132.0820	562454.4	-82669.3			-455791.0	-9.7777
5400	30.0029	140576.3	132.6420	575690.7	-79673.1			-455333.9	-10.1255
5500	30.0849	143580.7	133.1933	588982.5	-76668.8			-454869.3	-10.4604
5600	30.1668	146593.3	133.7361	602329.1	-73656.2			-454397.1	-10.7830
5700	30.2485	149614.1	134.2708	615729.5	-70635.4			-453917.4	-11.0939
5800	30.3300	152643.0	134.7976	629183.0	-67606.5			-453430.1	-11.3938
5900	30.4114	155680.1	135.3168	642688.8	-64569.4			-452935.2	-11.6833
6000	30.4926	158725.3	135.8286	656246.1	-61524.2			-452432.6	-11.9627

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(67) CH (gas); molecular weight, 13.019

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	140325.1	141588.2	-------	-80030.0	--------
100	6.9913	677.2	36.0947	2932.2	141002.3	141871.3	-304.8710	-80419.8	171.7817
200	6.9739	1375.2	40.9336	6811.5	141700.3	142190.1	-149.7029	-80721.2	83.7795
298.15	6.9732	2059.6	43.7164	10974.4	142384.7	142384.7	-98.5220	-81013.9	54.6971
300	6.9735	2072.5	43.7608	11055.7	142397.6	142387.6	-97.8783	-81019.4	54.3311
400	6.9909	2770.5	45.7687	15537.0	143095.6	142491.2	-71.9376	-81316.0	39.5518
500	7.0559	3472.3	47.3345	20194.9	143797.4	142524.7	-56.3653	-81608.4	30.6515
600	7.1890	4184.0	48.6316	24995.0	144509.1	142509.2	-45.9831	-81890.7	24.6969
700	7.3835	4912.2	49.7537	29915.4	145237.3	142462.3	-38.5690	-82156.4	20.4292
800	7.6163	5661.9	50.7546	34941.7	145987.0	142399.2	-33.0106	-82400.5	17.2185
900	7.8623	6435.8	51.6658	40063.4	146760.9	142330.8	-28.6893	-82620.3	14.7141
1000	8.1022	7234.2	52.5067	45272.5	147559.3	142263.3	-25.2338	-82815.8	12.7056
1100	8.3240	8055.7	53.2895	50562.8	148380.8	142199.2	-22.4082	-82988.0	11.0586
1200	8.5216	8898.2	54.0225	55928.8	149223.3	142138.1	-20.0544	-83139.3	9.6834
1300	8.6934	9759.1	54.7115	61365.8	150084.2	142078.4	-18.0636	-83272.1	8.5177
1400	8.8403	10636.0	55.3613	66869.8	150961.1	142019.0	-16.3581	-83389.2	7.5172
1500	8.9645	11526.4	55.9756	72437.0	151851.5	141958.3	-14.8804	-83493.0	6.6488
1600	9.0690	12428.3	56.5576	78063.9	152753.4	141896.0	-13.5880	-83585.6	5.8881
1700	9.1567	13339.7	57.1101	83747.5	153664.8	141831.4	-12.4481	-83669.1	5.2162
1800	9.2305	14259.2	57.6356	89484.9	154584.3	141764.1	-11.4354	-83745.0	4.6184
1900	9.2928	15185.4	58.1364	95273.8	155510.5	141692.6	-10.5297	-83815.1	4.0830
2000	9.3459	16117.4	58.6144	101111.4	156442.5	141617.1	-9.7152	-83880.2	3.6008
2100	9.3916	17054.3	59.0715	106995.8	157379.4	141537.3	-8.9784	-83941.4	3.1642
2200	9.4315	17995.5	59.5094	112925.2	158320.6	141453.7	-8.3092	-83999.5	2.7670
2300	9.4670	18940.5	59.9294	118897.1	159265.6	141366.0	-7.6983	-84055.2	2.4041
2400	9.4991	19888.8	60.3330	124910.4	160213.9	141274.6	-7.1390	-84109.0	2.0712
2500	9.5287	20840.2	60.7214	130963.3	161165.3	141179.6	-6.6245	-84161.3	1.7648
2600	9.5566	21794.5	61.0957	137054.3	162119.6	141081.5	-6.1501	-84212.4	1.4817
2700	9.5834	22751.5	61.4569	143182.1	163076.6	140980.4	-5.7109	-84262.5	1.2195
2800	9.6096	23711.2	61.8059	149345.3	164036.3	140876.3	-5.3036	-84311.7	0.9758
2900	9.6355	24673.4	62.1435	155542.7	164998.5	140769.7	-4.9246	-84360.2	0.7489
3000	9.6614	25638.2	62.4706	161773.6	165963.3	140660.6	-4.5710	-84408.1	0.5369
3100	9.6876	26605.7	62.7878	168036.5	166930.8	140549.1	-4.2407	-84455.1	0.3385
3200	9.7143	27575.8	63.0958	174330.8	167900.9	140435.4	-3.9312	-84501.4	0.1524
3300	9.7415	28548.6	63.3952	180655.6	168873.7	140320.6	-3.6406	-84547.0	-0.0225
3400	9.7692	29524.1	63.6864	187009.7	169849.2	140203.6	-3.3675	-84591.7	-0.1873
3500	9.7976	30502.5	63.9700	193392.5	170827.6	140085.0	-3.1101	-84635.3	-0.3427
3600	9.8265	31483.6	64.2464	199803.4	171808.7	139965.8	-2.8671	-84678.0	-0.4895
3700	9.8558	32467.8	64.5160	206241.4	172792.9	139845.9	-2.6377	-84719.4	-0.6285
3800	9.8854	33454.8	64.7792	212706.2	173779.9	139723.9	-2.4204	-84759.7	-0.7602
3900	9.9151	34444.8	65.0364	219197.2	174769.9	139602.5	-2.2146	-84798.6	-0.8852
4000	9.9449	35437.8	65.2878	225713.4	175762.9	139479.8	-2.0189	-84836.2	-1.0040
4100	9.9746	36433.8	65.5338	232254.8	176758.9			-84872.3	-1.1171
4200	10.0039	37432.7	65.7745	238820.2	177757.8			-84906.9	-1.2248
4300	10.0327	38434.6	66.0102	245409.3	178759.7			-84940.0	-1.3276
4400	10.0607	39439.3	66.2412	252022.0	179764.4			-84971.6	-1.4257
4500	10.0878	40446.7	66.4676	258657.5	180771.8			-85001.8	-1.5195
4600	10.1138	41456.7	66.6896	265315.5	181781.8			-85030.6	-1.6093
4700	10.1384	42469.4	66.9074	271995.4	182794.5			-85057.9	-1.6952
4800	10.1616	43484.4	67.1210	278696.4	183809.5			-85084.0	-1.7776
4900	10.1832	44501.7	67.3308	285419.2	184826.8			-85108.9	-1.8567
5000	10.2030	45521.0	67.5367	292162.5	185846.1			-85132.8	-1.9326
5100	10.2209	46542.2	67.7390	298926.7	186867.3			-85155.7	-2.0056
5200	10.2368	47565.1	67.9376	305710.4	187890.2			-85177.8	-2.0758
5300	10.2505	48589.5	68.1327	312513.8	188914.6			-85199.2	-2.1433
5400	10.2620	49615.1	68.3244	319336.7	189940.2			-85220.2	-2.2084
5500	10.2713	50641.8	68.5128	326178.6	190966.9			-85240.9	-2.2711
5600	10.2782	51669.3	68.6980	333039.5	191994.4			-85261.5	-2.3316
5700	10.2828	52697.4	68.8799	339918.0	193022.5			-85282.2	-2.3900
5800	10.2850	53725.8	69.0588	346815.2	194050.9			-85303.2	-2.4464
5900	10.2848	54754.3	69.2346	353729.8	195079.4			-85324.8	-2.5008
6000	10.2821	55782.6	69.4074	360661.8	196107.7			-85347.1	-2.5535

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(68) CH_2 (gas); molecular weight, 14.027

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	66865.7	69140.7	-------	-204105.9	--------
100	6.9554	695.5	35.5551	2860.0	67561.2	69062.6	-148.5381	-204974.2	439.0640
200	6.9766	1391.5	40.3786	6684.2	68257.2	69078.0	-73.0514	-205774.5	214.7507
298.15	7.1965	2084.7	43.1956	10794.1	68950.4	68950.4	-48.2196	-206546.0	140.6100
300	7.2035	2098.0	43.2401	10874.0	68963.7	68947.2	-47.9083	-206560.3	139.6764
400	7.6860	2841.0	45.3742	15308.7	69706.7	68748.6	-35.3679	-207308.7	101.9961
500	8.2668	3638.3	47.1511	19937.2	70504.0	68528.4	-27.8667	-208002.3	79.3079
600	8.8503	4494.4	48.7102	24731.7	71360.1	68307.3	-22.8821	-208637.1	64.1336
700	9.4072	5407.5	50.1167	29674.2	72273.2	68094.1	-19.3334	-209214.7	53.2631
800	9.9291	6374.6	51.4073	34751.2	73240.3	67895.7	-16.6797	-209738.2	45.0885
900	10.4116	7392.0	52.6051	39952.6	74257.7	67715.2	-14.6214	-210211.4	38.7154
1000	10.8519	8455.5	53.7252	45269.7	75321.2	67553.8	-12.9788	-210638.5	33.6059
1100	11.2494	9561.0	54.7785	50695.4	76426.6	67410.4	-11.6383	-211023.6	29.4174
1200	11.6053	10704.0	55.7728	56223.4	77569.7	67282.0	-10.5233	-211371.1	25.9208
1300	11.9221	11880.7	56.7145	61848.2	78746.4	67165.2	-9.5814	-211685.1	22.9575
1400	12.2030	13087.2	57.6085	67564.7	79952.9	67057.4	-8.7760	-211969.3	20.4140
1500	12.4518	14320.2	58.4591	73368.4	81185.9	66955.7	-8.0786	-212227.3	18.2068
1600	12.6720	15576.7	59.2699	79255.2	82442.4	66859.2	-7.4691	-212462.1	16.2732
1700	12.8671	16853.8	60.0441	85221.2	83719.5	66766.8	-6.9322	-212676.7	14.5653
1800	13.0400	18149.3	60.7846	91262.9	85015.0	66677.5	-6.4557	-212873.5	13.0457
1900	13.1937	19461.2	61.4938	97377.1	86326.9	66588.6	-6.0298	-213054.7	11.6849
2000	13.3305	20787.5	62.1741	103560.7	87653.2	66499.8	-5.6474	-213222.2	10.4591
2100	13.4527	22126.8	62.8275	109811.0	88992.5	66410.5	-5.3015	-213377.9	9.3493
2200	13.5621	23477.6	63.4559	116125.4	90343.3	66320.8	-4.9877	-213523.2	8.3396
2300	13.6602	24838.8	64.0610	122501.4	91704.5	66229.6	-4.7011	-213659.5	7.4171
2400	13.7484	26209.3	64.6442	128936.8	93075.0	66137.2	-4.4394	-213787.9	6.5710
2500	13.8281	27588.2	65.2071	135429.6	94453.9	66043.2	-4.1986	-213909.6	5.7920
2600	13.9001	28974.7	65.7509	141977.6	95840.4	65947.2	-3.9768	-214025.3	5.0727
2700	13.9654	30368.0	66.2767	148579.2	97233.7	65849.6	-3.7715	-214135.8	4.4062
2800	14.0248	31767.6	66.7857	155232.4	98633.3	65749.4	-3.5815	-214242.0	3.7870
2900	14.0789	33172.8	67.2788	161935.8	100038.5	65647.1	-3.4047	-214344.4	3.2103
3000	14.1283	34583.2	67.7570	168687.7	101448.9	65541.8	-3.2396	-214443.4	2.6718
3100	14.1736	35998.3	68.2210	175486.7	102864.0	65433.5	-3.0858	-214539.6	2.1677
3200	14.2151	37417.8	68.6716	182331.4	104283.5	65322.0	-2.9419	-214633.4	1.6950
3300	14.2532	38841.2	69.1096	189220.6	105706.9	65208.5	-2.8067	-214725.1	1.2507
3400	14.2884	40268.3	69.5357	196153.0	107134.0	65090.6	-2.6799	-214815.0	0.8324
3500	14.3208	41698.8	69.9503	203127.4	108564.5	64968.9	-2.5605	-214903.4	0.4378
3600	14.3508	43132.4	70.3542	210142.7	109998.1	64845.3	-2.4477	-214990.4	0.0650
3700	14.3786	44568.9	70.7478	217197.9	111434.6	64718.4	-2.3416	-215076.3	-0.2878
3800	14.4044	46008.1	71.1316	224291.9	112873.8	64586.1	-2.2410	-215161.3	-0.6222
3900	14.4284	47449.7	71.5061	231423.9	114315.4	64452.7	-2.1462	-215245.4	-0.9395
4000	14.4507	48893.7	71.8716	238592.8	115759.4	64314.7	-2.0557	-215328.8	-1.2411
4100	14.4715	50339.8	72.2287	245797.9	117205.5			-215411.5	-1.5281
4200	14.4910	51788.0	72.5777	253038.3	118653.7			-215493.8	-1.8015
4300	14.5091	53238.0	72.9189	260313.2	120103.7			-215575.5	-2.0623
4400	14.5262	54689.8	73.2526	267621.8	121555.5			-215656.9	-2.3114
4500	14.5421	56143.2	73.5793	274963.5	123008.9			-215737.9	-2.5495
4600	14.5571	57598.2	73.8990	282337.4	124463.8			-215818.6	-2.7773
4700	14.5712	59054.6	74.2123	289743.1	125920.3			-215899.0	-2.9955
4800	14.5844	60512.4	74.5192	297179.7	127378.1			-215979.1	-3.2046
4900	14.5969	61971.4	74.8200	304646.7	128837.1			-216059.0	-3.4054
5000	14.6087	63431.7	75.1150	312143.5	130297.4			-216138.7	-3.5981
5100	14.6198	64893.2	75.4044	319669.5	131758.9			-216218.2	-3.7834
5200	14.6303	66355.7	75.6884	327224.2	133221.4			-216297.5	-3.9616
5300	14.6403	67819.2	75.9672	334807.0	134684.9			-216376.6	-4.1331
5400	14.6497	69283.7	76.2410	342417.5	136149.4			-216455.5	-4.2984
5500	14.6586	70749.1	76.5099	350055.0	137614.8			-216534.3	-4.4577
5600	14.6671	72215.4	76.7741	357719.3	139081.1			-216612.9	-4.6114
5700	14.6752	73682.5	77.0337	365409.7	140548.2			-216691.4	-4.7597
5800	14.6828	75150.4	77.2890	373125.9	142016.1			-216769.8	-4.9030
5900	14.6901	76619.1	77.5401	380867.4	143484.8			-216848.0	-5.0414
6000	14.6970	78088.4	77.7870	388633.8	144954.1			-216926.0	-5.1753

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(69) CH_3 (gas); molecular weight, 15.035

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	31002.3	34289.2	-------	-290585.8	--------
100	7.9819	795.3	37.1851	2923.2	31797.6	33931.4	-74.0713	-291851.2	624.4803
200	8.5206	1616.2	42.8536	6954.5	32618.5	33770.3	-37.0464	-293023.3	305.0753
298.15	9.2665	2488.5	46.3923	11343.4	33490.8	33490.8	-24.9398	-294103.3	199.5005
300	9.2811	2505.7	46.4497	11429.2	33508.0	33485.1	-24.7888	-294123.0	198.1711
400	10.0855	3473.9	49.2297	16217.9	34476.2	33164.5	-18.7174	-295142.9	144.5213
500	10.8661	4521.9	51.5649	21260.5	35524.2	32845.6	-15.1095	-296082.7	112.2229
600	11.6009	5645.6	53.6116	26521.4	36647.9	32542.1	-12.7271	-296946.7	90.6243
700	12.2975	6840.8	55.4527	31976.1	37843.1	32260.0	-11.0412	-297739.0	75.1534
800	12.9599	8104.0	57.1384	37606.7	39106.3	32004.8	-9.7870	-298463.3	63.5205
900	13.5845	9431.5	58.7013	43399.6	40433.8	31778.9	-8.8187	-299123.1	54.4515
1000	14.1654	10819.4	60.1631	49343.6	41821.7	31582.8	-8.0489	-299722.6	47.1810
1100	14.6983	12263.0	61.5386	55429.4	43265.3	31414.4	-7.4235	-300266.4	41.2211
1200	15.1817	13757.4	62.8386	61648.8	44759.7	31269.5	-6.9046	-300759.4	36.2458
1300	15.6166	15297.7	64.0712	67994.9	46300.0	31143.4	-6.4672	-301206.5	32.0294
1400	16.0057	16879.2	65.2431	74461.1	47881.5	31032.5	-6.0946	-301612.6	28.4102
1500	16.3527	18497.5	66.3594	81041.6	49499.8	30932.6	-5.7719	-301982.2	25.2695
1600	16.6617	20148.5	67.4248	87731.2	51150.8	30842.0	-5.4904	-302319.2	22.5182
1700	16.9367	21828.7	68.4434	94525.0	52831.0	30759.0	-5.2429	-302627.6	20.0880
1800	17.1816	23534.8	69.4185	101418.5	54537.1	30682.3	-5.0235	-302910.5	17.9257
1900	17.3999	25264.1	70.3534	108407.4	56266.4	30607.7	-4.8274	-303171.1	15.9892
2000	17.5950	27014.1	71.2510	115487.9	58016.4	30534.9	-4.6520	-303411.9	14.2450
2100	17.7695	28782.4	72.1137	122656.4	59784.7	30462.8	-4.4931	-303635.3	12.6657
2200	17.9261	30567.4	72.9441	129909.6	61569.7	30391.5	-4.3495	-303843.3	11.2289
2300	18.0669	32367.1	73.7441	137244.2	63369.4	30319.2	-4.2179	-304037.8	9.9162
2400	18.1938	34180.3	74.5157	144657.4	65182.6	30246.3	-4.0985	-304220.5	8.7121
2500	18.3084	36005.5	75.2608	152146.5	67007.8	30171.9	-3.9883	-304392.6	7.6037
2600	18.4122	37841.6	75.9809	159708.8	68843.9	30095.7	-3.8871	-304555.4	6.5801
2700	18.5065	39687.6	76.6776	167341.9	70689.9	30017.8	-3.7933	-304710.2	5.6317
2800	18.5923	41542.6	77.3522	175043.6	72544.9	29937.1	-3.7069	-304857.7	4.7507
2900	18.6705	43405.8	78.0060	182811.6	74408.1	29854.0	-3.6265	-304998.9	3.9300
3000	18.7420	45276.5	78.6402	190644.1	76278.8	29767.4	-3.5511	-305134.5	3.1637
3100	18.8076	47154.0	79.2558	198539.1	78156.3	29677.0	-3.4815	-305265.1	2.4465
3200	18.8677	49037.8	79.8539	206494.7	80040.1	29582.5	-3.4163	-305391.4	1.7738
3300	18.9231	50927.4	80.4354	214509.3	81929.7	29486.0	-3.3551	-305513.8	1.1417
3400	18.9741	52822.3	81.0010	222581.2	83824.6	29383.4	-3.2978	-305632.7	0.5465
3500	19.0212	54722.1	81.5517	230709.0	85724.4	29275.7	-3.2441	-305748.6	-0.0149
3600	19.0648	56626.4	82.0882	238891.1	87628.7	29165.9	-3.1930	-305861.7	-0.5453
3700	19.1052	58534.9	82.6111	247126.2	89537.2	29051.9	-3.1455	-305972.4	-1.0472
3800	19.1427	60447.3	83.1211	255412.9	91449.6	28930.2	-3.1003	-306080.9	-1.5228
3900	19.1775	62363.4	83.6188	263750.0	93365.7	28807.7	-3.0583	-306187.4	-1.9743
4000	19.2100	64282.8	84.1048	272136.3	95285.1	28678.8	-3.0175	-306292.2	-2.4033
4100	19.2403	66205.3	84.5795	280570.6	97207.6			-306395.4	-2.8115
4200	19.2686	68130.8	85.0435	289051.8	99133.1			-306497.1	-3.2004
4300	19.2951	70059.0	85.4972	297578.9	101061.3			-306597.5	-3.5714
4400	19.3199	71989.7	85.9411	306150.9	102992.0			-306696.7	-3.9256
4500	19.3431	73922.9	86.3755	314766.8	104925.2			-306794.7	-4.2641
4600	19.3650	75858.3	86.8009	323425.7	106860.6			-306891.8	-4.5881
4700	19.3855	77795.8	87.2176	332126.7	108798.1			-306987.9	-4.8983
4800	19.4048	79735.4	87.6259	340868.9	110737.7			-307083.1	-5.1958
4900	19.4231	81676.8	88.0262	349651.6	112679.1			-307177.5	-5.4811
5000	19.4402	83620.0	88.4188	358473.9	114622.3			-307271.1	-5.7552
5100	19.4565	85564.8	88.8039	367335.1	116567.1			-307364.0	-6.0186
5200	19.4718	87511.2	89.1819	376234.5	118513.5			-307456.2	-6.2719
5300	19.4863	89459.1	89.5529	385171.3	120461.4			-307547.7	-6.5157
5400	19.5001	91408.5	89.9173	394144.8	122410.8			-307638.7	-6.7506
5500	19.5131	93359.1	90.2752	403154.5	124361.4			-307729.0	-6.9770
5600	19.5255	95311.1	90.6269	412199.7	126313.4			-307818.8	-7.1954
5700	19.5372	97264.2	90.9726	421279.7	128266.5			-307908.1	-7.4061
5800	19.5484	99218.5	91.3125	430394.0	130220.8			-307996.9	-7.6097
5900	19.5590	101173.9	91.6468	439542.0	132176.2			-308085.2	-7.8064
6000	19.5691	103130.3	91.9756	448723.1	134132.6			-308173.0	-7.9967

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(70) CH_4 (gas); molecular weight, 16.043

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-20281.2	-15982.4	-------	-392485.8	--------
100	7.9490	791.2	35.7221	2781.1	-19490.0	-16723.8	33.6458	-394252.1	843.1467
200	8.0006	1587.1	41.2379	6660.4	-18694.1	-17211.2	15.1913	-395946.0	411.6327
298.15	8.5187	2392.2	44.5062	10877.3	-17889.0	-17889.0	8.8986	-397580.9	268.9494
300	8.5350	2408.0	44.5590	10959.7	-17873.2	-17902.4	8.8171	-397611.1	267.1523
400	9.6846	3315.2	47.1611	15549.2	-16966.0	-18631.4	5.4958	-399188.8	194.6092
500	11.0933	4353.3	49.4716	20382.5	-15927.9	-19309.4	3.4254	-400535.4	150.9155
600	12.5212	5534.4	51.6210	25438.2	-14746.8	-19905.6	1.9980	-401938.8	121.6852
700	13.8816	6855.2	53.6544	30702.9	-13426.0	-20413.2	0.9491	-403102.2	100.7418
800	15.1467	8307.5	55.5918	36165.9	-11973.7	-20832.0	0.1444	-404134.2	84.9911
900	16.3062	9881.0	57.4438	41818.4	-10400.2	-21167.5	-0.4926	-405044.9	72.7110
1000	17.3579	11565.1	59.2172	47652.0	-8716.0	-21426.4	-1.0092	-405845.0	62.8660
1100	18.3041	13349.1	60.9168	53659.3	-6932.1	-21617.7	-1.4374	-406545.3	54.7961
1200	19.1508	15222.6	62.5464	59833.1	-5058.6	-21751.2	-1.7964	-407155.9	48.0603
1300	19.9064	17176.2	64.1097	66166.4	-3105.0	-21836.9	-2.1014	-407686.6	42.3528
1400	20.5798	19201.2	65.6101	72652.9	-1080.0	-21882.4	-2.3648	-408146.1	37.4547
1500	21.1804	21289.8	67.0508	79286.4	1008.6	-21895.7	-2.5924	-408542.1	33.2052
1600	21.7167	23435.1	68.4352	86061.2	3153.9	-21880.6	-2.7913	-408881.6	29.4835
1700	22.1969	25631.2	69.7664	92971.7	5350.0	-21841.2	-2.9669	-409170.9	26.1972
1800	22.6282	27872.9	71.0476	100012.8	7591.7	-21780.5	-3.1227	-409415.2	23.2741
1900	23.0168	30155.5	72.2816	107179.7	9874.3	-21705.0	-3.2613	-409619.2	20.6572
2000	23.3684	32475.0	73.4713	114467.7	12193.8	-21615.7	-3.3864	-409787.2	18.3010
2100	23.6876	34828.1	74.6193	121872.5	14546.9	-21514.9	-3.4985	-409922.8	16.1684
2200	23.9786	37211.6	75.7281	129390.2	16930.4	-21403.3	-3.6003	-410029.0	14.2291
2300	24.2449	39623.0	76.8000	137016.9	19341.8	-21283.7	-3.6919	-410108.8	12.4580
2400	24.4897	42059.9	77.8370	144749.1	21778.7	-21156.2	-3.7765	-410164.4	10.8343
2500	24.7155	44520.3	78.8414	152583.2	24239.1	-21021.9	-3.8531	-410198.2	9.3402
2600	24.9246	47002.4	79.8149	160516.3	26721.2	-20882.0	-3.9238	-410211.8	7.9611
2700	25.1189	49504.7	80.7592	168545.3	29223.5	-20736.5	-3.9882	-410207.1	6.6840
2800	25.3003	52025.7	81.6761	176667.2	31744.5	-20587.1	-4.0483	-410185.4	5.4983
2900	25.4701	54564.4	82.5669	184879.6	34283.2	-20433.6	-4.1036	-410148.0	4.3944
3000	25.6296	57119.4	83.4331	193179.8	36838.2	-20277.5	-4.1541	-410096.0	3.3642
3100	25.7799	59690.0	84.2759	201565.4	39408.8	-20119.4	-4.2019	-410030.4	2.4005
3200	25.9220	62275.1	85.0967	210034.2	41993.9	-19959.7	-4.2461	-409952.1	1.4973
3300	26.0568	64874.1	85.8964	218584.1	44592.9	-19796.1	-4.2871	-409861.9	0.6490
3400	26.1849	67486.3	86.6762	227212.9	47205.1	-19633.8	-4.3256	-409760.4	-0.1492
3500	26.3072	70110.9	87.4370	235918.7	49829.7	-19471.9	-4.3617	-409648.2	-0.9016
3600	26.4240	72747.5	88.1798	244699.7	52466.3	-19306.4	-4.3948	-409525.9	-1.6120
3700	26.5360	75395.5	88.9053	253554.1	55114.4	-19140.2	-4.4267	-409393.9	-2.2838
3800	26.6435	78054.6	89.6144	262480.2	57773.4	-18977.8	-4.4562	-409252.6	-2.9200
3900	26.7471	80724.1	90.3078	271476.4	60442.9	-18810.3	-4.4848	-409102.5	-3.5234
4000	26.8471	83403.9	90.9863	280541.3	63122.7	-18645.2	-4.5103	-408943.7	-4.0964
4100	26.9437	86093.4	91.6504	289673.2	65812.2			-408776.7	-4.6413
4200	27.0372	88792.5	92.3008	298870.9	68511.3			-408601.6	-5.1599
4300	27.1280	91500.8	92.9381	308132.9	71219.6			-408418.7	-5.6543
4400	27.2163	94218.0	93.5627	317458.1	73936.8			-408228.2	-6.1259
4500	27.3022	96944.0	94.1753	326845.1	76662.8			-408030.3	-6.5764
4600	27.3859	99678.4	94.7763	336292.7	79397.2			-407825.2	-7.0070
4700	27.4677	102421.1	95.3662	345800.0	82139.9			-407612.9	-7.4192
4800	27.5476	105171.9	95.9453	355365.6	84890.7			-407393.7	-7.8139
4900	27.6259	107930.6	96.5141	364988.7	87649.4			-407167.6	-8.1924
5000	27.7026	110697.0	97.0730	374668.1	90415.8			-406934.8	-8.5554
5100	27.7778	113471.0	97.6224	384403.0	93189.8			-406695.3	-8.9041
5200	27.8517	116252.5	98.1625	394192.3	95971.3			-406449.3	-9.2391
5300	27.9243	119041.3	98.6937	404035.2	98760.1			-406196.7	-9.5613
5400	27.9958	121837.3	99.2163	413930.7	101556.1			-405937.8	-9.8714
5500	28.0661	124640.4	99.7307	423878.2	104359.2			-405672.6	-10.1700
5600	28.1355	127450.5	100.2370	433876.6	107169.3			-405401.0	-10.4577
5700	28.2039	130267.5	100.7356	443925.3	109986.3			-405123.3	-10.7352
5800	28.2715	133091.3	101.2267	454023.5	112810.1			-404839.4	-11.0029
5900	28.3382	135921.8	101.7105	464170.4	115640.6			-404549.3	-11.2614
6000	28.4041	138758.9	102.1874	474365.3	118477.7			-404253.3	-11.5110

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(71) C_2H_2 (gas); molecular weight, 26.038

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	51800.8	54327.0	-------	-388909.4	--------
100	7.0146	695.1	39.0033	3205.2	52495.9	54233.7	-115.4274	-390348.4	837.8780
200	8.5053	1455.5	44.2152	7387.5	53256.3	54235.8	-56.1563	-391586.7	410.8085
298.15	10.5342	2393.2	48.0026	11918.8	54194.0	54194.0	-36.6527	-392603.3	269.7853
300	10.5675	2412.7	48.0679	12007.6	54213.5	54193.4	-36.4081	-392620.6	268.0107
400	12.0617	3548.9	51.3261	16981.5	55349.7	54140.9	-26.5430	-393473.5	196.4356
500	13.1156	4810.5	54.1368	22257.9	56611.2	54065.9	-20.6304	-394200.3	153.4032
600	13.9325	6164.2	56.6028	27797.4	57965.0	53965.3	-16.6951	-394834.5	124.6649
700	14.6243	7592.9	58.8036	33569.7	59393.6	53843.6	-13.8902	-395393.7	104.1063
800	15.2424	9086.7	60.7975	39551.3	60887.5	53711.9	-11.7914	-395887.5	88.6667
900	15.8072	10639.6	62.6258	45723.7	62440.3	53580.1	-10.1628	-395322.2	76.6440
1000	16.3262	12246.6	64.3185	52071.9	64047.4	53455.5	-8.8630	-396702.7	67.0159
1100	16.8020	13903.4	65.8972	58583.6	65704.1	53340.9	-7.8024	-397033.4	59.1312
1200	17.2365	15605.6	67.3781	65248.1	67406.4	53236.0	-6.9201	-397318.7	52.5556
1300	17.6316	17349.3	68.7736	72056.4	69150.1	53138.5	-6.1748	-397562.6	46.9879
1400	17.9901	19130.7	70.0936	79000.3	70931.5	53047.2	-5.5377	-397769.2	42.2128
1500	18.3149	20946.2	71.3461	86072.8	72747.0	52960.6	-4.9860	-397942.0	38.0725
1600	18.6090	22792.7	72.5376	93267.5	74593.5	52878.7	-4.5039	-398084.5	34.4482
1700	18.8758	24667.1	73.6739	100578.5	76467.9	52801.1	-4.0793	-398199.8	31.2493
1800	19.1181	26567.0	74.7598	108000.6	78367.8	52727.4	-3.7025	-398290.9	28.4051
1900	19.3387	28490.0	75.7995	115529.0	80290.8	52655.1	-3.3657	-398360.3	25.8598
2000	19.5400	30434.1	76.7966	123159.1	82234.9	52584.1	-3.0633	-398410.4	23.5687
2100	19.7244	32397.5	77.7545	130887.0	84198.2	52514.1	-2.7898	-398443.3	21.4955
2200	19.8938	34378.5	78.6760	138708.8	86179.3	52445.4	-2.5417	-398461.0	19.6107
2300	20.0500	36375.8	79.5638	146621.0	88176.6	52377.4	-2.3150	-398465.0	17.8898
2400	20.1945	38388.1	80.4203	154620.5	90188.9	52310.2	-2.1081	-398456.9	16.3123
2500	20.3286	40414.3	81.2474	162704.1	92215.1	52243.8	-1.9176	-398438.1	14.8610
2600	20.4535	42453.5	82.0472	170869.1	94254.3	52178.0	-1.7422	-398409.6	13.5214
2700	20.5702	44504.8	82.8213	179112.7	96305.5	52113.1	-1.5796	-398372.6	12.2812
2800	20.6797	46567.3	83.5714	187432.5	98368.1	52048.2	-1.4293	-398327.8	11.1297
2900	20.7827	48640.5	84.2989	195826.2	100441.3	51983.8	-1.2893	-398276.2	10.0577
3000	20.8799	50723.7	85.0051	204291.6	102524.5	51919.0	-1.1585	-398218.3	9.0573
3100	20.9720	52816.3	85.6913	212826.6	104617.1	51853.7	-1.0367	-398154.7	8.1216
3200	21.0593	54917.9	86.3585	221429.2	106718.7	51787.8	-0.9226	-398086.0	7.2445
3300	21.1425	57028.0	87.0078	230097.7	108828.8	51722.6	-0.8154	-398012.5	6.4208
3400	21.2219	59146.3	87.6401	238830.2	110947.1	51655.8	-0.7148	-397934.6	5.6456
3500	21.2980	61272.3	88.2564	247625.2	113073.1	51587.9	-0.6201	-397852.7	4.9149
3600	21.3709	63405.8	88.8574	256481.0	115206.6	51520.9	-0.5304	-397766.9	4.2249
3700	21.4410	65546.4	89.4439	265396.2	117347.2	51453.2	-0.4461	-397677.4	3.5724
3800	21.5086	67693.9	90.0166	274369.3	119494.7	51382.7	-0.3661	-397584.5	2.9543
3900	21.5739	69848.1	90.5762	283399.1	121648.8	51314.0	-0.2907	-397488.2	2.3681
4000	21.6371	72008.6	91.1232	292484.1	123809.4	51243.3	-0.2185	-397388.8	1.8113
4100	21.6983	74175.4	91.6582	301623.3	125976.2			-397286.1	1.2819
4200	21.7578	76348.2	92.1818	310815.4	128149.0			-397180.4	0.7777
4300	21.8157	78526.9	92.6945	320059.3	130327.7			-397071.7	0.2972
4400	21.8721	80711.3	93.1966	329353.9	132512.1			-396959.9	-0.1614
4500	21.9271	82901.3	93.6888	338698.3	134702.1			-396845.1	-0.5995
4600	21.9809	85096.7	94.1713	348091.4	136897.5			-396727.4	-1.0184
4700	22.0335	87297.4	94.6446	357532.2	139098.2			-396606.7	-1.4193
4800	22.0850	89503.4	95.1090	367020.0	141304.1			-396482.9	-1.8035
4900	22.1356	91714.4	95.5649	376553.8	143515.2			-396356.2	-2.1718
5000	22.1852	93930.4	96.0126	386132.7	145731.2			-396226.5	-2.5253
5100	22.2340	96151.4	96.4524	395756.0	147952.2			-396093.7	-2.8648
5200	22.2820	98377.2	96.8846	405422.9	150178.0			-395957.9	-3.1912
5300	22.3292	100607.8	97.3095	415132.7	152408.5			-395819.0	-3.5051
5400	22.3758	102843.0	97.7273	424884.6	154643.8			-395677.1	-3.8073
5500	22.4217	105082.9	98.1383	434678.0	156883.7			-395532.0	-4.0984
5600	22.4670	107327.3	98.5428	444512.1	159128.1			-395383.7	-4.3790
5700	22.5118	109576.3	98.9408	454386.3	161377.1			-395232.3	-4.6496
5800	22.5561	111829.7	99.3327	464300.0	163630.5			-395077.8	-4.9108
5900	22.5998	114087.5	99.7187	474252.6	165888.3			-394920.1	-5.1631
6000	22.6432	116349.6	100.0989	484243.6	168150.4			-394759.1	-5.4069

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(72) C_2H_4 (gas); molecular weight, 28.054

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	9970.4	14520.4	-------	-531972.8	--------
100	7.9523	794.9	43.1304	3518.1	10765.3	13768.0	-31.4216	-534305.6	1143.7826
200	8.4976	1606.2	48.7345	8140.7	11576.6	13218.2	-16.5818	-536486.7	559.0222
298.15	10.4117	2525.6	52.4493	13112.1	12496.0	12496.0	-11.9371	-538496.8	365.7221
300	10.4557	2544.9	52.5138	13209.2	12515.3	12482.4	-11.8813	-538532.7	363.2880
400	12.9058	3712.9	55.8569	18629.8	13683.3	11767.1	-9.6686	-540347.4	265.0594
500	15.1662	5119.1	58.9854	24373.6	15089.5	11138.3	-8.4152	-541923.2	205.9340
600	17.1052	6735.3	61.9267	30420.7	16705.7	10600.1	-7.6225	-543288.7	166.4090
700	18.7666	8530.9	64.6913	36753.0	18501.3	10143.1	-7.0829	-544474.5	138.1099
800	20.2079	10481.3	67.2936	43353.5	20451.7	9762.4	-6.6944	-545505.4	116.8422
900	21.4687	12566.5	69.7481	50206.8	22536.9	9451.8	-6.4023	-546401.4	100.2713
1000	22.5745	14769.9	72.0686	57298.7	24740.2	9205.4	-6.1752	-547179.1	86.9941
1100	23.5443	17076.9	74.2667	64616.4	27047.2	9014.7	-5.9948	-547853.3	76.1166
1200	24.3940	19474.7	76.3525	72148.3	29445.1	8869.7	-5.8467	-548436.6	67.0415
1300	25.1381	21952.2	78.3351	79883.5	31922.5	8760.1	-5.7230	-548940.4	59.3550
1400	25.7898	24499.3	80.2224	87812.2	34469.6	8678.5	-5.6192	-549374.8	52.7609
1500	26.3612	27107.4	82.0217	95925.1	37077.8	8617.4	-5.5289	-549748.6	47.0418
1600	26.8629	29769.2	83.7394	104213.8	39739.6	8573.3	-5.4503	-550069.4	42.0344
1700	27.3044	32478.0	85.3814	112670.4	42448.4	8543.0	-5.3814	-550344.0	37.6137
1800	27.6938	35228.3	86.9534	121287.7	45198.7	8523.7	-5.3205	-550578.3	33.6824
1900	28.0383	38015.3	88.4601	130058.9	47985.6	8509.0	-5.2658	-550777.4	30.1636
2000	28.3440	40834.7	89.9062	138977.7	50805.1	8498.2	-5.2174	-550945.8	26.9955
2100	28.6160	43683.0	91.2958	148038.3	53653.3	8489.3	-5.1730	-551087.5	24.1284
2200	28.8587	46556.9	92.6328	157235.1	56527.3	8482.3	-5.1332	-551205.8	21.5213
2300	29.0761	49453.9	93.9205	166563.2	59424.2	8474.5	-5.0960	-551303.8	19.1405
2400	29.2712	52371.4	95.1621	176017.7	62341.8	8466.1	-5.0631	-551384.2	16.9577
2500	29.4469	55307.5	96.3607	185594.2	65277.8	8456.3	-5.0320	-551449.1	14.9493
2600	29.6056	58260.2	97.5187	195288.5	68230.6	8444.3	-5.0039	-551500.7	13.0951
2700	29.7493	61228.1	98.6388	205096.7	71198.4	8430.2	-4.9772	-551540.7	11.3782
2800	29.8798	64209.6	99.7231	215015.0	74180.0	8412.3	-4.9533	-551570.6	9.7838
2900	29.9985	67203.6	100.7737	225040.1	77174.0	8391.2	-4.9307	-551591.7	8.2993
3000	30.1069	70209.0	101.7926	235168.7	80179.4	8365.2	-4.9090	-551605.3	6.9137
3100	30.2060	73224.7	102.7814	245397.7	83195.1	8334.0	-4.8897	-551612.2	5.6175
3200	30.2968	76249.9	103.7419	255724.1	86220.3	8297.2	-4.8715	-551613.5	4.4022
3300	30.3803	79283.8	104.6754	266145.1	89254.2	8257.4	-4.8542	-551609.9	3.2607
3400	30.4571	82325.8	105.5835	276658.3	92296.1	8209.3	-4.8382	-551602.0	2.1863
3500	30.5280	85375.1	106.4675	287261.0	95345.4	8154.2	-4.8234	-551590.4	1.1733
3600	30.5935	88431.2	107.3284	297951.0	98401.5	8095.9	-4.8088	-551575.5	0.2166
3700	30.6542	91493.6	108.1675	308726.0	101464.0	8031.6	-4.7959	-551557.9	-0.6883
3800	30.7104	94561.9	108.9857	319583.8	104532.2	7956.8	-4.7833	-551537.9	-1.5456
3900	30.7627	97635.6	109.7841	330522.5	107605.9	7880.5	-4.7724	-551515.7	-2.3589
4000	30.8113	100714.3	110.5636	341540.0	110684.7	7795.3	-4.7607	-551491.7	-3.1315
4100	30.8567	103797.7	111.3250	352634.6	113768.1			-551466.1	-3.8664
4200	30.8990	106885.5	112.0690	363804.4	116855.9			-551439.0	-4.5663
4300	30.9385	109977.4	112.7966	375047.8	119947.8			-551410.6	-5.2335
4400	30.9756	113073.1	113.5083	386363.2	123043.5			-551381.2	-5.8704
4500	31.0103	116172.5	114.2048	397749.0	126142.8			-551350.7	-6.4790
4600	31.0429	119275.1	114.8867	409203.7	129245.5			-551319.3	-7.0511
4700	31.0735	122381.0	115.5546	420725.9	132351.3			-551287.1	-7.6183
4800	31.1023	125489.8	116.2092	432314.1	135460.1			-551254.2	-8.1523
4900	31.1295	128601.4	116.8507	443967.3	138571.7			-551220.5	-8.6645
5000	31.1551	131715.6	117.4799	455683.9	141686.0			-551186.2	-9.1562
5100	31.1792	134832.4	118.0971	467462.8	144802.7			-551151.3	-9.6286
5200	31.2021	137951.4	118.7028	479302.9	147921.8			-551115.9	-10.0827
5300	31.2237	141072.7	119.2973	491203.0	151043.1			-551079.9	-10.5197
5400	31.2441	144196.1	119.8811	503162.0	154166.5			-551043.4	-10.9405
5500	31.2635	147321.5	120.4546	515178.9	157291.9			-551006.4	-11.3460
5600	31.2819	150448.8	121.0181	527252.6	160419.2			-550969.0	-11.7369
5700	31.2994	153577.9	121.5719	539382.2	163548.2			-550931.1	-12.1141
5800	31.3160	156708.7	122.1164	551566.7	166679.0			-550892.8	-12.4783
5900	31.3318	159841.0	122.6519	563805.2	169811.4			-550854.1	-12.8301
6000	31.3468	162975.0	123.1786	576096.8	172945.3			-550815.0	-13.1702

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(73) CN (gas); molecular weight, 26.019

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	94282.0	95569.3	-------	-187000.0	--------
100	6.9564	693.8	40.8075	3387.0	94975.7	95901.5	-204.8852	-187373.3	404.5316
200	6.9576	1389.5	45.6297	7736.5	95671.4	96171.6	-99.9737	-187677.0	199.6605
298.15	6.9686	2072.7	48.4089	12360.4	96354.7	96354.7	-65.3485	-187970.8	132.1049
300	6.9691	2085.6	48.4520	12450.0	96367.5	96357.4	-64.9130	-187976.3	131.2553
400	7.0294	2785.0	50.4636	17400.5	97066.9	96461.1	-47.3550	-188271.5	96.9973
500	7.1560	3493.7	52.0446	22528.6	97775.7	96499.6	-36.8123	-188556.9	76.4104
600	7.3268	4217.6	53.3640	27800.8	98499.6	96489.8	-29.7827	-188827.0	62.6654
700	7.5117	4959.5	54.5073	33195.5	99241.5	96444.0	-24.7631	-189079.0	52.8338
800	7.6903	5719.8	55.5221	38697.9	100001.7	96372.6	-21.0006	-189312.6	45.4506
900	7.8530	6497.1	56.4375	44296.7	100779.0	96283.6	-18.0767	-189529.1	39.7013
1000	7.9969	7289.7	57.2725	49982.8	101571.7	96182.3	-15.7399	-189730.2	35.0967
1100	8.1234	8095.9	58.0407	55748.9	102377.8	96071.9	-13.8301	-189917.8	31.3255
1200	8.2354	8913.9	58.7525	61589.0	103195.9	95954.0	-12.2405	-190093.5	28.1797
1300	8.3365	9742.6	59.4157	67497.8	104024.5	95829.4	-10.8971	-190258.7	25.5156
1400	8.4305	10581.0	60.0370	73470.8	104862.9	95699.2	-9.7472	-190414.2	23.2301
1500	8.5206	11428.6	60.6217	79504.0	105710.5	95564.8	-8.7519	-190560.8	21.2478
1600	8.6095	12285.1	61.1744	85594.1	106567.0	95427.8	-7.8823	-190698.8	19.5120
1700	8.6992	13150.5	61.6991	91738.0	107432.4	95289.5	-7.1162	-190828.3	17.9793
1800	8.7911	14025.0	62.1989	97933.0	108306.9	95151.2	-6.4361	-190949.3	16.6160
1900	8.8860	14908.8	62.6767	104177.0	109190.7	95014.0	-5.8285	-191061.7	15.3955
2000	8.9842	15802.3	63.1350	110467.7	110084.2	94878.8	-5.2825	-191165.4	14.2964
2100	9.0856	16705.7	63.5758	116803.4	110987.7	94746.7	-4.7891	-191260.2	13.3014
2200	9.1897	17619.5	64.0008	123182.4	111901.4	94618.9	-4.3413	-191346.0	12.3965
2300	9.2958	18543.7	64.4117	129603.1	112825.7	94496.2	-3.9329	-191422.8	11.5699
2400	9.4033	19478.7	64.8096	136064.3	113760.6	94379.1	-3.5590	-191490.5	10.8119
2500	9.5111	20424.4	65.1956	142564.6	114706.4	94268.4	-3.2154	-191549.2	10.1143
2600	9.6185	21380.9	65.5707	149103.0	115662.9	94164.4	-2.8986	-191599.3	9.4702
2700	9.7245	22348.1	65.9357	155678.4	116630.0	94067.4	-2.6057	-191640.8	8.8737
2800	9.8283	23325.7	66.2913	162289.9	117607.7	93977.3	-2.3339	-191674.2	8.3197
2900	9.9292	24313.6	66.6379	168936.4	118595.6	93894.3	-2.0810	-191700.0	7.8038
3000	10.0265	25311.4	66.9762	175617.2	119593.4	93818.1	-1.8453	-191718.5	7.3222
3100	10.1197	26318.8	67.3065	182331.4	120600.7	93748.4	-1.6249	-191730.5	6.8717
3200	10.2083	27335.2	67.6292	189078.2	121617.2	93685.1	-1.4184	-191736.5	6.4493
3300	10.2919	28360.3	67.9446	195857.0	122642.2	93627.8	-1.2246	-191737.1	6.0525
3400	10.3704	29393.4	68.2530	202666.9	123675.4	93576.3	-1.0423	-191733.1	5.6790
3500	10.4436	30434.2	68.5547	209507.4	124716.1	93530.1	-0.8705	-191725.2	5.3269
3600	10.5113	31482.0	68.8499	216377.6	125763.9	93488.9	-0.7083	-191714.0	4.9944
3700	10.5736	32536.3	69.1388	223277.1	126818.2	93452.0	-0.5550	-191700.3	4.6799
3800	10.6305	33596.5	69.4215	230205.2	127878.5	93418.9	-0.4097	-191684.8	4.3819
3900	10.6821	34662.2	69.6983	237161.2	128944.1	93389.4	-0.2720	-191668.1	4.0993
4000	10.7286	35732.8	69.9694	244144.7	130014.7	93363.0	-0.1412	-191651.0	3.8308
4100	10.7702	36807.7	70.2348	251154.9	131089.7			-191634.1	3.5754
4200	10.8070	37886.6	70.4948	258191.4	132168.6			-191618.1	3.3322
4300	10.8394	38969.0	70.7495	265253.7	133250.9			-191603.4	3.1003
4400	10.8674	40054.4	70.9990	272341.2	134336.3			-191590.8	2.8790
4500	10.8915	41142.3	71.2435	279453.3	135424.3			-191580.6	2.6676
4600	10.9118	42232.5	71.4831	286589.7	136514.5			-191573.5	2.4653
4700	10.9287	43324.6	71.7180	293749.8	137606.5			-191569.8	2.2717
4800	10.9423	44418.2	71.9482	300933.1	138700.1			-191570.0	2.0861
4900	10.9530	45513.0	72.1739	308139.3	139794.9			-191574.4	1.9081
5000	10.9609	46608.7	72.3953	315367.8	140890.6			-191583.5	1.7372
5100	10.9663	47705.1	72.6124	322618.2	141987.0			-191597.5	1.5733
5200	10.9695	48801.9	72.8254	329890.1	143083.8			-191616.7	1.4151
5300	10.9706	49898.9	73.0343	337183.1	144180.8			-191641.4	1.2632
5400	10.9698	50995.9	73.2394	344496.9	145277.9			-191671.7	1.1168
5500	10.9673	52092.8	73.4407	351830.9	146374.7			-191707.9	0.9758
5600	10.9634	53189.3	73.6382	359184.9	147471.3			-191750.1	0.8397
5700	10.9581	54285.4	73.8323	366558.4	148567.4			-191798.4	0.7084
5800	10.9516	55380.9	74.0228	373951.2	149662.9			-191853.0	0.5816
5900	10.9441	56475.7	74.2099	381362.9	150757.6			-191913.9	0.4591
6000	10.9356	57569.7	74.3938	388793.1	151851.6			-191981.2	0.3406

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(74) C_2N_2 (gas); molecular weight, 52.038

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	70812.9	73387.6	-------	-491751.0	--------
100	8.7572	744.7	45.6895	3824.2	71557.6	73409.2	-158.8843	-493140.4	1059.9493
200	11.7225	1777.8	52.7314	8768.5	72590.7	73591.0	-78.6072	-494106.1	520.6613
298.15	13.5815	3027.1	57.7889	14202.6	73840.0	73840.0	-52.0969	-494811.0	342.8099
300	13.6085	3052.3	57.8730	14309.6	73865.1	73844.9	-51.7632	-494822.6	340.5732
400	14.7827	4475.9	61.9604	20308.3	75288.8	74077.1	-38.2950	-495388.1	250.4097
500	15.6233	5998.0	65.3533	26678.7	76810.8	74258.7	-30.1910	-495854.4	196.2545
600	16.3108	7595.6	68.2643	33363.0	78408.5	74388.9	-24.7768	-496244.8	160.1195
700	16.9040	9257.0	70.8242	40319.9	80069.9	74474.9	-20.9038	-496571.2	134.2900
800	17.4190	10973.8	73.1158	47518.9	81786.6	74528.5	-17.9963	-496842.1	114.9061
900	17.8629	12738.5	75.1938	54936.0	83551.3	74560.4	-15.7337	-497065.0	99.8223
1000	18.2425	14544.2	77.0960	62551.8	85357.1	74578.3	-13.9230	-497246.7	87.7502
1100	18.5656	16385.1	78.8503	70350.3	87197.9	74586.1	-12.4412	-497393.3	77.8699
1200	18.8403	18255.7	80.4778	78317.6	89068.6	74584.8	-11.2064	-497510.2	69.6341
1300	19.0740	20151.8	81.9953	86442.2	90964.6	74574.3	-10.1616	-497601.8	62.6638
1400	19.2733	22069.4	83.4163	94713.5	92882.3	74554.7	-9.2662	-497672.1	56.6884
1500	19.4441	24005.5	84.7520	103122.6	94818.3	74526.9	-8.4905	-497724.3	51.5090
1600	19.5910	25957.4	86.0117	111661.4	96770.3	74491.8	-7.8120	-497761.3	46.9766
1700	19.7179	27923.0	87.2033	120322.7	98735.9	74450.0	-7.2136	-497785.6	42.9772
1800	19.8281	29900.4	88.3336	129100.0	100713.3	74401.9	-6.6821	-497799.1	39.4221
1900	19.9243	31888.2	89.4083	137987.5	102701.0	74347.5	-6.2068	-497803.9	36.2411
2000	20.0087	33884.9	90.4324	146980.0	104697.8	74286.9	-5.7794	-497801.5	33.3782
2100	20.0829	35889.6	91.4105	156072.5	106702.4	74220.5	-5.3931	-497793.4	30.7880
2200	20.1487	37901.2	92.3463	165260.7	108714.1	74149.0	-5.0421	-497780.8	28.4334
2300	20.2071	39919.1	93.2433	174540.4	110731.9	74072.9	-4.7221	-497765.0	26.2835
2400	20.2592	41942.4	94.1044	183908.1	112755.3	73992.3	-4.4290	-497747.0	24.3129
2500	20.3058	43970.7	94.9324	193360.2	114783.6	73907.7	-4.1596	-497727.6	22.4999
2600	20.3478	46003.4	95.7296	202893.6	116816.3	73819.4	-3.9113	-497707.9	20.8265
2700	20.3856	48040.1	96.4983	212505.2	118853.0	73727.7	-3.6816	-497688.6	19.2772
2800	20.4199	50080.4	97.2403	222192.3	120893.3	73632.6	-3.4686	-497670.5	17.8385
2900	20.4510	52124.0	97.9574	231952.4	122936.9	73534.3	-3.2706	-497654.2	16.4991
3000	20.4794	54170.5	98.6512	241783.0	124983.4	73432.8	-3.0860	-497640.4	15.2490
3100	20.5053	56219.8	99.3231	251681.9	127032.7	73328.0	-2.9135	-497629.8	14.0797
3200	20.5290	58271.5	99.9745	261647.0	129084.4	73220.2	-2.7521	-497622.9	12.9834
3300	20.5508	60325.5	100.6066	271676.2	131138.4	73109.5	-2.6007	-497620.3	11.9535
3400	20.5709	62381.6	101.2204	281767.7	133194.5	72996.3	-2.4584	-497622.5	10.9843
3500	20.5895	64439.7	101.8170	291919.7	135252.5	72880.5	-2.3244	-497630.1	10.0704
3600	20.6066	66499.5	102.3972	302130.5	137312.4	72762.3	-2.1981	-497643.5	9.2073
3700	20.6226	68561.0	102.9621	312398.6	139373.8	72641.3	-2.0789	-497663.1	8.3908
3800	20.6374	70624.0	103.5122	322722.5	141436.8	72517.8	-1.9660	-497689.6	7.6173
3900	20.6512	72688.4	104.0485	333100.6	143501.3	72391.9	-1.8592	-497723.2	6.8833
4000	20.6640	74754.2	104.5715	343531.7	145567.0	72263.6	-1.7579	-497764.4	6.1860
4100	20.6761	76821.2	105.0819	354014.5	147634.0			-497813.6	5.5227
4200	20.6873	78889.4	105.5802	364547.7	149702.2			-497871.1	4.8909
4300	20.6979	80958.6	106.0672	375130.1	151771.5			-497937.2	4.2884
4400	20.7079	83028.9	106.5431	385760.7	153841.8			-498012.4	3.7132
4500	20.7173	85100.2	107.0086	396438.4	155913.1			-498096.8	3.1635
4600	20.7261	87172.4	107.4640	407162.1	157985.2			-498190.7	2.6376
4700	20.7345	89245.4	107.9099	417930.9	160058.3			-498294.4	2.1339
4800	20.7424	91319.2	108.3465	428743.8	162132.1			-498408.1	1.6512
4900	20.7499	93393.9	108.7742	439599.9	164206.7			-498532.0	1.1880
5000	20.7570	95469.2	109.1935	450498.4	166282.1			-498666.2	0.7433
5100	20.7637	97545.2	109.6046	461438.3	168358.1			-498810.9	0.3159
5200	20.7702	99621.9	110.0079	472419.0	170434.8			-498966.3	-0.0953
5300	20.7763	101699.3	110.4036	483439.7	172512.1			-499132.3	-0.4910
5400	20.7821	103777.2	110.7920	494499.5	174590.0			-499309.1	-0.8722
5500	20.7877	105855.7	111.1734	505597.8	176668.5			-499496.7	-1.2396
5600	20.7930	107934.7	111.5480	516733.9	178747.6			-499695.1	-1.5941
5700	20.7982	110014.3	111.9160	527907.2	180827.1			-499904.4	-1.9363
5800	20.8030	112094.3	112.2778	539116.9	182907.2			-500124.5	-2.2668
5900	20.8077	114174.9	112.6335	550362.6	184987.7			-500355.3	-2.5863
6000	20.8123	116255.9	112.9832	561643.4	187068.7			-500596.9	-2.8953

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(75) CO (gas); molecular weight, 28.011

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-28488.3	-27199.7	-------	-256176.0	--------
100	6.9564	693.8	39.6169	3267.9	-27794.5	-26867.4	62.8006	-256579.9	555.2357
200	6.9574	1389.4	44.4390	7498.4	-27098.8	-26597.4	33.5628	-256944.2	274.7150
298.15	6.9652	2072.6	47.2178	12005.4	-26415.7	-26415.7	24.0264	-257273.2	182.2370
300	6.9656	2085.4	47.2609	12092.8	-26402.8	-26413.0	23.9070	-257279.2	181.0741
400	7.0129	2783.9	49.2699	16924.1	-25704.4	-26316.7	19.1060	-257596.5	134.1931
500	7.1211	3490.1	50.8453	21932.6	-24998.2	-26295.0	16.2320	-257898.2	106.0302
600	7.2760	4209.7	52.1568	27084.4	-24278.6	-26330.2	14.3156	-258182.1	87.2334
700	7.4507	4945.9	53.2914	32358.1	-23542.3	-26407.0	12.9438	-258446.7	73.7927
800	7.6246	5699.8	54.2978	37738.5	-22788.5	-26512.0	11.9114	-258692.1	63.7022
900	7.7860	6470.4	55.2053	43214.3	-22017.8	-26635.2	11.1050	-258919.4	55.8469
1000	7.9305	7256.4	56.0333	48776.9	-21231.8	-26769.8	10.4566	-259130.6	49.5573
1100	8.0571	8055.9	56.7952	54418.8	-20432.3	-26912.1	9.9234	-259327.7	44.4071
1200	8.1671	8867.3	57.5011	60134.1	-19621.0	-27060.8	9.4767	-259512.5	40.1122
1300	8.2623	9688.9	58.1587	65917.4	-18799.4	-27215.3	9.0966	-259686.7	36.4755
1400	8.3447	10519.3	58.7741	71764.4	-17968.9	-27375.1	8.7688	-259851.9	33.3563
1500	8.4161	11357.4	59.3523	77671.0	-17130.8	-27539.9	8.4831	-260009.5	30.6513
1600	8.4783	12202.2	59.8975	83633.7	-16286.0	-27709.0	8.2316	-260160.5	28.2830
1700	8.5327	13052.8	60.4131	89649.5	-15435.4	-27882.3	8.0083	-260306.0	26.1922
1800	8.5805	13908.5	60.9022	95715.5	-14579.7	-28059.7	7.8085	-260446.8	24.3326
1900	8.6227	14768.7	61.3673	101829.2	-13719.5	-28241.2	7.6287	-260583.8	22.6679
2000	8.6603	15632.9	61.8106	107988.2	-12855.3	-28426.9	7.4657	-260717.7	21.1689
2100	8.6938	16500.7	62.2339	114190.6	-11987.6	-28616.9	7.3173	-260849.1	19.8120
2200	8.7238	17371.6	62.6391	120434.4	-11116.7	-28810.6	7.1815	-260978.5	18.5778
2300	8.7509	18245.3	63.0275	126717.9	-10242.9	-29008.1	7.0567	-261106.5	17.4504
2400	8.7755	19121.7	63.4004	133039.4	-9366.6	-29209.3	6.9414	-261233.6	16.4164
2500	8.7979	20000.4	63.7591	139397.5	-8487.9	-29414.1	6.8347	-261360.0	15.4647
2600	8.8184	20881.2	64.1046	145790.8	-7607.1	-29622.1	6.7354	-261486.2	14.5857
2700	8.8372	21764.0	64.4378	152218.0	-6724.3	-29833.5	6.6429	-261612.5	13.7715
2800	8.8546	22648.6	64.7595	158677.9	-5839.7	-30048.1	6.5563	-261739.2	13.0151
2900	8.8706	23534.8	65.0705	165169.5	-4953.4	-30265.8	6.4752	-261866.5	12.3105
3000	8.8856	24422.7	65.3715	171691.7	-4065.6	-30486.7	6.3989	-261994.6	11.6525
3100	8.8996	25311.9	65.6630	178243.5	-3176.3	-30710.5	6.3270	-262123.8	11.0367
3200	8.9127	26202.6	65.9458	184824.0	-2285.7	-30937.4	6.2591	-262254.2	10.4591
3300	8.9250	27094.4	66.2203	191432.4	-1393.8	-31167.1	6.1948	-262385.9	9.9162
3400	8.9366	27987.5	66.4869	198067.8	-500.7	-31399.4	6.1339	-262519.1	9.4050
3500	8.9475	28881.7	66.7461	204729.5	393.5	-31634.2	6.0760	-262653.8	8.9228
3600	8.9579	29777.0	66.9983	211416.8	1288.8	-31871.5	6.0209	-262790.1	8.4671
3700	8.9678	30673.3	67.2439	218128.9	2185.1	-32111.2	5.9685	-262928.1	8.0359
3800	8.9773	31570.6	67.4831	224865.3	3082.3	-32353.4	5.9184	-263067.8	7.6271
3900	8.9863	32468.7	67.7164	231625.4	3980.5	-32597.8	5.8705	-263209.3	7.2391
4000	8.9950	33367.8	67.9441	238408.4	4879.6	-32844.4	5.8246	-263352.5	6.8702
4100	9.0033	34267.7	68.1663	245214.0	5779.5			-263497.6	6.5192
4200	9.0113	35168.5	68.3833	252041.5	6680.2			-263644.4	6.1847
4300	9.0190	36070.0	68.5955	258890.5	7581.7			-263793.1	5.8656
4400	9.0265	36972.3	68.8029	265760.5	8484.0			-263943.5	5.5608
4500	9.0337	37875.3	69.0058	272650.9	9387.0			-264095.6	5.2694
4600	9.0407	38779.0	69.2045	279561.5	10290.7			-264249.4	4.9905
4700	9.0475	39683.4	69.3990	286491.7	11195.2			-264405.0	4.7233
4800	9.0542	40588.5	69.5895	293441.1	12100.2			-264562.2	4.4671
4900	9.0606	41494.2	69.7763	300409.5	13006.0			-264721.0	4.2212
5000	9.0669	42400.6	69.9594	307396.3	13912.4			-264881.4	3.9850
5100	9.0731	43307.6	70.1390	314401.2	14819.4			-265043.3	3.7579
5200	9.0791	44215.2	70.3152	321424.0	15727.0			-265206.7	3.5395
5300	9.0850	45123.4	70.4882	328464.2	16635.2			-265371.5	3.3291
5400	9.0908	46032.2	70.6581	335521.5	17544.0			-265537.7	3.1264
5500	9.0964	46941.6	70.8250	342595.7	18453.3			-265705.3	2.9309
5600	9.1020	47851.5	70.9889	349686.4	19363.2			-265874.2	2.7424
5700	9.1075	48762.0	71.1501	356793.4	20273.7			-266044.2	2.5603
5800	9.1129	49673.0	71.3085	363916.3	21184.7			-266215.5	2.3843
5900	9.1182	50584.5	71.4643	371055.0	22096.3			-266388.0	2.2143
6000	9.1234	51496.6	71.6176	378209.1	23008.4			-266561.5	2.0498

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(76) CO_2 (gas); molecular weight, 44.011

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-96290.0	-93964.1	-------	-381926.9	--------
100	6.9806	695.5	42.7568	3580.2	-95594.5	-93976.8	205.6239	-382856.6	824.7910
200	7.7331	1422.6	47.7676	8130.9	-94867.4	-94023.3	102.9158	-383746.8	406.0574
298.15	8.8740	2238.2	51.0701	12988.3	-94051.8	-94051.8	69.0895	-384466.0	267.9023
300	8.8942	2254.6	51.1250	13082.9	-94035.4	-94052.1	68.6644	-384478.1	266.1644
400	9.8762	3195.0	53.8234	18334.4	-93095.0	-94068.9	51.5346	-385071.4	196.0941
500	10.6646	4223.4	56.1150	23834.1	-92066.6	-94090.6	41.2547	-385561.4	153.9919
600	11.3098	5323.1	58.1183	29547.8	-90966.8	-94123.3	34.3995	-385971.5	125.8907
700	11.8456	6481.7	59.9032	35450.5	-89808.3	-94166.7	29.5009	-386317.7	105.7986
800	12.2929	7689.3	61.5151	41522.7	-88600.7	-94216.8	25.8251	-386611.4	90.7169
900	12.6670	8937.9	62.9852	47748.8	-87352.1	-94269.1	22.9646	-386861.9	78.9785
1000	12.9804	10220.7	64.3365	54115.8	-86069.3	-94320.7	20.6750	-387076.5	69.5821
1100	13.2438	11532.3	65.5864	60612.8	-84757.7	-94370.4	18.8006	-387261.1	61.8901
1200	13.4660	12868.1	66.7486	67230.2	-83421.9	-94418.9	17.2378	-387420.6	55.4773
1300	13.6545	14224.4	67.8341	73959.9	-82065.6	-94467.0	15.9148	-387559.0	50.0490
1400	13.8154	15598.1	68.8520	80794.7	-80691.9	-94515.6	14.7802	-387679.5	45.3946
1500	13.9536	16986.7	69.8100	87728.3	-79303.3	-94565.2	13.7963	-387784.9	41.3596
1600	14.0732	18388.2	70.7145	94755.0	-77901.8	-94616.1	12.9350	-387877.3	37.8281
1700	14.1773	19800.8	71.5708	101869.6	-76489.2	-94668.8	12.1746	-387958.8	34.7113
1800	14.2686	21223.2	72.3838	109067.7	-75066.8	-94723.8	11.4983	-388030.8	31.9404
1900	14.3491	22654.2	73.1575	116345.1	-73635.8	-94781.8	10.8929	-388094.9	29.4606
2000	14.4206	24092.7	73.8954	123698.0	-72197.3	-94843.2	10.3476	-388152.2	27.2285
2100	14.4844	25538.0	74.6005	131123.0	-70752.0	-94908.3	9.8539	-388203.8	25.2087
2200	14.5418	26989.4	75.2757	138617.1	-69300.6	-94977.2	9.4048	-388250.6	23.3723
2300	14.5937	28446.2	75.9232	146177.3	-67843.8	-95049.9	8.9945	-388293.5	21.6953
2400	14.6409	29908.0	76.5454	153800.9	-66382.0	-95126.7	8.6180	-388333.1	20.1580
2500	14.6840	31374.3	77.1439	161485.5	-64915.7	-95207.6	8.2714	-388370.2	18.7435
2600	14.7235	32844.7	77.7206	169228.9	-63445.3	-95292.4	7.9511	-388405.4	17.4377
2700	14.7600	34318.9	78.2770	177029.0	-61971.1	-95381.3	7.6544	-388439.1	16.2285
2800	14.7938	35796.6	78.8144	184883.7	-60493.4	-95474.2	7.3785	-388471.8	15.1056
2900	14.8253	37277.5	79.3341	192791.3	-59012.5	-95571.2	7.1214	-388504.1	14.0600
3000	14.8547	38761.5	79.8372	200750.0	-57528.4	-95672.2	6.8812	-388536.2	13.0841
3100	14.8823	40248.4	80.3247	208758.2	-56041.6	-95777.2	6.6563	-388568.5	12.1710
3200	14.9082	41737.9	80.7976	216814.4	-54552.0	-95886.1	6.4452	-388601.3	11.3149
3300	14.9328	43230.0	81.2567	224917.3	-53060.0	-95998.8	6.2466	-388634.9	10.5107
3400	14.9560	44724.5	81.7029	233065.3	-51565.5	-96115.0	6.0595	-388669.6	9.7537
3500	14.9781	46221.2	82.1367	241257.4	-50068.8	-96234.6	5.8829	-388705.4	9.0399
3600	14.9992	47720.1	82.5590	249492.3	-48569.9	-96357.5	5.7159	-388742.7	8.3657
3700	15.0194	49221.0	82.9702	257768.9	-47069.0	-96483.8	5.5577	-388781.6	7.7278
3800	15.0387	50723.9	83.3710	266086.0	-45566.1	-96613.3	5.4076	-388822.2	7.1235
3900	15.0573	52228.7	83.7619	274442.7	-44061.3	-96745.8	5.2651	-388864.6	6.5501
4000	15.0752	53735.3	84.1434	282838.1	-42554.7	-96881.1	5.1294	-388908.9	6.0053
4100	15.0925	55243.7	84.5158	291271.1	-41046.3			-388955.2	5.4870
4200	15.1092	56753.8	84.8797	299740.9	-39536.2			-389003.5	4.9934
4300	15.1253	58265.5	85.2354	308246.8	-38024.4			-389053.9	4.5226
4400	15.1411	59778.9	85.5833	316787.8	-36511.1			-389106.4	4.0732
4500	15.1563	61293.7	85.9238	325363.2	-34996.3			-389161.1	3.6437
4600	15.1712	62810.1	86.2570	333972.3	-33479.9			-389217.8	3.2328
4700	15.1857	64328.0	86.5835	342614.4	-31962.0			-389276.7	2.8394
4800	15.1998	65847.2	86.9033	351288.8	-30442.7			-389337.7	2.4623
4900	15.2137	67367.9	87.2169	359994.8	-28922.1			-389400.8	2.1005
5000	15.2272	68890.0	87.5244	368731.9	-27400.0			-389465.9	1.7531
5100	15.2405	70413.4	87.8261	377499.5	-25876.6			-389533.1	1.4193
5200	15.2535	71938.1	88.1221	386297.0	-24351.9			-389602.2	1.0983
5300	15.2662	73464.0	88.4128	395123.8	-22826.0			-389673.3	0.7893
5400	15.2787	74991.3	88.6983	403979.3	-21298.7			-389746.2	0.4917
5500	15.2911	76519.8	88.9787	412863.2	-19770.2			-389821.0	0.2049
5600	15.3032	78049.5	89.2544	421774.9	-18240.5			-389897.5	-0.0717
5700	15.3151	79580.4	89.5253	430714.0	-16709.6			-389975.8	-0.3387
5800	15.3269	81112.5	89.7918	439679.8	-15177.5			-390055.7	-0.5965
5900	15.3384	82645.8	90.0539	448672.2	-13644.2			-390137.2	-0.8456
6000	15.3499	84180.2	90.3118	457690.5	-12109.8			-390220.2	-1.0865

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(77) $COCl_2$ (gas); molecular weight, 98.925

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-56378.3	-52896.2	-------	-338969.3	--------
100	8.7359	811.7	55.8406	4772.3	-55566.5	-53141.9	113.8988	-340248.9	726.7896
200	11.5767	1824.9	62.7484	10724.8	-54553.4	-53280.1	55.7588	-341293.8	354.5328
298.15	13.8070	3078.3	67.8174	17141.5	-53300.0	-53300.0	36.5880	-342058.8	231.6399
300	13.8404	3103.8	67.9029	17267.0	-53274.4	-53299.6	36.3470	-342071.4	230.0937
400	15.2951	4565.8	72.0987	24273.7	-51812.5	-53269.1	26.6424	-342685.8	167.7445
500	16.2788	6147.4	75.6238	31664.5	-50230.9	-53226.0	20.8239	-343193.9	130.2728
600	16.9887	7812.5	78.6578	39382.1	-48565.7	-53184.5	16.9480	-343621.1	105.2573
700	17.5209	9539.2	81.3184	47383.7	-46839.0	-53149.4	14.1815	-343982.6	87.3684
800	17.9287	11312.6	83.6858	55636.1	-45065.7	-53120.2	12.1079	-344289.8	73.9386
900	18.2460	13122.0	85.8166	64113.0	-43256.3	-53095.1	10.4960	-344552.6	63.4846
1000	18.4962	14959.6	87.7525	72792.9	-41418.7	-53072.5	9.2070	-344778.6	55.1154
1100	18.6957	16819.5	89.5250	81658.0	-39558.8	-53052.1	8.1528	-344974.6	48.2637
1200	18.8568	18697.4	91.1589	90693.3	-37680.8	-53034.7	7.2746	-345145.5	42.5509
1300	18.9883	20589.9	92.6737	99885.9	-35788.4	-53021.2	6.5317	-345295.8	37.7147
1400	19.0967	22494.3	94.0849	109224.6	-33884.0	-53012.1	5.8951	-345428.8	33.5677
1500	19.1869	24408.6	95.4056	118699.8	-31969.6	-53007.7	5.3435	-345547.2	29.9723
1600	19.2627	26331.2	96.6464	128303.1	-30047.0	-53007.9	4.8608	-345653.6	26.8254
1700	19.3269	28260.8	97.8162	138026.7	-28117.5	-53012.9	4.4349	-345749.7	24.0478
1800	19.3817	30196.3	98.9225	147864.2	-26182.0	-53022.8	4.0562	-345837.2	21.5782
1900	19.4289	32136.9	99.9717	157809.3	-24241.4	-53037.9	3.7174	-345917.6	19.3681
2000	19.4696	34081.9	100.9693	167856.8	-22296.4	-53058.3	3.4123	-345991.9	17.3785
2100	19.5051	36030.6	101.9201	178001.6	-20347.6	-53084.1	3.1362	-346061.4	15.5780
2200	19.5362	37982.7	102.8282	188239.4	-18395.5	-53115.1	2.8850	-346126.8	13.9409
2300	19.5635	39937.7	103.6973	198566.0	-16440.5	-53151.2	2.6555	-346189.0	12.4458
2400	19.5877	41895.3	104.5304	208977.7	-14482.9	-53192.4	2.4450	-346248.7	11.0751
2500	19.6092	43855.2	105.3305	219471.0	-12523.1	-53238.6	2.2512	-346306.5	9.8139
2600	19.6284	45817.1	106.0999	230042.7	-10561.2	-53289.5	2.0721	-346362.9	8.6494
2700	19.6456	47780.8	106.8410	240690.0	-8597.5	-53345.3	1.9061	-346418.4	7.5711
2800	19.6610	49746.1	107.5558	251410.1	-6632.1	-53405.8	1.7518	-346473.4	6.5696
2900	19.6749	51713.0	108.2460	262200.3	-4665.3	-53471.1	1.6080	-346528.3	5.6371
3000	19.6875	53681.1	108.9132	273058.5	-2697.2	-53540.9	1.4736	-346583.4	4.7665
3100	19.6990	55650.4	109.5589	283982.3	-727.8	-53615.4	1.3477	-346639.0	3.9520
3200	19.7094	57620.9	110.1845	294969.6	1242.6	-53694.4	1.2295	-346695.3	3.1883
3300	19.7189	59592.3	110.7912	306018.5	3214.0	-53777.8	1.1183	-346752.5	2.4708
3400	19.7277	61564.6	111.3800	317127.2	5186.4	-53865.3	1.0135	-346810.9	1.7953
3500	19.7357	63537.8	111.9519	328294.0	7159.5	-53957.0	0.9145	-346870.6	1.1584
3600	19.7430	65511.7	112.5080	339517.1	9133.5	-54052.7	0.8208	-346931.6	0.5567
3700	19.7498	67486.4	113.0490	350795.1	11108.1	-54152.5	0.7320	-346994.2	-0.0126
3800	19.7561	69461.7	113.5758	362126.4	13083.4	-54256.2	0.6478	-347058.3	-0.5520
3900	19.7619	71437.6	114.0891	373509.8	15059.3	-54363.8	0.5677	-347124.1	-1.0638
4000	19.7673	73414.0	114.5895	384943.8	17035.8	-54475.2	0.4915	-347191.6	-1.5501
4100	19.7723	75391.0	115.0776	396427.3	19012.8			-347260.9	-2.0128
4200	19.7769	77368.5	115.5542	407958.9	20990.2			-347332.0	-2.4536
4300	19.7813	79346.4	116.0196	419537.7	22968.1			-347404.8	-2.8739
4400	19.7853	81324.7	116.4744	431162.5	24946.5			-347479.5	-3.2752
4500	19.7891	83303.5	116.9190	442832.3	26925.2			-347556.0	-3.6588
4600	19.7927	85282.5	117.3540	454546.0	28904.3			-347634.3	-4.0258
4700	19.7960	87262.0	117.7797	466302.8	30883.7			-347714.3	-4.3772
4800	19.7991	89241.7	118.1965	478101.6	32863.5			-347796.2	-4.7141
4900	19.8021	91221.8	118.6048	489941.8	34843.5			-347879.8	-5.0373
5000	19.8048	93202.1	119.0049	501822.3	36823.9			-347965.1	-5.3476
5100	19.8074	95182.8	119.3971	513742.5	38804.5			-348052.1	-5.6459
5200	19.8099	97163.6	119.7818	525701.5	40785.4			-348140.7	-5.9327
5300	19.8122	99144.7	120.1591	537698.6	42766.5			-348231.0	-6.2088
5400	19.8144	101126.1	120.5295	549733.1	44747.8			-348322.8	-6.4748
5500	19.8165	103107.6	120.8931	561804.3	46729.3			-348416.2	-6.7311
5600	19.8185	105089.4	121.2502	573911.5	48711.1			-348511.1	-6.9783
5700	19.8203	107071.3	121.6009	586054.1	50693.0			-348607.5	-7.2170
5800	19.8221	109053.4	121.9457	598231.5	52675.2			-348705.3	-7.4475
5900	19.8238	111035.7	122.2845	610443.0	54657.4			-348804.4	-7.6702
6000	19.8254	113018.2	122.6177	622688.2	56639.9			-348904.9	-7.8855

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(78) COF_2 (gas); molecular weight, 66.011

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-153057.5	-149659.3	-------	-415345.6	--------
100	8.0042	795.5	51.9183	4396.3	-152262.0	-149920.0	325.5136	-416644.9	893.6917
200	9.2969	1646.8	57.7682	9906.8	-151410.7	-150194.5	161.5768	-417905.2	437.8853
298.15	11.2945	2657.5	61.8529	15784.0	-150400.0	-150400.0	107.5160	-418973.9	287.3867
300	11.3308	2678.4	61.9229	15898.5	-150379.1	-150403.1	106.8361	-418992.0	285.4929
400	13.0927	3903.0	65.4336	22270.5	-149154.5	-150550.8	79.4324	-419863.3	209.1129
500	14.4608	5283.7	68.5089	28970.7	-147773.8	-150660.0	62.9760	-420554.7	163.1982
600	15.5060	6784.4	71.2421	35960.9	-146273.1	-150745.6	51.9979	-421107.3	132.5426
700	16.3066	8376.8	73.6952	43209.8	-144680.7	-150816.5	44.1523	-421554.4	110.6196
800	16.9247	10039.6	75.9147	50692.1	-143017.8	-150876.7	38.2656	-421920.7	94.1615
900	17.4067	11757.2	77.9371	58386.2	-141300.3	-150927.7	33.6853	-422224.8	81.3505
1000	17.7867	13517.6	79.7915	66273.9	-139539.9	-150971.0	30.0199	-422480.2	71.0948
1100	18.0899	15312.0	81.5015	74339.7	-137745.5	-151008.3	27.0202	-422697.2	62.6992
1200	18.3345	17133.6	83.0864	82570.1	-135923.9	-151042.3	24.5198	-422883.4	55.6995
1300	18.5340	18977.4	84.5621	90953.4	-134080.1	-151075.0	22.4036	-423044.8	49.7742
1400	18.6983	20839.2	85.9418	99479.3	-132218.2	-151108.1	20.5894	-423185.9	44.6936
1500	18.8351	22716.1	87.2367	108138.9	-130341.4	-151142.7	19.0167	-423310.3	40.2890
1600	18.9500	24605.5	88.4560	116924.1	-128451.9	-151179.2	17.6403	-423421.0	36.4339
1700	19.0473	26505.5	89.6079	125827.9	-126551.9	-151218.4	16.4254	-423520.2	33.0315
1800	19.1303	28414.5	90.6990	134843.7	-124643.0	-151260.7	15.3453	-423610.0	30.0065
1900	19.2016	30331.2	91.7353	143965.8	-122726.3	-151306.9	14.3786	-423691.8	27.2994
2000	19.2633	32254.5	92.7218	153189.1	-120803.0	-151357.3	13.5083	-423767.2	24.8625
2100	19.3170	34183.6	93.6630	162508.7	-118873.9	-151412.3	12.7206	-423837.2	22.6573
2200	19.3640	36117.7	94.5627	171920.3	-116939.8	-151471.8	12.0043	-423902.9	20.6523
2300	19.4054	38056.2	95.4244	181420.0	-115001.3	-151535.9	11.3499	-423965.1	18.8213
2400	19.4420	39998.6	96.2511	191004.0	-113058.9	-151604.7	10.7498	-424024.6	17.1427
2500	19.4745	41944.5	97.0454	200669.1	-111113.0	-151678.3	10.1975	-424082.1	15.5982
2600	19.5035	43893.4	97.8098	210412.1	-109164.1	-151756.5	9.6874	-424138.0	14.1723
2700	19.5294	45845.1	98.5464	220230.1	-107212.4	-151839.4	9.2149	-424193.0	12.8518
2800	19.5528	47799.2	99.2570	230120.5	-105258.3	-151927.1	8.7758	-424247.4	11.6255
2900	19.5739	49755.5	99.9435	240080.7	-103301.9	-152019.6	8.3668	-424301.7	10.4836
3000	19.5929	51713.9	100.6075	250108.5	-101343.6	-152116.9	7.9848	-424356.1	9.4177
3100	19.6102	53674.1	101.2502	260201.5	-99383.4	-152218.9	7.6272	-424411.0	8.4205
3200	19.6260	55635.9	101.8730	270357.8	-97421.6	-152325.7	7.2918	-424466.6	7.4854
3300	19.6404	57599.2	102.4772	280575.5	-95458.3	-152437.2	6.9764	-424523.1	6.6059
3400	19.6536	59563.9	103.0637	290852.7	-93493.5	-152553.1	6.6794	-424580.8	5.7800
3500	19.6657	61529.9	103.6336	301187.7	-91527.6	-152673.5	6.3991	-424639.7	5.0002
3600	19.6768	63497.0	104.1878	311578.9	-89560.4	-152798.2	6.1342	-424700.0	4.2637
3700	19.6871	65465.2	104.7270	322024.7	-87592.2	-152927.5	5.8834	-424761.9	3.5668
3800	19.6965	67434.4	105.2522	332523.8	-85623.1	-153061.1	5.6456	-424825.3	2.9065
3900	19.7053	69404.5	105.7639	343074.7	-83653.0	-153199.0	5.4198	-424890.4	2.2800
4000	19.7135	71375.5	106.2629	353676.2	-81682.0	-153341.1	5.2051	-424957.2	1.6848
4100	19.7210	73347.2	106.7498	364326.9	-79710.3			-425025.8	1.1184
4200	19.7280	75319.7	107.2251	375025.7	-77737.8			-425096.2	0.5790
4300	19.7346	77292.8	107.6894	385771.6	-75764.7			-425168.4	0.0645
4400	19.7407	79266.6	108.1431	396563.3	-73790.9			-425242.5	-0.4266
4500	19.7465	81240.9	108.5868	407399.8	-71816.6			-425318.3	-0.8960
4600	19.7518	83215.8	109.0209	418280.3	-69841.6			-425396.0	-1.3451
4700	19.7568	85191.3	109.4457	429203.7	-67866.2			-425475.5	-1.7751
4800	19.7616	87167.2	109.8617	440169.2	-65890.3			-425556.7	-2.1873
4900	19.7660	89143.6	110.2693	451175.8	-63913.9			-425639.7	-2.5827
5000	19.7702	91120.4	110.6686	462222.8	-61937.1			-425724.5	-2.9625
5100	19.7741	93097.6	111.0602	473309.2	-59959.9			-425810.9	-3.3273
5200	19.7779	95075.2	111.4442	484434.5	-57982.3			-425899.1	-3.6783
5300	19.7814	97053.2	111.8210	495597.9	-56004.3			-425988.8	-4.0160
5400	19.7847	99031.5	112.1907	506798.5	-54026.0			-426080.1	-4.3413
5500	19.7878	101010.1	112.5538	518035.8	-52047.4			-426173.0	-4.6549
5600	19.7908	102989.0	112.9104	529309.0	-50068.4			-426267.4	-4.9573
5700	19.7936	104968.3	113.2607	540617.6	-48089.2			-426363.3	-5.2492
5800	19.7963	106947.8	113.6050	551961.0	-46109.7			-426460.6	-5.5311
5900	19.7989	108927.5	113.9434	563338.4	-44130.0			-426559.3	-5.8034
6000	19.8013	110907.5	114.2762	574749.5	-42150.0			-426659.4	-6.0668

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(79) COFCl (gas); molecular weight, 82.468

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-104695.1	-101255.0	-------	-377134.7	--------
100	8.2233	799.2	55.3066	4731.5	-103896.0	-101512.7	219.9781	-378428.6	810.5126
200	10.3494	1718.4	61.5928	10600.1	-102976.7	-101732.0	108.9536	-379594.2	396.4949
298.15	12.5233	2845.1	66.1472	16876.7	-101850.0	-101850.0	72.3387	-380516.3	259.8000
300	12.5589	2868.3	66.2248	16999.1	-101826.8	-101851.4	71.8783	-380531.7	258.0800
400	14.1990	4210.7	70.0752	23819.4	-100484.4	-101910.9	53.3240	-381275.5	188.7153
500	15.3901	5693.2	73.3784	30996.0	-99001.9	-101942.6	42.1865	-381873.9	147.0220
600	16.2735	7278.5	76.2663	38481.3	-97416.6	-101962.2	34.7596	-382361.4	119.1866
700	16.9410	8940.7	78.8273	46238.4	-95754.4	-101977.5	29.4538	-382763.0	99.2809
800	17.4529	10661.5	81.1244	54238.0	-94033.6	-101990.3	25.4739	-383097.1	84.3372
900	17.8505	12427.5	83.2040	62456.0	-92267.6	-102000.7	22.3781	-383378.0	72.7049
1000	18.1634	14228.8	85.1015	70872.7	-90466.3	-102008.7	19.9012	-383616.4	63.3928
1100	18.4126	16058.1	86.8448	79471.2	-88637.0	-102015.1	17.8745	-383820.8	55.7694
1200	18.6134	17909.7	88.4558	88237.3	-86785.4	-102021.5	16.1855	-383997.5	49.4134
1300	18.7770	19779.5	89.9524	97158.6	-84915.6	-102029.5	14.7562	-384151.6	44.0330
1400	18.9118	21664.2	91.3490	106224.4	-83030.9	-102040.0	13.5310	-384287.2	39.4194
1500	19.0239	23561.1	92.6577	115425.4	-81134.0	-102053.6	12.4690	-384407.3	35.4196
1600	19.1180	25468.4	93.8886	124753.4	-79226.7	-102070.8	11.5397	-384514.5	31.9188
1700	19.1977	27384.3	95.0501	134200.8	-77310.9	-102091.8	10.7195	-384611.1	28.8290
1800	19.2656	29307.5	96.1493	143761.3	-75387.6	-102116.9	9.9903	-384698.7	26.0819
1900	19.3240	31237.1	97.1926	153428.8	-73458.0	-102146.6	9.3377	-384778.9	23.6234
2000	19.3745	33172.1	98.1851	163198.1	-71523.1	-102181.2	8.7501	-384852.9	21.4103
2100	19.4184	35111.8	99.1315	173064.3	-69583.4	-102220.8	8.2184	-384921.9	19.4076
2200	19.4569	37055.6	100.0357	183023.0	-67639.6	-102265.3	7.7347	-384986.8	17.5867
2300	19.4907	39003.0	100.9014	193070.2	-65692.1	-102314.8	7.2929	-385048.3	15.9238
2400	19.5206	40953.6	101.7315	203202.1	-63741.5	-102369.2	6.8878	-385107.3	14.3993
2500	19.5472	42907.0	102.5290	213415.4	-61788.1	-102428.5	6.5148	-385164.3	12.9965
2600	19.5709	44862.9	103.2961	223706.9	-59832.2	-102492.6	6.1703	-385220.0	11.7014
2700	19.5922	46821.1	104.0351	234073.7	-57874.0	-102561.5	5.8511	-385274.7	10.5021
2800	19.6113	48781.3	104.7480	244513.0	-55913.8	-102635.1	5.5546	-385329.0	9.3883
2900	19.6285	50743.3	105.4365	255022.5	-53951.8	-102713.5	5.2782	-385383.2	8.3512
3000	19.6441	52706.9	106.1022	265599.6	-51988.2	-102796.7	5.0201	-385437.5	7.3830
3100	19.6582	54672.1	106.7465	276242.2	-50023.1	-102884.6	4.7785	-385492.4	6.4772
3200	19.6711	56638.5	107.3709	286948.2	-48056.6	-102977.1	4.5517	-385548.0	5.6279
3300	19.6829	58606.2	107.9764	297715.7	-46088.9	-103074.2	4.3385	-385604.6	4.8300
3400	19.6937	60575.1	108.5641	308542.9	-44120.0	-103175.6	4.1376	-385662.3	4.0788
3500	19.7035	62544.9	109.1351	319428.0	-42150.2	-103281.4	3.9481	-385721.3	3.3705
3600	19.7126	64515.8	109.6903	330369.4	-40179.4	-103391.3	3.7688	-385781.7	2.7015
3700	19.7210	66487.5	110.2305	341365.6	-38207.7	-103505.6	3.5991	-385843.6	2.0685
3800	19.7288	68459.9	110.7566	352415.0	-36235.2	-103624.0	3.4381	-385907.1	1.4687
3900	19.7359	70433.2	111.2691	363516.4	-34261.9	-103746.5	3.2852	-385972.4	0.8996
4000	19.7426	72407.1	111.7689	374668.4	-32288.0	-103873.0	3.1398	-386039.3	0.3588
4100	19.7488	74381.7	112.2565	385869.8	-30313.4			-386108.0	-0.1556
4200	19.7545	76356.9	112.7324	397119.3	-28338.3			-386178.6	-0.6457
4300	19.7599	78332.6	113.1973	408415.9	-26362.5			-386250.9	-1.1130
4400	19.7649	80308.8	113.6517	419758.4	-24386.3			-386325.1	-1.5592
4500	19.7696	82285.5	114.0959	431145.9	-22409.6			-386401.0	-1.9857
4600	19.7739	84262.7	114.5304	442577.3	-20432.4			-386478.8	-2.3936
4700	19.7780	86240.3	114.9557	454051.7	-18454.8			-386558.5	-2.7843
4800	19.7819	88218.3	115.3722	465568.1	-16476.8			-386639.8	-3.1588
4900	19.7855	90196.7	115.7801	477125.8	-14498.4			-386723.0	-3.5181
5000	19.7889	92175.4	116.1799	488723.9	-12519.7			-386807.9	-3.8631
5100	19.7922	94154.5	116.5718	500361.5	-10540.6			-386894.5	-4.1947
5200	19.7952	96133.8	116.9561	512038.0	-8561.3			-386982.7	-4.5135
5300	19.7981	98113.5	117.3332	523752.5	-6581.6			-387072.6	-4.8204
5400	19.8008	100093.5	117.7033	535504.4	-4601.7			-387164.0	-5.1160
5500	19.8033	102073.7	118.0667	547292.9	-2621.5			-387257.1	-5.4009
5600	19.8058	104054.1	118.4235	559117.5	-641.0			-387351.6	-5.6757
5700	19.8081	106034.8	118.7741	570977.5	1339.7			-387447.6	-5.9410
5800	19.8103	108015.7	119.1186	582872.1	3320.6			-387545.0	-6.1971
5900	19.8124	109996.9	119.4573	594801.0	5301.7			-387643.9	-6.4447
6000	19.8143	111978.2	119.7903	606763.4	7283.1			-387744.0	-6.6840

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(80) COS (gas); molecular weight, 60.077

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-35172.9	-32830.6	-------	-327710.4	--------
100	7.0772	697.0	46.3772	3940.7	-34475.9	-32659.8	76.2710	-328510.2	706.6696
200	8.4763	1466.7	51.6558	8864.5	-33706.2	-32708.4	40.5709	-329437.9	347.2381
298.15	9.9165	2372.9	55.3231	14121.7	-32800.0	-32800.0	28.7918	-330098.3	228.6276
300	9.9393	2391.3	55.3846	14224.1	-32781.6	-32801.8	28.6433	-330109.3	227.1355
[a]400	10.9576	3439.3	58.3924	19917.7	-31733.6	-33454.4	22.6486	-330638.0	166.9719
500	11.6861	4573.2	60.9198	25886.7	-30599.7	-33942.8	18.9699	-331061.3	130.8210
600	12.2471	5771.0	63.1020	32090.2	-29401.9	-34356.7	16.4828	-331405.7	106.6921
700	12.6972	7019.0	65.0249	38498.5	-28153.9	-34721.6	14.6859	-331688.8	89.4408
800	13.0645	8307.6	66.7451	45088.5	-26865.2	-35062.1	13.3246	-331923.0	76.4922
900	13.3665	9629.7	68.3019	51842.0	-25543.2	-35403.3	12.2554	-332117.9	66.4145
1000	13.6164	10979.2	69.7236	58744.3	-24193.7	-35743.7	11.3917	-332280.7	58.3480
1100	13.8246	12351.6	71.0314	65783.0	-22821.3	-36082.7	10.6783	-332417.3	51.7452
1200	13.9994	13743.0	72.2420	72947.4	-21429.9	-36420.7	10.0782	-332532.1	46.2407
1300	14.1474	15150.6	73.3686	80228.6	-20022.3	-36758.6	9.5657	-332629.0	41.5816
1400	14.2739	16571.8	74.4218	87618.7	-18601.1	-37097.0	9.1223	-332710.8	37.5870
1500	14.3830	18004.8	75.4104	95110.8	-17168.1	-37436.3	8.7345	-332780.2	34.1242
1600	14.4779	19447.9	76.3417	102698.8	-15725.0	-37776.5	8.3921	-332839.1	31.0937
1700	14.5613	20900.0	77.2220	110377.4	-14272.9	-38117.7	8.0873	-332889.3	28.4193
1800	14.6352	22359.9	78.0564	118141.7	-12813.0	-38460.3	7.8138	-332932.5	26.0418
1900	14.7011	23826.7	78.8495	125987.3	-11346.2	-38804.6	7.5670	-332970.0	23.9142
2000	14.7605	25299.9	79.6051	133910.3	-9873.0	-39150.8	7.3429	-333003.0	21.9992
2100	14.8143	26778.7	80.3266	141907.2	-8394.2	-39499.0	7.1383	-333032.4	20.2664
2200	14.8635	28262.6	81.0169	149974.6	-6910.3	-39849.2	6.9506	-333059.3	18.6910
2300	14.9087	29751.2	81.6786	158109.6	-5421.7	-40201.2	6.7777	-333084.4	17.2524
2400	14.9505	31244.2	82.3140	166309.5	-3928.7	-40555.2	6.6179	-333108.3	15.9337
2500	14.9894	32741.2	82.9251	174571.6	-2431.7	-40911.0	6.4695	-333131.7	14.7204
2600	15.0258	34242.0	83.5138	182893.7	-930.9			-333155.1	13.6003
2700	15.0601	35746.3	84.0815	191273.7	573.4			-333179.0	12.5631
2800	15.0924	37254.0	84.6298	199709.4	2081.1			-333203.6	11.5999
2900	15.1231	38764.8	85.1599	208199.0	3591.9			-333229.3	10.7031
3000	15.1523	40278.5	85.6731	216740.8	5105.6			-333256.3	9.8660
3100	15.1803	41795.2	86.1704	225333.1	6622.3			-333284.9	9.0829
3200	15.2071	43314.5	86.6528	233974.4	8141.7			-333315.2	8.3486
3300	15.2329	44836.6	87.1211	242663.2	9663.7			-333347.2	7.6588
3400	15.2578	46361.1	87.5763	251398.2	11188.2			-333381.1	7.0095
3500	15.2819	47888.1	88.0189	260178.1	12715.2			-333416.9	6.3972
3600	15.3053	49417.5	88.4497	269001.6	14244.6			-333454.7	5.8189
3700	15.3280	50949.1	88.8694	277867.6	15776.2			-333494.4	5.2718
3800	15.3502	52483.0	89.2785	286775.1	17310.2			-333536.0	4.7534
3900	15.3718	54019.2	89.6775	295723.0	18846.3			-333579.5	4.2615
4000	15.3930	55557.4	90.0669	304710.3	20384.5			-333624.8	3.7942
4100	15.4137	57097.7	90.4473	313736.1	21924.8			-333671.9	3.3496
4200	15.4341	58640.1	90.8189	322799.4	23467.2			-333720.6	2.9261
4300	15.4540	60184.5	91.1824	331899.6	25011.6			-333771.0	2.5222
4400	15.4737	61730.9	91.5379	341035.7	26558.0			-333822.9	2.1366
4500	15.4930	63279.3	91.8858	350206.9	28106.4			-333876.3	1.7682
4600	15.5121	64829.5	92.2265	359412.6	29656.6			-333930.9	1.4156
4700	15.5309	66381.7	92.5604	368652.0	31208.8			-333986.9	1.0781
4800	15.5495	67935.7	92.8875	377924.4	32762.8			-334043.9	0.7545
4900	15.5678	69491.6	93.2083	387229.3	34318.7			-334102.0	0.4441
5000	15.5860	71049.2	93.5230	396565.9	35876.4			-334161.1	0.1461
5100	15.6040	72608.7	93.8318	405933.7	37435.9			-334221.0	-0.1403
5200	15.6218	74170.0	94.1350	415332.1	38997.1			-334281.6	-0.4158
5300	15.6394	75733.1	94.4328	424760.5	40560.2			-334342.9	-0.6809
5400	15.6569	77297.9	94.7253	434218.4	42125.0			-334404.7	-0.9362
5500	15.6743	78864.5	95.0127	443705.4	43691.6			-334467.0	-1.1823
5600	15.6915	80432.8	95.2953	453220.8	45259.9			-334529.7	-1.4196
5700	15.7086	82002.8	95.5732	462764.3	46829.9			-334592.7	-1.6487
5800	15.7256	83574.5	95.8465	472335.3	48401.6			-334655.9	-1.8699
5900	15.7425	85147.9	96.1155	481933.4	49975.0			-334719.2	-2.0836
6000	15.7592	86723.0	96.3802	491558.2	51550.1			-334782.5	-2.2903

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(81) CP (gas); molecular weight, 42.986

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	84437.3	85970.8	-------	-159000.0	--------
100	6.9566	694.8	44.0246	3707.6	85132.2	86437.8	-180.2885	-159372.2	343.5244
200	6.9808	1391.1	48.8498	8378.9	85828.4	86515.2	-85.7342	-159675.4	169.2501
298.15	7.1492	2083.1	51.6627	13320.2	86520.4	86520.4	-54.6089	-159965.5	111.7679
300	7.1539	2096.3	51.7069	13415.8	86533.6	86519.4	-54.2178	-159965.6	111.0448
[a] 400	7.4466	2825.9	53.8038	18695.6	87263.2	86228.9	-38.4930	-160230.6	81.8902
500	7.7416	3585.6	55.4978	24163.3	88022.9	86045.4	-29.0798	-160465.1	64.3698
600	7.9892	4372.6	56.9320	29786.6	88809.9	85831.0	-22.8189	-160672.1	52.6732
700	8.1849	5181.7	58.1788	35543.5	89619.0	85591.8	-18.3586	-160856.9	44.3183
800	8.3385	6008.2	59.2822	41417.6	90445.5	85334.1	-15.0232	-161024.2	38.0277
900	8.4629	6848.4	60.2717	47396.1	91285.8	85063.4	-12.4370	-161177.8	33.1379
1000	8.5699	7700.2	61.1690	53468.9	92137.5	84784.2	-10.3747	-161319.8	29.2225
1100	8.6692	8562.2	61.9905	59627.4	92999.5	84499.5	-8.6930	-161451.6	26.0162
1200	8.7684	9434.0	62.7491	65864.9	93871.4	84211.4	-7.2963	-161573.5	23.3422
1300	8.8724	10316.0	63.4550	72175.5	94753.3	83921.4	-6.1186	-161685.6	21.0780
1400	8.9841	11208.7	64.1165	78554.4	95646.1	83631.7	-5.1126	-161787.2	19.1359
1500	9.1045	12113.1	64.7404	84997.5	96550.4	83344.4	-4.2437	-161877.8	17.4518
1600	9.2332	13029.9	65.3321	91501.4	97467.3	83061.6	-3.4861	-161956.9	15.9774
1700	9.3686	13960.0	65.8959	98063.0	98397.3	82784.9	-2.8198	-162024.2	14.6759
1800	9.5087	14903.8	66.4353	104679.8	99341.1	82515.8	-2.2295	-162079.6	13.5185
1900	9.6510	15861.8	66.9532	111349.4	100299.1	82255.1	-1.7031	-162123.5	12.4827
2000	9.7932	16834.0	67.4519	118069.8	101271.3	82003.2	-1.2307	-162156.4	11.5502
2100	9.9328	17820.3	67.9331	124839.2	102257.7	81760.4	-0.8047	-162179.2	10.7064
2200	10.0677	18820.4	68.3983	131655.9	103257.7	81527.2	-0.4185	-162192.8	9.9392
2300	10.1963	19833.7	68.8487	138518.3	104271.0	81303.3	-0.0668	-162198.7	9.2387
2400	10.3170	20859.4	69.2852	145425.1	105296.7	81088.3	0.2546	-162198.3	8.5965
2500	10.4287	21896.8	69.7087	152374.9	106334.1	80881.7	0.5496	-162192.9	8.0058
2600	10.5308	22944.8	70.1197	159366.4	107382.2			-162184.3	7.4605
2700	10.6229	24002.6	70.5189	166398.5	108439.9			-162173.8	6.9556
2800	10.7046	25069.1	70.9068	173469.9	109506.4			-162163.1	6.4868
2900	10.7762	26143.2	71.2837	180579.5	110580.5			-162153.6	6.0504
3000	10.8379	27224.0	71.6501	187726.2	111661.3			-162146.5	5.6431
3100	10.8901	28310.4	72.0063	194909.1	112747.8			-162143.3	5.2620
3200	10.9333	29401.7	72.3528	202127.2	113839.0			-162144.9	4.9048
3300	10.9682	30496.8	72.6898	209379.4	114934.2			-162152.4	4.5693
3400	10.9953	31595.1	73.0176	216664.8	116032.4			-162166.6	4.2534
3500	11.0153	32695.6	73.3366	223982.6	117133.0			-162188.3	3.9556
3600	11.0290	33797.9	73.6472	231331.9	118235.3			-162218.1	3.6743
3700	11.0369	34901.3	73.9495	238711.8	119338.6			-162256.4	3.4081
3800	11.0398	36005.1	74.2438	246121.5	120442.5			-162303.7	3.1559
3900	11.0383	37109.1	74.5306	253560.3	121546.4			-162360.2	2.9165
4000	11.0329	38212.7	74.8100	261027.4	122650.0			-162426.0	2.6890
4100	11.0242	39315.5	75.0823	268522.0	123752.9			-162501.3	2.4725
4200	11.0127	40417.4	75.3479	276043.6	124854.8			-162586.0	2.2662
4300	10.9988	41518.0	75.6068	283591.4	125955.3			-162680.0	2.0694
4400	10.9830	42617.1	75.8595	291164.8	127054.5			-162783.2	1.8814
4500	10.9657	43714.6	76.1061	298763.1	128151.9			-162895.4	1.7017
4600	10.9472	44810.2	76.3470	306385.8	129247.6			-163016.4	1.5297
4700	10.9277	45904.0	76.5822	314032.3	130341.3			-163145.7	1.3648
4800	10.9076	46995.7	76.8120	321702.1	131433.1			-163283.2	1.2067
4900	10.8871	48085.5	77.0367	329394.5	132522.8			-163428.5	1.0549
5000	10.8664	49173.2	77.2565	337109.2	133610.5			-163581.2	0.9091
5100	10.8457	50258.8	77.4715	344845.7	134696.1			-163740.8	0.7688
5200	10.8251	51342.3	77.6819	352603.4	135779.6			-163907.1	0.6338
5300	10.8048	52423.8	77.8879	360381.9	136861.1			-164079.6	0.5038
5400	10.7848	53503.3	78.0896	368180.8	137940.6			-164258.0	0.3784
5500	10.7654	54580.8	78.2874	375999.7	139018.1			-164441.7	0.2575
5600	10.7465	55656.4	78.4812	383838.2	140093.7			-164630.4	0.1408
5700	10.7281	56730.1	78.6712	391695.8	141167.4			-164823.7	0.0280
5800	10.7105	57802.0	78.8576	399572.3	142239.4			-165021.2	-0.0810
5900	10.6935	58872.2	79.0406	407467.2	143309.5			-165222.6	-0.1865
6000	10.6773	59940.7	79.2202	415380.3	144378.1			-165427.5	-0.2885

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of P, 317.30° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(82) CS (gas); molecular weight, 44.077

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	52588.3	53893.2	-------	-182000.0	--------
100	6.9565	694.8	42.6705	3572.2	53283.1	54408.6	-110.2945	-182374.6	393.3722
200	6.9755	1390.9	47.4949	8108.1	53979.2	54634.3	-50.7272	-182718.4	193.9506
298.15	7.1227	2081.4	50.3020	12916.1	54669.7	54669.7	-31.0645	-183071.9	128.1691
300	7.1270	2094.6	50.3460	13009.2	54682.9	54669.2	-30.8176	-183078.4	127.3416
[a] 400	7.4021	2820.5	52.4325	18152.5	55408.8	54049.7	-20.8787	-183411.3	93.9721
500	7.6911	3575.4	54.1157	23482.5	56163.7	53547.7	-14.9963	-183703.2	73.9157
600	7.9397	4357.4	55.5407	28967.1	56945.7	53095.7	-11.1112	-183957.0	60.5246
700	8.1386	5161.7	56.7802	34584.4	57750.0	52676.0	-8.3590	-184179.9	50.9472
800	8.2944	5983.6	57.8775	40318.4	58571.9	52267.7	-6.3109	-184378.7	43.7558
900	8.4163	6819.4	58.8618	46156.2	59407.7	51847.3	-4.7305	-184558.8	38.1567
1000	8.5127	7666.1	59.7537	52087.7	60254.4	51417.7	-3.4766	-184724.3	33.6733
1100	8.5899	8521.3	60.5688	58104.4	61109.6	50981.2	-2.4592	-184878.3	30.0018
1200	8.6525	9383.5	61.3190	64199.3	61971.9	50538.2	-1.6187	-185023.2	26.9398
1300	8.7041	10251.4	62.0137	70366.3	62839.8	50089.0	-0.9138	-185160.9	24.3469
1400	8.7472	11124.1	62.6603	76600.4	63712.4	49634.0	-0.3150	-185292.8	22.1227
1500	8.7836	12000.7	63.2651	82897.0	64589.0	49173.6	0.1992	-185420.2	20.1938
1600	8.8149	12880.6	63.8330	89252.2	65468.9	48708.7	0.6449	-185544.1	18.5049
1700	8.8420	13763.5	64.3682	95662.5	66351.8	48239.8	1.0344	-185665.6	17.0136
1800	8.8658	14648.9	64.8743	102124.9	67237.2	47767.0	1.3773	-185785.4	15.6872
1900	8.8869	15536.6	65.3542	108636.5	68124.9	47290.8	1.6810	-185904.2	14.4997
2000	8.9057	16426.2	65.8106	115194.9	69014.5	46811.1	1.9516	-186022.9	13.4302
2100	8.9227	17317.6	66.2455	121797.9	69906.0	46328.2	2.1939	-186141.9	12.4620
2200	8.9382	18210.7	66.6609	128443.4	70799.0	45842.8	2.4120	-186261.8	11.5812
2300	8.9523	19105.2	67.0586	135129.5	71693.6	45354.9	2.6089	-186383.1	10.7765
2400	8.9654	20001.1	67.4399	141854.6	72589.5	44864.9	2.7875	-186506.0	10.0383
2500	8.9776	20898.3	67.8061	148617.0	73486.6	44372.9	2.9501	-186631.1	9.3588
2600	8.9890	21796.6	68.1584	155415.3	74384.9			-186758.4	8.7311
2700	8.9997	22696.1	68.4979	162248.2	75284.4			-186888.3	8.1495
2800	9.0098	23596.5	68.8254	169114.5	76184.9			-187020.9	7.6091
2900	9.0194	24498.0	69.1417	176012.9	77086.3			-187156.3	7.1055
3000	9.0285	25400.4	69.4476	182942.5	77988.7			-187294.6	6.6352
3100	9.0373	26303.7	69.7438	189902.1	78892.0			-187435.8	6.1950
3200	9.0457	27207.8	70.0309	196890.9	79796.2			-187579.9	5.7819
3300	9.0538	28112.8	70.3093	203908.0	80701.1			-187726.9	5.3935
3400	9.0617	29018.6	70.5797	210952.5	81606.9			-187876.7	5.0277
3500	9.0693	29925.2	70.8425	218023.7	82513.5			-188029.3	4.6826
3600	9.0768	30832.5	71.0981	225120.8	83420.8			-188184.5	4.3563
3700	9.0840	31740.5	71.3469	232243.1	84328.8			-188342.3	4.0474
3800	9.0912	32649.3	71.5893	239390.0	85237.6			-188502.6	3.7546
3900	9.0982	33558.7	71.8255	246560.8	86147.0			-188665.2	3.4765
4000	9.1051	34468.9	72.0559	253754.9	87057.2			-188830.0	3.2121
4100	9.1120	35379.8	72.2809	260971.8	87968.1			-188996.8	2.9603
4200	9.1188	36291.3	72.5005	268210.9	88879.6			-189165.6	2.7204
4300	9.1257	37203.5	72.7152	275471.7	89791.8			-189336.2	2.4914
4400	9.1325	38116.4	72.9250	282753.8	90704.7			-189508.4	2.2726
4500	9.1394	39030.0	73.1304	290056.6	91618.3			-189682.1	2.0633
4600	9.1463	39944.3	73.3313	297379.7	92532.6			-189857.2	1.8629
4700	9.1533	40859.3	73.5281	304722.7	93447.6			-190033.5	1.6709
4800	9.1604	41775.0	73.7209	312085.2	94363.3			-190210.9	1.4868
4900	9.1677	42691.4	73.9098	319466.7	95279.7			-190389.3	1.3100
5000	9.1751	43608.5	74.0951	326867.0	96196.8			-190568.5	1.1400
5100	9.1827	44526.4	74.2769	334285.6	97114.7			-190748.3	0.9767
5200	9.1906	45445.1	74.4553	341722.3	98033.4			-190928.8	0.8194
5300	9.1986	46364.5	74.6304	349176.6	98952.8			-191109.6	0.6679
5400	9.2070	47284.8	74.8024	356648.2	99873.1			-191290.8	0.5219
5500	9.2156	48205.9	74.9714	364137.0	100794.2			-191472.2	0.3811
5600	9.2246	49127.9	75.1376	371642.4	101716.2			-191653.7	0.2452
5700	9.2338	50050.8	75.3009	379164.4	102639.2			-191835.2	0.1139
5800	9.2435	50974.7	75.4616	386702.5	103563.0			-192016.5	-0.0130
5900	9.2535	51899.6	75.6197	394256.6	104487.9			-192197.6	-0.1357
6000	9.2640	52825.4	75.7753	401826.4	105413.7			-192378.3	-0.2544

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(83) CS_2 (gas); molecular weight, 76.143

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	25431.4	27790.0	-------	-274006.7	--------
100	7.4035	703.2	47.0115	3997.9	26134.6	28149.1	-52.6240	-274872.0	589.0061
200	9.4460	1546.1	52.7705	9008.0	26977.4	28128.9	-21.8585	-275606.4	288.3344
298.15	10.8692	2548.6	56.8301	14395.3	27980.0	27980.0	-11.7603	-276202.5	189.0986
300	10.8901	2568.8	56.8974	14500.5	28000.1	27976.4	-11.6342	-276212.5	187.8501
[a] 400	11.8200	3707.2	60.1660	20359.2	29138.5	26671.0	-6.5809	-276693.9	137.5060
500	12.4862	4924.1	62.8788	26515.3	30355.5	25693.2	-3.7131	-277073.1	107.2518
600	12.9863	6198.9	65.2016	32922.0	31630.3	24877.2	-1.8701	-277372.6	87.0573
700	13.3672	7517.4	67.2333	39545.9	32948.8	24171.8	-0.5935	-277611.5	72.6186
800	13.6605	8869.4	69.0383	46361.2	34300.8	23523.2	0.3377	-277803.9	61.7811
900	13.8888	10247.4	70.6610	53347.5	35678.7	22875.5	1.0422	-277960.8	53.3467
1000	14.0690	11645.6	72.1340	60488.4	37077.0	22228.2	1.5901	-278089.9	46.5956
1100	14.2133	13060.0	73.4819	67770.1	38491.3	21581.4	2.0255	-278197.2	41.0697
1200	14.3305	14487.4	74.7238	75181.2	39918.7	20934.1	2.3776	-278287.1	36.4631
1300	14.4270	15925.4	75.8748	82711.9	41356.8	20285.6	2.6664	-278363.2	32.5641
1400	14.5076	17372.2	76.9470	90353.6	42803.6	19635.4	2.9062	-278428.3	29.2212
1500	14.5757	18826.5	77.9503	98099.0	44257.9	18983.4	3.1072	-278484.7	26.3234
1600	14.6340	20287.1	78.8929	105941.6	45718.4	18329.7	3.2772	-278534.3	23.7873
1700	14.6845	21753.0	79.7817	113875.8	47184.4	17674.4	3.4219	-278578.9	21.5493
1800	14.7287	23223.7	80.6223	121896.4	48655.1	17017.6	3.5458	-278619.9	19.5596
1900	14.7677	24698.6	81.4197	129998.8	50130.0	16359.1	3.6525	-278658.7	17.7791
2000	14.8024	26177.1	82.1781	138179.0	51608.5	15698.9	3.7447	-278696.5	16.1764
2100	14.8337	27659.0	82.9010	146433.2	53090.3	15037.1	3.8247	-278734.2	14.7261
2200	14.8620	29143.8	83.5918	154758.1	54575.1	14374.0	3.8943	-278772.8	13.4076
2300	14.8879	30631.3	84.2530	163150.6	56062.7	13709.7	3.9550	-278813.0	12.2035
2400	14.9117	32121.3	84.8871	171607.8	57552.7	13044.4	4.0079	-278855.5	11.0995
2500	14.9338	33613.6	85.4963	180127.2	59044.9	12378.1	4.0542	-278900.7	10.0838
2600	14.9543	35108.0	86.0824	188706.3	60539.4			-278949.1	9.1460
2700	14.9736	36604.4	86.6472	197343.0	62035.8			-279001.1	8.2775
2800	14.9917	38102.7	87.1921	206035.1	63534.0			-279056.9	7.4709
2900	15.0088	39602.7	87.7184	214780.8	65034.1			-279116.7	6.7198
3000	15.0251	41104.4	88.2275	223578.2	66535.8			-279180.5	6.0186
3100	15.0406	42607.7	88.7205	232425.7	68039.1			-279248.4	5.3625
3200	15.0554	44112.5	89.1982	241321.8	69543.9			-279320.5	4.7472
3300	15.0697	45618.8	89.6617	250264.9	71050.1			-279396.7	4.1691
3400	15.0835	47126.4	90.1118	259253.7	72557.8			-279476.8	3.6248
3500	15.0968	48635.4	90.5492	268286.8	74066.8			-279560.8	3.1115
3600	15.1097	50145.8	90.9747	277363.1	75577.1			-279648.6	2.6265
3700	15.1222	51657.4	91.3889	286481.4	77088.7			-279739.9	2.1676
3800	15.1344	53170.2	91.7923	295640.5	78601.6			-279834.6	1.7328
3900	15.1464	54684.2	92.1856	304839.5	80115.6			-279932.5	1.3200
4000	15.1580	56199.5	92.5692	314077.3	81630.8			-280033.5	0.9278
4100	15.1694	57715.8	92.9436	323353.1	83147.2			-280137.3	0.5546
4200	15.1806	59233.3	93.3093	332665.8	84664.7			-280243.7	0.1990
4300	15.1916	60752.0	93.6666	342014.6	86183.3			-280352.5	-0.1402
4400	15.2024	62271.7	94.0160	351398.8	87703.0			-280463.6	-0.4641
4500	15.2131	63792.4	94.3578	360817.6	89223.8			-280576.6	-0.7737
4600	15.2236	65314.3	94.6923	370270.1	90745.6			-280691.5	-1.0700
4700	15.2340	66837.1	95.0198	379755.8	92268.5			-280808.1	-1.3538
4800	15.2442	68361.1	95.3406	389273.9	93792.4			-280926.0	-1.6258
4900	15.2543	69886.0	95.6550	398823.7	95317.4			-281045.3	-1.8869
5000	15.2644	71411.9	95.9633	408404.7	96843.3			-281165.7	-2.1377
5100	15.2743	72938.9	96.2657	418016.2	98370.2			-281287.0	-2.3787
5200	15.2842	74466.8	96.5624	427657.6	99898.2			-281409.1	-2.6105
5300	15.2939	75995.7	96.8536	437328.5	101427.1			-281531.8	-2.8337
5400	15.3036	77525.6	97.1396	447028.2	102956.9			-281655.1	-3.0487
5500	15.3133	79056.4	97.4205	456756.2	104487.8			-281778.7	-3.2560
5600	15.3228	80588.2	97.6965	466512.1	106019.6			-281902.6	-3.4560
5700	15.3323	82121.0	97.9678	476295.4	107552.3			-282026.6	-3.6491
5800	15.3418	83654.7	98.2345	486105.5	109086.0			-282150.7	-3.8355
5900	15.3512	85189.3	98.4969	495942.1	110620.7			-282274.7	-4.0158
6000	15.3605	86724.9	98.7549	505804.7	112156.3			-282398.5	-4.1901

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(84) Cl (gas); molecular weight, 35.457

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	27451.7	28548.4	--------	0	-------
100	4.9686	496.8	33.9555	2898.7	27948.5	28697.2	-60.2278	0	0
200	5.0381	995.8	37.4119	6486.5	28447.5	28833.4	-28.8109	0	0
298.15	5.2194	1499.0	39.4563	10264.9	28950.6	28950.6	-18.4207	0	0
300	5.2228	1508.6	39.4885	10337.9	28960.3	28952.8	-18.2898	0	0
400	5.3699	2038.9	41.0131	14366.3	29490.6	29068.4	-13.0075	0	0
500	5.4361	2579.8	42.2199	18530.1	30031.5	29182.4	-9.8254	0	0
600	5.4451	3124.3	43.2124	22803.2	30575.9	29292.4	-7.6958	0	0
700	5.4238	3667.9	44.0505	27167.4	31119.5	29396.7	-6.1690	0	0
800	5.3895	4208.6	44.7725	31609.4	31660.3	29494.8	-5.0199	0	0
900	5.3514	4745.6	45.4051	36119.0	32197.3	29586.6	-4.1234	0	0
1000	5.3141	5278.9	45.9670	40688.1	32730.6	29672.6	-3.4039	0	0
1100	5.2796	5808.6	46.4719	45310.5	33260.2	29753.5	-2.8136	0	0
1200	5.2485	6334.9	46.9299	49980.9	33786.6	29829.6	-2.3204	0	0
1300	5.2209	6858.4	47.3489	54695.2	34310.1	29901.6	-1.9020	0	0
1400	5.1966	7379.2	47.7349	59449.6	34830.9	29969.9	-1.5426	0	0
1500	5.1752	7897.8	48.0927	64241.2	35349.5	30035.0	-1.2303	0	0
1600	5.1564	8414.4	48.4261	69067.3	35866.0	30097.1	-0.9566	0	0
1700	5.1398	8929.2	48.7382	73925.7	36380.8	30156.5	-0.7145	0	0
1800	5.1252	9442.4	49.0315	78814.3	36894.1	30213.6	-0.4989	0	0
1900	5.1123	9954.3	49.3083	83731.5	37405.9	30268.5	-0.3057	0	0
2000	5.1008	10464.9	49.5702	88675.5	37916.6	30321.4	-0.1315	0	0
2100	5.0906	10974.5	49.8188	93645.0	38426.1	30372.5	0.0264	0	0
2200	5.0814	11483.1	50.0554	98638.9	38934.7	30421.9	0.1702	0	0
2300	5.0733	11990.8	50.2811	103655.8	39442.4	30469.7	0.3017	0	0
2400	5.0659	12497.7	50.4969	108694.7	39949.4	30516.1	0.4224	0	0
2500	5.0593	13004.0	50.7035	113754.8	40455.7	30561.0	0.5337	0	0
2600	5.0533	13509.6	50.9018	118835.2	40961.3	30604.6	0.6365	0	0
2700	5.0479	14014.7	51.0925	123934.9	41466.3	30647.0	0.7318	0	0
2800	5.0429	14519.2	51.2759	129053.4	41970.9	30688.2	0.8205	0	0
2900	5.0384	15023.3	51.4528	134189.9	42474.9	30728.3	0.9031	0	0
3000	5.0343	15526.9	51.6236	139343.8	42978.6	30767.2	0.9804	0	0
3100	5.0305	16030.1	51.7886	144514.4	43481.8	30805.2	1.0527	0	0
3200	5.0271	16533.0	51.9482	149701.3	43984.7	30842.1	1.1206	0	0
3300	5.0239	17035.6	52.1029	154903.9	44487.2	30878.0	1.1845	0	0
3400	5.0209	17537.8	52.2528	160121.7	44989.5	30913.0	1.2446	0	0
3500	5.0182	18039.8	52.3983	165354.3	45491.4	30947.0	1.3014	0	0
3600	5.0157	18541.5	52.5396	170601.3	45993.1	30980.2	1.3551	0	0
3700	5.0134	19042.9	52.6770	175862.1	46494.6	31012.4	1.4060	0	0
3800	5.0112	19544.1	52.8107	181136.5	46995.8	31043.8	1.4542	0	0
3900	5.0092	20045.2	52.9408	186424.2	47496.8	31074.4	1.5000	0	0
4000	5.0073	20546.0	53.0676	191724.6	47997.6	31104.1	1.5436	0	0
4100	5.0056	21046.6	53.1913	197037.6	48498.3	31133.1	1.5851	0	0
4200	5.0039	21547.1	53.3119	202362.7	48998.8	31161.2	1.6246	0	0
4300	5.0024	22047.4	53.4296	207699.9	49499.1	31188.5	1.6623	0	0
4400	5.0010	22547.6	53.5446	213048.6	49999.3	31215.1	1.6983	0	0
4500	4.9996	23047.6	53.6570	218408.7	50499.3	31240.9	1.7328	0	0
4600	4.9983	23547.5	53.7668	223779.9	50999.2	31265.9	1.7658	0	0
4700	4.9971	24047.3	53.8743	229162.0	51498.9	31290.2	1.7974	0	0
4800	4.9960	24546.9	53.9795	234554.7	51998.6	31313.7	1.8277	0	0
4900	4.9950	25046.5	54.0825	239957.8	52498.2	31336.5	1.8569	0	0
5000	4.9940	25545.9	54.1834	245371.1	52997.6	31358.6	1.8848	0	0
5100	4.9930	26045.3	54.2823	250794.4	53496.9	31380.0	1.9117	0	0
5200	4.9921	26544.5	54.3792	256227.5	53996.2	31400.6	1.9376	0	0
5300	4.9913	27043.7	54.4743	261670.2	54495.4	31420.5	1.9625	0	0
5400	4.9905	27542.8	54.5676	267122.3	54994.5	31439.8	1.9865	0	0
5500	4.9897	28041.8	54.6592	272583.7	55493.5	31458.3	2.0096	0	0
5600	4.9890	28540.7	54.7491	278054.1	55992.4	31476.1	2.0319	0	0
5700	4.9883	29039.6	54.8374	283533.4	56491.3	31493.3	2.0535	0	0
5800	4.9877	29538.4	54.9241	289021.5	56990.1	31509.7	2.0743	0	0
5900	4.9871	30037.1	55.0094	294518.2	57488.8	31525.5	2.0944	0	0
6000	4.9865	30535.8	55.0932	300023.3	57987.5	31540.6	2.1139	0	0

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(85) Cl_2 (gas); molecular weight, 70.914

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-2193.5	0	-------	-57096.8	--------
100	7.0014	696.0	45.1513	3819.2	-1497.5	0	0	-57394.5	120.4556
200	7.5760	1421.6	50.1576	8609.9	-771.9	0	0	-57666.9	57.6219
298.15	8.1116	2193.5	53.2905	13695.1	0	0	0	-57901.3	36.8413
300	8.1193	2208.5	53.3407	13793.7	15.0	0	0	-57905.6	36.5796
400	8.4379	3037.8	55.7244	19251.9	844.4	0	0	-58136.9	26.0150
500	8.6251	3891.7	57.6291	24922.8	1698.3	0	0	-58364.8	19.6508
600	8.7431	4760.6	59.2128	30767.1	2567.1	0	0	-58584.8	15.3916
700	8.8232	5639.1	60.5670	36757.8	3445.6	0	0	-58793.4	12.3380
800	8.8812	6524.5	61.7491	42874.8	4331.0	0	0	-58989.5	10.0399
900	8.9257	7414.9	62.7978	49103.1	5221.4	0	0	-59173.2	8.2467
1000	8.9615	8309.3	63.7402	55430.8	6115.9	0	0	-59345.3	6.8078
1100	8.9914	9207.0	64.5957	61848.3	7013.5	0	0	-59506.9	5.6272
1200	9.0172	10107.5	65.3792	68347.6	7914.0	0	0	-59659.2	4.6408
1300	9.0401	11010.4	66.1019	74922.1	8816.9	0	0	-59803.2	3.8040
1400	9.0609	11915.4	66.7726	81566.2	9722.0	0	0	-59939.9	3.0851
1500	9.0800	12822.5	67.3984	88275.1	10629.0	0	0	-60069.9	2.4607
1600	9.0980	13731.4	67.9850	95044.6	11537.9	0	0	-60194.1	1.9131
1700	9.1150	14642.0	68.5371	101871.0	12448.6	0	0	-60313.1	1.4290
1800	9.1312	15554.4	69.0585	108751.0	13360.9	0	0	-60427.2	0.9979
1900	9.1469	16468.3	69.5527	115681.8	14274.8	0	0	-60537.0	0.6114
2000	9.1620	17383.7	70.0222	122660.7	15190.2	0	0	-60642.9	0.2630
2100	9.1768	18300.7	70.4696	129685.5	16107.2	0	0	-60745.1	-0.0528
2200	9.1912	19219.1	70.8968	136754.0	17025.6	0	0	-60843.8	-0.3404
2300	9.2054	20138.9	71.3057	143864.2	17945.4	0	0	-60939.5	-0.6034
2400	9.2194	21060.1	71.6978	151014.6	18866.7	0	0	-61032.1	-0.8448
2500	9.2331	21982.8	72.0744	158203.3	19789.3	0	0	-61122.0	-1.0673
2600	9.2467	22906.8	72.4368	165429.0	20713.3	0	0	-61209.3	-1.2730
2700	9.2602	23832.1	72.7860	172690.2	21638.6	0	0	-61294.0	-1.4636
2800	9.2735	24758.8	73.1231	179985.8	22565.3	0	0	-61376.4	-1.6409
2900	9.2867	25686.8	73.4487	187314.4	23493.3	0	0	-61456.5	-1.8062
3000	9.2999	26616.1	73.7638	194675.1	24422.7	0	0	-61534.5	-1.9607
3100	9.3129	27546.8	74.0689	202066.9	25353.3	0	0	-61610.3	-2.1054
3200	9.3259	28478.7	74.3648	209488.6	26285.2	0	0	-61684.1	-2.2412
3300	9.3388	29411.9	74.6520	216939.5	27218.5	0	0	-61756.0	-2.3689
3400	9.3517	30346.5	74.9309	224418.7	28153.0	0	0	-61825.9	-2.4893
3500	9.3645	31282.3	75.2022	231925.5	29088.8	0	0	-61894.0	-2.6029
3600	9.3773	32219.4	75.4662	239458.9	30025.9	0	0	-61960.3	-2.7103
3700	9.3901	33157.7	75.7233	247018.5	30964.3	0	0	-62024.9	-2.8120
3800	9.4028	34097.4	75.9739	254603.4	31903.9	0	0	-62087.7	-2.9085
3900	9.4155	35038.3	76.2183	262213.0	32844.8	0	0	-62148.8	-3.0001
4000	9.4281	35980.5	76.4568	269846.8	33787.0	0	0	-62208.3	-3.0872
4100	9.4407	36923.9	76.6898	277504.2	34730.5	0	0	-62266.1	-3.1701
4200	9.4533	37868.6	76.9174	285184.6	35675.2	0	0	-62322.4	-3.2492
4300	9.4659	38814.6	77.1400	292887.5	36621.1	0	0	-62377.0	-3.3246
4400	9.4785	39761.8	77.3578	300612.5	37568.3	0	0	-62430.2	-3.3967
4500	9.4910	40710.3	77.5709	308358.9	38516.8	0	0	-62481.7	-3.4656
4600	9.5036	41660.0	77.7797	316126.5	39466.6	0	0	-62531.8	-3.5316
4700	9.5161	42611.0	77.9842	323914.7	40417.5	0	0	-62580.4	-3.5949
4800	9.5286	43563.2	78.1847	331723.2	41369.8	0	0	-62627.4	-3.6555
4900	9.5411	44516.7	78.3813	339551.6	42323.3	0	0	-62673.1	-3.7137
5000	9.5536	45471.5	78.5742	347399.4	43278.0	0	0	-62717.2	-3.7696
5100	9.5660	46427.4	78.7635	355266.3	44234.0	0	0	-62759.9	-3.8234
5200	9.5785	47384.7	78.9493	363151.9	45191.2	0	0	-62801.2	-3.8751
5300	9.5910	48343.1	79.1319	371056.0	46149.7	0	0	-62841.1	-3.9249
5400	9.6034	49302.9	79.3113	378978.2	47109.4	0	0	-62879.5	-3.9729
5500	9.6158	50263.8	79.4876	386918.2	48070.3	0	0	-62916.6	-4.0192
5600	9.6283	51226.0	79.6610	394875.6	49032.6	0	0	-62952.3	-4.0639
5700	9.6407	52189.5	79.8315	402850.3	49996.0	0	0	-62986.5	-4.1070
5800	9.6531	53154.2	79.9993	410841.9	50960.7	0	0	-63019.4	-4.1486
5900	9.6655	54120.1	80.1644	418850.1	51926.6	0	0	-63051.0	-4.1889
6000	9.6779	55087.3	80.3270	426874.7	52893.8	0	0	-63081.2	-4.2278

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(86) ClCN (gas); molecular weight, 61.476

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	29093.8	31477.9	-------	-279639.8	--------
100	7.4680	704.7	46.5741	3952.7	29798.5	31473.1	-67.7571	-280499.0	601.8875
200	9.4360	1552.3	52.3695	8921.6	30646.2	31532.3	-33.3503	-281149.7	295.0949
298.15	10.7216	2547.2	56.3995	14268.3	31641.0	31641.0	-21.9911	-281635.1	193.8829
300	10.7398	2567.0	56.4658	14372.7	31660.9	31643.2	-21.8482	-281643.3	192.6099
400	11.5122	3682.6	59.6700	20185.4	32776.5	31748.5	-16.0764	-282052.6	141.2834
500	12.0337	4861.3	62.2978	26287.7	33955.1	31829.9	-12.6029	-282409.0	110.4452
600	12.4388	6085.6	64.5289	32631.8	35179.4	31886.1	-10.2822	-282723.1	89.8617
700	12.7759	7346.8	66.4724	39183.9	36440.6	31920.3	-8.6221	-282999.4	75.1438
800	13.0619	8639.1	68.1976	45919.0	37732.9	31938.3	-7.3761	-283241.7	64.0951
900	13.3044	9957.7	69.7504	52817.7	39051.6	31945.4	-6.4065	-283453.9	55.4948
1000	13.5096	11298.7	71.1631	59864.4	40392.5	31945.2	-5.6308	-283639.9	48.6097
1100	13.6830	12658.6	72.4591	67046.4	41752.4	31939.8	-4.9962	-283803.5	42.9730
1200	13.8295	14034.4	73.6561	74353.0	43128.2	31929.3	-4.4675	-283947.8	38.2731
1300	13.9536	15423.7	74.7681	81774.8	44517.6	31913.9	-4.0203	-284075.7	34.2944
1400	14.0590	16824.5	75.8062	89304.1	45918.3	31893.6	-3.6372	-284189.8	30.8827
1500	14.1491	18235.0	76.7793	96933.9	47328.9	31868.7	-3.3054	-284292.0	27.9247
1600	14.2263	19653.9	77.6950	104658.1	48747.7	31839.5	-3.0153	-284384.1	25.3356
1700	14.2929	21079.9	78.5595	112471.2	50173.8	31806.6	-2.7596	-284467.8	23.0503
1800	14.3506	22512.2	79.3781	120368.4	51606.0	31769.9	-2.5326	-284544.3	21.0184
1900	14.4009	23949.8	80.1554	128345.4	53043.7	31729.5	-2.3297	-284614.7	19.2000
2000	14.4448	25392.1	80.8952	136398.3	54486.0	31685.4	-2.1474	-284680.2	17.5630
2100	14.4835	26838.6	81.6009	144523.3	55932.4	31637.9	-1.9826	-284741.6	16.0815
2200	14.5176	28288.7	82.2755	152717.4	57382.5	31587.2	-1.8331	-284799.6	14.7345
2300	14.5478	29742.0	82.9215	160977.5	58835.8	31533.6	-1.6968	-284855.1	13.5043
2400	14.5747	31198.1	83.5412	169300.8	60292.0	31477.1	-1.5720	-284908.5	12.3764
2500	14.5988	32656.8	84.1367	177684.9	61750.7	31418.1	-1.4575	-284960.6	11.3386
2600	14.6203	34117.8	84.7097	186127.4	63211.6	31356.6	-1.3520	-285011.7	10.3805
2700	14.6397	35580.8	85.2618	194626.2	64674.7	31292.7	-1.2544	-285062.5	9.4931
2800	14.6572	37045.7	85.7946	203179.1	66139.5	31226.5	-1.1641	-285113.2	8.6690
2900	14.6731	38512.2	86.3092	211784.5	67606.1	31158.1	-1.0801	-285164.4	7.9016
3000	14.6875	39980.3	86.8069	220440.4	69074.1	31087.4	-1.0019	-285216.4	7.1852
3100	14.7006	41449.7	87.2887	229145.3	70543.5	31014.5	-0.9290	-285269.5	6.5149
3200	14.7126	42920.3	87.7556	237897.7	72014.2	30939.5	-0.8607	-285324.2	5.8864
3300	14.7235	44392.1	88.2085	246696.0	73486.0	30862.3	-0.7968	-285380.6	5.2959
3400	14.7336	45865.0	88.6482	255538.9	74958.9	30783.2	-0.7367	-285439.1	4.7400
3500	14.7428	47338.8	89.0754	264425.2	76432.7	30702.3	-0.6803	-285500.0	4.2157
3600	14.7514	48813.6	89.4909	273353.6	77907.4	30619.4	-0.6271	-285563.6	3.7205
3700	14.7592	50289.1	89.8952	282323.0	79382.9	30534.5	-0.5769	-285630.1	3.2519
3800	14.7665	51765.4	90.2889	291332.3	80859.2	30447.8	-0.5295	-285699.8	2.8079
3900	14.7733	53242.4	90.6725	300380.5	82336.2	30359.1	-0.4847	-285772.8	2.3865
4000	14.7795	54720.0	91.0466	309466.5	83813.9	30268.6	-0.4422	-285849.5	1.9861
4100	14.7854	56198.3	91.4116	318589.5	85292.1			-285930.0	1.6052
4200	14.7908	57677.1	91.7680	327748.5	86770.9			-286014.5	1.2422
4300	14.7959	59156.4	92.1161	336942.8	88250.3			-286103.2	0.8961
4400	14.8006	60636.3	92.4563	346171.5	89730.1			-286196.2	0.5656
4500	14.8051	62116.5	92.7890	355433.8	91210.4			-286293.8	0.2496
4600	14.8092	63597.3	93.1144	364729.0	92691.1			-286396.0	-0.0527
4700	14.8131	65078.4	93.4329	374056.5	94172.2			-286503.1	-0.3422
4800	14.8168	66559.9	93.7449	383415.4	95653.7			-286615.0	-0.6198
4900	14.8202	68041.7	94.0504	392805.2	97135.6			-286731.9	-0.8862
5000	14.8235	69523.9	94.3498	402225.3	98617.8			-286854.0	-1.1420
5100	14.8265	71006.4	94.6434	411675.0	100100.3			-286981.2	-1.3879
5200	14.8294	72489.2	94.9313	421153.8	101583.1			-287113.7	-1.6244
5300	14.8322	73972.3	95.2138	430661.1	103066.1			-287251.4	-1.8522
5400	14.8348	75455.6	95.4911	440196.4	104549.5			-287394.5	-2.0715
5500	14.8372	76939.2	95.7633	449759.1	106033.1			-287543.0	-2.2831
5600	14.8395	78423.1	96.0307	459348.9	107516.9			-287696.8	-2.4872
5700	14.8417	79907.1	96.2934	468965.1	109001.0			-287856.1	-2.6842
5800	14.8438	81391.4	96.5515	478607.4	110485.3			-288020.6	-2.8745
5900	14.8458	82875.9	96.8053	488275.3	111969.7			-288190.6	-3.0585
6000	14.8477	84360.6	97.0548	497968.3	113454.4			-288365.9	-3.2365

