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TABLES OF THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT HIGH TEMPERATURES

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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TABLES OF THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT HIGH TEMPERATURES

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SUMMARY

Tables are presented of the following theoretical characteristics of hydrogen gas: composition (partial pressures of H_2, H, H^+, H^-, electrons, and quantum states 1 through 5 of H); opacity (total spectral absorption coefficient and Rosseland mean opacity); thermodynamic properties (enthalpy, free energy, and entropy); and ionization potential lowering. All data are tabulated for fourteen total pressures between 1 and 1000 atmospheres and for twenty-one temperatures between 3000 and 200,000 R. Spectral absorption coefficients are tabulated for thirty- three wave numbers between 1000 and 400,000 cm^{-1} at each pressure and temperature. The equations employed in making the theoretical calculations are listed and typical examples of the tabulated data are presented in graphical form.

The calculations described herein were carried out under Contract NAS3-3382 with the Lewis Research Center of the National Aeronautics and Space Administration, and originally published as United Aircraft Corporation Research Laboratories Final Report No. B910168-1, dated September 1963.

ANALYSIS

Composition (Ref. 1)

Basic Reactions

$$H_2 \rightleftharpoons 2H \tag{1}$$

$$H \rightleftharpoons H^+ + e \tag{2}$$

$$H + e \rightleftharpoons H^- \tag{3}$$

$$H_2 \rightleftharpoons H_2^+ + e \tag{4}$$

Basic Mathematical Relations

Dalton's law of partial pressures:

$$P = P_{H_2} + P_{H_2^+} + P_H + P_{H^+} + P_{H^-} + P_e \tag{5}$$

$$P_H = \sum_{n=1}^{5} P_{H(n)} \tag{6}$$

Electrical neutrality:

$$P_{H_2^+} + P_{H^+} = P_{H^-} + P_e \tag{7}$$

Dissociation of hydrogen (Ref. 2):

$$K_p = P_{H_2}/(P_H)^2 \tag{8}$$

Log K_p data for temperatures between 298.16 ^oK and 6000 ^oK are given in Table I. Intermediate points are determined by linear interpolation. Above 6000 ^oK, K_p is determined by a $\log K_p$ vs. $1/T$ extrapolation of the data in Table I.

Saha equations (Ref. 3):

$$P_{H^+}\left(\frac{P_e}{P_H}\right) = \frac{AT^{5/2}}{Q_H} \exp -\left(\frac{hcI_H}{kT}\right) \tag{9}$$

$$P_{H_2^+}\left(\frac{P_e}{P_{H_2}}\right) = 2AT^{5/2} \exp -\left(\frac{hc\,I_{H_2}}{kT}\right) \tag{10}$$

$$\frac{P_H\,P_e}{P_{H^-}} = A\,Q_H\,T^{5/2} \exp -\left(\frac{hc\,I_{H^-}}{kT}\right) \tag{11}$$

$$A = \frac{2\beta\,(2\pi m)^{3/2}\,(k)^{5/2}}{h^3} \tag{12}$$

Partial pressures of excited states:

$$P_{H(n)} = \frac{P_H\,g_n}{Q_H} \exp -\left(\frac{hc\,\omega_n}{kT}\right) \tag{13}$$

Partition function of atomic hydrogen:

$$Q_H = \sum_{n=1}^{5} q_n \exp -\left(\frac{hc\,\omega_n}{kT}\right) \tag{14}$$

Statistical weights (Ref. 4):

$$g_n = 2n^2; \qquad \frac{\omega_{n+1} + \omega_n}{2} \leq I_H \tag{15}$$

$$g_n = \left[\frac{2\,I_H - \omega_{n-1} - \omega_n}{\omega_n - \omega_{n-1}}\right] n^2; \qquad \frac{\omega_{n-1} + \omega_n}{2} < I_H < \omega_n \tag{16}$$

$$g_n = \left[\frac{2(I_H - \omega_n)}{\omega_{n+1} - \omega_n} + 1\right] n^2; \qquad \frac{\omega_{n+1} + \omega_n}{2} < I_H \geq \omega_n \tag{17}$$

$$g_n = 0; \qquad I_H \leq \frac{\omega_{n-1} + \omega_n}{2} \tag{18}$$

Corrected ionization potential (Refs. 5 and 6):

$$I_H = I'_H - C_1 \tag{19}$$

$$C_1 = \frac{8}{3} \frac{\epsilon^2 \bar{A} N_e^{1/3}}{hc} + \frac{3}{4} \frac{(1 + 2^{1/2})}{2^{1/2}} \frac{\epsilon^2}{hcD} \tag{20}$$

Typical values of C_1 as a function of temperature for total pressures of 10, 100 and 1000 atm are illustrated in Fig. 1.

$$D = \left[\frac{kT}{4\pi(1 + Z)\epsilon^2 N_e}\right]^{1/2} \tag{21}$$

$$Z = 1 \tag{22}$$

$$N_e = \frac{N_0 P_e}{RT} \tag{23}$$

$$I_{H_2} = I'_{H_2} \tag{24}$$

$$I_{H^-} = I'_{H^-} \tag{25}$$

Corrected term values (Ref. 7):

$$\omega_n = \omega'_n + C_2 \tag{26}$$

$$\omega'_n = R_y \left(1 - \frac{1}{n^2}\right) \tag{27}$$

$$C_2 = \frac{4\pi a_0^2 (n^6 - 1) P}{3\beta hc} \tag{28}$$

Values of ω'_n are listed in Table II.

Working Equations ($700 \leq T < 2500^{\circ}K$)

$$P = P_{H_2} + P_H \tag{29}$$

$$P_H = P_{H(1)} = \frac{(4K_p P + 1)^{1/2} - 1}{2K_p} \tag{30}$$

Working Equations ($T \geq 2500\ ^{\circ}K$)

A Newton Raphson iteration procedure is employed to determine the simultaneous solution of Eqs. (5), (7), (8), (9), (10), and (11). In the first step P_{H^-} and $P_{H_2^+}$ are neglected (set equal to zero) while Eqs. (5), (7), (8), and (9) are solved simultaneously. Equations (10) and (11) are then used to determine P_{H^-} and $P_{H_2^+}$ without further correction to the previously determined values of P_{H_2}, P_H, P_{H^+}, P_e and P. Estimates for initial trial values of P_e and P_H to be used in the iterative procedure are determined as follows:

$$P_e = -\psi + \left[\psi^2 + \psi \left\{ \frac{(4K_p P + 1)^{1/2} - 1}{2K_p} \right\}\right]^{1/2} \tag{31}$$

$$P_H = \frac{(4K_p P + 1)^{1/2} - 1}{2K_p} - 2P_e = P - P_{H_2} - 2P_e \tag{32}$$

$$\psi = \frac{P_e\ P_{H^+}}{P_H} \cong \frac{P_e^2}{P_H} = \frac{AT^{5/2}}{2.0} \exp -(1.09679 \times 10^5\ cm^{-1}\ \frac{hc}{kT}) \tag{33}$$

Error functions δ_1 and δ_2 are defined by the following equations in which the initial values of P_e and P_H are given by Eqs. (29) and (30).

$$\delta_1 = P_e - \sqrt{\frac{AT^{5/2}}{Q_H} \exp - \frac{hc I_H}{kT}} \tag{34}$$

$$\delta_2 = 1 - \frac{(K_p P_H + 1) P_H + 2P_e}{P} \tag{35}$$

where Q_H is defined by Eq. (14) and I_H by Eq. (19).

Solutions are attempted such that:

$$|\delta_1| \leq t\, P_e \tag{36}$$

$$|\delta_2| \leq t \tag{37}$$

where t is the desired tolerance for the iteration. New values of P_e and P_H to be used in the iteration until Eqs. (36) and (37) are satisfied are determined as follows:

$$(P_e)_2 = (P_e)_1 + \Delta P_e \tag{38}$$

$$(P_H)_2 = (P_H)_1 + \Delta P_H \tag{39}$$

$$\Delta P_H = \frac{P(\partial\delta_1/\partial P_e)\delta_2 + 2\delta_1}{(2K_p P_H + 1)(\partial\delta_1/\partial P_e) - 2(\partial\delta_1/\partial P_H)} \tag{40}$$

$$\Delta P_e = -\frac{(\partial\delta_1/\partial P_H)\Delta P_H + \delta_1}{(\partial\delta_1/\partial P_e)} \tag{41}$$

$\partial\delta_1/\partial P_e$ and $\partial\delta_1/\partial P_H$ are estimated numerically by permitting a 1% variation in the independent variable and using Eqs. (32) and (33). Once the conditions required by Eqs. (36) and (37) are satisfied P_{H^-} and P_{H_2} are determined by the use of Eqs. (10) and (11). (Note - if the exponent in Eq. (10) exceeds 72, P_{H_2} is set equal to zero. Similarly, if an exponent in Eq. (14) exceeds 72, the corresponding term is set equal to zero.)

The variation in composition with temperature ($^{\circ}$R) is graphically illustrated in Figs. 2 and 3 for total pressures of 10 and 100 atm.

Absorption Coefficients

Neutral Hydrogen Atom Bound-Free Coefficients

The Lyman, Balmer, Ritz-Paschen, Brackett and Pfund continua are considered

on the basis of Kramer's continuum approximation with Gaunt factors included (Ref. 8):

$$a^{bf}_{H(n)} = \sigma^{bf}_{H(n)} \frac{N_0}{R} \frac{P_{H(n)}}{T} \tag{42}$$

$$\sigma^{bf}_{H(n)} = \frac{16 \epsilon^2 R_y^2}{3\sqrt{3}\, mc^2} \frac{G^{bf}_n}{n^5 \omega^3} \tag{43}$$

$$G^{bf}_n = 1 - 0.1728 \left(\frac{\omega}{R_y}\right)^{1/3} \left(\frac{2 R_y}{n^2 \omega} - 1\right) \tag{44}$$

$$\omega \geq I_H - \omega_n \tag{45}$$

$$n = 1, 2, 3, 4, 5 \tag{46}$$

<u>Positive Hydrogen Ion Free-Free Coefficients (Ref. 8)</u>

$$a^{ff}_{H^+} = \sigma^{ff}_{H^+} \frac{N_0}{R} \frac{P_{H^+}}{T} \tag{47}$$

$$\sigma^{ff}_{H^+} = \frac{2^4 \alpha a_0^2 R_y^2 h^2 N_0 Z^2 P_e}{3\sqrt{3}\, mc (2\pi mk)^{1/2} R T^{3/2} \omega^3} G^{ff}; \qquad Z = 1 \tag{48}$$

$$G^{ff} = 1 + 0.1728 \left(\frac{\omega}{R_y}\right)^{1/3} \left(1 + \frac{2kT}{hc\omega}\right) \tag{49}$$

<u>Negative Hydrogen Ion Free-Free Coefficients (Ref. 9)</u>

$T > 4000°$ K

$$a^{ff}_{H^-} = \sigma^{ff}_{H^-} \frac{N_0}{R} \frac{P_H P_e}{T} \tag{50}$$

$$\sigma^{ff}_{H^-} = \frac{7.25 \times 10^{-27} \theta^{5/2} \Lambda}{(\Delta k^2)^3} \int_0^\infty \frac{e^{-31.32\, \theta k_0^2}}{k_1 k_0} \left(|M_{1,0}|^2 + |M_{0,1}|^2\right) d(k_0^2) \tag{51}$$

$$|M_{1,0}|^2 = \frac{k_1^4}{16}\left[3 \sin^2 \delta_0^{(-)}(k_0) + \sin^2 \delta_0^{(+)}(k_0)\right] \tag{52}$$

$$|M_{0,1}|^2 = \frac{k_0^4}{16}\left[3 \sin^2 \delta_0^{(-)}(k_1) + \sin^2 \delta_0^{(+)}(k_1)\right] \tag{53}$$

$$\sin^2 \delta_0^{(+)}(k') = \frac{k'^2}{(1.232 k'^2 - 0.1672)^2 + k'^2} \tag{54}$$

$$\sin^2 \delta_0^{(-)}(k') = \frac{k'^2}{(0.6100 k'^2 - 0.4292)^2 + k'^2} \tag{55}$$

$$k_1^2 = \Delta k^2 + k_0^2 \tag{56}$$

$$\theta = \frac{5.040 \times 10^3}{T} \tag{57}$$

$$\Delta k^2 = 9.113 \times 10^{-6} \omega \tag{58}$$

<u>Negative Hydrogen Ion Bound-Free Coefficients (Ref. 10)</u>

$$(6.583 \times 10^3 \text{ cm}^{-1} \leq \omega \leq I_{H^-})$$

$$a_{H^-}^{bf} = \sigma_{H^-}^{bf} \frac{N_0}{R} \frac{P_{H^-}}{T} \tag{59}$$

$$\sigma_{H^-}^{bf} = \sum_{j=0}^{20} (b_j f^j) \times 10^{-18} \qquad \text{(see table III)} \tag{60}$$

$$f = -1.0687745 + 1.0447301 \times 10^{-5} \omega \tag{61}$$

<u>Molecular Hydrogen Dissociation and Bound-Free Coefficients (Ref. 11)</u>

$$(1.176 \times 10^5 \text{ cm}^{-1} \leq \omega \leq 2.114 \times 10^5 \text{ cm}^{-1})$$

$$a_{H_2}^{bf} = \sigma_{H_2}^{bf} \frac{N_0}{R} \frac{P_{H_2}}{T} \tag{62}$$

$$\sigma^{bf}_{H_2} = \sum_{j=0}^{6} (b_j' \bar{f}^j) \times 10^{-18} \qquad \text{(see table IV)} \tag{63}$$

$$\bar{f} = -3.3244 + 2.04541 \times 10^{-5} \omega \tag{64}$$

Lyman-α Line Coefficients (Refs. 12, 13, and 14)

$$a^{bb}_{H(1)} = \sigma^{bb}_{H(1)} \frac{N_0}{R} \frac{P_{H(1)}}{T} \tag{65}$$

$$\sigma^{bb}_{H(1)} = \frac{\epsilon^2}{mc^2} f' \Gamma_T \left(\frac{\omega}{\omega_0}\right)^2 \left[\frac{1}{(\omega - \omega_0)^2 + \Gamma_T^2} - \frac{1}{(\omega + \omega_0)^2 + \Gamma_T^2}\right] \tag{66}$$

$$\Gamma_T = \Gamma_R + \Gamma_c \tag{67}$$

$$\Gamma_R = \frac{\epsilon^2 f'}{8mc\omega_0} \frac{N_0 P_{H(1)}}{RT} \tag{68}$$

$$\Gamma_c = \frac{1}{2c} (\beta' a')^{2/5} \langle v^{3/5} \rangle \frac{N_0}{R} \frac{P_{H_2}}{T} \tag{69}$$

$$a' = \frac{3\pi}{8} \tag{70}$$

$$\beta' = \frac{\epsilon^2 a_0^2 \alpha_{H_2} n^2}{2\hbar Z^2} \left[5n^2 + 1 - 3\ell(\ell + 1)\right]; \qquad Z = 1 \tag{71}$$

$$n = 2 \tag{72}$$

$$\ell = 1 \tag{73}$$

$$\langle v^{3/5} \rangle = \frac{2}{\pi^{1/2}} \Gamma(1.8) \left[\frac{2}{3} \frac{3kT}{m_H m_{H_2}} (m_H + m_{H_2}) N_0\right]^{3/10} \tag{74}$$

Total Absorption Coefficient

$$a = \sum_{n=1}^{5} a^{bf}_{H(n)} + a^{bb}_{H(1)} + a^{bf}_{H^-} + a^{ff}_{H^-} + a^{ff}_{H^+} + a^{bf}_{H_2} \tag{75}$$

$$a^* = a \left[1 - e^{-hc\omega/kT}\right] \tag{76}$$

The variation in total absorption coefficient a^* with wave number at several temperatures (^{o}R) is illustrated in Figs. 4 and 5 for 10 and 100 atm.

Rosseland Mean Opacity

$$a_R = \frac{\int_0^\infty \frac{dB_\omega}{dT} d\omega}{\int_0^\infty \frac{1}{a^*} \frac{dB_\omega}{dT} d\omega} \tag{77}$$

$$B_\omega = \frac{2hc^2\omega^3}{(e^{hc\omega/kT} - 1)} \tag{78}$$

Typical Rosseland mean opacity data are plotted against temperature (^{o}R) for several pressures in Fig. 6.

Thermodynamic Functions (Ref. 7)

Enthalpy - H

$$H_T - H_{300} = n'_{H_2}(\Delta H^T_{300})_{H_2} + n'_H \left[\frac{5}{2} R'(T-300)10^{-3} + \frac{R'T}{Q_H} \sum_{n=1}^{10} g_n \frac{hc\omega_n}{kT} e^{-hc\omega_n/kT}\right] \tag{79}$$

$$+ 2n'_{H^+}\left[\frac{5}{2}R'(T-300)10^{-3}\right] + 52.09\, n'_H + 367.1\, n'_e$$

The enthalpy (Btu/lb) as a function of temperature (^{o}R) is given in Fig. 7 for pressures of 1, 10, 100 and 1000 atm.

Entropy - S

$$S_T = n'_{H_2} S^o_{H_2} + n'_H \left[26.03 + \frac{5}{2} R' \ln \left(\frac{T}{298}\right) + S^i_H\right] + n'_{H^+} \left[26.03 + \frac{5}{2} R' \ln \left(\frac{T}{298}\right)\right] \quad (80)$$

$$+ n'_e \left[4.99 + \frac{5}{2} R' \ln \left(\frac{T}{298}\right)\right] - R' \left[n'_{H_2} \ln P_{H_2} + n'_H \ln P_H + n'_{H^+} \ln P_{H^+} + n'_e \ln P_e\right]$$

$$S^i_H = \frac{H^i_H}{T} - (R' \ln Q_H) \quad (81)$$

$$\frac{H^i_H}{T} = R' T \frac{d \ln Q_H}{dT} = \frac{R' T}{Q_H} \sum_{n=1}^{10} g_n \frac{hc\omega_n}{kT} e^{-hc\omega/kT} \quad (82)$$

The variation of entropy (Btu/lb ^{o}R) as a function of temperature is graphically illustrated in Fig. 8 for total pressures of 1, 10, 100 and 1000 atm.

Free-Energy - F

$$F_T - F_{300} = (H - H_{300}) - T S_T \times 10^{-3} \quad (83)$$

RESULTS

The data from the theoretical machine calculations are listed in Tables V through XVIII for fourteen total pressures between 1 and 1000 atmospheres, twenty-one temperatures between 3000 and 200,000 ^{o}R and for thirty-three wave numbers between 1000 and 400,000 cm^{-1}. Typical results are graphically illustrated in Figs. 1 through 8.

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LIST OF SYMBOLS

a	Total absorption coefficient without stimulated emission, cm^{-1}
a^*	Total absorption coefficient with stimulated emission, cm^{-1}
a'	Constant, $3\pi/8$ dimensionless
a_0	First Bohr radius, 0.5291×10^{-8} cm^{-1}
a_R	Rosseland mean opacity, cm^{-1}
a_i^{bf}	Bound-free absorption coefficient of the ith species, cm^{-1}
a_i^{bb}	Bound-bound absorption coefficient of the ith species, cm^{-1}
a_i^{ff}	Free-free absorption coefficient of the ith species, cm^{-1}
A	Saha equation constant, see Eq. (12)
$\bar{A}$	Madelung constant, 1.76 dimensionless
b_j, b_j'	Power series coefficients, see Eqs. (60) and (63)
B_ω	Planck radiation function, erg $(cm\text{-}sec)^{-1}$
c	Velocity of light, 2.9987×10^{10} cm sec^{-1}
C_1	Ionization potential correction, cm^{-1}
C_2	Term value correction, cm^{-1}
D	Debye shielding length, cm^{-1}
$f, \bar{f}$	Power series functions, see Eqs. (61) and (64)
f'	Lyman-α line oscillator strength, 0.4162 dimensionless
F_T	Free-energy at temperature T, kcal $(g\text{-atom } H_2)^{-1}$
F_{300}	Free-energy at 300 °K, kcal $(g\text{-atom } H_2)^{-1}$

LIST OF SYMBOLS
(Cont.)

g_n	Statistical weight of the nth quantum level, dimensionless
G_n^{bf}	Bound-free Gaunt factor, dimensionless
G^{ff}	Free-free Gaunt factor, dimensionless
h	Planck constant, 6.6237×10^{-27} erg sec
$\hbar$	$h/2\pi$, 1.0542×10^{-27} erg sec
H_T	Enthalpy at temperature T, kcal (g-atom H_2)$^{-1}$
H_{300}	Enthalpy at 300 ^{o}K, kcal (g-atom H_2)$^{-1}$
H_H^i	Internal enthalpy of H, kcal (g-atom H_2)$^{-1}$
$(\Delta H_{300}^T)_{H_2}$	Enthalpy of H_2 relative to 300 ^{o}K, kcal (g-atom)$^{-1}$
I_i'	Ionization potential of species i, cm^{-1}
I_i	Ionization potential of species i, pressure corrected, cm^{-1}
I_H'	Ionization potential of H, 1.09679×10^{-5} cm^{-1}
I_{H_2}'	Ionization potential of H_2, 1.24572×10^{5} cm^{-1}
I_{H^-}'	Ionization potential of H^-, 6.0503×10^{3} cm^{-1}
k	Boltzman constant, 1.3802×10^{-16} erg K^{-1}
k'	Momentum, atomic units
k_0	Initial electron momentum, atomic units
k_1	Final electron momentum, atomic units
Δk	Momentum change, atomic units
K_P	Equilibrium constant, atm^{-1}

LIST OF SYMBOLS
(Cont.)

ℓ	Azimuthal quantum number, dimensionless
m	Electron mass, 9.107×10^{-28} g
m_4	Gram-atomic weight of H, 1g $(\text{g-atom})^{-1}$
m_{H_2}	Gram-molecular weight of H_2, 2g $(\text{g-mol})^{-1}$
$M_{1,0}, M_{0,1}$	Matrix elements, atomic units
n	Principal quantum number, dimensionless
n_i'	Moles of species i per g-atom of H_2 (1.008 g)
N_i	Number density of species i, cm^{-3}
N_o	Avogadros' number, 6.024×10^{23} mol^{-1}
P	Total pressure, atm
P_i	Partial pressure of species i, atm
Q_H	Partition function, dimensionless
R	Gas constant, 82.06 cm^3 atm $(\text{mol}, {}^{o}K)^{-1}$
R'	Gas constant, 1.987 cal $(\text{mol}, {}^{o}K)^{-1}$
R_y	Rydberg, 1.09679×10^5 cm^{-1}
S_T	Entropy at temperature T, cal $({}^{o}K, \text{g-atm } H_2)^{-1}$
S_H^i	Internal entropy of H, cal $({}^{o}K, \text{g-atm } H_2)^{-1}$
$S_{H_2}^o$	Entropy of H_2, cal $({}^{o}K, \text{g-atm } H_2)^{-1}$
t	Tolerance, 0.01 dimensionless
T	Absolute temperature, ${}^{o}K$

LIST OF SYMBOLS
(Cont.)

v	Relative velocity of perturbing and absorbing particles, cm sec^{-1}
z	Charge number, dimensionless
α	Fine structure constant, 7.297×10^{-3} dimensionless
α_{H_2}	Polarizability of H_2, 7.9×10^{-25} cm^3
β	Conversion factor, 9.869×10^{-7} atm cm^2 $dyne^{-1}$
β'	Potential function coefficient, cm^6 sec^{-1}
$\Gamma(i)$	Gamma function of i, dimensionless
Γ_C	Line half-width (collision broadened), cm^{-1}
Γ_R	Line half-width (resonance broadened), cm^{-1}
Γ_T	Total line half-width, cm^{-1}
δ_1 δ_2	Error functions, see Eqs. (34) and (35)
$\delta_0^{(\pi)}(k)$	S phase shifts
Δ	Indicates a change in a function
ϵ	Electronic charge, 4.802×10^{-10} esu
θ	Temperature function, $^oK^{-1}$
Λ	Conversion factor, 1.013×10^6 dyne $(cm^2$ atm $)^{-1}$
σ_i^{bf}	Bound-free cross-section of species i, cm^2 (atom i)$^{-1}$
σ_i^{bb}	Bound-bound cross section of species i, cm^2 (atom i)$^{-1}$
σ_i^{ff}	Free-free cross section of species i, cm^2 (atm, atom i)$^{-1}$
ψ	Saha function, see Eq. (33)

LIST OF SYMBOLS
(Cont.)

ω	Wave number, cm^{-1}
ω_0	Wave number of Lyman-α line, 8.224×10^4 cm^{-1}
ω_n	Term value of the nth state of hydrogen (corrected), cm^{-1}
ω'_n	Term value of the nth state of hydrogen, cm^{-1}
e	Electron
H	Atomic hydrogen
H^+	Atomic hydrogen positive ion
H^-	Atomic hydrogen negative ion
H(n)	Atomic hydrogen in n^{th} quantum state
H_2	Molecular hydrogen
H_2^+	Molecular hydrogen positive ion

TABLE I

Log K as a Function of Temperature for the

Dissociation of Hydrogen (Ref. 2)

T	Log K_p	T	Log K_p	T	Log K_p
298.16	71.2098	2200	4.5010	4200	-0.6892
300	70.7414	2300	4.0309	4300	-0.8233
400	51.7421	2400	3.5994	4400	-0.9513
500	40.3099	2500	3.2018	4500	-1.0736
600	32.6669	2600	2.8344	4600	-1.1907
700	27.1921	2700	2.4938	4700	-1.3029
800	23.0744	2800	2.1772	4800	-1.4104
900	19.8636	2900	1.8821	4900	-1.5135
1000	17.2883	3000	1.6064	5000	-1.6126
1100	15.1755	3100	1.3482	5100	-1.7077
1200	13.4105	3200	1.1059	5200	-1.7992
1300	11.9135	3300	0.8781	5300	-1.8873
1400	10.6275	3400	0.6635	5400	-1.9721
1500	9.5105	3500	0.4610	5500	-2.0539
1600	8.5311	3600	0.2697	5600	-2.1327
1700	7.6652	3700	0.0885	5700	-2.2087
1800	6.8941	3800	-0.0832	5800	-2.2822
1900	6.2029	3900	-0.2462	5900	-2.3531
2000	5.5798	4000	-0.4012	6000	-2.4216
2100	5.0151	4100	-0.5487		

TABLE II

Term Values ω'_n for Atomic Hydrogen

n	ω'_n (cm^{-1})	n	ω'_n (cm^{-1})
1	0	7	1.07440×10^5
2	8.2259×10^4	8	1.07965×10^5
3	9.7492×10^4	9	1.08325×10^5
4	1.02824×10^5	10	1.08582×10^5
5	1.05292×10^5	11	1.08772×10^5
6	1.06632×10^5		

TABLE III

Coefficients (b_i) for $\sigma_{H^-}^{bf}$

0	2.6507956	11	-6.1852081×10^3
1	-6.6500124	12	1.7455342×10^5
2	-3.9389309	13	1.7449724×10^4
3	2.7449084×10^1	14	-2.5154803×10^5
4	2.8881229×10^2	15	-1.9447658×10^4
5	-3.3298565×10^2	16	2.1793403×10^5
6	-3.1994226×10^3	17	9.3514543×10^3
7	1.1586356×10^3	18	-1.0316356×10^5
8	2.0094356×10^4	19	-1.3478633×10^3
9	-6.6921698×10^2	20	2.0293272×10^4
10	-7.5248539×10^4		

TABLE IV

Coefficients (b_j') for $\sigma_{H_2}^{bf}$

0	6.02562	4	-4.33887×10^{1}
1	-3.83067	5	1.14258×10^{1}
2	1.48658×10^{-1}	6	2.57385×10^{1}
3	-6.44324		

TABLE V a

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1 ATMOSPHERE FOR 200,000°R AND 175,000°R

PRESS(ATM)	1.	ENTHALPY	0.2643+007 (BTU/LB)	0.1468+004 (KCAL/G)
TEMP (R)	200000.	FREE ENG	-0.1588+008 (BTU/LB)	-0.8821+004 (KCAL/G)
TEMP (K)	111111.	ENTROPY	0.9261+005 (BTU/LB-R)	0.9261+002 (CAL/G-K)
DEN(G/CM3)	0.5528-007			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.7452-006	0.
2	0.1027-005	82259.
3	0.1898-005	97494.
4	0.3149-005	102837.
5	0.4763-005	105341.

PPHT (ATM) 0.2253-004 PPE (ATM) 0.5000+000
PPH2 (ATM) 0.2860-015 PPH- (ATM) 0.7439-013

IONIZATION POTENTIAL (1/CM) 107777.
PARTITION FUNCTION 0.6047+002
ROSSELAND MEAN OPACITY (1/CM) 0.2601-007

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3775-002	11000.	0.1053-004	70000.	0.1671-006
1500.	0.1340-002	12000.	0.8574-005	75000.	0.1413-006
2000.	0.6465-003	13500.	0.6495-005	80000.	0.1206-006
2500.	0.3706-003	15000.	0.5069-005	90000.	0.8999-007
3000.	0.2351-003	20000.	0.2580-005	100000.	0.6903-007
4000.	0.1152-003	25000.	0.1528-005	125000.	0.2114-006
5000.	0.6746-004	27500.	0.1490-005	150000.	0.1365-006
5500.	0.5348-004	30000.	0.1221-005	175000.	0.9302-007
6000.	0.4328-004	40000.	0.6295-006	200000.	0.6606-007
8000.	0.2160-004	50000.	0.3736-006	300000.	0.2226-007
10000.	0.1265-004	60000.	0.2424-006	400000.	0.9968-008

PRESS(ATM)	1.	ENTHALPY	0.2394+007 (BTU/LB)	0.1330+004 (KCAL/G)
TEMP (R)	175000.	FREE ENG	-0.1358+008 (BTU/LB)	-0.7544+004 (KCAL/G)
TEMP (K)	97222.	ENTROPY	0.9128+005 (BTU/LB-R)	0.9128+002 (CAL/G-K)
DEN(G/CM3)	0.6318-007			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1268-005	0.
2	0.1502-005	82259.
3	0.2697-005	97494.
4	0.4430-005	102837.
5	0.6670-005	105341.

PPHT (ATM) 0.3059-004 PPE (ATM) 0.5000+000
PPH2 (ATM) 0.5680-015 PPH- (ATM) 0.1788-012

IONIZATION POTENTIAL (1/CM) 107675.
PARTITION FUNCTION 0.4825+002
ROSSELAND MEAN OPACITY (1/CM) 0.5344-007

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5384-002	11000.	0.1584-004	70000.	0.2627-006
1500.	0.1921-002	12000.	0.1292-004	75000.	0.2216-006
2000.	0.9306-003	13500.	0.9806-005	80000.	0.1888-006
2500.	0.5359-003	15000.	0.7665-005	90000.	0.1404-006
3000.	0.3410-003	20000.	0.3914-005	100000.	0.1073-006
4000.	0.1680-003	25000.	0.2322-005	125000.	0.4125-006
5000.	0.9907-004	27500.	0.2358-005	150000.	0.2645-006
5500.	0.7867-004	30000.	0.1934-005	175000.	0.1790-006
6000.	0.6377-004	40000.	0.9971-006	200000.	0.1264-006
8000.	0.3199-004	50000.	0.5908-006	300000.	0.4206-007
10000.	0.1880-004	60000.	0.3822-006	400000.	0.1875-007

TABLE V b

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1 ATMOSPHERE FOR 150,000°R AND 125,000°R

PRESS(ATM)	1.	ENTHALPY	0.2146+007 (BTU/LB)		0.1192+004 (KCAL/G)
TEMP (R)	149999.	FREE ENG	-0.1132+008 (BTU/LB)		-0.6287+004 (KCAL/G)
TEMP (K)	83333.	ENTROPY	0.8975+005 (BTU/LB-R)		0.8975+002 (CAL/G-K)
DEN(G/CM3)	0.7371-007				

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.2397-005	0.	PPHT (ATM) 0.4306-004	PPE (ATM) 0.5000+000	
2	0.2318-005	82259.	PPH2 (ATM) 0.1238-014	PPH- (ATM) 0.5043-012	
3	0.4009-005	97494.	IONIZATION POTENTIAL (1/CM)	107547.	
4	0.6499-005	102837.	PARTITION FUNCTION	0.3592+002	
5	0.9725-005	105341.	ROSSELAND MEAN OPACITY (1/CM)	0.1293-006	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8137-002	11000.	0.2555-004	70000.	0.4442-006
1500.	0.2921-002	12000.	0.2087-004	75000.	0.3738-006
2000.	0.1422-002	13500.	0.1588-004	80000.	0.3177-006
2500.	0.8241-003	15000.	0.1243-004	90000.	0.2351-006
3000.	0.5262-003	20000.	0.6366-005	100000.	0.1769-006
4000.	0.2608-003	25000.	0.3779-005	125000.	0.9150-006
5000.	0.1552-003	27500.	0.4042-005	150000.	0.5812-006
5500.	0.1235-003	30000.	0.3316-005	175000.	0.3905-006
6000.	0.1003-003	40000.	0.1708-005	200000.	0.2742-006
8000.	0.5062-004	50000.	0.1008-005	300000.	0.9012-007
10000.	0.2986-004	60000.	0.6494-006	400000.	0.4005-007

PRESS(ATM)	1.	ENTHALPY	0.1897+007 (BTU/LB)		0.1054+004 (KCAL/G)
TEMP (R)	124999.	FREE ENG	-0.9094+007 (BTU/LB)		-0.5052+004 (KCAL/G)
TEMP (K)	69444.	ENTROPY	0.8793+005 (BTU/LB-R)		0.8793+002 (CAL/G-K)
DEN(G/CM3)	0.8845-007				

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.5520-005	0.	PPHT (ATM) 0.6639-004	PPE (ATM) 0.5000+000	
2	0.4017-005	82259.	PPH2 (ATM) 0.3366-014	PPH- (ATM) 0.1870-011	
3	0.6593-005	97494.	IONIZATION POTENTIAL (1/CM)	107383.	
4	0.1049-004	102837.	PARTITION FUNCTION	0.2405+002	
5	0.1557-004	105341.	ROSSELAND MEAN OPACITY (1/CM)	0.4117-006	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1332-001	11000.	0.4562-004	70000.	0.8458-006
1500.	0.4822-002	12000.	0.3733-004	75000.	0.7094-006
2000.	0.2363-002	13500.	0.2845-004	80000.	0.6009-006
2500.	0.1380-002	15000.	0.2231-004	90000.	0.4419-006
3000.	0.8854-003	20000.	0.1145-004	100000.	0.3342-006
4000.	0.4419-003	25000.	0.6798-005	125000.	0.2541-005
5000.	0.2664-003	27500.	0.7872-005	150000.	0.1597-005
5500.	0.2126-003	30000.	0.6457-005	175000.	0.1064-005
6000.	0.1730-003	40000.	0.3314-005	200000.	0.7431-006
8000.	0.8791-004	50000.	0.1946-005	300000.	0.2418-006
10000.	0.5686-004	60000.	0.1245-005	400000.	0.1073-006

TABLE V c

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1 ATMOSPHERE FOR 100,000°R AND 90,000°R

PRESS(ATM)	1.	ENTHALPY	0.1649+007 (BTU/LB)	0.9160+003 (KCAL/G)
TEMP (R)	100001.	FREE ENG	-0.6923+007 (BTU/LB)	-0.3846+004 (KCAL/G)
TEMP (K)	55556.	ENTROPY	0.8572+005 (BTU/LB-R)	0.8572+002 (CAL/G-K)
DEN(G/CM3)	0.1106-006			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.1674-004	0.
2	0.7956-005	82259.
3	0.1207-004	97494.
4	0.1868-004	102837.
5	0.2735-004	105341.

PPHT (ATM) 0.1157-003 PPE (ATM) 0.4999+000
PPH2 (ATM) 0.1251-013 PPH- (ATM) 0.1022-010

IONIZATION POTENTIAL (1/CM) 107160.
PARTITION FUNCTION 0.1383+002
ROSSELAND MEAN OPACITY (1/CM) 0.1788-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2454-001	11000.	0.9429-004	70000.	0.1892-005
1500.	0.8981-002	12000.	0.7728-004	75000.	0.1580-005
2000.	0.4499-002	13500.	0.5901-004	80000.	0.1332-005
2500.	0.2622-002	15000.	0.4632-004	90000.	0.9715-006
3000.	0.1691-002	20000.	0.2379-004	100000.	0.7293-006
4000.	0.8517-003	25000.	0.2274-004	125000.	0.9677-005
5000.	0.5229-003	27500.	0.1832-004	150000.	0.6013-005
5500.	0.4184-003	30000.	0.1501-004	175000.	0.3977-005
6000.	0.3414-003	40000.	0.7640-005	200000.	0.2762-005
8000.	0.1748-003	50000.	0.4441-005	300000.	0.8927-006
10000.	0.1172-003	60000.	0.2813-005	400000.	0.3958-006

PRESS(ATM)	1.	ENTHALPY	0.1549+007 (BTU/LB)	0.8608+003 (KCAL/G)
TEMP (R)	90000.	FREE ENG	-0.6071+007 (BTU/LB)	-0.3373+004 (KCAL/G)
TEMP (K)	50000.	ENTROPY	0.8467+005 (BTU/LB-R)	0.8467+002 (CAL/G-K)
DEN(G/CM3)	0.1229-006			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.2956-004	0.
2	0.1109-004	82259.
3	0.1609-004	97494.
4	0.2453-004	102837.
5	0.3567-004	105341.

PPHT (ATM) 0.1542-003 PPE (ATM) 0.4999+000
PPH2 (ATM) 0.2484-013 PPH- (ATM) 0.2390-010

IONIZATION POTENTIAL (1/CM) 107044.
PARTITION FUNCTION 0.1044+002
ROSSELAND MEAN OPACITY (1/CM) 0.3387-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3285-001	11000.	0.1338-003	70000.	0.2793-005
1500.	0.1209-001	12000.	0.1097-003	75000.	0.2327-005
2000.	0.6096-002	13500.	0.8382-004	80000.	0.1958-005
2500.	0.3564-002	15000.	0.6581-004	90000.	0.1422-005
3000.	0.2306-002	20000.	0.3377-004	100000.	0.1064-005
4000.	0.1166-002	25000.	0.3437-004	125000.	0.1901-004
5000.	0.7227-003	27500.	0.2767-004	150000.	0.1176-004
5500.	0.5790-003	30000.	0.2264-004	175000.	0.7757-005
6000.	0.4730-003	40000.	0.1147-004	200000.	0.5380-005
8000.	0.2429-003	50000.	0.6627-005	300000.	0.1736-005
10000.	0.1662-003	60000.	0.4174-005	400000.	0.7696-006

TABLE V d

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1 ATMOSPHERE FOR 80,000°R AND 70,000°R

PRESS(ATM)	1.	ENTHALPY	0.1450+007 (BTU/LB)	0.8056+003	(KCAL/G)
TEMP (R)	79999.	FREE ENG	-0.5230+007 (BTU/LB)	-0.2905+004	(KCAL/G)
TEMP (K)	44444.	ENTROPY	0.8350+005 (BTU/LB-R)	0.8350+002	(CAL/G-K)
DEN(G/CM3)	0.1382-006				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5719-004	0.
2	0.1596-004	82259.
3	0.2193-004	97494.
4	0.3279-004	102837.
5	0.4725-004	105341.

PPHT (ATM) 0.2156-003 PPE (ATM) 0.4999+000
PPH2 (ATM) 0.5583-013 PPH- (ATM) 0.6344-010

IONIZATION POTENTIAL (1/CM) 106907.
PARTITION FUNCTION 0.7541+001
ROSSELAND MEAN OPACITY (1/CM) 0.6127-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4562-001	11000.	0.1983-003	70000.	0.4311-005
1500.	0.1689-001	12000.	0.1627-003	75000.	0.3581-005
2000.	0.8585-002	13500.	0.1243-003	80000.	0.3006-005
2500.	0.5036-002	15000.	0.9755-004	90000.	0.2175-005
3000.	0.3269-002	20000.	0.4995-004	100000.	0.1621-005
4000.	0.1660+002	25000.	0.5467-004	125000.	0.4141-004
5000.	0.1041-002	27500.	0.4394-004	150000.	0.2551-004
5500.	0.8347-003	30000.	0.3590-004	175000.	0.1679-004
6000.	0.6828-003	40000.	0.1805-004	200000.	0.1163-004
8000.	0.3516-003	50000.	0.1036-004	300000.	0.3748-005
10000.	0.2461-003	60000.	0.6479-005	400000.	0.1662-005

PRESS(ATM)	1.	ENTHALPY	0.1351+007 (BTU/LB)	0.7503+003	(KCAL/G)
TEMP (R)	70000.	FREE ENG	-0.4401+007 (BTU/LB)	-0.2445+004	(KCAL/G)
TEMP (K)	38889.	ENTROPY	0.8217+005 (BTU/LB-R)	0.8217+002	(CAL/G-K)
DEN(G/CM3)	0.1580-006				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1313-003	0.
2	0.2505-004	82259.
3	0.3208-004	97494.
4	0.4681-004	102837.
5	0.6667-004	105341.

PPHT (ATM) 0.3450-003 PPE (ATM) 0.4998+000
PPH2 (ATM) 0.1710-012 PPH- (ATM) 0.2092-009

IONIZATION POTENTIAL (1/CM) 106741.
PARTITION FUNCTION 0.5254+001
ROSSELAND MEAN OPACITY (1/CM) 0.1059-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6642-001	11000.	0.3138-003	70000.	0.7259-005
1500.	0.2529-001	12000.	0.2575-003	75000.	0.6014-005
2000.	0.1272-001	13500.	0.1967-003	80000.	0.5034-005
2500.	0.7495-002	15000.	0.1543-003	90000.	0.3626-005
3000.	0.4880-002	20000.	0.7878-004	100000.	0.2694-005
4000.	0.2648-002	25000.	0.9546-004	125000.	0.1087-003
5000.	0.1584-002	27500.	0.7658-004	150000.	0.6672-004
5500.	0.1273-002	30000.	0.6243-004	175000.	0.4383-004
6000.	0.1042-002	40000.	0.3111-004	200000.	0.3034-004
8000.	0.5382-003	50000.	0.1769-004	300000.	0.9771-005
10000.	0.3894-003	60000.	0.1098-004	400000.	0.4335-005

TABLE V e

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1 ATMOSPHERE FOR 60,000°R AND 50,000°R

PRESS(ATM)	1.	ENTHALPY	0.1251+007 (BTU/LB)	0.6948+003	(KCAL/G)
TEMP (R)	59999.	FREE ENG	-0.3587+007 (BTU/LB)	-0.1993+004	(KCAL/G)
TEMP (K)	33333.	ENTROPY	0.8052+005 (BTU/LB-R)	0.8062+002	(CAL/G-K)
DEN(G/CM3)	0.1844-006				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3709-003	0.
2	0.4261-004	82259.
3	0.4967-004	97494.
4	0.7013-004	102837.
5	0.9834-004	105341.

PPHT (ATM) 0.6753-003 PPE (ATM) 0.4997+000
PPH2 (ATM) 0.8327-012 PPH- (ATM) 0.9012-009

IONIZATION POTENTIAL (1/CM) 106532.
PARTITION FUNCTION 0.3641+001
ROSSELAND MEAN OPACITY (1/CM) 0.1799-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1029+000	11000.	0.5377-003	70000.	0.1344-004
1500.	0.3974-001	12000.	0.4411-003	75000.	0.1110-004
2000.	0.2012-001	13500.	0.3367-003	80000.	0.9268-005
2500.	0.1192-001	15000.	0.2639-003	90000.	0.6647-005
3000.	0.7788-002	20000.	0.1340-003	100000.	0.4923-005
4000.	0.4312-002	25000.	0.1850-003	125000.	0.3579-003
5000.	0.2590-002	27500.	0.1479-003	150000.	0.2191-003
5500.	0.2084-002	30000.	0.1202-003	175000.	0.1438-003
6000.	0.1708-002	40000.	0.5918-004	200000.	0.9947-004
8000.	0.8841-003	50000.	0.3330-004	300000.	0.3204-004
10000.	0.6670-003	60000.	0.2048-004	400000.	0.1421-004

PRESS(ATM)	1.	ENTHALPY	0.1150+007 (BTU/LB)	0.6387+003	(KCAL/G)
TEMP (R)	50000.	FREE ENG	-0.2789+007 (BTU/LB)	-0.1549+004	(KCAL/G)
TEMP (K)	27778.	ENTROPY	0.7877+005 (BTU/LB-R)	0.7877+002	(CAL/G-K)
DEN(G/CM3)	0.2215-006				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1422-002	0.
2	0.8029-004	82259.
3	0.8207-004	97494.
4	0.1106-003	102837.
5	0.1518-003	105341.

PPHT (ATM) 0.1874-002 PPE (ATM) 0.4991+000
PPH2 (ATM) 0.8971-011 PPH- (ATM) 0.5733-008

IONIZATION POTENTIAL (1/CM) 106260.
PARTITION FUNCTION 0.2637+001
ROSSELAND MEAN OPACITY (1/CM) 0.3377-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1782+000	11000.	0.1021-002	70000.	0.2820-004
1500.	0.6824-001	12000.	0.8371-003	75000.	0.2322-004
2000.	0.3482-001	13500.	0.6378-003	80000.	0.1934-004
2500.	0.2074-001	15000.	0.4987-003	90000.	0.1382-004
3000.	0.1360-001	20000.	0.2509-003	100000.	0.1020-004
4000.	0.7722-002	25000.	0.4107-003	125000.	0.1644-002
5000.	0.4656-002	27500.	0.3270-003	150000.	0.1005-002
5500.	0.3750-002	30000.	0.2646-003	175000.	0.6591-003
6000.	0.3077-002	40000.	0.1281-003	200000.	0.4558-003
[illegible]000.	0.1594-002	50000.	0.7113-004	300000.	0.1468-003
[illegible]000.	0.1268-002	60000.	0.4330-004	400000.	0.6514-004

TABLE V f

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1 ATMOSPHERE FOR 40,000°R AND 30,000°R

PRESS(ATM)	1.	ENTHALPY	0.1038+007 (BTU/LB)	0.5767+003 (KCAL/G)
TEMP (R)	40000.	FREE ENG	-0.2012+007 (BTU/LB)	-0.1118+004 (KCAL/G)
TEMP (K)	22222.	ENTROPY	0.7624+005 (BTU/LB-R)	0.7624+002 (CAL/G-K)
DEN(G/CM3)	0.2792-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9580-002	0.
2	0.1865-003	82259.
3	0.1565-003	97494.
4	0.1969-003	102837.
5	0.2309-003	105341.

PPHT (ATM) 0.1035-001 PPE (ATM) 0.4948+000
PPH2 (ATM) 0.4523-009 PPH- (ATM) 0.7237-007

IONIZATION POTENTIAL (1/CM) 105892.
PARTITION FUNCTION 0.2161+001
ROSSELAND MEAN OPACITY (1/CM) 0.8829-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3389+000	11000.	0.2273-002	70000.	0.7480-004
1500.	0.1315+000	12000.	0.1859-002	75000.	0.6144-004
2000.	0.6766-001	13500.	0.1411-002	80000.	0.5112-004
2500.	0.4052-001	15000.	0.1099-002	90000.	0.3640-004
3000.	0.2668-001	20000.	0.5453-003	100000.	0.2684-004
4000.	0.1574-001	25000.	0.1163-002	125000.	0.1384-001
5000.	0.9518-002	27500.	0.9205-003	150000.	0.8450-002
5500.	0.7671-002	30000.	0.7404-003	175000.	0.5541-002
6000.	0.6295-002	40000.	0.3511-003	200000.	0.3832-002
8000.	0.3256-002	50000.	0.1920-003	300000.	0.1234-002
10000.	0.2826-002	60000.	0.1157-003	400000.	0.5477-003

PRESS(ATM)	1.	ENTHALPY	0.7780+006 (BTU/LB)	0.4322+003 (KCAL/G)
TEMP (R)	30001.	FREE ENG	-0.1271+007 (BTU/LB)	-0.7063+003 (KCAL/G)
TEMP (K)	16667.	ENTROPY	0.6831+005 (BTU/LB-R)	0.6831+002 (CAL/G-K)
DEN(G/CM3)	0.4206-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1400+000	0.
2	0.4620-003	82259.
3	0.2791-003	97494.
4	0.3128-003	102837.
5	0.2523-003	105341.

PPHT (ATM) 0.1413+000 PPE (ATM) 0.4293+000
PPH2 (ATM) 0.1949-006 PPH- (ATM) 0.2146-005

IONIZATION POTENTIAL (1/CM) 105544.
PARTITION FUNCTION 0.2019+001
ROSSELAND MEAN OPACITY (1/CM) 0.3570-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6069+000	11000.	0.5066-002	70000.	0.2300-003
1500.	0.2391+000	12000.	0.4132-002	75000.	0.1901-003
2000.	0.1240+000	13500.	0.3123-002	80000.	0.1752-003
2500.	0.7466-001	15000.	0.2422-002	90000.	0.1140-003
3000.	0.5846-001	20000.	0.1186-002	100000.	0.8332-004
4000.	0.3080-001	25000.	0.3777-002	125000.	0.2695+000
5000.	0.1864-001	27500.	0.2964-002	150000.	0.1645+000
5500.	0.1501-001	30000.	0.2367-002	175000.	0.1079+000
6000.	0.1231-001	40000.	0.1098-002	200000.	0.7461-001
8000.	0.6338-002	50000.	0.5933-003	300000.	0.2403-001
10000.	0.6318-002	60000.	0.3556-003	400000.	0.1066-001

TABLE V g

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1 ATMOSPHERE FOR 26,000°R AND 23,000°R

PRESS(ATM)	1.	ENTHALPY	0.5148+006 (BTU/LB)	0.2860+003 (KCAL/G)
TEMP (R)	25999.	FREE ENG	-0.1011+007 (BTU/LB)	-0.5614+003 (KCAL/G)
TEMP (K)	14444.	ENTROPY	0.5667+005 (BTU/LB-R)	0.5867+002 (CAL/G-K)
DEN(G/CM3)	0.5974-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4038+000	0.
2	0.4468-003	82259.
3	0.2204-003	97494.
4	0.2302-003	102837.
5	0.2309-003	105341.

PPHT (ATM) 0.4049+000 PPE (ATM) 0.2975+000
PPH2 (ATM) 0.2682-005 PPH- (ATM) 0.6649-005

IONIZATION POTENTIAL (1/CM) 105807.
PARTITION FUNCTION 0.2006+001
ROSSELAND MEAN OPACITY (1/CM) 0.5482-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4677+000	11000.	0.4579-002	70000.	0.2662-003
1500.	0.1865+000	12000.	0.3746-002	75000.	0.2322-003
2000.	0.9751-001	13500.	0.2846-002	80000.	0.3831-003
2500.	0.5897-001	15000.	0.2219-002	90000.	0.1507-003
3000.	0.4786-001	20000.	0.1110-002	100000.	0.1013-003
4000.	0.2532-001	25000.	0.4239-002	125000.	0.8967+000
5000.	0.1535-001	27500.	0.3320-002	150000.	0.5475+000
5500.	0.1236-001	30000.	0.2646-002	175000.	0.3590+000
6000.	0.1014-001	40000.	0.1226-002	200000.	0.2463+000
8000.	0.5248-002	50000.	0.6659-003	300000.	0.7998-001
10000.	0.5695-002	60000.	0.4027-003	400000.	0.3548-001

PRESS(ATM)	1.	ENTHALPY	0.3356+006 (BTU/LB)	0.1865+003 (KCAL/G)
TEMP (R)	23000.	FREE ENG	-0.8431+006 (BTU/LB)	-0.4684+003 (KCAL/G)
TEMP (K)	12778.	ENTROPY	0.5125+005 (BTU/LB-R)	0.5125+002 (CAL/G-K)
DEN(G/CM3)	0.8068-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.6780+000	0.
2	0.2578-003	82259.
3	0.1044-003	97494.
4	0.1017-003	102837.
5	0.1198-003	105341.

PPHT (ATM) 0.6786+000 PPE (ATM) 0.1607+000
PPH2 (ATM) 0.1247-004 PPH- (ATM) 0.8860-005

IONIZATION POTENTIAL (1/CM) 106412.
PARTITION FUNCTION 0.2002+001
ROSSELAND MEAN OPACITY (1/CM) 0.5220-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1963+000	11000.	0.2522-002	70000.	0.2019-003
1500.	0.8614-001	12000.	0.2087-002	75000.	0.2134-003
2000.	0.4541-001	13500.	0.1614-002	80000.	0.8609-003
2500.	0.2761-001	15000.	0.1282-002	90000.	0.1699-003
3000.	0.1837-001	20000.	0.6803-003	100000.	0.8762-004
4000.	0.1235-001	25000.	0.2823-002	125000.	0.1702+001
5000.	0.7508-002	27500.	0.2212-002	150000.	0.1039+001
5500.	0.6053-002	30000.	0.1766-002	175000.	0.6814+000
6000.	0.4965-002	40000.	0.8271-003	200000.	0.4712+000
[illegible]000.	0.2630-002	50000.	0.4564-003	300000.	0.1518+000
1[illegible]000.	0.3103-002	60000.	0.2826-003	400000.	0.6734-001

TABLE V h

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1 ATMOSPHERE FOR 20,000°R AND 16,000°R

PRESS(ATM)	1.	ENTHALPY	0.2323+006 (BTU/LB)	0.1291+003 (KCAL/G)
TEMP (R)	20000.	FREE ENG	-0.6956+006 (BTU/LB)	-0.3864+003 (KCAL/G)
TEMP (K)	11111.	ENTROPY	0.4640+005 (BTU/LB-R)	0.4640+002 (CAL/G-K)
DEN(G/CM3)	0.1040-005			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.8813+000	0.	PPHT (ATM) 0.8815+000	PFE (ATM)	0.5923-001
2	0.8351-004	82259.	PPH2 (ATM) 0.4057-004	PPH- (ATM)	0.6668-005
3	0.2614-004	97494.	IONIZATION POTENTIAL (1/CM)		107269.
4	0.2326-004	102837.	PARTITION FUNCTION		0.2000+001
5	0.2628-004	105341.	ROSSELAND MEAN OPACITY (1/CM)		0.2820-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4689-001	11000.	0.8328-003	70000.	0.1230-003
1500.	0.1901-001	12000.	0.7124-003	75000.	0.2055-003
2000.	0.1137-001	13500.	0.5781-003	80000.	0.1697-002
2500.	0.6970-002	15000.	0.4800-003	90000.	0.2147-003
3000.	0.4666-002	20000.	0.2890-003	100000.	0.7206-004
4000.	0.2465-002	25000.	0.1967-003	125000.	0.2544+001
5000.	0.1998-002	27500.	0.8770-003	150000.	0.1554+001
5500.	0.1615-002	30000.	0.7049-003	175000.	0.1019+001
6000.	0.1327-002	40000.	0.3404-003	200000.	0.7045+000
8000.	0.7626-003	50000.	0.1956-003	300000.	0.2269+000
10000.	0.9913-003	60000.	0.1302-003	400000.	0.1007+000

PRESS(ATM)	1.	ENTHALPY	0.1755+006 (BTU/LB)	0.9748+002 (KCAL/G)
TEMP (R)	16000.	FREE ENG	-0.5165+006 (BTU/LB)	-0.2869+003 (KCAL/G)
TEMP (K)	8889.	ENTROPY	0.4324+005 (BTU/LB-R)	0.4324+002 (CAL/G-K)
DEN(G/CM3)	0.1372-005			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.9846+000	0.	PPHT (ATM) 0.9846+000	PFE (ATM)	0.7602-002
2	0.6511-005	82259.	PPH2 (ATM) 0.1780-003	PPH- (ATM)	0.2031-005
3	0.1244-005	97494.	IONIZATION POTENTIAL (1/CM)		108424.
4	0.9318-006	102837.	PARTITION FUNCTION		0.2000+001
5	0.9708-006	105341.	ROSSELAND MEAN OPACITY (1/CM)		0.6511-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3249-002	11000.	0.1125-003	70000.	0.9538-004
1500.	0.1387-002	12000.	0.1064-003	75000.	0.2799-003
2000.	0.7588-003	13500.	0.9762-004	80000.	0.3207-002
2500.	0.4754-003	15000.	0.8917-004	90000.	0.3429-003
3000.	0.3244-003	20000.	0.6583-004	100000.	0.8265-004
4000.	0.1949-003	25000.	0.5058-004	125000.	0.3554+001
5000.	0.1216-003	27500.	0.1154-003	150000.	0.2170+001
5500.	0.9929-004	30000.	0.9567-004	175000.	0.1423+001
6000.	0.1021-003	40000.	0.5261-004	200000.	0.9840+000
8000.	0.8758-004	50000.	0.3680-004	300000.	0.3169+000
10000.	0.8935-004	60000.	0.3831-004	400000.	0.1406+000

TABLE V i

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF I ATMOSPHERE FOR 13,000°R AND 10,000°R

PRESS(ATM)	1.	ENTHALPY	0.1560+006 (BTU/LB)	0.8665+002 (KCAL/G)
TEMP (R)	13000.	FREE ENG	-0.3887+006 (BTU/LB)	-0.2159+003 (KCAL/G)
TEMP (K)	7222.	ENTROPY	0.4190+005 (BTU/LB-R)	0.4190+002 (CAL/G-K)
DEN(G/CM3)	0.1701-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9978+000	0.
2	0.3054-006	82259.
3	0.3304-007	97494.
4	0.2026-007	102837.
5	0.1923-007	105341.

PPHT (ATM) 0.9978+000 PPE (ATM) 0.7289-003
PPH2 (ATM) 0.7800-003 PPH- (ATM) 0.4158-006

IONIZATION POTENTIAL (1/CM) 109092.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1425-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3171-003	11000.	0.1938-004	70000.	0.1275-003
1500.	0.1400-003	12000.	0.2035-004	75000.	0.4178-003
2000.	0.7841-004	13500.	0.1987-004	80000.	0.4974-002
2500.	0.5001-004	15000.	0.1888-004	90000.	0.5217-003
3000.	0.3464-004	20000.	0.1494-004	100000.	0.1193-003
4000.	0.1990-004	25000.	0.1201-004	125000.	0.4438+001
5000.	0.1266-004	27500.	0.1505-004	150000.	0.2712+001
5500.	0.1046-004	30000.	0.1333-004	175000.	0.1779+001
6000.	0.8775-005	40000.	0.1027-004	200000.	0.1229+001
8000.	0.1432-004	50000.	0.1318-004	300000.	0.3952+000
10000.	0.1847-004	60000.	0.3006-004	400000.	0.1753+000

PRESS(ATM)	1.	ENTHALPY	0.1392+006 (BTU/LB)	0.7734+002 (KCAL/G)
TEMP (R)	10001.	FREE ENG	-0.2653+006 (BTU/LB)	-0.1474+003 (KCAL/G)
TEMP (K)	5556.	ENTROPY	0.4045+005 (BTU/LB-R)	0.4045+002 (CAL/G-K)
DEN(G/CM3)	0.2228-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9921+000	0.
2	0.2231-008	82259.
3	0.9716-010	97494.
4	0.4331-010	102837.
5	0.3538-010	105341.