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(87) ClF (gas); molecular weight, 54.457

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-15581.6	-13430.1	-------	-60333.5	--------
100	6.9610	695.2	44.2285	3727.7	-14886.5	-13430.3	29.6356	-60633.7	127.7349
200	7.2006	1399.6	49.1022	8420.8	-14182.0	-13438.7	14.9579	-60954.1	61.3470
298.15	7.6682	2129.2	52.0639	13393.6	-13452.4	-13452.4	10.1217	-61261.2	39.3724
300	7.6767	2143.4	52.1113	13490.0	-13438.2	-13452.7	10.0609	-61266.8	39.0955
400	8.0671	2931.7	54.3765	18818.9	-12649.9	-13464.1	7.6100	-61548.9	27.9142
500	8.3338	3752.6	56.2072	24351.0	-11829.0	-13472.8	6.1383	-61801.0	21.1757
600	8.5139	4595.6	57.7436	30050.6	-10986.0	-13480.0	5.1566	-62027.3	16.6659
700	8.6393	5453.6	59.0660	35892.6	-10128.0	-13486.4	4.4550	-62232.2	13.4332
800	8.7300	6322.3	60.2258	41858.4	-9259.3	-13492.5	3.9286	-62419.2	11.0011
900	8.7984	7198.9	61.2582	47933.5	-8382.8	-13498.5	3.5190	-62591.5	9.1040
1000	8.8518	8081.5	62.1881	54106.6	-7500.2	-13504.6	3.1911	-62751.5	7.5822
1100	8.8950	8968.9	63.0339	60368.3	-6612.7	-13511.0	2.9228	-62901.1	6.3340
1200	8.9308	9860.2	63.8094	66711.0	-5721.4	-13517.7	2.6990	-63042.1	5.2915
1300	8.9613	10754.9	64.5255	73128.2	-4826.8	-13524.7	2.5096	-63175.5	4.4074
1400	8.9880	11652.4	65.1906	79614.4	-3929.3	-13532.1	2.3472	-63302.5	3.6481
1500	9.0116	12552.4	65.8115	86164.9	-3029.3	-13539.9	2.2063	-63423.9	2.9887
1600	9.0330	13454.6	66.3938	92775.4	-2127.0	-13548.1	2.0830	-63540.3	2.4107
1700	9.0526	14358.9	66.9420	99442.5	-1222.7	-13556.8	1.9741	-63652.4	1.8997
1800	9.0708	15265.1	67.4600	106162.8	-316.5	-13565.9	1.8772	-63760.5	1.4447
1900	9.0879	16173.1	67.9509	112933.6	591.4	-13575.5	1.7905	-63865.1	1.0370
2000	9.1040	17082.7	68.4174	119752.2	1501.0	-13585.5	1.7124	-63966.5	0.6694
2100	9.1194	17993.8	68.8620	126616.4	2412.2	-13596.0	1.6417	-64064.8	0.3363
2200	9.1342	18906.5	69.2866	133523.9	3324.9	-13606.9	1.5774	-64160.5	0.0330
2300	9.1485	19820.7	69.6929	140473.1	4239.0	-13618.4	1.5186	-64253.5	-0.2443
2400	9.1623	20736.2	70.0826	147462.0	5154.6	-13630.3	1.4646	-64344.2	-0.4988
2500	9.1758	21653.1	70.4569	154489.1	6071.5	-13642.7	1.4150	-64432.7	-0.7334
2600	9.1889	22571.3	70.8170	161552.9	6989.7	-13655.6	1.3691	-64519.0	-0.9501
2700	9.2018	23490.9	71.1640	168652.0	7909.2	-13669.0	1.3266	-64603.3	-1.1511
2800	9.2144	24411.7	71.4989	175785.3	8830.1	-13682.8	1.2870	-64685.6	-1.3380
2900	9.2269	25333.8	71.8225	182951.4	9752.1	-13697.2	1.2502	-64766.1	-1.5122
3000	9.2392	26257.1	72.1355	190149.4	10675.4	-13712.0	1.2158	-64844.9	-1.6750
3100	9.2513	27181.6	72.4386	197378.2	11600.0	-13727.3	1.1835	-64921.9	-1.8274
3200	9.2633	28107.3	72.7325	204636.8	12525.7	-13743.1	1.1533	-64997.3	-1.9705
3300	9.2752	29034.2	73.0178	211924.4	13452.6	-13759.4	1.1248	-65071.0	-2.1051
3400	9.2869	29962.3	73.2948	219240.1	14380.7	-13776.2	1.0980	-65143.2	-2.2319
3500	9.2986	30891.6	73.5642	226583.1	15310.0	-13793.5	1.0727	-65213.9	-2.3516
3600	9.3102	31822.1	73.8263	233952.7	16240.4	-13811.3	1.0487	-65283.1	-2.4648
3700	9.3217	32753.7	74.0816	241348.2	17172.0	-13829.6	1.0260	-65350.8	-2.5720
3800	9.3331	33686.4	74.3303	248768.8	18104.8	-13848.4	1.0045	-65417.1	-2.6736
3900	9.3445	34620.3	74.5729	256214.0	19038.6	-13867.6	0.9841	-65482.0	-2.7701
4000	9.3559	35555.3	74.8096	263683.2	19973.7	-13887.4	0.9647	-65545.5	-2.8619
4100	9.3672	36491.5	75.0408	271175.8	20909.8	-13907.6	0.9461	-65607.7	-2.9493
4200	9.3784	37428.7	75.2666	278691.2	21847.1	-13928.4	0.9285	-65668.5	-3.0326
4300	9.3896	38367.1	75.4875	286228.9	22785.5	-13949.6	0.9116	-65728.1	-3.1121
4400	9.4008	39306.7	75.7034	293788.5	23725.0	-13971.4	0.8955	-65786.3	-3.1880
4500	9.4119	40247.3	75.9148	301369.5	24665.7	-13993.6	0.8801	-65843.2	-3.2607
4600	9.4230	41189.0	76.1218	308971.3	25607.4	-14016.3	0.8653	-65898.9	-3.3302
4700	9.4341	42131.9	76.3246	316593.7	26550.3	-14039.6	0.8511	-65953.3	-3.3969
4800	9.4451	43075.9	76.5233	324236.1	27494.2	-14063.3	0.8375	-66006.4	-3.4608
4900	9.4562	44020.9	76.7182	331898.2	28439.3	-14087.5	0.8244	-66058.3	-3.5221
5000	9.4672	44967.1	76.9093	339579.6	29385.4	-14112.2	0.8118	-66109.0	-3.5811
5100	9.4781	45914.4	77.0969	347280.0	30332.7	-14137.4	0.7997	-66158.4	-3.6378
5200	9.4891	46862.7	77.2811	354998.9	31281.1	-14163.1	0.7881	-66206.7	-3.6923
5300	9.5001	47812.2	77.4619	362736.1	32230.5	-14189.3	0.7768	-66253.7	-3.7448
5400	9.5110	48762.7	77.6396	370491.2	33181.1	-14216.0	0.7660	-66299.6	-3.7954
5500	9.5219	49714.4	77.8142	378263.9	34132.7	-14243.2	0.7555	-66344.2	-3.8442
5600	9.5328	50667.1	77.9859	386053.9	35085.5	-14270.9	0.7454	-66387.7	-3.8913
5700	9.5437	51620.9	78.1547	393861.0	36039.3	-14299.1	0.7356	-66430.0	-3.9368
5800	9.5546	52575.8	78.3208	401684.8	36994.2	-14327.8	0.7261	-66471.2	-3.9807
5900	9.5654	53531.9	78.4842	409525.1	37950.2	-14357.0	0.7170	-66511.1	-4.0232
6000	9.5763	54488.9	78.6451	417381.5	38907.3	-14386.7	0.7081	-66550.0	-4.0642

TABLE III. - Continued.. THERMODYNAMIC PROPERTIES

(88) ClF_3 (gas); molecular weight, 92.457

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-42000.0	-37738.8	-------	-121352.2	--------
100	8.8723	812.4	54.4336	4631.0	-41187.6	-38316.5	77.3585	-122532.3	251.2007
200	12.5823	1884.8	61.7161	10458.5	-40115.2	-38657.2	35.3177	-123536.4	116.8631
298.15	15.2597	3262.0	67.2833	16798.5	-38738.0	-38738.0	21.3943	-124263.1	72.3052
300	15.2980	3290.3	67.3778	16923.0	-38709.7	-38738.0	21.2192	-124274.7	71.7435
400	16.8756	4906.2	72.0157	23900.0	-37093.8	-38691.9	14.1670	-124809.4	49.0645
500	17.7981	6643.8	75.8893	31300.8	-35356.2	-38589.4	9.9439	-125209.0	35.4054
600	18.3656	8454.2	79.1883	39058.8	-33545.8	-38460.6	7.1371	-125517.7	26.2734
700	18.7340	10310.4	82.0490	47123.9	-31689.6	-38319.1	5.1394	-125763.0	19.7360
800	18.9845	12197.1	84.5679	55457.2	-29802.9	-38171.3	3.6467	-125962.1	14.8243
900	19.1618	14104.9	86.8148	64028.4	-27895.1	-38020.9	2.4903	-126126.8	10.9985
1000	19.2914	16027.9	88.8407	72812.9	-25972.1	-37869.8	1.5688	-126265.0	7.9342
1100	19.3889	17962.1	90.6842	81790.5	-24037.9	-37719.2	0.8179	-126382.6	5.4245
1200	19.4640	19904.9	92.3746	90944.6	-22095.1	-37569.9	0.1946	-126483.8	3.3313
1300	19.5230	21854.4	93.9350	100261.1	-20145.6	-37422.6	-0.3307	-126571.7	1.5588
1400	19.5702	23809.1	95.3836	109727.9	-18190.9	-37277.4	-0.7792	-126648.8	0.0385
1500	19.6084	25768.1	96.7351	119334.5	-16231.9	-37134.8	-1.1664	-126716.8	-1.2798
1600	19.6399	27730.6	98.0016	129072.1	-14269.4	-36994.8	-1.5039	-126777.4	-2.4340
1700	19.6661	29695.9	99.1931	138932.4	-12304.1	-36857.7	-1.8006	-126831.5	-3.4528
1800	19.6831	31663.7	100.3178	148908.4	-10336.3	-36723.5	-2.0633	-126880.2	-4.3588
1900	19.7068	33633.4	101.3826	158994.0	-8366.6	-36592.3	-2.2976	-126924.3	-5.1697
2000	19.7228	35604.9	102.3941	169183.2	-6395.1	-36464.3	-2.5077	-126964.4	-5.8997
2100	19.7366	37577.9	103.3567	179471.2	-4422.1	-36339.4	-2.6971	-127000.9	-6.5605
2200	19.7486	39552.2	104.2751	189853.1	-2447.8	-36217.7	-2.8687	-127034.4	-7.1613
2300	19.7591	41527.6	105.1532	200324.8	-472.4	-36099.2	-3.0249	-127065.2	-7.7100
2400	19.7683	43504.0	105.9944	210882.5	1504.0	-35984.0	-3.1676	-127093.6	-8.2131
2500	19.7764	45481.2	106.8015	221522.6	3481.2	-35872.0	-3.2984	-127119.9	-8.6761
2600	19.7836	47459.2	107.5773	232241.8	5459.2	-35763.4	-3.4188	-127144.2	-9.1035
2700	19.7900	49437.9	108.3241	243037.1	7437.9	-35658.1	-3.5300	-127166.9	-9.4994
2800	19.7958	51417.2	109.0439	253905.7	9417.2	-35556.1	-3.6330	-127188.1	-9.8670
2900	19.8010	53397.0	109.7386	264845.0	11397.0	-35457.5	-3.7285	-127207.8	-10.2094
3000	19.8057	55377.4	110.4100	275852.6	13377.4	-35362.2	-3.8175	-127226.4	-10.5289
3100	19.8099	57358.2	111.0595	286926.3	15358.2	-35270.4	-3.9005	-127243.7	-10.8279
3200	19.8137	59339.3	111.6885	298063.8	17339.3	-35181.9	-3.9781	-127260.1	-11.1083
3300	19.8172	61320.9	112.2983	309263.3	19320.9	-35096.8	-4.0508	-127275.5	-11.3716
3400	19.8204	63302.8	112.8899	320522.9	21302.8	-35015.1	-4.1191	-127290.0	-11.6195
3500	19.8234	65285.0	113.4645	331840.7	23285.0	-34936.8	-4.1833	-127303.8	-11.8533
3600	19.8260	67267.4	114.0230	343215.3	25267.4	-34861.9	-4.2438	-127316.8	-12.0741
3700	19.8285	69250.2	114.5662	354644.8	27250.2	-34790.4	-4.3010	-127329.1	-12.2830
3800	19.8308	71233.1	115.0950	366128.0	29233.1	-34722.3	-4.3550	-127340.9	-12.4810
3900	19.8329	73216.3	115.6102	377663.4	31216.3	-34657.6	-4.4061	-127352.0	-12.6687
4000	19.8349	75199.7	116.1123	389249.6	33199.7	-34596.4	-4.4546	-127362.6	-12.8472
4100	19.8367	77183.3	116.6021	400885.4	35183.3	-34538.6	-4.5007	-127372.7	-13.0169
4200	19.8384	79167.1	117.0802	412569.7	37167.1	-34484.2	-4.5445	-127382.3	-13.1785
4300	19.8399	81151.0	117.5470	424301.1	39151.0	-34433.3	-4.5862	-127391.5	-13.3327
4400	19.8414	83135.0	118.0031	436078.7	41135.0	-34385.8	-4.6260	-127400.3	-13.4798
4500	19.8428	85119.2	118.4490	447901.4	43119.2	-34341.7	-4.6639	-127408.8	-13.6205
4600	19.8440	87103.6	118.8852	459768.2	45103.6	-34301.0	-4.7001	-127416.8	-13.7550
4700	19.8452	89088.0	119.3119	471678.1	47088.1	-34263.8	-4.7348	-127424.6	-13.8838
4800	19.8464	91072.6	119.7298	483630.3	49072.6	-34230.1	-4.7679	-127432.0	-14.0072
4900	19.8474	93057.3	120.1390	495623.8	51057.3	-34199.7	-4.7997	-127439.1	-14.1256
5000	19.8484	95042.1	120.5400	507657.8	53042.1	-34172.8	-4.8302	-127446.0	-14.2393
5100	19.8494	97027.0	120.9330	519731.5	55027.0	-34149.4	-4.8595	-127452.5	-14.3485
5200	19.8502	99012.0	121.3185	531844.1	57012.0	-34129.4	-4.8876	-127458.9	-14.4536
5300	19.8511	100997.1	121.6966	543995.0	58997.1	-34112.9	-4.9147	-127465.0	-14.5546
5400	19.8519	102982.2	122.0677	556183.2	60982.2	-34099.8	-4.9407	-127470.9	-14.6520
5500	19.8526	104967.4	122.4319	568408.3	62967.4	-34090.1	-4.9658	-127476.6	-14.7458
5600	19.8533	106952.7	122.7897	580669.4	64952.7	-34083.9	-4.9900	-127482.1	-14.8362
5700	19.8540	108938.1	123.1411	592966.0	66938.1	-34081.1	-5.0133	-127487.3	-14.9235
5800	19.8546	110923.5	123.4864	605297.4	68923.5	-34081.8	-5.0359	-127492.5	-15.0078
5900	19.8552	112909.0	123.8256	617663.1	70909.0	-34086.0	-5.0576	-127497.4	-15.0892
6000	19.8558	114894.6	124.1595	630062.4	72894.6	-34093.5	-5.0787	-127502.2	-15.1679

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(89) ClO (gas); molecular weight, 51.457

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	22090.8	24224.9	-------	-63310.0	--------
100	6.9598	695.1	46.3727	3942.2	22785.9	24225.3	-52.2646	-63639.2	134.6952
200	7.1274	1356.5	51.2281	8849.1	23487.3	24215.9	-25.7964	-63994.2	65.0040
298.15	7.5432	2115.7	54.1485	14028.6	24206.5	24206.5	-17.0875	-64300.7	41.9354
300	7.5514	2129.7	54.1952	14128.9	24220.5	24206.5	-16.9780	-64306.1	41.6447
400	7.9464	2905.4	56.4241	19664.2	24996.2	24212.5	-12.5694	-64578.6	29.9106
500	8.2345	3715.3	58.2301	25399.7	25806.1	24229.8	-9.9229	-64820.2	22.8416
600	8.4363	4549.5	59.7504	31300.8	26640.3	24252.0	-8.1571	-65036.8	18.1122
700	8.5797	5400.6	61.0622	37342.9	27491.5	24274.9	-6.8946	-65233.0	14.7232
800	8.6850	6264.1	62.2151	43507.9	28355.0	24296.9	-5.9469	-65412.4	12.1741
900	8.7650	7136.8	63.2429	49781.8	29227.6	24317.3	-5.2091	-65577.9	10.1862
1000	8.8277	8016.6	64.1697	56153.1	30107.4	24336.0	-4.6184	-65731.6	8.5920
1100	8.8785	8902.0	65.0136	62612.9	30992.8	24353.1	-4.1347	-65875.5	7.2847
1200	8.9208	9792.0	65.7880	69153.5	31882.8	24368.7	-3.7314	-66011.0	6.1929
1300	8.9568	10685.9	66.5035	75768.6	32776.7	24382.8	-3.3900	-66139.3	5.2673
1400	8.9882	11583.2	67.1684	82452.6	33674.0	24395.6	-3.0971	-66261.5	4.4724
1500	9.0161	12483.4	67.7895	89200.8	34574.3	24406.9	-2.8432	-66378.1	3.7823
1600	9.0412	13386.3	68.3722	96009.2	35477.1	24416.9	-2.6209	-66489.9	3.1773
1700	9.0642	14291.6	68.9210	102874.1	36382.4	24425.4	-2.4247	-66597.4	2.6427
1800	9.0856	15199.1	69.4397	109792.4	37289.9	24432.4	-2.2502	-66701.1	2.1667
1900	9.1055	16108.7	69.9315	116761.1	38199.5	24437.8	-2.0940	-66801.2	1.7402
2000	9.1244	17020.2	70.3990	123777.9	39111.0	24441.6	-1.9535	-66898.1	1.3557
2100	9.1424	17933.5	70.8447	130840.2	40024.4	24443.7	-1.8263	-66992.1	1.0074
2200	9.1596	18848.7	71.2704	137946.1	40939.5	24444.0	-1.7107	-67083.4	0.6903
2300	9.1762	19765.4	71.6779	145093.7	41856.3	24442.6	-1.6051	-67172.3	0.4003
2400	9.1923	20683.9	72.0688	152281.2	42774.7	24439.4	-1.5083	-67258.8	0.1342
2500	9.2079	21603.9	72.4443	159506.9	43694.7	24434.4	-1.4193	-67343.3	-0.1109
2600	9.2232	22525.4	72.8058	166769.5	44616.3	24427.6	-1.3372	-67425.9	-0.3374
2700	9.2381	23448.5	73.1541	174067.7	45539.3	24419.1	-1.2612	-67506.7	-0.5475
2800	9.2527	24373.1	73.4904	181400.0	46463.9	24408.8	-1.1906	-67585.9	-0.7427
2900	9.2672	25299.1	73.8153	188765.3	47389.9	24396.9	-1.1249	-67663.6	-0.9247
3000	9.2813	26226.5	74.1297	196162.7	48317.3	24383.3	-1.0636	-67739.9	-1.0948
3100	9.2954	27155.3	74.4343	203591.0	49246.1	24368.1	-1.0064	-67815.0	-1.2541
3200	9.3092	28085.5	74.7296	211049.2	50176.4	24351.4	-0.9527	-67889.1	-1.4035
3300	9.3229	29017.2	75.0163	218536.6	51108.0	24333.2	-0.9023	-67962.1	-1.5441
3400	9.3365	29950.1	75.2948	226052.2	52040.9	24313.7	-0.8549	-68034.2	-1.6766
3500	9.3500	30884.4	75.5656	233595.3	52975.3	24292.8	-0.8103	-68105.5	-1.8016
3600	9.3633	31820.1	75.8292	241165.1	53910.9	24270.6	-0.7682	-68176.2	-1.9198
3700	9.3766	32757.1	76.0860	248760.9	54847.9	24247.3	-0.7284	-68246.1	-2.0317
3800	9.3898	33695.4	76.3362	256382.1	55786.2	24222.8	-0.6907	-68315.5	-2.1378
3900	9.4029	34635.1	76.5803	264028.0	56725.9	24197.3	-0.6550	-68384.5	-2.2386
4000	9.4160	35576.0	76.8185	271697.9	57666.8	24170.8	-0.6211	-68453.0	-2.3344
4100	9.4290	36518.3	77.0512	279391.5	58609.1	24143.4	-0.5890	-68521.1	-2.4257
4200	9.4419	37461.8	77.2785	287108.0	59552.6	24115.1	-0.5583	-68588.8	-2.5127
4300	9.4548	38406.6	77.5008	294847.0	60497.4	24086.0	-0.5292	-68656.3	-2.5957
4400	9.4677	39352.8	77.7184	302608.0	61443.6	24056.1	-0.5014	-68723.5	-2.6751
4500	9.4805	40300.2	77.9313	310390.5	62391.0	24025.6	-0.4748	-68790.5	-2.7510
4600	9.4932	41248.8	78.1398	318194.1	63339.7	23994.4	-0.4495	-68857.3	-2.8236
4700	9.5060	42198.8	78.3441	326018.3	64289.6	23962.6	-0.4252	-68923.9	-2.8933
4800	9.5187	43150.0	78.5443	333862.8	65240.9	23930.3	-0.4020	-68990.3	-2.9601
4900	9.5314	44102.5	78.7407	341727.1	66193.4	23897.5	-0.3798	-69056.5	-3.0242
5000	9.5440	45056.3	78.9334	349610.8	67147.1	23864.1	-0.3585	-69122.6	-3.0858
5100	9.5566	46011.3	79.1225	357513.6	68102.2	23830.4	-0.3381	-69188.6	-3.1451
5200	9.5692	46967.6	79.3082	365435.2	69058.5	23796.2	-0.3185	-69254.3	-3.2021
5300	9.5818	47925.2	79.4906	373375.2	70016.0	23761.6	-0.2996	-69320.0	-3.2571
5400	9.5944	48884.0	79.6699	381333.2	70974.8	23726.7	-0.2815	-69385.4	-3.3100
5500	9.6069	49844.1	79.8460	389309.0	71934.9	23691.5	-0.2640	-69450.7	-3.3611
5600	9.6195	50805.4	80.0192	397302.3	72896.2	23656.0	-0.2472	-69515.8	-3.4104
5700	9.6320	51768.0	80.1896	405312.8	73858.8	23620.2	-0.2311	-69580.7	-3.4580
5800	9.6445	52731.8	80.3572	413340.2	74822.6	23584.2	-0.2154	-69645.4	-3.5040
5900	9.6570	53696.9	80.5222	421384.2	75787.7	23547.9	-0.2004	-69709.8	-3.5485
6000	9.6694	54663.2	80.6846	429444.5	76754.0	23511.5	-0.1859	-69774.0	-3.5916

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(90) ClO_2 (gas); molecular weight, 67.457

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0		0			22419.5	25591.0		-120930.5	
100	8.0818	796.7	51.7296	4376.3	23216.2	25346.2	-58.0669	-121685.5	255.6248
200	8.9889	1647.0	57.5869	9870.4	24066.5	25137.8	-30.4645	-122449.1	122.3253
298.15	10.0341	2580.5	61.3706	15717.2	25000.0	25000.0	-21.4457	-123063.9	78.1793
300	10.0534	2599.1	61.4327	15830.7	25018.6	24998.1	-21.3327	-123074.4	77.6230
400	11.0055	3653.7	64.4601	22130.3	26073.2	24927.9	-16.7869	-123585.9	55.1655
500	11.7376	4792.7	66.9987	28706.6	27212.2	24908.8	-14.0644	-124008.9	41.6393
600	12.2722	5994.6	69.1885	35518.5	28414.1	24921.0	-12.2496	-124364.1	32.5931
700	12.6614	7242.3	71.1111	42535.5	29661.8	24951.5	-10.9522	-124667.7	26.1144
800	12.9493	8523.5	72.8215	49733.7	30943.0	24992.4	-9.9777	-124931.5	21.2442
900	13.1672	9829.8	74.3599	57094.0	32249.3	25039.4	-9.2184	-125164.3	17.4488
1000	13.3362	11155.3	75.7563	64600.9	33574.9	25090.0	-8.6098	-125372.5	14.4070
1100	13.4703	12495.9	77.0339	72241.3	34915.4	25142.9	-8.1109	-125560.9	11.9144
1200	13.5792	13848.6	78.2108	80004.4	36268.1	25196.8	-7.6942	-125732.9	9.8342
1300	13.6694	15211.1	79.3014	87880.6	37630.7	25251.2	-7.3408	-125891.5	8.0717
1400	13.7456	16582.0	80.3172	95862.1	39001.5	25305.6	-7.0373	-126038.5	6.5592
1500	13.8109	17959.9	81.2679	103941.9	40379.4	25359.2	-6.7737	-126175.8	5.2468
1600	13.8680	19343.9	82.1611	112113.8	41763.4	25411.9	-6.5425	-126304.7	4.0973
1700	13.9185	20733.3	83.0034	120372.4	43152.8	25463.0	-6.3381	-126426.1	3.0820
1800	13.9637	22127.4	83.8002	128713.0	44546.9	25512.3	-6.1561	-126541.0	2.1787
1900	14.0047	23525.9	84.5563	137131.1	45945.4	25559.4	-5.9929	-126650.1	1.3698
2000	14.0423	24928.3	85.2756	145623.0	47347.8	25604.1	-5.8458	-126753.9	0.6411
2100	14.0771	26334.2	85.9616	154185.1	48753.8	25646.0	-5.7125	-126853.0	-0.0187
2200	14.1095	27743.6	86.6172	162814.3	50163.1	25685.0	-5.5911	-126947.9	-0.6190
2300	14.1399	29156.1	87.2451	171507.6	51575.6	25721.0	-5.4801	-127039.0	-1.1675
2400	14.1687	30571.5	87.8475	180262.5	52991.0	25753.8	-5.3782	-127126.6	-1.6706
2500	14.1961	31989.8	88.4265	189076.4	54409.3	25783.3	-5.2843	-127211.1	-2.1338
2600	14.2223	33410.7	88.9837	197947.0	55830.2	25809.6	-5.1976	-127292.8	-2.5616
2700	14.2475	34834.2	89.5210	206872.4	57253.7	25832.6	-5.1172	-127372.0	-2.9580
2800	14.2718	36260.2	90.0396	215850.6	58679.7	25852.3	-5.0425	-127448.9	-3.3263
2900	14.2953	37688.5	90.5408	224879.8	60108.0	25868.7	-4.9729	-127523.9	-3.6694
3000	14.3182	39119.2	91.0258	233958.2	61538.7	25882.0	-4.9079	-127597.1	-3.9898
3100	14.3404	40552.1	91.4957	243084.4	62971.7	25892.3	-4.8471	-127668.9	-4.2898
3200	14.3622	41987.3	91.9513	252256.9	64406.8	25899.5	-4.7900	-127739.4	-4.5711
3300	14.3835	43424.6	92.3936	261474.2	65844.1	25903.8	-4.7364	-127808.8	-4.8355
3400	14.4044	44864.0	92.8233	270735.2	67283.5	25905.4	-4.6860	-127877.4	-5.0845
3500	14.4249	46305.4	93.2411	280038.5	68724.9	25904.4	-4.6384	-127945.3	-5.3194
3600	14.4451	47748.9	93.6478	289383.0	70168.4	25900.8	-4.5935	-128012.6	-5.5414
3700	14.4650	49194.4	94.0438	298767.7	71614.0	25894.8	-4.5510	-128079.6	-5.7515
3800	14.4847	50641.9	94.4298	308191.5	73061.4	25886.5	-4.5107	-128146.3	-5.9506
3900	14.5041	52091.4	94.8063	317653.4	74510.9	25876.1	-4.4726	-128213.0	-6.1396
4000	14.5234	53542.8	95.1738	327152.4	75962.3	25863.7	-4.4363	-128279.6	-6.3193
4100	14.5424	54996.0	95.5327	336687.8	77415.6	25849.4	-4.4019	-128346.4	-6.4903
4200	14.5613	56451.2	95.8833	346258.7	78870.7	25833.3	-4.3691	-128413.4	-6.6532
4300	14.5800	57908.3	96.2262	355864.2	80327.8	25815.5	-4.3378	-128480.6	-6.8086
4400	14.5986	59367.2	96.5616	365503.7	81786.7	25796.1	-4.3080	-128548.2	-6.9571
4500	14.6170	60828.0	96.8899	375176.3	83247.5	25775.2	-4.2795	-128616.1	-7.0990
4600	14.6353	62290.6	97.2113	384881.4	84710.1	25752.9	-4.2523	-128684.5	-7.2348
4700	14.6536	63755.1	97.5263	394618.3	86174.6	25729.4	-4.2263	-128753.4	-7.3649
4800	14.6717	65221.3	97.8350	404386.5	87640.9	25704.6	-4.2014	-128822.8	-7.4897
4900	14.6897	66689.4	98.1377	414185.1	89108.9	25678.7	-4.1775	-128892.7	-7.6094
5000	14.7076	68159.3	98.4346	424013.8	90578.8	25651.8	-4.1546	-128963.1	-7.7244
5100	14.7255	69630.9	98.7260	433871.9	92050.4	25623.8	-4.1327	-129034.0	-7.8350
5200	14.7433	71104.4	99.0122	443758.8	93523.9	25594.9	-4.1116	-129105.5	-7.9413
5300	14.7610	72579.6	99.2932	453674.1	94999.1	25565.2	-4.0913	-129177.5	-8.0437
5400	14.7787	74056.6	99.5692	463617.3	96476.1	25534.6	-4.0718	-129250.0	-8.1424
5500	14.7963	75535.3	99.8406	473587.8	97954.8	25503.3	-4.0530	-129322.9	-8.2375
5600	14.8138	77015.8	100.1073	483585.3	99435.3	25471.2	-4.0349	-129396.3	-8.3293
5700	14.8313	78498.1	100.3697	493609.2	100917.6	25438.5	-4.0175	-129470.1	-8.4179
5800	14.8488	79982.1	100.6278	503659.1	102401.6	25405.1	-4.0007	-129544.3	-8.5036
5900	14.8662	81467.9	100.8818	513734.6	103887.4	25371.2	-3.9845	-129618.8	-8.5863
6000	14.8836	82955.3	101.1318	523835.3	105374.8	25336.7	-3.9688	-129693.7	-8.6664

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(91) Cl_2O (gas); molecular weight, 86.914

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	15381.8	18612.7	--------	-97470.6	--------
100	8.3894	804.3	53.3239	4528.1	16186.1	18374.2	-42.8922	-98187.5	204.2953
200	9.6908	1708.2	59.5374	10199.3	17090.0	18204.6	-22.8926	-98839.0	96.7187
298.15	10.8491	2718.2	63.6307	16253.3	18100.0	18100.0	-16.3623	-99357.9	61.0812
300	10.8683	2738.3	63.6979	16371.1	18120.1	18098.6	-16.2805	-99366.8	60.6321
400	11.7395	3871.3	66.9515	22909.3	19253.2	18047.2	-12.9893	-99812.3	42.4981
500	12.3289	5076.7	69.6388	29742.7	20458.6	18033.1	-11.0183	-100199.3	31.5716
600	12.7245	6330.7	71.9239	36823.7	21712.5	18040.6	-9.7045	-100540.5	24.2605
700	12.9956	7617.5	73.9070	44117.4	22999.3	18059.9	-8.7653	-100844.7	19.0214
800	13.1867	8927.1	75.6555	51597.3	24309.0	18085.4	-8.0601	-101118.7	15.0808
900	13.3253	10253.1	77.2171	59242.3	25634.9	18113.9	-7.5107	-101367.9	12.0079
1000	13.4286	11591.0	78.6267	67035.7	26972.9	18143.6	-7.0706	-101596.7	9.5437
1100	13.5073	12938.0	79.9104	74963.5	28319.8	18173.4	-6.7098	-101808.7	7.5232
1200	13.5684	14291.9	81.0884	83014.2	29673.7	18202.6	-6.4087	-102006.7	5.8361
1300	13.6169	15651.3	82.1765	91178.2	31033.1	18230.7	-6.1535	-102193.0	4.4058
1400	13.6558	17015.0	83.1871	99446.9	32396.8	18257.4	-5.9344	-102369.6	3.1776
1500	13.6876	18382.2	84.1303	107813.3	33764.0	18282.2	-5.7443	-102537.8	2.1114
1600	13.7139	19752.3	85.0146	116271.0	35134.1	18304.9	-5.5777	-102699.0	1.1770
1700	13.7358	21124.8	85.8467	124814.5	36506.6	18325.3	-5.4306	-102854.0	0.3513
1800	13.7542	22499.3	86.6323	133438.8	37881.2	18343.2	-5.2996	-103003.9	-0.3838
1900	13.7700	23875.6	87.3764	142139.6	39257.4	18358.3	-5.1824	-103149.2	-1.0425
2000	13.7834	25253.3	88.0831	150912.9	40635.1	18370.6	-5.0768	-103290.6	-1.6361
2100	13.7951	26632.2	88.7558	159755.1	42014.0	18379.8	-4.9811	-103428.6	-2.1739
2200	13.8052	28012.2	89.3978	168663.0	43394.1	18385.8	-4.8942	-103563.5	-2.6635
2300	13.8141	29393.2	90.0117	177633.7	44775.0	18388.7	-4.8148	-103695.9	-3.1110
2400	13.8218	30775.0	90.5998	186664.5	46156.8	18388.2	-4.7420	-103826.1	-3.5218
2500	13.8287	32157.5	91.1642	195752.9	47539.4	18384.4	-4.6750	-103954.3	-3.9002
2600	13.8349	33540.7	91.7067	204896.6	48922.6	18377.3	-4.6132	-104080.9	-4.2499
2700	13.8403	34924.5	92.2289	214093.5	50306.3	18366.8	-4.5560	-104206.0	-4.5741
2800	13.8452	36308.8	92.7323	223341.7	51690.6	18352.9	-4.5029	-104330.0	-4.8755
2900	13.8496	37693.5	93.2182	232639.4	53075.3	18335.7	-4.4536	-104453.0	-5.1565
3000	13.8536	39078.7	93.6878	241984.8	54460.5	18315.2	-4.4075	-104575.3	-5.4190
3100	13.8572	40464.2	94.1422	251376.5	55846.1	18291.4	-4.3645	-104696.9	-5.6649
3200	13.8605	41850.1	94.5822	260812.8	57231.9	18264.4	-4.3243	-104818.2	-5.8957
3300	13.8635	43236.3	95.0087	270292.4	58618.1	18234.2	-4.2865	-104939.1	-6.1127
3400	13.8662	44622.8	95.4226	279814.1	60004.6	18200.8	-4.2510	-105060.0	-6.3173
3500	13.8687	46009.5	95.8246	289376.6	61391.4	18164.5	-4.2176	-105180.9	-6.5103
3600	13.8710	47396.5	96.2153	298978.7	62778.4	18125.1	-4.1861	-105301.8	-6.6928
3700	13.8731	48783.7	96.5954	308619.3	64165.6	18082.8	-4.1564	-105423.1	-6.8657
3800	13.8750	50171.1	96.9654	318297.4	65553.0	18037.6	-4.1284	-105544.6	-7.0297
3900	13.8768	51558.7	97.3258	328012.0	66940.6	17989.6	-4.1018	-105666.6	-7.1854
4000	13.8785	52946.5	97.6772	337762.3	68328.3	17938.8	-4.0766	-105789.1	-7.3335
4100	13.8801	54334.4	98.0199	347547.2	69716.3	17885.3	-4.0528	-105912.2	-7.4746
4200	13.8815	55722.5	98.3544	357366.0	71104.3	17829.2	-4.0301	-106035.9	-7.6090
4300	13.8829	57110.7	98.6811	367217.8	72492.6	17770.5	-4.0086	-106160.3	-7.7374
4400	13.8841	58499.1	99.0002	377101.9	73880.9	17709.3	-3.9881	-106285.4	-7.8601
4500	13.8853	59887.6	99.3123	387017.6	75269.4	17645.6	-3.9686	-106411.4	-7.9775
4600	13.8864	61276.1	99.6175	396964.2	76658.0	17579.5	-3.9500	-106538.1	-8.0899
4700	13.8874	62664.8	99.9161	406940.9	78046.7	17510.9	-3.9322	-106665.8	-8.1977
4800	13.8884	64053.6	100.2085	416947.2	79435.4	17440.0	-3.9153	-106794.3	-8.3011
4900	13.8893	65442.5	100.4949	426982.4	80824.3	17366.8	-3.8991	-106923.7	-8.4003
5000	13.8901	66831.5	100.7755	437046.0	82213.3	17291.3	-3.8837	-107054.1	-8.4958
5100	13.8909	68220.5	101.0506	447137.3	83602.3	17213.6	-3.8689	-107185.3	-8.5876
5200	13.8917	69609.6	101.3203	457255.9	84991.5	17133.6	-3.8547	-107317.5	-8.6760
5300	13.8924	70998.8	101.5849	467401.2	86380.7	17051.5	-3.8412	-107450.7	-8.7611
5400	13.8931	72388.1	101.8446	477572.7	87770.0	16967.2	-3.8282	-107584.8	-8.8432
5500	13.8937	73777.5	102.0995	487770.0	89159.3	16880.7	-3.8157	-107719.8	-8.9224
5600	13.8943	75166.9	102.3499	497992.5	90548.7	16792.2	-3.8038	-107855.7	-8.9989
5700	13.8949	76556.3	102.5958	508239.8	91938.1	16701.6	-3.7923	-107992.6	-9.0728
5800	13.8954	77945.8	102.8375	518511.5	93327.7	16608.9	-3.7813	-108130.4	-9.1442
5900	13.8959	79335.4	103.0750	528807.1	94717.2	16514.2	-3.7707	-108269.1	-9.2133
6000	13.8964	80725.0	103.3086	539126.3	96106.8	16417.4	-3.7606	-108408.6	-9.2802

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(92) F (gas); molecular weight, 19.00

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	17300.2	18355.0	--------	0	-------
100	5.0681	498.5	32.1160	2713.1	17798.7	18506.2	-37.8715	0	0
200	5.4029	1024.4	35.7466	6125.0	18324.5	18681.9	-17.5782	0	0
298.15	5.4367	1558.0	37.9170	9747.0	18858.2	18858.2	-10.8301	0	0
300	5.4358	1568.0	37.9506	9817.2	18868.2	18861.3	-10.7448	0	0
400	5.3615	2108.2	39.5050	13693.8	19408.4	19016.4	-7.2967	0	0
500	5.2823	2640.3	40.6927	17706.1	19940.4	19145.7	-5.2120	0	0
600	5.2183	3165.1	41.6498	21824.8	20465.3	19254.9	-3.8135	0	0
700	5.1696	3684.4	42.4504	26030.9	20984.6	19349.1	-2.8092	0	0
800	5.1327	4199.5	43.1382	30311.1	21499.6	19432.0	-2.0525	0	0
900	5.1046	4711.3	43.7410	34655.7	22011.4	19506.4	-1.4616	0	0
1000	5.0829	5220.6	44.2777	39057.1	22520.8	19574.2	-0.9872	0	0
1100	5.0658	5728.0	44.7613	43509.4	23028.2	19636.7	-0.5977	0	0
1200	5.0521	6233.9	45.2015	48007.9	23534.0	19694.8	-0.2721	0	0
1300	5.0411	6738.5	45.6054	52548.5	24038.7	19749.2	0.0042	0	0
1400	5.0321	7242.1	45.9786	57128.0	24542.3	19800.5	0.2416	0	0
1500	5.0246	7745.0	46.3256	61743.4	25045.2	19849.0	0.4479	0	0
1600	5.0184	8247.1	46.6496	66392.3	25547.3	19895.2	0.6289	0	0
1700	5.0131	8748.7	46.9537	71072.6	26048.9	19939.1	0.7889	0	0
1800	5.0086	9249.8	47.2401	75782.5	26549.9	19981.0	0.9315	0	0
1900	5.0048	9750.4	47.5108	80520.1	27050.6	20021.1	1.0593	0	0
2000	5.0014	10250.7	47.7674	85284.2	27550.9	20059.5	1.1745	0	0
2100	4.9985	10750.7	48.0114	90073.2	28050.9	20096.3	1.2790	0	0
2200	4.9960	11250.4	48.2439	94886.1	28550.6	20131.6	1.3741	0	0
2300	4.9937	11749.9	48.4659	99721.6	29050.1	20165.4	1.4612	0	0
2400	4.9918	12249.2	48.6784	104578.9	29549.4	20197.9	1.5411	0	0
2500	4.9900	12748.3	48.8821	109457.0	30048.5	20228.9	1.6147	0	0
2600	4.9884	13247.2	49.0778	114355.1	30547.4	20258.7	1.6827	0	0
2700	4.9870	13746.0	49.2660	119272.3	31046.2	20287.3	1.7459	0	0
2800	4.9858	14244.6	49.4474	124208.1	31544.8	20314.6	1.8045	0	0
2900	4.9846	14743.1	49.6223	129161.6	32043.3	20340.7	1.8592	0	0
3000	4.9836	15241.5	49.7913	134132.3	32541.7	20365.6	1.9104	0	0
3100	4.9826	15739.8	49.9547	139119.7	33040.0	20389.4	1.9583	0	0
3200	4.9818	16238.1	50.1129	144123.1	33538.3	20412.1	2.0032	0	0
3300	4.9810	16736.2	50.2661	149142.1	34036.4	20433.6	2.0455	0	0
3400	4.9803	17234.3	50.4148	154176.2	34534.5	20454.0	2.0853	0	0
3500	4.9796	17732.3	50.5592	159224.9	35032.4	20473.3	2.1229	0	0
3600	4.9790	18230.2	50.6995	164287.9	35530.4	20491.6	2.1584	0	0
3700	4.9784	18728.1	50.8359	169364.6	36028.2	20508.8	2.1920	0	0
3800	4.9779	19225.9	50.9686	174454.9	36526.1	20524.9	2.2239	0	0
3900	4.9774	19723.6	51.0979	179558.3	37023.8	20540.0	2.2542	0	0
4000	4.9770	20221.4	51.2239	184674.4	37521.6	20554.0	2.2830	0	0
4100	4.9766	20719.0	51.3468	189802.9	38019.2	20567.0	2.3104	0	0
4200	4.9762	21216.7	51.4667	194943.6	38516.9	20579.0	2.3365	0	0
4300	4.9758	21714.3	51.5838	200096.2	39014.5	20589.9	2.3614	0	0
4400	4.9755	22211.9	51.6982	205260.3	39512.0	20599.8	2.3852	0	0
4500	4.9752	22709.4	51.8100	210435.8	40009.6	20608.7	2.4079	0	0
4600	4.9749	23206.9	51.9194	215622.2	40507.1	20616.6	2.4297	0	0
4700	4.9746	23704.4	52.0264	220819.6	41004.6	20623.5	2.4505	0	0
4800	4.9744	24201.8	52.1311	226027.4	41502.0	20629.4	2.4705	0	0
4900	4.9741	24699.2	52.2337	231245.7	41999.4	20634.3	2.4897	0	0
5000	4.9739	25196.6	52.3341	236474.1	42496.8	20638.2	2.5081	0	0
5100	4.9737	25694.0	52.4326	241712.5	42994.2	20641.1	2.5258	0	0
5200	4.9735	26191.4	52.5292	246960.6	43491.6	20643.0	2.5428	0	0
5300	4.9733	26688.7	52.6240	252218.2	43988.9	20643.9	2.5592	0	0
5400	4.9731	27186.0	52.7169	257485.3	44486.2	20643.8	2.5749	0	0
5500	4.9729	27683.3	52.8082	262761.6	44983.5	20642.7	2.5901	0	0
5600	4.9727	28180.6	52.8978	268046.9	45480.8	20640.7	2.6048	0	0
5700	4.9726	28677.9	52.9858	273341.1	45978.1	20637.7	2.6189	0	0
5800	4.9724	29175.1	53.0723	278644.0	46475.3	20633.6	2.6325	0	0
5900	4.9723	29672.4	53.1573	283955.5	46972.5	20628.7	2.6457	0	0
6000	4.9722	30169.6	53.2408	289275.4	47469.8	20622.7	2.6584	0	0

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(93) F_2 (gas); molecular weight, 38.00

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-2109.7	0	-------	-36710.1	-------
100	6.9587	694.8	40.6957	3374.7	-1414.9	0	0	-37012.3	75.7429
200	7.0970	1395.0	45.5437	7713.8	-714.7	0	0	-37363.8	35.1563
298.15	7.4869	2109.7	48.4460	12334.5	0	0	0	-37716.3	21.6601
300	7.4949	2123.6	48.4924	12424.2	13.9	0	0	-37722.6	21.4896
400	7.8941	2893.7	50.7051	17388.4	784.0	0	0	-38032.7	14.5934
500	8.1985	3699.1	52.5011	22551.4	1589.4	0	0	-38291.5	10.4241
600	8.4184	4530.6	54.0164	27879.3	2420.9	0	0	-38509.8	7.6270
700	8.5788	5380.8	55.3268	33347.9	3271.1	0	0	-38698.1	5.6184
800	8.6990	6245.0	56.4805	38939.4	4135.3	0	0	-38864.0	4.1051
900	8.7923	7119.7	57.5107	44639.9	5010.0	0	0	-39012.9	2.9232
1000	8.8670	8002.8	58.4411	50438.3	5893.1	0	0	-39148.4	1.9743
1100	8.9287	8892.7	59.2892	56325.4	6783.0	0	0	-39273.3	1.1953
1200	8.9811	9788.3	60.0684	62293.8	7678.6	0	0	-39389.5	0.5442
1300	9.0266	10688.7	60.7891	68337.1	8579.0	0	0	-39498.4	-0.0084
1400	9.0669	11593.4	61.4595	74449.9	9483.7	0	0	-39601.0	-0.4833
1500	9.1034	12502.0	62.0864	80627.6	10392.3	0	0	-39698.1	-0.8959
1600	9.1368	13414.0	62.6750	86865.9	11304.3	0	0	-39790.3	-1.2578
1700	9.1679	14329.2	63.2298	93161.5	12219.5	0	0	-39878.2	-1.5778
1800	9.1971	15247.5	63.7547	99510.9	13137.8	0	0	-39962.1	-1.8629
1900	9.2248	16168.6	64.2527	105911.5	14058.9	0	0	-40042.3	-2.1185
2000	9.2512	17092.4	64.7265	112360.6	14982.7	0	0	-40119.1	-2.3490
2100	9.2767	18018.8	65.1785	118856.1	15909.1	0	0	-40192.7	-2.5580
2200	9.3013	18947.7	65.6106	125395.7	16838.0	0	0	-40263.2	-2.7483
2300	9.3252	19879.1	66.0246	131977.6	17769.4	0	0	-40330.9	-2.9223
2400	9.3485	20812.8	66.4220	138600.1	18703.1	0	0	-40395.7	-3.0821
2500	9.3713	21748.7	66.8041	145261.5	19639.1	0	0	-40457.9	-3.2294
2600	9.3937	22687.0	67.1721	151960.4	20577.3	0	0	-40517.5	-3.3655
2700	9.4157	23627.5	67.5270	158695.5	21517.8	0	0	-40574.5	-3.4917
2800	9.4374	24570.1	67.8698	165465.4	22460.4	0	0	-40629.2	-3.6091
2900	9.4589	25514.9	68.2014	172269.1	23405.3	0	0	-40681.4	-3.7185
3000	9.4800	26461.9	68.5224	179105.3	24352.2	0	0	-40731.3	-3.8207
3100	9.5010	27411.0	68.8336	185973.2	25301.3	0	0	-40778.8	-3.9165
3200	9.5218	28362.1	69.1356	192871.7	26252.4	0	0	-40824.1	-4.0064
3300	9.5425	29315.3	69.4289	199800.0	27205.6	0	0	-40867.2	-4.0909
3400	9.5630	30270.6	69.7141	206757.3	28160.9	0	0	-40908.0	-4.1706
3500	9.5834	31227.9	69.9916	213742.6	29118.2	0	0	-40946.7	-4.2457
3600	9.6036	32187.3	70.2618	220755.3	30077.6	0	0	-40983.2	-4.3168
3700	9.6238	33148.6	70.5252	227794.7	31038.9	0	0	-41017.6	-4.3840
3800	9.6438	34112.0	70.7821	234860.2	32002.3	0	0	-41049.8	-4.4478
3900	9.6638	35077.4	71.0329	241951.0	32967.7	0	0	-41080.0	-4.5084
4000	9.6837	36044.8	71.2778	249066.5	33935.1	0	0	-41108.0	-4.5660
4100	9.7036	37014.1	71.5172	256206.3	34904.4	0	0	-41134.0	-4.6207
4200	9.7234	37985.5	71.7513	263369.8	35875.8	0	0	-41158.0	-4.6730
4300	9.7431	38958.8	71.9803	270556.4	36849.1	0	0	-41179.8	-4.7228
4400	9.7628	39934.1	72.2045	277765.7	37824.4	0	0	-41199.7	-4.7704
4500	9.7824	40911.4	72.4241	284997.2	38801.7	0	0	-41217.5	-4.8158
4600	9.8020	41890.6	72.6393	292250.4	39780.9	0	0	-41233.3	-4.8594
4700	9.8216	42871.8	72.8504	299524.9	40762.1	0	0	-41247.0	-4.9011
4800	9.8411	43854.9	73.0573	306820.3	41745.2	0	0	-41258.8	-4.9410
4900	9.8606	44840.0	73.2605	314136.2	42730.3	0	0	-41268.6	-4.9794
5000	9.8800	45827.0	73.4599	321472.3	43717.3	0	0	-41276.3	-5.0162
5100	9.8994	46816.0	73.6557	328828.1	44706.3	0	0	-41282.1	-5.0515
5200	9.9188	47806.9	73.8481	336203.3	45697.2	0	0	-41285.9	-5.0856
5300	9.9382	48799.7	74.0372	343597.6	46690.1	0	0	-41287.7	-5.1183
5400	9.9576	49794.5	74.2232	351010.7	47684.8	0	0	-41287.6	-5.1498
5500	9.9769	50791.3	74.4061	358442.1	48681.6	0	0	-41285.5	-5.1802
5600	9.9962	51789.9	74.5860	365891.8	49680.2	0	0	-41281.4	-5.2095
5700	10.0155	52790.5	74.7631	373359.3	50680.8	0	0	-41275.3	-5.2378
5800	10.0348	53793.0	74.9375	380844.3	51683.3	0	0	-41267.3	-5.2650
5900	10.0541	54797.5	75.1092	388346.7	52687.8	0	0	-41257.3	-5.2914
6000	10.0733	55803.8	75.2783	395866.1	53694.1	0	0	-41245.4	-5.3169

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(94) H (gas); molecular weight, 1.008

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	50616.5	51628.4	--------	0	--------
100	4.9681	496.8	21.9650	1699.7	51113.3	51745.7	-110.9494	0	0
200	4.9681	993.6	25.4087	4088.1	51610.1	51941.2	-54.3196	0	0
298.15	4.9681	1481.3	27.3924	6685.8	52097.7	52097.7	-35.6106	0	0
300	4.9681	1490.4	27.4231	6736.5	52106.9	52100.6	-35.3752	0	0
400	4.9681	1987.3	28.8523	9553.7	52603.8	52250.1	-25.8747	0	0
500	4.9681	2484.1	29.9609	12496.4	53100.6	52397.6	-20.1578	0	0
600	4.9681	2980.9	30.8667	15539.2	53597.4	52544.4	-16.3357	0	0
700	4.9681	3477.7	31.6326	18665.1	54094.2	52690.1	-13.5982	0	0
800	4.9681	3974.5	32.2960	21862.3	54591.0	52834.2	-11.5392	0	0
900	4.9681	4471.3	32.8812	25121.7	55087.8	52975.4	-9.9334	0	0
1000	4.9681	4968.1	33.4046	28436.5	55584.6	53113.2	-8.6453	0	0
								0	
1100	4.9681	5465.0	33.8781	31801.0	56081.5	53246.8	-7.5889	0	0
1200	4.9681	5961.8	34.3104	35210.7	56578.3	53375.8	-6.7063	0	0
1300	4.9681	6458.6	34.7081	38661.9	57075.1	53499.7	-5.9576	0	0
1400	4.9681	6955.4	35.0762	42151.3	57571.9	53618.5	-5.3147	0	0
1500	4.9681	7452.2	35.4190	45676.3	58068.7	53731.7	-4.7561	0	0
1600	4.9681	7949.0	35.7397	49234.4	58565.5	53839.8	-4.2663	0	0
1700	4.9681	8445.9	36.0408	52823.6	59062.4	53943.1	-3.8332	0	0
1800	4.9681	8942.7	36.3246	56442.0	59559.2	54041.8	-3.4477	0	0
1900	4.9681	9439.5	36.5934	60088.0	60056.0	54135.5	-3.1020	0	0
2000	4.9681	9936.3	36.8483	63760.2	60552.8	54224.8	-2.7905	0	0
2100	4.9681	10433.1	37.0907	67457.3	61049.6	54309.7	-2.5081	0	0
2200	4.9681	10929.9	37.3218	71178.0	61546.4	54390.8	-2.2511	0	0
2300	4.9681	11426.7	37.5426	74921.3	62043.2	54467.9	-2.0158	0	0
2400	4.9681	11923.6	37.7541	78686.2	62540.1	54541.6	-1.8002	0	0
2500	4.9681	12420.4	37.9569	82471.8	63036.9	54611.8	-1.6014	0	0
2600	4.9681	12917.2	38.1517	86277.3	63533.7	54678.7	-1.4177	0	0
2700	4.9681	13414.0	38.3392	90101.9	64030.5	54742.6	-1.2473	0	0
2800	4.9681	13910.8	38.5199	93944.9	64527.3	54803.4	-1.0891	0	0
2900	4.9681	14407.6	38.6942	97805.7	65024.1	54861.5	-0.9415	0	0
3000	4.9681	14904.4	38.8627	101683.6	65520.9	54916.6	-0.8035	0	0
3100	4.9681	15401.3	39.0256	105578.0	66017.8	54968.9	-0.6744	0	0
3200	4.9681	15898.1	39.1833	109488.5	66514.6	55018.5	-0.5533	0	0
3300	4.9681	16394.9	39.3362	113414.5	67011.4	55066.1	-0.4394	0	0
3400	4.9681	16891.7	39.4845	117355.6	67508.2	55110.5	-0.3321	0	0
3500	4.9681	17388.5	39.6285	121311.3	68005.0	55152.0	-0.2309	0	0
3600	4.9681	17885.3	39.7685	125281.2	68501.8	55191.9	-0.1351	0	0
3700	4.9681	18382.2	39.9046	129264.8	68998.7	55229.5	-0.0445	0	0
3800	4.9681	18879.0	40.0371	133262.0	69495.5	55263.7	0.0414	0	0
3900	4.9681	19375.8	40.1661	137272.1	69992.3	55297.0	0.1227	0	0
4000	4.9681	19872.6	40.2919	141295.1	70489.1	55327.5	0.2004	0	0
4100	4.9681	20369.4	40.4146	145330.4	70985.9	55356.4	0.2739	0	0
4200	4.9681	20866.2	40.5343	149377.9	71482.7	55382.7	0.3445	0	0
4300	4.9681	21363.0	40.6512	153437.2	71979.5	55407.1	0.4115	0	0
4400	4.9681	21859.9	40.7654	157508.1	72476.4	55429.0	0.4754	0	0
4500	4.9681	22356.7	40.8771	161590.2	72973.2	55449.6	0.5366	0	0
4600	4.9681	22853.5	40.9863	165683.4	73470.0	55467.8	0.5951	0	0
4700	4.9681	23350.3	41.0931	169787.4	73966.8	55484.0	0.6512	0	0
4800	4.9681	23847.1	41.1977	173901.9	74463.6	55497.8	0.7050	0	0
4900	4.9682	24343.9	41.3002	178026.8	74960.4	55509.8	0.7565	0	0
5000	4.9682	24840.7	41.4005	182161.9	75457.2	55520.4	0.8060	0	0
5100	4.9682	25337.6	41.4989	186306.9	75954.1	55528.9	0.8536	0	0
5200	4.9682	25834.4	41.5954	190461.6	76450.9	55535.6	0.8993	0	0
5300	4.9682	26331.2	41.6900	194625.9	76947.7	55540.2	0.9433	0	0
5400	4.9682	26828.0	41.7829	198799.6	77444.5	55543.1	0.9859	0	0
5500	4.9682	27324.8	41.8740	202982.4	77941.3	55544.0	1.0266	0	0
5600	4.9682	27821.6	41.9636	207174.3	78438.1	55543.5	1.0661	0	0
5700	4.9682	28318.5	42.0515	211375.1	78935.0	55541.4	1.1041	0	0
5800	4.9682	28815.3	42.1379	215584.6	79431.8	55537.5	1.1407	0	0
5900	4.9682	29312.1	42.2228	219802.6	79928.6	55531.6	1.1763	0	0
6000	4.9682	29808.9	42.3063	224029.1	80425.4	55524.4	1.2104	0	0

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(95) H_2 (gas); molecular weight, 2.016

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-2023.8	0	-------	-103256.8	--------
100	5.3934	758.9	24.3877	1679.8	-1264.9	0	0	-103491.5	221.8988
200	6.5182	1361.7	28.5212	4342.5	-662.1	0	0	-103882.3	108.6393
298.15	6.8918	2023.8	31.2079	7280.8	0	0	0	-104195.5	71.2212
300	6.8938	2036.5	31.2517	7339.0	12.7	0	0	-104201.1	70.7505
400	6.9753	2731.1	33.2508	10569.2	707.3	0	0	-104500.2	51.7494
500	6.9932	3429.7	34.8088	13974.7	1405.9	0	0	-104795.2	40.3156
600	7.0091	4129.7	36.0847	17521.1	2105.9	0	0	-105088.9	32.6715
700	7.0369	4831.9	37.1677	21185.5	2808.1	0	0	-105380.3	27.1963
800	7.0806	5537.5	38.1097	24950.3	3513.7	0	0	-105668.4	23.0784
900	7.1422	6248.6	38.9463	28803.1	4224.8	0	0	-105950.9	19.8668
1000	7.2197	6966.7	39.7015	32734.7	4942.9	0	0	-106226.4	17.2905
1100	7.3091	7693.1	40.3950	36741.4	5669.3	0	0	-106493.6	15.1778
1200	7.4065	8428.8	41.0349	40813.2	6405.0	0	0	-106751.6	13.4126
1300	7.5118	9174.6	41.6311	44945.9	7150.8	0	0	-106999.4	11.9153
1400	7.6172	9930.7	42.1935	49140.2	7906.9	0	0	-107237.0	10.6295
1500	7.7205	10697.8	42.7221	53385.4	8674.0	0	0	-107463.4	9.5122
1600	7.8219	11475.2	43.2229	57681.4	9451.4	0	0	-107679.6	8.5325
1700	7.9192	12262.4	43.6998	62027.4	10238.6	0	0	-107886.1	7.6665
1800	8.0146	13058.4	44.1549	66420.4	11034.6	0	0	-108083.7	6.8953
1900	8.1080	13864.7	44.5901	70856.5	11840.9	0	0	-108271.1	6.2039
2000	8.1955	14679.9	45.0095	75339.0	12656.1	0	0	-108449.5	5.5810
2100	8.2769	15503.6	45.4109	79859.2	13479.8	0	0	-108619.4	5.0162
2200	8.3544	16335.0	45.7984	84421.5	14311.2	0	0	-108781.7	4.5021
2300	8.4280	17174.4	46.1700	89016.6	15150.6	0	0	-108935.9	4.0317
2400	8.4975	18020.8	46.5317	93655.3	15997.0	0	0	-109083.1	3.6004
2500	8.5651	18874.0	46.8795	98324.7	16850.2	0	0	-109223.5	3.2027
2600	8.6287	19733.8	47.2173	103031.1	17710.0	0	0	-109357.3	2.8354
2700	8.6903	20599.6	47.5432	107767.0	18575.8	0	0	-109485.2	2.4946
2800	8.7479	21471.6	47.8612	112539.6	19447.8	0	0	-109606.8	2.1781
2900	8.8036	22349.1	48.1692	117341.5	20325.3	0	0	-109722.9	1.8830
3000	8.8592	23232.5	48.4673	122169.4	21208.7	0	0	-109833.2	1.6069
3100	8.9148	24121.5	48.7594	127032.7	22097.7	0	0	-109937.9	1.3488
3200	8.9685	25015.9	49.0436	131923.5	22992.1	0	0	-110037.0	1.1066
3300	9.0222	25914.4	49.3198	136841.0	23890.6	0	0	-110132.2	0.8787
3400	9.0738	26819.3	49.5901	141787.0	24795.5	0	0	-110220.9	0.6641
3500	9.1235	27729.8	49.8544	146760.5	25706.0	0	0	-110304.0	0.4617
3600	9.1692	28643.7	50.1107	151755.0	26619.9	0	0	-110383.7	0.2701
3700	9.2149	29562.2	50.3631	156781.4	27538.4	0	0	-110458.9	0.0891
3800	9.2567	30487.3	50.6095	161829.0	28463.5	0	0	-110527.5	-0.0827
3900	9.3004	31414.3	50.8520	166908.4	29390.5	0	0	-110594.0	-0.2454
4000	9.3421	32347.0	51.0865	171998.9	30323.2	0	0	-110655.0	-0.4007
4100	9.3858	33282.8	51.3190	177125.1	31259.0	0	0	-110712.8	-0.5479
4200	9.4276	34224.0	51.5436	182259.0	32200.2	0	0	-110765.3	-0.6889
4300	9.4713	35168.7	51.7661	187425.7	33144.9	0	0	-110814.2	-0.8229
4400	9.5110	36118.6	51.9847	192614.2	34094.8	0	0	-110857.9	-0.9509
4500	9.5528	37070.9	52.1994	197826.2	35047.1	0	0	-110899.2	-1.0731
4600	9.5945	38028.2	52.4100	203057.8	36004.4	0	0	-110935.6	-1.1902
4700	9.6342	38989.4	52.6167	208309.0	36965.6	0	0	-110968.0	-1.3024
4800	9.6720	39955.4	52.8194	213577.7	37931.6	0	0	-110995.7	-1.4100
4900	9.7117	40925.1	53.0201	218873.4	38901.3	0	0	-111019.6	-1.5130
5000	9.7495	41897.4	53.2168	224186.8	39873.6	0	0	-111040.9	-1.6120
5100	9.7853	42874.2	53.4096	229514.8	40850.4	0	0	-111057.7	-1.7073
5200	9.8230	43854.4	53.6004	234867.6	41830.6	0	0	-111071.2	-1.7987
5300	9.8588	44838.9	53.7892	240243.7	42815.1	0	0	-111080.3	-1.8865
5400	9.8946	45826.5	53.9720	245622.2	43802.7	0	0	-111086.3	-1.9717
5500	9.9303	46818.4	54.1548	251033.2	44794.6	0	0	-111088.1	-2.0533
5600	9.9661	47813.2	54.3337	256455.4	45789.4	0	0	-111086.9	-2.1322
5700	9.9999	48810.8	54.5105	261899.3	46787.0	0	0	-111082.9	-2.2082
5800	10.0337	49812.4	54.6854	267363.1	47788.6	0	0	-111075.0	-2.2814
5900	10.0675	50817.8	54.8563	272834.5	48794.0	0	0	-111063.2	-2.3526
6000	10.1012	51825.8	55.0272	278337.6	49802.0	0	0	-111048.8	-2.4208

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(96) HBO_2 (gas); molecular weight, 43.828

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-138278.3	-134900.0	-------	-438282.2	--------
100	7.9840	795.3	47.7873	3983.4	-137483.0	-135183.8	294.1438	-439563.5	945.2513
200	8.8164	1626.7	53.5173	9076.8	-136651.6	-135429.5	146.3332	-440841.8	464.3904
298.15	10.0939	2554.3	57.2738	14521.9	-135724.0	-135724.0	97.5736	-441935.1	305.6388
300	10.1180	2573.0	57.3363	14627.9	-135705.3	-135729.6	96.9598	-441954.2	303.6411
400	11.3657	3648.2	60.4209	20520.2	-134630.1	-136038.3	72.2150	-442908.6	223.0734
500	12.4662	4841.2	63.0783	26698.0	-133437.2	-136334.7	57.3348	-443730.4	174.6342
600	13.4022	6135.9	65.4363	33125.9	-132142.4	-136606.2	47.3940	-444442.1	142.2851
700	14.1887	7516.6	67.5631	39777.6	-130761.7	-136854.6	40.2798	-445062.8	119.1437
800	14.8513	8969.5	69.5022	46632.3	-129308.8	-137083.1	34.9345	-445607.8	101.7648
900	15.4138	10483.5	71.2848	53672.8	-127794.8	-137299.7	30.7707	-446089.6	88.2322
1000	15.8956	12049.6	72.9344	60884.8	-126228.7	-137507.4	27.4345	-446517.6	77.3951
1100	16.3111	13660.4	74.4694	68255.9	-124617.9	-137710.7	24.7005	-446899.7	68.5203
1200	16.6716	15310.0	75.9045	75775.4	-122968.3	-137913.0	22.4190	-447242.1	61.1186
1300	16.9857	16993.2	77.2516	83433.8	-121285.1	-138114.7	20.4857	-447550.2	54.8511
1400	17.2603	18705.8	78.5206	91223.1	-119572.5	-138315.5	18.8258	-447828.3	49.4754
1500	17.5013	20444.2	79.7199	99135.6	-117834.2	-138515.5	17.3854	-448080.3	44.8137
1600	17.7134	22205.1	80.8563	107165.0	-116073.2	-138715.0	16.1234	-448309.2	40.7325
1700	17.9007	23986.0	81.9359	115305.0	-114292.3	-138914.6	15.0081	-448518.0	37.1297
1800	18.0664	25784.5	82.9639	123550.4	-112493.8	-139115.0	14.0153	-448708.9	33.9258
1900	18.2136	27598.7	83.9447	131896.2	-110679.6	-139317.9	13.1258	-448884.0	31.0580
2000	18.3447	29426.7	84.8823	140337.9	-108851.6	-139523.2	12.3239	-449045.2	28.4760
2100	18.4618	31267.2	85.7803	148871.4	-107011.2	-139731.7	11.5974	-449194.0	26.1391
2200	18.5667	33118.7	86.6416	157492.7	-105159.6	-139943.5	10.9358	-449331.7	24.0139
2300	18.6610	34980.2	87.4690	166198.5	-103298.2	-140159.3	10.3312	-449459.7	22.0730
[a] 2400	18.7459	36850.6	88.2650	174985.5	-101427.8	-145729.3	9.7572	-449579.1	20.2934
2500	18.8225	38729.1	89.0319	183850.6	-99549.3	-145954.9	9.2261	-449690.7	18.6556
2600	18.8920	40614.8	89.7715	192791.0	-97663.5	-146181.7	8.7350	-449795.6	17.1435
2700	18.9550	42507.2	90.4857	201804.0	-95771.1	-146410.0	8.2796	-449894.4	15.7431
2800	19.0124	44405.7	91.1761	210887.3	-93872.7	-146640.5	7.8559	-449988.0	14.4425
2900	19.0647	46309.6	91.8442	220038.5	-91968.8	-146873.3	7.4610	-450077.1	13.2313
3000	19.1126	48218.5	92.4913	229255.4	-90059.9	-147108.8	7.0917	-450162.2	12.1006
3100	19.1565	50131.9	93.1187	238536.1	-88146.4	-147347.2	6.7459	-450243.9	11.0427
3200	19.1967	52049.6	93.7276	247878.6	-86228.7	-147588.7	6.4208	-450322.7	10.0507
3300	19.2338	53971.2	94.3188	257281.0	-84307.2	-147832.7	6.1153	-450399.2	9.1187
3400	19.2680	55896.3	94.8935	266741.8	-82382.0	-148080.5	5.8271	-450473.6	8.2413
3500	19.2996	57824.7	95.4525	276259.2	-80453.6	-148332.0	5.5548	-450546.6	7.4140
3600	19.3288	59756.1	95.9966	285831.8	-78522.2	-148586.1	5.2975	-450618.4	6.6325
3700	19.3559	61690.4	96.5266	295458.1	-76588.0	-148843.4	5.0535	-450689.5	5.8931
3800	19.3810	63627.2	97.0431	305136.7	-74651.1	-149105.0	4.8220	-450760.0	5.1925
3900	19.4044	65566.5	97.5469	314866.3	-72711.8	-149368.6	4.6017	-450830.4	4.5278
4000	19.4262	67508.1	98.0384	324645.6	-70770.3	-149636.1	4.3924	-450900.9	3.8961
4100	19.4466	69451.7	98.5184	334473.6	-68826.6	-149906.3	4.1927	-450971.8	3.2952
4200	19.4656	71397.3	98.9872	344348.9	-66881.0	-150180.2	4.0025	-451043.4	2.7229
4300	19.4834	73344.8	99.4455	354270.6	-64933.5	-150457.0	3.8204	-451115.8	2.1770
4400	19.5000	75294.0	99.8936	364237.7	-62984.3	-150737.5	3.6466	-451189.2	1.6559
4500	19.5157	77244.8	100.3320	374249.0	-61033.6	-151020.2	3.4801	-451263.9	1.1579
4600	19.5303	79197.1	100.7611	384303.8	-59081.2	-151306.6	3.3204	-451340.1	0.6814
4700	19.5441	81150.8	101.1812	394400.9	-57127.5	-151595.9	3.1672	-451417.9	0.2252
4800	19.5571	83105.9	101.5928	404539.7	-55172.4	-151888.8	3.0203	-451497.5	-0.2122
4900	19.5694	85062.2	101.9962	414719.2	-53216.1	-152184.5	2.8790	-451579.0	-0.6317
5000	19.5810	87019.7	102.3917	424938.7	-51258.6	-152482.6	2.7430	-451662.5	-1.0346
5100	19.5919	88978.4	102.7796	435197.3	-49299.9	-152784.0	2.6124	-451748.3	-1.4217
5200	19.6022	90938.1	103.1601	445494.4	-47340.2	-153088.1	2.4863	-451836.3	-1.7940
5300	19.6120	92898.8	103.5336	455829.1	-45379.5	-153395.3	2.3646	-451926.8	-2.1523
5400	19.6212	94860.5	103.9002	466200.9	-43417.9	-153705.2	2.2476	-452019.9	-2.4974
5500	19.6300	96823.0	104.2604	476608.9	-41455.3	-154018.2	2.1342	-452115.6	-2.8301
5600	19.6383	98786.5	104.6141	487052.7	-39491.9	-154333.6	2.0249	-452214.0	-3.1509
5700	19.6462	100750.7	104.9618	497531.6	-37527.6	-154651.5	1.9192	-452315.2	-3.4605
5800	19.6538	102715.7	105.3035	508044.9	-35562.6	-154972.3	1.8167	-452419.4	-3.7596
5900	19.6609	104681.4	105.6396	518592.1	-33596.9	-155295.9	1.7178	-452526.5	-4.0485
6000	19.6677	106647.9	105.9701	529172.6	-31630.5	-155621.9	1.6216	-452636.7	-4.3279

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(97) H_3BO_3 (gas); molecular weight, 61.844

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-241912.9	-235473.3	-------	-701098.9	--------
100	10.0304	858.5	52.2279	4364.3	-241054.4	-236799.7	507.3318	-703838.1	1507.0701
200	13.3830	2026.0	60.1884	10011.7	-239886.8	-237659.9	248.2145	-706331.3	736.9004
298.15	16.9017	3512.9	66.1901	16221.7	-238400.0	-238400.0	162.6069	-708363.2	482.4955
300	16.9662	3544.2	66.2949	16344.3	-238368.7	-238412.2	161.5288	-708397.7	479.2936
400	20.1849	5406.5	71.6303	23245.6	-236506.3	-238983.4	118.0591	-710076.6	350.1393
500	22.7851	7560.2	76.4252	30652.4	-234352.7	-239383.3	91.9238	-711441.9	272.4780
600	24.8325	9945.1	80.7677	38515.6	-231967.8	-239642.3	74.4762	-712563.4	220.6123
700	26.4724	12513.1	84.7232	46793.1	-229399.7	-239794.5	62.0027	-713494.1	183.5116
800	27.8227	15229.9	88.3489	55449.2	-226682.9	-239863.4	52.6430	-714271.1	155.6527
900	28.9604	18070.6	91.6935	64453.5	-223842.2	-239871.6	45.3626	-714920.8	133.9629
1000	29.9330	21016.5	94.7964	73779.9	-220896.3	-239831.3	39.5389	-715462.9	116.5965
1100	30.7719	24052.8	97.6896	83405.8	-217860.1	-239755.1	34.7744	-715912.8	102.3778
1200	31.4990	27167.2	100.3990	93311.7	-214745.7	-239652.4	30.8058	-716283.2	90.5220
1300	32.1315	30349.4	102.9459	103480.2	-211563.4	-239529.2	27.4497	-716584.7	80.4855
1400	32.6832	33590.8	105.3477	113896.0	-208322.1	-239389.4	24.5735	-716826.2	71.8796
1500	33.1657	36883.8	107.6194	124545.4	-205029.1	-239237.3	22.0832	-717015.5	64.4188
1600	33.5887	40222.0	109.7737	135416.0	-201690.9	-239075.4	19.9059	-717159.0	57.8891
1700	33.9607	43599.8	111.8214	146496.6	-198313.0	-238906.6	17.9857	-717262.5	52.1267
1800	34.2888	47012.6	113.7720	157777.0	-194900.2	-238733.2	16.2801	-717330.6	47.0039
1900	34.5790	50456.3	115.6339	169248.0	-191456.5	-238560.0	14.7553	-717367.7	42.4200
2000	34.8365	53927.3	117.4142	180901.1	-187985.5	-238387.5	13.3835	-717377.3	38.2943
2100	35.0658	57422.7	119.1195	192728.4	-184490.2	-238217.6	12.1437	-717362.5	34.5616
2200	35.2705	60939.7	120.7556	204722.7	-180973.2	-238050.9	11.0169	-717326.3	31.1683
2300	35.4538	64476.1	122.3276	216877.4	-177436.8	-237889.5	9.9897	-717270.9	28.0703
[a]2400	35.6184	68029.8	123.8400	229186.2	-173883.0	-243083.6	9.0292	-717198.6	25.2308
2500	35.7668	71599.2	125.2971	241643.5	-170313.7	-242935.1	8.1443	-717111.2	22.6187
2600	35.9008	75182.7	126.7025	254243.9	-166730.2	-242790.4	7.3276	-717010.5	20.2078
2700	36.0222	78778.9	128.0598	266982.4	-163133.9	-242649.6	6.5722	-716897.9	17.9758
2800	36.1325	82386.8	129.3718	279854.4	-159526.1	-242514.2	5.8707	-716775.0	15.9037
2900	36.2329	86005.1	130.6415	292855.4	-155907.7	-242383.9	5.2182	-716642.8	13.9747
3000	36.3245	89633.1	131.8715	305981.3	-152279.8	-242260.0	4.6097	-716502.6	12.1747
3100	36.4084	93269.8	133.0639	319228.4	-148643.1	-242142.9	4.0406	-716355.5	10.4912
3200	36.4853	96914.5	134.2211	332593.0	-144998.3	-242032.8	3.5070	-716202.3	8.9132
3300	36.5559	100566.6	135.3449	346071.5	-141346.2	-241927.9	3.0065	-716043.9	7.4312
3400	36.6210	104225.5	136.4372	359660.9	-137687.3	-241832.1	2.5353	-715881.1	6.0367
3500	36.6810	107890.7	137.4996	373358.0	-134022.2	-241744.7	2.0910	-715714.6	4.7221
3600	36.7365	111561.6	138.5337	387159.9	-130351.3	-241662.4	1.6722	-715545.2	3.4809
3700	36.7879	115237.8	139.5410	401063.8	-126675.0	-241587.3	1.2756	-715373.3	2.3071
3800	36.8356	118919.0	140.5227	415067.2	-122993.8	-241522.6	0.9003	-715199.7	1.1953
3900	36.8799	122604.8	141.4801	429167.5	-119308.0	-241461.5	0.5436	-715024.7	0.1407
4000	36.9212	126294.9	142.4143	443362.5	-115617.9	-241409.5	0.2059	-714848.9	-0.8608
4100	36.9596	129989.0	143.3265	457649.7	-111923.9	-241363.0	-0.1162	-714672.8	-1.8133
4200	36.9955	133686.8	144.2176	472027.0	-108226.1	-241325.4	-0.4218	-714496.6	-2.7201
4300	37.0291	137388.0	145.0885	486492.5	-104524.9	-241294.1	-0.7140	-714320.8	-3.5846
4400	37.0605	141092.5	145.9401	501044.1	-100820.4	-241271.5	-0.9927	-714145.8	-4.4096
4500	37.0900	144800.0	146.7733	515679.9	-97112.8	-241253.6	-1.2591	-713971.7	-5.1978
4600	37.1176	148510.4	147.5888	530398.2	-93402.4	-241244.1	-1.5139	-713799.0	-5.9514
4700	37.1436	152223.5	148.3874	545197.1	-89689.3	-241241.6	-1.7579	-713627.9	-6.6729
4800	37.1681	155939.1	149.1696	560075.1	-85973.7	-241247.3	-1.9914	-713458.5	-7.3641
4900	37.1911	159657.1	149.9363	575030.5	-82255.8	-241259.7	-2.2157	-713291.2	-8.0269
5000	37.2129	163377.3	150.6878	590061.9	-78535.6	-241277.2	-2.4311	-713126.1	-8.6631
5100	37.2334	167099.6	151.4249	605167.6	-74813.2	-241302.5	-2.6375	-712963.5	-9.2742
5200	37.2528	170823.9	152.1481	620346.4	-71088.9	-241334.0	-2.8366	-712803.4	-9.8617
5300	37.2711	174550.2	152.8579	635596.8	-67362.7	-241373.1	-3.0284	-712646.0	-10.4268
5400	37.2885	178278.1	153.5548	650917.5	-63634.7	-241418.2	-3.2121	-712491.5	-10.9709
5500	37.3050	182007.8	154.2391	666307.3	-59905.0	-241470.7	-3.3902	-712340.1	-11.4951
5600	37.3206	185739.1	154.9114	681765.0	-56173.8	-241528.8	-3.5614	-712191.7	-12.0005
5700	37.3354	189471.9	155.5721	697289.2	-52440.9	-241592.3	-3.7267	-712046.6	-12.4881
5800	37.3495	193206.2	156.2216	712879.0	-48706.7	-241663.0	-3.8867	-711904.9	-12.9587
5900	37.3630	196941.8	156.8602	728533.2	-44971.1	-241740.5	-4.0407	-711766.5	-13.4133
6000	37.3757	200678.7	157.4882	744250.7	-41234.1	-241823.1	-4.1905	-711631.7	-13.8527

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(98) $(HBO_2)_3$ (gas); molecular weight, 131.484

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-547635.0	-537500.0	-------	-1447646.5	--------
100	12.3189	910.6	60.1207	5101.5	-546724.4	-539826.7	1157.6843	-1452965.8	3111.0067
200	23.1482	2678.3	71.9397	11709.6	-544956.7	-541290.3	567.1504	-1457527.2	1521.3219
298.15	32.8080	5440.5	83.0481	19320.2	-542194.5	-542194.5	372.2895	-1460827.6	996.4851
300	32.9696	5501.4	83.2515	19474.1	-542133.6	-542206.4	369.8379	-1460880.0	989.8819
400	40.4772	9193.6	93.8216	28335.0	-538441.4	-542665.8	271.0473	-1463276.8	723.6225
500	45.8341	13524.7	103.4640	38207.2	-534110.3	-542802.9	211.7406	-1464990.0	563.6389
600	49.6336	18308.6	112.1755	48996.7	-529326.4	-542717.8	172.2015	-1466225.4	456.8749
700	52.4052	23417.4	120.0452	60614.3	-524217.6	-542496.2	143.9677	-1467120.7	380.5592
800	54.5096	28767.6	127.1863	72981.5	-518867.4	-542190.3	122.8015	-1467764.5	323.2923
900	56.1704	34304.6	133.7061	86030.8	-513330.4	-541845.2	106.3501	-1468214.7	278.7347
1000	57.5225	39991.4	139.6965	99705.0	-507643.6	-541479.5	93.1978	-1468510.2	243.0796
1100	58.6487	45801.6	145.2333	113955.0	-501833.4	-541111.7	82.4433	-1468678.8	213.9025
1200	59.6020	51715.4	150.3784	128738.7	-495919.6	-540753.5	73.4875	-1468741.0	189.5864
1300	60.4183	57717.5	155.1822	144019.4	-489917.5	-540406.2	65.9151	-1468712.8	169.0110
1400	61.1230	63795.4	159.6861	159765.1	-483839.6	-540068.6	59.4270	-1468607.1	151.3758
1500	61.7354	69939.0	163.9245	175947.7	-477696.0	-539740.1	53.8085	-1468434.3	136.0934
1600	62.2704	76139.9	167.9263	192542.1	-471495.1	-539420.5	48.8958	-1468203.2	122.7231
1700	62.7398	82390.9	171.7158	209525.9	-465244.1	-539110.9	44.5629	-1467921.1	110.9278
1800	63.1535	88686.0	175.3138	226878.9	-458949.0	-538812.6	40.7138	-1467594.3	100.4453
1900	63.5193	95020.0	178.7384	244582.9	-452615.0	-538529.7	37.2718	-1467228.2	91.0685
2000	63.8441	101388.5	182.0049	262621.3	-446246.5	-538261.3	34.1753	-1466827.3	82.6315
2100	64.1333	107787.6	185.1270	280979.1	-439847.4	-538009.0	31.3753	-1466395.8	75.0002
2200	64.3918	114214.1	188.1166	299642.3	-433420.9	-537772.4	28.8304	-1465937.2	68.0648
2300	64.6235	120665.1	190.9841	318598.3	-426969.9	-537553.3	26.5090	-1465454.6	61.7345
[a] 2400	64.8319	127138.1	193.7389	337835.3	-420496.9	-553401.7	24.3252	-1464950.8	55.9337
2500	65.0198	133630.8	196.3894	357342.6	-414004.2	-553220.9	22.3101	-1464428.5	50.5988
2600	65.1897	140141.4	198.9429	377110.0	-407493.6	-553048.1	20.4503	-1463889.8	45.6761
2700	65.3438	146668.2	201.4061	397128.2	-400966.7	-552883.5	18.7292	-1463336.7	41.1197
2800	65.4839	153209.7	203.7851	417388.4	-394425.3	-552728.8	17.1307	-1462771.4	36.8904
2900	65.6115	159764.6	206.0852	437882.5	-387870.4	-552583.9	15.6434	-1462195.4	32.9543
3000	65.7281	166331.7	208.3116	458603.0	-381303.3	-552450.0	14.2555	-1461610.2	29.2820
3100	65.8349	172909.9	210.4685	479542.6	-374725.1	-552327.4	12.9578	-1461017.5	25.8481
3200	65.9329	179498.4	212.5603	500694.5	-368136.6	-552216.5	11.7405	-1460418.7	22.6301
3300	66.0230	186096.2	214.5905	522052.5	-361538.8	-552115.3	10.5984	-1459814.8	19.6084
3400	66.1061	192702.7	216.5628	543610.7	-354932.2	-552027.7	9.5230	-1459207.1	16.7656
3500	66.1827	199317.2	218.4802	565363.3	-348317.8	-551952.9	8.5088	-1458596.7	14.0864
3600	66.2536	205939.1	220.3456	587305.0	-341695.9	-551887.5	7.5520	-1457984.6	11.5571
3700	66.3193	212567.8	222.1618	609430.8	-335067.2	-551833.4	6.6467	-1457371.7	9.1655
3800	66.3803	219202.8	223.9312	631735.8	-328432.2	-551793.8	5.7891	-1456759.0	6.9007
3900	66.4370	225843.7	225.6562	654215.5	-321791.3	-551761.7	4.9748	-1456147.1	4.7530
4000	66.4898	232490.1	227.3389	676865.6	-315144.9	-551742.5	4.2023	-1455536.9	2.7135
4100	66.5391	239141.6	228.9814	699682.0	-308493.4	-551732.4	3.4667	-1454929.1	0.7743
4200	66.5851	245797.8	230.5853	722660.6	-301837.2	-551734.7	2.7671	-1454324.3	-1.0718
4300	66.6281	252458.5	232.1526	745797.8	-295176.5	-551746.8	2.0990	-1453723.2	-2.8313
4400	66.6684	259123.4	233.6848	769090.0	-288511.6	-551771.0	1.4619	-1453126.2	-4.5101
4500	66.7062	265792.1	235.1835	792533.7	-281842.9	-551802.9	0.8530	-1452534.0	-6.1136
4600	66.7417	272464.5	236.6500	816125.6	-275170.5	-551846.4	0.2702	-1451947.0	-7.6468
4700	66.7751	279140.4	238.0858	839862.6	-268494.6	-551899.9	-0.2880	-1451365.7	-9.1142
4800	66.8065	285819.5	239.4919	863741.8	-261815.5	-551964.4	-0.8226	-1450790.5	-10.5198
4900	66.8361	292501.6	240.8697	887760.1	-255133.4	-552038.5	-1.3353	-1450221.9	-11.8676
5000	66.8640	299186.7	242.2203	911914.8	-248448.3	-552120.4	-1.8281	-1449660.1	-13.1609
5100	66.8904	305874.4	243.5446	936203.2	-241760.6	-552212.7	-2.3008	-1449105.5	-14.4031
5200	66.9153	312564.7	244.8438	960622.9	-235070.3	-552313.8	-2.7563	-1448558.6	-15.5970
5300	66.9389	319257.4	246.1186	985171.2	-228377.6	-552425.0	-3.1948	-1448019.5	-16.7454
5400	66.9613	325952.5	247.3701	1009845.8	-221682.5	-552544.6	-3.6160	-1447488.6	-17.8509
5500	66.9825	332649.7	248.5989	1034644.5	-214985.3	-552674.0	-4.0231	-1446966.1	-18.9158
5600	67.0026	339348.9	249.8060	1059564.9	-208286.1	-552811.3	-4.4151	-1446452.4	-19.9423
5700	67.0217	346050.1	250.9921	1084605.0	-201584.9	-552956.3	-4.7932	-1445947.6	-20.9325
5800	67.0398	352753.2	252.1579	1109762.6	-194881.8	-553110.6	-5.1594	-1445451.9	-21.8881
5900	67.0571	359458.1	253.3041	1135035.9	-188176.9	-553274.0	-5.5122	-1444965.7	-22.8111
6000	67.0735	366164.6	254.4312	1160422.8	-181470.4	-553444.6	-5.8543	-1444489.0	-23.7030

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of B, 2313° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(99) HCN (gas); molecular weight, 27.027

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	28982.1	31281.4	-------	-302916.3	--------
100	6.9707	694.3	40.0328	3309.0	29676.4	31234.7	-66.3968	-303785.9	653.9694
200	7.5608	1414.0	44.9974	7585.5	30396.1	31227.3	-32.2640	-304562.4	321.6899
298.15	8.5701	2207.4	48.2117	12167.0	31189.5	31189.5	-21.0366	-305233.7	212.0274
300	8.5871	2223.2	48.2648	12256.2	31205.4	31188.9	-20.8958	-305245.5	210.6477
400	9.3760	3123.4	50.8491	17216.2	32105.6	31146.1	-15.2194	-305836.6	155.0077
500	9.9737	4092.1	53.0080	22411.9	33074.2	31095.2	-11.8184	-306359.0	121.5621
600	10.4699	5114.9	54.8714	27808.0	34097.0	31034.2	-9.5552	-306827.0	99.2286
700	10.9094	6184.2	56.5189	33379.1	35166.3	30964.8	-7.9422	-307248.4	83.2528
800	11.3089	7295.4	58.0022	39106.3	36277.5	30891.6	-6.7351	-307627.8	71.2553
900	11.6735	8444.8	59.3559	44975.2	37426.9	30819.1	-5.7985	-307969.0	61.9129
1000	12.0050	9629.0	60.6029	50973.9	38611.1	30750.3	-5.0508	-308275.4	54.4311
1100	12.3046	10844.8	61.7614	57092.8	39826.9	30686.3	-4.4406	-308550.2	48.3038
1200	12.5740	12088.9	62.8438	63323.7	41071.1	30626.7	-3.9331	-308796.6	43.1934
1300	12.8153	13358.6	63.8600	69659.4	42340.7	30570.2	-3.5043	-309017.6	38.8660
1400	13.0311	14651.1	64.8177	76093.7	43633.3	30516.1	-3.1378	-309215.8	35.1542
1500	13.2239	15964.1	65.7235	82621.2	44946.2	30463.5	-2.8204	-309393.9	31.9354
1600	13.3963	17295.2	66.5826	89236.8	46277.4	30412.4	-2.5432	-309554.0	29.1174
1700	13.5505	18642.7	67.3994	95936.3	47624.9	30362.6	-2.2990	-309698.2	26.6297
1800	13.6888	20004.8	68.1779	102715.5	48986.9	30313.9	-2.0823	-309828.4	24.4174
1900	13.8132	21380.0	68.9214	109570.7	50362.2	30264.9	-1.8887	-309946.3	22.4373
2000	13.9252	22767.0	69.6329	116498.7	51749.2	30215.7	-1.7149	-310053.3	20.6544
2100	14.0265	24164.7	70.3148	123496.3	53146.8	30166.0	-1.5578	-310150.7	19.0409
2200	14.1183	25572.0	70.9694	130560.7	54554.1	30116.0	-1.4153	-310239.7	17.5736
2300	14.2017	26988.1	71.5989	137689.3	55970.2	30065.4	-1.2851	-310321.5	16.2335
2400	14.2777	28412.1	72.2049	144879.7	57394.2	30014.2	-1.1664	-310396.9	15.0047
2500	14.3473	29843.4	72.7892	152129.6	58825.5	29962.5	-1.0571	-310466.9	13.8741
2600	14.4110	31281.4	73.3532	159436.9	60263.5	29910.1	-0.9565	-310532.3	12.8301
2700	14.4696	32725.4	73.8982	166799.6	61707.6	29857.0	-0.8634	-310593.7	11.8633
2800	14.5236	34175.1	74.4254	174215.9	63157.3	29803.0	-0.7772	-310651.9	10.9654
2900	14.5734	35630.0	74.9359	181684.1	64612.2	29748.2	-0.6971	-310707.5	10.1292
3000	14.6195	37089.7	75.4308	189202.6	66071.8	29692.2	-0.6223	-310761.0	9.3487
3100	14.6623	38553.8	75.9108	196769.8	67535.9	29634.8	-0.5527	-310813.1	8.6184
3200	14.7021	40022.1	76.3770	204384.3	69004.2	29576.0	-0.4875	-310864.0	7.9336
3300	14.7390	41494.1	76.8300	212044.7	70476.3	29516.5	-0.4263	-310914.5	7.2902
3400	14.7735	42969.8	77.2705	219749.9	71951.9	29455.0	-0.3689	-310964.8	6.6846
3500	14.8056	44448.8	77.6992	227498.4	73430.9	29391.9	-0.3149	-311015.4	6.1134
3600	14.8356	45930.8	78.1167	235289.3	74912.0	29327.9	-0.2638	-311066.8	5.5739
3700	14.8636	47415.8	78.5236	243121.4	76397.9	29262.5	-0.2158	-311119.2	5.0635
3800	14.8899	48903.5	78.9203	250993.7	77885.6	29194.4	-0.1704	-311173.1	4.5799
3900	14.9144	50393.7	79.3074	258905.2	79375.9	29125.9	-0.1276	-311228.7	4.1210
4000	14.9373	51886.3	79.6853	266854.9	80868.5	29055.1	-0.0866	-311286.4	3.6850
4100	14.9588	53381.1	80.0544	274841.9	82363.3			-311346.5	3.2701
4200	14.9788	54878.0	80.4151	282865.5	83860.2			-311409.2	2.8750
4300	14.9975	56376.9	80.7678	290924.7	85359.0			-311474.9	2.4981
4400	15.0150	57877.5	81.1128	299018.8	86859.6			-311543.8	2.1383
4500	15.0313	59379.8	81.4504	307147.0	88361.9			-311616.1	1.7944
4600	15.0464	60883.7	81.7809	315308.6	89865.8			-311692.1	1.4654
4700	15.0604	62389.1	82.1047	323503.0	91371.2			-311771.9	1.1502
4800	15.0734	63895.8	82.4219	331729.3	92877.9			-311855.8	0.8482
4900	15.0854	65403.7	82.7328	339987.1	94385.8			-311943.9	0.5584
5000	15.0964	66912.8	83.0377	348275.7	95894.9			-312036.5	0.2801
5100	15.1064	68422.9	83.3368	356594.5	97405.1			-312133.5	0.0126
5200	15.1155	69934.0	83.6302	364942.9	98916.2			-312235.2	-0.2446
5300	15.1236	71446.0	83.9182	373320.3	100428.1			-312341.8	-0.4923
5400	15.1309	72958.7	84.2009	381726.3	101940.9			-312453.2	-0.7308
5500	15.1373	74472.2	84.4786	390160.3	103454.3			-312569.6	-0.9608
5600	15.1429	75986.2	84.7514	398621.9	104968.3			-312691.2	-1.1826
5700	15.1476	77500.7	85.0195	407110.5	106482.8			-312817.9	-1.3967
5800	15.1514	79015.7	85.2830	415625.6	107997.8			-312949.8	-1.6035
5900	15.1545	80531.0	85.5420	424166.9	109513.1			-313087.0	-1.8034
6000	15.1567	82046.5	85.7967	432733.9	111028.7			-313229.6	-1.9968

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(100) HCO (gas); molecular weight, 29.019

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-5611.5	-3311.0	-------	-283915.7	--------
100	7.9491	794.9	44.9204	3697.1	-4816.6	-3257.1	9.6969	-284715.4	613.0815
200	7.9995	1591.1	50.4375	8496.4	-4020.4	-3188.0	6.1778	-285476.0	301.6496
298.15	8.2643	2387.4	53.6735	13615.3	-3224.1	-3224.1	5.0281	-286179.4	198.8493
300	8.2713	2402.7	53.7246	13714.7	-3208.8	-3225.4	5.0133	-286192.2	197.5557
400	8.7035	3250.7	56.1611	19213.8	-2360.8	-3326.8	4.4182	-286856.7	145.3799
500	9.1842	4144.9	58.1546	24932.4	-1466.6	-3466.4	4.0479	-287467.1	114.0039
600	9.6598	5087.3	59.8714	30835.5	-524.2	-3628.8	3.7900	-288025.1	93.0435
700	10.1079	6076.0	61.3946	36900.2	464.5	-3804.3	3.5968	-288534.2	78.0439
800	10.5186	7107.6	62.7715	43109.6	1496.1	-3984.2	3.4450	-288998.5	66.7751
900	10.8880	8178.3	64.0322	49450.7	2566.8	-4162.9	3.3216	-289422.6	57.9969
1000	11.2161	9283.9	65.1967	55912.8	3672.4	-4337.0	3.2186	-289811.1	50.9645
1100	11.5050	10420.2	66.2795	62487.3	4808.7	-4505.8	3.1307	-290168.1	45.2033
1200	11.7581	11583.7	67.2917	69166.4	5972.2	-4670.2	3.0548	-290497.6	40.3966
1300	11.9793	12770.8	68.2418	75943.5	7159.3	-4832.0	2.9883	-290803.1	36.3249
1400	12.1723	13978.6	69.1368	82812.9	8367.1	-4992.5	2.9291	-291087.8	32.8313
1500	12.3410	15204.4	69.9825	89769.3	9592.9	-5153.1	2.8764	-291354.4	29.8007
1600	12.4886	16446.1	70.7837	96807.9	10834.6	-5314.1	2.8289	-291605.4	27.1466
1700	12.6181	17701.5	71.5448	103924.7	12090.0	-5476.1	2.7856	-291842.8	24.8027
1800	12.7319	18969.2	72.2694	111115.7	13357.7	-5639.6	2.7459	-292068.6	22.7176
1900	12.8324	20247.5	72.9609	118377.4	14636.0	-5806.1	2.7094	-292284.3	20.8506
2000	12.9213	21535.3	73.6210	125706.7	15923.8	-5975.9	2.6754	-292491.4	19.1691
2100	13.0002	22831.4	74.2534	133100.7	17219.9	-6149.3	2.6439	-292691.2	17.6467
2200	13.0706	24135.0	74.8598	140556.6	18523.5	-6326.0	2.6143	-292884.8	16.2617
2300	13.1334	25445.3	75.4422	148071.8	19833.8	-6506.7	2.5868	-293073.1	14.9963
2400	13.1897	26761.5	76.0024	155644.3	21150.0	-6691.3	2.5605	-293257.0	13.8357
2500	13.2404	28083.0	76.5419	163271.6	22471.5	-6879.8	2.5358	-293437.4	12.7672
2600	13.2861	29409.4	77.0621	170952.0	23797.9	-7072.2	2.5123	-293614.9	11.7803
2700	13.3274	30740.1	77.5643	178683.4	25128.6	-7268.5	2.4901	-293790.1	10.8660
2800	13.3648	32074.7	78.0497	186464.3	26463.2	-7469.1	2.4687	-293963.6	10.0165
2900	13.3989	33413.0	78.5192	194292.9	27801.5	-7673.6	2.4483	-294135.8	9.2251
3000	13.4300	34754.4	78.9740	202167.6	29142.9	-7882.5	2.4289	-294307.1	8.4860
3100	13.4584	36098.9	79.4149	210087.2	30487.4	-8095.7	2.4101	-294477.9	7.7943
3200	13.4844	37446.0	79.8426	218050.2	31834.5	-8313.3	2.3920	-294648.6	7.1453
3300	13.5082	38795.7	80.2579	226055.3	33184.2	-8534.4	2.3746	-294819.3	6.5354
3400	13.5302	40147.6	80.6615	234101.4	34536.1	-8760.3	2.3578	-294990.4	5.9610
3500	13.5504	41501.7	81.0540	242187.2	35890.2	-8990.5	2.3414	-295162.1	5.4191
3600	13.5691	42857.6	81.4360	250311.8	37246.1	-9224.1	2.3257	-295334.5	4.9070
3700	13.5865	44215.4	81.8080	258474.1	38603.9	-9461.6	2.3103	-295507.8	4.4223
3800	13.6025	45574.9	82.1709	266673.1	39963.4	-9704.1	2.2955	-295682.2	3.9628
3900	13.6174	46935.9	82.5240	274907.9	41324.4	-9949.2	2.2808	-295857.7	3.5267
4000	13.6313	48298.3	82.8690	283177.6	42686.8	-10198.7	2.2669	-296034.4	3.1121
4100	13.6442	49662.1	83.2057	291481.4	44050.6			-296212.4	2.7175
4200	13.6562	51027.2	83.5347	299818.5	45415.7			-296391.7	2.3415
4300	13.6675	52393.3	83.8561	308188.1	46781.8			-296572.5	1.9827
4400	13.6780	53760.6	84.1705	316589.5	48149.1			-296754.7	1.6400
4500	13.6879	55128.9	84.4780	325022.0	49517.4			-296938.3	1.3124
4600	13.6972	56498.2	84.7789	333484.9	50886.7			-297123.5	0.9988
4700	13.7059	57868.4	85.0736	341977.5	52256.9			-297310.1	0.6984
4800	13.7141	59239.4	85.3622	350499.4	53627.9			-297498.2	0.4103
4900	13.7218	60611.2	85.6451	359049.8	54999.7			-297687.8	0.1338
5000	13.7291	61983.7	85.9224	367628.2	56372.2			-297878.8	-0.1318
5100	13.7360	63357.0	86.1943	376234.1	57745.5			-298071.3	-0.3872
5200	13.7424	64730.9	86.4611	384866.9	59119.4			-298265.2	-0.6329
5300	13.7486	66105.4	86.7229	393526.1	60493.9			-298460.4	-0.8695
5400	13.7544	67480.6	86.9800	402211.3	61869.1			-298657.1	-1.0975
5500	13.7599	68856.3	87.2324	410922.0	63244.8			-298855.1	-1.3173
5600	13.7651	70232.6	87.4804	419657.7	64621.1			-299054.5	-1.5294
5700	13.7701	71609.3	87.7241	428417.9	65997.8			-299255.1	-1.7343
5800	13.7748	72986.6	87.9636	437202.3	67375.1			-299457.0	-1.9321
5900	13.7793	74364.3	88.1991	446010.5	68752.8			-299660.1	-2.1234
6000	13.7835	75742.4	88.4307	454842.0	70130.9			-299864.4	-2.3085

C-3

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(101) HCl (gas); molecular weight, 36.465

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-24128.0	-22019.3	-------	-102196.1	--------
100	6.9592	685.6	37.0416	3018.5	-23442.3	-22061.2	48.7088	-102504.1	219.8861
200	6.9610	1381.6	41.8658	6991.5	-22746.4	-22029.4	24.6235	-102804.0	107.7541
298.15	6.9639	2065.0	44.6457	11246.1	-22063.0	-22063.0	16.6956	-103111.4	70.7268
300	6.9639	2077.9	44.6887	11328.8	-22050.1	-22064.0	16.5957	-103117.4	70.2608
400	6.9730	2774.6	46.6931	15902.6	-21353.4	-22129.2	12.5722	-103447.7	51.4544
500	7.0038	3473.2	48.2518	20652.7	-20654.8	-22206.9	10.1504	-103786.9	40.1336
600	7.0687	4176.5	49.5340	25543.9	-19951.5	-22288.0	8.5300	-104124.8	32.5615
700	7.1669	4888.0	50.6306	30553.4	-19239.9	-22366.8	7.3682	-104453.7	27.1354
800	7.2888	5610.7	51.5954	35665.6	-18517.3	-22439.6	6.4940	-104768.6	23.0532
900	7.4230	6346.2	52.4615	40869.2	-17781.8	-22504.9	5.8120	-105066.9	19.8688
1000	7.5601	7095.4	53.2507	46155.4	-17032.6	-22562.0	5.2650	-105347.8	17.3142
1100	7.6937	7858.1	53.9776	51517.2	-16269.9	-22611.3	4.8162	-105611.6	15.2187
1200	7.8200	8633.9	54.6525	56949.1	-15494.1	-22653.6	4.4415	-105859.0	13.4682
1300	7.9372	9421.8	55.2831	62446.3	-14706.2	-22690.0	4.1239	-106091.3	11.9836
1400	8.0447	10221.0	55.8753	68004.5	-13907.0	-22721.4	3.8511	-106309.8	10.7084
1500	8.1425	11030.4	56.4338	73620.2	-13097.5	-22749.1	3.6145	-106515.7	9.6010
1600	8.2314	11849.2	56.9621	79290.2	-12278.8	-22773.5	3.4074	-106710.4	8.6302
1700	8.3120	12676.4	57.4636	85011.7	-11451.5	-22795.1	3.2243	-106894.7	7.7721
1800	8.3850	13511.3	57.9408	90782.2	-10616.6	-22814.4	3.0615	-107069.9	7.0081
1900	8.4514	14353.2	58.3960	96599.2	-9774.8	-22832.6	2.9157	-107236.7	6.3234
2000	8.5118	15201.4	58.8310	102460.7	-8926.6	-22849.7	2.7842	-107395.9	5.7062
2100	8.5669	16055.4	59.2477	108364.8	-8072.6	-22866.1	2.6653	-107548.3	5.1470
2200	8.6174	16914.6	59.6474	114309.7	-7213.3	-22881.7	2.5570	-107694.5	4.6379
2300	8.6637	17778.7	60.0315	120293.7	-6349.3	-22897.3	2.4583	-107834.9	4.1725
2400	8.7065	18647.3	60.4011	126315.5	-5480.7	-22912.5	2.3675	-107970.2	3.7453
2500	8.7460	19519.9	60.7574	132373.5	-4608.1	-22927.8	2.2841	-108100.6	3.3518
2600	8.7827	20396.4	61.1011	138466.5	-3731.6	-22943.3	2.2069	-108226.6	2.9881
2700	8.8168	21276.4	61.4332	144593.4	-2851.6	-22958.8	2.1355	-108348.4	2.6510
2800	8.8487	22159.7	61.7545	150752.8	-1968.3	-22974.9	2.0691	-108466.5	2.3376
2900	8.8787	23046.0	62.0655	156943.9	-1081.9	-22991.3	2.0072	-108581.0	2.0456
3000	8.9068	23935.3	62.3670	163165.6	-192.6	-23008.3	1.9496	-108692.2	1.7727
3100	8.9333	24827.3	62.6595	169417.0	699.4	-23026.1	1.8954	-108800.2	1.5171
3200	8.9585	25721.9	62.9435	175697.2	1594.0	-23044.7	1.8446	-108905.3	1.2773
3300	8.9823	26619.0	63.2195	182005.4	2491.0	-23063.5	1.7970	-109007.6	1.0518
3400	9.0050	27518.4	63.4880	188340.9	3390.4	-23083.9	1.7520	-109107.3	0.8394
3500	9.0266	28420.0	63.7494	194702.8	4292.0	-23105.4	1.7095	-109204.5	0.6390
3600	9.0473	29323.7	64.0039	201090.5	5195.7	-23127.2	1.6696	-109299.3	0.4495
3700	9.0672	30229.4	64.2521	207503.4	6101.4	-23149.9	1.6315	-109391.8	0.2701
3800	9.0862	31137.1	64.4942	213940.7	7009.1	-23174.6	1.5956	-109482.2	0.1000
3900	9.1046	32046.6	64.7304	220402.0	7918.6	-23199.1	1.5612	-109570.5	-0.0615
4000	9.1223	32958.0	64.9611	226886.6	8830.0	-23225.1	1.5288	-109656.8	-0.2151
4100	9.1395	33871.1	65.1866	233394.1	9743.1	-23251.6	1.4977	-109741.1	-0.3613
4200	9.1561	34785.8	65.4071	239923.8	10657.9	-23279.8	1.4684	-109823.6	-0.5006
4300	9.1722	35702.3	65.6227	246475.3	11574.3	-23308.7	1.4402	-109904.3	-0.6335
4400	9.1879	36620.3	65.8337	253048.2	12492.3	-23339.3	1.4133	-109983.3	-0.7605
4500	9.2031	37539.8	66.0404	259641.9	13411.8	-23370.1	1.3874	-110060.6	-0.8820
4600	9.2180	38460.9	66.2428	266256.1	14332.9	-23402.6	1.3627	-110136.3	-0.9982
4700	9.2325	39383.4	66.4412	272890.3	15255.4	-23436.1	1.3390	-110210.3	-1.1096
4800	9.2467	40307.4	66.6357	279544.2	16179.4	-23471.3	1.3164	-110282.8	-1.2164
4900	9.2606	41232.7	66.8266	286217.4	17104.8	-23507.5	1.2945	-110353.8	-1.3189
5000	9.2742	42159.5	67.0138	292909.4	18031.5	-23544.3	1.2735	-110423.3	-1.4173
5100	9.2876	43087.6	67.1976	299620.0	18959.6	-23582.6	1.2533	-110491.4	-1.5120
5200	9.3007	44017.0	67.3780	306348.8	19889.0	-23621.9	1.2338	-110558.1	-1.6031
5300	9.3136	44947.7	67.5553	313095.5	20819.7	-23662.6	1.2150	-110623.3	-1.6908
5400	9.3263	45879.7	67.7295	319859.8	21751.7	-23704.3	1.1971	-110687.2	-1.7753
5500	9.3388	46813.0	67.9008	326641.3	22685.0	-23747.5	1.1795	-110749.8	-1.8567
5600	9.3512	47747.5	68.0692	333439.8	23619.5	-23791.5	1.1627	-110811.0	-1.9353
5700	9.3633	48683.2	68.2348	340255.1	24555.2	-23836.3	1.1464	-110871.0	-2.0112
5800	9.3753	49620.1	68.3977	347086.7	25492.2	-23882.5	1.1305	-110929.7	-2.0845
5900	9.3872	50558.3	68.5581	353934.5	26430.3	-23930.0	1.1153	-110987.1	-2.1554
6000	9.3989	51497.6	68.7160	360798.2	27369.6	-23978.3	1.1004	-111043.3	-2.2239

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(102) HF (gas); molecular weight, 20.008

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T° cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-66855.3	-64788.6	--------	-134772.0	--------
100	6.9627	675.7	33.9034	2714.7	-66179.6	-64839.8	141.9980	-135091.7	290.8188
200	6.9622	1371.9	38.7290	6373.9	-65483.4	-64795.0	71.1721	-135418.1	143.0699
298.15	6.9645	2055.3	41.5092	10320.7	-64800.0	-64800.0	47.8650	-135755.9	94.3057
300	6.9645	2068.2	41.5523	10397.5	-64787.1	-64800.4	47.5720	-135762.3	93.6921
400	6.9675	2764.8	43.5563	14657.7	-64090.5	-64836.2	35.7681	-136102.6	68.9394
500	6.9731	3461.8	45.1115	19094.0	-63393.5	-64891.2	28.6809	-136434.6	54.0507
600	6.9869	4159.7	46.3839	23670.7	-62695.6	-64959.0	23.9516	-136758.4	44.1008
700	7.0158	4859.7	47.4629	28364.4	-61995.6	-65035.3	20.5696	-137074.5	36.9770
800	7.0635	5563.5	48.4026	33158.6	-61291.8	-65116.3	18.0301	-137382.5	31.6219
900	7.1300	6273.0	49.2383	38041.4	-60582.3	-65199.7	16.0526	-137681.6	27.4476
1000	7.2119	6990.0	49.9936	43003.6	-59865.3	-65283.4	14.4685	-137970.7	24.1010
1100	7.3050	7715.7	50.6853	48038.0	-59139.6	-65365.7	13.1706	-138249.2	21.3572
1200	7.4048	8451.2	51.3251	53139.0	-58404.1	-65445.9	12.0878	-138516.4	19.0662
1300	7.5074	9196.8	51.9219	58301.6	-57658.5	-65523.4	11.1705	-138772.3	17.1239
1400	7.6100	9952.7	52.4820	63522.1	-56902.6	-65597.9	10.3830	-139016.9	15.4562
1500	7.7103	10718.7	53.0105	68797.0	-56136.6	-65669.7	9.7001	-139250.5	14.0083
1600	7.8071	11494.6	53.5112	74123.3	-55360.7	-65738.5	9.1019	-139473.5	12.7393
1700	7.8995	12280.0	53.9873	79498.4	-54575.3	-65804.4	8.5735	-139686.5	11.6178
1800	7.9871	13074.4	54.4413	84920.0	-53780.9	-65867.2	8.1033	-139890.0	10.6195
1900	8.0697	13877.2	54.8754	90386.0	-52978.1	-65928.0	7.6823	-140084.6	9.7250
2000	8.1473	14688.1	55.2913	95894.5	-52167.2	-65986.6	7.3028	-140270.9	8.9188
2100	8.2202	15506.5	55.6906	101443.7	-51348.7	-66043.2	6.9594	-140449.3	8.1885
2200	8.2886	16332.0	56.0746	107032.1	-50523.3	-66097.9	6.6468	-140620.3	7.5237
2300	8.3527	17164.1	56.4445	112658.2	-49691.2	-66151.2	6.3614	-140784.5	6.9160
2400	8.4130	18002.4	56.8012	118320.5	-48852.9	-66202.9	6.0992	-140942.3	6.3583
2500	8.4697	18846.6	57.1458	124018.0	-48008.7	-66253.3	5.8580	-141094.0	5.8447
2600	8.5232	19696.3	57.4791	129749.3	-47159.0	-66302.7	5.6351	-141240.1	5.3701
2700	8.5736	20551.1	57.8017	135513.5	-46304.2	-66351.0	5.4287	-141380.8	4.9302
2800	8.6214	21410.9	58.1144	141309.4	-45444.4	-66398.5	5.2368	-141516.5	4.5213
2900	8.6667	22275.3	58.4177	147136.0	-44580.0	-66445.2	5.0580	-141647.4	4.1402
3000	8.7098	23144.2	58.7123	152992.6	-43711.1	-66491.5	4.8912	-141773.8	3.7843
3100	8.7509	24017.2	58.9985	158878.2	-42838.1	-66537.5	4.7348	-141895.9	3.4510
3200	8.7903	24894.3	59.2770	164792.0	-41961.0	-66583.3	4.5882	-142013.8	3.1383
3300	8.8280	25775.2	59.5481	170733.4	-41080.1	-66628.2	4.4503	-142127.9	2.8442
3400	8.8643	26659.9	59.8121	176701.4	-40195.4	-66673.6	4.3205	-142238.1	2.5673
3500	8.8994	27548.1	60.0696	182695.6	-39307.2	-66719.4	4.1980	-142344.7	2.3060
3600	8.9334	28439.7	60.3208	188715.1	-38415.6	-66764.3	4.0823	-142447.8	2.0590
3700	8.9664	29334.7	60.5660	194759.5	-37520.6	-66809.3	3.9727	-142547.5	1.8252
3800	8.9985	30232.9	60.8056	200828.1	-36622.4	-66855.2	3.8688	-142643.9	1.6036
3900	9.0299	31134.4	61.0397	206920.5	-35720.9	-66900.1	3.7700	-142737.0	1.3932
4000	9.0608	32038.9	61.2687	213035.9	-34816.4	-66945.5	3.6765	-142827.0	1.1931
4100	9.0911	32946.5	61.4928	219174.0	-33908.8	-66990.5	3.5871	-142913.9	1.0028
4200	9.1211	33857.1	61.7122	225334.3	-32998.2	-67036.2	3.5023	-142997.8	0.8213
4300	9.1508	34770.7	61.9272	231516.3	-32084.6	-67081.6	3.4211	-143078.6	0.6482
4400	9.1803	35687.3	62.1379	237719.6	-31168.0	-67127.6	3.3436	-143156.4	0.4829
4500	9.2098	36606.8	62.3446	243943.8	-30248.5	-67172.9	3.2694	-143231.3	0.3249
4600	9.2394	37529.2	62.5473	250188.4	-29326.1	-67218.7	3.1984	-143303.1	0.1736
4700	9.2691	38454.6	62.7463	256453.1	-28400.7	-67264.5	3.1304	-143372.0	0.0287
4800	9.2992	39383.0	62.9418	262737.6	-27472.3	-67310.6	3.0653	-143437.9	-0.1102
4900	9.3297	40314.5	63.1338	269041.4	-26540.8	-67356.6	3.0027	-143500.7	-0.2435
5000	9.3607	41249.0	63.3226	275364.2	-25606.3	-67401.8	2.9426	-143560.4	-0.3715
5100	9.3925	42186.7	63.5083	281705.8	-24668.6	-67447.0	2.8848	-143616.9	-0.4946
5200	9.4252	43127.5	63.6910	288065.8	-23727.8	-67491.6	2.8292	-143670.2	-0.6129
5300	9.4589	44071.7	63.8709	294443.9	-22783.6	-67536.1	2.7755	-143720.2	-0.7269
5400	9.4938	45019.4	64.0480	300839.9	-21835.9	-67579.7	2.7241	-143766.7	-0.8366
5500	9.5301	45970.5	64.2225	307253.4	-20884.8	-67622.8	2.6743	-143809.6	-0.9424
5600	9.5680	46925.4	64.3946	313684.3	-19929.9	-67664.7	2.6263	-143848.8	-1.0445
5700	9.6077	47884.2	64.5643	320132.2	-18971.1	-67705.0	2.5800	-143884.1	-1.1430
5800	9.6494	48847.0	64.7317	326597.1	-18008.3	-67744.2	2.5351	-143915.4	-1.2381
5900	9.6934	49814.1	64.8971	333078.5	-17041.2	-67782.0	2.4920	-143942.3	-1.3300
6000	9.7399	50785.8	65.0604	339576.4	-16069.5	-67817.6	2.4499	-143964.7	-1.4189

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(103) H_2O (gas); molecular weight, 18.016

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-60164.7	-57103.5	--------	-219346.8	--------
100	7.9606	786.1	36.3959	2853.4	-59378.5	-57423.1	123.5929	-220081.8	472.2236
200	7.9694	1582.5	41.9157	6800.6	-58582.1	-57577.4	60.7914	-220836.4	231.4202
298.15	8.0256	2366.8	45.1054	11081.4	-57797.9	-57797.9	40.0471	-221550.1	151.8705
300	8.0276	2381.6	45.1550	11164.9	-57783.0	-57802.3	39.7856	-221563.3	150.8691
400	8.1864	3191.5	47.4839	15802.0	-56973.1	-58042.1	29.2388	-222264.9	110.4607
500	8.4161	4021.3	49.3344	20645.9	-56143.4	-58276.5	22.8848	-222939.3	86.1395
600	8.6779	4875.8	50.8917	25659.2	-55288.9	-58499.6	18.6320	-223584.8	69.8769
700	8.9571	5757.4	52.2502	30817.7	-54407.3	-58709.1	15.5827	-224200.6	58.2277
800	9.2496	6667.7	53.4652	36104.5	-53497.0	-58903.3	13.2879	-224786.2	49.4673
900	9.5518	7607.7	54.5720	41507.1	-52557.0	-59081.4	11.4976	-225340.8	42.6363
1000	9.8577	8578.1	55.5942	47016.1	-51586.5	-59242.9	10.0613	-225864.2	37.1583
1100	10.1610	9579.1	56.5480	52623.7	-50585.6	-59387.8	8.8826	-226356.5	32.6663
1200	10.4560	10610.1	57.4449	58323.8	-49554.6	-59516.7	7.8984	-226818.4	28.9149
1300	10.7384	11669.9	58.2931	64111.1	-48494.8	-59631.0	7.0640	-227251.0	25.7345
1400	11.0056	12757.2	59.0987	69981.0	-47407.4	-59731.8	6.3469	-227655.8	23.0033
1500	11.2560	13870.5	59.8667	75929.5	-46294.2	-59821.1	5.7250	-228034.5	20.6322
1600	11.4894	15007.9	60.6007	81953.2	-45156.8	-59899.5	5.1801	-228388.9	18.5542
1700	11.7060	16167.8	61.3038	88048.7	-43996.9	-59968.2	4.6986	-228720.6	16.7179
1800	11.9065	17348.5	61.9786	94213.0	-42816.1	-60027.9	4.2701	-229031.4	15.0833
1900	12.0919	18548.6	62.6274	100443.5	-41616.1	-60081.3	3.8865	-229322.8	13.6189
2000	12.2633	19766.4	63.2521	106737.7	-40398.2	-60128.6	3.5405	-229596.4	12.2992
2100	12.4219	21000.8	63.8543	113093.2	-39163.9	-60170.7	3.2277	-229853.4	11.1039
2200	12.5689	22250.4	64.4356	119507.8	-37914.2	-60208.1	2.9428	-230095.2	10.0161
2300	12.7053	23514.2	64.9973	125979.6	-36650.4	-60242.0	2.6830	-230323.0	9.0218
2400	12.8321	24791.2	65.5408	132506.7	-35373.5	-60272.4	2.4441	-230537.7	8.1095
2500	12.9503	26080.4	66.0670	139087.2	-34084.3	-60300.2	2.2246	-230740.4	7.2695
2600	13.0607	27381.0	66.5771	145719.6	-32783.7	-60325.7	2.0217	-230931.9	6.4934
2700	13.1642	28692.3	67.0720	152402.1	-31472.4	-60349.1	1.8341	-231113.1	5.7742
2800	13.2614	30013.6	67.5525	159133.5	-30151.1	-60371.3	1.6594	-231284.6	5.1058
2900	13.3530	31344.4	68.0195	165912.2	-28820.3	-60391.9	1.4969	-231447.1	4.4832
3000	13.4395	32684.0	68.4737	172737.0	-27480.6	-60412.0	1.3455	-231601.2	3.9016
3100	13.5214	34032.1	68.9157	179606.5	-26132.5	-60431.6	1.2033	-231747.4	3.3572
3200	13.5993	35388.2	69.3462	186519.7	-24776.5	-60451.0	1.0701	-231886.4	2.8465
3300	13.6734	36751.9	69.7658	193475.4	-23412.8	-60468.9	0.9451	-232018.4	2.3664
3400	13.7442	38122.8	70.1751	200472.5	-22041.9	-60488.2	0.8272	-232144.0	1.9144
3500	13.8120	39500.6	70.5745	207510.1	-20664.1	-60508.2	0.7161	-232263.5	1.4880
3600	13.8771	40885.1	70.9645	214587.1	-19279.6	-60526.9	0.6113	-232377.2	1.0850
3700	13.9398	42276.0	71.3456	221702.7	-17888.7	-60545.6	0.5118	-232485.5	0.7037
3800	14.0002	43673.0	71.7181	228856.0	-16491.7	-60566.6	0.4178	-232588.6	0.3422
3900	14.0587	45075.9	72.0826	236046.1	-15088.7	-60585.5	0.3281	-232686.8	-0.0008
4000	14.1153	46484.6	72.4392	243272.2	-13680.0	-60605.8	0.2436	-232780.4	-0.3268
4100	14.1703	47898.9	72.7884	250533.7	-12265.7	-60625.2	0.1625	-232869.4	-0.6371
4200	14.2239	49318.7	73.1306	257829.7	-10846.0	-60646.1	0.0860	-232954.2	-0.9327
4300	14.2761	50743.7	73.4659	265159.5	-9421.0	-60666.8	0.0126	-233034.8	-1.2146
4400	14.3271	52173.8	73.7946	272522.6	-7990.9	-60688.9	-0.0576	-233111.4	-1.4838
4500	14.3770	53609.0	74.1172	279918.3	-6555.6	-60709.7	-0.1247	-233184.2	-1.7412
4600	14.4260	55049.2	74.4337	287345.9	-5115.5	-60731.8	-0.1889	-233253.2	-1.9874
4700	14.4741	56494.2	74.7445	294804.8	-3670.5	-60754.3	-0.2503	-233318.6	-2.2232
4800	14.5213	57944.0	75.0497	302294.6	-2220.7	-60777.9	-0.3090	-233380.5	-2.4493
4900	14.5679	59398.5	75.3496	309814.6	-766.2	-60801.8	-0.3656	-233438.8	-2.6661
5000	14.6139	60857.5	75.6444	317364.3	692.9	-60824.7	-0.4199	-233493.8	-2.8744
5100	14.6592	62321.2	75.9342	324943.3	2156.5	-60848.7	-0.4719	-233545.4	-3.0745
5200	14.7041	63789.4	76.2193	332551.0	3624.7	-60872.6	-0.5222	-233593.7	-3.2670
5300	14.7485	65262.0	76.4998	340187.0	5097.3	-60897.3	-0.5707	-233638.7	-3.4522
5400	14.7926	66739.1	76.7759	347850.8	6574.4	-60921.7	-0.6169	-233680.4	-3.6307
5500	14.8362	68220.5	77.0477	355542.0	8055.8	-60946.9	-0.6619	-233718.9	-3.8026
5600	14.8796	69706.3	77.3155	363260.2	9541.6	-60971.7	-0.7050	-233754.3	-3.9685
5700	14.9227	71196.4	77.5792	371005.0	11031.8	-60995.8	-0.7469	-233786.4	-4.1285
5800	14.9656	72690.8	77.8391	378775.9	12526.2	-61020.5	-0.7873	-233815.3	-4.2831
5900	15.0083	74189.5	78.0953	386572.7	14024.9	-61045.5	-0.8261	-233841.0	-4.4324
6000	15.0509	75692.5	78.3479	394394.9	15527.8	-61069.7	-0.8641	-233863.5	-4.5768

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(104) HS (gas); molecular weight, 33.074

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	34066.2	36131.8	-------	-81400.0	--------
100	7.1695	654.5	38.4421	3189.7	34720.7	36242.1	-74.1327	-81741.5	174.7802
200	7.7697	1408.3	43.6419	7320.1	35474.5	36301.9	-34.4926	-82021.8	85.3421
298.15	7.7271	2171.4	46.7445	11765.4	36237.7	36237.7	-21.4418	-82300.9	55.7941
300	7.7242	2185.7	46.7923	11852.0	36252.0	36235.6	-21.2783	-82306.3	55.4221
[a] 400	7.5635	2949.9	48.9917	16646.8	37016.1	35554.0	-14.7022	-82600.0	40.4087
500	7.4703	3700.8	50.6678	21633.1	37767.0	35017.8	-10.8427	-82895.2	31.3680
600	7.4632	4446.9	52.0280	26769.9	38513.1	34557.0	-8.3079	-83184.6	25.3195
700	7.5211	5195.6	53.1821	32031.9	39261.9	34154.8	-6.5200	-83462.7	20.9842
800	7.6181	5952.4	54.1925	37401.6	40018.6	33788.4	-5.1939	-83726.6	17.7221
900	7.7338	6719.9	55.0963	42866.8	40786.1	33431.0	-4.1735	-83974.8	15.1771
1000	7.8546	7499.3	55.9174	48418.1	41565.5	33081.9	-3.3657	-84207.4	13.1353
1100	7.9728	8290.7	56.6716	54048.1	42356.9	32740.7	-2.7119	-84425.1	11.4602
1200	8.0843	9093.6	57.3701	59750.6	43159.8	32406.4	-2.1725	-84629.3	10.0608
1300	8.1872	9907.3	58.0214	65520.5	43973.5	32077.8	-1.7207	-84821.0	8.8739
1400	8.2812	10730.8	58.6316	71353.5	44797.0	31753.8	-1.3376	-85001.7	7.8543
1500	8.3665	11563.2	59.2059	77245.6	45629.4	31433.3	-1.0088	-85172.7	6.9689
1600	8.4437	12403.8	59.7484	83193.6	46470.0	31115.8	-0.7238	-85335.2	6.1926
1700	8.5137	13251.7	60.2624	89194.4	47317.9	30800.7	-0.4751	-85490.3	5.5063
1800	8.5771	14106.3	60.7509	95245.3	48172.5	30487.9	-0.2562	-85639.1	4.8953
1900	8.6347	14967.0	61.2162	101343.8	49033.2	30176.0	-0.0623	-85782.3	4.3476
2000	8.6873	15833.1	61.6605	107487.8	49899.3	29865.1	0.1103	-85921.1	3.8538
2100	8.7355	16704.3	62.0855	113675.3	50770.5	29555.0	0.2649	-86055.8	3.4064
2200	8.7797	17580.1	62.4929	119904.3	51646.3	29245.8	0.4039	-86187.2	2.9990
2300	8.8205	18460.1	62.8841	126173.3	52526.3	28936.7	0.5297	-86316.0	2.6265
2400	8.8582	19344.1	63.2603	132480.6	53410.3	28628.1	0.6435	-86442.4	2.2845
2500	8.8934	20231.6	63.6226	138824.9	54297.9	28319.6	0.7473	-86567.0	1.9695
2600	8.9261	21122.7	63.9721	145204.8	55188.9			-86689.9	1.6782
2700	8.9568	22016.8	64.3095	151618.9	56083.0			-86811.7	1.4082
2800	8.9857	22913.9	64.6358	158066.3	56980.1			-86932.3	1.1570
2900	9.0129	23813.9	64.9516	164545.8	57880.1			-87052.1	0.9229
3000	9.0386	24716.5	65.2576	171056.3	58782.7			-87171.2	0.7041
3100	9.0631	25621.5	65.5544	177597.0	59687.8			-87289.7	0.4991
3200	9.0863	26529.0	65.8425	184166.9	60595.2			-87407.7	0.3067
3300	9.1085	27438.8	66.1224	190765.2	61505.0			-87525.2	0.1257
3400	9.1298	28350.7	66.3947	197391.1	62416.9			-87642.3	-0.0449
3500	9.1502	29264.7	66.6596	204043.8	63331.0			-87758.9	-0.2060
3600	9.1699	30180.7	66.9177	210722.9	64246.9			-87875.3	-0.3583
3700	9.1888	31098.6	67.1691	217427.2	65164.9			-87991.3	-0.5026
3800	9.2071	32018.4	67.4145	224156.5	66084.6			-88106.8	-0.6394
3900	9.2248	32940.1	67.6538	230909.8	67006.3			-88221.9	-0.7694
4000	9.2420	33863.4	67.8876	237687.0	67929.6			-88336.7	-0.8931
4100	9.2586	34788.4	68.1160	244487.2	68854.7			-88450.9	-1.0109
4200	9.2749	35715.1	68.3393	251310.1	69781.3			-88564.7	-1.1232
4300	9.2907	36643.3	68.5577	258155.0	70709.6			-88677.8	-1.2304
4400	9.3061	37573.3	68.7715	265021.4	71639.5			-88790.4	-1.3329
4500	9.3212	38504.6	68.9808	271909.0	72570.9			-88902.3	-1.4310
4600	9.3359	39437.4	69.1859	278817.5	73503.7			-89013.7	-1.5249
4700	9.3504	40371.7	69.3868	285746.1	74438.0			-89124.3	-1.6150
4800	9.3645	41307.5	69.5838	292694.7	75373.7			-89234.2	-1.7013
4900	9.3784	42244.7	69.7770	299662.6	76310.9			-89343.2	-1.7843
5000	9.3920	43183.3	69.9667	306650.0	77249.5			-89451.4	-1.8640
5100	9.4061	44123.1	70.1528	313656.0	78189.4			-89558.9	-1.9407
5200	9.4196	45064.5	70.3356	320680.5	79130.7			-89665.3	-2.0146
5300	9.4329	46007.0	70.5151	327723.1	80073.2			-89770.8	-2.0857
5400	9.4460	46951.1	70.6916	334783.4	81017.3			-89875.3	-2.1543
5500	9.4590	47896.3	70.8650	341861.3	81962.5			-89978.8	-2.2205
5600	9.4719	48842.8	71.0356	348956.4	82909.0			-90081.3	-2.2844
5700	9.4846	49790.6	71.2033	356068.3	83856.9			-90182.7	-2.3461
5800	9.4973	50739.8	71.3684	363196.9	84806.0			-90283.0	-2.4057
5900	9.5098	51690.1	71.5308	370341.9	85756.3			-90382.2	-2.4634
6000	9.5222	52641.7	71.6908	377503.0	86707.9			-90480.2	-2.5192

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(105) H_2S (gas); molecular weight, 34.082

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-7199.5	-4122.0	-------	-173282.3	--------
100	7.9566	790.6	40.4217	3251.5	-6408.9	-4255.0	12.1373	-173984.4	371.9996
200	7.9912	1587.3	45.9424	7601.2	-5612.3	-4453.8	7.4273	-174718.7	181.5817
298.15	8.1831	2379.5	49.1628	12278.4	-4820.0	-4820.0	5.7713	-175456.3	118.6178
300	8.1884	2394.7	49.2135	12369.4	-4804.9	-4827.6	5.7491	-175470.0	117.8247
[a] 400	8.5200	3229.4	51.6126	17415.6	-3970.1	-5785.9	4.8232	-176189.9	85.8088
500	8.9087	4100.5	53.5546	22676.9	-3099.0	-6551.2	4.1536	-176861.8	66.5221
600	9.3289	5012.2	55.2158	28117.3	-2187.3	-7196.4	3.6538	-177482.4	53.6168
700	9.7633	5966.8	56.6864	33713.7	-1232.8	-7743.9	3.2653	-178051.6	44.3676
800	10.1927	6964.7	58.0183	39449.9	-234.8	-8221.8	2.9540	-178571.0	37.4093
900	10.6012	8004.6	59.2427	45313.8	805.1	-8662.5	2.6982	-179043.6	31.9822
1000	10.9790	9083.9	60.3795	51295.6	1884.4	-9070.7	2.4833	-179473.2	27.6295
1100	11.3220	10199.3	61.4423	57387.2	2999.7	-9451.2	2.2991	-179863.8	24.0601
1200	11.6300	11347.1	62.4409	63581.9	4147.6	-9808.3	2.1397	-180219.8	21.0793
1300	11.9048	12524.1	63.3828	69873.5	5324.6	-10146.5	2.0002	-180544.9	18.5524
1400	12.1494	13727.1	64.2742	76256.8	6527.5	-10469.0	1.8760	-180843.0	16.3827
1500	12.3672	14953.1	65.1200	82726.8	7753.6	-10779.6	1.7656	-181117.3	14.4993
1600	12.5616	16199.7	65.9245	89279.4	9000.2	-11079.8	1.6663	-181370.5	12.8490
1700	12.7355	17464.8	66.6913	95910.5	10265.2	-11371.3	1.5762	-181605.4	11.3908
1800	12.8918	18746.3	67.4238	102616.5	11546.7	-11655.3	1.4939	-181824.0	10.0930
1900	13.0328	20042.6	68.1246	109394.2	12843.1	-11934.6	1.4187	-182028.5	8.9305
2000	13.1606	21352.4	68.7964	116240.5	14152.8	-12209.4	1.3490	-182220.3	7.8831
2100	13.2771	22674.4	69.4414	123152.6	15474.8	-12480.5	1.2849	-182401.1	6.9345
2200	13.3838	24007.5	70.0615	130127.9	16807.9	-12748.2	1.2251	-182572.1	6.0713
2300	13.4820	25350.8	70.6587	137164.1	18151.3	-13013.6	1.1698	-182734.3	5.2824
2400	13.5727	26703.6	71.2344	144258.9	19504.1	-13276.6	1.1174	-182888.7	4.5587
2500	13.6571	28065.2	71.7902	151410.3	20865.6	-13537.7	1.0687	-183036.1	3.8923
2600	13.7359	29434.9	72.3274	158616.3	22235.3			-183177.2	3.2766
2700	13.8098	30812.2	72.8472	165875.2	23612.6			-183312.5	2.7062
2800	13.8794	32196.7	73.3507	173185.2	24997.1			-183442.7	2.1761
2900	13.9452	33587.9	73.8389	180544.8	26388.4			-183568.0	1.6822
3000	14.0078	34985.6	74.3127	187952.5	27786.1			-183688.8	1.2209
3100	14.0674	36389.4	74.7730	195406.9	29189.8			-183805.4	0.7891
3200	14.1244	37799.0	75.2205	202906.7	30599.4			-183918.0	0.3841
3300	14.1792	39214.2	75.6560	210450.6	32014.6			-184026.9	0.0034
3400	14.2320	40634.8	76.0801	218037.5	33435.2			-184132.2	-0.3552
3500	14.2829	42060.5	76.4934	225666.3	34861.0			-184233.9	-0.6934
3600	14.3323	43491.3	76.8964	233335.9	36291.8			-184332.3	-1.0131
3700	14.3803	44926.9	77.2898	241045.2	37727.4			-184427.4	-1.3156
3800	14.4271	46367.3	77.6739	248793.5	39167.8			-184519.2	-1.6023
3900	14.4727	47812.3	78.0492	256579.7	40612.8			-184607.7	-1.8745
4000	14.5173	49261.8	78.4162	264403.1	42062.3			-184693.1	-2.1331
4100	14.5611	50715.7	78.7752	272262.7	43516.2			-184775.3	-2.3793
4200	14.6041	52174.0	79.1266	280157.9	44974.5			-184854.2	-2.6138
4300	14.6463	53636.5	79.4708	288087.8	46437.0			-184930.0	-2.8376
4400	14.6880	55103.3	79.8080	296051.8	47903.7			-185002.5	-3.0512
4500	14.7291	56574.1	80.1385	304049.2	49374.6			-185071.8	-3.2555
4600	14.7698	58049.1	80.4627	312079.3	50849.5			-185137.8	-3.4509
4700	14.8100	59528.1	80.7808	320141.5	52328.5			-185200.6	-3.6381
4800	14.8499	61011.1	81.0930	328235.2	53811.5			-185260.0	-3.8175
4900	14.8894	62498.0	81.3996	336359.9	55298.5			-185316.1	-3.9897
5000	14.9287	63988.9	81.7008	344515.0	56789.4			-185368.8	-4.1550
5100	14.9677	65483.8	81.9968	352699.9	58284.2			-185418.1	-4.3139
5200	15.0065	66982.5	82.2878	360914.2	59782.9			-185463.9	-4.4667
5300	15.0451	68485.1	82.5740	369157.3	61285.5			-185506.3	-4.6138
5400	15.0836	69991.5	82.8556	377428.8	62792.0			-185545.1	-4.7554
5500	15.1220	71501.8	83.1327	385728.3	64302.2			-185580.4	-4.8920
5600	15.1603	73015.9	83.4056	394055.2	65816.3			-185612.1	-5.0237
5700	15.1985	74533.8	83.6742	402409.2	67334.3			-185640.2	-5.1507
5800	15.2367	76055.6	83.9389	410789.9	68856.0			-185664.7	-5.2735
5900	15.2748	77581.2	84.1997	419196.9	70381.6			-185685.5	-5.3920
6000	15.3129	79110.5	84.4567	427629.7	71911.0			-185702.5	-5.5067

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(106) He (gas); molecular weight, 4.003

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-1481.3	0	-------	0	--------
100	4.9681	496.8	24.6984	1973.0	-984.4	0	0	0	0
200	4.9681	993.6	28.1421	4634.8	-487.6	0	0	0	0
298.15	4.9681	1481.3	30.1258	7500.7	0.0	0	0	0	0
300	4.9681	1490.4	30.1565	7556.5	9.2	0	0	0	0
400	4.9681	1987.3	31.5857	10647.0	506.0	0	0	0	0
500	4.9681	2484.1	32.6944	13863.1	1002.8	0	0	0	0
600	4.9681	2980.9	33.6002	17179.2	1499.6	0	0	0	0
700	4.9681	3477.7	34.3660	20578.5	1996.5	0	0	0	0
800	4.9681	3974.5	35.0294	24049.0	2493.3	0	0	0	0
900	4.9681	4471.3	35.6146	27581.8	2990.1	0	0	0	0
1000	4.9681	4968.1	36.1380	31169.9	3486.9	0	0	0	0
1100	4.9681	5465.0	36.6115	34807.7	3983.7	0	0	0	0
1200	4.9681	5961.8	37.0438	38490.8	4480.5	0	0	0	0
1300	4.9681	6458.6	37.4415	42215.3	4977.3	0	0	0	0
1400	4.9681	6955.4	37.8097	45978.1	5474.2	0	0	0	0
1500	4.9681	7452.2	38.1524	49776.4	5971.0	0	0	0	0
1600	4.9681	7949.0	38.4731	53607.9	6467.8	0	0	0	0
1700	4.9681	8445.9	38.7743	57470.4	6964.6	0	0	0	0
1800	4.9681	8942.7	39.0582	61362.1	7461.4	0	0	0	0
1900	4.9681	9439.5	39.3268	65281.5	7958.2	0	0	0	0
2000	4.9681	9936.3	39.5817	69227.0	8455.0	0	0	0	0
2100	4.9681	10433.1	39.8241	73197.4	8951.9	0	0	0	0
2200	4.9681	10929.9	40.0552	77191.5	9448.7	0	0	0	0
2300	4.9681	11426.7	40.2760	81208.1	9945.5	0	0	0	0
2400	4.9681	11923.6	40.4875	85246.4	10442.3	0	0	0	0
2500	4.9681	12420.4	40.6903	89305.3	10939.1	0	0	0	0
2600	4.9681	12917.2	40.8851	93384.2	11435.9	0	0	0	0
2700	4.9681	13414.0	41.0726	97482.1	11932.8	0	0	0	0
2800	4.9681	13910.8	41.2533	101598.5	12429.6	0	0	0	0
2900	4.9681	14407.6	41.4277	105732.6	12926.4	0	0	0	0
3000	4.9681	14904.4	41.5961	109883.8	13423.2	0	0	0	0
3100	4.9681	15401.3	41.7590	114051.6	13920.0	0	0	0	0
3200	4.9681	15898.1	41.9167	118235.4	14416.8	0	0	0	0
3300	4.9681	16394.9	42.0696	122434.8	14913.6	0	0	0	0
3400	4.9681	16891.7	42.2179	126649.2	15410.5	0	0	0	0
3500	4.9681	17388.5	42.3619	130878.2	15907.3	0	0	0	0
3600	4.9681	17885.3	42.5019	135121.4	16404.1	0	0	0	0
3700	4.9681	18382.2	42.6380	139378.5	16900.9	0	0	0	0
3800	4.9681	18879.0	42.7705	143648.9	17397.7	0	0	0	0
3900	4.9681	19375.8	42.8995	147932.4	17894.5	0	0	0	0
4000	4.9681	19872.6	43.0253	152228.7	18391.3	0	0	0	0
4100	4.9681	20369.4	43.1480	156537.4	18888.2	0	0	0	0
4200	4.9681	20866.2	43.2677	160858.2	19385.0	0	0	0	0
4300	4.9681	21363.0	43.3846	165190.9	19881.8	0	0	0	0
4400	4.9681	21859.9	43.4988	169535.1	20378.6	0	0	0	0
4500	4.9681	22356.7	43.6105	173890.5	20875.4	0	0	0	0
4600	4.9681	22853.5	43.7197	178257.1	21372.2	0	0	0	0
4700	4.9681	23350.3	43.8265	182634.4	21869.1	0	0	0	0
4800	4.9681	23847.1	43.9311	187022.3	22365.9	0	0	0	0
4900	4.9681	24343.9	44.0336	191420.6	22862.7	0	0	0	0
5000	4.9681	24840.7	44.1339	195828.9	23359.5	0	0	0	0
5100	4.9681	25337.6	44.2323	200247.3	23856.3	0	0	0	0
5200	4.9681	25834.4	44.3288	204675.4	24353.1	0	0	0	0
5300	4.9681	26331.2	44.4234	209113.0	24849.9	0	0	0	0
5400	4.9681	26828.0	44.5163	213560.0	25346.8	0	0	0	0
5500	4.9681	27324.8	44.6075	218016.2	25843.6	0	0	0	0
5600	4.9681	27821.6	44.6970	222481.4	26340.4	0	0	0	0
5700	4.9681	28318.5	44.7849	226955.5	26837.2	0	0	0	0
5800	4.9681	28815.3	44.8713	231438.3	27334.0	0	0	0	0
5900	4.9681	29312.1	44.9562	235929.7	27830.8	0	0	0	0
6000	4.9681	29808.9	45.0397	240429.5	28327.6	0	0	0	0

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(107) Li (gas); molecular weight, 6.940

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	36943.8	38050.0	-------	0	--------
100	4.9681	496.8	27.7161	2274.8	37440.6	38428.8	-78.3066	0	0
200	4.9681	993.6	31.1598	5238.3	37937.4	38484.9	-36.2773	0	0
298.15	4.9681	1481.3	33.1435	8400.5	38425.1	38425.1	-22.4409	0	0
300	4.9681	1490.4	33.1742	8461.8	38434.2	38423.2	-22.2672	0	0
400	4.9681	1987.3	34.6035	11854.1	38931.1	38297.2	-15.2791	0	0
[a] 500	4.9681	2484.1	35.7121	15372.0	39427.9	37380.4	-11.1358	0	0
600	4.9681	2980.9	36.6179	18989.8	39924.7	37164.2	-8.4202	0	0
700	4.9681	3477.7	37.3837	22690.9	40421.5	36961.9	-6.4915	0	0
800	4.9681	3974.5	38.0471	26463.2	40918.3	36766.5	-5.0526	0	0
900	4.9682	4471.3	38.6323	30297.7	41415.1	36572.3	-3.9395	0	0
1000	4.9682	4968.1	39.1557	34187.6	41911.9	36379.3	-3.0538	0	0
1100	4.9682	5465.0	39.6292	38127.2	42408.8	36187.6	-2.3328	0	0
1200	4.9682	5961.8	40.0615	42112.1	42905.6	35997.0	-1.7352	0	0
1300	4.9683	6458.6	40.4592	46138.4	43402.4	35807.6	-1.2324	0	0
1400	4.9685	6955.4	40.8274	50202.9	43899.2	35619.4	-0.8034	0	0
1500	4.9689	7452.3	41.1702	54303.0	44396.1	35432.5	-0.4337	0	0
1600	4.9698	7949.2	41.4909	58436.2	44893.0	35246.8	-0.1120	0	0
1700	4.9713	8446.3	41.7922	62600.5	45390.1	35062.5	0.1705	0	0
1800	4.9738	8943.5	42.0765	66794.1	45887.3	34879.5	0.4202	0	0
1900	4.9777	9441.1	42.3455	71015.3	46384.9	34698.1	0.6426	0	0
2000	4.9833	9939.1	42.6009	75262.7	46882.9	34518.3	0.8418	0	0
2100	4.9910	10437.8	42.8442	79535.1	47381.6	34340.4	1.0209	0	0
2200	5.0013	10937.4	43.0767	83831.2	47881.2	34164.6	1.1828	0	0
2300	5.0145	11438.2	43.2992	88150.1	48382.0	33991.2	1.3301	0	0
2400	5.0309	11940.4	43.5130	92490.8	48884.2	33820.4	1.4642	0	0
2500	5.0508	12444.5	43.7188	96852.4	49388.3	33652.7	1.5872	0	0
2600	5.0745	12950.7	43.9173	101234.3	49894.5			0	0
2700	5.1021	13459.5	44.1093	105635.7	50403.3			0	0
2800	5.1337	13971.3	44.2954	110056.0	50915.0			0	0
2900	5.1693	14486.4	44.4762	114494.6	51430.2			0	0
3000	5.2090	15005.3	44.6521	118951.0	51949.1			0	0
3100	5.2528	15528.3	44.8236	123424.9	52472.1			0	0
3200	5.3005	16055.9	44.9911	127915.6	52999.7			0	0
3300	5.3516	16588.5	45.1550	132423.0	53532.3			0	0
3400	5.4068	17126.3	45.3155	136946.5	54070.1			0	0
3500	5.4657	17669.5	45.4731	141486.0	54613.7			0	0
3600	5.5281	18219.6	45.6280	146041.0	55163.4			0	0
3700	5.5940	18775.7	45.7803	150611.5	55719.5			0	0
3800	5.6635	19338.5	45.9304	155197.0	56282.3			0	0
3900	5.7364	19908.5	46.0785	159797.5	56852.3			0	0
4000	5.8128	20485.9	46.2246	164412.7	57429.7			0	0
4100	5.8927	21071.1	46.3691	169042.4	58014.9			0	0
4200	5.9762	21664.6	46.5121	173686.4	58608.4			0	0
4300	6.0635	22266.5	46.6538	178344.7	59210.3			0	0
4400	6.1355	22870.9	46.7926	183016.7	59814.7			0	0
4500	6.2231	23488.1	46.9313	187702.8	60431.9			0	0
4600	6.3155	24115.0	47.0691	192402.8	61058.8			0	0
4700	6.4111	24751.3	47.2059	197116.6	61695.1			0	0
4800	6.5098	25397.3	47.3419	201844.0	62341.1			0	0
4900	6.6117	26053.4	47.4772	206585.0	62997.2			0	0
5000	6.7169	26719.8	47.6118	211339.4	63663.6			0	0
5100	6.8225	27395.5	47.7456	216107.2	64339.3			0	0
5200	6.9338	28083.3	47.8792	220888.4	65027.1			0	0
5300	7.0485	28782.4	48.0123	225683.0	65726.2			0	0
5400	7.1664	29493.1	48.1452	230490.9	66436.9			0	0
5500	7.2875	30215.8	48.2778	235312.0	67159.6			0	0
5600	7.4119	30950.7	48.4102	240146.5	67894.5			0	0
5700	7.5395	31698.3	48.5425	244994.1	68642.1			0	0
5800	7.6701	32458.7	48.6748	249854.9	69402.5			0	0
5900	7.8036	33232.4	48.8070	254729.0	70176.2			0	0
6000	7.9399	34019.6	48.9393	259616.4	70963.4			0	0

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(108) Li (crystal, liquid); molecular weight, 6.940

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-1106.2	0	-------	-38050.0	--------
100	3.191	118.0	1.746	56.6	-988.2	0	0	-38428.8	78.3066
200	5.150	558.7	4.734	388.1	-547.5	0	0	-38484.9	36.2773
298.15	5.941	1106.2	6.951	966.2	0	0	0	-38425.1	22.4409
300	5.952	1117.2	6.988	979.2	11.0	0	0	-38423.2	22.2672
400	6.570	1740.1	8.775	1769.9	633.9	0	0	-38297.2	15.2791
[b] 453.70	6.901	2101.8	9.623	2264.2	995.6	0	0	-26432.6	12.7423
453.70	7.264	2818.9	11.204	2264.2	1712.7	0	0	-37353.3	12.7423
500	7.200	3153.7	11.907	2799.8	2047.5	0	0	-37380.4	11.1358
600	7.060	3866.7	13.207	4057.5	2760.5	0	0	-37164.2	8.4202
700	6.928	4565.8	14.285	5433.7	3459.6	0	0	-36961.9	6.4915
800	6.916	5258.0	15.209	6909.2	4151.8	0	0	-36766.5	5.0526
900	6.904	5949.0	16.023	8471.7	4842.8	0	0	-36572.3	3.9395
1000	6.892	6638.8	16.750	10111.2	5532.6	0	0	-36379.3	3.0538
1100	6.880	7327.4	17.406	11819.2	6221.2	0	0	-36187.6	2.3328
1200	6.868	8014.8	18.004	13590.0	6908.6	0	0	-35997.0	1.7352
1300	6.856	8701.0	18.554	15419.2	7594.8	0	0	-35807.6	1.2324
1400	6.844	9386.0	19.061	17299.4	8279.8	0	0	-35619.4	0.8034
1500	6.832	10069.8	19.533	19229.7	8963.6	0	0	-35432.5	0.4337
1600	6.820	10752.4	19.974	21206.0	9646.2	0	0	-35246.8	0.1120
1700	6.808	11433.8	20.387	23224.1	10327.6	0	0	-35062.5	-0.1705
1800	6.796	12114.0	20.776	25282.8	11007.8	0	0	-34879.5	-0.4202
1900	6.784	12793.0	21.143	27378.7	11686.8	0	0	-34698.1	-0.6426
2000	6.772	13470.8	21.490	29509.2	12364.6	0	0	-34518.3	-0.8418
2100	6.760	14147.4	21.820	31674.6	13041.2	0	0	-34340.4	-1.0209
2200	6.748	14822.8	22.135	33874.2	13716.6	0	0	-34164.6	-1.1828
2300	6.736	15497.0	22.434	36101.2	14390.8	0	0	-33991.2	-1.3301
2400	6.724	16170.0	22.721	38360.4	15063.8	0	0	-33820.4	-1.4642
2500	6.712	16841.8	22.995	40645.7	15735.6	0	0	-33652.7	-1.5872

[a] H_0° refers to crystal state.

[b] Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(109) Li_2 (gas); molecular weight, 13.880

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	48127.6	50340.0	-------	-25760.0	--------
100	7.3089	702.3	38.3105	3128.8	48829.9	50806.3	-103.4224	-26051.4	53.1907
200	8.2148	1483.0	43.6851	7254.0	49610.6	50705.6	-47.9280	-26264.3	24.6265
298.15	8.6234	2312.0	47.0521	11716.6	50439.6	50439.6	-29.7268	-26410.5	15.1549
300	8.6284	2327.9	47.1054	11803.7	50455.5	50433.5	-29.4989	-26413.0	15.0355
400	8.8278	3201.8	49.6179	16645.4	51329.4	50061.6	-20.3429	-26532.7	10.2152
[a] 500	8.9449	4090.8	51.6014	21709.8	52218.4	48123.4	-14.9611	-26637.3	7.3105
600	9.0257	4989.6	53.2397	26954.3	53117.2	47596.2	-11.4736	-26732.2	5.3668
700	9.0882	5895.4	54.6359	32349.8	54023.0	47103.8	-9.0093	-26820.0	3.9737
800	9.1407	6806.9	55.8530	37875.5	54934.5	46630.9	-7.1798	-26902.2	2.9255
900	9.1871	7723.3	56.9323	43515.8	55850.9	46165.3	-5.7713	-26979.4	2.1078
1000	9.2298	8644.2	57.9025	49258.3	56771.8	45706.6	-4.6558	-27052.1	1.4518
1100	9.2700	9569.2	58.7841	55093.3	57696.8	45254.4	-3.7519	-27120.7	0.9137
1200	9.3084	10498.1	59.5924	61012.7	58625.7	44808.5	-3.0062	-27185.4	0.4641
1300	9.3457	11430.8	60.3389	67009.7	59558.4	44368.8	-2.3819	-27246.4	0.0829
1400	9.3821	12367.2	61.0328	73078.7	60494.8	43935.2	-1.8513	-27303.6	-0.2446
1500	9.4178	13307.2	61.6814	79214.8	61434.8	43507.6	-1.3964	-27357.4	-0.5290
1600	9.4530	14250.8	62.2903	85413.7	62378.4	43086.0	-1.0023	-27407.7	-0.7784
1700	9.4878	15197.8	62.8644	91671.7	63325.4	42670.2	-0.6577	-27454.7	-0.9988
1800	9.5223	16148.3	63.4077	97985.5	64275.9	42260.3	-0.3545	-27498.7	-1.1950
1900	9.5566	17102.3	63.9235	104352.3	65229.9	41856.3	-0.0857	-27539.9	-1.3709
2000	9.5907	18059.6	64.4145	110769.4	66187.2	41458.0	0.1542	-27578.6	-1.5293
2100	9.6246	19020.4	64.8833	117234.5	67148.0	41065.6	0.3689	-27615.2	-1.6729
2200	9.6584	19984.6	65.3318	123745.4	68112.2	40679.0	0.5619	-27650.2	-1.8037
2300	9.6921	20952.1	65.7619	130300.2	69079.7	40298.1	0.7371	-27684.2	-1.9231
2400	9.7257	21923.0	66.1751	136897.2	70050.6	39923.0	0.8957	-27717.8	-2.0328
2500	9.7592	22897.2	66.5728	143534.7	71024.8	39553.6	1.0405	-27751.7	-2.1338
2600	9.7927	23874.8	66.9562	150211.3	72002.4			-27786.6	-2.2272
2700	9.8261	24855.8	67.3264	156925.5	72983.4			-27823.2	-2.3138
2800	9.8594	25840.0	67.6844	163676.2	73967.6			-27862.5	-2.3942
2900	9.8927	26827.6	68.0309	170462.0	74955.2			-27905.1	-2.4693
3000	9.9260	27818.6	68.3669	177282.0	75946.2			-27951.9	-2.5394
3100	9.9592	28812.8	68.6929	184135.1	76940.4			-28003.8	-2.6052
3200	9.9924	29810.4	69.0096	191020.3	77938.0			-28061.5	-2.6669
3300	10.0256	30811.3	69.3176	197936.7	78938.9			-28125.6	-2.7251
3400	10.0588	31815.5	69.6174	204883.5	79943.1			-28197.1	-2.7799
3500	10.0919	32823.1	69.9094	211859.9	80950.7			-28276.8	-2.8318
3600	10.1250	33833.9	70.1942	218865.1	81961.5			-28365.3	-2.8809
3700	10.1582	34848.1	70.4721	225898.5	82975.7			-28453.3	-2.9275
3800	10.1912	35865.6	70.7434	232959.3	83993.1			-28571.5	-2.9718
3900	10.2243	36886.3	71.0085	240047.0	85013.9			-28690.6	-3.0140
4000	10.2574	37910.4	71.2678	247160.8	86038.0			-28821.4	-3.0543
4100	10.2905	38937.8	71.5215	254300.4	87065.4			-28964.5	-3.0928
4200	10.3235	39968.5	71.7699	261465.0	88096.1			-29120.6	-3.1297
4300	10.3566	41002.5	72.0132	268654.2	89130.1			-29290.5	-3.1650
4400	10.3896	42039.8	72.2517	275867.4	90167.4			-29462.0	-3.1989
4500	10.4226	43080.4	72.4855	283104.3	91208.0			-29655.8	-3.2315
4600	10.4557	44124.4	72.7149	290364.4	92252.0			-29865.7	-3.2629
4700	10.4887	45171.6	72.9402	297647.2	93299.2			-30091.1	-3.2932
4800	10.5217	46222.1	73.1613	304952.3	94349.7			-30332.6	-3.3225
4900	10.5547	47275.9	73.3786	312279.3	95403.5			-30590.9	-3.3508
5000	10.5877	48333.0	73.5922	319627.9	96460.6			-30866.6	-3.3782
5100	10.6207	49393.5	73.8022	326997.6	97521.1			-31157.6	-3.4048
5200	10.6537	50457.2	74.0087	334388.2	98584.8			-31469.5	-3.4306
5300	10.6867	51524.2	74.2120	341799.3	99651.8			-31800.6	-3.4557
5400	10.7197	52594.5	74.4120	349230.5	100722.1			-32151.7	-3.4801
5500	10.7527	53668.2	74.6090	356681.6	101795.7			-32523.4	-3.5039
5600	10.7857	54745.1	74.8031	364152.2	102872.7			-32916.4	-3.5271
5700	10.8187	55825.3	74.9943	371642.1	103952.9			-33331.3	-3.5498
5800	10.8516	56908.8	75.1827	379151.0	105036.4			-33768.7	-3.5719
5900	10.8846	57995.6	75.3685	386678.6	106123.2			-34229.2	-3.5937
6000	10.9176	59085.7	75.5517	394224.6	107213.3			-34713.4	-3.6149

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(110) LiCl (gas); molecular weight, 42.397

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-49965.9	-47763.0	-------	-114361.4	--------
100	6.9778	695.3	42.8478	3589.5	-49270.7	-47533.7	107.9285	-114659.8	246.4629
200	7.4134	1410.7	47.7896	8147.2	-48555.2	-47621.7	55.9648	-114940.1	121.0530
298.15	7.9492	2165.9	50.8546	12996.4	-47800.0	-47800.0	38.8083	-115175.7	79.6698
300	7.9576	2180.6	50.9038	13090.5	-47785.3	-47803.8	38.5922	-115179.8	79.1492
400	8.3174	2995.8	53.2465	18302.8	-46970.1	-48026.2	29.8688	-115391.8	58.1553
[a] 500	8.5406	3839.6	55.1283	23724.6	-46126.3	-49023.0	24.5753	-115585.7	45.5366
600	8.6853	4701.4	56.6991	29318.1	-45264.6	-49308.6	20.9944	-115765.2	37.1103
700	8.7850	5575.2	58.0459	35057.0	-44390.8	-49573.2	18.4220	-115931.8	31.0825
800	8.8579	6457.5	59.2240	40921.7	-43508.4	-49825.7	16.4828	-116087.0	26.5554
900	8.9139	7346.2	60.2706	46897.4	-42619.7	-50073.3	14.9668	-116232.2	23.0297
1000	8.9590	8239.9	61.2122	52972.3	-41726.0	-50316.6	13.7480	-116368.5	20.2057
1100	8.9967	9137.7	62.0679	59137.0	-40828.2	-50556.2	12.7461	-116497.2	17.8925
1200	9.0292	10039.1	62.8521	65383.5	-39926.9	-50792.5	11.9072	-116619.1	15.9628
1300	9.0579	10943.4	63.5760	71705.4	-39022.5	-51025.7	11.1939	-116734.9	14.3283
1400	9.0840	11850.5	64.2483	78097.0	-38115.4	-51256.1	10.5800	-116845.5	12.9260
1500	9.1080	12760.2	64.8758	84553.6	-37205.8	-51483.9	10.0454	-116951.3	11.7094
1600	9.1304	13672.1	65.4643	91070.9	-36293.8	-51709.0	9.5755	-117052.9	10.6441
1700	9.1516	14586.2	66.0185	97645.3	-35379.7	-51931.6	9.1592	-117150.6	9.7032
1800	9.1718	15502.4	66.5422	104273.6	-34463.5	-52151.8	8.7875	-117244.9	8.8662
1900	9.1912	16420.5	67.0386	110952.8	-33545.4	-52369.6	8.4536	-117336.2	8.1167
2000	9.2101	17340.6	67.5105	117680.5	-32625.3	-52585.0	8.1519	-117424.8	7.4417
2100	9.2284	18262.5	67.9603	124454.2	-31703.4	-52798.2	7.8778	-117511.1	6.8304
2200	9.2463	19186.3	68.3901	131271.9	-30779.7	-53009.1	7.6274	-117595.6	6.2744
2300	9.2638	20111.8	68.8015	138131.6	-29854.2	-53217.7	7.3981	-117678.6	5.7663
2400	9.2811	21039.0	69.1961	145031.6	-28926.9	-53424.0	7.1869	-117760.5	5.3003
2500	9.2981	21968.0	69.5753	151970.3	-27998.0	-53628.2	6.9920	-117841.9	4.8712
2600	9.3148	22898.6	69.9403	158946.2	-27067.3			-117923.1	4.4749
2700	9.3314	23830.9	70.2922	165957.9	-26135.0			-118004.6	4.1076
2800	9.3479	24764.9	70.6318	173004.2	-25201.0			-118086.9	3.7664
2900	9.3642	25700.5	70.9601	180083.9	-24265.4			-118170.5	3.4485
3000	9.3804	26637.7	71.2779	187195.9	-23328.2			-118255.8	3.1515
3100	9.3965	27576.6	71.5857	194339.1	-22389.3			-118343.3	2.8735
3200	9.4125	28517.0	71.8843	201512.7	-21448.9			-118433.3	2.6127
3300	9.4284	29459.1	72.1742	208715.7	-20506.8			-118526.3	2.3675
3400	9.4443	30402.7	72.4559	215947.3	-19563.2			-118622.8	2.1366
3500	9.4601	31347.9	72.7299	223206.6	-18618.0			-118723.1	1.9186
3600	9.4758	32294.7	72.9966	230493.0	-17671.2			-118827.7	1.7126
3700	9.4915	33243.1	73.2564	237805.7	-16722.8			-118936.9	1.5176
3800	9.5071	34193.0	73.5098	245144.1	-15772.9			-119051.0	1.3326
3900	9.5227	35144.5	73.7569	252507.5	-14821.4			-119170.5	1.1570
4000	9.5383	36097.6	73.9982	259895.3	-13868.4			-119295.7	0.9899
4100	9.5538	37052.2	74.2339	267306.9	-12913.7			-119427.0	0.8309
4200	9.5693	38008.3	74.4643	274741.9	-11957.6			-119564.7	0.6792
4300	9.5848	38966.0	74.6897	282199.6	-10999.9			-119709.3	0.5345
4400	9.6003	39925.3	74.9102	289679.6	-10040.6			-119854.6	0.3961
4500	9.6157	40886.1	75.1261	297181.5	-9079.8			-120011.0	0.2638
4600	9.6311	41848.4	75.3376	304704.7	-8117.5			-120175.5	0.1370
4700	9.6465	42812.3	75.5449	312248.9	-7153.6			-120347.7	0.0154
4800	9.6619	43777.7	75.7482	319813.6	-6188.2			-120527.9	-0.1012
4900	9.6772	44744.7	75.9476	327398.4	-5221.2			-120716.6	-0.2133
5000	9.6925	45713.2	76.1432	335003.0	-4252.8			-120914.0	-0.3211
5100	9.7079	46683.2	76.3353	342626.9	-3282.7			-121119.0	-0.4248
5200	9.7232	47654.7	76.5240	350269.9	-2311.2			-121334.5	-0.5247
5300	9.7385	48627.8	76.7093	357931.6	-1338.1			-121559.7	-0.6210
5400	9.7538	49602.4	76.8915	365611.7	-363.5			-121794.9	-0.7139
5500	9.7691	50578.6	77.0706	373309.8	612.7			-122040.4	-0.8036
5600	9.7843	51556.3	77.2468	381025.7	1590.3			-122296.6	-0.8903
5700	9.7996	52535.5	77.4201	388759.1	2569.5			-122563.8	-0.9741
5800	9.8149	53516.2	77.5907	396509.6	3550.3			-122842.3	-1.0552
5900	9.8301	54498.4	77.7586	404277.1	4532.5			-123132.5	-1.1338
6000	9.8454	55482.2	77.9239	412061.2	5516.3			-123434.6	-1.2099

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(111) LiCl (crystal, liquid); molecular weight, 42.397

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-99923.6	-97720.7	-------	-164319.1	--------
100	6.637	260.0	3.806	120.6	-99663.6	-97926.6	209.5248	-165052.7	348.0591
200	10.310	1145.8	9.800	814.2	-98777.8	-97844.4	102.5406	-165162.7	167.6288
298.15	11.470	2223.6	14.170	2001.2	-97700.0	-97700.0	67.3672	-165075.7	108.2287
300	11.487	2244.9	14.241	2027.4	-97678.7	-97697.2	66.9255	-165073.2	107.4825
400	12.150	3429.2	17.644	3628.4	-96494.4	-97550.5	49.1458	-164916.1	77.4323
b 500	12.721	4673.0	20.417	5535.5	-95250.6	-98147.2	38.4607	-164710.0	59.4219
600	13.269	5972.6	22.785	7698.4	-93951.0	-97995.0	31.3160	-164451.6	47.4319
700	13.806	7326.4	24.871	10083.3	-92597.2	-97779.6	26.2220	-164138.2	38.8825
800	14.338	8733.7	26.749	12665.5	-91189.9	-97507.2	22.4111	-163768.5	32.4837
c 883	14.777	9942.0	28.186	14946.2	-89981.6	-96284.5	19.9080	-161798.6	28.2783
883	15.0	14702.0	33.577	14946.2	-85221.6	-92470.9	19.9080	-158639.8	28.2783
900	15.0	14957.0	33.863	15519.7	-84966.6	-92420.1	19.4784	-158579.0	27.5413
1000	15.0	16457.0	35.443	18986.0	-83466.6	-92057.1	17.2384	-158109.1	23.6961
1100	15.0	17957.0	36.873	22603.3	-81966.6	-91694.6	15.4131	-157635.6	20.5595
1200	15.0	19457.0	38.178	26356.6	-80466.6	-91332.2	13.8979	-157158.8	17.9535
1300	15.0	20957.0	39.378	30234.4	-78966.6	-90969.8	12.6206	-156679.1	15.7550
1400	15.0	22457.0	40.490	34229.0	-77466.6	-90607.4	11.5306	-156196.7	13.8766
1500	15.0	23957.0	41.525	38330.5	-75966.6	-90244.7	10.5895	-155712.2	12.2536
1600	15.0	25457.0	42.493	42531.8	-74466.6	-89881.8	9.7693	-155225.7	10.8378
1700	15.0	26957.0	43.402	46826.4	-72966.6	-89518.5	9.0485	-154737.5	9.5925
1800	15.0	28457.0	44.260	51211.0	-71466.6	-89154.8	8.4105	-154248.0	8.4892
1900	15.0	29957.0	45.071	55677.9	-69966.6	-88790.8	7.8420	-153757.4	7.5051
2000	15.0	31457.0	45.840	60223.0	-68466.6	-88426.3	7.3324	-153266.1	6.6222
2100	15.0	32957.0	46.572	64844.2	-66966.6	-88061.4	6.8733	-152774.3	5.8260
2200	15.0	34457.0	47.270	69537.0	-65466.6	-87696.0	6.4575	-152282.5	5.1045
2300	15.0	35957.0	47.937	74298.1	-63966.6	-87330.1	6.0797	-151791.0	4.4479
2400	15.0	37457.0	48.575	79123.0	-62466.6	-86963.7	5.7345	-151300.2	3.8478
2500	15.0	38957.0	49.187	84010.5	-60966.6	-86596.8	5.4184	-150810.5	3.2975
2600	15.0	40457.0	49.776	88960.6	-59466.6			-150322.4	2.7914
2700	15.0	41957.0	50.342	93966.4	-57966.6			-149836.2	2.3242
2800	15.0	43457.0	50.887	99026.6	-56466.6			-149352.5	1.8916
2900	15.0	44957.0	51.414	104143.6	-54966.6			-148871.7	1.4904
3000	15.0	46457.0	51.922	109309.0	-53466.6			-148394.2	1.1170
3100	15.0	47957.0	52.414	114526.4	-51966.6			-147920.5	0.7688
3200	15.0	49457.0	52.890	119791.0	-50466.6			-147451.0	0.4434
3300	15.0	50957.0	53.352	125104.6	-48966.6			-146986.1	0.1389
3400	15.0	52457.0	53.800	130463.0	-47466.6			-146526.2	-0.1469
3500	15.0	53957.0	54.234	135862.0	-45966.6			-146071.8	-0.4158
3600	15.0	55457.0	54.657	141308.2	-44466.6			-145623.1	-0.6687
3700	15.0	56957.0	55.068	146794.6	-42966.6			-145180.6	-0.9072
3800	15.0	58457.0	55.468	152321.4	-41466.6			-144744.7	-1.1326
3900	15.0	59957.0	55.858	157889.2	-39966.6			-144315.7	-1.3456
4000	15.0	61457.0	56.237	163491.0	-38466.6			-143894.0	-1.5477
4100	15.0	62957.0	56.608	169135.8	-36966.6			-143479.8	-1.7390
4200	15.0	64457.0	56.969	174812.8	-35466.6			-143073.7	-1.9209
4300	15.0	65957.0	57.322	180527.6	-33966.6			-142676.0	-2.0938
4400	15.0	67457.0	57.667	186277.8	-32466.6			-142280.6	-2.2583
4500	15.0	68957.0	58.004	192061.0	-30966.6			-141897.8	-2.4152
4600	15.0	70457.0	58.334	197879.4	-29466.6			-141524.6	-2.5647
4700	15.0	71957.0	58.656	203726.2	-27966.6			-141160.7	-2.7077
4800	15.0	73457.0	58.972	209608.6	-26466.6			-140806.3	-2.8442
4900	15.0	74957.0	59.281	215519.9	-24966.6			-140461.9	-2.9750
5000	15.0	76457.0	59.585	221468.0	-23466.6			-140127.8	-3.0999
5100	15.0	77957.0	59.882	227441.2	-21966.6			-139802.9	-3.2199
5200	15.0	79457.0	60.173	233442.6	-20466.6			-139489.9	-3.3350
5300	15.0	80957.0	60.459	239475.7	-18966.6			-139188.2	-3.4454
5400	15.0	82457.0	60.739	245533.6	-17466.6			-138898.0	-3.5517
5500	15.0	83957.0	61.014	251620.0	-15966.6			-138619.7	-3.6538
5600	15.0	85457.0	61.284	257733.4	-14466.6			-138353.5	-3.7522
5700	15.0	86957.0	61.550	263878.0	-12966.6			-138100.0	-3.8467
5800	15.0	88457.0	61.811	270046.8	-11466.6			-137859.2	-3.9379
5900	15.0	89957.0	62.067	276238.3	-9966.6			-137631.6	-4.0259
6000	15.0	91457.0	62.319	282457.0	-8466.6			-137417.4	-4.1109

[a] H_0° refers to crystal state.

[b] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

[c] Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(112) $(LiCl)_2$ (gas); molecular weight, 84.794

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-148501.4	-144095.5	-------	-277292.3	--------
100	9.9198	835.3	53.9383	4558.5	-147666.1	-144192.2	316.2738	-278444.3	593.3426
200	14.9750	2104.1	62.5268	10401.3	-146397.3	-144530.4	158.5619	-279167.2	288.7384
298.15	17.2555	3701.4	68.9946	16869.3	-144800.0	-144800.0	106.5300	-279551.4	188.2531
300	17.2829	3733.4	69.1014	16997.1	-144768.0	-144805.1	105.8754	-279557.1	186.9895
400	18.3159	5519.5	74.2329	24173.6	-142981.9	-145094.0	79.4813	-279825.2	136.0544
[a] 500	18.8440	7380.2	78.3826	31811.1	-141121.2	-146914.5	63.5444	-280040.0	105.4668
600	19.1456	9280.9	81.8473	39827.4	-139220.5	-147308.6	52.8285	-280221.7	85.0605
700	19.3327	11205.5	84.8137	48164.0	-137295.9	-147660.7	45.1547	-280377.9	70.4757
800	19.4563	13145.4	87.4038	56777.7	-135356.0	-147990.6	39.3862	-280513.2	59.5314
900	19.5421	15095.6	89.7007	65635.0	-133405.8	-148312.9	34.8896	-280630.7	51.0153
1000	19.6040	17053.0	91.7630	74710.0	-131448.4	-148629.4	31.2844	-280733.4	44.1998
1100	19.6500	19015.8	93.6337	83981.3	-129485.6	-148941.5	28.3287	-280823.6	38.6215
1200	19.6852	20982.7	95.3451	93431.4	-127518.7	-149249.9	25.8604	-280903.1	33.9715
1300	19.7127	22952.6	96.9219	103045.8	-125548.8	-149555.3	23.7671	-280973.7	30.0359
1400	19.7345	24925.0	98.3836	112812.0	-123576.4	-149857.9	21.9698	-281036.7	26.6617
1500	19.7522	26899.4	99.7457	122719.2	-121602.0	-150158.2	20.4087	-281093.2	23.7367
1600	19.7667	28875.4	101.0210	132758.2	-119626.0	-150456.4	19.0398	-281144.2	21.1769
1700	19.7787	30852.7	102.2197	142920.9	-117648.7	-150752.5	17.8299	-281190.6	18.9179
1800	19.7888	32831.0	103.3505	153199.9	-115670.4	-151046.8	16.7521	-281233.1	16.9095
1900	19.7974	34810.4	104.4207	163588.9	-113691.0	-151339.4	15.7861	-281272.7	15.1123
2000	19.8047	36790.5	105.4364	174082.2	-111710.9	-151630.4	14.9152	-281309.9	13.4946
2100	19.8110	38771.3	106.4028	184674.6	-109730.1	-151919.7	14.1255	-281345.6	12.0308
2200	19.8164	40752.7	107.3245	195361.3	-107748.7	-152207.5	13.4058	-281380.6	10.6998
2300	19.8212	42734.5	108.2055	206138.1	-105766.9	-152493.9	12.7482	-281415.7	9.4845
2400	19.8254	44716.9	109.0492	217001.2	-103784.5	-152778.8	12.1436	-281451.7	8.3703
2500	19.8291	46699.6	109.8586	227946.8	-101801.8	-153062.3	11.5868	-281489.6	7.3451
2600	19.8324	48682.7	110.6363	238971.8	-99818.7			-281530.3	6.3986
2700	19.8353	50666.1	111.3849	250073.1	-97835.3			-281574.6	5.5221
2800	19.8379	52649.7	112.1063	261247.9	-95851.7			-281623.5	4.7081
2900	19.8402	54633.6	112.8025	272493.5	-93867.8			-281678.0	3.9500
3000	19.8424	56617.8	113.4751	283807.6	-91883.6			-281738.9	3.2424
3100	19.8443	58602.1	114.1258	295187.8	-89899.3			-281807.1	2.5803
3200	19.8460	60586.6	114.7558	306632.1	-87914.8			-281883.6	1.9594
3300	19.8476	62571.3	115.3666	318138.3	-85930.1			-281969.1	1.3759
3400	19.8490	64556.1	115.9591	329704.8	-83945.3			-282064.5	0.8266
3500	19.8504	66541.1	116.5345	341329.6	-81960.3			-282170.6	0.3085
3600	19.8516	68526.2	117.0937	353011.1	-79975.2			-282288.2	-0.1810
3700	19.8527	70511.4	117.6376	364747.8	-77990.0			-282418.1	-0.6442
3800	19.8537	72496.7	118.1671	376538.2	-76004.7			-282560.9	-1.0833
3900	19.8547	74482.2	118.6828	388380.8	-74019.2			-282717.4	-1.5001
4000	19.8556	76467.7	119.1855	400274.3	-72033.7			-282888.4	-1.8963
4100	19.8564	78453.3	119.6758	412217.5	-70048.1			-283074.6	-2.2733
4200	19.8572	80438.9	120.1543	424209.1	-68062.5			-283275.7	-2.6327
4300	19.8579	82424.7	120.6215	436247.9	-66076.7			-283495.5	-2.9756
4400	19.8585	84410.5	121.0781	448333.0	-64090.9			-283718.8	-3.3032
4500	19.8591	86396.4	121.5244	460463.2	-62105.0			-283967.4	-3.6165
4600	19.8597	88382.3	121.9608	472637.6	-60119.1			-284235.0	-3.9164
4700	19.8603	90368.3	122.3880	484855.1	-58133.1			-284521.2	-4.2038
4800	19.8608	92354.4	122.8061	497114.8	-56147.0			-284826.5	-4.4796
4900	19.8613	94340.5	123.2156	509416.0	-54160.9			-285151.6	-4.7444
5000	19.8617	96326.7	123.6169	521757.7	-52174.8			-285497.1	-4.9989
5100	19.8621	98312.8	124.0102	534139.1	-50188.6			-285861.1	-5.2437
5200	19.8625	100299.1	124.3959	546559.5	-48202.3			-286249.0	-5.4795
5300	19.8629	102285.3	124.7742	559018.0	-46216.1			-286659.2	-5.7066
5400	19.8633	104271.7	125.1455	571514.1	-44229.8			-287092.5	-5.9257
5500	19.8636	106258.0	125.5100	584046.9	-42243.4			-287549.5	-6.1371
5600	19.8639	108244.4	125.8679	596615.9	-40257.0			-288030.9	-6.3413
5700	19.8642	110230.8	126.2195	609220.3	-38270.6			-288537.3	-6.5386
5800	19.8645	112217.2	126.5650	621859.6	-36284.2			-289069.4	-6.7295
5900	19.8648	114203.7	126.9045	634533.1	-34297.7			-289627.7	-6.9143
6000	19.8650	116190.2	127.2384	647240.3	-32311.2			-290212.9	-7.0933

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(113) LiF (gas); molecular weight, 25.940

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-81909.3	-79748.3	-------	-136153.3	--------
100	6.9601	694.4	40.0486	3310.4	-81214.9	-79519.3	177.7047	-136454.2	293.8827
200	7.0976	1394.7	44.8976	7584.8	-80514.6	-79609.8	90.7901	-136776.6	144.6455
298.15	7.4839	2109.3	47.7996	12142.1	-79800.0	-79800.0	62.1255	-137083.2	95.3964
300	7.4918	2123.2	47.8459	12230.6	-79786.1	-79804.1	61.7647	-137088.6	94.7768
400	7.8858	2892.7	50.0570	17130.1	-79016.6	-80042.5	47.2123	-137356.0	69.7880
[a] 500	8.1840	3697.0	51.8505	22228.2	-78212.3	-81054.5	38.4196	-137580.6	54.7675
600	8.3973	4526.7	53.3626	27490.9	-77382.6	-81353.5	32.5048	-137772.6	44.7385
700	8.5511	5374.5	54.6692	32893.9	-76534.8	-81630.0	28.2648	-137940.9	37.5655
800	8.6650	6235.6	55.8189	38419.5	-75673.7	-81893.2	25.0743	-138091.7	32.1795
900	8.7520	7106.6	56.8447	44053.6	-74802.7	-82150.5	22.5849	-138229.3	27.9860
1000	8.8207	7985.4	57.7705	49785.1	-73923.9	-82403.1	20.5871	-138356.7	24.6280
1100	8.8765	8870.3	58.6139	55605.0	-73039.0	-82651.7	18.9476	-138475.9	21.8781
1200	8.9231	9760.4	59.3883	61505.6	-72148.9	-82896.8	17.5773	-138588.6	19.5846
1300	8.9630	10654.7	60.1042	67480.7	-71254.6	-83138.9	16.4142	-138695.7	17.6424
1400	8.9978	11552.8	60.7697	73524.7	-70356.5	-83378.2	15.4146	-138798.1	15.9763
1500	9.0287	12454.2	61.3915	79633.1	-69455.1	-83614.9	14.5457	-138896.4	14.5314
1600	9.0567	13358.5	61.9752	85801.8	-68550.9	-83849.2	13.7831	-138991.2	13.2662
1700	9.0824	14265.4	62.5250	92027.1	-67643.9	-84081.3	13.1086	-139082.8	12.1491
1800	9.1062	15174.9	63.0448	98305.8	-66734.4	-84311.1	12.5072	-139171.7	11.1555
1900	9.1285	16086.6	63.5378	104635.1	-65822.7	-84539.0	11.9678	-139258.2	10.2659
2000	9.1496	17000.5	64.0065	111012.5	-64908.8	-84764.7	11.4811	-139342.6	9.4648
2100	9.1698	17916.5	64.4534	117435.7	-63992.8	-84988.6	11.0395	-139425.3	8.7396
2200	9.1891	18834.5	64.8805	123902.5	-63074.8	-85210.5	10.6368	-139506.7	8.0799
2300	9.2077	19754.3	65.2893	130411.2	-62155.0	-85430.5	10.2684	-139587.1	7.4772
2400	9.2258	20676.0	65.6816	136959.9	-61233.3	-85648.7	9.9297	-139666.9	6.9244
2500	9.2433	21599.5	66.0586	143547.0	-60309.9	-85865.0	9.6174	-139746.6	6.4155
2600	9.2605	22524.6	66.4214	150171.1	-59384.7			-139826.6	5.9455
2700	9.2773	23451.5	66.7713	156830.8	-58457.8			-139907.2	5.5101
2800	9.2937	24380.1	67.1089	163525.0	-57529.2			-139989.1	5.1056
2900	9.3099	25310.3	67.4354	170252.3	-56599.0			-140072.5	4.7287
3000	9.3259	26242.1	67.7512	177011.7	-55667.3			-140158.0	4.3767
3100	9.3417	27175.4	68.0573	183802.2	-54733.9			-140246.0	4.0473
3200	9.3573	28110.4	68.3541	190622.8	-53798.9			-140336.9	3.7382
3300	9.3727	29046.9	68.6423	197472.7	-52862.4			-140431.1	3.4477
3400	9.3880	29984.9	68.9223	204351.0	-51924.4			-140529.0	3.1741
3500	9.4032	30924.5	69.1947	211256.9	-50984.8			-140631.0	2.9159
3600	9.4183	31865.6	69.4598	218189.7	-50043.7			-140737.5	2.6719
3700	9.4332	32808.2	69.7181	225148.7	-49101.2			-140848.9	2.4409
3800	9.4481	33752.2	69.9698	232133.1	-48157.1			-140965.5	2.2219
3900	9.4629	34697.8	70.2154	239142.4	-47211.5			-141087.6	2.0139
4000	9.4776	35644.8	70.4552	246176.0	-46264.5			-141215.8	1.8162
4100	9.4923	36593.3	70.6894	253233.3	-45316.0			-141350.2	1.6279
4200	9.5069	37543.3	70.9183	260313.7	-44366.0			-141491.3	1.4484
4300	9.5215	38494.7	71.1422	267416.8	-43414.6			-141639.4	1.2771
4400	9.5360	39447.6	71.3613	274542.0	-42461.8			-141788.5	1.1135
4500	9.5504	40401.9	71.5757	281688.9	-41507.4			-141948.9	0.9569
4600	9.5648	41357.6	71.7858	288857.0	-40551.7			-142117.6	0.8069
4700	9.5792	42314.8	71.9916	296045.9	-39594.5			-142294.1	0.6632
4800	9.5935	43273.5	72.1935	303255.2	-38635.8			-142479.0	0.5253
4900	9.6078	44233.5	72.3914	310484.5	-37675.8			-142672.4	0.3928
5000	9.6221	45195.0	72.5857	317733.4	-36714.3			-142874.7	0.2654
5100	9.6364	46158.0	72.7764	325001.5	-35751.3			-143084.9	0.1429
5200	9.6506	47122.3	72.9636	332288.5	-34787.0			-143305.7	0.0249
5300	9.6648	48088.1	73.1476	339594.1	-33821.2			-143536.3	-0.0888
5400	9.6790	49055.3	73.3284	346917.9	-32854.0			-143777.2	-0.1985
5500	9.6932	50023.9	73.5061	354259.7	-31885.4			-144028.5	-0.3044
5600	9.7073	50993.9	73.6809	361619.0	-30915.4			-144290.7	-0.4067
5700	9.7214	51965.4	73.8528	368995.7	-29944.0			-144564.1	-0.5056
5800	9.7355	52938.2	74.0220	376389.5	-28971.1			-144849.0	-0.6012
5900	9.7496	53912.5	74.1886	383800.1	-27996.9			-145145.6	-0.6938
6000	9.7637	54888.1	74.3525	391227.1	-27021.2			-145454.3	-0.7835

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(114) LiF (crystal, liquid); molecular weight, 25.940

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-147844.3	-145683.3	-------	-202088.3	--------
100	3.065	82.6	1.0995	27.4	-147761.7	-146066.1	314.6237	-203001.0	430.8017
200	7.834	657.9	4.8946	321.0	-147186.4	-146281.5	154.8999	-203448.3	208.7553
298.15	10.011	1544.3	8.4713	981.4	-146300.0	-146300.0	102.2742	-203583.2	135.5452
300	10.042	1562.9	8.582	1011.7	-146281.4	-146299.3	101.6235	-203583.9	134.6355
400	11.142	2627.1	11.636	2027.3	-145217.2	-146243.1	74.9844	-203556.6	97.5601
[b]500	11.831	3777.8	14.201	3322.7	-144066.5	-146908.7	58.9752	-203434.8	75.3231
600	12.336	4987.1	16.404	4855.3	-142857.2	-146828.1	48.2759	-203247.2	60.5095
700	12.770	6242.7	18.339	6594.6	-141601.6	-146696.8	40.6390	-203007.7	49.9397
800	13.200	7541.1	20.072	8516.5	-140303.2	-146522.6	34.9173	-202721.2	42.0225
900	13.677	8884.7	21.654	10603.9	-138959.6	-146307.4	30.4730	-202386.2	35.8742
1000	14.239	10279.3	23.123	12843.7	-137565.0	-146044.2	26.9233	-201997.7	30.9643
1100	14.921	11735.8	24.511	15226.3	-136108.5	-145721.2	24.0250	-201545.4	26.9554
[c]1121.30	15.085	12055.3	24.798	15750.7	-135788.9	-145609.3	23.4637	-201392.4	26.1778
1121.30	15.51	18526.4	30.569	15750.7	-129317.9	-139110.3	23.4637	-194880.8	26.1778
1200	15.51	19745.9	31.621	18199.3	-128098.4	-138846.3	21.6983	-194538.0	23.7056
1300	15.51	21298.0	32.8625	21423.3	-126546.3	-138430.6	19.7558	-193987.4	20.9839
1400	15.51	22849.0	34.0120	24767.8	-124995.3	-138016.9	18.0961	-193436.8	18.6578
1500	15.51	24400.0	35.0820	28223.1	-123444.3	-137604.0	16.6618	-192885.5	16.6476
1600	15.51	25951.0	36.0830	31781.9	-121893.3	-137191.6	15.4106	-192333.6	14.8937
1700	15.51	27502.0	37.0233	35437.6	-120342.3	-136779.6	14.3100	-191781.2	13.3505
1800	15.51	29053.0	37.9098	39184.7	-118791.3	-136368.0	13.3345	-191228.5	11.9828
1900	15.51	30604.0	38.7484	43018.0	-117240.3	-135956.5	12.4644	-190675.8	10.7626
2000	15.51	32155.0	39.5440	46933.0	-115689.3	-135545.2	11.6838	-190123.1	9.6676
2100	15.51	33706.0	40.3007	50925.5	-114138.3	-135134.0	10.9796	-189570.8	8.6797
2200	15.51	35257.0	41.0223	54992.0	-112587.3	-134722.9	10.3412	-189019.1	7.7843
2300	15.51	36808.0	41.7117	59128.9	-111036.3	-134311.8	9.7604	-188468.3	6.9691
2400	15.51	38359.0	42.3718	63333.3	-109485.3	-133900.6	9.2293	-187918.9	6.2240
2500	15.51	39910.0	43.0049	67602.4	-107934.3	-133489.4	8.7424	-187371.0	5.5405
2600	15.51	41461.0	43.6133	71933.5	-106383.3			-186825.2	4.9115
2700	15.51	43012.0	44.1986	76324.3	-104832.3			-186281.7	4.3307
2800	15.51	44563.0	44.7627	80772.5	-103281.3			-185741.1	3.7930
2900	15.51	46114.0	45.3069	85276.1	-101730.3			-185203.8	3.2938
3000	15.51	47665.0	45.8328	89833.3	-100179.3			-184670.1	2.8292
3100	15.51	49216.0	46.3413	94442.1	-98628.3			-184140.4	2.3959
3200	15.51	50767.0	46.8337	99101.0	-97077.3			-183615.3	1.9908
3300	15.51	52318.0	47.3110	103808.3	-95526.3			-183094.9	1.6113
3400	15.51	53869.0	47.7740	108562.7	-93975.3			-182579.9	1.2552
3500	15.51	55420.0	48.2236	113362.7	-92424.3			-182070.5	0.9204
3600	15.51	56971.0	48.6606	118207.0	-90873.3			-181567.1	0.6050
3700	15.51	58522.0	49.0855	123094.4	-89322.3			-181070.0	0.3075
3800	15.51	60073.0	49.4991	128023.7	-87771.3			-180579.7	0.0265
3900	15.51	61624.0	49.9020	132993.9	-86220.3			-180096.4	-0.2395
4000	15.51	63175.0	50.2947	138003.8	-84669.3			-179620.5	-0.4914
4100	15.51	64726.0	50.6777	143052.5	-83118.3			-179152.5	-0.7305
4200	15.51	66277.0	51.0514	148139.0	-81567.3			-178692.5	-0.9576
4300	15.51	67828.0	51.4164	153262.5	-80016.3			-178241.1	-1.1735
4400	15.51	69379.0	51.7730	158422.0	-78465.3			-177792.0	-1.3791
4500	15.51	70930.0	52.1215	163616.8	-76914.3			-177355.8	-1.5751
4600	15.51	72481.0	52.4624	168846.1	-75363.3			-176929.2	-1.7621
4700	15.51	74032.0	52.7960	174109.1	-73812.3			-176511.9	-1.9408
4800	15.51	75583.0	53.1225	179405.1	-72261.3			-176104.4	-2.1116
4900	15.51	77134.0	53.4423	184733.3	-70710.3			-175706.9	-2.2750
5000	15.51	78685.0	53.7557	190093.3	-69159.3			-175319.7	-2.4316
5100	15.51	80236.0	54.0628	195484.3	-67608.3			-174941.8	-2.5816
5200	15.51	81787.0	54.3640	200905.7	-66057.3			-174576.0	-2.7257
5300	15.51	83338.0	54.6594	206356.9	-64506.3			-174221.4	-2.8639
5400	15.51	84889.0	54.9493	211837.4	-62955.3			-173878.4	-2.9968
5500	15.51	86440.0	55.2339	217346.6	-61404.3			-173547.4	-3.1247
5600	15.51	87991.0	55.5134	222884.0	-59853.3			-173228.6	-3.2477
5700	15.51	89542.0	55.7879	228449.1	-58302.3			-172922.4	-3.3662
5800	15.51	91093.0	56.0577	234041.4	-56751.3			-172629.1	-3.4804
5900	15.51	92644.0	56.3228	239660.5	-55200.3			-172349.0	-3.5906
6000	15.51	94195.0	56.5835	245305.8	-53649.3			-172082.4	-3.6969

[a] H_0° refers to crystal state.

[b] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

[c] Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(115) $(LiF)_2$ (gas); molecular weight, 51.880

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-224285.2	-219963.2	-------	-332773.2	--------
100	8.9212	811.7	49.3501	4123.3	-223473.5	-220082.3	482.0945	-333952.2	714.4505
200	13.3361	1927.6	56.9045	9453.3	-222357.6	-220547.9	241.4056	-334881.5	349.1164
298.15	16.0654	3385.2	62.7978	15337.9	-220900.0	-220900.0	162.0146	-335466.4	228.5565
300	16.1013	3415.0	62.8973	15454.2	-220870.2	-220906.1	161.0160	-335475.2	227.0401
400	17.5122	5103.2	67.7443	21994.5	-219182.0	-221233.8	120.7591	-335860.8	165.9106
[a] 500	18.2798	6896.4	71.7425	28974.9	-217388.8	-223073.2	96.5013	-336125.5	129.1970
600	18.7330	8748.9	75.1187	36322.4	-215536.3	-223478.2	80.2372	-336316.4	104.7045
700	19.0198	10637.5	78.0296	43983.2	-213647.7	-223838.0	68.5998	-336459.9	87.2012
800	19.2118	12549.7	80.5826	51916.4	-211735.5	-224174.4	59.8584	-336571.4	74.0687
900	19.3461	14478.0	82.8536	60090.3	-209807.2	-224502.9	53.0492	-336660.4	63.8515
1000	19.4435	16417.7	84.8973	68479.6	-207867.5	-224825.8	47.5939	-336733.0	55.6758
1100	19.5164	18365.9	86.7540	77063.5	-205919.3	-225144.8	43.1243	-336793.2	48.9853
1200	19.5723	20320.4	88.4547	85825.2	-203964.8	-225460.6	39.3944	-336844.0	43.4089
1300	19.6160	22279.9	90.0231	94750.1	-202005.3	-225773.9	36.2334	-336887.5	38.6898
1400	19.6509	24243.3	91.4781	103826.0	-200041.9	-226085.2	33.5209	-336925.0	34.6443
1500	19.6791	26209.9	92.8349	113042.4	-198075.3	-226394.8	31.1664	-336957.9	31.1379
1600	19.7023	28179.0	94.1057	122390.1	-196106.2	-226702.9	29.1033	-336986.9	28.0695
1700	19.7216	30150.2	95.3007	131861.0	-194135.0	-227009.7	27.2807	-337012.9	25.3619
1800	19.7378	32123.2	96.4285	141448.0	-192162.0	-227315.4	25.6583	-337036.5	22.9549
1900	19.7515	34097.7	97.4960	151144.7	-190187.5	-227620.0	24.2048	-337058.5	20.8011
2000	19.7632	36073.4	98.5094	160945.4	-188211.8	-227923.7	22.8952	-337079.4	18.8627
2100	19.7733	38050.3	99.4739	170845.0	-186234.9	-228226.5	21.7085	-337100.0	17.1087
2200	19.7821	40028.1	100.3940	180838.7	-184257.2	-228528.4	20.6279	-337120.8	15.5140
2300	19.7898	42006.7	101.2735	190922.4	-182278.5	-228829.5	19.6406	-337142.7	14.0580
2400	19.7965	43986.0	102.1159	201092.2	-180299.2	-229129.9	18.7338	-337166.4	12.7232
2500	19.8024	45965.9	102.9242	211344.5	-178319.3	-229429.5	17.8988	-337192.7	11.4951
2600	19.8077	47946.4	103.7009	221676.0	-176338.8			-337222.5	10.3613
2700	19.8124	49927.5	104.4486	232083.7	-174357.8			-337256.7	9.3115
2800	19.8166	51908.9	105.1692	242564.8	-172376.3			-337296.0	8.3365
2900	19.8204	53890.8	105.8646	253116.7	-170394.4			-337341.4	7.4286
3000	19.8238	55873.0	106.5366	263736.9	-168412.2			-337393.8	6.5812
3100	19.8269	57855.5	107.1867	274423.3	-166429.7			-337454.0	5.7883
3200	19.8297	59838.4	107.8162	285173.6	-164446.9			-337522.8	5.0448
3300	19.8323	61821.5	108.4265	295985.9	-162463.8			-337601.0	4.3462
3400	19.8346	63804.8	109.0186	306858.3	-160480.4			-337689.6	3.6886
3500	19.8367	65788.4	109.5935	317789.0	-158496.8			-337789.2	3.0683
3600	19.8387	67772.1	110.1524	328776.5	-156513.1			-337900.6	2.4824
3700	19.8405	69756.1	110.6960	339819.0	-154529.1			-338024.6	1.9279
3800	19.8422	71740.2	111.2251	350915.2	-152545.0			-338161.7	1.4024
3900	19.8437	73724.5	111.7405	362063.6	-150560.7			-338312.9	0.9036
4000	19.8451	75709.0	112.2430	373262.8	-148576.2			-338478.8	0.4295
4100	19.8464	77693.5	112.7330	384511.7	-146591.7			-338660.0	-0.0216
4200	19.8477	79678.3	113.2113	395809.0	-144607.0			-338857.4	-0.4515
4300	19.8488	81663.1	113.6783	407153.6	-142622.1			-339071.7	-0.8617
4400	19.8499	83648.0	114.1346	418544.4	-140637.2			-339290.7	-1.2534
4500	19.8509	85633.1	114.5807	429980.2	-138652.2			-339535.1	-1.6281
4600	19.8518	87618.2	115.0170	441460.2	-136667.0			-339798.8	-1.9867
4700	19.8527	89603.4	115.4440	452983.3	-134681.8			-340081.1	-2.3303
4800	19.8535	91588.7	115.8620	464548.7	-132696.5			-340382.8	-2.6599
4900	19.8543	93574.1	116.2713	476155.4	-130711.1			-340704.3	-2.9763
5000	19.8550	95559.6	116.6724	487802.7	-128725.6			-341046.5	-3.2803
5100	19.8557	97545.1	117.0656	499489.6	-126740.1			-341407.2	-3.5728
5200	19.8563	99530.7	117.4512	511215.5	-124754.5			-341791.9	-3.8542
5300	19.8569	101516.4	117.8294	522979.6	-122768.8			-342199.0	-4.1254
5400	19.8575	103502.1	118.2006	534781.2	-120783.1			-342629.4	-4.3869
5500	19.8581	105487.9	118.5650	546619.5	-118797.3			-343083.5	-4.6392
5600	19.8586	107473.7	118.9228	558494.0	-116811.5			-343562.2	-4.8828
5700	19.8591	109459.6	119.2743	570403.9	-114825.6			-344065.9	-5.1182
5800	19.8595	111445.5	119.6197	582348.6	-112839.7			-344595.4	-5.3458
5900	19.8600	113431.5	119.9592	594327.6	-110853.7			-345151.2	-5.5660
6000	19.8604	115417.5	120.2930	606340.2	-108867.7			-345733.9	-5.7793

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(116) $(LiF)_3$ (gas); molecular weight, 77.820

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-349455.2	-342972.2	-------	-512187.2	--------
100	10.9998	864.6	53.9469	4530.1	-348590.6	-343503.7	747.9952	-514308.7	1096.5292
200	16.9245	2285.9	63.5628	10426.6	-347169.3	-344454.7	372.2421	-515955.2	533.8084
298.15	20.9917	4155.2	71.1130	17047.1	-345300.0	-345300.0	248.2023	-517149.7	348.0151
300	21.0583	4194.1	71.2431	17178.8	-345261.1	-345314.9	246.6413	-517168.5	345.6776
400	24.0965	6460.9	77.7432	24636.4	-342994.3	-346072.0	183.6912	-518012.6	251.4184
[a]500	26.1726	8981.2	83.3584	32698.0	-340474.0	-349000.7	145.7411	-518579.0	194.7846
600	27.5736	11673.0	88.2623	41284.4	-337782.2	-349695.0	120.2932	-518952.3	156.9942
700	28.5365	14481.4	92.5896	50331.3	-334973.8	-350259.3	102.0830	-519192.2	129.9851
800	29.2163	17370.9	96.4470	59786.7	-332084.3	-350742.6	88.4052	-519338.2	109.7207
900	29.7099	20318.5	99.9181	69607.9	-329136.7	-351180.2	77.7526	-519416.5	93.9561
1000	30.0775	23308.7	103.0683	79759.6	-326146.5	-351584.0	69.2203	-519444.7	81.3431
1100	30.3578	26331.1	105.9487	90212.5	-323124.1	-351962.2	62.2318	-519434.9	71.0233
1200	30.5758	29378.2	108.5999	100941.7	-320077.0	-352320.7	56.4019	-519395.9	62.4238
1300	30.7484	32444.7	111.0544	111926.0	-317010.5	-352663.4	51.4634	-519333.7	55.1480
1400	30.8872	35526.7	113.3383	123146.9	-313928.5	-352993.4	47.2273	-519253.2	48.9125
1500	31.0005	38621.3	115.4733	134588.7	-310833.9	-353313.1	43.5520	-519157.7	43.5093
1600	31.0940	41726.2	117.4771	146237.2	-307729.0	-353624.1	40.3331	-519050.0	38.7824
1700	31.1721	44839.6	119.3646	158080.2	-304615.6	-353927.7	37.4908	-518932.4	34.6125
1800	31.2380	47960.2	121.1483	170106.7	-301495.0	-354225.1	34.9619	-518806.8	30.9068
1900	31.2940	51086.9	122.8388	182306.8	-298368.3	-354517.1	32.6976	-518674.8	27.5920
2000	31.3420	54218.7	124.4452	194671.7	-295236.5	-354804.4	30.6584	-518538.0	24.6095
2100	31.3835	57355.1	125.9754	207193.3	-292100.1	-355087.4	28.8115	-518397.7	21.9117
2200	31.4196	60495.3	127.4362	219864.4	-288959.9	-355366.8	27.1307	-518255.4	19.4599
2300	31.4512	63638.8	128.8336	232678.4	-285816.4	-355642.8	25.5958	-518112.6	17.2219
2400	31.4790	66785.4	130.1727	245629.2	-282669.8	-355915.8	24.1868	-517970.6	15.1709
2500	31.5035	69934.5	131.4583	258711.2	-279520.7	-356186.0	22.8902	-517830.9	13.2846
2600	31.5254	73086.0	132.6943	271919.2	-276369.2			-517694.9	11.5438
2700	31.5448	76239.5	133.8845	285248.5	-273215.7			-517564.0	9.9323
2800	31.5623	79394.9	135.0320	298694.7	-270060.3			-517439.8	8.4364
2900	31.5780	82551.9	136.1398	312253.6	-266903.3			-517323.7	7.0439
3000	31.5922	85710.5	137.2106	325921.4	-263744.7			-517217.1	5.7446
3100	31.6050	88870.3	138.2467	339694.6	-260584.9			-517121.3	4.5293
3200	31.6167	92031.4	139.2504	353569.7	-257423.8			-517037.8	3.3901
3300	31.6273	95193.6	140.2234	367543.6	-254261.6			-516967.5	2.3202
3400	31.6371	98356.9	141.1677	381613.4	-251098.3			-516912.1	1.3133
3500	31.6460	101521.0	142.0849	395776.3	-247934.2			-516872.7	0.3641
3600	31.6541	104686.0	142.9766	410029.5	-244769.2			-516850.5	-0.5324
3700	31.6617	107851.8	143.8439	424370.8	-241603.4			-516846.5	-1.3804
3800	31.6686	111018.4	144.6884	438797.6	-238436.9			-516862.0	-2.1837
3900	31.6751	114185.5	145.5111	453307.7	-235269.7			-516898.0	-2.9459
4000	31.6810	117353.3	146.3131	467899.1	-232101.9			-516955.6	-3.6701
4100	31.6865	120521.7	147.0955	482569.7	-228933.5			-517036.0	-4.3590
4200	31.6917	123690.6	147.8591	497317.6	-225764.6			-517140.3	-5.0152
4300	31.6964	126860.1	148.6049	512140.9	-222595.2			-517269.5	-5.6411
4400	31.7009	130029.9	149.3336	527038.0	-219425.3			-517405.6	-6.2386
4500	31.7051	133200.2	150.0461	542007.1	-216255.0			-517579.4	-6.8098
4600	31.7090	136370.9	150.7430	557046.7	-213084.3			-517782.0	-7.3563
4700	31.7126	139542.0	151.4249	572155.2	-209913.2			-518012.2	-7.8798
4800	31.7161	142713.4	152.0926	587331.2	-206741.8			-518271.2	-8.3817
4900	31.7193	145885.2	152.7466	602573.3	-203570.0			-518559.8	-8.8634
5000	31.7223	149057.3	153.3875	617880.1	-200397.9			-518879.2	-9.3261
5100	31.7252	152229.7	154.0157	633250.3	-197225.5			-519226.1	-9.7709
5200	31.7279	155402.3	154.6318	648682.8	-194052.9			-519608.9	-10.1989
5300	31.7304	158575.3	155.2361	664176.3	-190880.0			-520025.3	-10.6111
5400	31.7328	161748.4	155.8293	679729.7	-187706.8			-520476.2	-11.0084
5500	31.7351	164921.8	156.4116	695341.8	-184533.4			-520962.7	-11.3915
5600	31.7373	168095.4	156.9834	711011.6	-181359.8			-521485.8	-11.7614
5700	31.7393	171269.3	157.5452	726738.1	-178185.9			-522046.4	-12.1186
5800	31.7412	174443.3	158.0972	742520.3	-175011.9			-522645.4	-12.4639
5900	31.7431	177617.5	158.6398	758357.2	-171837.7			-523283.9	-12.7979
6000	31.7448	180791.9	159.1733	774248.0	-168663.3			-523962.6	-13.1211

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(117) LiH (gas); molecular weight, 7.948

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	31544.3	33662.4	-------	-56016.0	--------
100	6.9645	688.8	33.1850	2629.7	32233.1	33853.8	-69.7780	-56320.8	119.4780
200	6.9837	1385.9	38.0162	6217.3	32930.2	33808.8	-32.7858	-56617.3	57.8112
298.15	7.1057	2076.1	40.8224	10095.1	33620.4	33620.4	-20.6511	-56902.4	37.4004
300	7.1094	2089.3	40.8664	10170.6	33633.6	33616.2	-20.4993	-56907.6	37.1432
400	7.3639	2812.2	42.9444	14365.5	34356.5	33369.0	-14.3970	-57178.3	26.7567
[a] 500	7.6550	3563.2	44.6190	18746.3	35107.5	32357.1	-10.7973	-57420.9	20.4963
600	7.9217	4342.4	46.0388	23280.9	35886.7	32073.2	-8.4500	-57635.4	16.3059
700	8.1459	5146.1	47.2774	27948.0	36690.4	31826.8	-6.7875	-57825.3	13.3022
800	8.3294	5970.2	48.3775	32731.8	37514.5	31605.9	-5.5495	-57994.8	11.0423
900	8.4789	6810.9	49.3675	37619.9	38355.2	31400.0	-4.5932	-58147.8	9.2798
1000	8.6019	7665.1	50.2674	42602.3	39209.4	31205.3	-3.8329	-58287.2	7.8662
1100	8.7044	8530.6	51.0922	47670.8	40074.9	31019.0	-3.2148	-58415.4	6.7069
1200	8.7911	9405.5	51.8534	52818.6	40949.8	30838.7	-2.7027	-58534.1	5.7388
1300	8.8657	10288.4	52.5601	58039.7	41832.7	30662.5	-2.2719	-58644.8	4.9180
1400	8.9308	11178.3	53.2195	63329.0	42722.5	30489.4	-1.9049	-58748.6	4.2132
1500	8.9885	12074.3	53.8377	68682.2	43618.6	30318.0	-1.5884	-58846.2	3.6014
1600	9.0403	12975.8	54.4195	74095.4	44520.1	30148.2	-1.3131	-58938.5	3.0651
1700	9.0874	13882.2	54.9690	79565.0	45426.5	29979.6	-1.0715	-59025.9	2.5912
1800	9.1307	14793.1	55.4896	85088.2	46337.4	29812.3	-0.8580	-59109.1	2.1694
1900	9.1708	15708.2	55.9844	90662.1	47252.5	29645.3	-0.6680	-59188.3	1.7914
2000	9.2084	16627.2	56.4557	96284.3	48171.5	29478.9	-0.4979	-59264.2	1.4508
2100	9.2438	17549.8	56.9059	101952.5	49094.1	29313.0	-0.3449	-59337.1	1.1422
2200	9.2775	18475.9	57.3367	107664.8	50020.2	29148.0	-0.2069	-59407.4	0.8614
2300	9.3097	19405.3	57.7498	113419.3	50949.6	28983.5	-0.0810	-59475.6	0.6047
2400	9.3406	20337.8	58.1467	119214.2	51882.1	28819.8	0.0331	-59542.1	0.3691
2500	9.3704	21273.4	58.5286	125048.1	52817.7	28657.0	0.1379	-59607.5	0.1521
2600	9.3994	22211.9	58.8967	130919.5	53756.2			-59672.0	-0.0484
2700	9.4275	23153.2	59.2519	136827.0	54697.5			-59736.3	-0.2343
2800	9.4549	24097.3	59.5953	142769.5	55641.6			-59800.7	-0.4071
2900	9.4817	25044.2	59.9276	148745.7	56588.5			-59865.8	-0.5681
3000	9.5080	25993.7	60.2494	154754.7	57538.0			-59932.0	-0.7186
3100	9.5338	26945.8	60.5616	160795.3	58490.1			-59999.8	-0.8595
3200	9.5592	27900.4	60.8647	166866.7	59444.7			-60069.6	-0.9917
3300	9.5843	28857.6	61.1593	172967.9	60401.9			-60141.8	-1.1161
3400	9.6090	29817.3	61.4457	179098.3	61361.6			-60216.8	-1.2333
3500	9.6335	30779.4	61.7246	185256.8	62323.7			-60295.1	-1.3440
3600	9.6577	31744.0	61.9964	191443.0	63288.3			-60377.0	-1.4486
3700	9.6817	32710.9	62.2613	197655.9	64255.2			-60462.9	-1.5478
3800	9.7054	33680.3	62.5198	203895.0	65224.6			-60553.2	-1.6418
3900	9.7290	34652.0	62.7722	210159.7	66196.3			-60648.3	-1.7312
4000	9.7524	35626.1	63.0188	216449.3	67170.4			-60748.4	-1.8162
4100	9.7757	36602.5	63.2599	222763.2	68146.8			-60854.1	-1.8972
4200	9.7988	37581.2	63.4958	229101.1	69125.5			-60965.6	-1.9745
4300	9.8218	38562.2	63.7266	235462.2	70106.5			-61083.3	-2.0484
4400	9.8447	39545.6	63.9527	241846.2	71089.9			-61201.2	-2.1190
4500	9.8675	40531.2	64.1742	248252.6	72075.5			-61329.6	-2.1866
4600	9.8902	41519.1	64.3913	254680.9	73063.4			-61465.4	-2.2514
4700	9.9128	42509.2	64.6042	261130.7	74053.5			-61608.4	-2.3136
4800	9.9353	43501.6	64.8132	267601.6	75045.9			-61758.8	-2.3734
4900	9.9577	44496.3	65.0183	274093.2	76040.6			-61917.1	-2.4308
5000	9.9801	45493.2	65.2197	280605.2	77037.4			-62083.4	-2.4861
5100	10.0024	46492.3	65.4175	287137.0	78036.6			-62256.8	-2.5394
5200	10.0247	47493.6	65.6120	293688.5	79037.9			-62440.1	-2.5908
5300	10.0469	48497.2	65.8031	300259.3	80041.5			-62632.4	-2.6404
5400	10.0690	49503.0	65.9911	306849.1	81047.3			-62834.1	-2.6883
5500	10.0912	50511.0	66.1761	313457.4	82055.3			-63045.6	-2.7346
5600	10.1132	51521.2	66.3581	320084.2	83065.5			-63267.1	-2.7794
5700	10.1352	52533.7	66.5373	326729.0	84078.0			-63499.1	-2.8228
5800	10.1572	53548.3	66.7138	333391.6	85092.6			-63741.7	-2.8648
5900	10.1792	54565.1	66.8876	340071.6	86109.4			-63995.4	-2.9056
6000	10.2011	55584.1	67.0589	346769.0	87128.4			-64260.3	-2.9452

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(118) LiO (gas); molecular weight, 22.940

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	11892.9	14036.5	-------	-83000.5	--------
100	6.9577	694.7	41.6145	3466.8	12587.6	14266.4	-26.9883	-83329.6	178.0522
200	7.0274	1392.3	46.4481	7897.3	13285.3	14175.5	-11.4237	-83686.2	86.8430
298.15	7.3149	2094.8	49.3017	12604.6	13987.7	13987.7	-6.3525	-83994.0	56.6906
300	7.3217	2108.3	49.3470	12695.8	14001.3	13983.8	-6.2893	-83999.3	56.3109
400	7.6864	2858.9	51.5037	17742.6	14751.8	13756.3	-3.7607	-84263.5	40.9908
[a]500	7.9960	3643.6	53.2536	22983.2	15536.6	12761.9	-2.3031	-84486.1	31.7718
600	8.2316	4455.6	54.7333	28384.4	16348.5	12483.3	-1.3831	-84677.3	25.6106
700	8.4074	5287.9	56.0160	33923.3	17180.9	12227.5	-0.7399	-84845.6	21.2003
800	8.5398	6135.6	57.1477	39582.6	18028.6	11984.2	-0.2672	-84996.9	17.8864
900	8.6415	6994.9	58.1597	45348.8	18887.8	11745.4	0.0930	-85135.5	15.3044
1000	8.7217	7863.2	59.0745	51211.3	19756.1	11510.1	0.3754	-85264.2	13.2356
1100	8.7863	8738.7	59.9089	57161.1	20631.7	11277.6	0.6019	-85385.1	11.5405
1200	8.8395	9620.1	60.6757	63190.8	21513.0	11047.3	0.7868	-85499.8	10.1259
1300	8.8844	10506.3	61.3851	69294.3	22399.3	10819.0	0.9398	-85609.1	8.9274
1400	8.9230	11396.8	62.0450	75466.2	23289.7	10592.4	1.0685	-85714.1	7.8988
1500	8.9567	12290.8	62.6618	81701.9	24183.7	10367.3	1.1776	-85815.3	7.0063
1600	8.9866	13188.0	63.2408	87997.3	25080.9	10143.4	1.2709	-85913.1	6.2245
1700	9.0136	14088.0	63.7864	94346.9	25981.0	9920.6	1.3515	-86008.2	5.5338
1800	9.0382	14990.6	64.3023	100753.6	26883.6	9698.7	1.4216	-86100.7	4.9192
1900	9.0608	15895.6	64.7916	107208.5	27788.5	9477.4	1.4829	-86191.1	4.3688
2000	9.0819	16802.7	65.2569	113711.1	28695.7	9256.8	1.5369	-86279.8	3.8728
2100	9.1018	17711.9	65.7005	120259.1	29604.9	9036.6	1.5845	-86367.1	3.4237
2200	9.1205	18623.0	66.1244	126850.5	30516.0	8816.8	1.6266	-86453.4	3.0149
2300	9.1384	19536.0	66.5302	133483.4	31428.9	8597.2	1.6643	-86539.1	2.6414
2400	9.1555	20450.7	66.9195	140156.0	32343.6	8377.9	1.6978	-86624.7	2.2986
2500	9.1719	21367.1	67.2935	146866.8	33260.0	8158.8	1.7280	-86710.6	1.9829
2600	9.1879	22285.1	67.6536	153614.3	34178.0			-86797.3	1.6912
2700	9.2033	23204.6	68.0006	160397.1	35097.6			-86885.4	1.4209
2800	9.2184	24125.7	68.3356	167214.0	36018.7			-86975.2	1.1696
2900	9.2331	25048.3	68.6594	174063.8	36941.2			-87067.4	0.9354
3000	9.2475	25972.3	68.9726	180945.5	37865.3			-87162.4	0.7166
3100	9.2616	26897.8	69.2761	187858.0	38790.7			-87260.8	0.5116
3200	9.2755	27824.6	69.5703	194800.4	39717.6			-87362.9	0.3193
3300	9.2892	28752.9	69.8560	201771.8	40645.8			-87469.3	0.1384
3400	9.3027	29682.5	70.1335	208771.4	41575.4			-87580.4	-0.0321
3500	9.3160	30613.4	70.4033	215798.3	42506.4			-87696.8	-0.1930
3600	9.3292	31545.7	70.6660	222851.8	43438.6			-87818.7	-0.3452
3700	9.3423	32479.3	70.9218	229931.2	44372.2			-87946.8	-0.4894
3800	9.3552	33414.1	71.1711	237035.9	45307.1			-88081.2	-0.6262
3900	9.3681	34350.3	71.4142	244165.2	46243.2			-88222.6	-0.7562
4000	9.3808	35287.7	71.6516	251318.6	47180.7			-88371.1	-0.8799
4100	9.3935	36226.5	71.8834	258495.4	48119.4			-88527.4	-0.9978
4200	9.4061	37166.4	72.1099	265695.1	49059.4			-88691.6	-1.1102
4300	9.4186	38107.7	72.3314	272917.2	50000.6			-88864.4	-1.2177
4400	9.4310	39050.2	72.5480	280161.2	50943.1			-89039.4	-1.3204
4500	9.4434	39993.9	72.7601	287426.6	51886.8			-89227.3	-1.4188
4600	9.4557	40938.8	72.9678	294713.0	52831.8			-89424.8	-1.5131
4700	9.4680	41885.0	73.1713	302020.0	53778.0			-89631.7	-1.6036
4800	9.4803	42832.4	73.3708	309347.2	54725.4			-89848.3	-1.6905
4900	9.4924	43781.1	73.5664	316694.1	55674.0			-90074.9	-1.7741
5000	9.5046	44730.9	73.7582	324060.3	56623.9			-90311.9	-1.8545
5100	9.5167	45682.0	73.9466	331445.6	57574.9			-90558.2	-1.9320
5200	9.5288	46634.3	74.1315	338849.5	58527.2			-90816.5	-2.0068
5300	9.5409	47587.7	74.3131	346271.8	59480.7			-91086.1	-2.0789
5400	9.5529	48542.4	74.4916	353712.0	60435.4			-91367.3	-2.1485
5500	9.5649	49498.3	74.6670	361170.0	61391.3			-91660.5	-2.2159
5600	9.5769	50455.4	74.8394	368645.3	62348.4			-91965.8	-2.2810
5700	9.5888	51413.7	75.0090	376137.8	63306.6			-92283.7	-2.3441
5800	9.6008	52373.2	75.1759	383647.0	64266.1			-92614.3	-2.4052
5900	9.6127	53333.8	75.3401	391172.9	65226.8			-92958.1	-2.4644
6000	9.6246	54295.7	75.5018	398715.0	66188.7			-93315.2	-2.5219

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(119) Li_2O (gas); molecular weight, 29.880

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-38032.3	-34782.5	-------	-169869.0	--------
100	7.9643	795.1	46.7794	3882.9	-37237.2	-34570.2	80.4861	-170595.1	363.8312
200	8.4698	1610.1	52.4094	8871.8	-36422.2	-34984.5	42.5614	-171331.1	177.1054
298.15	9.4923	2489.8	55.9744	14199.0	-35542.5	-35542.5	29.8916	-171949.2	115.3755
300	9.5128	2507.4	56.0332	14302.6	-35524.9	-35553.4	29.7308	-171959.7	114.5983
400	10.5445	3511.8	58.9155	20054.4	-34520.5	-36149.9	23.2076	-172466.9	83.2382
[a]500	11.3510	4608.6	61.3595	26071.2	-33423.7	-38245.9	19.1606	-172874.3	64.3714
600	11.9384	5774.6	63.4839	32315.7	-32257.7	-38883.4	16.3524	-173208.2	51.7663
700	12.3617	6990.8	65.3578	38759.7	-31041.5	-39454.5	14.3148	-173489.5	42.7466
800	12.6700	8243.2	67.0296	45380.5	-29789.1	-39985.3	12.7653	-173732.9	35.9716
900	12.8987	9522.1	68.5358	52160.1	-28510.2	-40495.4	11.5441	-173948.6	30.6951
1000	13.0718	10821.1	69.9042	59083.1	-27211.2	-40989.9	10.5549	-174143.5	26.4689
1100	13.2052	12135.2	71.1566	66137.0	-25897.1	-41472.4	9.7360	-174322.7	23.0074
1200	13.3099	13461.1	72.3102	73311.1	-24571.2	-41945.5	9.0456	-174489.5	20.1200
1300	13.3934	14796.5	73.3790	80596.3	-23235.8	-42410.9	8.4545	-174646.7	17.6745
1400	13.4609	16139.3	74.3741	87984.5	-21893.0	-42870.1	7.9428	-174796.1	15.5765
1500	13.5162	17488.2	75.3048	95468.9	-20544.1	-43324.1	7.4943	-174939.2	13.7567
1600	13.5621	18842.2	76.1786	103043.6	-19190.1	-43773.8	7.0976	-175077.2	12.1632
1700	13.6004	20200.4	77.0020	110703.0	-17831.9	-44219.8	6.7442	-175211.1	10.7560
1800	13.6329	21562.1	77.7803	118442.5	-16470.2	-44662.9	6.4267	-175341.8	9.5042
1900	13.6605	22926.8	78.5182	126257.7	-15105.5	-45103.4	6.1400	-175470.0	8.3833
2000	13.6843	24294.1	79.2195	134144.9	-13738.2	-45541.7	5.8797	-175596.6	7.3738
2100	13.7049	25663.6	79.8876	142100.5	-12368.7	-45978.2	5.6416	-175722.3	6.4598
2200	13.7228	27035.0	80.5256	150121.4	-10997.3	-46413.2	5.4228	-175847.9	5.6283
2300	13.7384	28408.0	81.1360	158204.7	-9624.3	-46846.8	5.2217	-175974.3	4.8686
2400	13.7522	29782.6	81.7210	166347.7	-8249.7	-47279.2	5.0351	-176102.2	4.1716
2500	13.7645	31158.4	82.2826	174548.1	-6873.9	-47710.7	4.8623	-176232.7	3.5300
2600	13.7753	32535.4	82.8227	182803.5	-5496.9			-176366.7	2.9372
2700	13.7850	33913.5	83.3428	191112.0	-4118.8			-176505.1	2.3880
2800	13.7937	35292.4	83.8443	199471.5	-2739.9			-176648.8	1.8776
2900	13.8016	36672.2	84.3284	207880.3	-1360.1			-176798.9	1.4019
3000	13.8087	38052.7	84.7964	216336.6	20.4			-176956.3	0.9576
3100	13.8151	39433.9	85.2493	224839.0	1401.6			-177122.0	0.5416
3200	13.8209	40815.7	85.6880	233386.0	2783.4			-177296.8	0.1512
3300	13.8262	42198.1	86.1134	241976.2	4165.8			-177481.6	-0.2159
3400	13.8311	43580.9	86.5262	250608.3	5548.6			-177677.4	-0.5618
3500	13.8355	44964.3	86.9272	259281.1	6932.0			-177884.9	-0.8882
3600	13.8396	46348.0	87.3171	267993.4	8315.7			-178105.0	-1.1970
3700	13.8434	47732.2	87.6963	276744.1	9699.9			-178338.5	-1.4894
3800	13.8469	49116.7	88.0655	285532.3	11084.4			-178586.2	-1.7668
3900	13.8501	50501.5	88.4252	294356.9	12469.2			-178848.8	-2.0303
4000	13.8531	51886.7	88.7759	303217.0	13854.4			-179127.1	-2.2810
4100	13.8558	53272.1	89.1180	312111.8	15239.8			-179421.9	-2.5199
4200	13.8584	54657.9	89.4520	321040.4	16625.6			-179733.8	-2.7478
4300	13.8608	56043.8	89.7781	330001.9	18011.5			-180063.8	-2.9655
4400	13.8630	57430.0	90.0968	338995.7	19397.7			-180399.6	-3.1736
4500	13.8651	58816.4	90.4083	348021.0	20784.1			-180761.9	-3.3730
4600	13.8671	60203.0	90.7131	357077.2	22170.7			-181144.7	-3.5640
4700	13.8689	61589.8	91.0113	366163.4	23557.5			-181547.2	-3.7473
4800	13.8706	62976.8	91.3033	375279.2	24944.5			-181970.3	-3.9234
4900	13.8722	64363.9	91.5894	384423.9	26331.6			-182414.5	-4.0926
5000	13.8738	65751.2	91.8696	393596.9	27718.9			-182880.4	-4.2556
5100	13.8752	67138.7	92.1444	402797.7	29106.4			-183366.0	-4.4125
5200	13.8765	68526.3	92.4138	412025.6	30494.0			-183876.9	-4.5638
5300	13.8778	69914.0	92.6782	421280.3	31881.7			-184411.3	-4.7098
5400	13.8790	71301.8	92.9376	430561.1	33269.5			-184970.1	-4.8508
5500	13.8802	72689.8	93.1923	439867.6	34657.5			-185553.8	-4.9872
5600	13.8812	74077.9	93.4424	449199.4	36045.6			-186163.1	-5.1190
5700	13.8823	75466.1	93.6881	458555.9	37433.8			-186798.6	-5.2467
5800	13.8832	76854.3	93.9295	467936.9	38822.0			-187461.0	-5.3704
5900	13.8842	78242.7	94.1668	477341.7	40210.4			-188150.7	-5.4903
6000	13.8850	79631.2	94.4002	486770.1	41598.9			-188868.4	-5.6067

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(120) Li_2O (crystal, liquid); molecular weight, 29.880

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-144132.2	-140882.4	-------	-275968.9	--------
100	2.497	64.3	0.868	22.5	-144067.9	-141400.9	303.9197	-277425.8	587.2648
200	8.892	643.2	4.680	292.8	-143489.0	-142051.3	149.1222	-278397.8	283.6662
298.15	12.927	1732.2	9.056	967.8	-142400.0	-142400.0	97.9630	-278806.7	183.4469
300	12.980	1756.0	9.135	984.5	-142376.2	-142404.7	97.3191	-278811.0	182.1866
400	15.2585	3181.2	13.2207	2107.1	-140951.0	-142580.4	71.3696	-278897.4	131.4002
b 500	16.6270	4779.7	16.7820	3611.3	-139352.5	-144174.7	55.7179	-278803.0	100.9286
600	17.6481	6495.3	19.9072	5449.0	-137636.9	-144262.6	45.2117	-278587.4	80.6256
700	18.5052	8304.0	22.6935	7581.5	-135828.2	-144241.2	37.7053	-278276.2	66.1371
800	19.2749	10193.5	25.2155	9978.9	-133938.7	-144134.9	32.0782	-277882.5	55.2845
900	19.9937	12157.3	27.5276	12617.6	-131974.9	-143960.2	27.7057	-277413.4	46.8567
1000	20.6810	14191.2	29.6700	15478.8	-129941.0	-143719.6	24.2126	-276873.3	40.1267
1100	21.3477	16292.8	31.6725	18546.9	-127839.4	-143414.7	21.3603	-276265.0	34.6317
1200	22.0003	18460.3	33.5580	21809.4	-125671.9	-143046.3	18.9888	-275590.3	30.0632
1300	22.6430	20692.5	35.3444	25255.2	-123439.7	-142614.8	16.9874	-274850.5	26.2074
1400	23.2785	22988.6	37.0457	28875.4	-121143.6	-142120.7	15.2781	-274046.6	22.9118
1500	23.9088	25348.0	38.6733	32661.9	-118784.2	-141564.2	13.8018	-273179.3	20.0642
1600	24.5350	27770.2	40.2364	36607.9	-116361.9	-140945.6	12.5152	-272249.0	17.5808
c 1700	25.1580	30254.9	41.7425	40707.3	-113877.3	-140265.2	11.3855	-271256.5	15.3973
1700	21.5	44534.9	50.1425	40707.3	-99597.3	-125963.2	11.3855	-256931.7	15.3973
1800	21.5	46684.9	51.3709	45782.7	-97447.3	-125640.0	10.4867	-256318.9	13.5642
1900	21.5	48834.9	52.5333	50978.5	-95297.3	-125295.2	9.6850	-255661.8	11.9284
2000	21.5	50984.9	53.6362	56287.4	-93147.3	-124950.8	8.9657	-255005.7	10.4599
2100	21.5	53134.9	54.6851	61703.9	-90997.3	-124606.8	8.3165	-254350.9	9.1347
2200	21.5	55284.9	55.6853	67222.8	-88847.3	-124263.1	7.7275	-253697.9	7.9331
2300	21.5	57434.9	56.6410	72839.5	-86697.3	-123919.8	7.1918	-253047.3	6.8387
2400	21.5	59584.9	57.5561	78549.7	-84547.3	-123576.8	6.7017	-252399.8	5.8382
2500	21.5	61734.9	58.4337	84349.4	-82397.3	-123234.1	6.2523	-251756.2	4.9200
2600	21.5	63884.9	59.2770	90235.3	-80247.3			-251117.2	4.0746
2700	21.5	66034.9	60.0884	96203.8	-78097.3			-250483.6	3.2939
2800	21.5	68184.9	60.8703	102252.0	-75947.3			-249856.3	2.5707
2900	21.5	70334.9	61.6248	108376.9	-73797.3			-249236.1	1.8990
3000	21.5	72484.9	62.3536	114576.0	-71647.3			-248624.1	1.2737
3100	21.5	74634.9	63.0586	120846.9	-69497.3			-248020.9	0.6902
3200	21.5	76784.9	63.7412	127187.0	-67347.3			-247427.5	0.1445
3300	21.5	78934.9	64.4028	133594.4	-65197.3			-246844.6	-0.3670
3400	21.5	81084.9	65.0447	140066.9	-63047.3			-246273.3	-0.8472
3500	21.5	83234.9	65.6679	146602.7	-60897.3			-245714.2	-1.2990
3600	21.5	85384.9	66.2736	153199.9	-58747.3			-245168.1	-1.7247
3700	21.5	87534.9	66.8626	159856.9	-56597.3			-244635.7	-2.1265
3800	21.5	89684.9	67.4360	166571.9	-54447.3			-244117.9	-2.5064
3900	21.5	91834.9	67.9945	173343.6	-52297.3			-243615.4	-2.8660
4000	21.5	93984.9	68.5388	180170.4	-50147.3			-243128.8	-3.2069
4100	21.5	96134.9	69.0697	187050.9	-47997.3			-242659.0	-3.5306
4200	21.5	98284.9	69.5878	193983.9	-45847.3			-242206.7	-3.8383
4300	21.5	100434.9	70.0937	200968.1	-43697.3			-241772.6	-4.1311
4400	21.5	102584.9	70.5880	208002.2	-41547.3			-241344.6	-4.4101
4500	21.5	104734.9	71.0712	215085.3	-39397.3			-240943.3	-4.6762
4600	21.5	106884.9	71.5437	222216.1	-37247.3			-240562.7	-4.9304
4700	21.5	109034.9	72.0061	229393.7	-35097.3			-240202.1	-5.1734
4800	21.5	111184.9	72.4587	236617.0	-32947.3			-239862.1	-5.4059
4900	21.5	113334.9	72.9020	243885.1	-30797.3			-239543.4	-5.6286
5000	21.5	115484.9	73.3364	251197.1	-28647.3			-239246.6	-5.8422
5100	21.5	117634.9	73.7622	258552.1	-26497.3			-238969.8	-6.0471
5200	21.5	119784.9	74.1796	265949.3	-24347.3			-238718.2	-6.2439
5300	21.5	121934.9	74.5892	273387.8	-22197.3			-238490.3	-6.4331
5400	21.5	124084.9	74.9911	280866.0	-20047.3			-238287.0	-6.6151
5500	21.5	126234.9	75.3856	288385.7	-17897.3			-238108.6	-6.7904
5600	21.5	128384.9	75.7730	295943.7	-15747.3			-237956.0	-6.9593
5700	21.5	130534.9	76.1535	303540.1	-13597.3			-237829.7	-7.1221
5800	21.5	132684.9	76.5274	311174.2	-11447.3			-237730.3	-7.2793
5900	21.5	134834.9	76.8950	318845.4	-9297.3			-237658.4	-7.4311
6000	21.5	136984.9	77.2563	326553.0	-7147.3			-237614.5	-7.5778

[a] H_0° refers to crystal state.

[b] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

[c] Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(121) LiOH (gas); molecular weight, 23.948

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-59602.1	-56446.6	-------	-205111.5	--------
100	7.9492	794.9	43.7866	3583.8	-58807.2	-56495.9	125.4651	-205837.7	441.4530
200	8.0434	1592.2	49.3100	8269.8	-58009.9	-56788.6	63.6274	-206591.4	216.2138
298.15	8.5190	2402.1	52.5982	13280.1	-57200.0	-57200.0	43.1374	-207279.5	141.7910
300	8.5308	2417.8	52.6510	13377.5	-57184.2	-57208.1	42.8786	-207291.7	140.8541
400	9.1994	3304.3	55.1964	18774.3	-56297.8	-57646.9	32.4241	-207916.9	103.0503
[a] 500	9.7986	4255.2	57.3158	24402.7	-55346.9	-58824.5	26.0700	-208470.1	80.3027
600	10.2759	5259.9	59.1462	30227.9	-54342.2	-59260.4	21.7697	-208965.4	65.0991
700	10.6547	6307.1	60.7598	36224.8	-53295.0	-59652.4	18.6763	-209415.7	54.2147
800	10.9665	7388.6	62.2035	42374.2	-52213.5	-60014.7	16.3416	-209830.0	46.0345
900	11.2335	8498.9	63.5109	48660.9	-51103.2	-60358.0	14.5151	-210214.3	39.6599
1000	11.4688	9634.2	64.7069	55072.7	-49967.9	-60685.4	13.0457	-210572.8	34.5512
1100	11.6795	10791.8	65.8100	61599.2	-48810.2	-60999.0	11.8369	-210908.5	30.3644
1200	11.8695	11969.4	66.8346	68232.1	-47632.6	-61300.9	10.8246	-211223.7	26.8701
1300	12.0412	13165.1	67.7915	74963.9	-46437.0	-61592.6	9.9638	-211520.5	23.9090
1400	12.1965	14377.1	68.6897	81788.4	-45224.9	-61875.7	9.2224	-211800.7	21.3675
1500	12.3367	15603.9	69.5360	88700.1	-43998.2	-62151.6	8.5771	-212065.9	19.1620
1600	12.4632	16844.0	70.3363	95694.1	-42758.1	-62421.3	8.0100	-212317.7	17.2298
1700	12.5773	18096.1	71.0954	102766.0	-41505.9	-62685.6	7.5075	-212557.4	15.5230
1800	12.6803	19359.1	71.8172	109911.9	-40243.0	-62945.2	7.0588	-212786.4	14.0042
1900	12.7732	20631.8	72.5053	117128.3	-38970.2	-63201.8	6.6559	-213005.8	12.6437
2000	12.8572	21913.4	73.1627	124412.0	-37688.6	-63455.6	6.2917	-213216.9	11.4181
2100	12.9330	23203.0	73.7919	131759.9	-36399.1	-63707.2	5.9609	-213420.6	10.3082
2200	13.0017	24499.8	74.3951	139169.5	-35102.3	-63957.1	5.6588	-213618.1	9.2982
2300	13.0640	25803.1	74.9745	146638.1	-33798.9	-64206.0	5.3823	-213810.2	8.3752
2400	13.1206	27112.4	75.5317	154163.6	-32489.6	-64453.9	5.1273	-213998.0	7.5283
2500	13.1721	28427.1	76.0684	161743.8	-31175.0	-64701.3	4.8922	-214182.5	6.7485
2600	13.2190	29746.7	76.5859	169376.7	-29855.4			-214364.4	6.0281
2700	13.2619	31070.8	77.0856	177060.4	-28531.3			-214544.8	5.3605
2800	13.3011	32398.9	77.5686	184793.2	-27203.1			-214724.4	4.7401
2900	13.3370	33730.9	78.0360	192573.6	-25871.2			-214904.0	4.1619
3000	13.3700	35066.2	78.4887	200399.9	-24535.8			-215084.5	3.6219
3100	13.4003	36404.8	78.9276	208270.9	-23197.3			-215266.5	3.1162
3200	13.4283	37746.2	79.3535	216185.0	-21855.8			-215450.9	2.6418
3300	13.4541	39090.4	79.7671	224141.2	-20511.7			-215638.2	2.1957
3400	13.4780	40437.0	80.1691	232138.1	-19165.1			-215829.1	1.7755
3500	13.5001	41785.9	80.5602	240174.6	-17816.2			-216024.3	1.3790
3600	13.5206	43137.0	80.9408	248249.8	-16465.1			-216224.3	1.0041
3700	13.5397	44490.0	81.3115	256362.4	-15112.1			-216429.7	0.6492
3800	13.5574	45844.9	81.6728	264511.7	-13757.2			-216641.0	0.3126
3900	13.5740	47201.4	82.0252	272696.7	-12400.6			-216858.7	-0.0070
4000	13.5894	48559.6	82.3690	280916.5	-11042.4			-217083.4	-0.3109
4100	13.6038	49919.3	82.7048	289170.2	-9682.8			-217315.5	-0.6004
4200	13.6173	51280.4	83.0327	297457.2	-8321.7			-217555.5	-0.8763
4300	13.6300	52642.7	83.3533	305776.5	-6959.3			-217803.9	-1.1397
4400	13.6418	54006.3	83.6668	314127.6	-5595.8			-218054.7	-1.3914
4500	13.6529	55371.1	83.9735	322509.7	-4231.0			-218318.3	-1.6322
4600	13.6634	56736.9	84.2737	330922.1	-2865.2			-218591.7	-1.8629
4700	13.6733	58103.7	84.5676	339364.2	-1498.3			-218874.8	-2.0840
4800	13.6826	59471.5	84.8556	347835.4	-130.5			-219167.8	-2.2961
4900	13.6913	60840.2	85.1378	356335.1	1238.2			-219471.2	-2.4999
5000	13.6996	62209.8	85.4145	364862.8	2607.7			-219785.3	-2.6958
5100	13.7074	63580.1	85.6859	373417.9	3978.1			-220109.1	-2.8843
5200	13.7149	64951.3	85.9521	381999.8	5349.2			-220445.4	-3.0658
5300	13.7219	66323.1	86.2134	390608.1	6721.0			-220793.5	-3.2408
5400	13.7285	67695.6	86.4700	399242.3	8093.5			-221153.7	-3.4095
5500	13.7348	69068.8	86.7220	407902.0	9466.7			-221526.3	-3.5724
5600	13.7408	70442.6	86.9695	416586.6	10840.5			-221911.8	-3.7297
5700	13.7465	71816.9	87.2127	425295.7	12214.9			-222310.4	-3.8817
5800	13.7519	73191.9	87.4519	434029.0	13589.8			-222722.4	-4.0288
5900	13.7571	74567.3	87.6870	442786.0	14965.2			-223148.2	-4.1712
6000	13.7620	75943.3	87.9183	451566.3	16341.2			-223588.1	-4.3091

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(122) LiOH (crystal, liquid); molecular weight, 23.948

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-118221.7	-115066.2	-------	-263731.1	--------
100	3.491	133.5	2.047	71.2	-118088.2	-115777.0	245.8958	-265118.8	561.8837
200	8.617	751.7	6.125	473.3	-117470.0	-116248.7	119.1617	-266051.6	271.7481
298.15	11.849	1771.7	10.231	1278.7	-116450.0	-116450.0	77.3078	-266529.4	175.9615
300	11.888	1793.5	10.304	1297.7	-116428.2	-116452.1	76.7813	-266535.7	174.7568
400	13.8671	3091.8	14.026	2518.6	-115129.8	-116479.0	55.5695	-266748.9	126.1958
[b]500	15.2012	4548.1	17.2701	4087.0	-113673.6	-117151.2	42.8118	-266796.8	97.0445
600	16.3023	6124.5	20.1413	5960.2	-112097.2	-117015.4	34.2818	-266720.4	77.6112
700	17.2933	7805.0	22.7297	8105.8	-110416.7	-116774.2	28.1986	-266537.4	63.7370
[c]744.3	17.7118	8580.4	23.8036	9136.7	-109641.3	-116229.8	25.9964	-264730.9	58.7079
744.3	20.74	13590.4	30.5348	9136.7	-104631.3	-111510.9	25.9964	-261150.2	58.7079
800	20.74	14745.6	32.0315	10879.6	-103476.1	-111277.3	23.7515	-261092.6	53.4443
900	20.74	16819.6	34.4743	14207.3	-101402.1	-110656.9	20.3831	-260513.3	45.5279
1000	20.74	18893.6	36.6595	17765.9	-99328.1	-110045.6	17.7034	-259933.1	39.2089
1100	20.74	20967.6	38.6363	21532.3	-97254.1	-109442.9	15.5228	-259352.4	34.0503
1200	20.74	23041.6	40.4409	25487.5	-95180.1	-108848.3	13.7157	-258771.2	29.7612
1300	20.74	25115.6	42.1010	29615.7	-93106.1	-108261.8	12.1948	-258189.6	26.1400
1400	20.74	27189.6	43.6380	33903.6	-91032.1	-107682.8	10.8981	-257607.8	23.0432
1500	20.74	29263.6	45.0689	38339.7	-88958.1	-107111.6	9.7804	-257025.8	20.3653
1600	20.74	31337.6	46.4074	42914.3	-86884.1	-106547.3	8.8076	-256443.7	18.0275
1700	20.74	33411.6	47.6647	47618.5	-84810.1	-105989.7	7.9538	-255861.6	15.9694
1800	20.74	35485.6	48.8502	52444.8	-82736.1	-105438.3	7.1987	-255279.6	14.1441
1900	20.74	37559.6	49.9716	57386.4	-80662.1	-104893.7	6.5268	-254697.8	12.5147
2000	20.74	39633.6	51.0354	62437.2	-78588.1	-104355.1	5.9251	-254116.4	11.0515
2100	20.74	41707.6	52.0473	67591.7	-76514.1	-103822.3	5.3835	-253535.7	9.7308
2200	20.74	43781.6	53.0121	72845.1	-74440.1	-103295.0	4.8934	-252955.9	8.5328
2300	20.74	45855.6	53.9341	78192.7	-72366.1	-102773.2	4.4487	-252377.4	7.4415
2400	20.74	47929.6	54.8167	83630.6	-70292.1	-102256.4	4.0425	-251800.5	6.4435
2500	20.74	50003.6	55.6634	89154.9	-68218.1	-101744.5	3.6711	-251225.6	5.5274
2600	20.74	52077.6	56.4768	94762.2	-66144.1			-250653.2	4.6837
2700	20.74	54151.6	57.2596	100449.2	-64070.1			-250083.6	3.9043
2800	20.74	56225.6	58.0138	106213.1	-61996.1			-249517.4	3.1821
2900	20.74	58299.6	58.7416	112051.1	-59922.1			-248954.9	2.5113
3000	20.74	60373.6	59.4447	117960.6	-57848.1			-248396.8	1.8867
3100	20.74	62447.6	60.1248	123939.3	-55774.1			-247843.4	1.3036
3200	20.74	64521.6	60.7833	129984.9	-53700.1			-247295.2	0.7582
3300	20.74	66595.6	61.4215	136095.3	-51626.1			-246752.6	0.2470
3400	20.74	68669.6	62.0406	142268.5	-49552.1			-246216.2	-0.2331
3500	20.74	70743.6	62.6418	148502.8	-47478.1			-245686.3	-0.6848
3600	20.74	72817.6	63.2261	154796.3	-45404.1			-245163.3	-1.1105
3700	20.74	74891.6	63.7943	161147.5	-43330.1			-244647.7	-1.5123
3800	20.74	76965.6	64.3474	167554.7	-41256.1			-244139.9	-1.8922
3900	20.74	79039.6	64.8862	174016.5	-39182.1			-243640.2	-2.2518
4000	20.74	81113.6	65.4113	180531.5	-37108.1			-243149.1	-2.5928
4100	20.74	83187.6	65.9234	187098.3	-35034.1			-242666.8	-2.9165
4200	20.74	85261.6	66.4232	193715.7	-32960.1			-242193.9	-3.2241
4300	20.74	87335.6	66.9112	200382.5	-30886.1			-241730.7	-3.5169
4400	20.74	89409.6	67.3880	207097.6	-28812.1			-241271.0	-3.7959
4500	20.74	91483.6	67.8541	213859.8	-26738.1			-240825.4	-4.0619
4600	20.74	93557.6	68.3099	220668.1	-24664.1			-240390.7	-4.3159
4700	20.74	95631.6	68.7560	227521.4	-22590.1			-239966.6	-4.5587
4800	20.74	97705.6	69.1926	234418.9	-20516.1			-239553.4	-4.7910
4900	20.74	99779.6	69.6203	241359.7	-18442.1			-239151.5	-5.0134
5000	20.74	101853.6	70.0393	248342.7	-16368.1			-238761.1	-5.2265
5100	20.74	103927.6	70.4500	255367.2	-14294.1			-238381.3	-5.4310
5200	20.74	106001.6	70.8527	262432.4	-12220.1			-238014.7	-5.6273
5300	20.74	108075.6	71.2478	269537.5	-10146.1			-237660.6	-5.8159
5400	20.74	110149.6	71.6354	276681.7	-8072.1			-237319.4	-5.9972
5500	20.74	112223.6	72.0160	283864.4	-5998.1			-236991.2	-6.1717
5600	20.74	114297.6	72.3897	291084.7	-3924.1			-236676.4	-6.3397
5700	20.74	116371.6	72.7568	298342.1	-1850.1			-236375.4	-6.5017
5800	20.74	118445.6	73.1175	305635.9	223.9			-236088.4	-6.6578
5900	20.74	120519.6	73.4720	312965.4	2297.9			-235815.6	-6.8085
6000	20.74	122593.6	73.8206	320330.0	4371.9			-235557.4	-6.9540

[a] H_0° refers to crystal state.

[b] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

[c] Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(123) $(LiOH)_2$ (gas); molecular weight, 47.896

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-180943.0	-174632.1	-------	-471961.9	--------
100	8.9214	811.7	51.1766	4306.0	-180131.4	-175508.9	379.6005	-474192.5	1011.5763
200	13.4997	1931.7	58.7538	9819.1	-179011.4	-176568.9	187.3733	-476174.5	492.5460
298.15	17.1186	3443.1	64.8540	15893.2	-177500.0	-177500.0	123.7097	-477658.9	321.0170
300	17.1772	3474.8	64.9601	16013.3	-177468.3	-177516.0	122.9070	-477683.3	318.8579
400	19.8935	5335.4	70.2940	22782.2	-175607.7	-178306.0	90.5115	-478845.8	231.7639
[a] 500	21.8583	7428.4	74.9562	30049.7	-173514.7	-180469.9	70.9270	-479761.1	179.3924
600	23.2776	9688.9	79.0737	37755.3	-171254.2	-181090.6	57.7586	-480500.6	144.4174
700	24.3367	12072.0	82.7451	45849.6	-168871.1	-181585.9	48.3230	-481112.4	119.3998
800	25.1660	14548.6	86.0510	54292.2	-166394.4	-181996.9	41.2289	-481627.4	100.6146
900	25.8462	17100.2	89.0556	63049.8	-163842.8	-182352.5	35.6996	-482065.1	85.9893
1000	26.4242	19714.5	91.8094	72095.0	-161228.6	-182663.6	31.2682	-482438.6	74.2793
1100	26.9266	22382.6	94.3520	81404.7	-158560.5	-182938.0	27.6364	-482757.0	64.6914
1200	27.3692	25097.8	96.7143	90959.4	-155845.3	-183181.7	24.6057	-483027.4	56.6966
1300	27.7620	27854.7	98.9208	100742.3	-153088.3	-183399.6	22.0379	-483255.4	49.9283
1400	28.1119	30648.8	100.9912	110739.0	-150294.3	-183595.7	19.8343	-483445.7	44.1244
1500	28.4245	33475.9	102.9416	120936.6	-147467.2	-183774.0	17.9228	-483602.6	39.0926
1600	28.7040	36332.5	104.7852	131323.8	-144610.5	-183936.9	16.2487	-483729.7	34.6884
1700	28.9543	39215.7	106.5330	141890.4	-141727.3	-184086.6	14.7703	-483830.3	30.8014
1800	29.1788	42122.6	108.1945	152627.5	-138820.5	-184224.9	13.4550	-483907.3	27.3457
1900	29.3804	45050.7	109.7776	163526.7	-135892.3	-184355.4	12.2776	-483963.6	24.2533
2000	29.5618	47998.0	111.2893	174580.6	-132945.1	-184478.9	11.2170	-484001.6	21.4699
2100	29.7252	50962.5	112.7356	185782.4	-129980.6	-184596.9	10.2570	-484023.7	18.9515
2200	29.8728	53942.5	114.1219	197125.7	-127000.6	-184710.2	9.3830	-484032.1	16.6619
2300	30.0062	56936.5	115.4528	208604.9	-124006.5	-184820.6	8.5856	-484029.1	14.5714
2400	30.1271	59943.3	116.7325	220214.6	-120999.7	-184928.2	7.8532	-484016.5	12.6551
2500	30.2370	62961.6	117.9646	231949.8	-117981.4	-185034.1	7.1796	-483996.4	10.8922
2600	30.3369	65990.4	119.1525	243806.0	-114952.7			-483970.8	9.2649
2700	30.4281	69028.7	120.2991	255779.0	-111914.3			-483941.3	7.7583
2800	30.5114	72075.7	121.4073	267864.6	-108867.3			-483909.8	6.3594
2900	30.5876	75130.7	122.4793	280059.2	-105812.3			-483877.9	5.0571
3000	30.6576	78193.1	123.5175	292359.3	-102750.0			-483847.3	3.8417
3100	30.7219	81262.1	124.5238	304761.6	-99681.0			-483819.5	2.7047
3200	30.7811	84337.3	125.5001	317263.1	-96605.8			-483795.9	1.6389
3300	30.8357	87418.1	126.4481	329860.7	-93524.9			-483777.9	0.6377
3400	30.8862	90504.3	127.3694	342551.8	-90438.8			-483766.9	-0.3046
3500	30.9329	93595.3	128.2654	355333.7	-87347.8			-483764.1	-1.1930
3600	30.9762	96690.7	129.1374	368204.1	-84252.3			-483770.7	-2.0321
3700	31.0164	99790.4	129.9867	381160.5	-81152.7			-483787.9	-2.8258
3800	31.0539	102893.9	130.8144	394200.7	-78049.1			-483816.7	-3.5778
3900	31.0887	106001.1	131.6215	407322.7	-74942.0			-483858.1	-4.2913
4000	31.1212	109111.6	132.4090	420524.4	-71831.4			-483913.3	-4.9691
4100	31.1516	112225.3	133.1778	433803.8	-68717.8			-483983.2	-5.6140
4200	31.1800	115341.9	133.9289	447159.3	-65601.2			-484068.7	-6.2283
4300	31.2066	118461.2	134.6628	460589.0	-62481.8			-484170.9	-6.8141
4400	31.2316	121583.1	135.3806	474091.4	-59359.9			-484277.7	-7.3734
4500	31.2550	124707.5	136.0827	487664.6	-56235.6			-484410.1	-7.9080
4600	31.2771	127834.1	136.7699	501307.4	-53109.0			-484562.1	-8.4195
4700	31.2978	130962.8	137.4428	515018.1	-49980.2			-484733.1	-8.9093
4800	31.3174	134093.6	138.1019	528795.5	-46849.4			-484924.0	-9.3790
4900	31.3358	137226.3	138.7478	542638.1	-43716.8			-485135.5	-9.8297
5000	31.3532	140360.7	139.3811	556544.6	-40582.3			-485368.3	-10.2625
5100	31.3696	143496.9	140.0021	570513.9	-37446.2			-485620.5	-10.6786
5200	31.3852	146634.6	140.6114	584544.7	-34308.4			-485897.6	-11.0789
5300	31.3999	149773.9	141.2094	598635.8	-31169.2			-486198.2	-11.4643
5400	31.4139	152914.6	141.7964	612786.2	-28028.4			-486522.9	-11.8357
5500	31.4272	156056.7	142.3730	626994.7	-24886.4			-486872.5	-12.1938
5600	31.4398	159200.0	142.9394	641260.4	-21743.0			-487247.6	-12.5394
5700	31.4517	162344.6	143.4959	655582.3	-18598.5			-487649.0	-12.8731
5800	31.4631	165490.3	144.0430	669959.3	-15452.7			-488077.2	-13.1956
5900	31.4739	168637.2	144.5810	684390.6	-12305.9			-488532.8	-13.5074
6000	31.4842	171785.1	145.1100	698875.2	-9157.9			-489016.5	-13.8092

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Li, 453.70° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(124) Mg (gas); molecular weight, 24.32

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	34118.7	35309.0	-------	0	--------
100	4.9681	496.8	30.0767	2510.9	34615.6	35653.0	-71.8374	0	0
200	4.9681	993.6	33.5204	5710.4	35112.4	35671.8	-32.8573	0	0
298.15	4.9681	1481.3	35.5040	9104.3	35600.0	35600.0	-20.0355	0	0
300	4.9681	1490.4	35.5348	9170.0	35609.2	35598.2	-19.8746	0	0
400	4.9681	1987.3	36.9640	12798.4	36106.0	35485.0	-13.4003	0	0
500	4.9681	2484.1	38.0726	16552.2	36602.8	35345.4	-9.5299	0	0
600	4.9681	2980.9	38.9784	20406.2	37099.6	35180.2	-6.9605	0	0
700	4.9681	3477.7	39.7443	24343.3	37596.5	34984.7	-5.1346	0	0
800	4.9681	3974.5	40.4077	28351.6	38093.3	34756.3	-3.7734	0	0
900	4.9681	4471.3	40.9928	32422.2	38590.1	34492.4	-2.7223	0	0
[a]1000	4.9681	4968.1	41.5163	36548.1	39086.9	32053.0	-1.9272	0	0
1100	4.9681	5465.0	41.9898	40723.8	39583.7	31749.8	-1.2932	0	0
1200	4.9681	5961.8	42.4221	44944.7	40080.5	31446.6	-0.7700	0	0
1300	4.9682	6458.6	42.8198	49207.1	40577.3	31143.4	-0.3317	0	0
1400	4.9682	6955.4	43.1879	53507.7	41074.2	30840.3	0.0405	0	0
1500	4.9682	7452.2	43.5307	57843.8	41571.0	30537.1	0.3599	0	0
1600	4.9682	7949.0	43.8513	62213.1	42067.8	30233.9	0.6366	0	0
1700	4.9682	8445.9	44.1525	66613.5	42564.6	29930.7	0.8784	0	0
1800	4.9683	8942.7	44.4365	71043.0	43061.4	29627.5	1.0911	0	0
1900	4.9685	9439.5	44.7051	75500.2	43558.3	29324.4	1.2794	0	0
2000	4.9688	9936.4	44.9600	79983.6	44055.1	29021.2	1.4473	0	0
2100	4.9694	10433.3	45.2024	84491.8	44552.0	28718.1	1.5976	0	0
2200	4.9704	10930.3	45.4336	89023.7	45049.0	28415.1	1.7325	0	0
2300	4.9719	11427.4	45.6546	93578.2	45546.1	28112.2	1.8547	0	0
2400	4.9743	11924.7	45.8663	98154.3	46043.4	27809.5	1.9653	0	0
2500	4.9777	12422.3	46.0694	102751.2	46541.0	27507.1	2.0662	0	0
2600	4.9825	12920.3	46.2647	107368.0	47039.0			0	0
2700	4.9891	13418.8	46.4529	112003.9	47537.6			0	0
2800	4.9977	13918.2	46.6345	116658.3	48036.9			0	0
2900	5.0087	14418.5	46.8100	121330.6	48537.2			0	0
3000	5.0226	14920.0	46.9800	126020.1	49038.7			0	0
3100	5.0397	15423.1	47.1450	130726.4	49541.8			0	0
3200	5.0604	15928.0	47.3053	135449.0	50046.8			0	0
3300	5.0850	16435.3	47.4614	140187.3	50554.0			0	0
3400	5.1140	16945.2	47.6136	144941.1	51063.9			0	0
3500	5.1476	17458.2	47.7623	149710.0	51577.0			0	0
3600	5.1859	17974.9	47.9079	154493.5	52093.6			0	0
3700	5.2294	18495.6	48.0505	159291.4	52614.3			0	0
3800	5.2781	19020.9	48.1906	164103.5	53139.7			0	0
3900	5.3323	19551.4	48.3284	168929.5	53670.2			0	0
4000	5.3919	20087.6	48.4642	173769.1	54206.3			0	0
4100	5.4571	20630.0	48.5981	178622.3	54748.7			0	0
4200	5.5278	21179.2	48.7304	183488.7	55297.9			0	0
4300	5.6041	21735.7	48.8614	188368.3	55854.5			0	0
4400	5.6859	22300.2	48.9912	193260.9	56418.9			0	0
4500	5.7725	22872.9	49.1199	198166.5	56991.7			0	0
4600	5.8648	23454.7	49.2477	203084.9	57573.5			0	0
4700	5.9620	24046.0	49.3749	208016.0	58164.8			0	0
4800	6.0643	24647.3	49.5015	212959.8	58766.0			0	0
4900	6.1714	25259.0	49.6276	217916.3	59377.8			0	0
5000	6.2831	25881.7	49.7534	222885.4	60000.5			0	0
5100	6.3991	26515.8	49.8790	227867.0	60634.5			0	0
5200	6.5194	27161.7	50.0044	232861.1	61280.4			0	0
5300	6.6433	27819.7	50.1297	237867.8	61938.4			0	0
5400	6.7713	28490.4	50.2551	242887.1	62609.1			0	0
5500	6.9020	29173.7	50.3805	247918.8	63292.4			0	0
5600	7.0362	29870.4	50.5060	252963.1	63989.1			0	0
5700	7.1741	30580.9	50.6317	258020.0	64699.6			0	0
5800	7.3150	31305.3	50.7577	263089.5	65424.0			0	0
5900	7.4589	32044.0	50.8840	268171.6	66162.7			0	0
6000	7.6054	32797.2	51.0106	273266.3	66915.9			0	0

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Mg, 923° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(125) Mg (crystal, liquid); molecular weight, 24.32

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-1190.3	0	-------	-35309.0	--------
100	3.753	152.9	2.263	73.4	-1037.4	0	0	-35653.0	71.8374
200	5.418	630.9	5.511	471.3	-559.4	0	0	-35671.8	32.8573
298.15	5.929	1190.3	7.780	1129.3	0	0	0	-35600.0	20.0355
300	5.937	1201.3	7.817	1143.8	11.0	0	0	-35598.2	19.8746
400	6.241	1811.3	9.569	2016.3	621.0	0	0	-35485.0	13.4003
500	6.493	2447.7	10.989	3046.8	1257.4	0	0	-35345.4	9.5299
600	6.766	3109.7	12.195	4207.3	1919.4	0	0	-35180.2	6.9605
700	7.084	3802.0	13.261	5480.7	2611.7	0	0	-34984.7	5.1346
800	7.426	4527.3	14.229	6855.9	3337.0	0	0	-34756.3	3.7734
900	7.792	5288.0	15.125	8324.5	4097.7	0	0	-34492.4	2.7223
[b]923	7.880	5468.2	15.322	8674.0	4277.9	0	0	-34402.3	2.5071
923	8.0	7608.2	17.641	8674.0	6417.9	0	0	-32257.3	2.5071
1000	8.0	8224.2	18.282	10057.8	7033.9	0	0	-32053.0	1.9272
1100	8.0	9024.2	19.044	11924.2	7833.9	0	0	-31749.8	1.2932
1200	8.0	9824.2	19.740	13863.8	8633.9	0	0	-31446.6	0.7700
1300	8.0	10624.2	20.381	15871.1	9433.9	0	0	-31143.4	0.3317
1400	8.0	11424.2	20.974	17939.4	10233.9	0	0	-30840.3	-0.0405
1500	8.0	12224.2	21.526	20064.8	11033.9	0	0	-30537.1	-0.3599
1600	8.0	13024.2	22.042	22243.0	11833.9	0	0	-30233.9	-0.6366
1700	8.0	13824.2	22.527	24471.7	12633.9	0	0	-29930.7	-0.8784
1800	8.0	14624.2	22.984	26747.0	13433.9	0	0	-29627.5	-1.0911
1900	8.0	15424.2	23.417	29068.1	14233.9	0	0	-29324.4	-1.2794
2000	8.0	16224.2	23.827	31429.8	15033.9	0	0	-29021.2	-1.4473
2100	8.0	17024.2	24.217	33831.5	15833.9	0	0	-28718.1	-1.5976
2200	8.0	17824.2	24.590	36273.8	16633.9	0	0	-28415.1	-1.7325
2300	8.0	18624.2	24.945	38749.3	17433.9	0	0	-28112.2	-1.8547
2400	8.0	19424.2	25.286	41262.2	18233.9	0	0	-27809.5	-1.9653
2500	8.0	20224.2	25.612	43805.8	19033.9	0	0	-27507.1	-2.0662

[a]H_0° refers to crystal state.