PPHT (ATM) 0.9921+000 PPE (ATM) 0.1911-004
PPH2 (ATM) 0.7850-002 PPH- (ATM) 0.2996-007

IONIZATION POTENTIAL (1/CM) 109500.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1553-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1297-004	11000.	0.1798-005	70000.	0.2089-003
1500.	0.5762-005	12000.	0.1853-005	75000.	0.6951-003
2000.	0.3241-005	13500.	0.1858-005	80000.	0.8318-002
2500.	0.2074-005	15000.	0.1809-005	90000.	0.8702-003
3000.	0.1440-005	20000.	0.1630-005	100000.	0.1974-003
4000.	0.8109-006	25000.	0.1701-005	125000.	0.5809+001
5000.	0.5213-006	27500.	0.1905-005	150000.	0.3579+001
5500.	0.4321-006	30000.	0.2168-005	175000.	0.2353+001
6000.	0.3647-006	40000.	0.4896-005	200000.	0.1609+001
8000.	0.1152-005	50000.	0.1370-004	300000.	0.5108+000
10000.	0.1678-005	60000.	0.4433-004	400000.	0.2265+000

TABLE V j

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1 ATMOSPHERE FOR 7,000°R AND 5,000°R

PRESS(ATM)	1.	ENTHALPY	0.8056+005 (BTU/LB)	0.4475+002	(KCAL/G)
TEMP (R)	7000.	FREE ENG	-0.1549+006 (BTU/LB)	-0.8604+002	(KCAL/G)
TEMP (K)	3889.	ENTROPY	0.3363+005 (BTU/LB-R)	0.3363+002	(CAL/G-K)
DEN(G/CM3)	0.4088-005				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.7058+000	0.
2	0.1720-012	82259.
3	0.1381-014	97494.
4	0.3403-015	102837.
5	0.2105-015	105341.

PPHT (ATM)	0.7058+000	PFE (ATM)	0.2290-007
PPH2 (ATM)	0.2942+000	PFH- (ATM)	0.1219-009
IONIZATION POTENTIAL (1/CM)			109659.
PARTITION FUNCTION			0.2000+001
ROSSELAND MEAN OPACITY (1/CM)			0.4154-008

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8326-011	11000.	0.5224-007	70000.	0.2308-003
1500.	0.3840-010	12000.	0.6661-007	75000.	0.7683-003
2000.	0.1126-009	13500.	0.9349-007	80000.	0.9197-002
2500.	0.2562-009	15000.	0.1283-006	90000.	0.9619-003
3000.	0.4966-009	20000.	0.3258-006	100000.	0.2181-003
4000.	0.1382-008	25000.	0.7156-006	125000.	0.1015+002
5000.	0.3004-008	27500.	0.1020-005	150000.	0.7942+001
5500.	0.4165-008	30000.	0.1424-005	175000.	0.5521+001
6000.	0.5600-008	40000.	0.4767-005	200000.	0.2827+001
8000.	0.2061-007	50000.	0.1469-004	300000.	0.5191+000
10000.	0.4013-007	60000.	0.4868-004	400000.	0.2302+000

PRESS(ATM)	1.	ENTHALPY	0.2102+005 (BTU/LB)	0.1168+002	(KCAL/G)
TEMP (R)	5000.	FREE ENG	-0.1023+006 (BTU/LB)	-0.5685+002	(KCAL/G)
TEMP (K)	2778.	ENTROPY	0.2467+005 (BTU/LB-R)	0.2467+002	(CAL/G-K)
DEN(G/CM3)	0.8522-005				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.7265-001	0.
2	0.9185-019	82259.
3	0.7742-022	97494.
4	0.8653-023	102837.
5	0.3696-023	105341.

PPHT (ATM)	0.7265-001	PFE (ATM)	0.1445-011
PPH2 (ATM)	0.9273+000	PFH- (ATM)	0.4494-014
IONIZATION POTENTIAL (1/CM)			109678.
PARTITION FUNCTION			0.2000+001
ROSSELAND MEAN OPACITY (1/CM)			0.1170-009

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6194-012	11000.	0.2483-008	70000.	0.1338-004
1500.	0.2820-011	12000.	0.3298-008	75000.	0.4456-004
2000.	0.8057-011	13500.	0.4860-008	80000.	0.5333-003
2500.	0.1788-010	15000.	0.6901-008	90000.	0.5579-004
3000.	0.3387-010	20000.	0.1846-007	100000.	0.1265-004
4000.	0.9073-010	25000.	0.4115-007	125000.	0.1994+002
5000.	0.1912-009	27500.	0.5882-007	150000.	0.1987+002
5500.	0.2618-009	30000.	0.8232-007	175000.	0.1441+002
6000.	0.3481-009	40000.	0.2763-006	200000.	0.5595+001
8000.	0.8854-009	50000.	0.8518-006	300000.	0.7481-001
10000.	0.1822-008	60000.	0.2823-005	400000.	0.3319-001

TABLE V k

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1 ATMOSPHERE FOR 3000 °R

PRESS(ATM)	1.	ENTHALPY	0.8972+004 (BTU/LB)		0.4985+001 (KCAL/G)
TEMP (R)	3001.	FREE ENG	-0.5644+005 (BTU/LB)		-0.3136+002 (KCAL/G)
TEMP (K)	1667.	ENTROPY	0.2180+005 (BTU/LB-R)		0.2180+002 (CAL/G-K)
DEN(G/CM3)	0.1474-004				

QHN	PPHN (ATM)	TEHM (1/CM)			
1	0.1072-003	0.	PPHT (ATM) 0.1072-003	PPE (ATM) 0.0000+000	
2	0.0000+000	82259.	PPH2 (ATM) 0.9999+000	PPH- (ATM) 0.0000+000	
3	0.0000+000	97494.	IONIZATION POTENTIAL (1/CM)		109679.
4	0.0000+000	102837.	PARTITION FUNCTION		0.0000+000
5	0.0000+000	105341.	ROSSELAND MEAN OPACITY (1/CM)		0.1055-012

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2239-014	11000.	0.6294-011	70000.	0.3383-007
1500.	0.9580-014	12000.	0.8352-011	75000.	0.1126-006
2000.	0.2595-013	13500.	0.1229-010	80000.	0.1348-005
2500.	0.5505-013	15000.	0.1745-010	90000.	0.1410-006
3000.	0.1004-012	20000.	0.4666-010	100000.	0.3197-007
4000.	0.2541-012	25000.	0.1040-009	125000.	0.3433+002
5000.	0.5156-012	27500.	0.1487-009	150000.	0.3479+002
5500.	0.6963-012	30000.	0.2081-009	175000.	0.2530+002
6000.	0.9158-012	40000.	0.6983-009	200000.	0.9637+001
8000.	0.2271-011	50000.	0.2153-008	300000.	0.1840-003
10000.	0.4629-011	60000.	0.7135-008	400000.	0.8164-004

TABLE VI a

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 2 ATMOSPHERES FOR 200,000°R AND 175,000°R

PRESS(ATM)	2.	ENTHALPY	0.2643+007 (BTU/LB)	0.1468+004 (KCAL/G)
TEMP (R)	200000.	FREE ENG	-0.1533+008 (BTU/LB)	-0.8515+004 (KCAL/G)
TEMP (K)	111111.	ENTROPY	0.8985+005 (BTU/LB-R)	0.8985+002 (CAL/G-K)
DEN(G/CM3)	0.1106-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2960-005	0.
2	0.4082-005	82259.
3	0.7540-005	97497.
4	0.1251-004	102850.
5	0.1891-004	105391.

PPHT (ATM) 0.6636-004 PPE (ATM) 0.1000+001
PPH2 (ATM) 0.2481-014 PPH- (ATM) 0.5911-012

IONIZATION POTENTIAL (1/CM) 107257.
PARTITION FUNCTION 0.4483+002
ROSSELAND MEAN OPACITY (1/CM) 0.1034-006

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1510-001	11000.	0.4210-004	70000.	0.6671-006
1500.	0.5359-002	12000.	0.3428-004	75000.	0.5638-006
2000.	0.2597-002	13500.	0.2597-004	80000.	0.4811-006
2500.	0.1482-002	15000.	0.2027-004	90000.	0.3592-006
3000.	0.9402-003	20000.	0.1031-004	100000.	0.2755-006
4000.	0.4608-003	25000.	0.7395-005	125000.	0.8405-006
5000.	0.2698-003	27500.	0.5950-005	150000.	0.5429-006
5500.	0.2139-003	30000.	0.4876-005	175000.	0.3698-006
6000.	0.1731-003	40000.	0.2513-005	200000.	0.2626-006
8000.	0.8637-004	50000.	0.1491-005	300000.	0.8851-007
10000.	0.5276-004	60000.	0.9674-006	400000.	0.3963-007

PRESS(ATM)	2.	ENTHALPY	0.2394+007 (BTU/LB)	0.1330+004 (KCAL/G)
TEMP (R)	175000.	FREE ENG	-0.1310+008 (BTU/LB)	-0.7277+004 (KCAL/G)
TEMP (K)	97222.	ENTROPY	0.8852+005 (BTU/LB-R)	0.8852+002 (CAL/G-K)
DEN(G/CM3)	0.1264-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5030-005	0.
2	0.5957-005	82259.
3	0.1070-004	97497.
4	0.1757-004	102850.
5	0.2644-004	105391.

PPHT (ATM) 0.9014-004 PPE (ATM) 0.1000+001
PPH2 (ATM) 0.4930-014 PPH- (ATM) 0.1416-011

IONIZATION POTENTIAL (1/CM) 107124.
PARTITION FUNCTION 0.3584+002
ROSSELAND MEAN OPACITY (1/CM) 0.2121-006

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2154-001	11000.	0.6332-004	70000.	0.1048-005
1500.	0.7682-002	12000.	0.5164-004	75000.	0.8838-006
2000.	0.3742-002	13500.	0.3919-004	80000.	0.7528-006
2500.	0.2144-002	15000.	0.3064-004	90000.	0.5599-006
3000.	0.1364-002	20000.	0.1564-004	100000.	0.4279-006
4000.	0.6718-003	25000.	0.1168-004	125000.	0.1638-005
5000.	0.3962-003	27500.	0.9407-005	150000.	0.1050-005
5500.	0.3146-003	30000.	0.7715-005	175000.	0.7105-006
6000.	0.2550-003	40000.	0.3977-005	200000.	0.5018-006
8000.	0.1279-003	50000.	0.2356-005	300000.	0.1670-006
10000.	0.7921-004	60000.	0.1524-005	400000.	0.7442-007

TABLE VI b

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 2 ATMOSPHERES FOR 150,000°R AND 125,000°R

PRESS(ATM)	2.	ENTHALPY	0.2146+007 (BTU/LB)	0.1192+004 (KCAL/G)
TEMP (R)	149999.	FREE ENG	-0.1090+008 (BTU/LB)	-0.6057+004 (KCAL/G)
TEMP (K)	83333.	ENTROPY	0.8699+005 (BTU/LB-R)	0.8699+002 (CAL/G-K)
DEN(G/CM3)	0.1474-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9596-005	0.
2	0.9278-005	82259.
3	0.1605-004	97497.
4	0.2601-004	102850.
5	0.3890-004	105391.

PPHT (ATM)	0.1285-003	PFE (ATM)	0.9999+000
PPH2 (ATM)	0.1102-013	PPH- (ATM)	0.4037-011
IONIZATION POTENTIAL (1/CM)			106959.
PARTITION FUNCTION			0.2677+002
ROSSELAND MEAN OPACITY (1/CM)			0.5176-006

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3255-001	11000.	0.1022-003	70000.	0.1777-005
1500.	0.1168-001	12000.	0.8349-004	75000.	0.1496-005
2000.	0.5729-002	13500.	0.6350-004	80000.	0.1271-005
2500.	0.3296-002	15000.	0.4972-004	90000.	0.9407-006
3000.	0.2105-002	20000.	0.2546-004	100000.	0.7156-006
4000.	0.1043-002	25000.	0.2006-004	125000.	0.3663-005
5000.	0.6208-003	27500.	0.1617-004	150000.	0.2326-005
5500.	0.4940-003	30000.	0.1327-004	175000.	0.1563-005
6000.	0.4013-003	40000.	0.6832-005	200000.	0.1097-005
8000.	0.2025-003	50000.	0.4034-005	300000.	0.3607-006
10000.	0.1276-003	60000.	0.2598-005	400000.	0.1603-006

PRESS(ATM)	2.	ENTHALPY	0.1897+007 (BTU/LB)	0.1054+004 (KCAL/G)
TEMP (R)	124999.	FREE ENG	-0.8750+007 (BTU/LB)	-0.4861+004 (KCAL/G)
TEMP (K)	69444.	ENTROPY	0.8518+005 (BTU/LB-R)	0.8518+002 (CAL/G-K)
DEN(G/CM3)	0.1769-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2181-004	0.
2	0.1587-004	82259.
3	0.2604-004	97497.
4	0.4144-004	102850.
5	0.6143-004	105391.

PPHT (ATM)	0.1993-003	PFE (ATM)	0.9999+000
PPH2 (ATM)	0.3032-013	PPH- (ATM)	0.1478-010
IONIZATION POTENTIAL (1/CM)			106745.
PARTITION FUNCTION			0.1828+002
ROSSELAND MEAN OPACITY (1/CM)			0.1628-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5329-001	11000.	0.1821-003	70000.	0.3363-005
1500.	0.1944-001	12000.	0.1490-003	75000.	0.2820-005
2000.	0.9540-002	13500.	0.1136-003	80000.	0.2389-005
2500.	0.5520-002	15000.	0.8906-004	90000.	0.1757-005
3000.	0.3541-002	20000.	0.4572-004	100000.	0.1329-005
4000.	0.1812-002	25000.	0.3884-004	125000.	0.1004-004
5000.	0.1065-002	27500.	0.3132-004	150000.	0.6311-005
5500.	0.8497-003	30000.	0.2569-004	175000.	0.4207-005
6000.	0.6917-003	40000.	0.1318-004	200000.	0.2937-005
[illegible]000.	0.3514-003	50000.	0.7738-005	300000.	0.9555-006
10000.	0.2269-003	60000.	0.4950-005	400000.	0.4238-006

TABLE VI c

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 2 ATMOSPHERES FOR 100,000°R AND 90,000°R

PRESS(ATM)	2.	ENTHALPY	0.1649+007 (BTU/LB)	0.9160+003 (KCAL/G)
TEMP (R)	100001.	FREE ENG	-0.6647+007 (BTU/LB)	-0.3693+004 (KCAL/G)
TEMP (K)	55556.	ENTROPY	0.8296+005 (BTU/LB-R)	0.8296+002 (CAL/G-K)
DEN(G/CM3)	0.2211-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.6574-004	0.
2	0.3125-004	82259.
3	0.4739-004	97497.
4	0.7334-004	102850.
5	0.1073-003	105391.

PPHT (ATM) 0.3535+003 PFE (ATM) 0.9998+000
PPH2 (ATM) 0.1167-012 PFH- (ATM) 0.8029-010

IONIZATION POTENTIAL (1/CM) 106453.
PARTITION FUNCTION 0.1075+002
ROSSELAND MEAN OPACITY (1/CM) 0.7038-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.9815-001	11000.	0.3758-003	70000.	0.7489-005
1500.	0.3632-001	12000.	0.3080-003	75000.	0.6252-005
2000.	0.1799-001	13500.	0.2352-003	80000.	0.5271-005
2500.	0.1048-001	15000.	0.1846-003	90000.	0.3845-005
3000.	0.6763-002	20000.	0.9479-004	100000.	0.2886-005
4000.	0.3529-002	25000.	0.9009-004	125000.	0.3802-004
5000.	0.2089-002	27500.	0.7257-004	150000.	0.2362-004
5500.	0.1671-002	30000.	0.5945-004	175000.	0.1563-004
6000.	0.1364-002	40000.	0.3026-004	200000.	0.1085-004
8000.	0.6981-003	50000.	0.1758-004	300000.	0.3507-005
10000.	0.4672-003	60000.	0.1113-004	400000.	0.1555-005

PRESS(ATM)	2.	ENTHALPY	0.1549+007 (BTU/LB)	0.8608+003 (KCAL/G)
TEMP (R)	90000.	FREE ENG	-0.5823+007 (BTU/LB)	-0.3235+004 (KCAL/G)
TEMP (K)	50000.	ENTROPY	0.8191+005 (BTU/LB-R)	0.8191+002 (CAL/G-K)
DEN(G/CM3)	0.2457-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1137-003	0.
2	0.4264-004	82259.
3	0.6189-004	97497.
4	0.9432-004	102850.
5	0.1370-003	105391.

PPHT (ATM) 0.4671-003 PFE (ATM) 0.9998+000
PPH2 (ATM) 0.2278-012 PFH- (ATM) 0.1838-009

IONIZATION POTENTIAL (1/CM) 106302.
PARTITION FUNCTION 0.8219+001
ROSSELAND MEAN OPACITY (1/CM) 0.1311-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1327+000	11000.	0.5308-003	70000.	0.1091-004
1500.	0.4898-001	12000.	0.4352-003	75000.	0.9084-005
2000.	0.2436-001	13500.	0.3324-003	80000.	0.7642-005
2500.	0.1424-001	15000.	0.2609-003	90000.	0.5551-005
3000.	0.9214-002	20000.	0.1338-003	100000.	0.4153-005
4000.	0.4854-002	25000.	0.1345-003	125000.	0.7314-004
5000.	0.2882-002	27500.	0.1082-003	150000.	0.4524-004
5500.	0.2309-002	30000.	0.8854-004	175000.	0.2984-004
6000.	0.1886-002	40000.	0.4481-004	200000.	0.2070-004
8000.	0.9682-003	50000.	0.2589-004	300000.	0.6677-005
10000.	0.6594-003	60000.	0.1630-004	400000.	0.2961-005

TABLE VI d

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 2 ATMOSPHERES FOR 80,000°R AND 70,000°R

PRESS(ATM)	2.	ENTHALPY	0.1450+007 (BTU/LB)	0.8055+003 (KCAL/G)
TEMP (R)	79999.	FREE ENG	-0.5009+007 (BTU/LB)	-0.2783+004 (KCAL/G)
TEMP (K)	44444.	ENTROPY	0.8074+005 (BTU/LB-R)	0.8074+002 (CAL/G-K)
DEN(G/CM3)	0.2765-006			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.2244-003	0.	PPHT (ATM) 0.6824-003	PFE (ATM) 0.9997+000	
2	0.6262-004	82259.	PPH2 (ATM) 0.5592-012	PPH- (ATM) 0.4978-009	
3	0.8604-004	97497.	IONIZATION POTENTIAL (1/CM)	106123.	
4	0.1286-003	102850.	PARTITION FUNCTION	0.6082+001	
5	0.1807-003	105391.	ROSSELAND MEAN OPACITY (1/CM)	0.2414-004	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1846+000	11000.	0.7888-003	70000.	0.1702-004
1500.	0.6862-001	12000.	0.6470-003	75000.	0.1414-004
2000.	0.3430-001	13500.	0.4943-003	80000.	0.1187-004
2500.	0.2013-001	15000.	0.3879-003	90000.	0.8584-005
3000.	0.1306-001	20000.	0.1986-003	100000.	0.6399-005
4000.	0.6967-002	25000.	0.2160-003	125000.	0.1625-003
5000.	0.4152-002	27500.	0.1736-003	150000.	0.1001-003
5500.	0.3331-002	30000.	0.1418-003	175000.	0.6589-004
6000.	0.2724-002	40000.	0.7129-004	200000.	0.4564-004
8000.	0.1402-002	50000.	0.4090-004	300000.	0.1471-004
10000.	0.9793-003	60000.	0.2558-004	400000.	0.6524-005

PRESS(ATM)	2.	ENTHALPY	0.1350+007 (BTU/LB)	0.7501+003 (KCAL/G)
TEMP (R)	70000.	FREE ENG	-0.4208+007 (BTU/LB)	-0.2338+004 (KCAL/G)
TEMP (K)	38889.	ENTROPY	0.7941+005 (BTU/LB-R)	0.7941+002 (CAL/G-K)
DEN(G/CM3)	0.3160-006			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.5104-003	0.	PPHT (ATM) 0.1130-002	PFE (ATM) 0.9994+000	
2	0.9737-004	82259.	PPH2 (ATM) 0.1835-011	PPH- (ATM) 0.1625-008	
3	0.1247-003	97497.	IONIZATION POTENTIAL (1/CM)	105904.	
4	0.1818-003	102850.	PARTITION FUNCTION	0.4428+001	
5	0.2156-003	105391.	ROSSELAND MEAN OPACITY (1/CM)	0.4136-004	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2689+000	11000.	0.1238-002	70000.	0.2837-004
1500.	0.1007+000	12000.	0.1016-002	75000.	0.2350-004
2000.	0.5061-001	13500.	0.7759-003	80000.	0.1967-004
2500.	0.2982-001	15000.	0.6086-003	90000.	0.1417-004
3000.	0.1941-001	20000.	0.3105-003	100000.	0.1053-004
4000.	0.1051-001	25000.	0.3735-003	125000.	0.4224-003
5000.	0.6284-002	27500.	0.2995-003	150000.	0.2593-003
5500.	0.5047-002	30000.	0.2442-003	175000.	0.1704-003
6000.	0.4132-002	40000.	0.1216-003	200000.	0.1179-003
8000.	0.2132-002	50000.	0.6916-004	300000.	0.3798-004
10000.	0.1537-002	60000.	0.4292-004	400000.	0.1685-004

TABLE VI e

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 2 ATMOSPHERES FOR 60,000°R AND 50,000°R

PRESS(ATM)	2.	ENTHALPY	0.1250+007 (BTU/LB)	0.6945+003 (KCAL/G)
TEMP (R)	59999.	FREE ENG	-0.3421+007 (BTU/LB)	-0.1901+004 (KCAL/G)
TEMP (K)	33333.	ENTROPY	0.7786+005 (BTU/LB-R)	0.7786+002 (CAL/G-K)
DEN(G/CM3)	0.3689-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1426-002	0.
2	0.1639-003	82259.
3	0.1910-003	97497.
4	0.2695-003	102850.
5	0.2471-003	105391.

PPHT (ATM) 0.2298-002 PFE (ATM) 0.9989+000
PPH2 (ATM) 0.9642-011 PFH- (ATM) 0.6928-008

IONIZATION POTENTIAL (1/CM) 105628.
PARTITION FUNCTION 0.3222+001
ROSSELAND MEAN OPACITY (1/CM) 0.6940-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4165+000	11000.	0.2096-002	70000.	0.5188-004
1500.	0.1573+000	12000.	0.1719-002	75000.	0.4284-004
2000.	0.7952-001	13500.	0.1312-002	80000.	0.3577-004
2500.	0.4704-001	15000.	0.1028-002	90000.	0.2565-004
3000.	0.3281-001	20000.	0.5212-003	100000.	0.1900-004
4000.	0.1695-001	25000.	0.7147-003	125000.	0.1376-002
5000.	0.1017-001	27500.	0.5715-003	150000.	0.8427-003
5500.	0.8178-002	30000.	0.4645-003	175000.	0.5530-003
6000.	0.6701-002	40000.	0.2285-003	200000.	0.3825-003
8000.	0.3463-002	50000.	0.1285-003	300000.	0.1232-003
10000.	0.2601-002	60000.	0.7906-004	400000.	0.5466-004

PRESS(ATM)	2.	ENTHALPY	0.1147+007 (BTU/LB)	0.6375+003 (KCAL/G)
TEMP (R)	50000.	FREE ENG	-0.2651+007 (BTU/LB)	-0.1473+004 (KCAL/G)
TEMP (K)	27778.	ENTROPY	0.7597+005 (BTU/LB-R)	0.7597+002 (CAL/G-K)
DEN(G/CM3)	0.4437-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5420-002	0.
2	0.3061-003	82259.
3	0.3129-003	97497.
4	0.4215-003	102850.
5	0.2613-003	105391.

PPHT (ATM) 0.6722-002 PFE (ATM) 0.9966+000
PPH2 (ATM) 0.1154-009 PFH- (ATM) 0.4365-007

IONIZATION POTENTIAL (1/CM) 105270.
PARTITION FUNCTION 0.2480+001
ROSSELAND MEAN OPACITY (1/CM) 0.1288-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7004+000	11000.	0.3917-002	70000.	0.1076-003
1500.	0.2671+000	12000.	0.3209-002	75000.	0.8858-004
2000.	0.1359+000	13500.	0.2444-002	80000.	0.7378-004
2500.	0.8726-001	15000.	0.1910-002	90000.	0.5271-004
3000.	0.5755-001	20000.	0.9599-003	100000.	0.3893-004
4000.	0.2989-001	25000.	0.1568-002	125000.	0.6269-002
5000.	0.1799-001	27500.	0.1248-002	150000.	0.3832-002
5500.	0.1448-001	30000.	0.1010-002	175000.	0.2513-002
6000.	0.1187-001	40000.	0.4889-003	200000.	0.1738-002
8000.	0.8034-002	50000.	0.2714-003	300000.	0.5598-003
10000.	0.4865-002	60000.	0.1652-003	400000.	0.2484-003

TABLE VI f

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 2 ATMOSPHERES FOR 40,000°R AND 30,000°R

PRESS(ATM)	2.	ENTHALPY	0.1026+007 (BTU/LB)	0.5700+003 (KCAL/G)
TEMP (R)	40000.	FREE ENG	-0.1902+007 (BTU/LB)	-0.1057+004 (KCAL/G)
TEMP (K)	22222.	ENTROPY	0.7320+005 (BTU/LB-R)	0.7320+002 (CAL/G-K)
DEN(G/CM3)	0.5631-006			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.3511-001	0.	PPHT (ATM) 0.3734-001	PPE (ATM) 0.9813+000	
2	0.6835-003	82259.	PPH2 (ATM) 0.5888-008	PPH- (ATM) 0.5260-006	
3	0.5735-003	97497.	IONIZATION POTENTIAL (1/CM)	104795.	
4	0.7210-003	102850.	PARTITION FUNCTION	0.2127+001	
5	0.2536-003	105391.	ROSSELAND MEAN OPACITY (1/CM)	0.3249-003	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1303+001	11000.	0.8420-002	70000.	0.2750-003
1500.	0.5025+000	12000.	0.6884-002	75000.	0.2260-003
2000.	0.2831+000	13500.	0.5224-002	80000.	0.1885-003
2500.	0.1709+000	15000.	0.4067-002	90000.	0.1340-003
3000.	0.1152+000	20000.	0.2017-002	100000.	0.9881-004
4000.	0.5915-001	25000.	0.4274-002	125000.	0.5072-001
5000.	0.3566-001	27500.	0.3382-002	150000.	0.3097-001
5500.	0.2873-001	30000.	0.2720-002	175000.	0.2031-001
6000.	0.2356-001	40000.	0.1290-002	200000.	0.1405-001
8000.	0.1734-001	50000.	0.7055-003	300000.	0.4524-002
10000.	0.1048-001	60000.	0.4252-003	400000.	0.2007-002

PRESS(ATM)	2.	ENTHALPY	0.7020+006 (BTU/LB)	0.3900+003 (KCAL/G)
TEMP (R)	30001.	FREE ENG	-0.1199+007 (BTU/LB)	-0.6661+003 (KCAL/G)
TEMP (K)	16667.	ENTROPY	0.6336+005 (BTU/LB-R)	0.6336+002 (CAL/G-K)
DEN(G/CM3)	0.8958-006			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.4274+000	0.	PPHT (ATM) 0.4308+000	PPE (ATM) 0.7846+000	
2	0.1411-002	82259.	PPH2 (ATM) 0.1812-005	PPH- (ATM) 0.1197-004	
3	0.8519-003	97497.	IONIZATION POTENTIAL (1/CM)	104490.	
4	0.9541-003	102850.	PARTITION FUNCTION	0.2016+001	
5	0.1741-003	105391.	ROSSELAND MEAN OPACITY (1/CM)	0.1146-002	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1981+001	11000.	0.1585-001	70000.	0.7221-003
1500.	0.7758+000	12000.	0.1294-001	75000.	0.6048-003
2000.	0.4600+000	13500.	0.9800-002	80000.	0.6630-003
2500.	0.2800+000	15000.	0.7615-002	90000.	0.3704-003
3000.	0.1866+000	20000.	0.3759-002	100000.	0.2656-003
4000.	0.9797-001	25000.	0.1163-001	125000.	0.8227+000
5000.	0.5918-001	27500.	0.9134-002	150000.	0.5023+000
5500.	0.4763-001	30000.	0.7299-002	175000.	0.3294+000
6000.	0.3903-001	40000.	0.3398-002	200000.	0.2278+000
8000.	0.3275-001	50000.	0.1843-002	300000.	0.7338-001
10000.	0.1975-001	60000.	0.1109-002	400000.	0.3256-001

TABLE VI g

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 2 ATMOSPHERES FOR 26,000°R AND 23,000°R

PRESS(ATM)	2.	ENTHALPY	0.4467+006 (BTU/LB)	0.2482+003 (KCAL/G)
TEMP (R)	25999.	FREE ENG	-0.9600+006 (BTU/LB)	-0.5333+003 (KCAL/G)
TEMP (K)	14444.	ENTROPY	0.5411+005 (BTU/LB-R)	0.5411+002 (CAL/G-K)
DEN(G/CM3)	0.1283-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1015+001	0.
2	0.1123-002	82259.
3	0.5542-003	97497.
4	0.5780-003	102850.
5	0.2431-003	105391.

PPHT (ATM) 0.1018+001 PPE (ATM) 0.4910+000
PPH2 (ATM) 0.1695-004 PPH- (ATM) 0.2759-004

IONIZATION POTENTIAL (1/CM) 105001.
PARTITION FUNCTION 0.2005+001
ROSSELAND MEAN OPACITY (1/CM) 0.1545-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1248+001	11000.	0.1189-001	70000.	0.7247-003
1500.	0.4951+000	12000.	0.9770-002	75000.	0.6800-003
2000.	0.2579+000	13500.	0.7474-002	80000.	0.1766-002
2500.	0.1868+000	15000.	0.5869-002	90000.	0.4821-003
3000.	0.1250+000	20000.	0.3007-002	100000.	0.2911-003
4000.	0.6597-001	25000.	0.1083-001	125000.	0.2255+001
5000.	0.3994-001	27500.	0.8498-002	150000.	0.1377+001
5500.	0.3216-001	30000.	0.6790-002	175000.	0.9027+000
6000.	0.2636-001	40000.	0.3175-002	200000.	0.6243+000
8000.	0.2419-001	50000.	0.1741-002	300000.	0.2011+000
10000.	0.1473-001	60000.	0.1064-002	400000.	0.8922-001

PRESS(ATM)	2.	ENTHALPY	0.3014+006 (BTU/LB)	0.1674+003 (KCAL/G)
TEMP (R)	23000.	FREE ENG	-0.8055+006 (BTU/LB)	-0.4475+003 (KCAL/G)
TEMP (K)	12778.	ENTROPY	0.4812+005 (BTU/LB-R)	0.4812+002 (CAL/G-K)
DEN(G/CM3)	0.1685-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1504+001	0.
2	0.5719-003	82259.
3	0.2315-003	97497.
4	0.2252-003	102850.
5	0.2089-003	105391.

PPHT (ATM) 0.1505+001 PPE (ATM) 0.2472+000
PPH2 (ATM) 0.6139-004 PPH- (ATM) 0.3024-004

IONIZATION POTENTIAL (1/CM) 105837.
PARTITION FUNCTION 0.2002+001
ROSSELAND MEAN OPACITY (1/CM) 0.1346-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5078+000	11000.	0.5966-002	70000.	0.5361-003
1500.	0.2052+000	12000.	0.4983-002	75000.	0.6726-003
2000.	0.1081+000	13500.	0.3908-002	80000.	0.3922-002
2500.	0.6578-001	15000.	0.3146-002	90000.	0.6081-003
3000.	0.5455-001	20000.	0.1741-002	100000.	0.2608-003
4000.	0.2900-001	25000.	0.6444-002	125000.	0.3776+001
5000.	0.1764-001	27500.	0.5071-002	150000.	0.2306+001
5500.	0.1423-001	30000.	0.4066-002	175000.	0.1512+001
6000.	0.1167-001	40000.	0.1934-002	200000.	0.1046+001
8000.	0.6287-002	50000.	0.1086-002	300000.	0.3367+000
10000.	0.7274-002	60000.	0.6888-003	400000.	0.1494+000

TABLE VI h

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 2 ATMOSPHERES FOR 20,000°R AND 16,000°R

PRESS(ATM)	2.	ENTHALPY	0.2208+006 (BTU/LB)	0.1227+003 (KCAL/G)
TEMP (R)	20000.	FREE ENG	-0.6663+006 (BTU/LB)	-0.3702+003 (KCAL/G)
TEMP (K)	11111.	ENTROPY	0.4436+005 (BTU/LB-R)	0.4436+002 (CAL/G-K)
DEN(G/CM3)	0.2115-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1825+001	0.
2	0.1729-003	82259.
3	0.5410-004	97497.
4	0.4809-004	102850.
5	0.5407-004	105391.

PPHT (ATM) 0.1825+001 PPE (ATM) 0.8733-001
PPH2 (ATM) 0.1739-003 PPH- (ATM) 0.2036-004

IONIZATION POTENTIAL (1/CM) 106892.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.7470-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1096+000	11000.	0.1956-002	70000.	0.3724-003
1500.	0.4475-001	12000.	0.1701-002	75000.	0.7521-003
2000.	0.2648-001	13500.	0.1412-002	80000.	0.7166-002
2500.	0.1629-001	15000.	0.1196-002	90000.	0.8409-003
3000.	0.1093-001	20000.	0.7568-003	100000.	0.2487-003
4000.	0.5804-002	25000.	0.2428-002	125000.	0.5269+001
5000.	0.4577-002	27500.	0.1928-002	150000.	0.3217+001
5500.	0.3704-002	30000.	0.1561-002	175000.	0.2110+001
6000.	0.3049-002	40000.	0.7744-003	200000.	0.1459+001
8000.	0.1821-002	50000.	0.4592-003	300000.	0.4698+000
10000.	0.2288-002	60000.	0.3244-003	400000.	0.2084+000

PRESS(ATM)	2.	ENTHALPY	0.1740+006 (BTU/LB)	0.9669+002 (KCAL/G)
TEMP (R)	16000.	FREE ENG	-0.4943+006 (BTU/LB)	-0.2746+003 (KCAL/G)
TEMP (K)	8889.	ENTROPY	0.4177+005 (BTU/LB-R)	0.4177+002 (CAL/G-K)
DEN(G/CM3)	0.2750-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1977+001	0.
2	0.1307-004	82259.
3	0.2498-005	97497.
4	0.1867-005	102850.
5	0.1934-005	105391.

PPHT (ATM) 0.1977+001 PPE (ATM) 0.1093-001
PPH2 (ATM) 0.7177-003 PPH- (ATM) 0.5866-005

IONIZATION POTENTIAL (1/CM) 108245.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1729-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8352-002	11000.	0.2954-003	70000.	0.3626-003
1500.	0.3594-002	12000.	0.2836-003	75000.	0.1111-002
2000.	0.1978-002	13500.	0.2644-003	80000.	0.1292-001
2500.	0.1245-002	15000.	0.2443-003	90000.	0.1371-002
3000.	0.9175-003	20000.	0.1841-003	100000.	0.3239-003
4000.	0.5042-003	25000.	0.1431-003	125000.	0.7140+001
5000.	0.3163-003	27500.	0.2692-003	150000.	0.4361+001
5500.	0.3068-003	30000.	0.2262-003	175000.	0.2860+001
6000.	0.2551-003	40000.	0.1312-003	200000.	0.1977+001
8000.	0.2331-003	50000.	0.1002-003	300000.	0.6363+000
10000.	0.2467-003	60000.	0.1229-003	400000.	0.2822+000

TABLE VI i

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 2 ATMOSPHERES FOR 13,000°R AND 10,000°R

PRESS(ATM)	2.	ENTHALPY	0.1557+006 (BTU/LB)	0.8649+002 (KCAL/G)
TEMP (R)	13000.	FREE ENG	-0.3708+006 (BTU/LB)	-0.2060+003 (KCAL/G)
TEMP (K)	7222.	ENTROPY	0.4050+005 (BTU/LB-R)	0.4050+002 (CAL/G-K)
DEN(G/CM3)	0.3405-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1995+001	0.
2	0.6105-006	82259.
3	0.6602-007	97497.
4	0.4041-007	102850.
5	0.3806-007	105391.

PPHT (ATM) 0.1995+001 PPE (ATM) 0.1039-002
PPH2 (ATM) 0.3118-002 PPH- (ATM) 0.1185-005

IONIZATION POTENTIAL (1/CM) 109011.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.4075-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8856-003	11000.	0.5505-004	70000.	0.5064-003
1500.	0.3917-003	12000.	0.5731-004	75000.	0.1667-002
2000.	0.2197-003	13500.	0.5614-004	80000.	0.1988-001
2500.	0.1403-003	15000.	0.5349-004	90000.	0.2084-002
3000.	0.9725-004	20000.	0.4258-004	100000.	0.4751-003
4000.	0.5554-004	25000.	0.3456-004	125000.	0.8885+001
5000.	0.3545-004	27500.	0.3995-004	150000.	0.5435+001
5500.	0.2927-004	30000.	0.3607-004	175000.	0.3565+001
6000.	0.2457-004	40000.	0.3097-004	200000.	0.2460+001
8000.	0.4034-004	50000.	0.4602-004	300000.	0.7900+000
10000.	0.5240-004	60000.	0.1155-003	400000.	0.3503+000

PRESS(ATM)	2.	ENTHALPY	0.1377+006 (BTU/LB)	0.7651+002 (KCAL/G)
TEMP (R)	10001.	FREE ENG	-0.2519+006 (BTU/LB)	-0.1399+003 (KCAL/G)
TEMP (K)	5556.	ENTROPY	0.3895+005 (BTU/LB-R)	0.3895+002 (CAL/G-K)
DEN(G/CM3)	0.4490-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1969+001	0.
2	0.4428-008	82259.
3	0.1927-009	97497.
4	0.8567-010	102850.
5	0.6933-010	105391.

PPHT (ATM) 0.1969+001 PPE (ATM) 0.2700-004
PPH2 (ATM) 0.3092-001 PPH- (ATM) 0.8403-007

IONIZATION POTENTIAL (1/CM) 109476.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.4596-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3633-004	11000.	0.5085-005	70000.	0.8240-003
1500.	0.1615-004	12000.	0.5259-005	75000.	0.2742-002
2000.	0.9082-005	13500.	0.5293-005	80000.	0.3281-001
2500.	0.5813-005	15000.	0.5193-005	90000.	0.3432-002
3000.	0.4038-005	20000.	0.4896-005	100000.	0.7785-003
4000.	0.2274-005	25000.	0.5500-005	125000.	0.1169+002
5000.	0.1463-005	27500.	0.6357-005	150000.	0.7264+001
5500.	0.1215-005	30000.	0.7518-005	175000.	0.4785+001
6000.	0.1027-005	40000.	0.1863-004	200000.	0.3237+001
8000.	0.3243-005	50000.	0.5357-004	300000.	0.1014+001
10000.	0.4786-005	60000.	0.1745-003	400000.	0.4493+000

TABLE VI j

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 2 ATMOSPHERES FOR 7,000°R AND 5,000°R

PRESS(ATM)	2.	ENTHALPY	0.6786+005 (BTU/LB)	0.3770+002 (KCAL/G)
TEMP (R)	7000.	FREE ENG	-0.1490+006 (BTU/LB)	-0.8276+002 (KCAL/G)
TEMP (K)	3889.	ENTROPY	0.3097+005 (BTU/LB-R)	0.3097+002 (CAL/G-K)
DEN(G/CM3)	0.8910-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1179+001	0.
2	0.2874-012	82259.
3	0.2305-014	97497.
4	0.5657-015	102850.
5	0.3453-015	105391.

PPHT (ATM) 0.1179+001 PFE (ATM) 0.2960-007
PPH2 (ATM) 0.8210+000 PPH- (ATM) 0.2633-009

IONIZATION POTENTIAL (1/CM) 109657.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1205-007

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2409-010	11000.	0.1448-006	70000.	0.6730-003
1500.	0.1119-009	12000.	0.1864-006	75000.	0.2241-002
2000.	0.3284-009	13500.	0.2649-006	80000.	0.2682-001
2500.	0.7472-009	15000.	0.3668-006	90000.	0.2805-002
3000.	0.1448-008	20000.	0.9442-006	100000.	0.6360-003
4000.	0.4031-008	25000.	0.2082-005	125000.	0.2181+002
5000.	0.8760-008	27500.	0.2969-005	150000.	0.1818+002
5500.	0.1215-007	30000.	0.4150-005	175000.	0.1280+002
6000.	0.1633-007	40000.	0.1390-004	200000.	0.6084+001
8000.	0.5563-007	50000.	0.4284-004	300000.	0.8671+000
10000.	0.1100-006	60000.	0.1420-003	400000.	0.3844+000

PRESS(ATM)	2.	ENTHALPY	0.1993+005 (BTU/LB)	0.1107+002 (KCAL/G)
TEMP (R)	5000.	FREE ENG	-0.9885+005 (BTU/LB)	-0.5492+002 (KCAL/G)
TEMP (K)	2778.	ENTROPY	0.2375+005 (BTU/LB-R)	0.2375+002 (CAL/G-K)
DEN(G/CM3)	0.1723-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1039+000	0.
2	0.1313-018	82259.
3	0.1106-021	97497.
4	0.1229-022	102850.
5	0.5152-023	105391.

PPHT (ATM) 0.1039+000 PFE (ATM) 0.1728-011
PPH2 (ATM) 0.1896+001 PPH- (ATM) 0.7685-014

IONIZATION POTENTIAL (1/CM) 109678.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.3077-009

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1629-011	11000.	0.6529-008	70000.	0.3520-004
1500.	0.7416-011	12000.	0.8674-008	75000.	0.1172-003
2000.	0.2119-010	13500.	0.1278-007	80000.	0.1403-002
2500.	0.4702-010	15000.	0.1815-007	90000.	0.1467-003
3000.	0.8909-010	20000.	0.4855-007	100000.	0.3327-004
4000.	0.2386-009	25000.	0.1082-006	125000.	0.4026+002
5000.	0.5029-009	27500.	0.1547-006	150000.	0.4031+002
5500.	0.6885-009	30000.	0.2165-006	175000.	0.2926+002
6000.	0.9155-009	40000.	0.7266-006	200000.	0.1130+002
8000.	0.2326-008	50000.	0.2240-005	300000.	0.1070+000
10000.	0.4791-008	60000.	0.7424-005	400000.	0.4745-001

TABLE VI k

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 2 ATMOSPHERES FOR 3000 °R

PRESS(ATM)	2.	ENTHALPY	0.8971+004 (BTU/LB)	0.4984+001 (KCAL/G)
TEMP (R)	3001.	FREE ENG	-0.5438+005 (BTU/LB)	-0.3021+002 (KCAL/G)
TEMP (K)	1667.	ENTROPY	0.2111+005 (BTU/LB-R)	0.2111+002 (CAL/G-K)
DEN(G/CM3)	0.2947-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1517-003	0.
2	0.0000+000	82259.
3	0.0000+000	97497.
4	0.0000+000	102850.
5	0.0000+000	105391.

PPHT (ATM) 0.1517-003 PPE (ATM) 0.0000+000
PPH2 (ATM) 0.2000+001 PPH- (ATM) 0.0000+000

IONIZATION POTENTIAL (1/CM) 109679.
PARTITION FUNCTION 0.0000+000
ROSSELAND MEAN OPACITY (1/CM) 0.2982-012

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6333-014	11000.	0.1780-010	70000.	0.9586-007
1500.	0.2709-013	12000.	0.2362-010	75000.	0.3185-006
2000.	0.7339-013	13500.	0.3477-010	80000.	0.3812-005
2500.	0.1557-012	15000.	0.4935-010	90000.	0.3988-006
3000.	0.2840-012	20000.	0.1320-009	100000.	0.9041-007
4000.	0.7185-012	25000.	0.2942-009	125000.	0.6866+002
5000.	0.1458-011	27500.	0.4204-009	150000.	0.6957+002
5500.	0.1969-011	30000.	0.5884-009	175000.	0.5059+002
6000.	0.2590-011	40000.	0.1975-008	200000.	0.1927+002
8000.	0.6422-011	50000.	0.6089-008	300000.	0.2603-003
10000.	0.1309-010	60000.	0.2018-007	400000.	0.1154-003

TABLE VII a

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 4 ATMOSPHERES FOR 200,000°R AND 175,000°R

PRESS(ATM)	4.	ENTHALPY	0.2643+007 (BTU/LB)	0.1468+004 (KCAL/G)
TEMP (R)	200000.	FREE ENG	-0.1478+008 (BTU/LB)	-0.8210+004 (KCAL/G)
TEMP (K)	111111.	ENTROPY	0.8710+005 (BTU/LB-R)	0.8710+002 (CAL/G-K)
DEN(G/CM3)	0.2211-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1172-004	0.
2	0.1615-004	82260.
3	0.2984-004	97501.
4	0.4948-004	102876.
5	0.7474-004	105490.

PPHT (ATM) 0.1962-003 PFE (ATM) 0.2000+001
PPH2 (ATM) 0.2169-013 PFH- (ATM) 0.4678-011

IONIZATION POTENTIAL (1/CM) 106592.
PARTITION FUNCTION 0.3350+002
ROSSELAND MEAN OPACITY (1/CM) 0.4097-006

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6040-001	11000.	0.1683-003	70000.	0.2659-005
1500.	0.2151-001	12000.	0.1370-003	75000.	0.2247-005
2000.	0.1039-001	13500.	0.1038-003	80000.	0.1918-005
2500.	0.5929-002	15000.	0.8099-004	90000.	0.1432-005
3000.	0.3760-002	20000.	0.4121-004	100000.	0.1098-005
4000.	0.1864-002	25000.	0.2950-004	125000.	0.3330-005
5000.	0.1079-002	27500.	0.2373-004	150000.	0.2151-005
5500.	0.8552-003	30000.	0.1945-004	175000.	0.1465-005
6000.	0.6922-003	40000.	0.1002-004	200000.	0.1040-005
8000.	0.3454-003	50000.	0.5947-005	300000.	0.3506-006
10000.	0.2109-003	60000.	0.3857-005	400000.	0.1570-006

PRESS(ATM)	4.	ENTHALPY	0.2394+007 (BTU/LB)	0.1330+004 (KCAL/G)
TEMP (R)	175000.	FREE ENG	-0.1262+008 (BTU/LB)	-0.7009+004 (KCAL/G)
TEMP (K)	97222.	ENTROPY	0.8577+005 (BTU/LB-R)	0.8577+002 (CAL/G-K)
DEN(G/CM3)	0.2527-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1991-004	0.
2	0.2357-004	82260.
3	0.4233-004	97501.
4	0.6950-004	102876.
5	0.1045-003	105490.

PPHT (ATM) 0.2651-003 PFE (ATM) 0.2000+001
PPH2 (ATM) 0.4264-013 PFH- (ATM) 0.1122-010

IONIZATION POTENTIAL (1/CM) 106418.
PARTITION FUNCTION 0.2663+002
ROSSELAND MEAN OPACITY (1/CM) 0.8402-006

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8641-001	11000.	0.2530-003	70000.	0.4174-005
1500.	0.3086-001	12000.	0.2063-003	75000.	0.3521-005
2000.	0.1496-001	13500.	0.1566-003	80000.	0.2999-005
2500.	0.8573-002	15000.	0.1224-003	90000.	0.2231-005
3000.	0.5454-002	20000.	0.6249-004	100000.	0.1705-005
4000.	0.2725-002	25000.	0.4657-004	125000.	0.5487-005
5000.	0.1584-002	27500.	0.3750-004	150000.	0.4158-005
5500.	0.1255-002	30000.	0.3076-004	175000.	0.2814-005
6000.	0.1020-002	40000.	0.1585-004	200000.	0.1987-005
8000.	0.5115-003	50000.	0.9390-005	300000.	0.6612-006
0000.	0.3165-003	60000.	0.6073-005	400000.	0.2947-006

TABLE VII b

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 4 ATMOSPHERES FOR 150,000°R AND 125,000°R

PRESS(ATM)	4.	ENTHALPY	0.2146+007 (BTU/LB)	0.1192+004 (KCAL/G)
TEMP (R)	149999.	FREE ENG	-0.1049+008 (BTU/LB)	-0.5828+004 (KCAL/G)
TEMP (K)	83333.	ENTROPY	0.8424+005 (BTU/LB-R)	0.8424+002 (CAL/G-K)
DEN(G/CM3)	0.2948-006			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.3790-004	0.	PPHT (ATM) 0.3804-003	PFE (ATM)	0.2000+001
2	0.3664-004	82260.	PPH2 (ATM) 0.9665-013	PFH- (ATM)	0.3189-010
3	0.6338-004	97501.	IONIZATION POTENTIAL (1/CM)		106203.
4	0.1027-003	102876.	PARTITION FUNCTION		0.2007+002
5	0.1398-003	105490.	ROSSELAND MEAN OPACITY (1/CM)		0.2046-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1307+000	11000.	0.4078-003	70000.	0.7063-005
1500.	0.4697-001	12000.	0.3331-003	75000.	0.5944-005
2000.	0.2290-001	13500.	0.2533-003	80000.	0.5051-005
2500.	0.1317-001	15000.	0.1983-003	90000.	0.3738-005
3000.	0.8412-002	20000.	0.1015-003	100000.	0.2843-005
4000.	0.4246-002	25000.	0.7980-004	125000.	0.1448-004
5000.	0.2480-002	27500.	0.6432-004	150000.	0.9194-005
5500.	0.1973-002	30000.	0.5276-004	175000.	0.6177-005
6000.	0.1603-002	40000.	0.2716-004	200000.	0.4337-005
8000.	0.8085-003	50000.	0.1604-004	300000.	0.1426-005
10000.	0.5091-003	60000.	0.1033-004	400000.	0.6334-006

PRESS(ATM)	4.	ENTHALPY	0.1897+007 (BTU/LB)	0.1054+004 (KCAL/G)
TEMP (R)	124999.	FREE ENG	-0.8406+007 (BTU/LB)	-0.4670+004 (KCAL/G)
TEMP (K)	69444.	ENTROPY	0.8243+005 (BTU/LB-R)	0.8243+002 (CAL/G-K)
DEN(G/CM3)	0.3538-006			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.8579-004	0.	PPHT (ATM) 0.5946-003	PFE (ATM)	0.2000+001
2	0.6243-004	82260.	PPH2 (ATM) 0.2700-012	PFH- (ATM)	0.1163-009
3	0.1024-003	97501.	IONIZATION POTENTIAL (1/CM)		105924.
4	0.1629-003	102876.	PARTITION FUNCTION		0.1386+002
5	0.1810-003	105490.	ROSSELAND MEAN OPACITY (1/CM)		0.6408-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2140+000	11000.	0.7237-003	70000.	0.1329-004
1500.	0.7758-001	12000.	0.5921-003	75000.	0.1115-004
2000.	0.3807-001	13500.	0.4511-003	80000.	0.9441-005
2500.	0.2202-001	15000.	0.3537-003	90000.	0.6943-005
3000.	0.1412-001	20000.	0.1815-003	100000.	0.5250-005
4000.	0.7221-002	25000.	0.1537-003	125000.	0.3952-004
5000.	0.4242-002	27500.	0.1239-003	150000.	0.2484-004
5500.	0.3383-002	30000.	0.1016-003	175000.	0.1655-004
6000.	0.2754-002	40000.	0.5213-004	200000.	0.1156-004
8000.	0.1398-002	50000.	0.3059-004	300000.	0.3760-005
10000.	0.9017-003	60000.	0.1957-004	400000.	0.1668-005

TABLE VII c

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 4 ATMOSPHERES FOR 100,000°R AND 90,000°R

PRESS(ATM)	4.	ENTHALPY	0.1649+007 (BTU/LB)	0.9159+003 (KCAL/G)
TEMP (R)	100001.	FREE ENG	-0.6372+007 (BTU/LB)	-0.3540+004 (KCAL/G)
TEMP (K)	55556.	ENTROPY	0.8021+005 (BTU/LB-R)	0.8021+002 (CAL/G-K)
DEN(G/CM3)	0.4423-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2520-003	0.
2	0.1198-003	82260.
3	0.1816-003	97501.
4	0.2810-003	102876.
5	0.2175-003	105490.

PPHT (ATM) 0.1052-002 PPE (ATM) 0.1999+001
PPH2 (ATM) 0.1033-011 PPH- (ATM) 0.6156-009

IONIZATION POTENTIAL (1/CM) 105542.
PARTITION FUNCTION 0.8348+001
ROSSELAND MEAN OPACITY (1/CM) 0.2707-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3942+000	11000.	0.1476-002	70000.	0.2902-004
1500.	0.1445+000	12000.	0.1210-002	75000.	0.2422-004
2000.	0.7147-001	13500.	0.9230-003	80000.	0.2042-004
2500.	0.4161-001	15000.	0.7242-003	90000.	0.1489-004
3000.	0.2763-001	20000.	0.3715-003	100000.	0.1118-004
4000.	0.1397-001	25000.	0.3500-003	125000.	0.1458-003
5000.	0.8259-002	27500.	0.2818-003	150000.	0.9060-004
5500.	0.6605-002	30000.	0.2308-003	175000.	0.5992-004
6000.	0.5388-002	40000.	0.1174-003	200000.	0.4162-004
8000.	0.2754-002	50000.	0.6818-004	300000.	0.1345-004
10000.	0.1836-002	60000.	0.4316-004	400000.	0.5963-005

PRESS(ATM)	4.	ENTHALPY	0.1549+007 (BTU/LB)	0.8607+003 (KCAL/G)
TEMP (R)	90000.	FREE ENG	-0.5575+007 (BTU/LB)	-0.3097+004 (KCAL/G)
TEMP (K)	50000.	ENTROPY	0.7916+005 (BTU/LB-R)	0.7916+002 (CAL/G-K)
DEN(G/CM3)	0.4915-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4454-003	0.
2	0.1671-003	82260.
3	0.2425-003	97501.
4	0.3693-003	102876.
5	0.2378-003	105490.

PPHT (ATM) 0.1462-002 PPE (ATM) 0.1999+001
PPH2 (ATM) 0.2232-011 PPH- (ATM) 0.1440-008

IONIZATION POTENTIAL (1/CM) 105344.
PARTITION FUNCTION 0.6565+001
ROSSELAND MEAN OPACITY (1/CM) 0.5136-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5276+000	11000.	0.2085-002	70000.	0.4269-004
1500.	0.1944+000	12000.	0.1709-002	75000.	0.3555-004
2000.	0.9658-001	13500.	0.1305-002	80000.	0.2991-004
2500.	0.5821-001	15000.	0.1024-002	90000.	0.2173-004
3000.	0.3776-001	20000.	0.5246-003	100000.	0.1625-004
4000.	0.1917-001	25000.	0.5269-003	125000.	0.2846-003
5000.	0.1137-001	27500.	0.4240-003	150000.	0.1773-003
5500.	0.9103-002	30000.	0.3468-003	175000.	0.1169-003
6000.	0.7434-002	40000.	0.1755-003	200000.	0.8110-004
8000.	0.4306-002	50000.	0.1014-003	300000.	0.2616-004
10000.	0.2591-002	60000.	0.6380-004	400000.	0.1160-004

TABLE VII d

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 4 ATMOSPHERES FOR 80,000°R AND 70,000°R

PRESS(ATM)	4.	ENTHALPY	0.1450+007 (BTU/LB)	0.8053+003 (KCAL/G)
TEMP (R)	79999.	FREE ENG	-0.4789+007 (BTU/LB)	-0.2660+004 (KCAL/G)
TEMP (K)	44444.	ENTROPY	0.7798+005 (BTU/LB-R)	0.7798+002 (CAL/G-K)
DEN(G/CM3)	0.5531-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.8716-003	0.
2	0.2432-003	82260.
3	0.3342-003	97501.
4	0.4992-003	102876.
5	0.2535-003	105490.

PPHT (ATM) 0.2202-002 PFE (ATM) 0.1999+001
PPH2 (ATM) 0.5821-011 PFH- (ATM) 0.3866-008

IONIZATION POTENTIAL (1/CM) 105107.
PARTITION FUNCTION 0.5052+001
ROSSELAND MEAN OPACITY (1/CM) 0.9374-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7325+000	11000.	0.3079-002	70000.	0.6609-004
1500.	0.2716+000	12000.	0.2525-002	75000.	0.5489-004
2000.	0.1355+000	13500.	0.1928-002	80000.	0.4607-004
2500.	0.8251-001	15000.	0.1512-002	90000.	0.3333-004
3000.	0.5369-001	20000.	0.7734-003	100000.	0.2484-004
4000.	0.2738-001	25000.	0.8399-003	125000.	0.6313-003
5000.	0.1630-001	27500.	0.6749-003	150000.	0.3889-003
5500.	0.1306-001	30000.	0.5513-003	175000.	0.2559-003
6000.	0.1068-001	40000.	0.2770-003	200000.	0.1773-003
8000.	0.6341-002	50000.	0.1589-003	300000.	0.5713-004
10000.	0.3824-002	60000.	0.9934-004	400000.	0.2534-004

PRESS(ATM)	4.	ENTHALPY	0.1350+007 (BTU/LB)	0.7498+003 (KCAL/G)
TEMP (R)	70000.	FREE ENG	-0.4015+007 (BTU/LB)	-0.2231+004 (KCAL/G)
TEMP (K)	38889.	ENTROPY	0.7664+005 (BTU/LB-R)	0.7664+002 (CAL/G-K)
DEN(G/CM3)	0.6323-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1963-002	0.
2	0.3744-003	82260.
3	0.4794-003	97501.
4	0.6986-003	102876.
5	0.2411-003	105490.