[b]Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(126) MgCl (gas); molecular weight, 59.777

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-729.6	1557.4	-------	-62300.0	--------
100	7.0772	697.2	47.3913	4041.9	-32.3	1753.8	1.0959	-62596.4	133.1610
200	7.8303	1442.1	52.5232	9062.6	712.5	1657.8	2.9818	-62847.4	64.6500
298.15	8.3245	2237.5	55.7526	14385.1	1507.9	1507.9	3.5556	-63042.7	42.0117
300	8.3310	2252.9	55.8041	14488.3	1523.3	1504.8	3.5623	-63046.1	41.7267
400	8.5880	3100.2	58.2398	20195.7	2370.6	1327.5	3.8222	-63226.0	30.2300
500	8.7310	3966.8	60.1730	26119.7	3237.2	1130.7	3.9573	-63397.1	23.3126
600	8.8194	4844.7	61.7732	32219.3	4115.1	912.1	4.0324	-63560.5	18.6887
700	8.8792	5729.8	63.1375	38466.5	5000.2	665.6	4.0740	-63715.8	15.3776
800	8.9229	6620.0	64.3261	44840.9	5890.4	387.9	4.0949	-63863.1	12.8883
900	8.9568	7514.0	65.3791	51327.2	6784.4	76.0	4.1021	-64003.0	10.9478
[a]1000	8.9845	8411.1	66.3243	57913.2	7681.5	-2410.3	4.0610	-64135.9	9.3921
1100	9.0080	9310.8	67.1817	64589.1	8581.2	-2759.5	4.0099	-64262.8	8.1167
1200	9.0287	10212.6	67.9664	71347.1	9483.0	-3107.9	3.9614	-64384.1	7.0518
1300	9.0473	11116.4	68.6899	78180.4	10386.9	-3455.5	3.9153	-64500.5	6.1490
1400	9.0645	12022.0	69.3610	85083.3	11292.5	-3802.4	3.8718	-64612.6	5.3739
1500	9.0805	12929.3	69.9869	92051.1	12199.7	-4148.7	3.8304	-64720.7	4.7009
1600	9.0958	13838.1	70.5734	99079.4	13108.5	-4494.3	3.7912	-64825.3	4.1111
1700	9.1103	14748.4	71.1253	106164.6	14018.8	-4839.3	3.7537	-64926.6	3.5899
1800	9.1243	15660.2	71.6464	113303.4	14930.6	-5183.8	3.7180	-65024.9	3.1258
1900	9.1380	16573.3	72.1401	120493.0	15843.7	-5527.6	3.6837	-65120.5	2.7100
2000	9.1513	17487.7	72.6092	127730.6	16758.2	-5870.9	3.6510	-65213.5	2.3353
2100	9.1643	18403.5	73.0560	135014.1	17673.9	-6213.6	3.6197	-65304.2	1.9957
2200	9.1771	19320.6	73.4826	142341.2	18591.0	-6555.7	3.5893	-65392.7	1.6866
2300	9.1898	20238.9	73.8908	149710.0	19509.4	-6897.3	3.5604	-65479.2	1.4040
2400	9.2023	21158.6	74.2822	157118.8	20429.0	-7238.3	3.5323	-65563.9	1.1446
2500	9.2147	22079.4	74.6581	164565.9	21349.8	-7578.7	3.5055	-65646.9	0.9056
2600	9.2270	23001.5	75.0198	172049.9	22271.9			-65728.4	0.6848
2700	9.2394	23924.8	75.3682	179569.4	23195.2			-65808.7	0.4800
2800	9.2517	24849.4	75.7045	187123.2	24119.8			-65888.0	0.2897
2900	9.2641	25775.2	76.0293	194709.9	25045.6			-65966.6	0.1122
3000	9.2765	26702.2	76.3436	202328.7	25972.6			-66044.7	-0.0536
3100	9.2891	27630.5	76.6480	209978.3	26900.9			-66122.8	-0.2088
3200	9.3018	28560.0	76.9431	217658.0	27830.4			-66201.1	-0.3546
3300	9.3148	29490.8	77.2295	225366.7	28761.2			-66280.0	-0.4917
3400	9.3280	30423.0	77.5078	233103.6	29693.4			-66360.0	-0.6209
3500	9.3415	31356.4	77.7784	240868.0	30626.9			-66441.6	-0.7428
3600	9.3554	32291.3	78.0418	248659.0	31561.7			-66525.0	-0.8581
3700	9.3697	33227.5	78.2983	256476.1	32498.0			-66611.0	-0.9673
3800	9.3844	34165.2	78.5483	264318.5	33435.7			-66699.8	-1.0709
3900	9.3997	35104.4	78.7923	272185.6	34374.9			-66792.1	-1.1694
4000	9.4154	36045.2	79.0305	280076.7	35315.6			-66888.4	-1.2630
4100	9.4317	36987.5	79.2632	287991.5	36258.0			-66989.0	-1.3522
4200	9.4487	37931.6	79.4907	295929.2	37202.0			-67094.7	-1.4373
4300	9.4663	38877.3	79.7132	303889.4	38147.7			-67205.8	-1.5185
4400	9.4845	39824.8	79.9310	311871.7	39095.3			-67322.9	-1.5962
4500	9.5034	40774.2	80.1444	319875.5	40044.6			-67446.3	-1.6706
4600	9.5231	41725.6	80.3535	327900.4	40996.0			-67576.7	-1.7419
4700	9.5434	42678.9	80.5585	335946.1	41949.3			-67714.4	-1.8102
4800	9.5645	43634.3	80.7596	344012.0	42904.7			-67860.0	-1.8759
4900	9.5864	44591.8	80.9571	352097.9	43862.2			-68013.7	-1.9390
5000	9.6090	45551.6	81.1510	360203.3	44822.0			-68176.1	-1.9998
5100	9.6323	46513.6	81.3415	368327.9	45784.0			-68347.4	-2.0583
5200	9.6564	47478.1	81.5288	376471.5	46748.5			-68528.2	-2.1147
5300	9.6812	48444.9	81.7129	384633.6	47715.3			-68718.4	-2.1691
5400	9.7067	49414.3	81.8941	392814.0	48684.7			-68918.8	-2.2216
5500	9.7329	50386.3	82.0725	401012.3	49656.7			-69129.2	-2.2724
5600	9.7598	51360.9	82.2481	409228.4	50631.3			-69350.2	-2.3215
5700	9.7873	52338.3	82.4211	417461.9	51608.7			-69582.2	-2.3691
5800	9.8155	53318.4	82.5915	425712.5	52588.8			-69825.3	-2.4152
5900	9.8443	54301.4	82.7596	433980.1	53571.8			-70079.7	-2.4599
6000	9.8737	55287.3	82.9253	442264.3	54557.7			-70345.7	-2.5032

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Mg, 923° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(127) $MgCl_2$ (gas); molecular weight, 95.234

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-103774.0	-100390.3	-------	-192796.1	--------
100	8.5475	732.0	49.5857	4226.6	-103042.0	-100507.1	220.1221	-193554.5	412.4150
200	11.6033	1756.3	56.5618	9556.1	-102017.8	-100686.5	110.2150	-194025.1	200.6941
298.15	13.0335	2974.0	61.4968	15361.2	-100800.0	-100800.0	73.9780	-194301.3	130.8548
300	13.0516	2998.2	61.5775	15475.1	-100775.9	-100801.9	73.5223	-194305.6	129.9765
400	13.7542	4342.3	65.4396	21833.5	-99431.7	-100897.0	55.1569	-194518.9	94.5721
500	14.1309	5738.4	68.5533	28538.3	-98035.6	-100991.3	44.1270	-194701.5	73.3077
600	14.3520	7163.4	71.1508	35527.1	-96610.6	-101097.1	36.7667	-194862.1	59.1187
700	14.4914	8606.1	73.3744	42756.0	-95167.9	-101225.3	31.5033	-195003.4	48.9759
800	14.5846	10060.2	75.3160	50192.6	-93713.8	-101381.8	27.5502	-195127.6	41.3635
900	14.6497	11522.1	77.0378	57811.9	-92251.9	-101571.1	24.4702	-195236.6	35.4393
[a]1000	14.6969	12989.5	78.5838	65594.3	-90784.5	-103934.2	21.9623	-195332.5	30.6973
1100	14.7322	14461.1	79.9863	73523.9	-89312.9	-104160.4	19.8954	-195417.1	26.8158
1200	14.7593	15935.7	81.2694	81587.6	-87838.3	-104386.2	18.1691	-195492.1	23.5799
1300	14.7804	17412.7	82.4516	89774.4	-86361.3	-104612.1	16.7051	-195558.7	20.8408
1400	14.7973	18891.7	83.5476	98075.0	-84882.4	-104838.2	15.4476	-195618.3	18.4922
1500	14.8110	20372.1	84.5690	106481.4	-83401.9	-105064.8	14.3554	-195671.8	16.4562
1600	14.8222	21853.8	85.5253	114986.7	-81920.3	-105292.1	13.3977	-195720.1	14.6742
1700	14.8315	23336.5	86.4241	123584.6	-80437.6	-105520.0	12.5509	-195763.8	13.1015
1800	14.8393	24820.0	87.2721	132269.8	-78954.0	-105748.8	11.7965	-195803.6	11.7033
1900	14.8459	26304.3	88.0746	141037.5	-77469.7	-105978.4	11.1200	-195839.9	10.4520
2000	14.8516	27789.2	88.8363	149883.4	-75984.9	-106209.0	10.5099	-195873.1	9.3256
2100	14.8565	29274.6	89.5610	158803.5	-74499.4	-106440.5	9.9567	-195903.7	8.3063
2200	14.8607	30760.4	90.2522	167794.4	-73013.6	-106673.1	9.4525	-195932.0	7.3796
2300	14.8644	32246.7	90.9129	176852.9	-71527.3	-106906.6	8.9914	-195958.3	6.5333
2400	14.8677	33733.3	91.5456	185976.1	-70040.7	-107141.3	8.5676	-195982.9	5.7575
2500	14.8706	35220.2	92.1526	195161.2	-68553.8	-107377.0	8.1771	-196006.1	5.0436
2600	14.8731	36707.4	92.7359	204405.8	-67066.6			-196028.2	4.3845
2700	14.8754	38194.8	93.2972	213707.7	-65579.2			-196049.4	3.7743
2800	14.8774	39682.5	93.8382	223064.6	-64091.5			-196070.2	3.2075
2900	14.8792	41170.3	94.3603	232474.7	-62603.7			-196090.8	2.6798
3000	14.8809	42658.3	94.8648	241936.1	-61115.7			-196111.6	2.1872
3100	14.8824	44146.5	95.3528	251447.1	-59627.5			-196133.0	1.7263
3200	14.8837	45634.8	95.8253	261006.1	-58139.2			-196155.4	1.2942
3300	14.8850	47123.2	96.2833	270611.6	-56650.8			-196179.3	0.8882
3400	14.8861	48611.8	96.7277	280262.3	-55162.2			-196205.1	0.5061
3500	14.8871	50100.4	97.1592	289956.8	-53673.6			-196233.4	0.1457
3600	14.8881	51589.2	97.5786	299693.7	-52184.8			-196264.7	-0.1946
3700	14.8889	53078.1	97.9865	309472.1	-50696.0			-196299.5	-0.5167
3800	14.8897	54567.0	98.3836	319290.7	-49207.0			-196338.3	-0.8218
3900	14.8905	56056.0	98.7704	329148.5	-47718.0			-196381.8	-1.1114
4000	14.8912	57545.1	99.1474	339044.4	-46228.9			-196430.6	-1.3865
4100	14.8918	59034.2	99.5151	348977.6	-44739.8			-196485.1	-1.6483
4200	14.8924	60523.4	99.8740	358947.2	-43250.6			-196546.0	-1.8977
4300	14.8930	62012.7	100.2244	368952.1	-41761.3			-196613.9	-2.1356
4400	14.8935	63502.0	100.5668	378991.8	-40272.0			-196689.4	-2.3627
4500	14.8940	64991.4	100.9015	389065.2	-38782.6			-196772.9	-2.5799
4600	14.8944	66480.8	101.2288	399171.8	-37293.2			-196865.0	-2.7876
4700	14.8948	67970.3	101.5492	409310.8	-35803.7			-196966.4	-2.9867
4800	14.8952	69459.8	101.8628	419481.4	-34314.2			-197077.5	-3.1775
4900	14.8956	70949.3	102.1699	429683.1	-32824.7			-197198.8	-3.3607
5000	14.8959	72438.9	102.4708	439915.2	-31335.1			-197330.8	-3.5367
5100	14.8963	73928.5	102.7658	450177.1	-29845.5			-197473.9	-3.7059
5200	14.8966	75418.2	103.0551	460468.2	-28355.9			-197628.7	-3.8686
5300	14.8969	76907.8	103.3388	470787.9	-26866.2			-197795.3	-4.0254
5400	14.8972	78397.5	103.6173	481135.8	-25376.5			-197974.5	-4.1765
5500	14.8974	79887.3	103.8906	491511.2	-23886.7			-198166.1	-4.3223
5600	14.8977	81377.0	104.1591	501913.7	-22397.0			-198370.9	-4.4629
5700	14.8979	82866.8	104.4227	512342.8	-20907.2			-198589.4	-4.5988
5800	14.8981	84356.6	104.6818	522798.1	-19417.4			-198821.6	-4.7302
5900	14.8983	85846.4	104.9365	533279.1	-17927.6			-199067.9	-4.8572
6000	14.8985	87336.3	105.1869	543785.3	-16437.7			-199328.6	-4.9802

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Mg, 923° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(128) MgF (gas); molecular weight, 43.32

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-22381.1	-20136.0	-------	-73800.0	--------
100	6.9655	695.2	44.9206	3796.8	-21685.8	-19941.0	48.4544	-74100.1	158.1633
200	7.2832	1403.7	49.8185	8560.0	-20977.4	-20060.6	26.6266	-74414.3	77.0620
298.15	7.7861	2143.7	52.8222	13605.3	-20237.4	-20237.4	19.3835	-74695.6	50.2490
300	7.7946	2158.1	52.8704	13703.0	-20223.0	-20240.9	19.2920	-74700.4	49.9114
400	8.1722	2957.7	55.1682	19109.6	-19423.3	-20436.3	15.5900	-74937.7	36.2870
500	8.4170	3788.1	57.0201	24722.0	-18593.0	-20645.1	13.3464	-75136.2	28.0883
600	8.5776	4638.4	58.5699	30503.6	-17742.7	-20872.5	11.8348	-75307.7	22.6089
700	8.6876	5501.9	59.9009	36428.7	-16879.1	-21126.4	10.7427	-75460.2	18.6865
800	8.7665	6374.8	61.0664	42478.2	-16006.2	-21410.9	9.9131	-75599.1	15.7391
900	8.8256	7254.6	62.1025	48637.6	-15126.5	-21729.2	9.2586	-75728.0	13.4425
[a]1000	8.8716	8139.5	63.0348	54895.3	-14241.5	-24222.0	8.6879	-75849.2	11.6023
1100	8.9087	9028.6	63.8822	61241.8	-13352.5	-24577.9	8.2033	-75964.3	10.0942
1200	8.9396	9921.1	64.6587	67669.4	-12460.0	-24933.2	7.7936	-76074.6	8.8357
1300	8.9659	10816.4	65.3753	74171.5	-11564.7	-25288.1	7.4417	-76180.7	7.7692
1400	8.9889	11714.1	66.0406	80742.7	-10666.9	-25642.7	7.1360	-76283.4	6.8539
1500	9.0093	12614.1	66.6615	87378.2	-9767.0	-25997.0	6.8673	-76383.1	6.0595
1600	9.0279	13515.9	67.2435	94073.7	-8865.1	-26351.2	6.6291	-76480.2	5.3635
1700	9.0449	14419.6	67.7914	100825.7	-7961.5	-26705.2	6.4160	-76575.0	4.7487
1800	9.0607	15324.9	68.3088	107631.0	-7056.2	-27059.0	6.2241	-76667.6	4.2015
1900	9.0756	16231.7	68.7991	114486.6	-6149.4	-27412.7	6.0499	-76758.2	3.7113
2000	9.0898	17140.0	69.2650	121390.0	-5241.1	-27766.4	5.8914	-76847.1	3.2696
2100	9.1032	18049.6	69.7088	128338.8	-4331.4	-28119.9	5.7460	-76934.4	2.8695
2200	9.1162	18960.6	70.1326	135331.1	-3420.5	-28473.4	5.6120	-77020.1	2.5054
2300	9.1288	19872.8	70.5381	142364.7	-2508.2	-28826.8	5.4884	-77104.5	2.1726
2400	9.1410	20786.3	70.9269	149438.1	-1594.7	-29180.2	5.3735	-77187.5	1.8671
2500	9.1529	21701.0	71.3003	156549.6	-680.0	-29533.5	5.2667	-77269.5	1.5858
2600	9.1645	22616.9	71.6595	163697.7	235.8			-77350.6	1.3259
2700	9.1760	23533.9	72.0056	170881.1	1152.9			-77430.9	1.0850
2800	9.1874	24452.1	72.3395	178098.4	2071.0			-77510.7	0.8610
2900	9.1987	25371.4	72.6621	185348.6	2990.3			-77590.2	0.6523
3000	9.2099	26291.8	72.9741	192630.5	3910.8			-77669.7	0.4573
3100	9.2211	27213.4	73.2763	199943.1	4832.3			-77749.5	0.2747
3200	9.2323	28136.1	73.5692	207285.4	5755.0			-77830.1	0.1034
3300	9.2437	29059.9	73.8535	214656.6	6678.8			-77911.6	-0.0578
3400	9.2552	29984.8	74.1296	222055.8	7603.7			-77994.7	-0.2096
3500	9.2668	30910.9	74.3981	229482.3	8529.8			-78079.6	-0.3529
3600	9.2788	31838.2	74.6593	236935.2	9457.1			-78166.9	-0.4884
3700	9.2910	32766.7	74.9137	244413.9	10385.6			-78257.0	-0.6168
3800	9.3035	33696.4	75.1616	251917.7	11315.3			-78350.4	-0.7385
3900	9.3164	34627.4	75.4034	259446.0	12246.3			-78447.7	-0.8541
4000	9.3298	35559.7	75.6395	266998.2	13178.6			-78549.3	-0.9640
4100	9.3436	36493.3	75.8700	274573.7	14112.3			-78655.7	-1.0688
4200	9.3580	37428.4	76.0953	282172.0	15047.3			-78767.4	-1.1687
4300	9.3729	38364.9	76.3157	289792.6	15983.9			-78885.1	-1.2641
4400	9.3884	39303.0	76.5314	297435.0	16921.9			-79009.0	-1.3553
4500	9.4046	40242.7	76.7425	305098.8	17861.6			-79139.7	-1.4425
4600	9.4215	41184.0	76.9494	312783.4	18802.9			-79277.7	-1.5262
4700	9.4391	42127.0	77.1522	320488.5	19745.9			-79423.4	-1.6064
4800	9.4575	43071.8	77.3512	328213.7	20690.7			-79577.3	-1.6834
4900	9.4767	44018.5	77.5464	335958.6	21637.4			-79739.8	-1.7574
5000	9.4966	44967.2	77.7380	343722.9	22586.1			-79911.2	-1.8286
5100	9.5174	45917.9	77.9263	351506.1	23536.8			-80091.9	-1.8972
5200	9.5390	46870.7	78.1113	359308.0	24489.6			-80282.4	-1.9632
5300	9.5614	47825.7	78.2932	367128.3	25444.6			-80482.7	-2.0270
5400	9.5847	48783.0	78.4721	374966.6	26401.9			-80693.4	-2.0885
5500	9.6089	49742.6	78.6482	382822.6	27361.6			-80914.4	-2.1480
5600	9.6339	50704.8	78.8216	390696.1	28323.7			-81146.2	-2.2054
5700	9.6598	51669.5	78.9923	398586.8	29288.4			-81389.3	-2.2611
5800	9.6865	52636.8	79.1606	406494.5	30255.7			-81643.7	-2.3150
5900	9.7141	53606.8	79.3264	414418.9	31225.7			-81909.5	-2.3672
6000	9.7425	54579.6	79.4899	422359.7	32198.5			-82187.1	-2.4178

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Mg, 923° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(129) MgF_2 (gas); molecular weight, 62.32

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-180623.8	-177323.9	-------	-249342.9	--------
100	7.1629	698.4	45.8372	3885.4	-179925.4	-177473.2	388.4777	-250138.4	536.0580
200	9.2785	1510.5	51.3805	8765.6	-179113.3	-177839.2	194.3955	-250874.8	262.4091
298.15	11.2354	2523.8	55.4766	14016.5	-178100.0	-178100.0	130.3808	-251416.3	172.0763
300	11.2645	2544.6	55.5462	14119.2	-178079.2	-178104.0	129.5757	-251424.8	170.9399
400	12.4848	3737.4	58.9691	19850.3	-176886.4	-178291.4	97.1240	-251809.1	125.1177
500	13.2157	5025.4	61.8402	25894.7	-175598.4	-178445.2	77.6340	-252082.1	97.5880
600	13.6716	6371.5	64.2931	32204.4	-174252.3	-178592.6	64.6300	-252282.7	79.2175
700	13.9698	7754.5	66.4245	38742.6	-172869.3	-178752.1	55.3335	-252435.0	66.0865
800	14.1739	9162.3	68.3041	45480.9	-171461.5	-178933.8	48.3544	-252554.0	56.2329
900	14.3188	10587.3	69.9823	52396.8	-170036.5	-179144.2	42.9202	-252649.4	48.5658
[a]1000	14.4250	12024.8	71.4967	59472.0	-168599.0	-181526.0	38.5284	-252727.5	42.4300
1100	14.5051	13471.5	72.8755	66691.6	-167152.3	-181769.2	34.9198	-252792.4	37.4083
1200	14.5669	14925.2	74.1404	74043.3	-165698.6	-182011.1	31.9085	-252847.2	33.2226
1300	14.6155	16384.4	75.3084	81516.4	-164239.4	-182252.3	29.3569	-252894.1	29.6802
1400	14.6544	17848.0	76.3930	89102.2	-162775.8	-182493.4	27.1670	-252934.6	26.6433
1500	14.6859	19315.0	77.4051	96792.6	-161308.8	-182734.9	25.2666	-252970.0	24.0109
1600	14.7119	20785.0	78.3538	104581.1	-159838.8	-182977.0	23.6017	-253001.2	21.7073
1700	14.7336	22257.3	79.2463	112461.5	-158366.5	-183220.0	22.1306	-253028.9	19.6744
1800	14.7518	23731.6	80.0890	120428.7	-156892.2	-183463.9	20.8213	-253053.5	17.8672
1900	14.7672	25207.5	80.8870	128477.8	-155416.3	-183709.1	19.6481	-253075.7	16.2501
2000	14.7804	26684.9	81.6448	136604.7	-153938.9	-183955.5	18.5909	-253095.8	14.7946
2100	14.7918	28163.6	82.3663	144805.6	-152460.2	-184203.3	17.6332	-253114.1	13.4777
2200	14.8017	29643.3	83.0546	153076.9	-150980.5	-184452.5	16.7611	-253130.8	12.2803
2300	14.8104	31123.9	83.7128	161415.5	-149499.9	-184703.2	15.9641	-253146.3	11.1870
2400	14.8180	32605.3	84.3433	169818.5	-148018.5	-184955.5	15.2322	-253160.7	10.1848
2500	14.8247	34087.4	84.9483	178283.3	-146536.4	-185209.3	14.5582	-253174.3	9.2627
2600	14.8307	35570.2	85.5299	186807.4	-145053.6			-253187.4	8.4114
2700	14.8360	37053.6	86.0897	195388.5	-143570.2			-253200.1	7.6232
2800	14.8408	38537.4	86.6293	204024.7	-142086.4			-253212.9	6.8913
2900	14.8451	40021.7	87.1502	212713.8	-140602.1			-253225.9	6.2098
3000	14.8490	41506.4	87.6535	221454.1	-139117.4			-253239.6	5.5736
3100	14.8525	42991.5	88.1405	230243.9	-137632.3			-253254.2	4.9785
3200	14.8557	44476.9	88.6121	239081.7	-136146.9			-253270.2	4.4206
3300	14.8586	45962.6	89.0692	247965.9	-134661.2			-253288.0	3.8964
3400	14.8612	47448.6	89.5129	256895.1	-133175.2			-253308.0	3.4031
3500	14.8636	48934.9	89.9437	265868.0	-131688.9			-253330.8	2.9379
3600	14.8659	50421.3	90.3624	274883.4	-130202.5			-253356.8	2.4985
3700	14.8679	51908.0	90.7698	283940.1	-128715.8			-253386.6	2.0828
3800	14.8698	53394.9	91.1663	293037.0	-127228.9			-253420.7	1.6889
3900	14.8716	54882.0	91.5526	302173.0	-125741.8			-253459.6	1.3152
4000	14.8732	56369.2	91.9291	311347.2	-124254.6			-253504.0	0.9601
4100	14.8747	57856.6	92.2964	320558.6	-122767.2			-253554.4	0.6222
4200	14.8761	59344.1	92.6548	329806.2	-121279.7			-253611.3	0.3004
4300	14.8774	60831.8	93.0049	339089.2	-119792.0			-253675.4	-0.0065
4400	14.8786	62319.6	93.3469	348406.9	-118304.2			-253747.2	-0.2996
4500	14.8797	63807.5	93.6813	357758.4	-116816.3			-253827.1	-0.5797
4600	14.8808	65295.6	94.0084	367142.9	-115328.2			-253915.9	-0.8477
4700	14.8818	66783.7	94.3284	376559.8	-113840.1			-254014.0	-1.1044
4800	14.8827	68271.9	94.6417	386008.4	-112351.9			-254121.9	-1.3505
4900	14.8836	69760.2	94.9486	395487.9	-110863.6			-254240.2	-1.5867
5000	14.8844	71248.6	95.2493	404997.9	-109375.2			-254369.3	-1.8136
5100	14.8852	72737.1	95.5441	414537.6	-107886.7			-254509.6	-2.0316
5200	14.8859	74225.7	95.8331	424106.5	-106398.1			-254661.7	-2.2414
5300	14.8866	75714.3	96.1167	433704.0	-104909.5			-254825.7	-2.4434
5400	14.8873	77203.0	96.3949	443329.7	-103420.8			-255002.3	-2.6381
5500	14.8879	78691.7	96.6681	452982.9	-101932.1			-255191.5	-2.8258
5600	14.8885	80180.6	96.9364	462663.1	-100443.2			-255393.9	-3.0069
5700	14.8890	81669.4	97.1999	472370.0	-98954.4			-255610.1	-3.1818
5800	14.8896	83158.4	97.4588	482102.9	-97465.4			-255840.1	-3.3509
5900	14.8901	84647.3	97.7134	491861.6	-95976.5			-256084.3	-3.5143
6000	14.8905	86136.4	97.9636	501645.5	-94487.4			-256342.9	-3.6725

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Mg, 923° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(130) MgF_2 (crystal, liquid); molecular weight, 62.32

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	0	0	-265872.0	-262572.1	-------	-334591.1	--------
100	5.1916	182.2	2.8709	104.8	-265689.8	-263237.5	566.5167	-335902.8	714.0970
200	11.6669	1051.4	8.6350	675.6	-264820.7	-263546.5	278.7060	-336582.1	346.7197
298.15	14.9700	2372.0	13.9635	1791.2	-263500.0	-263500.0	183.9054	-336816.3	225.6010
300	15.0000	2410.9	14.1013	1819.5	-263461.1	-263486.0	182.7161	-336806.8	224.0803
400	16.5630	3997.6	18.6454	3460.5	-261874.4	-263279.4	134.7447	-336797.1	162.7384
500	17.3100	5694.0	22.4277	5519.8	-260178.0	-263024.8	105.9888	-336661.7	125.9427
600	17.8309	7452.3	25.6320	7926.9	-258419.7	-262760.0	86.8375	-336450.0	101.4250
700	18.2450	9256.7	28.4127	10632.2	-256615.3	-262498.1	73.1718	-336181.0	83.9248
800	18.6022	11099.4	30.8727	13598.8	-254772.6	-262244.9	62.9326	-335865.1	70.8111
900	18.9264	12976.1	33.0827	16798.4	-252896.0	-262003.7	54.9762	-335508.9	60.6218
[b]1000	19.2300	14884.0	35.0927	20208.7	-250988.0	-263915.0	48.5779	-335116.4	52.4795
1100	19.5202	16821.6	36.9392	23811.5	-249050.4	-263667.3	43.3371	-334690.4	45.8257
1200	19.8012	18787.8	38.6498	27592.0	-247084.3	-263396.7	38.9740	-334232.9	40.2882
1300	20.0758	20781.6	40.2456	31537.6	-245090.4	-263103.3	35.2859	-333745.1	35.6092
1400	20.3458	22802.8	41.7433	35637.8	-243069.3	-262786.9	32.1285	-333228.1	31.6047
1500	20.6122	24850.7	43.1561	39883.5	-241021.3	-262447.5	29.3954	-332682.6	28.1397
[c]1536	20.7075	25594.4	43.6461	41445.9	-240277.6	-262288.2	28.4958	-332439.4	26.9990
1536	22.664	39478.4	52.6851	41445.9	-226393.6	-248407.8	28.4958	-318559.6	26.9990
1600	22.664	40928.9	53.6103	44847.6	-224943.1	-248081.3	27.0867	-318105.5	25.1923
1700	22.664	43195.3	54.9843	50278.0	-222676.7	-247530.1	25.0956	-317339.0	22.6394
1800	22.664	45461.7	56.2797	55841.8	-220410.3	-246982.0	23.3298	-316571.6	20.3758
1900	22.664	47728.1	57.5051	61531.6	-218143.9	-246436.7	21.7532	-315803.4	18.3553
2000	22.664	49994.5	58.6676	67340.8	-215877.5	-245894.1	20.3375	-315034.5	16.5412
2100	22.664	52260.9	59.7734	73263.3	-213611.1	-245354.1	19.0595	-314264.9	14.9040
2200	22.664	54527.3	60.8278	79293.7	-211344.7	-244816.6	17.9000	-313495.0	13.4192
2300	22.664	56793.7	61.8352	85427.3	-209078.3	-244281.6	16.8439	-312724.6	12.0669
2400	22.664	59060.1	62.7998	91659.3	-206811.9	-243748.9	15.8777	-311954.1	10.8303
2500	22.664	61326.5	63.7250	97985.9	-204545.5	-243218.4	14.9910	-311183.5	9.6954
2600	22.664	63592.9	64.6139	104403.1	-202279.1			-310412.9	8.6505
2700	22.664	65859.3	65.4692	110907.6	-200012.7			-309642.6	7.6853
2800	22.664	68125.7	66.2934	117495.9	-197746.3			-308872.8	6.7913
2900	22.664	70392.1	67.0888	124165.3	-195479.9			-308103.7	5.9610
3000	22.664	72658.5	67.8571	130912.8	-193213.5			-307335.7	5.1881
3100	22.664	74924.9	68.6002	137735.9	-190947.1			-306569.0	4.4667
3200	22.664	77191.3	69.3198	144632.1	-188680.7			-305804.0	3.7922
3300	22.664	79457.7	70.0172	151599.1	-186414.3			-305041.1	3.1601
3400	22.664	81724.1	70.6938	158634.8	-184147.9			-304280.8	2.5667
3500	22.664	83990.5	71.3508	165737.2	-181881.5			-303523.4	2.0086
3600	22.664	86256.9	71.9892	172904.3	-179615.1			-302769.5	1.4828
3700	22.664	88523.3	72.6102	180134.4	-177348.7			-302019.5	0.9867
3800	22.664	90789.7	73.2146	187425.8	-175082.3			-301274.1	0.5178
3900	22.664	93056.1	73.8033	194776.8	-172815.9			-300533.7	0.0741
4000	22.664	95322.5	74.3771	202186.0	-170549.5			-299798.9	-0.3464
4100	22.664	97588.9	74.9368	209651.8	-168283.1			-299070.3	-0.7454
4200	22.664	99855.3	75.4829	217172.9	-166016.7			-298348.4	-1.1245
4300	22.664	102121.7	76.0162	224748.0	-163750.3			-297633.7	-1.4851
4400	22.664	104388.1	76.5372	232375.7	-161483.9			-296926.9	-1.8285
4500	22.664	106654.5	77.04[illegible]6	240055.0	-159217.5			-296228.3	-2.1559
4600	22.664	108920.9	77.5447	247784.7	-156951.1			-295538.8	-2.4682
4700	22.664	111187.3	78.0321	255563.6	-154684.7			-294858.6	-2.7666
4800	22.664	113453.7	78.5093	263390.7	-152418.3			-294188.3	-3.0519
4900	22.664	115720.1	78.9766	271265.1	-150151.9			-293528.5	-3.3250
5000	22.664	117986.5	79.4345	279185.7	-147885.5			-292879.6	-3.5865
5100	22.664	120252.9	79.8833	287151.7	-145619.1			-292242.0	-3.8373
5200	22.664	122519.3	80.3233	295162.1	-143352.7			-291616.2	-4.0778
5300	22.664	124785.7	80.7551	303216.1	-141086.3			-291002.5	-4.3088
5400	22.664	127052.1	81.1787	311312.9	-138819.9			-290401.4	-4.5308
5500	22.664	129318.5	81.5946	319451.6	-136553.5			-289813.0	-4.7443
5600	22.664	131584.9	82.0029	327631.5	-134287.1			-289237.8	-4.9497
5700	22.664	133851.3	82.4041	335851.9	-132020.7			-288676.4	-5.1475
5800	22.664	136117.7	82.7982	344112.1	-129754.3			-288129.0	-5.3382
5900	22.664	138384.1	83.1857	352411.3	-127487.9			-287595.7	-5.5220
6000	22.664	140650.5	83.5666	360749.0	-125221.5			-287077.0	-5.6994

[a] H_0° refers to crystal state.

[b] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Mg, 923° K.

[c] Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(131) MgFCl (gas); molecular weight, 78.777

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-142153.5	-138811.6	-------	-221024.1	--------
100	7.5145	704.9	49.0587	4201.0	-141448.5	-138954.9	304.5174	-221811.3	474.4541
200	10.2833	1594.8	55.1136	9427.9	-140558.7	-139256.0	152.5474	-222443.1	231.7938
298.15	12.1246	2703.5	59.5993	15066.1	-139450.0	-139450.0	102.4225	-222858.8	151.7087
300	12.1496	2725.9	59.6744	15176.4	-139427.5	-139453.0	101.7921	-222865.3	150.7014
400	13.1494	3995.9	63.3211	21332.5	-138157.5	-139592.7	76.3837	-223162.5	110.0881
500	13.7084	5341.4	66.3210	27819.2	-136812.1	-139713.3	61.1241	-223386.9	85.6914
600	14.0437	6730.3	68.8524	34581.2	-135423.2	-139836.5	50.9423	-223564.1	69.4121
700	14.2579	8146.1	71.0345	41578.0	-134007.3	-139977.4	43.6629	-223707.9	57.7757
800	14.4022	9579.6	72.9484	48779.1	-132573.9	-140144.0	38.1973	-223827.1	49.0432
900	14.5035	11025.1	74.6509	56160.7	-131128.3	-140341.8	33.9407	-223927.2	42.2480
[a]1000	14.5773	12479.4	76.1830	63703.7	-129674.1	-142712.5	30.4912	-224012.3	36.8095
1100	14.6326	13940.0	77.5751	71392.6	-128213.5	-142945.7	27.6538	-224085.6	32.3583
1200	14.6751	15405.5	78.8502	79214.8	-126748.0	-143178.2	25.2853	-224149.2	28.6478
1300	14.7084	16874.7	80.0262	87159.4	-125278.8	-143410.6	23.2778	-224204.8	25.5073
1400	14.7350	18346.9	81.1172	95217.2	-123806.5	-143643.3	21.5544	-224253.9	22.8149
1500	14.7565	19821.5	82.1346	103380.4	-122331.9	-143876.5	20.0584	-224297.5	20.4809
1600	14.7742	21298.1	83.0875	111642.0	-120855.4	-144110.4	18.7473	-224336.5	18.4383
1700	14.7889	22776.3	83.9837	119996.0	-119377.2	-144345.2	17.5885	-224371.5	16.6358
1800	14.8013	24255.8	84.8293	128437.0	-117897.7	-144580.9	16.5569	-224403.1	15.0332
1900	14.8117	25736.4	85.6299	136960.3	-116417.0	-144817.8	15.6321	-224431.8	13.5992
2000	14.8207	27218.1	86.3899	145561.6	-114935.4	-145055.8	14.7987	-224458.0	12.3084
2100	14.8284	28700.5	87.1132	154237.1	-113452.9	-145295.0	14.0434	-224482.0	11.1404
2200	14.8351	30183.7	87.8031	162983.2	-111969.7	-145535.4	13.3553	-224504.1	10.0785
2300	14.8410	31667.5	88.4627	171796.7	-110485.9	-145777.2	12.7264	-224524.6	9.1088
2400	14.8462	33151.9	89.0945	180674.8	-109001.5	-146020.3	12.1487	-224543.7	8.2199
2500	14.8507	34636.8	89.7006	189614.7	-107516.7	-146264.8	11.6165	-224561.8	7.4020
2600	14.8547	36122.0	90.2831	198614.1	-106031.4			-224579.1	6.6470
2700	14.8583	37607.7	90.8438	207670.6	-104545.8			-224595.8	5.9478
2800	14.8616	39093.7	91.3842	216782.2	-103059.8			-224612.3	5.2985
2900	14.8645	40580.0	91.9058	225946.8	-101573.5			-224628.9	4.6940
3000	14.8671	42066.6	92.4098	235162.8	-100086.9			-224645.9	4.1297
3100	14.8694	43553.4	92.8973	244428.3	-98600.1			-224663.7	3.6018
3200	14.8716	45040.4	93.3694	253741.7	-97113.0			-224682.7	3.1068
3300	14.8735	46527.7	93.8271	263101.7	-95625.7			-224703.4	2.6418
3400	14.8753	48015.2	94.2711	272506.7	-94138.3			-224726.2	2.2041
3500	14.8770	49502.8	94.7024	281955.5	-92650.7			-224751.5	1.7914
3600	14.8785	50990.5	95.1215	291446.7	-91162.9			-224780.0	1.4016
3700	14.8798	52478.5	95.5291	300979.4	-89675.0			-224812.2	1.0328
3800	14.8811	53966.5	95.9260	310552.2	-88186.9			-224848.5	0.6833
3900	14.8823	55454.7	96.3125	320164.2	-86698.8			-224889.6	0.3517
4000	14.8834	56943.0	96.6893	329814.4	-85210.5			-224936.0	0.0366
4100	14.8844	58431.4	97.0569	339501.8	-83722.1			-224988.3	-0.2632
4200	14.8853	59919.8	97.4156	349225.5	-82233.6			-225047.2	-0.5487
4300	14.8862	61408.4	97.7658	358984.6	-80745.0			-225113.1	-0.8211
4400	14.8870	62897.1	98.1081	368778.4	-79256.4			-225186.6	-1.0811
4500	14.8878	64385.8	98.4426	378606.0	-77767.6			-225268.2	-1.3297
4600	14.8885	65874.6	98.7698	388466.6	-76278.8			-225358.6	-1.5676
4700	14.8892	67363.5	99.0900	398359.7	-74789.9			-225458.2	-1.7955
4800	14.8898	68852.5	99.4035	408284.4	-73301.0			-225567.6	-2.0139
4900	14.8904	70341.5	99.7105	418240.2	-71812.0			-225687.3	-2.2236
5000	14.8910	71830.6	100.0114	428226.3	-70322.9			-225817.8	-2.4249
5100	14.8915	73319.7	100.3063	438242.3	-68833.8			-225959.5	-2.6185
5200	14.8920	74808.9	100.5954	448287.4	-67344.6			-226112.8	-2.8048
5300	14.8924	76298.1	100.8791	458361.2	-65855.4			-226278.0	-2.9841
5400	14.8929	77787.3	101.1575	468463.0	-64366.1			-226455.9	-3.1570
5500	14.8933	79276.6	101.4308	478592.5	-62876.8			-226646.2	-3.3237
5600	14.8937	80766.0	101.6991	488749.0	-61387.5			-226849.8	-3.4846
5700	14.8941	82255.4	101.9627	498932.2	-59898.1			-227067.0	-3.6400
5800	14.8944	83744.8	102.2218	509141.4	-58408.6			-227298.1	-3.7901
5900	14.8948	85234.3	102.4764	519376.4	-56919.2			-227543.2	-3.9354
6000	14.8951	86723.8	102.7267	529636.6	-55429.7			-227802.8	-4.0759

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Mg, 923° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(132) MgH (gas); molecular weight, 25.328

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	38635.2	40837.4	-------	-46100.0	--------
100	6.9613	690.3	38.5275	3162.4	39325.6	40995.4	-84.3307	-46403.3	98.4561
200	6.9739	1386.9	43.3551	7284.2	40022.1	40912.5	-39.5511	-46700.4	47.6259
298.15	7.0701	2075.0	46.1532	11685.6	40710.2	40710.2	-24.8640	-46987.5	30.7821
300	7.0732	2088.1	46.1969	11771.0	40723.3	40705.9	-24.6802	-46992.8	30.5697
400	7.2984	2805.9	48.2603	16498.3	41441.1	40466.4	-17.2865	-47268.7	21.9885
500	7.5739	3549.4	49.9183	21409.8	42184.6	40224.3	-12.8771	-47518.8	16.8105
600	7.8368	4320.2	51.3229	26473.6	42955.4	39983.0	-9.9551	-47741.6	13.3412
700	8.0641	5115.5	52.5485	31668.4	43750.8	39735.0	-7.8807	-47939.9	10.8520
800	8.2532	5931.7	53.6381	36978.8	44566.9	39473.1	-6.3348	-48117.3	8.9778
900	8.4091	6765.1	54.6195	42392.5	45400.3	39190.2	-5.1408	-48277.6	7.5150
[a]1000	8.5383	7612.6	55.5124	47899.7	46247.9	36742.5	-4.2316	-48423.7	6.3409
1100	8.6463	8472.0	56.3313	53492.5	47107.3	36438.7	-3.5046	-48557.9	5.3776
1200	8.7378	9341.3	57.0877	59163.9	47976.6	36140.2	-2.9036	-48682.2	4.5727
1300	8.8164	10219.1	57.7903	64908.2	48854.4	35845.1	-2.3994	-48798.0	3.8899
1400	8.8850	11104.3	58.4462	70720.4	49739.5	35552.2	-1.9710	-48906.5	3.3033
1500	8.9455	11995.9	59.0613	76596.1	50631.1	35260.2	-1.6025	-49008.6	2.7938
1600	8.9997	12893.2	59.6404	82531.5	51528.4	34968.8	-1.2825	-49104.9	2.3471
1700	9.0488	13795.6	60.1875	88523.1	52430.9	34677.7	-1.0027	-49196.1	1.9522
1800	9.0938	14702.8	60.7060	94568.0	53338.1	34386.8	-0.7560	-49282.5	1.6006
1900	9.1354	15614.3	61.1988	100663.5	54249.5	34095.2	-0.5372	-49364.7	1.2854
2000	9.1744	16529.8	61.6684	106807.0	55165.1	33803.1	-0.3420	-49442.9	1.0013
2100	9.2112	17449.1	62.1169	112996.4	56084.3	33510.5	-0.1667	-49517.3	0.7438
2200	9.2463	18372.0	62.5462	119229.7	57007.2	33217.7	-0.0092	-49588.2	0.5094
2300	9.2800	19298.3	62.9580	125505.1	57933.6	32924.4	0.1340	-49655.8	0.2951
2400	9.3129	20228.0	63.3537	131820.8	58863.2	32630.8	0.2635	-49720.3	0.0984
2500	9.3450	21160.9	63.7345	138175.3	59796.1	32337.1	0.3820	-49781.8	-0.0828
2600	9.3768	22097.0	64.1016	144567.2	60732.2			-49840.5	-0.2503
2700	9.4085	23036.2	64.4561	150995.2	61671.5			-49896.6	-0.4056
2800	9.4403	23978.7	64.7988	157458.1	62613.9			-49950.3	-0.5499
2900	9.4723	24924.3	65.1307	163954.6	63559.5			-50001.8	-0.6844
3000	9.5049	25873.1	65.4523	170483.9	64508.4			-50051.3	-0.8100
3100	9.5381	26825.3	65.7645	177044.8	65460.5			-50099.1	-0.9277
3200	9.5720	27780.8	66.0679	183636.5	66416.0			-50145.4	-1.0381
3300	9.6068	28739.7	66.3630	190258.1	67374.9			-50190.5	-1.1420
3400	9.6425	29702.2	66.6503	196908.8	68337.4			-50234.7	-1.2398
3500	9.6792	30668.2	66.9303	203587.9	69303.5			-50278.5	-1.3320
3600	9.7170	31638.0	67.2035	210294.6	70273.3			-50322.2	-1.4193
3700	9.7559	32611.7	67.4703	217028.4	71246.9			-50366.1	-1.5019
3800	9.7958	33589.3	67.7310	223788.5	72224.5			-50410.6	-1.5802
3900	9.8369	34570.9	67.9860	230574.4	73206.1			-50456.3	-1.6546
4000	9.8789	35556.7	68.2355	237385.5	74191.9			-50503.5	-1.7253
4100	9.9221	36546.7	68.4800	244221.3	75182.0			-50552.7	-1.7926
4200	9.9661	37541.1	68.7196	251081.4	76176.4			-50604.3	-1.8568
4300	10.0111	38540.0	68.9547	257965.1	77175.2			-50658.8	-1.9181
4400	10.0570	39543.4	69.1853	264872.1	78178.6			-50716.7	-1.9766
4500	10.1037	40551.4	69.4119	271802.0	79186.6			-50778.2	-2.0326
4600	10.1511	41564.1	69.6345	278754.4	80199.4			-50844.1	-2.0863
4700	10.1991	42581.6	69.8533	285728.8	81216.9			-50914.7	-2.1377
4800	10.2477	43604.0	70.0685	292724.9	82239.2			-50990.4	-2.1871
4900	10.2968	44631.2	70.2803	299742.4	83266.4			-51071.8	-2.2345
5000	10.3462	45663.3	70.4888	306780.9	84298.6			-51159.1	-2.2801
5100	10.3960	46700.4	70.6942	313840.1	85335.7			-51252.9	-2.3240
5200	10.4461	47742.5	70.8966	320919.6	86377.8			-51353.5	-2.3662
5300	10.4963	48789.7	71.0960	328019.3	87424.9			-51461.2	-2.4070
5400	10.5465	49841.8	71.2927	335138.7	88477.0			-51576.6	-2.4463
5500	10.5968	50899.0	71.4867	342277.7	89534.2			-51699.5	-2.4843
5600	10.6470	51961.2	71.6781	349436.0	90596.4			-51830.9	-2.5211
5700	10.6971	53028.4	71.8670	356613.2	91663.6			-51971.0	-2.5566
5800	10.7469	54100.6	72.0534	363809.3	92735.8			-52120.0	-2.5910
5900	10.7965	55177.7	72.2376	371023.9	93813.0			-52278.3	-2.6243
6000	10.8457	56259.9	72.4194	378256.7	94895.1			-52446.2	-2.6567

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Mg, 923° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(133) MgO (gas); molecular weight, 40.32

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	2067.9	4295.6	-------	-90000.0	--------
100	6.9612	695.1	43.1233	3617.2	2763.0	4491.0	-5.4085	-90329.2	193.1608
200	7.2004	1399.6	47.9971	8199.8	3467.5	4369.6	-0.5401	-90678.9	94.3066
298.15	7.6676	2129.1	50.9586	13064.2	4197.0	4197.0	1.0049	-90959.6	61.6425
300	7.6760	2143.3	51.0061	13158.5	4211.2	4193.7	1.0238	-90964.3	61.2314
400	8.0683	2931.6	53.2712	18376.9	4999.5	4016.9	1.7732	-91190.8	44.6459
500	8.3523	3753.3	55.1035	23798.5	5821.2	3836.7	2.2028	-91376.4	34.6718
600	8.5887	4600.5	56.6475	29388.0	6668.4	3644.2	2.4759	-91532.4	28.0099
700	8.8271	5471.2	57.9892	35121.3	7539.1	3433.6	2.6605	-91662.4	23.2439
800	9.0883	6366.7	59.1846	40981.0	8434.6	3205.0	2.7903	-91765.8	19.6647
900	9.3704	7289.5	60.2712	46954.6	9357.4	2960.1	2.8840	-91840.8	16.8782
[a]1000	9.6598	8241.0	61.2735	53032.4	10308.9	561.6	2.9138	-91886.4	14.6475
1100	9.9395	9221.2	62.2074	59207.0	11289.1	322.3	2.9228	-91902.7	12.8218
1200	10.1952	10228.1	63.0834	65472.0	12296.0	105.0	2.9263	-91891.7	11.3003
1300	10.4169	11259.1	63.9085	71822.0	13327.0	-92.4	2.9263	-91856.4	10.0132
1400	10.5993	12310.2	64.6874	78252.1	14378.1	-273.3	2.9241	-91800.6	8.9106
1500	10.7416	13377.6	65.4237	84758.0	15445.5	-441.3	2.9204	-91728.4	7.9556
1600	10.8456	14457.2	66.1205	91335.6	16525.1	-600.1	2.9157	-91643.7	7.1207
1700	10.9153	15545.6	66.7803	97980.9	17613.5	-753.2	2.9103	-91550.2	6.3847
1800	10.9553	16639.3	67.4054	104690.5	18707.2	-903.8	2.9044	-91451.2	5.7312
1900	10.9707	17735.8	67.9983	111460.9	19803.7	-1054.5	2.8981	-91349.3	5.1472
2000	10.9664	18832.8	68.5610	118289.1	20900.7	-1207.5	2.8917	-91247.0	4.6221
2100	10.9469	19928.6	69.0956	125172.2	21996.5	-1364.5	2.8850	-91145.9	4.1476
2200	10.9158	21021.8	69.6042	132107.4	23089.7	-1526.8	2.8780	-91047.5	3.7167
2300	10.8765	22111.5	70.0885	139092.2	24179.4	-1695.5	2.8712	-90952.8	3.3236
2400	10.8316	23196.9	70.5505	146124.3	25264.8	-1871.0	2.8640	-90862.8	2.9637
2500	10.7833	24277.7	70.9917	153201.6	26345.6	-2054.0	2.8570	-90777.8	2.6329
2600	10.7333	25353.5	71.4137	160322.0	27421.4			-90698.5	2.3279
2700	10.6828	26424.3	71.8178	167483.7	28492.2			-90625.1	2.0456
2800	10.6329	27490.1	72.2054	174685.0	29558.0			-90557.8	1.7837
2900	10.5842	28550.9	72.5777	181924.3	30618.8			-90496.9	1.5401
3000	10.5374	29607.0	72.9357	189200.1	31674.9			-90442.5	1.3129
3100	10.4928	30658.5	73.2805	196511.0	32726.4			-90394.8	1.1004
3200	10.4507	31705.6	73.6129	203855.8	33773.5			-90354.0	0.9013
3300	10.4111	32748.7	73.9339	211233.2	34816.6			-90320.3	0.7143
3400	10.3742	33787.9	74.2442	218642.2	35855.8			-90293.8	0.5384
3500	10.3400	34823.6	74.5444	226081.7	36891.5			-90274.8	0.3726
3600	10.3084	35856.0	74.8352	233550.8	37923.9			-90263.7	0.2161
3700	10.2794	36885.4	75.1173	241048.5	38953.3			-90260.5	0.0680
3800	10.2530	37912.0	75.3910	248574.0	39979.9			-90265.8	-0.0723
3900	10.2289	38936.1	75.6571	256126.4	41004.0			-90279.7	-0.2054
4000	10.2071	39957.9	75.9157	263705.1	42025.8			-90302.7	-0.3319
4100	10.1875	40977.6	76.1675	271309.3	43045.5			-90335.1	-0.4523
4200	10.1700	41995.4	76.4128	278938.4	44063.3			-90377.3	-0.5669
4300	10.1544	43011.6	76.6519	286591.7	45079.5			-90429.6	-0.6763
4400	10.1406	44026.4	76.8852	294268.6	46094.3			-90492.5	-0.7808
4500	10.1286	45039.8	77.1130	301968.6	47107.7			-90566.2	-0.8807
4600	10.1181	46052.1	77.3355	309691.0	48120.0			-90651.2	-0.9764
4700	10.1092	47063.5	77.5530	317435.5	49131.4			-90747.9	-1.0681
4800	10.1016	48074.0	77.7657	325201.5	50141.9			-90856.6	-1.1560
4900	10.0954	49083.9	77.9739	332988.5	51151.8			-90977.8	-1.2405
5000	10.0903	50093.1	78.1778	340796.1	52161.0			-91111.6	-1.3217
5100	10.0864	51102.0	78.3776	348623.9	53169.9			-91258.5	-1.3999
5200	10.0835	52110.4	78.5735	356471.5	54178.3			-91418.7	-1.4751
5300	10.0816	53118.7	78.7655	364338.5	55186.6			-91592.4	-1.5477
5400	10.0806	54126.8	78.9539	372224.5	56194.7			-91780.2	-1.6177
5500	10.0804	55134.8	79.1389	380129.1	57202.7			-91981.8	-1.6853
5600	10.0810	56142.9	79.3205	388052.1	58210.8			-92197.9	-1.7507
5700	10.0823	57151.1	79.4990	395993.2	59219.0			-92428.9	-1.8139
5800	10.0842	58159.4	79.6744	403951.8	60227.3			-92674.7	-1.8750
5900	10.0868	59167.9	79.8468	411927.9	61235.8			-92935.6	-1.9343
6000	10.0899	60176.8	80.0163	419921.1	62244.7			-93211.8	-1.9918

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Mg, 923° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(134) MgO (crystal); molecular weight, 40.32

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	0	0	-144966.7	-142739.1	-------	-237034.6	--------
100	1.9980	48.9	0.6371	14.9	-144917.9	-143189.9	308.0475	-238010.1	506.6168
200	6.5370	492.3	3.5289	213.5	-144474.4	-143572.3	151.3974	-238620.8	246.2441
298.15	9.0360	1266.7	6.6459	714.7	-143700.0	-143700.0	99.7271	-238856.6	160.3647
300	9.0700	1289.4	6.7257	728.3	-143677.3	-143694.8	99.0784	-238852.9	159.2859
400	9.9510	2239.0	9.4448	1538.9	-142727.7	-143710.3	72.9059	-238918.0	115.7786
500	10.4580	3261.3	11.7239	2600.6	-141705.4	-143689.9	57.2034	-238903.0	89.6724
600	10.8129	4325.7	13.6635	3872.4	-140641.0	-143665.2	46.7370	-238841.8	72.2710
700	11.0960	5421.6	15.3522	5325.0	-139545.2	-143650.6	39.2622	-238746.6	59.8455
800	11.3407	6543.6	16.8501	6936.5	-138423.1	-143652.7	33.6563	-238623.5	50.5307
900	11.5633	7689.0	18.1989	8690.0	-137277.7	-143675.1	29.2957	-238476.0	43.2899
[a]1000	11.7720	8855.8	19.4281	10572.3	-136110.9	-145858.2	25.7675	-238306.2	37.5012
1100	11.9717	10043.1	20.5595	12572.4	-134923.7	-145890.4	22.8694	-238115.4	32.7685
1200	12.1652	11250.0	21.6095	14681.5	-133716.8	-145907.8	20.4539	-237904.5	28.8279
1300	12.3544	12476.0	22.5908	16892.0	-132490.7	-145910.1	18.4097	-237674.1	25.4967
1400	12.5405	13720.8	23.5131	19197.6	-131246.0	-145897.4	16.6577	-237424.7	22.6442
1500	12.7242	14984.0	24.3846	21592.9	-129982.7	-145869.5	15.1396	-237156.6	20.1748
1600	12.89	2778.8	25.2116	37559.7	-142187.9	-159313.1	15.6536	-250356.7	19.8586
1700	13.04	4075.3	25.9975	40120.5	-140891.4	-159258.0	14.3738	-250055.0	17.8483
1800	13.19	5386.9	26.7472	42758.0	-139579.8	-159190.8	13.2367	-249738.2	16.0636
1900	13.33	6712.9	27.4641	45468.8	-138253.8	-159112.0	12.2196	-249406.8	14.4687
2000	13.47	8053.1	28.1514	48249.8	-136913.7	-159021.8	11.3049	-249061.3	13.0354
2100	13.59	9406.1	28.8115	51098.2	-135560.7	-158921.6	10.4778	-248703.0	11.7403
2200	13.71	10771.2	29.4466	54011.3	-134195.6	-158812.1	9.7261	-248332.7	10.5648
2300	13.82	12147.7	30.0584	56986.7	-132819.1	-158693.9	9.0406	-247951.3	9.4930
2400	13.93	13535.2	30.6490	60022.3	-131431.5	-158567.3	8.4124	-247559.0	8.5121
2500	14.03	14933.2	31.2196	63115.8	-130033.6	-158433.1	7.8353	-247157.0	7.6112
2600	14.14	16341.7	31.7720	66265.6	-128625.0			-246744.9	6.7809
2700	14.24	17760.8	32.3076	69469.7	-127205.9			-246323.2	6.0134
2800	14.33	19189.3	32.8271	72726.5	-125777.4			-245893.2	5.3019
2900	14.42	20626.9	33.3316	76034.6	-124339.8			-245455.5	4.6407
3000	14.50	22073.0	33.8218	79392.4	-122893.7			-245011.1	4.0247

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Mg, 923° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(135) MgOH (gas); molecular weight, 41.328

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-14675.6	-11436.0	-------	-157360.0	--------
100	7.9542	795.0	48.7334	4078.4	-13880.7	-11520.2	28.1436	-158086.1	337.6623
200	8.3140	1602.5	54.3174	9261.0	-13073.1	-11840.0	15.4367	-158829.6	164.6031
298.15	9.1209	2457.1	57.7831	14770.9	-12218.5	-12218.5	11.1186	-159472.9	107.3668
300	9.1365	2474.0	57.8395	14877.9	-12201.6	-12225.5	11.0632	-159484.1	106.6460
400	9.8834	3426.6	60.5750	20803.4	-11249.0	-12585.2	8.8066	-160043.0	77.5540
500	10.4251	4443.6	62.8422	26977.4	-10232.0	-12919.5	7.4142	-160530.1	60.0410
600	10.8108	5506.5	64.7789	33360.9	-9169.1	-13246.3	6.4620	-160967.3	48.3318
700	11.1020	6602.7	66.4681	39925.0	-8072.9	-13582.4	5.7646	-161368.5	39.9461
800	11.3397	7725.1	67.9665	46648.1	-6950.5	-13936.9	5.2280	-161741.9	33.6416
900	11.5467	8869.6	69.3144	53513.3	-5806.0	-14315.7	4.7995	-162092.1	28.7272
[a]1000	11.7337	10033.8	70.5407	60507.0	-4641.8	-16860.6	4.4084	-162421.8	24.7873
1100	11.9056	11215.9	71.6673	67618.1	-3459.7	-17261.2	4.0695	-162732.9	21.5574
1200	12.0642	12414.5	72.7101	74837.6	-2261.1	-17654.7	3.7806	-163027.2	18.8609
1300	12.2104	13628.3	73.6816	82157.8	-1047.3	-18042.1	3.5305	-163305.8	16.5751
1400	12.3446	14856.1	74.5915	89571.9	180.5	-18424.3	3.3114	-163570.1	14.6126
1500	12.4674	16096.8	75.4474	97074.3	1421.2	-18802.5	3.1178	-163821.3	12.9091
1600	12.5792	17349.3	76.2556	104659.8	2673.7	-19177.3	2.9451	-164060.7	11.4163
1700	12.6810	18612.3	77.0214	112324.0	3936.7	-19549.2	2.7896	-164289.3	10.0973
1800	12.7735	19885.1	77.7488	120062.8	5209.5	-19918.8	2.6487	-164508.0	8.9232
1900	12.8573	21166.8	78.4418	127872.6	6491.2	-20287.5	2.5202	-164717.9	7.8713
2000	12.9335	22456.4	79.1032	135750.1	7780.8	-20655.5	2.4025	-164919.7	6.9234
2100	13.0026	23753.2	79.7359	143692.3	9077.6	-21023.3	2.2942	-165114.4	6.0648
2200	13.0653	25056.7	80.3423	151696.4	10381.1	-21391.1	2.1936	-165302.6	5.2833
2300	13.1224	26366.1	80.9244	159759.9	11690.5	-21759.6	2.1007	-165485.0	4.5690
2400	13.1744	27681.0	81.4839	167880.5	13005.4	-22129.0	2.0136	-165662.3	3.9135
2500	13.2218	29000.8	82.0227	176056.0	14325.2	-22499.4	1.9325	-165835.1	3.3098
2600	13.2651	30325.2	82.5422	184284.4	15649.6			-166004.0	2.7519
2700	13.3046	31653.7	83.0435	192563.8	16978.1			-166169.7	2.2349
2800	13.3409	32986.0	83.5281	200892.6	18310.4			-166332.7	1.7543
2900	13.3742	34321.8	83.9968	209268.9	19646.2			-166493.7	1.3064
3000	13.4048	35660.8	84.4507	217691.4	20985.2			-166653.2	0.8880
3100	13.4330	37002.7	84.8907	226158.6	22327.1			-166811.9	0.4962
3200	13.4590	38347.3	85.3176	234669.1	23671.7			-166970.4	0.1285
3300	13.4830	39694.4	85.7322	243221.7	25018.8			-167129.5	-0.2172
3400	13.5053	41043.8	86.1350	251815.2	26368.2			-167289.6	-0.5429
3500	13.5259	42395.4	86.5268	260448.4	27719.8			-167451.6	-0.8502
3600	13.5450	43749.0	86.9081	269120.2	29073.4			-167616.1	-1.1408
3700	13.5628	45104.4	87.2795	277829.6	30428.7			-167783.7	-1.4159
3800	13.5793	46461.5	87.6414	286575.8	31785.9			-167955.3	-1.6769
3900	13.5948	47820.2	87.9943	295357.6	33144.6			-168131.4	-1.9247
4000	13.6092	49180.4	88.3387	304174.3	34504.8			-168312.8	-2.1603
4100	13.6227	50542.0	88.6749	313025.1	35866.4			-168500.1	-2.3847
4200	13.6353	51904.9	89.0033	321909.1	37229.3			-168694.0	-2.5987
4300	13.6471	53269.0	89.3243	330825.5	38593.4			-168895.3	-2.8030
4400	13.6582	54634.3	89.6382	339773.7	39958.7			-169104.4	-2.9982
4500	13.6686	56000.6	89.9452	348752.9	41325.0			-169322.0	-3.1849
4600	13.6784	57368.0	90.2458	357762.5	42692.4			-169548.8	-3.3638
4700	13.6877	58736.3	90.5400	366801.8	44060.7			-169785.4	-3.5353
4800	13.6964	60105.5	90.8283	375870.3	45429.9			-170032.3	-3.6999
4900	13.7046	61475.6	91.1108	384967.3	46799.9			-170290.0	-3.8580
5000	13.7123	62846.4	91.3877	394092.3	48170.8			-170559.1	-4.0100
5100	13.7197	64218.0	91.6594	403244.7	49542.4			-170840.0	-4.1563
5200	13.7266	65590.3	91.9258	412424.0	50914.7			-171133.2	-4.2972
5300	13.7332	66963.3	92.1874	421629.7	52287.7			-171439.0	-4.4330
5400	13.7394	68337.0	92.4441	430861.3	53661.3			-171758.1	-4.5641
5500	13.7454	69711.2	92.6963	440118.4	55035.6			-172090.3	-4.6906
5600	13.7510	71086.0	92.9440	449400.4	56410.4			-172436.5	-4.8128
5700	13.7563	72461.4	93.1874	458707.0	57785.8			-172797.0	-4.9310
5800	13.7614	73837.3	93.4267	468037.8	59161.7			-173172.1	-5.0453
5900	13.7662	75213.7	93.6620	477392.2	60538.0			-173562.0	-5.1560
6000	13.7709	76590.5	93.8934	486770.0	61914.9			-173966.9	-5.2633

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Mg, 923° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(136) MgS (gas); molecular weight, 56.386

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	32068.5	34312.5	-------	-66900.0	--------
100	7.0226	696.3	45.6800	3871.7	32764.7	34691.1	-66.9911	-67199.7	142.8097
200	7.6668	1428.3	50.7276	8717.2	33496.8	34552.6	-29.1204	-67501.8	69.2519
298.15	8.1926	2208.9	53.8962	13860.2	34277.4	34277.4	-16.7322	-67763.4	44.9285
300	8.2000	2224.1	53.9469	13960.0	34292.5	34271.5	-16.5774	-67767.9	44.6222
[a] 400	8.4965	3060.3	56.3506	19479.9	35128.8	33399.4	-10.3747	-67989.5	32.2618
500	8.6669	3919.2	58.2665	25214.0	35987.7	32684.0	-6.7600	-68176.8	24.8228
600	8.7733	4791.6	59.8567	31122.4	36860.1	32037.6	-4.4014	-68339.8	19.8507
700	8.8453	5672.7	61.2149	37177.7	37741.2	31426.5	-2.7495	-68485.6	16.2911
800	8.8975	6560.0	62.3996	43359.6	38628.5	30818.1	-1.5343	-68618.9	13.6159
900	8.9377	7451.9	63.4500	49653.1	39520.3	30179.9	-0.6082	-68742.8	11.5313
[a] 1000	8.9702	8347.3	64.3934	56046.1	40415.8	27369.7	0.0778	-68859.4	9.8607
1100	8.9974	9245.7	65.2496	62528.9	41314.2	26698.8	0.6152	-68970.1	8.4916
1200	9.0211	10146.7	66.0336	69093.6	42215.1	26030.3	1.0519	-69076.2	7.3489
1300	9.0422	11049.9	66.7565	75733.6	43118.3	25364.1	1.4119	-69178.4	6.3805
1400	9.0615	11955.1	67.4273	82443.2	44023.5	24699.9	1.7125	-69277.4	5.5493
1500	9.0793	12862.1	68.0531	89217.5	44930.6	24037.5	1.9662	-69373.8	4.8278
1600	9.0961	13770.9	68.6396	96052.5	45839.3	23376.9	2.1822	-69468.1	4.1957
1700	9.1120	14681.3	69.1915	102944.3	46749.8	22717.9	2.3674	-69560.7	3.6372
1800	9.1273	15593.3	69.7128	109889.7	47661.7	22060.5	2.5274	-69652.1	3.1401
1900	9.1421	16506.7	70.2067	116885.9	48575.2	21404.6	2.6662	-69742.6	2.6947
2000	9.1564	17421.7	70.6760	123930.3	49490.1	20750.1	2.7875	-69832.6	2.2934
2100	9.1704	18338.0	71.1230	131020.4	50406.5	20097.0	2.8939	-69922.2	1.9298
2200	9.1841	19255.7	71.5500	138154.2	51324.2	19445.4	2.9873	-70011.9	1.5988
2300	9.1976	20174.8	71.9585	145329.8	52243.3	18795.1	3.0700	-70101.9	1.2962
2400	9.2109	21095.2	72.3502	152545.3	53163.7	18146.1	3.1430	-70192.4	1.0185
2500	9.2240	22017.0	72.7265	159799.3	54085.5	17498.4	3.2081	-70283.5	0.7627
2600	9.2370	22940.0	73.0885	167090.2	55008.5			-70375.6	0.5262
2700	9.2498	23864.4	73.4374	174416.6	55932.8			-70468.9	0.3070
2800	9.2626	24790.0	73.7740	181777.2	56858.5			-70563.6	0.1032
2900	9.2752	25716.9	74.0993	189171.0	57785.4			-70659.9	-0.0869
3000	9.2878	26645.0	74.4139	196596.7	58713.5			-70758.2	-0.2645
3100	9.3003	27574.4	74.7187	204053.4	59642.9			-70858.6	-0.4309
3200	9.3127	28505.1	75.0141	211540.2	60573.6			-70961.5	-0.5871
3300	9.3251	29437.0	75.3009	219056.0	61505.5			-71067.3	-0.7341
3400	9.3375	30370.1	75.5795	226600.1	62438.6			-71176.3	-0.8726
3500	9.3498	31304.5	75.8503	234171.6	63372.9			-71288.9	-1.0034
3600	9.3620	32240.1	76.1139	241769.9	64308.5			-71405.5	-1.1271
3700	9.3743	33176.9	76.3706	249394.2	65245.4			-71526.5	-1.2444
3800	9.3865	34114.9	76.6207	257043.8	66183.4			-71652.3	-1.3557
3900	9.3987	35054.2	76.8647	264718.1	67122.6			-71783.5	-1.4614
4000	9.4108	35994.7	77.1028	272416.5	68063.1			-71920.4	-1.5621
4100	9.4229	36936.3	77.3353	280138.5	69004.8			-72063.5	-1.6580
4200	9.4351	37879.2	77.5625	287883.4	69947.7			-72213.4	-1.7496
4300	9.4471	38823.4	77.7847	295650.8	70891.8			-72370.5	-1.8370
4400	9.4592	39768.7	78.0020	303440.2	71837.1			-72535.3	-1.9207
4500	9.4713	40715.2	78.2147	311251.1	72783.7			-72708.0	-2.0009
4600	9.4833	41662.9	78.4230	319083.0	73731.4			-72889.5	-2.0777
4700	9.4954	42611.9	78.6271	326935.5	74680.3			-73079.9	-2.1515
4800	9.5074	43562.0	78.8271	334808.3	75630.5			-73279.8	-2.2224
4900	9.5194	44513.3	79.0233	342700.8	76581.8			-73489.7	-2.2906
5000	9.5314	45465.9	79.2157	350612.8	77534.3			-73709.8	-2.3562
5100	9.5434	46419.6	79.4046	358543.9	78488.1			-73940.6	-2.4195
5200	9.5554	47374.6	79.5900	366493.6	79443.0			-74182.5	-2.4805
5300	9.5674	48330.7	79.7722	374461.8	80399.2			-74435.6	-2.5394
5400	9.5793	49288.0	79.9511	382448.0	81356.5			-74700.6	-2.5964
5500	9.5913	50246.6	80.1270	390451.9	82315.0			-74977.4	-2.6514
5600	9.6033	51206.3	80.2999	398473.3	83274.8			-75266.6	-2.7047
5700	9.6152	52167.2	80.4700	406511.8	84235.7			-75568.5	-2.7564
5800	9.6272	53129.3	80.6373	414567.2	85197.8			-75883.4	-2.8064
5900	9.6391	54092.7	80.8020	422639.2	86161.1			-76211.5	-2.8550
6000	9.6510	55057.2	80.9641	430727.5	87125.6			-76553.0	-2.9022

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K and of Mg, 923° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(137) N (gas); molecular weight, 14.008

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	111543.3	112579.5	--------	0	------
100	4.9681	496.8	31.1872	2621.9	112040.2	112729.5	-243.7135	0	0
200	4.9681	993.6	34.6308	5932.5	112537.0	112878.5	-120.4715	0	0
298.15	4.9681	1481.3	36.6145	9435.4	113024.6	113024.6	-79.8450	0	0
300	4.9681	1490.4	36.6452	9503.1	113033.8	113027.4	-79.3341	0	0
400	4.9681	1987.3	38.0745	13242.5	113530.6	113175.5	-58.7378	0	0
500	4.9681	2484.1	39.1831	17107.5	114027.4	113321.0	-46.3637	0	0
600	4.9681	2980.9	40.0889	21072.4	114524.2	113461.3	-38.1038	0	0
700	4.9681	3477.7	40.8547	25120.6	115021.1	113594.5	-32.1968	0	0
800	4.9681	3974.5	41.5181	29240.0	115517.9	113719.7	-27.7614	0	0
900	4.9681	4471.3	42.1033	33421.6	116014.7	113836.9	-24.3080	0	0
1000	4.9681	4968.1	42.6268	37658.6	116511.5	113946.6	-21.5425	0	0
1100	4.9681	5465.0	43.1003	41945.3	117008.3	114049.3	-19.2777	0	0
1200	4.9682	5961.8	43.5326	46277.3	117505.1	114146.0	-17.3887	0	0
1300	4.9682	6458.6	43.9302	50650.7	118001.9	114237.2	-15.7890	0	0
1400	4.9682	6955.4	44.2984	55062.3	118498.8	114323.7	-14.4167	0	0
1500	4.9682	7452.2	44.6412	59509.5	118995.6	114406.1	-13.2266	0	0
1600	4.9682	7949.0	44.9618	63989.8	119492.4	114484.8	-12.1845	0	0
1700	4.9683	8445.9	45.2630	68501.2	119989.2	114560.4	-11.2644	0	0
1800	4.9684	8942.7	45.5470	73041.9	120486.0	114633.2	-10.4459	0	0
1900	4.9687	9439.6	45.8156	77610.1	120982.9	114703.5	-9.7132	0	0
2000	4.9691	9936.4	46.0705	82204.5	121479.8	114771.7	-9.0533	0	0
2100	4.9698	10433.4	46.3129	86823.8	121976.7	114837.9	-8.4560	0	0
2200	4.9709	10930.4	46.5442	91466.8	122473.8	114902.5	-7.9126	0	0
2300	4.9725	11427.6	46.7652	96132.3	122970.9	114965.7	-7.4162	0	0
2400	4.9747	11924.9	46.9768	100819.5	123468.3	115027.6	-6.9609	0	0
2500	4.9777	12422.5	47.1800	105527.4	123965.9	115088.5	-6.5419	0	0
2600	4.9817	12920.5	47.3753	110255.2	124463.8	115148.5	-6.1548	0	0
2700	4.9868	13418.9	47.5634	115002.2	124962.3	115207.9	-5.7963	0	0
2800	4.9932	13917.9	47.7448	119767.7	125461.2	115266.9	-5.4631	0	0
2900	5.0010	14417.6	47.9202	124551.0	125960.9	115325.8	-5.1528	0	0
3000	5.0105	14918.2	48.0899	129351.5	126461.5	115384.6	-4.8631	0	0
3100	5.0216	15419.7	48.2544	134168.8	126963.1	115443.6	-4.5919	0	0
3200	5.0346	15922.5	48.4140	139002.2	127465.9	115503.2	-4.3375	0	0
3300	5.0495	16426.7	48.5691	143851.4	127970.1	115563.4	-4.0984	0	0
3400	5.0665	16932.5	48.7201	148715.9	128475.9	115624.6	-3.8732	0	0
3500	5.0855	17440.1	48.8673	153595.3	128983.4	115687.0	-3.6608	0	0
3600	5.1066	17949.7	49.0108	158489.2	129493.0	115750.9	-3.4601	0	0
3700	5.1299	18461.5	49.1510	163397.4	130004.8	115816.4	-3.2702	0	0
3800	5.1554	18975.7	49.2882	168319.3	130519.1	115883.8	-3.0901	0	0
3900	5.1829	19492.6	49.4224	173254.9	131036.0	115953.5	-2.9192	0	0
4000	5.2126	20012.4	49.5540	178203.7	131555.7	116025.5	-2.7567	0	0
4100	5.2443	20535.2	49.6831	183165.6	132078.6	116100.1	-2.6020	0	0
4200	5.2780	21061.3	49.8099	188140.3	132604.7	116177.6	-2.4546	0	0
4300	5.3136	21590.9	49.9345	193127.5	133134.2	116258.1	-2.3140	0	0
4400	5.3510	22124.1	50.0571	198127.1	133667.5	116341.9	-2.1796	0	0
4500	5.3901	22661.1	50.1778	203138.9	134204.5	116429.2	-2.0512	0	0
4600	5.4308	23202.2	50.2967	208162.6	134745.5	116520.1	-1.9282	0	0
4700	5.4731	23747.4	50.4139	213198.2	135290.7	116614.7	-1.8104	0	0
4800	5.5167	24296.8	50.5296	218245.4	135840.2	116713.4	-1.6974	0	0
4900	5.5615	24850.7	50.6438	223304.1	136394.1	116816.1	-1.5889	0	0
5000	5.6075	25409.2	50.7567	228374.1	136952.5	116923.0	-1.4846	0	0
5100	5.6545	25972.3	50.8682	233455.3	137515.6	117034.2	-1.3844	0	0
5200	5.7023	26540.1	50.9784	238547.7	138083.5	117149.8	-1.2879	0	0
5300	5.7508	27112.8	51.0875	243651.0	138656.1	117270.0	-1.1950	0	0
5400	5.8000	27690.3	51.1955	248765.1	139233.6	117394.7	-1.1054	0	0
5500	5.8495	28272.8	51.3023	253890.0	139816.1	117524.0	-1.0189	0	0
5600	5.8995	28860.2	51.4082	259025.6	140403.6	117657.9	-0.9355	0	0
5700	5.9496	29452.7	51.5130	264171.6	140996.0	117796.6	-0.8549	0	0
5800	5.9997	30050.1	51.6169	269328.1	141593.5	117939.9	-0.7770	0	0
5900	6.0499	30652.6	51.7199	274495.0	142196.0	118087.9	-0.7016	0	0
6000	6.0998	31260.1	51.8220	279672.1	142803.5	118240.6	-0.6287	0	0

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(138) N_2 (gas); molecular weight, 28.016

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-2072.3	0	-------	-225159.0	--------
100	6.9562	693.7	38.1709	3123.4	-1378.6	0	0	-225458.9	487.4271
200	6.9571	1389.3	42.9929	7209.2	-683.0	0	0	-225756.9	240.9431
298.15	6.9611	2072.3	45.7711	11574.4	0	0	0	-226049.2	159.6899
300	6.9613	2085.2	45.8142	11659.1	12.9	0	0	-226054.7	158.6682
400	6.9910	2782.5	47.8199	16345.5	710.1	0	0	-226351.1	117.4755
500	7.0703	3485.1	49.3874	21208.7	1412.8	0	0	-226642.1	92.7274
600	7.1968	4198.1	50.6871	26214.2	2125.8	0	0	-226922.7	76.2077
700	7.3509	4925.3	51.8079	31340.2	2853.0	0	0	-227189.1	64.3935
800	7.5131	5668.5	52.8000	36571.5	3596.2	0	0	-227439.5	55.5228
900	7.6700	6427.8	53.6941	41896.9	4355.5	0	0	-227673.9	48.6159
1000	7.8148	7202.1	54.5098	47307.7	5129.8	0	0	-227893.2	43.0849
1100	7.9449	7990.2	55.2609	52796.7	5917.9	0	0	-228098.7	38.5553
1200	8.0600	8790.6	55.9572	58358.0	6718.3	0	0	-228291.9	34.7773
1300	8.1610	9601.8	56.6064	63986.6	7529.5	0	0	-228474.4	31.5780
1400	8.2494	10422.4	57.2145	69678.0	8350.1	0	0	-228647.4	28.8335
1500	8.3267	11251.3	57.7864	75428.3	9179.0	0	0	-228812.2	26.4532
1600	8.3945	12087.4	58.3260	81234.2	10015.1	0	0	-228969.7	24.3690
1700	8.4541	12929.9	58.8367	87092.5	10857.6	0	0	-229120.8	22.5287
1800	8.5067	13778.0	59.3215	93000.6	11705.7	0	0	-229266.4	20.8919
1900	8.5533	14631.1	59.7827	98956.0	12558.8	0	0	-229407.0	19.4264
2000	8.5948	15488.5	60.2225	104956.4	13416.2	0	0	-229543.4	18.1067
2100	8.6318	16349.9	60.6427	110999.9	14277.6	0	0	-229675.9	16.9120
2200	8.6650	17214.7	61.0451	117084.4	15142.4	0	0	-229805.1	15.8252
2300	8.6950	18082.8	61.4309	123208.3	16010.5	0	0	-229931.4	14.8324
2400	8.7222	18953.6	61.8016	129370.1	16881.3	0	0	-230055.2	13.9219
2500	8.7468	19827.1	62.1581	135568.2	17754.8	0	0	-230176.9	13.0837
2600	8.7694	20702.9	62.5016	141801.3	18630.6	0	0	-230297.0	12.3096
2700	8.7900	21580.9	62.8330	148068.1	19508.6	0	0	-230415.9	11.5925
2800	8.8090	22460.9	63.1530	154367.5	20388.6	0	0	-230533.9	10.9263
2900	8.8266	23342.7	63.4624	160698.3	21270.4	0	0	-230651.5	10.3057
3000	8.8428	24226.2	63.7619	167059.6	22153.9	0	0	-230769.1	9.7261
3100	8.8580	25111.2	64.0521	173450.4	23038.9	0	0	-230887.3	9.1837
3200	8.8721	25997.7	64.3336	179869.8	23925.4	0	0	-231006.4	8.6749
3300	8.8853	26885.6	64.6068	186316.9	24813.3	0	0	-231126.9	8.1967
3400	8.8977	27774.8	64.8722	192790.9	25702.5	0	0	-231249.3	7.7465
3500	8.9094	28665.1	65.1303	199291.1	26592.8	0	0	-231374.1	7.3217
3600	8.9205	29556.6	65.3815	205816.7	27484.3	0	0	-231501.7	6.9202
3700	8.9309	30449.2	65.6260	212367.1	28376.9	0	0	-231632.8	6.5403
3800	8.9409	31342.8	65.8643	218941.7	29270.5	0	0	-231767.7	6.1802
3900	8.9503	32237.4	66.0967	225539.8	30165.1	0	0	-231906.9	5.8383
4000	8.9594	33132.9	66.3234	232160.9	31060.6	0	0	-232050.9	5.5133
4100	8.9680	34029.2	66.5448	238804.3	31956.9	0	0	-232200.2	5.2040
4200	8.9763	34926.5	66.7610	245469.6	32854.1	0	0	-232355.2	4.9092
4300	8.9843	35824.5	66.9723	252156.3	33752.2	0	0	-232516.3	4.6280
4400	8.9920	36723.3	67.1789	258863.9	34651.0	0	0	-232683.9	4.3593
4500	8.9995	37622.9	67.3811	265592.0	35550.6	0	0	-232858.4	4.1024
4600	9.0067	38523.2	67.5790	272340.0	36450.9	0	0	-233040.2	3.8564
4700	9.0138	39424.2	67.7727	279107.6	37351.9	0	0	-233229.5	3.6208
4800	9.0207	40326.0	67.9626	285894.4	38253.7	0	0	-233426.7	3.3948
4900	9.0274	41228.4	68.1486	292700.0	39156.1	0	0	-233632.1	3.1778
5000	9.0341	42131.4	68.3311	299524.0	40059.1	0	0	-233845.9	2.9693
5100	9.0406	43035.2	68.5101	306366.1	40962.9	0	0	-234068.4	2.7688
5200	9.0471	43939.6	68.6857	313225.9	41867.2	0	0	-234299.7	2.5758
5300	9.0535	44844.6	68.8581	320103.2	42772.3	0	0	-234539.9	2.3899
5400	9.0600	45750.3	69.0274	326997.4	43678.0	0	0	-234789.3	2.2107
5500	9.0664	46656.6	69.1937	333908.5	44584.3	0	0	-235048.0	2.0379
5600	9.0729	47563.5	69.3571	340836.1	45491.2	0	0	-235315.9	1.8710
5700	9.0795	48471.2	69.5177	347779.8	46398.9	0	0	-235593.2	1.7098
5800	9.0862	49379.4	69.6757	354739.5	47307.1	0	0	-235879.8	1.5540
5900	9.0930	50288.4	69.8311	361714.9	48216.1	0	0	-236175.8	1.4032
6000	9.1000	51198.0	69.9840	368705.7	49125.7	0	0	-236481.2	1.2573

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(139) NF (gas); molecular weight, 33.008

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	63843.5	65934.5	--------	-65000.0	--------
100	6.9583	694.6	43.3923	3644.6	64538.2	65934.9	-143.2285	-65300.7	136.3565
200	7.0527	1393.2	48.2311	8253.0	65236.7	65935.6	-71.1815	-65624.8	66.8682
298.15	7.3828	2100.3	51.1035	13136.1	65943.9	65943.9	-47.4628	-65938.9	43.2122
300	7.3901	2114.0	51.1490	13230.7	65957.5	65944.1	-47.1647	-65944.5	42.9142
400	7.7708	2872.4	53.3283	18458.9	66716.0	65968.9	-35.1535	-66223.0	30.8810
500	8.0780	3665.6	55.0969	23882.9	67509.1	66008.0	-27.9432	-66458.8	23.6325
600	8.3055	4485.3	56.5909	29469.2	68328.9	66055.6	-23.1331	-66660.7	18.7842
700	8.4727	5324.7	57.8844	35194.4	69168.2	66106.1	-19.6948	-66837.5	15.3112
800	8.5977	6178.5	59.0243	41041.0	70022.0	66156.3	-17.1141	-66995.5	12.6798
900	8.6935	7043.2	60.0427	46995.2	70886.8	66204.0	-15.1054	-67139.4	10.6642
1000	8.7691	7916.5	60.9627	53046.2	71760.0	66248.6	-13.4973	-67272.2	9.0323
1100	8.8303	8796.6	61.8015	59185.1	72640.1	66289.6	-12.1807	-67396.4	7.6946
1200	8.8810	9682.2	62.5721	65404.3	73525.8	66327.3	-11.0829	-67513.4	6.5779
1300	8.9240	10572.5	63.2847	71697.5	74416.1	66361.8	-10.1535	-67624.6	5.6313
1400	8.9613	11466.8	63.9474	78059.5	75310.4	66393.5	-9.3564	-67730.7	4.8187
1500	8.9942	12364.6	64.5668	84485.6	76208.2	66422.6	-8.6654	-67832.6	4.1133
1600	9.0236	13265.6	65.1482	90971.6	77109.1	66449.4	-8.0604	-67930.6	3.4752
1700	9.0504	14169.3	65.6961	97514.1	78012.8	66474.2	-7.5264	-68025.3	2.9490
1800	9.0750	15075.6	66.2141	104109.8	78919.1	66497.3	-7.0516	-68116.9	2.4629
1900	9.0978	15984.2	66.7054	110756.0	79827.7	66518.9	-6.6266	-68205.8	2.0273
2000	9.1193	16895.1	67.1726	117450.1	80738.6	66539.1	-6.2440	-68292.1	1.6348
2100	9.1396	17808.0	67.6180	124189.8	81651.6	66558.2	-5.8977	-68376.1	1.2793
2200	9.1590	18723.0	68.0437	130973.1	82566.5	66576.3	-5.5828	-68457.9	0.9556
2300	9.1776	19639.8	68.4512	137798.0	83483.3	66593.4	-5.2953	-68537.7	0.6598
2400	9.1954	20558.5	68.8422	144662.8	84402.0	66609.8	-5.0316	-68615.6	0.3883
2500	9.2128	21478.9	69.2179	151565.9	85322.4	66625.5	-4.7889	-68691.9	0.1382
2600	9.2296	22401.0	69.5796	158505.9	86244.5	66640.6	-4.5649	-68766.7	-0.0928
2700	9.2460	23324.8	69.9282	165481.4	87168.3	66655.1	-4.3574	-68840.1	-0.3070
2800	9.2621	24250.2	70.2647	172491.1	88093.7	66669.2	-4.1647	-68912.3	-0.5061
2900	9.2778	25177.2	70.5900	179533.9	89020.7	66682.9	-3.9853	-68983.5	-0.6917
3000	9.2932	26105.7	70.9048	186608.8	89949.3	66696.2	-3.8178	-69054.0	-0.8651
3100	9.3085	27035.8	71.2098	193714.6	90879.4	66709.3	-3.6610	-69123.8	-1.0274
3200	9.3235	27967.4	71.5056	200850.4	91811.0	66722.0	-3.5140	-69193.2	-1.1798
3300	9.3383	28900.5	71.7927	208015.4	92744.1	66734.6	-3.3759	-69262.4	-1.3230
3400	9.3530	29835.1	72.0717	215208.7	93678.6	66746.9	-3.2459	-69331.7	-1.4580
3500	9.3675	30771.1	72.3430	222429.5	94614.6	66759.1	-3.1234	-69401.2	-1.5854
3600	9.3819	31708.6	72.6071	229677.1	95552.1	66771.2	-3.0076	-69471.3	-1.7058
3700	9.3962	32647.5	72.8644	236950.7	96491.0	66783.1	-2.8980	-69542.1	-1.8199
3800	9.4103	33587.8	73.1151	244249.7	97431.3	66794.9	-2.7942	-69613.8	-1.9280
3900	9.4244	34529.5	73.3598	251573.5	98373.1	66806.7	-2.6957	-69686.7	-2.0307
4000	9.4384	35472.7	73.5985	258921.5	99316.2	66818.4	-2.6021	-69761.1	-2.1284
4100	9.4523	36417.2	73.8318	266293.0	100260.8	66830.1	-2.5130	-69837.1	-2.2214
4200	9.4661	37363.1	74.0597	273687.6	101206.7	66841.7	-2.4282	-69914.9	-2.3101
4300	9.4799	38310.4	74.2826	281104.8	102154.0	66853.3	-2.3473	-69994.7	-2.3947
4400	9.4936	39259.1	74.5007	288544.0	103102.7	66864.9	-2.2701	-70076.8	-2.4756
4500	9.5073	40209.2	74.7142	296004.8	104052.7	66876.6	-2.1963	-70161.4	-2.5530
4600	9.5209	41160.6	74.9233	303486.7	105004.1	66888.2	-2.1257	-70248.5	-2.6271
4700	9.5345	42113.3	75.1282	310989.3	105956.9	66899.9	-2.0581	-70338.4	-2.6982
4800	9.5480	43067.5	75.3291	318512.2	106911.0	66911.6	-1.9932	-70431.2	-2.7664
4900	9.5615	44022.9	75.5261	326055.0	107866.5	66923.3	-1.9311	-70527.0	-2.8319
5000	9.5750	44979.8	75.7194	333617.3	108823.3	66935.1	-1.8714	-70626.1	-2.8948
5100	9.5884	45937.9	75.9092	341198.8	109781.5	66946.9	-1.8140	-70728.4	-2.9554
5200	9.6018	46897.4	76.0955	348799.0	110741.0	66958.8	-1.7588	-70834.0	-3.0137
5300	9.6152	47858.3	76.2785	356417.8	111701.8	66970.7	-1.7057	-70943.2	-3.0699
5400	9.6285	48820.5	76.4584	364054.6	112664.0	66982.6	-1.6546	-71055.8	-3.1241
5500	9.6418	49784.0	76.6351	371709.3	113627.5	66994.6	-1.6053	-71172.1	-3.1765
5600	9.6552	50748.8	76.8090	379381.6	114592.4	67006.7	-1.5578	-71292.0	-3.2270
5700	9.6684	51715.0	76.9800	387071.0	115558.6	67018.7	-1.5119	-71415.5	-3.2759
5800	9.6817	52682.5	77.1483	394777.5	116526.1	67030.8	-1.4676	-71542.7	-3.3231
5900	9.6949	53651.4	77.3139	402500.6	117494.9	67043.0	-1.4248	-71673.6	-3.3688
6000	9.7082	54621.5	77.4769	410240.2	118465.1	67055.1	-1.3834	-71808.2	-3.4131

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(140) NF_2 (gas); molecular weight, 52.008

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	6472.3	9618.0	-------	-139671.5	--------
100	7.9850	795.3	50.3447	4239.1	7267.6	9371.8	-22.5433	-140370.0	296.9132
200	8.6777	1621.4	56.0436	9587.3	8093.7	9149.9	-12.4012	-141092.4	143.2266
298.15	9.8043	2527.7	59.7154	15276.4	9000.0	9000.0	-9.1354	-141740.9	92.3697
300	9.8255	2545.9	59.7762	15386.9	9018.2	8997.9	-9.0948	-141752.1	91.7290
400	10.8562	3582.1	62.7499	21517.9	10054.3	8915.3	-7.4638	-142293.0	65.8673
500	11.6224	4708.1	65.2595	27921.6	11180.4	8884.6	-6.4916	-142727.9	50.2961
600	12.1643	5899.1	67.4293	34558.5	12371.3	8887.6	-5.8445	-143083.6	39.8864
700	12.5478	7135.8	69.3349	41398.7	13608.0	8910.4	-5.3815	-143382.3	32.4337
800	12.8239	8405.1	71.0294	48418.5	14877.3	8943.9	-5.0332	-143639.8	26.8333
900	13.0271	9698.1	72.5522	55598.8	16170.4	8982.6	-4.7612	-143867.2	22.4701
1000	13.1799	11008.8	73.9330	62924.2	17481.1	9023.0	-4.5426	-144072.0	18.9742
1100	13.2973	12332.9	75.1949	70381.5	18805.2	9063.2	-4.3629	-144259.5	16.1101
1200	13.3890	13667.4	76.3560	77959.8	20139.7	9102.0	-4.2125	-144433.5	13.7203
1300	13.4620	15010.1	77.4307	85649.8	21482.4	9138.6	-4.0848	-144596.9	11.6958
1400	13.5209	16359.4	78.4306	93443.5	22831.6	9172.9	-3.9749	-144751.8	9.9586
1500	13.5691	17713.9	79.3651	101333.8	24186.2	9204.4	-3.8792	-144899.7	8.4515
1600	13.6090	19072.9	80.2422	109314.6	25545.2	9233.3	-3.7953	-145041.8	7.1314
1700	13.6423	20435.5	81.0682	117380.5	26907.8	9259.4	-3.7210	-145179.2	5.9655
1800	13.6705	21801.2	81.8488	125526.7	28273.4	9282.8	-3.6548	-145312.5	4.9282
1900	13.6945	23169.5	82.5886	133748.9	29641.7	9303.4	-3.5954	-145442.4	3.9993
2000	13.7151	24540.0	83.2916	142043.2	31012.2	9321.4	-3.5418	-145569.4	3.1625
2100	13.7329	25912.4	83.9612	150406.1	32384.6	9336.7	-3.4933	-145693.9	2.4047
2200	13.7484	27286.5	84.6004	158834.4	33758.7	9349.5	-3.4491	-145816.3	1.7152
2300	13.7619	28662.0	85.2119	167325.3	35134.3	9359.7	-3.4087	-145936.9	1.0852
2400	13.7739	30038.8	85.7978	175876.0	36511.1	9367.3	-3.3716	-146056.0	0.5072
2500	13.7845	31416.7	86.3603	184484.0	37889.0	9372.5	-3.3375	-146173.8	-0.0250
2600	13.7939	32795.6	86.9011	193147.3	39267.9	9375.3	-3.3060	-146290.7	-0.5166
2700	13.8023	34175.5	87.4219	201863.6	40647.7	9375.6	-3.2768	-146406.9	-0.9722
2800	13.8098	35556.1	87.9240	210631.0	42028.3	9373.6	-3.2497	-146522.5	-1.3956
2900	13.8165	36937.4	88.4087	219447.8	43409.7	9369.2	-3.2245	-146637.9	-1.7901
3000	13.8227	38319.4	88.8772	228312.2	44791.6	9362.5	-3.2009	-146753.3	-2.1586
3100	13.8282	39701.9	89.3305	237222.7	46174.2	9353.5	-3.1790	-146869.0	-2.5036
3200	13.8332	41085.0	89.7696	246177.9	47557.2	9342.1	-3.1584	-146985.2	-2.8273
3300	13.8378	42468.5	90.1954	255176.2	48940.8	9328.5	-3.1390	-147102.1	-3.1316
3400	13.8420	43852.5	90.6085	264216.5	50324.8	9312.7	-3.1209	-147220.0	-3.4182
3500	13.8459	45236.9	91.0099	273297.5	51709.2	9294.6	-3.1038	-147339.1	-3.6887
3600	13.8494	46621.7	91.4000	282418.1	53094.0	9274.2	-3.0877	-147459.8	-3.9444
3700	13.8527	48006.8	91.7795	291577.2	54479.1	9251.7	-3.0725	-147582.3	-4.1864
3800	13.8557	49392.2	92.1489	300773.7	55864.5	9226.9	-3.0581	-147706.7	-4.4159
3900	13.8584	50777.9	92.5089	310006.6	57250.2	9200.0	-3.0446	-147833.5	-4.6338
4000	13.8610	52163.9	92.8598	319275.2	58636.2	9170.8	-3.0317	-147962.7	-4.8410
4100	13.8634	53550.1	93.2021	328578.3	60022.4	9139.5	-3.0195	-148094.7	-5.0382
4200	13.8656	54936.6	93.5362	337915.3	61408.8	9106.0	-3.0079	-148229.6	-5.2263
4300	13.8677	56323.2	93.8624	347285.3	62795.5	9070.3	-2.9969	-148367.7	-5.4057
4400	13.8696	57710.1	94.1813	356687.5	64182.4	9032.5	-2.9865	-148509.2	-5.5772
4500	13.8714	59097.2	94.4930	366121.3	65569.4	8992.5	-2.9765	-148654.2	-5.7412
4600	13.8731	60484.4	94.7979	375585.9	66956.6	8950.3	-2.9670	-148803.0	-5.8982
4700	13.8747	61871.8	95.0963	385080.7	68344.0	8906.0	-2.9580	-148955.8	-6.0487
4800	13.8762	63259.3	95.3884	394604.9	69731.6	8859.5	-2.9494	-149112.6	-6.1930
4900	13.8776	64647.0	95.6745	404158.1	71119.3	8810.9	-2.9412	-149273.7	-6.3317
5000	13.8789	66034.8	95.9549	413739.7	72507.1	8760.2	-2.9334	-149439.1	-6.4649
5100	13.8801	67422.8	96.2297	423348.9	73895.0	8707.3	-2.9259	-149609.0	-6.5930
5200	13.8813	68810.8	96.4993	432985.4	75283.1	8652.3	-2.9187	-149783.5	-6.7164
5300	13.8824	70199.0	96.7637	442648.6	76671.3	8595.1	-2.9119	-149962.6	-6.8352
5400	13.8834	71587.3	97.0232	452338.0	78059.6	8535.8	-2.9053	-150146.5	-6.9498
5500	13.8844	72975.7	97.2780	462053.1	79448.0	8474.3	-2.8991	-150335.2	-7.0604
5600	13.8853	74364.2	97.5282	471793.5	80836.4	8410.6	-2.8931	-150528.7	-7.1671
5700	13.8862	75752.8	97.7739	481558.6	82225.0	8344.8	-2.8874	-150727.1	-7.2702
5800	13.8871	77141.4	98.0154	491348.1	83613.7	8276.8	-2.8819	-150930.4	-7.3699
5900	13.8878	78530.2	98.2528	501161.5	85002.4	8206.6	-2.8766	-151138.6	-7.4664
6000	13.8886	79919.0	98.4863	510998.5	86391.3	8134.2	-2.8716	-151351.7	-7.5597

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(141) NF_3 (gas); molecular weight, 71.008

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-32527.3	-28326.7	-------	-195971.2	--------
100	8.1268	797.3	51.5514	4357.8	-31730.0	-28918.4	56.9527	-197166.3	414.2806
200	10.1963	1699.4	57.7211	9844.9	-30827.9	-29414.4	25.1279	-198338.5	198.3339
298.15	12.7322	2827.3	62.2758	15740.2	-29700.0	-29700.0	14.4969	-199299.1	126.8321
300	12.7756	2850.9	62.3547	15855.5	-29676.4	-29703.6	14.3627	-199314.9	125.9312
400	14.7682	4233.9	66.3195	22293.9	-28293.4	-29824.5	8.9411	-200049.1	89.5690
500	16.1371	5783.6	69.7719	29102.4	-26743.7	-29834.2	5.6809	-200592.5	67.6807
600	17.0634	7446.6	72.8013	36234.2	-25080.7	-29774.9	3.5093	-201001.0	53.0536
700	17.7013	9186.7	75.4825	43651.0	-23340.6	-29673.8	1.9624	-201315.5	42.5868
800	18.1526	10980.7	77.8773	51321.2	-21546.6	-29547.7	0.8067	-201563.4	34.7257
900	18.4807	12813.2	80.0353	59218.6	-19714.1	-29406.9	-0.0882	-201763.2	28.6047
1000	18.7254	14674.0	81.9957	67321.7	-17853.3	-29257.9	-0.8005	-201927.1	23.7034
1100	18.9120	16556.3	83.7896	75612.2	-15971.0	-29104.5	-1.3803	-202063.8	19.6904
1200	19.0573	18455.1	85.4416	84074.9	-14072.2	-28949.2	-1.8609	-202179.5	16.3440
1300	19.1725	20366.8	86.9718	92696.5	-12160.5	-28793.8	-2.2654	-202278.5	13.5110
1400	19.2651	22288.8	88.3961	101465.7	-10238.5	-28639.1	-2.6102	-202364.2	11.0816
1500	19.3407	24219.2	89.7279	110372.6	-8308.1	-28485.9	-2.9075	-202439.1	8.9753
1600	19.4032	26156.5	90.9782	119408.6	-6370.8	-28334.8	-3.1662	-202505.1	7.1316
1700	19.4553	28099.5	92.1561	128565.9	-4427.8	-28185.9	-3.3933	-202563.6	5.5044
1800	19.4993	30047.3	93.2694	137837.6	-2480.0	-28039.6	-3.5941	-202615.9	4.0575
1900	19.5368	31999.2	94.3247	147217.8	-528.1	-27895.9	-3.7728	-202662.9	2.7626
2000	19.5689	33954.5	95.3277	156700.8	1427.2	-27755.0	-3.9328	-202705.3	1.5970
2100	19.5966	35912.8	96.2831	166281.8	3385.5	-27617.0	-4.0769	-202743.9	0.5421
2200	19.6207	37873.7	97.1953	175956.0	5346.4	-27481.9	-4.2072	-202779.2	-0.4170
2300	19.6418	39836.9	98.0680	185719.5	7309.5	-27349.7	-4.3256	-202811.7	-1.2928
2400	19.6604	41802.0	98.9043	195568.4	9274.7	-27220.6	-4.4336	-202841.7	-2.0958
2500	19.6768	43768.9	99.7073	205499.3	11241.6	-27094.4	-4.5325	-202869.7	-2.8347
2600	19.6914	45737.3	100.4793	215508.8	13210.0	-26971.3	-4.6234	-202896.0	-3.5168
2700	19.7045	47707.1	101.2227	225594.2	15179.8	-26851.2	-4.7072	-202920.9	-4.1485
2800	19.7161	49678.1	101.9395	235752.5	17150.8	-26734.1	-4.7847	-202944.8	-4.7351
2900	19.7266	51650.3	102.6316	245981.2	19123.0	-26620.1	-4.8565	-202967.9	-5.2814
3000	19.7361	53623.4	103.3005	256278.0	21096.1	-26509.1	-4.9232	-202990.6	-5.7912
3100	19.7447	55597.5	103.9478	266640.6	23070.2	-26401.2	-4.9854	-203013.0	-6.2683
3200	19.7525	57572.4	104.5748	277066.9	25045.0	-26296.3	-5.0434	-203035.6	-6.7155
3300	19.7596	59548.0	105.1827	287554.9	27020.7	-26194.4	-5.0977	-203058.6	-7.1357
3400	19.7661	61524.3	105.7727	298102.8	28996.9	-26095.6	-5.1486	-203082.3	-7.5313
3500	19.7721	63501.2	106.3457	308708.9	30973.9	-25999.9	-5.1965	-203106.9	-7.9042
3600	19.7776	65478.7	106.9028	319371.5	32951.3	-25907.2	-5.2415	-203132.8	-8.2565
3700	19.7826	67456.7	107.4448	330089.0	34929.4	-25817.5	-5.2839	-203160.2	-8.5898
3800	19.7873	69435.2	107.9724	340859.9	36907.9	-25730.9	-5.3240	-203189.4	-8.9056
3900	19.7916	71414.1	108.4864	351683.0	38886.8	-25647.3	-5.3619	-203220.7	-9.2053
4000	19.7955	73393.5	108.9876	362556.8	40866.2	-25566.7	-5.3977	-203254.3	-9.4900
4100	19.7992	75373.2	109.4764	373480.1	42845.9	-25489.2	-5.4318	-203290.4	-9.7609
4200	19.8027	77353.3	109.9536	384451.7	44826.0	-25414.8	-5.4641	-203329.3	-10.0189
4300	19.8059	79333.7	110.4196	395470.4	46806.4	-25343.3	-5.4948	-203371.2	-10.2650
4400	19.8089	81314.5	110.8749	406535.2	48787.2	-25275.0	-5.5240	-203416.4	-10.4999
4500	19.8116	83295.5	111.3201	417645.1	50768.2	-25209.6	-5.5519	-203465.0	-10.7244
4600	19.8143	85276.8	111.7556	428798.9	52749.5	-25147.3	-5.5785	-203517.3	-10.9393
4700	19.8167	87258.4	112.1818	439995.9	54731.0	-25088.0	-5.6038	-203573.3	-11.1450
4800	19.8190	89240.1	112.5990	451235.0	56712.8	-25031.8	-5.6281	-203633.4	-11.3423
4900	19.8212	91222.1	113.0077	462515.4	58694.8	-24978.6	-5.6514	-203697.5	-11.5315
5000	19.8232	93204.4	113.4081	473836.3	60677.1	-24928.5	-5.6736	-203766.0	-11.7132
5100	19.8251	95186.8	113.8007	485196.8	62659.5	-24881.4	-5.6950	-203838.8	-11.8879
5200	19.8269	97169.4	114.1857	496596.1	64642.1	-24837.4	-5.7154	-203916.1	-12.0559
5300	19.8286	99152.2	114.5634	508033.7	66624.8	-24796.4	-5.7351	-203997.9	-12.2176
5400	19.8302	101135.1	114.9340	519508.6	68607.8	-24758.5	-5.7540	-204084.5	-12.3734
5500	19.8317	103118.2	115.2979	531020.2	70590.9	-24723.6	-5.7722	-204175.8	-12.5236
5600	19.8332	105101.5	115.6553	542567.9	72574.1	-24691.8	-5.7898	-204271.8	-12.6685
5700	19.8346	107084.8	116.0063	554151.1	74557.5	-24663.1	-5.8067	-204372.7	-12.8084
5800	19.8359	109068.4	116.3513	565769.0	76541.0	-24637.5	-5.8230	-204478.4	-12.9436
5900	19.8371	111052.0	116.6904	577421.1	78524.7	-24615.0	-5.8387	-204588.9	-13.0742
6000	19.8383	113035.8	117.0238	589106.9	80508.5	-24595.6	-5.8539	-204704.3	-13.2005

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(142) N_2F_2 (gas); molecular weight, 66.016

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	16477.2	20659.1	-------	-241209.9	--------
100	8.4534	803.9	51.5069	4346.8	17281.1	20074.6	-49.8501	-242396.7	513.3199
200	10.7737	1763.1	58.0621	9849.3	18240.3	19638.0	-28.1183	-243482.7	247.9811
298.15	12.7792	2922.8	62.7530	15787.0	19400.0	19400.0	-21.0961	-244365.5	160.2540
300	12.8126	2946.5	62.8321	15903.2	19423.7	19396.9	-21.0084	-244380.4	159.1494
400	14.3918	4310.3	66.7446	22387.6	20787.5	19293.3	-17.4861	-245090.5	114.5828
500	15.5833	5811.9	70.0905	29233.4	22289.1	19286.9	-15.3790	-245646.6	87.7724
600	16.4732	7416.9	73.0143	36391.7	23894.1	19347.4	-13.9723	-246085.1	69.8623
700	17.1389	9099.1	75.6061	43825.2	25576.3	19452.1	-12.9632	-246435.0	57.0488
800	17.6415	10839.3	77.9290	51503.9	27316.5	19584.9	-12.2016	-246718.6	47.4262
900	18.0257	12623.4	80.0300	59403.6	29100.7	19735.1	-11.6050	-246951.6	39.9341
1000	18.3235	14441.5	81.9453	67503.8	30918.7	19895.8	-11.1240	-247145.8	33.9353
1100	18.5577	16286.0	83.7031	75787.4	32763.2	20062.3	-10.7271	-247309.7	29.0236
1200	18.7445	18151.5	85.3262	84239.9	34628.7	20231.8	-10.3936	-247449.6	24.9279
1300	18.8953	20033.7	86.8327	92848.8	36510.9	20402.5	-10.1090	-247570.3	21.4606
1400	19.0187	21929.6	88.2376	101603.1	38406.8	20573.0	-9.8630	-247675.3	18.4872
1500	19.1206	23836.8	89.5534	110493.3	40314.0	20742.7	-9.6480	-247767.5	15.9093
1600	19.2056	25753.2	90.7902	119511.1	42230.4	20911.0	-9.4584	-247849.0	13.6528
1700	19.2773	27677.4	91.9567	128649.0	44154.6	21077.5	-9.2897	-247921.5	11.6611
1800	19.3382	29608.3	93.0604	137900.4	46085.5	21242.0	-9.1386	-247986.5	9.8903
1900	19.3904	31544.8	94.1074	147259.2	48022.0	21404.3	-9.0024	-248045.0	8.3055
2000	19.4354	33486.1	95.1031	156720.1	49963.3	21564.4	-8.8788	-248098.0	6.8788
2100	19.4744	35431.7	96.0524	166278.3	51908.9	21722.2	-8.7662	-248146.4	5.5878
2200	19.5085	37380.9	96.9591	175929.2	53858.1	21877.6	-8.6631	-248190.7	4.4138
2300	19.5385	39333.2	97.8270	185668.8	55810.5	22030.6	-8.5683	-248231.6	3.3418
2400	19.5649	41288.4	98.6591	195493.4	57765.6	22181.2	-8.4808	-248269.6	2.3590
2500	19.5884	43246.1	99.4583	205399.5	59723.3	22329.5	-8.3997	-248305.4	1.4546
2600	19.6092	45206.0	100.2269	215384.0	61683.2	22475.3	-8.3244	-248339.2	0.6198
2700	19.6279	47167.9	100.9674	225444.0	63645.1	22618.7	-8.2542	-248371.7	-0.1534
2800	19.6447	49131.6	101.6815	235576.6	65608.8	22759.7	-8.1886	-248403.3	-0.8714
2900	19.6598	51096.8	102.3711	245779.4	67574.0	22898.4	-8.1272	-248434.5	-1.5400
3000	19.6735	53063.5	103.0379	256050.1	69540.7	23034.6	-8.0695	-248465.8	-2.1641
3100	19.6859	55031.4	103.6831	266386.3	71508.7	23168.5	-8.0152	-248497.6	-2.7480
3200	19.6972	57000.6	104.3083	276786.0	73477.8	23300.0	-7.9640	-248530.5	-3.2955
3300	19.7075	58970.9	104.9146	287247.3	75448.1	23429.1	-7.9157	-248564.9	-3.8099
3400	19.7169	60942.1	105.5031	297768.4	77419.3	23555.9	-7.8699	-248601.3	-4.2940
3500	19.7256	62914.2	106.0747	308347.4	79391.4	23680.4	-7.8265	-248640.4	-4.7506
3600	19.7335	64887.2	106.6305	318982.8	81364.4	23802.5	-7.7854	-248682.5	-5.1819
3700	19.7408	66860.9	107.1713	329673.0	83338.1	23922.3	-7.7462	-248728.1	-5.5899
3800	19.7476	68835.3	107.6979	340416.6	85312.5	24039.7	-7.7089	-248777.8	-5.9766
3900	19.7538	70810.4	108.2109	351212.1	87287.6	24154.8	-7.6734	-248832.1	-6.3435
4000	19.7596	72786.1	108.7111	362058.3	89263.3	24267.6	-7.6395	-248891.3	-6.6921
4100	19.7650	74762.3	109.1991	372953.9	91239.5	24378.1	-7.6071	-248956.1	-7.0238
4200	19.7700	76739.1	109.6754	383897.8	93216.3	24486.3	-7.5761	-249026.8	-7.3398
4300	19.7747	78716.3	110.1407	394888.7	95193.5	24592.2	-7.5464	-249103.9	-7.6412
4400	19.7791	80694.0	110.5953	405925.6	97171.2	24695.8	-7.5179	-249187.8	-7.9290
4500	19.7831	82672.1	111.0399	417007.4	99149.3	24797.0	-7.4906	-249278.8	-8.2041
4600	19.7869	84650.6	111.4747	428133.2	101127.8	24896.0	-7.4644	-249377.4	-8.4673
4700	19.7905	86629.5	111.9003	439302.0	103106.7	24992.7	-7.4392	-249483.9	-8.7194
4800	19.7939	88608.7	112.3170	450513.0	105085.9	25087.1	-7.4149	-249598.5	-8.9612
4900	19.7970	90588.2	112.7252	461765.1	107065.5	25179.1	-7.3915	-249721.6	-9.1931
5000	19.8000	92568.1	113.1252	473057.7	109045.3	25268.9	-7.3691	-249853.4	-9.4159
5100	19.8028	94548.2	113.5173	484389.9	111025.4	25356.3	-7.3474	-249994.2	-9.6301
5200	19.8054	96528.7	113.9018	495760.9	113005.9	25441.4	-7.3264	-250144.2	-9.8362
5300	19.8079	98509.3	114.2791	507170.0	114986.5	25524.2	-7.3062	-250303.5	-10.0346
5400	19.8103	100490.2	114.6494	518616.5	116967.4	25604.6	-7.2867	-250472.3	-10.2258
5500	19.8125	102471.4	115.0129	530099.7	118948.6	25682.7	-7.2678	-250650.7	-10.4102
5600	19.8146	104452.7	115.3699	541618.9	120929.9	25758.5	-7.2496	-250838.8	-10.5881
5700	19.8166	106434.3	115.7207	553173.5	122911.5	25831.8	-7.2319	-251036.6	-10.7599
5800	19.8186	108416.1	116.0653	564762.8	124893.3	25902.8	-7.2148	-251244.3	-10.9259
5900	19.8204	110398.0	116.4041	576386.4	126875.2	25971.3	-7.1983	-251461.8	-11.0864
6000	19.8221	112380.1	116.7373	588043.5	128857.3	26037.4	-7.1822	-251689.1	-11.2417

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(143) NH (gas); molecular weight, 15.016

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	76859.9	78907.9	-------	-85300.0	--------
100	6.9616	679.9	35.6886	2889.0	77539.7	78861.5	-171.3797	-85613.7	183.2832
200	6.9630	1376.1	40.5142	6726.8	78235.9	78908.5	-85.1834	-85911.2	89.6078
298.15	6.9662	2059.6	43.2950	10848.7	78919.5	78919.5	-56.7966	-86202.9	58.6590
300	6.9663	2072.5	43.3380	10928.9	78932.4	78919.6	-56.4400	-86208.3	58.2693
400	6.9729	2769.4	45.3429	15367.7	79629.3	78920.5	-42.0675	-86505.1	42.5450
500	6.9937	3467.6	46.9007	19982.7	80327.4	78918.1	-33.4439	-86800.6	33.0776
600	7.0411	4169.1	48.1795	24738.6	81028.9	78913.1	-27.6951	-87092.7	26.7445
700	7.1191	4876.8	49.2704	29612.4	81736.7	78906.1	-23.5892	-87378.6	22.2057
800	7.2227	5593.8	50.2275	34588.3	82453.6	78898.7	-20.5101	-87655.3	18.7906
900	7.3431	6321.9	51.0851	39654.6	83181.8	78891.7	-18.1153	-87920.7	16.1261
1000	7.4716	7062.6	51.8653	44802.7	83922.5	78886.1	-16.1995	-88173.7	13.9882
1100	7.6014	7816.3	52.5836	50025.6	84676.2	78882.5	-14.6325	-88413.6	12.2341
1200	7.7278	8582.8	53.2504	55317.7	85442.7	78881.0	-13.3265	-88640.8	10.7685
1300	7.8481	9361.7	53.8738	60674.3	86221.5	78881.4	-12.2214	-88855.5	9.5252
1400	7.9608	10152.2	54.4596	66091.2	87012.0	78883.6	-11.2744	-89058.6	8.4571
1500	8.0654	10953.6	55.0124	71565.1	87813.4	78886.9	-10.4534	-89250.9	7.5293
1600	8.1620	11765.0	55.5361	77092.7	88624.8	78891.6	-9.7350	-89433.1	6.7158
1700	8.2510	12585.7	56.0336	82671.4	89445.6	78897.5	-9.1011	-89606.0	5.9965
1800	8.3329	13415.0	56.5076	88298.7	90274.8	78904.6	-8.5376	-89770.4	5.3560
1900	8.4085	14252.1	56.9602	93972.2	91111.9	78912.1	-8.0333	-89926.9	4.7819
2000	8.4784	15096.5	57.3933	99690.0	91956.3	78920.2	-7.5796	-90076.3	4.2643
2100	8.5434	15947.6	57.8085	105450.3	92807.5	78928.8	-7.1688	-90218.9	3.7952
2200	8.6041	16805.0	58.2074	111251.2	93664.9	78938.0	-6.7955	-90355.3	3.3681
2300	8.6610	17668.3	58.5911	117091.2	94528.1	78947.6	-6.4544	-90486.0	2.9776
2400	8.7148	18537.1	58.9609	122968.9	95397.0	78957.8	-6.1420	-90611.4	2.6191
2500	8.7659	19411.2	59.3177	128883.0	96271.0	78968.5	-5.8543	-90731.7	2.2889
2600	8.8147	20290.2	59.6624	134832.1	97150.1	78979.7	-5.5889	-90847.5	1.9836
2700	8.8616	21174.1	59.9960	140815.1	98033.9	78991.7	-5.3429	-90958.9	1.7006
2800	8.9070	22062.5	60.3191	146830.9	98922.4	79004.1	-5.1146	-91066.2	1.4375
2900	8.9510	22955.4	60.6324	152878.6	99815.3	79017.4	-4.9020	-91169.8	1.1923
3000	8.9939	23852.7	60.9366	158957.1	100712.5	79031.3	-4.7034	-91269.9	0.9632
3100	9.0360	24754.2	61.2322	165065.6	101614.0	79045.7	-4.5177	-91366.8	0.7486
3200	9.0774	25659.8	61.5197	171203.3	102519.7	79060.9	-4.3436	-91460.8	0.5472
3300	9.1182	26569.6	61.7997	177369.3	103429.5	79077.5	-4.1799	-91552.0	0.3578
3400	9.1585	27483.5	62.0725	183563.0	104343.3	79094.3	-4.0259	-91640.8	0.1794
3500	9.1985	28401.3	62.3385	189783.6	105261.2	79111.7	-3.8806	-91727.3	0.0111
3600	9.2382	29323.2	62.5982	196030.5	106183.0	79130.9	-3.7433	-91811.9	-0.1481
3700	9.2777	30248.9	62.8519	202303.0	107108.8	79151.2	-3.6135	-91894.7	-0.2988
3800	9.3171	31178.7	63.0998	208600.6	108038.5	79171.6	-3.4905	-91976.0	-0.4417
3900	9.3564	32112.4	63.3424	214922.8	108972.2	79194.4	-3.3739	-92056.1	-0.5774
4000	9.3956	33050.0	63.5797	221268.9	109909.8	79217.9	-3.2627	-92135.0	-0.7064
4100	9.4348	33991.5	63.8122	227638.6	110851.3	79243.4	-3.1573	-92213.1	-0.8292
4200	9.4741	34936.9	64.0400	234031.2	111796.8	79269.6	-3.0565	-92290.6	-0.9463
4300	9.5133	35886.3	64.2634	240446.4	112746.2	79297.6	-2.9606	-92367.6	-1.0581
4400	9.5526	36839.6	64.4826	246883.8	113699.5	79326.5	-2.8690	-92444.4	-1.1648
4500	9.5920	37796.8	64.6977	253342.8	114656.7	79357.8	-2.7815	-92521.0	-1.2669
4600	9.6314	38758.0	64.9090	259823.2	115617.8	79390.2	-2.6977	-92597.7	-1.3646
4700	9.6709	39723.1	65.1165	266324.5	116583.0	79424.2	-2.6174	-92674.6	-1.4582
4800	9.7105	40692.2	65.3205	272846.4	117552.0	79459.4	-2.5404	-92751.8	-1.5480
4900	9.7502	41665.2	65.5212	279388.5	118525.1	79496.4	-2.4666	-92829.5	-1.6342
5000	9.7900	42642.2	65.7185	285950.5	119502.1	79535.7	-2.3958	-92907.7	-1.7171
5100	9.8298	43623.2	65.9128	292532.1	120483.1	79576.4	-2.3275	-92986.6	-1.7967
5200	9.8698	44608.2	66.1041	299133.0	121468.0	79619.1	-2.2620	-93066.3	-1.8734
5300	9.9098	45597.2	66.2924	305752.8	122457.0	79663.4	-2.1989	-93146.8	-1.9472
5400	9.9499	46590.2	66.4781	312391.4	123450.0	79709.7	-2.1379	-93228.1	-2.0184
5500	9.9900	47587.2	66.6610	319048.3	124447.0	79757.6	-2.0793	-93310.4	-2.0870
5600	10.0302	48588.2	66.8414	325723.5	125448.0	79807.7	-2.0227	-93393.7	-2.1533
5700	10.0704	49593.2	67.0192	332416.5	126453.0	79860.1	-1.9680	-93477.9	-2.2172
5800	10.1106	50602.2	67.1947	339127.2	127462.1	79914.2	-1.9153	-93563.2	-2.2790
5900	10.1509	51615.3	67.3679	345855.4	128475.2	79970.1	-1.8641	-93649.4	-2.3388
6000	10.1911	52632.4	67.5389	352600.7	129492.3	80028.4	-1.8149	-93736.6	-2.3967

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(144) NH_3 (gas); molecular weight, 17.032

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-13438.6	-9366.7	-------	-276831.4	--------
100	7.9555	789.5	37.2217	2932.7	-12649.1	-10062.5	17.9594	-278029.2	594.5212
200	8.0653	1588.3	42.7546	6962.6	-11850.3	-10515.7	6.7867	-279217.6	290.2172
298.15	8.4975	2398.6	46.0451	11329.8	-11040.0	-11040.0	2.9232	-280357.9	189.6000
300	8.5034	2414.3	46.0977	11415.0	-11024.3	-11049.8	2.8729	-280378.9	188.3327
400	9.1846	3297.7	48.6346	16156.1	-10140.8	-11556.9	0.8175	-281482.7	137.1793
500	9.9369	4253.6	50.7645	21128.6	-9184.9	-12000.2	-0.4682	-282514.1	106.3689
600	10.6840	5284.9	52.6426	26300.7	-8153.7	-12375.5	-1.3554	-283470.1	85.7556
700	11.4033	6389.5	54.3439	31651.3	-7049.1	-12687.8	-2.0075	-284352.7	70.9837
800	12.0913	7564.5	55.9119	37165.0	-5874.1	-12942.7	-2.5076	-285165.0	59.8715
900	12.7450	8806.6	57.3742	42830.1	-4631.9	-13146.9	-2.9032	-285910.1	51.2049
1000	13.3599	10112.2	58.7492	48636.9	-3326.3	-13305.7	-3.2240	-286591.8	44.2543
1100	13.9318	11477.2	60.0497	54577.5	-1961.4	-13424.4	-3.4899	-287214.1	38.5544
1200	14.4582	12897.0	61.2848	60644.7	-541.5	-13508.1	-3.7129	-287781.5	33.7947
1300	14.9389	14367.3	62.4613	66832.5	928.7	-13562.2	-3.9023	-288298.5	29.7596
1400	15.3750	15883.3	63.5847	73135.2	2444.8	-13590.5	-4.0660	-288769.7	26.2950
1500	15.7690	17440.9	64.6591	79547.8	4002.3	-13596.2	-4.2073	-289199.4	23.2877
1600	16.1240	19035.8	65.6883	86065.5	5597.3	-13587.4	-4.3308	-289591.7	20.6525
1700	16.4436	20664.5	66.6756	92684.0	7225.9	-13560.7	-4.4398	-289950.3	18.3243
1800	16.7312	22323.5	67.6238	99399.3	8884.9	-13519.9	-4.5365	-290278.6	16.2524
1900	16.9902	24009.8	68.5355	106207.6	10571.2	-13469.5	-4.6225	-290579.6	14.3965
2000	17.2236	25720.7	69.4130	113105.3	12282.1	-13410.1	-4.7002	-290856.1	12.7246
2100	17.4343	27453.7	70.2585	120089.1	14015.2	-13343.3	-4.7697	-291110.4	11.2105
2200	17.6249	29206.9	71.0740	127156.0	15768.3	-13269.7	-4.8329	-291344.7	9.8329
2300	17.7976	30978.1	71.8614	134303.0	17539.6	-13191.5	-4.8895	-291561.1	8.5742
2400	17.9545	32765.9	72.6222	141527.4	19327.3	-13108.9	-4.9421	-291761.1	7.4195
2500	18.0973	34568.6	73.3581	148826.6	21130.0	-13022.7	-4.9895	-291946.5	6.3565
2600	18.2276	36384.9	74.0704	156198.2	22946.3	-12934.0	-5.0333	-292118.6	5.3746
2700	18.3468	38213.7	74.7606	163639.9	24775.2	-12842.9	-5.0732	-292278.6	4.4650
2800	18.4561	40053.9	75.4298	171149.6	26615.4	-12750.7	-5.1105	-292427.8	3.6198
2900	18.5565	41904.6	76.0793	178725.2	28466.1	-12657.1	-5.1447	-292567.3	2.8326
3000	18.6490	43765.0	76.7099	186364.9	30326.4	-12563.5	-5.1759	-292697.9	2.0975
3100	18.7344	45634.2	77.3228	194066.6	32195.6	-12470.3	-5.2055	-292820.8	1.4096
3200	18.8134	47511.6	77.9189	201828.9	34073.1	-12377.9	-5.2330	-292936.6	0.7644
3300	18.8867	49396.7	78.4990	209649.9	35958.1	-12284.5	-5.2584	-293046.1	0.1580
3400	18.9547	51288.8	79.0638	217528.1	37850.2	-12194.3	-5.2823	-293150.3	-0.4129
3500	19.0182	53187.5	79.6142	225462.2	39748.9	-12106.6	-5.3047	-293249.6	-0.9513
3600	19.0773	55092.3	80.1508	233450.5	41653.7	-12018.3	-5.3253	-293344.8	-1.4600
3700	19.1326	57002.8	80.6742	241491.9	43564.2	-11931.8	-5.3452	-293436.6	-1.9414
3800	19.1845	58918.7	81.1852	249584.9	45480.1	-11850.3	-5.3636	-293525.4	-2.3975
3900	19.2331	60839.6	81.6841	257728.5	47401.0	-11767.3	-5.3815	-293611.8	-2.8304
4000	19.2789	62765.2	82.1716	265921.4	49326.7	-11688.5	-5.3974	-293696.4	-3.2418
4100	19.3220	64695.3	82.6482	274162.5	51256.7	-11610.3	-5.4134	-293779.6	-3.6332
4200	19.3626	66629.5	83.1143	282450.7	53191.0	-11536.3	-5.4274	-293861.9	-4.0061
4300	19.4011	68567.7	83.5704	290785.0	55129.2	-11464.3	-5.4414	-293943.7	-4.3618
4400	19.4375	70509.7	84.0168	299164.4	57071.1	-11396.6	-5.4546	-294025.4	-4.7013
4500	19.4720	72455.1	84.4540	307588.1	59016.6	-11329.4	-5.4674	-294107.4	-5.0259
4600	19.5047	74404.0	84.8824	316055.0	60965.4	-11266.6	-5.4794	-294190.0	-5.3365
4700	19.5359	76356.0	85.3022	324564.3	62917.5	-11206.9	-5.4907	-294273.6	-5.6339
4800	19.5656	78311.1	85.7138	333115.1	64872.6	-11151.6	-5.5014	-294358.5	-5.9190
4900	19.5940	80269.1	86.1175	341706.8	66830.6	-11099.4	-5.5119	-294444.8	-6.1925
5000	19.6210	82229.9	86.5137	350338.4	68791.3	-11048.6	-5.5219	-294532.9	-6.4552
5100	19.6469	84193.3	86.9025	359009.2	70754.7	-11002.3	-5.5312	-294623.1	-6.7077
5200	19.6717	86159.2	87.2842	367718.6	72720.7	-10958.8	-5.5404	-294715.4	-6.9505
5300	19.6955	88127.6	87.6591	376465.9	74689.0	-10919.7	-5.5494	-294810.1	-7.1842
5400	19.7183	90098.3	88.0275	385250.2	76659.7	-10883.3	-5.5572	-294907.4	-7.4094
5500	19.7403	92071.2	88.3895	394071.1	78632.7	-10851.3	-5.5654	-295007.4	-7.6264
5600	19.7615	94046.3	88.7454	402927.9	80607.8	-10821.9	-5.5730	-295110.2	-7.8358
5700	19.7818	96023.5	89.0954	411820.0	82585.0	-10795.0	-5.5805	-295215.9	-8.0379
5800	19.8015	98002.7	89.4396	420746.8	84564.1	-10772.3	-5.5879	-295324.7	-8.2330
5900	19.8205	99983.8	89.7782	429707.8	86545.2	-10753.8	-5.5944	-295436.5	-8.4217
6000	19.8388	101966.7	90.1115	438702.3	88528.2	-10737.6	-5.6015	-295551.5	-8.6041

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(145) NO (gas); molecular weight, 30.008

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	19403.0	21476.5	-------	-150089.5	--------
100	7.7205	745.6	42.2850	3482.9	20148.6	21528.5	-46.5016	-150368.2	323.9439
200	7.2709	1491.8	47.4753	8003.3	20894.7	21578.9	-22.9522	-150676.3	159.5088
298.15	7.1333	2197.0	50.3462	12813.7	21600.0	21600.0	-15.1862	-150981.2	105.2609
300	7.1325	2210.2	50.3903	12906.9	21613.2	21600.3	-15.0886	-150986.9	104.5785
400	7.1570	2923.6	52.4424	18053.4	22326.6	21609.9	-11.1539	-151288.3	77.0563
500	7.2867	3645.2	54.0519	23380.8	23048.1	21614.6	-8.7923	-151574.1	60.5105
600	7.4664	4382.6	55.3960	28855.0	23785.5	21617.9	-7.2177	-151839.8	49.4596
700	7.6553	5138.7	56.5612	34454.1	24541.7	21621.4	-6.0928	-152084.3	41.5528
800	7.8321	5913.2	57.5951	40162.9	25316.2	21625.5	-5.2489	-152308.8	35.6135
900	7.9887	6704.5	58.5269	45969.7	26107.4	21630.1	-4.5924	-152515.4	30.9874
1000	8.1237	7510.3	59.3757	51865.5	26913.2	21634.9	-4.0672	-152706.7	27.2818
1100	8.2389	8328.5	60.1556	57842.6	27731.5	21639.6	-3.6373	-152884.8	24.2462
1200	8.3368	9157.5	60.8767	63894.6	28560.4	21644.1	-3.2790	-153051.9	21.7136
1300	8.4201	9995.4	61.5474	70016.2	29398.4	21648.2	-2.9758	-153209.6	19.5685
1400	8.4914	10841.1	62.1741	76202.7	30244.0	21651.5	-2.7158	-153359.3	17.7279
1500	8.5528	11693.4	62.7621	82449.8	31096.3	21654.0	-2.4905	-153502.1	16.1312
1600	8.6059	12551.4	63.3158	88753.9	31954.3	21655.5	-2.2933	-153639.1	14.7328
1700	8.6521	13414.3	63.8390	95111.9	32817.3	21655.7	-2.1193	-153771.0	13.4979
1800	8.6927	14281.6	64.3347	101520.8	33684.6	21654.6	-1.9646	-153898.4	12.3992
1900	8.7286	15152.7	64.8056	107978.0	34555.7	21652.0	-1.8263	-154022.0	11.4154
2000	8.7605	16027.2	65.2542	114481.2	35430.1	21647.8	-1.7017	-154142.2	10.5293
2100	8.7891	16904.7	65.6823	121028.2	36307.7	21641.8	-1.5891	-154259.4	9.7270
2200	8.8148	17784.9	66.0918	127617.0	37187.9	21634.0	-1.4868	-154374.0	8.9970
2300	8.8382	18667.6	66.4842	134246.0	38070.5	21624.4	-1.3933	-154486.4	8.3300
2400	8.8594	19552.5	66.8608	140913.3	38955.4	21612.8	-1.3078	-154597.0	7.7182
2500	8.8789	20439.4	67.2228	147617.6	39842.4	21599.3	-1.2291	-154705.9	7.1549
2600	8.8969	21328.2	67.5714	154357.5	40731.2	21583.9	-1.1565	-154813.5	6.6346
2700	8.9135	22218.7	67.9075	161131.5	41621.7	21566.5	-1.0893	-154920.2	6.1525
2800	8.9290	23110.9	68.2320	167938.6	42513.8	21547.2	-1.0270	-155026.3	5.7045
2900	8.9434	24004.5	68.5455	174777.5	43407.5	21526.0	-0.9690	-155132.0	5.2871
3000	8.9570	24899.5	68.8490	181647.3	44302.5	21502.9	-0.9150	-155237.7	4.8973
3100	8.9698	25795.9	69.1429	188547.0	45198.8	21478.0	-0.8645	-155343.6	4.5324
3200	8.9819	26693.5	69.4278	195475.6	46096.4	21451.4	-0.8172	-155450.2	4.1900
3300	8.9933	27592.2	69.7044	202432.3	46995.2	21423.0	-0.7728	-155557.7	3.8682
3400	9.0042	28492.1	69.9730	209416.2	47895.1	21393.1	-0.7311	-155666.5	3.5651
3500	9.0146	29393.1	70.2342	216426.7	48796.0	21361.5	-0.6919	-155776.8	3.2792
3600	9.0246	30295.0	70.4883	223462.8	49698.0	21328.5	-0.6548	-155889.0	3.0089
3700	9.0342	31198.0	70.7357	230524.1	50600.9	21294.0	-0.6199	-156003.4	2.7530
3800	9.0434	32101.9	70.9767	237609.8	51504.8	21258.1	-0.5868	-156120.3	2.5104
3900	9.0523	33006.7	71.2118	244719.2	52409.6	21220.9	-0.5555	-156239.9	2.2801
4000	9.0609	33912.3	71.4411	251851.9	53315.3	21182.5	-0.5258	-156362.6	2.0612
4100	9.0693	34818.8	71.6649	259007.3	54221.8	21142.8	-0.4976	-156488.6	1.8527
4200	9.0774	35726.2	71.8835	266184.7	55129.1	21102.1	-0.4708	-156618.2	1.6541
4300	9.0853	36634.3	72.0972	273383.8	56037.2	21060.3	-0.4453	-156751.7	1.4645
4400	9.0929	37543.2	72.3062	280604.0	56946.2	21017.4	-0.4210	-156889.1	1.2833
4500	9.1004	38452.9	72.5106	287844.9	57855.8	20973.6	-0.3978	-157030.9	1.1101
4600	9.1078	39363.3	72.7107	295106.0	58766.2	20928.8	-0.3757	-157177.0	0.9442
4700	9.1149	40274.4	72.9067	302386.9	59677.4	20883.2	-0.3545	-157327.9	0.7853
4800	9.1220	41186.3	73.0986	309687.2	60589.2	20836.7	-0.3343	-157483.5	0.6328
4900	9.1289	42098.8	73.2868	317006.5	61501.8	20789.5	-0.3150	-157644.1	0.4864
5000	9.1357	43012.0	73.4713	324344.4	62415.0	20741.4	-0.2965	-157809.7	0.3457
5100	9.1423	43925.9	73.6523	331700.7	63328.9	20692.6	-0.2787	-157980.5	0.2104
5200	9.1489	44840.5	73.8299	339074.8	64243.5	20643.2	-0.2617	-158156.6	0.0801
5300	9.1554	45755.7	74.0042	346466.5	65158.7	20593.0	-0.2453	-158338.1	-0.0454
5400	9.1617	46671.6	74.1754	353875.5	66074.5	20542.2	-0.2296	-158524.9	-0.1663
5500	9.1680	47588.1	74.3436	361301.5	66991.0	20490.7	-0.2145	-158717.2	-0.2831
5600	9.1743	48505.2	74.5088	368744.1	67908.1	20438.6	-0.2000	-158915.0	-0.3957
5700	9.1804	49422.9	74.6712	376203.2	68825.9	20385.9	-0.1860	-159118.4	-0.5046
5800	9.1865	50341.3	74.8310	383678.3	69744.2	20332.6	-0.1726	-159327.2	-0.6099
5900	9.1925	51260.2	74.9880	391169.3	70663.2	20278.7	-0.1596	-159541.5	-0.7117
6000	9.1985	52179.8	75.1426	398675.8	71582.7	20224.2	-0.1471	-159761.3	-0.8102

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(146) NO_2 (gas); molecular weight, 46.008

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	5570.3	8681.2	-------	-221871.3	--------
100	7.9538	794.6	48.3828	4043.7	6364.9	8435.4	-21.0789	-222628.5	476.0985
200	8.2302	1599.5	53.9520	9190.9	7169.9	8196.8	-11.9645	-223435.2	232.4859
298.15	8.8749	2437.1	57.3509	14662.0	8007.5	8007.5	-9.0473	-224130.4	152.0020
300	8.8888	2453.6	57.4058	14768.2	8023.9	8004.5	-9.0111	-224142.6	150.9889
400	9.6703	3381.3	60.0693	20646.4	8951.6	7873.4	-7.5651	-224747.5	110.1176
500	10.4190	4386.4	62.3091	26768.1	9956.8	7796.1	-6.7091	-225260.2	85.5329
600	11.0632	5461.5	64.2674	33098.9	11031.9	7759.4	-6.1426	-225694.6	69.1082
700	11.5900	6595.1	66.0138	39614.6	12165.5	7751.4	-5.7392	-226065.5	57.3551
800	12.0124	7776.0	67.5901	46296.0	13346.4	7763.1	-5.4365	-226385.8	48.5269
900	12.3502	8994.8	69.0252	53127.9	14565.1	7788.2	-5.2005	-226665.9	41.6513
1000	12.6218	10243.9	70.3410	60097.1	15814.2	7822.4	-5.0110	-226914.1	36.1444
1100	12.8422	11517.4	71.5547	67192.7	17087.8	7863.0	-4.8552	-227136.6	31.6340
1200	13.0232	12811.0	72.6801	74405.1	18381.3	7907.9	-4.7247	-227338.2	27.8719
1300	13.1735	14121.1	73.7286	81726.1	19691.4	7955.7	-4.6136	-227522.6	24.6859
1400	13.2999	15444.9	74.7096	89148.6	21015.3	8005.2	-4.5178	-227692.6	21.9528
1500	13.4075	16780.4	75.6310	96666.1	22350.8	8055.6	-4.4342	-227850.6	19.5825
1600	13.5000	18125.9	76.4993	104273.0	23696.2	8106.1	-4.3606	-227998.2	17.5071
1700	13.5805	19480.0	77.3202	111964.4	25050.4	8156.1	-4.2953	-228136.9	15.6747
1800	13.6512	20841.7	78.0985	119735.6	26412.0	8205.0	-4.2369	-228267.9	14.0449
1900	13.7139	22210.0	78.8383	127582.8	27780.3	8252.4	-4.1843	-228392.1	12.5859
2000	13.7700	23584.2	79.5432	135502.1	29154.6	8297.9	-4.1367	-228510.3	11.2720
2100	13.8207	24963.8	80.2163	143490.3	30534.2	8341.2	-4.0934	-228623.2	10.0827
2200	13.8667	26348.2	80.8603	151544.4	31918.6	8382.1	-4.0539	-228731.5	9.0010
2300	13.9089	27737.0	81.4776	159661.5	33307.4	8420.3	-4.0176	-228835.7	8.0129
2400	13.9478	29129.9	82.0704	167839.1	34700.2	8455.7	-3.9842	-228936.3	7.1068
2500	13.9840	30526.5	82.6405	176074.8	36096.9	8488.2	-3.9533	-229033.8	6.2727
2600	14.0177	31926.6	83.1897	184366.5	37497.0	8517.7	-3.9247	-229128.6	5.5025
2700	14.0493	33330.0	83.7193	192712.1	38900.3	8544.2	-3.8982	-229221.3	4.7891
2800	14.0792	34736.4	84.2308	201109.8	40306.8	8567.7	-3.8735	-229312.2	4.1263
2900	14.1074	36145.8	84.7253	209557.7	41716.1	8588.3	-3.8504	-229401.8	3.5091
3000	14.1343	37557.9	85.2041	218054.3	43128.2	8605.9	-3.8288	-229490.6	2.9327
3100	14.1600	38972.6	85.6679	226598.0	44542.9	8620.7	-3.8085	-229578.9	2.3933
3200	14.1847	40389.8	86.1179	235187.4	45960.2	8632.8	-3.7895	-229667.2	1.8875
3300	14.2084	41809.5	86.5548	243821.2	47379.8	8642.2	-3.7717	-229755.9	1.4121
3400	14.2313	43231.5	86.9793	252498.0	48801.8	8649.1	-3.7548	-229845.4	0.9645
3500	14.2534	44655.7	87.3921	261216.6	50226.1	8653.5	-3.7389	-229936.2	0.5423
3600	14.2749	46082.1	87.7939	269976.0	51652.5	8655.6	-3.7239	-230028.5	0.1434
3700	14.2957	47510.7	88.1853	278775.1	53081.0	8655.6	-3.7097	-230122.8	-0.2341
3800	14.3161	48941.3	88.5669	287612.8	54511.6	8653.4	-3.6963	-230219.5	-0.5918
3900	14.3359	50373.9	88.9390	296488.1	55944.2	8649.4	-3.6835	-230318.8	-0.9314
4000	14.3554	51808.4	89.3022	305400.3	57378.8	8643.5	-3.6714	-230421.2	-1.2541
4100	14.3744	53244.9	89.6569	314348.3	58815.3	8635.9	-3.6599	-230527.0	-1.5613
4200	14.3931	54683.3	90.0035	323331.4	60253.7	8626.7	-3.6489	-230636.4	-1.8539
4300	14.4114	56123.5	90.3424	332348.7	61693.9	8616.0	-3.6385	-230749.7	-2.1330
4400	14.4294	57565.6	90.6739	341399.6	63135.9	8603.9	-3.6285	-230867.2	-2.3996
4500	14.4472	59009.4	90.9984	350483.3	64579.8	8590.6	-3.6191	-230989.1	-2.6545
4600	14.4647	60455.0	91.3161	359599.1	66025.4	8576.0	-3.6100	-231115.7	-2.8984
4700	14.4820	61902.4	91.6274	368746.3	67472.7	8560.3	-3.6013	-231247.1	-3.1321
4800	14.4991	63351.4	91.9324	377924.3	68921.8	8543.6	-3.5930	-231383.5	-3.3562
4900	14.5160	64802.2	92.2316	387132.6	70372.5	8525.9	-3.5851	-231525.0	-3.5713
5000	14.5327	66254.6	92.5250	396370.5	71824.9	8507.4	-3.5775	-231671.9	-3.7778
5100	14.5492	67708.7	92.8130	405637.4	73279.0	8488.0	-3.5702	-231824.1	-3.9765
5200	14.5656	69164.4	93.0956	414932.9	74734.8	8467.8	-3.5633	-231981.9	-4.1676
5300	14.5819	70621.8	93.3732	424256.4	76192.2	8446.9	-3.5565	-232145.2	-4.3516
5400	14.5980	72080.8	93.6460	433607.4	77651.2	8425.4	-3.5501	-232314.1	-4.5289
5500	14.6140	73541.4	93.9140	442985.4	79111.8	8403.2	-3.5439	-232488.6	-4.6999
5600	14.6299	75003.6	94.1774	452390.0	80573.9	8380.5	-3.5380	-232668.9	-4.8649
5700	14.6457	76467.4	94.4365	461820.7	82037.7	8357.2	-3.5322	-232854.7	-5.0243
5800	14.6613	77932.7	94.6914	471277.2	83503.1	8333.4	-3.5267	-233046.2	-5.1783
5900	14.6769	79399.6	94.9421	480758.9	84970.0	8309.1	-3.5214	-233243.4	-5.3272
6000	14.6924	80868.1	95.1889	490265.5	86438.5	8284.4	-3.5163	-233446.0	-5.4712

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(147) N_2O (gas); molecular weight, 44.016