PPHT (ATM) 0.3756-002 PFE (ATM) 0.1998+001
PPH2 (ATM) 0.2027-010 PFH- (ATM) 0.1250-007

IONIZATION POTENTIAL (1/CM) 104819.
PARTITION FUNCTION 0.3828+001
ROSSELAND MEAN OPACITY (1/CM) 0.1593-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1065+001	11000.	0.4810-002	70000.	0.1093-003
1500.	0.3978+000	12000.	0.3944-002	75000.	0.9053-004
2000.	0.2078+000	13500.	0.3010-002	80000.	0.7578-004
2500.	0.1230+000	15000.	0.2360-002	90000.	0.5458-004
3000.	0.8030-001	20000.	0.1203-002	100000.	0.4054-004
4000.	0.4117-001	25000.	0.1441-002	125000.	0.1624-002
5000.	0.2458-001	27500.	0.1155-002	150000.	0.9972-003
5500.	0.1973-001	30000.	0.9417-003	175000.	0.6551-003
6000.	0.1614-001	40000.	0.4688-003	200000.	0.4534-003
8000.	0.9883-002	50000.	0.2665-003	300000.	0.1460-003
10000.	0.5972-002	60000.	0.1654-003	400000.	0.6478-004

TABLE VII e

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 4 ATMOSPHERES FOR 60,000°R AND 50,000°R

PRESS(ATM)	4.	ENTHALPY	0.1249+007 (BTU/LB)	0.6938+003	(KCAL/G)
TEMP (R)	59999.	FREE ENG	-0.3256+007 (BTU/LB)	-0.1809+004	(KCAL/G)
TEMP (K)	33333.	ENTROPY	0.7508+005 (BTU/LB-R)	0.7508+002	(CAL/G-K)
DEN(G/CM3)	0.7385-006				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5416-002	0.
2	0.6222-003	82260.
3	0.7252-003	97501.
4	0.1022-002	102876.
5	0.1490-003	105490.

PPHT (ATM) 0.7935-002 PPE (ATM) 0.1996+001
PPH2 (ATM) 0.1150-009 PPH- (ATM) 0.5257-007

IONIZATION POTENTIAL (1/CM) 104456.
PARTITION FUNCTION 0.2930+001
ROSSELAND MEAN OPACITY (1/CM) 0.2645-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1646+001	11000.	0.8084-002	70000.	0.1977-003
1500.	0.6196+000	12000.	0.6627-002	75000.	0.1633-003
2000.	0.3289+000	13500.	0.5053-002	80000.	0.1363-003
2500.	0.1956+000	15000.	0.3957-002	90000.	0.9777-004
3000.	0.1283+000	20000.	0.2005-002	100000.	0.7240-004
4000.	0.6610-001	25000.	0.2728-002	125000.	0.5226-002
5000.	0.3959-001	27500.	0.2181-002	150000.	0.3200-002
5500.	0.3181-001	30000.	0.1772-002	175000.	0.2100-002
6000.	0.2605-001	40000.	0.8715-003	200000.	0.1452-002
8000.	0.1660-001	50000.	0.4901-003	300000.	0.4678-003
10000.	0.1004-001	60000.	0.3014-003	400000.	0.2075-003

PRESS(ATM)	4.	ENTHALPY	0.1143+007 (BTU/LB)	0.6352+003	(KCAL/G)
TEMP (R)	50000.	FREE ENG	-0.2514+007 (BTU/LB)	-0.1397+004	(KCAL/G)
TEMP (K)	27778.	ENTROPY	0.7314+005 (BTU/LB-R)	0.7314+002	(CAL/G-K)
DEN(G/CM3)	0.8897-006				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2025-001	0.
2	0.1144-002	82260.
3	0.1169-002	97501.
4	0.1453-002	102876.
5	0.0000+000	105490.

PPHT (ATM) 0.2402-001 PPE (ATM) 0.1988+001
PPH2 (ATM) 0.1473-008 PPH- (ATM) 0.3253-006

IONIZATION POTENTIAL (1/CM) 103984.
PARTITION FUNCTION 0.2372+001
ROSSELAND MEAN OPACITY (1/CM) 0.4832-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2756+001	11000.	0.1488-001	70000.	0.4035-003
1500.	0.1102+001	12000.	0.1218-001	75000.	0.3322-003
2000.	0.5651+000	13500.	0.9271-002	80000.	0.2768-003
2500.	0.3379+000	15000.	0.7242-002	90000.	0.1977-003
3000.	0.2224+000	20000.	0.3635-002	100000.	0.1460-003
4000.	0.1152+000	25000.	0.5884-002	125000.	0.2342-001
5000.	0.6915-001	27500.	0.4683-002	150000.	0.1432-001
5500.	0.5560-001	30000.	0.3789-002	175000.	0.9388-002
6000.	0.4555-001	40000.	0.1834-002	200000.	0.6493-002
8000.	0.3058-001	50000.	0.1018-002	300000.	0.2091-002
10000.	0.1849-001	60000.	0.6196-003	400000.	0.9280-003

TABLE VII f

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 4 ATMOSPHERES FOR 40,000°R AND 30,000°R

PRESS(ATM)	4.	ENTHALPY	0.1006+007 (BTU/LB)	0.5589+003 (KCAL/G)
TEMP (R)	40000.	FREE ENG	-0.1794+007 (BTU/LB)	-0.9964+003 (KCAL/G)
TEMP (K)	22222.	ENTROPY	0.6999+005 (BTU/LB-R)	0.6999+002 (CAL/G-K)
DEN(G/CM3)	0.1142-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1245+000	0.
2	0.2425-002	82260.
3	0.2034-002	97501.
4	0.1768-002	102876.
5	0.0000+000	105490.

PPHT (ATM) 0.1308+000 PPE (ATM) 0.1935+001
PPH2 (ATM) 0.7221-007 PPH- (ATM) 0.3679-005

IONIZATION POTENTIAL (1/CM) 103379.
PARTITION FUNCTION 0.2100+001
ROSSELAND MEAN OPACITY (1/CM) 0.1160-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5212+001	11000.	0.3023-001	70000.	0.9804-003
1500.	0.2035+001	12000.	0.2470-001	75000.	0.8061-003
2000.	0.1051+001	13500.	0.1873-001	80000.	0.6779-003
2500.	0.6315+000	15000.	0.1458-001	90000.	0.4786-003
3000.	0.4169+000	20000.	0.7222-002	100000.	0.3529-003
4000.	0.2166+000	25000.	0.1520-001	125000.	0.1799+000
5000.	0.1302+000	27500.	0.1203-001	150000.	0.1099+000
5500.	0.1046+000	30000.	0.9674-002	175000.	0.7203-001
6000.	0.1182+000	40000.	0.4590-002	200000.	0.4982-001
8000.	0.6241-001	50000.	0.2512-002	300000.	0.1605-001
10000.	0.3764-001	60000.	0.1514-002	400000.	0.7121-002

PRESS(ATM)	4.	ENTHALPY	0.6223+006 (BTU/LB)	0.3457+003 (KCAL/G)
TEMP (R)	30001.	FREE ENG	-0.1132+007 (BTU/LB)	-0.6288+003 (KCAL/G)
TEMP (K)	16667.	ENTROPY	0.5847+005 (BTU/LB-R)	0.5847+002 (CAL/G-K)
DEN(G/CM3)	0.1922-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1208+001	0.
2	0.3986-002	82260.
3	0.2406-002	97501.
4	0.1707-002	102876.
5	0.0000+000	105490.

PPHT (ATM) 0.1216+001 PPE (ATM) 0.1392+001
PPH2 (ATM) 0.1444-004 PPH- (ATM) 0.6004-004

IONIZATION POTENTIAL (1/CM) 103228.
PARTITION FUNCTION 0.2013+001
ROSSELAND MEAN OPACITY (1/CM) 0.3525-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6558+001	11000.	0.4565-001	70000.	0.2138-002
1500.	0.2613+001	12000.	0.3733-001	75000.	0.1849-002
2000.	0.1366+001	13500.	0.2836-001	80000.	0.2815-002
2500.	0.8268+000	15000.	0.2211-001	90000.	0.1186-002
3000.	0.5484+000	20000.	0.1106-001	100000.	0.8101-003
4000.	0.2863+000	25000.	0.3320-001	125000.	0.2325+001
5000.	0.1722+000	27500.	0.2612-001	150000.	0.1420+001
5500.	0.1384+000	30000.	0.2090-001	175000.	0.9308+000
6000.	0.1777+000	40000.	0.9792-002	200000.	0.6438+000
8000.	0.9401-001	50000.	0.5346-002	300000.	0.2074+000
10000.	0.5678-001	60000.	0.3240-002	400000.	0.9199-001

TABLE VII g

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 4 ATMOSPHERES FOR 26,000°R AND 23,000°R

PRESS(ATM)	4.	ENTHALPY	0.3923+006 (BTU/LB)	0.2180+003 (KCAL/G)
TEMP (R)	25999.	FREE ENG	-0.9133+006 (BTU/LB)	-0.5074+003 (KCAL/G)
TEMP (K)	14444.	ENTROPY	0.5022+005 (BTU/LB-R)	0.5022+002 (CAL/G-K)
DEN(G/CM3)	0.2728-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2410+001	0.
2	0.2666-002	82260.
3	0.1315-002	97501.
4	0.1309-002	102876.
5	0.0000+000	105490.

PPHT (ATM) 0.2415+001 PPE (ATM) 0.7924+000
PPH2 (ATM) 0.9540-004 PPH- (ATM) 0.1057+003

IONIZATION POTENTIAL (1/CM) 104069.
PARTITION FUNCTION 0.2004+001
ROSSELAND MEAN OPACITY (1/CM) 0.4283-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3239+001	11000.	0.2978-001	70000.	0.1959-002
1500.	0.1457+001	12000.	0.2462-001	75000.	0.2081-002
2000.	0.7730+000	13500.	0.1901-001	80000.	0.8488-002
2500.	0.4726+000	15000.	0.1508-001	90000.	0.1666-002
3000.	0.3157+000	20000.	0.7974-002	100000.	0.8577-003
4000.	0.1663+000	25000.	0.2634-001	125000.	0.5352+001
5000.	0.1006+000	27500.	0.2074-001	150000.	0.3268+001
5500.	0.8101-001	30000.	0.1663-001	175000.	0.2143+001
6000.	0.6639-001	40000.	0.7681-002	200000.	0.1482+001
8000.	0.5970-001	50000.	0.4382-002	300000.	0.4772+000
10000.	0.3668-001	60000.	0.2727-002	400000.	0.2117+000

PRESS(ATM)	4.	ENTHALPY	0.2762+006 (BTU/LB)	0.1535+003 (KCAL/G)
TEMP (R)	23000.	FREE ENG	-0.7696+006 (BTU/LB)	-0.4276+003 (KCAL/G)
TEMP (K)	12778.	ENTROPY	0.4547+005 (BTU/LB-R)	0.4547+002 (CAL/G-K)
DEN(G/CM3)	0.3483-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3243+001	0.
2	0.1233-002	82260.
3	0.4988-003	97501.
4	0.4842-003	102876.
5	0.2132-003	105490.

PPHT (ATM) 0.3246+001 PPE (ATM) 0.3769+000
PPH2 (ATM) 0.2854-003 PPH- (ATM) 0.9941-004

IONIZATION POTENTIAL (1/CM) 105171.
PARTITION FUNCTION 0.2001+001
ROSSELAND MEAN OPACITY (1/CM) 0.3469-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1187+001	11000.	0.1395-001	70000.	0.1505-002
1500.	0.4786+000	12000.	0.1179-001	75000.	0.2310-002
2000.	0.2520+000	13500.	0.9418-002	80000.	0.1755-001
2500.	0.1861+000	15000.	0.7710-002	90000.	0.2329-002
3000.	0.1252+000	20000.	0.4477-002	100000.	0.8382-003
4000.	0.6654-001	25000.	0.1447-001	125000.	0.8143+001
5000.	0.4050-001	27500.	0.1145-001	150000.	0.4973+001
5500.	0.3269-001	30000.	0.9232-002	175000.	0.3260+001
6000.	0.2684-001	40000.	0.4488-002	200000.	0.2255+001
8000.	0.2630-001	50000.	0.2579-002	300000.	0.7260+000
0000.	0.1680-001	60000.	0.1698-002	400000.	0.3219+000

TABLE VII h

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 4 ATMOSPHERES FOR 20,000°R AND 16,000°R

PRESS(ATM)	4.	ENTHALPY	0.2125+006 (BTU/LB)	0.1181+003 (KCAL/G)
TEMP (R)	20000.	FREE ENG	-0.6376+006 (BTU/LB)	-0.3542+003 (KCAL/G)
TEMP (K)	11111.	ENTROPY	0.4251+005 (BTU/LB-R)	0.4251+002 (CAL/G-K)
DEN(G/CM3)	0.4281-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3741+001	0.
2	0.3545-003	82260.
3	0.1108-003	97501.
4	0.9826-004	102876.
5	0.1095-003	105490.

PPHT (ATM) 0.3742+001 PFE (ATM) 0.1286+000
PPH2 (ATM) 0.7310-003 PPH- (ATM) 0.6148-004

IONIZATION POTENTIAL (1/CM) 106455.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1880-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2806+000	11000.	0.4699-002	70000.	0.1223-002
1500.	0.1166+000	12000.	0.4163-002	75000.	0.2876-002
2000.	0.6275-001	13500.	0.3541-002	80000.	0.2988-001
2500.	0.3873-001	15000.	0.3059-002	90000.	0.3356-002
3000.	0.2608-001	20000.	0.2027-002	100000.	0.9091-003
4000.	0.1733-001	25000.	0.5355-002	125000.	0.1080+002
5000.	0.1066-001	27500.	0.4293-002	150000.	0.6598+001
5500.	0.8639-002	30000.	0.3506-002	175000.	0.4326+001
6000.	0.7124-002	40000.	0.1799-002	200000.	0.2991+001
8000.	0.4484-002	50000.	0.1111-002	300000.	0.9630+000
10000.	0.5388-002	60000.	0.8523-003	400000.	0.4269+000

PRESS(ATM)	4.	ENTHALPY	0.1730+006 (BTU/LB)	0.9609+002 (KCAL/G)
TEMP (R)	16000.	FREE ENG	-0.4721+006 (BTU/LB)	-0.2623+003 (KCAL/G)
TEMP (K)	8889.	ENTROPY	0.4032+005 (BTU/LB-R)	0.4032+002 (CAL/G-K)
DEN(G/CM3)	0.5510-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3966+001	0.
2	0.2622-004	82260.
3	0.5006-005	97501.
4	0.3729-005	102876.
5	0.3817-005	105490.

PPHT (ATM) 0.3966+001 PFE (ATM) 0.1574-001
PPH2 (ATM) 0.2887-002 PPH- (ATM) 0.1694-004

IONIZATION POTENTIAL (1/CM) 108037.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.4699-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2201-001	11000.	0.7932-003	70000.	0.1405-002
1500.	0.9537-002	12000.	0.7712-003	75000.	0.4421-002
2000.	0.5275-002	13500.	0.7284-003	80000.	0.5192-001
2500.	0.3333-002	15000.	0.6789-003	90000.	0.5484-002
3000.	0.2418-002	20000.	0.5200-003	100000.	0.1279-002
4000.	0.1336-002	25000.	0.4078-003	125000.	0.1433+002
5000.	0.8426-003	27500.	0.6493-003	150000.	0.8756+001
5500.	0.7870-003	30000.	0.5536-003	175000.	0.5742+001
6000.	0.6559-003	40000.	0.3411-003	200000.	0.3967+001
8000.	0.6328-003	50000.	0.2885-003	300000.	0.1276+001
10000.	0.6895-003	60000.	0.4180-003	400000.	0.5654+000

TABLE VII i

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 4 ATMOSPHERES FOR 13,000°R AND 10,000°R

PRESS(ATM)	4.	ENTHALPY	0.1553+006 (BTU/LB)		0.8626+002 (KCAL/G)
TEMP (R)	13000.	FREE ENG	-0.3530+006 (BTU/LB)		-0.1961+003 (KCAL/G)
TEMP (K)	7222.	ENTROPY	0.3910+005 (BTU/LB-R)		0.3910+002 (CAL/G-K)
DEN(G/CM3)	0.6822-005				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3985+001	0.
2	0.1219-005	82260.
3	0.1318-006	97501.
4	0.8030-007	102876.
5	0.7454-007	105490.

PPHT (ATM) 0.3985+001 PFE (ATM) 0.1482-002
PPH2 (ATM) 0.1244-001 PFH- (ATM) 0.3376-005

IONIZATION POTENTIAL (1/CM) 108919.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1182-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2487-002	11000.	0.1565-003	70000.	0.2012-002
1500.	0.1101-002	12000.	0.1620-003	75000.	0.6647-002
2000.	0.6183-003	13500.	0.1591-003	80000.	0.7936-001
2500.	0.3951-003	15000.	0.1519-003	90000.	0.8311-002
3000.	0.2741-003	20000.	0.1217-003	100000.	0.1892-002
4000.	0.1559-003	25000.	0.1000-003	125000.	0.1780+002
5000.	0.9962-004	27500.	0.1092-003	150000.	0.1091+002
5500.	0.8228-004	30000.	0.1007-003	175000.	0.7157+001
6000.	0.6911-004	40000.	0.9752-004	200000.	0.4927+001
8000.	0.1140-003	50000.	0.1660-003	300000.	0.1578+001
10000.	0.1488-003	60000.	0.4485-003	400000.	0.6990+000

PRESS(ATM)	4.	ENTHALPY	0.1349+006 (BTU/LB)		0.7495+002 (KCAL/G)
TEMP (R)	10001.	FREE ENG	-0.2388+006 (BTU/LB)		-0.1326+003 (KCAL/G)
TEMP (K)	5556.	ENTROPY	0.3736+005 (BTU/LB-K)		0.3736+002 (CAL/G-K)
DEN(G/CM3)	0.9109-005				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3880+001	0.
2	0.8724-008	82260.
3	0.3793-009	97501.
4	0.1677-009	102876.
5	0.1332-009	105490.

PPHT (ATM) 0.3880+001 PFE (ATM) 0.3803-004
PPH2 (ATM) 0.1201+000 PFH- (ATM) 0.2332-006

IONIZATION POTENTIAL (1/CM) 109450.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1355-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1008-003	11000.	0.1427-004	70000.	0.3208-002
1500.	0.4479-004	12000.	0.1481-004	75000.	0.1068-001
2000.	0.2520-004	13500.	0.1501-004	80000.	0.1278+000
2500.	0.1613-004	15000.	0.1488-004	90000.	0.1337-001
3000.	0.1120-004	20000.	0.1485-004	100000.	0.3031-002
4000.	0.6319-005	25000.	0.1809-004	125000.	0.2364+002
5000.	0.4069-005	27500.	0.2162-004	150000.	0.1493+002
5500.	0.3383-005	30000.	0.2648-004	175000.	0.9878+001
6000.	0.2869-005	40000.	0.7070-004	200000.	0.6549+001
8000.	0.9052-005	50000.	0.2073-003	300000.	0.1997+001
10000.	0.1326-004	60000.	0.6787-003	400000.	0.8842+000

TABLE VII j

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 4 ATMOSPHERES FOR 7,000°R AND 5,000°R

PRESS(ATM)	4.	ENTHALPY	0.5704+005 (BTU/LB)	0.3169+002	(KCAL/G)
TEMP (R)	7000.	FREE ENG	-0.1434+006 (BTU/LB)	-0.7968+002	(KCAL/G)
TEMP (K)	3889.	ENTROPY	0.2864+005 (BTU/LB-R)	0.2864+002	(CAL/G-K)
DEN(G/CM3)	0.1930-004				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1890+001	0.
2	0.4606-012	82260.
3	0.3689-014	97501.
4	0.8982-015	102876.
5	0.5337-015	105490.

PPHT (ATM) 0.1890+001 PPE (ATM) 0.3747-007
PPH2 (ATM) 0.2110+001 PPH- (ATM) 0.5344-009

IONIZATION POTENTIAL (1/CM) 109655.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.3283-007

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6562-010	11000.	0.3808-006	70000.	0.1842-002
1500.	0.3061-009	12000.	0.4945-006	75000.	0.6131-002
2000.	0.8987-009	13500.	0.7094-006	80000.	0.7339-001
2500.	0.2045-008	15000.	0.9889-006	90000.	0.7676-002
3000.	0.3963-008	20000.	0.2572-005	100000.	0.1740-002
4000.	0.1103-007	25000.	0.5689-005	125000.	0.4664+002
5000.	0.2397-007	27500.	0.8117-005	150000.	0.4098+002
5500.	0.3324-007	30000.	0.1135-004	175000.	0.2912+002
6000.	0.4469-007	40000.	0.3803-004	200000.	0.1303+002
8000.	0.1432-006	50000.	0.1172-003	300000.	0.1390+001
10000.	0.2867-006	60000.	0.3885-003	400000.	0.6157+000

PRESS(ATM)	4.	ENTHALPY	0.1916+005 (BTU/LB)	0.1064+002	(KCAL/G)
TEMP (R)	5000.	FREE ENG	-0.9538+005 (BTU/LB)	-0.5299+002	(KCAL/G)
TEMP (K)	2778.	ENTROPY	0.2291+005 (BTU/LB-R)	0.2291+002	(CAL/G-K)
DEN(G/CM3)	0.3472-004				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1481+000	0.
2	0.1871-018	82260.
3	0.1572-021	97501.
4	0.1728-022	102876.
5	0.6976-023	105490.

PPHT (ATM) 0.1481+000 PPE (ATM) 0.2063-011
PPH2 (ATM) 0.3852+001 PPH- (ATM) 0.1308-013

IONIZATION POTENTIAL (1/CM) 109678.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.8218-009

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4352-011	11000.	0.1744-007	70000.	0.9402-004
1500.	0.1981-010	12000.	0.2317-007	75000.	0.3130-003
2000.	0.5660-010	13500.	0.3414-007	80000.	0.3747-002
2500.	0.1256-009	15000.	0.4848-007	90000.	0.3919-003
3000.	0.2380-009	20000.	0.1297-006	100000.	0.8886-004
4000.	0.6374-009	25000.	0.2891-006	125000.	0.8106+002
5000.	0.1343-008	27500.	0.4132-006	150000.	0.8145+002
5500.	0.1839-008	30000.	0.5783-006	175000.	0.5916+002
6000.	0.2445-008	40000.	0.1941-005	200000.	0.2275+002
8000.	0.6219-008	50000.	0.5984-005	300000.	0.1524+000
10000.	0.1280-007	60000.	0.1983-004	400000.	0.6759-001

TABLE VII k

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 4 ATMOSPHERES FOR 3000 °R

PRESS(ATM)	4.	ENTHALPY	0.8970+004 (BTU/LB)	0.4983+001	(KCAL/G)
TEMP (R)	3001.	FREE ENG	-0.5231+005 (BTU/LB)	-0.2906+002	(KCAL/G)
TEMP (K)	1667.	ENTROPY	0.2042+005 (BTU/LB-R)	0.2042+002	(CAL/G-K)
DEN(G/CM3)	0.5895-004				

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.2145-003	0.
2	0.0000+000	82260.
3	0.0000+000	97501.
4	0.0000+000	102876.
5	0.0000+000	105490.

PPHT (ATM) 0.2145-003 PPE (ATM) 0.0000+000
PPH2 (ATM) 0.4000+001 PPH- (ATM) 0.0000+000

IONIZATION POTENTIAL (1/CM) 109679.
PARTITION FUNCTION 0.0000+000
ROSSELAND MEAN OPACITY (1/CM) 0.8434-012

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1791-013	11000.	0.5034-010	70000.	0.2705-006
1500.	0.7661-013	12000.	0.6679-010	75000.	0.9007-006
2000.	0.2076-012	13500.	0.9832-010	80000.	0.1078-004
2500.	0.4403-012	15000.	0.1396-009	90000.	0.1128-005
3000.	0.8032-012	20000.	0.3732-009	100000.	0.2557-006
4000.	0.2032-011	25000.	0.8319-009	125000.	0.1373+003
5000.	0.4123-011	27500.	0.1189-008	150000.	0.1391+003
5500.	0.5569-011	30000.	0.1664-008	175000.	0.1012+003
6000.	0.7324-011	40000.	0.5584-008	200000.	0.3855+002
8000.	0.1816-010	50000.	0.1722-007	300000.	0.3680-003
10000.	0.3702-010	60000.	0.5707-007	400000.	0.1632-003

TABLE VIII a

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 6 ATMOSPHERES FOR 200,000°R AND 175,000 °R

PRESS(ATM)	6.	ENTHALPY	0.2642+007 (BTU/LB)	0.1468+004 (KCAL/G)
TEMP (R)	200000.	FREE ENG	-0.1446+008 (BTU/LB)	-0.8031+004 (KCAL/G)
TEMP (K)	111111.	ENTROPY	0.8549+005 (BTU/LB-R)	0.8549+002 (CAL/G-K)
DEN(G/CM3)	0.3317-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2624-004	0.
2	0.3618-004	82260.
3	0.6683-004	97506.
4	0.1108-003	102902.
5	0.1295-003	105588.

PPHT (ATM)	0.3695-003	PFE (ATM)	0.3000+001
PPH2 (ATM)	0.7692-013	PPH- (ATM)	0.1572-010
IONIZATION POTENTIAL (1/CM)			106118.
PARTITION FUNCTION			0.2816+002
ROSSELAND MEAN OPACITY (1/CM)			0.9177-006

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1361+000	11000.	0.3777-003	70000.	0.5960-005
1500.	0.4835-001	12000.	0.3075-003	75000.	0.5036-005
2000.	0.2334-001	13500.	0.2329-003	80000.	0.4298-005
2500.	0.1332-001	15000.	0.1817-003	90000.	0.3208-005
3000.	0.8450-002	20000.	0.9244-004	100000.	0.2460-005
4000.	0.4189-002	25000.	0.6615-004	125000.	0.7460-005
5000.	0.2424-002	27500.	0.5321-004	150000.	0.4818-005
5500.	0.1921-002	30000.	0.4361-004	175000.	0.3282-005
6000.	0.1555-002	40000.	0.2246-004	200000.	0.2331-005
8000.	0.7755-003	50000.	0.1333-004	300000.	0.7854-006
10000.	0.4734-003	60000.	0.8643-005	400000.	0.3516-006

PRESS(ATM)	6.	ENTHALPY	0.2394+007 (BTU/LB)	0.1330+004 (KCAL/G)
TEMP (R)	175000.	FREE ENG	-0.1233+008 (BTU/LB)	-0.6852+004 (KCAL/G)
TEMP (K)	97222.	ENTROPY	0.8416+005 (BTU/LB-R)	0.8416+002 (CAL/G-K)
DEN(G/CM3)	0.3791-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4446-004	0.
2	0.5265-004	82260.
3	0.9453-004	97506.
4	0.1552-003	102902.
5	0.1561-003	105588.

PPHT (ATM)	0.5029-003	PFE (ATM)	0.3000+001
PPH2 (ATM)	0.1534-012	PPH- (ATM)	0.3760-010
IONIZATION POTENTIAL (1/CM)			105916.
PARTITION FUNCTION			0.2262+002
ROSSELAND MEAN OPACITY (1/CM)			0.1876-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1942+000	11000.	0.5668-003	70000.	0.9327-005
1500.	0.6933-001	12000.	0.4621-003	75000.	0.7868-005
2000.	0.3361-001	13500.	0.3507-003	80000.	0.6702-005
2500.	0.1925-001	15000.	0.2741-003	90000.	0.4984-005
3000.	0.1224-001	20000.	0.1399-003	100000.	0.3809-005
4000.	0.6116-002	25000.	0.1042-003	125000.	0.1449-004
5000.	0.3553-002	27500.	0.8387-004	150000.	0.9286-005
5500.	0.2821-002	30000.	0.6878-004	175000.	0.6285-005
6000.	0.2287-002	40000.	0.3544-004	200000.	0.4439-005
8000.	0.1147-002	50000.	0.2099-004	300000.	0.1477-005
10000.	0.7092-003	60000.	0.1357-004	400000.	0.6582-006

TABLE VIII b

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 6 ATMOSPHERES FOR 150,000°R AND 125,000°R

PRESS(ATM)	6.	ENTHALPY	0.2146+007 (BTU/LB)	0.1192+004 (KCAL/G)
TEMP (R)	149999.	FREE ENG	-0.1025+008 (BTU/LB)	-0.5694+004 (KCAL/G)
TEMP (K)	83333.	ENTROPY	0.8263+005 (BTU/LB-R)	0.8263+002 (CAL/G-K)
DEN(G/CM3)	0.4423-006			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.8448-004	0.	PPHT (ATM) 0.7202-003	PFE (ATM)	0.3000+001
2	0.8167-004	82260.	PPH2 (ATM) 0.3463-012	PPH- (ATM)	0.1066-009
3	0.1412-003	97506.	IONIZATION POTENTIAL (1/CM)		105664.
4	0.2288-003	102902.	PARTITION FUNCTION		0.1705+002
5	0.1840-003	105588.	ROSSELAND MEAN OPACITY (1/CM)		0.4559-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2935+000	11000.	0.9118-003	70000.	0.1575-004
1500.	0.1055+000	12000.	0.7446-003	75000.	0.1325-004
2000.	0.5139-001	13500.	0.5662-003	80000.	0.1126-004
2500.	0.2955-001	15000.	0.4431-003	90000.	0.8332-005
3000.	0.1916-001	20000.	0.2268-003	100000.	0.6338-005
4000.	0.9515-002	25000.	0.1781-003	125000.	0.3226-004
5000.	0.5555-002	27500.	0.1435-003	150000.	0.2049-004
5500.	0.4419-002	30000.	0.1177-003	175000.	0.1377-004
6000.	0.3589-002	40000.	0.6059-004	200000.	0.9666-005
8000.	0.1610-002	50000.	0.3576-004	300000.	0.3177-005
10000.	0.1139-002	60000.	0.2303-004	400000.	0.1412-005

PRESS(ATM)	6.	ENTHALPY	0.1897+007 (BTU/LB)	0.1054+004 (KCAL/G)
TEMP (R)	124999.	FREE ENG	-0.8205+007 (BTU/LB)	-0.4558+004 (KCAL/G)
TEMP (K)	69444.	ENTROPY	0.8081+005 (BTU/LB-R)	0.8081+002 (CAL/G-K)
DEN(G/CM3)	0.5308-006			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.1907-003	0.	PPHT (ATM) 0.1137-002	PFE (ATM)	0.2999+001
2	0.1388-003	82260.	PPH2 (ATM) 0.9867-012	PPH- (ATM)	0.3876-009
3	0.2277-003	97506.	IONIZATION POTENTIAL (1/CM)		105338.
4	0.3620-003	102902.	PARTITION FUNCTION		0.1192+002
5	0.2176-003	105588.	ROSSELAND MEAN OPACITY (1/CM)		0.1425-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4806+000	11000.	0.1616-002	70000.	0.2958-004
1500.	0.1741+000	12000.	0.1322-002	75000.	0.2480-004
2000.	0.8537-001	13500.	0.1007-002	80000.	0.2101-004
2500.	0.5028-001	15000.	0.7892-003	90000.	0.1545-004
3000.	0.3231-001	20000.	0.4047-003	100000.	0.1168-004
4000.	0.1617-001	25000.	0.3424-003	125000.	0.8784-004
5000.	0.9492-002	27500.	0.2760-003	150000.	0.5521-004
5500.	0.7570-002	30000.	0.2263-003	175000.	0.3680-004
6000.	0.6160-002	40000.	0.1161-003	200000.	0.2569-004
8000.	0.3374-002	50000.	0.6810-004	300000.	0.8358-005
10000.	0.2014-002	60000.	0.4355-004	400000.	0.3707-005

TABLE VIII c

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 6 ATMOSPHERES FOR 100,000°R AND 90,000°R

PRESS(ATM)	6.	ENTHALPY	0.1649+007 (BTU/LB)	0.9159+003 (KCAL/G)
TEMP (R)	100001.	FREE ENG	-0.6211+007 (BTU/LB)	-0.3450+004 (KCAL/G)
TEMP (K)	55556.	ENTROPY	0.7859+005 (BTU/LB-R)	0.7859+002 (CAL/G-K)
DEN(G/CM3)	0.6635-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5600-003	0.
2	0.2662-003	82260.
3	0.4035-003	97506.
4	0.6238-003	102902.
5	0.2182-003	105588.

PPHT (ATM) 0.2072-002 PFE (ATM) 0.2999+001
PPH2 (ATM) 0.4008-011 PFH- (ATM) 0.2051-008

IONIZATION POTENTIAL (1/CM) 104890.
PARTITION FUNCTION 0.7399+001
ROSSELAND MEAN OPACITY (1/CM) 0.6015-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8848+000	11000.	0.3294-002	70000.	0.6453-004
1500.	0.3240+000	12000.	0.2698-002	75000.	0.5386-004
2000.	0.1639+000	13500.	0.2058-002	80000.	0.4541-004
2500.	0.9570-001	15000.	0.1614-002	90000.	0.3311-004
3000.	0.6186-001	20000.	0.6277-003	100000.	0.2485-004
4000.	0.3124-001	25000.	0.7789-003	125000.	0.3240-003
5000.	0.1847-001	27500.	0.6272-003	150000.	0.2013-003
5500.	0.1476-001	30000.	0.5135-003	175000.	0.1331-003
6000.	0.1204-001	40000.	0.2611-003	200000.	0.9248-004
8000.	0.6627-002	50000.	0.1516-003	300000.	0.2988-004
10000.	0.4097-002	60000.	0.9597-004	400000.	0.1325-004

PRESS(ATM)	6.	ENTHALPY	0.1549+007 (BTU/LB)	0.8606+003 (KCAL/G)
TEMP (R)	90000.	FREE ENG	-0.5430+007 (BTU/LB)	-0.3017+004 (KCAL/G)
TEMP (K)	50000.	ENTROPY	0.7754+005 (BTU/LB-R)	0.7754+002 (CAL/G-K)
DEN(G/CM3)	0.7374-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9853-003	0.
2	0.3696-003	82260.
3	0.5363-003	97506.
4	0.8163-003	102902.
5	0.1811-003	105588.

PPHT (ATM) 0.2889-002 PFE (ATM) 0.2999+001
PPH2 (ATM) 0.8713-011 PFH- (ATM) 0.4779-008

IONIZATION POTENTIAL (1/CM) 104657.
PARTITION FUNCTION 0.5864+001
ROSSELAND MEAN OPACITY (1/CM) 0.1137-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1184+001	11000.	0.4642-002	70000.	0.9461-004
1500.	0.4357+000	12000.	0.3804-002	75000.	0.7879-004
2000.	0.2222+000	13500.	0.2904-002	80000.	0.6628-004
2500.	0.1302+000	15000.	0.2278-002	90000.	0.4814-004
3000.	0.8443-001	20000.	0.1167-002	100000.	0.3601-004
4000.	0.4282-001	25000.	0.1169-002	125000.	0.6340-003
5000.	0.2539-001	27500.	0.9404-003	150000.	0.3922-003
5500.	0.2032-001	30000.	0.7692-003	175000.	0.2587-003
6000.	0.1659-001	40000.	0.3891-003	200000.	0.1794-003
8000.	0.9594-002	50000.	0.2247-003	300000.	0.5787-004
10000.	0.5771-002	60000.	0.1414-003	400000.	0.2586-004

TABLE VIII d

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 6 ATMOSPHERES FOR 80,000°R AND 70,000°R

PRESS(ATM)	6.	ENTHALPY	0.1449+007 (BTU/LB)	0.8052+003 (KCAL/G)
TEMP (R)	79999.	FREE ENG	-0.4660+007 (BTU/LB)	-0.2589+004 (KCAL/G)
TEMP (K)	44444.	ENTROPY	0.7637+005 (BTU/LB-R)	0.7637+002 (CAL/G-K)
DEN(G/CM3)	0.8298-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1918-002	0.
2	0.5352-003	82260.
3	0.7351-003	97506.
4	0.1097-002	102902.
5	0.7852-004	105588.

PPHT (ATM) 0.4364-002 PFE (ATM) 0.2998+001
PPH2 (ATM) 0.2287-010 PFH- (ATM) 0.1276-007

IONIZATION POTENTIAL (1/CM) 104379.
PARTITION FUNCTION 0.4551+001
ROSSELAND MEAN OPACITY (1/CM) 0.2066-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1642+001	11000.	0.6836-002	70000.	0.1458-003
1500.	0.6244+000	12000.	0.5604-002	75000.	0.1211-003
2000.	0.3132+000	13500.	0.4277-002	80000.	0.1016-003
2500.	0.1843+000	15000.	0.3355-002	90000.	0.7352-004
3000.	0.1199+000	20000.	0.1715-002	100000.	0.5481-004
4000.	0.6108-001	25000.	0.1855-002	125000.	0.1389-002
5000.	0.3632-001	27500.	0.1490-002	150000.	0.8558-003
5500.	0.2911-001	30000.	0.1217-002	175000.	0.5632-003
6000.	0.2379-001	40000.	0.6114-003	200000.	0.3901-003
8000.	0.1409-001	50000.	0.3506-003	300000.	0.1257-003
10000.	0.8492-002	60000.	0.2192-003	400000.	0.5576-004

PRESS(ATM)	6.	ENTHALPY	0.1349+007 (BTU/LB)	0.7495+003 (KCAL/G)
TEMP (R)	70000.	FREE ENG	-0.3903+007 (BTU/LB)	-0.2168+004 (KCAL/G)
TEMP (K)	38889.	ENTROPY	0.7503+005 (BTU/LB-R)	0.7503+002 (CAL/G-K)
DEN(G/CM3)	0.9488-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4290-002	0.
2	0.8184-003	82260.
3	0.1048-002	97506.
4	0.1409-002	102902.
5	0.0000+000	105588.

PPHT (ATM) 0.7565-002 PFE (ATM) 0.2996+001
PPH2 (ATM) 0.8224-010 PFH- (ATM) 0.4096-007

IONIZATION POTENTIAL (1/CM) 104040.
PARTITION FUNCTION 0.3527+001
ROSSELAND MEAN OPACITY (1/CM) 0.3488-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2387+001	11000.	0.1061-001	70000.	0.2394-003
1500.	0.9177+000	12000.	0.8695-002	75000.	0.1983-003
2000.	0.4630+000	13500.	0.6635-002	80000.	0.1660-003
2500.	0.2736+000	15000.	0.5200-002	90000.	0.1195-003
3000.	0.1785+000	20000.	0.2648-002	100000.	0.8880-004
4000.	0.9137-001	25000.	0.3159-002	125000.	0.3551-002
5000.	0.5450-001	27500.	0.2533-002	150000.	0.2180-002
5500.	0.4372-001	30000.	0.2064-002	175000.	0.1432-002
6000.	0.3576-001	40000.	0.1027-002	200000.	0.9911-003
8000.	0.2182-001	50000.	0.5839-003	300000.	0.3192-003
10000.	0.1318-001	60000.	0.3623-003	400000.	0.1416-003

TABLE VIII e

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 6 ATMOSPHERES FOR 60,000°R AND 50,000°R

PRESS(ATM)	6.	ENTHALPY	0.1248+007 (BTU/LB)	0.6931+003 (KCAL/G)
TEMP (R)	59999.	FREE ENG	-0.3159+007 (BTU/LB)	-0.1755+004 (KCAL/G)
TEMP (K)	33333.	ENTROPY	0.7345+005 (BTU/LB-R)	0.7345+002 (CAL/G-K)
DEN(G/CM3)	0.1109-005			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.1173-001	0.
2	0.1348-002	82260.
3	0.1571-002	97506.
4	0.1691-002	102902.
5	0.0000+000	105588.

PPHT (ATM) 0.1634-001 PFE (ATM) 0.2992+001
PPH2 (ATM) 0.4878-009 PFH- (ATM) 0.1707-006

IONIZATION POTENTIAL (1/CM) 103612.
PARTITION FUNCTION 0.2786+001
ROSSELAND MEAN OPACITY (1/CM) 0.5729-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3773+001	11000.	0.1760-001	70000.	0.4283-003
1500.	0.1433+001	12000.	0.1442-001	75000.	0.3537-003
2000.	0.7273+000	13500.	0.1099-001	80000.	0.2953-003
2500.	0.4316+000	15000.	0.8604-002	90000.	0.2118-003
3000.	0.2825+000	20000.	0.4354-002	100000.	0.1568-003
4000.	0.1452+000	25000.	0.5914-002	125000.	0.1132-001
5000.	0.8683-001	27500.	0.4728-002	150000.	0.6932-002
5500.	0.6972-001	30000.	0.3841-002	175000.	0.4549-002
6000.	0.5706-001	40000.	0.1889-002	200000.	0.3147-002
8000.	0.3620-001	50000.	0.1062-002	300000.	0.1014-002
10000.	0.2187-001	60000.	0.6529-003	400000.	0.4496-003

PRESS(ATM)	6.	ENTHALPY	0.1140+007 (BTU/LB)	0.6332+003 (KCAL/G)
TEMP (R)	50000.	FREE ENG	-0.2433+007 (BTU/LB)	-0.1352+004 (KCAL/G)
TEMP (K)	27778.	ENTROPY	0.7146+005 (BTU/LB-R)	0.7146+002 (CAL/G-K)
DEN(G/CM3)	0.1338-005			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.4330-001	0.
2	0.2445-002	82260.
3	0.2498-002	97506.
4	0.1876-002	102902.
5	0.0000+000	105588.

PPHT (ATM) 0.5012-001 PFE (ATM) 0.2975+001
PPH2 (ATM) 0.6413-008 PFH- (ATM) 0.1041-005

IONIZATION POTENTIAL (1/CM) 103059.
PARTITION FUNCTION 0.2315+001
ROSSELAND MEAN OPACITY (1/CM) 0.1032-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6303+001	11000.	0.3183-001	70000.	0.8614-003
1500.	0.2417+001	12000.	0.2605-001	75000.	0.7093-003
2000.	0.1234+001	13500.	0.1981-001	80000.	0.5913-003
2500.	0.7355+000	15000.	0.1546-001	90000.	0.4221-003
3000.	0.4828+000	20000.	0.7752-002	100000.	0.3118-003
4000.	0.2491+000	25000.	0.1256-001	125000.	0.5008-001
5000.	0.1492+000	27500.	0.1000-001	150000.	0.3061-001
5500.	0.1196+000	30000.	0.8090-002	175000.	0.2007-001
6000.	0.1246+000	40000.	0.3915-002	200000.	0.1368-001
8000.	0.6557-001	50000.	0.2173-002	300000.	0.4472-002
10000.	0.3958-001	60000.	0.1323-002	400000.	0.1984-002

TABLE VIII f

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 6 ATMOSPHERES FOR 40,000°R AND 30,000°R

PRESS(ATM)	6.	ENTHALPY	0.9894+006 (BTU/LB)	0.5497+003 (KCAL/G)
TEMP (R)	40000.	FREE ENG	-0.1731+007 (BTU/LB)	-0.9615+003 (KCAL/G)
TEMP (K)	22222.	ENTROPY	0.6801+005 (BTU/LB-R)	0.6801+002 (CAL/G-K)
DEN(G/CM3)	0.1732-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2561+000	0.
2	0.4986-002	82260.
3	0.4181-002	97506.
4	0.2104+002	102902.
5	0.0000+000	105588.

PPHT (ATM) 0.2674+000 PPE (ATM) 0.2866+001
PPH2 (ATM) 0.3019-006 PPH- (ATM) 0.1121-004

IONIZATION POTENTIAL (1/CM) 102370.
PARTITION FUNCTION 0.2088+001
ROSSELAND MEAN OPACITY (1/CM) 0.2405-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1126+002	11000.	0.6301-001	70000.	0.2028-002
1500.	0.4367+001	12000.	0.5146-001	75000.	0.1669-002
2000.	0.2246+001	13500.	0.3901-001	80000.	0.1420-002
2500.	0.1345+001	15000.	0.3035-001	90000.	0.9926-003
3000.	0.6859+000	20000.	0.1503-001	100000.	0.7313-003
4000.	0.4586+000	25000.	0.3136-001	125000.	0.3700+000
5000.	0.3694+000	27500.	0.2482-001	150000.	0.2259+000
5500.	0.2997+000	30000.	0.1996-001	175000.	0.1481+000
6000.	0.2474+000	40000.	0.9476-002	200000.	0.1025+000
8000.	0.1303+000	50000.	0.5188-002	300000.	0.3300-001
10000.	0.7849-001	60000.	0.3130-002	400000.	0.1464-001

PRESS(ATM)	6.	ENTHALPY	0.5779+006 (BTU/LB)	0.3211+003 (KCAL/G)
TEMP (R)	30001.	FREE ENG	-0.1095+007 (BTU/LB)	-0.6084+003 (KCAL/G)
TEMP (K)	16667.	ENTROPY	0.5577+005 (BTU/LB-R)	0.5577+002 (CAL/G-K)
DEN(G/CM3)	0.3005-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2142+001	0.
2	0.7068-002	82260.
3	0.4266-002	97506.
4	0.1920-002	102902.
5	0.0000+000	105588.

PPHT (ATM) 0.2155+001 PPE (ATM) 0.1922+001
PPH2 (ATM) 0.4536-004 PPH- (ATM) 0.1470-003

IONIZATION POTENTIAL (1/CM) 102381.
PARTITION FUNCTION 0.2012+001
ROSSELAND MEAN OPACITY (1/CM) 0.6723-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1232+002	11000.	0.6301-001	70000.	0.3962-002
1500.	0.4876+001	12000.	0.6800-001	75000.	0.3543-002
2000.	0.2536+001	13500.	0.5179-001	80000.	0.6962-002
2500.	0.1532+001	15000.	0.4050-001	90000.	0.7376-002
3000.	0.1014+001	20000.	0.2046-001	100000.	0.1543-002
4000.	0.5277+000	25000.	0.5951-001	125000.	0.4123+001
5000.	0.4796+000	27500.	0.4687-001	150000.	0.2518+001
5500.	0.3900+000	30000.	0.3756-001	175000.	0.1651+001
6000.	0.3223+000	40000.	0.1769-001	200000.	0.1142+001
8000.	0.1704+000	50000.	0.9709-002	300000.	0.3677+000
10000.	0.1031+000	60000.	0.5920-002	400000.	0.1631+000

TABLE VIII g

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 6 ATMOSPHERES FOR 26,000°R AND 23,000°R

PRESS(ATM)	6.	ENTHALPY	0.3665+006 (BTU/LB)	0.2036+003 (KCAL/G)
TEMP (R)	25999.	FREE ENG	-0.8874+006 (BTU/LB)	-0.4930+003 (KCAL/G)
TEMP (K)	14444.	ENTROPY	0.4823+005 (BTU/LB-R)	0.4823+002 (CAL/G-K)
DEN(G/CM3)	0.4218-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3910+001	0.
2	0.4326-002	82260.
3	0.2132-002	97506.
4	0.1561-002	102902.
5	0.0000+000	105588.

PPHT (ATM) 0.3918+001 PPE (ATM) 0.1041+001
PPH2 (ATM) 0.2511-003 PPH- (ATM) 0.2252-003

IONIZATION POTENTIAL (1/CM) 103452.
PARTITION FUNCTION 0.2004+001
ROSSELAND MEAN OPACITY (1/CM) 0.7743-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6055+001	11000.	0.4971-001	70000.	0.3536-002
1500.	0.2453+001	12000.	0.4129-001	75000.	0.4140-002
2000.	0.1296+001	13500.	0.3213-001	80000.	0.2123-001
2500.	0.7896+000	15000.	0.2567-001	90000.	0.3577-002
3000.	0.5263+000	20000.	0.1390-001	100000.	0.1654-002
4000.	0.2765+000	25000.	0.4352-001	125000.	0.8685+001
5000.	0.1670+000	27500.	0.3436-001	150000.	0.5303+001
5500.	0.1344+000	30000.	0.2762-001	175000.	0.3477+001
6000.	0.1834+000	40000.	0.1323-001	200000.	0.2405+001
8000.	0.9845-001	50000.	0.7435-002	300000.	0.7743+000
10000.	0.6095-001	60000.	0.4696-002	400000.	0.3433+000

PRESS(ATM)	6.	ENTHALPY	0.2648+006 (BTU/LB)	0.1471+003 (KCAL/G)
TEMP (R)	23000.	FREE ENG	-0.7492+006 (BTU/LB)	-0.4162+003 (KCAL/G)
TEMP (K)	12778.	ENTROPY	0.4409+005 (BTU/LB-R)	0.4409+002 (CAL/G-K)
DEN(G/CM3)	0.5306-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5033+001	0.
2	0.1913-002	82260.
3	0.7737-003	97506.
4	0.7492-003	102902.
5	0.1567-003	105588.

PPHT (ATM) 0.5037+001 PPE (ATM) 0.4812+000
PPH2 (ATM) 0.6872-003 PPH- (ATM) 0.1970-003

IONIZATION POTENTIAL (1/CM) 104732.
PARTITION FUNCTION 0.2001+001
ROSSELAND MEAN OPACITY (1/CM) 0.6055-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1962+001	11000.	0.2308-001	70000.	0.2851-002
1500.	0.7914+000	12000.	0.1967-001	75000.	0.4920-002
2000.	0.4937+000	13500.	0.1590-001	80000.	0.4172-001
2500.	0.3045+000	15000.	0.1316-001	90000.	0.5213-002
3000.	0.2048+000	20000.	0.7869-002	100000.	0.1719-002
4000.	0.1089+000	25000.	0.2318-001	125000.	0.1264+002
5000.	0.6636-001	27500.	0.1842-001	150000.	0.7717+001
5500.	0.5359-001	30000.	0.1491-001	175000.	0.5060+001
6000.	0.4404-001	40000.	0.7365-002	200000.	0.3499+001
8000.	0.4249-001	50000.	0.4307-002	300000.	0.1126+001
10000.	0.2757-001	60000.	0.2918-002	400000.	0.4993+000

TABLE VIII h

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 6 ATMOSPHERES FOR 20,000°R AND 16,000°R

PRESS(ATM)	6.	ENTHALPY	0.2088+006 (BTU/LB)	0.1160+003 (KCAL/G)
TEMP (R)	20000.	FREE ENG	-0.6210+006 (BTU/LB)	-0.3450+003 (KCAL/G)
TEMP (K)	11111.	ENTROPY	0.4149+005 (BTU/LB-R)	0.4149+002 (CAL/G-K)
DEN(G/CM3)	0.6456-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5674+001	0.
2	0.5376-003	82260.
3	0.1680-003	97506.
4	0.1485-003	102902.
5	0.1310-003	105588.

PPHT (ATM) 0.5675+001 PPE (ATM) 0.1614+000
PPH2 (ATM) 0.1682-002 PPH- (ATM) 0.1170-003

IONIZATION POTENTIAL (1/CM) 106166.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.3260-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4608+000	11000.	0.7911-002	70000.	0.2532-002
1500.	0.1920+000	12000.	0.7090-002	75000.	0.6379-002
2000.	0.1034+000	13500.	0.6119-002	80000.	0.6854-001
2500.	0.6389-001	15000.	0.5349-002	90000.	0.7570-002
3000.	0.4309-001	20000.	0.3637-002	100000.	0.1976-002
4000.	0.2823-001	25000.	0.8571-002	125000.	0.1639+002
5000.	0.1740-001	27500.	0.6915-002	150000.	0.1001+002
5500.	0.1412-001	30000.	0.5683-002	175000.	0.6564+001
6000.	0.1166-001	40000.	0.2985-002	200000.	0.4538+001
8000.	0.7495-002	50000.	0.1897-002	300000.	0.1460+001
10000.	0.8953-002	60000.	0.1544-002	400000.	0.6471+000

PRESS(ATM)	6.	ENTHALPY	0.1725+006 (BTU/LB)	0.9581+002 (KCAL/G)
TEMP (R)	16000.	FREE ENG	-0.4592+006 (BTU/LB)	-0.2551+003 (KCAL/G)
TEMP (K)	8889.	ENTROPY	0.3948+005 (BTU/LB-R)	0.3948+002 (CAL/G-K)
DEN(G/CM3)	0.8273-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5954+001	0.
2	0.3937-004	82260.
3	0.7512-005	97506.
4	0.5576-005	102902.
5	0.5641-005	105588.

PPHT (ATM) 0.5954+001 PPE (ATM) 0.1950-001
PPH2 (ATM) 0.6508-002 PPH- (ATM) 0.3152-004

IONIZATION POTENTIAL (1/CM) 107901.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.8526-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3919-001	11000.	0.1427-002	70000.	0.3119-002
1500.	0.1704-001	12000.	0.1395-002	75000.	0.9927-002
2000.	0.9450-002	13500.	0.1326-002	80000.	0.1170+000
2500.	0.6258-002	15000.	0.1241-002	90000.	0.1234-001
3000.	0.4307-002	20000.	0.9581-003	100000.	0.2861-002
4000.	0.2387-002	25000.	0.7548-003	125000.	0.2153+002
5000.	0.1685-002	27500.	0.1104-002	150000.	0.1316+002
5500.	0.1382-002	30000.	0.9499-003	175000.	0.8632+001
6000.	0.1154-002	40000.	0.6080-003	200000.	0.5961+001
8000.	0.1144-002	50000.	0.5497-003	300000.	0.1915+001
10000.	0.1264-002	60000.	0.8742-003	400000.	0.8483+000

TABLE VIII i

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 6 ATMOSPHERES FOR 13,000°R AND 10,000°R

PRESS(ATM)	6.	ENTHALPY	0.1549+006 (BTU/LB)	0.8607+002	(KCAL/G)
TEMP (R)	13000.	FREE ENG	-0.3427+006 (BTU/LB)	-0.1904+003	(KCAL/G)
TEMP (K)	7222.	ENTROPY	0.3828+005 (BTU/LB-R)	0.3828+002	(CAL/G-K)
DEN(G/CM3)	0.1025-004				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5968+001	0.
2	0.1826-005	82260.
3	0.1972-006	97506.
4	0.1197-006	102902.
5	0.1095-006	105588.

PPHT (ATM) 0.5968+001 PPE (ATM) 0.1824+002
PPH2 (ATM) 0.2791-001 PPH- (ATM) 0.6226-005

IONIZATION POTENTIAL (1/CM) 108860.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.2217-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4556-002	11000.	0.2884-003	70000.	0.4507-002
1500.	0.2019-002	12000.	0.2977-003	75000.	0.1491-001
2000.	0.1134-002	13500.	0.2928-003	80000.	0.1781+000
2500.	0.7250-003	15000.	0.2798-003	90000.	0.1865-001
3000.	0.5031-003	20000.	0.2253-003	100000.	0.4242-002
4000.	0.2855-003	25000.	0.1667-003	125000.	0.2673+002
5000.	0.1826-003	27500.	0.1991-003	150000.	0.1641+002
5500.	0.1508-003	30000.	0.1860-003	175000.	0.1077+002
6000.	0.1302-003	40000.	0.1943-003	200000.	0.7401+001
8000.	0.2096-003	50000.	0.3559-003	300000.	0.2363+001
10000.	0.2741-003	60000.	0.9944-003	400000.	0.1046+001

PRESS(ATM)	6.	ENTHALPY	0.1323+006 (BTU/LB)	0.7352+002	(KCAL/G)
TEMP (R)	10001.	FREE ENG	-0.2313+006 (BTU/LB)	-0.1285+003	(KCAL/G)
TEMP (K)	5556.	ENTROPY	0.3636+005 (BTU/LB-R)	0.3636+002	(CAL/G-K)
DEN(G/CM3)	0.1385-004				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5737+001	0.
2	0.1290-007	82260.
3	0.5602-009	97506.
4	0.2463-009	102902.
5	0.1919-009	105588.

PPHT (ATM) 0.5737+001 PPE (ATM) 0.4634-004
PPH2 (ATM) 0.2625+000 PPH- (ATM) 0.4203-006

IONIZATION POTENTIAL (1/CM) 109434.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.2538-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1816-003	11000.	0.2594-004	70000.	0.7034-002
1500.	0.8070-004	12000.	0.2698-004	75000.	0.2341-001
2000.	0.4540-004	13500.	0.2749-004	80000.	0.2802+000
2500.	0.2906-004	15000.	0.2744-004	90000.	0.2931-001
3000.	0.2019-004	20000.	0.2848-004	100000.	0.6646-002
4000.	0.1139-004	25000.	0.3645-004	125000.	0.3583+002
5000.	0.7345-005	27500.	0.4442-004	150000.	0.2296+002
5500.	0.6115-005	30000.	0.5538-004	175000.	0.1525+002
6000.	0.5198-005	40000.	0.1533-003	200000.	0.9929+001
8000.	0.1638-004	50000.	0.4533-003	300000.	0.2952+001
10000.	0.2405-004	60000.	0.1487-002	400000.	0.1306+001

TABLE VIII j

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 6 ATMOSPHERES FOR 7,000°R AND 5,000°R

PRESS(ATM)	6.	ENTHALPY	0.5180+005 (BTU/LB)	0.2878+002 (KCAL/G)
TEMP (R)	7000.	FREE ENG	-0.1403+006 (BTU/LB)	-0.7796+002 (KCAL/G)
TEMP (K)	3889.	ENTROPY	0.2744+005 (BTU/LB-R)	0.2744+002 (CAL/G-K)
DEN(G/CM3)	0.3016-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2451+001	0.
2	0.5973-012	82260.
3	0.4777-014	97506.
4	0.1154-014	102902.
5	0.6673-015	105588.

PPHT (ATM) 0.2451+001 PFE (ATM) 0.4268-007
PPH2 (ATM) 0.3549+001 PFH- (ATM) 0.7893-009

IONIZATION POTENTIAL (1/CM) 109654.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.5776-007

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1155-009	11000.	0.6587-006	70000.	0.3246-002
1500.	0.5394-009	12000.	0.8587-006	75000.	0.1081-001
2000.	0.1584-008	13500.	0.1238-005	80000.	0.1294+000
2500.	0.3604-008	15000.	0.1731-005	90000.	0.1353-001
3000.	0.6985-008	20000.	0.4524-005	100000.	0.3068-002
4000.	0.1944-007	25000.	0.1002-004	125000.	0.7244+002
5000.	0.4226-007	27500.	0.1430-004	150000.	0.6526+002
5500.	0.5859-007	30000.	0.2000-004	175000.	0.4657+002
6000.	0.7878-007	40000.	0.6703-004	200000.	0.2026+002
8000.	0.2450-006	50000.	0.2066-003	300000.	0.1802+001
10000.	0.4936-006	60000.	0.6847-003	400000.	0.7979+000

PRESS(ATM)	6.	ENTHALPY	0.1882+005 (BTU/LB)	0.1045+002 (KCAL/G)
TEMP (R)	5000.	FREE ENG	-0.9336+005 (BTU/LB)	-0.5187+002 (KCAL/G)
TEMP (K)	2778.	ENTROPY	0.2243+005 (BTU/LB-R)	0.2243+002 (CAL/G-K)
DEN(G/CM3)	0.5226-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1820+000	0.
2	0.2300-018	82260.
3	0.1928-021	97506.
4	0.2096-022	102902.
5	0.8146-023	105588.

PPHT (ATM) 0.1820+000 PFE (ATM) 0.2287-011
PPH2 (ATM) 0.5818+001 PFH- (ATM) 0.1782-013

IONIZATION POTENTIAL (1/CM) 109678.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1469-008

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7781-011	11000.	0.3118-007	70000.	0.1681-003
1500.	0.3542-010	12000.	0.4142-007	75000.	0.5597-003
2000.	0.1012-009	13500.	0.6104-007	80000.	0.6699-002
2500.	0.2246-009	15000.	0.8668-007	90000.	0.7007-003
3000.	0.4255-009	20000.	0.2319-006	100000.	0.1589-003
4000.	0.1140-008	25000.	0.5169-006	125000.	0.1220+003
5000.	0.2402-008	27500.	0.7388-006	150000.	0.1227+003
5500.	0.3288-008	30000.	0.1034-005	175000.	0.8916+002
6000.	0.4372-008	40000.	0.3470-005	200000.	0.3423+002
8000.	0.1112-007	50000.	0.1070-004	300000.	0.1873+000
10000.	0.2288-007	60000.	0.3546-004	400000.	0.8304-001

TABLE VIII k

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 6 ATMOSPHERES FOR 3000 R

PRESS(ATM)	6.	ENTHALPY	0.8969+004 (BTU/LB)	0.4983+001 (KCAL/G)
TEMP (R)	3001.	FREE ENG	-0.5111+005 (BTU/LB)	-0.2839+002 (KCAL/G)
TEMP (K)	1667.	ENTROPY	0.2002+005 (BTU/LB-R)	0.2002+002 (CAL/G-K)
DEN(G/CM3)	0.8842-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2627-003	0.
2	0.0000+000	82260.
3	0.0000+000	97506.
4	0.0000+000	102902.
5	0.0000+000	105588.

PPHT (ATM) 0.2627-003 PPE (ATM) 0.0000+000
PPH2 (ATM) 0.6000+001 PPH- (ATM) 0.0000+000

IONIZATION POTENTIAL (1/CM) 109679.
PARTITION FUNCTION 0.0000+000
ROSSELAND MEAN OPACITY (1/CM) 0.1549-011

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3290-013	11000.	0.9247-010	70000.	0.4970-006
1500.	0.1407-012	12000.	0.1227-009	75000.	0.1655-005
2000.	0.3813-012	13500.	0.1806-009	80000.	0.1981-004
2500.	0.8088-012	15000.	0.2564-009	90000.	0.2072-005
3000.	0.1476-011	20000.	0.6855-009	100000.	0.4697-006
4000.	0.3733-011	25000.	0.1528-008	125000.	0.2060+003
5000.	0.7574-011	27500.	0.2184-008	150000.	0.2087+003
5500.	0.1023-010	30000.	0.3057-008	175000.	0.1518+003
6000.	0.1345-010	40000.	0.1026-007	200000.	0.5782+002
8000.	0.3336-010	50000.	0.3163-007	300000.	0.4507-003
10000.	0.6880-010	60000.	0.1048-006	400000.	0.1997-003

TABLE IX a

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 10 ATMOSPHERES FOR 200,000°R AND 175,000°R

PRESS(ATM)	10.	ENTHALPY	0.2642+007 (BTU/LB)	0.1468+004	(KCAL/G)
TEMP (R)	200000.	FREE ENG	-0.1405+008 (BTU/LB)	-0.7805+004	(KCAL/G)
TEMP (K)	111111.	ENTROPY	0.8346+005 (BTU/LB-R)	0.8346+002	(CAL/G-K)
DEN(G/CM3)	0.5528-006				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.7221-004	0.
2	0.9956-004	82261.
3	0.1839-003	97515.
4	0.3047-003	102954.
5	0.1691-003	105786.

PPHT (ATM) 0.8294-003 PFE (ATM) 0.5000+001
PPH2 (ATM) 0.3875-012 PFH- (ATM) 0.7208-010

IONIZATION POTENTIAL (1/CM) 105414.
PARTITION FUNCTION 0.2297+002
ROSSELAND MEAN OPACITY (1/CM) 0.2525-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3778+000	11000.	0.1044-002	70000.	0.1643-004
1500.	0.1341+000	12000.	0.8501-003	75000.	0.1388-004
2000.	0.6474-001	13500.	0.6438-003	80000.	0.1185-004
2500.	0.3725-001	15000.	0.5023-003	90000.	0.8840-005
3000.	0.2365-001	20000.	0.2554-003	100000.	0.6780-005
4000.	0.1160-001	25000.	0.1826-003	125000.	0.2053-004
5000.	0.6712-002	27500.	0.1469-003	150000.	0.1326-004
5500.	0.5319-002	30000.	0.1203-003	175000.	0.9033-005
6000.	0.4304-002	40000.	0.6196-004	200000.	0.6414-005
8000.	0.2227-002	50000.	0.3675-004	300000.	0.2161-005
10000.	0.1309-002	60000.	0.2383-004	400000.	0.9677-006

PRESS(ATM)	10.	ENTHALPY	0.2394+007 (BTU/LB)	0.1330+004	(KCAL/G)
TEMP (R)	175000.	FREE ENG	-0.1198+008 (BTU/LB)	-0.6655+004	(KCAL/G)
TEMP (K)	97222.	ENTROPY	0.8213+005 (BTU/LB-R)	0.8213+002	(CAL/G-K)
DEN(G/CM3)	0.6318-006				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1221-003	0.
2	0.1446-003	82261.
3	0.2596-003	97515.
4	0.4258-003	102954.
5	0.1798-003	105786.

PPHT (ATM) 0.1132-002 PFE (ATM) 0.4999+001
PPH2 (ATM) 0.7773-012 PFH- (ATM) 0.1721-009

IONIZATION POTENTIAL (1/CM) 105168.
PARTITION FUNCTION 0.1854+002
ROSSELAND MEAN OPACITY (1/CM) 0.5154-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5388+000	11000.	0.1566-002	70000.	0.2568-004
1500.	0.1923+000	12000.	0.1277-002	75000.	0.2166-004
2000.	0.9317-001	13500.	0.9686-003	80000.	0.1845-004
2500.	0.5391-001	15000.	0.7568-003	90000.	0.1372-004
3000.	0.3433-001	20000.	0.3861-003	100000.	0.1048-004
4000.	0.1694-001	25000.	0.2871-003	125000.	0.3980-004
5000.	0.9835-002	27500.	0.2312-003	150000.	0.2551-004
5500.	0.7806-002	30000.	0.1895-003	175000.	0.1726-004
6000.	0.6326-002	40000.	0.9762-004	200000.	0.1219-004
8000.	0.3319-002	50000.	0.5780-004	300000.	0.4056-005
10000.	0.1960-002	60000.	0.3737-004	400000.	0.1808-005

TABLE IX b

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 10 ATMOSPHERES FOR 150,000°R AND 125,000°R

PRESS(ATM)	10.	ENTHALPY	0.2146+007 (BTU/LB)	0.1192+004 (KCAL/G)
TEMP (R)	149999.	FREE ENG	-0.9944+007 (BTU/LB)	-0.5525+004 (KCAL/G)
TEMP (K)	83333.	ENTROPY	0.8060+005 (BTU/LB-R)	0.8060+002 (CAL/G-K)
DEN(G/CM3)	0.7371-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2315-003	0.
2	0.2238-003	82261.
3	0.3869-003	97515.
4	0.6263-003	102954.
5	0.1618-003	105786.

PPHT (ATM) 0.1630-002 PFE (ATM) 0.4999+001
PPH2 (ATM) 0.1775-011 PPH- (ATM) 0.4869-009

IONIZATION POTENTIAL (1/CM) 104862.
PARTITION FUNCTION 0.1409+002
ROSSELAND MEAN OPACITY (1/CM) 0.1250-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8141+000	11000.	0.2517-002	70000.	0.4328-004
1500.	0.2923+000	12000.	0.2055-002	75000.	0.3642-004
2000.	0.1440+000	13500.	0.1562-002	80000.	0.3094-004
2500.	0.8298-001	15000.	0.1222-002	90000.	0.2289-004
3000.	0.5304-001	20000.	0.6252-003	100000.	0.1741-004
4000.	0.2633-001	25000.	0.4901-003	125000.	0.8842-004
5000.	0.1536-001	27500.	0.3949-003	150000.	0.5616-004
5500.	0.1222-001	30000.	0.3239-003	175000.	0.3773-004
6000.	0.9922-002	40000.	0.1666-003	200000.	0.2649-004
8000.	0.5298-002	50000.	0.9833-004	300000.	0.8707-005
10000.	0.3143-002	60000.	0.6329-004	400000.	0.3869-005

PRESS(ATM)	10.	ENTHALPY	0.1897+007 (BTU/LB)	0.1054+004 (KCAL/G)
TEMP (R)	124999.	FREE ENG	-0.7951+007 (BTU/LB)	-0.4417+004 (KCAL/G)
TEMP (K)	69444.	ENTROPY	0.7878+005 (BTU/LB-R)	0.7878+002 (CAL/G-K)
DEN(G/CM3)	0.8847-006			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5202-003	0.
2	0.3786-003	82261.
3	0.6210-003	97515.
4	0.9864-003	102954.
5	0.4793-004	105786.

PPHT (ATM) 0.2554-002 PFE (ATM) 0.4999+001
PPH2 (ATM) 0.4981-011 PPH- (ATM) 0.1762-008

IONIZATION POTENTIAL (1/CM) 104463.
PARTITION FUNCTION 0.9819+001
ROSSELAND MEAN OPACITY (1/CM) 0.3888-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1332+001	11000.	0.4450-002	70000.	0.8099-004
1500.	0.4822+000	12000.	0.3639-002	75000.	0.6792-004
2000.	0.2401+000	13500.	0.2771-002	80000.	0.5752-004
2500.	0.1391+000	15000.	0.2172-002	90000.	0.4229-004
3000.	0.8933-001	20000.	0.1113-002	100000.	0.3197-004
4000.	0.4467-001	25000.	0.9391-003	125000.	0.2397-003
5000.	0.2621-001	27500.	0.7568-003	150000.	0.1506-003
5500.	0.2090-001	30000.	0.6205-003	175000.	0.1004-003
6000.	0.1700-001	40000.	0.3180-003	200000.	0.7009-004
8000.	0.9299-002	50000.	0.1865-003	300000.	0.2280-004
10000.	0.5547-002	60000.	0.1193-003	400000.	0.1012-004

TABLE IX c

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 10 ATMOSPHERES FOR 100,000°R AND 90,000°R

PRESS(ATM)	10.	ENTHALPY	0.1648+007 (BTU/LB)	0.9157+003 (KCAL/G)
TEMP (R)	100001.	FREE ENG	-0.6008+007 (BTU/LB)	-0.3338+004 (KCAL/G)
TEMP (K)	55556.	ENTROPY	0.7656+005 (BTU/LB-R)	0.7656+002 (CAL/G-K)
DEN(G/CM3)	0.1106-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1524-002	0.
2	0.7244-003	82261.
3	0.1098-002	97515.
4	0.1423-002	102954.
5	0.0000+000	105786.

PPHT (ATM) 0.4770-002 PPE (ATM) 0.4998+001
PPH2 (ATM) 0.2124-010 PPH- (ATM) 0.9304-008

IONIZATION POTENTIAL (1/CM) 103915.
PARTITION FUNCTION 0.6259+001
ROSSELAND MEAN OPACITY (1/CM) 0.1637-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2478+001	11000.	0.9006-002	70000.	0.1756-003
1500.	0.9111+000	12000.	0.7375-002	75000.	0.1466-003
2000.	0.4519+000	13500.	0.5624-002	80000.	0.1235-003
2500.	0.2656+000	15000.	0.4410-002	90000.	0.9008-004
3000.	0.1703+000	20000.	0.2259-002	100000.	0.6760-004
4000.	0.8588-001	25000.	0.2122-002	125000.	0.8817-003
5000.	0.5070-001	27500.	0.1709-002	150000.	0.5479-003
5500.	0.4052-001	30000.	0.1399-002	175000.	0.3624-003
6000.	0.3304-001	40000.	0.7109-003	200000.	0.2517-003
8000.	0.1869-001	50000.	0.4128-003	300000.	0.8132-004
10000.	0.1121-001	60000.	0.2612-003	400000.	0.3606-004

PRESS(ATM)	10.	ENTHALPY	0.1549+007 (BTU/LB)	0.8604+003 (KCAL/G)
TEMP (R)	90000.	FREE ENG	-0.5247+007 (BTU/LB)	-0.2915+004 (KCAL/G)
TEMP (K)	50000.	ENTROPY	0.7551+005 (BTU/LB-R)	0.7551+002 (CAL/G-K)
DEN(G/CM3)	0.1229-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2664-002	0.
2	0.9994-003	82261.
3	0.1450-002	97515.
4	0.1628-002	102954.
5	0.0000+000	105786.

PPHT (ATM) 0.6741-002 PPE (ATM) 0.4997+001
PPH2 (ATM) 0.4745-010 PPH- (ATM) 0.2153-007

IONIZATION POTENTIAL (1/CM) 103630.
PARTITION FUNCTION 0.5061+001
ROSSELAND MEAN OPACITY (1/CM) 0.3073-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3317+001	11000.	0.1262-001	70000.	0.2557-003
1500.	0.1227+001	12000.	0.1034-001	75000.	0.2129-003
2000.	0.6110+000	13500.	0.7884-002	80000.	0.1791-003
2500.	0.3576+000	15000.	0.6182-002	90000.	0.1301-003
3000.	0.2315+000	20000.	0.3162-002	100000.	0.9728-004
4000.	0.1172+000	25000.	0.3164-002	125000.	0.1714-002
5000.	0.6939-001	27500.	0.2545-002	150000.	0.1060-002
5500.	0.5551-001	30000.	0.2081-002	175000.	0.6995-003
6000.	0.4530-001	40000.	0.1052-002	200000.	0.4851-003
8000.	0.2612-001	50000.	0.6074-003	300000.	0.1565-003
10000.	0.1569-001	60000.	0.3822-003	400000.	0.6939-004

TABLE IX d

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 10 ATMOSPHERES FOR 80,000°R AND 70,000°R

PRESS(ATM)	10.	ENTHALPY	0.1449+007 (BTU/LB)	0.8049+003 (KCAL/G)
TEMP (R)	79999.	FREE ENG	-0.4498+007 (BTU/LB)	-0.2499+004 (KCAL/G)
TEMP (K)	44444.	ENTROPY	0.7433+005 (BTU/LB-R)	0.7433+002 (CAL/G-K)
DEN(G/CM3)	0.1383-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5146-002	0.
2	0.1436-002	82261.
3	0.1972-002	97515.
4	0.1818-002	102954.
5	0.0000+000	105786.

PPHT (ATM) 0.1037-001 PFE (ATM) 0.4995+001
PPH2 (ATM) 0.1292-009 PFH- (ATM) 0.5704-007

IONIZATION POTENTIAL (1/CM) 103288.
PARTITION FUNCTION 0.4031+001
ROSSELAND MEAN OPACITY (1/CM) 0.5538-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4605+001	11000.	0.1842-001	70000.	0.3906-003
1500.	0.1714+001	12000.	0.1510-001	75000.	0.3244-003
2000.	0.8575+000	13500.	0.1151-001	80000.	0.2723-003
2500.	0.5086+000	15000.	0.9026-002	90000.	0.1969-003
3000.	0.3269+000	20000.	0.4606-002	100000.	0.1468-003
4000.	0.1662+000	25000.	0.4978-002	125000.	0.3727-002
5000.	0.9861-001	27500.	0.3999-002	150000.	0.2296-002
5500.	0.7897-001	30000.	0.3265-002	175000.	0.1511-002
6000.	0.7313-001	40000.	0.1639-002	200000.	0.1047-002
8000.	0.3806-001	50000.	0.9396-003	300000.	0.3373-003
10000.	0.2291-001	60000.	0.5874-003	400000.	0.1496-003

PRESS(ATM)	10.	ENTHALPY	0.1348+007 (BTU/LB)	0.7490+003 (KCAL/G)
TEMP (R)	70000.	FREE ENG	-0.3760+007 (BTU/LB)	-0.2089+004 (KCAL/G)
TEMP (K)	38889.	ENTROPY	0.7298+005 (BTU/LB-R)	0.7298+002 (CAL/G-K)
DEN(G/CM3)	0.1582-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1140-001	0.
2	0.2175-002	82261.
3	0.2784-002	97515.
4	0.1962-002	102954.
5	0.0000+000	105786.

PPHT (ATM) 0.1833-001 PFE (ATM) 0.4991+001
PPH2 (ATM) 0.4826-009 PFH- (ATM) 0.1814-006

IONIZATION POTENTIAL (1/CM) 102871.
PARTITION FUNCTION 0.3214+001
ROSSELAND MEAN OPACITY (1/CM) 0.9258-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6693+001	11000.	0.2835-001	70000.	0.6354-003
1500.	0.2509+001	12000.	0.2322-001	75000.	0.5263-003
2000.	0.1261+001	13500.	0.1770-001	80000.	0.4405-003
2500.	0.7435+000	15000.	0.1387-001	90000.	0.3172-003
3000.	0.4841+000	20000.	0.7048-002	100000.	0.2356-003
4000.	0.2470+000	25000.	0.8399-002	125000.	0.9438-002
5000.	0.1469+000	27500.	0.6733-002	150000.	0.5794-002
5500.	0.1362+000	30000.	0.5486-002	175000.	0.3806-002
6000.	0.1120+000	40000.	0.2729-002	200000.	0.2634-002
8000.	0.5847-001	50000.	0.1550-002	300000.	0.8486-003
10000.	0.3523-001	60000.	0.9617-003	400000.	0.3764-003

TABLE IX e

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 10 ATMOSPHERES FOR 60,000°R AND 50,000°R

PRESS(ATM)	10.	ENTHALPY	0.1246+007 (BTU/LB)	0.6920+003 (KCAL/G)
TEMP (R)	59999.	FREE ENG	-0.3038+007 (BTU/LB)	-0.1688+004 (KCAL/G)
TEMP (K)	33333.	ENTROPY	0.7139+005 (BTU/LB-R)	0.7139+002 (CAL/G-K)
DEN(G/CM3)	0.1850-005			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.3029-001	0.
2	0.3479-002	82261.
3	0.4052-002	97515.
4	0.2212-002	102954.
5	0.0000+000	105786.

PPHT (ATM) 0.4003-001 PPE (ATM) 0.4980+001
PPH2 (ATM) 0.2926-008 PPH- (ATM) 0.7334+006

IONIZATION POTENTIAL (1/CM) 102346.
PARTITION FUNCTION 0.2643+001
ROSSELAND MEAN OPACITY (1/CM) 0.1488-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1033+002	11000.	0.4063-001	70000.	0.1113-002
1500.	0.3906+001	12000.	0.3818-001	75000.	0.9191-003
2000.	0.1975+001	13500.	0.2908-001	80000.	0.7674-003
2500.	0.1169+001	15000.	0.2274-001	90000.	0.5502-003
3000.	0.7636+000	20000.	0.1149-001	100000.	0.4074-003
4000.	0.3912+000	25000.	0.1540-001	125000.	0.2923-001
5000.	0.2762+000	27500.	0.1231-001	150000.	0.1780-001
5500.	0.2232+000	30000.	0.9997-002	175000.	0.1174-001
6000.	0.1837+000	40000.	0.4912-002	200000.	0.8178-002
8000.	0.9616-001	50000.	0.2760-002	300000.	0.2616-002
10000.	0.5796-001	60000.	0.1697-002	400000.	0.1141-002

PRESS(ATM)	10.	ENTHALPY	0.1133+007 (BTU/LB)	0.6297+003 (KCAL/G)
TEMP (R)	50000.	FREE ENG	-0.2332+007 (BTU/LB)	-0.1296+004 (KCAL/G)
TEMP (K)	27778.	ENTROPY	0.6931+005 (BTU/LB-R)	0.6931+002 (CAL/G-K)
DEN(G/CM3)	0.2239-005			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.1111+000	0.
2	0.6275-002	82261.
3	0.6408-002	97515.
4	0.2271-002	102954.
5	0.0000+000	105786.

PPHT (ATM) 0.1261+000 PPE (ATM) 0.4937+001
PPH2 (ATM) 0.4058-007 PPH- (ATM) 0.4433-005

IONIZATION POTENTIAL (1/CM) 101671.
PARTITION FUNCTION 0.2269+001
ROSSELAND MEAN OPACITY (1/CM) 0.2671-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1716+002	11000.	0.8384-001	70000.	0.2227-002
1500.	0.6549+001	12000.	0.6858-001	75000.	0.1834-002
2000.	0.3333+001	13500.	0.5211-001	80000.	0.1531-002
2500.	0.1982+001	15000.	0.4066-001	90000.	0.1092-002
3000.	0.1298+001	20000.	0.5460-001	100000.	0.8064-003
4000.	0.6677+000	25000.	0.3250-001	125000.	0.1285+000
5000.	0.4946+000	27500.	0.2586-001	150000.	0.7855-001
5500.	0.4003+000	30000.	0.2092-001	175000.	0.5151-001
6000.	0.3299+000	40000.	0.1012-001	200000.	0.3563-001
8000.	0.1731+000	50000.	0.5616-002	300000.	0.1148-001
10000.	0.1043+000	60000.	0.3419-002	400000.	0.5092-002

TABLE IX f

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE. OF 10 ATMOSPHERES FOR 40,000°R AND 30,000°R

PRESS(ATM)	10.	ENTHALPY	0.9627+006 (BTU/LB)	0.5348+003 (KCAL/G)
TEMP (R)	40000.	FREE ENG	-0.1653+007 (BTU/LB)	-0.9182+003 (KCAL/G)
TEMP (K)	22222.	ENTROPY	0.6539+005 (BTU/LB-R)	0.6539+002 (CAL/G-K)
DEN(G/CM3)	0.2942-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.6194+000	0.
2	0.1206-001	82261.
3	0.1011-001	97515.
4	0.1483-002	102954.
5	0.0000+000	105786.

PPHT (ATM) 0.6430+000 PPE (ATM) 0.4678+001
PPH2 (ATM) 0.1746-005 PPH- (ATM) 0.4424-004

IONIZATION POTENTIAL (1/CM) 100873.
PARTITION FUNCTION 0.2076+001
ROSSELAND MEAN OPACITY (1/CM) 0.5958-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2958+002	11000.	0.1586+000	70000.	0.4981-002
1500.	0.1141+002	12000.	0.1294+000	75000.	0.4109-002
2000.	0.5848+001	13500.	0.9809-001	80000.	0.3607-002
2500.	0.3492+001	15000.	0.7629-001	90000.	0.2454-002
3000.	0.2294+001	20000.	0.1304+000	100000.	0.1604-002
4000.	0.1526+001	25000.	0.7669-001	125000.	0.8947+000
5000.	0.9362+000	27500.	0.6068-001	150000.	0.5464+000
5500.	0.7588+000	30000.	0.4882-001	175000.	0.3583+000
6000.	0.6258+000	40000.	0.2319-001	200000.	0.2478+000
8000.	0.3287+000	50000.	0.1271-001	300000.	0.7981-001
10000.	0.1976+000	60000.	0.7678-002	400000.	0.3541-001

PRESS(ATM)	10.	ENTHALPY	0.5268+006 (BTU/LB)	0.2927+003 (KCAL/G)
TEMP (R)	30001.	FREE ENG	-0.1051+007 (BTU/LB)	-0.5841+003 (KCAL/G)
TEMP (K)	16667.	ENTROPY	0.5261+005 (BTU/LB-R)	0.5261+002 (CAL/G-K)
DEN(G/CM3)	0.5265-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4264+001	0.
2	0.1407-001	82261.
3	0.8485-002	97515.
4	0.1643-002	102954.
5	0.0000+000	105786.

PPHT (ATM) 0.4289+001 PPE (ATM) 0.2855+001
PPH2 (ATM) 0.1796-003 PPH- (ATM) 0.4348-003

IONIZATION POTENTIAL (1/CM) 101181.
PARTITION FUNCTION 0.2011+001
ROSSELAND MEAN OPACITY (1/CM) 0.1531-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2690+002	11000.	0.1745+000	70000.	0.8547-002
1500.	0.1059+002	12000.	0.1433+000	75000.	0.8150-002
2000.	0.5496+001	13500.	0.1096+000	80000.	0.2268-001
2500.	0.3308+001	15000.	0.8611-001	90000.	0.5890-002
3000.	0.2186+001	20000.	0.2073+000	100000.	0.3495-002
4000.	0.1626+001	25000.	0.1210+000	125000.	0.8209+001
5000.	0.1004+001	27500.	0.9545-001	150000.	0.5012+001
5500.	0.8157+000	30000.	0.7665-001	175000.	0.3286+001
6000.	0.6736+000	40000.	0.3641-001	200000.	0.2273+001
8000.	0.3563+000	50000.	0.2017-001	300000.	0.7319+000
10000.	0.2162+000	60000.	0.1243-001	400000.	0.3246+000

TABLE IX g

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 10 ATMOSPHERES FOR 26,000°R AND 23,000°R

PRESS(ATM)	10.	ENTHALPY	0.3395+006 (BTU/LB)	0.1886+003 (KCAL/G)
TEMP (R)	25999.	FREE ENG	-0.8560+006 (BTU/LB)	-0.4755+003 (KCAL/G)
TEMP (K)	14444.	ENTROPY	0.4598+005 (BTU/LB-R)	0.4598+002 (CAL/G-K)
DEN(G/CM3)	0.7262-005			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.7065+001	0.
2	0.7815-002	82261.
3	0.3849-002	97515.
4	0.1722-002	102954.
5	0.0000+000	105786.

PPHT (ATM) 0.7078+001 PPE (ATM) 0.1460+001
PPH2 (ATM) 0.8194-003 PPH- (ATM) 0.5709-003

IONIZATION POTENTIAL (1/CM) 102587.
PARTITION FUNCTION 0.2004+001
ROSSELAND MEAN OPACITY (1/CM) 0.1635-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1180+002	11000.	0.9517-001	70000.	0.7626-002
1500.	0.4748+001	12000.	0.7963-001	75000.	0.1027-001
2000.	0.2497+001	13500.	0.6265-001	80000.	0.6658-001
2500.	0.1517+001	15000.	0.5060-001	90000.	0.9707-002
3000.	0.1009+001	20000.	0.2832-001	100000.	0.3920-002
4000.	0.5290+000	25000.	0.8114-001	125000.	0.1569+002
5000.	0.3192+000	27500.	0.6434-001	150000.	0.9583+001
5500.	0.4144+000	30000.	0.5194-001	175000.	0.6283+001
6000.	0.3428+000	40000.	0.2528-001	200000.	0.4345+001
8000.	0.1850+000	50000.	0.1446-001	300000.	0.1399+001
10000.	0.1159+000	60000.	0.9351-002	400000.	0.6198+000

PRESS(ATM)	10.	ENTHALPY	0.2531+006 (BTU/LB)	0.1406+003 (KCAL/G)
TEMP (R)	23000.	FREE ENG	-0.7240+006 (BTU/LB)	-0.4022+003 (KCAL/G)
TEMP (K)	12778.	ENTROPY	0.4248+005 (BTU/LB-R)	0.4248+002 (CAL/G-K)
DEN(G/CM3)	0.8985-005			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.8683+001	0.
2	0.3301-002	82261.
3	0.1333-002	97515.
4	0.1169-002	102954.
5	0.0000+000	105786.

PPHT (ATM) 0.8689+001 PPE (ATM) 0.5543+000
PPH2 (ATM) 0.2045-002 PPH- (ATM) 0.4621-003

IONIZATION POTENTIAL (1/CM) 104115.
PARTITION FUNCTION 0.2001+001
ROSSELAND MEAN OPACITY (1/CM) 0.1226-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3739+001	11000.	0.4371-001	70000.	0.6629-002
1500.	0.1709+001	12000.	0.3771-001	75000.	0.1310-001
2000.	0.9171+000	13500.	0.3099-001	80000.	0.1229+000
2500.	0.5653+000	15000.	0.2602-001	90000.	0.1455-001
3000.	0.3801+000	20000.	0.1617-001	100000.	0.4388-002
4000.	0.2023+000	25000.	0.4205-001	125000.	0.2181+002
5000.	0.1234+000	27500.	0.3363-001	150000.	0.1332+002
5500.	0.9970-001	30000.	0.2740-001	175000.	0.8732+001
6000.	0.8200-001	40000.	0.1385-001	200000.	0.6037+001
8000.	0.7769-001	50000.	0.8313-002	300000.	0.1943+001
10000.	0.5159-001	60000.	0.5891-002	400000.	0.8605+000

TABLE IX h

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 10 ATMOSPHERES FOR 20,000°R AND 16,000°R

PRESS(ATM)	10.	ENTHALPY	0.2050+006 (BTU/LB)	0.1139+003 (KCAL/G)
TEMP (R)	20000.	FREE ENG	-0.6001+006 (BTU/LB)	-0.3334+003 (KCAL/G)
TEMP (K)	11111.	ENTROPY	0.4026+005 (BTU/LB-R)	0.4026+002 (CAL/G-K)
DEN(G/CM3)	0.1082-004			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.9563+001	0.	PPHT (ATM) 0.9565+001	PFE (ATM)	0.2151+000
2	0.9059-003	82261.	PPH2 (ATM) 0.4776-002	PFH- (ATM)	0.2628-003
3	0.2828-003	97515.	IONIZATION POTENTIAL (1/CM)		105762.
4	0.2487-003	102954.	PARTITION FUNCTION		0.2000+001
5	0.1323-003	105786.	ROSSELAND MEAN OPACITY (1/CM)		0.6620-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8721+000	11000.	0.1549-001	70000.	0.6502-002
1500.	0.3644+000	12000.	0.1409-001	75000.	0.1754-001
2000.	0.1966+000	13500.	0.1238-001	80000.	0.1942+000
2500.	0.1218+000	15000.	0.1097-001	90000.	0.2113-001
3000.	0.9771-001	20000.	0.7684-002	100000.	0.5325-002
4000.	0.5291-001	25000.	0.1569-001	125000.	0.2763+002
5000.	0.3272-001	27500.	0.1277-001	150000.	0.1688+002
5500.	0.2660-001	30000.	0.1059-001	175000.	0.1107+002
6000.	0.2201-001	40000.	0.5744-002	200000.	0.7650+001
8000.	0.1471-001	50000.	0.3804-002	300000.	0.2461+001
10000.	0.1724-001	60000.	0.3372-002	400000.	0.1089+001

PRESS(ATM)	10.	ENTHALPY	0.1719+006 (BTU/LB)	0.9548+002 (KCAL/G)
TEMP (R)	16000.	FREE ENG	-0.4430+006 (BTU/LB)	-0.2461+003 (KCAL/G)
TEMP (K)	8889.	ENTROPY	0.3843+005 (BTU/LB-R)	0.3843+002 (CAL/G-K)
DEN(G/CM3)	0.1381-004			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.9930+001	0.	PPHT (ATM) 0.9931+001	PFE (ATM)	0.2557-001
2	0.6564-004	82261.	PPH2 (ATM) 0.1810-001	PFH- (ATM)	0.6893-004
3	0.1251-004	97515.	IONIZATION POTENTIAL (1/CM)		107712.
4	0.9223-005	102954.	PARTITION FUNCTION		0.2000+001
5	0.9111-005	105786.	ROSSELAND MEAN OPACITY (1/CM)		0.1826-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8183-001	11000.	0.3014-002	70000.	0.8550-002
1500.	0.3573-001	12000.	0.2967-002	75000.	0.2751-001
2000.	0.2056-001	13500.	0.2838-002	80000.	0.3255+000
2500.	0.1305-001	15000.	0.2667-002	90000.	0.3425-001
3000.	0.8997-002	20000.	0.2076-002	100000.	0.7901-002
4000.	0.5001-002	25000.	0.1644-002	125000.	0.3595+002
5000.	0.3461-002	27500.	0.2193-002	150000.	0.2200+002
5500.	0.2844-002	30000.	0.1907-002	175000.	0.1443+002
6000.	0.2377-002	40000.	0.1285-002	200000.	0.9954+001
8000.	0.2429-002	50000.	0.1270-002	300000.	0.3193+001
10000.	0.2722-002	60000.	0.2255-002	400000.	0.1413+001

TABLE IX i

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 10 ATMOSPHERES FOR 13,000°R AND 10,000°R

PRESS(ATM)	10.	ENTHALPY	0.1543+006 (BTU/LB)	0.8570+002 (KCAL/G)
TEMP (R)	13000.	FREE ENG	-0.3296+006 (BTU/LB)	-0.1831+003 (KCAL/G)
TEMP (K)	7222.	ENTROPY	0.3722+005 (BTU/LB-R)	0.3722+002 (CAL/G-K)
DEN(G/CM3)	0.1714-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9918+001	0.
2	0.3034-005	82261.
3	0.3271-006	97515.
4	0.1968-006	102954.
5	0.1749-006	105786.

PPHT (ATM) 0.9918+001 PPE (ATM) 0.2371-002
PPH2 (ATM) 0.7707+001 PPH- (ATM) 0.1345-004

IONIZATION POTENTIAL (1/CM) 108777.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.4916-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.9774-002	11000.	0.6227-003	70000.	0.1243-001
1500.	0.4335-002	12000.	0.6410-003	75000.	0.4118-001
2000.	0.2436-002	13500.	0.6314-003	80000.	0.4921+000
2500.	0.1558-002	15000.	0.6043-003	90000.	0.5152-001
3000.	0.1090-002	20000.	0.4896-003	100000.	0.1171-001
4000.	0.6125-003	25000.	0.4112-003	125000.	0.4466+002
5000.	0.3919-003	27500.	0.4294-003	150000.	0.2752+002
5500.	0.3239-003	30000.	0.4085-003	175000.	0.1808+002
6000.	0.2779-003	40000.	0.4709-003	200000.	0.1237+002
8000.	0.4511-003	50000.	0.9379-003	300000.	0.3924+001
10000.	0.5914-003	60000.	0.2715-002	400000.	0.1735+001

PRESS(ATM)	10.	ENTHALPY	0.1278+006 (BTU/LB)	0.7098+002 (KCAL/G)
TEMP (R)	10001.	FREE ENG	-0.2223+006 (BTU/LB)	-0.1235+003 (KCAL/G)
TEMP (K)	5556.	ENTROPY	0.3501+005 (BTU/LB-R)	0.3501+002 (CAL/G-K)
DEN(G/CM3)	0.2364-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9309+001	0.
2	0.2092-007	82261.
3	0.9068-009	97515.
4	0.3943-009	102954.
5	0.2959-009	105786.

PPHT (ATM) 0.9309+001 PPE (ATM) 0.5920-004
PPH2 (ATM) 0.6911+000 PPH- (ATM) 0.8711-006

IONIZATION POTENTIAL (1/CM) 109411.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.5536-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3763-003	11000.	0.5447-004	70000.	0.1862-001
1500.	0.1672-003	12000.	0.5686-004	75000.	0.6196-001
2000.	0.9408-004	13500.	0.5840-004	80000.	0.7416+000
2500.	0.6022-004	15000.	0.5690-004	90000.	0.7757-001
3000.	0.4184-004	20000.	0.6456-004	100000.	0.1759-001
4000.	0.2362-004	25000.	0.8794-004	125000.	0.6086+002
5000.	0.1526-004	27500.	0.1097-003	150000.	0.4003+002
5500.	0.1273-004	30000.	0.1395-003	175000.	0.2676+002
6000.	0.1085-004	40000.	0.4009-003	200000.	0.1688+002
8000.	0.3419-004	50000.	0.1196-002	300000.	0.4787+001
10000.	0.5036-004	60000.	0.3934-002	400000.	0.2114+001

TABLE IX j

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 10 ATMOSPHERES FOR 7,000°R AND 5,000°R

PRESS(ATM)	10.	ENTHALPY	0.4630+005 (BTU/LB)	0.2572+002 (KCAL/G)
TEMP (R)	7000.	FREE ENG	-0.1365+006 (BTU/LB)	-0.7582+002 (KCAL/G)
TEMP (K)	3889.	ENTROPY	0.2611+005 (BTU/LB-R)	0.2611+002 (CAL/G-K)
DEN(G/CM3)	0.5258-004			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.3354+001	0.
2	0.8171-012	82261.
3	0.6514-014	97515.
4	0.1549-014	102954.
5	0.8488-015	105786.

PPHT (ATM) 0.3354+001 PPE (ATM) 0.4992-007
PPH2 (ATM) 0.6646+001 PPH- (ATM) 0.1264-008

IONIZATION POTENTIAL (1/CM) 109653.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1159-006

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2318-009	11000.	0.1298-005	70000.	0.6527-002
1500.	0.1085-008	12000.	0.1699-005	75000.	0.2173-001
2000.	0.3185-008	13500.	0.2462-005	80000.	0.2601+000
2500.	0.7247-008	15000.	0.3455-005	90000.	0.2721-001
3000.	0.1405-007	20000.	0.9077-005	100000.	0.6168-002
4000.	0.3910-007	25000.	0.2013-004	125000.	0.1255+003
5000.	0.8496-007	27500.	0.2874-004	150000.	0.1160+003
5500.	0.1178-006	30000.	0.4020-004	175000.	0.8314+002
6000.	0.1584-006	40000.	0.1348-003	200000.	0.3511+002
8000.	0.4770-006	50000.	0.4154-003	300000.	0.2465+001
10000.	0.9677-006	60000.	0.1377-002	400000.	0.1090+001

PRESS(ATM)	10.	ENTHALPY	0.1848+005 (BTU/LB)	0.1026+002 (KCAL/G)
TEMP (R)	5000.	FREE ENG	-0.9081+005 (BTU/LB)	-0.5045+002 (KCAL/G)
TEMP (K)	2778.	ENTROPY	0.2186+005 (BTU/LB-R)	0.2186+002 (CAL/G-K)
DEN(G/CM3)	0.8739-004			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.2357+000	0.
2	0.2978-018	82261.
3	0.2486-021	97515.
4	0.2643-022	102954.
5	0.9526-023	105786.

PPHT (ATM) 0.2357+000 PPE (ATM) 0.2603-011
PPH2 (ATM) 0.9764+001 PPH- (ATM) 0.2627-013

IONIZATION POTENTIAL (1/CM) 109678.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.3073-008

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1027-010	11000.	0.6521-007	70000.	0.3516-003
1500.	0.7408-010	12000.	0.8663-007	75000.	0.1171-002
2000.	0.2117-009	13500.	0.1277-006	80000.	0.1401-001
2500.	0.4697-009	15000.	0.1813-006	90000.	0.1466-002
3000.	0.8899-009	20000.	0.4850-006	100000.	0.3323-003
4000.	0.2383-008	25000.	0.1081-005	125000.	0.2039+003
5000.	0.5023-008	27500.	0.1545-005	150000.	0.2055+003
5500.	0.6877-008	30000.	0.2163-005	175000.	0.1493+003
6000.	0.9144-008	40000.	0.7258-005	200000.	0.5722+002
8000.	0.2325-007	50000.	0.2238-004	300000.	0.2426+000
10000.	0.4785-007	60000.	0.7416-004	400000.	0.1075+000

TABLE IX k

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 10 ATMOSPHERES FOR 3000 °R

PRESS(ATM)	10.	ENTHALPY	0.8969+004 (BTU/LB)	0.4983+001	(KCAL/G)
TEMP (R)	3001.	FREE ENG	-0.4958+005 (BTU/LB)	-0.2755+002	(KCAL/G)
TEMP (K)	1667.	ENTROPY	0.1951+005 (BTU/LB-R)	0.1951+002	(CAL/G-K)
DEN(G/CM3)	0.1474-003				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3392-003	0.
2	0.0000+000	82261.
3	0.0000+000	97515.
4	0.0000+000	102954.
5	0.0000+000	105786.

PPHT (ATM)	0.3392-003	PFE (ATM)	0.0000+000
PPH2 (ATM)	0.1000+002	PPH- (ATM)	0.0000+000
IONIZATION POTENTIAL (1/CM)			109679.
PARTITION FUNCTION			0.0000+000
ROSSELAND MEAN OPACITY (1/CM)			0.3333-011

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7076-013	11000.	0.1990-009	70000.	0.1069-005
1500.	0.3028-012	12000.	0.2640-009	75000.	0.3560-005
2000.	0.8203-012	13500.	0.3886-009	80000.	0.4241-004
2500.	0.1740-011	15000.	0.5516-009	90000.	0.4457-005
3000.	0.3175-011	20000.	0.1475-008	100000.	0.1011-005
4000.	0.8031-011	25000.	0.3288-008	125000.	0.3433+003
5000.	0.1630-010	27500.	0.4700-008	150000.	0.3479+003
5500.	0.2201-010	30000.	0.6577-008	175000.	0.2530+003
6000.	0.2895-010	40000.	0.2207-007	200000.	0.9637+002
8000.	0.7178-010	50000.	0.6806-007	300000.	0.5817-003
10000.	0.1463-009	60000.	0.2255-006	400000.	0.2575-003

TABLE X a

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 20 ATMOSPHERES FOR 200,000°R AND 175,000°R

PRESS(ATM)	20.	ENTHALPY	0.2642+007 (BTU/LB)	0.1468+004 (KCAL/G)
TEMP (R)	200000.	FREE ENG	-0.1350+008 (BTU/LB)	-0.7499+004 (KCAL/G)
TEMP (K)	111111.	ENTROPY	0.8070+005 (BTU/LB-R)	0.8070+002 (CAL/G-K)
DEN(G/CM3)	0.1106-005			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.2844-003	0.	PPHT (ATM) 0.2427-002	PPE (ATM) 0.9999+001	
2	0.3922-003	82263.	PPH2 (ATM) 0.3319-011	PPH- (ATM) 0.5679-009	
3	0.7241-003	97538.	IONIZATION POTENTIAL (1/CM)	104224.	
4	0.1026-002	103083.	PARTITION FUNCTION	0.1707+002	
5	0.0000+000	106280.	ROSSELAND MEAN OPACITY (1/CM)	0.9951-005	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1510+001	11000.	0.4148-002	70000.	0.6491-004
1500.	0.5383+000	12000.	0.3376-002	75000.	0.5485-004
2000.	0.2601+000	13500.	0.2556-002	80000.	0.4680-004
2500.	0.1485+000	15000.	0.1993-002	90000.	0.3492-004
3000.	0.9425-001	20000.	0.1013-002	100000.	0.2678-004
4000.	0.4623-001	25000.	0.7228-003	125000.	0.8092-004
5000.	0.2672-001	27500.	0.5813-003	150000.	0.5226-004
5500.	0.2117-001	30000.	0.4762-003	175000.	0.3560-004
6000.	0.1713-001	40000.	0.2451-003	200000.	0.2528-004
8000.	0.8853-002	50000.	0.1453-003	300000.	0.8517-005
10000.	0.5201-002	60000.	0.9419-004	400000.	0.3813-005

PRESS(ATM)	20.	ENTHALPY	0.2394+007 (BTU/LB)	0.1330+004 (KCAL/G)
TEMP (R)	175000.	FREE ENG	-0.1150+008 (BTU/LB)	-0.6387+004 (KCAL/G)
TEMP (K)	97222.	ENTROPY	0.7938+005 (BTU/LB-R)	0.7938+002 (CAL/G-K)
DEN(G/CM3)	0.1264-005			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.4795-003	0.	PPHT (ATM) 0.3329-002	PPE (ATM) 0.9998+001	
2	0.5678-003	82263.	PPH2 (ATM) 0.6723-011	PPH- (ATM) 0.1352-008	
3	0.1019-002	97538.	IONIZATION POTENTIAL (1/CM)	103903.	
4	0.1262-002	103083.	PARTITION FUNCTION	0.1388+002	
5	0.0000+000	106280.	ROSSELAND MEAN OPACITY (1/CM)	0.2024-004	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2161+001	11000.	0.6203-002	70000.	0.1011-003
1500.	0.7720+000	12000.	0.5055-002	75000.	0.8524-004
2000.	0.3746+000	13500.	0.3834-002	80000.	0.7259-004
2500.	0.2147+000	15000.	0.2994-002	90000.	0.5397-004
3000.	0.1366+000	20000.	0.1526-002	100000.	0.4123-004
4000.	0.6734-001	25000.	0.1133-002	125000.	0.1563-003
5000.	0.3908-001	27500.	0.9117-003	150000.	0.1002-003
5500.	0.3101-001	30000.	0.7473-003	175000.	0.6781-004
6000.	0.2513-001	40000.	0.3846-003	200000.	0.4789-004
8000.	0.1316-001	50000.	0.2276-003	300000.	0.1593-004
10000.	0.7764-002	60000.	0.1471-003	400000.	0.7100-005

TABLE X b

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 20 ATMOSPHERES FOR 150,000°R AND 125,000°R

PRESS(ATM)	20.	ENTHALPY	0.2145+007 (BTU/LB)	0.1192+004 (KCAL/G)
TEMP (R)	149999.	FREE ENG	-0.9531+007 (BTU/LB)	-0.5295+004 (KCAL/G)
TEMP (K)	83333.	ENTROPY	0.7784+005 (BTU/LB-R)	0.7784+002 (CAL/G-K)
DEN(G/CM3)	0.1474-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9045-003	0.
2	0.8744-003	82263.
3	0.1511-002	97538.
4	0.1540-002	103083.
5	0.0000+000	106280.

PPHT (ATM) 0.4830-002 PPE (ATM) 0.9998+001
PPH2 (ATM) 0.1558-010 PPH- (ATM) 0.3805-008

IONIZATION POTENTIAL (1/CM) 103501.
PARTITION FUNCTION 0.1068+002
ROSSELAND MEAN OPACITY (1/CM) 0.4883-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3266+001	11000.	0.9922-002	70000.	0.1693-003
1500.	0.1175+001	12000.	0.6097-002	75000.	0.1425-003
2000.	0.5729+000	13500.	0.6152-002	80000.	0.1210-003
2500.	0.3297+000	15000.	0.4812-002	90000.	0.8954-004
3000.	0.2106+000	20000.	0.2458-002	100000.	0.6809-004
4000.	0.1044+000	25000.	0.1923-002	125000.	0.3455-003
5000.	0.6085-001	27500.	0.1549-002	150000.	0.2195-003
5500.	0.4836-001	30000.	0.1270-002	175000.	0.1474-003
6000.	0.4123-001	40000.	0.6528-003	200000.	0.1035-003
8000.	0.2092-001	50000.	0.3850-003	300000.	0.3402-004
10000.	0.1240-001	60000.	0.2477-003	400000.	0.1512-004

PRESS(ATM)	20.	ENTHALPY	0.1897+007 (BTU/LB)	0.1054+004 (KCAL/G)
TEMP (R)	124999.	FREE ENG	-0.7607+007 (BTU/LB)	-0.4226+004 (KCAL/G)
TEMP (K)	69444.	ENTROPY	0.7603+005 (BTU/LB-R)	0.7603+002 (CAL/G-K)
DEN(G/CM3)	0.1770-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1986-002	0.
2	0.1445-002	82263.
3	0.2370-002	97538.
4	0.1806-002	103083.
5	0.0000+000	106280.

PPHT (ATM) 0.7608-002 PPE (ATM) 0.9996+001
PPH2 (ATM) 0.4420-010 PPH- (ATM) 0.1345-007

IONIZATION POTENTIAL (1/CM) 102977.
PARTITION FUNCTION 0.7661+001
ROSSELAND MEAN OPACITY (1/CM) 0.1486-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5346+001	11000.	0.1739-001	70000.	0.3120-003
1500.	0.1939+001	12000.	0.1421-001	75000.	0.2616-003
2000.	0.9516+000	13500.	0.1082-001	80000.	0.2215-003
2500.	0.5505+000	15000.	0.6469-002	90000.	0.1628-003
3000.	0.3531+000	20000.	0.4332-002	100000.	0.1230-003
4000.	0.1762+000	25000.	0.3631-002	125000.	0.9157-003
5000.	0.1032+000	27500.	0.2925-002	150000.	0.5755-003
5500.	0.8740-001	30000.	0.2397-002	175000.	0.3835-003
6000.	0.7128-001	40000.	0.1227-002	200000.	0.2677-003
8000.	0.3643-001	50000.	0.7192-003	300000.	0.8710-004
10000.	0.2169-001	60000.	0.4596-003	400000.	0.3864-004

TABLE X c

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 20 ATMOSPHERES FOR 100,000°R AND 90,000°R

PRESS(ATM)	20.	ENTHALPY	0.1648+007 (BTU/LB)	0.9155+003 (KCAL/G)
TEMP (R)	100001.	FREE ENG	-0.5732+007 (BTU/LB)	-0.3185+004 (KCAL/G)
TEMP (K)	55556.	ENTROPY	0.7380+005 (BTU/LB-R)	0.7380+002 (CAL/G-K)
DEN(G/CM3)	0.2213-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5862-002	0.
2	0.2786-002	82263.
3	0.4220-002	97538.
4	0.2278-002	103083.
5	0.0000+000	106280.

PPHT (ATM) 0.1515-001 PFE (ATM) 0.9992+001
PPH2 (ATM) 0.2142-009 PPH- (ATM) 0.7154-007

IONIZATION POTENTIAL (1/CM) 102254.
PARTITION FUNCTION 0.5168+001
ROSSELAND MEAN OPACITY (1/CM) 0.6298-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.9845+001	11000.	0.3506-001	70000.	0.6764-003
1500.	0.3610+001	12000.	0.2869-001	75000.	0.5645-003
2000.	0.1787+001	13500.	0.2186-001	80000.	0.4758-003
2500.	0.1040+001	15000.	0.1713-001	90000.	0.3469-003
3000.	0.6709+000	20000.	0.1352-001	100000.	0.2603-003
4000.	0.3376+000	25000.	0.8199-002	125000.	0.3391-002
5000.	0.2157+000	27500.	0.6598-002	150000.	0.2107-002
5500.	0.1730+000	30000.	0.5400-002	175000.	0.1394-002
6000.	0.1415+000	40000.	0.2742-002	200000.	0.9680-003
8000.	0.7294-001	50000.	0.1591-002	300000.	0.3128-003
10000.	0.4366-001	60000.	0.1006-002	400000.	0.1387-003

PRESS(ATM)	20.	ENTHALPY	0.1548+007 (BTU/LB)	0.8600+003 (KCAL/G)
TEMP (R)	90000.	FREE ENG	-0.4999+007 (BTU/LB)	-0.2777+004 (KCAL/G)
TEMP (K)	50000.	ENTROPY	0.7275+005 (BTU/LB-R)	0.7275+002 (CAL/G-K)
DEN(G/CM3)	0.2459-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1015-001	0.
2	0.3806-002	82263.
3	0.5518-002	97538.
4	0.2363-002	103083.
5	0.0000+000	106280.

PPHT (ATM) 0.2183-001 PFE (ATM) 0.9989+001
PPH2 (ATM) 0.4978-009 PPH- (ATM) 0.1640-006

IONIZATION POTENTIAL (1/CM) 101877.
PARTITION FUNCTION 0.4304+001
ROSSELAND MEAN OPACITY (1/CM) 0.1173-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1317+002	11000.	0.4896-001	70000.	0.9786-003
1500.	0.4854+001	12000.	0.4008-001	75000.	0.8148-003
2000.	0.2412+001	13500.	0.3055-001	80000.	0.6853-003
2500.	0.1409+001	15000.	0.2394-001	90000.	0.4976-003
3000.	0.9108+000	20000.	0.2005-001	100000.	0.3722-003
4000.	0.4599+000	25000.	0.1214-001	125000.	0.6530-002
5000.	0.2986+000	27500.	0.9765-002	150000.	0.4039-002
5500.	0.2399+000	30000.	0.7984-002	175000.	0.2664-002
6000.	0.1964+000	40000.	0.4032-002	200000.	0.1848-002
8000.	0.1016+000	50000.	0.2327-002	300000.	0.5961-003
10000.	0.6093-001	60000.	0.1463-002	400000.	0.2643-003

TABLE X d

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 20 ATMOSPHERES FOR 80,000°R AND 70,000°R

PRESS(ATM)	20.	ENTHALPY	0.1448+007 (BTU/LB)	0.8043+003 (KCAL/G)
TEMP (R)	79999.	FREE ENG	-0.4277+007 (BTU/LB)	-0.2376+004 (KCAL/G)
TEMP (K)	44444.	ENTROPY	0.7156+005 (BTU/LB-R)	0.7156+002 (CAL/G-K)
DEN(G/CM3)	0.2769-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1937-001	0.
2	0.5405-002	82263.
3	0.7418-002	97538.
4	0.2216-002	103083.
5	0.0000+000	106280.

PPHT (ATM) 0.3441-001 PHE (ATM) 0.9963+001
PPH2 (ATM) 0.1422-008 PHE- (ATM) 0.4291-006

IONIZATION POTENTIAL (1/CM) 101424.
PARTITION FUNCTION 0.3553+001
ROSSELAND MEAN OPACITY (1/CM) 0.2096-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1826+002	11000.	0.7121-001	70000.	0.1463-002
1500.	0.6772+001	12000.	0.5830-001	75000.	0.1231-002
2000.	0.3379+001	13500.	0.4443-001	80000.	0.1033-002
2500.	0.1980+001	15000.	0.3480-001	90000.	0.7472-003
3000.	0.1284+001	20000.	0.3135-001	100000.	0.5569-003
4000.	0.7176+000	25000.	0.1895-001	125000.	0.1403-001
5000.	0.4307+000	27500.	0.1522-001	150000.	0.8645-002
5500.	0.3465+000	30000.	0.1242-001	175000.	0.5689-002
6000.	0.2841+000	40000.	0.6231-002	200000.	0.3941-002
8000.	0.1475+000	50000.	0.3569-002	300000.	0.1270-002
10000.	0.6859-001	60000.	0.2230-002	400000.	0.5632-003

PRESS(ATM)	20.	ENTHALPY	0.1346+007 (BTU/LB)	0.7479+003 (KCAL/G)
TEMP (R)	70000.	FREE ENG	-0.3568+007 (BTU/LB)	-0.1982+004 (KCAL/G)
TEMP (K)	38889.	ENTROPY	0.7020+005 (BTU/LB-R)	0.7020+002 (CAL/G-K)
DEN(G/CM3)	0.3168-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4227-001	0.
2	0.8062-002	82263.
3	0.1031-001	97538.
4	0.1514-002	103083.
5	0.0000+000	106280.

PPHT (ATM) 0.6215-001 PHE (ATM) 0.9969+001
PPH2 (ATM) 0.5551-008 PHE- (ATM) 0.1343-005

IONIZATION POTENTIAL (1/CM) 100873.
PARTITION FUNCTION 0.2941+001
ROSSELAND MEAN OPACITY (1/CM) 0.3467-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2648+002	11000.	0.1089+000	70000.	0.2383-002
1500.	0.9886+001	12000.	0.8915-001	75000.	0.1974-002
2000.	0.4956+001	13500.	0.6791-001	80000.	0.1652-002
2500.	0.2916+001	15000.	0.5315-001	90000.	0.1189-002
3000.	0.1895+001	20000.	0.5243-001	100000.	0.8834-003
4000.	0.1085+001	25000.	0.3160-001	125000.	0.3499-001
5000.	0.6538+000	27500.	0.2532-001	150000.	0.2148-001
5500.	0.5269+000	30000.	0.2062-001	175000.	0.1411-001
6000.	0.4326+000	40000.	0.1025-001	200000.	0.9765-002
8000.	0.2253+000	50000.	0.5820-002	300000.	0.3146-002
10000.	0.1355+000	60000.	0.3608-002	400000.	0.1395-002

TABLE X e

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 20 ATMOSPHERES FOR 60,000°R AND 50,000°R

PRESS(ATM)	20.	ENTHALPY	0.1241+007 (BTU/LB)	0.6895+003 (KCAL/G)
TEMP (R)	59999.	FREE ENG	-0.2873+007 (BTU/LB)	-0.1596+004 (KCAL/G)
TEMP (K)	33333.	ENTROPY	0.6856+005 (BTU/LB-R)	0.6856+002 (CAL/G-K)
DEN(G/CM3)	0.3710-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1104+000	0.
2	0.1268-001	82263.
3	0.1440-001	97538.
4	0.0000+000	103083.
5	0.0000+000	106280.

PPHT (ATM)	0.1375+000	PPE (ATM)	0.9931+001
PPH2 (ATM)	0.3450-007	PPH- (ATM)	0.5330-005
IONIZATION POTENTIAL (1/CM)			100179.
PARTITION FUNCTION			0.2491+001
ROSSELAND MEAN OPACITY (1/CM)			0.5483-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4068+002	11000.	0.1764+000	70000.	0.4101-002
1500.	0.1531+002	12000.	0.1443+000	75000.	0.3386-002
2000.	0.7716+001	13500.	0.1098+000	80000.	0.2829-002
2500.	0.4556+001	15000.	0.8578-001	90000.	0.2027-002
3000.	0.3384+001	20000.	0.9491-001	100000.	0.1501-002
4000.	0.1743+001	25000.	0.5689-001	125000.	0.1065+000
5000.	0.1055+001	27500.	0.4544-001	150000.	0.6521-001
5500.	0.8511+000	30000.	0.3690-001	175000.	0.4279-001
6000.	0.6996+000	40000.	0.1811-001	200000.	0.2960-001
8000.	0.3651+000	50000.	0.1018-001	300000.	0.9534-002
10000.	0.2195+000	60000.	0.6253-002	400000.	0.4230-002

PRESS(ATM)	20.	ENTHALPY	0.1120+007 (BTU/LB)	0.6223+003 (KCAL/G)
TEMP (R)	50000.	FREE ENG	-0.2196+007 (BTU/LB)	-0.1220+004 (KCAL/G)
TEMP (K)	27778.	ENTROPY	0.6632+005 (BTU/LB-R)	0.6632+002 (CAL/G-K)
DEN(G/CM3)	0.4516-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3867+000	0.
2	0.2184-001	82263.
3	0.1822-001	97538.
4	0.0000+000	103083.
5	0.0000+000	106280.

PPHT (ATM)	0.4268+000	PPE (ATM)	0.9787+001
PPH2 (ATM)	0.4650-006	PPH- (ATM)	0.3058-004
IONIZATION POTENTIAL (1/CM)			99301.
PARTITION FUNCTION			0.2207+001
ROSSELAND MEAN OPACITY (1/CM)			0.1364-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6685+002	11000.	0.3006+000	70000.	0.7799-002
1500.	0.2542+002	12000.	0.2455+000	75000.	0.6426-002
2000.	0.1408+002	13500.	0.1862+000	80000.	0.5400-002
2500.	0.8524+001	15000.	0.1451+000	90000.	0.3830-002
3000.	0.5663+001	20000.	0.1915+000	100000.	0.8060+000
4000.	0.2974+001	25000.	0.1139+000	125000.	0.4473+000
5000.	0.1804+001	27500.	0.9061-001	150000.	0.2734+000
5500.	0.1457+001	30000.	0.7328-001	175000.	0.1793+000
6000.	0.1198+001	40000.	0.3543-001	200000.	0.1240+000
8000.	0.6285+000	50000.	0.1966-001	300000.	0.3994-001
10000.	0.3747+000	60000.	0.1197-001	400000.	0.1772-001

TABLE X f

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 20 ATMOSPHERES FOR 40,000°R AND 30,000°R

PRESS(ATM)	20.	ENTHALPY	0.9161+006 (BTU/LB)	0.5090+003 (KCAL/G)
TEMP (R)	40000.	FREE ENG	-0.1550+007 (BTU/LB)	-0.8612+003 (KCAL/G)
TEMP (K)	22222.	ENTROPY	0.6166+005 (BTU/LB-R)	0.6166+002 (CAL/G-K)
DEN(G/CM3)	0.6082-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1947+001	0.
2	0.3790-001	82263.
3	0.2057-001	97538.
4	0.0000+000	103083.
5	0.0000+000	106280.