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	172000.4	20310.0	-------	-263835.5	--------
100	7.0154	695.9	43.9981	3703.9	17896.2	19965.5	-46.8823	-264660.7	567.2767
200	8.0334	1440.4	49.1181	8383.2	18640.8	19666.5	-25.2013	-265467.2	277.7312
298.15	9.2304	2289.6	52.5567	13380.1	19490.0	19490.0	-18.1579	-266115.9	182.1342
300	9.2504	2306.7	52.6138	13477.4	19507.1	19487.7	-18.0698	-266126.8	180.9313
400	10.2040	3281.4	55.4113	18883.1	20481.8	19410.1	-14.5285	-266663.7	132.4195
500	10.9624	4341.1	57.7727	24545.3	21541.4	19401.5	-12.4085	-267108.2	103.2580
600	11.5857	5469.4	59.8282	30427.5	22669.8	19439.2	-10.9941	-267479.8	83.7870
700	12.1050	6654.7	61.6544	36503.3	23855.1	19508.3	-9.9810	-267791.9	69.8613
800	12.5389	7887.6	63.2999	42752.4	25088.0	19599.1	-9.2181	-268054.9	59.4057
900	12.9016	9160.2	64.7984	49158.4	26360.5	19705.4	-8.6217	-268277.0	51.2662
1000	13.2055	10466.0	66.1739	55707.9	27666.3	19823.1	-8.1418	-268465.1	44.7496
1100	13.4613	11799.7	67.4449	62389.7	29000.0	19949.2	-7.7468	-268624.6	39.4143
1200	13.6778	13156.9	68.6257	69193.9	30357.3	20081.8	-7.4155	-268760.2	34.9659
1300	13.8625	14534.2	69.7280	76112.2	31734.5	20219.6	-7.1332	-268875.4	31.2000
1400	14.0213	15928.5	70.7612	83137.2	33128.9	20361.3	-6.8896	-268973.2	27.9709
1500	14.1591	17337.7	71.7334	90262.4	34538.1	20506.3	-6.6770	-269055.9	25.1713
1600	14.2798	18759.8	72.6512	97482.1	35960.2	20653.8	-6.4896	-269125.6	22.7210
1700	14.3864	20193.2	73.5201	104791.0	37393.6	20803.2	-6.3230	-269183.9	20.5585
1800	14.4814	21636.7	74.3452	112184.6	38837.1	20954.3	-6.1739	-269232.0	18.6359
1900	14.5668	23089.2	75.1305	119658.7	40289.5	21106.5	-6.0396	-269271.0	16.9153
2000	14.6442	24549.8	75.8797	127209.5	41750.1	21259.7	-5.9177	-269302.0	15.3667
2100	14.7150	26017.8	76.5959	134833.6	43218.2	21413.5	-5.8067	-269325.6	13.9653
2200	14.7803	27492.6	77.2820	142527.7	44693.0	21567.9	-5.7051	-269342.7	12.6913
2300	14.8409	28973.7	77.9403	150289.0	46174.1	21722.7	-5.6116	-269353.8	11.5280
2400	14.8975	30460.6	78.5732	158114.9	47661.0	21877.7	-5.5253	-269359.6	10.4616
2500	14.9509	31953.1	79.1824	166002.9	49153.5	22033.0	-5.4453	-269360.7	9.4805
2600	15.0014	33450.7	79.7698	173950.7	50651.1	22188.5	-5.3710	-269357.5	8.5749
2700	15.0495	34953.3	80.3368	181956.2	52153.7	22344.1	-5.3017	-269350.5	7.7363
2800	15.0956	36460.6	80.8850	190017.4	53660.9	22500.0	-5.2369	-269340.4	6.9577
2900	15.1400	37972.4	81.4155	198132.6	55172.7	22656.0	-5.1761	-269327.7	6.2329
3000	15.1829	39488.5	81.9295	206300.0	56688.9	22812.3	-5.1190	-269312.8	5.5563
3100	15.2247	41008.9	82.4280	214518.0	58209.3	22969.0	-5.0652	-269296.3	4.9235
3200	15.2653	42533.4	82.9120	222785.1	59733.8	23126.0	-5.0144	-269278.8	4.3303
3300	15.3052	44061.9	83.3824	231099.9	61262.3	23283.5	-4.9664	-269260.7	3.7730
3400	15.3442	45594.4	83.8399	239461.1	62794.8	23441.6	-4.9209	-269242.6	3.2486
3500	15.3827	47130.8	84.2852	247867.5	64331.1	23600.2	-4.8777	-269225.1	2.7541
3600	15.4208	48670.9	84.7191	256317.8	65871.3	23759.6	-4.8367	-269208.7	2.2872
3700	15.4584	50214.9	85.1421	264810.9	67415.3	23919.9	-4.7975	-269193.9	1.8455
3800	15.4957	51762.6	85.5549	273345.9	68963.0	24081.0	-4.7602	-269181.2	1.4271
3900	15.5328	53314.0	85.9579	281921.6	70514.4	24243.2	-4.7246	-269171.1	1.0302
4000	15.5698	54869.2	86.3516	290537.1	72069.5	24406.5	-4.6905	-269164.1	0.6531
4100	15.6066	56428.0	86.7365	299191.6	73628.4	24571.0	-4.6579	-269160.6	0.2944
4200	15.6434	57990.5	87.1130	307884.1	75190.9	24736.8	-4.6266	-269161.2	-0.0472
4300	15.6802	59556.7	87.4815	316613.9	76757.0	24904.0	-4.5966	-269166.1	-0.3729
4400	15.7171	61126.5	87.8424	325380.2	78326.9	25072.7	-4.5677	-269175.8	-0.6838
4500	15.7540	62700.1	88.1961	334182.2	79900.5	25242.9	-4.5400	-269190.7	-0.9809
4600	15.7911	64277.3	88.5427	343019.2	81477.7	25414.9	-4.5132	-269211.1	-1.2651
4700	15.8283	65858.3	88.8827	351890.5	83058.7	25588.5	-4.4874	-269237.3	-1.5372
4800	15.8657	67443.0	89.2164	360795.5	84643.4	25764.1	-4.4626	-269269.5	-1.7981
4900	15.9033	69031.5	89.5439	369733.6	86231.8	25941.5	-4.4385	-269308.1	-2.0483
5000	15.9412	70623.7	89.8656	378704.1	87824.1	26120.9	-4.4153	-269353.2	-2.2885
5100	15.9793	72219.7	90.1816	387706.5	89420.1	26302.4	-4.3929	-269405.0	-2.5194
5200	16.0176	73819.5	90.4923	396740.2	91019.9	26486.0	-4.3711	-269463.6	-2.7414
5300	16.0563	75423.2	90.7977	405804.8	92623.6	26671.8	-4.3500	-269529.2	-2.9551
5400	16.0953	77030.8	91.0982	414899.6	94231.2	26859.8	-4.3296	-269601.9	-3.1609
5500	16.1346	78642.3	91.3939	424024.3	95842.7	27050.2	-4.3098	-269681.7	-3.3594
5600	16.1742	80257.7	91.6850	433178.2	97458.1	27242.9	-4.2905	-269768.6	-3.5507
5700	16.2142	81877.2	91.9716	442361.1	99077.5	27438.1	-4.2718	-269862.7	-3.7355
5800	16.2546	83500.6	92.2540	451572.4	100701.0	27635.8	-4.2536	-269963.9	-3.9139
5900	16.2954	85128.1	92.5322	460811.8	102328.5	27835.9	-4.2359	-270072.1	-4.0863
6000	16.3365	86759.7	92.8064	470078.7	103960.1	28038.7	-4.2186	-270187.4	-4.2531

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(148) N_2O_4 (gas); molecular weight, 92.016

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-1569.3	4652.5	-------	-456452.6	--------
100	11.0363	956.2	57.1248	4756.3	-613.1	3527.9	-21.6614	-458599.9	972.6934
200	15.1093	2262.6	66.0163	10940.6	693.3	2747.1	-18.1718	-460516.7	470.7290
298.15	18.4750	3918.1	72.7063	17759.2	2348.8	2348.8	-17.2552	-461927.0	304.8435
300	18.5302	3952.4	72.8207	17893.8	2383.1	2344.2	-17.2446	-461949.9	302.7555
400	21.1646	5942.5	78.5278	25468.6	4373.2	2216.7	-16.8316	-463025.1	218.5338
500	23.2360	8166.7	83.4823	33574.5	6597.4	2276.0	-16.5877	-463836.6	167.8961
600	24.8608	10574.9	87.8684	42146.2	9005.5	2460.7	-16.4162	-464447.5	134.0853
700	26.1267	13126.9	91.7999	51133.0	11557.6	2729.5	-16.2819	-464904.4	109.9068
800	27.1120	15790.8	95.3556	60493.7	14221.5	3055.0	-16.1694	-465242.7	91.7573
900	27.8826	18542.1	98.5953	70193.6	16972.8	3418.9	-16.0715	-465489.2	77.6321
1000	28.4905	21362.0	101.5657	80203.8	19792.6	3809.1	-15.9839	-465663.9	66.3269
1100	28.9750	24236.1	104.3047	90499.1	22666.8	4217.3	-15.9043	-465781.9	57.0742
1200	29.3652	27153.8	106.8432	101058.0	25584.5	4637.7	-15.8312	-465854.6	49.3621
1300	29.6830	30106.8	109.2066	111861.9	28537.5	5066.1	-15.7633	-465890.5	42.8357
1400	29.9444	33088.5	111.4163	122894.2	31519.2	5499.2	-15.6999	-465896.6	37.2414
1500	30.1616	36094.2	113.4899	134140.6	34524.9	5934.6	-15.6405	-465877.8	32.3930
1600	30.3438	39119.7	115.4424	145588.2	37550.4	6370.1	-15.5845	-465838.5	28.1510
1700	30.4978	42162.0	117.2867	157225.5	40592.7	6804.1	-15.5316	-465781.9	24.4084
1800	30.6290	45218.5	119.0338	169042.3	43649.2	7235.1	-15.4815	-465710.6	21.0821
1900	30.7417	48287.2	120.6929	181029.3	46717.9	7662.0	-15.4339	-465627.0	18.1065
2000	30.8391	51366.3	122.2723	193178.2	49797.0	8083.7	-15.3887	-465532.7	15.4289
2100	30.9239	54454.6	123.7790	205481.3	52885.3	8499.4	-15.3455	-465429.5	13.0068
2200	30.9980	57550.8	125.2193	217931.8	55981.4	8908.5	-15.3044	-465318.7	10.8055
2300	31.0631	60653.9	126.5987	230523.2	59084.6	9310.4	-15.2650	-465201.6	8.7960
2400	31.1207	63763.1	127.9220	243249.7	62193.8	9704.7	-15.2274	-465079.2	6.9545
2500	31.1719	66877.8	129.1935	256105.8	65308.5	10091.1	-15.1914	-464952.7	5.2608
2600	31.2175	69997.3	130.4170	269086.8	68428.0	10469.5	-15.1568	-464823.1	3.6977
2700	31.2583	73121.2	131.5959	282187.8	71551.8	10839.6	-15.1236	-464691.4	2.2509
2800	31.2950	76248.8	132.7334	295404.5	74679.5	11201.5	-15.0918	-464558.4	0.9078
2900	31.3281	79380.0	133.8321	308733.1	77810.7	11555.1	-15.0612	-464425.2	-0.3423
3000	31.3581	82514.4	134.8947	322169.8	80945.1	11900.5	-15.0317	-464292.5	-1.5088
3100	31.3852	85651.6	135.9234	335710.9	84082.2	12237.8	-15.0034	-464161.5	-2.5997
3200	31.4100	88791.3	136.9202	349353.4	87222.0	12567.2	-14.9760	-464032.8	-3.6221
3300	31.4326	91933.5	137.8871	363094.0	90364.2	12888.9	-14.9497	-463907.3	-4.5823
3400	31.4532	95077.8	138.8258	376929.9	93508.5	13202.9	-14.9243	-463786.0	-5.4857
3500	31.4722	98224.1	139.7378	390858.3	96654.8	13509.6	-14.8998	-463669.7	-6.3373
3600	31.4897	101372.2	140.6247	404876.6	99802.9	13809.1	-14.8761	-463559.1	-7.1415
3700	31.5058	104522.0	141.4877	418982.4	102952.6	14101.7	-14.8532	-463455.0	-7.9019
3800	31.5206	107673.3	142.3281	433173.4	106104.0	14387.6	-14.8310	-463358.2	-8.6222
3900	31.5344	110826.0	143.1470	447447.3	109256.7	14667.0	-14.8096	-463269.4	-9.3054
4000	31.5471	113980.1	143.9456	461802.1	112410.8	14940.2	-14.7889	-463189.2	-9.9544
4100	31.5590	117135.4	144.7247	476235.8	115566.1	15207.3	-14.7688	-463118.4	-10.5715
4200	31.5700	120291.9	145.4853	490746.4	118722.6	15468.6	-14.7493	-463057.4	-11.1592
4300	31.5803	123449.4	146.2283	505332.2	121880.1	15724.3	-14.7305	-463007.0	-11.7195
4400	31.5898	126607.9	146.9544	519991.5	125038.6	15974.6	-14.7121	-462967.6	-12.2543
4500	31.5988	129767.4	147.6644	534722.6	128198.0	16219.6	-14.6944	-462939.7	-12.7653
4600	31.6072	132927.7	148.3590	549523.9	131358.3	16459.6	-14.6771	-462923.7	-13.2540
4700	31.6151	136088.8	149.0389	564393.9	134519.5	16694.7	-14.6604	-462920.1	-13.7220
4800	31.6225	139250.7	149.7046	579331.2	137681.3	16925.0	-14.6441	-462929.1	-14.1704
4900	31.6294	142413.3	150.3567	594334.4	140844.0	17150.8	-14.6283	-462951.1	-14.6006
5000	31.6360	145576.5	150.9957	609402.1	144007.2	17372.1	-14.6129	-462986.4	-15.0135
5100	31.6421	148740.5	151.6223	624533.1	147171.1	17589.0	-14.5979	-463035.2	-15.4103
5200	31.6480	151905.0	152.2367	639726.1	150335.6	17801.7	-14.5833	-463097.7	-15.7919
5300	31.6535	155070.0	152.8396	654980.0	153500.7	18010.3	-14.5691	-463173.9	-16.1592
5400	31.6587	158235.6	153.4314	670293.7	156666.3	18214.8	-14.5553	-463264.2	-16.5129
5500	31.6636	161401.8	154.0123	685665.9	159832.4	18415.4	-14.5418	-463368.3	-16.8538
5600	31.6682	164568.4	154.5829	701095.8	162999.0	18612.1	-14.5287	-463486.6	-17.1826
5700	31.6727	167735.4	155.1434	716582.2	166166.1	18805.0	-14.5159	-463618.8	-17.5000
5800	31.6769	170902.9	155.6943	732124.2	169333.6	18994.2	-14.5034	-463765.1	-17.8065
5900	31.6808	174070.8	156.2358	747720.7	172501.4	19179.6	-14.4912	-463925.3	-18.1027
6000	31.6846	177239.0	156.7683	763371.0	175669.7	19361.5	-14.4793	-464099.3	-18.3892

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(149) NS (gas); molecular weight, 46.074

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	61393.1	63482.9	-------	-115000.0	--------
100	7.7204	719.6	44.6222	3742.6	62112.7	63691.0	-134.2748	-115276.3	247.4022
200	7.6967	1497.9	50.0191	8505.9	62891.0	63728.9	-64.6495	-115532.2	121.3370
298.15	7.5999	2246.1	53.0642	13575.0	63639.2	63639.2	-41.7369	-115826.2	79.7333
300	7.6009	2260.2	53.1112	13673.2	63653.2	63636.8	-41.4494	-115831.8	79.2098
[a]400	7.7433	3026.2	55.3139	19099.4	64419.3	62955.8	-29.8834	-116123.6	58.0905
500	7.9527	3810.9	57.0641	24721.1	65204.0	62451.3	-23.0284	-116385.1	45.3882
600	8.1472	4616.2	58.5317	30502.8	66009.2	62043.3	-18.4935	-116615.2	36.9019
700	8.3071	5439.2	59.8001	36420.9	66832.3	61702.7	-15.2739	-116819.2	30.8289
800	8.4340	6276.5	60.9179	42457.9	67669.6	61398.1	-12.8716	-117002.4	26.2666
900	8.5342	7125.1	61.9173	48600.5	68518.2	61097.7	-11.0124	-117169.5	22.7128
1000	8.6140	7982.7	62.8208	54838.1	69375.7	60798.7	-9.5323	-117324.0	19.8658
1100	8.6783	8847.4	63.6449	61162.0	70240.5	60500.0	-8.3273	-117468.4	17.5335
1200	8.7309	9717.9	64.4024	67564.9	71111.0	60200.9	-7.3281	-117604.9	15.5876
1300	8.7746	10593.3	65.1030	74040.6	71986.4	59901.3	-6.4868	-117734.9	13.9392
1400	8.8114	11472.6	65.7546	80583.9	72865.7	59600.9	-5.7692	-117859.8	12.5247
1500	8.8429	12355.4	66.3637	87190.1	73748.5	59299.8	-5.1505	-117980.5	11.2976
1600	8.8701	13241.1	66.9352	93855.3	74634.1	58998.0	-4.6119	-118097.9	10.2227
1700	8.8940	14129.3	67.4737	100576.0	75522.4	58695.6	-4.1391	-118212.7	9.2734
1800	8.9151	15019.8	67.9827	107349.1	76412.8	58392.6	-3.7209	-118325.6	8.4288
1900	8.9341	15912.2	68.4652	114171.7	77305.3	58089.2	-3.3488	-118437.1	7.6723
2000	8.9513	16806.5	68.9239	121041.4	78199.6	57785.4	-3.0155	-118547.8	6.9909
2100	8.9670	17702.4	69.3611	127955.8	79095.5	57481.2	-2.7156	-118657.9	6.3738
2200	8.9814	18599.9	69.7785	134912.9	79992.9	57176.8	-2.4445	-118767.9	5.8122
2300	8.9948	19498.7	70.1781	141910.9	80891.8	56872.2	-2.1982	-118878.2	5.2990
2400	9.0073	20398.8	70.5612	148948.0	81791.9	56567.5	-1.9736	-118989.0	4.8282
2500	9.0191	21300.1	70.9291	156022.6	82693.2	56262.7	-1.7681	-119100.6	4.3946
2600	9.0302	22202.6	71.2831	163133.3	83595.7			-119213.3	3.9939
2700	9.0408	23106.2	71.6241	170278.8	84499.2			-119327.2	3.6227
2800	9.0509	24010.8	71.9530	177457.7	85403.8			-119442.6	3.2775
2900	9.0606	24916.3	72.2708	184669.0	86309.4			-119559.6	2.9559
3000	9.0699	25822.9	72.5781	191911.6	87215.9			-119678.5	2.6555
3100	9.0790	26730.3	72.8757	199184.3	88123.4			-119799.4	2.3741
3200	9.0877	27638.7	73.1641	206486.4	89031.7			-119922.5	2.1100
3300	9.0962	28547.9	73.4439	213816.9	89940.9			-120047.9	1.8617
3400	9.1045	29457.9	73.7155	221174.9	90851.0			-120175.9	1.6278
3500	9.1125	30368.7	73.9796	228559.7	91761.8			-120306.5	1.4070
3600	9.1205	31280.4	74.2364	235970.6	92673.5			-120440.0	1.1982
3700	9.1283	32192.8	74.4864	243406.7	93585.9			-120576.4	1.0005
3800	9.1359	33106.0	74.7299	250867.6	94499.1			-120716.0	0.8129
3900	9.1435	34020.0	74.9673	258352.5	95413.1			-120858.9	0.6348
4000	9.1509	34934.7	75.1989	265860.9	96327.8			-121005.1	0.4654
4100	9.1583	35850.2	75.4250	273392.1	97243.3			-121155.0	0.3041
4200	9.1656	36766.4	75.6457	280945.7	98159.5			-121308.4	0.1502
4300	9.1729	37683.3	75.8615	288521.1	99076.4			-121465.7	0.0033
4400	9.1802	38601.0	76.0725	296117.8	99994.0			-121626.9	-0.1371
4500	9.1874	39519.3	76.2788	303735.4	100912.4			-121792.1	-0.2714
4600	9.1947	40438.5	76.4809	311373.5	101831.5			-121961.4	-0.4001
4700	9.2020	41358.3	76.6787	319031.5	102751.4			-122134.8	-0.5234
4800	9.2093	42278.9	76.8725	326709.1	103671.9			-122312.5	-0.6418
4900	9.2167	43200.2	77.0624	334405.8	104593.2			-122494.6	-0.7556
5000	9.2241	44122.2	77.2487	342121.4	105515.3			-122681.0	-0.8649
5100	9.2317	45045.0	77.4315	349855.5	106438.1			-122871.7	-0.9701
5200	9.2393	45968.5	77.6108	357607.6	107361.6			-123066.9	-1.0715
5300	9.2470	46892.8	77.7869	365377.5	108285.9			-123266.6	-1.1691
5400	9.2549	47817.9	77.9598	373164.9	109211.0			-123470.7	-1.2633
5500	9.2629	48743.8	78.1297	380969.4	110136.9			-123679.2	-1.3543
5600	9.2711	49670.5	78.2967	388790.7	111063.6			-123892.2	-1.4421
5700	9.2795	50598.1	78.4608	396628.6	111991.1			-124109.5	-1.5270
5800	9.2881	51526.4	78.6223	404482.8	112919.5			-124331.2	-1.6091
5900	9.2968	52455.7	78.7811	412353.0	113848.7			-124557.1	-1.6886
6000	9.3058	53385.8	78.9375	420238.9	114778.9			-124787.3	-1.7655

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(150) Na (gas); molecular weight, 22.991

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	24115.6	25649.9	--------	0	------
100	4.9681	496.8	31.2867	2631.9	24612.4	25833.7	-50.8518	0	0
200	4.9681	993.6	34.7303	5952.4	25109.2	25743.8	-22.6540	0	0
298.15	4.9681	1481.3	36.7140	9465.0	25596.9	25596.9	-13.4151	0	0
300	4.9681	1490.4	36.7447	9533.0	25606.0	25593.5	-13.2994	0	0
[a] 400	4.9681	1987.3	38.1740	13282.3	26102.9	24688.3	-8.6866	0	0
500	4.9681	2484.1	39.2826	17157.2	26599.7	24442.9	-6.0016	0	0
600	4.9681	2980.9	40.1884	21132.1	27096.5	24219.4	-4.2288	0	0
700	4.9681	3477.7	40.9542	25190.3	27593.3	24013.8	-2.9737	0	0
800	4.9681	3974.5	41.6176	29319.6	28090.1	23818.0	-2.0403	0	0
900	4.9681	4471.3	42.2028	33511.2	28586.9	23625.8	-1.3200	0	0
1000	4.9681	4968.1	42.7262	37758.1	29083.7	23431.9	-0.7487	0	0
1100	4.9682	5465.0	43.1998	42054.8	29580.6	23232.0	-0.2850	0	0
1200	4.9682	5961.8	43.6320	46396.7	30077.4	23022.5	0.0980	0	0
1300	4.9682	6458.6	44.0297	50780.0	30574.2	22804.5	0.4191	0	0
1400	4.9682	6955.4	44.3979	55201.6	31071.0	22580.3	0.6926	0	0
1500	4.9683	7452.2	44.7407	59658.8	31567.8	22351.1	0.9244	0	0
1600	4.9685	7949.1	45.0613	64149.0	32064.7	22116.0	1.1274	0	0
1700	4.9689	8445.9	45.3625	68670.4	32561.5	21878.8	1.3053	0	0
1800	4.9696	8942.9	45.6466	73221.0	33058.5	21637.8	1.4611	0	0
1900	4.9707	9439.9	45.9153	77799.2	33555.5	21394.8	1.5986	0	0
2000	4.9726	9937.0	46.1703	82403.6	34052.6	21149.9	1.7189	0	0
2100	4.9754	10434.4	46.4130	87032.8	34550.0	20904.3	1.8289	0	0
2200	4.9793	10932.1	46.6445	91685.8	35047.7	20657.0	1.9286	0	0
2300	4.9848	11430.3	46.8660	96361.4	35545.9	20408.2	2.0156	0	0
2400	4.9919	11929.2	47.0783	101058.7	36044.8	20160.1	2.0976	0	0
2500	5.0012	12428.8	47.2822	105776.8	36544.4	19910.7	2.1696	0	0
2600	5.0128	12929.5	47.4786	110514.9	37045.1			0	0
2700	5.0270	13431.4	47.6680	115272.3	37547.0			0	0
2800	5.0442	13935.0	47.8512	120048.3	38050.6			0	0
2900	5.0645	14440.4	48.0285	124842.3	38556.0			0	0
3000	5.0883	14948.0	48.2006	129653.8	39063.6			0	0
3100	5.1157	15458.1	48.3679	134482.3	39573.7			0	0
3200	5.1471	15971.3	48.5308	139327.2	40086.9			0	0
3300	5.1817	16487.5	48.6896	144188.3	40603.1			0	0
3400	5.2213	17007.6	48.8449	149065.0	41123.2			0	0
3500	5.2654	17531.9	48.9969	153957.1	41647.5			0	0
3600	5.3143	18060.9	49.1459	158864.3	42176.5			0	0
3700	5.3683	18594.9	49.2922	163786.2	42710.5			0	0
3800	5.4277	19134.7	49.4361	168722.7	43250.3			0	0
3900	5.4927	19680.7	49.5780	173673.4	43796.3			0	0
4000	5.5637	20233.4	49.7179	178638.2	44349.0			0	0
4100	5.6411	20793.6	49.8562	183616.9	44909.2			0	0
4200	5.7232	21361.3	49.9930	188609.3	45476.9			0	0
4300	5.8136	21938.1	50.1287	193615.4	46053.7			0	0
4400	5.8823	22514.0	50.2610	198634.2	46629.6			0	0
4500	5.9733	23104.6	50.3936	203666.8	47220.2			0	0
4600	6.0758	23707.0	50.5260	208712.8	47822.6			0	0
4700	6.1847	24319.9	50.6579	213772.0	48435.5			0	0
4800	6.3000	24944.1	50.7893	218844.3	49059.7			0	0
4900	6.4218	25580.2	50.9204	223929.8	49695.8			0	0
5000	6.5461	26226.8	51.0510	229028.2	50342.4			0	0
5100	6.6802	26888.1	51.1820	234139.9	51003.7			0	0
5200	6.8206	27563.1	51.3130	239264.6	51678.7			0	0
5300	6.9672	28252.4	51.4443	244402.5	52368.0			0	0
5400	7.1200	28956.7	51.5760	249553.5	53072.3			0	0
5500	7.2787	29676.6	51.7081	254717.7	53792.2			0	0
5600	7.4431	30412.7	51.8407	259895.2	54528.3			0	0
5700	7.6128	31165.4	51.9739	265085.9	55281.0			0	0
5800	7.7877	31935.4	52.1078	270290.0	56051.0			0	0
5900	7.9672	32723.1	52.2425	275507.5	56838.7			0	0
6000	8.0977	33491.2	52.3709	280734.1	57606.8			0	0

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Na, 370.98° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(151) Na (crystal, liquid); molecular weight, 22.991

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-1534.3	0	-------	-25649.9	--------
100	5.356	313.0	5.639	250.9	-1221.3	0	0	-25833.7	50.8518
200	6.211	899.7	9.672	1034.7	-634.6	0	0	-25743.8	22.6540
298.15	6.747	1534.3	12.247	2117.1	0	0	0	-25596.9	13.4151
300	6.76	1546.8	12.289	2139.9	12.5	0	0	-25593.5	13.2994
b370.98	7.46	2088.8	13.907	3070.4	554.5	0	0	-39626.1	9.6931
370.98	7.62	2710.6	15.583	3070.4	1176.3	0	0	-24676.9	9.6931
400	7.52	2948.9	16.202	3531.9	1414.6	0	0	-24688.3	8.6866
500	7.32	3691.1	17.859	5238.4	2156.8	0	0	-24442.9	6.0016
600	7.10	4411.4	19.173	7092.4	2877.1	0	0	-24219.4	4.2288
700	6.96	5113.8	20.256	9065.4	3579.5	0	0	-24013.8	2.9737
800	6.90	5806.4	21.181	11138.4	4272.1	0	0	-23818.0	2.0403
900	6.89	6495.4	21.992	13297.4	4961.1	0	0	-23625.8	1.3200
1000	6.93	7186.1	22.720	15533.9	5651.8	0	0	-23431.9	0.7487
1100	7.01	7882.9	23.384	17839.5	6348.6	0	0	-23232.0	0.2850
1200	7.11	8589.2	23.998	20208.4	7054.9	0	0	-23022.5	-0.0980
1300	7.18	9304.0	24.570	22637.0	7769.7	0	0	-22804.5	-0.4191
1400	7.24	10025.0	25.100	25115.0	8490.7	0	0	-22580.3	-0.6926
1500	7.29	10751.0	25.610	27664.0	9216.7	0	0	-22351.1	-0.9244
1600	7.33	11483.0	26.080	30245.0	9948.7	0	0	-22116.0	-1.1274
1700	7.36	12217.0	26.520	32867.0	10682.7	0	0	-21878.8	-1.3053
1800	7.39	12955.0	26.940	35537.0	11420.7	0	0	-21637.8	-1.4611
1900	7.41	13695.0	27.340	38251.0	12160.7	0	0	-21394.8	-1.5986
2000	7.43	14437.0	27.730	41023.0	12902.7	0	0	-21149.9	-1.7189
2100	7.44	15180.0	28.090	43809.0	13645.7	0	0	-20904.3	-1.8289
2200	7.46	15925.0	28.430	46621.0	14390.7	0	0	-20657.0	-1.9286
2300	7.47	16672.0	28.770	49499.0	15137.7	0	0	-20408.2	-2.0156
2400	7.48	17419.0	29.080	52373.0	15884.7	0	0	-20160.1	-2.0976
2500	7.49	18168.0	29.390	55307.0	16633.7	0	0	-19910.7	-2.1696

[a] H_0° refers to crystal state.

[b] Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(152) Na_2 (gas); molecular weight, 45.982

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	31391.2	34459.8	-------	-16840.0	--------
100	8.3032	748.6	45.4851	3799.9	32139.8	34582.4	-68.1006	-17085.0	33.6031
200	8.8187	1611.3	51.4447	8677.7	33002.5	34271.7	-30.4333	-17216.0	14.8746
298.15	8.9662	2485.1	54.9974	13912.4	33876.3	33876.3	-18.1646	-17317.4	8.6656
300	8.9680	2501.7	55.0529	14014.2	33892.9	33867.9	-18.0116	-17319.2	8.5873
[a]400	9.0480	3402.7	57.6446	19655.1	34793.9	31964.7	-11.9478	-17411.8	5.4255
500	9.1067	4310.6	59.6701	25524.5	35701.8	31388.2	-8.4846	-17497.6	3.5185
600	9.1568	5223.8	61.3350	31577.2	36615.0	30860.8	-6.2165	-17578.0	2.2411
700	9.2028	6141.8	62.7500	37783.2	37533.0	30374.0	-4.6229	-17653.6	1.3246
800	9.2466	7064.3	63.9817	44121.1	38455.5	29911.3	-3.4462	-17724.7	0.6343
900	9.2891	7991.1	65.0733	50574.9	39382.3	29460.1	-2.5447	-17791.6	0.0953
1000	9.3308	8922.1	66.0541	57132.0	40313.3	29009.7	-1.8348	-17854.2	-0.3375
1100	9.3720	9857.2	66.9454	63782.7	41248.4	28551.2	-1.2628	-17912.7	-0.6927
1200	9.4128	10796.5	67.7626	70518.7	42187.7	28077.9	-0.7937	-17967.1	-0.9897
1300	9.4534	11739.8	68.5176	77333.2	43131.0	27591.6	-0.4036	-18017.4	-1.2418
1400	9.4938	12687.1	69.2197	84220.4	44078.3	27096.9	-0.0733	-18063.7	-1.4584
1500	9.5340	13638.5	69.8761	91175.6	45029.7	26596.3	0.2022	-18105.9	-1.6466
1600	9.5742	14593.9	70.4927	98194.3	45985.1	26087.7	0.4432	-18144.2	-1.8117
1700	9.6142	15553.4	71.0743	105272.9	46944.6	25579.2	0.6529	-18178.5	-1.9576
1800	9.6542	16516.8	71.6250	112408.1	47908.0	25066.6	0.8346	-18208.9	-2.0875
1900	9.6942	17484.2	72.1480	119597.0	48875.4	24554.0	0.9932	-18235.5	-2.2040
2000	9.7341	18455.6	72.6463	126836.9	49846.8	24041.4	1.1289	-18258.4	-2.3089
2100	9.7740	19431.0	73.1222	134125.5	50822.2	23530.8	1.2538	-18277.8	-2.4039
2200	9.8138	20410.4	73.5778	141460.7	51801.6	23020.2	1.3668	-18293.9	-2.4904
2300	9.8537	21393.8	74.0149	148840.4	52785.0	22509.6	1.4616	-18306.9	-2.5695
2400	9.8935	22381.1	74.4351	156263.1	53772.3	22002.9	1.5532	-18317.2	-2.6420
2500	9.9333	23372.5	74.8398	163726.9	54763.7	21496.3	1.6306	-18325.1	-2.7087
2600	9.9731	24367.8	75.2301	171230.6	55759.0			-18331.1	-2.7703
2700	10.0128	25367.1	75.6073	178772.5	56758.3			-18335.8	-2.8274
2800	10.0526	26370.4	75.9721	186351.6	57761.6			-18339.6	-2.8804
2900	10.0923	27377.6	76.3256	193966.6	58768.8			-18343.1	-2.9298
3000	10.1321	28388.8	76.6684	201616.4	59780.0			-18347.1	-2.9759
3100	10.1718	29404.0	77.0013	209299.9	60795.2			-18352.3	-3.0190
3200	10.2116	30423.2	77.3248	217016.3	61814.4			-18359.3	-3.0594
3300	10.2513	31446.3	77.6397	224764.6	62837.5			-18368.7	-3.0974
3400	10.2910	32473.5	77.9463	232544.0	63864.7			-18381.8	-3.1332
3500	10.3308	33504.5	78.2452	240353.6	64895.7			-18399.3	-3.1670
3600	10.3705	34539.6	78.5368	248192.8	65930.8			-18422.1	-3.1989
3700	10.4102	35578.6	78.8215	256060.7	66969.8			-18451.2	-3.2292
3800	10.4499	36621.6	79.0996	263956.8	68012.8			-18487.8	-3.2579
3900	10.4896	37668.6	79.3716	271880.4	69059.8			-18532.7	-3.2852
4000	10.5293	38719.6	79.6376	279831.0	70110.8			-18587.3	-3.3112
4100	10.5690	39774.5	79.8981	287807.8	71165.7			-18652.8	-3.3360
4200	10.6087	40833.4	80.1533	295810.4	72224.6			-18729.2	-3.3597
4300	10.6484	41896.2	80.4034	303838.3	73287.4			-18819.9	-3.3824
4400	10.6881	42963.1	80.6486	311890.9	74354.3			-18905.0	-3.4041
4500	10.7278	44033.9	80.8893	319967.8	75425.1			-19015.3	-3.4250
4600	10.7675	45108.6	81.1255	328068.6	76499.8			-19145.3	-3.4452
4700	10.8072	46187.4	81.3575	336192.8	77578.6			-19292.5	-3.4646
4800	10.8469	47270.1	81.5854	344340.0	78661.3			-19458.2	-3.4834
4900	10.8866	48356.7	81.8095	352509.8	79747.9			-19643.6	-3.5015
5000	10.9263	49447.4	82.0298	360701.8	80838.6			-19846.3	-3.5191
5100	10.9660	50542.0	82.2466	368915.6	81933.2			-20074.2	-3.5362
5200	11.0057	51640.6	82.4599	377151.0	83031.8			-20325.6	-3.5529
5300	11.0454	52743.1	82.6699	385407.5	84134.3			-20601.7	-3.5691
5400	11.0851	53849.7	82.8768	393684.8	85240.9			-20903.8	-3.5849
5500	11.1248	54960.2	83.0805	401982.7	86351.4			-21233.1	-3.6004
5600	11.1645	56074.6	83.2813	410300.8	87465.8			-21590.7	-3.6156
5700	11.2041	57193.1	83.4793	418638.9	88584.3			-21977.8	-3.6305
5800	11.2438	58315.4	83.6745	426996.6	89706.6			-22395.4	-3.6452
5900	11.2835	59441.8	83.8670	435373.7	90833.0			-22844.4	-3.6597
6000	11.3232	60572.2	84.0570	443769.9	91963.4			-23250.3	-3.6736

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Na, 370.98° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(153) NaCl (gas); molecular weight, 58.448

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-45798.1	-43167.0	-------	-97365.3	--------
100	7.2627	701.3	46.2238	3921.0	-45096.7	-43126.7	98.1844	-97657.6	209.2641
200	8.1467	1475.7	51.5554	8835.3	-44322.3	-43301.8	50.9882	-97879.1	102.4531
298.15	8.5547	2298.1	54.8953	14069.0	-43500.0	-43500.0	35.3821	-98047.5	67.2179
300	8.5597	2313.9	54.9482	14170.6	-43484.2	-43504.2	35.1854	-98050.5	66.7747
[a]400	8.7528	3180.6	57.4402	19795.5	-42617.5	-44454.3	27.2107	-98210.9	48.9048
500	8.8598	4061.7	59.4058	25641.3	-41736.4	-44742.3	22.3384	-98367.6	38.1654
600	8.9284	4951.3	61.0276	31665.3	-40846.8	-45007.4	19.0699	-98519.2	30.9944
700	8.9778	5846.7	62.4078	37838.8	-39951.4	-45253.7	16.7219	-98664.2	25.8646
800	9.0164	6746.5	63.6092	44140.9	-39051.6	-45489.2	14.9514	-98802.0	22.0116
900	9.0488	7649.8	64.6731	50556.0	-38148.3	-45720.1	13.5674	-98932.5	19.0108
1000	9.0771	8556.1	65.6280	57071.9	-37242.0	-45951.7	12.4545	-99056.3	16.6070
1100	9.1027	9465.1	66.4944	63678.7	-36332.9	-46188.3	11.5393	-99173.7	14.6379
1200	9.1266	10376.6	67.2874	70368.3	-35421.5	-46433.4	10.7727	-99285.5	12.9951
1300	9.1491	11290.4	68.0189	77134.1	-34507.7	-46685.8	10.1206	-99391.9	11.6035
1400	9.1707	12206.4	68.6977	83970.4	-33591.7	-46943.4	9.5594	-99493.6	10.4094
1500	9.1916	13124.5	69.3311	90872.2	-32673.6	-47204.8	9.0676	-99590.9	9.3735
1600	9.2120	14044.7	69.9250	97835.3	-31753.4	-47471.0	8.6371	-99684.1	8.4662
1700	9.2319	14966.9	70.4840	104856.0	-30831.2	-47738.2	8.2557	-99773.5	7.6650
1800	9.2515	15891.0	71.0123	111931.0	-29907.0	-48008.2	7.9142	-99859.5	6.9521
1900	9.2709	16817.2	71.5130	119057.5	-28980.9	-48279.0	7.6066	-99942.3	6.3137
2000	9.2901	17745.2	71.9890	126232.8	-28052.8	-48550.7	7.3261	-100022.0	5.7387
2100	9.3091	18675.2	72.4427	133454.6	-27122.9	-48822.2	7.0734	-100099.0	5.2181
2200	9.3279	19607.0	72.8762	140720.7	-26191.0	-49094.5	6.8432	-100173.5	4.7444
2300	9.3467	20540.8	73.2913	148029.2	-25257.3	-49367.7	6.6289	-100245.7	4.3116
2400	9.3653	21476.4	73.6895	155378.4	-24321.7	-49639.7	6.4346	-100315.9	3.9146
2500	9.3838	22413.8	74.0722	162766.6	-23384.2	-49912.6	6.2524	-100384.3	3.5491
2600	9.4023	23353.1	74.4406	170192.4	-22444.9			-100451.3	3.2115
2700	9.4208	24294.3	74.7958	177654.3	-21503.8			-100517.1	2.8987
2800	9.4391	25237.3	75.1387	185151.1	-20560.8			-100582.2	2.6080
2900	9.4575	26182.1	75.4703	192681.6	-19616.0			-100646.9	2.3372
3000	9.4758	27128.8	75.7912	200244.8	-18669.3			-100711.4	2.0843
3100	9.4940	28077.3	76.1022	207839.5	-17720.8			-100776.4	1.8476
3200	9.5123	29027.6	76.4039	215464.9	-16770.5			-100842.0	1.6255
3300	9.5305	29979.7	76.6969	223120.0	-15818.4			-100908.7	1.4167
3400	9.5486	30933.7	76.9817	230804.0	-14864.4			-100977.1	1.2201
3500	9.5668	31889.4	77.2587	238516.1	-13908.6			-101047.6	1.0346
3600	9.5849	32847.0	77.5285	246255.5	-12951.0			-101120.6	0.8593
3700	9.6031	33806.4	77.7914	254021.6	-11991.6			-101196.8	0.6933
3800	9.6212	34767.6	78.0477	261813.6	-11030.4			-101276.5	0.5360
3900	9.6393	35730.7	78.2978	269630.9	-10067.4			-101360.5	0.3866
4000	9.6574	36695.5	78.5421	277472.9	-9102.6			-101449.3	0.2445
4100	9.6754	37662.1	78.7808	285339.1	-8135.9			-101543.5	0.1093
4200	9.6935	38630.6	79.0142	293228.9	-7167.5			-101643.1	-0.0197
4300	9.7116	39600.8	79.2425	301141.8	-6197.2			-101750.0	-0.1427
4400	9.7296	40572.9	79.4659	309077.3	-5225.2			-101854.0	-0.2603
4500	9.7477	41546.8	79.6848	317034.8	-4251.3			-101970.7	-0.3727
4600	9.7657	42522.4	79.8992	325014.1	-3275.6			-102097.4	-0.4805
4700	9.7837	43499.9	80.1095	333014.5	-2298.2			-102232.7	-0.5837
4800	9.8017	44479.2	80.3156	341035.8	-1318.9			-102377.2	-0.6828
4900	9.8198	45460.2	80.5179	349077.5	-337.8			-102531.7	-0.7780
5000	9.8378	46443.1	80.7165	357139.3	645.1			-102695.0	-0.8696
5100	9.8558	47427.8	80.9115	365220.7	1629.7			-102870.9	-0.9576
5200	9.8738	48414.3	81.1030	373321.5	2616.2			-103058.7	-1.0425
5300	9.8918	49402.5	81.2913	381441.2	3604.5			-103258.9	-1.1243
5400	9.9098	50392.6	81.4763	389579.6	4594.6			-103472.2	-1.2032
5500	9.9278	51384.5	81.6583	397736.4	5586.4			-103699.3	-1.2794
5600	9.9458	52378.2	81.8374	405911.2	6580.1			-103940.5	-1.3531
5700	9.9638	53373.7	82.0136	414103.8	7575.6			-104196.7	-1.4243
5800	9.9817	54370.9	82.1870	422313.8	8572.9			-104468.2	-1.4933
5900	9.9997	55370.0	82.3578	430541.1	9571.9			-104755.6	-1.5601
6000	10.0177	56370.9	82.5260	438785.3	10572.8			-105021.5	-1.6247

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Na, 370.98° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(154) $(NaCl)_2$ (gas); molecular weight, 116.896

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	-------	0	-------	0	-141100.0	-135837.9	--------	-244234.5	--------
100	13.7545	988.0	59.0951	4921.5	-140112.0	-136171.9	298.1717	-245233.8	520.3309
200	17.7197	2605.7	70.1499	11424.3	-138494.3	-136453.2	149.2437	-245607.8	252.1735
298.15	18.8309	4408.8	77.4708	18689.1	-136691.2	-136691.2	100.1239	-245786.1	163.7954
300	18.8429	4443.7	77.5873	18832.5	-136656.3	-136696.3	99.5060	-245789.0	162.6845
[a]400	19.2778	6352.6	83.0760	26877.8	-134747.4	-138420.9	74.5219	-245934.3	117.9102
500	19.4871	8292.0	87.4027	35409.4	-132808.0	-138819.9	59.3761	-246070.4	91.0301
600	19.6031	10247.0	90.9668	44333.1	-130853.0	-139174.3	49.2511	-246197.8	73.1003
700	19.6738	12211.1	93.9944	53584.9	-128888.9	-139493.5	42.0015	-246314.5	60.2869
800	19.7200	14181.0	96.6247	63118.8	-126919.0	-139794.2	36.5521	-246419.8	50.6725
900	19.7518	16154.7	98.9493	72899.7	-124945.3	-140089.0	32.3049	-246513.8	43.1916
1000	19.7746	18131.0	101.0316	82900.5	-122969.0	-140388.4	28.8996	-246597.6	37.2047
1100	19.7915	20109.4	102.9171	93099.5	-120990.6	-140701.4	26.1075	-246672.2	32.3048
1200	19.8044	22089.2	104.6398	103478.6	-119010.8	-141034.6	23.7756	-246738.8	28.2203
1300	19.8145	24070.2	106.2254	114022.9	-117029.8	-141386.1	21.7976	-246798.3	24.7634
1400	19.8225	26052.0	107.6941	124719.7	-115048.0	-141751.3	20.0996	-246851.8	21.7996
1500	19.8289	28034.6	109.0620	135558.3	-113065.4	-142127.8	18.6185	-246900.0	19.2304
1600	19.8342	30017.8	110.3419	146529.2	-111082.2	-142517.5	17.3237	-246943.6	16.9820
1700	19.8386	32001.4	111.5444	157624.1	-109098.6	-142912.6	16.1792	-246983.3	14.9978
1800	19.8422	33985.5	112.6785	168835.8	-107114.5	-143316.8	15.1580	-247019.6	13.2337
1900	19.8453	35969.8	113.7514	180157.8	-105130.2	-143726.3	14.2409	-247052.9	11.6552
2000	19.8480	37954.5	114.7694	191584.3	-103145.5	-144141.1	13.4091	-247083.9	10.2343
2100	19.8503	39939.4	115.7378	203110.0	-101160.6	-144559.2	12.6591	-247112.8	8.9485
2200	19.8523	41924.6	116.6613	214730.3	-99175.4	-144982.4	11.9772	-247140.4	7.7796
2300	19.8540	43909.9	117.5438	226440.9	-97190.1	-145411.0	11.3466	-247166.9	6.7121
2400	19.8555	45895.4	118.3888	238237.8	-95204.6	-145840.7	10.7736	-247192.9	5.7335
2500	19.8568	47881.0	119.1994	250117.5	-93219.0	-146275.7	10.2397	-247219.1	4.8331
2600	19.8580	49866.7	119.9782	262076.7	-91233.3			-247246.0	4.0019
2700	19.8591	51852.6	120.7277	274112.2	-89247.4			-247274.2	3.2321
2800	19.8600	53838.5	121.4499	286221.3	-87261.5			-247304.3	2.5173
2900	19.8609	55824.6	122.1469	298401.3	-85275.4			-247337.2	1.8517
3000	19.8617	57810.7	122.8202	310649.9	-83289.3			-247373.6	1.2303
3100	19.8623	59796.9	123.4715	322964.6	-81303.1			-247414.2	0.6490
3200	19.8630	61783.2	124.1021	335343.5	-79316.8			-247459.9	0.1039
3300	19.8636	63769.5	124.7133	347784.4	-77330.5			-247511.2	-0.4083
3400	19.8641	65755.9	125.3063	360285.5	-75344.1			-247569.5	-0.8904
3500	19.8646	67742.3	125.8821	372845.1	-73357.7			-247635.6	-1.3452
3600	19.8650	69728.8	126.4417	385461.4	-71371.2			-247710.4	-1.7747
3700	19.8654	71715.3	126.9860	398132.9	-69384.7			-247794.9	-2.1812
3800	19.8658	73701.9	127.5158	410858.1	-67398.1			-247890.3	-2.5664
3900	19.8661	75688.5	128.0318	423635.6	-65411.5			-247997.7	-2.9321
4000	19.8664	77675.1	128.5348	436464.1	-63424.9			-248118.3	-3.2796
4100	19.8667	79661.8	129.0254	449342.2	-61438.2			-248253.3	-3.6103
4200	19.8670	81648.4	129.5041	462268.8	-59451.6			-248402.8	-3.9254
4300	19.8673	83635.2	129.9716	475242.6	-57464.8			-248570.3	-4.2261
4400	19.8675	85621.9	130.4283	488262.7	-55478.1			-248735.8	-4.5133
4500	19.8677	87608.7	130.8748	501327.9	-53491.3			-248930.2	-4.7879
4600	19.8679	89595.4	131.3115	514437.3	-51504.5			-249148.0	-5.0508
4700	19.8681	91582.2	131.7388	527589.9	-49517.7			-249386.7	-5.3028
4800	19.8683	93569.1	132.1571	540784.8	-47530.9			-249647.6	-5.5445
4900	19.8685	95555.9	132.5667	554021.1	-45544.1			-249931.9	-5.7766
5000	19.8687	97542.8	132.9681	567297.9	-43557.2			-250237.3	-5.9996
5100	19.8688	99529.6	133.3616	580614.4	-41570.4			-250571.7	-6.2142
5200	19.8690	101516.5	133.7474	593969.9	-39583.5			-250933.3	-6.4208
5300	19.8691	103503.4	134.1259	607363.6	-37596.6			-251323.4	-6.6200
5400	19.8692	105490.4	134.4973	620794.9	-35609.6			-251743.2	-6.8120
5500	19.8693	107477.3	134.8618	634262.9	-33622.7			-252194.1	-6.9974
5600	19.8695	109464.2	135.2199	647767.0	-31635.8			-252677.1	-7.1766
5700	19.8696	111451.2	135.5715	661306.6	-29648.8			-253193.4	-7.3497
5800	19.8697	113438.1	135.9171	674881.1	-27661.9			-253744.0	-7.5173
5900	19.8698	115425.1	136.2568	688489.9	-25674.9			-254329.9	-7.6795
6000	19.8699	117412.1	136.5907	702132.3	-23687.9			-254876.5	-7.8364

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Na, 370.98° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(155) NaF (gas); molecular weight, 41.991

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-72808.9	-70219.7	--------	-114224.6	--------
100	7.0232	696.1	43.6063	3664.5	-72112.7	-70184.0	157.2302	-114523.9	245.9534
200	7.6665	1428.1	48.6538	8302.6	-71380.7	-70388.8	80.4561	-114814.5	120.6882
298.15	8.1958	2208.9	51.8228	13242.1	-70600.0	-70600.0	55.1039	-115055.0	79.3491
300	8.2032	2224.0	51.8735	13338.0	-70584.8	-70604.3	54.7847	-115059.1	78.8290
[a] 400	8.5035	3060.8	54.2787	18650.7	-69748.0	-71554.6	41.8745	-115259.3	57.8578
500	8.6774	3920.6	56.1965	24177.7	-68888.3	-71839.8	34.0411	-115428.4	45.2547
600	8.7869	4794.2	57.7890	29879.2	-68014.7	-72102.2	28.7987	-115576.5	36.8410
700	8.8619	5676.8	59.1494	35727.8	-67132.0	-72347.1	25.0409	-115709.9	30.8238
800	8.9170	6565.9	60.3365	41703.3	-66243.0	-72582.7	22.2131	-115832.7	26.3059
900	8.9600	7459.8	61.3894	47790.6	-65349.0	-72815.1	20.0068	-115947.4	22.7884
1000	8.9951	8357.6	62.3353	53977.7	-64451.2	-73049.6	18.2359	-116055.7	19.9717
1100	9.0251	9258.7	63.1941	60254.8	-63550.2	-73290.3	16.7823	-116158.9	17.6650
1200	9.0514	10162.5	63.9805	66614.1	-62646.3	-73540.5	15.5670	-116257.7	15.7410
1300	9.0751	11068.9	64.7059	73048.9	-61740.0	-73799.2	14.5351	-116352.9	14.1117
1400	9.0970	11977.5	65.3793	79553.5	-60831.4	-74063.9	13.6483	-116444.7	12.7141
1500	9.1174	12888.2	66.0076	86123.2	-59920.6	-74333.5	12.8742	-116533.6	11.5018
1600	9.1368	13800.9	66.5967	92753.7	-59007.9	-74608.8	12.1966	-116619.9	10.4403
1700	9.1553	14715.6	67.1512	99441.4	-58093.3	-74885.8	11.5972	-116703.7	9.5030
1800	9.1732	15632.0	67.6750	106182.9	-57176.9	-75166.5	11.0618	-116785.3	8.6692
1900	9.1906	16550.2	68.1714	112975.5	-56258.7	-75448.8	10.5806	-116864.7	7.9227
2000	9.2075	17470.1	68.6432	119816.4	-55338.8	-75732.8	10.1438	-116942.3	7.2504
2100	9.2241	18391.7	69.0929	126703.4	-54417.2	-76017.5	9.7496	-117018.1	6.6417
2200	9.2404	19314.9	69.5224	133634.3	-53494.0	-76303.7	9.3908	-117092.3	6.0880
2300	9.2564	20239.7	69.9335	140607.2	-52569.1	-76591.5	9.0589	-117165.2	5.5821
2400	9.2723	21166.2	70.3278	147620.4	-51642.7	-76878.9	8.7568	-117236.8	5.1181
2500	9.2879	22094.2	70.7066	154672.3	-50714.7	-77167.9	8.4753	-117307.5	4.6910
2600	9.3035	23023.8	71.0712	161761.3	-49785.1			-117377.6	4.2965
2700	9.3189	23954.9	71.4226	168886.1	-48854.0			-117447.2	3.9310
2800	9.3342	24887.5	71.7618	176045.4	-47921.3			-117516.7	3.5914
2900	9.3494	25821.7	72.0896	183238.1	-46987.1			-117586.4	3.2750
3000	9.3646	26757.4	72.4068	190463.0	-46051.4			-117656.7	2.9795
3100	9.3797	27694.6	72.7141	197719.1	-45114.2			-117728.0	2.7030
3200	9.3947	28633.3	73.0121	205005.5	-44175.5			-117800.6	2.4435
3300	9.4096	29573.6	73.3014	212321.2	-43235.3			-117874.8	2.1997
3400	9.4245	30515.3	73.5826	219665.5	-42293.6			-117951.3	1.9700
3500	9.4394	31458.5	73.8560	227037.5	-41350.4			-118030.4	1.7533
3600	9.4542	32403.2	74.1221	234436.4	-40405.7			-118112.5	1.5485
3700	9.4690	33349.3	74.3813	241861.7	-39459.5			-118198.3	1.3547
3800	9.4838	34297.0	74.6341	249312.5	-38511.9			-118288.3	1.1709
3900	9.4986	35246.1	74.8806	256788.3	-37562.8			-118382.9	0.9964
4000	9.5133	36196.7	75.1213	264288.4	-36612.2			-118482.8	0.8305
4100	9.5280	37148.7	75.3564	271812.3	-35660.1			-118588.6	0.6725
4200	9.5426	38102.3	75.5861	279359.5	-34706.6			-118700.3	0.5220
4300	9.5573	39057.3	75.8109	286929.4	-33751.6			-118819.7	0.3782
4400	9.5719	40013.7	76.0307	294521.5	-32795.1			-118936.8	0.2410
4500	9.5866	40971.6	76.2460	302135.4	-31837.2			-119066.9	0.1096
4600	9.6012	41931.0	76.4569	309770.6	-30877.8			-119207.5	-0.0161
4700	9.6158	42891.9	76.6635	317426.6	-29917.0			-119357.1	-0.1367
4800	9.6304	43854.2	76.8661	325103.1	-28954.7			-119516.4	-0.2524
4900	9.6449	44818.0	77.0648	332799.7	-27990.9			-119686.1	-0.3635
5000	9.6595	45783.2	77.2598	340516.0	-27025.7			-119864.9	-0.4704
5100	9.6741	46749.9	77.4513	348251.6	-26059.0			-120056.9	-0.5732
5200	9.6886	47718.0	77.6393	356006.1	-25090.9			-120261.1	-0.6722
5300	9.7032	48687.6	77.8239	363779.3	-24121.3			-120478.2	-0.7676
5400	9.7177	49658.6	78.0055	371570.8	-23150.2			-120708.8	-0.8597
5500	9.7322	50631.1	78.1839	379380.3	-22177.7			-120953.5	-0.9486
5600	9.7468	51605.1	78.3594	387207.5	-21203.8			-121212.8	-1.0345
5700	9.7613	52580.5	78.5320	395052.1	-20228.4			-121487.4	-1.1176
5800	9.7758	53557.3	78.7019	402913.8	-19251.5			-121777.8	-1.1980
5900	9.7903	54535.6	78.8692	410792.4	-18273.2			-122084.5	-1.2759
6000	9.8048	55515.4	79.0338	418687.5	-17293.5			-122370.0	-1.3512

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Na, 370.98° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(156) $(NaF)_2$ (gas); molecular weight, 83.982

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	-------	0	-------	0	-203500.0	-198321.8	--------	-286331.6	--------
100	11.9290	904.9	54.6286	4558.0	-202595.1	-198737.6	434.9001	-287417.4	612.3466
200	16.6526	2375.2	64.6303	10550.8	-201124.8	-199140.8	217.5443	-287992.3	298.0085
298.15	18.2522	4100.8	71.6288	17255.4	-199399.2	-199399.2	145.8700	-288309.3	194.3603
300	18.2703	4134.5	71.7417	17388.0	-199365.5	-199404.3	144.9686	-288314.0	193.0571
[a]400	18.9327	5999.0	77.1008	24841.3	-197501.0	-201114.2	108.5654	-288523.5	140.5320
500	19.2590	7910.3	81.3644	32771.9	-195589.7	-201492.8	86.5702	-288670.0	108.9973
600	19.4418	9846.1	84.8933	41089.9	-193653.9	-201829.0	71.8803	-288777.6	87.9649
700	19.5540	11796.3	87.8993	49733.2	-191703.7	-202133.8	61.3709	-288859.5	72.9368
800	19.6276	13755.6	90.5155	58656.8	-189744.4	-202423.9	53.4772	-288923.9	61.6628
900	19.6785	15721.1	92.8304	67826.3	-187778.9	-202711.2	47.3291	-288975.7	52.8924
1000	19.7150	17690.8	94.9058	77214.9	-185809.2	-203005.9	42.4033	-289018.2	45.8749
1100	19.7422	19663.8	96.7861	86801.0	-183836.2	-203316.4	38.3672	-289053.7	40.1326
1200	19.7629	21639.1	98.5049	96566.8	-181860.9	-203649.3	34.9987	-289083.8	35.3468
1300	19.7790	23616.2	100.0874	106497.4	-179883.8	-204002.2	32.1434	-289109.6	31.2968
1400	19.7918	25594.7	101.5537	116580.4	-177905.2	-204370.4	29.6936	-289131.9	27.8252
1500	19.8022	27574.5	102.9195	126804.8	-175925.5	-204751.2	27.5609	-289151.5	24.8162
1600	19.8107	29555.1	104.1978	137161.4	-173944.9	-205146.6	25.6957	-289168.8	22.1831
1700	19.8177	31536.6	105.3990	147641.8	-171963.4	-205548.4	24.0481	-289184.2	19.8597
1800	19.8237	33518.6	106.5320	158238.9	-169981.4	-205960.6	22.5794	-289198.2	17.7944
1900	19.8287	35501.3	107.6039	168946.2	-167998.7	-206379.1	21.2621	-289210.9	15.9464
2000	19.8329	37484.3	108.6211	179757.9	-166015.7	-206803.8	20.0699	-289222.7	14.2831
2100	19.8366	39467.8	109.5889	190668.8	-164032.2	-207232.7	18.9938	-289234.0	12.7781
2200	19.8398	41451.6	110.5117	201674.1	-162048.3	-207667.8	18.0154	-289245.1	11.4099
2300	19.8426	43435.8	111.3937	212769.7	-160064.2	-208109.0	17.1141	-289256.3	10.1607
2400	19.8450	45420.2	112.2382	223951.6	-158079.8	-208552.3	16.2928	-289268.1	9.0155
2500	19.8472	47404.8	113.0484	235216.2	-156095.2	-209001.7	15.5305	-289280.9	7.9618
2600	19.8491	49389.6	113.8269	246560.3	-154110.4			-289295.3	6.9892
2700	19.8508	51374.6	114.5760	257980.6	-152125.4			-289311.8	6.0886
2800	19.8523	53359.7	115.2980	269474.6	-150140.3			-289331.0	5.2522
2900	19.8537	55345.0	115.9946	281039.4	-148154.9			-289353.5	4.4735
3000	19.8549	57330.5	116.6677	292672.7	-146169.5			-289380.1	3.7466
3100	19.8561	59316.0	117.3188	304372.2	-144184.0			-289411.5	3.0666
3200	19.8571	61301.7	117.9492	316135.8	-142198.3			-289448.5	2.4290
3300	19.8580	63287.4	118.5603	327961.4	-140212.6			-289491.6	1.8299
3400	19.8589	65273.3	119.1531	339847.2	-138226.7			-289542.1	1.2660
3500	19.8596	67259.2	119.7288	351791.4	-136240.8			-289600.7	0.7342
3600	19.8603	69245.2	120.2882	363792.4	-134254.8			-289668.4	0.2319
3700	19.8610	71231.3	120.8324	375848.6	-132268.7			-289746.3	-0.2434
3800	19.8616	73217.4	121.3621	387958.4	-130282.6			-289835.3	-0.6939
3900	19.8621	75203.6	121.8780	400120.5	-128296.4			-289936.6	-1.1213
4000	19.8627	77189.8	122.3809	412333.6	-126310.2			-290051.4	-1.5276
4100	19.8631	79176.1	122.8713	424596.3	-124323.9			-290180.8	-1.9142
4200	19.8636	81162.5	123.3500	436907.4	-122337.5			-290325.0	-2.2825
4300	19.8640	83148.8	123.8174	449265.9	-120351.2			-290487.4	-2.6339
4400	19.8644	85135.3	124.2741	461670.6	-118364.7			-290648.0	-2.9695
4500	19.8647	87121.7	124.7205	474120.4	-116378.3			-290837.7	-3.2904
4600	19.8651	89108.2	125.1571	486614.3	-114391.8			-291051.1	-3.5975
4700	19.8654	91094.7	125.5843	499151.5	-112405.3			-291285.4	-3.8919
4800	19.8657	93081.3	126.0025	511730.9	-110418.7			-291542.2	-4.1742
4900	19.8660	95067.9	126.4122	524351.7	-108432.1			-291822.5	-4.4452
5000	19.8662	97054.5	126.8135	537013.0	-106445.5			-292124.0	-4.7056
5100	19.8665	99041.1	127.2069	549714.1	-104458.9			-292454.7	-4.9561
5200	19.8667	101027.8	127.5927	562454.2	-102472.2			-292812.7	-5.1972
5300	19.8669	103014.5	127.9711	575232.4	-100485.5			-293199.4	-5.4296
5400	19.8671	105001.2	128.3425	588048.2	-98498.8			-293615.9	-5.6536
5500	19.8673	106987.9	128.7070	600900.7	-96512.1			-294063.6	-5.8698
5600	19.8675	108974.6	129.0650	613789.3	-94525.4			-294543.5	-6.0786
5700	19.8677	110961.4	129.4166	626713.5	-92538.6			-295056.7	-6.2805
5800	19.8679	112948.2	129.7622	639672.5	-90551.8			-295604.4	-6.4757
5900	19.8680	114935.0	130.1018	652665.7	-88565.0			-296187.5	-6.6647
6000	19.8682	116921.8	130.4357	665692.6	-86578.2			-296731.3	-6.8474

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Na, 370.98° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(157) NaH (gas); molecular weight, 23.999

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	27452.1	29998.3	--------	-47280.0	--------
100	6.9635	691.3	37.3298	3041.7	28143.4	29997.1	-61.2947	-47582.3	100.5065
200	7.0103	1389.0	42.1642	7043.9	28841.1	29806.7	-28.5854	-47878.3	48.3882
298.15	7.2394	2086.8	44.9997	11329.9	29538.8	29538.8	-17.9038	-48155.8	31.1219
300	7.2453	2100.1	45.0445	11413.2	29552.2	29533.4	-17.7705	-48160.7	30.9042
[a]400	7.5881	2841.6	47.1752	16028.5	30293.7	28525.4	-12.4493	-48412.9	22.1121
500	7.9096	3616.9	48.9040	20835.0	31069.0	28209.3	-9.3487	-48631.2	16.8107
600	8.1711	4421.5	50.3701	25800.6	31873.6	27943.5	-7.3031	-48820.3	13.2614
700	8.3756	5249.3	51.6457	30902.7	32701.4	27717.8	-5.8549	-48986.2	10.7170
800	8.5357	6095.1	52.7750	36124.8	33547.2	27518.3	-4.7770	-49133.9	8.8025
900	8.6629	6955.3	53.7880	41453.9	34407.4	27333.9	-3.9442	-49267.4	7.3092
1000	8.7662	7826.9	54.7062	46879.3	35279.0	27155.8	-3.2825	-49389.4	6.1114
1100	8.8520	8708.0	55.5459	52392.5	36160.1	26976.8	-2.7449	-49502.0	5.1291
1200	8.9247	9596.9	56.3193	57986.2	37049.0	26791.6	-2.2996	-49606.7	4.3087
1300	8.9877	10492.6	57.0362	63654.5	37944.7	26599.6	-1.9255	-49704.6	3.6130
1400	9.0433	11394.2	57.7043	69391.9	38846.3	26402.2	-1.6065	-49796.6	3.0157
1500	9.0931	12301.1	58.3300	75193.9	39753.2	26199.4	-1.3347	-49883.4	2.4970
1600	9.1385	13212.7	58.9183	81056.6	40664.8	25990.3	-1.0964	-49965.4	2.0424
1700	9.1802	14128.6	59.4736	86976.5	41580.7	25778.7	-0.8873	-50043.2	1.6407
1800	9.2192	15048.6	59.9994	92950.3	42500.7	25562.7	-0.7036	-50116.9	1.2830
1900	9.2558	15972.4	60.4989	98975.5	43424.5	25343.3	-0.5408	-50187.0	0.9625
2000	9.2905	16899.7	60.9745	105049.3	44351.8	25121.1	-0.3979	-50253.6	0.6737
2100	9.3237	17830.4	61.4286	111169.7	45282.5	24896.9	-0.2672	-50317.1	0.4121
2200	9.3556	18764.4	61.8631	117334.4	46216.5	24670.2	-0.1486	-50377.7	0.1739
2300	9.3864	19701.5	62.2797	123541.7	47153.6	24440.6	-0.0441	-50435.6	-0.0438
2400	9.4163	20641.7	62.6798	129789.8	48093.8	24210.6	0.0538	-50491.1	-0.2436
2500	9.4454	21584.7	63.0648	136077.1	49036.8	23978.0	0.1407	-50544.4	-0.4276
2600	9.4738	22530.7	63.4358	142402.3	49982.8			-50596.0	-0.5976
2700	9.5017	23479.5	63.7938	148763.8	50931.6			-50646.0	-0.7552
2800	9.5290	24431.0	64.1399	155160.6	51883.1			-50694.8	-0.9017
2900	9.5560	25385.3	64.4747	161591.5	52837.4			-50742.7	-1.0382
3000	9.5825	26342.2	64.7991	168055.2	53794.3			-50790.2	-1.1657
3100	9.6088	27301.8	65.1138	174551.0	54753.9			-50837.6	-1.2851
3200	9.6347	28263.9	65.4193	181077.7	55716.0			-50885.4	-1.3972
3300	9.6604	29228.7	65.7161	187634.5	56680.8			-50933.7	-1.5025
3400	9.6859	30196.0	66.0049	194220.6	57648.1			-50983.3	-1.6018
3500	9.7111	31165.9	66.2860	200835.2	58618.0			-51034.6	-1.6954
3600	9.7362	32138.2	66.5600	207477.6	59590.3			-51088.0	-1.7840
3700	9.7611	33113.1	66.8271	214147.0	60565.2			-51144.0	-1.8679
3800	9.7859	34090.5	67.0877	220842.8	61542.6			-51203.2	-1.9474
3900	9.8105	35070.3	67.3422	227564.3	62522.4			-51266.2	-2.0230
4000	9.8351	36052.6	67.5909	234311.0	63504.7			-51333.5	-2.0948
4100	9.8595	37037.3	67.8341	241082.3	64489.4			-51405.8	-2.1633
4200	9.8838	38024.5	68.0719	247877.7	65476.6			-51483.1	-2.2286
4300	9.9081	39014.0	68.3048	254696.6	66466.1			-51567.1	-2.2909
4400	9.9322	40006.1	68.5329	261538.5	67458.2			-51647.8	-2.3505
4500	9.9563	41000.5	68.7563	268403.0	68452.6			-51740.7	-2.4075
4600	9.9803	41997.3	68.9754	275289.6	69449.4			-51843.1	-2.4622
4700	10.0043	42996.5	69.1903	282197.9	70448.6			-51953.7	-2.5147
4800	10.0282	43998.2	69.4012	289127.5	71450.3			-52073.1	-2.5650
4900	10.0520	45002.2	69.6082	296078.0	72454.3			-52201.9	-2.6135
5000	10.0758	46008.6	69.8115	303049.0	73460.7			-52339.0	-2.6601
5100	10.0996	47017.3	70.0113	310040.2	74469.4			-52488.3	-2.7050
5200	10.1233	48028.5	70.2076	317051.2	75480.6			-52649.0	-2.7483
5300	10.1470	49042.0	70.4007	324081.6	76494.1			-52821.6	-2.7902
5400	10.1706	50057.9	70.5906	331131.2	77510.0			-53006.9	-2.8306
5500	10.1942	51076.1	70.7774	338199.6	78528.2			-53205.3	-2.8696
5600	10.2178	52096.7	70.9613	345286.6	79548.8			-53417.6	-2.9075
5700	10.2413	53119.7	71.1424	352391.8	80571.8			-53644.2	-2.9441
5800	10.2649	54145.0	71.3207	359515.0	81597.1			-53885.7	-2.9797
5900	10.2884	55172.6	71.4964	366655.9	82624.7			-54142.6	-3.0141
6000	10.3118	56202.6	71.6695	373814.2	83654.7			-54377.5	-3.0475

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Na, 370.98° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(158) NaO (gas); molecular weight, 38.991

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	11064.7	13636.4	-------	-71000.0	--------
100	6.9722	695.4	44.7098	3775.6	11760.1	13672.0	-25.8636	-71328.9	151.7201
200	7.3684	1408.2	49.6355	8518.9	12473.0	13450.3	-11.0139	-71670.3	73.6295
298.15	7.8956	2158.4	52.6800	13548.2	13223.1	13223.1	-6.2111	-71930.4	47.8061
300	7.9041	2173.0	52.7288	13645.7	13237.7	13218.7	-6.1514	-71934.7	47.4810
[a]400	8.2701	2983.1	55.0569	19039.7	14047.8	12271.7	-3.7961	-72139.3	34.3630
500	8.5001	3822.5	56.9289	24642.0	14887.2	12003.3	-2.4691	-72307.2	26.4716
600	8.6495	4680.5	58.4928	30415.2	15745.2	11763.3	-1.6031	-72452.4	21.1992
700	8.7520	5550.8	59.8343	36333.2	16615.6	11542.3	-0.9965	-72582.7	17.4260
800	8.8264	6429.9	61.0081	42376.5	17494.7	11330.0	-0.5500	-72702.6	14.5912
900	8.8829	7315.5	62.0511	48530.4	18380.3	11119.5	-0.2091	-72814.8	12.3828
1000	8.9279	8206.1	62.9894	54783.2	19270.9	10905.6	0.0584	-72921.3	10.6135
1100	8.9650	9100.8	63.8421	61125.5	20165.6	10684.1	0.2729	-73023.0	9.1638
1200	8.9966	9998.9	64.6235	67549.3	21063.7	10451.7	0.4481	-73120.9	7.9540
1300	9.0242	10900.0	65.3448	74048.2	21964.8	10209.6	0.5929	-73215.5	6.9290
1400	9.0489	11803.7	66.0144	80616.5	22868.4	9960.2	0.7149	-73307.1	6.0493
1500	9.0713	12709.7	66.6395	87249.6	23774.5	9704.9	0.8153	-73396.3	5.2860
1600	9.0921	13617.9	67.2256	93943.1	24682.6	9442.7	0.9030	-73483.1	4.6173
1700	9.1116	14528.1	67.7774	100693.6	25592.8	9177.4	0.9790	-73567.7	4.0265
1800	9.1301	15440.2	68.2988	107497.6	26504.9	8907.2	1.0440	-73650.5	3.5008
1900	9.1477	16354.1	68.7929	114352.4	27418.8	8633.9	1.1000	-73731.4	3.0299
2000	9.1647	17269.7	69.2625	121255.4	28334.5	8357.5	1.1469	-73810.7	2.6057
2100	9.1811	18187.0	69.7101	128204.2	29251.8	8079.0	1.1902	-73888.6	2.2214
2200	9.1970	19105.9	70.1376	135196.7	30170.7	7797.3	1.2292	-73965.2	1.8717
2300	9.2126	20026.4	70.5467	142231.1	31091.2	7512.5	1.2605	-74040.9	1.5521
2400	9.2279	20948.4	70.9391	149305.5	32013.2	7226.5	1.2914	-74115.7	1.2588
2500	9.2429	21872.0	71.3161	156418.4	32936.7	6937.4	1.3163	-74190.0	0.9888
2600	9.2577	22797.0	71.6789	163568.3	33861.8			-74264.2	0.7392
2700	9.2722	23723.5	72.0286	170753.7	34788.3			-74338.5	0.5079
2800	9.2867	24651.4	72.3661	177973.6	35716.2			-74413.2	0.2929
2900	9.3009	25580.8	72.6922	185226.6	36645.6			-74488.9	0.0925
3000	9.3151	26511.6	73.0078	192511.7	37576.4			-74565.9	-0.0947
3100	9.3291	27443.8	73.3134	199827.8	38508.6			-74644.5	-0.2700
3200	9.3430	28377.4	73.6098	207174.0	39442.2			-74725.4	-0.4345
3300	9.3569	29312.4	73.8976	214549.5	40377.2			-74808.8	-0.5893
3400	9.3706	30248.8	74.1771	221953.3	41313.6			-74895.4	-0.7351
3500	9.3843	31186.6	74.4489	229384.6	42251.3			-74985.6	-0.8727
3600	9.3980	32125.7	74.7135	236842.8	43190.4			-75080.0	-1.0028
3700	9.4116	33066.2	74.9712	244327.1	44130.9			-75179.1	-1.1261
3800	9.4251	34008.0	75.2223	251836.8	45072.7			-75283.6	-1.2430
3900	9.4386	34951.2	75.4673	259371.4	46015.9			-75393.9	-1.3541
4000	9.4521	35895.7	75.7065	266930.1	46960.5			-75510.7	-1.4598
4100	9.4655	36841.6	75.9400	274512.5	47906.3			-75634.7	-1.5605
4200	9.4789	37788.8	76.1683	282117.9	48853.6			-75766.0	-1.6566
4300	9.4922	38737.4	76.3915	289745.9	49802.1			-75906.2	-1.7483
4400	9.5056	39687.3	76.6098	297396.1	50752.0			-76045.4	-1.8361
4500	9.5189	40638.5	76.8236	305067.8	51703.2			-76199.1	-1.9201
4600	9.5322	41591.0	77.0330	312760.6	52655.8			-76364.5	-2.0006
4700	9.5455	42544.9	77.2381	320474.2	53609.7			-76540.4	-2.0779
4800	9.5587	43500.1	77.4392	328208.1	54564.9			-76727.4	-2.1521
4900	9.5719	44456.7	77.6364	335961.9	55521.4			-76926.1	-2.2235
5000	9.5852	45414.5	77.8300	343735.3	56479.3			-77135.3	-2.2922
5100	9.5984	46373.7	78.0199	351527.8	57438.4			-77359.0	-2.3584
5200	9.6116	47334.2	78.2064	359339.1	58398.9			-77596.4	-2.4223
5300	9.6247	48296.0	78.3896	367169.0	59360.8			-77847.9	-2.4839
5400	9.6379	49259.1	78.5696	375017.0	60323.9			-78114.2	-2.5434
5500	9.6511	50223.6	78.7466	382882.8	61288.3			-78396.0	-2.6010
5600	9.6642	51189.3	78.9206	390766.2	62254.1			-78693.8	-2.6567
5700	9.6774	52156.4	79.0918	398666.8	63221.2			-79008.1	-2.7107
5800	9.6905	53124.8	79.2602	406584.5	64189.6			-79339.3	-2.7631
5900	9.7036	54094.5	79.4260	414518.8	65159.3			-79688.1	-2.8138
6000	9.7167	55065.5	79.5892	422469.6	66130.3			-80017.0	-2.8630

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Na, 370.98° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(159) NaOH (gas); molecular weight, 39.999

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-58410.6	-54827.1	--------	-191091.9	--------
100	8.0961	797.2	47.3492	3937.7	-57613.4	-55069.1	122.2747	-191815.7	410.8078
200	8.9741	1649.0	53.2179	8994.5	-56761.6	-55453.2	61.9432	-192515.0	200.9062
298.15	9.7739	2570.5	56.9564	14410.9	-55840.0	-55840.0	41.9356	-193091.3	131.5634
300	9.7870	2588.7	57.0169	14516.3	-55821.9	-55847.3	41.6830	-193101.2	130.6906
a400	10.3875	3599.2	59.9198	20368.7	-54811.4	-56941.3	31.4477	-193602.3	95.4815
500	10.8029	4660.0	62.2851	26482.5	-53750.6	-57337.5	25.2053	-194045.6	74.3038
600	11.0976	5755.8	64.2822	32813.5	-52654.8	-57689.7	21.0162	-194449.9	60.1542
700	11.3245	6877.3	66.0105	39330.1	-51533.3	-58010.7	18.0063	-194825.8	50.0270
800	11.5163	8019.5	67.5355	46008.8	-50391.1	-58312.6	15.7368	-195179.4	42.4173
900	11.6897	9180.0	68.9020	52831.9	-49230.7	-58603.8	13.9628	-195513.6	36.4881
1000	11.8516	10357.1	70.1421	59785.0	-48053.5	-58890.2	12.5365	-195830.3	31.7369
1100	12.0044	11550.0	71.2790	66856.9	-46860.7	-59176.8	11.3636	-196130.7	27.8434
1200	12.1481	12757.7	72.3297	74038.0	-45653.0	-59467.5	10.3817	-196415.8	24.5939
1300	12.2824	13979.3	73.3074	81320.4	-44431.4	-59761.9	9.5467	-196686.7	21.8405
1400	12.4071	15213.8	74.2223	88697.4	-43196.8	-60058.4	8.8281	-196944.3	19.4772
1500	12.5220	16460.4	75.0823	96163.0	-41950.3	-60356.8	8.1996	-197189.7	17.4264
1600	12.6275	17717.9	75.8938	103712.2	-40692.7	-60658.4	7.6493	-197424.0	15.6298
1700	12.7239	18985.6	76.6623	111340.4	-39425.1	-60959.8	7.1619	-197648.0	14.0427
1800	12.8118	20262.4	77.3921	119043.4	-38148.2	-61263.3	6.7259	-197862.8	12.6304
1900	12.8919	21547.7	78.0870	126817.6	-36863.0	-61568.4	6.3335	-198069.2	11.3654
2000	12.9647	22840.6	78.7501	134659.7	-35570.1	-61875.1	5.9764	-198268.1	10.2257
2100	13.0309	24140.4	79.3843	142566.7	-34270.2	-62182.9	5.6542	-198460.2	9.1936
2200	13.0912	25446.5	79.9919	150535.7	-32964.1	-62493.0	5.3607	-198646.4	8.2544
2300	13.1461	26758.5	80.5751	158564.2	-31652.2	-62806.1	5.0886	-198827.4	7.3960
2400	13.1962	28075.6	81.1357	166650.0	-30335.0	-63120.2	4.8409	-199004.0	6.6085
2500	13.2419	29397.5	81.6753	174790.7	-29013.1	-63437.5	4.6096	-199176.7	5.8834
2600	13.2837	30723.9	82.1955	182984.4	-27686.8			-199346.4	5.2134
2700	13.3219	32054.2	82.6975	191229.2	-26356.5			-199513.7	4.5926
2800	13.3570	33388.1	83.1827	199523.3	-25022.5			-199679.2	4.0156
2900	13.3892	34725.5	83.6519	207865.2	-23685.2			-199843.8	3.4780
3000	13.4189	36065.9	84.1064	216253.2	-22344.7			-200007.9	2.9758
3100	13.4462	37409.2	84.5468	224686.0	-21001.5			-200172.4	2.5056
3200	13.4714	38755.1	84.9741	233162.1	-19655.6			-200337.8	2.0644
3300	13.4946	40103.4	85.3890	241680.4	-18307.3			-200504.6	1.6497
3400	13.5162	41453.9	85.7922	250239.5	-16956.7			-200673.8	1.2590
3500	13.5362	42806.6	86.1843	258838.5	-15604.1			-200846.0	0.8903
3600	13.5548	44161.1	86.5659	267476.1	-14249.5			-201021.8	0.5418
3700	13.5720	45517.5	86.9375	276151.3	-12893.2			-201201.8	0.2118
3800	13.5881	46875.5	87.2997	284863.2	-11535.1			-201386.9	-0.1011
3900	13.6031	48235.1	87.6528	293610.9	-10175.6			-201577.7	-0.3982
4000	13.6171	49596.1	87.9974	302393.5	-8814.6			-201774.8	-0.6807
4100	13.6302	50958.4	88.3338	311210.1	-7452.2			-201979.2	-0.9497
4200	13.6425	52322.1	88.6624	320060.0	-6088.5			-202190.8	-1.2062
4300	13.6540	53686.9	88.9836	328942.4	-4723.7			-202411.6	-1.4510
4400	13.6647	55052.9	89.2976	337856.5	-3357.8			-202631.6	-1.6849
4500	13.6749	56419.8	89.6048	346801.7	-1990.8			-202866.3	-1.9086
4600	13.6844	57787.8	89.9054	355777.2	-622.8			-203113.1	-2.1229
4700	13.6934	59156.7	90.1998	364782.5	746.1			-203370.8	-2.3284
4800	13.7019	60526.5	90.4882	373817.0	2115.8			-203640.0	-2.5255
4900	13.7099	61897.1	90.7708	382880.0	3486.4			-203921.5	-2.7149
5000	13.7174	63268.4	91.0479	391971.0	4857.8			-204214.0	-2.8969
5100	13.7246	64640.5	91.3196	401089.4	6229.9			-204521.6	-3.0720
5200	13.7313	66013.3	91.5862	410234.7	7602.7			-204843.5	-3.2407
5300	13.7377	67386.8	91.8478	419406.5	8976.1			-205180.2	-3.4033
5400	13.7438	68760.9	92.1046	428604.1	10350.2			-205532.4	-3.5601
5500	13.7496	70135.5	92.3569	437827.2	11724.9			-205900.8	-3.7114
5600	13.7550	71510.8	92.6047	447075.3	13100.1			-206285.9	-3.8577
5700	13.7602	72886.5	92.8482	456348.0	14475.9			-206688.3	-3.9990
5800	13.7652	74262.8	93.0875	465644.8	15852.2			-207108.5	-4.1358
5900	13.7699	75639.6	93.3229	474965.4	17228.9			-207547.1	-4.2682
6000	13.7744	77016.8	93.5543	484309.3	18606.1			-207966.6	-4.3963

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Na, 370.98° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(160) $(NaOH)_2$ (gas); molecular weight, 79.998

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	-------	0	-------	0	-171000.0	-163832.9	--------	-436362.5	--------
100	11.9308	904.9	56.4658	4741.7	-170095.1	-165006.4	356.1027	-438499.8	933.1690
200	17.0535	2386.9	66.5343	10919.9	-168613.1	-165996.4	175.3629	-440119.8	453.2890
298.15	19.9932	4212.8	73.9232	17827.4	-166787.2	-166787.2	115.5245	-441239.7	294.7803
300	20.0402	4249.9	74.0470	17964.2	-166750.1	-166800.9	114.7703	-441308.8	292.7856
[a]400	22.1839	6367.5	80.1243	25682.2	-164632.5	-168892.2	84.2704	-442214.2	212.3381
500	23.6845	8665.8	85.2466	33957.5	-162334.2	-169508.0	65.7832	-442924.3	163.9801
600	24.7330	11089.6	89.6628	42708.1	-159910.4	-169980.1	53.4183	-443500.4	131.6942
700	25.5075	13603.3	93.5362	51872.0	-157396.7	-170351.3	44.5640	-443981.6	108.6053
800	26.1200	16185.7	96.9836	61401.1	-154814.3	-170657.3	37.9102	-444390.8	91.2711
900	26.6342	18824.1	100.0905	71257.4	-152175.9	-170922.1	32.7268	-444741.8	77.7774
1000	27.0835	21510.4	102.9205	81410.0	-149489.6	-171163.0	28.5737	-445043.2	66.9745
1100	27.4850	24239.2	105.5210	91833.9	-146760.8	-171393.1	25.1707	-445300.9	58.1302
1200	27.8474	27006.1	107.9283	102507.8	-143993.9	-171622.9	22.3315	-445519.6	50.7560
1300	28.1756	29807.5	110.1704	113414.0	-141192.5	-171853.6	19.9259	-445703.1	44.5134
1400	28.4728	32640.2	112.2695	124537.1	-138359.8	-172083.0	17.8624	-445854.8	39.1607
1500	28.7419	35501.2	114.2433	135863.7	-135498.8	-172311.9	16.0666	-445977.7	34.5202
1600	28.9853	38387.7	116.1061	147382.1	-132612.3	-172543.7	14.4978	-446074.7	30.4587
1700	29.2051	41297.4	117.8701	159081.7	-129702.6	-172772.0	13.1128	-446148.4	26.8744
1800	29.4038	44228.1	119.5451	170953.1	-126771.9	-173002.2	11.8789	-446201.1	23.6879
1900	29.5833	47177.6	121.1398	182988.0	-123822.4	-173233.3	10.7728	-446234.9	20.8366
2000	29.7456	50144.1	122.6614	195178.7	-120855.8	-173465.9	9.7715	-446251.8	18.2702
2100	29.8926	53126.2	124.1163	207518.1	-117873.8	-173699.2	8.8695	-446253.7	15.9482
2200	30.0257	56122.2	125.5100	219999.9	-114877.8	-173935.7	8.0500	-446242.5	13.8373
2300	30.1465	59130.9	126.8474	232618.2	-111869.1	-174176.9	7.2952	-446219.6	11.9100
2400	30.2563	62151.1	128.1328	245367.6	-108848.9	-174419.1	6.6083	-446186.7	10.1435
2500	30.3563	65181.8	129.3700	258243.2	-105818.2	-174667.0	5.9708	-446145.4	8.5184
2600	30.4474	68222.1	130.5624	271240.1	-102777.9			-446097.2	7.0185
2700	30.5307	71271.1	131.7131	284354.2	-99728.9			-446043.4	5.6298
2800	30.6069	74328.0	132.8248	297581.4	-96672.0			-445985.5	4.3405
2900	30.6768	77392.2	133.9001	310918.0	-93607.8			-445925.0	3.1403
3000	30.7410	80463.2	134.9412	324360.3	-90536.8			-445863.2	2.0202
3100	30.8001	83540.3	135.9501	337905.2	-87459.7			-445801.5	0.9726
3200	30.8546	86623.0	136.9289	351549.4	-84377.0			-445741.3	-0.0095
3300	30.9049	89711.0	137.8791	365290.0	-81288.9			-445683.6	-0.9319
3400	30.9514	92803.9	138.8024	379124.3	-78196.1			-445630.4	-1.7999
3500	30.9945	95901.2	139.7002	393049.6	-75098.8			-445582.6	-2.6183
3600	31.0345	99002.7	140.5739	407063.5	-71997.3			-445541.8	-3.3911
3700	31.0716	102108.0	141.4246	421163.6	-68892.0			-445509.3	-4.1220
3800	31.1062	105216.9	142.2539	435347.7	-65783.1			-445486.6	-4.8145
3900	31.1384	108329.2	143.0623	449613.7	-62670.8			-445475.0	-5.4714
4000	31.1685	111444.5	143.8510	463959.6	-59555.5			-445476.0	-6.0955
4100	31.1966	114562.6	144.6210	478383.3	-56437.2			-445491.1	-6.6891
4200	31.2229	117683.8	145.3731	492883.1	-53316.2			-445520.7	-7.2545
4300	31.2476	120807.3	146.1081	507457.3	-50192.7			-445568.4	-7.7936
4400	31.2707	123933.3	146.8267	522104.2	-47066.7			-445614.3	-8.3082
4500	31.2925	127061.5	147.5297	536822.2	-43938.5			-445689.6	-8.8001
4600	31.3129	130191.7	148.2177	551609.7	-40808.3			-445788.9	-9.2707
4700	31.3322	133324.0	148.8913	566465.2	-37676.0			-445909.7	-9.7213
4800	31.3503	136458.1	149.5512	581387.5	-34541.9			-446053.6	-10.1534
4900	31.3674	139594.0	150.1978	596375.0	-31406.0			-446221.8	-10.5679
5000	31.3836	142731.6	150.8316	611426.6	-28268.4			-446412.1	-10.9660
5100	31.3988	145870.7	151.4533	626540.9	-25129.3			-446632.4	-11.3487
5200	31.4133	149011.3	152.0631	641716.9	-21988.7			-446881.0	-11.7168
5300	31.4270	152153.3	152.6616	656953.2	-18846.7			-447159.3	-12.0713
5400	31.4400	155296.7	153.2492	672248.8	-15703.3			-447468.6	-12.4128
5500	31.4523	158441.3	153.8262	687602.6	-12558.7			-447810.1	-12.7422
5600	31.4640	161587.1	154.3930	703013.7	-9412.9			-448184.9	-13.0601
5700	31.4751	164734.1	154.9500	718480.9	-6265.9			-448594.3	-13.3671
5800	31.4857	167882.1	155.4975	734003.4	-3117.9			-449039.2	-13.6638
5900	31.4958	171031.2	156.0356	749580.1	31.2			-449520.7	-13.9507
6000	31.5054	174181.3	156.5653	765210.2	3181.3			-449964.2	-14.2280

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Na, 370.98° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(161) Ne (gas); molecular weight, 20.183

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-1481.3	0	-------	0	--------
100	4.9681	496.8	29.5209	2455.3	-984.4	0	0	0	0
200	4.9681	993.6	32.9646	5599.3	-487.6	0	0	0	0
298.15	4.9681	1481.3	34.9482	8938.6	0	0	0	0	0
300	4.9681	1490.4	34.9790	9003.2	9.2	0	0	0	0
400	4.9681	1987.2	36.4082	12576.0	506.0	0	0	0	0
500	4.9681	2484.1	37.5168	16274.3	1002.8	0	0	0	0
600	4.9681	2980.9	38.4226	20072.7	1499.6	0	0	0	0
700	4.9681	3477.7	39.1885	23954.2	1996.5	0	0	0	0
800	4.9681	3974.5	39.8519	27907.0	2493.3	0	0	0	0
900	4.9681	4471.3	40.4370	31922.0	2990.1	0	0	0	0
1000	4.9681	4968.1	40.9605	35992.3	3486.9	0	0	0	0
1100	4.9681	5465.0	41.4340	40112.4	3983.7	0	0	0	0
1200	4.9681	5961.8	41.8663	44277.8	4480.5	0	0	0	0
1300	4.9681	6458.6	42.2639	48484.5	4977.3	0	0	0	0
1400	4.9681	6955.4	42.6321	52729.6	5474.2	0	0	0	0
1500	4.9681	7452.2	42.9749	57010.1	5971.0	0	0	0	0
1600	4.9681	7949.0	43.2959	61323.8	6467.8	0	0	0	0
1700	4.9681	8445.9	43.5967	65668.6	6964.6	0	0	0	0
1800	4.9681	8942.7	43.8807	70042.6	7461.4	0	0	0	0
1900	4.9681	9439.5	44.1493	74444.2	7958.2	0	0	0	0
2000	4.9681	9936.3	44.4041	78872.0	8455.0	0	0	0	0
2100	4.9681	10433.1	44.6465	83324.6	8951.9	0	0	0	0
2200	4.9681	10929.9	44.8777	87800.9	9448.7	0	0	0	0
2300	4.9681	11426.7	45.0985	92299.8	9945.5	0	0	0	0
2400	4.9681	11923.6	45.3099	96820.3	10442.3	0	0	0	0
2500	4.9681	12420.4	45.5128	101361.5	10939.1	0	0	0	0
2600	4.9681	12917.2	45.7076	105922.6	11435.9	0	0	0	0
2700	4.9681	13414.0	45.8951	110502.8	11932.8	0	0	0	0
2800	4.9681	13910.8	46.0758	115101.4	12429.6	0	0	0	0
2900	4.9681	14407.6	46.2501	119717.7	12926.4	0	0	0	0
3000	4.9681	14904.4	46.4186	124351.2	13423.2	0	0	0	0
3100	4.9681	15401.3	46.5815	129001.3	13920.0	0	0	0	0
3200	4.9681	15898.1	46.7392	133667.3	14416.8	0	0	0	0
3300	4.9681	16394.9	46.8921	138348.9	14913.6	0	0	0	0
3400	4.9681	16891.7	47.0404	143045.6	15410.5	0	0	0	0
3500	4.9681	17388.5	47.1844	147756.9	15907.3	0	0	0	0
3600	4.9681	17885.3	47.3244	152482.3	16404.1	0	0	0	0
3700	4.9681	18382.2	47.4605	157221.6	16900.9	0	0	0	0
3800	4.9681	18879.0	47.5930	161974.3	17397.7	0	0	0	0
3900	4.9681	19375.8	47.7220	166740.1	17894.5	0	0	0	0
4000	4.9681	19872.6	47.8478	171518.6	18391.3	0	0	0	0
4100	4.9681	20369.4	47.9705	176309.5	18888.2	0	0	0	0
4200	4.9681	20866.2	48.0902	181112.6	19385.0	0	0	0	0
4300	4.9681	21363.0	48.2071	185927.5	19881.8	0	0	0	0
4400	4.9681	21859.9	48.3213	190753.9	20378.6	0	0	0	0
4500	4.9681	22356.7	48.4330	195591.7	20875.4	0	0	0	0
4600	4.9681	22853.5	48.5422	200440.4	21372.2	0	0	0	0
4700	4.9681	23350.3	48.6490	205300.0	21869.1	0	0	0	0
4800	4.9681	23847.1	48.7536	210170.2	22365.9	0	0	0	0
4900	4.9681	24343.9	48.8560	215050.7	22862.7	0	0	0	0
5000	4.9681	24840.7	48.9564	219941.3	23359.5	0	0	0	0
5100	4.9681	25337.6	49.0548	224841.9	23856.3	0	0	0	0
5200	4.9681	25834.4	49.1513	229752.2	24353.1	0	0	0	0
5300	4.9681	26331.2	49.2459	234672.1	24849.9	0	0	0	0
5400	4.9681	26828.0	49.3388	239601.3	25346.8	0	0	0	0
5500	4.9681	27324.8	49.4299	244539.8	25843.6	0	0	0	0
5600	4.9681	27821.6	49.5194	249487.3	26340.4	0	0	0	0
5700	4.9681	28318.5	49.6074	254443.6	26837.2	0	0	0	0
5800	4.9681	28815.3	49.6938	259408.7	27334.0	0	0	0	0
5900	4.9681	29312.1	49.7787	264382.3	27830.8	0	0	0	0
6000	4.9681	29808.9	49.8622	269364.4	28327.6	0	0	0	0

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(162) O (gas); molecular weight, 16.0000

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	57949.1	58986.5	--------	0	-------
100	5.6656	527.5	32.4662	2719.1	58476.6	59167.2	-126.7319	0	0
200	5.4341	1084.9	36.3400	6183.1	59034.0	59376.7	-61.9894	0	0
298.15	5.2373	1607.5	38.4686	9861.9	59556.6	59556.6	-40.6022	0	0
300	5.2347	1617.2	38.5010	9933.1	59566.3	59559.8	-40.3330	0	0
400	5.1347	2135.1	39.9917	13861.6	60084.3	59722.7	-29.4725	0	0
500	5.0808	2645.6	41.1311	17919.9	60594.8	59867.6	-22.9391	0	0
600	5.0490	3152.0	42.0544	22080.6	61101.1	59996.4	-18.5735	0	0
700	5.0289	3655.8	42.8311	26325.9	61605.0	60111.2	-15.4488	0	0
800	5.0154	4158.0	43.5016	30643.3	62107.1	60214.6	-13.1010	0	0
900	5.0059	4659.0	44.0918	35023.6	62608.2	60308.6	-11.2719	0	0
1000	4.9990	5159.3	44.6188	39459.6	63108.4	60395.0	-9.8065	0	0
1100	4.9938	5658.9	45.0950	43945.7	63608.0	60475.1	-8.6058	0	0
1200	4.9898	6158.1	45.5294	48477.2	64107.2	60550.1	-7.6040	0	0
1300	4.9867	6656.9	45.9286	53050.4	64606.0	60620.5	-6.7552	0	0
1400	4.9842	7155.4	46.2981	57661.9	65104.6	60687.1	-6.0269	0	0
1500	4.9823	7653.7	46.6419	62309.1	65602.9	60750.1	-5.3951	0	0
1600	4.9807	8151.9	46.9634	66989.6	66101.0	60809.7	-4.8416	0	0
1700	4.9795	8649.9	47.2653	71701.2	66599.0	60866.3	-4.3528	0	0
1800	4.9786	9147.8	47.5499	76442.1	67096.9	60919.8	-3.9179	0	0
1900	4.9780	9645.6	47.8191	81210.6	67594.8	60970.5	-3.5285	0	0
2000	4.9778	10143.4	48.0744	86005.4	68092.5	61018.3	-3.1777	0	0
2100	4.9780	10641.2	48.3173	90825.1	68590.3	61063.3	-2.8601	0	0
2200	4.9786	11139.0	48.5489	95668.5	69088.2	61105.5	-2.5712	0	0
2300	4.9797	11636.9	48.7702	100534.5	69586.1	61145.1	-2.3072	0	0
2400	4.9814	12135.0	48.9822	105422.2	70084.1	61182.2	-2.0650	0	0
2500	4.9836	12633.2	49.1856	110330.7	70582.4	61216.7	-1.8421	0	0
2600	4.9864	13131.7	49.3811	115259.1	71080.9	61248.9	-1.6362	0	0
2700	4.9899	13630.5	49.5693	120206.6	71579.7	61278.8	-1.4455	0	0
2800	4.9940	14129.7	49.7509	125172.7	72078.9	61306.5	-1.2683	0	0
2900	4.9988	14629.4	49.9262	130156.6	72578.5	61332.2	-1.1033	0	0
3000	5.0043	15129.5	50.0958	135157.8	73078.6	61356.0	-0.9492	0	0
3100	5.0104	15630.2	50.2599	140175.6	73579.4	61378.0	-0.8050	0	0
3200	5.0172	16131.6	50.4191	145209.6	74080.8	61398.4	-0.6698	0	0
3300	5.0246	16633.7	50.5736	150259.3	74582.8	61417.3	-0.5427	0	0
3400	5.0327	17136.5	50.7237	155324.2	75085.7	61434.9	-0.4230	0	0
3500	5.0413	17640.2	50.8697	160403.9	75589.4	61451.3	-0.3102	0	0
3600	5.0504	18144.8	51.0119	165498.0	76094.0	61466.6	-0.2036	0	0
3700	5.0600	18650.3	51.1504	170606.1	76599.5	61481.0	-0.1027	0	0
3800	5.0701	19156.8	51.2855	175727.9	77106.0	61494.5	-0.0072	0	0
3900	5.0806	19664.4	51.4173	180863.1	77613.5	61507.4	0.0835	0	0
4000	5.0915	20173.0	51.5461	186011.3	78122.1	61519.6	0.1697	0	0
4100	5.1027	20682.7	51.6719	191172.2	78631.8	61531.4	0.2517	0	0
4200	5.1141	21193.5	51.7950	196345.6	79142.7	61542.7	0.3298	0	0
4300	5.1258	21705.5	51.9155	201531.1	79654.7	61553.8	0.4043	0	0
4400	5.1376	22218.7	52.0335	206728.6	80167.8	61564.6	0.4754	0	0
4500	5.1496	22733.0	52.1491	211937.8	80682.2	61575.2	0.5433	0	0
4600	5.1617	23248.6	52.2624	217158.3	81197.8	61585.8	0.6083	0	0
4700	5.1738	23765.4	52.3735	222390.2	81714.5	61596.3	0.6706	0	0
4800	5.1860	24283.4	52.4826	227633.0	82232.5	61606.9	0.7303	0	0
4900	5.1981	24802.6	52.5896	232886.6	82751.7	61617.5	0.7875	0	0
5000	5.2102	25323.0	52.6948	238150.8	83272.1	61628.1	0.8425	0	0
5100	5.2223	25844.6	52.7981	243425.5	83793.8	61639.0	0.8953	0	0
5200	5.2342	26367.4	52.8996	248710.4	84316.6	61649.9	0.9461	0	0
5300	5.2460	26891.5	52.9994	254005.4	84840.6	61661.1	0.9950	0	0
5400	5.2577	27416.6	53.0976	259310.2	85365.8	61672.4	1.0421	0	0
5500	5.2691	27943.0	53.1941	264624.8	85892.1	61683.9	1.0875	0	0
5600	5.2804	28470.5	53.2892	269949.0	86419.6	61695.7	1.1312	0	0
5700	5.2915	28999.1	53.3828	275282.6	86948.2	61707.7	1.1735	0	0
5800	5.3024	29528.8	53.4749	280625.5	87477.9	61719.9	1.2143	0	0
5900	5.3131	30059.5	53.5656	285977.5	88008.7	61732.3	1.2537	0	0
6000	5.3235	30591.4	53.6550	291338.6	88540.5	61744.9	1.2918	0	0

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(163) O_2 (gas); molecular weight, 32.0000

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-2074.7	0	-------	-117973.0	--------
100	6.9567	693.5	41.3967	3446.1	-1381.2	0	0	-118334.4	253.4639
200	6.9615	1389.3	46.2195	7854.6	-685.4	0	0	-118753.5	123.9789
298.15	7.0215	2074.7	49.0070	12536.7	0	0	0	-119113.3	81.2043
300	7.0237	2087.7	49.0504	12627.4	13.0	0	0	-119119.7	80.6659
400	7.1961	2797.9	51.0923	17639.0	723.2	0	0	-119445.4	58.9449
500	7.4315	3529.0	52.7228	22832.4	1454.3	0	0	-119735.2	45.8782
600	7.6704	4284.3	54.0991	28175.2	2209.5	0	0	-119992.7	37.1469
700	7.8837	5062.3	55.2979	33646.3	2987.5	0	0	-120222.4	30.8976
800	8.0638	5859.9	56.3628	39230.3	3785.2	0	0	-120429.1	26.2020
900	8.2129	6674.0	57.3214	44915.3	4599.2	0	0	-120617.1	22.5438
1000	8.3362	7501.6	58.1933	50691.7	5426.9	0	0	-120789.9	19.6129
1100	8.4394	8340.5	58.9928	56551.6	6265.8	0	0	-120950.3	17.2116
1200	8.5276	9189.0	59.7310	62488.2	7114.3	0	0	-121100.1	15.2079
1300	8.6048	10045.7	60.4167	68496.0	7971.0	0	0	-121241.1	13.5105
1400	8.6743	10909.7	61.0570	74570.1	8835.0	0	0	-121374.2	12.0539
1500	8.7386	11780.4	61.6577	80706.1	9705.7	0	0	-121500.1	10.7901
1600	8.7995	12657.3	62.2236	86900.4	10582.6	0	0	-121619.5	9.6832
1700	8.8582	13540.2	62.7588	93149.8	11465.5	0	0	-121732.6	8.7056
1800	8.9155	14428.9	63.2668	99451.3	12354.2	0	0	-121839.7	7.8359
1900	8.9720	15323.3	63.7503	105802.3	13248.6	0	0	-121941.0	7.0570
2000	9.0280	16223.3	64.2120	112200.6	14148.6	0	0	-122036.5	6.3554
2100	9.0835	17128.9	64.6538	118644.1	15054.2	0	0	-122126.5	5.7202
2200	9.1386	18040.0	65.0776	125130.8	15965.3	0	0	-122211.1	5.1423
2300	9.1932	18956.6	65.4851	131659.0	16881.9	0	0	-122290.3	4.6143
2400	9.2472	19878.6	65.8775	138227.3	17803.9	0	0	-122364.4	4.1300
2500	9.3005	20806.0	66.2560	144834.1	18731.3	0	0	-122433.5	3.6842
2600	9.3528	21738.7	66.6218	151478.1	19664.0	0	0	-122497.8	3.2725
2700	9.4042	22676.6	66.9758	158158.1	20601.8	0	0	-122557.5	2.8910
2800	9.4543	23619.5	67.3187	164872.9	21544.7	0	0	-122613.0	2.5367
2900	9.5032	24567.4	67.6513	171621.4	22492.6	0	0	-122664.4	2.2066
3000	9.5508	25520.1	67.9743	178402.8	23445.4	0	0	-122711.9	1.8984
3100	9.5969	26477.5	68.2882	185216.0	24402.7	0	0	-122756.0	1.6100
3200	9.6415	27439.4	68.5936	192060.2	25364.7	0	0	-122796.8	1.3395
3300	9.6846	28405.7	68.8910	198934.5	26331.0	0	0	-122834.7	1.0853
3400	9.7261	29376.3	69.1807	205838.1	27301.5	0	0	-122869.8	0.8461
3500	9.7661	30350.9	69.4632	212770.4	28276.2	0	0	-122902.6	0.6204
3600	9.8045	31329.4	69.7389	219730.5	29254.7	0	0	-122933.2	0.4072
3700	9.8414	32311.8	70.0080	226717.9	30237.0	0	0	-122962.0	0.2055
3800	9.8768	33297.7	70.2709	233731.9	31222.9	0	0	-122989.0	0.0143
3900	9.9108	34287.1	70.5279	240771.9	32212.3	0	0	-123014.7	-0.1671
4000	9.9433	35279.8	70.7793	247837.3	33205.0	0	0	-123039.2	-0.3394
4100	9.9745	36275.7	71.0252	254927.6	34200.9	0	0	-123062.7	-0.5034
4200	10.0045	37274.6	71.2659	262042.2	35199.9	0	0	-123085.4	-0.6596
4300	10.0332	38276.5	71.5017	269180.6	36201.8	0	0	-123107.5	-0.8085
4400	10.0608	39281.2	71.7326	276342.4	37206.5	0	0	-123129.2	-0.9507
4500	10.0872	40288.7	71.9590	283527.0	38213.9	0	0	-123150.5	-1.0867
4600	10.1127	41298.7	72.1810	290734.0	39223.9	0	0	-123171.6	-1.2167
4700	10.1372	42311.2	72.3988	297963.0	40236.4	0	0	-123192.6	-1.3412
4800	10.1608	43326.1	72.6124	305213.6	41251.3	0	0	-123213.7	-1.4605
4900	10.1836	44343.3	72.8222	312485.4	42268.5	0	0	-123234.9	-1.5750
5000	10.2055	45362.7	73.0281	319777.9	43288.0	0	0	-123256.3	-1.6850
5100	10.2268	46384.4	73.2304	327090.9	44309.6	0	0	-123277.9	-1.7906
5200	10.2474	47408.1	73.4292	334423.9	45333.3	0	0	-123299.8	-1.8922
5300	10.2673	48433.8	73.6246	341776.6	46359.1	0	0	-123322.1	-1.9900
5400	10.2867	49461.5	73.8167	349148.7	47386.8	0	0	-123344.8	-2.0842
5500	10.3054	50491.1	74.0056	356539.9	48416.4	0	0	-123367.9	-2.1749
5600	10.3237	51522.6	74.1915	363949.7	49447.9	0	0	-123391.4	-2.2625
5700	10.3414	52555.9	74.3744	371378.1	50481.1	0	0	-123415.3	-2.3470
5800	10.3587	53590.9	74.5544	378824.5	51516.1	0	0	-123439.7	-2.4286
5900	10.3755	54627.6	74.7316	386288.9	52552.8	0	0	-123464.5	-2.5074
6000	10.3919	55666.0	74.9061	393770.8	53591.2	0	0	-123489.8	-2.5836

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(164) OH (gas); molecular weight, 17.008

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	7205.6	9254.9	-------	-101360.0	--------
100	7.5609	655.9	35.8480	2928.9	7861.5	9164.6	-19.4259	-101728.4	218.2554
200	7.2951	1399.3	41.0123	6803.2	8604.9	9278.7	-9.3429	-102039.2	106.9662
298.15	7.1439	2106.8	43.8927	10979.8	9312.5	9312.5	-5.9987	-102341.9	70.2141
300	7.1421	2120.1	43.9360	11061.0	9325.7	9312.8	-5.9567	-102347.6	69.7515
400	7.0757	2830.5	45.9811	15561.9	10036.2	9320.9	-4.2599	-102651.9	51.0872
500	7.0492	3536.5	47.5566	20241.8	10742.1	9312.0	-3.2417	-102953.2	39.8552
600	7.0530	4241.4	48.8417	25063.7	11447.0	9289.3	-2.5640	-103251.5	32.3452
700	7.0866	4948.1	49.9311	30003.7	12153.7	9255.9	-2.0815	-103545.4	26.9655
800	7.1478	5659.6	50.8811	35045.3	12865.2	9215.8	-1.7210	-103832.9	22.9192
900	7.2312	6378.4	51.7276	40176.4	13584.0	9172.0	-1.4418	-104112.0	19.7635
1000	7.3299	7106.4	52.4945	45388.1	14312.0	9127.1	-1.2194	-104381.0	17.2323
1100	7.4372	7844.7	53.1981	50673.3	15050.3	9082.7	-1.0387	-104639.2	15.1560
1200	7.5478	8593.9	53.8500	56026.0	15799.6	9039.9	-0.8886	-104885.9	13.4216
1300	7.6578	9354.2	54.4585	61441.8	16559.8	8999.0	-0.7622	-105121.3	11.9507
1400	7.7644	10125.4	55.0299	66916.5	17331.0	8960.1	-0.6546	-105345.5	10.6871
1500	7.8662	10906.9	55.5691	72446.7	18112.6	8922.7	-0.5615	-105559.0	9.5897
1600	7.9622	11698.4	56.0798	78029.4	18904.0	8887.0	-0.4803	-105762.5	8.6276
1700	8.0520	12499.2	56.5653	83661.8	19704.8	8852.8	-0.4090	-105956.6	7.7771
1800	8.1356	13308.6	57.0279	89341.7	20514.2	8819.8	-0.3459	-106141.9	7.0197
1900	8.2132	14126.0	57.4699	95066.7	21331.7	8786.9	-0.2896	-106319.1	6.3409
2000	8.2852	14951.0	57.8930	100835.0	22156.7	8754.4	-0.2393	-106488.7	5.7289
2100	8.3519	15782.9	58.2989	106644.8	22988.6	8721.6	-0.1938	-106651.4	5.1744
2200	8.4137	16621.2	58.6889	112494.3	23826.9	8688.7	-0.1527	-106807.7	4.6696
2300	8.4711	17465.5	59.0641	118382.0	24671.2	8654.9	-0.1150	-106958.2	4.2079
2400	8.5243	18315.3	59.4258	124306.6	25521.0	8620.5	-0.0810	-107103.2	3.7842
2500	8.5739	19170.3	59.7748	130266.8	26375.9	8585.2	-0.0496	-107243.3	3.3939
2600	8.6201	20030.0	60.1120	136261.2	27235.6	8548.6	-0.0209	-107378.9	3.0331
2700	8.6633	20894.1	60.4381	142288.8	28099.8	8511.0	0.0058	-107510.4	2.6986
2800	8.7037	21762.5	60.7539	148348.5	28968.2	8471.9	0.0302	-107638.0	2.3876
2900	8.7416	22634.8	61.0600	154439.3	29840.4	8431.5	0.0530	-107762.2	2.0978
3000	8.7772	23510.8	61.3570	160560.2	30716.5	8389.5	0.0742	-107883.1	1.8269
3100	8.8108	24390.2	61.6453	166710.4	31595.8	8345.6	0.0938	-108001.3	1.5733
3200	8.8426	25272.9	61.9256	172889.0	32478.5	8300.1	0.1122	-108116.8	1.3352
3300	8.8726	26158.6	62.1981	179095.2	33364.3	8253.5	0.1293	-108229.9	1.1113
3400	8.9010	27047.3	62.4635	185328.4	34253.0	8204.5	0.1453	-108340.9	0.9004
3500	8.9281	27938.8	62.7219	191587.7	35144.5	8153.4	0.1603	-108449.9	0.7014
3600	8.9539	28833.0	62.9738	197872.6	36038.6	8101.3	0.1745	-108557.2	0.5132
3700	8.9785	29729.6	63.2194	204182.2	36935.3	8047.6	0.1877	-108662.9	0.3350
3800	9.0020	30628.6	63.4592	210516.2	37834.3	7991.1	0.2002	-108767.2	0.1660
3900	9.0245	31529.9	63.6933	216873.9	38735.6	7934.1	0.2117	-108870.3	0.0055
4000	9.0462	32433.4	63.9220	223254.7	39639.1	7874.9	0.2230	-108972.1	-0.1471
4100	9.0670	33339.1	64.1457	229658.1	40544.8	7814.8	0.2333	-109073.0	-0.2923
4200	9.0870	34246.8	64.3644	236083.7	41452.5	7752.4	0.2434	-109172.9	-0.4308
4300	9.1063	35156.5	64.5784	242530.8	42362.1	7688.8	0.2527	-109272.1	-0.5630
4400	9.1250	36068.1	64.7880	248999.2	43273.7	7623.1	0.2616	-109370.5	-0.6893
4500	9.1430	36981.5	64.9933	255488.2	44187.2	7556.6	0.2699	-109468.2	-0.8100
4600	9.1605	37896.7	65.1944	261997.7	45102.3	7488.2	0.2778	-109565.4	-0.9257
4700	9.1775	38813.5	65.3916	268527.0	46019.2	7418.2	0.2853	-109662.2	-1.0365
4800	9.1940	39732.1	65.5850	275075.9	46937.7	7346.3	0.2925	-109758.4	-1.1427
4900	9.2100	40652.2	65.7747	281643.9	47857.9	7273.0	0.2992	-109854.3	-1.2448
5000	9.2256	41574.1	65.9610	288230.8	48779.7	7198.9	0.3057	-109949.7	-1.3428
5100	9.2421	42497.6	66.1439	294836.2	49703.2	7123.2	0.3119	-110044.6	-1.4371
5200	9.2574	43422.5	66.3235	301459.6	50628.2	7046.2	0.3177	-110139.3	-1.5278
5300	9.2725	44349.1	66.5000	308100.7	51554.8	6967.7	0.3231	-110233.5	-1.6152
5400	9.2874	45277.1	66.6734	314759.4	52482.7	6888.0	0.3286	-110327.6	-1.6994
5500	9.3020	46206.5	66.8440	321435.4	53412.1	6806.7	0.3335	-110421.3	-1.7806
5600	9.3164	47137.4	67.0117	328128.2	54343.1	6724.5	0.3384	-110514.7	-1.8590
5700	9.3305	48069.8	67.1767	334837.6	55275.4	6641.4	0.3429	-110607.7	-1.9347
5800	9.3445	49003.6	67.3391	341563.4	56209.2	6556.9	0.3472	-110700.4	-2.0078
5900	9.3583	49938.6	67.4990	348305.4	57144.3	6470.9	0.3515	-110793.0	-2.0785
6000	9.3719	50875.2	67.6564	355063.1	58080.9	6384.3	0.3553	-110885.1	-2.1470

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(165) P (gas); molecular weight, 30.975

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	73698.7	74981.0	-------	0	--------
100	4.9681	496.8	33.5527	2858.5	74195.6	75264.7	-158.1097	0	0
200	4.9681	993.6	36.9963	6405.6	74692.4	75220.5	-75.8216	0	0
298.15	4.9681	1481.3	38.9800	10140.6	75180.0	75180.0	-48.7684	0	0
300	4.9681	1490.4	39.0107	10212.8	75189.2	75178.7	-48.4285	0	0
[a]400	4.9681	1987.3	40.4400	14188.7	75686.0	74902.4	-34.7687	0	0
500	4.9681	2484.1	41.5486	18290.2	76182.8	74775.0	-26.5905	0	0
600	4.9681	2980.9	42.4544	22491.7	76679.6	74647.6	-21.1478	0	0
700	4.9682	3477.7	43.2202	26776.5	77176.4	74520.2	-17.2668	0	0
800	4.9682	3974.5	43.8836	31132.4	77673.3	74392.8	-14.3610	0	0
900	4.9682	4471.3	44.4688	35550.6	78170.1	74265.4	-12.1049	0	0
1000	4.9683	4968.2	44.9923	40024.1	78666.9	74138.1	-10.3030	0	0
1100	4.9685	5465.0	45.4658	44547.4	79163.7	74010.7	-8.8314	0	0
1200	4.9693	5961.9	45.8981	49115.9	79660.6	73883.4	-7.6071	0	0
1300	4.9708	6458.9	46.2959	53725.9	80157.6	73756.2	-6.5729	0	0
1400	4.9739	6956.1	46.6644	58374.1	80654.8	73629.2	-5.6880	0	0
1500	4.9790	7453.7	47.0077	63057.9	81152.5	73502.6	-4.9224	0	0
1600	4.9870	7952.0	47.3293	67774.9	81650.7	73376.7	-4.2537	0	0
1700	4.9987	8451.2	47.6320	72523.1	82150.0	73251.7	-3.6646	0	0
1800	5.0147	8951.9	47.9181	77300.8	82650.6	73128.2	-3.1419	0	0
1900	5.0356	9454.3	48.1898	82106.3	83153.1	73006.4	-2.6750	0	0
2000	5.0619	9959.2	48.4487	86938.3	83657.9	72887.1	-2.2555	0	0
2100	5.0939	10466.9	48.6965	91795.6	84165.7	72770.6	-1.8765	0	0
2200	5.1317	10978.1	48.9343	96677.3	84676.9	72657.7	-1.5326	0	0
2300	5.1753	11493.5	49.1633	101582.2	85192.2	72548.8	-1.2190	0	0
2400	5.2246	12013.4	49.3846	106509.7	85712.1	72444.5	-0.9320	0	0
2500	5.2792	12538.5	49.5990	111458.9	86237.3	72345.5	-0.6683	0	0
2600	5.3387	13069.4	49.8072	116429.3	86768.1			0	0
2700	5.4028	13606.4	50.0099	121420.2	87305.2			0	0
2800	5.4709	14150.1	50.2076	126431.1	87848.8			0	0
2900	5.5424	14700.7	50.4008	131461.5	88399.5			0	0
3000	5.6167	15258.7	50.5899	136511.1	88957.4			0	0
3100	5.6933	15824.2	50.7753	141579.4	89522.9			0	0
3200	5.7716	16397.4	50.9573	146666.0	90096.1			0	0
3300	5.8509	16978.5	51.1361	151770.7	90677.3			0	0
3400	5.9308	17567.6	51.3120	156893.2	91266.3			0	0
3500	6.0106	18164.7	51.4851	162033.0	91863.4			0	0
3600	6.0899	18769.7	51.6555	167190.1	92468.4			0	0
3700	6.1683	19382.6	51.8234	172364.1	93081.4			0	0
3800	6.2452	20003.3	51.9889	177554.7	93702.1			0	0
3900	6.3204	20631.6	52.1521	182761.8	94330.3			0	0
4000	6.3934	21267.3	52.3131	187985.1	94966.1			0	0
4100	6.4640	21910.2	52.4718	193224.3	95608.9			0	0
4200	6.5319	22560.0	52.6284	198479.3	96258.8			0	0
4300	6.5970	23216.5	52.7829	203749.9	96915.2			0	0
4400	6.6589	23879.3	52.9352	209035.9	97578.1			0	0
4500	6.7177	24548.2	53.0856	214336.9	98246.9			0	0
4600	6.7731	25222.7	53.2338	219652.9	98921.5			0	0
4700	6.8252	25902.7	53.3801	224983.6	99601.4			0	0
4800	6.8738	26587.7	53.5243	230328.8	100286.4			0	0
4900	6.9189	27277.3	53.6665	235688.4	100976.1			0	0
5000	6.9606	27971.3	53.8067	241062.1	101670.1			0	0
5100	6.9988	28669.3	53.9449	246449.7	102368.1			0	0
5200	7.0337	29371.0	54.0811	251851.0	103069.7			0	0
5300	7.0652	30075.9	54.2154	257265.8	103774.7			0	0
5400	7.0936	30783.9	54.3478	262694.0	104482.7			0	0
5500	7.1188	31494.6	54.4782	268135.3	105193.3			0	0
5600	7.1409	32207.6	54.6066	273589.6	105906.3			0	0
5700	7.1601	32922.6	54.7332	279056.6	106621.4			0	0
5800	7.1765	33639.5	54.8579	284536.1	107338.2			0	0
5900	7.1903	34357.9	54.9807	290028.1	108056.6			0	0
6000	7.2015	35077.5	55.1016	295532.2	108776.2			0	0

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of P, 317.30° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(166) P (crystal IV, crystal III, liquid); molecular weight, 30.975

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-1282.3	0	-------	-74981.0	--------
100	3.281	213.2	4.390	225.8	-1069.1	0	0	-75264.7	158.1097
200	5.041	754.2	7.841	814.0	-528.1	0	0	-75220.5	75.8216
298.15	5.694	1282.3	9.981	1693.5	0	0	0	-75180.0	48.7684
300	5.705	1292.8	10.016	1712.0	10.5	0	0	-75178.7	48.4285
[b]317.30	5.798	1392.3	10.338	1887.9	110.0	0	0	-80706.6	44.4340
317.30	6.242	1549.7	10.834	1887.9	267.4	0	0	-73540.2	44.4340
400	6.242	2065.9	12.2797	2846.0	783.6	0	0	-74902.4	34.7687
500	6.242	2690.1	13.6726	4146.2	1407.8	0	0	-74775.0	26.5905
600	6.242	3314.3	14.8107	5572.1	2032.0	0	0	-74647.6	21.1478
700	6.242	3938.5	15.7729	7102.5	2656.2	0	0	-74520.2	17.2668
800	6.242	4562.7	16.6064	8722.4	3280.4	0	0	-74392.8	14.3610
900	6.242	5186.9	17.3416	10420.5	3904.6	0	0	-74265.4	12.1049
1000	6.242	5811.1	17.9992	12188.1	4528.8	0	0	-74138.1	10.3030
1100	6.242	6435.3	18.5942	14018.2	5153.0	0	0	-74010.7	8.8314
1200	6.242	7059.5	19.1373	15905.2	5777.2	0	0	-73883.4	7.6071
1300	6.242	7683.7	19.6369	17844.2	6401.4	0	0	-73756.2	6.5729
1400	6.242	8307.9	20.0995	19831.4	7025.6	0	0	-73629.2	5.6880
1500	6.242	8932.1	20.5301	21863.1	7649.8	0	0	-73502.6	4.9224
1600	6.242	9556.3	20.9330	23936.5	8274.0	0	0	-73376.7	4.2537
1700	6.242	10180.5	21.3114	26048.9	8898.2	0	0	-73251.7	3.6646
1800	6.242	10804.7	21.6682	28198.0	9522.4	0	0	-73128.2	3.1419
1900	6.242	11428.9	22.0057	30381.9	10146.6	0	0	-73006.4	2.6750
2000	6.242	12053.1	22.3259	32598.6	10770.8	0	0	-72887.1	2.2555
2100	6.242	12677.3	22.6304	34846.5	11395.0	0	0	-72770.6	1.8765
2200	6.242	13301.5	22.9208	37124.2	12019.2	0	0	-72657.6	1.5326
2300	6.242	13925.7	23.1983	39430.2	12643.4	0	0	-72548.8	1.2190
2400	6.242	14549.9	23.4639	41763.4	13267.6	0	0	-72444.5	0.9320
2500	6.242	15174.1	23.7187	44122.7	13891.8	0	0	-72345.5	0.6683

[a]H_0° refers to crystal IV state.