PPHT (ATM) 0.2006+001 PFE (ATM) 0.8997+001
PPH2 (ATM) 0.1699-004 PFH- (ATM) 0.2675-003

IONIZATION POTENTIAL (1/CM) 98362.
PARTITION FUNCTION 0.2060+001
ROSSELAND MEAN OPACITY (1/CM) 0.2621-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1118+003	11000.	0.5048+000	70000.	0.1591-001
1500.	0.4480+002	12000.	0.4115+000	75000.	0.1322-001
2000.	0.2356+002	13500.	0.3112+000	80000.	0.1287-001
2500.	0.1433+002	15000.	0.2418+000	90000.	0.8001-002
3000.	0.9557+001	20000.	0.4106+000	100000.	0.5062+001
4000.	0.5037+001	25000.	0.2416+000	125000.	0.2813+001
5000.	0.3058+001	27500.	0.1913+000	150000.	0.1718+001
5500.	0.2469+001	30000.	0.1539+000	175000.	0.1126+001
6000.	0.2029+001	40000.	0.7330-001	200000.	0.7790+000
8000.	0.1055+001	50000.	0.4029-001	300000.	0.2509+000
10000.	0.6305+000	60000.	0.2441-001	400000.	0.1113+000

PRESS(ATM)	20.	ENTHALPY	0.4680+006 (BTU/LB)	0.2600+003 (KCAL/G)
TEMP (R)	30001.	FREE ENG	-0.9960+006 (BTU/LB)	-0.5533+003 (KCAL/G)
TEMP (K)	16667.	ENTROPY	0.4880+005 (BTU/LB-R)	0.4880+002 (CAL/G-K)
DEN(G/CM3)	0.1119-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1031+002	0.
2	0.3401-001	82263.
3	0.1664-001	97538.
4	0.0000+000	103083.
5	0.0000+000	106280.

PPHT (ATM) 0.1036+002 PFE (ATM) 0.4818+001
PPH2 (ATM) 0.1048-002 PFH- (ATM) 0.1774-002

IONIZATION POTENTIAL (1/CM) 99273.
PARTITION FUNCTION 0.2010+001
ROSSELAND MEAN OPACITY (1/CM) 0.5426-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7676+002	11000.	0.4473+000	70000.	0.2423-001
1500.	0.3016+002	12000.	0.3692+000	75000.	0.2642-001
2000.	0.1853+002	13500.	0.2848+000	80000.	0.1148+000
2500.	0.1151+002	15000.	0.2257+000	90000.	0.2166-001
3000.	0.7790+001	20000.	0.5137+000	100000.	0.3589+002
4000.	0.4183+001	25000.	0.3021+000	125000.	0.1985+002
5000.	0.2566+001	27500.	0.2395+000	150000.	0.1212+002
5500.	0.2078+001	30000.	0.1931+000	175000.	0.7946+001
6000.	0.1712+001	40000.	0.9334-001	200000.	0.5495+001
8000.	0.9044+000	50000.	0.5266-001	300000.	0.1769+001
10000.	0.5520+000	60000.	0.3317-001	400000.	0.7836+000

TABLE X g

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 20 ATMOSPHERES FOR 26,000°R AND 23,000°R

PRESS(ATM)	20.	ENTHALPY	0.3112+006 (BTU/LB)	0.1729+003 (KCAL/G)
TEMP (R)	25999.	FREE ENG	-0.8150+006 (BTU/LB)	-0.4528+003 (KCAL/G)
TEMP (K)	14444.	ENTROPY	0.4332+005 (BTU/LB-R)	0.4332+002 (CAL/G-K)
DEN(G/CM3)	0.1505-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1536+002	0.
2	0.1699-001	82263.
3	0.8348-002	97538.
4	0.1402-002	103083.
5	0.0000+000	106280.

PPHT (ATM) 0.1538+002 PPE (ATM) 0.2304+001
PPH2 (ATM) 0.3872-002 PPH- (ATM) 0.1959-002

IONIZATION POTENTIAL (1/CM) 101221.
PARTITION FUNCTION 0.2003+001
ROSSELAND MEAN OPACITY (1/CM) 0.4690-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2960+002	11000.	0.2345+000	70000.	0.2295-001
1500.	0.1185+002	12000.	0.1985+000	75000.	0.3770-001
2000.	0.6216+001	13500.	0.1589+000	80000.	0.3056+000
2500.	0.3772+001	15000.	0.1305+000	90000.	0.3921-001
3000.	0.2507+001	20000.	0.3152+000	100000.	0.1350-001
4000.	0.1941+001	25000.	0.1879+000	125000.	0.3412+002
5000.	0.1205+001	27500.	0.1502+000	150000.	0.2084+002
5500.	0.9799+000	30000.	0.1221+000	175000.	0.1367+002
6000.	0.8102+000	40000.	0.6115-001	200000.	0.9447+001
8000.	0.4418+000	50000.	0.3603-001	300000.	0.3039+001
10000.	0.2822+000	60000.	0.2436-001	400000.	0.1345+001

PRESS(ATM)	20.	ENTHALPY	0.2410+006 (BTU/LB)	0.1339+003 (KCAL/G)
TEMP (R)	23000.	FREE ENG	-0.6905+006 (BTU/LB)	-0.3836+003 (KCAL/G)
TEMP (K)	12778.	ENTROPY	0.4050+005 (BTU/LB-R)	0.4050+002 (CAL/G-K)
DEN(G/CM3)	0.1828-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1799+002	0.
2	0.6837-002	82263.
3	0.2755-002	97538.
4	0.1361-002	103083.
5	0.0000+000	106280.

PPHT (ATM) 0.1800+002 PPE (ATM) 0.9947+000
PPH2 (ATM) 0.8776-002 PPH- (ATM) 0.1455-002

IONIZATION POTENTIAL (1/CM) 103143.
PARTITION FUNCTION 0.2001+001
ROSSELAND MEAN OPACITY (1/CM) 0.3262-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.9670+001	11000.	0.1055+000	70000.	0.2223-001
1500.	0.3987+001	12000.	0.9274-001	75000.	0.5101-001
2000.	0.2151+001	13500.	0.7812-001	80000.	0.5230+000
2500.	0.1311+001	15000.	0.6703-001	90000.	0.5920-001
3000.	0.8804+000	20000.	0.4387-001	100000.	0.1633-001
4000.	0.4686+000	25000.	0.9539-001	125000.	0.4520+002
5000.	0.2862+000	27500.	0.7714-001	150000.	0.2761+002
5500.	0.2316+000	30000.	0.6350-001	175000.	0.1811+002
6000.	0.3097+000	40000.	0.3337-001	200000.	0.1251+002
8000.	0.1769+000	50000.	0.2090-001	300000.	0.4023+001
10000.	0.1221+000	60000.	0.1601-001	400000.	0.1778+001

TABLE X h

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 20 ATMOSPHERES FOR 20,000°R AND 16,000°R

PRESS(ATM)	20.	ENTHALPY	0.2010+006 (BTU/LB)	0.1117+003 (KCAL/G)
TEMP (R)	20000.	FREE ENG	-0.5721+006 (BTU/LB)	-0.3178+003 (KCAL/G)
TEMP (K)	11111.	ENTROPY	0.3866+005 (BTU/LB-R)	0.3866+002 (CAL/G-K)
DEN(G/CM3)	0.2178-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1934+002	0.
2	0.1832-002	82263.
3	0.5703-003	97538.
4	0.4945-003	103083.
5	0.7144-004	106280.

PPHT (ATM) 0.1934+002 PFE (ATM) 0.3186+000
PPH2 (ATM) 0.1953-001 PFH- (ATM) 0.7872-003

IONIZATION POTENTIAL (1/CM) 105129.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1784-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2151+001	11000.	0.3988-001	70000.	0.2420-001
1500.	0.9035+000	12000.	0.3694-001	75000.	0.6970-001
2000.	0.4896+000	13500.	0.3316-001	80000.	0.7925+000
2500.	0.3481+000	15000.	0.2988-001	90000.	0.8511-001
3000.	0.2372+000	20000.	0.2163-001	100000.	0.2075-001
4000.	0.1290+000	25000.	0.3658-001	125000.	0.5593+002
5000.	0.8018-001	27500.	0.3020-001	150000.	0.3419+002
5500.	0.6536-001	30000.	0.2538-001	175000.	0.2242+002
6000.	0.5420-001	40000.	0.1445-001	200000.	0.1548+002
8000.	0.5459-001	50000.	0.1021-001	300000.	0.4972+001
10000.	0.4342-001	60000.	0.1031-001	400000.	0.2196+001

PRESS(ATM)	20.	ENTHALPY	0.1710+006 (BTU/LB)	0.9502+002 (KCAL/G)
TEMP (R)	16000.	FREE ENG	-0.4210+006 (BTU/LB)	-0.2339+003 (KCAL/G)
TEMP (K)	8889.	ENTROPY	0.3700+005 (BTU/LB-R)	0.3700+002 (CAL/G-K)
DEN(G/CM3)	0.2769-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1985+002	0.
2	0.1312-003	82263.
3	0.2492-004	97538.
4	0.1806-004	103083.
5	0.1421-004	106280.

PPHT (ATM) 0.1985+002 PFE (ATM) 0.3702-001
PPH2 (ATM) 0.7235-001 PFH- (ATM) 0.1995-003

IONIZATION POTENTIAL (1/CM) 107420.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.5233-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2255+000	11000.	0.8411-002	70000.	0.3371-001
1500.	0.1008+000	12000.	0.6337-002	75000.	0.1096+000
2000.	0.5624-001	13500.	0.8031-002	80000.	0.1301+001
2500.	0.3577-001	15000.	0.7584-002	90000.	0.1367+000
3000.	0.2471-001	20000.	0.5955-002	100000.	0.3136-001
4000.	0.1378-001	25000.	0.4752-002	125000.	0.7211+002
5000.	0.9334-002	27500.	0.5725-002	150000.	0.4421+002
5500.	0.7684-002	30000.	0.5055-002	175000.	0.2902+002
6000.	0.6433-002	40000.	0.3673-002	200000.	0.1996+002
8000.	0.6808-002	50000.	0.4127-002	300000.	0.6378+001
10000.	0.8348-002	60000.	0.8353-002	400000.	0.2813+001

TABLE X i

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 20 ATMOSPHERES FOR 13,000°R AND 10,000°R

PRESS(ATM)	20.	ENTHALPY	0.1527+006 (BTU/LB)	0.8486+002 (KCAL/G)
TEMP (R)	13000.	FREE ENG	-0.3122+006 (BTU/LB)	-0.1734+003 (KCAL/G)
TEMP (K)	7222.	ENTROPY	0.3577+005 (BTU/LB-R)	0.3577+002 (CAL/G-K)
DEN(G/CM3)	0.3453-004			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.1969+002	0.	PPHT (ATM) 0.1969+002	PPE (ATM) 0.3383-002	
2	0.6022-005	82263.	PPH2 (ATM) 0.3037+000	PPH- (ATM) 0.3809-004	
3	0.6463-006	97538.	IONIZATION POTENTIAL (1/CM)	108652.	
4	0.3807-006	103083.	PARTITION FUNCTION	0.2000+001	
5	0.3147-006	106280.	ROSSELAND MEAN OPACITY (1/CM)	0.1455-002	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2750-001	11000.	0.1764-002	70000.	0.4897-001
1500.	0.1220-001	12000.	0.1811-002	75000.	0.1625+000
2000.	0.6860-002	13500.	0.1788-002	80000.	0.1942+001
2500.	0.4411-002	15000.	0.1714-002	90000.	0.2033+000
3000.	0.3063-002	20000.	0.1403-002	100000.	0.4617-001
4000.	0.1722-002	25000.	0.1206-002	125000.	0.8987+002
5000.	0.1103-002	27500.	0.1241-002	150000.	0.5584+002
5500.	0.9117-003	30000.	0.1214-002	175000.	0.3678+002
6000.	0.7776-003	40000.	0.1605-002	200000.	0.2488+002
8000.	0.1274-002	50000.	0.3526-002	300000.	0.7782+001
10000.	0.1674-002	60000.	0.1059-001	400000.	0.3427+001

PRESS(ATM)	20.	ENTHALPY	0.1188+006 (BTU/LB)	0.6599+002 (KCAL/G)
TEMP (R)	10001.	FREE ENG	-0.2109+006 (BTU/LB)	-0.1172+003 (KCAL/G)
TEMP (K)	5556.	ENTROPY	0.3297+005 (BTU/LB-R)	0.3297+002 (CAL/G-K)
DEN(G/CM3)	0.4964-004			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.1754+002	0.	PPHT (ATM) 0.1754+002	PPE (ATM) 0.8161-004	
2	0.3942-007	82263.	PPH2 (ATM) 0.2455+001	PPH- (ATM) 0.2263-005	
3	0.1699-008	97538.	IONIZATION POTENTIAL (1/CM)	109379.	
4	0.7186-009	103083.	PARTITION FUNCTION	0.2000+001	
5	0.4907-009	106280.	ROSSELAND MEAN OPACITY (1/CM)	0.1548-003	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.9774-003	11000.	0.1448-003	70000.	0.6695-001
1500.	0.4344-003	12000.	0.1521-003	75000.	0.2228+000
2000.	0.2444-003	13500.	0.1583-003	80000.	0.2667+001
2500.	0.1565-003	15000.	0.1624-003	90000.	0.2790+000
3000.	0.1087-003	20000.	0.1932-003	100000.	0.6326-001
4000.	0.6145-004	25000.	0.2855-003	125000.	0.1266+003
5000.	0.3986-004	27500.	0.3663-003	150000.	0.8747+002
5500.	0.3337-004	30000.	0.4765-003	175000.	0.5918+002
6000.	0.2859-004	40000.	0.1425-002	200000.	0.3514+002
8000.	0.8993-004	50000.	0.4291-002	300000.	0.9010+001
10000.	0.1332-003	60000.	0.1414-001	400000.	0.3962+001

TABLE IX j

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 20 ATMOSPHERES FOR 7,000°R AND 5,000°R

PRESS(ATM)	20.	ENTHALPY	0.4056+005 (BTU/LB)	0.2254+002 (KCAL/G)
TEMP (R)	7000.	FREE ENG	-0.1314+006 (BTU/LB)	-0.7299+002 (KCAL/G)
TEMP (K)	3889.	ENTROPY	0.2456+005 (BTU/LB-R)	0.2456+002 (CAL/G-K)
DEN(G/CM3)	0.1104-003			

QHN	PPHN (ATM)	TEHM (1/CM)			
1	0.5034+001	0.	PPHT (ATM) 0.5034+001	PFE (ATM) 0.6116-007	
2	0.1225-011	82263.	PPH2 (ATM) 0.1497+002	PFH- (ATM) 0.2323-008	
3	0.9693-014	97538.	IONIZATION POTENTIAL (1/CM)	109651.	
4	0.2216-014	103083.	PARTITION FUNCTION	0.2000+001	
5	0.1061-014	106280.	ROSSELAND MEAN OPACITY (1/CM)	0.2936-006	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5880-009	11000.	0.3223-005	70000.	0.1658-001
1500.	0.2754-008	12000.	0.4240-005	75000.	0.5519-001
2000.	0.5086-008	13500.	0.6177-005	80000.	0.6606+000
2500.	0.1840-007	15000.	0.6703-005	90000.	0.6909-001
3000.	0.3567-007	20000.	0.2300-004	100000.	0.1567-001
4000.	0.9929-007	25000.	0.5108-004	125000.	0.2617+003
5000.	0.2158-006	27500.	0.7295-004	150000.	0.2485+003
5500.	0.2992-006	30000.	0.1020-003	175000.	0.1789+003
6000.	0.4023-006	40000.	0.3422-003	200000.	0.7332+002
8000.	0.1169-005	50000.	0.1055-002	300000.	0.3697+001
10000.	0.2390-005	60000.	0.3496-002	400000.	0.1632+001

PRESS(ATM)	20.	ENTHALPY	0.1813+005 (BTU/LB)	0.1007+002 (KCAL/G)
TEMP (R)	5000.	FREE ENG	-0.8736+005 (BTU/LB)	-0.4853+002 (KCAL/G)
TEMP (K)	2776.	ENTROPY	0.2110+005 (BTU/LB-R)	0.2110+002 (CAL/G-K)
DEN(G/CM3)	0.1754-003			

QHN	PPHN (ATM)	TEHM (1/CM)			
1	0.3346+000	0.	PPHT (ATM) 0.3346+000	PFE (ATM) 0.3101-011	
2	0.4222-018	82263.	PPH2 (ATM) 0.1967+002	PFH- (ATM) 0.4441-013	
3	0.3486-021	97538.	IONIZATION POTENTIAL (1/CM)	109678.	
4	0.3508-022	103083.	PARTITION FUNCTION	0.2000+001	
5	0.1047-022	106280.	ROSSELAND MEAN OPACITY (1/CM)	0.8437-008	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4467-010	11000.	0.1790-006	70000.	0.9652-003
1500.	0.2034-009	12000.	0.2378-006	75000.	0.3213-002
2000.	0.5811-009	13500.	0.3505-006	80000.	0.3846-001
2500.	0.1289-008	15000.	0.4977-006	90000.	0.4023-002
3000.	0.2443-008	20000.	0.1331-005	100000.	0.9122-003
4000.	0.6543-008	25000.	0.2968-005	125000.	0.4090+003
5000.	0.1379-007	27500.	0.4242-005	150000.	0.4129+003
5500.	0.1886-007	30000.	0.5937-005	175000.	0.3001+003
6000.	0.2510-007	40000.	0.1992-004	200000.	0.1148+003
8000.	0.6383-007	50000.	0.6143-004	300000.	0.3442+000
10000.	0.1313-006	60000.	0.2036-003	400000.	0.1522+000

TABLE X k

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 20 ATMOSPHERES FOR 3000 °R

PRESS(ATM)	20.	ENTHALPY	0.8968+004 (BTU/LB)	0.4982+001 (KCAL/G)
TEMP (R)	3001.	FREE ENG	-0.4752+005 (BTU/LB)	-0.2640+002 (KCAL/G)
TEMP (K)	1667.	ENTROPY	0.1883+005 (BTU/LB-R)	0.1883+002 (CAL/G-K)
DEN(G/CM3)	0.2947-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4796-003	0.
2	0.0000+000	82263.
3	0.0000+000	97538.
4	0.0000+000	103083.
5	0.0000+000	106280.

PPHT (ATM)	0.4796-003	PFE (ATM)	0.0000+000
PPH2 (ATM)	0.2000+002	PPH- (ATM)	0.0000+000

IONIZATION POTENTIAL (1/CM)	109679.
PARTITION FUNCTION	0.0000+000
ROSSELAND MEAN OPACITY (1/CM)	0.9427-011

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2002-012	11000.	0.5627-009	70000.	0.3024-005
1500.	0.8564-012	12000.	0.7466-009	75000.	0.1007-004
2000.	0.2320-011	13500.	0.1099-008	80000.	0.1205-003
2500.	0.4922-011	15000.	0.1560-008	90000.	0.1261-004
3000.	0.8979-011	20000.	0.4171-008	100000.	0.2858-005
4000.	0.2271-010	25000.	0.9300-008	125000.	0.6866+003
5000.	0.4609-010	27500.	0.1329-007	150000.	0.6958+003
5500.	0.6225-010	30000.	0.1860-007	175000.	0.5059+003
6000.	0.8187-010	40000.	0.6243-007	200000.	0.1927+003
8000.	0.2030-009	50000.	0.1925-006	300000.	0.8221-003
10000.	0.4138-009	60000.	0.6379-006	400000.	0.3632-003

TABLE XIa

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 40 ATMOSPHERES FOR 200,000°R AND 175,000°R

PRESS(ATM)	40.	ENTHALPY	0.2642+007 (BTU/LB)	0.1468+004 (KCAL/G)
TEMP (R)	200000.	FREE ENG	-0.1295+008 (BTU/LB)	-0.7193+004 (KCAL/G)
TEMP (K)	111111.	ENTROPY	0.7795+005 (BTU/LB-R)	0.7795+002 (CAL/G-K)
DEN(G/CM3)	0.2211-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1116-002	0.
2	0.1538-002	82267.
3	0.2838-002	97584.
4	0.1812-002	103342.
5	0.0000+000	107269.

PPHT (ATM) 0.7304-002 PFE (ATM) 0.2000+002
PPH2 (ATM) 0.3006-010 PFH- (ATM) 0.4455-008

IONIZATION POTENTIAL (1/CM) 102691.
PARTITION FUNCTION 0.1309+002
ROSSELAND MEAN OPACITY (1/CM) 0.3904-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6047+001	11000.	0.1644-001	70000.	0.2554-003
1500.	0.2147+001	12000.	0.1337-001	75000.	0.2158-003
2000.	0.1037+001	13500.	0.1012-001	80000.	0.1841-003
2500.	0.5918+000	15000.	0.7888-002	90000.	0.1373-003
3000.	0.3753+000	20000.	0.4003-002	100000.	0.1053-003
4000.	0.1839+000	25000.	0.2852-002	125000.	0.3175-003
5000.	0.1062+000	27500.	0.2293-002	150000.	0.2050-003
5500.	0.8668-001	30000.	0.1876-002	175000.	0.1397-003
6000.	0.7015-001	40000.	0.9654-003	200000.	0.9916-004
8000.	0.3512-001	50000.	0.5721-003	300000.	0.3341-004
10000.	0.2061-001	60000.	0.3707-003	400000.	0.1496-004

PRESS(ATM)	40.	ENTHALPY	0.2394+007 (BTU/LB)	0.1330+004 (KCAL/G)
TEMP (R)	175000.	FREE ENG	-0.1102+008 (BTU/LB)	-0.6119+004 (KCAL/G)
TEMP (K)	97222.	ENTROPY	0.7662+005 (BTU/LB-R)	0.7662+002 (CAL/G-K)
DEN(G/CM3)	0.2526-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1872-002	0.
2	0.2217-002	82267.
3	0.3976-002	97584.
4	0.2037-002	103342.
5	0.0000+000	107269.

PPHT (ATM) 0.1010-001 PFE (ATM) 0.1999+002
PPH2 (ATM) 0.6192-010 PFH- (ATM) 0.1055-007

IONIZATION POTENTIAL (1/CM) 102270.
PARTITION FUNCTION 0.1079+002
ROSSELAND MEAN OPACITY (1/CM) 0.7908-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8623+001	11000.	0.2453-001	70000.	0.3965-003
1500.	0.3076+001	12000.	0.1999-001	75000.	0.3344-003
2000.	0.1492+001	13500.	0.1515-001	80000.	0.2847-003
2500.	0.8546+000	15000.	0.1183-001	90000.	0.2116-003
3000.	0.5436+000	20000.	0.6020-002	100000.	0.1617-003
4000.	0.2676+000	25000.	0.4456-002	125000.	0.6107-003
5000.	0.1605+000	27500.	0.3586-002	150000.	0.3914-003
5500.	0.1276+000	30000.	0.2939-002	175000.	0.2649-003
6000.	0.1035+000	40000.	0.1511-002	200000.	0.1871-003
8000.	0.5212-001	50000.	0.8936-003	300000.	0.6222-004
10000.	0.3072-001	60000.	0.5774-003	400000.	0.2773-004

TABLE XI b

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 40 ATMOSPHERES FOR 150,000°R AND 125,000°R

PRESS(ATM)	40.	ENTHALPY	0.2145+007 (BTU/LB)	0.1192+004 (KCAL/G)
TEMP (R)	149999.	FREE ENG	-0.9118+007 (BTU/LB)	-0.5066+004 (KCAL/G)
TEMP (K)	83333.	ENTROPY	0.7509+005 (BTU/LB-R)	0.7509+002 (CAL/G-K)
DEN(G/CM3)	0.2949-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3442-002	0.
2	0.3327-002	82267.
3	0.5747-002	97584.
4	0.2054-002	103342.
5	0.0000+000	107269.

PPHT (ATM) 0.1457-001 PPE (ATM) 0.1999+002
PPH2 (ATM) 0.1417-009 PPH- (ATM) 0.2895-007

IONIZATION POTENTIAL (1/CM) 101742.
PARTITION FUNCTION 0.8466+001
ROSSELAND MEAN OPACITY (1/CM) 0.1862-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1303+002	11000.	0.3911-001	70000.	0.6571-003
1500.	0.4680+001	12000.	0.3190-001	75000.	0.5527-003
2000.	0.2280+001	13500.	0.2422-001	80000.	0.4694-003
2500.	0.1311+001	15000.	0.1894-001	90000.	0.3472-003
3000.	0.8369+000	20000.	0.1240-001	100000.	0.2640-003
4000.	0.4143+000	25000.	0.7493-002	125000.	0.1317-002
5000.	0.2516+000	27500.	0.6033-002	150000.	0.8367-003
5500.	0.2005+000	30000.	0.4944-002	175000.	0.5620-003
6000.	0.1630+000	40000.	0.2538-002	200000.	0.3946-003
8000.	0.8259-001	50000.	0.1496-002	300000.	0.1297-003
10000.	0.4889-001	60000.	0.9617-003	400000.	0.5761-004

PRESS(ATM)	40.	ENTHALPY	0.1896+007 (BTU/LB)	0.1054+004 (KCAL/G)
TEMP (R)	124999.	FREE ENG	-0.7262+007 (BTU/LB)	-0.4035+004 (KCAL/G)
TEMP (K)	69444.	ENTROPY	0.7327+005 (BTU/LB-R)	0.7327+002 (CAL/G-K)
DEN(G/CM3)	0.3540-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.7680-002	0.
2	0.5588-002	82267.
3	0.9155-002	97584.
4	0.1477-002	103342.
5	0.0000+000	107269.

PPHT (ATM) 0.2390-001 PPE (ATM) 0.1999+002
PPH2 (ATM) 0.4362-009 PPH- (ATM) 0.1040-006

IONIZATION POTENTIAL (1/CM) 101052.
PARTITION FUNCTION 0.6224+001
ROSSELAND MEAN OPACITY (1/CM) 0.5752-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2131+002	11000.	0.6846-001	70000.	0.1215-002
1500.	0.7717+001	12000.	0.5593-001	75000.	0.1019-002
2000.	0.3783+001	13500.	0.4254-001	80000.	0.8623-003
2500.	0.2186+001	15000.	0.3329-001	90000.	0.6337-003
3000.	0.1401+001	20000.	0.2342-001	100000.	0.4790-003
4000.	0.7330+000	25000.	0.1418-001	125000.	0.3542-002
5000.	0.4323+000	27500.	0.1142-001	150000.	0.2226-002
5500.	0.3453+000	30000.	0.9358-002	175000.	0.1484-002
6000.	0.2815+000	40000.	0.4786-002	200000.	0.1036-002
8000.	0.1436+000	50000.	0.2803-002	300000.	0.3369-003
10000.	0.8544-001	60000.	0.1791-002	400000.	0.1494-003

TABLE XI c

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 40 ATMOSPHERES FOR 100,000°R AND 90,000°R

PRESS(ATM)	40.	ENTHALPY	0.1647+007 (BTU/LB)	0.9151+003 (KCAL/G)
TEMP (R)	100001.	FREE ENG	-0.5457+007 (BTU/LB)	-0.3032+004 (KCAL/G)
TEMP (K)	55556.	ENTROPY	0.7104+005 (BTU/LB-R)	0.7104+002 (CAL/G-K)
DEN(G/CM3)	0.4427-005			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.2221-001	0.
2	0.1056-001	82267.
3	0.1495-001	97584.
4	0.0000+000	103342.
5	0.0000+000	107269.

PPHT (ATM) 0.4772-001 PFE (ATM) 0.1998+002
PPH2 (ATM) 0.2126-008 PFH- (ATM) 0.5420-006

IONIZATION POTENTIAL (1/CM) 100095.
PARTITION FUNCTION 0.4297+001
ROSSELAND MEAN OPACITY (1/CM) 0.2392-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3918+002	11000.	0.1363+000	70000.	0.2585-002
1500.	0.1434+002	12000.	0.1114+000	75000.	0.2157-002
2000.	0.7087+001	13500.	0.8484-001	80000.	0.1818-002
2500.	0.4122+001	15000.	0.6643-001	90000.	0.1325-002
3000.	0.2795+001	20000.	0.5194-001	100000.	0.9940-003
4000.	0.1421+001	25000.	0.3146-001	125000.	0.1285-001
5000.	0.8445+000	27500.	0.2530-001	150000.	0.7987-002
5500.	0.6767+000	30000.	0.2070-001	175000.	0.5262-002
6000.	0.5530+000	40000.	0.1050-001	200000.	0.3669-002
8000.	0.2843+000	50000.	0.6087-002	300000.	0.1185-002
10000.	0.1698+000	60000.	0.3848-002	400000.	0.5256-003

PRESS(ATM)	40.	ENTHALPY	0.1547+007 (BTU/LB)	0.8594+003 (KCAL/G)
TEMP (R)	90000.	FREE ENG	-0.4751+007 (BTU/LB)	-0.2640+004 (KCAL/G)
TEMP (K)	50000.	ENTROPY	0.6998+005 (BTU/LB-R)	0.6998+002 (CAL/G-K)
DEN(G/CM3)	0.4922-005			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.3801-001	0.
2	0.1426-001	82267.
3	0.1753-001	97584.
4	0.0000+000	103342.
5	0.0000+000	107269.

PPHT (ATM) 0.6980-001 PFE (ATM) 0.1997+002
PPH2 (ATM) 0.5088-008 PFH- (ATM) 0.1228-005

IONIZATION POTENTIAL (1/CM) 99596.
PARTITION FUNCTION 0.3673+001
ROSSELAND MEAN OPACITY (1/CM) 0.5324-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5240+002	11000.	0.1880+000	70000.	0.3686-002
1500.	0.1926+002	12000.	0.1537+000	75000.	0.3068-002
2000.	0.9566+001	13500.	0.1170+000	80000.	0.2580-002
2500.	0.5846+001	15000.	0.9159-001	90000.	0.1873-002
3000.	0.3807+001	20000.	0.7595-001	100000.	0.4303-001
4000.	0.1944+001	25000.	0.4594-001	125000.	0.2446-001
5000.	0.1158+001	27500.	0.3692-001	150000.	0.1513-001
5500.	0.9291+000	30000.	0.3017-001	175000.	0.9982-002
6000.	0.7600+000	40000.	0.1522-001	200000.	0.6923-002
8000.	0.3916+000	50000.	0.8772-002	300000.	0.2233-002
10000.	0.2342+000	60000.	0.5514-002	400000.	0.9963-003

TABLE XI d

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 40 ATMOSPHERES FOR 80,000°R AND 70,000°R

PRESS(ATM)	40.	ENTHALPY	0.1446+007 (BTU/LB)	0.8033+003 (KCAL/G)	
TEMP (R)	79999.	FREE ENG	-0.4057+007 (BTU/LB)	-0.2254+004 (KCAL/G)	
TEMP (K)	44444.	ENTROPY	0.6878+005 (BTU/LB-R)	0.6878+002 (CAL/G-K)	
DEN(G/CM3)	0.5543-005				

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.7151-001	0.	PPHT (ATM) 0.1118+000	PPE (ATM) 0.1994+002	
2	0.1995-001	82267.	PPH2 (ATM) 0.1502-007	PPH- (ATM) 0.3165-005	
3	0.2038-001	97584.	IONIZATION POTENTIAL (1/CM)	98997.	
4	0.0000+000	103342.	PARTITION FUNCTION	0.3128+001	
5	0.0000+000	107269.	ROSSELAND MEAN OPACITY (1/CM)	0.1034-001	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7264+002	11000.	0.2686+000	70000.	0.5479-002
1500.	0.2761+002	12000.	0.2196+000	75000.	0.4549-002
2000.	0.1394+002	13500.	0.1671+000	80000.	0.3817-002
2500.	0.8240+001	15000.	0.1307+000	90000.	0.2759-002
3000.	0.5380+001	20000.	0.1166+000	100000.	0.9175-001
4000.	0.2758+001	25000.	0.7037-001	125000.	0.5180-001
5000.	0.1648+001	27500.	0.5646-001	150000.	0.3191-001
5500.	0.1323+001	30000.	0.4607-001	175000.	0.2100-001
6000.	0.1083+001	40000.	0.2307-001	200000.	0.1455-001
8000.	0.5593+000	50000.	0.1320-001	300000.	0.4688-002
10000.	0.3347+000	60000.	0.8245-002	400000.	0.2079-002

PRESS(ATM)	40.	ENTHALPY	0.1343+007 (BTU/LB)	0.7461+003 (KCAL/G)	
TEMP (R)	70000.	FREE ENG	-0.3375+007 (BTU/LB)	-0.1875+004 (KCAL/G)	
TEMP (K)	38889.	ENTROPY	0.6740+005 (BTU/LB-R)	0.6740+002 (CAL/G-K)	
DEN(G/CM3)	0.6349-005				

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.1502+000	0.	PPHT (ATM) 0.2015+000	PPE (ATM) 0.1990+002	
2	0.2865-001	82267.	PPH2 (ATM) 0.5833-007	PPH- (ATM) 0.9524-005	
3	0.2260-001	97584.	IONIZATION POTENTIAL (1/CM)	98263.	
4	0.0000+000	103342.	PARTITION FUNCTION	0.2682+001	
5	0.0000+000	107269.	ROSSELAND MEAN OPACITY (1/CM)	0.1794-001	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1063+003	11000.	0.3992+000	70000.	0.8488-002
1500.	0.4032+002	12000.	0.3262+000	75000.	0.7028-002
2000.	0.2045+002	13500.	0.2478+000	80000.	0.5885-002
2500.	0.1213+002	15000.	0.1936+000	90000.	0.4234-002
3000.	0.7943+001	20000.	0.1882+000	100000.	0.2217+000
4000.	0.4087+001	25000.	0.1132+000	125000.	0.1243+000
5000.	0.2447+001	27500.	0.9061-001	150000.	0.7633-001
5500.	0.1966+001	30000.	0.7376-001	175000.	0.5015-001
6000.	0.1610+001	40000.	0.3658-001	200000.	0.3470-001
8000.	0.8322+000	50000.	0.2075-001	300000.	0.1118-001
10000.	0.4977+000	60000.	0.1286-001	400000.	0.4959-002

TABLE XI e

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 40 ATMOSPHERES FOR 60,000°R AND 50,000°R

PRESS(ATM)	40.	ENTHALPY	0.1234+007 (BTU/LB)	0.6853+003	(KCAL/G)
TEMP (R)	59999.	FREE ENG	-0.2708+007 (BTU/LB)	-0.1505+004	(KCAL/G)
TEMP (K)	33333.	ENTROPY	0.6570+005 (BTU/LB-R)	0.6570+002	(CAL/G-K)
DEN(G/CM3)	0.7455-005				

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.3888+000	0.	PPHT (ATM) 0.4586+000	PFE (ATM)	0.1977+002
2	0.4465-001	82267.	PPH2 (ATM) 0.3841-006	PFH- (ATM)	0.3738-004
3	0.2514+001	97584.	IONIZATION POTENTIAL (1/CM)		97348.
4	0.0000+000	103342.	PARTITION FUNCTION		0.2359+001
5	0.0000+000	107269.	ROSSELAND MEAN OPACITY (1/CM)		0.2873-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1627+003	11000.	0.6263+000	70000.	0.1433-001
1500.	0.6223+002	12000.	0.5112+000	75000.	0.1183-001
2000.	0.3174+002	13500.	0.3676+000	80000.	0.9909-002
2500.	0.1891+002	15000.	0.3021+000	90000.	0.7084-002
3000.	0.1241+002	20000.	0.3333+000	100000.	0.6731+000
4000.	0.6409+001	25000.	0.1995+000	125000.	0.3752+000
5000.	0.3644+001	27500.	0.1592+000	150000.	0.2297+000
5500.	0.3091+001	30000.	0.1292+000	175000.	0.1507+000
6000.	0.2533+001	40000.	0.6335-001	200000.	0.1043+000
8000.	0.1309+001	50000.	0.3557-001	300000.	0.3359-001
10000.	0.7816+000	60000.	0.2185-001	400000.	0.1490-001

PRESS(ATM)	40.	ENTHALPY	0.1100+007 (BTU/LB)	0.6111+003	(KCAL/G)
TEMP (R)	50000.	FREE ENG	-0.2061+007 (BTU/LB)	-0.1145+004	(KCAL/G)
TEMP (K)	27778.	ENTROPY	0.6322+005 (BTU/LB-R)	0.6322+002	(CAL/G-K)
DEN(G/CM3)	0.9151-005				

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.1284+001	0.	PPHT (ATM) 0.1387+001	PFE (ATM)	0.1931+002
2	0.7249-001	82267.	PPH2 (ATM) 0.4910-005	PFH- (ATM)	0.2003-003
3	0.3031-001	97584.	IONIZATION POTENTIAL (1/CM)		96218.
4	0.0000+000	103342.	PARTITION FUNCTION		0.2160+001
5	0.0000+000	107269.	ROSSELAND MEAN OPACITY (1/CM)		0.4600-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2630+003	11000.	0.1044+001	70000.	0.2619-001
1500.	0.1017+003	12000.	0.6506+000	75000.	0.2161-001
2000.	0.5224+002	13500.	0.6435+000	80000.	0.1852-001
2500.	0.3126+002	15000.	0.1223+001	90000.	0.1292-001
3000.	0.2060+002	20000.	0.6439+000	100000.	0.2676+001
4000.	0.1069+002	25000.	0.3823+000	125000.	0.1485+001
5000.	0.6425+001	27500.	0.3040+000	150000.	0.9077+000
5500.	0.5169+001	30000.	0.2458+000	175000.	0.5953+000
6000.	0.4236+001	40000.	0.1188+000	200000.	0.4117+000
8000.	0.2186+001	50000.	0.6593-001	300000.	0.1326+000
10000.	0.1304+001	60000.	0.4017-001	400000.	0.5883-001

TABLE XI f

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 40 ATMOSPHERES FOR 40,000°R AND 30,000°R

PRESS(ATM)	40.	ENTHALPY	0.8609+006 (BTU/LB)	0.4783+003 (KCAL/G)
TEMP (R)	40000.	FREE ENG	-0.1452+007 (BTU/LB)	-0.8069+003 (KCAL/G)
TEMP (K)	22222.	ENTROPY	0.5783+005 (BTU/LB-R)	0.5783+002 (CAL/G-K)
DEN(G/CM3)	0.1267-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5706+001	0.
2	0.1110+000	82267.
3	0.3174-001	97584.
4	0.0000+000	103342.
5	0.0000+000	107269.

PPHT (ATM)	0.5848+001	PPE (ATM)	0.1708+002
PPH2 (ATM)	0.1444-003	PPH- (ATM)	0.1488-002
IONIZATION POTENTIAL (1/CM)			95172.
PARTITION FUNCTION			0.2050+001
ROSSELAND MEAN OPACITY (1/CM)			0.8453-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3983+003	11000.	0.1637+001	70000.	0.4928-001
1500.	0.1562+003	12000.	0.1333+001	75000.	0.4172-001
2000.	0.8093+002	13500.	0.2984+001	80000.	0.5072-001
2500.	0.4873+002	15000.	0.2374+001	90000.	0.2601-001
3000.	0.3223+002	20000.	0.1240+001	100000.	0.1489+002
4000.	0.1679+002	25000.	0.7302+000	125000.	0.8243+001
5000.	0.1011+002	27500.	0.5784+000	150000.	0.5034+001
5500.	0.8135+001	30000.	0.4659+000	175000.	0.3301+001
6000.	0.6667+001	40000.	0.2227+000	200000.	0.2283+001
8000.	0.3440+001	50000.	0.1230+000	300000.	0.7351+000
10000.	0.2047+001	60000.	0.7494-001	400000.	0.3260+000

PRESS(ATM)	40.	ENTHALPY	0.4220+006 (BTU/LB)	0.2344+003 (KCAL/G)
TEMP (R)	30001.	FREE ENG	-0.9442+006 (BTU/LB)	-0.5246+003 (KCAL/G)
TEMP (K)	16667.	ENTROPY	0.4554+005 (BTU/LB-R)	0.4554+002 (CAL/G-K)
DEN(G/CM3)	0.2352-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2373+002	0.
2	0.7826-001	82267.
3	0.2152-001	97584.
4	0.0000+000	103342.
5	0.0000+000	107269.

PPHT (ATM)	0.2383+002	PPE (ATM)	0.8077+001
PPH2 (ATM)	0.5544-002	PPH- (ATM)	0.6844-002
IONIZATION POTENTIAL (1/CM)			96948.
PARTITION FUNCTION			0.2008+001
ROSSELAND MEAN OPACITY (1/CM)			0.1597+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2244+003	11000.	0.1122+001	70000.	0.7131-001
1500.	0.9152+002	12000.	0.9333+000	75000.	0.9277-001
2000.	0.4859+002	13500.	0.7285+000	80000.	0.5689+000
2500.	0.2974+002	15000.	0.2333+001	90000.	0.8610-001
3000.	0.1990+002	20000.	0.1229+001	100000.	0.8263+002
4000.	0.1052+002	25000.	0.7322+000	125000.	0.4570+002
5000.	0.6395+001	27500.	0.5842+000	150000.	0.2791+002
5500.	0.5161+001	30000.	0.4743+000	175000.	0.1830+002
6000.	0.4239+001	40000.	0.2351+000	200000.	0.1265+002
8000.	0.2236+001	50000.	0.1362+000	300000.	0.4069+001
10000.	0.1376+001	60000.	0.8864-001	400000.	0.1799+001

TABLE XI g

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 40 ATMOSPHERES FOR 26,000 °R AND 23,000 °R

PRESS(ATM)	40.	ENTHALPY	0.2903+006 (BTU/LB)	0.1613+003 (KCAL/G)
TEMP (R)	25999.	FREE ENG	-0.7756+006 (BTU/LB)	-0.4309+003 (KCAL/G)
TEMP (K)	14444.	ENTROPY	0.4100+005 (BTU/LB-R)	0.4100+002 (CAL/G-K)
DEN(G/CM3)	0.3092-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3263+002	0.
2	0.3608-001	82267.
3	0.1491-001	97584.
4	0.0000+000	103342.
5	0.0000+000	107269.

PPHT (ATM) 0.3268+002 PPE (ATM) 0.3646+001
PPH2 (ATM) 0.1747-001 PPH- (ATM) 0.6584-002

IONIZATION POTENTIAL (1/CM) 99567.
PARTITION FUNCTION 0.2003+001
ROSSELAND MEAN OPACITY (1/CM) 0.1386+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7614+002	11000.	0.5727+000	70000.	0.7435-001
1500.	0.3050+002	12000.	0.4923+000	75000.	0.1458+000
2000.	0.1942+002	13500.	0.4028+000	80000.	0.1359+001
2500.	0.1220+002	15000.	0.3373+000	90000.	0.1618+000
3000.	0.8322+001	20000.	0.7157+000	100000.	0.1311+003
4000.	0.4516+001	25000.	0.4358+000	125000.	0.7254+002
5000.	0.2790+001	27500.	0.3519+000	150000.	0.4432+002
5500.	0.2266+001	30000.	0.2891+000	175000.	0.2906+002
6000.	0.1871+001	40000.	0.1503+000	200000.	0.2008+002
8000.	0.1034+001	50000.	0.9203-001	300000.	0.6452+001
10000.	0.6789+000	60000.	0.6607-001	400000.	0.2845+001

PRESS(ATM)	40.	ENTHALPY	0.2322+006 (BTU/LB)	0.1290+003 (KCAL/G)
TEMP (R)	23000.	FREE ENG	-0.6575+006 (BTU/LB)	-0.3653+003 (KCAL/G)
TEMP (K)	12778.	ENTROPY	0.3868+005 (BTU/LB-R)	0.3868+002 (CAL/G-K)
DEN(G/CM3)	0.3702-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3689+002	0.
2	0.1402-001	82267.
3	0.5622-002	97584.
4	0.1373-002	103342.
5	0.0000+000	107269.

PPHT (ATM) 0.3691+002 PPE (ATM) 0.1521+001
PPH2 (ATM) 0.3691-001 PPH- (ATM) 0.4564-002

IONIZATION POTENTIAL (1/CM) 101976.
PARTITION FUNCTION 0.2001+001
ROSSELAND MEAN OPACITY (1/CM) 0.9357-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2382+002	11000.	0.2684+000	70000.	0.7923-001
1500.	0.9809+001	12000.	0.2402+000	75000.	0.2026+000
2000.	0.5243+001	13500.	0.2072+000	80000.	0.2190+001
2500.	0.3228+001	15000.	0.1812+000	90000.	0.2414+000
3000.	0.2171+001	20000.	0.3545+000	100000.	0.6278-001
4000.	0.1159+001	25000.	0.2224+000	125000.	0.9279+002
5000.	0.1054+001	27500.	0.1823+000	150000.	0.5672+002
5500.	0.8605+000	30000.	0.1520+000	175000.	0.3720+002
6000.	0.7136+000	40000.	0.6354-001	200000.	0.2568+002
8000.	0.4226+000	50000.	0.5502-001	300000.	0.8241+001
10000.	0.3044+000	60000.	0.4637-001	400000.	0.3628+001

TABLE XI h

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 40 ATMOSPHERES FOR 20,000 °R AND 16,000 °R

PRESS(ATM)	40.	ENTHALPY	0.1981+006 (BTU/LB)	0.1100+003	(KCAL/G)
TEMP (R)	20000.	FREE ENG	-0.5443+006 (BTU/LB)	-0.3024+003	(KCAL/G)
TEMP (K)	11111.	ENTROPY	0.3712+005 (BTU/LB-R)	0.3712+002	(CAL/G-K)
DEN(G/CM3)	0.4378-004				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3896+002	0.
2	0.3688-002	82267.
3	0.1142-002	97584.
4	0.7356-003	103342.
5	0.0000+000	107269.

PPHT (ATM) 0.3897+002 PFE (ATM) 0.4746+000
PPH2 (ATM) 0.7928-001 PFH- (ATM) 0.2363-002

IONIZATION POTENTIAL (1/CM) 104377.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.4950-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5555+001	11000.	0.1059+000	70000.	0.9239-001
1500.	0.2515+001	12000.	0.9972-001	75000.	0.2780+000
2000.	0.1379+001	13500.	0.9124-001	80000.	0.3213+001
2500.	0.8653+000	15000.	0.8336-001	90000.	0.3423+000
3000.	0.5907+000	20000.	0.6200-001	100000.	0.8168-001
4000.	0.3228+000	25000.	0.8841-001	125000.	0.1129+003
5000.	0.2015+000	27500.	0.7415-001	150000.	0.6909+002
5500.	0.1647+000	30000.	0.6320-001	175000.	0.4533+002
6000.	0.1369+000	40000.	0.3791-001	200000.	0.3125+002
8000.	0.1384+000	50000.	0.2885-001	300000.	0.1000+002
10000.	0.1129+000	60000.	0.3352-001	400000.	0.4396+001

PRESS(ATM)	40.	ENTHALPY	0.1700+006 (BTU/LB)	0.9444+002	(KCAL/G)
TEMP (R)	16000.	FREE ENG	-0.3992+006 (BTU/LB)	-0.2218+003	(KCAL/G)
TEMP (K)	8889.	ENTROPY	0.3558+005 (BTU/LB-R)	0.3558+002	(CAL/G-K)
DEN(G/CM3)	0.5560-004				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3960+002	0.
2	0.2615-003	82267.
3	0.4933-004	97584.
4	0.3454-004	103342.
5	0.1292-004	107269.

PPHT (ATM) 0.3960+002 PFE (ATM) 0.6375-001
PPH2 (ATM) 0.2879+000 PFH- (ATM) 0.5778-003

IONIZATION POTENTIAL (1/CM) 107080.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1554-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6332+000	11000.	0.2372-001	70000.	0.1330+000
1500.	0.2788+000	12000.	0.2364-001	75000.	0.4353+000
2000.	0.1558+000	13500.	0.2289-001	80000.	0.5181+001
2500.	0.9929-001	15000.	0.2169-001	90000.	0.5435+000
3000.	0.6870-001	20000.	0.1716-001	100000.	0.1243+000
4000.	0.4020-001	25000.	0.1747-001	125000.	0.1448+003
5000.	0.2559-001	27500.	0.1540-001	150000.	0.8914+002
5500.	0.2110-001	30000.	0.1381-001	175000.	0.5857+002
6000.	0.1769-001	40000.	0.1090-001	200000.	0.4008+002
8000.	0.1924-001	50000.	0.1396-001	300000.	0.1270+002
10000.	0.2336-001	60000.	0.3152-001	400000.	0.5566+001

TABLE XI

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 40 ATMOSPHERES FOR 13,000 °R AND 10,000 °R

PRESS(ATM)	40.	ENTHALPY	0.1500+006 (BTU/LB)	0.8331+002	(KCAL/G)
TEMP (R)	13000.	FREE ENG	-0.2951+006 (BTU/LB)	-0.1640+003	(KCAL/G)
TEMP (K)	7222.	ENTROPY	0.3424+005 (BTU/LB-R)	0.3424+002	(CAL/G-K)
DEN(G/CM3)	0.7003-004				

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.3881+002	0.	PPH1 (ATM) 0.3881+002	PFE (ATM)	0.4818-002
2	0.1186-004	82267.	PPH2 (ATM) 0.1180+001	PFH- (ATM)	0.1069-003
3	0.1262-005	97584.	IONIZATION POTENTIAL (1/CM)		108509.
4	0.7127-006	103342.	PARTITION FUNCTION		0.2000+001
5	0.3747-006	107269.	ROSSELAND MEAN OPACITY (1/CM)		0.4305-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7681-001	11000.	0.4987-002	70000.	0.1986+000
1500.	0.3416-001	12000.	0.5082-002	75000.	0.6329+000
2000.	0.1922-001	13500.	0.5025-002	80000.	0.7570+001
2500.	0.1236-001	15000.	0.4830-002	90000.	0.7921+000
3000.	0.8542-002	20000.	0.4008-002	100000.	0.1798+000
4000.	0.4807-002	25000.	0.3545-002	125000.	0.1618+003
5000.	0.3079-002	27500.	0.3648-002	150000.	0.1147+003
5500.	0.2572-002	30000.	0.3679-002	175000.	0.7589+002
6000.	0.2163-002	40000.	0.5579-002	200000.	0.5033+002
8000.	0.3567-002	50000.	0.1327-001	300000.	0.1531+002
10000.	0.4700-002	60000.	0.4093-001	400000.	0.6691+001

PRESS(ATM)	40.	ENTHALPY	0.1069+006 (BTU/LB)	0.5937+002	(KCAL/G)
TEMP (R)	10001.	FREE ENG	-0.2006+006 (BTU/LB)	-0.1114+003	(KCAL/G)
TEMP (K)	5556.	ENTROPY	0.3075+005 (BTU/LB-R)	0.3075+002	(CAL/G-K)
DEN(G/CM3)	0.1064-003				

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.3189+002	0.	PPH1 (ATM) 0.3189+002	PFE (ATM)	0.1105-003
2	0.7157-007	82267.	PPH2 (ATM) 0.8110+001	PFH- (ATM)	0.5571-005
3	0.3051-008	97584.	IONIZATION POTENTIAL (1/CM)		109345.
4	0.1221-008	103342.	PARTITION FUNCTION		0.2000+001
5	0.6175-009	107269.	ROSSELAND MEAN OPACITY (1/CM)		0.4116-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2405-002	11000.	0.3671-003	70000.	0.2259+000
1500.	0.1069-002	12000.	0.3887-003	75000.	0.7520+000
2000.	0.6015-003	13500.	0.4111-003	80000.	0.9000+001
2500.	0.3852-003	15000.	0.4307-003	90000.	0.9414+000
3000.	0.2676-003	20000.	0.5594-003	100000.	0.2135+000
4000.	0.1515-003	25000.	0.6904-003	125000.	0.2677+003
5000.	0.9877-004	27500.	0.1170-002	150000.	0.1971+003
5500.	0.8309-004	30000	0.1548-002	175000.	0.1353+003
6000.	0.7167-004	40000.	0.4769-002	200000.	0.7440+002
8000.	0.2249-003	50000.	0.1445-001	300000.	0.1634+002
10000.	0.3356-003	60000.	0.4769-001	400000.	0.7130+001

TABLE XI j

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 40 ATMOSPHERES FOR 7,000 °R AND 5,000 °R

PRESS(ATM)	40.	ENTHALPY	0.3642+005 (BTU/LB)		0.2023+002 (KCAL/G)
TEMP (R)	7000.	FREE ENG	-0.1264+006 (BTU/LB)		-0.7021+002 (KCAL/G)
TEMP (K)	3889.	ENTROPY	0.2326+005 (BTU/LB-R)		0.2326+002 (CAL/G-K)
DEN(G/CM3)	0.2292-003				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.7426+001	0.
2	0.1805-011	82267.
3	0.1406-013	97584.
4	0.2970-014	103342.
5	0.1034-014	107269.

PPHT (ATM) 0.7426+001 PFE (ATM) 0.7428-007
PPH2 (ATM) 0.3257+002 PPH- (ATM) 0.4162-008

IONIZATION POTENTIAL (1/CM) 109649.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.7408-006

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1485-008	11000.	0.8005-005	70000.	0.4190-001
1500.	0.6960-008	12000.	0.1057-004	75000.	0.1395+000
2000.	0.2044-007	13500.	0.1547-004	80000.	0.1670+001
2500.	0.4652-007	15000.	0.2186-004	90000.	0.1746+000
3000.	0.9016-007	20000.	0.5802-004	100000.	0.3960-001
4000.	0.2510-006	25000.	0.1290-003	125000.	0.5406+003
5000.	0.5454-006	27500.	0.1843-003	150000.	0.5231+003
5500.	0.7562-006	30000.	0.2579-003	175000.	0.3777+003
6000.	0.1017-005	40000.	0.8649-003	200000.	0.1515+003
8000.	0.2871-005	50000.	0.2667-002	300000.	0.5448+001
10000.	0.5910-005	60000.	0.8837-002	400000.	0.2395+001

PRESS(ATM)	40.	ENTHALPY	0.1789+005 (BTU/LB)		0.9938+001 (KCAL/G)
TEMP (R)	5000.	FREE ENG	-0.8391+005 (BTU/LB)		-0.4662+002 (KCAL/G)
TEMP (K)	2778.	ENTROPY	0.2036+005 (BTU/LB-R)		0.2036+002 (CAL/G-K)
DEN(G/CM3)	0.3516-003				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4743+000	0.
2	0.5973-018	82267.
3	0.4825-021	97584.
4	0.4349-022	103342.
5	0.8517-023	107269.

PPHT (ATM) 0.4743+000 PFE (ATM) 0.3693-011
PPH2 (ATM) 0.3953+002 PPH- (ATM) 0.7497-013

IONIZATION POTENTIAL (1/CM) 109678.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.2334-007

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1236-009	11000.	0.4953-006	70000.	0.2671-002
1500.	0.5627-009	12000.	0.6581-006	75000.	0.8892-002
2000.	0.1608-008	13500.	0.9697-006	80000.	0.1064+000
2500.	0.3566-008	15000.	0.1377-005	90000.	0.1113-001
3000.	0.6760-008	20000.	0.3684-005	100000.	0.2524-002
4000.	0.1810-007	25000.	0.8212-005	125000.	0.8197+003
5000.	0.3816-007	27500.	0.1174-004	150000.	0.8285+003
5500.	0.5224-007	30000.	0.1643-004	175000.	0.6022+003
6000.	0.6946-007	40000.	0.5513-004	200000.	0.2301+003
8000.	0.1766-006	50000.	0.1700-003	300000.	0.4875+000
10000.	0.3634-006	60000.	0.5633-003	400000.	0.2149+000

TABLE XI k

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 40 ATMOSPHERES FOR 3000 °R

PRESS(ATM)	40.	ENTHALPY	0.8968+004 (BTU/LB)	0.4982+001	(KCAL/G)
TEMP (R)	3001.	FREE ENG	-0.4545+005 (BTU/LB)	-0.2525+002	(KCAL/G)
TEMP (K)	1667.	ENTROPY	0.1814+005 (BTU/LB-R)	0.1814+002	(CAL/G-K)

DEN(G/CM3) 0.5895-003

QHN	PPHN (ATM)	TERM (1/CM)
1	0.6783-003	0.
2	0.0000+000	82267.
3	0.0000+000	97584.
4	0.0000+000	103342.
5	0.0000+000	107269.

PPHT (ATM) 0.6783-003 PPE (ATM) 0.0000+000
PPH2 (ATM) 0.4000+002 PPH- (ATM) 0.0000+000

IONIZATION POTENTIAL (1/CM) 109679.
PARTITION FUNCTION 0.0000+000
ROSSELAND MEAN OPACITY (1/CM) 0.2666-010

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5662-012	11000.	0.1592-008	70000.	0.8553-005
1500.	0.2422-011	12000.	0.2112-008	75000.	0.2848-004
2000.	0.6562-011	13500.	0.3109-008	80000.	0.3409-003
2500.	0.1392-010	15000.	0.4412-008	90000.	0.3565-004
3000.	0.2539-010	20000.	0.1180-007	100000.	0.8083-005
4000.	0.6424-010	25000.	0.2630-007	125000.	0.1373+004
5000.	0.1304-009	27500.	0.3759-007	150000.	0.1392+004
5500.	0.1761-009	30000.	0.5261-007	175000.	0.1012+004
6000.	0.2316-009	40000.	0.1766-006	200000.	0.3855+003
8000.	0.5742-009	50000.	0.5444-006	300000.	0.1161-002
10000.	0.1170-008	60000.	0.1804-005	400000.	0.5106-003

TABLE XII a

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 60 ATMOSPHERES FOR 200,000°R AND 175,000°R

PRESS(ATM)	60.	ENTHALPY	0.2642+007 (BTU/LB)	0.1468+004 (KCAL/G)
TEMP (R)	200000.	FREE ENG	-0.1263+008 (BTU/LB)	-0.7014+004 (KCAL/G)
TEMP (K)	111111.	ENTROPY	0.7634+005 (BTU/LB-R)	0.7634+002 (CAL/G-K)
DEN(G/CM3)	0.3317-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2475-002	0.
2	0.3412-002	82271.
3	0.6293-002	97630.
4	0.1698-002	103601.
5	0.0000+000	108257.

PPHT (ATM) 0.1388-001 PPE (ATM) 0.2999+002
PPH2 (ATM) 0.1085-009 PPH- (ATM) 0.1482-007

IONIZATION POTENTIAL (1/CM) 101595.
PARTITION FUNCTION 0.1121+002
ROSSELAND MEAN OPACITY (1/CM) 0.8666-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1359+002	11000.	0.3681-001	70000.	0.5694-003
1500.	0.4825+001	12000.	0.2994-001	75000.	0.4810-003
2000.	0.2329+001	13500.	0.2265-001	80000.	0.4103-003
2500.	0.1329+001	15000.	0.1765-001	90000.	0.3060-003
3000.	0.8426+000	20000.	0.1060-001	100000.	0.2346-003
4000.	0.4221+000	25000.	0.6368-002	125000.	0.7049-003
5000.	0.2448+000	27500.	0.5118-002	150000.	0.4552-003
5500.	0.1942+000	30000.	0.4191-002	175000.	0.3100-003
6000.	0.1573+000	40000.	0.2154-002	200000.	0.2201-003
8000.	0.7869-001	50000.	0.1276-002	300000.	0.7416-004
10000.	0.4617-001	60000.	0.8266-003	400000.	0.3320-004

PRESS(ATM)	60.	ENTHALPY	0.2394+007 (BTU/LB)	0.1330+004 (KCAL/G)
TEMP (R)	175000.	FREE ENG	-0.1073+008 (BTU/LB)	-0.5963+004 (KCAL/G)
TEMP (K)	97222.	ENTROPY	0.7501+005 (BTU/LB-R)	0.7501+002 (CAL/G-K)
DEN(G/CM3)	0.3792-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4140-002	0.
2	0.4902-002	82271.
3	0.8787-002	97630.
4	0.1163-002	103601.
5	0.0000+000	108257.

PPHT (ATM) 0.1899-001 PPE (ATM) 0.2999+002
PPH2 (ATM) 0.2188-009 PPH- (ATM) 0.3500-007

IONIZATION POTENTIAL (1/CM) 101101.
PARTITION FUNCTION 0.9175+001
ROSSELAND MEAN OPACITY (1/CM) 0.1750-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1938+002	11000.	0.5487-001	70000.	0.8819-003
1500.	0.6914+001	12000.	0.4469-001	75000.	0.7437-003
2000.	0.3351+001	13500.	0.3387-001	80000.	0.6332-003
2500.	0.1918+001	15000.	0.2643-001	90000.	0.4706-003
3000.	0.1220+001	20000.	0.1648-001	100000.	0.3594-003
4000.	0.6173+000	25000.	0.9930-002	125000.	0.1352-002
5000.	0.3596+000	27500.	0.7989-002	150000.	0.8662-003
5500.	0.2858+000	30000.	0.6545-002	175000.	0.5861-003
6000.	0.2319+000	40000.	0.3364-002	200000.	0.4139-003
8000.	0.1167+000	50000.	0.1989-002	300000.	0.1377-003
10000.	0.6873-001	60000.	0.1285-002	400000.	0.6136-004

TABLE XII b

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 60 ATMOSPHERES FOR 150,000 °R AND 125,000 °R

PRESS(ATM)	60.	ENTHALPY	0.2145+007 (BTU/LB)	0.1192+004 (KCAL/G)
TEMP (R)	149999.	FREE ENG	-0.8876+007 (BTU/LB)	-0.4931+004 (KCAL/G)
TEMP (K)	83333.	ENTROPY	0.7348+005 (BTU/LB-R)	0.7348+002 (CAL/G-K)
DEN(G/CM3)	0.4424-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.7621-002	0.
2	0.7367-002	82271.
3	0.1243-001	97630.
4	0.0000+000	103601.
5	0.0000+000	108257.

PPHT (ATM) 0.2742-001 PPE (ATM) 0.2999+002
PPH2 (ATM) 0.5019-009 PPH- (ATM) 0.9615-007

IONIZATION POTENTIAL (1/CM) 100481.
PARTITION FUNCTION 0.7194+001
ROSSELAND MEAN OPACITY (1/CM) 0.4125-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2927+002	11000.	0.8727-001	70000.	0.1458-002
1500.	0.1051+002	12000.	0.7117-001	75000.	0.1227-002
2000.	0.5117+001	13500.	0.5402-001	80000.	0.1042-002
2500.	0.2941+001	15000.	0.4222-001	90000.	0.7704-003
3000.	0.1929+001	20000.	0.2759-001	100000.	0.5657-003
4000.	0.9614+000	25000.	0.1666-001	125000.	0.2918-002
5000.	0.5629+000	27500.	0.1341-001	150000.	0.1853-002
5500.	0.4483+000	30000.	0.1099-001	175000.	0.1245-002
6000.	0.3645+000	40000.	0.5638-002	200000.	0.8738-003
8000.	0.1845+000	50000.	0.3321-002	300000.	0.2872-003
10000.	0.1091+000	60000.	0.2135-002	400000.	0.1276-003

PRESS(ATM)	60.	ENTHALPY	0.1896+007 (BTU/LB)	0.1053+004 (KCAL/G)
TEMP (R)	124999.	FREE ENG	-0.7061+007 (BTU/LB)	-0.3923+004 (KCAL/G)
TEMP (K)	69444.	ENTROPY	0.7166+005 (BTU/LB-R)	0.7166+002 (CAL/G-K)
DEN(G/CM3)	0.5311-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1684-001	0.
2	0.1225-001	82271.
3	0.1687-001	97630.
4	0.0000+000	103601.
5	0.0000+000	108257.

PPHT (ATM) 0.4596-001 PPE (ATM) 0.2998+002
PPH2 (ATM) 0.1613-008 PPH- (ATM) 0.3421-006

IONIZATION POTENTIAL (1/CM) 99668.
PARTITION FUNCTION 0.5459+001
ROSSELAND MEAN OPACITY (1/CM) 0.1305-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4790+002	11000.	0.1513+000	70000.	0.2062-002
1500.	0.1734+002	12000.	0.1235+000	75000.	0.2231-002
2000.	0.8497+001	13500.	0.9387-001	80000.	0.1888-002
2500.	0.5043+001	15000.	0.7342-001	90000.	0.1398-002
3000.	0.3248+001	20000.	0.5151-001	100000.	0.1335-001
4000.	0.1631+001	25000.	0.3116-001	125000.	0.7755-002
5000.	0.9603+000	27500.	0.2508-001	150000.	0.4880-002
5500.	0.7667+000	30000.	0.2055-001	175000.	0.3252-002
6000.	0.6246+000	40000.	0.1050-001	200000.	0.2270-002
8000.	0.3181+000	50000.	0.6146-002	300000.	0.7385-003
10000.	0.1889+000	60000.	0.3924-002	400000.	0.3276-003

TABLE XII c

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 60 ATMOSPHERES FOR 100,000°R AND 90,000°R

PRESS(ATM)	60.	ENTHALPY	0.1646+007 (BTU/LB)	0.9147+003 (KCAL/G)
TEMP (R)	100001.	FREE ENG	-0.5296+007 (BTU/LB)	-0.2942+004 (KCAL/G)
TEMP (K)	55556.	ENTROPY	0.6942+005 (BTU/LB-R)	0.6942+002 (CAL/G-K)
DEN(G/CM3)	0.6643-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4802-001	0.
2	0.2282-001	82271.
3	0.2251-001	97630.
4	0.0000+000	103601.
5	0.0000+000	108257.

PPHT (ATM) 0.9334-001 PPE (ATM) 0.2995+002
PPH2 (ATM) 0.8135-008 PPH- (ATM) 0.1757-005

IONIZATION POTENTIAL (1/CM) 98541.
PARTITION FUNCTION 0.3888+001
ROSSELAND MEAN OPACITY (1/CM) 0.5793-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8859+002	11000.	0.2964+000	70000.	0.5560-002
1500.	0.3275+002	12000.	0.2422+000	75000.	0.4638-002
2000.	0.1631+002	13500.	0.1841+000	80000.	0.3909-002
2500.	0.9545+001	15000.	0.1440+000	90000.	0.2848-002
3000.	0.6181+001	20000.	0.1123+000	100000.	0.4852-001
4000.	0.3131+001	25000.	0.6790-001	125000.	0.2778-001
5000.	0.1855+001	27500.	0.5460-001	150000.	0.1726-001
5500.	0.1484+001	30000.	0.4465-001	175000.	0.1142-001
6000.	0.1212+001	40000.	0.2262-001	200000.	0.7929-002
8000.	0.6207+000	50000.	0.1310-001	300000.	0.2562-002
10000.	0.3698+000	60000.	0.8279-002	400000.	0.1136-002

PRESS(ATM)	60.	ENTHALPY	0.1546+007 (BTU/LB)	0.8588+003 (KCAL/G)
TEMP (R)	90000.	FREE ENG	-0.4606+007 (BTU/LB)	-0.2559+004 (KCAL/G)
TEMP (K)	50000.	ENTROPY	0.6836+005 (BTU/LB-R)	0.6836+002 (CAL/G-K)
DEN(G/CM3)	0.7387-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.8153-001	0.
2	0.3057-001	82271.
3	0.2449-001	97630.
4	0.0000+000	103601.
5	0.0000+000	108257.

PPHT (ATM) 0.1366+000 PPE (ATM) 0.2993+002
PPH2 (ATM) 0.1948-007 PPH- (ATM) 0.3947-005

IONIZATION POTENTIAL (1/CM) 97951.
PARTITION FUNCTION 0.3351+001
ROSSELAND MEAN OPACITY (1/CM) 0.1140-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1184+003	11000.	0.4062+000	70000.	0.7866-002
1500.	0.4402+002	12000.	0.3318+000	75000.	0.6547-002
2000.	0.2201+002	13500.	0.2522+000	80000.	0.5505-002
2500.	0.1292+002	15000.	0.1971+000	90000.	0.3995-002
3000.	0.8386+001	20000.	0.1629+000	100000.	0.9227-001
4000.	0.4262+001	25000.	0.9843-001	125000.	0.5246-001
5000.	0.2531+001	27500.	0.7906-001	150000.	0.3245-001
5500.	0.2027+001	30000.	0.6458-001	175000.	0.2141-001
6000.	0.1656+001	40000.	0.3253-001	200000.	0.1484-001
8000.	0.8499+000	50000.	0.1874-001	300000.	0.4789-002
10000.	0.5067+000	60000.	0.1177-001	400000.	0.2124-002

TABLE XII d

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 60 ATMOSPHERES FOR 80,000°R AND 70,000 °R

PRESS(ATM)	60.	ENTHALPY	0.1444+007 (BTU/LB)	0.8024+003 (KCAL/G)
TEMP (R)	79999.	FREE ENG	-0.3928+007 (BTU/LB)	-0.2182+004 (KCAL/G)
TEMP (K)	44444.	ENTROPY	0.6716+005 (BTU/LB-R)	0.6716+002 (CAL/G-K)
DEN(G/CM3)	0.8322-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1518+000	0.
2	0.4234-001	82271.
3	0.2751-001	97630.
4	0.0000+000	103601.
5	0.0000+000	108257.

PPHT (ATM) 0.2216+000 PPE (ATM) 0.2969+002
PPH2 (ATM) 0.5898-007 PPH- (ATM) 0.1007-004

IONIZATION POTENTIAL (1/CM) 97244.
PARTITION FUNCTION 0.2920+001
ROSSELAND MEAN OPACITY (1/CM) 0.2193-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1641+003	11000.	0.5784+000	70000.	0.1162-001
1500.	0.6138+002	12000.	0.4724+000	75000.	0.9647-002
2000.	0.3083+002	13500.	0.3589+000	80000.	0.8095-002
2500.	0.1816+002	15000.	0.4682+000	90000.	0.5849-002
3000.	0.1182+002	20000.	0.2485+000	100000.	0.1947+000
4000.	0.6031+001	25000.	0.1498+000	125000.	0.1099+000
5000.	0.3590+001	27500.	0.1201+000	150000.	0.6772-001
5500.	0.2878+001	30000.	0.9797-001	175000.	0.4457-001
6000.	0.2353+001	40000.	0.4900-001	200000.	0.3087-001
8000.	0.1210+001	50000.	0.2803-001	300000.	0.9949-002
10000.	0.7216+000	60000.	0.1749-001	400000.	0.4413-002

PRESS(ATM)	60.	ENTHALPY	0.1340+007 (BTU/LB)	0.7444+003 (KCAL/G)
TEMP (R)	70000.	FREE ENG	-0.3263+007 (BTU/LB)	-0.1813+004 (KCAL/G)
TEMP (K)	38889.	ENTROPY	0.6575+005 (BTU/LB-R)	0.6575+002 (CAL/G-K)
DEN(G/CM3)	0.9540-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3154+000	0.
2	0.6015-001	82271.
3	0.3209-001	97630.
4	0.0000+000	103601.
5	0.0000+000	108257.

PPHT (ATM) 0.4077+000 PPE (ATM) 0.2980+002
PPH2 (ATM) 0.2388-006 PPH- (ATM) 0.2995-004

IONIZATION POTENTIAL (1/CM) 96379.
PARTITION FUNCTION 0.2585+001
ROSSELAND MEAN OPACITY (1/CM) 0.3791-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2376+003	11000.	0.8630+000	70000.	0.1796-001
1500.	0.8956+002	12000.	0.7045+000	75000.	0.1487-001
2000.	0.4523+002	13500.	0.5347+000	80000.	0.1246-001
2500.	0.2675+002	15000.	0.7549+000	90000.	0.8958-002
3000.	0.1746+002	20000.	0.4000+000	100000.	0.4656+000
4000.	0.8948+001	25000.	0.2403+000	125000.	0.2611+000
5000.	0.5341+001	27500.	0.1923+000	150000.	0.1603+000
5500.	0.4286+001	30000.	0.1564+000	175000.	0.1053+000
6000.	0.3507+001	40000.	0.7752-001	200000.	0.7288-001
8000.	0.1805+001	50000.	0.4394-001	300000.	0.2348-001
10000.	0.1077+001	60000.	0.2722-001	400000.	0.1041-001

TABLE XII e

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 60 ATMOSPHERES FOR 60,000 °R AND 50,000 °R

PRESS(ATM)	60.	ENTHALPY	0.1227+007 (BTU/LB)	0.6818+003 (KCAL/G)
TEMP (R)	59999.	FREE ENG	-0.2612+007 (BTU/LB)	-0.1451+004 (KCAL/G)
TEMP (K)	33333.	ENTROPY	0.6399+005 (BTU/LB-R)	0.6399+002 (CAL/G-K)
DEN(G/CM3)	0.1123-004			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.7955+000	0.	PPHT (ATM) 0.9238+000	PPE (ATM) 0.2954+002	
2	0.9134-001	82271.	PPH2 (ATM) 0.1558-005	PPH- (ATM) 0.1143-003	
3	0.3693-001	97630.	IONIZATION POTENTIAL (1/CM)	95306.	
4	0.0000+000	103601.	PARTITION FUNCTION	0.2322+001	
5	0.0000+000	108257.	ROSSELAND MEAN OPACITY (1/CM)	0.5990-001	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3622+003	11000.	0.1355+001	70000.	0.2990-001
1500.	0.1378+003	12000.	0.1105+001	75000.	0.2470-001
2000.	0.6999+002	13500.	0.1659+001	80000.	0.2075-001
2500.	0.4157+002	15000.	0.1322+001	90000.	0.1479-001
3000.	0.2723+002	20000.	0.6983+000	100000.	0.1377+001
4000.	0.1401+002	25000.	0.4173+000	125000.	0.7678+000
5000.	0.8383+001	27500.	0.3330+000	150000.	0.4701+000
5500.	0.6732+001	30000.	0.2702+000	175000.	0.3084+000
6000.	0.5511+001	40000.	0.1323+000	200000.	0.2134+000
8000.	0.2839+001	50000.	0.7424-001	300000.	0.6872-001
10000.	0.1692+001	60000.	0.4560-001	400000.	0.3049-001

PRESS(ATM)	60.	ENTHALPY	0.1085+007 (BTU/LB)	0.6026+003 (KCAL/G)
TEMP (R)	50000.	FREE ENG	-0.1983+007 (BTU/LB)	-0.1102+004 (KCAL/G)
TEMP (K)	27778.	ENTROPY	0.6136+005 (BTU/LB-R)	0.6136+002 (CAL/G-K)
DEN(G/CM3)	0.1386-004			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.2521+001	0.	PPHT (ATM) 0.2702+001	PPE (ATM) 0.2865+002	
2	0.1423+000	82271.	PPH2 (ATM) 0.1864-004	PPH- (ATM) 0.5837-003	
3	0.3814-001	97630.	IONIZATION POTENTIAL (1/CM)	94003.	
4	0.0000+000	103601.	PARTITION FUNCTION	0.2143+001	
5	0.0000+000	108257.	ROSSELAND MEAN OPACITY (1/CM)	0.9337-001	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5770+003	11000.	0.2212+001	70000.	0.5292-001
1500.	0.2216+003	12000.	0.3994+001	75000.	0.4374-001
2000.	0.1133+003	13500.	0.3111+001	80000.	0.3842-001
2500.	0.6757+002	15000.	0.2477+001	90000.	0.2623-001
3000.	0.4439+002	20000.	0.1301+001	100000.	0.5256+001
4000.	0.2292+002	25000.	0.7717+000	125000.	0.2917+001
5000.	0.1374+002	27500.	0.6135+000	150000.	0.1783+001
5500.	0.1104+002	30000.	0.4958+000	175000.	0.1169+001
6000.	0.9036+001	40000.	0.2395+000	200000.	0.8086+000
8000.	0.4651+001	50000.	0.1330+000	300000.	0.2604+000
10000.	0.2766+001	60000.	0.8107-001	400000.	0.1155+000

TABLE XII f

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 60 ATMOSPHERES FOR 40,000°R AND 30,000°R

PRESS(ATM)	60.	ENTHALPY	0.8272+006 (BTU/LB)	0.4596+003 (KCAL/G)
TEMP (R)	40000.	FREE ENG	-0.1398+007 (BTU/LB)	-0.7766+003 (KCAL/G)
TEMP (K)	22222.	ENTROPY	0.5563+005 (BTU/LB-R)	0.5563+002 (CAL/G-K)
DEN(G/CM3)	0.1950-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1033+002	0.
2	0.2010+000	82271.
3	0.3232-001	97630.
4	0.0000+000	103601.
5	0.0000+000	108257.

PPHT (ATM) 0.1056+002 PPE (ATM) 0.2472+002
PPH2 (ATM) 0.4713-003 PPH- (ATM) 0.3899-002

IONIZATION POTENTIAL (1/CM) 92918.
PARTITION FUNCTION 0.2045+001
ROSSELAND MEAN OPACITY (1/CM) 0.1678+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8320+003	11000.	0.8629+001	70000.	0.9461-001
1500.	0.3235+003	12000.	0.7200+001	75000.	0.8169-001
2000.	0.1666+003	13500.	0.5605+001	80000.	0.1204+000
2500.	0.9991+002	15000.	0.4457+001	90000.	0.5241-001
3000.	0.6586+002	20000.	0.2326+001	100000.	0.2697+002
4000.	0.3414+002	25000.	0.1370+001	125000.	0.1493+002
5000.	0.2049+002	27500.	0.1086+001	150000.	0.9116+001
5500.	0.1646+002	30000.	0.8755+000	175000.	0.5977+001
6000.	0.1348+002	40000.	0.4200+000	200000.	0.4134+001
8000.	0.6931+001	50000.	0.2330+000	300000.	0.1331+001
10000.	0.4119+001	60000.	0.1426+000	400000.	0.5899+000

PRESS(ATM)	60.	ENTHALPY	0.4006+006 (BTU/LB)	0.2225+003 (KCAL/G)
TEMP (R)	30001.	FREE ENG	-0.9152+006 (BTU/LB)	-0.5085+003 (KCAL/G)
TEMP (K)	16667.	ENTROPY	0.4386+005 (BTU/LB-R)	0.4386+002 (CAL/G-K)
DEN(G/CM3)	0.3615-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3793+002	0.
2	0.1250+000	82271.
3	0.2619-001	97630.
4	0.0000+000	103601.
5	0.0000+000	108257.

PPHT (ATM) 0.3808+002 PPE (ATM) 0.1094+002
PPH2 (ATM) 0.1416-001 PPH- (ATM) 0.1482-001

IONIZATION POTENTIAL (1XCM) 95335.
PARTITION FUNCTION 0.2008+001
ROSSELAND MEAN OPACITY (1/CM) 0.3026+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4133+003	11000.	0.2026+001	70000.	0.1387+000
1500.	0.1668+003	12000.	0.1693+001	75000.	0.2009+000
2000.	0.8798+002	13500.	0.4835+001	80000.	0.1423+001
2500.	0.5361+002	15000.	0.3869+001	90000.	0.1978+000
3000.	0.3576+002	20000.	0.2056+001	100000.	0.1321+003
4000.	0.1883+002	25000.	0.1236+001	125000.	0.7306+002
5000.	0.1141+002	27500.	0.9910+000	150000.	0.4463+002
5500.	0.9199+001	30000.	0.8085+000	175000.	0.2926+002
6000.	0.7550+001	40000.	0.4083+000	200000.	0.2022+002
8000.	0.3990+001	50000.	0.2409+000	300000.	0.6500+001
10000.	0.2473+001	60000.	0.1606+000	400000.	0.2866+001

TABLE XII g

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 60 ATMOSPHERES FOR 26,000 °R AND 23,000 °R

PRESS(ATM)	60.	ENTHALPY	0.2808+006 (BTU/LB)	0.1560+003 (KCAL/G)
TEMP (R)	25999.	FREE ENG	-0.7530+006 (BTU/LB)	-0.4184+003 (KCAL/G)
TEMP (K)	14444.	ENTROPY	0.3976+005 (BTU/LB-R)	0.3976+002 (CAL/G-K)
DEN(G/CM3)	0.4697-004			

QHN	PPHN (ATM)	IEHM (1/CM)
1	0.5029+002	0.
2	0.5558-001	82271.
3	0.1716-001	97630.
4	0.0000+000	103601.
5	0.0000+000	108257.

PPHT (ATM) 0.5036+002 PFE (ATM) 0.4789+001
PPH2 (ATM) 0.4149-001 PFH- (ATM) 0.1333-001

IONIZATION POTENTIAL (1/CM) 98428.
PARTITION FUNCTION 0.2003+001
ROSSELAND MEAN OPACITY (1/CM) 0.2524+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1400+003	11000.	0.9668+000	70000.	0.1527+000
1500.	0.5953+002	12000.	0.8400+000	75000.	0.3264+000
2000.	0.3241+002	13500.	0.6978+000	80000.	0.3211+001
2500.	0.2018+002	15000.	0.5923+000	90000.	0.3719+000
3000.	0.1367+002	20000.	0.1160+001	100000.	0.2021+003
4000.	0.7363+001	25000.	0.7179+000	125000.	0.1119+003
5000.	0.4529+001	27500.	0.5841+000	150000.	0.6837+002
5500.	0.3673+001	30000.	0.4835+000	175000.	0.4483+002
6000.	0.3030+001	40000.	0.2580+000	200000.	0.3096+002
8000.	0.1692+001	50000.	0.1622+000	300000.	0.9933+001
10000.	0.1133+001	60000.	0.1214+000	400000.	0.4366+001

PRESS(ATM)	60.	ENTHALPY	0.2282+006 (BTU/LB)	0.1268+003 (KCAL/G)
TEMP (R)	23000.	FREE ENG	-0.6384+006 (BTU/LB)	-0.3547+003 (KCAL/G)
TEMP (K)	12778.	ENTROPY	0.3768+005 (BTU/LB-R)	0.3768+002 (CAL/G-K)
DEN(G/CM3)	0.5587-004			

QHN	PPHN (ATM)	IEHM (1/CM)
1	0.5595+002	0.
2	0.2125-001	82271.
3	0.8482-002	97630.
4	0.7272-003	103601.
5	0.0000+000	108257.

PPHT (ATM) 0.5599+002 PFE (ATM) 0.1959+001
PPH2 (ATM) 0.8490-001 PFH- (ATM) 0.8914-002

IONIZATION POTENTIAL (1/CM) 101180.
PARTITION FUNCTION 0.2001+001
ROSSELAND MEAN OPACITY (1/CM) 0.1707+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4107+002	11000.	0.4730+000	70000.	0.1761+000
1500.	0.1692+002	12000.	0.4277+000	75000.	0.4558+000
2000.	0.9054+001	13500.	0.3736+000	80000.	0.5029+001
2500.	0.5579+001	15000.	0.3302+000	90000.	0.5486+000
3000.	0.3756+001	20000.	0.5804+000	100000.	0.1392+000
4000.	0.2804+001	25000.	0.3712+000	125000.	0.1409+003
5000.	0.1754+001	27500.	0.3069+000	150000.	0.8616+002
5500.	0.1432+001	30000.	0.2580+000	175000.	0.5651+002
6000.	0.1188+001	40000.	0.1459+000	200000.	0.3899+002
8000.	0.7172+000	50000.	0.9926-001	300000.	0.1248+002
10000.	0.5302+000	60000.	0.8898-001	400000.	0.5473+001

TABLE XII h

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 60 ATMOSPHERES FOR 20,000°R AND 16,000°R

PRESS(ATM)	60.	ENTHALPY	0.1966+006 (BTU/LB)	0.1092+003 (KCAL/G)
TEMP (R)	20000.	FREE ENG	-0.5281+006 (BTU/LB)	-0.2934+003 (KCAL/G)
TEMP (K)	11111.	ENTROPY	0.3624+005 (BTU/LB-R)	0.3624+002 (CAL/G-K)
DEN(G/CM3)	0.6586-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5860+002	0.
2	0.5544-002	82271.
3	0.1708-002	97630.
4	0.7617-003	103601.
5	0.0000+000	108257.

PPHT (ATM) 0.5861+002 PFE (ATM) 0.6017+000
PPH2 (ATM) 0.1793+000 PPH- (ATM) 0.4505-002

IONIZATION POTENTIAL (1/CM) 103871.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.9128-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1018+002	11000.	0.1905+000	70000.	0.2038+000
1500.	0.4364+001	12000.	0.1810+000	75000.	0.6246+000
2000.	0.2395+001	13500.	0.1671+000	80000.	0.7267+001
2500.	0.1504+001	15000.	0.1537+000	90000.	0.7715+000
3000.	0.1028+001	20000.	0.1158+000	100000.	0.1824+000
4000.	0.5630+000	25000.	0.1510+000	125000.	0.1701+003
5000.	0.3525+000	27500.	0.1278+000	150000.	0.1042+003
5500.	0.2885+000	30000.	0.1099+000	175000.	0.6840+002
6000.	0.2402+000	40000.	0.6802-001	200000.	0.4708+002
8000.	0.2321+000	50000.	0.5425-001	300000.	0.1502+002
10000.	0.2010+000	60000.	0.6842-001	400000.	0.6570+001

PRESS(ATM)	60.	ENTHALPY	0.1691+006 (BTU/LB)	0.9397+002 (KCAL/G)
TEMP (R)	16000.	FREE ENG	-0.3866+006 (BTU/LB)	-0.2148+003 (KCAL/G)
TEMP (K)	8889.	ENTROPY	0.3473+005 (BTU/LB-R)	0.3473+002 (CAL/G-K)
DEN(G/CM3)	0.8371-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5922+002	0.
2	0.3908-003	82271.
3	0.7322-004	97630.
4	0.4953-004	103601.
5	0.7248-005	108257.

PPHT (ATM) 0.5922+002 PFE (ATM) 0.6693-001
PPH2 (ATM) 0.6437+000 PPH- (ATM) 0.1076-002

IONIZATION POTENTIAL (1/CM) 106855.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.2921-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1155+001	11000.	0.4366-001	70000.	0.2964+000
1500.	0.5091+000	12000.	0.4361-001	75000.	0.9730+000
2000.	0.2849+000	13500.	0.4233-001	80000.	0.1159+002
2500.	0.1816+000	15000.	0.4018-001	90000.	0.1215+001
3000.	0.1258+000	20000.	0.3192-001	100000.	0.2776+000
4000.	0.7298-001	25000.	0.3126-001	125000.	0.2179+003
5000.	0.4652-001	27500.	0.2781-001	150000.	0.1347+003
5500.	0.3838-001	30000.	0.2516-001	175000.	0.8859+002
6000.	0.3220-001	40000.	0.2092-001	200000.	0.6030+002
8000.	0.3547-001	50000.	0.2890-001	300000.	0.1896+002
10000.	0.4285-001	60000.	0.6887-001	400000.	0.8256+001

TABLE XII i

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 60 ATMOSPHERES FOR 13,000 °R AND 10,000 °R

PRESS(ATM)	60.	ENTHALPY	0.1474+006 (BTU/LB)	0.8189+002	(KCAL/G)
TEMP (R)	13000.	FREE ENG	-0.2855+006 (BTU/LB)	-0.1586+003	(KCAL/G)
TEMP (K)	7222.	ENTROPY	0.3330+005 (BTU/LB-R)	0.3330+002	(CAL/G-K)
DEN(G/CM3)	0.1064-003				

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.5741+002	0.	PPHT (ATM) 0.5741+002	PFE (ATM)	0.5913-002
2	0.1753-004	82271.	PPH2 (ATM) 0.2582+001	PFH- (ATM)	0.1941-003
3	0.1850-005	97630.	IONIZATION POTENTIAL (1/CM)		108415.
4	0.1001-005	103601.	PARTITION FUNCTION		0.2000+001
5	0.3231-006	108257.	ROSSELAND MEAN OPACITY (1/CM)		0.5087-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1395+000	11000.	0.9051-002	70000.	0.4180+000
1500.	0.6187-001	12000.	0.9231-002	75000.	0.1389+001
2000.	0.3480-001	13500.	0.9140-002	80000.	0.1661+002
2500.	0.2227-001	15000.	0.8798-002	90000.	0.1738+001
3000.	0.1547-001	20000.	0.7371-002	100000.	0.3945+000
4000.	0.8706-002	25000.	0.6654-002	125000.	0.2755+003
5000.	0.5623-002	27500.	0.6883-002	150000.	0.1764+003
5500.	0.4650-002	30000.	0.7079-002	175000.	0.1171+003
6000.	0.3911-002	40000.	0.1159-001	200000.	0.7630+002
8000.	0.6472-002	50000.	0.2866-001	300000.	0.2259+002
10000.	0.8535-002	60000.	0.8948-001	400000.	0.9802+001

PRESS(ATM)	60.	ENTHALPY	0.9912+005 (BTU/LB)	0.5507+002	(KCAL/G)
TEMP (R)	10001.	FREE ENG	-0.1951+006 (BTU/LB)	-0.1084+003	(KCAL/G)
TEMP (K)	5555.	ENTROPY	0.2942+005 (BTU/LB-R)	0.2942+002	(CAL/G-K)
DEN(G/CM3)	0.1673-003				

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.4433+002	0.	PPHT (ATM) 0.4433+002	PFE (ATM)	0.1307-003
2	0.9938-007	82271.	PPH2 (ATM) 0.1567+002	PFH- (ATM)	0.9155-005
3	0.4191-006	97630.	IONIZATION POTENTIAL (1/CM)		109324.
4	0.1588-006	103601.	PARTITION FUNCTION		0.2000+001
5	0.4813-009	108257.	ROSSELAND MEAN OPACITY (1/CM)		0.7094-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3953-002	11000.	0.6160-003	70000.	0.4444+000
1500.	0.1757-002	12000.	0.6561-003	75000.	0.1479+001
2000.	0.9885-003	13500.	0.7013-003	80000.	0.1771+002
2500.	0.6330-003	15000.	0.7447-003	90000.	0.1852+001
3000.	0.4401-003	20000.	0.1020-002	100000.	0.4200+000
4000.	0.2493-003	25000.	0.1668-002	125000.	0.4174+003
5000.	0.1631-003	27500.	0.2243-002	150000.	0.3198+003
5500.	0.1377-003	30000.	0.2994-002	175000.	0.2214+003
6000.	0.1194-003	40000.	0.9346-002	200000.	0.1161+003
8000.	0.3739-003	50000.	0.2841-001	300000.	0.2257+002
10000.	0.5607-003	60000.	0.9382-001	400000.	0.9821+001

TABLE XII j

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 60 ATMOSPHERES FOR 7,000 °R AND 5,000 °R

PRESS(ATM)	60.	ENTHALPY	0.3456+005 (BTU/LB)	0.1920+002 (KCAL/G)
TEMP (R)	7000.	FREE ENG	-0.1235+006 (BTU/LB)	-0.6860+002 (KCAL/G)
TEMP (K)	3889.	ENTROPY	0.2258+005 (BTU/LB-R)	0.2258+002 (CAL/G-K)
DEN(G/CM3)	0.3496-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9268+001	0.
2	0.2249-011	82271.
3	0.1725-013	97630.
4	0.3368-014	103601.
5	0.6510-015	108257.

PPHT (ATM) 0.9268+001 PFE (ATM) 0.8298-007
PPH2 (ATM) 0.5073+002 PFH- (ATM) 0.5803-008

IONIZATION POTENTIAL (1/CM) 109648.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1276-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2559-008	11000.	0.1369-004	70000.	0.7223-001
1500.	0.1200-007	12000.	0.1811-004	75000.	0.2405+000
2000.	0.3524-007	13500.	0.2656-004	80000.	0.2878+001
2500.	0.8020-007	15000.	0.3758-004	90000.	0.3011+000
3000.	0.1554-006	20000.	0.9993-004	100000.	0.6826-001
4000.	0.4327-006	25000.	0.2224-003	125000.	0.8230+003
5000.	0.9402-006	27500.	0.3177-003	150000.	0.8032+003
5500.	0.1304-005	30000.	0.4445-003	175000.	0.5807+003
6000.	0.1753-005	40000.	0.1491-002	200000.	0.2307+003
8000.	0.4883-005	50000.	0.4597-002	300000.	0.6792+001
10000.	0.1008-004	60000.	0.1524-001	400000.	0.2975+001

PRESS(ATM)	60.	ENTHALPY	0.1778+005 (BTU/LB)	0.9878+001 (KCAL/G)
TEMP (R)	5000.	FREE ENG	-0.8189+005 (BTU/LB)	-0.4550+002 (KCAL/G)
TEMP (K)	2778.	ENTROPY	0.1993+005 (BTU/LB-R)	0.1993+002 (CAL/G-K)
DEN(G/CM3)	0.5280-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5815+000	0.
2	0.7308-018	82271.
3	0.5777-021	97630.
4	0.4663-022	103601.
5	0.4553-023	108257.

PPHT (ATM) 0.5815+000 PFE (ATM) 0.4089-011
PPH2 (ATM) 0.5942+002 PFH- (ATM) 0.1018-012

IONIZATION POTENTIAL (1/CM) 109678.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.4246-007

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2248-009	11000.	0.9009-006	70000.	0.4858-002
1500.	0.1023-008	12000.	0.1197-005	75000.	0.1617-001
2000.	0.2924-008	13500.	0.1764-005	80000.	0.1936+000
2500.	0.6490-008	15000.	0.2505-005	90000.	0.2025-001
3000.	0.1230-007	20000.	0.6700-005	100000.	0.4591-002
4000.	0.3293-007	25000.	0.1494-004	125000.	0.1231+004
5000.	0.6941-007	27500.	0.2135-004	150000.	0.1244+004
5500.	0.9502-007	30000.	0.2988-004	175000.	0.9047+003
6000.	0.1263-006	40000.	0.1003-003	200000.	0.3455+003
8000.	0.3213-006	50000.	0.3092-003	300000.	0.5971+000
10000.	0.6610-006	60000.	0.1025-002	400000.	0.2624+000

TABLE XII k

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 60 ATMOSPHERES FOR 3000 °R

PRESS(ATM)	60.	ENTHALPY	0.8968+004 (BTU/LB)		0.4982+001 (KCAL/G)
TEMP (R)	3001.	FREE ENG	-0.4424+005 (BTU/LB)		-0.2458+002 (KCAL/G)
TEMP (K)	1667.	ENTROPY	0.1773+005 (BTU/LB-R)		0.1773+002 (CAL/G-K)
DEN(G/CM3)	0.8842-003				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.8308-003	0.
2	0.0000+000	82271.
3	0.0000+000	97630.
4	0.0000+000	103601.
5	0.0000+000	108257.

PPHT (ATM)	0.8308-003	PPE (ATM)	0.0000+000
PPH2 (ATM)	0.6000+002	PPH- (ATM)	0.0000+000
IONIZATION POTENTIAL (1/CM)			109679.
PARTITION FUNCTION			0.0000+000
ROSSELAND MEAN OPACITY (1/CM)			0.4896-010

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1040-011	11000.	0.2924-008	70000.	0.1571-004
1500.	0.4450-011	12000.	0.3879-008	75000.	0.5231-004
2000.	0.1205-010	13500.	0.5711-008	80000.	0.6262-003
2500.	0.2557-010	15000.	0.8106-008	90000.	0.6550-004
3000.	0.4665-010	20000.	0.2167-007	100000.	0.1485-004
4000.	0.1180-009	25000.	0.4832-007	125000.	0.2080-004
5000.	0.2395-009	27500.	0.6906-007	150000.	0.2087-004
5500.	0.3234-009	30000.	0.9665-007	175000.	0.1518-004
6000.	0.4254-009	40000.	0.3244-006	200000.	0.5782-003
8000.	0.1055-008	50000.	0.1000-005	300000.	0.1420-002
10000.	0.2150-008	60000.	0.3314-005	400000.	0.6218-003

TABLE XIII a

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 100 ATMOSPHERES FOR 200,000 °R AND 175,000 °R

PRESS(ATM)	100.	ENTHALPY	0.2642+007 (BTU/LB)	0.1468+004 (KCAL/G)
TEMP (R)	200000.	FREE ENG	-0.1222+008 (BTU/LB)	-0.6789+004 (KCAL/G)
TEMP (K)	111111.	ENTROPY	0.7431+005 (BTU/LB-R)	0.7431+002 (CAL/G-K)
DEN(G/CM3)	0.5529-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.6731-002	0.
2	0.9278-002	82279.
3	0.1452-001	97722.
4	0.0000+000	104119.
5	0.0000+000	110234.

PPHT (ATM) 0.3053-001 PPE (ATM) 0.4998+002
PPH2 (ATM) 0.5251-009 PPH- (ATM) 0.6718-007

IONIZATION POTENTIAL (1/CM) 99958.
PARTITION FUNCTION 0.9072+001
ROSSELAND MEAN OPACITY (1/CM) 0.2367-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3773+002	11000.	0.1012+000	70000.	0.1553-002
1500.	0.1339+002	12000.	0.8229-001	75000.	0.1312-002
2000.	0.6461+001	13500.	0.6223-001	80000.	0.1119-002
2500.	0.3732+001	15000.	0.4848-001	90000.	0.8344-003
3000.	0.2371+001	20000.	0.2904-001	100000.	0.3192-002
4000.	0.1166+001	25000.	0.1743-001	125000.	0.1918-002
5000.	0.6754+000	27500.	0.1400-001	150000.	0.1238-002
5500.	0.5356+000	30000.	0.1146-001	175000.	0.8434-003
6000.	0.4337+000	40000.	0.5885-002	200000.	0.5988-003
8000.	0.2167+000	50000.	0.3484-002	300000.	0.2017-003
10000.	0.1270+000	60000.	0.2256-002	400000.	0.9029-004

PRESS(ATM)	100.	ENTHALPY	0.2393+007 (BTU/LB)	0.1330+004 (KCAL/G)
TEMP (R)	175000.	FREE ENG	-0.1038+008 (BTU/LB)	-0.5766+004 (KCAL/G)
TEMP (K)	97222.	ENTROPY	0.7298+005 (BTU/LB-R)	0.7298+002 (CAL/G-K)
DEN(G/CM3)	0.6320-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1104-001	0.
2	0.1306-001	82279.
3	0.1766-001	97722.
4	0.0000+000	104119.
5	0.0000+000	110234.

PPHT (ATM) 0.4176-001 PPE (ATM) 0.4998+002
PPH2 (ATM) 0.1058-008 PPH- (ATM) 0.1555-006

IONIZATION POTENTIAL (1/CM) 99353.
PARTITION FUNCTION 0.7568+001
ROSSELAND MEAN OPACITY (1/CM) 0.4702-003

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5380+002	11000.	0.1500+000	70000.	0.2377-002
1500.	0.1919+002	12000.	0.1221+000	75000.	0.2004-002
2000.	0.9396+001	13500.	0.9247-001	80000.	0.1706-002
2500.	0.5395+001	15000.	0.7212-001	90000.	0.1267-002
3000.	0.3439+001	20000.	0.4471-001	100000.	0.6054-002
4000.	0.1700+001	25000.	0.2690-001	125000.	0.3608-002
5000.	0.9884+000	27500.	0.2163-001	150000.	0.2312-002
5500.	0.7851+000	30000.	0.1771-001	175000.	0.1564-002
6000.	0.6367+000	40000.	0.9889-002	200000.	0.1105-002
8000.	0.3197+000	50000.	0.5368-002	300000.	0.3673-003
10000.	0.1880+000	60000.	0.3464-002	400000.	0.1637-003

TABLE XIII b

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 100 ATMOSPHERES FOR 150,000°R AND 125,000°R

PRESS(ATM)	100.	ENTHALPY	0.2145+007 (BTU/LB)	0.1191+004 (KCAL/G)
TEMP (R)	149999.	FREE ENG	-0.8572+007 (BTU/LB)	-0.4762+004 (KCAL/G)
TEMP (K)	83333.	ENTROPY	0.7144+005 (BTU/LB-R)	0.7144+002 (CAL/G-K)
DEN(G/CM3)	0.7375-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2059-001	0.
2	0.1990-001	82279.
3	0.2181-001	97722.
4	0.0000+000	104119.
5	0.0000+000	110234.

PPHT (ATM) 0.6229-001 PPE (ATM) 0.4997+002
PPH2 (ATM) 0.2591-008 PPH- (ATM) 0.4328-006

IONIZATION POTENTIAL (1/CM) 98592.
PARTITION FUNCTION 0.6052+001
ROSSELAND MEAN OPACITY (1/CM) 0.1128-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8149+002	11000.	0.2370+000	70000.	0.3916-002
1500.	0.2940+002	12000.	0.1931+000	75000.	0.3293-002
2000.	0.1457+002	13500.	0.1464+000	80000.	0.2796-002
2500.	0.8289+001	15000.	0.1143+000	90000.	0.2067-002
3000.	0.5303+001	20000.	0.7453-001	100000.	0.1336-001
4000.	0.2656+001	25000.	0.4495-001	125000.	0.7875-002
5000.	0.1540+001	27500.	0.3616-001	150000.	0.5001-002
5500.	0.1226+001	30000.	0.2961-001	175000.	0.3360-002
6000.	0.9956+000	40000.	0.1517-001	200000.	0.2359-002
8000.	0.5025+000	50000.	0.6929-002	300000.	0.7750-003
10000.	0.2967+000	60000.	0.5736-002	400000.	0.3444-003

PRESS(ATM)	100.	ENTHALPY	0.1895+007 (BTU/LB)	0.1053+004 (KCAL/G)
TEMP (R)	124999.	FREE ENG	-0.6807+007 (BTU/LB)	-0.3782+004 (KCAL/G)
TEMP (K)	69444.	ENTROPY	0.6962+005 (BTU/LB-R)	0.6962+002 (CAL/G-K)
DEN(G/CM3)	0.8853-005			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4491-001	0.
2	0.3267-001	82279.
3	0.2624-001	97722.
4	0.0000+000	104119.
5	0.0000+000	110234.

PPHT (ATM) 0.1038+000 PPE (ATM) 0.4995+002
PPH2 (ATM) 0.8230-008 PPH- (ATM) 0.1520-005

IONIZATION POTENTIAL (1/CM) 97593.
PARTITION FUNCTION 0.4624+001
ROSSELAND MEAN OPACITY (1/CM) 0.3479-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1333+003	11000.	0.4078+000	70000.	0.7073-002
1500.	0.4851+002	12000.	0.3326+000	75000.	0.5927-002
2000.	0.2387+002	13500.	0.2525+000	80000.	0.5016-002
2500.	0.1384+002	15000.	0.1972+000	90000.	0.3684-002
3000.	0.8892+001	20000.	0.1378+000	100000.	0.3558-001
4000.	0.4450+001	25000.	0.8324-001	125000.	0.2070-001
5000.	0.2613+001	27500.	0.6696-001	150000.	0.1301-001
5500.	0.2084+001	30000.	0.5481-001	175000.	0.8670-002
6000.	0.1696+001	40000.	0.2796-001	200000.	0.6052-002
8000.	0.8606+000	50000.	0.1635-001	300000.	0.1969-002
10000.	0.5098+000	60000.	0.1043-001	400000.	0.8733-003

TABLE XIII c

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 100 ATMOSPHERES FOR 100,000°R AND 90,000°R

PRESS(ATM)	100.	ENTHALPY	0.1645+007 (BTU/LB)		0.9140+003 (KCAL/G)
TEMP (R)	100001.	FREE ENG	-0.5093+007 (BTU/LB)		-0.2829+004 (KCAL/G)
TEMP (K)	55556.	ENTROPY	0.6738+005 (BTU/LB-R)		0.6738+002 (CAL/G-K)
DEN(G/CM3)	0.1108-004				

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.1255+000	0.	PPHT (ATM) 0.2212+000	PFE (ATM) 0.4989+002	
2	0.5960-001	82279.	PPH2 (ATM) 0.4566-007	PFH- (ATM) 0.7645-005	
3	0.3611-001	97722.	IONIZATION POTENTIAL (1/CM)	96204.	
4	0.0000+000	104119.	PARTITION FUNCTION	0.3526+001	
5	0.0000+000	110234.	ROSSELAND MEAN OPACITY (1/CM)	0.1517-001	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2452+003	11000.	0.7986+000	70000.	0.1467-001
1500.	0.9026+002	12000.	0.6519+000	75000.	0.1224-001
2000.	0.4481+002	13500.	0.4950+000	80000.	0.1031-001
2500.	0.2616+002	15000.	0.5639+000	90000.	0.7509-002
3000.	0.1690+002	20000.	0.2982+000	100000.	0.1268+000
4000.	0.8532+001	25000.	0.1801+000	125000.	0.7261-001
5000.	0.5041+001	27500.	0.1447+000	150000.	0.4511-001
5500.	0.4030+001	30000.	0.1183+000	175000.	0.2984-001
6000.	0.3286+001	40000.	0.5981-001	200000.	0.2072-001
8000.	0.1678+001	50000.	0.3462-001	300000.	0.6696-002
10000.	0.9974+000	60000.	0.2186-001	400000.	0.2969-002

PRESS(ATM)	100.	ENTHALPY	0.1544+007 (BTU/LB)		0.8578+003 (KCAL/G)
TEMP (R)	90000.	FREE ENG	-0.4424+007 (BTU/LB)		-0.2458+004 (KCAL/G)
TEMP (K)	50000.	ENTROPY	0.6631+005 (BTU/LB-R)		0.6631+002 (CAL/G-K)
DEN(G/CM3)	0.1232-004				

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.2105+000	0.	PPHT (ATM) 0.3298+000	PFE (ATM) 0.4984+002	
2	0.7893-001	82279.	PPH2 (ATM) 0.1136-006	PFH- (ATM) 0.1697-004	
3	0.4038-001	97722.	IONIZATION POTENTIAL (1/CM)	95477.	
4	0.0000+000	104119.	PARTITION FUNCTION	0.3133+001	
5	0.0000+000	110234.	ROSSELAND MEAN OPACITY (1/CM)	0.2961-001	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3276+003	11000.	0.1096+001	70000.	0.2067-001
1500.	0.1213+003	12000.	0.8946+000	75000.	0.1720-001
2000.	0.6045+002	13500.	0.1024+001	80000.	0.1447-001
2500.	0.3540+002	15000.	0.8143+000	90000.	0.1049-001
3000.	0.2293+002	20000.	0.4310+000	100000.	0.2384+000
4000.	0.1162+002	25000.	0.2599+000	125000.	0.1355+000
5000.	0.6883+001	27500.	0.2086+000	150000.	0.8384-001
5500.	0.5508+001	30000.	0.1703+000	175000.	0.5530-001
6000.	0.4495+001	40000.	0.8568-001	200000.	0.3835-001
8000.	0.2300+001	50000.	0.4930-001	300000.	0.1237-001
10000.	0.1368+001	60000.	0.3095-001	400000.	0.5486-002

TABLE XIII d

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 100 ATMOSPHERES FOR 80,000 °R AND 70,000 °R

PRESS(ATM)	100.	ENTHALPY	0.1441+007 (BTU/LB)	0.8008+003 (KCAL/G)
TEMP (R)	79999.	FREE ENG	-0.3766+007 (BTU/LB)	-0.2092+004 (KCAL/G)
TEMP (K)	44444.	ENTROPY	0.6509+005 (BTU/LB-R)	0.6509+002 (CAL/G-K)
DEN(G/CM3)	0.1389-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3858+000	0.
2	0.1076+000	82279.
3	0.4378-001	97722.
4	0.0000+000	104119.
5	0.0000+000	110234.

PPHT (ATM)	0.5372+000	PPE (ATM)	0.4973+002
PPH2 (ATM)	0.3465-006	PPH- (ATM)	0.4258-004
IONIZATION POTENTIAL (1/CM)			94605.
PARTITION FUNCTION			0.2785+001
ROSSELAND MEAN OPACITY (1/CM)			0.5646-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4532+003	11000.	0.1558+001	70000.	0.3025-001
1500.	0.1688+003	12000.	0.1271+001	75000.	0.2511-001
2000.	0.8453+002	13500.	0.1546+001	80000.	0.2108-001
2500.	0.4967+002	15000.	0.1230+001	90000.	0.1522-001
3000.	0.3226+002	20000.	0.6512+000	100000.	0.4952+000
4000.	0.1641+002	25000.	0.3919+000	125000.	0.2796+000
5000.	0.9743+001	27500.	0.3141+000	150000.	0.1722+000
5500.	0.7804+001	30000.	0.2560+000	175000.	0.1133+000
6000.	0.6374+001	40000.	0.1278+000	200000.	0.7851-001
8000.	0.3267+001	50000.	0.7304-001	300000.	0.2530-001
10000.	0.1945+001	60000.	0.4556-001	400000.	0.1122-001

PRESS(ATM)	100.	ENTHALPY	0.1335+007 (BTU/LB)	0.7416+003 (KCAL/G)
TEMP (R)	70000.	FREE ENG	-0.3121+007 (BTU/LB)	-0.1734+004 (KCAL/G)
TEMP (K)	38889.	ENTROPY	0.6366+005 (BTU/LB-R)	0.6366+002 (CAL/G-K)
DEN(G/CM3)	0.1595-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.7869+000	0.
2	0.1500+000	82279.
3	0.4370-001	97722.
4	0.0000+000	104119.
5	0.0000+000	110234.

PPHT (ATM)	0.9806+000	PPE (ATM)	0.4951+002
PPH2 (ATM)	0.1382-005	PPH- (ATM)	0.1241-003
IONIZATION POTENTIAL (1/CM)			93540.
PARTITION FUNCTION			0.2492+001
ROSSELAND MEAN OPACITY (1/CM)			0.9658-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6541+003	11000.	0.2306+001	70000.	0.4605-001
1500.	0.2453+003	12000.	0.3160+001	75000.	0.3813-001
2000.	0.1234+003	13500.	0.2455+001	80000.	0.3199-001
2500.	0.7276+002	15000.	0.1954+001	90000.	0.2296-001
3000.	0.4739+002	20000.	0.1032+001	100000.	0.1162+001
4000.	0.2419+002	25000.	0.6188+000	125000.	0.6516+000
5000.	0.1440+002	27500.	0.4949+000	150000.	0.4000+000
5500.	0.1154+002	30000.	0.4024+000	175000.	0.2628+000
6000.	0.9432+001	40000.	0.1991+000	200000.	0.1819+000
8000.	0.4840+001	50000.	0.1128+000	300000.	0.5858-001
10000.	0.2881+001	60000.	0.6980-001	400000.	0.2599-001

TABLE XIII e

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 100 ATMOSPHERES FOR 60,000 °R AND 50,000 °R

PRESS(ATM)	100.	ENTHALPY	0.1217+007 (BTU/LB)	0.6762+003 (KCAL/G)
TEMP (R)	59999.	FREE ENG	-0.2492+007 (BTU/LB)	-0.1385+004 (KCAL/G)
TEMP (K)	33333.	ENTROPY	0.6182+005 (BTU/LB-R)	0.6182+002 (CAL/G-K)
DEN(G/CM3)	0.1883-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1913+001	0.
2	0.2196+000	82279.
3	0.3662-001	97722.
4	0.0000+000	104119.
5	0.0000+000	110234.

PPHT (ATM) 0.2169+001 PPE (ATM) 0.4892+002
PPH2 (ATM) 0.8593-005 PPH- (ATM) 0.4550-003

IONIZATION POTENTIAL (1/CM) 92229.
PARTITION FUNCTION 0.2268+001
ROSSELAND MEAN OPACITY (1/CM) 0.1491+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.9900+003	11000.	0.6455+001	70000.	0.7451-001
1500.	0.3741+003	12000.	0.5373+001	75000.	0.6157-001
2000.	0.1891+003	13500.	0.4177+001	80000.	0.5217-001
2500.	0.1119+003	15000.	0.3324+001	90000.	0.3692-001
3000.	0.7308+002	20000.	0.1750+001	100000.	0.3313+001
4000.	0.3743+002	25000.	0.1044+001	125000.	0.1847+001
5000.	0.2232+002	27500.	0.8322+000	150000.	0.1131+001
5500.	0.1790+002	30000.	0.6747+000	175000.	0.7419+000
6000.	0.1464+002	40000.	0.3300+000	200000.	0.5133+000
8000.	0.7513+001	50000.	0.1850+000	300000.	0.1653+000
10000.	0.7875+001	60000.	0.1136+000	400000.	0.7333-001

PRESS(ATM)	100.	ENTHALPY	0.1062+007 (BTU/LB)	0.5901+003 (KCAL/G)
TEMP (R)	50000.	FREE ENG	-0.1887+007 (BTU/LB)	-0.1048+004 (KCAL/G)
TEMP (K)	27778.	ENTROPY	0.5899+005 (BTU/LB-R)	0.5899+002 (CAL/G-K)
DEN(G/CM3)	0.2345-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5710+001	0.
2	0.3222+000	82279.
3	0.1436-001	97722.
4	0.0000+000	104119.
5	0.0000+000	110234.

PPHT (ATM) 0.6046+001 PPE (ATM) 0.4698+002
PPH2 (ATM) 0.9334-004 PPH- (ATM) 0.2167-002

IONIZATION POTENTIAL (1/CM) 90682.
PARTITION FUNCTION 0.2118+001
ROSSELAND MEAN OPACITY (1/CM) 0.2252+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1546+004	11000.	0.1152+002	70000.	0.1263+000
1500.	0.5888+003	12000.	0.9590+001	75000.	0.1048+000
2000.	0.2993+003	13500.	0.7454+001	80000.	0.9749-001
2500.	0.1777+003	15000.	0.5925+001	90000.	0.6329-001
3000.	0.1164+003	20000.	0.3101+001	100000.	0.1190+002
4000.	0.5978+002	25000.	0.1836+001	125000.	0.6606+001
5000.	0.3569+002	27500.	0.1459+001	150000.	0.4038+001
5500.	0.2863+002	30000.	0.1179+001	175000.	0.2648+001
6000.	0.2341+002	40000.	0.5693+000	200000.	0.1831+001
8000.	0.1200+002	50000.	0.3163+000	300000.	0.5698+000
10000.	0.1404+002	60000.	0.1930+000	400000.	0.2616+000

TABLE XIII f

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 100 ATMOSPHERES FOR 40,000 °R AND 30,000 °R

PRESS(ATM)	100.	ENTHALPY	0.7893+006 (BTU/LB)	0.4385+003 (KCAL/G)
TEMP (R)	40000.	FREE ENG	-0.1332+007 (BTU/LB)	-0.7399+003 (KCAL/G)
TEMP (K)	22222.	ENTROPY	0.5303+005 (BTU/LB-R)	0.5303+002 (CAL/G-K)
DEN(G/CM3)	0.3347-004			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.2073+002	0.
2	0.3911+000	82279.
3	0.0000+000	97722.
4	0.0000+000	104119.
5	0.0000+000	110234.

PPHT (ATM) 0.2112+002 PPE (ATM) 0.3942+002
PPH2 (ATM) 0.1884-002 PPH- (ATM) 0.1248-001

IONIZATION POTENTIAL (1/CM) 89541.
PARTITION FUNCTION 0.2038+001
ROSSELAND MEAN OPACITY (1/CM) 0.5982+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2111+004	11000.	0.1845+002	70000.	0.2090+000
1500.	0.8142+003	12000.	0.1536+002	75000.	0.1873+000
2000.	0.4171+003	13500.	0.1193+002	80000.	0.3667+000
2500.	0.2491+003	15000.	0.9473+001	90000.	0.7114+002
3000.	0.1636+003	20000.	0.4933+001	100000.	0.5412+002
4000.	0.8444+002	25000.	0.2908+001	125000.	0.2996+002
5000.	0.5050+002	27500.	0.2307+001	150000.	0.1830+002
5500.	0.4053+002	30000.	0.1861+001	175000.	0.1200+002
6000.	0.3313+002	40000.	0.8980+000	200000.	0.8295+001
8000.	0.3518+002	50000.	0.5018+000	300000.	0.2670+001
10000.	0.2247+002	60000.	0.3097+000	400000.	0.1182+001

PRESS(ATM)	100.	ENTHALPY	0.3787+006 (BTU/LB)	0.2104+003 (KCAL/G)
TEMP (R)	30001.	FREE ENG	-0.8798+006 (BTU/LB)	-0.4888+003 (KCAL/G)
TEMP (K)	16667.	ENTROPY	0.4195+005 (BTU/LB-R)	0.4195+002 (CAL/G-K)
DEN(G/CM3)	0.6179-004			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.6736+002	0.
2	0.2219+000	82279.
3	0.2515-001	97722.
4	0.0000+000	104119.
5	0.0000+000	110234.

PPHT (ATM) 0.6761+002 PPE (ATM) 0.1615+002
PPH2 (ATM) 0.4462-001 PPH- (ATM) 0.3884-001

IONIZATION POTENTIAL (1/CM) 92951.
PARTITION FUNCTION 0.2007+001
ROSSELAND MEAN OPACITY (1/CM) 0.6814+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.9056+003	11000.	0.1382+002	70000.	0.3321+000
1500.	0.3614+003	12000.	0.1161+002	75000.	0.5461+000
2000.	0.1893+003	13500.	0.9131+001	80000.	0.4415+001
2500.	0.1148+003	15000.	0.7333+001	90000.	0.5698+000
3000.	0.7627+002	20000.	0.3949+001	100000.	0.2346+003
4000.	0.3997+002	25000.	0.2410+001	125000.	0.1298+003
5000.	0.2415+002	27500.	0.1947+001	150000.	0.7933+002
5500.	0.1945+002	30000.	0.1600+001	175000.	0.5202+002
6000.	0.1595+002	40000.	0.8308+000	200000.	0.3593+002
8000.	0.8459+001	50000.	0.5036+000	300000.	0.1153+002
10000.	0.5294+001	60000.	0.3478+000	400000.	0.5058+001

TABLE XIII g

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 100 ATMOSPHERES FOR 26,000 °R AND 23,000 °R

PRESS(ATM)	100.	ENTHALPY	0.2711+006 (BTU/LB)	0.1506+003 (KCAL/G)
TEMP (R)	25999.	FREE ENG	-0.7250+006 (BTU/LB)	-0.4028+003 (KCAL/G)
TEMP (K)	14444.	ENTROPY	0.3831+005 (BTU/LB-R)	0.3831+002 (CAL/G-K)
DEN(G/CM3)	0.7933-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.8611+002	0.
2	0.9509-001	82279.
3	0.2012-001	97722.
4	0.0000+000	104119.
5	0.0000+000	110234.