[b]Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(167) P_2 (gas); molecular weight, 61.950

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	31317.5	33882.1	-------	-116080.0	--------
100	6.9601	695.3	44.2777	3732.4	32012.8	34151.0	-66.8758	-116378.3	249.3436
200	7.1946	1399.5	49.1494	8430.4	32717.0	33773.2	-29.5899	-116667.8	122.0533
298.15	7.6561	2128.2	52.1076	13407.7	33445.7	33445.7	-17.4901	-116914.3	80.0466
300	7.6645	2142.3	52.1550	13504.2	33459.8	33438.8	-17.3389	-116918.5	79.5182
[a]400	8.0493	2929.2	54.4159	18837.2	34246.6	32679.4	-11.3295	-117125.4	58.2078
500	8.3105	3748.0	56.2420	24373.0	35065.5	32249.8	-7.7806	-117300.1	45.4005
600	8.4851	4588.4	57.7737	30075.8	35905.9	31841.8	-5.4454	-117453.4	36.8502
700	8.6049	5443.2	59.0912	35920.6	36760.7	31448.2	-3.7983	-117592.2	30.7353
800	8.6902	6308.2	60.2461	41888.7	37625.7	31064.8	-2.5783	-117720.8	26.1438
900	8.7532	7180.5	61.2735	47965.6	38498.0	30688.8	-1.6408	-117842.1	22.5689
1000	8.8012	8058.4	62.1983	54140.0	39375.9	30318.2	-0.9000	-117957.9	19.7061
1100	8.8390	8940.5	63.0390	60402.5	40257.9	29951.9	-0.3012	-118069.5	17.3615
1200	8.8695	9825.9	63.8095	66745.4	41143.4	29588.9	0.1918	-118177.8	15.4059
1300	8.8948	10714.2	64.5204	73162.4	42031.7	29228.8	0.6038	-118283.6	13.7496
1400	8.9161	11604.8	65.1804	79647.8	42922.2	28871.0	0.9527	-118387.4	12.3287
1500	8.9345	12497.3	65.7962	86197.0	43814.8	28515.1	1.2513	-118490.1	11.0961
1600	8.9506	13391.6	66.3734	92805.8	44709.1	28161.0	1.5094	-118592.4	10.0167
1700	8.9650	14287.4	66.9164	99470.5	45604.9	27808.4	1.7343	-118695.1	9.0635
1800	8.9780	15184.5	67.4292	106188.1	46502.0	27457.1	1.9316	-118799.2	8.2154
1900	8.9898	16082.9	67.9150	112955.5	47400.4	27107.1	2.1060	-118905.7	7.4550
2000	9.0007	16982.5	68.3764	119770.2	48300.0	26758.3	2.2609	-119015.9	6.7718
2100	9.0109	17883.0	68.8157	126630.0	49200.5	26410.5	2.3992	-119130.8	6.1523
2200	9.0205	18784.6	69.2352	133532.7	50102.1	26063.6	2.5234	-119251.7	5.5885
2300	9.0295	19687.1	69.6363	140476.4	51004.6	25717.7	2.6352	-119379.8	5.0732
2400	9.0382	20590.5	70.0208	147459.4	51908.0	25372.7	2.7363	-119516.3	4.6003
2500	9.0464	21494.7	70.3899	154480.1	52812.2	25028.6	2.8281	-119662.3	4.1647
2600	9.0544	22399.8	70.7449	161536.9	53717.3			-119819.0	3.7621
2700	9.0620	23305.6	71.0868	168628.6	54623.1			-119987.3	3.3888
2800	9.0695	24212.2	71.4165	175753.9	55529.7			-120168.0	3.0417
2900	9.0768	25119.5	71.7348	182911.5	56437.0			-120362.0	2.7181
3000	9.0839	26027.5	72.0427	190100.5	57345.0			-120569.8	2.4155
3100	9.0909	26936.3	72.3407	197319.8	58253.8			-120792.0	2.1319
3200	9.0978	27845.7	72.6294	204568.3	59163.2			-121029.1	1.8655
3300	9.1046	28755.8	72.9095	211845.3	60073.3			-121281.2	1.6148
3400	9.1113	29666.6	73.1813	219150.0	60984.1			-121548.6	1.3783
3500	9.1180	30578.1	73.4456	226481.4	61895.6			-121831.2	1.1548
3600	9.1248	31490.2	73.7025	233838.8	62807.7			-122129.2	0.9433
3700	9.1315	32403.1	73.9526	241221.6	63720.5			-122442.2	0.7427
3800	9.1383	33316.5	74.1962	248629.1	64634.0			-122770.1	0.5521
3900	9.1452	34230.7	74.4337	256060.7	65548.2			-123112.5	0.3708
4000	9.1522	35145.6	74.6653	263515.7	66463.1			-123469.0	0.1981
4100	9.1593	36061.2	74.8914	270993.6	67378.7			-123839.2	0.0333
4200	9.1666	36977.5	75.1122	278493.8	68294.9			-124222.6	-0.1241
4300	9.1742	37894.5	75.3280	286015.8	69212.0			-124618.5	-0.2747
4400	9.1820	38812.3	75.5390	293559.2	70129.8			-125026.3	-0.4188
4500	9.1900	39730.9	75.7454	301123.5	71048.4			-125445.4	-0.5571
4600	9.1984	40650.3	75.9475	308708.1	71967.8			-125875.2	-0.6897
4700	9.2072	41570.6	76.1454	316312.8	72888.1			-126314.8	-0.8172
4800	9.2163	42491.8	76.3393	323937.1	73809.3			-126763.5	-0.9397
4900	9.2259	43413.9	76.5295	331580.6	74731.4			-127220.8	-1.0577
5000	9.2359	44336.9	76.7160	339242.9	75654.4			-127685.7	-1.1714
5100	9.2464	45261.1	76.8990	346923.6	76578.5			-128157.6	-1.2811
5200	9.2574	46186.2	77.0786	354622.6	77503.7			-128635.7	-1.3869
5300	9.2690	47112.6	77.2551	362339.3	78430.1			-129119.3	-1.4891
5400	9.2812	48040.1	77.4284	370073.5	79357.6			-129607.7	-1.5878
5500	9.2940	48968.8	77.5989	377824.9	80286.3			-130100.3	-1.6834
5600	9.3074	49898.9	77.7664	385593.1	81216.4			-130596.2	-1.7759
5700	9.3215	50830.3	77.9313	393378.1	82147.8			-131094.9	-1.8654
5800	9.3362	51763.2	78.0935	401179.3	83080.7			-131595.8	-1.9523
5900	9.3517	52697.6	78.2533	408996.7	84015.1			-132098.1	-2.0365
6000	9.3678	53633.6	78.4106	416829.9	84951.0			-132601.4	-2.1182

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of P, 317.30° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(168) P_4 (gas); molecular weight, 123.900

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	10662.1	15791.3	-------	-284132.9	--------
100	8.8988	811.4	53.4889	4537.5	11473.6	15750.0	-26.5680	-285308.7	605.8708
200	13.2939	1922.9	61.0131	10279.7	12585.0	14697.4	-9.5803	-286184.5	293.7060
298.15	16.0516	3377.9	66.8954	16567.0	14040.0	14040.0	-4.3968	-286680.0	190.6766
300	16.0878	3407.6	66.9948	16690.8	14069.7	14027.7	-4.3333	-286687.0	189.3808
[a]400	17.5100	5095.2	71.8398	23640.8	15757.3	12622.7	-1.9310	-286986.7	137.1436
500	18.2811	6888.3	75.8380	31030.6	17550.5	11919.1	-0.5880	-287180.8	105.7742
600	18.7352	8741.0	79.2145	38787.7	19403.1	11275.0	0.2579	-287315.4	84.8492
700	19.0221	10629.9	82.1257	46858.1	21292.0	10667.1	0.8295	-287413.8	69.8967
800	19.2139	12542.3	84.6791	55201.0	23204.4	10082.7	1.2348	-287488.6	58.6790
900	19.3479	14470.8	86.9503	63784.5	25132.9	9514.3	1.5325	-287547.4	49.9520
1000	19.4452	16410.7	88.9941	72583.5	27072.8	8957.4	1.7570	-287594.8	42.9692
1100	19.5178	18359.0	90.8510	81577.1	29021.1	8408.9	1.9297	-287633.8	37.2551
1200	19.5735	20313.7	92.5518	90748.5	30975.8	7866.8	2.0645	-287666.7	32.4928
1300	19.6171	22273.3	94.1203	100083.1	32935.4	7329.6	2.1711	-287695.0	28.4627
1400	19.6519	24236.8	95.5754	109568.8	34898.9	6796.4	2.2560	-287720.4	25.0080
1500	19.6800	26203.5	96.9322	119194.9	36865.6	6266.2	2.3240	-287744.3	22.0136
1600	19.7031	28172.6	98.2031	128952.3	38834.8	5738.6	2.3787	-287768.2	19.3934
1700	19.7223	30143.9	99.3982	138833.0	40806.1	5213.1	2.4227	-287793.9	17.0812
1800	19.7384	32117.0	100.5260	148829.7	42779.1	4689.4	2.4581	-287823.3	15.0257
1900	19.7521	34091.5	101.5935	158936.2	44753.7	4167.1	2.4865	-287858.7	13.1864
2000	19.7637	36067.3	102.6070	169146.7	46729.5	3646.1	2.5089	-287902.2	11.5308
2100	19.7738	38044.2	103.5715	179456.0	48706.4	3126.2	2.5266	-287956.3	10.0326
2200	19.7825	40022.1	104.4916	189859.5	50684.2	2607.2	2.5402	-288023.4	8.6704
2300	19.7902	42000.7	105.3712	200352.9	52662.8	2089.1	2.5503	-288106.0	7.4262
2400	19.7969	43980.1	106.2136	210932.5	54642.2	1571.6	2.5576	-288206.4	6.2854
2500	19.8028	45960.1	107.0218	221594.5	56622.2	1054.8	2.5624	-288327.0	5.2355
2600	19.8080	47940.6	107.7986	232335.8	58602.7			-288469.9	4.2659
2700	19.8127	49921.6	108.5463	243153.3	60583.8			-288637.0	3.3676
2800	19.8169	51903.1	109.2669	254044.1	62565.3			-288830.1	2.5329
2900	19.8207	53885.0	109.9623	265005.8	64547.1			-289050.8	1.7553
3000	19.8241	55867.2	110.6344	276035.8	66529.4			-289300.3	1.0289
3100	19.8271	57849.8	111.2844	287131.9	68511.9			-289579.7	0.3488
3200	19.8299	59832.7	111.9140	298292.0	70494.8			-289889.8	-0.2895
3300	19.8325	61815.8	112.5242	309514.1	72477.9			-290231.1	-0.8898
3400	19.8348	63799.1	113.1163	320796.3	74461.3			-290604.1	-1.4554
3500	19.8369	65782.7	113.6913	332136.8	76444.9			-291008.8	-1.9895
3600	19.8389	67766.5	114.2501	343534.0	78428.6			-291445.1	-2.4946
3700	19.8407	69750.5	114.7937	354986.3	80412.6			-291912.8	-2.9731
3800	19.8423	71734.6	115.3229	366492.2	82396.8			-292411.4	-3.4273
3900	19.8438	73719.0	115.8383	378050.4	84381.1			-292940.3	-3.8588
4000	19.8453	75703.4	116.3407	389659.5	86365.5			-293498.7	-4.2696
4100	19.8466	77688.0	116.8308	401318.1	88350.1			-294085.6	-4.6611
4200	19.8478	79672.7	117.3090	413025.2	90334.8			-294700.2	-5.0347
4300	19.8489	81657.6	117.7761	424779.6	92319.7			-295341.2	-5.3917
4400	19.8500	83642.5	118.2324	436580.1	94304.6			-296007.5	-5.7332
4500	19.8510	85627.6	118.6785	448425.7	96289.7			-296698.0	-6.0603
4600	19.8519	87612.7	119.1148	460315.5	98274.8			-297411.1	-6.3739
4700	19.8528	89597.9	119.5418	472248.4	100260.1			-298145.6	-6.6749
4800	19.8536	91583.3	119.9597	484223.5	102245.4			-298900.2	-6.9641
4900	19.8544	93568.7	120.3691	496240.0	104230.8			-299673.5	-7.2422
5000	19.8551	95554.1	120.7702	508297.1	106216.3			-300464.0	-7.5098
5100	19.8558	97539.7	121.1634	520393.8	108201.8			-301270.4	-7.7677
5200	19.8564	99525.3	121.5490	532529.5	110187.4			-302091.4	-8.0163
5300	19.8570	101511.0	121.9272	544703.4	112173.1			-302925.7	-8.2561
5400	19.8576	103496.7	122.2984	556914.7	114158.8			-303771.8	-8.4878
5500	19.8581	105482.5	122.6628	569162.8	116144.6			-304628.6	-8.7116
5600	19.8586	107468.3	123.0206	581447.0	118130.4			-305494.8	-8.9281
5700	19.8591	109454.2	123.3721	593766.7	120116.3			-306369.2	-9.1375
5800	19.8596	111440.1	123.7175	606121.3	122102.3			-307250.7	-9.3403
5900	19.8600	113426.1	124.0570	618510.0	124088.2			-308138.1	-9.5368
6000	19.8604	115412.1	124.3908	630932.4	126074.3			-309030.5	-9.7273

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of P, 317.30° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(169) PCl_3 (gas); molecular weight, 137.346

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-75436.7	-70864.2	-------	-231490.4	--------
100	11.0987	892.5	58.9944	5006.9	-74544.1	-71228.8	152.7951	-232585.2	491.5882
200	15.1106	2220.6	68.0383	11387.0	-73216.1	-71530.1	74.8741	-233250.9	237.1285
298.15	17.1673	3816.7	74.5039	18396.7	-71620.0	-71620.0	49.1280	-233651.9	153.1584
300	17.1937	3848.5	74.6102	18534.6	-71588.2	-71621.2	48.8043	-233658.3	152.1022
[a]400	18.2158	5624.6	79.7128	26260.5	-69812.1	-71862.2	35.7316	-233969.9	109.5228
500	18.7618	7476.1	83.8421	34444.9	-67960.6	-71915.8	27.8763	-234237.9	83.9431
600	19.0809	9369.6	87.2934	43006.4	-66067.1	-71949.8	22.6363	-234474.5	66.8714
700	19.2816	11288.4	90.2509	51887.2	-64148.3	-71973.0	18.8919	-234583.3	54.6657
800	19.4154	13223.7	92.8349	61044.2	-62213.0	-71989.9	16.0828	-234867.0	45.5037
900	19.5087	15170.2	95.1274	70444.5	-60266.5	-72003.3	13.8975	-235028.5	38.3724
1000	19.5763	17124.6	97.1865	80061.9	-58312.1	-72014.7	12.1490	-235170.7	32.6637
1100	19.6268	19084.9	99.0548	89875.4	-56351.8	-72025.2	10.7182	-235296.3	27.9903
1200	19.6655	21049.6	100.7643	99867.6	-54387.1	-72035.4	9.5256	-235407.6	24.0938
1300	19.6957	23017.7	102.3396	110023.8	-52419.0	-72045.8	8.5164	-235506.8	20.7953
1400	19.7198	24988.5	103.8002	120331.7	-50448.2	-72056.8	7.6512	-235595.7	17.9669
1500	19.7393	26961.5	105.1614	130780.6	-48475.2	-72068.6	6.9013	-235676.1	15.5148
1600	19.7553	28936.2	106.4358	141361.1	-46500.4	-72081.4	6.2450	-235749.3	13.3684
1700	19.7686	30912.5	107.6339	152065.2	-44524.2	-72095.3	5.6658	-235816.7	11.4740
1800	19.7797	32889.9	108.7642	162885.6	-42546.8	-72110.6	5.1509	-235879.6	9.7896
1900	19.7892	34868.4	109.8339	173816.0	-40568.3	-72127.2	4.6900	-235939.2	8.2822
2000	19.7973	36847.7	110.8491	184850.6	-38589.0	-72145.2	4.2752	-235996.6	6.9251
2100	19.8043	38827.8	111.8152	195984.2	-36608.9	-72164.7	3.8997	-236052.9	5.6970
2200	19.8103	40808.5	112.7367	207212.1	-34628.2	-72185.8	3.5583	-236109.2	4.5803
2300	19.8156	42789.8	113.6174	218530.2	-32646.9	-72208.5	3.2465	-236166.4	3.5604
2400	19.8202	44771.6	114.4608	229934.4	-30665.1	-72232.7	2.9606	-236225.4	2.6253
2500	19.8243	46753.8	115.2700	241421.2	-28682.9	-72258.6	2.6975	-236287.1	1.7648
2600	19.8279	48736.4	116.0476	252987.3	-26700.2			-236352.2	0.9702
2700	19.8312	50719.4	116.7960	264629.7	-24717.3			-236421.5	0.2343
2800	19.8341	52702.7	117.5172	276345.6	-22734.0			-236495.5	-0.4492
2900	19.8367	54686.2	118.2133	288132.3	-20750.5			-236574.8	-1.0858
3000	19.8390	56670.0	118.8858	299987.5	-18766.7			-236659.8	-1.6802
3100	19.8412	58654.0	119.5364	311908.8	-16782.7			-236751.0	-2.2364
3200	19.8431	60638.2	120.1663	323894.1	-14798.5			-236848.7	-2.7581
3300	19.8448	62622.6	120.7770	335941.4	-12814.1			-236953.0	-3.2483
3400	19.8464	64607.2	121.3694	348048.8	-10829.5			-237064.2	-3.7100
3500	19.8479	66591.9	121.9447	360214.7	-8844.8			-237182.5	-4.1454
3600	19.8493	68576.8	122.5039	372437.3	-6859.9			-237307.7	-4.5569
3700	19.8505	70561.8	123.0478	384715.0	-4874.9			-237440.0	-4.9464
3800	19.8517	72546.9	123.5772	397046.3	-2889.8			-237579.3	-5.3155
3900	19.8527	74532.1	124.0928	409429.9	-904.6			-237725.4	-5.6660
4000	19.8537	76517.4	124.5955	421864.5	1080.7			-237878.3	-5.9991
4100	19.8546	78502.8	125.0857	434348.6	3066.1			-238037.7	-6.3162
4200	19.8554	80488.3	125.5642	446881.2	5051.6			-238203.4	-6.6184
4300	19.8562	82473.9	126.0314	459461.1	7037.2			-238375.3	-6.9068
4400	19.8570	84459.6	126.4879	472087.1	9022.9			-238552.9	-7.1822
4500	19.8577	86445.3	126.9341	484758.3	11008.6			-238736.1	-7.4456
4600	19.8583	88431.1	127.3706	497473.6	12994.4			-238924.6	-7.6977
4700	19.8589	90417.0	127.7977	510232.1	14980.3			-239118.0	-7.9393
4800	19.8595	92402.9	128.2158	523032.9	16966.2			-239316.0	-8.1711
4900	19.8600	94388.9	128.6253	535875.0	18952.2			-239518.4	-8.3935
5000	19.8605	96374.9	129.0265	548757.6	20938.2			-239724.7	-8.6073
5100	19.8610	98360.9	129.4198	561680.0	22924.3			-239934.6	-8.8128
5200	19.8614	100347.1	129.8055	574641.4	24910.4			-240147.9	-9.0106
5300	19.8618	102333.2	130.1838	587640.9	26896.5			-240364.3	-9.2011
5400	19.8622	104319.4	130.5551	600677.9	28882.7			-240583.3	-9.3848
5500	19.8626	106305.7	130.9195	613751.6	30869.0			-240804.7	-9.5619
5600	19.8629	108291.9	131.2774	626861.6	32855.3			-241028.3	-9.7328
5700	19.8633	110278.3	131.6290	640006.9	34841.6			-241253.6	-9.8979
5800	19.8636	112264.6	131.9744	653187.2	36827.9			-241480.5	-10.0574
5900	19.8639	114251.0	132.3140	666401.6	38814.3			-241708.7	-10.2117
6000	19.8642	116237.4	132.6479	679649.7	40800.7			-241937.9	-10.3610

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of P, 317.30° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(170) PF_3 (gas); molecular weight, 87.975

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-225400.7	-220953.9	-------	-351000.0	--------
100	8.7409	810.2	53.1036	4500.1	-224590.4	-221399.0	481.1494	-352182.2	752.8734
200	11.6208	1828.1	60.0434	10180.5	-223572.5	-221972.3	239.0271	-353238.5	367.5831
298.15	14.0278	3092.3	65.1539	16333.3	-222308.4	-222308.4	159.1250	-354062.9	240.3836
300	14.0665	3118.3	65.2408	16454.0	-222282.4	-222313.7	158.1202	-354076.3	238.7832
[a]400	15.7919	4617.0	69.5403	23199.2	-220783.7	-222743.3	117.5875	-354694.8	174.2463
500	16.9286	6257.0	73.1952	30340.6	-219143.7	-222935.6	93.2381	-355147.8	135.4647
600	17.6789	7989.9	76.3526	37821.7	-217410.8	-223074.1	76.9931	-355486.4	109.5813
700	18.1876	9784.8	79.1184	45598.1	-215615.9	-223178.8	65.3831	-355746.2	91.0775
800	18.5435	11622.3	81.5716	53635.0	-213778.3	-223261.7	56.6720	-355950.5	77.1906
900	18.8004	13490.2	83.7714	61904.0	-211910.5	-223330.2	49.8944	-356114.9	66.3841
1000	18.9909	15380.2	85.7625	70382.3	-210020.5	-223389.0	44.4707	-356249.7	57.7352
1100	19.1356	17286.9	87.5796	79050.7	-208113.8	-223441.4	40.0321	-356362.1	50.6564
1200	19.2480	19206.3	89.2497	87893.3	-206194.4	-223489.5	36.3324	-356457.1	44.7557
1300	19.3367	21135.7	90.7940	96896.5	-204265.0	-223534.9	33.2012	-356538.7	39.7616
1400	19.4080	23073.0	92.2297	106048.5	-202327.6	-223578.8	30.5168	-356609.5	35.4799
1500	19.4662	25016.8	93.5707	115339.3	-200383.8	-223622.1	28.1899	-356671.8	31.7685
1600	19.5141	26965.9	94.8286	124759.9	-198434.7	-223665.2	26.1535	-356727.4	28.5205
1700	19.5541	28919.4	96.0129	134302.5	-196481.3	-223708.8	24.3563	-356777.9	25.6541
1800	19.5878	30876.5	97.1316	143960.3	-194524.1	-223753.3	22.7584	-356824.6	23.1059
1900	19.6164	32836.8	98.1914	153726.9	-192563.9	-223798.9	21.3285	-356868.8	20.8257
2000	19.6410	34799.7	99.1982	163596.8	-190601.0	-223845.9	20.0413	-356911.6	18.7732
2100	19.6622	36764.9	100.1570	173564.9	-188635.8	-223894.6	18.8764	-356954.2	16.9159
2200	19.6806	38732.0	101.0722	183626.7	-186668.6	-223945.0	17.8172	-356997.4	15.2274
2300	19.6967	40700.9	101.9474	193778.0	-184699.8	-223997.3	16.8499	-357042.3	13.6854
2400	19.7109	42671.3	102.7860	204015.0	-182729.4	-224051.6	15.9630	-357089.7	12.2718
2500	19.7235	44643.0	103.5909	214334.1	-180757.6	-224108.0	15.1468	-357140.3	10.9710
2600	19.7346	46616.0	104.3646	224732.1	-178784.7			-357195.0	9.7702
2700	19.7445	48589.9	105.1096	235206.1	-176810.8			-357254.4	8.6581
2800	19.7534	50564.8	105.8279	245753.2	-174835.8			-357319.1	7.6253
2900	19.7615	52540.6	106.5212	256370.8	-172860.1			-357389.5	6.6635
3000	19.7687	54517.1	107.1912	267056.6	-170883.6			-357466.2	5.7657
3100	19.7752	56494.3	107.8396	277808.3	-168906.4			-357549.4	4.9256
3200	19.7812	58472.1	108.4675	288623.9	-166928.6			-357639.5	4.1378
3300	19.7866	60450.5	109.0763	299501.2	-164950.2			-357736.6	3.3976
3400	19.7916	62429.4	109.6670	310438.5	-162971.2			-357840.9	2.7007
3500	19.7961	64408.8	110.2408	321434.0	-160991.9			-357952.6	2.0434
3600	19.8003	66388.6	110.7985	332486.1	-159012.0			-358071.6	1.4225
3700	19.8041	68368.9	111.3411	343593.2	-157031.8			-358197.9	0.8349
3800	19.8076	70349.4	111.8693	354753.9	-155051.2			-358331.5	0.2780
3900	19.8109	72330.4	112.3839	365966.6	-153070.3			-358472.1	-0.2505
4000	19.8140	74311.6	112.8855	377230.2	-151089.1			-358619.8	-0.7528
4100	19.8168	76293.2	113.3748	388543.3	-149107.5			-358774.2	-1.2307
4200	19.8194	78275.0	113.8523	399904.8	-147125.7			-358935.1	-1.6862
4300	19.8218	80257.0	114.3187	411313.4	-145143.6			-359102.3	-2.1206
4400	19.8241	82239.3	114.7744	422768.2	-143161.3			-359275.5	-2.5355
4500	19.8262	84221.8	115.2200	434268.0	-141178.8			-359454.5	-2.9321
4600	19.8282	86204.6	115.6557	445811.8	-139196.1			-359638.8	-3.3117
4700	19.8301	88187.5	116.0822	457398.8	-137213.2			-359828.3	-3.6753
4800	19.8318	90170.6	116.4997	469028.0	-135230.1			-360022.5	-4.0240
4900	19.8335	92153.8	116.9086	480698.5	-133246.8			-360221.2	-4.3586
5000	19.8350	94137.3	117.3093	492409.4	-131263.4			-360423.9	-4.6800
5100	19.8365	96120.8	117.7021	504160.0	-129279.8			-360630.5	-4.9890
5200	19.8378	98104.6	118.0873	515949.6	-127296.1			-360840.5	-5.2863
5300	19.8391	100088.4	118.4652	527777.3	-125312.3			-361053.6	-5.5725
5400	19.8404	102072.4	118.8361	539642.4	-123328.3			-361269.6	-5.8483
5500	19.8415	104056.5	119.2001	551544.3	-121344.2			-361488.0	-6.1142
5600	19.8426	106040.7	119.5577	563482.2	-119360.0			-361708.7	-6.3707
5700	19.8437	108025.0	119.9089	575455.6	-117375.7			-361931.2	-6.6185
5800	19.8446	110009.4	120.2540	587463.8	-115391.3			-362155.4	-6.8578
5900	19.8456	111993.9	120.5932	599506.2	-113406.8			-362381.0	-7.0891
6000	19.8465	113978.5	120.9268	611582.2	-111422.1			-362607.6	-7.3129

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of P, 317.30° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(171) PH (gas); molecular weight, 31.983

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	48215.2	50509.4	-------	-76100.0	--------
100	6.9595	687.6	39.2632	3238.7	48902.9	50604.4	-105.6342	-76406.0	163.4249
200	6.9623	1383.7	44.0879	7433.9	49598.9	50458.1	-50.3305	-76703.6	79.8107
298.15	6.9687	2067.3	46.8687	11906.6	50282.5	50282.5	-32.2050	-76995.2	52.1740
300	6.9689	2080.2	46.9118	11993.4	50295.4	50278.6	-31.9778	-77000.7	51.8260
[a]400	7.0003	2778.3	48.9200	16789.7	50993.5	49856.2	-22.8648	-77296.2	37.7785
500	7.0811	3481.9	50.4898	21762.9	51697.2	49586.4	-17.4307	-77586.2	29.3176
600	7.2099	4196.1	51.7916	26878.8	52411.4	49326.4	-13.8274	-77865.6	23.6561
700	7.3676	4924.9	52.9146	32115.3	53140.1	49079.8	-11.2670	-78130.5	19.5979
800	7.5345	5670.0	53.9093	37457.5	53885.2	48847.9	-9.3561	-78379.1	16.5442
900	7.6974	6431.6	54.8062	42894.0	54646.9	48629.8	-7.8765	-78611.0	14.1618
1000	7.8489	7209.1	55.6252	48416.1	55424.3	48424.0	-6.6980	-78827.2	12.2503
1100	7.9862	8000.9	56.3798	54016.8	56216.2	48228.5	-5.7380	-79029.0	10.6823
1200	8.1088	8805.8	57.0801	59690.3	57021.1	48041.3	-4.9410	-79217.8	9.3724
1300	8.2175	9622.2	57.7335	65431.3	57837.5	47860.7	-4.2691	-79395.2	8.2514
1400	8.3137	10448.9	58.3461	71235.6	58664.1	47685.1	-3.6957	-79562.6	7.3070
1500	8.3988	11284.6	58.9226	77099.3	59499.8	47513.0	-3.2003	-79721.3	6.4783
1600	8.4743	12128.3	59.4671	83019.0	60343.6	47343.8	-2.7683	-79872.7	5.7516
1700	8.5415	12979.2	59.9829	88991.8	61194.4	47176.9	-2.3885	-80017.9	5.1093
1800	8.6016	13836.4	60.4729	95014.8	62051.6	47011.9	-2.0522	-80158.1	4.5374
1900	8.6556	14699.3	60.9394	101085.6	62914.5	46847.4	-1.7522	-80294.5	4.0247
2000	8.7044	15567.3	61.3846	107201.9	63782.6	46683.7	-1.4834	-80428.1	3.5626
2100	8.7487	16440.0	61.8104	113361.8	64655.3	46520.3	-1.2409	-80560.0	3.1437
2200	8.7892	17317.0	62.2184	119563.4	65532.2	46357.4	-1.0213	-80691.1	2.7624
2300	8.8262	18197.8	62.6099	125805.0	66413.0	46194.3	-0.8212	-80822.4	2.4136
2400	8.8604	19082.1	62.9863	132084.9	67297.4	46031.2	-0.6388	-80954.8	2.0933
2500	8.8921	19969.8	63.3486	138401.8	68185.0	45868.1	-0.4714	-81089.2	1.7982
2600	8.9216	20860.5	63.6979	144754.2	69075.7			-81226.1	1.5254
2700	8.9492	21754.0	64.0352	151140.9	69969.3			-81366.4	1.2723
2800	8.9752	22650.3	64.3611	157560.8	70865.5			-81510.7	1.0369
2900	8.9997	23549.0	64.6765	164012.8	71764.2			-81659.4	0.8173
3000	9.0229	24450.1	64.9820	170495.8	72665.4			-81813.0	0.6120
3100	9.0451	25353.6	65.2782	177008.9	73568.8			-81971.9	0.4196
3200	9.0664	26259.1	65.5657	183551.2	74474.4			-82136.3	0.2388
3300	9.0869	27166.8	65.8450	190121.8	75382.0			-82306.6	0.0686
3400	9.1068	28076.5	66.1166	196719.9	76291.7			-82482.8	-0.0918
3500	9.1261	28988.1	66.3809	203344.8	77203.4			-82665.1	-0.2435
3600	9.1451	29901.7	66.6382	209995.8	78116.9			-82853.3	-0.3870
3700	9.1638	30817.1	66.8890	216672.3	79032.4			-83047.6	-0.5231
3800	9.1823	31734.5	67.1337	223373.4	79949.7			-83247.8	-0.6524
3900	9.2007	32653.6	67.3724	230098.8	80868.8			-83453.8	-0.7753
4000	9.2192	33574.6	67.6056	236847.7	81789.8			-83665.3	-0.8923
4100	9.2377	34497.4	67.8335	243619.7	82712.7			-83882.2	-1.0039
4200	9.2565	35422.2	68.0563	250414.3	83637.4			-84104.1	-1.1105
4300	9.2755	36348.8	68.2743	257230.8	84564.0			-84330.8	-1.2125
4400	9.2949	37277.3	68.4878	264069.0	85492.5			-84561.9	-1.3100
4500	9.3146	38207.7	68.6969	270928.2	86423.0			-84797.1	-1.4035
4600	9.3349	39140.2	68.9018	277808.2	87355.5			-85036.0	-1.4931
4700	9.3556	40074.7	69.1028	284708.5	88290.0			-85278.3	-1.5792
4800	9.3770	41011.4	69.3000	291628.7	89226.6			-85523.4	-1.6619
4900	9.3990	41950.1	69.4936	298568.4	90165.4			-85771.1	-1.7415
5000	9.4217	42891.2	69.6837	305527.3	91106.4			-86020.9	-1.8181
5100	9.4451	43834.5	69.8705	312505.0	92049.7			-86272.4	-1.8919
5200	9.4692	44780.2	70.0541	319501.2	92995.5			-86525.1	-1.9631
5300	9.4941	45728.4	70.2347	326515.7	93943.6			-86778.8	-2.0318
5400	9.5198	46679.1	70.4124	333548.1	94894.3			-87032.9	-2.0982
5500	9.5463	47632.4	70.5874	340598.1	95847.6			-87287.0	-2.1623
5600	9.5736	48588.3	70.7596	347665.5	96803.6			-87540.9	-2.2244
5700	9.6018	49547.1	70.9293	354749.9	97762.4			-87794.0	-2.2844
5800	9.6307	50508.7	71.0965	361851.3	98724.0			-88046.0	-2.3425
5900	9.6605	51473.3	71.2614	368969.2	99688.5			-88296.7	-2.3988
6000	9.6912	52440.9	71.4241	376103.5	100656.1			-88545.5	-2.4534

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of P, 317.30° K.

TABLE III - Continued. THERMODYNAMIC PROPERTIES

(172) PH_3 (gas); molecular weight, 33.999

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-672.8	3645.2	-------	-226221.0	--------
100	7.9494	794.9	41.3293	3338.0	122.1	3088.5	-6.6715	-227413.3	484.2865
200	8.1105	1594.1	46.8632	7778.6	921.3	2442.5	-3.4906	-228601.5	235.2900
298.15	8.8678	2422.8	50.2243	12551.6	1750.0	1750.0	-2.7182	-229723.3	152.8820
300	8.8865	2439.2	50.2792	12644.6	1766.4	1736.8	-2.7107	-229743.6	151.8436
[a]400	9.9864	3381.9	52.9836	17811.6	2709.1	864.5	-2.4768	-230788.2	109.9159
500	11.1089	4437.0	55.3333	23229.7	3764.2	247.5	-2.4143	-231720.3	84.6496
600	12.1669	5601.5	57.4535	28870.6	4928.7	-262.2	-2.4142	-232543.1	67.7408
700	13.1301	6867.2	59.4027	34714.7	6194.4	-674.0	-2.4387	-233264.6	55.6226
800	13.9849	8223.9	61.2130	40746.6	7551.1	-999.8	-2.4713	-233895.2	46.5075
900	14.7288	9660.4	62.9042	46953.3	8987.7	-1254.2	-2.5052	-234445.9	39.3999
1000	15.3684	11166.1	64.4900	53323.9	10493.4	-1449.9	-2.5376	-234927.5	33.7013
1100	15.9147	12731.0	65.9811	59848.2	12058.3	-1598.8	-2.5683	-235349.9	29.0298
1200	16.3800	14346.4	67.3864	66517.3	13673.6	-1711.1	-2.5957	-235721.8	25.1302
1300	16.7766	16004.7	68.7135	73322.9	15332.0	-1795.6	-2.6200	-236050.9	21.8257
1400	17.1153	17699.8	69.9695	80257.6	17027.0	-1858.9	-2.6427	-236343.6	18.9896
1500	17.4055	19426.2	71.1605	87314.6	18753.4	-1907.5	-2.6621	-236605.2	16.5287
1600	17.6553	21179.5	72.2920	94487.7	20506.8	-1944.4	-2.6793	-236840.6	14.3731
1700	17.8711	22956.1	73.3690	101771.2	22283.3	-1972.7	-2.6950	-237053.7	12.4694
1800	18.0585	24752.8	74.3959	109159.8	24080.0	-1994.4	-2.7092	-237248.1	10.7757
1900	18.2220	26567.0	75.3768	116648.8	25894.3	-2013.8	-2.7217	-237426.8	9.2591
2000	18.3652	28396.5	76.3152	124233.8	27723.8	-2031.2	-2.7338	-237592.5	7.8932
2100	18.4912	30239.5	77.2143	131910.6	29566.7	-2048.0	-2.7442	-237747.8	6.6565
2200	18.6026	32094.3	78.0771	139675.4	31421.5	-2064.5	-2.7542	-237894.7	5.5316
2300	18.7014	33959.6	78.9063	147524.9	33286.8	-2082.5	-2.7627	-238035.1	4.5038
2400	18.7895	35834.2	79.7041	155455.6	35161.4	-2101.7	-2.7714	-238170.9	3.5611
2500	18.8682	37717.1	80.4727	163464.7	37044.4	-2122.8	-2.7790	-238303.5	2.6934
2600	18.9388	39607.6	81.2142	171549.3	38934.8			-238434.4	1.8920
2700	19.0025	41504.7	81.9301	179706.7	40831.9			-238564.8	1.1495
2800	19.0599	43407.9	82.6223	187934.5	42735.1			-238695.7	0.4597
2900	19.1120	45316.5	83.2920	196230.4	44643.7			-238828.2	-0.1829
3000	19.1593	47230.1	83.9408	204592.2	46557.3			-238962.9	-0.7830
3100	19.2024	49148.2	84.5697	213017.9	48475.4			-239100.7	-1.3447
3200	19.2417	51070.4	85.1800	221505.5	50397.7			-239242.2	-1.8716
3300	19.2778	52996.4	85.7727	230053.3	52323.7			-239387.8	-2.3668
3400	19.3109	54925.9	86.3486	238659.5	54253.1			-239537.8	-2.8333
3500	19.3413	56858.5	86.9089	247322.5	56185.8			-239692.7	-3.2733
3600	19.3693	58794.1	87.4541	256040.8	58121.3			-239852.7	-3.6892
3700	19.3953	60732.3	87.9852	264812.9	60059.6			-240017.8	-4.0828
3800	19.4192	62673.1	88.5027	273637.4	62000.3			-240188.2	-4.4560
3900	19.4415	64616.1	89.0075	282513.0	63943.3			-240363.8	-4.8103
4000	19.4621	66561.3	89.4999	291438.5	65888.5			-240544.8	-5.1472
4100	19.4814	68508.5	89.9808	300412.6	67835.7			-240731.0	-5.4679
4200	19.4993	70457.5	90.4504	309434.2	69784.8			-240922.2	-5.7735
4300	19.5160	72408.3	90.9094	318502.3	71735.5			-241118.3	-6.0651
4400	19.5316	74360.7	91.3583	327615.8	73687.9			-241319.2	-6.3438
4500	19.5463	76314.6	91.7974	336773.6	75641.8			-241524.6	-6.6102
4600	19.5600	78269.9	92.2271	345974.9	77597.2			-241734.3	-6.8653
4700	19.5729	80226.6	92.6479	355218.8	79553.8			-241948.0	-7.1098
4800	19.5850	82184.5	93.0602	364504.3	81511.7			-242165.5	-7.3443
4900	19.5964	84143.5	93.4641	373830.5	83470.8			-242386.6	-7.5694
5000	19.6071	86103.7	93.8601	383196.8	85431.0			-242610.8	-7.7857
5100	19.6172	88064.9	94.2485	392602.3	87392.2			-242838.1	-7.9937
5200	19.6268	90027.1	94.6295	402046.3	89354.4			-243068.0	-8.1939
5300	19.6358	91990.3	95.0034	411528.0	91317.5			-243300.2	-8.3867
5400	19.6444	93954.3	95.3706	421046.7	93281.5			-243534.7	-8.5726
5500	19.6524	95919.1	95.7311	430601.9	95246.4			-243770.9	-8.7519
5600	19.6601	97884.8	96.0853	440192.7	97212.0			-244008.7	-8.9249
5700	19.6674	99851.1	96.4333	449818.7	99178.4			-244247.9	-9.0921
5800	19.6743	101818.2	96.7754	459479.2	101145.5			-244488.1	-9.2536
5900	19.6809	103786.0	97.1118	469173.6	103113.2			-244729.1	-9.4098
6000	19.6871	105754.4	97.4426	478901.4	105081.6			-244970.8	-9.5610

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of P, 317.30° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(173) PN (gas); molecular weight, 44.983

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	21242.1	23560.6	-------	-164000.0	--------
100	6.9564	694.8	42.8122	3586.4	21936.9	23695.4	-47.5578	-164298.8	354.2654
200	6.9707	1390.8	47.6359	8136.4	22632.9	23502.5	-21.6822	-164596.4	174.6109
298.15	7.0965	2079.9	50.4374	12958.0	23322.0	23322.0	-13.2547	-164882.6	115.3586
300	7.1003	2093.0	50.4813	13051.4	23335.1	23318.2	-13.1493	-164887.9	114.6133
[a]400	7.3552	2815.2	52.5571	18207.7	24057.3	22918.6	-8.9446	-165159.3	84.5618
500	7.6362	3564.9	54.2288	23549.5	24807.0	22692.7	-6.4519	-165403.3	66.5023
600	7.8852	4341.3	55.6437	29044.9	25583.4	22488.5	-4.8060	-165620.5	54.4457
700	8.0881	5140.3	56.8750	34672.2	26382.4	22299.7	-3.6405	-165815.1	45.8230
800	8.2490	5957.5	57.9660	40415.3	27199.6	22121.0	-2.7736	-165991.5	39.3488
900	8.3760	6789.0	58.9452	46261.7	28031.1	21948.7	-2.1047	-166153.7	34.3081
1000	8.4769	7631.8	59.8331	52201.3	28873.9	21780.2	-1.5737	-166304.5	30.2718
1100	8.5579	8483.7	60.6450	58225.8	29725.8	21613.8	-1.1426	-166446.2	26.9664
1200	8.6239	9342.9	61.3925	64328.1	30585.0	21448.6	-0.7861	-166580.7	24.2096
1300	8.6783	10208.1	62.0850	70502.4	31450.2	21284.0	-0.4868	-166709.3	21.8751
1400	8.7237	11078.3	62.7299	76743.5	32320.4	21119.7	-0.2322	-166833.2	19.8726
1500	8.7621	11952.6	63.3331	83047.0	33194.7	20955.4	-0.0132	-166953.3	18.1358
1600	8.7951	12830.5	63.8997	89408.9	34072.6	20791.0	0.1769	-167070.5	16.6150
1700	8.8235	13711.5	64.4337	95825.9	34953.6	20626.5	0.3433	-167185.6	15.2722
1800	8.8485	14595.1	64.9388	102294.7	35837.2	20461.9	0.4900	-167299.4	14.0778
1900	8.8705	15481.1	65.4178	108812.8	36723.2	20297.2	0.6202	-167412.8	13.0084
2000	8.8902	16369.1	65.8733	115377.5	37611.2	20132.3	0.7365	-167526.5	12.0453
2100	8.9079	17259.1	66.3075	121986.7	38501.2	19967.3	0.8408	-167641.2	11.1733
2200	8.9239	18150.7	66.7223	128638.4	39392.8	19802.3	0.9349	-167757.9	10.3801
2300	8.9386	19043.8	67.1193	135330.6	40285.9	19637.2	1.0201	-167877.2	9.6553
2400	8.9521	19938.3	67.5000	142061.7	41180.4	19472.1	1.0975	-168000.0	8.9904
2500	8.9646	20834.2	67.8657	148830.1	42076.3	19307.0	1.1681	-168126.9	8.3783
2600	8.9763	21731.2	68.2175	155634.3	42973.3			-168258.7	7.8128
2700	8.9872	22629.4	68.5565	162473.1	43871.5			-168395.9	7.2888
2800	8.9975	23528.7	68.8835	169345.2	44770.8			-168539.3	6.8018
2900	9.0072	24428.9	69.1994	176249.5	45671.0			-168689.4	6.3480
3000	9.0165	25330.1	69.5050	183184.8	46572.2			-168846.7	5.9240
3100	9.0253	26232.2	69.8007	190150.2	47474.3			-169011.7	5.5271
3200	9.0337	27135.1	70.0874	197144.6	48377.2			-169184.8	5.1545
3300	9.0419	28038.9	70.3655	204167.4	49281.0			-169366.3	4.8042
3400	9.0497	28943.5	70.6356	211217.5	50185.6			-169556.6	4.4742
3500	9.0574	29848.8	70.8980	218294.2	51090.9			-169755.9	4.1626
3600	9.0647	30755.0	71.1533	225396.8	51997.1			-169964.4	3.8680
3700	9.0720	31661.8	71.4017	232524.6	52903.9			-170182.3	3.5890
3800	9.0790	32569.3	71.6438	239677.0	53811.4			-170409.7	3.3243
3900	9.0859	33477.6	71.8797	246853.2	54719.7			-170646.6	3.0728
4000	9.0927	34386.5	72.1098	254052.7	55628.6			-170893.2	2.8336
4100	9.0994	35296.1	72.3344	261275.0	56538.2			-171149.3	2.6057
4200	9.1061	36206.4	72.5538	268519.4	57448.5			-171414.9	2.3883
4300	9.1127	37117.3	72.7681	275785.6	58359.4			-171690.0	2.1807
4400	9.1193	38028.9	72.9777	283072.9	59271.0			-171974.5	1.9822
4500	9.1259	38941.2	73.1827	290380.9	60183.3			-172268.1	1.7923
4600	9.1325	39854.1	73.3833	297709.3	61096.2			-172570.8	1.6102
4700	9.1392	40767.7	73.5798	305057.5	62009.8			-172882.3	1.4356
4800	9.1460	41682.0	73.7723	312425.1	62924.1			-173202.5	1.2680
4900	9.1528	42596.9	73.9610	319811.8	63839.0			-173531.2	1.1069
5000	9.1598	43512.5	74.1459	327217.2	64754.6			-173868.0	0.9520
5100	9.1670	44428.9	74.3274	334640.9	65671.0			-174212.7	0.8028
5200	9.1743	45345.9	74.5055	342082.5	66588.0			-174565.1	0.6591
5300	9.1818	46263.7	74.6803	349541.9	67505.8			-174925.0	0.5206
5400	9.1895	47182.3	74.8520	357018.5	68424.4			-175291.9	0.3869
5500	9.1975	48101.6	75.0207	364512.2	69343.7			-175665.7	0.2577
5600	9.2058	49021.8	75.1865	372022.5	70263.9			-176046.0	0.1330
5700	9.2143	49942.8	75.3495	379549.4	71184.9			-176432.5	0.0123
5800	9.2231	50864.7	75.5098	387092.4	72106.8			-176824.9	-0.1044
5900	9.2323	51787.4	75.6676	394651.2	73029.5			-177223.0	-0.2175
6000	9.2419	52711.2	75.8228	402225.8	73953.3			-177626.4	-0.3270

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of P, 317.30° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(174) PO (gas); molecular weight, 46.975

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-8352.1	-6032.4	-------	-140000.0	--------
100	7.7217	719.8	44.7861	3758.8	-7632.3	-5872.6	17.1388	-140304.5	301.9804
200	7.6929	1497.9	50.1825	8538.6	-6854.2	-5983.4	10.7409	-140580.6	148.5519
298.15	7.5874	2245.4	53.2245	13623.5	-6106.7	-6106.7	8.5716	-140843.4	97.9421
300	7.5882	2259.4	53.2714	13722.0	-6092.7	-6109.7	8.5440	-140848.2	97.3055
[a]400	7.7241	3023.8	55.4695	19164.0	-5328.3	-6473.5	7.3926	-141098.6	71.6338
500	7.9314	3806.5	57.2151	24801.1	-4545.6	-6680.6	6.6747	-141323.2	56.2044
600	8.1262	4609.6	58.6788	30597.7	-3742.5	-6879.3	6.1812	-141523.3	45.9025
700	8.2873	5430.6	59.9440	36530.3	-2921.5	-7071.5	5.8185	-141703.0	38.5341
800	8.4155	6265.9	61.0594	42581.5	-2086.2	-7259.2	5.5390	-141866.6	33.0010
900	8.5168	7112.8	62.0566	48738.2	-1239.3	-7443.6	5.3160	-142017.6	28.6928
1000	8.5975	7968.6	62.9583	54989.7	-383.5	-7625.8	5.1331	-142158.8	25.2426
1100	8.6624	8831.7	63.7809	61327.3	479.6	-7806.3	4.9799	-142292.1	22.4170
1200	8.7154	9700.7	64.5370	67743.7	1348.6	-7985.8	4.8492	-142419.2	20.0602
1300	8.7593	10574.5	65.2364	74232.8	2222.4	-8164.5	4.7361	-142541.2	18.0642
1400	8.7962	11452.3	65.8869	80789.3	3100.2	-8342.9	4.6370	-142659.2	16.3519
1500	8.8276	12333.6	66.4949	87408.7	3981.5	-8521.2	4.5493	-142773.9	14.8667
1600	8.8548	13217.7	67.0655	94087.0	4865.6	-8699.7	4.4709	-142886.2	13.5662
1700	8.8784	14104.4	67.6030	100820.7	5752.3	-8878.7	4.4003	-142996.7	12.4177
1800	8.8993	14993.3	68.1111	107606.7	6641.2	-9058.3	4.3362	-143106.3	11.3961
1900	8.9180	15884.2	68.5928	114442.1	7532.1	-9238.8	4.2778	-143215.8	10.4813
2000	8.9348	16776.8	69.0506	121324.4	8424.7	-9420.4	4.2241	-143325.7	9.6573
2100	8.9501	17671.1	69.4869	128251.5	9319.0	-9603.1	4.1747	-143437.0	8.9113
2200	8.9641	18566.8	69.9036	135221.1	10214.7	-9787.2	4.1288	-143550.3	8.2325
2300	8.9770	19463.9	70.3024	142231.6	11111.8	-9972.6	4.0861	-143666.5	7.6123
2400	8.9890	20362.2	70.6847	149281.1	12010.1	-10159.5	4.0463	-143786.2	7.0433
2500	9.0003	21261.7	71.0519	156368.0	12909.5	-10347.9	4.0090	-143910.1	6.5193
2600	9.0109	22162.2	71.4051	163491.0	13810.1			-144038.9	6.0353
2700	9.0209	23063.8	71.7453	170648.6	14711.7			-144173.2	5.5867
2800	9.0305	23966.4	72.0736	177839.6	15614.3			-144313.4	5.1697
2900	9.0396	24869.9	72.3906	185062.9	16517.8			-144460.2	4.7811
3000	9.0484	25774.3	72.6972	192317.4	17422.2			-144613.9	4.4180
3100	9.0569	26679.6	72.9941	199602.1	18327.5			-144774.8	4.0780
3200	9.0651	27585.7	73.2818	206915.9	19233.6			-144943.3	3.7589
3300	9.0731	28492.6	73.5608	214258.1	20140.5			-145119.6	3.4588
3400	9.0808	29400.3	73.8318	221627.8	21048.2			-145303.9	3.1759
3500	9.0885	30308.7	74.0951	229024.2	21956.6			-145496.2	2.9089
3600	9.0959	31218.0	74.3513	236446.6	22865.9			-145696.5	2.6564
3700	9.1033	32127.9	74.6006	243894.3	23775.8			-145905.0	2.4172
3800	9.1106	33038.6	74.8435	251366.5	24686.5			-146121.5	2.1902
3900	9.1178	33950.1	75.0802	258862.8	25597.9			-146345.9	1.9746
4000	9.1250	34862.2	75.3111	266382.4	26510.1			-146578.1	1.7694
4100	9.1322	35775.1	75.5366	273924.8	27423.0			-146817.8	1.5739
4200	9.1394	36688.6	75.7567	281489.5	28336.5			-147064.9	1.3874
4300	9.1466	37602.9	75.9718	289076.0	29250.8			-147319.1	1.2093
4400	9.1539	38518.0	76.1822	296683.7	30165.9			-147580.0	1.0390
4500	9.1612	39433.7	76.3880	304312.3	31081.6			-147847.5	0.8760
4600	9.1686	40350.2	76.5894	311961.2	31998.1			-148121.1	0.7197
4700	9.1761	41267.5	76.7867	319630.0	32915.4			-148400.6	0.5699
4800	9.1837	42185.4	76.9800	327318.4	33833.3			-148685.6	0.4260
4900	9.1915	43104.2	77.1694	335025.9	34752.1			-148975.7	0.2877
5000	9.1993	44023.7	77.3552	342752.1	35671.6			-149270.6	0.1547
5100	9.2074	44944.1	77.5374	350496.8	36592.0			-149569.9	0.0266
5200	9.2155	45865.2	77.7163	358259.5	37513.1			-149873.2	-0.0967
5300	9.2239	46787.2	77.8919	366039.9	38435.1			-150180.2	-0.2157
5400	9.2324	47710.0	78.0644	373837.8	39357.9			-150490.5	-0.3305
5500	9.2411	48633.7	78.2339	381652.7	40281.6			-150803.9	-0.4413
5600	9.2501	49558.2	78.4005	389484.5	41206.1			-151119.8	-0.5485
5700	9.2592	50483.7	78.5643	397332.7	42131.6			-151438.0	-0.6520
5800	9.2685	51410.1	78.7254	405197.2	43058.0			-151758.2	-0.7522
5900	9.2781	52337.4	78.8839	413077.7	43985.3			-152080.0	-0.8493
6000	9.2878	53265.7	79.0399	420973.9	44913.6			-152403.1	-0.9432

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of P, 317.30° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(175) PS (gas); molecular weight, 63.041

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	8548.5	10884.5	-------	-130000.0	--------
100	7.3713	704.3	47.2850	4024.2	9252.8	11210.9	-15.7916	-130291.7	280.2815
200	8.1169	1484.7	52.6643	9048.1	10033.2	11057.7	-3.5336	-130545.4	137.8031
298.15	8.4226	2298.0	55.9688	14389.1	10846.5	10846.5	0.4143	-130774.3	90.8079
300	8.4268	2313.6	56.0209	14492.7	10862.1	10841.6	0.4632	-130778.4	90.2168
[a]400	8.6039	3165.8	58.4715	20222.7	11714.3	9822.3	2.3777	-130984.0	66.3825
500	8.7153	4032.2	60.4042	26169.9	12580.7	9126.5	3.4172	-131163.8	52.0607
600	8.7889	4907.7	62.0002	32292.4	13456.1	8521.0	4.0609	-131323.8	42.5003
700	8.8401	5789.2	63.3590	38562.1	14337.7	7978.5	4.4906	-131469.1	35.6634
800	8.8775	6675.2	64.5420	44958.4	15223.7	7469.9	4.7925	-131603.7	30.5303
900	8.9062	7564.5	65.5894	51466.0	16112.9	6965.6	5.0118	-131730.2	26.5339
1000	8.9289	8456.3	66.5290	58072.7	17004.7	6463.8	5.1751	-131850.4	23.3338
1100	8.9477	9350.1	67.3809	64768.9	17898.6	5964.0	5.2987	-131965.7	20.7132
1200	8.9637	10245.7	68.1601	71546.5	18794.2	5466.0	5.3934	-132077.2	18.5275
1300	8.9775	11142.8	68.8782	78398.8	19691.2	4969.5	5.4666	-132185.7	16.6765
1400	8.9899	12041.2	69.5439	85320.3	20589.6	4474.3	5.5234	-132291.9	15.0886
1500	9.0012	12940.7	70.1646	92306.1	21489.2	3980.2	5.5674	-132396.5	13.7114
1600	9.0115	13841.4	70.7458	99352.0	22389.8	3487.3	5.6015	-132500.5	12.5053
1700	9.0212	14743.0	71.2924	106454.1	23291.5	2995.3	5.6276	-132604.4	11.4403
1800	9.0303	15645.6	71.8083	113609.4	24194.1	2504.3	5.6472	-132709.0	10.4929
1900	9.0390	16549.1	72.2968	120814.9	25097.5	2014.2	5.6617	-132815.1	9.6446
2000	9.0474	17453.4	72.7607	128068.0	26001.8	1524.9	5.6719	-132923.6	8.8805
2100	9.0554	18358.5	73.2023	135366.3	26907.0	1036.4	5.6786	-133035.4	8.1885
2200	9.0632	19264.5	73.6237	142707.7	27812.9	548.7	5.6824	-133151.1	7.5590
2300	9.0708	20171.2	74.0268	150090.4	28719.6	61.9	5.6837	-133271.6	6.9836
2400	9.0783	21078.6	74.4130	157512.5	29627.1	-424.3	5.6830	-133397.7	6.4558
2500	9.0856	21986.8	74.7837	164972.5	30535.3	-909.7	5.6806	-133530.0	5.9697
2600	9.0928	22895.7	75.1402	172468.8	31444.2			-133669.1	5.5205
2700	9.0999	23805.4	75.4835	180000.1	32353.8			-133815.5	5.1041
2800	9.1068	24715.7	75.8146	187565.1	33264.2			-133969.8	4.7171
2900	9.1138	25626.7	76.1343	195162.6	34175.2			-134132.4	4.3563
3000	9.1206	26538.4	76.4433	202791.6	35086.9			-134303.4	4.0192
3100	9.1274	27450.8	76.7425	210451.0	35999.3			-134483.3	3.7034
3200	9.1341	28363.9	77.0324	218139.8	36912.4			-134672.1	3.4069
3300	9.1408	29277.7	77.3136	225857.2	37826.1			-134869.9	3.1280
3400	9.1475	30192.1	77.5866	233602.2	38740.6			-135076.8	2.8651
3500	9.1541	31107.2	77.8518	241374.2	39655.6			-135292.7	2.6168
3600	9.1607	32022.9	78.1098	249172.4	40571.4			-135517.5	2.3820
3700	9.1673	32939.3	78.3609	256996.0	41487.8			-135751.1	2.1595
3800	9.1738	33856.4	78.6054	264844.3	42404.8			-135993.2	1.9483
3900	9.1803	34774.1	78.8438	272716.8	43322.5			-136243.8	1.7475
4000	9.1868	35692.4	79.0763	280612.9	44240.9			-136502.3	1.5565
4100	9.1933	36611.4	79.3033	288531.9	45159.9			-136768.7	1.3744
4200	9.1997	37531.1	79.5249	296473.4	46079.5			-137042.4	1.2007
4300	9.2062	38451.4	79.7414	304436.7	46999.8			-137323.3	1.0347
4400	9.2126	39372.3	79.9531	312421.5	47920.8			-137610.8	0.8759
4500	9.2190	40293.9	80.1602	320427.2	48842.3			-137904.6	0.7239
4600	9.2254	41216.1	80.3629	328453.4	49764.6			-138204.3	0.5781
4700	9.2318	42139.0	80.5614	336499.6	50687.4			-138509.5	0.4383
4800	9.2382	43062.5	80.7558	344565.5	51610.9			-138819.8	0.3039
4900	9.2445	43986.6	80.9464	352650.7	52535.1			-139134.7	0.1748
5000	9.2509	44911.4	81.1332	360754.7	53459.8			-139453.9	0.0506
5100	9.2572	45836.8	81.3165	368877.2	54385.2			-139777.0	-0.0691
5200	9.2636	46762.8	81.4963	377017.9	55311.3			-140103.5	-0.1844
5300	9.2699	47689.5	81.6728	385176.3	56237.9			-140433.1	-0.2956
5400	9.2763	48616.8	81.8461	393352.3	57165.3			-140765.4	-0.4030
5500	9.2826	49544.7	82.0164	401545.5	58093.2			-141100.1	-0.5067
5600	9.2889	50473.3	82.1837	409755.5	59021.8			-141436.7	-0.6069
5700	9.2952	51402.5	82.3482	417982.1	59951.0			-141775.0	-0.7039
5800	9.3015	52332.4	82.5099	426225.0	60880.8			-142114.6	-0.7977
5900	9.3079	53262.8	82.6690	434484.0	61811.3			-142455.2	-0.8886
6000	9.3142	54193.9	82.8254	442758.7	62742.4			-142796.5	-0.9766

[a]A change in phase of each of the assigned reference elements has occurred between this temperature and the preceding temperature. Melting point of P, 317.30° K and of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(176) S (gas); molecular weight, 32.066

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	64849.7	65903.4	-------	0	--------
100	5.1035	499.2	34.1267	2913.5	65348.9	66237.9	-137.9634	0	0
200	5.5894	1036.5	37.8310	6529.7	65886.2	66382.6	-65.5151	0	0
298.15	5.6587	1591.1	40.0861	10360.6	66440.8	66440.8	-41.6253	0	0
300	5.6576	1601.5	40.1211	10434.8	66451.3	66441.3	-41.3251	0	0
[a]400	5.5537	2162.6	41.7359	14531.8	67012.3	65903.9	-29.2362	0	0
500	5.4361	2712.0	42.9622	18769.2	67561.7	65512.4	-22.0529	0	0
600	5.3398	3250.5	43.9445	23116.1	68100.3	65197.2	-17.2916	0	0
700	5.2664	3780.7	44.7618	27552.6	68630.4	64927.4	-13.9060	0	0
800	5.2109	4304.4	45.4613	32064.6	69154.1	64680.8	-11.3768	0	0
900	5.1688	4823.3	46.0725	36641.9	69673.0	64430.3	-9.4172	0	0
1000	5.1366	5338.5	46.6153	41276.8	70188.2	64176.1	-7.8557	0	0
1100	5.1118	5850.9	47.1037	45963.2	70700.6	63919.1	-6.5832	0	0
1200	5.0930	6361.1	47.5476	50696.1	71210.8	63659.9	-5.5270	0	0
1300	5.0791	6869.6	47.9547	55471.5	71719.4	63399.0	-4.6370	0	0
1400	5.0695	7377.0	48.3307	60286.0	72226.7	63137.0	-3.8772	0	0
1500	5.0639	7883.7	48.6803	65136.7	72733.4	62874.3	-3.2215	0	0
1600	5.0619	8389.9	49.0070	70021.3	73239.6	62611.1	-2.6502	0	0
1700	5.0634	8896.2	49.3139	74937.5	73745.9	62348.0	-2.1482	0	0
1800	5.0679	9402.7	49.6034	79883.5	74252.4	62085.1	-1.7038	0	0
1900	5.0753	9909.8	49.8776	84857.7	74759.6	61822.8	-1.3079	0	0
2000	5.0853	10417.9	50.1382	89858.6	75267.6	61561.4	-0.9531	0	0
2100	5.0975	10927.0	50.3866	94884.9	75776.7	61301.2	-0.6334	0	0
2200	5.1116	11437.4	50.6241	99935.5	76287.1	61042.2	-0.3441	0	0
2300	5.1273	11949.3	50.8516	105009.4	76799.1	60784.7	-0.0810	0	0
2400	5.1443	12462.9	51.0702	110105.6	77312.6	60528.9	0.1592	0	0
2500	5.1623	12978.2	51.2806	115223.2	77828.0	60274.8	0.3792	0	0
2600	5.1810	13495.4	51.4834	120361.4	78345.1			0	0
2700	5.2001	14014.5	51.6793	125519.6	78864.2			0	0
2800	5.2195	14535.4	51.8687	130697.1	79385.2			0	0
2900	5.2389	15058.4	52.0522	135893.1	79908.1			0	0
3000	5.2581	15583.2	52.2302	141107.3	80432.9			0	0
3100	5.2770	16110.0	52.4029	146339.0	80959.7			0	0
3200	5.2955	16638.6	52.5707	151587.7	81488.3			0	0
3300	5.3134	17169.0	52.7340	156853.0	82018.8			0	0
3400	5.3307	17701.3	52.8928	162134.4	82551.0			0	0
3500	5.3473	18235.2	53.0476	167431.4	83084.9			0	0
3600	5.3632	18770.7	53.1985	172743.8	83620.4			0	0
3700	5.3782	19307.8	53.3456	178071.0	84157.5			0	0
3800	5.3925	19846.3	53.4892	183412.8	84696.0			0	0
3900	5.4059	20386.2	53.6295	188768.7	85236.0			0	0
4000	5.4185	20927.5	53.7665	194138.6	85777.2			0	0
4100	5.4303	21469.9	53.9005	199521.9	86319.6			0	0
4200	5.4413	22013.5	54.0314	204918.5	86863.2			0	0
4300	5.4515	22558.1	54.1596	210328.1	87407.9			0	0
4400	5.4609	23103.8	54.2850	215750.4	87953.5			0	0
4500	5.4695	23650.3	54.4079	221185.0	88500.0			0	0
4600	5.4774	24197.7	54.5282	226631.9	89047.4			0	0
4700	5.4847	24745.8	54.6460	232090.6	89595.5			0	0
4800	5.4912	25294.6	54.7616	237561.0	90144.3			0	0
4900	5.4971	25844.0	54.8749	243042.8	90693.7			0	0
5000	5.5024	26394.0	54.9860	248535.9	91243.7			0	0
5100	5.5071	26944.4	55.0950	254040.0	91794.2			0	0
5200	5.5113	27495.4	55.2020	259554.8	92345.1			0	0
5300	5.5149	28046.7	55.3070	265080.3	92896.4			0	0
5400	5.5181	28598.3	55.4101	270616.2	93448.0			0	0
5500	5.5208	29150.3	55.5114	276162.2	94000.0			0	0
5600	5.5231	29702.5	55.6109	281718.4	94552.2			0	0
5700	5.5250	30254.9	55.7086	287284.4	95104.6			0	0
5800	5.5266	30807.5	55.8047	292860.0	95657.2			0	0
5900	5.5279	31360.2	55.8992	298445.3	96209.9			0	0
6000	5.5287	31913.0	55.9921	304039.8	96762.7			0	0

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(177) S (crystal II, crystal I, liquid); molecular weight, 32.066

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-1053.7	0	-------	-65903.4	--------
100	3.060	164.7	3.046	139.9	-889.0	0	0	-66237.9	137.9634
200	4.639	557.3	5.704	583.5	-496.4	0	0	-66382.6	65.5151
298.15	5.401	1053.7	7.713	1245.9	0	0	0	-66440.8	41.6253
300	5.412	1063.7	7.747	1260.4	10.0	0	0	-66441.3	41.3251
[b] 388.357	6.053	1662.5	9.473	2016.4	608.8	0	0	-119216.3	30.2779
388.357	7.579	2073.0	10.530	2016.4	1019.3	0	0	-65884.7	30.2779
400	7.731	2162.1	10.756	2140.3	1108.4	0	0	-65903.9	29.2362
500	9.079	3100.0	12.842	3321.0	2046.3	0	0	-65515.4	22.0529
600	8.200	3956.8	14.406	4686.8	2903.1	0	0	-65197.2	17.2916
700	7.801	4756.7	15.640	6191.3	3703.0	0	0	-64927.4	13.9060
800	7.694	5527.0	16.6687	7807.9	4473.3	0	0	-64680.8	11.3768
900	7.694	6296.4	17.5749	9521.0	5242.7	0	0	-64430.3	9.4172
1000	7.694	7065.8	18.3856	11319.8	6012.1	0	0	-64176.1	7.8557
1100	7.694	7835.2	19.1189	13195.6	6781.5	0	0	-63919.1	6.5832
1200	7.694	8604.6	19.7884	15141.4	7550.9	0	0	-63659.9	5.5270
1300	7.694	9374.0	20.4042	17151.5	8320.3	0	0	-63399.0	4.6370
1400	7.694	10143.4	20.9744	19220.7	9089.7	0	0	-63137.0	3.8772
1500	7.694	10912.8	21.5052	21345.0	9859.1	0	0	-62874.3	3.2215
1600	7.694	11682.2	22.0018	23520.6	10628.5	0	0	-62611.1	2.6502
1700	7.694	12451.6	22.4682	25744.4	11397.9	0	0	-62348.0	2.1482
1800	7.694	13221.0	22.9080	28013.4	12167.3	0	0	-62085.1	1.7038
1900	7.694	13990.4	23.3240	30325.2	12936.7	0	0	-61822.8	1.3079
2000	7.694	14759.8	23.7187	32677.5	13706.1	0	0	-61561.4	0.9531
2100	7.694	15529.2	24.0941	35068.3	14475.5	0	0	-61301.2	0.6334
2200	7.694	16298.6	24.4520	37495.7	15244.9	0	0	-61042.2	0.3441
2300	7.694	17068.0	24.7940	39958.1	16014.3	0	0	-60784.7	0.0810
2400	7.694	17837.4	25.1214	42454.0	16783.7	0	0	-60528.9	-0.1592
2500	7.694	18606.8	25.4355	44982.0	17553.1	0	0	-60274.8	-0.3792

[a] H_0° refers to rhombic II crystal state.

[b] Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(178) S_2 (gas); molecular weight, 64.132

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	28699.4	30806.8	-------	-101000.0	--------
100	6.9636	695.4	46.6236	3967.0	29394.8	31172.8	-59.2672	-101302.9	216.6597
200	7.2648	1402.9	51.5156	8900.3	30102.3	31095.1	-25.2124	-101670.2	105.8177
298.15	7.7592	2140.6	54.5100	14111.6	30840.0	30840.0	-14.0639	-102041.6	69.1857
300	7.7677	2154.9	54.5580	14212.5	30854.4	30834.4	-13.9247	-102048.2	68.7254
[a] 400	8.1442	2951.8	56.8479	19787.3	31651.2	29434.4	-8.3592	-102373.4	50.1132
500	8.3891	3779.4	58.6935	25567.4	32478.8	28336.2	-5.1931	-102644.5	38.9127
600	8.5493	4626.8	60.2382	31516.1	33326.3	27520.1	-3.1558	-102874.3	31.4273
700	8.6582	5487.5	61.5647	37607.8	34187.0	26781.0	-1.7426	-103073.8	26.0694
800	8.7355	6357.4	62.7262	43823.5	35056.9	26110.2	-0.7100	-103251.4	22.0436
900	8.7926	7234.0	63.7585	50148.7	35933.4	25447.9	0.0728	-103412.7	18.9073
1000	8.8364	8115.5	64.6873	56571.8	36814.9	24790.7	0.6830	-103561.5	16.3944
1100	8.8710	9000.9	65.5312	63083.4	37700.4	24137.3	1.1693	-103700.8	14.3356
1200	8.8993	9889.5	66.3043	69675.7	38588.9	23487.1	1.5637	-103832.6	12.6176
1300	8.9229	10780.6	67.0176	76342.2	39480.1	22839.4	1.8883	-103958.6	11.1622
1400	8.9431	11674.0	67.6796	83077.5	40373.4	22193.9	2.1587	-104080.1	9.9132
1500	8.9607	12569.2	68.2972	89876.7	41268.6	21550.4	2.3864	-104198.2	8.8295
1600	8.9764	13466.0	68.8761	96735.6	42165.5	20908.4	2.5798	-104313.8	7.8801
1700	8.9905	14364.4	69.4207	103650.8	43063.8	20268.0	2.7453	-104427.9	7.0416
1800	9.0034	15264.1	69.9349	110618.8	43963.5	19628.9	2.8878	-104541.3	6.2954
1900	9.0153	16165.1	70.4220	117636.8	44864.5	18991.0	3.0112	-104654.6	5.6270
2000	9.0264	17067.1	70.8848	124702.4	45766.6	18354.3	3.1186	-104768.6	5.0248
2100	9.0369	17970.3	71.3254	131813.1	46669.8	17718.7	3.2125	-104883.6	4.4794
2200	9.0469	18874.5	71.7460	138966.8	47573.9	17084.1	3.2948	-105000.3	3.9830
2300	9.0564	19779.7	72.1484	146161.7	48479.1	16450.5	3.3673	-105119.0	3.5292
2400	9.0655	20685.8	72.5340	153395.9	49385.2	15817.7	3.4312	-105240.1	3.1128
2500	9.0743	21592.8	72.9043	160667.9	50292.2	15185.9	3.4876	-105363.7	2.7293
2600	9.0828	22500.6	73.2604	167976.3	51200.1			-105490.2	2.3748
2700	9.0912	23409.3	73.6033	175319.6	52108.8			-105619.6	2.0462
2800	9.0993	24318.8	73.9341	182696.5	53018.3			-105752.0	1.7407
2900	9.1072	25229.2	74.2535	190106.0	53928.6			-105887.5	1.4559
3000	9.1150	26140.3	74.5624	197546.9	54839.7			-106026.1	1.1897
3100	9.1227	27052.2	74.8614	205018.2	55751.6			-106167.8	0.9404
3200	9.1302	27964.8	75.1511	212518.9	56664.2			-106312.4	0.7064
3300	9.1376	28878.2	75.4322	220048.1	57577.6			-106459.9	0.4862
3400	9.1450	29792.3	75.7051	227605.0	58491.8			-106610.2	0.2787
3500	9.1523	30707.2	75.9703	235188.9	59406.6			-106763.1	0.0828
3600	9.1595	31622.8	76.2282	242798.9	60322.2			-106918.6	-0.1025
3700	9.1666	32539.1	76.4793	250434.3	61238.5			-107076.4	-0.2781
3800	9.1737	33456.1	76.7238	258094.5	62155.6			-107236.5	-0.4446
3900	9.1807	34373.8	76.9622	265778.9	63073.3			-107398.6	-0.6029
4000	9.1877	35292.3	77.1948	273486.7	63991.7			-107562.7	-0.7534
4100	9.1947	36211.4	77.4217	281217.6	64910.8			-107728.4	-0.8969
4200	9.2016	37131.2	77.6434	288970.9	65830.6			-107895.8	-1.0337
4300	9.2085	38051.7	77.8600	296746.1	66751.1			-108064.6	-1.1644
4400	9.2153	38972.9	78.0717	304542.7	67672.3			-108234.7	-1.2893
4500	9.2221	39894.8	78.2789	312360.3	68594.2			-108405.8	-1.4088
4600	9.2289	40817.3	78.4817	320198.4	69516.7			-108578.0	-1.5234
4700	9.2357	41740.5	78.6802	328056.5	70440.0			-108751.0	-1.6332
4800	9.2424	42664.4	78.8747	335934.3	71363.9			-108924.7	-1.7386
4900	9.2491	43589.0	79.0654	343831.3	72288.5			-109098.9	-1.8399
5000	9.2558	44514.3	79.2523	351747.2	73213.7			-109273.7	-1.9373
5100	9.2625	45440.2	79.4357	359681.7	74139.6			-109448.7	-2.0311
5200	9.2692	46366.8	79.6156	367634.3	75066.2			-109624.0	-2.1213
5300	9.2758	47294.0	79.7922	375604.7	75993.4			-109799.3	-2.2083
5400	9.2825	48221.9	79.9657	383592.6	76921.4			-109974.7	-2.2922
5500	9.2891	49150.5	80.1360	391597.7	77849.9			-110150.0	-2.3732
5600	9.2957	50079.7	80.3035	399619.7	78779.2			-110325.2	-2.4514
5700	9.3023	51009.6	80.4681	407658.3	79709.1			-110500.1	-2.5270
5800	9.3089	51940.2	80.6299	415713.2	80639.6			-110674.7	-2.6001
5900	9.3155	52871.4	80.7891	423784.2	81570.9			-110849.0	-2.6709
6000	9.3221	53803.3	80.9457	431870.9	82502.7			-111022.6	-2.7393

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(179) SCl (gas); molecular weight, 67.523

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	29792.7	31943.2	-------	-62508.6	--------
100	7.0186	696.2	49.0463	4208.4	30489.0	32126.7	-65.0903	-62808.4	133.1009
200	7.6555	1427.3	54.0875	9390.2	31220.0	32102.4	-29.9851	-63113.7	64.3409
298.15	8.1925	2207.2	57.2534	14862.9	32000.0	32000.0	-18.4520	-63391.4	41.5939
300	8.2000	2222.4	57.3041	14968.8	32015.2	31997.7	-18.3075	-63396.4	41.3074
[a] 400	8.5103	3059.4	59.7098	20824.5	32852.1	31321.6	-12.5031	-63650.8	29.7405
500	8.6929	3920.3	61.6301	26894.8	33713.0	30817.6	-9.1047	-63880.2	22.7736
600	8.8101	4795.8	63.2260	33139.8	34588.6	30401.9	-6.8744	-64087.6	18.1129
700	8.8920	5681.1	64.5906	39532.3	35473.9	30048.1	-5.3015	-64276.1	14.7735
800	8.9535	6573.5	65.7822	46052.2	36366.3	29727.5	-4.1349	-64448.1	12.2619
900	9.0025	7471.4	66.8396	52684.3	37264.2	29410.7	-3.2372	-64606.2	10.3034
1000	9.0435	8373.8	67.7903	59416.6	38166.5	29096.5	-2.5267	-64752.3	8.7329
1100	9.0791	9279.9	68.6540	66239.4	39072.7	28784.4	-1.9516	-64888.1	7.4451
1200	9.1110	10189.5	69.4453	73144.9	39982.2	28474.3	-1.4776	-65015.2	6.3698
1300	9.1402	11102.0	70.1758	80126.5	40894.8	28166.0	-1.0808	-65134.6	5.4582
1400	9.1675	12017.4	70.8542	87178.4	41810.2	27859.5	-0.7444	-65247.5	4.6754
1500	9.1933	12935.5	71.4875	94295.8	42728.2	27554.6	-0.4560	-65354.6	3.9958
1600	9.2180	13856.1	72.0816	101474.6	43648.8	27251.3	-0.2065	65456.9	3.4003
1700	9.2418	14779.1	72.6412	108711.0	44571.8	26949.6	0.0113	-65554.9	2.8740
1800	9.2650	15704.4	73.1701	116001.8	45497.2	26649.4	0.2027	-65649.3	2.4055
1900	9.2876	16632.0	73.6717	123344.1	46424.8	26350.7	0.3721	-65740.7	1.9857
2000	9.3098	17561.9	74.1486	130735.3	47354.7	26053.4	0.5228	-65829.5	1.6073
2100	9.3316	18494.0	74.6034	138173.1	48286.7	25757.6	0.6576	-65916.1	1.2646
2200	9.3531	19428.2	75.0380	145655.3	49221.0	25463.2	0.7787	-66000.9	0.9526
2300	9.3744	20364.6	75.4542	153180.1	50157.3	25170.3	0.8881	-66084.2	0.6674
2400	9.3954	21303.1	75.8536	160745.6	51095.8	24878.8	0.9872	-66166.2	0.4056
2500	9.4163	22243.7	76.2376	168350.3	52036.4	24588.6	1.0773	-66247.2	0.1644
2600	9.4370	23186.3	76.6073	175992.6	52979.1			-66327.3	-0.0584
2700	9.4577	24131.1	76.9638	183671.3	53923.8			-66406.7	-0.2651
2800	9.4782	25077.9	77.3082	191385.0	54870.6			-66485.4	-0.4571
2900	9.4986	26026.7	77.6411	199132.5	55819.5			-66563.5	-0.6362
3000	9.5189	26977.6	77.9635	206912.8	56770.3			-66641.2	-0.8035
3100	9.5392	27930.5	78.2759	214724.9	57723.2			-66718.3	-0.9602
3200	9.5593	28885.4	78.5791	222567.7	58678.2			-66794.8	-1.1072
3300	9.5795	29842.4	78.8736	230440.4	59635.1			-66870.9	-1.2455
3400	9.5996	30801.3	79.1598	238342.2	60594.1			-66946.4	-1.3759
3500	9.6196	31762.3	79.4384	246272.1	61555.0			-67021.3	-1.4989
3600	9.6396	32725.2	79.7097	254229.6	62518.0			-67095.5	-1.6152
3700	9.6596	33690.2	79.9741	262213.8	63482.9			-67169.1	-1.7253
3800	9.6795	34657.1	80.2319	270224.2	64449.9			-67241.9	-1.8298
3900	9.6994	35626.1	80.4836	278260.0	65418.8			-67313.9	-1.9290
4000	9.7193	36597.0	80.7294	286320.7	66389.8			-67385.1	-2.0233
4100	9.7392	37570.0	80.9697	294405.7	67362.7			-67455.2	-2.1132
4200	9.7590	38544.9	81.2046	302514.5	68337.6			-67524.4	-2.1988
4300	9.7789	39521.8	81.4345	310646.5	69314.5			-67592.4	-2.2806
4400	9.7987	40500.6	81.6595	318801.2	70293.4			-67659.4	-2.3587
4500	9.8185	41481.5	81.8799	326978.2	71274.2			-67725.1	-2.4334
4600	9.8382	42464.3	82.0960	335177.1	72257.1			-67789.5	-2.5049
4700	9.8580	43449.1	82.3078	343397.3	73241.9			-67852.5	-2.5735
4800	9.8777	44435.9	82.5155	351638.5	74228.7			-67914.2	-2.6393
4900	9.8975	45424.7	82.7194	359900.3	75217.4			-67974.4	-2.7024
5000	9.9172	46415.4	82.9195	368182.2	76208.2			-68033.1	-2.7630
5100	9.9369	47408.1	83.1161	376484.0	77200.9			-68090.2	-2.8214
5200	9.9566	48402.8	83.3093	384805.3	78195.6			-68145.7	-2.8775
5300	9.9764	49399.5	83.4991	393145.8	79192.2			-68199.6	-2.9316
5400	9.9960	50398.1	83.6858	401505.1	80190.8			-68251.7	-2.9837
5500	10.0157	51398.7	83.8694	409882.8	81191.4			-68302.0	-3.0339
5600	10.0354	52401.2	84.0500	418278.8	82194.0			-68350.6	-3.0824
5700	10.0551	53405.8	84.2278	426692.7	83198.5			-68397.4	-3.1292
5800	10.0748	54412.2	84.4029	435124.3	84205.0			-68442.2	-3.1744
5900	10.0944	55420.7	84.5752	443573.2	85213.5			-68485.3	-3.2181
6000	10.1141	56431.1	84.7451	452039.3	86223.9			-68526.3	-3.2604

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(180) SCl_2 (gas); molecular weight, 102.980

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-8123.5	-4876.3	-------	-127876.6	--------
100	9.0587	827.9	55.6851	4740.6	-7295.6	-4909.1	12.3647	-128541.4	270.7837
200	10.9664	1832.1	62.5684	10681.6	-6291.4	-5023.1	6.9545	-129072.7	130.0914
298.15	12.1691	2973.5	67.1958	17060.9	-5150.0	-5150.0	5.1281	-129492.1	83.5947
300	12.1853	2996.0	67.2711	17185.3	-5127.5	-5152.5	5.1047	-129499.3	83.0094
[a] 400	12.8251	4249.9	70.8739	24099.6	-3873.6	-5826.3	4.1434	-129867.1	59.3945
500	13.1767	5551.6	73.7771	31336.9	-2571.9	-6316.5	3.4833	-130196.6	45.1870
600	13.3850	6880.6	76.1995	38839.1	-1243.0	-6713.2	3.0091	-130495.1	35.6923
700	13.5172	8226.1	78.2734	46565.3	102.6	-7046.0	2.6514	-130766.9	28.8954
800	13.6057	9582.5	80.0845	54485.1	1459.0	-7345.3	2.3708	-131015.6	23.7875
900	13.6676	10946.4	81.6908	62575.4	2822.9	-7641.3	2.1435	-131244.8	19.8074
1000	13.7126	12315.5	83.1333	70817.8	4192.0	-7936.0	1.9545	-131457.4	16.6180
1100	13.7463	13688.5	84.4419	79197.6	5565.0	-8230.1	1.7940	-131656.0	14.0044
1200	13.7721	15064.5	85.6391	87702.5	6941.0	-8523.9	1.6554	-131843.0	11.8232
1300	13.7923	16442.8	86.7423	96322.3	8319.2	-8818.0	1.5340	-132020.2	9.9750
1400	13.8084	17822.8	87.7651	105048.3	9699.3	-9112.4	1.4264	-132189.2	8.3887
1500	13.8214	19204.3	88.7182	113873.0	11080.8	-9407.3	1.3301	-132351.5	7.0123
1600	13.8321	20587.0	89.6106	122789.9	12463.5	-9702.9	1.2431	-132508.2	5.8064
1700	13.8410	21970.7	90.4494	131793.3	13847.2	-9999.3	1.1639	-132660.3	4.7411
1800	13.8485	23355.2	91.2408	140878.2	15231.7	-10296.5	1.0915	-132808.9	3.7932
1900	13.8549	24740.4	91.9897	150040.0	16616.9	-10594.7	1.0248	-132954.5	2.9441
2000	13.8603	26126.1	92.7005	159274.8	18002.6	-10893.8	0.9630	-133098.1	2.1790
2100	13.8649	27512.4	93.3768	168579.0	19388.9	-11193.8	0.9055	-133240.1	1.4861
2200	13.8690	28899.1	94.0219	177949.2	20775.6	-11494.9	0.8519	-133381.0	0.8555
2300	13.8725	30286.2	94.6385	187382.4	22162.7	-11797.1	0.8016	-133521.3	0.2792
2400	13.8756	31673.6	95.2290	196876.0	23550.1	-12100.3	0.7543	-133661.3	-0.2497
2500	13.8784	33061.3	95.7955	206427.4	24937.8	-12404.6	0.7097	-133801.5	-0.7368
2600	13.8808	34449.3	96.3399	216034.4	26325.8			-133941.9	-1.1869
2700	13.8830	35837.5	96.8638	225694.7	27713.9			-134082.9	-1.6041
2800	13.8849	37225.9	97.3687	235406.5	29102.3			-134224.5	-1.9919
2900	13.8867	38614.4	97.8560	245167.9	30490.9			-134367.0	-2.3533
3000	13.8883	40003.2	98.3268	254977.1	31879.7			-134510.4	-2.6910
3100	13.8897	41392.1	98.7822	264832.7	33268.6			-134654.7	-3.0073
3200	13.8910	42781.1	99.2232	274733.1	34657.6			-134800.1	-3.3041
3300	13.8922	44170.3	99.6507	284676.9	36046.8			-134946.4	-3.5832
3400	13.8933	45559.6	100.0654	294662.8	37436.0			-135093.9	-3.8462
3500	13.8942	46948.9	100.4681	304689.6	38825.4			-135242.3	-4.0944
3600	13.8951	48338.4	100.8596	314756.0	40214.9			-135391.8	-4.3291
3700	13.8960	49728.0	101.2403	324861.1	41604.4			-135542.2	-4.5514
3800	13.8968	51117.6	101.6109	335003.8	42994.1			-135693.5	-4.7622
3900	13.8975	52507.3	101.9719	345183.0	44383.8			-135845.8	-4.9624
4000	13.8981	53897.1	102.3237	355397.8	45773.6			-135998.9	-5.1528
4100	13.8987	55286.9	102.6669	365647.4	47162.4			-136152.8	-5.3341
4200	13.8993	56676.8	103.0018	375930.9	48553.3			-136307.4	-5.5070
4300	13.8998	58066.8	103.3289	386247.5	49943.3			-136462.8	-5.6720
4400	13.9003	59456.8	103.6485	396596.5	51333.3			-136618.7	-5.8298
4500	13.9008	60846.8	103.9609	406977.0	52723.3			-136775.2	-5.9806
4600	13.9012	62236.9	104.2664	417388.4	54113.4			-136932.3	-6.1251
4700	13.9016	63627.1	104.5653	427830.0	55503.6			-137089.8	-6.2636
4800	13.9020	65017.3	104.8580	438301.3	56893.8			-137247.7	-6.3965
4900	13.9024	66407.5	105.1447	448801.4	58284.0			-137406.0	-6.5241
5000	13.9027	67797.7	105.4256	459330.0	59674.2			-137564.6	-6.6467
5100	13.9030	69188.0	105.7009	469886.4	61064.5			-137723.5	-6.7647
5200	13.9033	70578.3	105.9708	480470.0	62454.8			-137882.7	-6.8782
5300	13.9036	71968.7	106.2357	491080.4	63845.2			-138042.0	-6.9876
5400	13.9038	73359.1	106.4956	501717.0	65235.5			-138201.4	-7.0931
5500	13.9041	74749.5	106.7507	512379.3	66625.9			-138361.0	-7.1949
5600	13.9043	76139.9	107.0012	523067.0	68016.4			-138520.6	-7.2931
5700	13.9046	77530.3	107.2473	533779.4	69406.8			-138680.3	-7.3880
5800	13.9048	78920.8	107.4892	544516.3	70797.3			-138840.0	-7.4797
5900	13.9050	80311.3	107.7268	555277.1	72187.8			-138999.7	-7.5684
6000	13.9052	81701.8	107.9606	566061.5	73578.3			-139159.4	-7.6543

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(181) S_2Cl_2 (gas); molecular weight, 135.046

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-8692.6	-4391.7	-------	-193295.3	--------
100	11.6950	937.5	60.4964	5112.1	-7755.0	-4479.5	11.8117	-194349.7	408.1942
200	15.5106	2315.2	69.8916	11663.1	-6377.4	-4612.7	6.8598	-195044.8	195.5118
298.15	17.4169	3942.6	76.4866	18861.9	-4750.0	-4750.0	5.1797	-195532.9	125.2716
300	17.4411	3974.8	76.5944	19003.5	-4717.8	-4752.8	5.1580	-195540.9	124.3878
[a] 400	18.3746	5770.8	81.7549	26931.1	-2921.7	-5982.9	4.2562	-195927.5	88.7435
500	18.8702	7635.5	85.9136	35321.4	-1057.1	-6848.0	3.5614	-196243.5	67.3181
600	19.1589	9538.1	89.3818	44091.0	845.6	-7527.7	3.0384	-196506.8	53.0131
700	19.3402	11463.7	92.3498	53181.1	2771.2	-8080.5	2.6326	-196728.7	42.7826
800	19.4609	13404.2	94.9407	62548.4	4711.6	-8566.1	2.3081	-196917.2	35.1017
900	19.5450	15354.7	97.2380	72159.5	6662.1	-9044.8	2.0412	-197078.5	29.1223
1000	19.6060	17312.4	99.3006	81988.2	8619.8	-9520.3	1.8160	-197217.8	24.3351
1100	19.6514	19275.4	101.1714	92013.2	10582.8	-9993.8	1.6223	-197338.8	20.4158
1200	19.6862	21242.3	102.8829	102217.2	12549.8	-10466.1	1.4530	-197445.0	17.1478
1300	19.7134	23212.4	104.4598	112585.3	14519.8	-10937.7	1.3032	-197539.0	14.3811
1400	19.7351	25184.8	105.9215	123105.3	16492.3	-11409.1	1.1691	-197623.0	12.0086
1500	19.7527	27159.3	107.2837	133766.3	18466.7	-11880.6	1.0479	-197699.0	9.9517
1600	19.7671	29135.3	108.5590	144559.1	20442.7	-12352.3	0.9377	-197768.6	8.1511
1700	19.7790	31112.6	109.7577	155475.6	22420.0	-12824.4	0.8366	-197833.4	6.5619
1800	19.7891	33091.0	110.8886	166508.4	24398.5	-13297.1	0.7433	-197894.5	5.1488
1900	19.7976	35070.4	111.9587	177651.2	26377.8	-13770.5	0.6569	-197953.2	3.8841
2000	19.8049	37050.5	112.9744	188898.3	28357.9	-14244.6	0.5763	-198010.3	2.7455
2100	19.8111	39031.3	113.9408	200244.5	30338.7	-14719.5	0.5010	-198066.9	1.7150
2200	19.8166	41012.7	114.8626	211685.0	32320.1	-15195.3	0.4303	-198123.6	0.7780
2300	19.8213	42994.6	115.7436	223215.6	34302.0	-15672.1	0.3636	-198181.0	-0.0779
2400	19.8255	44976.9	116.5873	234832.5	36284.4	-16149.8	0.3006	-198239.7	-0.8626
2500	19.8292	46959.7	117.3966	246532.0	38267.1	-16628.4	0.2409	-198300.1	-1.5847
2600	19.8324	48942.7	118.1744	258310.8	40250.2			-198362.6	-2.2516
2700	19.8353	50926.1	118.9230	270165.9	42233.6			-198427.4	-2.8692
2800	19.8379	52909.8	119.6444	282094.4	44217.2			-198494.8	-3.4429
2900	19.8403	54893.7	120.3406	294093.9	46201.2			-198564.8	-3.9772
3000	19.8424	56877.9	121.0132	306161.8	48185.3			-198637.7	-4.4761
3100	19.8443	58862.2	121.6639	318295.8	50169.6			-198713.3	-4.9429
3200	19.8461	60846.7	122.2939	330493.9	52154.2			-198791.8	-5.3808
3300	19.8476	62831.4	122.9047	342754.0	54138.8			-198873.1	-5.7923
3400	19.8491	64816.2	123.4972	355074.2	56123.7			-198957.2	-6.1797
3500	19.8504	66801.2	124.0726	367452.8	58108.7			-199044.0	-6.5452
3600	19.8516	68786.3	124.6318	379888.2	60093.8			-199133.3	-6.8905
3700	19.8527	70771.5	125.1757	392378.7	62079.0			-199225.1	-7.2172
3800	19.8538	72756.9	125.7052	404922.8	64064.3			-199319.4	-7.5270
3900	19.8547	74742.3	126.2209	417519.2	66049.7			-199415.8	-7.8210
4000	19.8556	76727.8	126.7236	430166.6	68035.2			-199514.4	-8.1004
4100	19.8564	78713.4	127.2139	442863.6	70020.8			-199615.0	-8.3663
4200	19.8572	80699.1	127.6924	455609.0	72006.5			-199717.5	-8.6197
4300	19.8579	82684.8	128.1596	468401.7	73992.3			-199821.6	-8.8615
4400	19.8585	84670.7	128.6162	481240.5	75978.1			-199927.4	-9.0923
4500	19.8592	86656.5	129.0625	494124.5	77964.0			-200034.6	-9.3131
4600	19.8597	88642.5	129.4990	507052.7	79949.9			-200143.2	-9.5243
4700	19.8603	90628.5	129.9261	520024.0	81935.9			-200252.9	-9.7267
4800	19.8608	92614.5	130.3442	533037.6	83922.0			-200363.8	-9.9207
4900	19.8613	94600.6	130.7537	546092.6	85908.1			-200475.6	-10.1069
5000	19.8617	96586.8	131.1550	559188.1	87894.2			-200588.3	-10.2858
5100	19.8621	98573.0	131.5483	572323.3	89880.4			-200701.8	-10.4578
5200	19.8625	100559.2	131.9340	585497.5	91866.7			-200815.9	-10.6232
5300	19.8629	102545.5	132.3123	598709.9	93852.9			-200930.6	-10.7825
5400	19.8633	104531.8	132.6836	611959.7	95839.2			-201045.8	-10.9359
5500	19.8636	106518.1	133.0481	625246.4	97825.6			-201161.3	-11.0839
5600	19.8639	108504.5	133.4060	638569.1	99812.0			-201277.2	-11.2267
5700	19.8642	110490.9	133.7576	651927.3	101798.4			-201393.4	-11.3645
5800	19.8645	112477.4	134.1031	665320.4	103784.8			-201509.7	-11.4977
5900	19.8648	114463.8	134.4426	678747.8	105771.3			-201626.1	-11.6264
6000	19.8650	116450.3	134.7765	692208.8	107757.8			-201742.6	-11.7509

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(182) SF (gas); molecular weight, 51.066

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	5166.7	7275.2	-------	-76983.3	--------
100	6.9589	695.1	46.5503	3959.9	5861.8	7458.2	-11.2385	-77285.8	164.5964
200	7.1361	1396.8	51.4072	8884.7	6563.4	7417.2	-3.0933	-77647.4	79.9999
298.15	7.5597	2117.3	54.3330	14082.0	7284.0	7284.0	-0.4444	-78015.0	52.0109
300	7.5678	2131.3	54.3797	14182.6	7298.0	7281.1	-0.4117	-78021.5	51.6582
[a] 400	7.9607	2908.7	56.6133	19736.6	8075.3	6574.9	0.8889	-78345.3	37.4217
500	8.2433	3719.7	58.4219	25491.2	8886.4	6045.4	1.5819	-78615.7	28.8469
600	8.4391	4554.4	59.9432	31411.5	9721.1	5607.6	2.0069	-78844.5	23.1119
700	8.5772	5405.6	61.2551	37472.9	10572.3	5233.7	2.2892	-79042.7	19.0044
800	8.6777	6268.6	62.4073	43657.2	11435.3	4894.3	2.4871	-79218.5	15.9164
900	8.7534	7140.4	63.4340	49950.2	12307.0	4559.3	2.6307	-79377.5	13.5096
1000	8.8123	8018.8	64.3594	56340.6	13185.4	4226.7	2.7375	-79523.6	11.5804
1100	8.8596	8902.4	65.2016	62819.3	14069.1	3896.1	2.8183	-79659.7	9.9992
1200	8.8986	9790.4	65.9742	69378.7	14957.1	3566.9	2.8802	-79787.8	8.6793
1300	8.9315	10682.0	66.6878	76012.2	15848.6	3238.8	2.9279	-79909.4	7.5607
1400	8.9600	11576.6	67.3508	82714.5	16743.2	2911.6	2.9649	-80025.9	6.6005
1500	8.9850	12473.8	67.9698	89480.9	17640.5	2585.2	2.9935	-80138.0	5.7671
1600	9.0074	13373.5	68.5504	96307.2	18540.1	2259.5	3.0156	-80246.8	5.0369
1700	9.0277	14275.2	69.0971	103189.9	19441.9	1934.2	3.0325	-80352.8	4.3917
1800	9.0464	15179.0	69.6137	110125.6	20345.6	1609.4	3.0452	-80456.8	3.8175
1900	9.0638	16084.5	70.1032	117111.7	21251.1	1284.9	3.0544	-80559.0	3.3031
2000	9.0801	16991.7	70.5686	124145.5	22158.3	960.8	3.0609	-80660.2	2.8395
2100	9.0955	17900.5	71.0120	131224.7	23067.1	637.0	3.0651	-80760.5	2.4195
2200	9.1102	18810.8	71.4354	138347.2	23977.4	313.5	3.0673	-80860.3	2.0373
2300	9.1243	19722.5	71.8407	145511.2	24889.1	-9.9	3.0680	-80960.0	1.6878
2400	9.1380	20635.6	72.2293	152714.8	25802.3	-333.0	3.0673	-81059.8	1.3671
2500	9.1511	21550.1	72.6026	159956.5	26716.7	-655.9	3.0655	-81159.7	1.0717
2600	9.1640	22465.8	72.9618	167234.8	27632.5			-81260.0	0.7986
2700	9.1765	23382.8	73.3079	174548.4	28549.5			-81360.8	0.5455
2800	9.1887	24301.1	73.6418	181896.0	29467.8			-81462.2	0.3102
2900	9.2007	25220.6	73.9645	189276.4	30387.2			-81564.2	0.0908
3000	9.2125	26141.2	74.2766	196688.6	31307.9			-81666.8	-0.1142
3100	9.2241	27063.1	74.5789	204131.4	32229.7			-81770.0	-0.3062
3200	9.2356	27986.0	74.8719	211604.0	33152.7			-81873.9	-0.4865
3300	9.2469	28910.2	75.1563	219105.5	34076.8			-81978.3	-0.6560
3400	9.2581	29835.4	75.4325	226635.0	35002.1			-82083.3	-0.8158
3500	9.2692	30761.8	75.7010	234191.7	35928.4			-82188.9	-0.9667
3600	9.2802	31689.3	75.9623	241775.0	36855.9			-82294.9	-1.1093
3700	9.2911	32617.8	76.2167	249384.0	37784.5			-82401.3	-1.2444
3800	9.3019	33547.5	76.4646	257018.1	38714.1			-82508.0	-1.3726
3900	9.3127	34478.2	76.7064	264676.7	39644.9			-82614.9	-1.4943
4000	9.3234	35410.0	76.9423	272359.2	40576.7			-82722.1	-1.6101
4100	9.3340	36342.9	77.1726	280065.0	41509.5			-82829.3	-1.7204
4200	9.3446	37276.8	77.3977	287793.5	42443.5			-82936.6	-1.8256
4300	9.3551	38211.8	77.6177	295544.3	43378.4			-83043.9	-1.9260
4400	9.3656	39147.8	77.8329	303316.9	44314.5			-83151.1	-2.0220
4500	9.3761	40084.9	78.0435	311110.8	45251.6			-83258.0	-2.1138
4600	9.3865	41023.0	78.2497	318925.5	46189.7			-83364.8	-2.2018
4700	9.3969	41962.2	78.4517	326760.6	47128.9			-83471.2	-2.2861
4800	9.4073	42902.4	78.6496	334615.6	48069.1			-83577.2	-2.3670
4900	9.4176	43843.7	78.8437	342490.3	49010.3			-83682.8	-2.4447
5000	9.4279	44785.9	79.0340	350384.3	49952.6			-83787.9	-2.5194
5100	9.4382	45729.3	79.2208	358297.0	50895.9			-83892.4	-2.5913
5200	9.4485	46673.6	79.4042	366228.3	51840.2			-83996.4	-2.6605
5300	9.4587	47618.9	79.5843	374177.8	52785.6			-84099.7	-2.7271
5400	9.4689	48565.3	79.7612	382145.1	53732.0			-84202.3	-2.7914
5500	9.4791	49512.7	79.9350	390129.9	54679.4			-84304.1	-2.8534
5600	9.4893	50461.2	80.1059	398132.0	55627.8			-84405.2	-2.9132
5700	9.4995	51410.6	80.2740	406151.0	56577.3			-84505.4	-2.9710
5800	9.5097	52361.1	80.4393	414186.7	57527.7			-84604.8	-3.0269
5900	9.5198	53312.5	80.6019	422238.8	58479.2			-84703.3	-3.0810
6000	9.5299	54265.0	80.7620	430307.0	59431.7			-84800.8	-3.1333

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(183) SF_2 (gas); molecular weight, 70.066

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-54463.0	-51299.7	-------	-153913.1	--------
100	8.0060	795.6	51.2521	4329.6	-53667.4	-51363.5	113.8909	-154613.7	327.5972
200	9.0214	1637.4	57.0464	9771.0	-52825.7	-51614.5	57.6663	-155361.0	158.3377
298.15	10.4192	2593.0	60.9154	15568.9	-51870.0	-51870.0	39.0594	-156027.1	102.3448
300	10.4427	2612.3	60.9799	15681.7	-51850.7	-51874.6	38.8245	-156038.4	101.5395
[a]400	11.4553	3712.8	64.1384	21942.6	-50750.3	-52642.6	29.3463	-156579.3	73.1759
500	12.1823	4899.1	66.7829	28492.3	-49563.9	-53199.6	23.5671	-157006.5	56.0440
600	12.6303	6141.3	69.0464	35286.5	-48321.7	-53645.7	19.6759	-157352.7	44.5944
700	12.9311	7420.3	71.0174	42291.9	-47042.7	-54016.8	16.8751	-157642.3	36.3995
800	13.1403	8724.5	72.7586	49482.4	-45738.5	-54347.1	14.7609	-157891.9	30.2428
900	13.2905	10046.4	74.3154	56837.5	-44416.6	-54669.4	13.1066	-158112.5	25.4470
1000	13.4015	11381.3	75.7216	64340.5	-43081.7	-54987.0	11.7754	-158311.5	21.6654
1100	13.4856	12725.8	77.0032	71977.7	-41737.2	-55301.7	10.6799	-158494.1	18.4584
1200	13.5507	14077.8	78.1795	79737.6	-40385.2	-55614.7	9.7618	-158664.1	15.8330
1300	13.6021	15435.5	79.2662	87610.6	-39027.5	-55926.8	8.9806	-158824.2	13.6091
1400	13.6434	16797.9	80.2758	95588.3	-37665.1	-56238.6	8.3072	-158976.6	11.7011
1500	13.6769	18164.0	81.2183	103663.5	-36299.1	-56550.5	7.7203	-159122.8	10.0465
1600	13.7046	19533.1	82.1019	111830.0	-34930.0	-56862.8	7.2040	-159264.2	8.5964
1700	13.7276	20904.7	82.9334	120082.1	-33558.3	-57175.8	6.7459	-159401.9	7.3162
1800	13.7471	22278.5	83.7187	128415.1	-32184.6	-57489.7	6.3365	-159536.9	6.1774
1900	13.7636	23654.0	84.4624	136824.5	-30809.0	-57804.7	5.9681	-159669.8	5.1575
2000	13.7777	25031.1	85.1687	145306.3	-29431.9	-58120.8	5.6348	-159801.3	4.2389
2100	13.7899	26409.5	85.8413	153857.1	-28053.5	-58438.2	5.3316	-159932.0	3.4070
2200	13.8005	27789.0	86.4830	162473.6	-26674.0	-58757.0	5.0544	-160062.4	2.6502
2300	13.8098	29169.6	87.0967	171152.8	-25293.5	-59077.2	4.7999	-160192.7	1.9586
2400	13.8180	30551.0	87.6846	179892.1	-23912.1	-59398.8	4.5654	-160323.5	1.3241
2500	13.8252	31933.1	88.2488	188688.9	-22529.9	-59722.1	4.3485	-160454.8	0.7400
2600	13.8316	33316.0	88.7912	197541.1	-21147.1			-160586.9	0.2003
2700	13.8373	34699.4	89.3133	206446.5	-19763.6			-160720.1	-0.2999
2800	13.8424	36083.4	89.8166	215403.1	-18379.6			-160854.4	-0.7646
2900	13.8470	37467.9	90.3025	224409.2	-16995.1			-160989.8	-1.1977
3000	13.8512	38852.8	90.7720	233463.1	-15610.2			-161126.6	-1.6023
3100	13.8549	40238.1	91.2262	242563.1	-14224.9			-161264.7	-1.9811
3200	13.8583	41623.8	91.6661	251707.8	-12839.3			-161404.1	-2.3365
3300	13.8615	43009.8	92.0926	260895.9	-11453.3			-161544.8	-2.6707
3400	13.8643	44396.1	92.5065	270125.9	-10067.0			-161686.8	-2.9855
3500	13.8669	45782.6	92.9084	279396.8	-8680.4			-161830.2	-3.2825
3600	13.8693	47169.4	93.2991	288707.2	-7293.6			-161974.8	-3.5634
3700	13.8715	48556.5	93.6791	298056.2	-5906.6			-162120.5	-3.8292
3800	13.8735	49943.7	94.0491	307442.7	-4519.3			-162267.5	-4.0813
3900	13.8754	51331.2	94.4095	316865.7	-3131.8			-162415.5	-4.3207
4000	13.8772	52718.8	94.7608	326324.3	-1744.2			-162564.5	-4.5483
4100	13.8788	54106.6	95.1035	335817.6	-356.4			-162714.5	-4.7651
4200	13.8803	55494.6	95.4379	345344.7	1031.5			-162865.4	-4.9717
4300	13.8817	56882.7	95.7646	354904.9	2419.6			-163017.2	-5.1688
4400	13.8830	58270.9	96.0837	364497.4	3807.9			-163169.7	-5.3572
4500	13.8842	59659.3	96.3957	374121.4	5196.2			-163322.9	-5.5374
4600	13.8853	61047.7	96.7009	383776.3	6584.7			-163476.8	-5.7099
4700	13.8864	62436.3	96.9995	393461.4	7973.3			-163631.3	-5.8752
4800	13.8874	63825.0	97.2919	403176.0	9362.0			-163786.3	-6.0338
4900	13.8884	65213.8	97.5782	412919.6	10750.8			-163941.8	-6.1861
5000	13.8893	66602.7	97.8588	422691.5	12139.7			-164097.7	-6.3324
5100	13.8901	67991.7	98.1339	432491.1	13528.6			-164253.9	-6.4731
5200	13.8909	69380.7	98.4036	442318.1	14917.7			-164410.5	-6.6085
5300	13.8916	70769.8	98.6682	452171.7	16306.8			-164567.4	-6.7389
5400	13.8923	72159.0	98.9279	462051.5	17696.0			-164724.5	-6.8646
5500	13.8930	73548.3	99.1828	471957.1	19085.3			-164881.7	-6.9859
5600	13.8936	74937.6	99.4331	481887.9	20474.6			-165039.2	-7.1030
5700	13.8942	76327.0	99.6791	491843.6	21864.0			-165196.7	-7.2160
5800	13.8948	77716.5	99.9207	501823.6	23253.4			-165354.4	-7.3253
5900	13.8953	79106.0	100.1582	511827.6	24642.9			-165512.1	-7.4309
6000	13.8958	80495.5	100.3918	521855.1	26032.5			-165669.7	-7.5331

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(184) SF_4 (gas); molecular weight, 108.066

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-173684.6	-168411.7	-------	-307735.1	--------
100	9.1881	824.2	56.2291	4798.7	-172860.4	-169141.6	363.4764	-309404.2	652.9256
200	13.5514	1951.5	63.8673	10822.0	-171733.1	-169807.3	178.3526	-310917.5	314.1803
298.15	17.4729	3484.6	70.0518	17401.3	-170200.0	-170200.0	117.2027	-312073.5	202.1483
300	17.5338	3517.0	70.1601	17531.0	-170167.6	-170205.3	116.4333	-312091.8	200.7376
[a] 400	20.1652	5412.1	75.5938	24825.4	-168272.5	-170948.9	85.4051	-312918.2	143.8281
500	21.8148	7517.4	80.2849	32625.0	-166167.2	-171392.3	66.7037	-313490.6	109.6047
600	22.8713	9755.5	84.3624	40862.0	-163929.1	-171674.0	54.2080	-313890.7	86.7535
700	23.5741	12080.0	87.9443	49481.0	-161604.6	-171849.9	45.2705	-314173.5	70.4134
800	24.0600	14463.1	91.1258	58437.5	-159221.5	-171965.4	38.5619	-314374.2	58.1488
900	24.4077	16887.5	93.9808	67695.3	-156797.2	-172060.0	33.3408	-314516.0	48.6046
1000	24.6641	19341.7	96.5663	77224.7	-154343.0	-172141.4	29.1619	-314614.3	40.9662
1100	24.8580	21818.2	98.9266	87001.1	-151866.4	-172214.0	25.7412	-314679.7	34.7150
1200	25.0080	24311.8	101.0962	97003.7	-149372.8	-172280.9	22.8895	-314719.8	29.5048
1300	25.1262	26818.7	103.1028	107214.9	-146865.9	-172344.2	20.4756	-314740.0	25.0958
1400	25.2210	29336.3	104.9684	117619.5	-144348.4	-172405.5	18.4058	-314744.4	21.3164
1500	25.2981	31862.3	106.7112	128204.5	-141822.3	-172465.9	16.6113	-314736.3	18.0410
1600	25.3616	34395.4	108.3460	138958.2	-139289.2	-172526.3	15.0406	-314718.0	15.1752
1700	25.4146	36934.3	109.8852	149870.5	-136750.3	-172587.3	13.6542	-314691.7	12.6467
1800	25.4591	39478.1	111.3391	160932.4	-134206.6	-172649.5	12.4214	-314658.8	10.3993
1900	25.4970	42025.9	112.7167	172135.8	-131658.7	-172713.3	11.3179	-314620.7	8.3888
2000	25.5294	44577.3	114.0253	183473.4	-129107.3	-172778.9	10.3245	-314578.6	6.5795
2100	25.5574	47131.7	115.2716	194938.7	-126553.0	-172846.8	9.4253	-314533.3	4.9427
2200	25.5817	49688.6	116.4611	206525.8	-123996.0	-172917.0	8.6075	-314485.6	3.4550
2300	25.6030	52247.9	117.5988	218229.2	-121436.7	-172989.8	7.8605	-314436.2	2.0969
2400	25.6217	54809.2	118.6888	230044.0	-118875.5	-173065.3	7.1755	-314385.6	0.8521
2500	25.6382	57372.2	119.7351	241965.5	-116312.5	-173143.7	6.5450	-314334.3	-0.2929
2600	25.6529	59936.7	120.7409	253989.7	-113747.9			-314282.6	-1.3496
2700	25.6660	62502.7	121.7093	266112.5	-111181.9			-314230.7	-2.3280
2800	25.6777	65069.9	122.6429	278330.4	-108614.7			-314179.1	-3.2362
2900	25.6883	67638.2	123.5442	290640.0	-106046.4			-314127.8	-4.0817
3000	25.6978	70207.5	124.4152	303038.2	-103477.1			-314076.9	-4.8708
3100	25.7064	72777.7	125.2580	315522.1	-100906.9			-314026.7	-5.6087
3200	25.7142	75348.8	126.0743	328088.9	-98335.9			-313977.2	-6.3005
3300	25.7214	77920.5	126.8657	340736.1	-95764.1			-313928.4	-6.9502
3400	25.7279	80493.0	127.6336	353461.3	-93191.6			-313880.4	-7.5616
3500	25.7338	83066.1	128.3795	366262.1	-90618.5			-313833.2	-8.1380
3600	25.7393	85639.8	129.1045	379136.5	-88044.9			-313786.8	-8.6823
3700	25.7444	88214.0	129.8098	392082.3	-85470.7			-313741.2	-9.1971
3800	25.7490	90788.6	130.4964	405097.8	-82896.0			-313696.3	-9.6847
3900	25.7533	93363.8	131.1653	418181.0	-80320.9			-313652.2	-10.1473
4000	25.7573	95939.3	131.8174	431330.3	-77745.3			-313608.7	-10.5866
4100	25.7610	98515.2	132.4535	444544.0	-75169.4			-313566.0	-11.0045
4200	25.7645	101091.5	133.0743	457820.5	-72593.1			-313523.9	-11.4024
4300	25.7677	103668.1	133.6806	471158.4	-70016.5			-313482.3	-11.7818
4400	25.7707	106245.0	134.2730	484556.2	-67439.6			-313441.3	-12.1439
4500	25.7735	108822.2	134.8522	498012.5	-64862.4			-313400.7	-12.4898
4600	25.7761	111399.7	135.4187	511526.2	-62284.9			-313360.6	-12.8206
4700	25.7785	113977.4	135.9730	525095.8	-59707.2			-313320.9	-13.1374
4800	25.7808	116555.4	136.5158	538720.4	-57129.2			-313281.5	-13.4409
4900	25.7830	119133.6	137.0474	552398.6	-54551.0			-313242.4	-13.7319
5000	25.7850	121712.0	137.5683	566129.5	-51972.6			-313203.6	-14.0113
5100	25.7869	124290.6	138.0789	579911.9	-49394.0			-313165.0	-14.2797
5200	25.7887	126869.4	138.5797	593745.0	-46815.3			-313126.6	-14.5378
5300	25.7904	129448.3	139.0709	607627.6	-44236.3			-313088.3	-14.7861
5400	25.7920	132027.4	139.5530	621558.8	-41657.2			-313050.1	-15.0251
5500	25.7936	134606.7	140.0263	635537.9	-39077.9			-313011.9	-15.2555
5600	25.7950	137186.2	140.4911	649563.8	-36498.5			-312973.8	-15.4775
5700	25.7964	139765.7	140.9476	663635.8	-33918.9			-312935.7	-15.6918
5800	25.7977	142345.4	141.3963	677753.1	-31339.2			-312897.6	-15.8987
5900	25.7989	144925.3	141.8373	691914.8	-28759.4			-312859.4	-16.0985
6000	25.8001	147505.2	142.2709	706120.3	-26179.4			-312821.2	-16.2916

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(185) SF_6 (gas); molecular weight, 146.066

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-292556.5	-285173.9	-------	-461207.4	--------
100	9.2853	819.5	53.2996	4510.4	-291737.0	-286603.3	610.6426	-463878.2	975.8348
200	16.5162	2086.3	61.7886	10271.5	-290470.2	-287829.6	296.9079	-466303.7	467.8920
298.15	23.2616	4056.5	69.7137	16728.6	-288500.0	-288500.0	193.2535	-468089.8	299.8592
300	23.3664	4099.6	69.8579	16857.7	-288456.9	-288508.4	191.9493	-468117.5	297.7434
[a] 400	27.8996	6680.3	77.2508	24220.0	-285876.2	-289336.5	139.3671	-469338.6	212.3834
500	30.7506	9623.7	83.8069	32279.8	-282932.8	-289747.4	107.7303	-470137.2	161.0554
600	32.5827	12796.8	89.5871	40955.5	-279759.7	-289925.4	86.6161	-470652.0	126.7886
700	33.8050	16120.1	94.7075	50175.2	-276436.4	-289952.8	71.5291	-470974.5	102.2904
800	34.6517	19545.4	99.2801	59878.7	-273011.1	-289890.3	60.2147	-471163.1	83.9068
900	35.2586	23042.5	103.3984	70016.1	-269514.0	-289786.9	51.4172	-471255.7	69.6042
1000	35.7066	26591.8	107.1376	80545.8	-265964.7	-289656.2	44.3821	-471277.5	58.1607
1100	36.0458	30180.2	110.5574	91433.0	-262376.3	-289506.9	38.6288	-471245.9	48.7980
1200	36.3083	33798.4	113.7055	102648.2	-258758.1	-289344.7	33.8370	-471173.1	40.9965
1300	36.5154	37440.0	116.6203	114166.3	-255116.5	-289173.8	29.7848	-471068.0	34.3966
1400	36.6815	41100.2	119.3326	125965.5	-251456.3	-288997.2	26.3135	-470937.1	28.7409
1500	36.8166	44775.3	121.8682	138027.0	-247781.2	-288817.1	23.3069	-470785.5	23.8408
1600	36.9280	48462.7	124.2479	150334.0	-244093.8	-288635.2	20.6778	-470617.2	19.5546
1700	37.0209	52160.3	126.4895	162871.9	-240396.2	-288452.8	18.3595	-470435.3	15.7742
1800	37.0990	55866.4	128.6079	175627.8	-236690.1	-288270.9	16.3000	-470242.2	12.4151
1900	37.1655	59579.7	130.6155	188589.8	-232976.8	-288090.3	14.4585	-470040.0	9.4108
2000	37.2224	63299.2	132.5234	201747.6	-229257.3	-287911.7	12.8022	-469830.4	6.7082
2100	37.2715	67023.9	134.3407	215091.5	-225532.6	-287735.5	11.3046	-469614.7	4.2641
2200	37.3142	70753.2	136.0755	228612.9	-221803.3	-287562.3	9.9439	-469394.2	2.0432
2300	37.3515	74486.6	137.7351	242304.1	-218069.9	-287392.4	8.7023	-469169.7	0.0164
2400	37.3843	78223.4	139.3254	256157.7	-214333.1	-287226.0	7.5648	-468942.0	-1.8407
2500	37.4134	81963.3	140.8521	270167.0	-210593.2	-287063.5	6.5190	-468712.0	-3.5483
2600	37.4391	85706.0	142.3200	284326.1	-206850.5			-468480.0	-5.1238
2700	37.4621	89451.0	143.7334	298629.2	-203105.4			-468246.6	-6.5818
2800	37.4827	93198.3	145.0962	313071.1	-199358.2			-468012.1	-7.9351
2900	37.5012	96947.5	146.4119	327646.9	-195609.0			-467776.9	-9.1944
3000	37.5179	100698.5	147.6835	342352.0	-191858.0			-467541.3	-10.3691
3100	37.5331	104451.1	148.9140	357182.2	-188105.4			-467305.3	-11.4675
3200	37.5468	108205.1	150.1058	372133.5	-184351.4			-467069.3	-12.4967
3300	37.5594	111960.4	151.2614	387202.2	-180596.1			-466833.2	-13.4631
3400	37.5708	115716.9	152.3828	402384.7	-176839.6			-466597.3	-14.3721
3500	37.5813	119474.5	153.4721	417677.7	-173082.0			-466361.5	-15.2288
3600	37.5909	123233.1	154.5309	433078.1	-169323.4			-466126.0	-16.0375
3700	37.5998	126992.7	155.5610	448582.9	-165563.8			-465890.8	-16.8021
3800	37.6080	130753.1	156.5638	464189.4	-161803.4			-465655.8	-17.5260
3900	37.6155	134514.3	157.5408	479894.8	-158042.2			-465421.2	-18.2125
4000	37.6226	138276.2	158.4932	495696.7	-154280.3			-465186.9	-18.8644
4100	37.6291	142038.8	159.4223	511592.7	-150517.7			-464952.8	-19.4841
4200	37.6351	145802.0	160.3291	527580.4	-146754.5			-464719.0	-20.0740
4300	37.6407	149565.8	161.2148	543657.8	-142990.7			-464485.5	-20.6362
4400	37.6460	153330.1	162.0802	559822.7	-139226.4			-464252.1	-21.1726
4500	37.6509	157094.9	162.9263	576073.2	-135461.6			-464019.0	-21.6849
4600	37.6555	160860.3	163.7538	592407.3	-131696.2			-463786.1	-22.1747
4700	37.6598	164626.0	164.5637	608823.3	-127930.5			-463553.3	-22.6433
4800	37.6638	168392.2	165.3566	625319.5	-124164.3			-463320.6	-23.0923
4900	37.6676	172158.8	166.1333	641894.1	-120397.7			-463088.0	-23.5227
5000	37.6712	175925.7	166.8943	658545.6	-116630.8			-462855.4	-23.9356
5100	37.6745	179693.0	167.6403	675272.5	-112863.5			-462622.9	-24.3322
5200	37.6777	183460.6	168.3719	692073.2	-109095.9			-462390.3	-24.7133
5300	37.6807	187228.6	169.0896	708946.4	-105327.9			-462157.7	-25.0799
5400	37.6835	190996.8	169.7940	725890.7	-101559.7			-461925.0	-25.4327
5500	37.6862	194765.3	170.4855	742904.8	-97791.2			-461592.3	-25.7725
5600	37.6887	198534.0	171.1645	759987.4	-94022.5			-461459.4	-26.1000
5700	37.6911	202303.0	171.8316	777137.3	-90253.5			-461226.4	-26.4159
5800	37.6934	206072.2	172.4872	794353.3	-86484.3			-460993.3	-26.7207
5900	37.6956	209841.7	173.1315	811634.3	-82714.8			-460760.0	-27.0150
6000	37.6976	213611.3	173.7651	828979.3	-78945.1			-460526.4	-27.2994

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(186) S_2F_2 (gas); molecular weight, 102.132

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-57880.5	-53663.4	-------	-222180.3	--------
100	9.4879	833.5	56.0164	4768.1	-57046.9	-53854.0	119.7091	-223342.1	471.3789
200	12.8829	1957.1	63.6677	10776.5	-55923.4	-54215.9	60.7092	-224344.9	226.8957
298.15	15.2929	3348.4	69.2958	17312.1	-54532.0	-54532.0	41.1564	-225130.0	146.0671
300	15.3285	3376.8	69.3905	17440.4	-54503.7	-54537.6	40.9097	-225142.7	145.0495
[a] 400	16.8300	4991.0	74.0241	24618.6	-52889.4	-55890.2	30.9304	-225730.7	103.9961
500	17.7394	6723.2	77.8855	32219.6	-51157.3	-56839.3	24.7778	-226161.5	79.3076
600	18.3108	8527.8	81.1741	40176.7	-49352.7	-57579.7	20.6109	-226483.9	62.8210
700	18.6865	10378.9	84.0269	48439.9	-47501.6	-58178.7	17.5995	-226731.6	51.0300
800	18.9443	12261.2	86.5399	56970.8	-45619.3	-58701.2	15.3193	-226926.8	42.1780
900	19.1278	14165.3	88.7824	65738.9	-43715.2	-59210.7	13.5301	-227084.1	35.2878
1000	19.2626	16085.1	90.8051	74719.9	-41795.3	-59712.7	12.0864	-227213.3	29.7721
1100	19.3642	18016.7	92.6460	83893.9	-39863.8	-60209.8	10.8953	-227321.3	25.2570
1200	19.4427	19957.2	94.3344	93244.0	-37923.3	-60703.7	9.8945	-227412.9	21.4927
1300	19.5045	21904.7	95.8932	102756.4	-35975.8	-61195.4	9.0408	-227491.9	18.3063
1400	19.5539	23857.7	97.3405	112419.0	-34022.8	-61685.9	8.3031	-227560.9	15.5743
1500	19.5941	25815.2	98.6910	122221.3	-32065.3	-62175.8	7.6586	-227622.4	13.2058
1600	19.6272	27776.3	99.9566	132154.3	-30104.2	-62665.5	7.0903	-227678.1	11.1329
1700	19.6547	29740.4	101.1474	142210.1	-28140.0	-63155.4	6.5849	-227729.5	9.3034
1800	19.6779	31707.1	102.2715	152381.6	-26173.4	-63645.8	6.1321	-227778.1	7.6768
1900	19.6976	33675.9	103.3360	162662.4	-24204.6	-64137.0	5.7239	-227824.9	6.2211
2000	19.7145	35646.5	104.3468	173047.0	-22233.9	-64628.9	5.3536	-227870.9	4.9108
2100	19.7290	37618.7	105.3090	183530.2	-20261.8	-65122.0	5.0161	-227916.9	3.7250
2200	19.7416	39592.3	106.2271	194107.3	-18288.2	-65616.1	4.7069	-227963.7	2.6468
2300	19.7527	41567.0	107.1049	204774.2	-16313.5	-66111.5	4.4224	-228011.8	1.6621
2400	19.7624	43542.7	107.9458	215527.1	-14337.7	-66608.2	4.1597	-228061.8	0.7593
2500	19.7709	45519.4	108.7527	226362.3	-12361.0	-67106.4	3.9162	-228113.9	-0.0715
2600	19.7786	47496.9	109.5283	237276.6	-10383.6			-228168.6	-0.8385
2700	19.7853	49475.1	110.2748	248267.0	-8405.4			-228226.0	-1.5489
2800	19.7914	51453.9	110.9945	259330.6	-6426.5			-228286.4	-2.2088
2900	19.7969	53433.4	111.6891	270465.0	-4447.1			-228349.9	-2.8232
3000	19.8018	55413.3	112.3603	281667.7	-2467.2			-228416.4	-3.3969
3100	19.8063	57393.7	113.0097	292936.4	-486.7			-228486.2	-3.9338
3200	19.8104	59374.6	113.6386	304268.9	1494.1			-228559.0	-4.4372
3300	19.8141	61355.8	114.2482	315663.4	3475.3			-228635.0	-4.9103
3400	19.8174	63337.4	114.8398	327118.0	5456.9			-228714.0	-5.3557
3500	19.8205	65319.3	115.4143	338630.8	7438.8			-228795.9	-5.7758
3600	19.8234	67301.5	115.9727	350200.3	9421.0			-228880.6	-6.1727
3700	19.8260	69283.9	116.5159	361824.9	11403.5			-228968.0	-6.5483
3800	19.8284	71266.6	117.0446	373503.0	13386.2			-229058.0	-6.9042
3900	19.8306	73249.6	117.5597	385233.3	15369.1			-229150.4	-7.2421
4000	19.8327	75232.8	118.0618	397014.5	17352.3			-229245.2	-7.5632
4100	19.8346	77216.1	118.5516	408845.3	19335.7			-229342.1	-7.8687
4200	19.8364	79199.7	119.0296	420724.4	21319.2			-229441.0	-8.1598
4300	19.8381	81183.4	119.4963	432650.8	23302.9			-229541.7	-8.4375
4400	19.8396	83167.3	119.9524	444623.4	25286.8			-229644.2	-8.7027
4500	19.8410	85151.3	120.3983	456641.0	27270.9			-229748.3	-8.9562
4600	19.8424	87135.5	120.8344	468702.7	29255.0			-229853.9	-9.1989
4700	19.8437	89119.8	121.2611	480807.5	31239.3			-229960.7	-9.4313
4800	19.8449	91104.2	121.6789	492954.6	33223.8			-230068.8	-9.6541
4900	19.8460	93088.8	122.0881	505143.0	35208.3			-230177.9	-9.8679
5000	19.8470	95073.4	122.4891	517372.0	37193.0			-230288.0	-10.0733
5100	19.8480	97058.2	122.8821	529640.6	39177.7			-230399.0	-10.2707
5200	19.8490	99043.0	123.2675	541948.1	41162.6			-230510.7	-10.4606
5300	19.8498	101028.0	123.6456	554293.8	43147.5			-230623.1	-10.6434
5400	19.8507	103013.0	124.0167	566677.0	45132.5			-230736.0	-10.8195
5500	19.8515	104998.1	124.3809	579096.9	47117.6			-230849.4	-10.9894
5600	19.8522	106983.3	124.7386	591553.0	49102.8			-230963.1	-11.1532
5700	19.8529	108968.5	125.0900	604044.5	51088.1			-231077.2	-11.3114
5800	19.8536	110953.9	125.4353	616570.8	53073.4			-231191.6	-11.4642
5900	19.8542	112939.3	125.7747	629131.3	55058.8			-231306.1	-11.6118
6000	19.8548	114924.7	126.1084	641725.5	57044.3			-231420.7	-11.7547

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(187) SO (gas); molecular weight, 48.066

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-776.1	1314.9	-------	-123575.0	--------
100	6.9567	694.9	45.3701	3842.1	-81.2	1498.4	1.4515	-123906.7	266.1469
200	6.9958	1391.6	50.1977	8648.0	615.4	1454.5	3.0839	-124304.8	130.5883
298.15	7.2123	2087.3	53.0252	13722.1	1311.2	1311.2	3.5864	-124686.2	85.8139
300	7.2179	2100.7	53.0698	13820.3	1324.6	1308.1	3.5922	-124693.0	85.2503
[a] 400	7.5438	2838.6	55.1904	19237.6	2062.5	592.5	3.8041	-125034.1	62.5128
500	7.8465	3608.6	56.9073	24845.1	2832.4	59.0	3.8432	-125324.0	48.8352
600	8.0882	4405.8	58.3602	30610.3	3629.7	-378.2	3.8321	-125571.7	39.6971
700	8.2729	5224.3	59.6215	36510.8	4448.2	-748.6	3.8030	-125787.2	33.1578
800	8.4133	6058.9	60.7358	42529.7	5282.8	-1083.1	3.7675	-125978.5	28.2453
900	8.5212	6905.9	61.7332	48654.0	6129.7	-1412.6	3.7298	-126151.5	24.4190
1000	8.6054	7762.4	62.6356	54873.2	6986.2	-1739.3	3.6917	-126310.4	21.3539
1100	8.6724	8626.4	63.4590	61178.5	7850.3	-2064.2	3.6540	-126458.4	18.8430
1200	8.7266	9496.4	64.2160	67562.8	8720.3	-2387.8	3.6172	-126597.7	16.7482
1300	8.7712	10371.4	64.9163	74019.8	9595.3	-2710.6	3.5816	-126730.1	14.9738
1400	8.8086	11250.4	65.5677	80544.4	10474.3	-3032.9	3.5472	-126857.0	13.4513
1500	8.8404	12132.9	66.1766	87132.0	11356.8	-3355.2	3.5140	-126979.5	12.1305
1600	8.8678	13018.4	66.7480	93778.5	12242.2	-3677.6	3.4820	-127098.5	10.9738
1700	8.8917	13906.4	67.2864	100480.5	13130.2	-4000.4	3.4512	-127214.7	9.9521
1800	8.9129	14796.6	67.7952	107234.8	14020.5	-4323.9	3.4215	-127328.9	9.0432
1900	8.9318	15688.9	68.2776	114038.6	14912.7	-4648.3	3.3928	-127441.6	8.2292
2000	8.9488	16582.9	68.7362	120889.5	15806.8	-4973.6	3.3652	-127553.3	7.4960
2100	8.9644	17478.6	69.1732	127785.2	16702.4	-5300.2	3.3384	-127664.6	6.8320
2200	8.9787	18375.7	69.5906	134723.5	17599.6	-5628.0	3.3126	-127775.7	6.2278
2300	8.9920	19274.3	69.9900	141702.7	18498.2	-5957.1	3.2876	-127887.0	5.6757
2400	9.0043	20174.1	70.3729	148720.9	19398.0	-6287.7	3.2634	-127998.8	5.1692
2500	9.0160	21075.1	70.7407	155776.7	20299.0	-6619.8	3.2399	-128111.3	4.7028
2600	9.0269	21977.3	71.0946	162868.6	21201.1			-128224.8	4.2719
2700	9.0373	22880.5	71.4355	169995.2	22104.4			-128339.5	3.8725
2800	9.0473	23784.7	71.7643	177155.3	23008.6			-128455.4	3.5014
2900	9.0568	24689.9	72.0819	184347.7	23913.8			-128572.8	3.1555
3000	9.0660	25596.1	72.3891	191571.4	24819.9			-128691.6	2.8324
3100	9.0748	26503.1	72.6866	198825.2	25727.0			-128812.1	2.5298
3200	9.0834	27411.0	72.9748	206108.4	26634.9			-128934.2	2.2459
3300	9.0917	28319.8	73.2544	213419.9	27543.6			-129057.9	1.9789
3400	9.0998	29229.4	73.5260	220759.0	28453.2			-129183.4	1.7275
3500	9.1077	30139.7	73.7899	228124.8	29363.6			-129310.7	1.4901
3600	9.1154	31050.9	74.0466	235516.7	30274.8			-129439.6	1.2657
3700	9.1230	31962.8	74.2964	242933.9	31186.7			-129570.3	1.0532
3800	9.1304	32875.5	74.5398	250375.8	32099.3			-129702.7	0.8517
3900	9.1377	33788.9	74.7771	257841.7	33012.7			-129836.7	0.6604
4000	9.1449	34703.0	75.0085	265331.0	33926.9			-129972.4	0.4784
4100	9.1520	35617.9	75.2344	272843.2	34841.7			-130109.7	0.3051
4200	9.1590	36533.4	75.4550	280377.7	35757.3			-130248.6	0.1399
4300	9.1659	37449.6	75.6706	287934.0	36673.5			-130389.0	-0.0178
4400	9.1727	38366.6	75.8814	295511.7	37590.5			-130530.9	-0.1685
4500	9.1795	39284.2	76.0876	303110.2	38508.1			-130674.1	-0.3126
4600	9.1862	40202.5	76.2895	310729.1	39426.3			-130818.8	-0.4507
4700	9.1928	41121.4	76.4871	318367.9	40345.3			-130964.7	-0.5830
4800	9.1994	42041.0	76.6807	326026.3	41264.9			-131111.9	-0.7099
4900	9.2060	42961.3	76.8705	333703.9	42185.2			-131260.2	-0.8318
5000	9.2124	43882.2	77.0565	341400.3	43106.1			-131409.7	-0.9490
5100	9.2189	44803.8	77.2390	349115.1	44027.7			-131560.3	-1.0616
5200	9.2253	45726.0	77.4181	356848.0	44949.9			-131711.8	-1.1701
5300	9.2317	46648.9	77.5939	364598.6	45872.7			-131864.3	-1.2746
5400	9.2380	47572.3	77.7665	372366.7	46796.2			-132017.6	-1.3754
5500	9.2443	48496.5	77.9361	380151.8	47720.3			-132171.8	-1.4726
5600	9.2506	49421.2	78.1027	387953.8	48645.1			-132326.7	-1.5664
5700	9.2568	50346.6	78.2665	395772.3	49570.5			-132482.4	-1.6571
5800	9.2631	51272.6	78.4275	403607.0	50496.4			-132638.6	-1.7447
5900	9.2693	52199.2	78.5859	411457.7	51423.1			-132795.5	-1.8294
6000	9.2755	53126.4	78.7418	419324.1	52350.3			-132952.9	-1.9115

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(188) SO_2 (gas); molecular weight, 64.066

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-73468.2	-70339.8	-------	-254216.2	--------
100	8.0134	795.5	49.9333	4197.8	-72672.7	-70402.5	155.0571	-254974.8	546.4844
200	8.6948	1627.2	55.6711	9507.0	-71840.9	-70659.1	78.0280	-255795.2	267.5219
298.15	9.5290	2521.2	59.2967	15158.1	-70947.0	-70947.0	52.5662	-256501.1	175.3958
300	9.5451	2538.8	59.3557	15267.9	-70929.4	-70952.3	52.2453	-256513.3	174.2364
[a] 400	10.3919	3536.2	62.2191	21351.4	-69932.0	-71763.5	39.2889	-257112.8	127.4700
500	11.1292	4613.5	64.6199	27696.5	-68854.7	-72355.3	31.4185	-257606.0	99.3496
600	11.7189	5757.1	66.7033	34264.9	-67711.1	-72823.8	26.1310	-258013.7	80.5695
700	12.1755	6952.8	68.5456	41029.1	-66515.4	-73205.9	22.3320	-258355.7	67.1356
800	12.5272	8188.7	70.1954	47967.6	-65279.5	-73538.0	19.4689	-258647.9	57.0477
900	12.8004	9455.6	71.6873	55062.9	-64012.6	-73854.5	17.2322	-258901.9	49.1932
1000	13.0156	10746.9	73.0475	62300.7	-62721.3	-74160.4	15.4352	-259126.4	42.9038
1100	13.1877	12057.3	74.2964	69668.7	-61410.9	-74458.2	13.9590	-259327.5	37.7538
1200	13.3277	13383.3	75.4501	77156.8	-60084.9	-74750.1	12.7239	-259510.1	33.4588
1300	13.4434	14722.1	76.5216	84756.0	-58746.1	-75037.4	11.6748	-259677.5	29.8222
1400	13.5405	16071.4	77.5215	92458.7	-57396.8	-75321.5	10.7721	-259832.7	26.7032
1500	13.6231	17429.7	78.4586	100258.2	-56038.5	-75603.3	9.9868	-259977.7	23.9985
1600	13.6944	18795.6	79.3402	108148.6	-54672.6	-75883.7	9.2971	-260114.3	21.6305
1700	13.7567	20168.3	80.1723	116124.6	-53299.9	-76163.4	8.6863	-260243.9	19.5401
1800	13.8117	21546.7	80.9602	124181.6	-51921.5	-76443.0	8.1414	-260367.8	17.6811
1900	13.8608	22930.4	81.7083	132315.3	-50537.8	-76723.1	7.6520	-260486.9	16.0159
2000	13.9052	24318.7	82.4204	140522.1	-49149.5	-77004.2	7.2100	-260602.1	14.5185
2100	13.9455	25711.3	83.0998	148798.3	-47756.9	-77286.6	6.8086	-260714.3	13.1623
2200	13.9826	27107.7	83.7494	157141.0	-46360.5	-77570.7	6.4424	-260823.9	11.9287
2300	14.0168	28507.7	84.3718	165547.3	-44960.5	-77856.7	6.1067	-260931.7	10.8020
2400	14.0487	29911.0	84.9690	174014.5	-43557.2	-78144.8	5.7979	-261038.1	9.7688
2500	14.0786	31317.4	85.5431	182540.3	-42150.8	-78435.2	5.5128	-261143.5	8.8178
2600	14.1068	32726.7	86.0958	191122.5	-40741.5			-261248.4	7.9396
2700	14.1336	34138.7	86.6287	199758.8	-39329.5			-261353.0	7.1262
2800	14.1590	35553.4	87.1432	208447.6	-37914.8			-261457.7	6.3705
2900	14.1834	36970.5	87.6405	217186.9	-36497.7			-261562.8	5.6667
3000	14.2068	38390.0	88.1217	225975.1	-35078.2			-261668.4	5.0095
3100	14.2293	39811.8	88.5879	234810.7	-33656.4			-261774.8	4.3945
3200	14.2511	41235.8	89.0400	243692.3	-32232.4			-261882.2	3.8177
3300	14.2722	42662.0	89.4789	252618.3	-30806.2			-261990.6	3.2756
3400	14.2928	44090.2	89.9053	261587.6	-29377.9			-262100.3	2.7652
3500	14.3128	45520.5	90.3199	270599.0	-27947.7			-262211.3	2.2838
3600	14.3324	46952.8	90.7233	279651.2	-26515.4			-262323.7	1.8289
3700	14.3515	48387.0	91.1163	288743.3	-25081.2			-262437.7	1.3984
3800	14.3703	49823.1	91.4993	297874.1	-23645.1			-262553.1	0.9904
3900	14.3887	51261.0	91.8728	307042.8	-22207.2			-262670.2	0.6032
4000	14.4069	52700.8	92.2373	316248.4	-20767.4			-262788.8	0.2351
4100	14.4247	54142.4	92.5933	325490.0	-19325.8			-262909.1	-0.1151
4200	14.4423	55585.8	92.9411	334766.8	-17882.4			-263031.0	-0.4489
4300	14.4597	57030.9	93.2811	344078.0	-16437.3			-263154.5	-0.7672
4400	14.4769	58477.7	93.6137	353422.8	-14990.5			-263279.7	-1.0713
4500	14.4939	59926.2	93.9393	362800.5	-13542.0			-263406.4	-1.3619
4600	14.5107	61376.5	94.2580	372210.4	-12091.7			-263534.6	-1.6401
4700	14.5274	62828.4	94.5703	381651.9	-10639.8			-263664.4	-1.9065
4800	14.5439	64281.9	94.8763	391124.2	-9186.3			-263795.6	-2.1620
4900	14.5603	65737.1	95.1763	400626.9	-7731.1			-263928.2	-2.4072
5000	14.5765	67194.0	95.4707	410159.3	-6274.2			-264062.2	-2.6427
5100	14.5927	68652.4	95.7595	419720.9	-4815.8			-264197.5	-2.8690
5200	14.6087	70112.5	96.0430	429311.0	-3355.7			-264334.0	-3.0868
5300	14.6246	71574.2	96.3214	438929.3	-1894.0			-264471.6	-3.2965
5400	14.6405	73037.4	96.5949	448575.1	-430.8			-264610.4	-3.4985
5500	14.6562	74502.3	96.8637	458248.1	1034.1			-264750.2	-3.6932
5600	14.6719	75968.7	97.1279	467947.7	2500.5			-264890.9	-3.8811
5700	14.6875	77436.6	97.3878	477673.6	3968.4			-265032.6	-4.0625
5800	14.7031	78906.2	97.6433	487425.1	5438.0			-265175.0	-4.2378
5900	14.7186	80377.3	97.8948	497202.1	6909.1			-265318.2	-4.4072
6000	14.7340	81849.9	98.1423	507004.0	8381.7			-265462.0	-4.5710

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(189) SO_3 (gas); molecular weight, 80.066

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-97265.8	-93100.0	-------	-335963.0	--------
100	8.1447	797.5	50.7332	4275.8	-96468.3	-93507.5	201.2019	-337247.0	719.3611
200	10.1189	1701.8	56.9207	9682.4	-95564.0	-94039.5	98.7984	-338552.3	350.2818
298.15	12.1085	2795.8	61.3449	15494.2	-94470.0	-94470.0	64.9008	-339580.7	228.3326
300	12.1423	2818.3	61.4199	15607.7	-94447.6	-94477.1	64.4736	-339597.8	226.7976
[a] 400	13.7843	4117.6	65.1464	21941.0	-93148.3	-95341.4	47.2276	-340413.3	164.8811
500	15.0818	5563.6	68.3678	28620.3	-91702.2	-95930.0	36.7805	-341048.2	127.6507
600	16.0747	7123.7	71.2095	35602.0	-90142.1	-96359.5	29.7769	-341545.8	102.7889
700	16.8242	8770.4	73.7465	42852.1	-88495.4	-96679.6	24.7547	-341940.7	85.0070
800	17.3908	10482.5	76.0317	50342.9	-86783.3	-96934.4	20.9769	-342258.9	71.6567
900	17.8231	12244.1	78.1062	58051.4	-85021.7	-97163.3	18.0313	-342519.2	61.2643
1000	18.1574	14043.9	80.0020	65958.2	-83222.0	-97374.4	15.6695	-342735.4	52.9446
1100	18.4196	15873.2	81.7454	74046.7	-81392.6	-97572.8	13.7330	-342917.3	46.1336
1200	18.6280	17726.0	83.3574	82302.9	-79539.8	-97762.2	12.1160	-343072.2	40.4549
1300	18.7959	19597.5	84.8553	90714.4	-77668.3	-97945.1	10.7452	-343205.8	35.6479
1400	18.9328	21484.1	86.2534	99270.6	-75781.7	-98123.9	9.5681	-343322.1	31.5261
1500	19.0458	23383.2	87.5636	107962.2	-73882.6	-98300.2	8.5461	-343424.6	27.9528
1600	19.1400	25292.7	88.7959	116780.8	-71973.1	-98475.5	7.6502	-343515.9	24.8252
1700	19.2192	27210.7	89.9587	125719.0	-70055.1	-98651.2	6.8583	-343598.1	22.0649
1800	19.2864	29136.1	91.0592	134770.4	-68129.7	-98828.3	6.1531	-343672.9	19.6107
1900	19.3439	31067.7	92.1035	143929.0	-66198.1	-99007.7	5.5210	-343741.9	17.4144
2000	19.3935	33004.6	93.0970	153189.4	-64261.2	-99190.2	4.9511	-343806.4	15.4374
2100	19.4364	34946.2	94.0443	162546.9	-62319.6	-99376.4	4.4345	-343867.3	13.6483
2200	19.4739	36891.7	94.9494	171996.9	-60374.1	-99566.9	3.9640	-343925.7	12.0215
2300	19.5069	38840.8	95.8158	181535.4	-58425.0	-99762.1	3.5336	-343982.3	10.5360
2400	19.5359	40793.0	96.6466	191158.9	-56472.8	-99962.4	3.1382	-344037.8	9.1741
2500	19.5616	42747.9	97.4446	200863.7	-54517.9	-100168.0	2.7738	-344093.0	7.9209
2600	19.5845	44705.2	98.2123	210646.8	-52560.6			-344148.3	6.7639
2700	19.6050	46664.7	98.9518	220505.2	-50601.1			-344204.3	5.6924
2800	19.6234	48626.2	99.6651	230436.3	-48639.7			-344261.4	4.6974
2900	19.6400	50589.3	100.3541	240437.4	-46676.5			-344320.1	3.7707
3000	19.6550	52554.1	101.0201	250506.3	-44711.7			-344380.6	2.9057
3100	19.6686	54520.3	101.6648	260640.7	-42745.5			-344443.3	2.0964
3200	19.6809	56487.8	102.2895	270838.6	-40778.1			-344508.6	1.3375
3300	19.6922	58456.4	102.8953	281098.0	-38809.4			-344576.7	0.6245
3400	19.7025	60426.2	103.4833	291417.1	-36839.6			-344647.7	-0.0467
3500	19.7120	62396.9	104.0546	301794.1	-34868.9			-344722.0	-0.6797
3600	19.7207	64368.5	104.6100	312227.5	-32897.3			-344799.6	-1.2777
3700	19.7287	66341.0	105.1504	322715.6	-30924.8			-344880.7	-1.8435
3800	19.7361	68314.3	105.6767	333257.1	-28951.6			-344965.6	-2.3796
3900	19.7429	70288.2	106.1894	343850.5	-26977.6			-345054.1	-2.8883
4000	19.7492	72262.8	106.6893	354494.5	-25003.0			-345146.6	-3.3718
4100	19.7551	74238.0	107.1771	365187.9	-23027.8			-345242.9	-3.8318
4200	19.7606	76213.8	107.6532	375929.6	-21052.0			-345343.2	-4.2700
4300	19.7657	78190.1	108.1182	386718.2	-19075.7			-345447.5	-4.6879
4400	19.7705	80167.0	108.5727	397552.8	-17098.9			-345555.8	-5.0870
4500	19.7749	82144.2	109.0170	408432.4	-15121.6			-345668.2	-5.4685
4600	19.7791	84121.9	109.4517	419355.9	-13143.9			-345784.5	-5.8335
4700	19.7830	86100.0	109.8771	430322.4	-11165.8			-345904.9	-6.1831
4800	19.7867	88078.5	110.2937	441331.1	-9187.3			-346029.1	-6.5182
4900	19.7901	90057.4	110.7017	452380.9	-7208.4			-346157.3	-6.8398
5000	19.7934	92036.5	111.1015	463471.1	-5229.3			-346289.4	-7.1486
5100	19.7964	94016.0	111.4935	474600.9	-3249.8			-346425.3	-7.4454
5200	19.7993	95995.8	111.8780	485769.6	-1270.0			-346564.9	-7.7310
5300	19.8020	97975.9	112.2551	496976.3	710.1			-346708.1	-8.0058
5400	19.8046	99956.2	112.6253	508220.4	2690.4			-346855.0	-8.2706
5500	19.8070	101936.8	112.9887	519501.1	4671.0			-347005.4	-8.5259
5600	19.8094	103917.6	113.3456	530817.9	6651.8			-347159.2	-8.7722
5700	19.8115	105898.7	113.6963	542170.0	8632.9			-347316.4	-9.0099
5800	19.8136	107879.9	114.0408	553556.9	10614.1			-347476.8	-9.2396
5900	19.8156	109861.4	114.3796	564978.0	12595.6			-347640.4	-9.4615
6000	19.8175	111843.1	114.7126	576432.7	14577.2			-347807.0	-9.6762

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(190) SOCl (gas); molecular weight, 83.523