PPHT (ATM) 0.8623+002 PPE (ATM) 0.6804+001
PPH2 (ATM) 0.1216+000 PPH- (ATM) 0.3243-001

IONIZATION POTENTIAL (1/CM) 96761.
PARTITION FUNCTION 0.2003+001
ROSSELAND MEAN OPACITY (1/CM) 0.5509+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2878+003	11000.	0.1980+001	70000.	0.3897+000
1500.	0.1199+003	12000.	0.1742+001	75000.	0.9082+000
2000.	0.6449+002	13500.	0.1471+001	80000.	0.9375+001
2500.	0.3985+002	15000.	0.3885+001	90000.	0.1059+001
3000.	0.2687+002	20000.	0.2176+001	100000.	0.3462+003
4000.	0.1437+002	25000.	0.1378+001	125000.	0.1918+003
5000.	0.8812+001	27500.	0.1133+001	150000.	0.1173+003
5500.	0.7140+001	30000.	0.9479+000	175000.	0.7691+002
6000.	0.5887+001	40000.	0.5241+000	200000.	0.5307+002
8000.	0.3335+001	50000.	0.3413+000	300000.	0.1698+002
10000.	0.2292+001	60000.	0.2705+000	400000.	0.7409+001

PRESS(ATM)	100.	ENTHALPY	0.2239+006 (BTU/LB)	0.1244+003 (KCAL/G)
TEMP (R)	23000.	FREE ENG	-0.6146+006 (BTU/LB)	-0.3414+003 (KCAL/G)
TEMP (K)	12778.	ENTROPY	0.3646+005 (BTU/LB-R)	0.3646+002 (CAL/G-K)
DEN(G/CM3)	0.9373-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9426+002	0.
2	0.3576-001	82279.
3	0.1217-001	97722.
4	0.0000+000	104119.
5	0.0000+000	110234.

PPHT (ATM) 0.9431+002 PPE (ATM) 0.2712+001
PPH2 (ATM) 0.2409+000 PPH- (ATM) 0.2079-001

IONIZATION POTENTIAL (1/CM) 100028.
PARTITION FUNCTION 0.2001+001
ROSSELAND MEAN OPACITY (1/CM) 0.3698+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8395+002	11000.	0.9716+000	70000.	0.4519+000
1500.	0.3473+002	12000.	0.8911+000	75000.	0.1267+001
2000.	0.1863+002	13500.	0.7918+000	80000.	0.1425+002
2500.	0.1406+002	15000.	0.7090+000	90000.	0.1540+001
3000.	0.9664+001	20000.	0.1098+001	100000.	0.3818+000
4000.	0.5311+001	25000.	0.7214+000	125000.	0.2378+003
5000.	0.3317+001	27500.	0.6038+000	150000.	0.1456+003
5500.	0.2708+001	30000.	0.5132+000	175000.	0.9551+002
6000.	0.2247+001	40000.	0.3013+000	200000.	0.6578+002
8000.	0.1396+001	50000.	0.2141+000	300000.	0.2098+002
10000.	0.1072+001	60000.	0.2081+000	400000.	0.9119+001

TABLE XIII h

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 100 ATMOSPHERES FOR 20,000°R AND 16,000 °R

PRESS(ATM)	100.	ENTHALPY	0.1949+006 (BTU/LB)	0.1083+003 (KCAL/G)
TEMP (R)	20000.	FREE ENG	-0.5078+006 (BTU/LB)	-0.2821+003 (KCAL/G)
TEMP (K)	11111.	ENTROPY	0.3514+005 (BTU/LB-R)	0.3514+002 (CAL/G-K)
DEN(G/CM3)	0.1102-003			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.9784+002	0.	PPHT (ATM) 0.9785+002	PPE (ATM)	0.8146+000
2	0.9247-002	82279.	PPH2 (ATM) 0.4999+000	PPH- (ATM)	0.1018-001
3	0.2817-002	97722.	IONIZATION POTENTIAL (1/CM)		103148.
4	0.7618-003	104119.	PARTITION FUNCTION		0.2000+001
5	0.0000+000	110234.	ROSSELAND MEAN OPACITY (1/CM)		0.2005+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2091+002	11000.	0.4068+000	70000.	0.5547+000
1500.	0.8974+001	12000.	0.3898+000	75000.	0.1730+001
2000.	0.4933+001	13500.	0.3635+000	80000.	0.2026+002
2500.	0.3103+001	15000.	0.3366+000	90000.	0.2144+001
3000.	0.2124+001	20000.	0.2968+000	100000.	0.5025+000
4000.	0.1167+001	25000.	0.3029+000	125000.	0.2851+003
5000.	0.7335+000	27500.	0.2593+000	150000.	0.1751+003
5500.	0.7823+000	30000.	0.2252+000	175000.	0.1150+003
6000.	0.6527+000	40000.	0.1451+000	200000.	0.7880+002
8000.	0.4736+000	50000.	0.1231+000	300000.	0.2501+002
10000.	0.4242+000	60000.	0.1716+000	400000.	0.1083+002

PRESS(ATM)	100.	ENTHALPY	0.1676+006 (BTU/LB)	0.9313+002 (KCAL/G)
TEMP (R)	16000.	FREE ENG	-0.3709+006 (BTU/LB)	-0.2060+003 (KCAL/G)
TEMP (K)	8889.	ENTROPY	0.3366+005 (BTU/LB-R)	0.3366+002 (CAL/G-K)
DEN(G/CM3)	0.1405-003			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.9805+002	0.	PPHT (ATM) 0.9805+002	PPE (ATM)	0.8834-001
2	0.6463-003	82279.	PPH2 (ATM) 0.1765+001	PPH- (ATM)	0.2351-002
3	0.1194-003	97722.	IONIZATION POTENTIAL (1/CM)		106542.
4	0.6758-004	104119.	PARTITION FUNCTION		0.2000+001
5	0.0000+000	110234.	ROSSELAND MEAN OPACITY (1/CM)		0.6506-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2476+001	11000.	0.9429-001	70000.	0.8104+000
1500.	0.1093+001	12000.	0.9441-001	75000.	0.2669+001
2000.	0.6124+000	13500.	0.9189-001	80000.	0.3183+002
2500.	0.3997+000	15000.	0.8738-001	90000.	0.3335+001
3000.	0.2770+000	20000.	0.6973-001	100000.	0.7605+000
4000.	0.1553+000	25000.	0.6578-001	125000.	0.3653+003
5000.	0.9915-001	27500.	0.5913-001	150000.	0.2276+003
5500.	0.8185-001	30000.	0.5413-001	175000.	0.1500+003
6000.	0.6872-001	40000.	0.4826-001	200000.	0.1011+003
8000.	0.7669-001	50000.	0.7309-001	300000.	0.3127+002
10000.	0.9223-001	60000.	0.1846+000	400000.	0.1345+002

TABLE XIII i

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 100 ATMOSPHERES FOR 13,000 °R AND 10,000 °R

PRESS(ATM)	100.	ENTHALPY	0.1429+006 (BTU/LB)	0.7936+002 (KCAL/G)
TEMP (R)	13000.	FREE ENG	-0.2737+006 (BTU/LB)	-0.1521+003 (KCAL/G)
TEMP (K)	7222.	ENTROPY	0.3204+005 (BTU/LB-R)	0.3204+002 (CAL/G-K)
DEN(G/CM3)	0.1816-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9318+002	0.
2	0.2841-004	82279.
3	0.2949-005	97722.
4	0.1466-005	104119.
5	0.1236-006	110234.

PPHT (ATM) 0.9318+002 PPE (ATM) 0.7628-002
PPH2 (ATM) 0.6802+001 PPH- (ATM) 0.4064-003

IONIZATION POTENTIAL (1/CM) 108291.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1773-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2908+000	11000.	0.1896-001	70000.	0.1107+001
1500.	0.1292+000	12000.	0.1936-001	75000.	0.3679+001
2000.	0.7267-001	13500.	0.1920-001	80000.	0.4402+002
2500.	0.4651-001	15000.	0.1852-001	90000.	0.4606+001
3000.	0.3231-001	20000.	0.1574-001	100000.	0.1045+001
4000.	0.1819-001	25000.	0.1464-001	125000.	0.4680+003
5000.	0.1173-001	27500.	0.1531-001	150000.	0.3074+003
5500.	0.9700-002	30000.	0.1615-001	175000.	0.2054+003
6000.	0.8161-002	40000.	0.2902-001	200000.	0.1296+003
8000.	0.1355-001	50000.	0.7473-001	300000.	0.3652+002
10000.	0.1789-001	60000.	0.2362+000	400000.	0.1562+002

PRESS(ATM)	100.	ENTHALPY	0.8934+005 (BTU/LB)	0.4963+002 (KCAL/G)
TEMP (R)	10001.	FREE ENG	-0.1886+006 (BTU/LB)	-0.1048+003 (KCAL/G)
TEMP (K)	5556.	ENTROPY	0.2779+005 (BTU/LB-R)	0.2779+002 (CAL/G-K)
DEN(G/CM3)	0.2971-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.6564+002	0.
2	0.1469-006	82279.
3	0.6060-008	97722.
4	0.2056-008	104119.
5	0.2288-009	110234.

PPHT (ATM) 0.6564+002 PPE (ATM) 0.1595-003
PPH2 (ATM) 0.3436+002 PPH- (ATM) 0.1655-004

IONIZATION POTENTIAL (1/CM) 109298.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1364-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7146-002	11000.	0.1149-002	70000.	0.1004+001
1500.	0.3176-002	12000.	0.1233-002	75000.	0.3343+001
2000.	0.1787-002	13500.	0.1339-002	80000.	0.4001+002
2500.	0.1144-002	15000.	0.1448-002	90000.	0.4185+001
3000.	0.7959-003	20000.	0.2119-002	100000.	0.9490+000
4000.	0.4517-003	25000.	0.3668-002	125000.	0.7331+003
5000.	0.2971-003	27500.	0.4937-002	150000.	0.5901+003
5500.	0.2522-003	30000.	0.6647-002	175000.	0.4125+003
6000.	0.2201-003	40000.	0.2104-001	200000.	0.2042+003
8000.	0.6878-003	50000.	0.6413-001	300000.	0.3344+002
10000.	0.1039-002	60000.	0.2120+000	400000.	0.1430+002

TABLE XIII j

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 100 ATMOSPHERES FOR 7,000 °R AND 5,000 °R

PRESS(ATM)	100.	ENTHALPY	0.3269+005 (BTU/LB)	0.1816+002 (KCAL/G)
TEMP (R)	7000.	FREE ENG	-0.1198+006 (BTU/LB)	-0.6658+002 (KCAL/G)
TEMP (K)	3889.	ENTROPY	0.2179+005 (BTU/LB-R)	0.2179+002 (CAL/G-K)
DEN(G/CM3)	0.5932-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1219+002	0.
2	0.2950-011	82279.
3	0.2193-013	97722.
4	0.3658-014	104119.
5	0.2405-015	110234.

PPHT (ATM) 0.1219+002 PFE (ATM) 0.9918-007
PPH2 (ATM) 0.8781+002 PPH- (ATM) 0.8756-008

IONIZATION POTENTIAL (1/CM) 109846.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.2545-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5108-008	11000.	0.2709-004	70000.	0.1442+000
1500.	0.2395-007	12000.	0.3592-004	75000.	0.4801+000
2000.	0.7036-007	13500.	0.5278-004	80000.	0.5746+001
2500.	0.1601-006	15000.	0.7479-004	90000.	0.4010+000
3000.	0.3103-006	20000.	0.1993-003	100000.	0.1363+000
4000.	0.8637-006	25000.	0.4438-003	125000.	0.1393+004
5000.	0.1877-005	27500.	0.6341-003	150000.	0.1371+004
5500.	0.2603-005	30000.	0.8872-003	175000.	0.9924+003
6000.	0.3499-005	40000.	0.2977-002	200000.	0.3906+003
8000.	0.9611-005	50000.	0.9177-002	300000.	0.8918+001
10000.	0.1991-004	60000.	0.3041-001	400000.	0.3860+001

PRESS(ATM)	100.	ENTHALPY	0.1767+005 (BTU/LB)	0.9817+001 (KCAL/G)
TEMP (R)	5000.	FREE ENG	-0.7935+005 (BTU/LB)	-0.4408+002 (KCAL/G)
TEMP (K)	2778.	ENTROPY	0.1940+005 (BTU/LB-R)	0.1940+002 (CAL/G-K)
DEN(G/CM3)	0.8810-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.7516+000	0.
2	0.9406-018	82279.
3	0.7118-021	97722.
4	0.4608-022	104119.
5	0.1242-023	110234.

PPHT (ATM) 0.7516+000 PFE (ATM) 0.4649-011
PPH2 (ATM) 0.9925+002 PPH- (ATM) 0.1496-012

IONIZATION POTENTIAL (1/CM) 109678.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.9044-007

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4789-009	11000.	0.1919-005	70000.	0.1035-001
1500.	0.2180-008	12000.	0.2549-005	75000.	0.3445-001
2000.	0.6229-008	13500.	0.3757-005	80000.	0.4123+000
2500.	0.1382-007	15000.	0.5335-005	90000.	0.4313-001
3000.	0.2619-007	20000.	0.1427-004	100000.	0.9778-002
4000.	0.7014-007	25000.	0.3182-004	125000.	0.2053+004
5000.	0.147[illegible]-006	27500.	0.4547-004	150000.	0.2077+004
5500.	0.202[illegible]-006	30000.	0.6364-004	175000.	0.1510+004
6000.	0.269[illegible]-006	40000.	0.2136-003	200000.	0.5764+003
8000.	[illegible]-006	50000.	0.[illegible]585-003	300000.	0.7703+000
10000.	0.1406-005	60000.	0.2182-002	400000.	0.3363+000

TABLE XIII k

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 100 ATMOSPHERES FOR 3000 °R

PRESS(ATM)	100.	ENTHALPY	0.8968+004 (BTU/LB)	0.4982+001 (KCAL/G)
TEMP (F)	3001.	FREE ENG	-0.4272+005 (BTU/LB)	-0.2373+002 (KCAL/G)
TEMP (K)	1667.	ENTROPY	0.1723+005 (BTU/LB-R)	0.1723+002 (CAL/G-K)
DEN(G/CM3)	0.1474-002			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.1073-002	0.
2	0.0000+000	82279.
3	0.0000+000	97722.
4	0.0000+000	104119.
5	0.0000+000	110234.

PPHT (ATM) 0.1073-002 PPE (ATM) 0.0000+000
PPH2 (ATM) 0.1000+003 PPH- (ATM) 0.0000+000

IONIZATION POTENTIAL (1/CM) 109679.
PARTITION FUNCTION 0.0000+000
ROSSELAND MEAN OPACITY (1/CM) 0.1054-009

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2236-011	11000.	0.6291-008	70000.	0.3381-004
1500.	0.9574-011	12000.	0.6347-008	75000.	0.1126-003
2000.	0.2594-010	13500.	0.1229-007	80000.	0.1347-002
2500.	0.5502-010	15000.	0.1744-007	90000.	0.1409-003
3000.	0.1004-009	20000.	0.4663-007	100000.	0.3195-004
4000.	0.2539-009	25000.	0.1040-006	125000.	0.3433+004
5000.	0.5153-009	27500.	0.1486-006	150000.	0.3479+004
5500.	0.6959-009	30000.	0.2080-006	175000.	0.2530+004
6000.	0.9153-009	40000.	0.6979-006	200000.	0.9637+003
8000.	0.2270-008	50000.	0.2152-005	300000.	0.1829-002
10000.	0.4626-008	60000.	0.7131-005	400000.	0.7934-003

TABLE XIV a

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 250 ATMOSPHERES FOR 200,000°R AND 175,000°R

PRESS(ATM)	250.	ENTHALPY	0.2641+007 (BTU/LB)	0.1467+004 (KCAL/G)
TEMP (R)	200000.	FREE ENG	-0.1149+008 (BTU/LB)	-0.6384+004 (KCAL/G)
TEMP (K)	111111.	ENTROPY	0.7067+005 (BTU/LB-R)	0.7067+002 (CAL/G-K)
DEN(G/CM3)	0.1383-004			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.3957-001	0.	PPHT (ATM) 0.1317+000	PPE (ATM)	0.1249+003
2	0.5453-001	82309.	PPH2 (ATM) 0.9772-008	PPH- (ATM)	0.9871-006
3	0.3761-001	98068.	IONIZATION POTENTIAL (1/CM)		96112.
4	0.0000+000	106062.	PARTITION FUNCTION		0.6657+001
5	0.0000+000	117646.	ROSSELAND MEAN OPACITY (1/CM)		0.1394-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2359+003	11000.	0.6195+000	70000.	0.9367-002
1500.	0.8387+002	12000.	0.5033+000	75000.	0.7857-002
2000.	0.4053+002	13500.	0.3801+000	80000.	0.6699-002
2500.	0.2315+002	15000.	0.3403+000	90000.	0.4992-002
3000.	0.1469+002	20800.	0.1758+000	100000.	0.1883-001
4000.	0.7205+001	25000.	0.1053+000	125000.	0.1131-001
5000.	0.4165+001	27500.	0.8450-001	150000.	0.7299-002
5500.	0.3300+001	30000.	0.6912-001	175000.	0.4971-002
6000.	0.2670+001	40000.	0.3540-001	200000.	0.3599-002
8000.	0.1330+001	50000.	0.2092-001	300000.	0.1188-002
10000.	0.7782+000	60000.	0.1353-001	400000.	0.5318-003

PRESS(ATM)	250.	ENTHALPY	0.2393+007 (BTU/LB)	0.1329+004 (KCAL/G)
TEMP (R)	175000.	FREE ENG	-0.9741+007 (BTU/LB)	-0.5412+004 (KCAL/G)
TEMP (K)	97222.	ENTROPY	0.6933+005 (BTU/LB-R)	0.6933+002 (CAL/G-K)
DEN(G/CM3)	0.1581-004			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.6538-001	0.	PPHT (ATM) 0.1869+000	PPE (ATM)	0.1249+003
2	0.7737-001	82309.	PPH2 (ATM) 0.2120-007	PPH- (ATM)	0.2302-005
3	0.4419-001	98068.	IONIZATION POTENTIAL (1/CM)		95239.
4	0.0000+000	106062.	PARTITION FUNCTION		0.5718+001
5	0.0000+000	117646.	ROSSELAND MEAN OPACITY (1/CM)		0.2788-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3364+003	11000.	0.9164+000	70000.	0.1424-001
1500.	0.1202+003	12000.	0.7453+000	75000.	0.1200-001
2000.	0.5833+002	13500.	0.6615+000	80000.	0.1021-001
2500.	0.3343+002	15000.	0.5205+000	90000.	0.7581-002
3000.	0.2128+002	20000.	0.2703+000	100000.	0.3592-001
4000.	0.1049+002	25000.	0.1623+000	125000.	0.2140-001
5000.	0.6086+001	27500.	0.1304+000	150000.	0.1371-001
5500.	0.4830+001	30000.	0.1067+000	175000.	0.9277-002
6000.	0.3913+001	40000.	0.5463-001	200000.	0.6550-002
8000.	0.1959+001	50000.	0.3222-001	300000.	0.2178-002
10000.	0.1150+001	60000.	0.2077-001	400000.	0.9706-003

TABLE XIV b

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 250 ATMOSPHERES FOR 150,000°R AND 125,000°R

PRESS(ATM)	250.	ENTHALPY	0.2143+007 (BTU/LB)	0.1191+004	(KCAL/G)
TEMP (R)	149999.	FREE ENG	-0.8026+007 (BTU/LB)	-0.4459+004	(KCAL/G)
TEMP (K)	83333.	ENTROPY	0.6780+005 (BTU/LB-R)	0.6780+002	(CAL/G-K)
DEN(G/CM3)	0.1845-004				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1196+000	0.
2	0.1155+000	82309.
3	0.4960-001	98068.
4	0.0000+000	106062.
5	0.0000+000	117646.

PPHT (ATM) 0.2847+000 PFE (ATM) 0.1249+003
PPH2 (ATM) 0.5413-007 PFH- (ATM) 0.6282-005

IONIZATION POTENTIAL (1/CM) 94136.
PARTITION FUNCTION 0.4761+001
ROSSELAND MEAN OPACITY (1/CM) 0.6569-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5080+003	11000.	0.1444+001	70000.	0.2326-001
1500.	0.1827+003	12000.	0.1415+001	75000.	0.1955-001
2000.	0.8909+002	13500.	0.1086+001	80000.	0.1660-001
2500.	0.5128+002	15000.	0.8564+000	90000.	0.1226-001
3000.	0.3275+002	20000.	0.4471+000	100000.	0.7777-001
4000.	0.1623+002	25000.	0.2691+000	125000.	0.4585-001
5000.	0.9461+001	27500.	0.2163+000	150000.	0.2911-001
5500.	0.7521+001	30000.	0.1770+000	175000.	0.1955-001
6000.	0.6104+001	40000.	0.9046-001	200000.	0.1373-001
8000.	0.3071+001	50000.	0.5315-001	300000.	0.4509-002
10000.	0.1809+001	60000.	0.3410-001	400000.	0.2003-002

PRESS(ATM)	250.	ENTHALPY	0.1894+007 (BTU/LB)	0.1052+004	(KCAL/G)
TEMP (R)	124999.	FREE ENG	-0.6352+007 (BTU/LB)	-0.3529+004	(KCAL/G)
TEMP (K)	69444.	ENTROPY	0.6597+005 (BTU/LB-R)	0.6597+002	(CAL/G-K)
DEN(G/CM3)	0.2215-004				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2536+000	0.
2	0.1843+000	82309.
3	0.4738-001	98068.
4	0.0000+000	106062.
5	0.0000+000	117646.

PPHT (ATM) 0.4653+000 PFE (ATM) 0.1248+003
PPH2 (ATM) 0.1798-006 PFH- (ATM) 0.2144-004

IONIZATION POTENTIAL (1/CM) 92683.
PARTITION FUNCTION 0.3828+001
ROSSELAND MEAN OPACITY (1/CM) 0.1972-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8303+003	11000.	0.3102+001	70000.	0.4146-001
1500.	0.3010+003	12000.	0.2558+001	75000.	0.3473-001
2000.	0.1477+003	13500.	0.1969+001	80000.	0.2938-001
2500.	0.8542+002	15000.	0.1557+001	90000.	0.2157-001
3000.	0.5478+002	20000.	0.6168+000	100000.	0.2015+000
4000.	0.2733+002	25000.	0.4921+000	125000.	0.1172+000
5000.	0.1601+002	27500.	0.3954+000	150000.	0.7363-001
5500.	0.1275+002	30000.	0.3234+000	175000.	0.4907-001
6000.	0.1037+002	40000.	0.1646+000	200000.	0.3425-001
8000.	0.5243+001	50000.	0.9607-001	300000.	0.1114-001
10000.	0.3098+001	60000.	0.6121-001	400000.	0.4941-002

TABLE XIV c

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 250 ATMOSPHERES FOR 100,000°R AND 90,000 °R

PRESS(ATM)	250.	ENTHALPY	0.1642+007 (BTU/LB)	0.9120+003	(KCAL/G)
TEMP (R)	100001.	FREE ENG	-0.4729+007 (BTU/LB)	-0.2627+004	(KCAL/G)
TEMP (K)	55556.	ENTROPY	0.6371+005 (BTU/LB-R)	0.6371+002	(CAL/G-K)
DEN(G/CM3)	0.2775-004				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.6771+000	0.
2	0.3214+000	82309.
3	0.1428-001	98068.
4	0.0000+000	106062.
5	0.0000+000	117646.

PPHT (ATM) 0.1013+001 PPE (ATM) 0.1245+003
PPH2 (ATM) 0.9578-006 PPH- (ATM) 0.1030-003

IONIZATION POTENTIAL (1/CM) 90656.
PARTITION FUNCTION 0.2992+001
ROSSELAND MEAN OPACITY (1/CM) 0.8272-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1523+004	11000.	0.6446+001	70000.	0.8331-001
1500.	0.5575+003	12000.	0.5330+001	75000.	0.6946-001
2000.	0.2756+003	13500.	0.4116+001	80000.	0.5853-001
2500.	0.1603+003	15000.	0.3263+001	90000.	0.4259-001
3000.	0.1033+003	20000.	0.1717+001	100000.	0.6860+000
4000.	0.5191+002	25000.	0.1033+001	125000.	0.3927+000
5000.	0.3056+002	27500.	0.8290+000	150000.	0.2439+000
5500.	0.2440+002	30000.	0.6768+000	175000.	0.1613+000
6000.	0.1987+002	40000.	0.3412+000	200000.	0.1120+000
8000.	0.1010+002	50000.	0.1971+000	300000.	0.3620-001
10000.	0.7932+001	60000.	0.1242+000	400000.	0.1605-001

PRESS(ATM)	250.	ENTHALPY	0.1539+007 (BTU/LB)	0.8551+003	(KCAL/G)
TEMP (R)	90000.	FREE ENG	-0.4097+007 (BTU/LB)	-0.2276+004	(KCAL/G)
TEMP (K)	50000.	ENTROPY	0.6262+005 (BTU/LB-R)	0.6262+002	(CAL/G-K)
DEN(G/CM3)	0.3089-004				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1084+001	0.
2	0.3907+000	82309.
3	0.0000+000	98068.
4	0.0000+000	106062.
5	0.0000+000	117646.

PPHT (ATM) 0.1474+001 PPE (ATM) 0.1243+003
PPH2 (ATM) 0.2270-005 PPH- (ATM) 0.2178-003

IONIZATION POTENTIAL (1/CM) 89593.
PARTITION FUNCTION 0.2721+001
ROSSELAND MEAN OPACITY (1/CM) 0.1838+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2031+004	11000.	0.6997+001	70000.	0.1127+000
1500.	0.7473+003	12000.	0.7444+001	75000.	0.9377-001
2000.	0.3708+003	13500.	0.5751+001	80000.	0.7889-001
2500.	0.2164+003	15000.	0.4558+001	90000.	0.1588+001
3000.	0.1397+003	20000.	0.2395+001	100000.	0.1230+001
4000.	0.7047+002	25000.	0.1438+001	125000.	0.6989+000
5000.	0.4159+002	27500.	0.1152+001	150000.	0.4323+000
5500.	0.3323+002	30000.	0.9389+000	175000.	0.2851+000
6000.	0.2708+002	40000.	0.4701+000	200000.	0.1977+000
8000.	0.1796+002	50000.	0.2698+000	300000.	0.6377-001
10000.	0.1106+002	60000.	0.1690+000	400000.	0.2828-001

TABLE XIV d

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 250 ATMOSPHERES FOR 80,000 °R AND 70,000 °R

PRESS(ATM)	250.	ENTHALPY	0.1434+007 (BTU/LB)	0.7964+003 (KCAL/G)
TEMP (R)	79999.	FREE ENG	-0.3476+007 (BTU/LB)	-0.1931+004 (KCAL/G)
TEMP (K)	44444.	ENTROPY	0.6137+005 (BTU/LB-R)	0.6137+002 (CAL/G-K)
DEN(G/CM3)	0.3488-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1931+001	0.
2	0.4743+000	82309.
3	0.0000+000	98068.
4	0.0000+000	106062.
5	0.0000+000	117646.

PPHT (ATM) 0.2405+001 PPE (ATM) 0.1238+003
PPH2 (ATM) 0.6948-005 PPH- (ATM) 0.5305-003

IONIZATION POTENTIAL (1/CM) 88322.
PARTITION FUNCTION 0.2491+001
ROSSELAND MEAN OPACITY (1/CM) 0.3886+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2800+004	11000.	0.1299+002	70000.	0.1562+000
1500.	0.1057+004	12000.	0.1075+002	75000.	0.1296+000
2000.	0.5170+003	13500.	0.8305+001	80000.	0.1091+000
2500.	0.3027+003	15000.	0.6580+001	90000.	0.3216+001
3000.	0.1961+003	20000.	0.3447+001	100000.	0.2480+001
4000.	0.9928+002	25000.	0.2061+001	125000.	0.1400+001
5000.	0.5876+002	27500.	0.1648+001	150000.	0.8625+000
5500.	0.4699+002	30000.	0.1340+001	175000.	0.5676+000
6000.	0.3834+002	40000.	0.6654+000	200000.	0.3931+000
8000.	0.2579+002	50000.	0.3788+000	300000.	0.1267+000
10000.	0.1597+002	60000.	0.2357+000	400000.	0.5619-001

PRESS(ATM)	250.	ENTHALPY	0.1322+007 (BTU/LB)	0.7342+003 (KCAL/G)
TEMP (R)	70000.	FREE ENG	-0.2869+007 (BTU/LB)	-0.1594+004 (KCAL/G)
TEMP (K)	38889.	ENTROPY	0.5987+005 (BTU/LB-R)	0.5987+002 (CAL/G-K)
DEN(G/CM3)	0.4017-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3794+001	0.
2	0.5663+000	82309.
3	0.0000+000	98068.
4	0.0000+000	106062.
5	0.0000+000	117646.

PPHT (ATM) 0.4361+001 PPE (ATM) 0.1228+003
PPH2 (ATM) 0.2733-004 PPH- (ATM) 0.1485-002

IONIZATION POTENTIAL (1/CM) 86780.
PARTITION FUNCTION 0.2298+001
ROSSELAND MEAN OPACITY (1/CM) 0.7399+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4016+004	11000.	0.1938+002	70000.	0.2207+000
1500.	0.1498+004	12000.	0.1603+002	75000.	0.1827+000
2000.	0.7510+003	13500.	0.1237+002	80000.	0.1550+000
2500.	0.4415+003	15000.	0.9788+001	90000.	0.7292+001
3000.	0.2868+003	20000.	0.5101+001	100000.	0.5602+001
4000.	0.1459+003	25000.	0.3032+001	125000.	0.3141+001
5000.	0.1037+003	27500.	0.2417+001	150000.	0.1928+001
5500.	0.8496+002	30000.	0.1960+001	175000.	0.1267+001
6000.	0.7077+002	40000.	0.9626+000	200000.	0.8768+000
8000.	0.3848+002	50000.	0.5428+000	300000.	0.2824+000
10000.	0.2383+002	60000.	0.3351+000	400000.	0.1253+000

TABLE XIV e

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 250 ATMOSPHERES FOR 60,000 °R AND 50,000 °R

PRESS(ATM)	250.	ENTHALPY	0.1193+007 (BTU/LB)	0.6628+003 (KCAL/G)
TEMP (R)	59999.	FREE ENG	-0.2280+007 (BTU/LB)	-0.1267+004 (KCAL/G)
TEMP (K)	33333.	ENTROPY	0.5789+005 (BTU/LB-R)	0.5789+002 (CAL/G-K)
DEN(G/CM3)	0.4774-004			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.8475+001	0.	PPHT (ATM) 0.9121+001	PPE (ATM) 0.1204+003	
2	0.6462+000	82309.	PPH2 (ATM) 0.1519-003	PPH- (ATM) 0.4964-002	
3	0.0000+000	98068.	IONIZATION POTENTIAL (1/CM)	84910.	
4	0.0000+000	106062.	PARTITION FUNCTION	0.2152+001	
5	0.0000+000	117646.	ROSSELAND MEAN OPACITY (1/CM)	0.1133+001	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5995+004	11000.	0.2969+002	70000.	0.3168+000
1500.	0.2257+004	12000.	0.2452+002	75000.	0.2625+000
2000.	0.1138+004	13500.	0.1888+002	80000.	0.2343+000
2500.	0.6721+003	15000.	0.1490+002	90000.	0.1917+002
3000.	0.4580+003	20000.	0.7703+001	100000.	0.1467+002
4000.	0.2534+003	25000.	0.4542+001	125000.	0.8178+001
5000.	0.1595+003	27500.	0.3607+001	150000.	0.5007+001
5500.	0.1307+003	30000.	0.2915+001	175000.	0.3286+001
6000.	0.1089+003	40000.	0.1413+001	200000.	0.2273+001
8000.	0.5915+002	50000.	0.7888+000	300000.	0.7320+000
10000.	0.3656+002	60000.	0.4833+000	400000.	0.3246+000

PRESS(ATM)	250.	ENTHALPY	0.1018+007 (BTU/LB)	0.5656+003 (KCAL/G)
TEMP (R)	50000.	FREE ENG	-0.1721+007 (BTU/LB)	-0.9560+003 (KCAL/G)
TEMP (K)	27778.	ENTROPY	0.5478+005 (BTU/LB-R)	0.5478+002 (CAL/G-K)
DEN(G/CM3)	0.6033-004			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.2220+002	0.	PPHT (ATM) 0.2286+002	PPE (ATM) 0.1136+003	
2	0.6646+000	82309.	PPH2 (ATM) 0.1335-002	PPH- (ATM) 0.2037-001	
3	0.0000+000	98068.	IONIZATION POTENTIAL (1/CM)	82803.	
4	0.0000+000	106062.	PARTITION FUNCTION	0.2060+001	
5	0.0000+000	117646.	ROSSELAND MEAN OPACITY (1/CM)	0.1519+001	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6464+004	11000.	0.4521+002	70000.	0.4627+000
1500.	0.2879+004	12000.	0.3725+002	75000.	0.3925+000
2000.	0.1614+004	13500.	0.2858+002	80000.	0.4805+000
2500.	0.1027+004	15000.	0.2248+002	90000.	0.6068+002
3000.	0.7083+003	20000.	0.1150+002	100000.	0.4627+002
4000.	0.3919+003	25000.	0.6726+001	125000.	0.2568+002
5000.	0.2482+003	27500.	0.5323+001	150000.	0.1570+002
5500.	0.2016+003	30000.	0.4287+001	175000.	0.1029+002
6000.	0.1677+003	40000.	0.2059+001	200000.	0.7119+001
8000.	0.9071+002	50000.	0.1144+001	300000.	0.2292+001
10000.	0.5580+002	60000.	0.7009+000	400000.	0.1015+001

TABLE XIV f

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 250 ATMOSPHERES FOR 40,000 °R AND 30,000 °R

PRESS(ATM)	250.	ENTHALPY	0.7297+006 (BTU/LB)	0.4054+003 (KCAL/G)
TEMP (R)	40000.	FREE ENG	-0.1221+007 (BTU/LB)	-0.6783+003 (KCAL/G)
TEMP (K)	22222.	ENTROPY	0.4877+005 (BTU/LB-R)	0.4877+002 (CAL/G-K)
DEN(G/CM3)	0.8770-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.6686+002	0.
2	0.6372+000	82309.
3	0.0000+000	98068.
4	0.0000+000	106062.
5	0.0000+000	117646.

PPHT (ATM) 0.6749+002 PPE (ATM) 0.9112+002
PPH2 (ATM) 0.1923-001 PPH- (ATM) 0.9301-001

IONIZATION POTENTIAL (1/CM) 81581.
PARTITION FUNCTION 0.2019+001
ROSSELAND MEAN OPACITY (1/CM) 0.2260+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7500+004	11000.	0.6075+002	70000.	0.7679+000
1500.	0.3542+004	12000.	0.5010+002	75000.	0.7892+000
2000.	0.2046+004	13500.	0.3848+002	80000.	0.2847+001
2500.	0.1325+004	15000.	0.3032+002	90000.	0.2296+003
3000.	0.9242+003	20000.	0.1559+002	100000.	0.1746+003
4000.	0.5181+003	25000.	0.9184+001	125000.	0.9664+002
5000.	0.3277+003	27500.	0.7304+001	150000.	0.5904+002
5500.	0.2688+003	30000.	0.5916+001	175000.	0.3671+002
6000.	0.2240+003	40000.	0.2915+001	200000.	0.2676+002
8000.	0.1215+003	50000.	0.1674+001	300000.	0.8597+001
10000.	0.7491+002	60000.	0.1066+001	400000.	0.3784+001

PRESS(ATM)	250.	ENTHALPY	0.3519+006 (BTU/LB)	0.1955+003 (KCAL/G)
TEMP (R)	30001.	FREE ENG	-0.8183+006 (BTU/LB)	-0.4546+003 (KCAL/G)
TEMP (K)	16667.	ENTROPY	0.3901+005 (BTU/LB-R)	0.3901+002 (CAL/G-K)
DEN(G/CM3)	0.1594-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1815+003	0.
2	0.4847+000	82309.
3	0.0000+000	98068.
4	0.0000+000	106062.
5	0.0000+000	117646.

PPHT (ATM) 0.1819+003 PPE (ATM) 0.3372+002
PPH2 (ATM) 0.3232+000 PPH- (ATM) 0.2185+000

IONIZATION POTENTIAL (1/CM) 87239.
PARTITION FUNCTION 0.2005+001
ROSSELAND MEAN OPACITY (1/CM) 0.3085+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4021+004	11000.	0.4027+002	70000.	0.1699+001
1500.	0.1593+004	12000.	0.3400+002	75000.	0.3371+001
2000.	0.8306+003	13500.	0.2699+002	80000.	0.3155+002
2500.	0.5021+003	15000.	0.2190+002	90000.	0.8344+003
3000.	0.3330+003	20000.	0.1227+002	100000.	0.6325+003
4000.	0.1741+003	25000.	0.7816+001	125000.	0.3506+003
5000.	0.1761+003	27500.	0.6450+001	150000.	0.2145+003
5500.	0.1487+003	30000.	0.5411+001	175000.	0.1406+003
6000.	0.1268+003	40000.	0.3016+001	200000.	0.9696+002
8000.	0.7416+002	50000.	0.1950+001	300000.	0.3088+002
10000.	0.4841+002	60000.	0.1460+001	400000.	0.1329+002

TABLE XIV g

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 250 ATMOSPHERES FOR 26,000 °R AND 23,000 °R

PRESS(ATM)	250.	ENTHALPY	0.2586+006 (BTU/LB)	0.1437+003 (KCAL/G)
TEMP (R)	25999.	FREE ENG	-0.6757+006 (BTU/LB)	-0.3754+003 (KCAL/G)
TEMP (K)	14444.	ENTROPY	0.3594+005 (BTU/LB-R)	0.3594+002 (CAL/G-K)
DEN(G/CM3)	0.2019-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2223+003	0.
2	0.2447+000	82309.
3	0.1946-001	98068.
4	0.0000+000	106062.
5	0.0000+000	117646.

PPHT (ATM)	0.2225+003	PFE (ATM)	0.1323+002
PPH2 (ATM)	0.8100+000	PPH- (ATM)	0.1627+000
IONIZATION POTENTIAL (1/CM)			92864.
PARTITION FUNCTION			0.2002+001
ROSSELAND MEAN OPACITY (1/CM)			0.2380+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1140+004	11000.	0.2121+002	70000.	0.2217+001
1500.	0.4663+003	12000.	0.1822+002	75000.	0.5733+001
2000.	0.2482+003	13500.	0.1481+002	80000.	0.6221+002
2500.	0.1524+003	15000.	0.1227+002	90000.	0.6853+001
3000.	0.1023+003	20000.	0.7260+001	100000.	0.8944+003
4000.	0.5445+002	25000.	0.4828+001	125000.	0.4972+003
5000.	0.3332+002	27500.	0.4060+001	150000.	0.3047+003
5500.	0.2699+002	30000.	0.3465+001	175000.	0.1999+003
6000.	0.2226+002	40000.	0.2046+001	200000.	0.1374+003
8000.	0.1295+002	50000.	0.1420+001	300000.	0.4348+002
10000.	0.9254+001	60000.	0.1250+001	400000.	0.1647+002

PRESS(ATM)	250.	ENTHALPY	0.2180+006 (BTU/LB)	0.1211+003 (KCAL/G)
TEMP (R)	23000.	FREE ENG	-0.5723+006 (BTU/LB)	-0.3180+003 (KCAL/G)
TEMP (K)	12778.	ENTROPY	0.3436+005 (BTU/LB-R)	0.3436+002 (CAL/G-K)
DEN(G/CM3)	0.2369-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2382+003	0.
2	0.9008-001	82309.
3	0.1576-001	98068.
4	0.0000+000	106062.
5	0.0000+000	117646.

PPHT (ATM)	0.2384+003	PFE (ATM)	0.4988+001
PPH2 (ATM)	0.1539+001	PPH- (ATM)	0.9664-001
IONIZATION POTENTIAL (1/CM)			97410.
PARTITION FUNCTION			0.2001+001
ROSSELAND MEAN OPACITY (1/CM)			0.1577+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3306+003	11000.	0.3820+001	70000.	0.2677+001
1500.	0.1417+003	12000.	0.3578+001	75000.	0.7924+001
2000.	0.7772+002	13500.	0.3259+001	80000.	0.9097+002
2500.	0.4872+002	15000.	0.2973+001	90000.	0.9728+001
3000.	0.3324+002	20000.	0.3698+001	100000.	0.1084+004
4000.	0.1813+002	25000.	0.2562+001	125000.	0.6054+003
5000.	0.1130+002	27500.	0.2192+001	150000.	0.3723+003
5500.	0.9222+001	30000.	0.1901+001	175000.	0.2444+003
6000.	0.7659+001	40000.	0.1192+001	200000.	0.1673+003
8000.	0.5022+001	50000.	0.9168+000	300000.	0.5253+002
10000.	0.4107+001	60000.	0.1029+001	400000.	0.2210+002

TABLE XIV h

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 250 ATMOSPHERES FOR 20,000 °R AND 16,000 °R

PRESS(ATM)	250.	ENTHALPY	0.1918+006 (BTU/LB)	0.1065+003 (KCAL/G)
TEMP (R)	20000.	FREE ENG	-0.4719+006 (BTU/LB)	-0.2622+003 (KCAL/G)
TEMP (K)	11111.	ENTROPY	0.3318+005 (BTU/LB-R)	0.3318+002 (CAL/G-K)
DEN(G/CM3)	0.2782-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2439+003	0.
2	0.2297-001	82309.
3	0.6292-002	98068.
4	0.0000+000	106062.
5	0.0000+000	117646.

PPHT (ATM) 0.2440+003 PPE (ATM) 0.1425+001
PPH2 (ATM) 0.3108+001 PPH- (ATM) 0.4441-001

IONIZATION POTENTIAL (1/CM) 101559.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.8800+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8040+002	11000.	0.1647+001	70000.	0.3354+001
1500.	0.3469+002	12000.	0.1597+001	75000.	0.1069+002
2000.	0.1914+002	13500.	0.1509+001	80000.	0.1260+003
2500.	0.1208+002	15000.	0.1410+001	90000.	0.1329+002
3000.	0.8295+001	20000.	0.1543+001	100000.	0.3082+001
4000.	0.5341+001	25000.	0.1119+001	125000.	0.7209+003
5000.	0.3386+001	27500.	0.9763+000	150000.	0.4464+003
5500.	0.2784+001	30000.	0.8627+000	175000.	0.2936+003
6000.	0.2327+001	40000.	0.5958+000	200000.	0.1992+003
8000.	0.1793+001	50000.	0.5670+000	300000.	0.6168+002
10000.	0.1689+001	60000.	0.9302+000	400000.	0.2569+002

PRESS(ATM)	250.	ENTHALPY	0.1628+006 (BTU/LB)	0.9045+002 (KCAL/G)
TEMP (R)	16000.	FREE ENG	-0.3435+006 (BTU/LB)	-0.1908+003 (KCAL/G)
TEMP (K)	8889.	ENTROPY	0.3164+005 (BTU/LB-R)	0.3164+002 (CAL/G-K)
DEN(G/CM3)	0.3597-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2392+003	0.
2	0.1569-002	82309.
3	0.2755-003	98068.
4	0.6418-004	106062.
5	0.0000+000	117646.

PPHT (ATM) 0.2392+003 PPE (ATM) 0.1455+000
PPH2 (ATM) 0.1050+002 PPH- (ATM) 0.9446-002

IONIZATION POTENTIAL (1/CM) 105884.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.2755+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.9768+001	11000.	0.3735+000	70000.	0.4825+001
1500.	0.4326+001	12000.	0.3752+000	75000.	0.1595+002
2000.	0.2428+001	13500.	0.3664+000	80000.	0.1904+003
2500.	0.1551+001	15000.	0.3493+000	90000.	0.1995+002
3000.	0.1076+001	20000.	0.2811+000	100000.	0.4539+001
4000.	0.6043+000	25000.	0.2540+000	125000.	0.9316+003
5000.	0.3865+000	27500.	0.2328+000	150000.	0.5957+003
5500.	0.3193+000	30000.	0.2180+000	175000.	0.3952+003
6000.	0.2683+000	40000.	0.2222+000	200000.	0.2575+003
8000.	0.3155+000	50000.	0.3914+000	300000.	0.7527+002
10000.	0.3636+000	60000.	0.1072+001	400000.	0.3086+002

TABLE XIV i

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 250 ATMOSPHERES FOR 13,000 °R AND 10,000 °R

PRESS(ATM)	250.	ENTHALPY	0.1303+006 (BTU/LB)	0.7241+002 (KCAL/G)
TEMP (R)	13000.	FREE ENG	-0.2544+006 (BTU/LB)	-0.1413+003 (KCAL/G)
TEMP (K)	7222.	ENTROPY	0.2959+005 (BTU/LB-R)	0.2959+002 (CAL/G-K)
DEN(G/CM3)	0.4862-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2141+003	0.
2	0.6487-004	82309.
3	0.6323-005	98068.
4	0.1535-005	106062.
5	0.0000+000	117646.

PPHT (ATM)	0.2141+003	PPE (ATM)	0.1185-001
PPH2 (ATM)	0.3590+002	PPH- (ATM)	0.1451-002
IONIZATION POTENTIAL (1/CM)			108044.
PARTITION FUNCTION			0.2000+001
ROSSELAND MEAN OPACITY (1/CM)			0.6925-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1035+001	11000.	0.6786-001	70000.	0.5951+001
1500.	0.4599+000	12000.	0.6942-001	75000.	0.1979+002
2000.	0.2592+000	13500.	0.6912-001	80000.	0.2367+003
2500.	0.1659+000	15000.	0.6703-001	90000.	0.2478+002
3000.	0.1153+000	20000.	0.5886-001	100000.	0.5621+001
4000.	0.6492-001	25000.	0.5834-001	125000.	0.1236+004
5000.	0.4163-001	27500.	0.6291-001	150000.	0.8691+003
5500.	0.3446-001	30000.	0.6954-001	175000.	0.5901+003
6000.	0.2901-001	40000.	0.1447+000	200000.	0.3425+003
8000.	0.4839-001	50000.	0.3940+000	300000.	0.8268+002
10000.	0.6425-001	60000.	0.1265+001	400000.	0.3353+002

PRESS(ATM)	250.	ENTHALPY	0.7378+005 (BTU/LB)	0.4099+002 (KCAL/G)
TEMP (R)	10001.	FREE ENG	-0.1778+006 (BTU/LB)	-0.9878+002 (KCAL/G)
TEMP (K)	5556.	ENTROPY	0.2516+005 (BTU/LB-R)	0.2516+002 (CAL/G-K)
DEN(G/CM3)	0.8288-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1251+003	0.
2	0.2778-006	82309.
3	0.1056-007	98068.
4	0.1837-008	106062.
5	0.0000+000	117646.

PPHT (ATM)	0.1251+003	PPE (ATM)	0.2216-003
PPH2 (ATM)	0.1249+003	PPH- (ATM)	0.4384-004
IONIZATION POTENTIAL (1/CM)			109250.
PARTITION FUNCTION			0.2000+001
ROSSELAND MEAN OPACITY (1/CM)			0.4041-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1892-001	11000.	0.3269-002	70000.	0.3952+001
1500.	0.8412-002	12000.	0.3571-002	75000.	0.1316+002
2000.	0.4733-002	13500.	0.4001-002	80000.	0.1574+003
2500.	0.3032-002	15000.	0.4487-002	90000.	0.1647+002
3000.	0.2110-002	20000.	0.7384-002	100000.	0.3734+001
4000.	0.1203-002	25000.	0.1368-001	125000.	0.2009+004
5000.	0.8015-003	27500.	0.1675-001	150000.	0.1745+004
5500.	0.6880-003	30000.	0.2555-001	175000.	0.1237+004
6000.	0.6106-003	40000.	0.8240-001	200000.	0.5607+003
8000.	0.1897-002	50000.	0.2521+000	300000.	0.6372+002
10000.	0.2916-002	60000.	0.8339+000	400000.	0.2586+002

TABLE XIV j

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 250 ATMOSPHERES FOR 7,000°R AND 5,000°R

PRESS(ATM)	250.	ENTHALPY	0.3032+005 (BTU/LB)	0.1684+002 (KCAL/G)
TEMP (R)	7000.	FREE ENG	-0.1134+006 (BTU/LB)	-0.6298+002 (KCAL/G)
TEMP (K)	3889.	ENTROPY	0.2053+005 (BTU/LB-R)	0.2053+002 (CAL/G-K)
DEN(G/CM3)	0.1517-002			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1974+002	0.
2	0.4725-011	82309.
3	0.3126-013	98068.
4	0.2336-014	106062.
5	0.0000+000	117646.

PPHT (ATM) 0.1974+002 PPE (ATM) 0.1211-006
PPH2 (ATM) 0.2303+003 PPH- (ATM) 0.1804-007

IONIZATION POTENTIAL (1/CM) 109644.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.8955-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1799-007	11000.	0.9439-004	70000.	0.5079+000
1500.	0.8458-007	12000.	0.1255-003	75000.	0.1691+001
2000.	0.2479-006	13500.	0.1849-003	80000.	0.2024+002
2500.	0.5640-006	15000.	0.2624-003	90000.	0.2117+001
3000.	0.1093-005	20000.	0.7014-003	100000.	0.4800+000
4000.	0.3043-005	25000.	0.1563-002	125000.	0.3551+004
5000.	0.6612-005	27500.	0.2233-002	150000.	0.3533+004
5500.	0.9168-005	30000.	0.3125-002	175000.	0.2562+004
6000.	0.1233-004	40000.	0.1049-001	200000.	0.9962+003
8000.	0.3324-004	50000.	0.3233-001	300000.	0.1434+002
10000.	0.6917-004	60000.	0.1071+000	400000.	0.6094+001

PRESS(ATM)	250.	ENTHALPY	0.1753+005 (BTU/LB)	0.9741+001 (KCAL/G)
TEMP (R)	5000.	FREE ENG	-0.7480+005 (BTU/LB)	-0.4155+002 (KCAL/G)
TEMP (K)	2778.	ENTROPY	0.1846+005 (BTU/LB-R)	0.1846+002 (CAL/G-K)
DEN(G/CM3)	0.2206-002			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1190+001	0.
2	0.1466-017	82309.
3	0.9424-021	98068.
4	0.2167-022	106062.
5	0.0000+000	117646.

PPHT (ATM) 0.1190+001 PPE (ATM) 0.5849-011
PPH2 (ATM) 0.2488+003 PPH- (ATM) 0.2980-012

IONIZATION POTENTIAL (1/CM) 109678.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.3529-006

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1869-008	11000.	0.7487-005	70000.	0.4037-001
1500.	0.8505-008	12000.	0.9947-005	75000.	0.1344+000
2000.	0.2430-007	13500.	0.1466-004	80000.	0.1609+001
2500.	0.5393-007	15000.	0.2082-004	90000.	0.1683+000
3000.	0.1022-006	20000.	0.5568-004	100000.	0.3815-001
4000.	0.2737-006	25000.	0.1241-003	125000.	0.5139+004
5000.	0.5768-006	27500.	0.1774-003	150000.	0.5202+004
5500.	0.7897-006	30000.	0.2483-003	175000.	0.3782+004
6000.	0.1050-005	40000.	0.8333-003	200000.	0.1443+004
8000.	0.2670-005	50000.	0.2569-002	300000.	0.1211+001
10000.	0.5493-005	60000.	0.6515-002	400000.	0.5159+000

TABLE XIV k

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 250 ATMOSPHERES FOR 3000 °R

PRESS(ATM)	250.	ENTHALPY	0.8967+004 (BTU/LB)	0.4982+001 (KCAL/G)
TEMP (R)	3001.	FREE ENG	-0.3999+005 (BTU/LB)	-0.2222+002 (KCAL/G)
TEMP (K)	1667.	ENTROPY	0.1632+005 (BTU/LB-R)	0.1632+002 (CAL/G-K)
DEN(G/CM3)	0.3684-002			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1696-002	0.
2	0.0000+000	82309.
3	0.0000+000	98068.
4	0.0000+000	106062.
5	0.0000+000	117646.

PPHT (ATM)	0.1696-002	PPE (ATM)	0.0000+000
PPH2 (ATM)	0.2500+003	PPH- (ATM)	0.0000+000

IONIZATION POTENTIAL (1/CM)	109679.
PARTITION FUNCTION	0.0000+000
ROSSELAND MEAN OPACITY (1/CM)	0.4166-009

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8847-011	11000.	0.2487-007	70000.	0.1336-003
1500.	0.3784-010	12000.	0.3299-007	75000.	0.4449-003
2000.	0.1025-009	13500.	0.4857-007	80000.	0.5325-002
2500.	0.2175-009	15000.	0.6894-007	90000.	0.5570-003
3000.	0.3968-009	20000.	0.1843-006	100000.	0.1263-003
4000.	0.1004-008	25000.	0.4109-006	125000.	0.8582+004
5000.	0.2037-008	27500.	0.5873-006	150000.	0.8697+004
5500.	0.2751-008	30000.	0.8220-006	175000.	0.6324+004
6000.	0.3618-008	40000.	0.2759-005	200000.	0.2409+004
8000.	0.8972-008	50000.	0.8506-005	300000.	0.2863-002
10000.	0.1828-007	60000.	0.2819-004	400000.	0.1199-002

TABLE XV a

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 300 ATMOSPHERES FOR 200,000°R AND 175,000°R

PRESS(ATM)	300.	ENTHALPY	0.2641+007 (BTU/LB)	0.1467+004 (KCAL/G)
TEMP (R)	200000.	FREE ENG	-0.1135+008 (BTU/LB)	-0.6304+004 (KCAL/G)
TEMP (K)	111111.	ENTROPY	0.6994+005 (BTU/LB-R)	0.6994+002 (CAL/G-K)
DEN(G/CM3)	0.1659-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5637-001	0.
2	0.7766-001	82319.
3	0.4418-001	98183.
4	0.0000+000	106709.
5	0.0000+000	120117.

PPHT (ATM) 0.1782+000 PPE (ATM) 0.1499+003
PPH2 (ATM) 0.1789-007 PPH- (ATM) 0.1687-005

IONIZATION POTENTIAL (1/CM) 95176.
PARTITION FUNCTION 0.6323+001
ROSSELAND MEAN OPACITY (1/CM) 0.1988-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3396+003	11000.	0.8896+000	70000.	0.1332-001
1500.	0.1207+003	12000.	0.7226+000	75000.	0.1124-001
2000.	0.5831+002	13500.	0.6218+000	80000.	0.9586-002
2500.	0.3330+002	15000.	0.4879+000	90000.	0.7143-002
3000.	0.2112+002	20000.	0.2520+000	100000.	0.2684-001
4000.	0.1036+002	25000.	0.1508+000	125000.	0.1612-001
5000.	0.5987+001	27500.	0.1211+000	150000.	0.1041-001
5500.	0.4743+001	30000.	0.9901-001	175000.	0.7086-002
6000.	0.3837+001	40000.	0.5069-001	200000.	0.5030-002
8000.	0.1911+001	50000.	0.2995-001	300000.	0.1694-002
10000.	0.1118+001	60000.	0.1936-001	400000.	0.7580-003

PRESS(ATM)	300.	ENTHALPY	0.2392+007 (BTU/LB)	0.1329+004 (KCAL/G)
TEMP (R)	175000.	FREE ENG	-0.9614+007 (BTU/LB)	-0.5341+004 (KCAL/G)
TEMP (K)	97222.	ENTROPY	0.6861+005 (BTU/LB-R)	0.6861+002 (CAL/G-K)
DEN(G/CM3)	0.1897-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9285-001	0.
2	0.1099+000	82319.
3	0.4910-001	98183.
4	0.0000+000	106709.
5	0.0000+000	120117.

PPHT (ATM) 0.2518+000 PPE (ATM) 0.1499+003
PPH2 (ATM) 0.3847-007 PPH- (ATM) 0.3923-005

IONIZATION POTENTIAL (1/CM) 94236.
PARTITION FUNCTION 0.5424+001
ROSSELAND MEAN OPACITY (1/CM) 0.3962-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4842+003	11000.	0.1315+001	70000.	0.2034-001
1500.	0.1730+003	12000.	0.1239+001	75000.	0.1714-001
2000.	0.8389+002	13500.	0.9474+000	80000.	0.1458-001
2500.	0.4807+002	15000.	0.7452+000	90000.	0.1083-001
3000.	0.3059+002	20000.	0.3868+000	100000.	0.5106-001
4000.	0.1507+002	25000.	0.2322+000	125000.	0.3042-001
5000.	0.8743+001	27500.	0.1865+000	150000.	0.1949-001
5500.	0.6937+001	30000.	0.1526+000	175000.	0.1318-001
6000.	0.5620+001	40000.	0.7810-001	200000.	0.9309-002
8000.	0.2812+001	50000.	0.4604-001	300000.	0.3095-002
10000.	0.1650+001	60000.	0.2968-001	400000.	0.1379-002

TABLE XV b

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 300 ATMOSPHERES FOR 150,000°R AND 125,000°R

PRESS(ATM)	300.	ENTHALPY	0.2143+007 (BTU/LB)	0.1191+004 (KCAL/G)
TEMP (R)	149999.	FREE ENG	-0.7917+007 (BTU/LB)	-0.4398+004 (KCAL/G)
TEMP (K)	83333.	ENTROPY	0.6707+005 (BTU/LB-R)	0.6707+002 (CAL/G-K)
DEN(G/CM3)	0.2214-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1691+000	0.
2	0.1633+000	82319.
3	0.4925-001	98183.
4	0.0000+000	106709.
5	0.0000+000	120117.