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-27227.6	-24039.7	-------	-177478.1	--------
100	8.3121	801.5	55.8107	4779.6	-26426.0	-24097.7	54.7370	-178200.0	379.6602
200	9.8167	1708.9	62.0388	10698.9	-25518.7	-24293.6	28.3258	-178886.4	184.6413
298.15	10.8672	2727.6	66.1689	17000.7	-24500.0	-24500.0	19.5550	-179448.1	120.2031
300	10.8833	2747.7	66.2361	17123.2	-24479.9	-24503.9	19.4441	-179457.8	119.3920
[a] 400	11.6179	3874.7	69.4735	23914.6	-23352.8	-25245.0	14.9528	-179940.0	86.6689
500	12.1508	5064.6	72.1263	30998.6	-22163.0	-25785.6	12.1682	-180350.9	66.9856
600	12.5386	6300.1	74.3778	38326.6	-20927.5	-26218.9	10.2744	-180704.8	53.8352
700	12.8221	7568.8	76.3330	45864.3	-19658.7	-26578.3	8.9010	-181013.6	44.4248
800	13.0318	8862.1	78.0596	53585.6	-18365.5	-26896.9	7.8578	-181287.0	37.3556
900	13.1894	10173.5	79.6040	61470.1	-17054.1	-27207.1	7.0369	-181532.6	31.8494
1000	13.3098	11498.7	81.0002	69501.5	-15728.8	-27512.3	6.3726	-181756.1	27.4387
1100	13.4035	12834.6	82.2733	77666.1	-14393.0	-27814.2	5.8231	-181961.8	23.8257
1200	13.4775	14178.7	83.4429	85952.7	-13048.8	-28113.9	5.3602	-182153.4	20.8116
1300	13.5368	15529.6	84.5241	94351.7	-11698.0	-28412.2	4.9644	-182333.4	18.2586
1400	13.5849	16885.7	85.5291	102855.0	-10341.8	-28710.0	4.6215	-182504.0	16.0682
1500	13.6245	18246.3	86.4677	111455.3	-8981.3	-29007.8	4.3212	-182667.0	14.1681
1600	13.6574	19610.4	87.3481	120146.6	-7617.1	-29305.9	4.0557	-182823.9	12.5041
1700	13.6851	20977.6	88.1769	128923.2	-6250.0	-29604.9	3.8191	-182975.7	11.0346
1800	13.7085	22347.3	88.9598	137780.4	-4880.3	-29905.1	3.6066	-183123.7	9.7273
1900	13.7284	23719.2	89.7016	146713.8	-3508.4	-30206.8	3.4145	-183268.6	8.5566
2000	13.7456	25092.9	90.4062	155719.5	-2134.7	-30510.2	3.2400	-183411.4	7.5022
2100	13.7605	26468.2	91.0772	164793.9	-759.3	-30815.6	3.0804	-183552.5	6.5475
2200	13.7735	27844.9	91.7177	173933.9	617.4	-31123.0	2.9339	-183692.6	5.6790
2300	13.7849	29222.9	92.3302	183136.5	1995.3	-31432.7	2.7989	-183832.3	4.8853
2400	13.7949	30601.9	92.9171	192399.1	3374.3	-31744.7	2.6738	-183971.9	4.1572
2500	13.8038	31981.8	93.4804	201719.2	4754.3	-32059.2	2.5576	-184111.7	3.4869
2600	13.8117	33362.6	94.0219	211094.5	6135.0			-184252.2	2.8676
2700	13.8188	34744.1	94.5433	220522.9	7516.6			-184393.6	2.2938
2800	13.8252	36126.3	95.0460	230002.5	8898.8			-184536.1	1.7606
2900	13.8309	37509.1	95.5313	239531.5	10281.6			-184679.9	1.2638
3000	13.8360	38892.5	96.0002	249108.2	11664.9			-184825.2	0.7997
3100	13.8407	40276.3	96.4540	258731.0	13048.8			-184972.1	0.3652
3200	13.8450	41660.6	96.8935	268398.5	14433.1			-185120.7	-0.0425
3300	13.8489	43045.3	97.3196	278109.3	15817.8			-185271.1	-0.4257
3400	13.8524	44430.4	97.7331	287862.0	17202.8			-185423.3	-0.7868
3500	13.8557	45815.8	98.1347	297655.5	18588.2			-185577.5	-1.1274
3600	13.8587	47201.5	98.5250	307488.6	19973.9			-185733.5	-1.4494
3700	13.8614	48587.5	98.9048	317360.2	21360.0			-185891.6	-1.7543
3800	13.8639	49973.8	99.2745	327269.2	22746.2			-186051.6	-2.0433
3900	13.8663	51360.3	99.6346	337214.7	24132.7			-186213.6	-2.3178
4000	13.8685	52747.0	99.9857	347195.8	25519.5			-186377.5	-2.5788
4100	13.8705	54134.0	100.3282	357211.6	26906.4			-186543.3	-2.8273
4200	13.8724	55521.1	100.6625	367261.2	28293.6			-186711.1	-3.0641
4300	13.8741	56908.5	100.9889	377343.8	29680.9			-186880.7	-3.2901
4400	13.8758	58296.0	101.3079	387458.7	31068.4			-187052.2	-3.5061
4500	13.8773	59683.6	101.6197	397605.2	32456.1			-187225.4	-3.7127
4600	13.8787	61071.4	101.9248	407782.4	33843.9			-187400.4	-3.9104
4700	13.8801	62459.4	102.2232	417989.9	35231.8			-187577.2	-4.0999
4800	13.8813	63847.4	102.5155	428226.9	36619.9			-187755.5	-4.2817
4900	13.8825	65235.6	102.8017	438492.8	38008.1			-187935.5	-4.4563
5000	13.8836	66623.9	103.0822	448787.0	39396.4			-188117.1	-4.6240
5100	13.8847	68012.3	103.3571	459109.0	40784.8			-188300.1	-4.7853
5200	13.8857	69400.9	103.6268	469458.3	42173.3			-188484.6	-4.9405
5300	13.8866	70789.5	103.8913	479834.2	43561.9			-188670.4	-5.0901
5400	13.8875	72178.2	104.1508	490236.4	44950.6			-188857.7	-5.2342
5500	13.8883	73567.0	104.4057	500664.2	46339.4			-189046.2	-5.3732
5600	13.8891	74955.8	104.6559	511117.4	47728.3			-189235.9	-5.5074
5700	13.8899	76344.8	104.9018	521595.3	49117.2			-189426.8	-5.6371
5800	13.8906	77733.8	105.1433	532097.6	50506.3			-189618.9	-5.7623
5900	13.8913	79122.9	105.3808	542623.8	51895.4			-189812.0	-5.8835
6000	13.8919	80512.1	105.6143	553173.6	53284.5			-190006.2	-6.0007

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(191) $SOCl_2$ (gas); molecular weight, 118.980

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-53928.1	-49643.5	-------	-231630.3	--------
100	10.1750	855.4	59.2947	5074.1	-53072.7	-49995.6	107.1618	-232795.1	492.3128
200	13.9792	2080.8	67.6345	11446.1	-51847.3	-50236.3	52.4155	-233662.5	237.5418
298.15	15.9184	3558.1	73.6185	18391.3	-50370.0	-50370.0	34.3223	-234268.7	153.3911
300	15.9449	3587.5	73.7170	18527.6	-50340.5	-50372.0	34.0945	-234278.7	152.3322
[a] 400	17.0662	5242.5	78.4705	26145.6	-48685.5	-50999.9	24.9012	-234763.3	109.6248
500	17.7899	6987.8	82.3619	34193.2	-46940.3	-51412.0	19.3087	-235159.8	83.9515
600	18.2820	8792.9	85.6516	42598.1	-45135.2	-51710.2	15.5527	-235488.4	66.8094
700	18.6273	10639.3	88.4972	51308.7	-43288.7	-51931.1	12.8564	-235763.2	54.5492
800	18.8763	12515.2	91.0017	60286.2	-41412.9	-52109.8	10.8264	-235994.7	45.3441
900	19.0601	14412.4	93.2361	69500.1	-39515.6	-52279.4	9.2422	-236191.5	38.1781
1000	19.1989	16325.7	95.2518	78926.1	-37602.4	-52443.8	7.9708	-236360.2	32.4408
1100	19.3059	18251.1	97.0869	88544.4	-35676.9	-52604.9	6.9274	-236506.0	27.7435
1200	19.3898	20186.1	98.7704	98338.4	-33742.0	-52764.0	6.0552	-236633.2	23.8269
1300	19.4568	22128.5	100.3252	108294.2	-31799.5	-52922.2	5.3149	-236745.0	20.5111
1400	19.5109	24077.0	101.7691	118399.8	-29851.1	-53080.2	4.6785	-236844.2	17.6678
1500	19.5553	26030.4	103.1168	128644.3	-27897.7	-53238.6	4.1253	-236932.9	15.2026
1600	19.5921	27987.8	104.3801	139020.4	-25940.2	-53398.0	3.6398	-237013.0	13.0448
1700	19.6229	29948.6	105.5688	149518.4	-23979.5	-53558.7	3.2102	-237086.0	11.1402
1800	19.6490	31912.2	106.6912	160131.9	-22015.8	-53721.1	2.8271	-237153.3	9.4467
1900	19.6712	33878.3	107.7542	170854.6	-20049.8	-53885.6	2.4833	-237216.0	7.9311
2000	19.6903	35846.4	108.7637	181681.0	-18081.7	-54052.4	2.1729	-237274.9	6.5667
2100	19.7068	37816.2	109.7248	192605.8	-16111.8	-54221.6	1.8912	-237331.1	5.3319
2200	19.7212	39787.7	110.6419	203624.4	-14140.4	-54393.6	1.6344	-237385.1	4.2092
2300	19.7338	41760.4	111.5188	214732.8	-12167.6	-54568.3	1.3991	-237437.7	3.1838
2400	19.7449	43734.4	112.3589	225927.0	-10193.7	-54746.0	1.1827	-237489.2	2.2437
2500	19.7547	45709.4	113.1651	237203.4	-8218.7	-54926.8	0.9830	-237540.3	1.3786
2600	19.7635	47685.3	113.9401	248559.0	-6242.8			-237591.3	0.5798
2700	19.7713	49662.0	114.6861	259990.5	-4266.0			-237642.5	-0.1599
2800	19.7783	51639.5	115.4053	271495.3	-2288.5			-237694.3	-0.8469
2900	19.7846	53617.7	116.0995	283070.7	-310.4			-237746.8	-1.4867
3000	19.7903	55596.4	116.7703	294714.4	1668.4			-237800.3	-2.0840
3100	19.7955	57575.7	117.4193	306424.1	3647.7			-237855.0	-2.6429
3200	19.8002	59555.5	118.0478	318197.6	5627.4			-237911.0	-3.1669
3300	19.8044	61535.7	118.6572	330033.0	7607.7			-237968.4	-3.6593
3400	19.8084	63516.4	119.2485	341928.4	9588.3			-238027.3	-4.1229
3500	19.8119	65497.4	119.8227	353882.1	11569.3			-238087.8	-4.5601
3600	19.8152	67478.8	120.3809	365892.4	13550.7			-238149.9	-4.9731
3700	19.8183	69460.4	120.9238	377957.8	15532.4			-238213.7	-5.3639
3800	19.8211	71442.4	121.4524	390076.7	17514.3			-238279.3	-5.7342
3900	19.8237	73424.6	121.9673	402247.8	19496.6			-238346.5	-6.0856
4000	19.8261	75407.1	122.4692	414469.7	21479.1			-238415.5	-6.4195
4100	19.8283	77389.9	122.9588	426741.2	23461.8			-238486.3	-6.7373
4200	19.8304	79372.8	123.4366	439061.1	25444.7			-238558.7	-7.0400
4300	19.8323	81355.9	123.9033	451428.2	27427.9			-238632.8	-7.3287
4400	19.8341	83339.2	124.3592	463841.4	29411.2			-238708.7	-7.6044
4500	19.8358	85322.7	124.8050	476299.7	31394.7			-238786.1	-7.8679
4600	19.8373	87306.4	125.2410	488802.1	33378.3			-238865.2	-8.1201
4700	19.8388	89290.2	125.6676	501347.6	35362.1			-238945.8	-8.3615
4800	19.8402	91274.1	126.0853	513935.3	37346.1			-239027.9	-8.5930
4900	19.8415	93258.2	126.4944	526564.3	39330.2			-239111.6	-8.8152
5000	19.8427	95242.5	126.8953	539233.9	41314.4			-239196.6	-9.0285
5100	19.8439	97226.8	127.2882	551943.1	43298.7			-239283.1	-9.2335
5200	19.8450	99211.2	127.6736	564691.3	45283.2			-239370.9	-9.4308
5300	19.8460	101195.8	128.0516	577477.6	47267.7			-239460.0	-9.6206
5400	19.8470	103180.4	128.4226	590301.4	49252.4			-239550.4	-9.8035
5500	19.8479	105165.2	128.7867	603161.9	51237.1			-239642.0	-9.9798
5600	19.8488	107150.0	129.1444	616058.5	53221.9			-239734.7	-10.1499
5700	19.8496	109134.9	129.4957	628990.6	55206.9			-239828.5	-10.3140
5800	19.8504	111119.9	129.8409	641957.4	57191.9			-239923.4	-10.4726
5900	19.8511	113105.0	130.1803	654958.6	59176.9			-240019.3	-10.6258
6000	19.8518	115090.1	130.5139	667993.3	61162.1			-240116.1	-10.7740

[a] A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(192) SOF (gas); molecular weight, 67.066

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-32454.7	-29308.9	-------	-172553.8	--------
100	8.0081	795.7	53.3722	4541.6	-31659.1	-29372.0	66.2175	-173283.3	368.7843
200	8.8449	1631.7	59.1339	10195.1	-30823.0	-29626.6	34.0225	-174067.8	179.1051
298.15	9.9522	2554.7	62.8741	16191.2	-29900.0	-29900.0	23.3225	-174755.6	116.3800
300	9.9719	2573.2	62.9357	16307.5	-29881.6	-29905.0	23.1872	-174767.4	115.5900
[a] 400	10.9182	3619.7	65.9398	22756.2	-28835.1	-30697.0	17.7077	-175340.0	83.7131
500	11.6273	4748.8	68.4565	29479.4	-27705.9	-31274.1	14.3254	-175802.8	64.5294
600	12.1415	5938.7	70.6244	36436.0	-26516.1	-31734.4	12.0309	-176182.8	51.7094
700	12.5139	7172.4	72.5255	43595.4	-25282.3	-32114.7	10.3700	-176502.3	42.5339
800	12.7872	8438.2	74.2152	50934.0	-24016.6	-32450.1	9.1104	-176777.5	35.6407
900	12.9912	9727.6	75.7337	58432.8	-22727.2	-32774.6	8.1207	-177019.8	30.2714
1000	13.1464	11034.8	77.1108	66076.1	-21420.0	-33092.1	7.3211	-177237.4	25.9704
1100	13.2666	12355.7	78.3697	73851.0	-20099.1	-33405.0	6.6606	-177435.9	22.4473
1200	13.3612	13687.2	79.5283	81746.7	-18767.5	-33714.9	6.1051	-177619.5	19.5081
1300	13.4369	15027.3	80.6008	89753.8	-17427.5	-34022.8	5.6307	-177791.5	17.0187
1400	13.4983	16374.1	81.5989	97864.4	-16080.6	-34329.7	5.2203	-177954.3	14.8829
1500	13.5487	17726.6	82.5320	106071.4	-14728.2	-34636.3	4.8615	-178109.6	13.0302
1600	13.5905	19083.6	83.4078	114368.8	-13371.2	-34943.1	4.5448	-178259.1	11.4077
1700	13.6255	20444.4	84.2328	122751.3	-12010.3	-35250.8	4.2628	-178404.1	9.9749
1800	13.6552	21808.5	85.0124	131213.9	-10646.2	-35559.6	4.0100	-178545.5	8.7003
1900	13.6805	23175.3	85.7514	139752.4	-9279.4	-35869.9	3.7818	-178684.3	7.5589
2000	13.7023	24544.5	86.4537	148362.9	-7910.2	-36182.0	3.5746	-178821.3	6.5309
2100	13.7212	25915.7	87.1227	157042.0	-6539.1	-36496.2	3.3855	-178957.0	5.6001
2200	13.7376	27288.7	87.7614	165786.5	-5166.1	-36812.7	3.2122	-179092.0	4.7533
2300	13.7520	28663.1	88.3724	174593.4	-3791.6	-37131.5	3.0525	-179226.8	3.9795
2400	13.7647	30039.0	88.9580	183460.1	-2415.8	-37453.0	2.9049	-179361.9	3.2696
2500	13.7759	31416.0	89.5201	192384.2	-1038.7	-37777.0	2.7679	-179497.5	2.6161
2600	13.7859	32794.1	90.0606	201363.4	339.4			-179634.0	2.0124
2700	13.7948	34173.2	90.5811	210395.7	1718.4			-179771.6	1.4530
2800	13.8028	35553.1	91.0829	219479.0	3098.3			-179910.5	0.9331
2900	13.8101	36933.7	91.5674	228611.7	4479.0			-180050.9	0.4487
3000	13.8166	38315.1	92.0357	237791.9	5860.3			-180193.0	-0.0038
3100	13.8225	39697.0	92.4888	247018.3	7242.3			-180336.8	-0.4274
3200	13.8278	41079.5	92.9277	256289.2	8624.8			-180482.5	-0.8248
3300	13.8327	42462.6	93.3533	265603.4	10007.8			-180630.2	-1.1985
3400	13.8372	43846.1	93.7663	274959.5	11391.3			-180779.8	-1.5504
3500	13.8413	45230.0	94.1675	284356.3	12775.2			-180931.5	-1.8826
3600	13.8451	46614.3	94.5575	293792.6	14159.6			-181085.2	-2.1965
3700	13.8486	47999.0	94.9369	303267.4	15544.3			-181241.0	-2.4937
3800	13.8518	49384.0	95.3062	312779.6	16929.3			-181398.8	-2.7756
3900	13.8547	50769.4	95.6661	322328.3	18314.6			-181558.7	-3.0432
4000	13.8575	52155.0	96.0169	331912.6	19700.2			-181720.7	-3.2976
4100	13.8600	53540.8	96.3591	341531.4	21086.1			-181884.6	-3.5399
4200	13.8624	54927.0	96.6931	351184.1	22472.2			-182050.5	-3.7708
4300	13.8646	56313.3	97.0193	360869.8	23858.6			-182218.4	-3.9912
4400	13.8667	57699.9	97.3381	370587.7	25245.1			-182388.2	-4.2018
4500	13.8686	59086.7	97.6497	380337.2	26631.9			-182559.9	-4.4032
4600	13.8704	60473.6	97.9546	390117.4	28018.9			-182733.4	-4.5960
4700	13.8721	61860.7	98.2529	399927.9	29406.0			-182908.6	-4.7808
4800	13.8737	63248.0	98.5450	409767.8	30793.3			-183085.5	-4.9581
4900	13.8752	64635.5	98.8310	419636.7	32180.7			-183264.1	-5.1283
5000	13.8766	66023.1	99.1114	429533.8	33568.3			-183444.3	-5.2919
5100	13.8779	67410.8	99.3862	439458.7	34956.0			-183626.1	-5.4491
5200	13.8792	68798.6	99.6557	449410.9	36343.9			-183809.3	-5.6005
5300	13.8803	70186.6	99.9201	459389.7	37731.9			-183994.0	-5.7464
5400	13.8815	71574.7	100.1795	469394.7	39120.0			-184180.1	-5.8869
5500	13.8825	72962.9	100.4342	479425.5	40508.2			-184367.5	-6.0225
5600	13.8835	74351.2	100.6844	489481.4	41896.5			-184556.1	-6.1534
5700	13.8845	75739.6	100.9301	499562.2	43284.9			-184746.0	-6.2798
5800	13.8853	77128.1	101.1716	509667.3	44673.3			-184937.1	-6.4020
5900	13.8862	78516.7	101.4090	519796.4	46061.9			-185129.2	-6.5202
6000	13.8870	79905.3	101.6424	529949.0	47450.6			-185322.4	-6.6345

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(193) SOF_2 (gas); molecular weight, 86.066

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-100109.1	-95908.4	-------	-257508.3	--------
100	8.4339	803.0	54.9980	4696.8	-99306.1	-96311.6	208.4153	-258729.0	548.8535
200	11.1777	1777.7	61.6426	10550.9	-98331.4	-96777.6	102.9699	-259900.8	265.6307
298.15	13.5833	2999.1	66.5794	16851.6	-97110.0	-97110.0	68.1024	-260823.8	171.9900
300	13.6213	3024.3	66.6636	16974.8	-97084.8	-97115.2	67.6633	-260838.9	170.8110
[a]400	15.3185	4476.7	70.8302	23855.4	-95632.4	-97886.4	49.9447	-261545.7	123.2468
500	16.4745	6070.0	74.3808	31120.4	-94039.1	-98402.0	39.2235	-262076.4	94.6396
600	17.2724	7759.7	77.4593	38715.9	-92349.4	-98778.1	32.0417	-262481.4	75.5337
700	17.8351	9516.7	80.1666	46599.9	-90592.4	-99060.3	26.8947	-262797.0	61.8679
800	18.2414	11321.6	82.5761	54739.3	-88787.5	-99288.7	23.0245	-263048.1	51.6074
900	18.5418	13161.4	84.7428	63107.1	-86947.7	-99500.0	20.0077	-263251.7	43.6201
1000	18.7688	15027.5	86.7086	71681.2	-85081.6	-99700.3	17.5893	-263419.8	37.2258
1100	18.9438	16913.5	88.5060	80443.2	-83195.6	-99893.1	15.6066	-263560.6	31.9909
1200	19.0813	18815.0	90.1605	89377.6	-81294.1	-100080.7	13.9513	-263680.2	27.6264
1300	19.1909	20728.8	91.6923	98471.2	-79380.3	-100265.1	12.5480	-263783.0	23.9318
1400	19.2796	22652.5	93.1179	107712.5	-77456.6	-100447.5	11.3430	-263872.6	20.7639
1500	19.3523	24584.2	94.4506	117091.7	-75524.9	-100629.1	10.2967	-263951.5	18.0175
1600	19.4126	26522.5	95.7015	126599.9	-73586.6	-100810.7	9.3796	-264021.8	15.6136
1700	19.4631	28466.4	96.8800	136229.6	-71642.7	-100992.9	8.5689	-264085.4	13.4921
1800	19.5058	30414.9	97.9937	145973.7	-69694.2	-101176.4	7.8470	-264143.5	11.6058
1900	19.5422	32367.3	99.0493	155826.4	-67741.8	-101361.7	7.1999	-264197.3	9.9178
2000	19.5735	34323.2	100.0525	165781.9	-65785.9	-101549.1	6.6165	-264247.9	8.3982
2100	19.6006	36281.9	101.0082	175835.3	-63827.2	-101738.9	6.0876	-264296.0	7.0231
2200	19.6242	38243.2	101.9206	185982.1	-61865.9	-101931.5	5.6059	-264342.5	5.7728
2300	19.6449	40206.6	102.7934	196218.1	-59902.4	-102127.1	5.1652	-264387.8	4.6311
2400	19.6631	42172.1	103.6298	206539.5	-57937.0	-102325.8	4.7605	-264432.6	3.5842
2500	19.6792	44139.2	104.4329	216942.9	-55969.9	-102527.7	4.3875	-264477.2	2.6210
2600	19.6936	46107.9	105.2050	227425.1	-54001.2			-264522.0	1.7317
2700	19.7064	48077.9	105.9485	237983.0	-52031.2			-264567.4	0.9082
2800	19.7179	50049.1	106.6653	248613.9	-50060.0			-264613.6	0.1433
2900	19.7282	52021.4	107.3575	259315.2	-48087.7			-264660.9	-0.5689
3000	19.7376	53994.7	108.0264	270084.6	-46114.4			-264709.4	-1.2338
3100	19.7460	55968.9	108.6738	280919.8	-44140.2			-264759.3	-1.8559
3200	19.7537	57943.9	109.3008	291818.7	-42165.2			-264810.8	-2.4392
3300	19.7608	59919.6	109.9088	302779.3	-40189.5			-264863.8	-2.9873
3400	19.7672	61896.0	110.4988	313799.8	-38213.1			-264918.6	-3.5032
3500	19.7731	63873.0	111.0719	324878.5	-36236.1			-264975.2	-3.9898
3600	19.7785	65850.6	111.6290	336013.7	-34258.5			-265033.6	-4.4494
3700	19.7834	67828.7	112.1709	347203.8	-32280.4			-265093.8	-4.8843
3800	19.7880	69807.3	112.6986	358447.4	-30301.8			-265155.9	-5.2964
3900	19.7923	71786.3	113.2127	369743.0	-28322.8			-265219.9	-5.6875
4000	19.7962	73765.7	113.7138	381089.5	-26343.3			-265285.8	-6.0590
4100	19.7999	75745.6	114.2027	392485.4	-24363.5			-265353.5	-6.4126
4200	19.8033	77725.7	114.6798	403929.6	-22383.4			-265423.0	-6.7494
4300	19.8064	79706.2	115.1459	415421.0	-20402.9			-265494.4	-7.0706
4400	19.8094	81687.0	115.6012	426958.4	-18422.1			-265567.5	-7.3773
4500	19.8122	83668.1	116.0464	438540.9	-16441.0			-265642.4	-7.6705
4600	19.8147	85649.4	116.4819	450167.4	-14459.7			-265719.0	-7.9510
4700	19.8172	87631.0	116.9081	461837.0	-12478.1			-265797.2	-8.2196
4800	19.8194	89612.9	117.3253	473548.7	-10496.2			-265877.1	-8.4771
4900	19.8216	91594.9	117.7340	485301.7	-8514.2			-265958.5	-8.7242
5000	19.8236	93577.2	118.1345	497095.2	-6531.9			-266041.4	-8.9615
5100	19.8255	95559.6	118.5271	508928.4	-4549.5			-266125.8	-9.1895
5200	19.8273	97542.3	118.9120	520800.4	-2566.8			-266211.6	-9.4089
5300	19.8290	99525.1	119.2897	532710.5	-584.0			-266298.8	-9.6200
5400	19.8306	101508.0	119.6604	544658.1	1399.0			-266387.3	-9.8234
5500	19.8321	103491.2	120.0243	556642.4	3382.1			-266477.1	-10.0194
5600	19.8335	105474.5	120.3816	568662.7	5365.4			-266568.0	-10.2085
5700	19.8348	107457.9	120.7327	580718.5	7348.8			-266660.1	-10.3911
5800	19.8361	109441.4	121.0777	592809.1	9332.3			-266753.4	-10.5674
5900	19.8374	111425.1	121.4168	604933.9	11316.0			-266847.7	-10.7377
6000	19.8385	113408.9	121.7502	617092.2	13299.8			-266942.9	-10.9025

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(194) SO_2F_2 (gas); molecular weight, 102.066

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-208224.0	-202985.9	-------	-423572.4	--------
100	8.5651	805.1	55.1429	4709.1	-207418.8	-203733.7	438.6832	-425318.4	905.8534
200	12.3222	1839.5	62.1606	10592.6	-206384.4	-204487.9	215.7274	-426987.8	440.3776
298.15	15.7245	3224.0	67.7473	16974.9	-205000.0	-205000.0	142.0844	-428270.4	286.5741
300	15.7792	3253.1	67.8447	17100.3	-204970.9	-205007.7	141.1576	-428291.2	284.6383
[a]400	18.2822	4963.2	72.7471	24135.6	-203260.8	-205876.3	103.7809	-429258.3	206.5554
500	20.0674	6885.7	77.0296	31629.1	-201338.3	-206428.3	81.2574	-429970.4	159.6125
600	21.3470	8959.9	80.8078	39524.8	-199264.1	-206797.6	66.2063	-430497.3	128.2717
700	22.2752	11143.4	84.1719	47776.9	-197080.5	-207042.2	55.4394	-430890.1	105.8614
800	22.9595	13406.8	87.1932	56347.7	-194817.1	-207210.9	47.3563	-431184.8	89.0402
900	23.4734	15729.7	89.9286	65206.0	-192494.3	-207346.3	41.0649	-431406.6	75.9492
1000	23.8663	18097.5	92.4230	74325.4	-190126.5	-207458.6	36.0287	-431573.0	65.4717
1100	24.1719	20500.0	94.7126	83683.8	-187723.9	-207554.3	31.9062	-431696.9	56.8963
1200	24.4136	22929.8	96.8266	93262.1	-185294.2	-207637.9	28.4692	-431787.5	49.7483
1300	24.6074	25381.2	98.7886	103044.0	-182842.8	-207713.1	25.5599	-431851.6	43.6990
1400	24.7649	27850.0	100.6182	113015.4	-180373.9	-207782.3	23.0653	-431894.5	38.5132
1500	24.8945	30333.2	102.3313	123163.8	-177890.7	-207847.8	20.9027	-431920.2	34.0185
1600	25.0023	32828.2	103.9415	133478.3	-175395.7	-207911.2	19.0098	-431932.1	30.0854
1700	25.0928	35333.1	105.4601	143949.1	-172890.9	-207973.8	17.3391	-431932.6	26.6150
1800	25.1695	37846.3	106.8966	154567.5	-170377.6	-208037.0	15.8535	-431923.8	23.5303
1900	25.2351	40366.6	108.2592	165325.9	-167857.3	-208101.5	14.5240	-431907.6	20.7703
2000	25.2915	42893.0	109.5551	176217.2	-165330.9	-208168.4	13.3270	-431885.4	18.2865
2100	25.3404	45424.7	110.7903	187234.9	-162799.3	-208238.1	12.2436	-431858.5	16.0393
2200	25.3830	47960.9	111.9701	198373.4	-160263.1	-208311.3	11.2585	-431827.8	13.9966
2300	25.4204	50501.1	113.0993	209627.2	-157722.9	-208388.4	10.3586	-431794.3	12.1316
2400	25.4533	53044.8	114.1819	220991.7	-155179.1	-208469.8	9.5334	-431758.8	10.4222
2500	25.4825	55591.6	115.2215	232462.2	-152632.3	-208555.8	8.7740	-431722.0	8.8496
2600	25.5085	58141.2	116.2215	244034.7	-150082.7			-431684.4	7.3982
2700	25.5318	60693.3	117.1846	255705.3	-147530.7			-431646.6	6.0544
2800	25.5526	63247.5	118.1136	267470.4	-144976.5			-431608.9	4.8066
2900	25.5714	65803.7	119.0106	279326.9	-142420.3			-431572.0	3.6451
3000	25.5883	68361.7	119.8778	291271.6	-139862.3			-431535.9	2.5610
3100	25.6037	70921.3	120.7170	303301.5	-137302.6			-431501.1	1.5470
3200	25.6177	73482.4	121.5302	315414.1	-134741.6			-431467.9	0.5964
3300	25.6305	76044.8	122.3187	327606.7	-132179.1			-431436.3	-0.2965
3400	25.6422	78608.5	123.0840	339877.1	-129615.5			-431406.8	-1.1368
3500	25.6529	81173.2	123.8274	352222.8	-127050.7			-431379.3	-1.9290
3600	25.6627	83739.0	124.5502	364641.9	-124484.9			-431354.0	-2.6772
3700	25.6718	86305.7	125.2535	377132.2	-121918.2			-431331.2	-3.3849
3800	25.6801	88873.3	125.9382	389691.9	-119350.6			-431310.8	-4.0553
3900	25.6879	91441.7	126.6054	402319.3	-116782.2			-431292.9	-4.6913
4000	25.6950	94010.9	127.2558	415012.5	-114213.1			-431277.6	-5.2955
4100	25.7017	96580.7	127.8904	427769.9	-111643.2			-431265.0	-5.8702
4200	25.7079	99151.2	128.5098	440590.0	-109072.7			-431255.1	-6.4175
4300	25.7136	101722.3	129.1148	453471.4	-106501.7			-431247.8	-6.9393
4400	25.7190	104293.9	129.7060	466412.5	-103930.0			-431243.3	-7.4375
4500	25.7241	106866.1	130.2841	479412.2	-101357.9			-431241.4	-7.9134
4600	25.7288	109438.7	130.8495	492468.9	-98785.2			-431242.3	-8.3687
4700	25.7332	112011.8	131.4029	505581.6	-96212.1			-431245.8	-8.8046
4800	25.7373	114585.4	131.9447	518749.1	-93638.6			-431251.9	-9.2224
4900	25.7412	117159.3	132.4754	531970.2	-91064.7			-431260.7	-9.6231
5000	25.7449	119733.6	132.9955	545243.8	-88490.4			-431272.0	-10.0078
5100	25.7484	122308.3	133.5053	558569.0	-85915.7			-431285.8	-10.3774
5200	25.7516	124883.3	134.0054	571944.6	-83340.7			-431302.1	-10.7328
5300	25.7547	127458.6	134.4959	585369.7	-80765.4			-431320.8	-11.0748
5400	25.7576	130034.2	134.9773	598843.5	-78189.8			-431341.8	-11.4042
5500	25.7604	132610.1	135.4500	612364.9	-75613.8			-431365.1	-11.7216
5600	25.7630	135186.3	135.9142	625933.2	-73037.7			-431390.7	-12.0276
5700	25.7654	137762.7	136.3702	639547.5	-70461.3			-431418.4	-12.3230
5800	25.7678	140339.4	136.8183	653207.0	-67884.6			-431448.2	-12.6082
5900	25.7700	142916.3	137.2588	666910.9	-65307.7			-431480.1	-12.8837
6000	25.7721	145493.4	137.6920	680658.5	-62730.6			-431513.9	-13.1501

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(195) Si (gas); molecular weight, 28.09

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	110195.3	110964.3	--------	0	-------
100	6.6982	655.1	33.6465	2709.6	110850.3	111555.6	-236.6400	0	0
200	5.6883	1267.5	37.9329	6319.1	111462.8	111886.4	-114.5773	0	0
298.15	5.3188	1804.7	40.1231	10158.0	112000.0	112000.0	-74.3086	0	0
300	5.3147	1814.6	40.1560	10232.2	112009.8	112000.9	-73.8024	0	0
400	5.1661	2337.6	41.6617	14327.1	112532.9	112015.4	-53.4031	0	0
500	5.0950	2850.3	42.8060	18552.7	113045.5	111979.1	-41.1646	0	0
600	5.0560	3357.6	43.7312	22881.1	113552.9	111913.5	-33.0094	0	0
700	5.0330	3862.0	44.5087	27294.1	114057.3	111827.4	-27.1882	0	0
800	5.0193	4364.6	45.1798	31779.3	114559.8	111725.2	-22.8262	0	0
900	5.0124	4866.1	45.7705	36327.4	115061.4	111609.7	-19.4365	0	0
1000	5.0117	5367.2	46.2985	40931.3	115562.5	111482.3	-16.7278	0	0
1100	5.0167	5868.6	46.7764	45585.4	116063.9	111344.7	-14.5143	0	0
1200	5.0272	6370.8	47.2133	50285.2	116566.0	111197.5	-12.6721	0	0
1300	5.0429	6874.2	47.6163	55026.9	117069.5	111041.5	-11.1154	0	0
1400	5.0630	7379.5	47.9907	59807.5	117574.8	110878.0	-9.7831	0	0
1500	5.0868	7887.0	48.3408	64624.2	118082.2	110707.2	-8.6299	0	0
1600	5.1134	8396.9	48.6699	69474.9	118592.2	110529.7	-7.6227	0	0
[a]1700	5.1420	8909.7	48.9808	74357.6	119105.0	98327.1	-6.7490	0	0
1800	5.1717	9425.4	49.2755	79270.6	119620.7	98228.5	-6.0471	0	0
1900	5.2018	9944.1	49.5560	84212.2	120139.3	98132.8	-5.4197	0	0
2000	5.2318	10465.7	49.8235	89181.3	120661.0	98040.2	-4.8556	0	0
2100	5.2610	10990.4	50.0795	94176.6	121185.7	97950.6	-4.3457	0	0
2200	5.2892	11517.9	50.3249	99196.9	121713.2	97863.8	-3.8826	0	0
2300	5.3160	12048.2	50.5606	104241.2	122243.5	97779.8	-3.4601	0	0
2400	5.3411	12581.1	50.7874	109308.7	122776.3	97698.3	-3.0731	0	0
2500	5.3645	13116.4	51.0059	114398.4	123311.6	97619.3	-2.7174	0	0
2600	5.3861	13653.9	51.2167	119509.6	123849.2	97542.6	-2.3893	0	0
2700	5.4058	14193.5	51.4204	124641.5	124388.8	97467.9	-2.0858	0	0
2800	5.4237	14735.0	51.6173	129793.5	124930.3	97395.1	-1.8041	0	0
2900	5.4397	15278.2	51.8079	134964.8	125473.5	97324.0	-1.5421	0	0
3000	5.4541	15822.9	51.9926	140154.9	126018.2	97254.4	-1.2977	0	0
3100	5.4667	16368.9	52.1716	145363.1	126564.2	97186.1	-1.0693	0	0
3200	5.4778	16916.2	52.3454	150589.0	127111.5	97119.1	-0.8552	0	0
3300	5.4874	17464.5	52.5141	155832.0	127659.7	97053.0	-0.6543	0	0
3400	5.4956	18013.6	52.6780	161091.7	128206.9	96987.9	-0.4653	0	0
3500	5.5025	18563.5	52.8374	166367.5	128758.8	96923.5	-0.2873	0	0
3600	5.5083	19114.1	52.9925	171659.0	129309.3	96859.7	-0.1192	0	0
3700	5.5130	19665.1	53.1435	176965.8	129860.4	96796.5	0.0396	0	0
3800	5.5167	20216.6	53.2906	182287.6	130411.9	96733.7	0.1901	0	0
3900	5.5196	20768.5	53.4339	187623.8	130963.7	96671.2	0.3327	0	0
4000	5.5217	21320.5	53.5737	192974.3	131515.8	96609.0	0.4680	0	0
4100	5.5231	21872.8	53.7101	198338.5	132068.1	96547.0	0.5967	0	0
4200	5.5240	22425.1	53.8432	203716.2	132620.4	96485.0	0.7192	0	0
4300	5.5243	22977.6	53.9732	209107.0	133172.8	96423.1	0.8359	0	0
4400	5.5242	23530.0	54.1002	214510.7	133725.3	96361.3	0.9473	0	0
4500	5.5237	24082.4	54.2243	219926.9	134277.7	96299.4	1.0536	0	0
4600	5.5230	24634.7	54.3457	225355.5	134830.0	96237.4	1.1552	0	0
4700	5.5222	25187.0	54.4645	230796.0	135382.3	96175.4	1.2525	0	0
4800	5.5212	25739.2	54.5807	236248.3	135934.4	96113.2	1.3456	0	0
4900	5.5202	26291.2	54.6945	241712.0	136486.5	96051.0	1.4349	0	0
5000	5.5193	26843.2	54.8061	247187.1	137038.5	95988.7	1.5205	0	0
5100	5.5186	27395.1	54.9153	252673.2	137590.4	95926.3	1.6028	0	0
5200	5.5180	27946.9	55.0225	258170.1	138142.2	95863.8	1.6818	0	0
5300	5.5178	28498.7	55.1276	263677.6	138694.0	95801.3	1.7578	0	0
5400	5.5179	29050.5	55.2307	269195.6	139245.8	95738.8	1.8309	0	0
5500	5.5185	29602.3	55.3320	274723.7	139797.6	95676.3	1.9013	0	0
5600	5.5197	30154.2	55.4314	280261.9	140349.5	95613.9	1.9692	0	0
5700	5.5199	30705.6	55.5290	285809.9	140900.9	95551.0	2.0347	0	0
5800	5.5220	31257.7	55.6251	291367.6	141453.0	95488.8	2.0978	0	0
5900	5.5249	31810.1	55.7195	296934.8	142005.3	95426.8	2.1588	0	0
6000	5.5283	32362.6	55.8123	302511.4	142557.9	95365.1	2.2176	0	0

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Si, 1685° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(196) Si (crystal, liquid); molecular weight, 28.09

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$,[a] cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$,[a] cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	-----	0	0	0	-769.0	0	-------	-110964.3	--------
100	1.739	63.7	0.916	27.9	-705.3	0	0	-111555.6	236.6400
200	3.735	345.4	2.788	212.2	-423.6	0	0	-111886.4	114.5773
298.15	4.782	769.0	4.497	571.8	0	0	0	-112000.0	74.3086
300	4.796	777.9	4.527	580.2	8.9	0	0	-112000.9	73.8024
400	5.335	1286.5	5.987	1108.3	517.5	0	0	-112015.4	53.4031
500	5.627	1835.4	7.210	1769.6	1066.4	0	0	-111979.1	41.1646
600	5.826	2408.4	8.254	2544.0	1639.4	0	0	-111913.5	33.0094
700	5.981	2998.9	9.164	3415.9	2229.9	0	0	-111827.4	27.1882
800	6.111	3603.6	9.972	4374.0	2834.6	0	0	-111725.2	22.8262
900	6.229	4220.7	10.698	5407.5	3451.7	0	0	-111609.7	19.4365
1000	6.339	4849.2	11.360	6510.8	4080.2	0	0	-111482.3	16.7278
1100	6.442	5488.2	11.969	7677.7	4719.2	0	0	-111344.7	14.5143
1200	6.542	6137.5	12.534	8903.3	5368.5	0	0	-111197.5	12.6721
1300	6.639	6797.0	13.062	10183.6	6028.0	0	0	-111041.5	11.1154
1400	6.735	7465.8	13.558	11515.4	6696.8	0	0	-110878.0	9.7831
1500	6.829	8144.0	14.025	12893.5	7375.0	0	0	-110707.2	8.6299
1600	6.922	8831.5	14.469	14318.9	8062.5	0	0	-110529.7	7.6227
[b]1685	6.999	9423.2	14.829	15563.7	8654.2	0	0	-110329.4	6.8614
1685	6.143	21454.8	21.969	15563.7	20685.8	0	0	-98341.1	6.8614
1700	6.143	21546.9	22.0234	15892.9	20777.9	0	0	-98327.1	6.7490
1800	6.143	22161.2	22.3746	18113.0	21392.2	0	0	-98228.5	6.0471
1900	6.143	22775.5	22.7067	20367.2	22006.5	0	0	-98132.8	5.4197
2000	6.143	23389.8	23.0218	22653.8	22620.8	0	0	-98040.2	4.8556
2100	6.143	24004.1	23.3215	24971.1	23235.1	0	0	-97950.6	4.3457
2200	6.143	24618.4	23.6073	27317.6	23849.4	0	0	-97853.8	3.8826
2300	6.143	25232.7	23.8804	29692.1	24463.7	0	0	-97779.8	3.4601
2400	6.143	25847.0	24.1418	32093.3	25078.0	0	0	-97698.3	3.0731
2500	6.143	26461.3	24.3926	34520.1	25692.3	0	0	-97619.3	2.7174
2600	6.143	27075.6	24.6335	36971.5	26306.6	0	0	-97542.6	2.3893
2700	6.143	27689.9	24.8653	39446.5	26920.9	0	0	-97467.9	2.0858
2800	6.143	28304.2	25.0887	41944.3	27535.2	0	0	-97395.1	1.8041
2900	6.143	28918.5	25.3043	44464.0	28149.5	0	0	-97324.0	1.5421
3000	6.143	29532.8	25.5126	47004.9	28763.8	0	0	-97254.4	1.2977
3100	6.143	30147.1	25.7140	49566.3	29378.1	0	0	-97186.1	1.0693
3200	6.143	30761.4	25.9090	52147.5	29992.4	0	0	-97119.1	0.8552
3300	6.143	31375.7	26.0981	54747.9	30606.7	0	0	-97053.0	0.6543
3400	6.143	31990.0	26.2814	57366.9	31221.0	0	0	-96987.9	0.4653
3500	6.143	32604.3	26.4595	60004.0	31835.3	0	0	-96923.5	0.2873
3600	6.143	33218.6	26.6326	62658.6	32449.6	0	0	-96859.7	0.1192
3700	6.143	33832.9	26.8009	65330.4	33063.9	0	0	-96796.5	-0.0396
3800	6.143	34447.2	26.9647	68018.7	33678.2	0	0	-96733.7	-0.1901
3900	6.143	35061.5	27.1243	70723.2	34292.5	0	0	-96671.2	-0.3327
4000	6.143	35675.8	27.2798	73443.4	34906.8	0	0	-96609.0	-0.4680
4100	6.143	36290.1	27.4315	76179.0	35521.1	0	0	-96547.0	-0.5967
4200	6.143	36904.4	27.5795	78929.6	36135.4	0	0	-96485.0	-0.7192
4300	6.143	37518.7	27.7241	81694.8	36749.7	0	0	-96423.1	-0.8359
4400	6.143	38133.0	27.8653	84474.3	37364.0	0	0	-96361.3	-0.9473
4500	6.143	38747.3	28.0033	87267.7	37978.3	0	0	-96299.4	-1.0536
4600	6.143	39361.6	28.1384	90074.8	38592.6	0	0	-96237.4	-1.1552
4700	6.143	39975.9	28.2705	92895.3	39206.9	0	0	-96175.4	-1.2525
4800	6.143	40590.2	28.3998	95728.8	39821.2	0	0	-96113.2	-1.3456
4900	6.143	41204.5	28.5265	98575.2	40435.5	0	0	-96051.0	-1.4349
5000	6.143	41818.8	28.6506	101434.0	41049.8	0	0	-95988.7	-1.5205
5100	6.143	42433.1	28.7722	104305.2	41664.1	0	0	-95926.3	-1.6028
5200	6.143	43047.4	28.8915	107188.4	42278.4	0	0	-95863.8	-1.6818
5300	6.143	43661.7	29.0085	110083.4	42892.7	0	0	-95801.3	-1.7578
5400	6.143	44276.0	29.1233	112990.0	43507.0	0	0	-95738.8	-1.8309
5500	6.143	44890.3	29.2361	115908.0	44121.3	0	0	-95676.3	-1.9013
5600	6.143	45504.6	29.3467	118837.2	44735.6	0	0	-95613.9	-1.9692
5700	6.143	46118.9	29.4555	121777.3	45349.9	0	0	-95551.0	-2.0347
5800	6.143	46733.2	29.5623	124728.2	45964.2	0	0	-95488.8	-2.0978
5900	6.143	47347.5	29.6673	127689.7	46578.5	0	0	-95426.8	-2.1588
6000	6.143	47961.8	29.7706	130661.6	47192.8	0	0	-95365.1	-2.2176

[a] H_0° refers to crystal state.

[b] Melting point.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(197) Si_2 (gas); molecular weight, 56.18

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	145390.5	146928.5	---------	-75000.0	--------
100	7.0338	696.5	46.6775	3971.3	146087.0	147497.6	-312.5398	-75613.7	160.7403
200	7.7057	1431.4	51.7443	8917.4	146822.0	147669.2	-151.2680	-76103.6	77.8867
298.15	8.2227	2215.5	54.9272	14161.0	147606.1	147606.1	-98.1548	-76393.9	50.4624
300	8.2298	2230.8	54.9781	14262.7	147621.3	147603.5	-97.4877	-76398.4	50.1170
400	8.5137	3069.4	57.3887	19886.1	148459.9	147424.9	-70.6205	-76605.9	36.1857
500	8.6743	3929.5	59.3072	25724.2	149320.0	147187.2	-54.5228	-76771.1	27.8064
600	8.7734	4802.2	60.8982	31736.7	150192.7	146913.9	-43.8098	-76913.1	22.2089
700	8.8397	5683.1	62.2559	37896.1	151073.6	146613.8	-36.1727	-77040.9	18.2037
800	8.8873	6569.5	63.4395	44182.1	151960.1	146290.9	-30.4574	-77159.6	15.1949
900	8.9235	7460.1	64.4885	50579.5	152850.7	145947.3	-26.0217	-77272.0	12.8513
1000	8.9523	8354.0	65.4302	57076.2	153744.5	145584.1	-22.4820	-77380.5	10.9737
1100	8.9763	9250.5	66.2846	63662.6	154641.0	145202.6	-19.5933	-77486.8	9.4353
1200	8.9969	10149.1	67.0666	70330.7	155539.7	144802.7	-17.1926	-77592.4	8.1516
1300	9.0151	11049.8	67.7874	77073.9	156440.3	144384.3	-15.1669	-77698.7	7.0639
1400	9.0315	11952.1	68.4561	83886.5	157342.6	143949.0	-13.4359	-77806.9	6.1303
1500	9.0467	12856.0	69.0796	90763.6	158246.6	143496.6	-11.9398	-77917.9	5.3200
1600	9.0608	13761.4	69.6641	97701.1	159151.9	143026.9	-10.6354	-78032.5	4.6100
[a]1700	9.0741	14668.1	70.2138	104695.3	160058.7	118502.9	-9.5153	-78151.3	3.9826
1800	9.0868	15576.2	70.7328	111742.9	160966.7	118182.3	-8.6701	-78274.6	3.4240
1900	9.0990	16485.5	71.2244	118841.0	161876.0	117863.0	-7.9160	-78402.6	2.9234
2000	9.1109	17396.0	71.6915	125986.9	162786.5	117544.9	-7.2390	-78535.5	2.4721
2100	9.1224	18307.7	72.1363	133178.5	163698.2	117228.0	-6.6282	-78673.1	2.0632
2200	9.1336	19220.5	72.5609	140413.5	164611.0	116912.2	-6.0744	-78815.4	1.6907
2300	9.1446	20134.4	72.9672	147690.1	165524.9	116597.5	-5.5702	-78962.0	1.3500
2400	9.1555	21049.4	73.3566	155006.4	166439.9	116283.9	-5.1092	-79112.7	1.0371
2500	9.1662	21965.5	73.7305	162360.9	167356.0	115971.4	-4.6862	-79267.2	0.7486
2600	9.1767	22882.6	74.0902	169752.0	168273.1	115660.0	-4.2968	-79425.2	0.4819
2700	9.1871	23800.8	74.4368	177178.5	169191.3	115349.5	-3.9372	-79586.2	0.2344
2800	9.1975	24720.0	74.7711	184639.0	170110.6	115040.2	-3.6042	-79750.0	0.0041
2900	9.2077	25640.3	75.0940	192132.3	171030.8	114731.8	-3.2950	-79916.1	-0.2108
3000	9.2179	26561.6	75.4063	199657.4	171952.1	114424.5	-3.0072	-80084.2	-0.4118
3100	9.2280	27483.9	75.7088	207213.3	172874.4	114118.2	-2.7386	-80254.0	-0.6001
3200	9.2381	28407.2	76.0019	214798.9	173797.7	113812.9	-2.4876	-80425.2	-0.7771
3300	9.2481	29331.5	76.2863	222413.3	174722.0	113508.6	-2.2523	-80597.4	-0.9437
3400	9.2581	30256.8	76.5625	230055.9	175647.3	113205.3	-2.0315	-80770.4	-1.1009
3500	9.2680	31183.1	76.8311	237725.6	176573.6	112903.0	-1.8239	-80943.9	-1.2494
3600	9.2779	32110.4	77.0923	245421.8	177500.9	112601.7	-1.6284	-81117.8	-1.3899
3700	9.2877	33038.7	77.3466	253143.8	178429.2	112301.4	-1.4439	-81291.6	-1.5232
3800	9.2976	33967.9	77.5944	260890.9	179358.5	112002.1	-1.2695	-81465.3	-1.6496
3900	9.3074	34898.2	77.8361	268662.5	180288.7	111703.7	-1.1046	-81638.7	-1.7699
4000	9.3171	35829.4	78.0718	276457.9	181219.9	111406.3	-0.9483	-81811.7	-1.8844
4100	9.3269	36761.6	78.3020	284276.7	182152.1	111110.0	-0.8001	-81984.0	-1.9935
4200	9.3366	37694.8	78.5269	292118.2	183085.3	110814.5	-0.6592	-82155.5	-2.0977
4300	9.3464	38628.9	78.7467	299981.9	184019.5	110520.1	-0.5253	-82326.2	-2.1972
4400	9.3561	39564.1	78.9617	307867.4	184954.6	110226.6	-0.3978	-82495.9	-2.2924
4500	9.3658	40500.2	79.1721	315774.1	185890.7	109934.1	-0.2763	-82664.6	-2.3835
4600	9.3755	41437.2	79.3780	323701.6	186827.8	109642.6	-0.1604	-82832.2	-2.4709
4700	9.3851	42375.2	79.5797	331649.5	187765.8	109352.0	-0.0497	-82998.7	-2.5547
4800	9.3948	43314.2	79.7774	339617.4	188704.8	109062.4	0.0561	-83164.1	-2.6352
4900	9.4044	44254.2	79.9712	347604.9	189644.7	108773.7	0.1573	-83328.2	-2.7125
5000	9.4141	45195.1	80.1613	355611.6	190585.7	108486.1	0.2542	-83491.3	-2.7869
5100	9.4237	46137.0	80.3479	363637.0	191527.6	108199.4	0.3470	-83653.2	-2.8586
5200	9.4334	47079.9	80.5309	371681.0	192470.4	107913.6	0.4361	-83814.0	-2.9276
5300	9.4430	48023.7	80.7107	379743.1	193414.2	107628.8	0.5215	-83973.7	-2.9941
5400	9.4526	48968.5	80.8873	387823.1	194359.0	107345.0	0.6036	-84132.5	-3.0583
5500	9.4622	49914.2	81.0609	395920.5	195304.7	107062.2	0.6825	-84290.4	-3.1202
5600	9.4718	50860.9	81.2314	404035.1	196251.4	106780.2	0.7583	-84447.5	-3.1801
5700	9.4814	51808.6	81.3992	412166.7	197199.1	106499.3	0.8314	-84602.7	-3.2380
5800	9.4910	52757.2	81.5641	420314.9	198147.7	106219.3	0.9017	-84758.2	-3.2939
5900	9.5006	53706.8	81.7265	428479.4	199097.3	105940.3	0.9694	-84913.4	-3.3481
6000	9.5101	54657.3	81.8862	436660.1	200047.8	105662.2	1.0347	-85067.9	-3.4006

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Si, 1685° K.

C-4

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(198) Si_3 (gas); molecular weight, 84.27

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	155585.8	157892.8	-------	-175000.0	--------
100	8.4665	730.4	48.8660	4156.2	156316.2	158432.1	-336.1580	-176234.8	373.7622
200	11.4570	1741.5	55.7531	9409.1	157327.3	158598.1	-162.9432	-177061.1	180.7888
298.15	12.9216	2946.4	60.6356	15132.0	158532.3	158532.3	-105.8987	-177467.7	117.0269
300	12.9404	2970.4	60.7155	15244.3	158556.2	158529.5	-105.1823	-177473.3	116.2247
400	13.6762	4305.2	64.5505	21515.0	159891.0	158338.5	-76.3263	-177707.6	83.8829
500	14.0752	5694.6	67.6493	28130.0	161280.4	158081.2	-59.0369	-177856.2	64.4568
600	14.3108	7114.9	70.2381	35028.0	162700.7	157782.5	-47.5311	-177958.0	51.4969
700	14.4600	8554.0	72.4562	42165.4	164139.8	157450.1	-39.3293	-178032.0	42.2353
800	14.5600	10005.3	74.3940	49509.9	165591.1	157087.3	-33.1920	-178088.4	35.2865
900	14.6299	11465.0	76.1132	57036.9	167050.8	156695.7	-28.4292	-178133.3	29.8804
1000	14.6807	12930.6	77.6573	64726.7	168516.4	156275.8	-24.6291	-178171.1	25.5544
1100	14.7187	14400.7	79.0584	72563.6	169986.5	155828.9	-21.5286	-178205.2	22.0143
1200	14.7478	15874.1	80.3404	80534.4	171459.9	155354.4	-18.9525	-178238.2	19.0637
1300	14.7706	17350.0	81.5218	88628.3	172935.8	154851.8	-16.7797	-178272.7	16.5666
1400	14.7888	18828.0	82.6171	96835.9	174413.8	154323.4	-14.9236	-178310.4	14.4257
1500	14.8035	20307.7	83.6379	105149.3	175893.5	153768.5	-13.3198	-178353.2	12.5699
1600	14.8156	21788.6	84.5937	113561.3	177374.4	153186.9	-11.9224	-178402.2	10.9456
[a]1700	14.8257	23270.7	85.4922	122066.1	178856.5	116522.8	-10.7349	-178458.4	9.5120
1800	14.8341	24753.7	86.3399	130658.1	180339.5	116162.9	-9.9039	-178522.4	8.2373
1900	14.8413	26237.5	87.1421	139332.6	181823.3	115803.8	-9.1628	-178594.7	7.0963
2000	14.8474	27721.9	87.9036	148085.2	183307.7	115445.3	-8.4978	-178675.3	6.0690
2100	14.8526	29206.9	88.6281	156912.0	184792.7	115087.4	-7.8980	-178764.2	5.1390
2200	14.8572	30692.4	89.3191	165809.7	186278.2	114730.0	-7.3544	-178861.3	4.2932
2300	14.8612	32178.4	89.9797	174774.9	187764.2	114373.1	-6.8597	-178966.2	3.5205
2400	14.8647	33664.7	90.6122	183804.7	189250.5	114016.5	-6.4076	-179078.5	2.8117
2500	14.8678	35151.3	91.2191	192896.4	190737.1	113660.2	-5.9929	-179197.8	2.1593
2600	14.8706	36638.2	91.8023	202047.7	192224.0	113304.2	-5.6114	-179323.5	1.5566
2700	14.8730	38125.4	92.3635	211256.2	193711.2	112948.5	-5.2592	-179455.1	0.9981
2800	14.8752	39612.8	92.9045	220519.7	195198.6	112593.0	-4.9332	-179592.2	0.4792
2900	14.8772	41100.4	93.4265	229836.4	196686.2	112237.8	-4.6307	-179734.1	-0.0044
3000	14.8790	42588.3	93.9309	239204.4	198174.1	111882.7	-4.3492	-179880.4	-0.4560
3100	14.8806	44076.2	94.4188	248622.1	199662.0	111527.7	-4.0867	-180030.6	-0.8789
3200	14.8821	45564.4	94.8913	258087.7	201150.2	111173.0	-3.8413	-180184.2	-1.2757
3300	14.8834	47052.6	95.3492	267599.8	202638.4	110818.4	-3.6116	-180340.7	-1.6487
3400	14.8846	48541.0	95.7936	277157.1	204126.9	110463.9	-3.3961	-180499.8	-2.0001
3500	14.8857	50029.6	96.2251	286758.1	205615.4	110109.5	-3.1936	-180661.0	-2.3318
3600	14.8868	51518.2	96.6444	296401.7	207104.0	109755.2	-3.0029	-180824.0	-2.6453
3700	14.8877	53006.9	97.0523	306086.6	208592.7	109401.0	-2.8231	-180988.5	-2.9421
3800	14.8886	54495.7	97.4493	315811.8	210081.5	109046.9	-2.6534	-181154.2	-3.2235
3900	14.8894	55984.6	97.8361	325576.1	211570.4	108692.9	-2.4928	-181320.8	-3.4908
4000	14.8901	57473.6	98.2131	335378.7	213059.4	108339.0	-2.3408	-181488.0	-3.7449
4100	14.8908	58962.6	98.5808	345218.4	214548.4	107985.2	-2.1967	-181655.7	-3.9868
4200	14.8914	60451.8	98.9396	355094.5	216037.6	107631.4	-2.0598	-181823.7	-4.2175
4300	14.8920	61940.9	99.2900	365006.1	217526.7	107277.6	-1.9298	-181991.7	-4.4376
4400	14.8926	63430.2	99.6324	374952.3	219016.0	106924.0	-1.8061	-182159.8	-4.6479
4500	14.8931	64919.4	99.9671	384932.3	220505.3	106570.4	-1.6883	-182327.7	-4.8491
4600	14.8936	66408.8	100.2944	394945.4	221994.6	106216.8	-1.5759	-182495.4	-5.0417
4700	14.8941	67898.2	100.6147	404990.9	223484.0	105863.3	-1.4688	-182662.8	-5.2262
4800	14.8945	69387.6	100.9283	415068.1	224973.4	105509.8	-1.3664	-182829.9	-5.4032
4900	14.8949	70877.1	101.2354	425176.4	226462.9	105156.4	-1.2685	-182996.6	-5.5732
5000	14.8953	72366.6	101.5363	435315.0	227952.4	104803.0	-1.1749	-183163.0	-5.7365
5100	14.8956	73856.1	101.8313	445483.4	229441.9	104449.6	-1.0852	-183329.2	-5.8935
5200	14.8960	75345.7	102.1205	455681.1	230931.5	104096.3	-0.9993	-183495.1	-6.0447
5300	14.8963	76835.3	102.4043	465907.4	232421.1	103743.0	-0.9169	-183660.8	-6.1902
5400	14.8966	78324.9	102.6827	476161.8	233910.7	103389.8	-0.8378	-183826.5	-6.3306
5500	14.8969	79814.6	102.9561	486443.7	235400.4	103036.5	-0.7618	-183992.3	-6.4659
5600	14.8971	81304.3	103.2245	496752.8	236890.1	102683.3	-0.6888	-184158.3	-6.5965
5700	14.8974	82794.0	103.4882	507088.5	238379.8	102330.2	-0.6187	-184322.8	-6.7226
5800	14.8976	84283.8	103.7473	517450.3	239869.6	101977.0	-0.5511	-184489.3	-6.8445
5900	14.8979	85773.6	104.0019	527837.8	241359.4	101623.9	-0.4861	-184656.6	-6.9624
6000	14.8981	87263.4	104.2523	538250.5	242849.2	101270.8	-0.4235	-184824.4	-7.0764

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Si, 1685° K.

TABLE III. - Continued THERMODYNAMIC PROPERTIES

(199) SiCl (gas); molecular weight, 63.547

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	45346.9	47212.7	--------	-92300.0	--------
100	7.8246	724.6	47.7627	4051.7	46071.5	47525.6	-98.5579	-92727.3	198.3100
200	8.2997	1534.7	53.3600	9137.3	46881.7	47691.2	-46.5408	-93028.6	96.8475
298.15	8.5542	2362.8	56.7253	14549.8	47709.8	47709.8	-29.3796	-93240.9	63.3496
300	8.5579	2378.7	56.7783	14654.8	47725.6	47709.2	-29.1640	-93244.5	62.9281
400	8.7118	3242.8	59.2632	20462.5	48589.8	47650.1	-20.4796	-93433.7	45.9310
500	8.8048	4119.0	61.2180	26490.0	49466.0	47550.4	-15.2775	-93611.1	35.7125
600	8.8651	5002.7	62.8290	32694.7	50349.6	47426.7	-11.8177	-93779.2	28.8874
700	8.9073	5891.4	64.1989	39047.8	51238.4	47285.7	-9.3534	-93938.4	24.0038
800	8.9389	6783.8	65.3905	45528.6	52130.8	47130.7	-7.5111	-94089.3	20.3351
900	8.9639	7679.0	66.4448	52121.3	53025.9	46963.5	-6.0828	-94232.7	17.4771
1000	8.9847	8576.5	67.3904	58813.9	53923.4	46785.3	-4.9444	-94369.7	15.1873
1100	9.0026	9475.9	68.2476	65596.5	54822.8	46596.8	-4.0168	-94501.3	13.3112
1200	9.0186	10376.9	69.0316	72461.0	55723.9	46398.4	-3.2469	-94628.8	11.7456
1300	9.0331	11279.5	69.7541	79400.8	56626.5	46190.0	-2.5984	-94753.1	10.4191
1400	9.0465	12183.5	70.4240	86410.1	57530.4	45972.7	-2.0451	-94875.2	9.2806
1500	9.0592	13088.8	71.0486	93484.0	58435.7	45746.2	-1.5676	-94996.0	8.2926
1600	9.0713	13995.3	71.6336	100618.5	59342.3	45510.8	-1.1522	-95116.0	7.4271
[a]1700	9.0829	14903.0	72.1839	107809.6	60250.0	33247.8	-0.8011	-95235.8	6.6624
1800	9.0941	15811.9	72.7034	115054.2	61158.8	33086.2	-0.5642	-95355.9	5.9818
1900	9.1051	16721.9	73.1954	122349.4	62068.8	32924.9	-0.3533	-95476.5	5.3721
2000	9.1158	17632.9	73.6627	129692.5	62979.8	32763.9	-0.1644	-95597.7	4.8227
2100	9.1263	18545.0	74.1077	137081.2	63892.0	32603.3	0.0057	-95719.8	4.3250
2200	9.1367	19458.2	74.5325	144513.3	64805.1	32442.9	0.1595	-95842.8	3.8719
2300	9.1469	20372.4	74.9389	151987.1	65719.3	32282.9	0.2993	-95966.6	3.4577
2400	9.1570	21287.6	75.3284	159500.6	66634.5	32123.2	0.4268	-96091.2	3.0775
2500	9.1671	22203.8	75.7024	167052.2	67550.7	31963.7	0.5435	-96216.6	2.7273
2600	9.1770	23121.0	76.0621	174640.6	68467.9	31804.7	0.6507	-96342.5	2.4036
2700	9.1869	24039.2	76.4087	182264.2	69386.1	31645.9	0.7495	-96469.0	2.1035
2800	9.1967	24958.3	76.7429	189921.9	70305.3	31487.4	0.8408	-96595.9	1.8244
2900	9.2065	25878.5	77.0658	197612.4	71225.4	31329.3	0.9253	-96723.0	1.5643
3000	9.2162	26799.6	77.3781	205334.7	72146.6	31171.4	1.0038	-96850.2	1.3211
3100	9.2259	27721.7	77.6805	213087.7	73068.7	31013.9	1.0769	-96977.3	1.0934
3200	9.2356	28644.8	77.9735	220870.5	73991.8	30856.7	1.1450	-97104.4	0.8796
3300	9.2452	29568.9	78.2579	228682.1	74915.8	30699.9	1.2087	-97231.1	0.6785
3400	9.2548	30493.9	78.5340	236521.8	75840.8	30543.3	1.2684	-97357.5	0.4890
3500	9.2644	31419.8	78.8024	244388.7	76766.8	30387.1	1.3243	-97483.5	0.3101
3600	9.2740	32346.7	79.0635	252282.0	77693.7	30231.1	1.3769	-97608.8	0.1409
3700	9.2836	33274.6	79.3178	260201.1	78621.6	30075.5	1.4263	-97733.4	-0.0193
3800	9.2932	34203.5	79.5655	268145.4	79550.4	29920.2	1.4730	-97857.3	-0.1713
3900	9.3028	35133.3	79.8070	276114.0	80480.2	29765.3	1.5170	-97980.4	-0.3157
4000	9.3124	36064.0	80.0426	284106.6	81411.0	29610.7	1.5586	-98102.5	-0.4530
4100	9.3220	36995.8	80.2727	292122.4	82342.7	29456.4	1.5979	-98223.7	-0.5839
4200	9.3317	37928.4	80.4975	300160.9	83275.4	29302.4	1.6352	-98343.8	-0.7086
4300	9.3413	38862.1	80.7172	308221.7	84209.0	29148.8	1.6706	-98462.9	-0.8277
4400	9.3510	39796.7	80.9320	316304.2	85143.6	28995.5	1.7042	-98580.9	-0.9415
4500	9.3608	40732.3	81.1423	324407.9	86079.2	28842.5	1.7361	-98697.7	-1.0503
4600	9.3706	41668.9	81.3481	332532.5	87015.8	28689.9	1.7665	-98813.4	-1.1546
4700	9.3804	42606.4	81.5498	340677.4	87953.3	28537.7	1.7954	-98927.9	-1.2545
4800	9.3903	43544.9	81.7473	348842.3	88891.9	28385.8	1.8229	-99041.1	-1.3504
4900	9.4003	44484.5	81.9411	357026.8	89831.4	28234.3	1.8493	-99153.2	-1.4425
5000	9.4104	45425.0	82.1311	365230.4	90771.9	28083.2	1.8744	-99264.1	-1.5310
5100	9.4205	46366.6	82.3175	373452.9	91713.5	27932.4	1.8984	-99373.8	-1.6161
5200	9.4307	47309.1	82.5006	381693.8	92656.0	27782.0	1.9213	-99482.3	-1.6980
5300	9.4410	48252.7	82.6803	389952.9	93599.6	27632.1	1.9433	-99589.7	-1.7770
5400	9.4514	49197.3	82.8569	398229.8	94544.2	27482.6	1.9643	-99696.0	-1.8531
5500	9.4619	50143.0	83.0304	406524.1	95489.9	27333.4	1.9845	-99801.1	-1.9265
5600	9.4725	51089.7	83.2010	414835.7	96436.6	27184.8	2.0039	-99905.2	-1.9973
5700	9.4832	52037.5	83.3687	423164.2	97384.4	27036.5	2.0224	-100007.7	-2.0657
5800	9.4941	52986.3	83.5337	431509.4	98333.3	26888.7	2.0402	-100109.8	-2.1319
5900	9.5051	53936.3	83.6961	439870.9	99283.2	26741.4	2.0574	-100210.9	-2.1958
6000	9.5162	54887.4	83.8560	448248.5	100234.3	26594.6	2.0738	-100311.0	-2.2577

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Si, 1685° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(200) $SiCl_2$ (gas); molecular weight, 99.004

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-40187.4	-37224.9	-------	-205286.0	--------
100	8.9803	821.1	55.4607	4725.0	-39366.3	-37163.5	83.2696	-206113.6	440.3653
200	11.1115	1832.1	62.3822	10644.4	-38355.3	-37159.8	42.6666	-206713.0	214.8659
298.15	12.2947	2987.4	67.0662	17008.4	-37200.0	-37200.0	29.2948	-207101.3	140.4447
300	12.3101	3010.1	67.1423	17132.6	-37177.2	-37201.2	29.1266	-207107.7	139.5085
400	12.9129	4274.5	70.7757	24035.7	-35912.8	-37274.7	22.3459	-207426.9	101.7639
500	13.2389	5583.7	73.6955	31264.1	-34603.7	-37368.4	18.2684	-207712.3	79.0838
600	13.4307	6917.9	76.1277	38758.7	-33269.4	-37475.9	15.5427	-207974.2	63.9436
700	13.5519	8267.5	78.2078	46478.0	-31919.9	-37595.4	13.5898	-208216.2	53.1160
800	13.6328	9627.0	80.0230	54391.4	-30560.4	-37726.0	12.1201	-208440.7	44.9861
900	13.6894	10993.2	81.6322	62475.7	-29194.1	-37867.3	10.9731	-208650.1	38.6563
1000	13.7304	12364.3	83.0767	70712.4	-27823.0	-38019.1	10.0519	-208846.7	33.5875
1100	13.7611	13739.0	84.3869	79086.6	-26448.4	-38181.1	9.2950	-209032.7	29.4365
1200	13.7846	15116.3	85.5853	87586.1	-25071.0	-38353.5	8.6615	-209210.3	25.9743
1300	13.8030	16495.7	86.6894	96200.5	-23691.6	-38536.5	8.1229	-209381.2	23.0423
1400	13.8177	17876.8	87.7129	104921.2	-22310.6	-38729.3	7.6589	-209547.1	20.5272
1500	13.8295	19259.2	88.6666	113740.8	-20928.2	-38932.2	7.2551	-209709.3	18.3457
1600	13.8393	20642.6	89.5595	122652.5	-19544.7	-39145.1	6.8995	-209869.0	16.4354
[a]1700	13.8474	22027.0	90.3987	131650.9	-18160.4	-51386.8	6.5706	-210027.0	14.7486
1800	13.8542	23412.1	91.1904	140730.7	-16775.3	-51528.4	6.2031	-210184.1	13.2480
1900	13.8600	24797.8	91.9397	149887.6	-15389.6	-51670.9	5.8734	-210340.7	11.9045
2000	13.8649	26184.0	92.6507	159117.4	-14003.3	-51814.4	5.5758	-210497.5	10.6943
2100	13.8691	27570.7	93.3273	168416.5	-12616.6	-51958.9	5.3058	-210654.5	9.5986
2200	13.8728	28957.8	93.9726	177781.8	-11229.5	-52104.5	5.0597	-210812.1	8.6018
2300	13.8760	30345.3	94.5893	187210.1	-9842.1	-52251.2	4.8343	-210970.4	7.6910
2400	13.8789	31733.0	95.1799	196698.8	-8454.3	-52399.0	4.6272	-211129.4	6.8554
2500	13.8814	33121.0	95.7465	206245.3	-7066.3	-52547.9	4.4361	-211289.2	6.0862
2600	13.8836	34509.3	96.2910	215847.3	-5678.1	-52697.9	4.2591	-211449.8	5.3755
2700	13.8855	35897.8	96.8150	225502.8	-4289.6	-52849.1	4.0949	-211611.0	4.7170
2800	13.8873	37286.4	97.3200	235209.7	-2901.0	-53001.5	3.9419	-211773.0	4.1051
2900	13.8889	38675.2	97.8074	244966.2	-1512.1	-53155.0	3.7990	-211935.5	3.5349
3000	13.8903	40064.2	98.2783	254770.6	-123.2	-53309.6	3.6653	-212098.5	3.0023
3100	13.8916	41453.3	98.7338	264621.4	1265.9	-53465.5	3.5399	-212261.9	2.5037
3200	13.8928	42842.5	99.1748	274516.9	2655.1	-53622.5	3.4219	-212425.7	2.0359
3300	13.8939	44231.8	99.6023	284455.9	4044.5	-53780.7	3.3108	-212589.7	1.5961
3400	13.8949	45621.3	100.0171	294436.9	5433.9	-53940.1	3.2059	-212753.9	1.1819
3500	13.8958	47010.8	100.4199	304458.9	6823.4	-54100.7	3.1067	-212918.2	0.7910
3600	13.8966	48400.4	100.8114	314520.6	8213.1	-54262.4	3.0127	-213082.5	0.4216
3700	13.8973	49790.1	101.1921	324620.8	9602.8	-54425.4	2.9235	-213246.8	0.0719
3800	13.8980	51179.9	101.5628	334758.6	10992.5	-54589.6	2.8388	-213411.0	-0.2597
3900	13.8987	52569.7	101.9238	344933.1	12382.4	-54755.0	2.7582	-213575.0	-0.5745
4000	13.8993	53959.6	102.2757	355143.1	13772.3	-54921.5	2.6814	-213738.8	-0.8739
4100	13.8998	55349.6	102.6189	365387.9	15162.2	-55089.3	2.6081	-213902.4	-1.1588
4200	13.9004	56739.6	102.9539	375666.6	16552.2	-55258.3	2.5380	-214065.7	-1.4303
4300	13.9008	58129.6	103.2809	385978.4	17942.3	-55428.5	2.4711	-214228.7	-1.6895
4400	13.9013	59519.8	103.6005	396322.5	19332.4	-55599.9	2.4069	-214391.4	-1.9370
4500	13.9017	60909.9	103.9129	406698.3	20722.5	-55772.6	2.3455	-214553.7	-2.1737
4600	13.9021	62300.1	104.2185	417104.9	22112.7	-55946.4	2.2865	-214715.6	-2.4003
4700	13.9025	63690.3	104.5175	427541.7	23503.0	-56121.5	2.2299	-214877.2	-2.6175
4800	13.9028	65080.6	104.8102	438008.2	24893.2	-56297.7	2.1754	-215038.4	-2.8257
4900	13.9031	66470.9	105.0968	448503.6	26283.5	-56475.2	2.1230	-215199.3	-3.0256
5000	13.9034	67861.2	105.3777	459027.4	27673.9	-56653.9	2.0726	-215359.8	-3.2176
5100	13.9037	69251.6	105.6530	469578.9	29064.2	-56833.9	2.0239	-215520.1	-3.4022
5200	13.9040	70642.0	105.9230	480157.8	30454.6	-57015.0	1.9770	-215680.0	-3.5799
5300	13.9042	72032.4	106.1879	490763.4	31845.0	-57197.4	1.9318	-215839.7	-3.7510
5400	13.9045	73422.8	106.4478	501395.2	33235.4	-57380.9	1.8880	-215999.2	-3.9159
5500	13.9047	74813.3	106.7029	512052.8	34625.9	-57565.7	1.8457	-216158.6	-4.0749
5600	13.9049	76203.7	106.9535	522735.6	36016.4	-57751.8	1.8048	-216317.9	-4.2283
5700	13.9051	77594.2	107.1996	533443.3	37406.9	-57939.0	1.7652	-216476.5	-4.3764
5800	13.9053	78984.8	107.4414	544175.4	38797.4	-58127.5	1.7268	-216635.7	-4.5196
5900	13.9055	80375.3	107.6791	554931.5	40188.0	-58317.2	1.6897	-216795.0	-4.6580
6000	13.9057	81765.9	107.9128	565711.1	41578.5	-58508.1	1.6536	-216954.3	-4.7919

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Si, 1685° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(201) $SiCl_4$ (gas); molecular weight, 169.918

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-156445.3	-151289.4	-------	-376447.2	--------
100	13.6518	992.8	59.7222	4979.4	-155452.5	-151752.2	324.7550	-378096.8	802.3063
200	18.8482	2644.0	70.9604	11548.1	-153801.3	-151833.9	158.8839	-379054.1	388.7050
298.15	21.6446	4645.3	79.0646	18927.8	-151800.0	-151800.0	104.2709	-379562.5	252.2621
300	21.6823	4685.4	79.1986	19074.2	-151759.9	-151798.8	103.5847	-379610.9	250.5462
400	23.1907	6936.7	85.6649	27329.3	-149508.6	-151714.8	75.9459	-380003.9	181.3790
500	24.0336	9301.7	90.9388	36167.7	-147143.6	-151606.5	59.3736	-380315.2	139.8398
600	24.5389	11732.3	95.3689	45489.0	-144713.0	-151486.6	48.3337	-380569.6	112.1261
700	24.8616	14203.5	99.1776	55220.8	-142241.8	-151363.0	40.4544	-380777.2	92.3186
800	25.0788	16701.2	102.5125	65308.8	-139744.1	-151240.7	34.5496	-380945.0	77.4555
900	25.2314	19217.1	105.4756	75711.0	-137228.2	-151122.8	29.9609	-381078.8	65.8908
1000	25.3424	21746.1	108.1401	86394.0	-134699.2	-151011.2	26.2927	-381184.0	56.6361
1100	25.4256	24284.7	110.5595	97330.8	-132160.6	-150906.9	23.2935	-381265.4	49.0622
1200	25.4895	26830.6	112.7747	108499.1	-129614.7	-150811.2	20.7958	-381327.2	42.7495
1300	25.5396	29382.1	114.8170	119880.0	-127063.2	-150725.0	18.6837	-381372.9	37.4072
1400	25.5796	31938.1	116.7112	131457.6	-124507.2	-150647.9	16.8742	-381405.5	32.8276
1500	25.6119	34497.8	118.4772	143218.0	-121947.5	-150580.6	15.3070	-381427.6	28.8583
1600	25.6386	37060.3	120.1310	155149.3	-119385.0	-150523.3	13.9361	-381441.3	25.3850
[a]1700	25.6607	39625.3	121.6860	167240.9	-116820.0	-162495.0	12.7132	-381448.2	22.3203
1800	25.6793	42192.4	123.1533	179483.6	-114252.9	-162366.9	11.5532	-381449.8	19.5960
1900	25.6950	44761.1	124.5421	191869.0	-111684.2	-162240.3	10.5161	-381447.2	17.1586
2000	25.7085	47331.3	125.8605	204389.6	-109114.0	-162115.3	9.5834	-381441.3	14.9649
2100	25.7201	49902.7	127.1151	217038.9	-106542.6	-161992.1	8.7401	-381432.7	12.9801
2200	25.7302	52475.3	128.3118	229810.7	-103970.0	-161870.6	7.9742	-381422.1	11.1759
2300	25.7390	55048.7	129.4558	242699.5	-101396.6	-161751.1	7.2753	-381409.8	9.5285
2400	25.7468	57623.0	130.5514	255700.3	-98822.3	-161633.6	6.6351	-381396.2	8.0186
2500	25.7536	60198.0	131.6025	268808.3	-96247.3	-161518.1	6.0466	-381381.5	6.6294
2600	25.7597	62773.7	132.6127	282019.4	-93671.6	-161404.8	5.5038	-381365.9	5.3472
2700	25.7651	65350.0	133.5850	295329.6	-91095.3	-161293.5	5.0015	-381349.5	4.1600
2800	25.7699	67926.7	134.5221	308735.2	-88518.6	-161184.4	4.5354	-381332.3	3.0576
2900	25.7743	70503.9	135.4265	322232.9	-85941.4	-161077.5	4.1017	-381314.6	2.0313
3000	25.7782	73081.5	136.3004	335819.5	-83363.8	-160972.9	3.6972	-381296.2	1.0735
3100	25.7817	75659.5	137.1457	349492.1	-80785.8	-160870.4	3.3191	-381277.2	0.1775
3200	25.7850	78237.9	137.9643	363247.8	-78207.4	-160770.3	2.9648	-381257.6	-0.6624
3300	25.7879	80816.5	138.7578	377084.1	-75628.8	-160672.4	2.6322	-381237.4	-1.4514
3400	25.7906	83395.5	139.5276	390998.5	-73049.8	-160576.8	2.3193	-381216.6	-2.1939
3500	25.7931	85974.6	140.2753	404988.9	-70470.6	-160483.6	2.0245	-381195.1	-2.8940
3600	25.7953	88554.1	141.0019	419052.9	-67891.2	-160392.7	1.7462	-381173.1	-3.5551
3700	25.7974	91133.7	141.7087	433188.6	-65311.6	-160304.1	1.4832	-381150.3	-4.1805
3800	25.7993	93713.5	142.3967	447394.0	-62731.8	-160217.8	1.2341	-381126.9	-4.7729
3900	25.8011	96293.6	143.0669	461667.3	-60151.7	-160133.9	0.9979	-381102.8	-5.3349
4000	25.8027	98873.8	143.7201	476006.8	-57571.5	-160052.4	0.7736	-381077.9	-5.8688
4100	25.8042	101454.1	144.3573	490410.8	-54991.2	-159973.2	0.5604	-381052.4	-6.3766
4200	25.8057	104034.6	144.9791	504877.8	-52410.7	-159896.4	0.3574	-381026.2	-6.8602
4300	25.8070	106615.2	145.5864	519406.2	-49830.1	-159822.0	0.1639	-380999.2	-7.3212
4400	25.8082	109196.0	146.1797	533994.6	-47249.3	-159750.0	-0.0206	-380971.6	-7.7613
4500	25.8094	111776.9	146.7597	548641.7	-44668.4	-159680.4	-0.1969	-380943.2	-8.1818
4600	25.8104	114357.9	147.3269	563346.1	-42087.4	-159613.1	-0.3655	-380914.1	-8.5839
4700	25.8114	116939.0	147.8820	578106.6	-39506.3	-159548.3	-0.5268	-380884.4	-8.9689
4800	25.8124	119520.1	148.4255	592922.1	-36925.1	-159485.9	-0.6813	-380854.0	-9.3379
4900	25.8133	122101.4	148.9577	607791.4	-34343.9	-159425.9	-0.8294	-380823.0	-9.6918
5000	25.8141	124682.8	149.4792	622713.3	-31762.5	-159368.3	-0.9716	-380791.4	-10.0314
5100	25.8149	127264.2	149.9904	637686.9	-29181.1	-159313.1	-1.1082	-380759.2	-10.3578
5200	25.8156	129845.8	150.4917	652711.1	-26599.5	-159260.3	-1.2394	-380726.5	-10.6715
5300	25.8163	132427.4	150.9834	667784.9	-24017.9	-159210.0	-1.3657	-380693.4	-10.9734
5400	25.8170	135009.0	151.4660	682907.4	-21436.3	-159162.0	-1.4873	-380659.9	-11.2641
5500	25.8176	137590.8	151.9397	698077.8	-18854.5	-159116.5	-1.6044	-380626.0	-11.5442
5600	25.8182	140172.6	152.4049	713295.1	-16272.7	-159073.4	-1.7173	-380591.8	-11.8142
5700	25.8188	142754.4	152.8619	728558.5	-13690.9	-159032.8	-1.8261	-380556.9	-12.0748
5800	25.8193	145336.3	153.3110	743867.2	-11109.0	-158994.6	-1.9313	-380522.2	-12.3263
5900	25.8198	147918.3	153.7523	759220.4	-8527.0	-158958.8	-2.0328	-380487.6	-12.5693
6000	25.8203	150500.3	154.1863	774617.4	-5945.0	-158925.4	-2.1309	-380452.8	-12.8042

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Si, 1685° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(202) SiF (gas); molecular weight, 47.09

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	2495.5	4319.3	-------	-125000.0	--------
100	7.8305	736.2	45.5263	3816.5	3231.6	4644.4	-4.8474	-125417.4	269.6641
200	7.6162	1506.5	50.8760	8668.7	4001.9	4782.9	0.3063	-125785.4	132.4618
298.15	7.8046	2261.1	53.9432	13822.1	4756.5	4756.5	2.0258	-126101.6	87.1644
300	7.8100	2275.5	53.9915	13921.9	4771.0	4755.2	2.0472	-126107.1	86.5944
400	8.0979	3071.2	56.2784	19440.2	5566.6	4657.1	2.9057	-126374.6	63.6055
500	8.3282	3893.0	58.1114	25162.7	6388.5	4527.4	3.4083	-126597.5	49.7849
600	8.4947	4734.6	59.6454	31052.6	7230.1	4380.3	3.7332	-126788.1	40.5561
700	8.6145	5590.4	60.9643	37084.6	8085.9	4220.4	3.9573	-126956.0	33.9547
800	8.7026	6456.5	62.1207	43240.0	8952.0	4049.7	4.1186	-127107.5	28.9974
900	8.7695	7330.2	63.1497	49504.5	9825.7	3869.0	4.2391	-127247.1	25.1372
1000	8.8217	8209.9	64.0765	55866.6	10705.4	3678.6	4.3309	-127377.9	22.0459
1100	8.8637	9094.3	64.9193	62317.0	11589.7	3479.0	4.4020	-127502.3	19.5140
1200	8.8984	9982.4	65.6921	68848.1	12477.9	3270.1	4.4579	-127622.2	17.4021
1300	8.9276	10873.7	66.4055	75453.4	13369.2	3051.7	4.5022	-127739.0	15.6135
1400	8.9528	11767.8	67.0681	82127.5	14263.3	2824.6	4.5375	-127853.8	14.0789
1500	8.9750	12664.2	67.6865	88865.6	15159.7	2588.5	4.5659	-127967.7	12.7478
1600	8.9948	13562.7	68.2664	95663.5	16058.2	2343.5	4.5883	-128081.3	11.5821
[a]1700	9.0128	14463.1	68.8123	102517.7	16958.6	-9929.1	4.5925	-128195.3	10.5526
1800	9.0293	15365.2	69.3279	109425.0	17860.7	-10100.4	4.5210	-128309.9	9.6366
1900	9.0446	16268.9	69.8165	116382.4	18764.4	-10271.6	4.4559	-128425.5	8.8163
2000	9.0590	17174.1	70.2808	123387.5	19669.6	-10442.6	4.3964	-128542.3	8.0774
2100	9.0726	18080.7	70.7231	130437.8	20576.2	-10613.5	4.3416	-128660.4	7.4083
2200	9.0856	18988.6	71.1455	137531.4	21484.1	-10784.3	4.2910	-128779.7	6.7994
2300	9.0980	19897.8	71.5496	144666.3	22393.3	-10955.1	4.2440	-128900.3	6.2430
2400	9.1101	20808.2	71.9371	151840.8	23303.7	-11125.8	4.2003	-129022.0	5.7324
2500	9.1218	21719.8	72.3092	159053.2	24215.3	-11296.5	4.1595	-129144.8	5.2622
2600	9.1332	22632.6	72.6672	166302.2	25128.0	-11467.2	4.1212	-129268.5	4.8278
2700	9.1445	23546.5	73.0121	173586.2	26041.9	-11637.9	4.0853	-129393.0	4.4252
2800	9.1556	24461.5	73.3449	180904.2	26956.9	-11808.5	4.0514	-129518.1	4.0510
2900	9.1667	25377.6	73.6664	188254.8	27873.1	-11979.1	4.0194	-129643.7	3.7022
3000	9.1777	26294.8	73.9773	195637.1	28790.3	-12149.6	3.9891	-129769.6	3.3764
3100	9.1888	27213.1	74.2784	203050.0	29708.6	-12320.1	3.9603	-129895.6	3.0713
3200	9.2000	28132.6	74.5703	210492.5	30628.0	-12490.6	3.9330	-130021.7	2.7850
3300	9.2113	29053.1	74.8536	217963.8	31548.6	-12660.9	3.9070	-130147.5	2.5158
3400	9.2228	29974.8	75.1288	225462.9	32470.3	-12831.1	3.8822	-130273.0	2.2622
3500	9.2345	30897.7	75.3963	232989.3	33393.2	-13001.2	3.8584	-130398.1	2.0229
3600	9.2464	31821.7	75.6566	240542.0	34317.2	-13171.2	3.8357	-130522.5	1.7966
3700	9.2587	32747.0	75.9101	248120.3	35242.5	-13340.9	3.8140	-130646.2	1.5823
3800	9.2712	33673.5	76.1572	255723.8	36169.0	-13510.4	3.7931	-130769.0	1.3792
3900	9.2841	34601.3	76.3982	263351.6	37096.7	-13679.6	3.7731	-130890.8	1.1862
4000	9.2974	35530.3	76.6334	271003.2	38025.8	-13848.5	3.7538	-131011.6	1.0028
4100	9.3111	36460.8	76.8631	278678.1	38956.2	-14017.1	3.7352	-131131.1	0.8281
4200	9.3252	37392.6	77.0877	286375.6	39888.0	-14185.3	3.7173	-131249.3	0.6616
4300	9.3398	38325.8	77.3073	294095.4	40821.3	-14353.0	3.7001	-131366.0	0.5028
4400	9.3548	39260.6	77.5222	301836.9	41756.0	-14520.2	3.6834	-131481.3	0.3510
4500	9.3703	40196.8	77.7326	309599.7	42692.3	-14686.9	3.6673	-131595.0	0.2058
4600	9.3863	41134.6	77.9387	317383.3	43630.1	-14853.0	3.6517	-131707.0	0.0668
4700	9.4027	42074.1	78.1407	325187.3	44569.5	-15018.4	3.6366	-131817.3	-0.0664
4800	9.4197	43015.2	78.3389	333011.3	45510.7	-15183.1	3.6220	-131925.8	-0.1942
4900	9.4371	43958.0	78.5333	340855.0	46453.5	-15347.2	3.6078	-132032.4	-0.3168
5000	9.4551	44902.6	78.7241	348717.9	47398.1	-15510.4	3.5940	-132137.2	-0.4346
5100	9.4735	45849.1	78.9115	356599.7	48344.5	-15672.7	3.5807	-132240.0	-0.5479
5200	9.4925	46797.4	79.0957	364500.1	49292.8	-15834.2	3.5677	-132340.9	-0.6569
5300	9.5120	47747.6	79.2767	372418.7	50243.0	-15994.7	3.5551	-132439.8	-0.7619
5400	9.5319	48699.8	79.4546	380355.3	51195.2	-16154.2	3.5428	-132536.7	-0.8631
5500	9.5524	49654.0	79.6297	388309.5	52149.4	-16312.6	3.5308	-132631.6	-0.9606
5600	9.5733	50610.3	79.8020	396281.1	53105.7	-16470.0	3.5192	-132724.5	-1.0548
5700	9.5947	51568.7	79.9717	404269.8	54064.1	-16626.2	3.5079	-132814.8	-1.1456
5800	9.6165	52529.2	80.1387	412275.4	55024.7	-16781.2	3.4968	-132903.6	-1.2335
5900	9.6389	53492.0	80.3033	420297.5	55987.4	-16934.9	3.4861	-132990.4	-1.3184
6000	9.6616	54457.0	80.4655	428336.0	56952.5	-17087.4	3.4756	-133075.2	-1.4005

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Si, 1685° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(203) SiF_2 (gas); molecular weight, 66.09

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-128129.9	-125251.3	-------	-272925.5	--------
100	8.1147	797.6	50.5367	4256.1	-127332.3	-125212.2	275.5883	-273780.1	587.9712
200	9.2387	1660.4	56.4724	9634.1	-126469.5	-125331.2	138.7280	-274581.4	288.4617
298.15	10.4872	2629.9	60.3997	15378.3	-125500.0	-125500.0	93.6191	-275216.3	189.5878
300	10.5084	2649.3	60.4647	15490.1	-125480.6	-125503.3	93.0518	-275226.9	188.3438
400	11.4805	3751.7	63.6292	21700.0	-124378.2	-125679.7	70.1809	-275727.8	138.1774
500	12.1418	4935.0	66.2670	28198.5	-123194.9	-125850.7	56.4394	-276121.3	108.0280
600	12.5856	6172.8	68.5225	34940.7	-121957.1	-126017.4	47.2659	-276440.7	87.9022
700	12.8893	7447.5	70.4869	41893.3	-120682.4	-126183.5	40.7047	-276708.9	73.5114
800	13.1032	8747.7	72.2227	49030.5	-119382.2	-126352.1	35.7771	-276941.3	62.7084
900	13.2582	10066.1	73.7755	56331.8	-118063.7	-126525.5	31.9397	-277148.0	54.2994
1000	13.3735	11398.0	75.1786	63780.6	-116731.9	-126705.2	28.8653	-277335.9	47.5674
1100	13.4613	12739.9	76.4576	71363.4	-115390.0	-126892.2	26.3462	-277510.2	42.0558
1200	13.5295	14089.6	77.6319	79068.7	-114040.3	-127087.4	24.2438	-277674.4	37.4600
1300	13.5835	15445.4	78.7170	86886.8	-112684.5	-127291.5	22.4620	-277831.4	33.5690
1400	13.6270	16806.0	79.7253	94809.5	-111323.9	-127504.4	20.9322	-277983.4	30.2321
1500	13.6624	18170.5	80.6667	102829.6	-109959.4	-127726.7	19.6044	-278131.9	27.3384
1600	13.6916	19538.2	81.5495	110940.9	-108591.7	-127958.5	18.4402	-278278.5	24.8052
[a]1700	13.7160	20908.6	82.3803	119137.8	-107221.2	-140218.7	17.3576	-278424.0	22.5687
1800	13.7366	22281.3	83.1648	127415.4	-105848.6	-140378.6	16.3556	-278569.1	20.5798
1900	13.7541	23655.9	83.9080	135769.4	-104474.0	-140539.5	15.4981	-278714.6	18.7993
2000	13.7691	25032.0	84.6139	144195.8	-103097.9	-140701.4	14.6894	-278860.7	17.1959
2100	13.7820	26409.6	85.2860	152691.0	-101720.3	-140864.5	13.9569	-279007.8	15.7446
2200	13.7933	27788.4	85.9274	161251.9	-100341.5	-141028.9	13.2902	-279156.0	14.4244
2300	13.8032	29168.2	86.5408	169875.6	-98961.7	-141194.7	12.6807	-279305.4	13.2185
2400	13.8118	30549.0	87.1284	178559.2	-97580.9	-141362.0	12.1214	-279456.0	12.1124
2500	13.8195	31930.6	87.6924	187300.5	-96199.3	-141530.7	11.6062	-279607.9	11.0942
2600	13.8263	33312.9	88.2346	196097.0	-94817.0	-141700.9	11.1301	-279761.0	10.1539
2700	13.8324	34695.8	88.7565	204946.7	-93434.1	-141872.8	10.6887	-279915.2	9.2827
2800	13.8379	36079.3	89.2596	213847.7	-92050.6	-142046.2	10.2783	-280070.4	8.4734
2900	13.8428	37463.3	89.7453	222798.1	-90666.5	-142221.3	9.8958	-280226.6	7.7194
3000	13.8472	38847.8	90.2147	231796.2	-89282.0	-142398.0	9.5383	-280383.7	7.0153
3100	13.8512	40232.8	90.6688	240840.5	-87897.1	-142576.5	9.2035	-280541.4	6.3562
3200	13.8548	41618.1	91.1086	249929.5	-86511.8	-142756.6	8.8892	-280699.8	5.7380
3300	13.8582	43003.7	91.5350	259061.8	-85126.2	-142938.5	8.5936	-280858.7	5.1569
3400	13.8612	44389.7	91.9487	268236.1	-83740.2	-143122.1	8.3150	-281018.0	4.6097
3500	13.8640	45776.0	92.3506	277451.1	-82353.9	-143307.4	8.0520	-281177.6	4.0935
3600	13.8665	47162.5	92.7412	286705.8	-80967.4	-143494.6	7.8033	-281337.5	3.6057
3700	13.8689	48549.2	93.1211	295999.0	-79580.6	-143683.5	7.5677	-281497.6	3.1440
3800	13.8710	49936.2	93.4910	305329.7	-78193.6	-143874.2	7.3442	-281657.7	2.7063
3900	13.8730	51323.5	93.8514	314696.9	-76806.4	-144066.6	7.1319	-281817.8	2.2909
4000	13.8749	52710.8	94.2026	324099.7	-75419.0	-144260.9	6.9299	-281978.0	1.8959
4100	13.8766	54098.4	94.5453	333537.1	-74031.5	-144457.0	6.7376	-282138.0	1.5201
4200	13.8782	55486.2	94.8797	343008.4	-72643.7	-144654.9	6.5541	-282297.9	1.1619
4300	13.8797	56874.1	95.2062	352512.8	-71255.8	-144854.6	6.3789	-282457.6	0.8202
4400	13.8811	58262.1	95.5254	362049.4	-69867.8	-145056.2	6.2115	-282617.1	0.4939
4500	13.8824	59650.3	95.8373	371617.6	-68479.6	-145259.6	6.0513	-282776.4	0.1819
4600	13.8836	61038.6	96.1424	381216.7	-67091.3	-145464.8	5.8978	-282935.5	-0.1168
4700	13.8848	62427.0	96.4410	390845.9	-65702.9	-145671.9	5.7507	-283094.2	-0.4028
4800	13.8858	63815.5	96.7334	400504.7	-64314.4	-145880.0	5.6095	-283252.8	-0.6772
4900	13.8868	65204.2	97.0197	410192.4	-62925.7	-146091.5	5.4738	-283411.1	-0.9404
5000	13.8878	66592.9	97.3003	419908.4	-61537.0	-146304.1	5.3434	-283569.1	-1.1933
5100	13.8887	67981.7	97.5753	429652.2	-60148.2	-146518.5	5.2180	-283726.9	-1.4364
5200	13.8895	69370.6	97.8450	439423.3	-58759.3	-146734.8	5.0971	-283884.6	-1.6702
5300	13.8903	70759.6	98.1096	449221.1	-57370.3	-146953.0	4.9807	-284042.0	-1.8954
5400	13.8911	72148.7	98.3692	459045.1	-55981.2	-147173.0	4.8684	-284199.4	-2.1124
5500	13.8918	73537.8	98.6241	468894.7	-54592.0	-147394.9	4.7600	-284356.6	-2.3215
5600	13.8924	74927.1	98.8744	478769.7	-53202.8	-147618.7	4.6554	-284513.9	-2.5234
5700	13.8931	76316.3	99.1203	488669.5	-51813.6	-147844.3	4.5542	-284670.6	-2.7182
5800	13.8937	77705.7	99.3620	498593.6	-50424.2	-148071.7	4.4564	-284827.8	-2.9064
5900	13.8943	79095.1	99.5995	508541.7	-49034.8	-148301.1	4.3618	-284985.2	-3.0884
6000	13.8948	80484.5	99.8330	518513.4	-47645.4	-148532.3	4.2701	-285142.8	-3.2644

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Si, 1685° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(204) SiF_4 (gas); molecular weight, 104.09

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-389679.2	-384691.0	-------	-569075.2	--------
100	9.9417	840.2	52.6478	4424.6	-388839.0	-385304.0	835.5590	-570884.3	1223.6848
200	14.5035	2077.4	61.0401	10130.6	-387601.8	-385748.7	414.3305	-572362.7	599.2205
298.15	17.5655	3659.2	67.4343	16446.3	-386020.0	-386020.0	275.5262	-573452.7	393.1551
300	17.6144	3691.8	67.5431	16571.2	-385987.4	-386024.1	273.7813	-573470.2	390.5630
400	19.8506	5571.5	72.9353	23602.6	-384107.7	-386193.2	203.4647	-574274.0	286.0546
500	21.4058	7639.1	77.5427	31132.2	-382040.1	-386285.3	161.2604	-574847.4	223.2731
600	22.4767	9836.6	81.5461	39091.1	-379842.7	-386323.8	133.1193	-575256.9	181.3826
700	23.2243	12123.8	85.0703	47425.5	-377555.4	-386327.6	113.0175	-575551.2	151.4425
800	23.7583	14474.3	88.2083	56092.3	-375204.9	-386310.0	97.9412	-575763.3	128.9775
900	24.1493	16870.7	91.0303	65056.6	-372808.5	-386280.3	86.2162	-575915.7	111.4992
1000	24.4424	19300.9	93.5906	74289.6	-370378.3	-386244.7	76.8369	-576023.9	97.5134
1100	24.6669	21756.9	95.9312	83767.4	-367922.3	-386207.5	69.1637	-576098.9	86.0686
1200	24.8422	24232.7	98.0853	93469.7	-365446.5	-386172.1	62.7699	-576148.7	76.5303
1300	24.9814	26724.1	100.0794	103379.1	-362955.1	-386141.1	57.3602	-576179.3	68.4589
1400	25.0937	29228.1	101.9350	113480.9	-360451.1	-386115.3	52.7236	-576195.2	61.5402
1500	25.1854	31742.2	103.6695	123762.1	-357937.0	-386096.5	48.7058	-576199.9	55.5439
1600	25.2613	34264.7	105.2975	134211.3	-355414.6	-386085.6	45.1900	-576196.0	50.2971
[a]1700	25.3248	36794.0	106.8309	144818.5	-352885.2	-398102.2	42.0744	-576185.6	45.6677
1800	25.3783	39329.3	108.2800	155574.7	-350349.9	-398017.8	39.2315	-576170.4	41.5528
1900	25.4239	41869.4	109.6534	166471.9	-347809.8	-397934.1	36.6884	-576151.5	37.8711
2000	25.4630	44413.8	110.9585	177503.1	-345265.4	-397851.6	34.4001	-576130.0	34.5577
2100	25.4969	46961.9	112.2016	188661.6	-342717.3	-397770.7	32.3302	-576106.6	31.5599
2200	25.5263	49513.1	113.3884	199941.5	-340166.1	-397691.6	30.4488	-576081.8	28.8348
2300	25.5521	52067.0	114.5237	211337.5	-337612.2	-397614.6	28.7314	-576056.1	26.3468
2400	25.5747	54623.4	115.6117	222844.7	-335055.8	-397539.9	27.1573	-576029.7	24.0662
2500	25.5948	57181.9	116.6561	234458.4	-332497.3	-397467.7	25.7095	-576002.8	21.9682
2600	25.6126	59742.3	117.6603	246174.6	-329937.0	-397398.2	24.3733	-575975.7	20.0316
2700	25.6286	62304.3	118.6273	257989.2	-327374.9	-397331.3	23.1362	-575948.3	18.2386
2800	25.6428	64867.9	119.5596	269898.9	-324811.3	-397267.4	21.9878	-575920.7	16.5737
2900	25.6557	67432.9	120.4596	281900.1	-322246.4	-397206.4	20.9186	-575893.1	15.0238
3000	25.6673	69999.0	121.3296	293989.8	-319680.2	-397148.4	19.9210	-575865.2	13.5772
3100	25.6778	72566.3	122.1714	306165.1	-317112.9	-397093.5	18.9878	-575837.3	12.2240
3200	25.6873	75134.5	122.9868	318423.2	-314544.7	-397041.9	18.1130	-575809.1	10.9555
3300	25.6960	77703.7	123.7774	330761.6	-311975.5	-396993.4	17.2914	-575780.8	9.7638
3400	25.7040	80273.7	124.5446	343177.9	-309405.5	-396948.3	16.5182	-575752.2	8.6424
3500	25.7113	82844.5	125.2898	355669.8	-306834.7	-396906.4	15.7892	-575723.3	7.5851
3600	25.7180	85416.0	126.0142	368235.1	-304263.3	-396868.0	15.1009	-575694.1	6.5865
3700	25.7241	87988.1	126.7189	380872.0	-301691.1	-396832.9	14.4498	-575664.6	5.6420
3800	25.7298	90560.8	127.4050	393578.3	-299118.4	-396801.3	13.8330	-575634.6	4.7473
3900	25.7351	93134.0	128.0734	406352.4	-296545.2	-396773.1	13.2479	-575604.3	3.8984
4000	25.7400	95707.8	128.7251	419192.4	-293971.4	-396748.4	12.6920	-575573.5	3.0921
4100	25.7445	98282.0	129.3607	432096.9	-291397.2	-396727.2	12.1634	-575542.2	2.3251
4200	25.7487	100856.7	129.9811	445064.1	-288822.6	-396709.5	11.6599	-575510.5	1.5947
4300	25.7526	103431.7	130.5871	458092.6	-286247.5	-396695.4	11.1799	-575478.2	0.8984
4400	25.7563	106007.2	131.1791	471181.0	-283672.0	-396684.8	10.7216	-575445.5	0.2337
4500	25.7597	108583.0	131.7580	484328.0	-281096.2	-396677.9	10.2838	-575412.2	-0.4015
4600	25.7629	111159.1	132.3242	497532.2	-278520.1	-396674.5	9.8650	-575378.4	-1.0089
4700	25.7659	113735.5	132.8783	510792.4	-275943.7	-396674.7	9.4641	-575344.1	-1.5905
4800	25.7687	116312.3	133.4208	524107.5	-273366.9	-396678.5	9.0798	-575309.4	-2.1478
4900	25.7713	118889.3	133.9521	537476.2	-270789.9	-396686.0	8.7112	-575274.1	-2.6824
5000	25.7738	121466.5	134.4728	550897.5	-268212.7	-396697.1	8.3574	-575238.4	-3.1955
5100	25.7762	124044.0	134.9832	564370.4	-265635.2	-396711.8	8.0174	-575202.3	-3.6885
5200	25.7784	126621.8	135.4838	577893.9	-263057.4	-396730.2	7.6905	-575165.9	-4.1625
5300	25.7805	129199.7	135.9748	591466.9	-260479.5	-396752.3	7.3759	-575129.0	-4.6185
5400	25.7824	131777.9	136.4567	605088.5	-257901.3	-396778.0	7.0729	-575091.9	-5.0577
5500	25.7843	134356.2	136.9298	618757.9	-255323.0	-396807.4	6.7809	-575054.6	-5.4808
5600	25.7861	136934.7	137.3945	632474.2	-252744.5	-396840.5	6.4994	-575017.1	-5.8889
5700	25.7878	139513.4	137.8509	646236.5	-250165.8	-396877.3	6.2277	-574978.9	-6.2825
5800	25.7893	142092.3	138.2994	660044.1	-247586.9	-396917.8	5.9653	-574941.1	-6.6626
5900	25.7908	144671.3	138.7402	673896.1	-245007.9	-396962.0	5.7118	-574903.4	-7.0298
6000	25.7923	147250.4	139.1737	687791.9	-242428.8	-397009.8	5.4667	-574865.7	-7.3847

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Si, 1685° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(205) SiH (gas); molecular weight, 29.098

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	87241.8	89022.7	-------	-73570.0	-------
100	7.7296	721.0	39.1891	3197.9	87962.7	89300.5	-169.4573	-74000.9	158.1321
200	7.3462	1473.8	44.4235	7410.9	88715.6	89470.2	-91.7813	-74357.3	77.1157
298.15	7.1810	2185.2	47.3195	11923.1	89426.9	89426.9	-59.6002	-74670.8	50.3189
300	7.1796	2198.5	47.3640	12010.7	89440.2	89425.0	-59.1962	-74676.5	49.9814
400	7.1750	2915.1	49.4256	16855.2	90156.8	89285.7	-42.9214	-74979.8	36.3564
500	7.2811	3637.2	51.0364	21681.1	90878.9	89109.6	-33.1736	-75267.2	28.1467
600	7.4475	4373.3	52.3781	27053.6	91615.1	88922.7	-26.6886	-75535.2	22.6565
700	7.6332	5127.3	53.5400	32350.7	92369.0	88735.1	-22.0664	-75782.4	18.7199
800	7.8142	5899.8	54.5712	37757.2	93141.5	88550.1	-18.6072	-76009.3	15.7582
900	7.9796	6689.6	55.5013	43261.6	93931.4	88367.3	-15.9218	-76217.8	13.4481
1000	8.1261	7495.1	56.3498	48854.8	94736.8	88185.2	-13.7780	-76410.3	11.5951
1100	8.2539	8314.2	57.1304	54529.3	95556.0	88002.1	-12.0280	-76589.4	10.0752
1200	8.3650	9145.3	57.8535	60279.0	96387.0	87816.0	-10.5725	-76757.3	8.8059
1300	8.4615	9986.7	58.5270	66098.4	97228.4	87625.1	-9.3435	-76916.2	7.7795
1400	8.5457	10837.1	59.1572	71982.9	98078.9	87428.7	-8.2928	-77067.8	6.8050
1500	8.6195	11695.5	59.7494	77928.5	98937.3	87225.3	-7.3838	-77213.7	6.0023
1600	8.6847	12560.8	60.3078	83931.7	99802.5	87014.3	-6.5904	-77355.2	5.2985
[a]1700	8.7426	13432.2	60.8360	89989.1	100674.0	74776.8	-5.9057	-77493.4	4.6765
1800	8.7945	14309.1	61.3373	96098.0	101550.9	74641.3	-5.3722	-77629.0	4.1226
1900	8.8412	15190.9	61.8140	102255.7	102432.7	74505.7	-4.8956	-77762.7	3.6261
2000	8.8836	16077.2	62.2686	108460.0	103318.9	74370.1	-4.4676	-77894.9	3.1785
2100	8.9224	16967.5	62.7030	114708.8	104209.3	74234.3	-4.0809	-78026.0	2.7728
2200	8.9580	17861.5	63.1189	121000.1	105103.3	74098.3	-3.7302	-78156.3	2.4035
2300	8.9909	18759.0	63.5178	127332.0	106000.8	73961.8	-3.4103	-78285.9	2.0656
2400	9.0216	19659.7	63.9011	133703.0	106901.4	73824.9	-3.1179	-78415.0	1.7554
2500	9.0502	20563.3	64.2700	140111.7	107805.0	73687.6	-2.8492	-78543.5	1.4696
2600	9.0771	21469.7	64.6255	146556.6	108711.5	73549.9	-2.6017	-78671.4	1.2053
2700	9.1025	22378.6	64.9685	153036.4	109620.4	73411.5	-2.3729	-78798.9	0.9602
2800	9.1266	23290.1	65.3000	159549.9	110531.9	73272.8	-2.1610	-78925.7	0.7322
2900	9.1495	24203.9	65.6207	166096.1	111445.7	73133.5	-1.9639	-79051.9	0.5196
3000	9.1714	25120.0	65.9312	172673.8	112361.7	72993.6	-1.7803	-79177.4	0.3209
3100	9.1923	26038.1	66.2323	179282.0	113279.9	72853.0	-1.6090	-79302.1	0.1347
3200	9.2124	26958.4	66.5245	185919.9	114200.1	72711.7	-1.4486	-79425.9	-0.0401
3300	9.2318	27880.6	66.8082	192586.6	115122.4	72570.4	-1.2983	-79548.7	-0.2046
3400	9.2506	28804.8	67.0841	199281.3	116046.5	72427.8	-1.1571	-79670.6	-0.3597
3500	9.2688	29730.8	67.3526	206003.2	116972.5	72284.2	-1.0242	-79791.3	-0.5061
3600	9.2864	30658.5	67.6139	212751.6	117900.3	72140.8	-0.8989	-79910.9	-0.6446
3700	9.3035	31588.0	67.8686	219525.7	118829.7	71996.6	-0.7807	-80029.3	-0.7758
3800	9.3202	32519.1	68.1169	226325.1	119760.9	71850.9	-0.6689	-80146.5	-0.9003
3900	9.3365	33452.0	68.3592	233148.8	120693.8	71706.0	-0.5632	-80262.2	-1.0186
4000	9.3525	34386.6	68.5958	239996.6	121628.4	71560.0	-0.4627	-80376.5	-1.1311
4100	9.3681	35322.5	68.8269	246867.8	122564.3	71413.7	-0.3676	-80489.7	-1.2383
4200	9.3834	36260.0	69.0529	253762.0	123501.8	71266.3	-0.2768	-80601.4	-1.3405
4300	9.3984	37199.1	69.2738	260678.3	124440.9	71118.8	-0.1907	-80711.5	-1.4381
4400	9.4131	38139.8	69.4901	267616.5	125381.5	70970.1	-0.1086	-80820.1	-1.5314
4500	9.4276	39081.8	69.7018	274576.1	126323.6	70821.7	-0.0305	-80927.3	-1.6206
4600	9.4419	40025.2	69.9091	281556.7	127267.0	70672.2	0.0442	-81033.0	-1.7061
4700	9.4560	40970.1	70.1123	288557.8	128211.9	70522.2	0.1156	-81137.2	-1.7881
4800	9.4698	41916.4	70.3115	295579.0	129158.1	70371.2	0.1839	-81239.9	-1.8667
4900	9.4835	42864.1	70.5069	302619.9	130105.8	70219.7	0.2491	-81341.1	-1.9423
5000	9.4970	43813.2	70.6987	309680.3	131055.0	70068.4	0.3116	-81440.7	-2.0149
5100	9.5108	44763.5	70.8869	316759.7	132005.3	69916.0	0.3717	-81539.1	-2.0847
5200	9.5242	45715.3	71.0717	323857.7	132957.1	69763.4	0.4292	-81636.0	-2.1519
5300	9.5375	46668.4	71.2533	330974.0	133910.2	69609.9	0.4843	-81731.5	-2.2167
5400	9.5507	47622.8	71.4317	338108.2	134864.6	69456.2	0.5376	-81825.7	-2.2792
5500	9.5638	48578.5	71.6070	345260.2	135820.3	69301.7	0.5886	-81918.6	-2.3394
5600	9.5768	49535.5	71.7795	352429.6	136777.3	69147.0	0.6377	-82010.3	-2.3976
5700	9.5897	50493.9	71.9491	359616.0	137735.6	68992.2	0.6850	-82100.2	-2.4537
5800	9.6025	51453.5	72.1160	366819.3	138695.2	68836.8	0.7305	-82189.5	-2.5080
5900	9.6152	52414.4	72.2803	374039.1	139656.1	68680.7	0.7745	-82277.8	-2.5606
6000	9.6279	53376.5	72.4420	381275.3	140618.3	68524.5	0.8167	-82365.0	-2.6114

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Si, 1685° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(206) SiH_4 (gas); molecular weight, 32.122

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	5281.1	10097.7	-------	-307380.1	--------
100	7.9518	794.9	39.5929	3164.4	6076.1	9311.1	-22.5553	-309227.5	657.8824
200	8.4905	1606.0	45.1954	7433.1	6887.1	8634.9	-12.6336	-311016.2	319.2223
298.15	10.2359	2518.9	48.8858	12056.4	7800.0	7800.0	-9.6569	-312591.0	207.0941
300	10.2738	2537.8	48.9493	12146.9	7819.0	7784.6	-9.6222	-312618.6	205.6811
400	12.3029	3667.6	52.1854	17206.6	8948.7	7016.6	-8.2706	-313999.2	148.6313
500	14.1396	4991.7	55.1323	22574.5	10272.8	6394.6	-7.5362	-315175.0	114.2595
600	15.7508	6488.0	57.8560	28225.6	11769.1	5917.9	-7.0873	-316173.3	91.2650
700	17.1480	8134.7	60.3916	34139.4	13415.8	5569.7	-6.7888	-317018.3	74.7920
800	18.3438	9910.9	62.7616	40298.4	15192.0	5330.1	-6.5764	-317731.9	62.4067
900	19.3565	11797.3	64.9824	46686.8	17078.5	5177.2	-6.4165	-318334.2	52.7536
1000	20.2085	13776.8	67.0672	53290.4	19057.9	5091.9	-6.2912	-318843.1	45.0177
1100	20.9239	15834.5	69.0278	60096.1	21115.6	5057.7	-6.1910	-319274.1	38.6789
1200	21.5251	17957.8	70.8749	67092.1	23238.9	5060.5	-6.1073	-319640.2	33.3899
1300	22.0318	20136.4	72.6184	74267.6	25417.5	5088.0	-6.0360	-319952.4	28.9099
1400	22.4607	22361.6	74.2673	81612.7	27642.7	5132.2	-5.9756	-320219.7	25.0665
1500	22.8254	24626.4	75.8297	89118.2	29907.5	5184.5	-5.9215	-320449.6	21.7329
1600	23.1373	26924.9	77.3130	96776.0	32206.0	5240.7	-5.8737	-320648.3	18.8140
[a]1700	23.4054	29252.4	78.7240	104578.4	34533.5	-6721.5	-5.8449	-320820.9	16.2370
1800	23.6372	31604.8	80.0685	112518.6	36885.9	-6575.6	-5.8924	-320971.4	13.9453
1900	23.8385	33978.8	81.3520	120590.1	39259.9	-6428.4	-5.9337	-321103.3	11.8938
2000	24.0144	36371.6	82.5794	128787.1	41652.8	-6280.2	-5.9708	-321219.5	10.0468
2100	24.1687	38780.9	83.7548	137104.2	44062.1	-6132.6	-6.0029	-321322.0	8.3751
2200	24.3047	41204.8	84.8824	145536.5	46485.9	-5985.9	-6.0319	-321413.0	6.8550
2300	24.4252	43641.4	85.9655	154079.2	48922.5	-5842.4	-6.0568	-321493.9	5.4666
2400	24.5323	46089.3	87.0073	162728.2	51370.5	-5701.5	-6.0803	-321566.1	4.1937
2500	24.6279	48547.4	88.0107	171479.4	53828.6	-5564.1	-6.1005	-321630.5	3.0223
2600	24.7135	51014.6	88.9784	180329.1	56295.7	-5431.0	-6.1193	-321688.2	1.9408
2700	24.7906	53489.9	89.9125	189273.9	58771.0	-5301.5	-6.1356	-321739.8	0.9393
2800	24.8600	55972.5	90.8154	198310.6	61253.6	-5177.3	-6.1512	-321786.0	0.0092
2900	24.9229	58461.7	91.6889	207436.0	63742.8	-5057.4	-6.1650	-321827.2	-0.8569
3000	24.9800	60956.8	92.5348	216647.4	66238.0	-4943.1	-6.1769	-321864.0	-1.6654
3100	25.0319	63457.5	93.3547	225942.1	68738.6	-4834.8	-6.1887	-321896.7	-2.4218
3200	25.0794	65963.1	94.1502	235317.6	71244.2	-4732.5	-6.1993	-321925.5	-3.1309
3300	25.1227	68473.2	94.9226	244771.4	73754.3	-4633.6	-6.2089	-321950.9	-3.7972
3400	25.1625	70987.5	95.6732	254301.4	76268.6	-4543.4	-6.2179	-321973.1	-4.4243
3500	25.1991	73505.6	96.4031	263905.3	78786.8	-4460.6	-6.2263	-321992.1	-5.0156
3600	25.2328	76027.2	97.1135	273581.3	81308.4	-4381.1	-6.2335	-322008.3	-5.5741
3700	25.2640	78552.1	97.8053	283327.4	83833.2	-4307.4	-6.2410	-322021.8	-6.1024
3800	25.2927	81080.0	98.4794	293141.8	86361.1	-4244.1	-6.2475	-322032.7	-6.6030
3900	25.3194	83610.6	99.1367	303022.7	88891.7	-4181.9	-6.2544	-322041.2	-7.0778
4000	25.3442	86143.8	99.7781	312968.6	91424.9	-4128.3	-6.2595	-322047.3	-7.5290
4100	25.3672	88679.4	100.4042	322977.8	93960.5	-4078.6	-6.2656	-322051.2	-7.9581
4200	25.3887	91217.2	101.0157	333049.0	96498.3	-4037.4	-6.2698	-322053.0	-8.3669
4300	25.4087	93757.1	101.6134	343180.5	99038.2	-4001.3	-6.2748	-322052.8	-8.7566
4400	25.4275	96298.9	102.1977	353371.2	101580.0	-3973.6	-6.2795	-322050.7	-9.1286
4500	25.4450	98842.5	102.7694	363619.7	104123.6	-3948.9	-6.2841	-322046.7	-9.4840
4600	25.4614	101387.8	103.3288	373924.7	106669.0	-3932.4	-6.2884	-322041.0	-9.8240
4700	25.4768	103934.8	103.8766	384285.0	109215.9	-3922.2	-6.2924	-322033.6	-10.1495
4800	25.4913	106483.2	104.4131	394699.6	111764.3	-3920.0	-6.2959	-322024.6	-10.4615
4900	25.5049	109033.0	104.9388	405167.3	114314.1	-3923.9	-6.2998	-322014.1	-10.7607
5000	25.5177	111584.1	105.4542	415687.0	116865.3	-3931.7	-6.3035	-322002.2	-11.0479
5100	25.5298	114136.5	105.9597	426257.8	119417.6	-3947.3	-6.3066	-321989.0	-11.3239
5200	25.5413	116690.1	106.4555	436878.6	121971.2	-3968.3	-6.3100	-321974.5	-11.5892
5300	25.5521	119244.7	106.9421	447548.6	124525.9	-3996.9	-6.3137	-321958.9	-11.8445
5400	25.5623	121800.5	107.4199	458266.8	127081.6	-4030.9	-6.3160	-321942.2	-12.0904
5500	25.5719	124357.2	107.8890	469032.3	129638.3	-4072.1	-6.3194	-321924.5	-12.3272
5600	25.5811	126914.8	108.3498	479844.3	132196.0	-4118.3	-6.3221	-321906.0	-12.5557
5700	25.5898	129473.4	108.8027	490702.0	134754.5	-4169.4	-6.3250	-321886.2	-12.7760
5800	25.5981	132032.8	109.2478	501604.6	137313.9	-4227.4	-6.3281	-321866.1	-12.9888
5900	25.6059	134593.0	109.6855	512551.3	139874.1	-4292.3	-6.3304	-321845.5	-13.1944
6000	25.6134	137154.0	110.1159	523541.4	142435.1	-4361.6	-6.3337	-321824.4	-13.3930

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Si, 1685° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(207) SiN (gas); molecular weight, 42.098

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_f°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	117738.6	119543.8	--------	-104000.0	--------
100	6.9567	694.9	44.1401	3719.1	118433.5	119828.1	-256.5964	-104457.0	223.7572
200	6.9953	1391.5	48.9676	8402.0	119130.2	119895.2	-125.6149	-104869.6	109.4340
298.15	7.2105	2087.2	51.7947	13355.4	119825.8	119825.8	-82.4955	-105198.8	71.6581
300	7.2160	2100.5	51.8393	13451.2	119839.2	119823.8	-81.9539	-105204.5	71.1825
400	7.5412	2838.2	53.9592	18745.5	120576.8	119704.3	-60.1417	-105486.6	51.9992
500	7.8439	3607.9	55.6755	24229.8	121346.5	119573.8	-47.0681	-105726.4	40.4602
600	8.0860	4404.9	57.1279	29871.8	122143.6	119441.3	-38.3620	-105933.6	32.7512
700	8.2713	5223.2	58.3890	35649.1	122961.8	119305.4	-32.1505	-106116.5	27.2345
800	8.4122	6057.7	59.5031	41544.7	123796.3	119163.6	-27.4974	-106281.3	23.0902
900	8.5206	6904.6	60.5004	47545.8	124643.2	119013.8	-23.8824	-106432.8	19.8620
1000	8.6053	7761.1	61.4027	53641.7	125499.7	118854.6	-20.9944	-106574.3	17.2759
1100	8.6727	8625.1	62.2262	59823.7	126363.7	118685.5	-18.6347	-106708.5	15.1573
1200	8.7273	9495.2	62.9832	66084.7	127233.8	118506.1	-16.6712	-106837.4	13.3896
1300	8.7723	10370.2	63.6836	72418.5	128108.8	118316.1	-15.0123	-106962.6	11.8920
1400	8.8100	11249.4	64.3351	78819.8	128988.0	118116.2	-13.5929	-107085.5	10.6070
1500	8.8421	12132.0	64.9441	85284.1	129870.7	117906.2	-12.3646	-107207.1	9.4919
1600	8.8698	13017.7	65.5156	91807.3	130756.3	117686.2	-11.2920	-107328.3	8.5152
[a]1700	8.8939	13905.9	66.0541	98386.1	131644.5	105437.8	-10.3609	-107449.7	7.6524
1800	8.9154	14796.4	66.5631	105017.2	132535.0	105289.9	-9.6084	-107571.7	6.8846
1900	8.9345	15688.9	67.0456	111697.8	133427.5	105141.6	-8.9361	-107694.7	6.1968
2000	8.9518	16583.2	67.5044	118425.5	134321.8	104992.9	-8.3318	-107819.0	5.5771
2100	8.9677	17479.2	67.9415	125198.0	135217.8	104843.9	-7.7859	-107944.6	5.0157
2200	8.9822	18376.7	68.3590	132013.2	136115.3	104694.7	-7.2903	-108071.6	4.5048
2300	8.9958	19275.6	68.7586	138869.2	137014.2	104545.3	-6.8385	-108200.2	4.0378
2400	9.0084	20175.8	69.1417	145764.3	137914.4	104395.8	-6.4249	-108330.2	3.6092
2500	9.0204	21077.3	69.5097	152697.0	138815.9	104246.2	-6.0449	-108461.6	3.2144
2600	9.0318	21979.9	69.8637	159665.8	139718.5	104096.6	-5.6946	-108594.5	2.8495
2700	9.0428	22883.6	70.2048	166669.3	140622.2	103947.0	-5.3708	-108728.8	2.5112
2800	9.0534	23788.4	70.5338	173706.4	141527.0	103797.5	-5.0705	-108864.5	2.1967
2900	9.0637	24694.3	70.8517	180775.7	142432.9	103648.2	-4.7914	-109001.5	1.9036
3000	9.0739	25601.2	71.1592	187876.4	143339.8	103499.0	-4.5312	-109139.9	1.6296
3100	9.0840	26509.1	71.4569	195007.2	144247.7	103350.1	-4.2882	-109279.6	1.3729
3200	9.0941	27418.0	71.7454	202167.4	145156.6	103201.5	-4.0606	-109420.8	1.1320
3300	9.1042	28327.9	72.0254	209356.0	146066.5	103053.1	-3.8472	-109563.3	0.9055
3400	9.1145	29238.8	72.2974	216572.2	146977.4	102905.2	-3.6466	-109707.3	0.6919
3500	9.1250	30150.8	72.5617	223815.3	147889.4	102757.7	-3.4578	-109852.8	0.4903
3600	9.1357	31063.8	72.8189	231084.4	148802.4	102610.7	-3.2797	-109999.9	0.2996
3700	9.1468	31977.9	73.0694	238378.8	149716.6	102464.2	-3.1115	-110148.7	0.1191
3800	9.1583	32893.2	73.3135	245698.0	150631.8	102318.4	-2.9523	-110299.2	-0.0523
3900	9.1701	33809.6	73.5515	253041.3	151548.2	102173.2	-2.8015	-110451.5	-0.2150
4000	9.1825	34727.2	73.7838	260408.1	152465.8	102028.8	-2.6585	-110605.7	-0.3699
4100	9.1953	35646.1	74.0107	267797.9	153384.7	101885.2	-2.5226	-110761.9	-0.5174
4200	9.2087	36566.3	74.2325	275210.1	154304.9	101742.5	-2.3934	-110920.2	-0.6580
4300	9.2226	37487.9	74.4493	282644.2	155226.5	101600.7	-2.2704	-111080.6	-0.7923
4400	9.2371	38410.8	74.6615	290099.8	156149.5	101460.0	-2.1531	-111243.2	-0.9207
4500	9.2523	39335.3	74.8693	297576.4	157073.9	101320.3	-2.0412	-111408.2	-1.0436
4600	9.2680	40261.3	75.0728	305073.5	157999.9	101181.9	-1.9343	-111575.6	-1.1613
4700	9.2844	41188.9	75.2723	312590.8	158927.6	101044.7	-1.8321	-111745.4	-1.2742
4800	9.3014	42118.2	75.4679	320127.8	159856.8	100908.8	-1.7343	-111917.8	-1.3825
4900	9.3191	43049.2	75.6599	327684.3	160787.9	100774.3	-1.6406	-112092.7	-1.4866
5000	9.3374	43982.1	75.8484	335259.7	161720.7	100641.3	-1.5508	-112270.3	-1.5867
5100	9.3564	44916.8	76.0334	342853.8	162655.4	100509.8	-1.4646	-112450.6	-1.6830
5200	9.3760	45853.4	76.2153	350466.3	163592.0	100380.0	-1.3818	-112633.7	-1.7757
5300	9.3962	46792.0	76.3941	358096.8	164530.6	100251.7	-1.3022	-112819.5	-1.8651
5400	9.4170	47732.6	76.5699	365745.0	165471.2	100125.3	-1.2257	-113008.2	-1.9513
5500	9.4383	48675.4	76.7429	373410.7	166414.0	100000.6	-1.1521	-113199.7	-2.0345
5600	9.4603	49620.3	76.9132	381093.5	167358.9	99877.7	-1.0812	-113394.1	-2.1149
5700	9.4828	50567.5	77.0808	388793.2	168306.1	99756.8	-1.0129	-113590.8	-2.1926
5800	9.5059	51516.9	77.2459	396509.6	169255.5	99637.7	-0.9470	-113791.0	-2.2678
5900	9.5294	52468.6	77.4086	404242.3	170207.3	99520.7	-0.8834	-113994.0	-2.3405
6000	9.5534	53422.8	77.5690	411991.2	171161.4	99405.7	-0.8220	-114199.9	-2.4109

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Si, 1685° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(208) SiO (gas); molecular weight, 44.09

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-23494.0	-21687.6	-------	-191638.4	--------
100	6.9565	694.9	42.9099	3596.1	-22799.1	-21403.2	51.4283	-192126.0	414.8002
200	6.9802	1391.1	47.7350	8155.9	-22102.9	-21336.6	28.0867	-192599.7	204.6535
298.15	7.1469	2083.0	50.5473	12987.7	-21411.0	-21411.0	20.4028	-192967.6	135.3135
300	7.1516	2096.2	50.5915	13081.2	-21397.8	-21413.2	20.3059	-192973.9	134.4412
400	7.4427	2825.5	52.6875	18249.5	-20668.5	-21547.6	16.3955	-193285.6	99.2711
500	7.7369	3584.8	54.3806	23605.5	-19909.2	-21702.8	14.0334	-193549.5	78.1371
600	7.9840	4371.3	55.8138	29117.0	-19122.7	-21866.9	12.4469	-193776.8	64.0297
700	8.1787	5179.8	57.0598	34762.1	-18314.2	-22037.8	11.3049	-193976.4	53.9419
800	8.3296	6005.5	58.1622	40524.2	-17488.4	-22215.6	10.4415	-194155.4	46.3686
900	8.4469	6844.6	59.1503	46390.7	-16649.4	-22400.7	9.7646	-194318.9	40.4730
1000	8.5391	7694.1	60.0453	52351.2	-15799.9	-22593.5	9.2185	-194470.8	35.7528
1100	8.6127	8551.8	60.8627	58397.2	-14942.2	-22794.3	8.7677	-194614.1	31.8878
1200	8.6723	9416.1	61.6148	64521.6	-14077.8	-23003.5	8.3886	-194751.1	28.6646
1300	8.7213	10285.9	62.3109	70718.3	-13208.1	-23221.6	8.0648	-194883.6	25.9355
1400	8.7622	11160.1	62.9588	76982.1	-12333.8	-23448.1	7.7846	-195013.2	23.5946
1500	8.7968	12038.1	63.5645	83308.6	-11455.9	-23683.7	7.5396	-195141.0	21.5645
1600	8.8264	12919.3	64.1332	89693.8	-10574.7	-23928.4	7.3227	-195267.9	19.7871
[a]1700	8.8521	13803.3	64.6691	96134.2	-9690.7	-36201.3	7.1159	-195394.7	18.2177
1800	8.8747	14689.7	65.1757	102626.6	-8804.3	-36373.6	6.8567	-195521.9	16.8218
1900	8.8947	15578.1	65.6561	109168.4	-7915.8	-36546.6	6.6238	-195649.9	15.5720
2000	8.9126	16468.5	66.1128	115757.1	-7025.5	-36720.5	6.4131	-195779.0	14.4464
2100	8.9288	17360.6	66.5480	122390.3	-6133.4	-36895.6	6.2216	-195909.4	13.4274
2200	8.9435	18254.2	66.9638	129066.0	-5239.8	-37071.8	6.0466	-196041.1	12.5004
2300	8.9570	19149.3	67.3616	135782.4	-4344.7	-37249.3	5.8862	-196174.2	11.6534
2400	8.9695	20045.6	67.7431	142537.8	-3448.4	-37428.3	5.7383	-196308.8	10.8765
2500	8.9811	20943.1	68.1095	149330.6	-2550.8	-37608.8	5.6017	-196444.8	10.1612
2600	8.9920	21841.8	68.4619	156159.2	-1652.2	-37790.8	5.4749	-196582.2	9.5005
2700	9.0022	22741.5	68.8015	163022.5	-752.5	-37974.3	5.3570	-196720.9	8.8883
2800	9.0119	23642.2	69.1291	169919.1	148.2	-38159.3	5.2470	-196860.9	8.3194
2900	9.0211	24543.9	69.4455	176847.9	1049.9	-38345.9	5.1440	-197002.1	7.7894
3000	9.0299	25446.4	69.7514	183807.9	1952.5	-38534.0	5.0475	-197144.4	7.2944
3100	9.0383	26349.9	70.0477	190797.9	2855.9	-38723.6	4.9567	-197287.7	6.8309
3200	9.0464	27254.1	70.3348	197817.1	3760.1	-38914.6	4.8712	-197432.1	6.3962
3300	9.0542	28159.1	70.6132	204864.6	4665.1	-39107.1	4.7905	-197577.4	5.9874
3400	9.0618	29064.9	70.8837	211939.5	5570.9	-39300.8	4.7141	-197723.6	5.6025
3500	9.0691	29971.5	71.1464	219041.1	6477.5	-39495.9	4.6417	-197870.7	5.2392
3600	9.0763	30878.7	71.4020	226168.5	7384.8	-39692.2	4.5731	-198018.5	4.8959
3700	9.0833	31786.7	71.6508	233321.2	8292.7	-39889.7	4.5078	-198167.2	4.5709
3800	9.0901	32695.4	71.8931	240498.5	9201.4	-40088.3	4.4456	-198316.5	4.2627
3900	9.0968	33604.7	72.1293	247699.7	10110.8	-40287.9	4.3864	-198466.5	3.9702
4000	9.1034	34514.8	72.3597	254924.2	11020.8	-40488.5	4.3298	-198617.2	3.6921
4100	9.1099	35425.4	72.5846	262171.4	11931.4	-40690.1	4.2757	-198768.5	3.4273
4200	9.1164	36336.7	72.8042	269440.9	12842.8	-40892.6	4.2239	-198920.3	3.1749
4300	9.1228	37248.7	73.0188	276732.1	13754.7	-41095.9	4.1743	-199072.8	2.9341
4400	9.1291	38161.3	73.2286	284044.5	14667.3	-41299.9	4.1268	-199225.8	2.7041
4500	9.1355	39074.5	73.4338	291377.6	15580.5	-41504.7	4.0811	-199379.3	2.4841
4600	9.1419	39988.4	73.6347	298731.1	16494.4	-41710.1	4.0371	-199533.3	2.2736
4700	9.1483	40902.9	73.8313	306104.4	17408.9	-41916.2	3.9949	-199687.9	2.0718
4800	9.1547	41818.0	74.0240	313497.2	18324.1	-42122.8	3.9542	-199842.9	1.8783
4900	9.1613	42733.8	74.2128	320909.1	19239.9	-42329.9	3.9149	-199998.4	1.6925
5000	9.1679	43650.3	74.3980	328339.7	20156.3	-42537.5	3.8771	-200154.3	1.5140
5100	9.1746	44567.4	74.5796	335788.6	21073.4	-42745.5	3.8405	-200310.7	1.3424
5200	9.1815	45485.2	74.7578	343255.5	21991.2	-42953.8	3.8052	-200467.5	1.1773
5300	9.1886	46403.7	74.9328	350740.1	22909.7	-43162.5	3.7711	-200624.8	1.0183
5400	9.1958	47322.9	75.1046	358242.0	23829.0	-43371.4	3.7380	-200782.6	0.8650
5500	9.2033	48242.9	75.2734	365760.9	24748.9	-43580.6	3.7061	-200940.8	0.7172
5600	9.2110	49163.6	75.4393	373296.5	25669.6	-43789.9	3.6751	-201099.5	0.5746
5700	9.2190	50085.1	75.6024	380848.6	26591.1	-43999.3	3.6450	-201258.0	0.4369
5800	9.2272	51007.4	75.7628	388416.9	27513.4	-44208.8	3.6158	-201417.5	0.3038
5900	9.2358	51930.6	75.9206	396001.1	28436.6	-44418.3	3.5875	-201577.4	0.1751
6000	9.2447	52854.6	76.0759	403601.0	29360.6	-44627.8	3.5601	-201737.8	0.0506

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Si, 1685° K.

TABLE III. - Continued. THERMODYNAMIC PROPERTIES

(209) SiO_2 (gas); molecular weight, 60.09

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_T^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_T°, cal/mole	$\log_{10} K$
0	------	0	-------	0	-84532.7	-81688.9	-------	-310626.2	--------
100	7.4717	705.0	44.8603	3781.0	-83827.7	-81741.2	179.1934	-311631.3	669.2973
200	9.3303	1548.3	50.6305	8577.8	-82984.4	-81875.4	89.8196	-312515.2	328.3758
298.15	10.6609	2532.7	54.6173	13751.5	-82000.0	-82000.0	60.3480	-313113.3	215.8609
300	10.6824	2552.4	54.6833	13852.6	-81980.3	-82002.1	59.9773	-313122.8	214.4456
400	11.6956	3673.7	57.9021	19487.1	-80858.9	-82099.6	45.0348	-313560.3	157.3828
500	12.4465	4882.8	60.5969	25415.7	-79649.9	-82170.6	36.0602	-313885.0	123.1029
600	12.9932	6156.2	62.9172	31594.1	-78376.4	-82225.4	30.0724	-314131.6	100.2287
700	13.3914	7476.5	64.9516	37989.6	-77056.2	-82273.6	25.7927	-314323.4	83.8785
800	13.6849	8831.0	66.7599	44576.9	-75701.6	-82321.4	22.5810	-314475.7	71.6091
900	13.9048	10211.0	68.3850	51335.5	-74321.6	-82372.6	20.0817	-314599.3	62.0621
1000	14.0725	11610.2	69.8591	58248.8	-72922.4	-82429.5	18.0809	-314701.7	54.4217
1100	14.2026	13024.3	71.2067	65303.1	-71508.4	-82493.4	16.4427	-314788.3	48.1686
1200	14.3053	14449.9	72.4471	72486.6	-70082.8	-82565.6	15.0763	-314863.2	42.9563
1300	14.3875	15884.7	73.5955	79789.4	-68648.0	-82647.0	13.9191	-314929.6	38.5450
1400	14.4543	17326.9	74.6642	87203.0	-67205.8	-82737.6	12.9261	-314989.7	34.7630
1500	14.5091	18775.1	75.6634	94720.0	-65757.6	-82838.2	12.0647	-315045.6	31.4848
1600	14.5546	20228.4	76.6013	102333.7	-64304.3	-82949.4	11.3099	-315098.6	28.6158
[a]1700	14.5928	21685.8	77.4848	110038.4	-62846.9	-95090.3	10.6293	-315149.9	26.0839
1800	14.6252	23146.7	78.3199	117829.0	-61385.9	-95132.3	9.9501	-315200.5	23.8330
1900	14.6528	24610.7	79.1114	125700.9	-59922.0	-95177.1	9.3420	-315250.9	21.8187
2000	14.6766	26077.2	79.8636	133650.0	-58455.5	-95224.9	8.7945	-315301.6	20.0055
2100	14.6971	27545.9	80.5802	141672.5	-56986.8	-95276.0	8.2989	-315353.1	18.3648
2200	14.7151	29016.5	81.2643	149764.9	-55516.2	-95330.8	7.8481	-315405.7	16.8730
2300	14.7308	30488.8	81.9188	157924.3	-54043.9	-95389.4	7.4362	-315459.5	15.5106
2400	14.7446	31962.6	82.5460	166147.8	-52570.1	-95452.0	7.0585	-315514.7	14.2616
2500	14.7569	33437.7	83.1482	174432.7	-51095.0	-95518.6	6.7107	-315571.4	13.1123
2600	14.7678	34913.9	83.7272	182776.7	-49618.7	-95589.3	6.3894	-315629.6	12.0512
2700	14.7776	36391.2	84.2847	191177.4	-48141.5	-95664.2	6.0917	-315689.6	11.0685
2800	14.7863	37869.4	84.8223	199632.9	-46663.3	-95743.2	5.8151	-315751.2	10.1559
2900	14.7942	39348.5	85.3413	208141.3	-45184.2	-95826.4	5.5573	-315814.7	9.3060
3000	14.8013	40828.2	85.8429	216700.6	-43704.4	-95913.6	5.3165	-315879.9	8.5126
3100	14.8078	42308.7	86.3284	225309.3	-42224.0	-96004.8	5.0910	-315946.9	7.7702
3200	14.8137	43789.8	86.7986	233965.8	-40742.9	-96100.0	4.8794	-316015.8	7.0741
3300	14.8190	45271.4	87.2545	242668.5	-39261.3	-96198.9	4.6804	-316086.6	6.4200
3400	14.8239	46753.6	87.6970	251416.2	-37779.1	-96301.6	4.4929	-316159.4	5.8043
3500	14.8284	48236.2	88.1268	260207.5	-36296.5	-96407.9	4.3160	-316234.0	5.2236
3600	14.8325	49719.2	88.5446	269041.2	-34813.4	-96517.7	4.1487	-316310.7	4.6751
3700	14.8363	51202.7	88.9510	277916.1	-33330.0	-96630.9	3.9902	-316389.4	4.1560
3800	14.8398	52686.5	89.3467	286831.0	-31846.2	-96747.3	3.8399	-316470.1	3.6642
3900	14.8431	54170.6	89.7322	295785.1	-30362.0	-96866.8	3.6972	-316552.8	3.1975
4000	14.8461	55655.1	90.1081	304777.2	-28877.6	-96989.4	3.5614	-316637.6	2.7540
4100	14.8489	57139.9	90.4747	313806.4	-27392.8	-97114.9	3.4321	-316724.5	2.3320
4200	14.8515	58624.9	90.8325	322871.8	-25907.8	-97243.1	3.3087	-316813.6	1.9299
4300	14.8539	60110.1	91.1820	331972.6	-24422.5	-97374.0	3.1910	-316904.7	1.5465
4400	14.8561	61595.6	91.5235	341107.9	-22937.0	-97507.5	3.0784	-316997.9	1.1804
4500	14.8583	63081.4	91.8574	350277.1	-21451.3	-97643.5	2.9707	-317093.3	0.8305
4600	14.8602	64567.3	92.1840	359479.2	-19965.4	-97781.9	2.8676	-317190.9	0.4957
4700	14.8621	66053.4	92.5036	368713.6	-18479.3	-97922.6	2.7687	-317290.6	0.1750
4800	14.8638	67539.7	92.8165	377979.7	-16993.0	-98065.5	2.6737	-317392.4	-0.1324
4900	14.8655	69026.2	93.1230	387276.7	-15506.5	-98210.5	2.5826	-317496.4	-0.4274
5000	14.8670	70512.8	93.4234	396604.1	-14019.9	-98357.7	2.4949	-317602.6	-0.7106
5100	14.8684	71999.6	93.7178	405961.2	-12533.1	-98506.8	2.4105	-317711.0	-0.9829
5200	14.8698	73486.5	94.0065	415347.5	-11046.2	-98657.9	2.3293	-317821.6	-1.2447
5300	14.8711	74973.5	94.2898	424762.3	-9559.1	-98810.9	2.2510	-317934.3	-1.4968
5400	14.8723	76460.7	94.5678	434205.2	-8072.0	-98965.8	2.1755	-318049.3	-1.7396
5500	14.8735	77948.0	94.8407	443675.7	-6584.7	-99122.4	2.1026	-318166.5	-1.9737
5600	14.8746	79435.4	95.1087	453173.2	-5097.3	-99280.7	2.0322	-318286.0	-2.1995
5700	14.8756	80922.9	95.3720	462697.3	-3609.8	-99440.8	1.9642	-318407.1	-2.4174
5800	14.8766	82410.5	95.6307	472247.4	-2122.2	-99602.5	1.8984	-318531.0	-2.6279
5900	14.8775	83898.2	95.8850	481823.3	-634.5	-99765.8	1.8348	-318657.2	-2.8314
6000	14.8784	85386.0	96.1351	491424.3	853.3	-99930.7	1.7731	-318785.6	-3.0282

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of Si, 1685° K.

TABLE III. - Concluded. THERMODYNAMIC PROPERTIES

(210) SiS (gas); molecular weight, 60.156

T, °K	C_p°, cal/mole °K	$H_T^\circ - H_0^\circ$, cal/mole	S_T°, cal/mole °K	$-(F_T^\circ - H_0^\circ)$, cal/mole	H_T°, cal/mole	Formation from assigned reference elements		Formation from gaseous atoms	
						$(\Delta H_f^\circ)_f$, cal/mole	$\log_{10} K_f$	ΔH_f°, cal/mole	$\log_{10} K$
0	------	0	-------	0	27045.0	28867.7	-------	-148000.0	--------
100	6.9618	695.4	45.5740	3862.0	27740.4	29334.7	-55.0139	-148458.9	319.5896
200	7.2326	1401.3	50.4565	8690.0	28446.3	29366.3	-22.9175	-148902.8	157.1749
298.15	7.7134	2134.9	53.4346	13796.6	29179.9	29179.9	-12.3792	-149260.9	103.5546
300	7.7218	2149.2	53.4823	13895.5	29194.2	29175.3	-12.2475	-149266.9	102.8799
[a] 400	8.1022	2941.6	55.7593	19362.1	29986.6	28360.7	-6.9682	-149558.6	75.6710
500	8.3539	3765.3	57.5963	25032.8	30810.3	27697.6	-3.9011	-149796.9	59.3164
600	8.5199	4609.6	59.1351	30871.5	31654.5	27112.0	-1.9038	-149998.6	48.3971
700	8.6330	5467.5	60.4575	36852.7	32512.5	26579.6	-0.5065	-150175.1	40.5878
800	8.7133	6335.1	61.6158	42957.5	33380.1	26072.1	0.5212	-150333.9	34.7242
900	8.7724	7209.5	62.6456	49171.6	34254.5	25560.1	1.3053	-150479.9	30.1590
1000	8.8175	8089.1	63.5723	55483.2	35134.1	25041.7	1.9199	-150616.7	26.5034
1100	8.8531	8972.7	64.4145	61883.2	36017.7	24516.9	2.4123	-150746.8	23.5098
1200	8.8818	9859.5	65.1860	68363.8	36904.5	23935.0	2.8139	-150872.4	21.0130
1300	8.9057	10748.9	65.8979	74918.4	37793.9	23445.5	3.1462	-150995.0	18.8986
1400	8.9259	11640.5	66.5587	81541.7	38685.5	22858.9	3.4245	-151116.0	17.0848
1500	8.9435	12534.0	67.1751	88228.7	39579.0	22344.8	3.6602	-151236.6	15.5116
1600	8.9589	13429.1	67.7528	94975.4	40474.1	21783.1	3.8611	-151357.8	14.1339
[a] 1700	8.9727	14325.7	68.2964	101778.1	41370.7	9194.9	4.0202	-151480.2	12.9173
1800	8.9852	15223.6	68.8096	108633.7	42268.6	8709.1	4.0842	-151604.5	11.8351
1900	8.9966	16122.7	69.2957	115539.1	43167.7	8224.5	4.1383	-151731.2	10.8659
2000	9.0072	17022.9	69.7574	122492.0	44067.9	7741.0	4.1843	-151860.7	9.9929
2100	9.0171	17924.1	70.1972	129489.9	44969.1	7258.5	4.2233	-151993.2	9.2024
2200	9.0265	18826.3	70.6168	136530.8	45871.3	6777.0	4.2565	-152129.0	8.4831
2300	9.0354	19729.4	71.0183	143612.7	46774.4	6296.4	4.2848	-152268.1	7.8258
2400	9.0439	20633.4	71.4030	150733.9	47678.4	5816.6	4.3088	-152410.6	7.2227
2500	9.0520	21538.2	71.7724	157892.8	48583.2	5337.7	4.3291	-152556.4	6.6673
2600	9.0599	22443.8	72.1276	165087.9	49488.8			-152705.5	6.1541
2700	9.0675	23350.1	72.4696	172317.8	50395.1			-152857.8	5.6785
2800	9.0750	24257.3	72.7995	179581.4	51302.3			-153013.2	5.2364
2900	9.0822	25165.1	73.1181	186877.4	52210.1			-153171.4	4.8244
3000	9.0893	26073.7	73.4261	194204.7	53118.7			-153332.4	4.4394
3100	9.0963	26983.0	73.7243	201562.2	54028.0			-153495.9	4.0789
3200	9.1032	27893.0	74.0132	208949.2	54938.0			-153661.8	3.7406
3300	9.1100	28803.6	74.2934	216364.6	55848.6			-153829.9	3.4224
3400	9.1168	29715.0	74.5655	223807.6	56760.0			-153999.9	3.1226
3500	9.1236	30627.0	74.8298	231277.4	57672.0			-154171.7	2.8397
3600	9.1304	31539.7	75.0869	238773.3	58584.7			-154345.1	2.5721
3700	9.1372	32453.1	75.3372	246294.6	59498.0			-154519.9	2.3187
3800	9.1441	33367.1	75.5810	253840.6	60412.1			-154695.8	2.0784
3900	9.1511	34281.9	75.8186	261410.6	61326.9			-154872.8	1.8502
4000	9.1582	35197.3	76.0504	269004.1	62242.3			-155050.7	1.6331
4100	9.1655	36113.5	76.2766	276620.5	63158.5			-155229.2	1.4264
4200	9.1730	37030.4	76.4975	284259.2	64075.4			-155408.2	1.2293
4300	9.1808	37948.1	76.7135	291919.8	64993.1			-155587.6	1.0411
4400	9.1888	38866.6	76.9246	299601.7	65911.6			-155767.2	0.8613
4500	9.1972	39785.9	77.1312	307304.6	66830.9			-155946.8	0.6893
4600	9.2060	40706.1	77.3335	315027.8	67751.0			-156126.3	0.5245
4700	9.2152	41627.1	77.5315	322771.1	68672.1			-156305.6	0.3666
4800	9.2248	42549.1	77.7257	330534.0	69594.1			-156484.6	0.2151
4900	9.2350	43472.1	77.9160	338316.1	70517.1			-156663.1	0.0696
5000	9.2457	44396.1	78.1026	346117.1	71441.1			-156841.0	-0.0702
5100	9.2570	45321.3	78.2858	353936.5	72366.2			-157018.3	-0.2047
5200	9.2689	46247.5	78.4657	361774.2	73292.5			-157194.7	-0.3341
5300	9.2816	47175.1	78.6424	369629.6	74220.1			-157370.3	-0.4589
5400	9.2949	48103.9	78.8160	377502.5	75148.9			-157544.9	-0.5791
5500	9.3089	49034.1	78.9867	385392.7	76079.1			-157718.5	-0.6951
5600	9.3238	49965.7	79.1545	393299.8	77010.7			-157891.0	-0.8071
5700	9.3394	50898.9	79.3197	401223.5	77943.8			-158061.7	-0.9152
5800	9.3559	51833.6	79.4823	409163.6	78878.6			-158231.6	-1.0198
5900	9.3733	52770.1	79.6424	417119.9	79815.1			-158400.2	-1.1209
6000	9.3915	53708.3	79.8001	425092.0	80753.3			-158567.3	-1.2187

[a]A change in phase of an assigned reference element has occurred between this temperature and the preceding temperature. Melting point of S, 388.357° K and of Si, 1685° K.

TABLE IV. - HEATS OF FORMATION

Substance	Phase	Formation from assigned reference elements		Formation from gaseous atoms		References
		$\left(\Delta H^{\circ}_{298.15}\right)_f$, kcal/mole	$\left(\Delta H^{\circ}_{0}\right)_f$, kcal/mole	$\Delta H^{\circ}_{298.15}$, kcal/mole	ΔH°_{0}, kcal/mole	
Al	Gas	[a]77.42	76.8576	0	0	290
Al	Crystal	[a]0	0	-77.4200	-76.8576	---
Al_2	Gas	116.8998	116.7152	-37.9402	[a]-37	159
AlCl	Gas	[a]-11.58	-11.6208	-117.9506	-117.0267	291
$AlCl_3$	Gas	[a]-140.42	-139.9543	-304.6919	-302.4571	4(6/30/61)
AlF	Gas	[a]-61.4	-61.3791	-157.6782	-156.5917	292
AlF_3	Gas	[a]-283.6	-282.6165	-417.5945	-414.5391	293
AlF_3	α	[a]-356.3	-354.8264	-490.2945	-486.7490	292
AlH	Gas	61.5547	61.5860	-67.9631	[a]-66.9	32
AlO	Gas	20.8160	20.8441	-116.1606	[a]-115	44
Al_2O	Gas	-32.6738	-32.0983	-247.0704	[a]-244.8	44
Al_2O_2	Gas	-94.6400	-93.3118	-368.5933	[a]-365	44
Al_2O_3	Crystal	[a]-400.4	-397.4999	-733.9099	-728.1746	294
AlOCl	Gas	-92.0727	-91.7751	[a]-258	-256.1676	(b)
AlOF	Gas	[a]-139.2	-138.7509	-295.0348	-292.9500	295
Ar	Gas	[a]0	0	0	0	---
B	Gas	[a]135	133.7807	0	0	296
B	Amorphous	[a].4	.3783	-134.6000	-133.4024	50
B	Crystal	[a]0	0	-135.0000	-133.7807	---
B_2	Gas	205.0716	203.5615	-64.9284	[a]-64	297
BCl	Gas	45.0587	44.3291	-118.8919	[a]-118	32
BCl_2	Gas	-19.5413	-19.9225	-212.4426	[a]-210.8	(b)
BCl_3	Gas	[a]-97.11	-96.8899	-318.9619	-316.3158	298
BF	Gas	-43.1327	-43.8643	-196.9909	[a]-196	32
BF_2	Gas	-134.9516	-135.1093	-307.6679	[a]-305.6	(b)
BF_3	Gas	[a]-270.1	-269.4277	-461.6745	-458.2734	158
BFCl	Gas	-77.2596	-77.5159	-260.0684	[a]-258.2	(b)
BH	Gas	116.9702	116.2091	-70.1275	[a]-69.2	32
BH_3	Gas	[a]18	18.9065	-273.2932	-269.7595	299
BN	Gas	154.8084	154.0602	-93.2162	[a]-92.3	32
BN	Crystal	[a]-60.29	-59.6031	-308.3146	-305.9634	52
BO	Gas	5.7441	[a]5	-188.8125	-187.7673	296
BO_2	Gas	[a]-84.6	-84.6478	-338.7133	-336.4015	[b]54
B_2O_2	Gas	-111.3981	[a]-111.7	-500.5114	-497.2345	300
B_2O_3	Gas	[a]-202	-201.6479	-650.6699	-646.1690	301
B_2O_3	Glass	[a]-300.98	----------	-749.6499	----------	---
B_2O_3	Crystal	[a]-305.34	-303.8628	-754.0099	-748.3838	302
BOCl	Gas	-88.0291	-88.0843	-311.5364	[a]-309.4	(b)
$(BOCl)_3$	Gas	[a]-396.7	-394.9672	-1067.2218	-1058.9142	(b)

[a]Value either assigned, taken directly from the original reference, or derived as discussed in appendix C.

[b]See appendix C.

TABLE IV. - Continued. HEATS OF FORMATION

Substance	Phase	Formation from assigned reference elements		Formation from gaseous atoms		References
		$\left(\Delta H^{\circ}_{298.15}\right)_f$, kcal/mole	$\left(\Delta H^{\circ}_{0}\right)_f$, kcal/mole	$\Delta H^{\circ}_{298.15}$, kcal/mole	ΔH°_{0}, kcal/mole	
BOF	Gas	[a]-144	-143.9660	-357.4148	-355.0882	301
$(BOF)_3$	Gas	[a]-567.8	-565.8927	-1208.0444	-1199.2595	335
BS	Gas	82.4240	81.6842	-119.0168	[a]-118	32
Be	Gas	[a]77.9	76.8874	0	0	51
Be	Crystal	[a]0	0	-77.9000	-76.8874	--
BeCl	Gas	[a]-7	-7.5524	-113.8506	-112.9883	[b]303
$BeCl_2$	Gas	[a]-84	-83.9380	-219.8013	-217.9223	[b]63, 64
BeF	Gas	[a]-49.6	-50.1586	-146.3582	-145.4010	(b)
BeF_2	Gas	[a]-191.2	-190.8666	-306.8163	-304.4641	336
BeFCl	Gas	[a]-134	-133.7733	-259.7088	-257.5642	(b)
BeH	Gas	78.1020	77.5158	-51.8957	[a]-51	16
BeO	Gas	30.4445	29.8740	-107.0122	[a]-106	71
BeO	Crystal	[a]-143.1	-142.2847	-280.5567	-278.1587	305
$(BeO)_2$	Gas	[a]-104.5	-104.3538	-379.4133	-376.1017	[b]71
$(BeO)_3$	Gas	[a]-255.3	-253.8171	-667.6699	-661.4390	[b]71
$(BeO)_4$	Gas	[a]-380.4	-378.1601	-930.2266	-921.6560	[b]71
$Be(OH)_2$	Gas	[a]-156.7	-154.5048	-457.9088	-452.6221	[b]72
C	Gas	171.3009	169.9898	0	0	[b]73
C	Graphite	[a]0	0	-171.3009	-169.9898	---
C_2	Gas	200.0258	[a]198	-142.5759	-141.9796	306
C_3	Gas	189.6653	[a]188.1	-324.2374	-321.8695	306
CCl	Gas	122.4050	121.5082	-77.8465	[a]-77.03	307
CCl_4	Gas	[a]-25.5	-24.9808	-312.6034	-309.1642	50
CF	Gas	74.6954	73.8308	-115.4636	[a]-114.514	175
CF_2	Gas	[a]-30	-30.1046	-239.0172	-236.8044	[b]82
CF_3	Gas	[a]-119.5	-118.7361	-347.3754	-343.7909	308
CF_4	Gas	[a]-217.2	-215.7790	-463.9336	-459.1888	[c]309
CH	Gas	142.3847	141.5882	-81.0139	[a]-80.03	32
CH_2	Gas	68.9504	69.1407	-206.5460	-204.1059	[b]85
CH_3	Gas	33.4908	34.2892	-294.1033	-290.5858	[b]85
CH_4	Gas	[a]-17.889	-15.9824	-397.5809	-392.4858	50
C_2H_2	Gas	[a]54.194	54.3270	-392.6033	-388.9094	50
C_2H_4	Gas	[a]12.496	14.5204	-538.4968	-531.9728	50
CN	Gas	96.3547	95.5693	-187.9708	[a]-187	32
C_2N_2	Gas	[a]73.840	73.3876	-494.8110	-491.7510	[b]87
CO	Gas	[a]-26.4157	-27.1997	-257.2732	-256.1760	50
CO_2	Gas	[a]-94.0518	-93.9641	-384.4660	-381.9269	50

[a]Value either assigned, taken directly from the original reference, or derived as discussed in appendix C.

[b]See appendix C.

[c]Corrected by information received directly from Constantine A. Neugebauer.

TABLE IV. - Continued. HEATS OF FORMATION

Substance	Phase	Formation from assigned reference elements		Formation from gaseous atoms		References
		$(\Delta H^\circ_{298.15})_f$, kcal/mole	$(\Delta H^\circ_0)_f$, kcal/mole	$\Delta H^\circ_{298.15}$, kcal/mole	ΔH°_0, kcal/mole	
$COCl_2$	Gas	[a]-53.3	-52.8962	-342.0588	-338.9693	50
COF_2	Gas	[a]-150.4	-149.6593	-418.9739	-415.3456	(b)
COFCl	Gas	[a]-101.85	-101.2550	-380.5163	-377.1347	(b)
COS	Gas	[a]-32.8	-32.8306	-330.0983	-327.7104	50
CP	Gas	86.5204	85.9708	-159.9605	[a]-159	16
CS	Gas	54.6697	53.8932	-183.0719	[a]-182	310
CS_2	Gas	[a]27.980	27.7900	-276.2025	-274.0067	311
Cl	Gas	28.9506	[a]28.5484	0	0	32
Cl_2	Gas	[a]0	0	-57.9013	-57.0968	--
ClCN	Gas	[a]31.641	31.4779	-281.6351	-279.6398	[b]50, 89
ClF	Gas	-13.4524	-13.4301	-61.2612	[a]-60.3335	32
ClF_3	Gas	[a]-38.7380	-37.7388	-124.2631	-121.3522	[b]90
ClO	Gas	24.2065	24.2249	-64.3007	[a]-63.31	179
ClO_2	Gas	[a]25	25.5910	-123.0639	-120.9305	312
Cl_2O	Gas	[a]18.1	18.6127	-99.3579	-97.4706	312
F	Gas	18.8582	[a]18.355	0	0	313
F_2	Gas	[a]0	0	-37.7163	-36.7101	---
H	Gas	52.0977	[a]51.6284	0	0	314
H_2	Gas	[a]0	0	-104.1955	-103.2568	---
HBO_2	Gas	-135.7240	[a]-134.9	-441.9351	-438.2822	315
H_3BO_3	Gas	[a]-238.4	-235.4733	-708.3632	-701.0989	[b]91, 92
$(HBO_2)_3$	Gas	-542.1945	[a]-537.5	-1460.8276	-1447.6465	315
HCN	Gas	31.1895	31.2814	-305.2337	-302.9163	[b]93
HCO	Gas	-3.2241	-3.3110	-286.1794	-283.9157	[b]94
HCl	Gas	[a]-22.063	-22.0193	-103.1114	-102.1961	50
HF	Gas	[a]-64.8	-64.7886	-135.7559	-134.7720	[b]95, 96
H_2O	Gas	[a]-57.7979	-57.1035	-221.5501	-219.3468	50
HS	Gas	36.2377	36.1318	-82.3009	[a]-81.4	316
H_2S	Gas	[a]-4.820	-4.1220	-175.4563	-173.2823	317
He	Gas	[a]0	0	0	0	---
Li	Gas	38.4251	[a]38.05	0	0	128
Li	Crystal	[a]0	0	-38.4251	-38.0500	---
Li_2	Gas	50.4396	50.3400	-26.4105	[a]-25.76	128
LiCl	Gas	[a]-47.8	-47.7630	-115.1757	-114.3614	318
LiCl	Crystal	[a]-97.7	-97.7207	-165.0757	-164.3191	50
$(LiCl)_2$	Gas	[a]-144.8	-144.0955	-279.5514	-277.2923	318
LiF	Gas	[a]-79.8	-79.7483	-137.0832	-136.1533	318

[a]Value either assigned, taken directly from the original reference, or derived as discussed in appendix C.

[b]See appendix C.

TABLE IV. - Continued. HEATS OF FORMATION

Substance	Phase	Formation from assigned reference elements		Formation from gaseous atoms		References
		$\left(\Delta H^{\circ}_{298.15}\right)_f$, kcal/mole	$\left(\Delta H^{\circ}_{0}\right)_f$, kcal/mole	$\Delta H^{\circ}_{298.15}$, kcal/mole	ΔH°_{0}, kcal/mole	
LiF	Crystal	[a]-146.3	-145.6833	-203.5832	-202.0883	50
$(LiF)_2$	Gas	[a]-220.9	-219.9632	-335.4664	-332.7732	318
$(LiF)_3$	Gas	[a]-345.3	-342.9722	-517.1497	-512.1872	3
LiH	Gas	33.6204	33.6624	-56.9024	[a]-56.016	---
LiO	Gas	13.9877	14.0365	-83.9940	[a]-83	106
Li_2O	Gas	-35.5425	-34.7825	-171.9492	-169.8690	[b]106
Li_2O	Crystal	[a]-142.4	-140.8824	-278.8067	-275.9689	50
LiOH	Gas	[a]-57.2	-56.4466	-207.2795	-205.1115	[b]110
LiOH	Crystal	[a]-116.45	-115.0662	-266.5294	-263.7311	50
$(LiOH)_2$	Gas	[a]-177.5	-174.6321	-477.6589	-471.9619	[b]110
Mg	Gas	[a]35.6	35.3090	0	0	51
Mg	Crystal	[a]0	0	-35.6000	-35.3090	--
MgCl	Gas	1.5079	1.5574	-63.0427	[a]-62.3	32
$MgCl_2$	Gas	[a]-100.8	-100.3903	-194.3013	-192.7961	296
MgF	Gas	-20.2374	-20.1360	-74.6956	[a]-73.8	32
MgF_2	Gas	[a]-178.1	-177.3239	-251.4163	-249.3429	318
MgF_2	Crystal	[a]-263.5	-262.5721	-336.8163	-334.5911	50
MgFCl	Gas	[a]-139.45	-138.8116	-222.8588	-221.0241	(b)
MgH	Gas	40.7102	40.8374	-46.9875	[a]-46.1	32
MgO	Gas	4.1970	4.2956	-90.9596	[a]-90	319
MgO	Crystal	[a]-143.7	-142.7391	-238.8566	-237.0346	320
MgOH	Gas	-12.2185	-11.4360	-159.4729	-157.3600	[b]120
MgS	Gas	34.2774	34.3125	-67.7634	[a]-66.9	16
N	Gas	113.0246	[a]112.5795	0	0	32
N_2	Gas	[a]0	0	-226.0492	-225.1590	--
NF	Gas	65.9439	65.9345	-65.9389	[a]-65	(b)
NF_2	Gas	[a]9	9.6180	-141.7409	-139.6715	[b]121, 122
NF_3	Gas	[a]-29.7	-28.3267	-199.2991	-195.9712	321
N_2F_2	Gas	[a]19.4	20.6591	-244.3655	-241.2099	322
NH	Gas	78.9195	78.9079	-86.2029	[a]-85.3	32
NH_3	Gas	[a]-11.04	-9.3667	-280.3579	-276.8314	50
NO	Gas	[a]21.6	21.4765	-150.9812	-150.0895	50
NO_2	Gas	8.0075	8.6812	-224.1304	-221.8713	[b]124
N_2O	Gas	[a]19.49	20.3100	-266.1159	-263.8355	50
N_2O_4	Gas	2.3488	4.6525	-461.9270	-456.4526	[b]124
NS	Gas	63.6392	63.4829	-115.8262	[a]-115	32
Na	Gas	25.5969	[a]25.6499	0	0	[b]125

[a]Value either assigned, taken directly from the original reference, or derived as discussed in appendix C.

[b]See appendix C.

TABLE IV. - Continued. HEATS OF FORMATION

Substance	Phase	Formation from assigned reference elements		Formation from gaseous atoms		References
		$\left(\Delta H^{o}_{298.15}\right)_f$, kcal/mole	$\left(\Delta H^{o}_{0}\right)_f$, kcal/mole	$\Delta H^{o}_{298.15}$, kcal/mole	ΔH^{o}_{0}, kcal/mole	
Na	Crystal	[a]0	0	-25.5969	-25.6499	---
Na_2	Gas	33.8763	34.4598	-17.3174	[a]-16.84	125
NaCl	Gas	[a]-43.5	-43.1670	-98.0475	-97.3653	50
$(NaCl)_2$	Gas	-136.6912	-135.8379	-245.7861	-244.2345	[b]129
NaF	Gas	[a]-70.6	-70.2197	-115.0550	-114.2246	[b]131, 132, 133
$(NaF)_2$	Gas	-199.3992	-198.3218	-288.3093	-286.3316	[b]129
NaH	Gas	29.5388	29.9983	-48.1558	[a]-47.28	32
NaO	Gas	13.2231	13.6364	-71.9304	[a]-71	323
NaOH	Gas	[a]-55.84	-54.8271	-193.0913	-191.0919	[b]135
$(NaOH)_2$	Gas	-166.7872	-163.8329	-441.2897	-436.3625	[b]136
Ne	Gas	[a]0	0	0	0	----
O	Gas	59.5566	[a]58.9865	0	0	193
O_2	Gas	[a]0	0	-119.1133	-117.9730	---
OH	Gas	9.3125	9.2549	-102.3419	[a]-101.36	324
P	Gas	[a]75.18	74.9810	0	0	50
P	Crystal III	[a]0	0	-75.1800	-74.9810	--
P_2	Gas	33.4457	33.8821	-116.9143	[a]-116.08	32
P_4	Gas	[a]14.04	15.7913	-286.6800	-284.1329	325
PCl_3	Gas	[a]-71.62	-70.8642	-233.6519	-231.4904	[b]50, 138
PF_3	Gas	-222.3084	-220.9539	-354.0629	[a]-351	[b]139
PH	Gas	50.2825	50.5094	-76.9952	[a]-76.1	----
PH_3	Gas	[a]1.75	3.6452	-229.7233	-226.2210	[b]50, 140
PN	Gas	23.3220	23.5606	-164.8826	[a]-164	326
PO	Gas	-6.1067	-6.0324	-140.8434	[a]-140	327
PS	Gas	10.8465	10.8845	-130.7743	[a]-130	195
S	Gas	66.4408	65.9034	0	0	[b]141
S	Crystal II	[a]0	0	-66.4408	-65.9034	----
S_2	Gas	[a]30.84	30.8068	-102.0416	-101	317
SCl	Gas	[a]32	31.9432	-63.3914	-62.5086	(b)
SCl_2	Gas	[a]-5.15	-4.8763	-129.4921	-127.8766	[b]144
S_2Cl_2	Gas	[a]-4.75	-4.3917	-195.5329	-193.2953	[b]50
SF	Gas	[a]7.284	7.2752	-78.0150	-76.9833	(b)
SF_2	Gas	[a]-51.87	-51.2997	-156.0271	-153.9131	(b)
SF_4	Gas	[a]-170.2	-168.4117	-312.0735	-307.7351	(b)
SF_6	Gas	[a]-288.5	-285.1739	-468.0898	-461.2074	328
S_2F_2	Gas	-54.5320	-53.6634	[a]-225.13	-222.1803	[b]50, 6, 147
SO	Gas	1.3112	1.3149	-124.6862	[a]-123.575	198

[a]Value either assigned, taken directly from the original reference, or derived as discussed in appendix C.

[b]See appendix C.

TABLE IV. - Concluded. HEATS OF FORMATION

Substance	Phase	Formation from assigned reference elements		Formation from gaseous atoms		References
		$\left(\Delta H^{\circ}_{298.15}\right)_f$, kcal/mole	$\left(\Delta H^{\circ}_{0}\right)_f$, kcal/mole	$\Delta H^{\circ}_{298.15}$, kcal/mole	ΔH°_{0}, kcal/mole	
SO_2	Gas	[a]-70.947	-70.3398	-256.5011	-254.2162	317
SO_3	Gas	[a]-94.47	-93.1000	-339.5807	-335.9630	317
SOCl	Gas	[a]-24.5	-24.0397	-179.4481	-177.4781	(b)
$SOCl_2$	Gas	[a]-50.37	-49.6435	-234.2687	-231.6303	[b]50, 149
SOF	Gas	[a]-29.9	-29.3089	-174.7556	-172.5538	[b]151
SOF_2	Gas	[a]-97.11	-95.9084	-260.8238	-257.5083	(b)
SO_2F_2	Gas	[a]-205	-202.9859	-428.2704	-423.5724	151
Si	Gas	[a]112	110.9643	0	0	6
Si	Crystal	[a]0	0	-112.0000	-110.9643	---
Si_2	Gas	147.6061	146.9285	-76.3939	[a]-75	262
Si_3	Gas	158.5323	157.8928	-177.4677	[a]-175	262
SiCl	Gas	47.7098	47.2127	-93.2409	[a]-92.3	16
$SiCl_2$	Gas	[a]-37.2	-37.2249	-207.1013	-205.2860	[b]155
$SiCl_4$	Gas	[a]-151.8	-151.2894	-379.6025	-376.4472	329
SiF	Gas	4.7565	4.3193	-126.1016	[a]-125	200
SiF_2	Gas	[a]-125.5	-125.2513	-275.2163	-272.9255	(b)
SiF_4	Gas	[a]-386.02	-384.6910	-573.4527	-569.0752	158
SiH	Gas	89.4269	89.0227	-74.6708	[a]-73.57	330
SiH_4	Gas	[a]7.8	10.0977	-312.5910	-307.3801	331
SiN	Gas	119.8258	119.5438	-105.1988	[a]-104	32
SiO	Gas	[a]-21.411	-21.6876	-192.9676	-191.6384	332
SiO_2	Gas	[a]-82	-81.6889	-313.1133	-310.6262	[b]158
SiS	Gas	29.1799	28.8677	-149.2609	[a]-148	32

[a]Value either assigned, taken directly from the original reference, or derived as discussed in appendix C.

[b]See appendix C.

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TABLE V. - TEMPERATURE COEFFICIENTS FOR THERMODYNAMIC FUNCTIONS

Substance	Temperature interval of tabulated data, °K						
First temperature interval, °K / Second temperature interval, °K	a_1	a_2	a_3	a_4	a_5	a_6	a_7
AL1(G)	300.00	5000.00					
1000. 5000.	2.5378209E 00	-6.0990708E-05	3.9335798E-08	-1.1559831E-11	1.2920262E-15	3.8209820E 04	5.3500915E 00
300. 1000.	2.8352368E 00	-1.5134012E-03	2.7183744E-06	-2.2060285E-09	6.7171701E-13	3.8160129E 04	3.9723901E 00
AL1(L)	932.00	5000.00					
1000. 5000.	3.5224379E 00	-0.	-0.	-0.	-0.	1.6666163E 02	-1.5510280E 01
300. 1000.	3.5224379E 00	-0.	-0.	-0.	-0.	1.6666163E 02	-1.5510280E 01
AL1(C)	300.00	932.00					
1000. 5000.	0.	0.	0.	0.	0.	0.	0.
300. 1000.	2.4875519E 00	1.4639947E-03	9.3250989E-08	-1.2687230E-10	5.8175564E-14	-8.0730728E 02	-1.1203623E 01
AL2(G)	300.00	5000.00					
1000. 5000.	4.4549828E 00	1.8373759E-04	-1.9862610E-08	3.5811583E-12	-2.3734398E-16	5.7473463E 04	1.6865048E 00
300. 1000.	3.8932024E 00	2.8553193E-03	-4.9419969E-06	4.0952728E-09	-1.2795968E-12	5.7573113E 04	4.3125746E 00
AL1CL1(C)	300.00	5000.00					
1000. 5000.	4.3462051E 00	2.4174157E-04	-7.8077159E-08	1.1941210E-11	-1.2091977E-16	-7.1686093E 03	2.4928314E 00
300. 1000.	3.1753092E 00	5.5148527E-03	-9.2828834E-06	7.2879275E-09	-2.1735175E-12	-6.9503178E 03	8.0284057E 00
AL1CL3(G)	300.00	5000.00					
1000. 5000.	9.4129367E 00	6.6854008E-04	-2.9486243E-07	5.7343108E-11	-4.1001364E-15	-7.3642563E 04	-1.6496710E 01
300. 1000.	4.9829524E 00	2.0161761E-02	-3.3766128E-05	2.6217737E-08	-7.7564701E-12	-7.2791727E 04	4.5649076E 00
AL1F1(G)	300.00	5000.00					
1000. 5000.	4.1340908E 00	4.5422738E-04	-1.7790036E-07	3.4225395E-11	-2.4257838E-15	-3.2222100E 04	2.0063721E 00
300. 1000.	2.7071847E 00	5.6300473E-03	-7.4106944E-06	4.6013384E-09	-1.0856593E-12	-3.1897305E 04	9.0521041E 00
AL1F3(G)	300.00	5000.00					
1000. 5000.	8.5118072E 00	1.6603868E-03	-7.2156854E-07	1.3874445E-10	-9.8310091E-15	-1.4559940E 05	-1.6541272E 01
300. 1000.	2.8213823E 00	2.2989814E-02	-3.2057084E-05	2.1351024E-08	-5.5255999E-12	-1.4432844E 05	1.1413303E 01
AL1F3(α)	300.00	727.00					
1000. 5000.	0.	0.	0.	0.	0.	0.	0.
300. 1000.	5.7106439E 00	7.2679375E-03	2.7508380E-05	-5.9904159E-08	3.5673299E-11	-1.8144313E 05	-2.7566668E 01
AL1F3(β)	727.00	1500.00					
1000. 5000.	1.0532089E 01	1.5096163E-03	-0.	-0.	-0.	-1.8256292E 05	-5.2956950E 01
300. 1000.	1.0532089E 01	1.5096163E-03	-0.	-0.	-0.	-1.8256292E 05	-5.2956950E 01
AL1H1(G)	300.00	5000.00					
1000. 5000.	3.3093060E 00	1.3387993E-03	-5.3089117E-07	1.0029871E-10	-7.0313409E-15	2.9877940E 04	3.2332524E 00
300. 1000.	3.7911536E 00	-2.9142064E-03	9.1810306E-06	-8.5995438E-09	2.7520485E-12	2.9908433E 04	1.5119898E 00

AL1O1(G)		300.00	5000.00					
1000.	5000.	3.9462470E 00	6.8235571E-04	-2.8942852E-07	5.6748512E-11	-3.8281270E-15	9.1898011E 03	3.3888134E 00
300.	1000.	2.8420587E 00	3.7688103E-03	-3.0275652E-06	5.9586224E-10	2.1292872E-13	9.4853444E 03	9.0649964E 00
AL2O1(G)		300.00	5000.00					
1000.	5000.	5.8198313E 00	1.3194785E-03	-5.7636541E-07	1.1151349E-10	-7.9516522E-15	-1.8420742E 04	-2.9438478E 00
300.	1000.	2.9262049E 00	1.0424973E-02	-1.1117078E-05	5.2543485E-09	-8.2194248E-13	-1.7689203E 04	1.1698695E 01
AL2O2(G)		300.00	5000.00					
1000.	5000.	7.6955147E 00	2.5772032E-03	-1.1248998E-06	2.1739241E-10	-1.5482209E-14	-5.0418429E 04	-1.3464856E 01
300.	1000.	1.4479539E 00	2.2586728E-02	-2.4689278E-05	1.1858866E-08	-1.8545427E-12	-4.8863394E 04	1.8043701E 01
AL2O3(L)		2318.00	5000.00					
1000.	5000.	1.7612190E 01	-0.	-0.	-0.	-0.	-1.9851986E 05	-9.5677512E 01
300.	1000.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
AL2O3(C)		300.00	2318.00					
1000.	5000.	1.4383288E 01	-1.4368353E-03	3.1710427E-06	-1.3033940E-09	1.8825192E-13	-2.0653581E 05	-7.7440233E 01
300.	1000.	-4.2622560E 00	7.4915144E-02	-1.2173507E-04	9.4042454E-08	-2.7957937E-11	-2.0263811E 05	1.2714287E 01
AL1O1CL1(C)		300.00	5000.00					
1000.	5000.	6.7736887E 00	8.0905846E-04	-3.5112550E-07	6.7436774E-11	-4.7736052E-15	-4.8523370E 04	-8.4495442E 00
300.	1000.	3.9041917E 00	1.1735658E-02	-1.6664472E-05	1.1270356E-08	-2.9514503E-12	-4.7890785E 04	5.6046744E 00
AL1O1F1(G)		300.00	5000.00					
1000.	5000.	6.4760534E 00	1.1461219E-03	-5.0065889E-07	9.6820072E-11	-6.8992213E-15	-7.2203078E 04	-8.5098885E 00
300.	1000.	3.1376150E 00	1.3203182E-02	-1.7474732E-05	1.1066294E-08	-2.7209235E-12	-7.1434709E 04	8.0032161E 00
AR1(G)		300.00	5000.00					
1000.	5000.	2.5000000E 00	-0.	-0.	-0.	-0.	-7.4537500E 02	4.3661076E 00
300.	1000.	2.5000000E 00	-0.	-0.	-0.	-0.	-7.4537500E 02	4.3661076E 00
B1(G)		300.00	5000.00					
1000.	5000.	2.5039462E 00	-9.2175533E-06	7.9345493E-09	-2.9394601E-12	3.9486428E-16	6.7186310E 04	4.1775560E 00
300.	1000.	2.5010513E 00	8.6405380E-06	-4.0871525E-08	5.4272336E-11	-2.2974091E-14	6.7186915E 04	4.1908697E 00
B1(L)		2379.00	5000.00					
1000.	5000.	3.7740406E 00	-0.	-0.	-0.	-0.	2.5120023E 02	-2.1728040E 01
300.	1000.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
B1(AMORPHOUS)		300.00	2379.00					
1000.	5000.	9.9895054E-01	3.3259404E-03	-1.5910031E-06	3.5398969E-10	-2.8892092E-14	-2.8773326E 02	-5.9614118E 00
300.	1000.	-1.9128091E 00	1.8526476E-02	-3.1351135E-05	2.5767910E-08	-7.9714613E-12	1.7883540E 02	7.3461752E 00
B1(L)		2313.00	5000.00					
1000.	5000.	3.7740406E 00	-0.	-0.	-0.	-0.	2.5120023E 02	-2.1728033E 01
300.	1000.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
B1(C)		300.00	2313.00					
1000.	5000.	2.4029899E-01	4.6656849E-03	-2.3661139E-06	5.1301073E-10	-3.4151968E-14	-2.0487404E 02	-1.8520247E 00
300.	1000.	-2.5977619E 00	2.1997003E-02	-3.7998009E-05	3.1344911E-08	-9.7274190E-12	7.5503780E 01	1.0383250E 01
B2(G)		300.00	5000.00					
1000.	5000.	3.9008183E 00	7.1395074E-04	-2.8524157E-07	5.4269035E-11	-3.7760864E-15	1.0191354E 05	1.6395086E 00
300.	1000.	3.0008608E 00	2.4023789E-03	8.5354848E-08	-2.2921430E-09	1.1835695E-12	1.0219489E 05	6.4677697E 00

TABLE V. - Continued. TEMPERATURE COEFFICIENTS FOR THERMODYNAMIC FUNCTIONS

Substance	Temperature interval of tabulated data, °K						
First temperature interval, °K / Second temperature interval, °K	a_1	a_2	a_3	a_4	a_5	a_6	a_7
B1CL1(G)	300.00	5000.00					
1000. 5000.	4.0994262E 00	4.9355555E-04	-1.9365628E-07	3.7190412E-11	-2.6324228E-15	2.1353757E 04	1.9544924E 00
300. 1000.	2.7230058E 00	5.2469553E-03	-6.4211035E-06	3.6495608E-09	-7.6453540E-13	2.1678582E 04	8.8091444E 00
B1CL2(G)	300.00	5000.00					
1000. 5000.	6.3175519E 00	7.6570693E-04	-3.3464808E-07	6.4693840E-11	-4.6067968E-15	-1.1879325E 04	-3.6013064E 00
300. 1000.	3.5692809E 00	1.1330490E-02	-1.6318855E-05	1.1240241E-08	-3.0124619E-12	-1.1277693E 04	9.8371772E 00
B1CL3(G)	300.00	5000.00					
1000. 5000.	8.6202460E 00	1.5588465E-03	-6.8620129E-07	1.3355931E-10	-9.5694464E-15	-5.1759400E 04	-1.5290531E 01
300. 1000.	3.1217850E 00	2.2849076E-02	-3.3214510E-05	2.3162470E-08	-6.3018435E-12	-5.0561958E 04	1.1562869E 01
B1F1(G)	300.00	5000.00					
1000. 5000.	3.5585053E 00	1.0551137E-03	-4.3508964E-07	8.2845435E-11	-5.8355714E-15	-2.2886263E 04	3.3553494E 00
300. 1000.	3.5594253E 00	-1.6326178E-03	7.6465246E-06	-8.1601832E-09	2.8423919E-12	-2.2746077E 04	4.0315384E 00
B1F2(G)	300.00	5000.00					
1000. 5000.	5.4048659E 00	1.7572642E-03	-7.6159899E-07	1.4671548E-10	-1.0436172E-14	-6.9780545E 04	-2.0060292E 00
300. 1000.	3.0815261E 00	7.9748360E-03	-6.0853438E-06	1.2077530E-09	3.5803949E-13	-6.9130364E 04	1.0041536E 01
B1F3(G)	300.00	5000.00					
1000. 5000.	6.9778523E 00	3.3156406E-03	-1.4309933E-06	2.7457536E-10	-1.9460308E-14	-1.3849423E 05	-1.0973744E 01
300. 1000.	2.0993361E 00	1.7783707E-02	-1.7120667E-05	7.3761153E-09	-1.0208768E-12	-1.3719496E 05	1.3985796E 01
B1F1CL1(G)	300.00	5000.00					
1000. 5000.	5.9496496E 00	1.1728604E-03	-5.1228678E-07	9.9161367E-11	-7.0757069E-15	-4.0864641E 04	-2.6271113E 00
300. 1000.	3.1846376E 00	1.0539199E-02	-1.2658578E-05	7.1786186E-09	-1.5415693E-12	-4.0197001E 04	1.1203525E 01
B1H1(G)	300.00	5000.00					
1000. 5000.	2.8597004E 00	1.6431933E-03	-6.1830266E-07	1.1121117E-10	-7.5164316E-15	5.7961852E 04	3.9604710E 00
300. 1000.	3.7145066E 00	-1.5094260E-03	3.1834925E-06	-1.4384070E-09	3.8119703E-14	5.7794368E 04	-1.8746893E-01
B1H3(G)	300.00	5000.00					
1000. 5000.	1.9521642E 00	7.4799288E-03	-2.8865884E-06	5.1202655E-10	-3.4264809E-14	8.1898866E 03	9.4388441E 00
300. 1000.	4.0904762E 00	-1.5638310E-03	1.0318767E-05	-7.4637290E-09	1.6415834E-12	7.8304387E 03	-6.5138592E-01
B1N1(G)	300.00	5000.00					
1000. 5000.	3.4547687E 00	1.1522011E-03	-4.6977453E-07	8.7952949E-11	-6.0348455E-15	7.6753730E 04	5.3583872E 00
300. 1000.	3.6829073E 00	-2.3595167E-03	8.6251544E-06	-8.6044776E-09	2.8750476E-12	7.6846699E 04	4.9239217E 00
B1N1(C)	300.00	5000.00					
1000. 5000.	2.2288903E 00	5.1927614E-03	-2.5919529E-06	5.4548085E-10	-4.1202103E-14	-3.1458256E 04	-1.2850304E 01
300. 1000.	-1.2199412E 00	1.6178927E-02	-1.5538057E-05	6.5551550E-09	-6.4210653E-13	-3.0569377E 04	4.6072666E 00

B1C1(G)		300.00	5000.00					
1000.	5000.	3.1207177E 00	1.4484813E-03	-5.8963218E-07	1.0728721E-10	-6.8022222E-15	1.8735010E 03	6.2204384E 00
300.	1000.	3.8639956E 00	-3.0541906E-03	8.1699547E-06	-6.9531605E-09	2.0534538E-12	1.8147577E 03	3.0473539E 00
B1O2(G)		300.00	5000.00					
1000.	5000.	5.7532094E 00	1.9335753E-03	-8.3905343E-07	1.6157219E-10	-1.1480061E-14	-4.4604281E 04	-6.2167726E 00
300.	1000.	2.3856258E 00	1.2156260E-02	-1.2240322E-05	5.5275384E-09	-8.3127880E-13	-4.3725148E 04	1.0939915E 01
B2O2(G)		300.00	5000.00					
1000.	5000.	6.9393322E 00	3.6986884E-03	-1.5406387E-06	2.8845158E-10	-2.0082255E-14	-5.8483724E 04	-1.1896431E 01
300.	1000.	3.1271057E 00	1.9233773E-02	-2.8164575E-05	2.2094198E-08	-6.9247549E-12	-5.7634897E 04	6.6719641E 00
B2O3(G)		300.00	5000.00					
1000.	5000.	8.2930986E 00	4.9323973E-03	-2.0691496E-06	3.8966615E-10	-2.7260455E-14	-1.0464525E 05	-1.5663101E 01
300.	1000.	2.7212897E 00	2.6177455E-02	-3.5822750E-05	2.6253899E-08	-7.8111472E-12	-1.0335405E 05	1.1781893E 01
B2O3(L)		560.00	5000.00					
1000.	5000.	1.5322605E 01	-0.	-0.	-0.	-0.	-1.5740265E 05	-8.1447383E 01
300.	1000.	1.5322605E 01	-0.	-0.	-0.	-0.	-1.5740265E 05	-8.1447383E 01
B2O3(GLASS)		300.00	560.00					
1000.	5000.	0.	0.	0.	0.	0.	0.	0.
300.	1000.	-1.0897404E 02	8.8392164E-01	-2.2318638E-03	1.9763627E-06	-1.8168600E-10	-1.4233523E 05	4.4882736E 02
B2O3(L)		723.15	5000.00					
1000.	5000.	1.5322605E 01	-0.	-0.	-0.	-0.	-1.5740265E 05	-8.1447383E 01
300.	1000.	1.5322605E 01	-0.	-0.	-0.	-0.	-1.5740265E 05	-8.1447383E 01
B2O3(C)		300.00	723.15					
1000.	5000.	0.	0.	0.	0.	0.	0.	0.
300.	1000.	5.2817200E-01	2.8264694E-02	-1.2102028E-05	-1.5695268E-08	1.5223977E-11	-1.5492946E 05	-4.2995594E 00
B1O1CL1(G)		300.00	5000.00					
1000.	5000.	5.5074947E 00	2.0717555E-03	-8.6290401E-07	1.6145853E-10	-1.1230792E-14	-4.6163190E 04	-3.9202287E 00
300.	1000.	2.5810318E 00	1.4242557E-02	-2.1572670E-05	1.6708359E-08	-5.0927059E-12	-4.5539303E 04	1.0233876E 01
B3O3CL3(G)		300.00	5000.00					
1000.	5000.	1.7161500E 01	8.6462194E-03	-3.7440381E-06	7.1995482E-10	-5.1101860E-14	-2.0608561E 05	-5.8463484E 01
300.	1000.	3.5445800E 00	4.9260495E-02	-4.7988508E-05	2.0852529E-08	-2.9365617E-12	-2.0248372E 05	1.1117335E 01
B1O1F1(G)		300.00	5000.00					
1000.	5000.	5.0193965E 00	2.5701563E-03	-1.0703641E-06	2.0058698E-10	-1.3984380E-14	-7.4226710E 04	-2.7432969E 00
300.	1000.	2.2381286E 00	1.2908428E-02	-1.6852067E-05	1.1728396E-08	-3.3170968E-12	-7.3575341E 04	1.1004774E 01
B3O3F3(G)		300.00	5000.00					
1000.	5000.	1.6244890E 01	9.6560681E-03	-4.1836756E-06	8.0517159E-10	-5.7203293E-14	-2.9201708E 05	-5.6132537E 01
300.	1000.	3.2778566E 00	4.4105105E-02	-3.3195356E-05	6.1588479E-09	2.1187989E-12	-2.8837763E 05	1.1168800E 01
B1S1(G)		300.00	5000.00					
1000.	5000.	3.6061010E 00	1.2159307E-03	-6.5083423E-07	1.5857185E-10	-1.2398068E-14	4.0284043E 04	4.9502415E 00
300.	1000.	3.2144716E 00	7.2379466E-04	3.3674428E-06	-4.9520034E-09	1.9636666E-12	4.0464745E 04	7.3480286E 00
BE1(G)		300.00	5000.00					
1000.	5000.	2.3978915E 00	2.0449278E-04	-1.2906023E-07	2.7413253E-11	-7.7685397E-16	3.8490518E 04	2.6893508E 00
300.	1000.	2.4945010E 00	4.1386213E-05	-1.0781513E-07	1.1661783E-10	-4.4729455E-14	3.8454870E 04	2.1557333E 00

TABLE V. - Continued. TEMPERATURE COEFFICIENTS FOR THERMODYNAMIC FUNCTIONS

Substance	Temperature interval of tabulated data, °K						
First temperature interval, °K / Second temperature interval, °K	a_1	a_2	a_3	a_4	a_5	a_6	a_7
BE1(L)	1560.00	5000.00					
1000. 5000.	3.6230790E 00	-0.	-0.	-0.	-0.	9.3243961E 01	-1.9513842E 01
300. 1000.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
BE1(C)	300.00	1560.00					
1000. 5000.	2.2493924E 00	8.6588699E-04	2.8228190E-07	-1.5884374E-10	3.4167030E-14	-7.7365751E 02	-1.2092996E 01
300. 1000.	-8.4742341E-01	1.5420137E-02	-2.5303249E-05	1.9730606E-08	-5.7271889E-12	-2.4554819E 02	2.3480857E 00
BE1CL1(G)	300.00	5000.00					
1000. 5000.	4.0946670E 00	4.9774987E-04	-1.9342009E-07	3.5887167E-11	-2.3436435E-15	-4.8399966E 03	2.4706388E 00
300. 1000.	2.6853147E 00	5.5285666E-03	-7.1607711E-06	4.4574707E-09	-1.0780413E-12	-4.5138589E 03	9.4540210E 00
BE1CL2(G)	300.00	5000.00					
1000. 5000.	6.4623181E 00	1.1667456E-03	-5.1165621E-07	9.9275091E-11	-7.0940267E-15	-4.4428475E 04	-8.4562968E 00
300. 1000.	2.5053847E 00	1.6578593E-02	-2.4237814E-05	1.7042856E-08	-4.6794338E-12	-4.3570175E 04	1.0848686E 01
BE1F1(G)	300.00	5000.00					
1000. 5000.	3.7082887E 00	8.9588667E-04	-3.6281525E-07	6.8014430E-11	-4.6743957E-15	-2.6187436E 04	3.1585513E 00
300. 1000.	3.2558872E 00	4.0024748E-04	3.7154658E-06	-4.9094124E-09	1.8425131E-12	-2.5971722E 04	5.9374745E 00
BE1F2(G)	300.00	5000.00					
1000. 5000.	5.3899902E 00	2.3237275E-03	-1.0049366E-06	1.9304005E-10	-1.3690090E-14	-9.8191642E 04	-5.6574726E 00
300. 1000.	1.3999229E 00	1.4541094E-02	-1.4679717E-05	6.5502111E-09	-9.2338052E-13	-9.7159351E 04	1.4633324E 01
BE1F1CL1(G)	300.00	5000.00					
1000. 5000.	5.9541941E 00	1.7171621E-03	-7.4713050E-07	1.4417413E-10	-1.0261544E-14	-6.9509701E 04	-6.5790623E 00
300. 1000.	1.6825843E 00	1.7163736E-02	-2.2759416E-05	1.4722006E-08	-3.7507750E-12	-6.8520306E 04	1.4563591E 01
BE1H1(G)	300.00	5000.00					
1000. 5000.	3.0213501E 00	1.5644647E-03	-6.0860459E-07	1.1244383E-10	-7.7556899E-15	3.8324190E 04	3.5833704E 00
300. 1000.	3.8190803E 00	-2.5429071E-03	6.4585046E-06	-4.9247853E-09	1.2720065E-12	3.8227798E 04	5.7989205E-03
BE1C1(G)	300.00	5000.00					
1000. 5000.	4.1807162E 00	-2.4834712E-04	3.5022984E-07	-5.5095477E-11	1.6058349E-15	1.3916785E 04	-3.6730129E-01
300. 1000.	3.6652305E 00	-2.2914847E-03	8.7253562E-06	-8.9055942E-09	3.0356028E-12	1.4267956E 04	3.2407899E 00
BE1C1(L)	2843.00	5000.00					
1000. 5000.	7.5480812E 00	-0.	-0.	-0.	-0.	-6.8880567E 04	-4.2635803E 01
300. 1000.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
BE1C1(C)	300.00	2843.00					
1000. 5000.	4.7664986E 00	1.0445156E-03	1.0162408E-08	-4.8917086E-12	7.6941323E-16	-7.3803983E 04	-2.6519949E 01
300. 1000.	-1.7862022E 00	2.2794850E-02	-2.5310386E-05	1.1567546E-08	-1.4487543E-12	-7.2289472E 04	6.1593446E 00

BE2O2(G)		300.00	5000.00					
1000.	5000.	7.2656515E 00	3.0436593E-03	-1.3278244E-06	2.5695786E-10	-1.8339204E-14	-5.5252811E 04	-1.2939644E 01
300.	1000.	2.2982095E 00	1.6953025E-02	-1.4266072E-05	3.8338247E-09	4.0111862E-13	-5.3905411E 04	1.2636834E 01
BE3C3(G)		300.00	5000.00					
1000.	5000.	1.0223629E 01	6.4242786E-03	-2.7986060E-06	5.4071499E-10	-3.8530851E-14	-1.3260649E 05	-2.9645351E 01
300.	1000.	-1.3603821E 00	4.0799953E-02	-3.8954026E-05	1.5142194E-08	-1.2762531E-12	-1.2956134E 05	2.9518469E 01
BE4C4(G)		300.00	5000.00					
1000.	5000.	1.4202648E 01	8.6602491E-03	-3.7657523E-06	7.2611208E-10	-5.1637712E-14	-1.9714700E 05	-5.0375427E 01
300.	1000.	-2.4858102E 00	6.0230479E-02	-6.2223024E-05	2.8461635E-08	-4.2116622E-12	-1.9285977E 05	3.4357588E 01
BE1C2H2(G)		300.00	5000.00					
1000.	5000.	4.2208179E 00	8.4240535E-03	-3.2176763E-06	5.6853551E-10	-3.8013086E-14	-8.0770285E 04	-3.3544744E-01
300.	1000.	2.4543474E 00	7.4940014E-03	9.6269834E-06	-1.5767075E-08	6.1494642E-12	-7.9973934E 04	1.0272955E 01
C1(G)		300.00	5000.00					
1000.	5000.	2.5794996E 00	-1.4364657E-04	7.2256145E-08	-7.4166784E-12	1.3706331E-17	8.5425551E 04	4.3213724E 00
300.	1000.	2.5408928E 00	-2.2109736E-04	4.7363607E-07	-4.5292348E-10	1.6019824E-13	8.5448430E 04	4.5732760E 00
C1(GRAPHITE)		300.00	4000.00					
1000.	5000.	1.3632519E 00	1.8560488E-03	-7.6675262E-07	1.5104311E-10	-1.1389399E-14	-6.4967214E 02	-7.9890326E 00
300.	1000.	-7.1244164E-01	7.3406462E-03	-5.5261839E-06	1.5139967E-09	-2.3815506E-14	-6.8053340E 01	2.7932569E 00
C2(G)		300.00	5000.00					
1000.	5000.	4.0454028E 00	1.6972698E-04	1.5858551E-07	-5.5265835E-11	4.8591982E-15	9.9609724E 04	1.2813032E 00
300.	1000.	7.5089036E 00	-1.0647103E-02	1.0075659E-05	-8.6214489E-10	-1.7520064E-12	9.8802041E 04	-1.6077243E 01
C3(G)		300.00	5000.00					
1000.	5000.	4.7124744E 00	2.9026521E-03	-1.2142448E-06	2.2847047E-10	-1.5986400E-14	9.3752700E 04	-2.5304385E 00
300.	1000.	2.6325874E 00	9.4185729E-03	-9.5932409E-06	5.5795525E-09	-1.4241068E-12	9.4311478E 04	8.0788261E 00
C1CL1(G)		300.00	5000.00					
1000.	5000.	4.1030458E 00	4.8645376E-04	-1.9445336E-07	3.7549711E-11	-2.6635339E-15	6.0282548E 04	3.3185081E 00
300.	1000.	3.1527801E 00	3.1064390E-03	-2.3613980E-06	2.0995338E-10	3.2215796E-13	6.0537070E 04	8.2075245E 00
C1CL4(G)		300.00	5000.00					
1000.	5000.	1.1506170E 01	1.7129154E-03	-7.6324114E-07	1.5007068E-10	-1.0844894E-14	-1.6652707E 04	-2.9550475E 01
300.	1000.	3.3645211E 00	3.5599740E-02	-5.6167723E-05	4.1742284E-08	-1.1943756E-11	-1.4997782E 04	9.6246173E 00
C1F1(G)		300.00	5000.00					
1000.	5000.	3.6640409E 00	9.5848955E-04	-3.9586490E-07	7.6138251E-11	-5.4116391E-15	3.6376130E 04	4.2853585E 00
300.	1000.	3.5867220E 00	-1.5380358E-03	7.7687077E-06	-8.6182187E-09	3.0982182E-12	3.6533051E 04	5.3559095E 00
C1F2(G)		300.00	5000.00					
1000.	5000.	5.0065632E 00	2.2465121E-03	-9.3662620E-07	1.7927463E-10	-1.2681222E-14	-1.6900027E 04	-8.6252537E-01
300.	1000.	3.0767297E 00	5.1817707E-03	1.4246166E-06	-5.9330440E-09	2.7329712E-12	-1.6245954E 04	9.7034388E 00
C1F3(G)		300.00	5000.00					
1000.	5000.	6.8635124E 00	3.4591758E-03	-1.4966167E-06	2.8747657E-10	-2.0382213E-14	-6.2742191E 04	-1.0110471E 01
300.	1000.	1.3053779E 00	1.9188677E-02	-1.6596245E-05	5.0328097E-09	1.6254684E-13	-6.1238517E 04	1.8476564E 01
C1F4(G)		300.00	5000.00					
1000.	5000.	9.0219456E 00	4.8141869E-03	-1.9233018E-06	3.7153520E-10	-2.6475250E-14	-1.1274889E 05	-2.2627487E 01
300.	1000.	4.2603580E-01	3.2316566E-02	-3.5029545E-05	1.7874827E-08	-3.3299949E-12	-1.1058388E 05	2.0793144E 01

TABLE V. - Continued. TEMPERATURE COEFFICIENTS FOR THERMODYNAMIC FUNCTIONS

Substance	Temperature interval of tabulated data, °K							
First temperature interval, °K / Second temperature interval, °K		a_1	a_2	a_3	a_4	a_5	a_6	a_7
C1H1(G)		300.00	5000.00					
1000.	5000.	1.9609259E 00	3.3122166E-03	-1.4697647E-06	2.9293395E-10	-2.1241511E-14	7.1056560E 04	1.0206282E 01
300.	1000.	3.5445188E 00	8.7948177E-05	-1.8263876E-06	4.4548009E-09	-2.1858109E-12	7.0596423E 04	1.8236435E 00
C1H2(G)		300.00	5000.00					
1000.	5000.	2.2296977E 00	4.7109215E-03	-1.7660321E-06	3.0648681E-10	-2.0167044E-14	3.3832948E 04	7.7079836E 00
300.	1000.	3.5513649E 00	-2.5069870E-03	1.2354987E-05	-1.1750895E-08	3.8124390E-12	3.3661053E 04	1.7966064E 00
C1H3(G)		300.00	5000.00					
1000.	5000.	2.8027662E 00	6.2504497E-03	-2.2891516E-06	3.8993098E-10	-2.5275780E-14	1.5787492E 04	5.6841170E 00
300.	1000.	3.3995052E 00	4.2678348E-03	2.0332684E-07	-1.1548308E-09	4.1288359E-13	1.5649793E 04	2.7037468E 00
C1H4(G)		300.00	5000.00					
1000.	5000.	1.1795744E 00	1.0950594E-02	-4.0622131E-06	7.1370281E-10	-4.7490353E-14	-9.8556627E 03	1.2505934E 01
300.	1000.	4.2497678E 00	-6.9126562E-03	3.1602134E-05	-2.9715432E-08	9.5103580E-12	-1.0186632E 04	-9.1754991E-01
C2H2(G)		300.00	5000.00					
1000.	5000.	4.4965644E 00	5.2698321E-03	-1.8402668E-06	3.1054295E-10	-2.0004309E-14	2.5637191E 04	-3.1448152E 00
300.	1000.	7.9033340E-01	2.3466122E-02	-3.5541928E-05	2.7950550E-08	-8.4484125E-12	2.6254844E 04	1.4005228E 01
C2H4(G)		300.00	5000.00					
1000.	5000.	3.5023516E 00	1.1592101E-02	-4.4745225E-06	7.9452132E-10	-5.3235681E-14	4.4543960E 03	2.4667528E 00
300.	1000.	1.1202436E 00	1.3905716E-02	2.6568374E-06	-1.1560272E-08	5.2386929E-12	5.3328896E 03	1.5837760E 01
C1N1(G)		300.00	5000.00					
1000.	5000.	3.6022629E 00	3.4086228E-04	9.7162446E-08	-1.5825029E-11	-4.1424717E-16	4.7310367E 04	3.5520520E 00
300.	1000.	3.8528145E 00	-2.7632042E-03	6.8570434E-06	-5.4131979E-09	1.4905933E-12	4.7409697E 04	2.9718018E 00
C2N2(G)		300.00	5000.00					
1000.	5000.	6.5024264E 00	4.0532184E-03	-1.6639966E-06	3.0947405E-10	-2.1482992E-14	3.4904749E 04	-9.4419093E 00
300.	1000.	3.4026925E 00	1.7756299E-02	-2.6860559E-05	2.1968412E-08	-7.0872074E-12	3.5550207E 04	5.4122791E 00
C1O1(G)		300.00	5000.00					
1000.	5000.	2.9511519E 00	1.5525567E-03	-6.1911411E-07	1.1350336E-10	-7.7882732E-15	-1.4231827E 04	6.5314450E 00
300.	1000.	3.7871332E 00	-2.1709526E-03	5.0757337E-06	-3.4737726E-09	7.7216841E-13	-1.4363508E 04	2.6335459E 00
C1O2(G)		300.00	5000.00					
1000.	5000.	4.4129266E 00	3.1922896E-03	-1.2978230E-06	2.4147446E-10	-1.6742986E-14	-4.8944043E 04	-7.2875769E-01
300.	1000.	2.1701000E 00	1.0378115E-02	-1.0733938E-05	6.3459175E-09	-1.6280701E-12	-4.8352602E 04	1.0664388E 01
C1O1CL2(G)		300.00	5000.00					
1000.	5000.	7.6818485E 00	2.5120332E-03	-1.0776482E-06	2.0619275E-10	-1.4596992E-14	-2.9469427E 04	-1.0945890E 01
300.	1000.	2.4834310E 00	2.3088765E-02	-3.4041696E-05	2.5093821E-08	-7.3164953E-12	-2.8332887E 04	1.4398393E 01

C1O1F2(G)		300.00	5000.00					
1000.	5000.	6.5091203E 00	3.7656297E-03	-1.6076160E-06	3.0615788E-10	-2.1580198E-14	-7.8145662E 04	-7.8705310E 00
300.	1000.	1.4318693E 00	1.9221617E-02	-1.9197032E-05	9.0148940E-09	-1.5196377E-12	-7.6810839E 04	1.8012198E 01
C1O1F1CL1(G)		300.00	5000.00					
1000.	5000.	7.1322265E 00	3.0947576E-03	-1.3206792E-06	2.5131857E-10	-1.7698570E-14	-5.3821797E 04	-8.9578875E 00
300.	1000.	1.9395674E 00	2.1032168E-02	-2.5821236E-05	1.5923102E-08	-3.9336786E-12	-5.2565742E 04	1.6979664E 01
C1O1S1(G)		300.00	5000.00					
1000.	5000.	5.2068373E 00	2.4717661E-03	-1.0011287E-06	1.8787369E-10	-1.3103525E-14	-1.8327771E 04	-2.9133806E 00
300.	1000.	2.0885523E 00	1.4613989E-02	-2.0465884E-05	1.5062439E-08	-4.4468532E-12	-1.7624238E 04	1.2367372E 01
C1P1(G)		300.00	5000.00					
1000.	5000.	4.4762312E 00	-9.8515403E-04	1.0831803E-06	-2.8508109E-10	2.3184956E-14	4.2086024E 04	3.9308498E-01
300.	1000.	3.2995751E 00	9.8920403E-05	4.6023020E-06	-6.0170738E-09	2.3286386E-12	4.2519509E 04	7.0118032E 00
C1S1(G)		300.00	5000.00					
1000.	5000.	3.6766152E 00	9.2679896E-04	-3.8873364E-07	7.4392024E-11	-5.2475514E-15	2.6292309E 04	3.9156151E 00
300.	1000.	3.3981992E 00	-5.8923594E-04	5.9449817E-06	-7.0858714E-09	2.6157526E-12	2.6483370E 04	5.9195268E 00
C1S2(G)		300.00	5000.00					
1000.	5000.	5.9491526E 00	1.7245610E-03	-7.2111106E-07	1.3744760E-10	-9.6838965E-15	1.2053749E 04	-6.2051076E 00
300.	1000.	2.9174620E 00	1.2498700E-02	-1.6109132E-05	1.0567832E-08	-2.7944978E-12	1.2777076E 04	8.8763481E 00
CL1(G)		300.00	5000.00					
1000.	5000.	2.9657881E 00	-4.3004990E-04	1.6643053E-07	-2.9717571E-11	2.0047255E-15	1.3670965E 04	3.0001737E 00
300.	1000.	1.9842061E 00	3.6198919E-03	-6.0840653E-06	4.2326431E-09	-1.0782205E-12	1.3861529E 04	7.7052771E 00
CL2(G)		300.00	5000.00					
1000.	5000.	4.3120535E 00	2.7351354E-04	-9.2259884E-08	1.7749065E-11	-1.2566223E-15	-1.3447369E 03	2.0545109E 00
300.	1000.	2.9388173E 00	6.2636200E-03	-1.0320071E-05	7.9903872E-09	-2.3629547E-12	-1.0781035E 03	8.5971680E 00
CL1C1N1(G)		300.00	5000.00					
1000.	5000.	5.3758627E 00	2.1534362E-03	-8.8346049E-07	1.6377827E-10	-1.1325954E-14	1.4128968E 04	-3.0896394E 00
300.	1000.	2.9784910E 00	1.2798814E-02	-2.0140175E-05	1.6317202E-08	-5.1560426E-12	1.4613143E 04	8.3555009E 00
CL1F1(G)		300.00	5000.00					
1000.	5000.	4.1467179E 00	4.5093129E-04	-1.7399058E-07	3.3700158E-11	-2.4041155E-15	-8.0963179E 03	2.2741272E 00
300.	1000.	2.7109502E 00	5.7431642E-03	-7.7018793E-06	4.8788760E-09	-1.1761569E-12	-7.7739140E 03	9.3421503E 00
CL1F3(G)		300.00	5000.00					
1000.	5000.	8.9129541E 00	1.2550383E-03	-5.6216105E-07	1.1099172E-10	-8.0475754E-15	-2.2448643E 04	-1.7873577E 01
300.	1000.	1.9837740E 00	3.1211177E-02	-5.1355206E-05	3.9531326E-08	-1.1662299E-11	-2.1090751E 04	1.5205337E 01
CL1O1(G)		300.00	5000.00					
1000.	5000.	4.0801625E 00	5.2934256E-04	-2.0312189E-07	3.9034156E-11	-2.7646554E-15	1.0863818E 04	3.6656737E 00
300.	1000.	2.7287737E 00	5.1002967E-03	-6.0303089E-06	3.2978907E-09	-6.5399980E-13	1.1187659E 04	1.0419900E 01
CL1O2(G)		300.00	5000.00					
1000.	5000.	5.6845585E 00	1.5554443E-03	-6.4426875E-07	1.2495456E-10	-8.9321992E-15	1.0617978E 04	-2.4192053E 00
300.	1000.	2.7120020E 00	1.0556362E-02	-1.0311884E-05	4.1101144E-09	-3.5483798E-13	1.1385505E 04	1.2705468E 01
CL2O1(G)		300.00	5000.00					
1000.	5000.	6.1295246E 00	9.8370521E-04	-4.3316926E-07	8.4340974E-11	-6.0450358E-15	7.0759267E 03	-3.5699167E 00
300.	1000.	2.8367006E 00	1.3274620E-02	-1.8343989E-05	1.2066459E-08	-3.0754364E-12	7.8119147E 03	1.2613908E 01

TABLE V. - Continued. TEMPERATURE COEFFICIENTS FOR THERMODYNAMIC FUNCTIONS

Substance	Temperature interval of tabulated data, °K						
First temperature interval, °K / Second temperature interval, °K	a_1	a_2	a_3	a_4	a_5	a_6	a_7
F1(G)	300.00	5000.00					
1000. 5000.	2.6959312E 00	-2.1447184E-04	9.2868868E-08	-1.7910205E-11	1.2762900E-15	8.7171463E 03	3.8314370E 00
300. 1000.	2.7898969E 00	1.4936162E-04	-1.6455151E-06	2.0348707E-09	-7.7092015E-13	8.6619693E 03	3.1964920E 00
F2(G)	300.00	5000.00					
1000. 5000.	4.0240982E 00	6.3222651E-04	-2.3649289E-07	4.6128262E-11	-3.3134068E-15	-1.3068762E 03	1.0818022E 00
300. 1000.	2.7945929E 00	4.3680840E-03	-4.1389481E-06	1.4449032E-09	-5.9853059E-15	-9.9364058E 02	7.3247036E 00
H1(G)	300.00	5000.00					
1000. 5000.	2.5000000E 00	-0.	-0.	-0.	-0.	2.5470497E 04	-4.6001096E-01
300. 1000.	2.5000000E 00	-0.	-0.	-0.	-0.	2.5470497E 04	-4.6001096E-01
H2(G)	300.00	5000.00					
1000. 5000.	3.0436897E 00	6.1187110E-04	-7.3993551E-09	-2.0331907E-11	2.4593791E-15	-8.5491002E 02	-1.6481339E 00
300. 1000.	2.8460849E 00	4.1932116E-03	-9.6119332E-06	9.5122662E-09	-3.3093421E-12	-9.6725372E 02	-1.4117850E 00
H1B1O2(G)	300.00	5000.00					
1000. 5000.	4.6750708E 00	4.8997343E-03	-1.8885174E-06	3.3572758E-10	-2.2542063E-14	-7.0093944E 04	3.4501874E-01
300. 1000.	2.8104845E 00	8.3318495E-03	-1.5559113E-06	-3.4769974E-09	1.8900492E-12	-6.9485621E 04	1.0419467E 01
H3B1O3(G)	300.00	5000.00					
1000. 5000.	8.3026662E 00	1.0010852E-02	-3.8983557E-06	6.9769799E-10	-4.7068517E-14	-1.2333024E 05	-1.7933229E 01
300. 1000.	1.1489070E 00	3.2252374E-02	-2.8816685E-05	1.1716992E-08	-1.2357961E-12	-1.2150821E 05	1.8324914E 01
H3B3O6(G)	300.00	5000.00					
1000. 5000.	2.0000767E 01	1.3342715E-02	-5.2837418E-06	9.5898505E-10	-6.5437443E-14	-2.8058727E 05	-7.8870089E 01
300. 1000.	-4.7344757E 00	1.0471222E-01	-1.3604820E-04	8.6187482E-08	-2.1163747E-11	-2.7503609E 05	4.2872714E 01
H1C1N1(G)	300.00	5000.00					
1000. 5000.	3.6538032E 00	3.4436455E-03	-1.2585128E-06	2.1691615E-10	-1.4296311E-14	1.4421804E 04	2.3726015E 00
300. 1000.	2.1681150E 00	1.0728954E-02	-1.5088089E-05	1.1933018E-08	-3.7004453E-12	1.4682900E 04	9.2810199E 00
H1C1O1(G)	300.00	5000.00					
1000. 5000.	3.2708241E 00	3.5195799E-03	-1.3772859E-06	2.4731356E-10	-1.6727435E-14	-2.7820147E 03	7.3044232E 00
300. 1000.	3.8647056E 00	-5.3708648E-04	6.9034500E-06	-6.6450605E-09	2.0576966E-12	-2.7995993E 03	4.8971867E 00
H1CL1(G)	300.00	5000.00					
1000. 5000.	2.7356497E 00	5.[illegible]4979644E-03	-5.0699071E-07	8.2790246E-11	-5.1747522E-15	-1.1906174E 04	6.6280129E 00
300. 1000.	3.5127954E 0[illegible]	[illegible].0648349E-04	-1.0344968E-06	2.2632198E-09	-1.0437634E-12	-1.2149134E 04	2.4477521E 00
H1F1(G)	300.00	5000.00					
1000. 5000.	3.0027529E 00	6.9264447E-04	-5.3422875E-08	-1.4891104E-11	2.3158465E-15	-3.3452607E 04	3.7531290E 00
300. 1000.	3.4714781E 00	2.8482667E-04	-8.6756213E-07	1.0442415E-09	-3.0358504E-13	-3.3649646E 04	1.0536081E 00

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H2Cl(G)                300.00    0000.00
 1000.  5000.   2.6707532E 00   3.0317115E-03  -8.5351570E-07   1.1790853E-10  -6.1973568E-15  -2.9888994E 04   6.8838391E 00
  300.  1000.   4.1565016E 00   1.7244334E-03   5.6982316E-06  -4.5930044E-09   1.4233654E-12  -3.0288770E 04  -6.8616246E-01

H1S1(G)                300.00    0[illegible].00
 1000.  5000.   2.9882040E 00   1.[illegible]585811E-03  -4.7105835E-07   7.9044628E-11  -5.0575843E-15   1.7386935E 04   6.3482781E 00
  300.  1000.   4.2586855E 00  -1.[illegible]2783317E-03  -8.3785906E-07   3.8324212E-09  -2.0252030E-12   1.7022862E 04  -3.5367303E-01

H2S1(G)                300.00   5000.00
 1000.  5000.   2.7657149E 00   4.0131914E-03  -1.5044898E-06   2.6807998E-10  -1.7967681E-14  -3.3859808E 03   7.9327186E 00
  300.  1000.   3.9163074E 00  -3.5138671E-04   4.2191312E-06  -2.7453665E-09   4.8584365E-13  -3.6095585E 03   2.3660042E 00

HE1(G)                 300.00   5000.00
 1000.  5000.   2.5000000E 00  -0.             -0.             -0.             -0.             -7.4537500E 02   9.1545583E-01
  300.  1000.   2.5000000E 00  -0.             -0.             -0.             -0.             -7.4537500E 02   9.1545583E-01

LI1(G)                 300.00   5000.00
 1000.  5000.   2.4186482E 00   2.0671278E-04  -1.7839798E-07   5.7531326E-11  -4.4937075E-15   1.8614297E 04   2.8603804E 00
  300.  1000.   2.5130726E 00  -9.5912070E-05   2.4587596E-07  -2.6299537E-10   9.9959610E-14   1.8589002E 04   2.3793367E 00

LI1(L)                 453.70   2500.00
 1000.  5000.   3.5284764E 00  -6.0384650E-05  -0.             -0.             -0.             -7.1424976E 02  -1.5884776E 01
  300.  1000.   3.9804012E 00   4.1579974E-04  -4.9799002E-06   6.7559643E-09  -2.7041750E-12  -8.9245645E 02  -1.8568740E 01

LI1(C)                 300.00    453.70
 1000.  5000.   0.              0.              0.              0.              0.              0.              0.
  300.  1000.  -2.0720175E 00   4.1908892E-02  -1.3202140E-04   1.9183852E-07  -9.9351875E-11  -4.1253148E 02   7.1720114E 00

LI2(G)                 300.00   5000.00
 1000.  5000.   4.4223629E 00   2.5427722E-04  -3.8941545E-08   7.5349503E-12  -5.3554000E-16   2.4029544E 04  -1.6492218E 00
  300.  1000.   3.6230605E 00   3.9654308E-03  -6.7075894E-06   5.4166135E-09  -1.6528183E-12   2.4174339E 04   2.1053784E 00

LI1CL1(G)              300.00   5000.00
 1000.  5000.   4.2543279E 00   3.5438117E-04  -1.2235100E-07   2.3738075E-11  -1.6943940E-15  -2.5393103E 04   1.1135900E 00
  300.  1000.   2.7628126E 00   6.6661283E-03  -1.0635345E-05   8.0724281E-09  -2.3576236E-12  -2.5094117E 04   8.2674479E 00

LI1CL1(L)              883.00   5000.00
 1000.  5000.   7.5480813E 00  -0.             -0.             -0.             -0.             -4.9548926E 04  -3.4304961E 01
  300.  1000.   7.5480813E 00  -0.             -0.             -0.             -0.             -4.9548926E 04  -3.4304961E 01

LI1CL1(C)              300.00    883.00
 1000.  5000.   0.              0.              0.              0.              0.              0.              0.
  300.  1000.   4.1293749E 00   8.2039067E-03  -1.2176473E-05   1.1904299E-08  -4.3417178E-12  -5.0672438E 04  -1.8396714E 01

LI2CL2(G)              300.00   5000.00
 1000.  5000.   9.5027437E 00   5.6917429E-04  -2.5146305E-07   4.8899217E-11  -3.4930086E-15  -7.5860679E 04  -1.9927422E 01
  300.  1000.   4.5302625E 00   2.3683796E-02  -4.1905119E-05   3.3973792E-08  -1.0416876E-11  -7.4959504E 04   3.4285122E 00

LI1F1(G)               300.00   5000.00
 1000.  5000.   4.0450236E 00   5.7229782E-04  -2.1664833E-07   4.1347110E-11  -2.9105736E-15  -4.1467681E 04   6.5141279E-01
  300.  1000.   2.7679245E 00   4.5900019E-03  -4.7792480E-06   2.1200546E-09  -2.5962349E-13  -4.1146902E 04   7.1081727E 00

LI1F1(L)              1121.30   5000.00
 1000.  5000.   7.8047160E 00  -0.             -0.             -0.             -0.             -7.3824911E 04  -3.9424132E 01
  300.  1000.  -0.             -0.             -0.             -0.             -0.             -0.             -0.
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TABLE V. - Continued. TEMPERATURE COEFFICIENTS FOR THERMODYNAMIC FUNCTIONS

Substance	Temperature interval of tabulated data, °K						
First temperature interval, °K / Second temperature interval, °K	a_1	a_2	a_3	a_4	a_5	a_6	a_7
LI1F1(C)	300.00	1121.30					
1000. 5000.	-3.1395574E 00	2.1989822E-02	-1.3326050E-05	-1.3659478E-09	3.0068768E-12	-7.2896678E 04	1.7699711E 01
300. 1000.	1.3242741E 00	2.0185500E-02	-3.2792970E-05	2.5369342E-08	-6.9210086E-12	-7.4667621E 04	-8.0273533E 00
LI2F2(G)	300.00	5000.00					
1000. 5000.	9.2076713E 00	9.0756503E-04	-4.0226463E-07	7.8550836E-11	-5.6355238E-15	-1.1414612E 05	-2.1616613E 01
300. 1000.	2.7137739E 00	3.0033169E-02	-5.1280303E-05	4.0443889E-08	-1.2124649E-11	-1.1292321E 05	9.1296935E 00
LI3F3(G)	300.00	5000.00					
1000. 5000.	1.2888686E 01	3.5230060E-03	-1.5545971E-06	3.0329660E-10	-2.1777982E-14	-1.7832249E 05	-4.0009658E 01
300. 1000.	1.5326555E 00	4.5414791E-02	-6.1760529E-05	3.9967174E-08	-1.0015482E-11	-1.7576094E 05	1.5923332E 01
LI1H1(G)	300.00	5000.00					
1000. 5000.	3.5679055E 00	1.1148891E-03	-4.3044857E-07	8.1947232E-11	-5.7721421E-15	1.5729171E 04	-2.7663389E-01
300. 1000.	3.5402114E 00	-1.5148568E-03	7.6971804E-06	-8.3240097E-09	2.9299974E-12	1.5876864E 04	5.4864496E-01
LI1C1(G)	300.00	5000.00					
1000. 5000.	3.9159309E 00	7.0120414E-04	-2.7707159E-07	5.2945546E-11	-3.7339448E-15	5.7546803E 03	2.0970903E 00
300. 1000.	2.9743168E 00	2.6180807E-03	-3.6500352E-07	-1.8944877E-09	1.0563693E-12	6.0420044E 03	7.1127383E 00
LI2C1(G)	300.00	5000.00					
1000. 5000.	5.5208548E 00	1.6454723E-03	-7.1562096E-07	1.3793244E-10	-9.8034855E-15	-1.9830528E 04	-4.2914982E 00
300. 1000.	2.3313988E 00	1.0745175E-02	-9.3120489E-06	2.4978836E-09	3.1642729E-13	-1.8980680E 04	1.2070786E 01
LI2C1(L)	1700.00	5000.00					
1000. 5000.	1.0818916E 01	-0.	-0.	-0.	-0.	-6.8510057E 04	-5.5243520E 01
300. 1000.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
LI2C1(C)	300.00	1700.00					
1000. 5000.	5.0716245E 00	8.8082200E-03	-5.4272404E-06	2.3325164E-09	-3.7832933E-13	-7.3561133E 04	-2.6880981E 01
300. 1000.	-1.2982745E 00	4.3138418E-02	-7.3089629E-05	6.0476338E-08	-1.8820072E-11	-7.2649812E 04	1.8508762E 00
LI1C1H1(G)	300.00	5000.00					
1000. 5000.	4.1299474E 00	2.3293982E-03	-8.1280131E-07	1.3368891E-10	-8.4443508E-15	-3.0199600E 04	2.0673063E 00
300. 1000.	3.0810010E 00	4.2006429E-03	5.0029624E-07	-4.0845978E-09	2.0744473E-12	-2.9885982E 04	7.6707506E 00
LI1C1H1(L)	744.30	5000.00					
1000. 5000.	1.0436480E 01	-0.	-0.	-0.	-0.	-6.0418929E 04	-5.3645379E 01
300. 1000.	1.0436480E 01	-0.	-0.	-0.	-0.	-6.0418929E 04	-5.3645379E 01
LI1C1H1(C)	300.00	744.30					
1000. 5000.	0.	0.	0.	0.	0.	0.	0.
300. 1000.	-1.8866820E 00	4.6623059E-02	-9.2573321E-05	9.2598799E-08	-3.5188964E-11	-5.9455448E 04	5.3669263E 00

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LI2C2H2(G)              300.00   5000.00
 1000.  5000.   9.3671224E 00   5.6738668E-03  -2.0732870E-06   3.5446933E-10  -2.3117794E-14  -9.2728269E 04  -2.3256818E 01
  300.  1000.   9.9967430E-01   3.7433501E-02  -4.8454394E-05   3.1000617E-08  -7.6803471E-12  -9.0910360E 04   1.7673306E 01

MG1(G)                  300.00   5000.00
 1000.  5000.   2.4043590E 00   1.9005770E-04  -1.1793682E-07   2.3792231E-11  -3.3893521E-16   1.7202796E 04   4.1436162E 00
  300.  1000.   2.4896392E 00   7.7811114E-05  -2.0215519E-07   2.1803364E-10  -8.3395625E-14   1.7169763E 04   3.6648936E 00

MG1(L)                  923.00   2500.00
 1000.  5000.   4.0256433E 00  -0.             -0.             -0.             -0.             -4.8613583E 02  -1.8608633E 01
  300.  1000.   4.0256433E 00  -0.             -0.             -0.             -0.             -4.8613583E 02  -1.8608633E 01

MG1(C)                  300.00   923.00
 1000.  5000.   0.              0.              0.              0.              0.              0.              0.
  300.  1000.   2.0686157E 00   5.2235864E-03  -1.0158455E-05   1.1092926E-08  -4.1245988E-12  -7.7914337E 02  -9.0668067E 00

MG1CL1(G)               300.00   5000.00
 1000.  5000.   4.3693863E 00   2.0291060E-04  -6.1061697E-08   1.0431818E-11  -5.2222300E-16  -5.8761307E 02   3.0160849E 00
  300.  1000.   3.2096883E 00   5.4943849E-03  -9.4731671E-06   7.6160759E-09  -2.3258383E-12  -3.7263176E 02   8.4876869E 00

MG1CL2(G)               300.00   5000.00
 1000.  5000.   7.1103608E 00   4.5064700E-04  -2.0163150E-07   3.9715346E-11  -2.8715039E-15  -5.2961129E 04  -9.9360510E 00
  300.  1000.   3.8279892E 00   1.5386366E-02  -2.6656943E-05   2.1304965E-08  -6.4661607E-12  -5.2351835E 04   5.5571101E 00

MG1F1(G)                300.00   5000.00
 1000.  5000.   4.2062912E 00   3.7247087E-04  -1.3734467E-07   2.4894861E-11  -1.5516431E-15  -1.1519246E 04   2.3507615E 00
  300.  1000.   2.7293920E 00   6.1504978E-03  -8.9508238E-06   6.1671103E-09  -1.6313164E-12  -1.1203035E 04   9.5422596E 00

MG1F2(G)                300.00   5000.00
 1000.  5000.   6.6280724E 00   9.8972087E-04  -4.3613185E-07   8.4836800E-11  -6.0705504E-15  -9.1837662E 04  -1.0607086E 01
  300.  1000.   1.4228098E 00   2.2815310E-02  -3.6302199E-05   2.7070620E-08  -7.7461175E-12  -9.0788276E 04   1.4396788E 01

MG1F2(L)               1536.00   5000.00
 1000.  5000.   1.1404648E 01  -0.             -0.             -0.             -0.             -1.3144003E 05  -5.7163736E 01
  300.  1000.  -0.              -0.             -0.             -0.             -0.             -0.             -0.

MG1F2(C)                300.00   1536.00
 1000.  5000.   5.8667424E 00   7.7455716E-03  -5.9423375E-06   2.3122872E-09  -3.0562419E-13  -1.3457422E 05  -2.8335949E 01
  300.  1000.   1.4042837E 00   3.5577578E-02  -6.5336640E-05   5.5875825E-08  -1.7844417E-11  -1.3411279E 05  -9.1150490E 00

MG1F1CL1(G)             300.00   5000.00
 1000.  5000.   6.9029469E 00   6.7837384E-04  -2.9851752E-07   5.7930295E-11  -4.1341373E-15  -7.2409112E 04  -9.8966951E 00
  300.  1000.   2.3765399E 00   2.0661519E-02  -3.4758738E-05   2.7125349E-08  -8.0680747E-12  -7.1541604E 04   1.1611092E 01

MG1H1(G)                300.00   5000.00
 1000.  5000.   3.4475375E 00   1.2743598E-03  -5.2129363E-07   1.0305964E-10  -7.1466261E-15   1.9336871E 04   3.0733103E 00
  300.  1000.   3.6495548E 00  -2.2267861E-03   8.8829679E-06  -9.1547737E-09   3.1455552E-12   1.9434591E 04   2.7746090E 00

MG1C1(G)                300.00   5000.00
 1000.  5000.   1.5816811E 00   5.3868595E-03  -2.5748059E-06   5.0321327E-10  -3.5184406E-14   1.6518298E 03   1.5648695E 01
  300.  1000.   2.5386522E 00   7.3272379E-03  -1.2835994E-05   1.1513465E-08  -3.6815996E-12   1.1217851E 03   9.4699082E 00

MG1C1(C)                300.00   3000.00
 1000.  5000.   2.7123117E 01  -4.5010900E-02   3.2479526E-05  -9.7202840E-09   1.0532670E-12  -8.1716796E 04  -1.4583140E 02
  300.  1000.   1.5475902E 00   1.6511386E-02  -2.7548849E-05   2.2095515E-08  -6.6809206E-12  -7.3300067E 04  -9.3417419E 00
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TABLE V. - Continued. TEMPERATURE COEFFICIENTS FOR THERMODYNAMIC FUNCTIONS

Substance	Temperature interval of tabulated data, °K						
First temperature interval, °K / Second temperature interval, °K	a_1	a_2	a_3	a_4	a_5	a_6	a_7
MG1C1H1(G)	300.00	5000.00					
1000. 5000.	4.5759437E 00	1.8490882E-03	-6.0850884E-07	9.4941726E-11	-5.7237369E-15	-7.6561618E 03	2.3118177E 00
300. 1000.	2.5035181E 00	1.0218725E-02	-1.3051919E-05	8.0713687E-09	-1.8359527E-12	-7.2488124E 03	1.2278443E 01
MG1S1(G)	300.00	5000.00					
1000. 5000.	4.3279184E 00	2.6026952E-04	-9.0679711E-08	1.8047441E-11	-1.3178392E-15	1.5905315E 04	2.2859202E 00
300. 1000.	3.0485904E 00	5.9094476E-03	-9.8047438E-06	7.6104985E-09	-2.2495559E-12	1.6149610E 04	8.3623005E 00
N1(G)	300.00	5000.00					
1000. 5000.	2.4422261E 00	1.2276187E-04	-8.4992719E-08	2.1400830E-11	-1.2511058E-15	5.6148821E 04	4.4925708E 00
300. 1000.	2.5147937E 00	-1.1243791E-04	2.9647506E-07	-3.2464049E-10	1.2595465E-13	5.6127767E 04	4.1193032E 00
N2(G)	300.00	5000.00					
1000. 5000.	2.8545761E 00	1.5976316E-03	-6.2566254E-07	1.1315849E-10	-7.6897070E-15	-8.9017445E 02	6.3902879E 00
300. 1000.	3.6916148E 00	-1.3332552E-03	2.6503100E-06	-9.7688341E-10	-9.9772234E-14	-1.0628336E 03	2.2874980E 00
N1F1(G)	300.00	5000.00					
1000. 5000.	3.9617527E 00	6.6673228E-04	-2.6302304E-07	5.0938003E-11	-3.6361340E-15	3.1890599E 04	2.7589592E 00
300. 1000.	2.8312862E 00	3.8325543E-03	-3.1590759E-06	7.7572379E-10	1.3227553E-13	3.2195127E 04	8.5745765E 00
N1F2(G)	300.00	5000.00					
1000. 5000.	5.7002123E 00	1.4543718E-03	-6.3545299E-07	1.2294505E-10	-8.7656577E-15	2.5519082E 03	-3.3475432E 00
300. 1000.	2.2413802E 00	1.2604969E-02	-1.3947211E-05	6.8871256E-09	-1.1529538E-12	3.4104868E 03	1.4081824E 01
N1F3(G)	300.00	5000.00					
1000. 5000.	7.9441813E 00	2.3094832E-03	-1.0110005E-06	1.9577462E-10	-1.3962918E-14	-1.7792092E 04	-1.5481892E 01
300. 1000.	4.8049905E-01	2.9816530E-02	-4.0633512E-05	2.6467749E-08	-6.7067937E-12	-1.6103857E 04	2.1295488E 01
N2F2(G)	300.00	5000.00					
1000. 5000.	7.3338740E 00	2.9250710E-03	-1.2628060E-06	2.4239800E-10	-1.7186564E-14	7.1257440E 03	-1.1795642E 01
300. 1000.	2.3938213E 00	1.8865115E-02	-2.1068271E-05	1.1480892E-08	-2.4502086E-12	8.3745769E 03	1.3153811E 01
N1H1(G)	300.00	5000.00					
1000. 5000.	2.7273936E 00	1.4195974E-03	-4.5828662E-07	7.5551953E-11	-4.6169041E-15	3.8927885E 04	6.0442761E 00
300. 1000.	3.4545182E 00	5.2804574E-04	-1.9725738E-06	2.9579088E-09	-1.2082601E-12	3.8671438E 04	2.0102977E 00
N1H3(G)	300.00	5000.00					
1000. 5000.	2.1493986E 00	6.4928521E-03	-2.2695193E-06	3.7393857E-10	-2.3605554E-14	-6.4019616E 03	9.2389071E 00
300. 1000.	3.7716198E 00	-4.8621368E-04	9.8742257E-06	-9.5678898E-09	3.1313236E-12	-6.7280933E 03	1.4654049E 00
N1C1(G)	300.00	5000.00					
1000. 5000.	3.1529360E 00	1.4059955E-03	-5.7078462E-07	1.0628209E-10	-7.3720783E-15	9.8522048E 03	6.9446465E 00
300. 1000.	4.1469476E 00	-4.1197237E-03	9.6922467E-06	-7.8633639E-09	2.2309512E-12	9.7447894E 03	2.5694290E 00

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N1C2(C)                 300.00   5000.00
 1000.  5000.   4.6139219E 00   2.6386639E-03  -1.0948541E-06   2.0818425E-10  -1.4654391E-14   2.3403782E 03   1.3676372E 00
  300.  1000.   3.4344563E 00   2.2234297E-03   6.7148975E-06  -9.7427719E-09   3.7212523E-12   2.8647685E 03   8.4084647E 00

N2O1(G)                 300.00   5000.00
 1000.  5000.   4.6265479E 00   3.0216807E-03  -1.2156014E-06   2.2855952E-10  -1.5849701E-14   8.1356645E 03  -1.1463655E 00
  300.  1000.   2.3821171E 00   1.0350556E-02  -1.1167634E-05   6.9583165E-09  -1.8780192E-12   8.7229964E 03   1.0227044E 01

N2C4(G)                 300.00   5000.00
 1000.  5000.   1.0427700E 01   6.0360197E-03  -2.5834339E-06   4.9280602E-10  -3.4775803E-14  -2.7412705E 03  -2.5824178E 01
  300.  1000.   3.1652553E 00   2.7191496E-02  -2.5350636E-05   1.0992581E-08  -1.6603821E-12  -7.6731966E 02   1.1477609E 01

N1S1(C)                 300.00   5000.00
 1000.  5000.   3.8404466E 00   7.4574590E-04  -3.0578184E-07   5.8053531E-11  -4.0693848E-15   3.0785184E 04   4.4723207E 00
  300.  1000.   4.0622151E 00  -2.8190179E-03   9.3158088E-06  -9.5089130E-09   3.2843034E-12   3.0872668E 04   4.0612628E 00

NA1(G)                  300.00   5000.00
 1000.  5000.   2.4170021E 00   1.7967941E-04  -1.2687355E-07   3.1369786E-11  -1.2333492E-15   1.2162966E 04   4.6776707E 00
  300.  1000.   2.4909586E 00   6.7882638E-05  -1.7628961E-07   1.9003832E-10  -7.2645642E-14   1.2135995E 04   4.2682656E 00

NA1(L)                  370.98   2500.00
 1000.  5000.   2.2368925E 00   2.1812933E-03  -1.1964327E-06   2.9309190E-10  -2.6160561E-14  -1.5568212E 02  -5.7059283E 00
  300.  1000.   3.3348296E 00   5.2097527E-03  -1.5572293E-05   1.5906473E-08  -5.3900798E-12  -8.0645725E 02  -1.2994219E 01

NA1(C)                  300.00    370.98
 1000.  5000.   0.              0.              0.              0.              0.              0.
  300.  1000.  -1.5395770E 01   4.1264357E-02   2.9918608E-04  -8.7938205E-07   3.9933674E-10   1.6620997E 03   7.5260683E 01

NA2(G)                  300.00   5000.00
 1000.  5000.   4.4862458E 00   2.1374698E-04  -5.4087933E-09   8.9502819E-13  -5.3328965E-17   1.5694318E 04   2.0374668E 00
  300.  1000.   4.2903398E 00   1.1244569E-03  -1.6337002E-06   1.3072228E-09  -3.9289382E-13   1.5729618E 04   2.9569409E 00

NA1CL1(G)               300.00   5000.00
 1000.  5000.   4.4260228E 00   1.6777751E-04  -3.0996042E-08   5.4328400E-12  -3.4959106E-16  -2.3241252E 04   2.2961729E 00
  300.  1000.   3.5818939E 00   4.0450981E-03  -6.9457741E-06   5.5826335E-09  -1.6959647E-12  -2.3086035E 04   6.2721135E 00

NA2CL2(G)               300.00   5000.00
 1000.  5000.   9.8080539E 00   2.2798217E-04  -1.0426106E-07   2.0902814E-11  -1.5331015E-15  -7.1770914E 04  -1.7095255E 01
  300.  1000.   7.6591907E 00   1.0498897E-02  -1.9001406E-05   1.5645651E-08  -4.8511906E-12  -7.1394716E 04  -7.0696132E 00

NA1F1(G)                300.00   5000.00
 1000.  5000.   4.3320317E 00   2.6411754E-04  -8.4645588E-08   1.6489458E-11  -1.1809987E-15  -3.6872016E 04   1.2154635E 00
  300.  1000.   3.0467419E 00   5.9100445E-03  -9.7501857E-06   7.5417007E-09  -2.2214902E-12  -3.6625084E 04   7.3274472E 00

NA2F2(G)                300.00   5000.00
 1000.  5000.   9.7092780E 00   3.3126807E-04  -1.4540149E-07   2.8074367E-11  -1.9914816E-15  -1.0333330E 05  -1.9580773E 01
  300.  1000.   6.4443763E 00   1.5783285E-02  -2.8413355E-05   2.3336745E-08  -7.2298273E-12  -1.0275336E 05  -4.3082723E 00

NA1H1(G)                300.00   5000.00
 1000.  5000.   3.7957045E 00   8.9082140E-04  -3.3472808E-07   6.4226210E-11  -4.5502470E-15   1.3607882E 04   5.6523558E-01
  300.  1000.   3.1501344E 00   1.2050952E-03   2.6519336E-06  -4.4145020E-09   1.8188135E-12   1.3855770E 04   4.2541407E 00

NA1C1(G)                300.00   5000.00
 1000.  5000.   4.2398042E 00   3.5864951E-04  -1.2843692E-07   2.4834200E-11  -1.7675778E-15   5.3149839E 03   2.1065041E 00
  300.  1000.   2.7675754E 00   6.3739320E-03  -9.7471759E-06   7.0671271E-09  -1.9683760E-12   5.6185660E 03   9.2146077E 00
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TABLE V. - Continued. TEMPERATURE COEFFICIENTS FOR THERMODYNAMIC FUNCTIONS

Substance	Temperature interval of tabulated data, °K						
First temperature interval, °K / Second temperature interval, °K	a_1	a_2	a_3	a_4	a_5	a_6	a_7
NA1O1H1(G)	300.00	5000.00					
1000. 5000.	4.7843294E 00	1.6167787E-03	-5.0747480E-07	7.5486578E-11	-4.3429220E-15	-2.9622465E 04	8.5953650E-01
300. 1000.	3.1046053E 00	9.2793559E-03	-1.3285201E-05	9.3398837E-09	-2.4738677E-12	-2.9336982E 04	8.7181932E 00
NA2O2H2(G)	300.00	5000.00					
1000. 5000.	1.0505065E 01	4.4261241E-03	-1.5361864E-06	2.5175804E-10	-1.5863686E-14	-8.7490021E 04	-2.4514853E 01
300. 1000.	3.6596561E 00	3.2417922E-02	-4.5186514E-05	3.0788616E-08	-8.0487859E-12	-8.6118033E 04	8.4341999E 00
NE1(G)	300.00	5000.00					
1000. 5000.	2.5000000E 00	-0.	-0.	-0.	-0.	-7.4537500E 02	3.3421506E 00
300. 1000.	2.5000000E 00	-0.	-0.	-0.	-0.	-7.4537500E 02	3.3421506E 00
O1(G)	300.00	5000.00					
1000. 5000.	2.5372567E 00	-1.8422190E-05	-8.8017921E-09	5.9643621E-12	-5.5743608E-16	2.9230007E 04	4.9467942E 00
300. 1000.	3.0218894E 00	-2.1737249E-03	3.7542203E-06	-2.9947200E-09	9.0777547E-13	2.9137190E 04	2.6460076E 00
O2(G)	300.00	5000.00					
1000. 5000.	3.5976129E 00	7.8145603E-04	-2.2386670E-07	4.2490159E-11	-3.3460204E-15	-1.1927918E 03	3.7492659E 00
300. 1000.	3.7189946E 00	-2.5167288E-03	8.5837353E-06	-8.2998716E-09	2.7082180E-12	-1.0576706E 03	3.9080704E 00
O1H1(G)	300.00	5000.00					
1000. 5000.	2.8895544E 00	9.9835061E-04	-2.1879904E-07	1.9802785E-11	-3.8452940E-16	3.8811792E 03	5.5597016E 00
300. 1000.	3.8234708E 00	-1.1187229E-03	1.2466819E-06	-2.1035896E-10	-5.2546551E-14	3.5852787E 03	5.8253029E-01
P1(G)	300.00	5000.00					
1000. 5000.	2.6258122E 00	-1.6768917E-04	6.6485428E-09	4.1060775E-11	-5.7533818E-15	3.7032312E 04	4.6539916E 00
300. 1000.	2.5016955E 00	-1.3327000E-05	3.6614834E-08	-4.1852754E-11	1.6948331E-14	3.7085446E 04	5.3639764E 00
P1(L)	317.30	2500.00					
1000. 5000.	3.1410082E 00	-0.	-0.	-0.	-0.	-8.6206968E 02	-1.2640002E 01
300. 1000.	3.1410082E 00	-0.	-0.	-0.	-0.	-8.6206968E 02	-1.2640002E 01
P1(C)	300.00	317.30					
1000. 5000.	0.	0.	0.	0.	0.	0.	0.
300. 1000.	-3.7495680E-01	1.4195329E-02	6.2682657E-06	-7.0971389E-08	4.1878967E-11	-4.5410067E 02	3.1917264E 00
P2(G)	300.00	5000.00					
1000. 5000.	4.1440200E 00	4.2981666E-04	-1.7589353E-07	3.3655387E-11	-2.3331858E-15	1.5505858E 04	2.3200494E 00
300. 1000.	2.6943141E 00	5.8599281E-03	-8.0869497E-06	5.3041531E-09	-1.3421810E-12	1.5827871E 04	9.4378082E 00
P4(G)	300.00	5000.00					
1000. 5000.	9.2031642E 00	9.1623123E-04	-4.0762939E-07	7.9887887E-11	-5.7511910E-15	4.0788743E 03	-1.9530057E 01
300. 1000.	2.5715787E 00	3.0975467E-02	-5.3531558E-05	4.2748750E-08	-1.2978341E-11	5.3161196E 03	1.1802231E 01

P1CL3(G)		300.00	5000.00					
1000.	5000.	9.4430151E 00	6.4477134E-04	-2.8862788E-07	5.6866007E-11	-4.1121315E-15	-3.9025650E 04	-1.6844987E 01
300.	1000.	4.6680090E 00	2.2371831E-02	-3.8739624E-05	3.0919916E-08	-9.3682240E-12	-3.8140116E 04	5.6913673E 00
P1F3(G)		300.00	5000.00					
1000.	5000.	8.4249765E 00	1.7648911E-03	-7.6941576E-07	1.4830457E-10	-1.0528660E-14	-1.1476953E 05	-1.6469200E 01
300.	1000.	1.6557811E 00	2.7864932E-02	-4.0281940E-05	2.7718709E-08	-7.3992590E-12	-1.1329437E 05	1.6604011E 01
P1H1(G)		300.00	5000.00					
1000.	5000.	2.8456353E 00	1.6094930E-03	-6.0535565E-07	1.0654182E-10	-6.9452517E-15	2.4415992E 04	6.9932091E 00
300.	1000.	3.7084953E 00	-1.4383028E-03	2.9345121E-06	-1.2777200E-09	2.2384554E-14	2.4237273E 04	2.7647333E 00
P1H3(G)		300.00	5000.00					
1000.	5000.	3.2334978E 00	6.7953927E-03	-2.7728745E-06	5.1259668E-10	-3.5402238E-14	-5.4760672E 02	4.5450955E 00
300.	1000.	3.2409646E 00	1.9397981E-03	1.0328140E-05	-1.1518390E-08	3.7427002E-12	-2.4215422E 02	5.8644083E 00
P1N1(G)		300.00	5000.00					
1000.	5000.	3.6230830E 00	9.8152442E-04	-4.1235843E-07	7.8915622E-11	-5.5722314E-15	1.0534506E 04	4.2810563E 00
300.	1000.	3.4684102E 00	-1.0495913E-03	6.6748644E-06	-7.5272009E-09	2.6991113E-12	1.0702922E 04	5.6962042E 00
P1O1(G)		300.00	5000.00					
1000.	5000.	3.8203486E 00	7.6739756E-04	-3.1783011E-07	6.0504577E-11	-4.2392939E-15	-4.3053504E 03	4.6638622E 00
300.	1000.	4.1121643E 00	-3.1899852E-03	1.0134874E-05	-1.0283121E-08	3.5522511E-12	-4.2281009E 03	3.9378541E 00
P1S1(G)		300.00	5000.00					
1000.	5000.	4.3651079E 00	1.8194182E-04	-6.5387628E-08	1.2557388E-11	-8.8878497E-16	4.1196033E 03	3.1712815E 00
300.	1000.	3.6525487E 00	3.1064765E-03	-4.7901410E-06	3.5226572E-09	-9.9821116E-13	4.2667524E 03	6.6106048E 00
S1(G)		300.00	5000.00					
1000.	5000.	2.9145770E 00	-5.6619390E-04	2.8497584E-07	-5.1868520E-11	3.2709932E-15	3.2604940E 04	3.7640850E 00
300.	1000.	2.9137258E 00	3.1294061E-04	-2.6092508E-06	3.1382439E-09	-1.1708988E-12	3.2568272E 04	3.5681154E 00
S1(L)		388.357	2500.00					
1000.	5000.	3.8716625E 00	-0.	-0.	-0.	-0.	-8.4632533E 02	-1.7492768E 01
300.	1000.	-4.1562591E 01	2.8300951E-01	-6.2124646E-04	5.7917986E-07	-1.9550879E-10	4.4720883E 03	1.7978686E 02
S1(C)		300.00	388.357					
1000.	5000.	0.	0.	0.	0.	0.	0.	0.
300.	1000.	-3.7836657E 00	-1.2642081E-01	1.0408762E-03	-2.1584163E-06	1.1150175E-09	1.2900773E 03	3.3734180E 01
S2(G)		300.00	5000.00					
1000.	5000.	4.1896932E 00	3.8469704E-04	-1.5566633E-07	3.0368010E-11	-2.1795849E-15	1.4188133E 04	3.2930300E 00
300.	1000.	2.6999349E 00	6.2749549E-03	-9.2870775E-06	6.5393276E-09	-1.7802282E-12	1.4504935E 04	1.0534222E 01
S1CL1(G)		300.00	5000.00					
1000.	5000.	4.3299944E 00	2.8882918E-04	-8.2451284E-08	1.5753388E-11	-1.1078891E-15	1.4754934E 04	3.9490384E 00
300.	1000.	3.0083714E 00	6.1189659E-03	-1.0140617E-05	7.9273653E-09	-2.3630694E-12	1.5008700E 04	1.0230719E 01
S1CL2(G)		300.00	5000.00					
1000.	5000.	6.6394959E 00	4.0871595E-04	-1.7937080E-07	3.4719758E-11	-2.4722546E-15	-4.6829007E 03	-4.3616910E 00
300.	1000.	3.7137667E 00	1.3423299E-02	-2.2748116E-05	1.7826863E-08	-5.3147269E-12	-4.1271335E 03	9.5156676E 00
S2CL2(G)		300.00	5000.00					
1000.	5000.	9.4975237E 00	5.8247583E-04	-2.6107393E-07	5.1496647E-11	-3.7276878E-15	-5.3764057E 03	-1.6107415E 01
300.	1000.	5.1172788E 00	2.0590267E-02	-3.5788533E-05	2.8649146E-08	-8.7014681E-12	-4.5674348E 03	4.5480663E 00

TABLE V. - Continued. TEMPERATURE COEFFICIENTS FOR THERMODYNAMIC FUNCTIONS

Substance	Temperature interval of tabulated data, °K						
First temperature interval, °K / Second temperature interval, °K	a_1	a_2	a_3	a_4	a_5	a_6	a_7
S1F1(G)	300.00	5000.00					
1000. 5000.	4.0896332E 00	5.1024618E-04	-2.0132350E-07	3.8948793E-11	-2.7758106E-15	2.3481203E 03	3.7139927E 00
300. 1000.	2.6994499E 00	5.3980051E-03	-6.8203240E-06	4.1048977E-09	-9.4730036E-13	2.6731752E 03	1.0619594E 01
S1F2(G)	300.00	5000.00					
1000. 5000.	6.0851821E 00	1.0280998E-03	-4.4922603E-07	8.6753557E-11	-6.1691687E-15	-2.8148979E 04	-4.7625440E 00
300. 1000.	1.8826741E 00	1.7473374E-02	-2.5745472E-05	1.8034050E-08	-4.8999888E-12	-2.7245086E 04	1.5711223E 01
S1F4(G)	300.00	5000.00					
1000. 5000.	1.0858537E 01	2.4388583E-03	-1.0795835E-06	2.1098535E-10	-1.5163652E-14	-8.9434278E 04	-2.8382562E 01
300. 1000.	1.9724238E-02	4.6534521E-02	-7.1627428E-05	5.2161754E-08	-1.4674945E-11	-8.7183084E 04	2.4015583E 01
S1F6(G)	300.00	5000.00					
1000. 5000.	1.5245670E 01	4.2781334E-03	-1.8957742E-06	3.7096750E-10	-2.6696924E-14	-1.5067551E 05	-5.4851047E 01
300. 1000.	-3.3342495E 00	7.9620210E-02	-1.2204395E-04	8.8573794E-08	-2.4843513E-11	-1.4680458E 05	3.5029756E 01
S2F2(G)	300.00	5000.00					
1000. 5000.	8.8929510E 00	1.2525046E-03	-5.5002082E-07	1.0662411E-10	-7.6047184E-15	-3.0392761E 04	-1.6748931E 01
300. 1000.	2.4890794E 00	2.8077569E-02	-4.4734178E-05	3.3534880E-08	-9.6728998E-12	-2.9097375E 04	1.4028032E 01
S1O1(G)	300.00	5000.00					
1000. 5000.	3.8116451E 00	7.8966107E-04	-3.2986127E-07	6.3513293E-11	-4.5139892E-15	-5.9599488E 02	4.5442232E 00
300. 1000.	3.1364326E 00	1.3080689E-03	2.1837364E-06	-3.9518236E-09	1.6540306E-12	-3.4572672E 02	8.3570292E 00
S1O2(G)	300.00	5000.00					
1000. 5000.	5.1982451E 00	2.0595095E-03	-8.6254450E-07	1.6636523E-10	-1.1847837E-14	-3.7541457E 04	-8.3059963E-01
300. 1000.	3.2257132E 00	5.6551207E-03	-2.4970208E-07	-4.2206766E-09	2.1392733E-12	-3.6904476E 04	9.8177036E 00
S1O3(G)	300.00	5000.00					
1000. 5000.	7.0246624E 00	3.2795509E-03	-1.4202267E-06	2.7322076E-10	-1.9404513E-14	-5.0133303E 04	-1.0922853E 01
300. 1000.	2.2848661E 00	1.6691404E-02	-1.4610560E-05	4.9787393E-09	-2.0664641E-13	-4.8841587E 04	1.3480117E 01
S1O1CL1(G)	300.00	5000.00					
1000. 5000.	5.9428694E 00	1.1758460E-03	-5.1258242E-07	9.9117589E-11	-7.0688534E-15	-1.4298216E 04	-1.2432830E 00
300. 1000.	3.4894447E 00	9.5158262E-03	-1.1543801E-05	6.8182543E-09	-1.5815428E-12	-1.3702598E 04	1.1033909E 01
S1O1CL2(G)	300.00	5000.00					
1000. 5000.	8.8098024E 00	1.3249441E-03	-5.7607141E-07	1.1093920E-10	-7.8757446E-15	-2.8228216E 04	-1.3997456E 01
300. 1000.	4.4039369E 00	1.8923960E-02	-2.8589269E-05	2.0877523E-08	-5.9544158E-12	-2.7286464E 04	7.4092064E 00
S1O1F1(G)	300.00	5000.00					
1000. 5000.	5.6545506E 00	1.4957070E-03	-6.5095184E-07	1.2562635E-10	-8.9416380E-15	-1.6993754E 04	-1.4675105E 00
300. 1000.	2.5617712E 00	1.1435034E-02	-1.2670618E-05	6.5163001E-09	-1.2264968E-12	-1.6218240E 04	1.4141323E 01

SIO1F2(C)		300.00	5000.00					
1000.	5000.	8.0572094E 00	2.1584769E-03	-9.3721943E-07	1.8032010E-10	-1.2792647E-14	-5.1680242E 04	-1.3772482E 01
300.	1000.	1.7573080E 00	2.5719805E-02	-3.5754326E-05	2.4093588E-08	-6.3703846E-12	-5.0262102E 04	1.7211227E 01
SIO2F2(G)		300.00	5000.00					
1000.	5000.	9.5554476E 00	3.8178422E-03	-1.6590504E-06	3.1989962E-10	-2.2756691E-14	-1.0665961E 05	-2.2588924E 01
300.	1000.	8.9849854E-01	3.4435946E-02	-4.4314682E-05	2.8000068E-08	-7.0084518E-12	-1.0461607E 05	2.0440570E 01
SI1(G)		300.00	5000.00					
1000.	5000.	2.6559558E 00	-3.6840495E-04	3.0270032E-07	-7.4482263E-11	5.9387936E-15	5.5596485E 04	5.1916656E 00
300.	1000.	3.2966773E 00	-3.5868839E-03	6.5040211E-06	-5.3803138E-09	1.6882078E-12	5.5487900E 04	2.2315808E 00
SI1(L)		1685.00	5000.00					
1000.	5000.	3.0911909E 00	-0.	-0.	-0.	-0.	5.2005274E 03	-1.1911148E 01
300.	1000.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
SI1(C)		300.00	1685.00					
1000.	5000.	2.2207922E 00	1.7430861E-03	-1.2007852E-06	5.0841201E-10	-8.1686169E-14	-7.4966061E 02	-1.0916017E 01
300.	1000.	4.2459291E-01	1.1186585E-02	-1.9539205E-05	1.6109161E-08	-4.9913170E-12	-4.8066559E 02	-2.7554443E 00
SI2(G)		300.00	5000.00					
1000.	5000.	4.3406971E 00	2.3205786E-04	-8.2565527E-08	1.6298050E-11	-1.1812293E-15	7.2931986E 04	2.7440717E 00
300.	1000.	3.1010459E 00	5.7199940E-03	-9.5334183E-06	7.4051778E-09	-2.1874942E-12	7.3167995E 04	8.6283863E 00
SI3(G)		300.00	5000.00					
1000.	5000.	7.0880004E 00	4.7014225E-04	-2.0758091E-07	4.0394582E-11	-2.8895204E-15	7.7534916E 04	-1.0264577E 01
300.	1000.	3.6720107E 00	1.5889358E-02	-2.7344845E-05	2.1745958E-08	-6.5744189E-12	7.8174967E 04	5.8893536E 00
SI1CL1(G)		300.00	5000.00					
1000.	5000.	4.4178274E 00	1.3112192E-04	-3.2742526E-08	5.4972693E-12	-3.3022321E-16	2.2660741E 04	3.2772562E 00
300.	1000.	3.7783602E 00	2.8341378E-03	-4.5116467E-06	3.3987709E-09	-9.7824888E-13	2.2788933E 04	6.3443629E 00
SI1CL2(G)		300.00	5000.00					
1000.	5000.	6.6644083E 00	3.8696751E-04	-1.7280492E-07	3.4003540E-11	-2.4577474E-15	-2.0809096E 04	-4.5436022E 00
300.	1000.	3.8973806E 00	1.2794421E-02	-2.1807538E-05	1.7146774E-08	-5.1209245E-12	-2.0288717E 04	8.5556196E 00
SI1CL4(G)		300.00	5000.00					
1000.	5000.	1.2095396E 01	1.0357682E-03	-4.5955290E-07	8.9889058E-11	-6.4616065E-15	-8.0262952E 04	-2.9971771E 01
300.	1000.	5.3559090E 00	3.0538688E-02	-5.0773945E-05	3.9098130E-08	-1.1463749E-11	-7.8964064E 04	2.0988014E 00
SI1F1(G)		300.00	5000.00					
1000.	5000.	4.1256089E 00	4.6598025E-04	-1.8558360E-07	3.5495287E-11	-2.3955463E-15	1.0818990E 03	3.3608692E 00
300.	1000.	3.2233765E 00	3.1511764E-03	-2.9828783E-06	1.1260406E-09	-7.8609915E-14	1.3165715E 03	7.9622594E 00
SI1F2(G)		300.00	5000.00					
1000.	5000.	6.0376078E 00	1.0809764E-03	-4.7290586E-07	9.1501851E-11	-6.5206444E-15	-6.5182244E 04	-4.7496359E 00
300.	1000.	2.3534930E 00	1.4783392E-02	-2.0382495E-05	1.3386508E-08	-3.4102400E-12	-6.4355815E 04	1.3370966E 01
SI1F4(G)		300.00	5000.00					
1000.	5000.	1.0508028E 01	2.8008750E-03	-1.2282377E-06	2.3834352E-10	-1.7035166E-14	-1.9793183E 05	-2.7754243E 01
300.	1000.	2.3678519E 00	3.2149310E-02	-4.2428603E-05	2.6765728E-08	-6.5523172E-12	-1.9605721E 05	1.2519206E 01
SI1H1(G)		300.00	5000.00					
1000.	5000.	3.0678234E 00	1.5081642E-03	-5.8922600E-07	1.0854302E-10	-7.4762824E-15	4.4021004E 04	5.9161079E 00
300.	1000.	4.2365784E 00	-4.3651757E-03	9.6988895E-06	-7.5517386E-09	2.0692759E-12	4.3859267E 04	6.0615635E-01

TABLE V. - Concluded. TEMPERATURE COEFFICIENTS FOR THERMODYNAMIC FUNCTIONS

Substance	Temperature interval of tabulated data, °K						
First temperature interval, °K / Second temperature interval, °K	a_1	a_2	a_3	a_4	a_5	a_6	a_7
SIIH4(G)	300.00	5000.00					
1000. 5000.	4.2864439E 00	8.9421998E-03	-3.7030738E-06	6.9171116E-10	-4.8137695E-14	1.9035952E 03	-3.1698731E 00
300. 1000.	1.6111312E 00	1.2719990E-02	-1.6884339E-06	-4.5135745E-09	2.0400319E-12	2.9021544E 03	1.1738476E 01
SIIN1(G)	300.00	5000.00					
1000. 5000.	3.8063403E 00	7.9712358E-04	-3.3158207E-07	6.2840384E-11	-4.2600825E-15	5.9042866E 04	3.9540278E 00
300. 1000.	3.1471330E 00	1.2265928E-03	2.3774131E-06	-4.1441265E-09	1.7234504E-12	5.9290540E 04	7.6940989E 00
SIIC1(G)	300.00	5000.00					
1000. 5000.	3.7295164E 00	8.6335951E-04	-3.5894469E-07	6.8212796E-11	-4.7844561E-15	-1.2008310E 04	3.7472829E 00
300. 1000.	3.3495882E 00	-2.6538250E-04	5.4814021E-06	-6.8793292E-09	2.6110821E-12	-1.1797081E 04	6.2421835E 00
SIIO2(G)	300.00	5000.00					
1000. 5000.	6.0437403E 00	1.6137498E-03	-7.0033700E-07	1.3480464E-10	-9.5718915E-15	-4.3344032E 04	-7.9015665E 00
300. 1000.	2.7328389E 00	1.2359266E-02	-1.3902723E-05	7.3205169E-09	-1.4275135E-12	-4.2517933E 04	8.7842538E 00
SIIS1(G)	300.00	5000.00					
1000. 5000.	4.1728212E 00	3.9618379E-04	-1.5985232E-07	3.0306992E-11	-2.0739258E-15	1.3354838E 04	2.8391688E 00
300. 1000.	2.6860287E 00	6.1744527E-03	-8.9647337E-06	6.2071096E-09	-1.6654723E-12	1.3675935E 04	1.0090654E 01

INDEX TO SUBSTANCES

[Page numbers in brackets refer to discussion in text; other page numbers refer to table III. Input constants, heats of formation, and temperature coefficients for the substances are listed in their respective tables in the same order as in table III.]

Al (g), 91
Al (c,l), [8, 12, 27], 92
Al_2 (g), 93
AlCl (g), 94
$AlCl_3$ (g), [27], 95
AlClO (g), see AlOCl (g)
AlF (g), 96
AlF_3 (g), [28], 97
AlF_3 (α,β), [8, 28], 98
AlFO (g), see AlOF (g)
AlH (g), 99
AlO (g), 100
Al_2O (g),[28], 101
Al_2O_2 (g), [28], 102
Al_2O_3 (c,l), [8, 28-29], 103
AlOCl (g), [29], 104
AlOF (g), [29], 105

Ar (g), [12, 15], 106

B (g), 107
B (amorphous,l), [8, 29-30], 108
B (c,l), [8, 12, 30], 109
B_2 (g), 110
BCl (g), 111
BCl_2 (g), [30], 112
BCl_3 (g), 113
BClF (g), see BFCl (g)
BF (g), 114
BF_2 (g), [30-31], 115
BF_3 (g), 116
BFCl (g), [31], 117
BH (g), 118
BH_3 (g), 119
BHO_2 (g), see HBO_2 (g)
$(BHO_2)_3$ (g), see $(HBO_2)_3$ (g)
BN (g), 120
BN (c), [8, 31], 121

BO (g), 122
BO_2 (g), [31], 123
B_2O_2 (g), 124
B_2O_3 (g), 125
B_2O_3 (glass,l), [8, 31-32], 126
B_2O_3 (c,l), [8, 32], 127
BOCL (g), [32-33], 128
$(BOCl)_3$ (g), [33], 129
BOF (g), [33], 130
$(BOF)_3$ (g), [33], 131
$B(OH)_3$ (g), see H_3BO_3 (g)
BS (g), 132

Be (g), 133
Be (c,l), [8, 12, 34], 134
BeCl (g), [34], 135
$BeCl_2$ (g), [34], 136
BeClF (g), see BeFCl (g)
BeF (g), [34], 137
BeF_2 (g), [35], 138
BeFCl (g), [35], 139
BeH (g), 140
BeH_2O_2 (g), see $Be(OH)_2$ (g)
BeO (g), 141
BeO (c,l), [8, 35], 142
$(BeO)_2$ (g), [36], 143
$(BeO)_3$ (g), [36], 144
$(BeO)_4$ (g), [36], 145
$Be(OH)_2$ (g), [36], 146

C (g), [36], 147
C (graphite), [8, 12, 36], 148
C_2 (g), 149
C_3 (g), 150
CCl (g), 151
CCl_4 (g), [37], 152
CClFO (g), see COFCl (g)
CCl_2O, see $COCl_2$ (g)
CClN (g), see ClCN (g)
CF (g), 153
CF_2 (g), [5, 37], 154
CF_3 (g), [37], 155
CF_4 (g), [5, 38], 156
CF_2O (g), see COF_2 (g)
CH (g), [4, 38], 157
CH_2 (g) [38], 158
CH_3 (g), [38], 159
CH_4 (g), [5], 160
C_2H_2 (g), [5], 161
C_2H_4 (g), 162
CHN (g), see HCN (g)
CHO (g), see HCO (g)
CN (g), 163
C_2N_2 (g), [5, 38], 164
CO (g), 165
CO_2 (g), [5], 166
$COCl_2$ (g), 167
COClF (g), see COFCl (g)
COF_2 (g), [38-39], 168
COFCl (g), [39], 169
COH (g), see HCO (g)
COS (g), [5], 170
CP (g), 171
CS (g), 172
CS_2 (g), [5], 173

Cl (g), 174
Cl_2 (g), [6, 12], 175
ClCN (g), [5, 39], 176
ClF (g), 177
ClF_3 (g), [39], 178
ClH (g), see HCl (g)
ClLi (g), see LiCl (g)
ClLi (c,l), see LiCl (c,l)
$(ClLi)_2$ (g), see $(LiCl)_2$ (g)
ClNa (g), see NaCl (g)
$(ClNa)_2$ (g), see $(NaCl)_2$ (g)
ClO (g), 179
ClO_2 (g), [5], 180
Cl_2O (g), 181
ClOS (g), see SOCl (g)
Cl_2OS (g), see $SOCl_2$ (g)
ClS (g), see SCl (g)
Cl_2S (g), see SCl_2 (g)
Cl_2S_2 (g), see S_2Cl_2 (g)

F (g), 182
F_2 (g), [12], 183
FCl (g), see ClF (g)
FH (g), see HF (g)
FLi (g), see LiF (g)
FLi (c,l), see LiF (c,l)
$(FLi)_2$ (g), see $(LiF)_2$ (g)
$(FLi)_3$ (g), see $(LiF)_3$ (g)
FN (g), see NF (g)
F_2N (g), see NF_2 (g)
F_3N (g), see NF_3 (g)
F_2N_2 (g), see N_2F_2 (g)

FNa (g), see NaF (g)
$(FNa)_2$ (g), see $(NaF)_2$ (g)
FOS (g), see SOF (g)
F_2OS (g), see SOF_2 (g)
F_2O_2S (g), see SO_2F_2 (g)
FS (g), see SF (g)
F_2S (g), see SF_2 (g)
F_4S (g), see SF_4 (g)
F_6S (g), see SF_6 (g)
F_2S_2 (g), see S_2F_2 (g)
FSi (g), see SiF (g)
F_2Si (g), see SiF_2 (g)
F_4Si (g), see SiF_4 (g)

H (g), [15], 184
H_2 (g), [4, 12, 39], 185
HBO_2 (g), 186
H_3BO_3 (g), [40], 187
$(HBO_2)_3$ (g), 188
HCN (g), [5, 40], 189
HCO (g), [40], 190
HCl (g), 191
HF (g), [4-5, 40], 192
HLi (g), see LiH (g)
HLiO (g), see LiOH (g)
HLiO (c,l), see LiOH (c,l)
$(HLiO)_2$ (g), see $(LiOH)_2$ (g)
HMgO (g), see MgOH (g)
HN (g), see NH (g)
H_3N (g), see NH_3 (g)
HNa (g), see NaH (g)
HNaO (g), see NaOH (g)
$(HNaO)_2$ (g), see $(NaOH)_2$ (g)
HO (g), see OH (g)
H_2O (g), [5], 193
HOBO (g), see HBO_2 (g)
$(HOBO)_3$ (g), see $(HBO_2)_3$ (g)
HP (g), see PH (g)
H_3P (g), see PH_3 (g)
HS (g), [5, 40-41], 194
H_2S (g), [5], 195
HSi (g), see SiH (g)
H_4Si (g), see SiH_4 (g)

He (g), [12, 15], 196

Li (g), [8], 197
Li (c,l), [8, 12, 41], 198
Li_2 (g), 199
LiCl (g), [41], 200
LiCl (c,l), [8, 41], 201
$(LiCl)_2$ (g), 202
LiF (g), 203
LiF (c,l), [8, 42], 204
$(LiF)_2$ (g), 205
$(LiF)_3$ (g), 206
LiH (g), 207
LiO (g), [42], 208
Li_2O (g), [42], 209
Li_2O (c,l), [8, 42], 210
LiOH (g), [43], 211
LiOH (c,l), [8, 43], 212
$(LiOH)_2$ (g), [43-44], 213

Mg (g), 214
Mg (c,l), [8, 12, 43-44], 215
MgCl (g), [44], 216
$MgCl_2$ (g), [44], 217

MgClF (g), see MgFCl (g)
MgF (g), 218
MgF_2 (g), [44], 219
MgF_2 (c, l), [8, 44], 220
MgFCl (g), [45], 221
MgH (g), 222
MgO (g), 223
MgO (c), [8, 45], 224
MgOH (g), [45], 225
MgS (g), [45], 226

N (g), 227
N_2 (g), [12], 228
NF (g), [46], 229
NF_2 (g), [46], 230
NF_3 (g), 231
N_2F_2 (g), [46], 232
NH (g), 233
NH_3 (g), [5], 234
NO (g), 235
NO_2 (g), [5, 46], 236
N_2O (g), [5], 237
N_2O_4 (g), [46], 238
NP (g), see PN (g)
NS (g), 239
NSi (g), see SiN (g)

Na (g), [8, 46-47], 240
Na (c, l), [8, 12, 47], 241
Na_2 (g), 242
NaCl (g), 243
$(NaCl)_2$ (g), [47], 244
NaF (g), [47], 245
$(NaF)_2$ (g), [48], 246
NaH (g), 247
NaO (g), [48], 248
NaOH (g), [48], 249
$(NaOH)_2$ (g), [48-49], 250

Ne (g), [12, 15], 251

O (g), 252
O_2 (g), [4-5, 12, 49], 253
OCS (g), see COS (g)
OH (g), [5, 49], 254
OP (g), see PO (g)
OS (g), see SO (g)
O_2S (g), see SO_2 (g)
O_3S (g), see SO_3 (g)
OSi (g), see SiO (g)
O_2Si (g), see SiO_2 (g)

P (g), 255
P (c, l), [8, 12, 49], 256
P_2 (g), 257
P_4 (g), 258
PC (g), see CP (g)
PCl_3 (g), [49], 259
PF_3 (g), [49], 260
PH (g), 261
PH_3 (g), [50], 262
PN (g), 263
PO (g), 264
PS (g), 265

S (g), [50], 266
S (c, l), [8, 12, 50], 267
S_2 (g), 268
SCl (g), [50], 269
SCl_2 (g), [50-51], 270
S_2Cl_2 (g), [51], 271
SF (g), [51], 272
SF_2 (g), [51], 273
SF_4 (g), [52], 274
SF_6 (g), [52], 275
S_2F_2 (g), [52], 276
SH (g), see HS (g)
SN (g), see NS (g)
SO (g), 277
SO_2 (g), [5], 278
SO_3 (g), 279
SOCl (g), [52-53], 280
$SOCl_2$ (g), [53], 281
SOF (g), [53], 282
SOF_2 (g), [53], 283
SO_2F_2 (g), 284
SSi (g), see SiS (g)

Si (g), 285
Si (c, l), [8, 12, 53-54], 286
Si_2 (g), 287
Si_3 (g), 288
SiCl (g), [54], 289
$SiCl_2$ (g), [54], 290
$SiCl_4$ (g), 291
SiF (g), 292
SiF_2 (g), [54-55], 293
SiF_4 (g), 294
SiH (g), [5, 55], 295
SiH_4 (g), 296
SiN (g), 297
SiO (g), 298
SiO_2 (g), [55], 299
SiS (g), 300

NASA-Langley, 1963