PPHT (ATM)	0.3816+000	PFE (ATM)	0.1498+003
PPH2 (ATM)	0.9726-007	PFH- (ATM)	0.1066-004
IONIZATION POTENTIAL (1/CM)			93047.
PARTITION FUNCTION			0.4514+001
ROSSELAND MEAN OPACITY (1/CM)			0.9294-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7311+003	11000.	0.2462+001	70000.	0.3314-001
1500.	0.2628+003	12000.	0.2023+001	75000.	0.2785-001
2000.	0.1281+003	13500.	0.1552+001	80000.	0.2364-001
2500.	0.7370+002	15000.	0.1224+001	90000.	0.1747-001
3000.	0.4705+002	20000.	0.6384+000	100000.	0.1100+000
4000.	0.2331+002	25000.	0.3840+000	125000.	0.6487-001
5000.	0.1358+002	27500.	0.3085+000	150000.	0.4119-001
5500.	0.1079+002	30000.	0.2525+000	175000.	0.2766-001
6000.	0.8759+001	40000.	0.1290+000	200000.	0.1942-001
8000.	0.4405+001	50000.	0.7575-001	300000.	0.6360-002
10000.	0.2593+001	60000.	0.4859-001	400000.	0.2834-002

PRESS(ATM)	300.	ENTHALPY	0.1893+007 (BTU/LB)	0.1052+004 (KCAL/G)
TEMP (R)	124999.	FREE ENG	-0.6262+007 (BTU/LB)	-0.3479+004 (KCAL/G)
TEMP (K)	69444.	ENTROPY	0.6524+005 (BTU/LB-R)	0.6524+002 (CAL/G-K)
DEN(G/CM3)	0.2659-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3561+000	0.
2	0.2589+000	82319.
3	0.3252-001	98183.
4	0.0000+000	106709.
5	0.0000+000	120117.

PPHT (ATM)	0.6475+000	PFE (ATM)	0.1497+003
PPH2 (ATM)	0.3201-006	PFH- (ATM)	0.3612-004
IONIZATION POTENTIAL (1/CM)			91481.
PARTITION FUNCTION			0.3636+001
ROSSELAND MEAN OPACITY (1/CM)			0.2773-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1195+004	11000.	0.4422+001	70000.	0.5882-001
1500.	0.4328+003	12000.	0.3645+001	75000.	0.4927-001
2000.	0.2122+003	13500.	0.2804+001	80000.	0.4168-001
2500.	0.1227+003	15000.	0.2217+001	90000.	0.3059-001
3000.	0.7864+002	20000.	0.1162+001	100000.	0.2832+000
4000.	0.3920+002	25000.	0.6996+000	125000.	0.1647+000
5000.	0.2295+002	27500.	0.5620+000	150000.	0.1035+000
5500.	0.1828+002	30000.	0.4596+000	175000.	0.6896-001
6000.	0.1485+002	40000.	0.2337+000	200000.	0.4813-001
8000.	0.7508+001	50000.	0.1364+000	300000.	0.1565-001
10000.	0.5464+001	60000.	0.8686-001	400000.	0.6944-002

TABLE XV c

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 300 ATMOSPHERES FOR 100,000°R AND 90,000°R

PRESS(ATM)	300.	ENTHALPY	0.1641+007 (BTU/LB)	0.9115+003	(KCAL/G)
TEMP (R)	100001.	FREE ENG	-0.4657+007 (BTU/LB)	-0.2587+004	(KCAL/G)
TEMP (K)	55556.	ENTROPY	0.6298+005 (BTU/LB-R)	0.6298+002	(CAL/G-K)
DEN(G/CM3)	0.3332-004				

QHN	PPHN (ATM)	TERM (1/CM)				
1	0.9404+000	0.	PPHT (ATM)	0.1360+001	PPE (ATM)	0.1493+003
2	0.4194+000	82319.	PPH2 (ATM)	0.1727-005	PPH- (ATM)	0.1715-003
3	0.0000+000	98183.	IONIZATION POTENTIAL (1/CM)			89295.
4	0.0000+000	106709.	PARTITION FUNCTION			0.2892+001
5	0.0000+000	120117.	ROSSELAND MEAN OPACITY (1/CM)			0.1260+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2190+004	11000.	0.9033+001	70000.	0.1152+000
1500.	0.8015+003	12000.	0.7462+001	75000.	0.9600-001
2000.	0.3961+003	13500.	0.5755+001	80000.	0.8090-001
2500.	0.2304+003	15000.	0.4557+001	90000.	0.1226+001
3000.	0.1484+003	20000.	0.2391+001	100000.	0.9525+000
4000.	0.7457+002	25000.	0.1436+001	125000.	0.5452+000
5000.	0.4389+002	27500.	0.1152+001	150000.	0.3387+000
5500.	0.3503+002	30000.	0.9397+000	175000.	0.2240+000
6000.	0.2853+002	40000.	0.4729+000	200000.	0.1556+000
8000.	0.1811+002	50000.	0.2728+000	300000.	0.5026-001
10000.	0.1113+002	60000.	0.1719+000	400000.	0.2229-001

PRESS(ATM)	300.	ENTHALPY	0.1538+007 (BTU/LB)	0.8543+003	(KCAL/G)
TEMP (R)	90000.	FREE ENG	-0.4032+007 (BTU/LB)	-0.2240+004	(KCAL/G)
TEMP (K)	50000.	ENTROPY	0.6189+005 (BTU/LB-R)	0.6189+002	(CAL/G-K)
DEN(G/CM3)	0.3710-004				

QHN	PPHN (ATM)	TERM (1/CM)				
1	0.1500+001	0.	PPHT (ATM)	0.1987+001	PPE (ATM)	0.1490+003
2	0.4872+000	82319.	PPH2 (ATM)	0.4122-005	PPH- (ATM)	0.3614-003
3	0.0000+000	98183.	IONIZATION POTENTIAL (1/CM)			88148.
4	0.0000+000	106709.	PARTITION FUNCTION			0.2650+001
5	0.0000+000	120117.	ROSSELAND MEAN OPACITY (1/CM)			0.2534+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2920+004	11000.	0.1247+002	70000.	0.1534+000
1500.	0.1075+004	12000.	0.1030+002	75000.	0.1275+000
2000.	0.5332+003	13500.	0.7944+001	80000.	0.1073+000
2500.	0.3111+003	15000.	0.6287+001	90000.	0.2196+001
3000.	0.2010+003	20000.	0.3291+001	100000.	0.1700+001
4000.	0.1013+003	25000.	0.1971+001	125000.	0.9665+000
5000.	0.5981+002	27500.	0.1577+001	150000.	0.5978+000
5500.	0.4775+002	30000.	0.1285+001	175000.	0.3943+000
6000.	0.4650+002	40000.	0.6417+000	200000.	0.2734+000
8000.	0.2496+002	50000.	0.3677+000	300000.	0.8819-001
10000.	0.1536+002	60000.	0.2302+000	400000.	0.3911-001

TABLE XV d

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 300 ATMOSPHERES FOR 80,000°R AND 70,000°R

PRESS(ATM)	300.	ENTHALPY	0.1431+007 (BTU/LB)	0.7953+003 (KCAL/G)
TEMP (R)	79999.	FREE ENG	-0.3419+007 (BTU/LB)	-0.1899+004 (KCAL/G)
TEMP (K)	44444.	ENTROPY	0.6063+005 (BTU/LB-R)	0.6063+002 (CAL/G-K)
DEN(G/CM3)	0.4190-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2644+001	0.
2	0.5753+000	82319.
3	0.0000+000	98183.
4	0.0000+000	106709.
5	0.0000+000	120117.

PPHT (ATM) 0.3220+001 PPE (ATM) 0.1484+003
PPH2 (ATM) 0.1245-004 PPH- (ATM) 0.8708-003

IONIZATION POTENTIAL (1/CM) 86778.
PARTITION FUNCTION 0.2435+001
ROSSELAND MEAN OPACITY (1/CM) 0.5288+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4024+004	11000.	0.1784+002	70000.	0.2100+000
1500.	0.1490+004	12000.	0.1474+002	75000.	0.1742+000
2000.	0.7429+003	13500.	0.1136+002	80000.	0.1468+000
2500.	0.4350+003	15000.	0.8984+001	90000.	0.4402+001
3000.	0.2816+003	20000.	0.4687+001	100000.	0.3395+001
4000.	0.1427+003	25000.	0.2794+001	125000.	0.1916+001
5000.	0.9793+002	27500.	0.2232+001	150000.	0.1181+001
5500.	0.7985+002	30000.	0.1813+001	175000.	0.7769+000
6000.	0.6626+002	40000.	0.8978+000	200000.	0.5381+000
8000.	0.3567+002	50000.	0.5102+000	300000.	0.1734+000
10000.	0.2198+002	60000.	0.3171+000	400000.	0.7691-001

PRESS(ATM)	300.	ENTHALPY	0.1318+007 (BTU/LB)	0.7324+003 (KCAL/G)
TEMP (R)	70000.	FREE ENG	-0.2820+007 (BTU/LB)	-0.1566+004 (KCAL/G)
TEMP (K)	38889.	ENTROPY	0.5911+005 (BTU/LB-R)	0.5911+002 (CAL/G-K)
DEN(G/CM3)	0.4829-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5124+001	0.
2	0.6598+000	82319.
3	0.0000+000	98183.
4	0.0000+000	106709.
5	0.0000+000	120117.

PPHT (ATM) 0.5784+001 PPE (ATM) 0.1471+003
PPH2 (ATM) 0.4807-004 PPH- (ATM) 0.2402-002

IONIZATION POTENTIAL (1/CM) 85118.
PARTITION FUNCTION 0.2258+001
ROSSELAND MEAN OPACITY (1/CM) 0.9884+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5762+004	11000.	0.2630+002	70000.	0.2924+000
1500.	0.2150+004	12000.	0.2170+002	75000.	0.2420+000
2000.	0.1078+004	13500.	0.1670+002	80000.	0.2043+000
2500.	0.6335+003	15000.	0.1319+002	90000.	0.9845+001
3000.	0.4266+003	20000.	0.6839+001	100000.	0.7563+001
4000.	0.2318+003	25000.	0.4052+001	125000.	0.4241+001
5000.	0.1442+003	27500.	0.3226+001	150000.	0.2603+001
5500.	0.1177+003	30000.	0.2614+001	175000.	0.1710+001
6000.	0.9773+002	40000.	0.1280+001	200000.	0.1184+001
8000.	0.5265+002	50000.	0.7204+000	300000.	0.3813+000
10000.	0.3241+002	60000.	0.4442+000	400000.	0.1691+000

TABLE XV e

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 300 ATMOSPHERES FOR 60,000°R AND 50,000°R

PRESS(ATM)	300.	ENTHALPY	0.1188+007 (BTU/LB)	0.6597+003	(KCAL/G)
TEMP (R)	59999.	FREE ENG	-0.2239+007 (BTU/LB)	-0.1244+004	(KCAL/G)
TEMP (K)	33333.	ENTROPY	0.9711+005 (BTU/LB-R)	0.5711+002	(CAL/G-K)
DEN(G/CM3)	0.5747-004				

QWN	PPWN (ATM)	TERM (1/CM)			
1	0.1192+002	0.	PPHT (ATM) 0.1193+002	PFE (ATM)	0.1440+003
2	0.7069+000	82319.	PPH2 (ATM) 0.2597-003	PPH- (ATM)	0.7858-002
3	0.0000+000	98183.	IONIZATION POTENTIAL (1/CM)		83110.
4	0.0000+000	106709.	PARTITION FUNCTION		0.2176+001
5	0.0000+000	120117.	ROSSELAND MEAN OPACITY (1/CM)		0.1486+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6661+004	11000.	0.3964+002	70000.	0.4174+000
1500.	0.2810+004	12000.	0.3265+002	75000.	0.3421+000
2000.	0.1528+004	13500.	0.2906+002	80000.	0.3121+000
2500.	0.9535+003	15000.	0.1973+002	90000.	0.2537+002
3000.	0.6486+003	20000.	0.1014+002	100000.	0.1942+002
4000.	0.3527+003	25000.	0.5957+001	125000.	0.1082+002
5000.	0.2104+003	27500.	0.4725+001	150000.	0.6628+001
5500.	0.1790+003	30000.	0.3814+001	175000.	0.4349+001
6000.	0.1485+003	40000.	0.1843+001	200000.	0.3008+001
8000.	0.7977+002	50000.	0.1028+001	300000.	0.9688+000
10000.	0.4894+002	60000.	0.6291+000	400000.	0.4295+000

PRESS(ATM)	300.	ENTHALPY	0.1010+007 (BTU/LB)	0.5609+003	(KCAL/G)
TEMP (R)	50000.	FREE ENG	-0.1689+007 (BTU/LB)	-0.9381+003	(KCAL/G)
TEMP (K)	27778.	ENTROPY	0.5396+005 (BTU/LB-R)	0.5396+002	(CAL/G-K)
DEN(G/CM3)	0.7281-004				

QWN	PPWN (ATM)	TERM (1/CM)			
1	0.2852+002	0.	PPHT (ATM) 0.2930+002	PFE (ATM)	0.1353+003
2	0.7748+000	82319.	PPH2 (ATM) 0.2192-002	PPH- (ATM)	0.3120-001
3	0.0000+000	98183.	IONIZATION POTENTIAL (1/CM)		80868.
4	0.0000+000	106709.	PARTITION FUNCTION		0.2054+001
5	0.0000+000	120117.	ROSSELAND MEAN OPACITY (1/CM)		0.2063+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.9845+004	11000.	0.6122+002	70000.	0.6225+000
1500.	0.4236+004	12000.	0.5036+002	75000.	0.5319+000
2000.	0.2329+004	13500.	0.3856+002	80000.	0.6961+000
2500.	0.1463+004	15000.	0.3029+002	90000.	0.7798+002
3000.	0.9993+003	20000.	0.1545+002	100000.	0.5946+002
4000.	0.5460+003	25000.	0.9015+001	125000.	0.3300+002
5000.	0.3403+003	27500.	0.7130+001	150000.	0.2017+002
5500.	0.2777+003	30000.	0.5741+001	175000.	0.1323+002
6000.	0.2305+003	40000.	0.2756+001	200000.	0.9149+001
8000.	0.1237+003	50000.	0.1533+001	300000.	0.2945+001
10000.	0.7569+002	60000.	0.9402+000	400000.	0.1303+001

TABLE XV f

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 300 ATMOSPHERES FOR 40,000°R AND 30,000°R

PRESS(ATM)	300.	ENTHALPY	0.7217+006 (BTU/LB)	0.4009+003 (KCAL/G)
TEMP (R)	40000.	FREE ENG	-0.1199+007 (BTU/LB)	-0.6662+003 (KCAL/G)
TEMP (K)	22222.	ENTROPY	0.4802+005 (BTU/LB-R)	0.4802+002 (CAL/G-K)
DEN(G/CM3)	0.1059-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.8276+002	0.
2	0.7493+000	82319.
3	0.0000+000	98183.
4	0.0000+000	106709.
5	0.0000+000	120117.

PPHT (ATM) 0.8351+002 PPE (ATM) 0.1081+003
PPH2 (ATM) 0.2945-001 PPH- (ATM) 0.1365+000

IONIZATION POTENTIAL (1/CM) 79594.
PARTITION FUNCTION 0.2018+001
ROSSELAND MEAN OPACITY (1/CM) 0.3223+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1145+005	11000.	0.8170+002	70000.	0.1057+001
1500.	0.5180+004	12000.	0.6729+002	75000.	0.1110+001
2000.	0.2926+004	13500.	0.5163+002	80000.	0.3865+003
2500.	0.1869+004	15000.	0.4064+002	90000.	0.2843+003
3000.	0.1291+004	20000.	0.2087+002	100000.	0.2161+003
4000.	0.7150+003	25000.	0.1231+002	125000.	0.1197+003
5000.	0.4487+003	27500.	0.9795+001	150000.	0.7310+002
5500.	0.3669+003	30000.	0.7940+001	175000.	0.4793+002
6000.	0.3050+003	40000.	0.3927+001	200000.	0.3313+002
8000.	0.1643+003	50000.	0.2265+001	300000.	0.1064+002
10000.	0.1009+003	60000.	0.1450+001	400000.	0.4673+001

PRESS(ATM)	300.	ENTHALPY	0.3484+006 (BTU/LB)	0.1936+003 (KCAL/G)
TEMP (R)	30001.	FREE ENG	-0.8063+006 (BTU/LB)	-0.4480+003 (KCAL/G)
TEMP (K)	16667.	ENTROPY	0.3849+005 (BTU/LB-R)	0.3849+002 (CAL/G-K)
DEN(G/CM3)	0.1921-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2198+003	0.
2	0.5185+000	82319.
3	0.0000+000	98183.
4	0.0000+000	106709.
5	0.0000+000	120117.

PPHT (ATM) 0.2203+003 PPE (ATM) 0.3942+002
PPH2 (ATM) 0.4738+000 PPH- (ATM) 0.3093+000

IONIZATION POTENTIAL (1/CM) 85787.
PARTITION FUNCTION 0.2005+001
ROSSELAND MEAN OPACITY (1/CM) 0.4114+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5516+004	11000.	0.4921+002	70000.	0.2372+001
1500.	0.2186+004	12000.	0.4160+002	75000.	0.4844+001
2000.	0.1140+004	13500.	0.3311+002	80000.	0.4619+002
2500.	0.6894+003	15000.	0.2696+002	90000.	0.1011+004
3000.	0.4573+003	20000.	0.1529+002	100000.	0.7663+003
4000.	0.3265+003	25000.	0.9858+001	125000.	0.4249+003
5000.	0.2204+003	27500.	0.8184+001	150000.	0.2600+003
5500.	0.1849+003	30000.	0.6904+001	175000.	0.1705+003
6000.	0.1568+003	40000.	0.3920+001	200000.	0.1175+003
8000.	0.9073+002	50000.	0.2575+001	300000.	0.3734+002
10000.	0.5912+002	60000.	0.1962+001	400000.	0.1596+002

TABLE XV g

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 300 ATMOSPHERES FOR 26,000°R AND 23,000°R

PRESS(ATM)	300.	ENTHALPY	0.2568+006 (BTU/LB)	0.1426+003 (KCAL/G)
TEMP (R)	25999.	FREE ENG	-0.6660+006 (BTU/LB)	-0.3700+003 (KCAL/G)
TEMP (K)	14444.	ENTROPY	0.3549+005 (BTU/LB-R)	0.3549+002 (CAL/G-K)
DEN(G/CM3)	0.2430-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2678+003	0.
2	0.2946+000	82319.
3	0.1417+001	98183.
4	0.0000+000	106709.
5	0.0000+000	120117.

PPHT (ATM) 0.2681+003 PFE (ATM) 0.1521+002
PPH2 (ATM) 0.1176+001 PFH- (ATM) 0.2255+000

IONIZATION POTENTIAL (1/CM) 91897.
PARTITION FUNCTION 0.2002+001
ROSSELAND MEAN OPACITY (1/CM) 0.3219+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1523+004	11000.	0.2670+002	70000.	0.3152+001
1500.	0.6212+003	12000.	0.2301+002	75000.	0.8267+001
2000.	0.3302+003	13500.	0.1878+002	80000.	0.9028+002
2500.	0.2025+003	15000.	0.1563+002	90000.	0.9914+001
3000.	0.1359+003	20000.	0.9366+001	100000.	0.1078+004
4000.	0.7229+002	25000.	0.6294+001	125000.	0.5999+003
5000.	0.4423+002	27500.	0.5317+001	150000.	0.3640+003
5500.	0.3583+002	30000.	0.4556+001	175000.	0.2415+003
6000.	0.2955+002	40000.	0.2725+001	200000.	0.1658+003
8000.	0.1727+002	50000.	0.1915+001	300000.	0.5225+002
10000.	0.3141+002	60000.	0.1718+001	400000.	0.2199+002

PRESS(ATM)	300.	ENTHALPY	0.2169+006 (BTU/LB)	0.1205+003 (KCAL/G)
TEMP (R)	23000.	FREE ENG	-0.5640+006 (BTU/LB)	-0.3133+003 (KCAL/G)
TEMP (K)	12778.	ENTROPY	0.3395+005 (BTU/LB-R)	0.3395+002 (CAL/G-K)
DEN(G/CM3)	0.2849-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2862+003	0.
2	0.1081+000	82319.
3	0.1678-001	98183.
4	0.0000+000	106709.
5	0.0000+000	120117.

PPHT (ATM) 0.2863+003 PFE (ATM) 0.5661+001
PPH2 (ATM) 0.2220+001 PFH- (ATM) 0.1317+000

IONIZATION POTENTIAL (1/CM) 96780.
PARTITION FUNCTION 0.2001+001
ROSSELAND MEAN OPACITY (1/CM) 0.2133+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4356+003	11000.	0.5107+001	70000.	0.3823+001
1500.	0.1861+003	12000.	0.4796+001	75000.	0.1140+002
2000.	0.1019+003	13500.	0.4382+001	80000.	0.1312+003
2500.	0.6381+002	15000.	0.7542+001	90000.	0.1401+002
3000.	0.4350+002	20000.	0.4777+001	100000.	0.1303+004
4000.	0.2372+002	25000.	0.3343+001	125000.	0.7289+003
5000.	0.1473+002	27500.	0.2873+001	150000.	0.4488+003
5500.	0.1207+002	30000.	0.2500+001	175000.	0.2946+003
6000.	0.1003+002	40000.	0.1587+001	200000.	0.2014+003
8000.	0.6631+001	50000.	0.1239+001	300000.	0.6240+002
10000.	0.5471+001	60000.	0.1427+001	400000.	0.2616+002

TABLE XV h

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 300 ATMOSPHERES FOR 20,000°R AND 16,000°R

PRESS(ATM)	300.	ENTHALPY	0.1910+006 (BTU/LB)	0.1061+003 (KCAL/G)
TEMP (R)	20000.	FREE ENG	-0.4648+006 (BTU/LB)	-0.2582+003 (KCAL/G)
TEMP (K)	11111.	ENTROPY	0.3279+005 (BTU/LB-R)	0.3279+002 (CAL/G-K)
DEN(G/CM3)	0.3347-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2922+003	0.
2	0.2748-001	82319.
3	0.6757-002	98183.
4	0.0000+000	106709.
5	0.0000+000	120117.

PPHT (ATM) 0.2922+003 PPE (ATM) 0.1597+001
PPH2 (ATM) 0.4459+001 PPH- (ATM) 0.5963-001

IONIZATION POTENTIAL (1/CM) 101188.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1177+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1061+003	11000.	0.2181+001	70000.	0.4796+001
1500.	0.4582+002	12000.	0.2120+001	75000.	0.1533+002
2000.	0.2531+002	13500.	0.2008+001	80000.	0.1809+003
2500.	0.1598+002	15000.	0.1879+001	90000.	0.1907+002
3000.	0.1098+002	20000.	0.2000+001	100000.	0.4416+001
4000.	0.6889+001	25000.	0.1462+001	125000.	0.8675+003
5000.	0.4367+001	27500.	0.1281+001	150000.	0.5386+003
5500.	0.3591+001	30000.	0.1136+001	175000.	0.3545+003
6000.	0.3003+001	40000.	0.7949+000	200000.	0.2396+003
8000.	0.2344+001	50000.	0.7741+000	300000.	0.7362+002
10000.	0.2230+001	60000.	0.1307+001	400000.	0.3026+002

PRESS(ATM)	300.	ENTHALPY	0.1614+006 (BTU/LB)	0.8965+002 (KCAL/G)
TEMP (R)	16000.	FREE ENG	-0.3382+006 (BTU/LB)	-0.1879+003 (KCAL/G)
TEMP (K)	8889.	ENTROPY	0.3122+005 (BTU/LB-R)	0.3122+002 (CAL/G-K)
DEN(G/CM3)	0.4349-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2848+003	0.
2	0.1865-002	82319.
3	0.3220-003	98183.
4	0.5559-004	106709.
5	0.0000+000	120117.

PPHT (ATM) 0.2848+003 PPE (ATM) 0.1607+000
PPH2 (ATM) 0.1488+002 PPH- (ATM) 0.1242-001

IONIZATION POTENTIAL (1/CM) 109738.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.3666+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1278+002	11000.	0.4900+000	70000.	0.6847+001
1500.	0.5659+001	12000.	0.4925+000	75000.	0.2264+002
2000.	0.3176+001	13500.	0.4812+000	80000.	0.2703+003
2500.	0.2030+001	15000.	0.4590+000	90000.	0.2832+002
3000.	0.1406+001	20000.	0.3700+000	100000.	0.6443+001
4000.	0.7911+000	25000.	0.3325+000	125000.	0.1125+004
5000.	0.5061+000	27500.	0.3060+000	150000.	0.7248+003
5500.	0.4182+000	30000.	0.2879+000	175000.	0.4818+003
6000.	0.3515+000	40000.	0.3017+000	200000.	0.3108+003
8000.	0.4125+000	50000.	0.5462+000	300000.	0.8923+002
10000.	0.4767+000	60000.	0.1515+001	400000.	0.3598+002

TABLE XV i

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 300 ATMOSPHERES FOR 13,000°R AND 10,000°R

PRESS(ATM)	300.	ENTHALPY	0.1272+006 (BTU/LB)	0.7068+002 (KCAL/G)
TEMP (R)	13000.	FREE ENG	-0.2508+006 (BTU/LB)	-0.1393+003 (KCAL/G)
TEMP (K)	7222.	ENTROPY	0.2908+005 (BTU/LB-R)	0.2908+002 (CAL/G-K)
DEN(G/CM3)	0.5940-003			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.2507+003	0.	PPHT (ATM) 0.2507+003	PFE (ATM) 0.1289-001	
2	0.7583-004	82319.	PPH2 (ATM) 0.4925+002	PFH- (ATM) 0.1848-002	
3	0.7238-005	98183.	IONIZATION POTENTIAL (1/CM)	107992.	
4	0.1402-005	106709.	PARTITION FUNCTION	0.2000+001	
5	0.0000+000	120117.	ROSSELAND MEAN OPACITY (1/CM)	0.8991-001	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1316+001	11000.	0.8655-001	70000.	0.8210+001
1500.	0.5864+000	12000.	0.8857-001	75000.	0.2730+002
2000.	0.3299+000	13500.	0.8826-001	80000.	0.3266+003
2500.	0.2112+000	15000.	0.8570-001	90000.	0.3418+002
3000.	0.1469+000	20000.	0.7584-001	100000.	0.7754+001
4000.	0.8266-001	25000.	0.7624-001	125000.	0.1505+004
5000.	0.5301-001	27500.	0.8280-001	150000.	0.1076+004
5500.	0.4388-001	30000.	0.9237-001	175000.	0.7331+003
6000.	0.3695-001	40000.	0.1973+000	200000.	0.4171+003
8000.	0.6167-001	50000.	0.5418+000	300000.	0.9639+002
10000.	0.8191-001	60000.	0.1744+001	400000.	0.3841+002

PRESS(ATM)	300.	ENTHALPY	0.7115+005 (BTU/LB)	0.3953+002 (KCAL/G)
TEMP (R)	10001.	FREE ENG	-0.1758+006 (BTU/LB)	-0.9764+002 (KCAL/G)
TEMP (K)	5556.	ENTROPY	0.2469+005 (BTU/LB-R)	0.2469+002 (CAL/G-K)
DEN(G/CM3)	0.1014-002			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.1411+003	0.	PPHT (ATM) 0.1411+003	PFE (ATM) 0.2357-003	
2	0.3125-006	82319.	PPH2 (ATM) 0.1589+003	PFH- (ATM) 0.5258-004	
3	0.1157-007	98183.	IONIZATION POTENTIAL (1/CM)	109243.	
4	0.1557-008	106709.	PARTITION FUNCTION	0.2000+001	
5	0.0000+000	120117.	ROSSELAND MEAN OPACITY (1/CM)	0.4993-002	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2270-001	11000.	0.3990-002	70000.	0.5131+001
1500.	0.1009-001	12000.	0.4376-002	75000.	0.1708+002
2000.	0.5677-002	13500.	0.4936-002	80000.	0.2044+003
2500.	0.3637-002	15000.	0.5579-002	90000.	0.2139+002
3000.	0.2532-002	20000.	0.9393-002	100000.	0.4849+001
4000.	0.1445-002	25000.	0.1761-001	125000.	0.2452+004
5000.	0.9656-003	27500.	0.2420-001	150000.	0.2156+004
5500.	0.8313-003	30000.	0.3305-001	175000.	0.1532+004
6000.	0.7407-003	40000.	0.1069+000	200000.	0.6645+003
8000.	0.2299-002	50000.	0.3273+000	300000.	0.7084+002
10000.	0.3546-002	60000.	0.1083+001	400000.	0.2871+002

TABLE XV j

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 300 ATMOSPHERES FOR 7,000°R AND 5,000°R

PRESS(ATM)	300.	ENTHALPY	0.2996+005 (BTU/LB)	0.1664+002 (KCAL/G)
TEMP (R)	7000.	FREE ENG	-0.1121+006 (BTU/LB)	-0.6227+002 (KCAL/G)
TEMP (K)	3889.	ENTROPY	0.2029+005 (BTU/LB-R)	0.2029+002 (CAL/G-K)
DEN(G/CM3)	0.1827-002			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.2171+002	0.	PPHT (ATM) 0.2171+002	PPE (ATM) 0.1270-006	
2	0.5176-011	82319.	PPH2 (ATM) 0.2783+003	PPH- (ATM) 0.2080-007	
3	0.3293-013	98183.	IONIZATION POTENTIAL (1/CM)	109643.	
4	0.1796-014	106709.	PARTITION FUNCTION	0.2000+001	
5	0.0000+000	120117.	ROSSELAND MEAN OPACITY (1/CM)	0.1154-004	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2319-007	11000.	0.1215-003	70000.	0.6547+000
1500.	0.1088-006	12000.	0.1615-003	75000.	0.2180+001
2000.	0.3195-006	13500.	0.2381-003	80000.	0.2609+002
2500.	0.7269-006	15000.	0.3381-003	90000.	0.2729+001
3000.	0.1409-005	20000.	0.9038-003	100000.	0.6187+000
4000.	0.3922-005	25000.	0.2014-002	125000.	0.4274+004
5000.	0.8523-005	27500.	0.2878-002	150000.	0.4259+004
5500.	0.1182-004	30000.	0.4028-002	175000.	0.3089+004
6000.	0.1589-004	40000.	0.1352-001	200000.	0.1199+004
8000.	0.4272-004	50000.	0.4167-001	300000.	0.1573+002
10000.	0.8897-004	60000.	0.1381+000	400000.	0.6633+001

PRESS(ATM)	300.	ENTHALPY	0.1751+005 (BTU/LB)	0.9730+001 (KCAL/G)
TEMP (R)	5000.	FREE ENG	-0.7389+005 (BTU/LB)	0.4105+002 (KCAL/G)
TEMP (K)	2778.	ENTROPY	0.1828+005 (BTU/LB-R)	0.1828+002 (CAL/G-K)
DEN(G/CM3)	0.2647-002			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.1304+001	0.	PPHT (ATM) 0.1304+001	PPE (ATM) 0.6123-011	
2	0.1598-017	82319.	PPH2 (ATM) 0.2987+003	PPH- (ATM) 0.3417-012	
3	0.9728-021	98183.	IONIZATION POTENTIAL (1/CM)	109678.	
4	0.1508-022	106709.	PARTITION FUNCTION	0.2000+001	
5	0.0000+000	120117.	ROSSELAND MEAN OPACITY (1/CM)	0.4629-006	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2451-008	11000.	0.9822-005	70000.	0.5296-001
1500.	0.1116-007	12000.	0.1305-004	75000.	0.1763+000
2000.	0.3188-007	13500.	0.1923-004	80000.	0.2110+001
2500.	0.7076-007	15000.	0.2731-004	90000.	0.2208+000
3000.	0.1341-006	20000.	0.7305-004	100000.	0.5005-001
4000.	0.3590-006	25000.	0.1629-003	125000.	0.6168+004
5000.	0.7567-006	27500.	0.2328-003	150000.	0.6245+004
5500.	0.1036-005	30000.	0.3258-003	175000.	0.4540+004
6000.	0.1377-005	40000.	0.1093-002	200000.	0.1732+004
8000.	0.3503-005	50000.	0.3371-002	300000.	0.1324+001
10000.	0.7207-005	60000.	0.1117-001	400000.	0.5593+000

TABLE XV k

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 300 ATMOSPHERES FOR 3000 °R

PRESS(ATM)	300.	ENTHALPY	0.8967+004 (BTU/LB)	0.4982+001	(KCAL/G)
TEMP (R)	3001.	FREE ENG	-0.3945+005 (BTU/LB)	-0.2192+002	(KCAL/G)
TEMP (K)	1667.	ENTROPY	0.1614+005 (BTU/LB-R)	0.1614+002	(CAL/G-K)
DEN(G/CM3)	0.4421-002				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1858-002	0.
2	0.0000+000	82319.
3	0.0000+000	98183.
4	0.0000+000	106709.
5	0.0000+000	120117.

PPHT (ATM) 0.1858-002 PPE (ATM) 0.0000+000
PPH2 (ATM) 0.3000+003 PPH- (ATM) 0.0000+000

IONIZATION POTENTIAL (1/CM) 109679.
PARTITION FUNCTION 0.0000+000
ROSSELAND MEAN OPACITY (1/CM) 0.5476-009

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1163-010	11000.	0.3269-007	70000.	0.1757-003
1500.	0.4975-010	12000.	0.4337-007	75000.	0.5848-003
2000.	0.1348-009	13500.	0.6384-007	80000.	0.6999-002
2500.	0.2859-009	15000.	0.9062-007	90000.	0.7322-003
3000.	0.5216-009	20000.	0.2423-006	100000.	0.1660-003
4000.	0.1319-008	25000.	0.5402-006	125000.	0.1030+005
5000.	0.2677-008	27500.	0.7721-006	150000.	0.1044+005
5500.	0.3616-008	30000.	0.1081-005	175000.	0.7589+004
6000.	0.4756-008	40000.	0.3626-005	200000.	0.2891+004
8000.	0.1179-007	50000.	0.1118-004	300000.	0.3125-002
10000.	0.2404-007	60000.	0.3705-004	400000.	0.1293-002

TABLE XVI a

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 500 ATMOSPHERES FOR 200,000°R AND 175,000°R

PRESS(ATM)	500.	ENTHALPY	0.2641+007 (BTU/LB)	0.1467+004 (KCAL/G)
TEMP (R)	200000.	FREE ENG	-0.1094+008 (BTU/LB)	-0.6078+004 (KCAL/G)
TEMP (K)	111111.	ENTROPY	0.6791+005 (BTU/LB-R)	0.6791+002 (CAL/G-K)
DEN(G/CM3)	0.2766-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1512+000	0.
2	0.2082+000	82359.
3	0.3912-001	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.3985+000 PFE (ATM) 0.2498+003
PPH2 (ATM) 0.8946-007 PFH- (ATM) 0.7541-005

IONIZATION POTENTIAL (1/CM) 92180.
PARTITION FUNCTION 0.5272+001
ROSSELAND MEAN OPACITY (1/CM) 0.5343-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.9426+003	11000.	0.2738+001	70000.	0.3628-001
1500.	0.3347+003	12000.	0.2239+001	75000.	0.3063-001
2000.	0.1616+003	13500.	0.1706+001	80000.	0.2611-001
2500.	0.9219+002	15000.	0.1338+001	90000.	0.1945-001
3000.	0.5846+002	20000.	0.6898+000	100000.	0.7221-001
4000.	0.2864+002	25000.	0.4124+000	125000.	0.4336-001
5000.	0.1654+002	27500.	0.3309+000	150000.	0.2746-001
5500.	0.1310+002	30000.	0.2706+000	175000.	0.1905-001
6000.	0.1059+002	40000.	0.1384+000	200000.	0.1352-001
8000.	0.5270+001	50000.	0.8169-001	300000.	0.4552-002
10000.	0.3415+001	60000.	0.5278-001	400000.	0.2037-002

PRESS(ATM)	500.	ENTHALPY	0.2392+007 (BTU/LB)	0.1329+004 (KCAL/G)
TEMP (R)	175000.	FREE ENG	-0.9259+007 (BTU/LB)	-0.5144+004 (KCAL/G)
TEMP (K)	97222.	ENTROPY	0.6658+005 (BTU/LB-R)	0.6658+002 (CAL/G-K)
DEN(G/CM3)	0.3162-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2466+000	0.
2	0.2916+000	82359.
3	0.1650-001	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.5546+000 PFE (ATM) 0.2497+003
PPH2 (ATM) 0.1866-006 PFH- (ATM) 0.1736-004

IONIZATION POTENTIAL (1/CM) 91022.
PARTITION FUNCTION 0.4499+001
ROSSELAND MEAN OPACITY (1/CM) 0.1055-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1343+004	11000.	0.4135+001	70000.	0.5511-001
1500.	0.4793+003	12000.	0.3388+001	75000.	0.4643-001
2000.	0.2323+003	13500.	0.2588+001	80000.	0.3950-001
2500.	0.1330+003	15000.	0.2035+001	90000.	0.2931-001
3000.	0.8455+002	20000.	0.1054+001	100000.	0.1360+000
4000.	0.4161+002	25000.	0.6319+000	125000.	0.8100-001
5000.	0.2411+002	27500.	0.5073+000	150000.	0.5168-001
5500.	0.1913+002	30000.	0.4149+000	175000.	0.3510-001
6000.	0.1549+002	40000.	0.2121+000	200000.	0.2478-001
8000.	0.7740+001	50000.	0.1249+000	300000.	0.8237-002
10000.	0.5145+001	60000.	0.8045-001	400000.	0.3670-002

TABLE XVI b

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 500 ATMOSPHERES FOR 150,000°R AND 125,000°R

PRESS(ATM)	500.	ENTHALPY	0.2142+007 (BTU/LB)	0.1190+004	(KCAL/G)
TEMP (R)	149999.	FREE ENG	-0.7613+007 (BTU/LB)	-0.4229+004	(KCAL/G)
TEMP (K)	83333.	ENTROPY	0.6503+005 (BTU/LB-R)	0.6503+002	(CAL/G-K)
DEN(G/CM3)	0.3691-004				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4426+000	0.
2	0.4024+000	82359.
3	0.0000+000	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.8450+000 PPE (ATM) 0.2496+003
PPH2 (ATM) 0.4768-006 PPH- (ATM) 0.4647-004

IONIZATION POTENTIAL (1/CM) 89556.
PARTITION FUNCTION 0.3818+001
ROSSELAND MEAN OPACITY (1/CM) 0.2459-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2028+004	11000.	0.6653+001	70000.	0.8798-001
1500.	0.7280+003	12000.	0.5462+001	75000.	0.7392-001
2000.	0.3545+003	13500.	0.4182+001	80000.	0.6273-001
2500.	0.2058+003	15000.	0.3294+001	90000.	0.3661+000
3000.	0.1300+003	20000.	0.1713+001	100000.	0.2885+000
4000.	0.6484+002	25000.	0.1028+001	125000.	0.1700+000
5000.	0.3745+002	27500.	0.8251+000	150000.	0.1079+000
5500.	0.2975+002	30000.	0.6745+000	175000.	0.7249-001
6000.	0.2413+002	40000.	0.3437+000	200000.	0.5088-001
8000.	0.1371+002	50000.	0.2015+000	300000.	0.1671-001
10000.	0.8258+001	60000.	0.1291+000	400000.	0.7425-002

PRESS(ATM)	500.	ENTHALPY	0.1891+007 (BTU/LB)	0.1051+004	(KCAL/G)
TEMP (R)	124999.	FREE ENG	-0.6009+007 (BTU/LB)	-0.3338+004	(KCAL/G)
TEMP (K)	69444.	ENTROPY	0.6320+005 (BTU/LB-R)	0.6320+002	(CAL/G-K)
DEN(G/CM3)	0.4435-004				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9124+000	0.
2	0.5455+000	82359.
3	0.0000+000	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.1458+001 PPE (ATM) 0.2493+003
PPH2 (ATM) 0.1623-005 PPH- (ATM) 0.1541-003

IONIZATION POTENTIAL (1/CM) 87622.
PARTITION FUNCTION 0.3196+001
ROSSELAND MEAN OPACITY (1/CM) 0.7278-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3313+004	11000.	0.1163+002	70000.	0.1493+000
1500.	0.1199+004	12000.	0.9560+001	75000.	0.1250+000
2000.	0.5877+003	13500.	0.7332+001	80000.	0.1057+000
2500.	0.3396+003	15000.	0.5781+001	90000.	0.9252+000
3000.	0.2176+003	20000.	0.3009+001	100000.	0.7247+000
4000.	0.1084+003	25000.	0.1803+001	125000.	0.4215+000
5000.	0.6342+002	27500.	0.1446+001	150000.	0.2648+000
5500.	0.5044+002	30000.	0.1181+001	175000.	0.1765+000
6000.	0.4553+002	40000.	0.5975+000	200000.	0.1232+000
8000.	0.2380+002	50000.	0.3475+000	300000.	0.4006-001
10000.	0.1441+002	60000.	0.2209+000	400000.	0.1777-001

TABLE XVI c

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 500 ATMOSPHERES FOR 100,000°R AND 90,000°R

PRESS(ATM)	500.	ENTHALPY	0.1638+007 (BTU/LB)	0.9098+003 (KCAL/G)
TEMP (R)	100001.	FREE ENG	-0.4455+007 (BTU/LB)	-0.2475+004 (KCAL/G)
TEMP (K)	55556.	ENTROPY	0.6092+005 (BTU/LB-R)	0.6092+002 (CAL/G-K)
DEN(G/CM3)	0.5561-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2290+001	0.
2	0.7133+000	82359.
3	0.0000+000	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.3003+001 PFE (ATM) 0.2485+003
PPH2 (ATM) 0.8421-005 PFH- (ATM) 0.6950-003

IONIZATION POTENTIAL (1/CM) 84917.
PARTITION FUNCTION 0.2623+001
ROSSELAND MEAN OPACITY (1/CM) 0.3057+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6066+004	11000.	0.2271+002	70000.	0.2733+000
1500.	0.2220+004	12000.	0.1868+002	75000.	0.2275+000
2000.	0.1097+004	13500.	0.1433+002	80000.	0.1918+000
2500.	0.6382+003	15000.	0.1129+002	90000.	0.2980+001
3000.	0.4193+003	20000.	0.5858+001	100000.	0.2316+001
4000.	0.2187+003	25000.	0.3492+001	125000.	0.1326+001
5000.	0.1325+003	27500.	0.2792+001	150000.	0.8235+000
5500.	0.1070+003	30000.	0.2272+001	175000.	0.5446+000
6000.	0.8806+002	40000.	0.1135+001	200000.	0.3782+000
8000.	0.4630+002	50000.	0.6514+000	300000.	0.1222+000
10000.	0.2811+002	60000.	0.4089+000	400000.	0.5418-001

PRESS(ATM)	500.	ENTHALPY	0.1533+007 (BTU/LB)	0.8518+003 (KCAL/G)
TEMP (R)	90000.	FREE ENG	-0.3851+007 (BTU/LB)	-0.2139+004 (KCAL/G)
TEMP (K)	50000.	ENTROPY	0.5982+005 (BTU/LB-R)	0.5982+002 (CAL/G-K)
DEN(G/CM3)	0.6196-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3659+001	0.
2	0.7802+000	82359.
3	0.0000+000	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.4439+001 PFE (ATM) 0.2478+003
PPH2 (ATM) 0.2058-004 PFH- (ATM) 0.1466-002

IONIZATION POTENTIAL (1/CM) 83499.
PARTITION FUNCTION 0.2426+001
ROSSELAND MEAN OPACITY (1/CM) 0.6127+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8076+004	11000.	0.3093+002	70000.	0.3578+000
1500.	0.2764+004	12000.	0.2544+002	75000.	0.2972+000
2000.	0.1425+004	13500.	0.1950+002	80000.	0.2506+000
2500.	0.8565+003	15000.	0.1536+002	90000.	0.5348+001
3000.	0.5667+003	20000.	0.7940+001	100000.	0.4141+001
4000.	0.2966+003	25000.	0.4715+001	125000.	0.2354+001
5000.	0.1800+003	27500.	0.3762+001	150000.	0.1456+001
5500.	0.1455+003	30000.	0.3056+001	175000.	0.9604+000
6000.	0.1196+003	40000.	0.1514+001	200000.	0.6660+000
8000.	0.6306+002	50000.	0.8631+000	300000.	0.2148+000
10000.	0.3831+002	60000.	0.5383+000	400000.	0.9526-001

TABLE XVI d

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 500 ATMOSPHERES FOR 80,000°R AND 70,000°R

PRESS(ATM)	500.	ENTHALPY	0.1425+007 (BTU/LB)	0.7916+003 (KCAL/G)
TEMP (R)	79999.	FREE ENG	-0.3259+007 (BTU/LB)	-0.1810+004 (KCAL/G)
TEMP (K)	44444.	ENTROPY	0.5854+005 (BTU/LB-R)	0.5854+002 (CAL/G-K)
DEN(G/CM3)	0.7008-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.6240+001	0.
2	0.8562+000	82359.
3	0.0000+000	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.7096+001 PPE (ATM) 0.2465+003
PPH2 (ATM) 0.6046-004 PPH- (ATM) 0.3412-002

IONIZATION POTENTIAL (1/CM) 81806.
PARTITION FUNCTION 0.2274+001
ROSSELAND MEAN OPACITY (1/CM) 0.1235+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.9789+004	11000.	0.4354+002	70000.	0.4805+000
1500.	0.3824+004	12000.	0.3579+002	75000.	0.3983+000
2000.	0.1981+004	13500.	0.2740+002	80000.	0.3379+000
2500.	0.1195+004	15000.	0.2156+002	90000.	0.1038+002
3000.	0.7926+003	20000.	0.1110+002	100000.	0.8003+001
4000.	0.4162+003	25000.	0.6558+001	125000.	0.4518+001
5000.	0.2531+003	27500.	0.5220+001	150000.	0.2783+001
5500.	0.2047+003	30000.	0.4230+001	175000.	0.1832+001
6000.	0.1687+003	40000.	0.2077+001	200000.	0.1269+001
8000.	0.8886+002	50000.	0.1174+001	300000.	0.4088+000
10000.	0.5394+002	60000.	0.7273+000	400000.	0.1813+000

PRESS(ATM)	500.	ENTHALPY	0.1308+007 (BTU/LB)	0.7266+003 (KCAL/G)
TEMP (R)	70000.	FREE ENG	-0.2681+007 (BTU/LB)	-0.1489+004 (KCAL/G)
TEMP (K)	38889.	ENTROPY	0.5698+005 (BTU/LB-R)	0.5698+002 (CAL/G-K)
DEN(G/CM3)	0.8095-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1155+002	0.
2	0.1029+001	82359.
3	0.0000+000	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.1258+002 PPE (ATM) 0.2437+003
PPH2 (ATM) 0.2276-003 PPH- (ATM) 0.8973-002

IONIZATION POTENTIAL (1/CM) 79766.
PARTITION FUNCTION 0.2178+001
ROSSELAND MEAN OPACITY (1/CM) 0.2663+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1377+005	11000.	0.6446+002	70000.	0.6800+000
1500.	0.5454+004	12000.	0.5296+002	75000.	0.5634+000
2000.	0.2851+004	13500.	0.4053+002	80000.	0.2958+002
2500.	0.1731+004	15000.	0.3185+002	90000.	0.2221+002
3000.	0.1154+004	20000.	0.1633+002	100000.	0.1706+002
4000.	0.6100+003	25000.	0.9603+001	125000.	0.9567+001
5000.	0.3724+003	27500.	0.7625+001	150000.	0.5873+001
5500.	0.3017+003	30000.	0.6163+001	175000.	0.3858+001
6000.	0.2488+003	40000.	0.2998+001	200000.	0.2670+001
8000.	0.1314+003	50000.	0.1681+001	300000.	0.8600+000
10000.	0.7985+002	60000.	0.1034+001	400000.	0.3813+000

TABLE XVI e

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 500 ATMOSPHERES FOR 60,000°R AND 50,000°R

PRESS(ATM)	500.	ENTHALPY	0.1171+007 (BTU/LB)	0.6508+003 (KCAL/G)
TEMP (R)	59999.	FREE ENG	-0.2124+007 (BTU/LB)	-0.1180+004 (KCAL/G)
TEMP (K)	33333.	ENTROPY	0.5492+005 (BTU/LB-R)	0.5492+002 (CAL/G-K)
DEN(G/CM3)	0.9673-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2377+002	0.
2	0.1193+001	82359.
3	0.0000+000	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.2496+002 PFE (ATM) 0.2375+003
PPH2 (ATM) 0.1138-002 PPH- (ATM) 0.2745-001

IONIZATION POTENTIAL (1/CM) 77318.
PARTITION FUNCTION 0.2100+001
ROSSELAND MEAN OPACITY (1/CM) 0.4293+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2011+005	11000.	0.9838+002	70000.	0.9922+000
1500.	0.8081+004	12000.	0.8077+002	75000.	0.8271+000
2000.	0.4263+004	13500.	0.6172+002	80000.	0.7209+002
2500.	0.2604+004	15000.	0.4843+002	90000.	0.5381+002
3000.	0.1743+004	20000.	0.2467+002	100000.	0.4117+002
4000.	0.9268+003	25000.	0.1442+002	125000.	0.2295+002
5000.	0.5676+003	27500.	0.1142+002	150000.	0.1405+002
5500.	0.4602+003	30000.	0.9203+001	175000.	0.9222+001
6000.	0.3799+003	40000.	0.4433+001	200000.	0.6379+001
8000.	0.2009+003	50000.	0.2468+001	300000.	0.2054+001
10000.	0.1220+003	60000.	0.1511+001	400000.	0.9096+000

PRESS(ATM)	500.	ENTHALPY	0.9888+006 (BTU/LB)	0.5493+003 (KCAL/G)
TEMP (R)	50000.	FREE ENG	-0.1599+007 (BTU/LB)	-0.8885+003 (KCAL/G)
TEMP (K)	27778.	ENTROPY	0.5176+005 (BTU/LB-R)	0.5176+002 (CAL/G-K)
DEN(G/CM3)	0.1231-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5533+002	0.
2	0.1262+001	82359.
3	0.0000+000	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.5660+002 PFE (ATM) 0.2217+003
PPH2 (ATM) 0.8179-002 PPH- (ATM) 0.9913-001

IONIZATION POTENTIAL (1/CM) 74605.
PARTITION FUNCTION 0.2046+001
ROSSELAND MEAN OPACITY (1/CM) 0.8040+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2963+005	11000.	0.1499+003	70000.	0.1515+001
1500.	0.1206+005	12000.	0.1229+003	75000.	0.2383+003
2000.	0.6423+004	13500.	0.9375+002	80000.	0.2044+003
2500.	0.3945+004	15000.	0.7342+002	90000.	0.1514+003
3000.	0.2650+004	20000.	0.3718+002	100000.	0.1154+003
4000.	0.1415+004	25000.	0.2163+002	125000.	0.6408+002
5000.	0.8680+003	27500.	0.1709+002	150000.	0.3917+002
5500.	0.7040+003	30000.	0.1376+002	175000.	0.2569+002
6000.	0.5811+003	40000.	0.6606+001	200000.	0.1776+002
8000.	0.3070+003	50000.	0.3685+001	300000.	0.5713+001
0000.	0.1660+003	60000.	0.2269+001	400000.	0.2522+001

TABLE XVI f

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 500 ATMOSPHERES FOR 40,000°R AND 30,000°R

PRESS(ATM)	500.	ENTHALPY	0.7084+006 (BTU/LB)	0.3936+003 (KCAL/G)
TEMP (R)	40000.	FREE ENG	-0.1138+007 (BTU/LB)	-0.6325+003 (KCAL/G)
TEMP (K)	22222.	ENTROPY	0.4617+005 (BTU/LB-R)	0.4617+002 (CAL/G-K)
DEN(G/CM3)	0.1784-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1450+003	0.
2	0.1084+001	82359.
3	0.0000+000	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.1461+003 PPE (ATM) 0.1764+003
PPH2 (ATM) 0.9007-001 PPH- (ATM) 0.3905+000

IONIZATION POTENTIAL (1/CM) 73019.
PARTITION FUNCTION 0.2015+001
ROSSELAND MEAN OPACITY (1/CM) 0.9903+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3610+005	11000.	0.1943+003	70000.	0.2640+001
1500.	0.1504+005	12000.	0.1596+003	75000.	0.7890+003
2000.	0.8104+004	13500.	0.1220+003	80000.	0.6821+003
2500.	0.5018+004	15000.	0.9579+002	90000.	0.4986+003
3000.	0.3389+004	20000.	0.4902+002	100000.	0.3788+003
4000.	0.1820+004	25000.	0.2893+002	125000.	0.2098+003
5000.	0.1120+004	27500.	0.2306+002	150000.	0.1282+003
5500.	0.9086+003	30000.	0.1872+002	175000.	0.8407+002
6000.	0.7502+003	40000.	0.9347+001	200000.	0.5808+002
8000.	0.3968+003	50000.	0.5451+001	300000.	0.1860+002
10000.	0.2409+003	60000.	0.3532+001	400000.	0.8110+001

PRESS(ATM)	500.	ENTHALPY	0.3456+006 (BTU/LB)	0.1920+003 (KCAL/G)
TEMP (R)	30001.	FREE ENG	-0.7720+006 (BTU/LB)	-0.4289+003 (KCAL/G)
TEMP (K)	16667.	ENTROPY	0.3725+005 (BTU/LB-R)	0.3725+002 (CAL/G-K)
DEN(G/CM3)	0.3218-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3688+003	0.
2	0.5761+000	82359.
3	0.0000+000	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.3694+003 PPE (ATM) 0.6465+002
PPH2 (ATM) 0.1332+001 PPH- (ATM) 0.8513+000

IONIZATION POTENTIAL (1/CM) 80501.
PARTITION FUNCTION 0.2003+001
ROSSELAND MEAN OPACITY (1/CM) 0.9973+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8757+004	11000.	0.9802+002	70000.	0.6248+001
1500.	0.4573+004	12000.	0.8310+002	75000.	0.1329+002
2000.	0.2762+004	13500.	0.6658+002	80000.	0.1298+003
2500.	0.1835+004	15000.	0.5466+002	90000.	0.1703+004
3000.	0.1301+004	20000.	0.3197+002	100000.	0.1287+004
4000.	0.7427+003	25000.	0.2127+002	125000.	0.7152+003
5000.	0.4743+003	27500.	0.1792+002	150000.	0.4383+003
5500.	0.3901+003	30000.	0.1532+002	175000.	0.2875+003
6000.	0.3256+003	40000.	0.9083+001	200000.	0.1976+003
8000.	0.1821+003	50000.	0.6169+001	300000.	0.6220+002
10000.	0.1177+003	60000.	0.4865+001	400000.	0.2591+002

TABLE XVI g

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 500 ATMOSPHERES FOR 26,000°R AND 23,000°R

PRESS(ATM)	500.	ENTHALPY	0.2530+006 (BTU/LB)		0.1406+003 (KCAL/G)
TEMP (R)	25999.	FREE ENG	-0.6390+006 (BTU/LB)		-0.3550+003 (KCAL/G)
TEMP (K)	14444.	ENTROPY	0.3431+005 (BTU/LB-R)		0.3431+002 (CAL/G-K)
DEN(G/CM3)	0.4081-003				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4494+003	0.
2	0.4328+000	82359.
3	0.0000+000	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.4498+003 PFE (ATM) 0.2343+002
PPH2 (ATM) 0.3310+001 PFH- (ATM) 0.5828+000

IONIZATION POTENTIAL (1/CM) 88531.
PARTITION FUNCTION 0.2002+001
ROSSELAND MEAN OPACITY (1/CM) 0.7756+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3685+004	11000.	0.5025+002	70000.	0.8510+001
1500.	0.1500+004	12000.	0.4381+002	75000.	0.2298+002
2000.	0.7965+003	13500.	0.3638+002	80000.	0.2541+003
2500.	0.4882+003	15000.	0.3078+002	90000.	0.2402+004
3000.	0.3274+003	20000.	0.1933+002	100000.	0.1811+004
4000.	0.1742+003	25000.	0.1348+002	125000.	0.1012+004
5000.	0.1066+003	27500.	0.1157+002	150000.	0.6230+003
5500.	0.8640+002	30000.	0.1005+002	175000.	0.4091+003
6000.	0.7128+002	40000.	0.6262+001	200000.	0.2795+003
8000.	0.8407+002	50000.	0.4558+001	300000.	0.8677+002
10000.	0.5847+002	60000.	0.4298+001	400000.	0.3514+002

PRESS(ATM)	500.	ENTHALPY	0.2141+006 (BTU/LB)		0.1189+003 (KCAL/G)
TEMP (R)	23000.	FREE ENG	-0.5409+006 (BTU/LB)		-0.3005+003 (KCAL/G)
TEMP (K)	12778.	ENTROPY	0.3283+005 (BTU/LB-R)		0.3283+002 (CAL/G-K)
DEN(G/CM3)	0.4783-003				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4769+003	0.
2	0.1793+000	82359.
3	0.1684-001	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.4771+003 PFE (ATM) 0.6169+001
PPH2 (ATM) 0.6165+001 PFH- (ATM) 0.3168+000

IONIZATION POTENTIAL (1/CM) 94754.
PARTITION FUNCTION 0.2001+001
ROSSELAND MEAN OPACITY (1/CM) 0.4989+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.9654+003	11000.	0.1175+002	70000.	0.1038+002
1500.	0.4094+003	12000.	0.1111+002	75000.	0.3148+002
2000.	0.2233+003	13500.	0.1766+002	80000.	0.3646+003
2500.	0.1395+003	15000.	0.1526+002	90000.	0.3882+002
3000.	0.9504+002	20000.	0.1005+002	100000.	0.2174+004
4000.	0.5180+002	25000.	0.7229+001	125000.	0.1227+004
5000.	0.3231+002	27500.	0.6281+001	150000.	0.7594+003
5500.	0.2640+002	30000.	0.5519+001	175000.	0.4993+003
6000.	0.2195+002	40000.	0.3615+001	200000.	0.3384+003
8000.	0.1482+002	50000.	0.2937+001	300000.	0.1035+003
10000.	0.1249+002	60000.	0.3620+001	400000.	0.4108+002

TABLE XVI h

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 500 ATMOSPHERES FOR 20,000°R AND 16,000°R

PRESS(ATM)	500.	ENTHALPY	0.1886+006 (BTU/LB)	0.1048+003 (KCAL/G)
TEMP (R)	20000.	FREE ENG	-0.4453+006 (BTU/LB)	-0.2474+003 (KCAL/G)
TEMP (K)	11111.	ENTROPY	0.3170+005 (BTU/LB-R)	0.3170+002 (CAL/G-K)
DEN(G/CM3)	0.5636-003			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.4831+003	0.
2	0.4519-001	82359.
3	0.7777-002	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.4832+003 PFE (ATM) 0.2213+001
PPH2 (ATM) 0.1219+002 PFH- (ATM) 0.1366+000

IONIZATION POTENTIAL (1/CM) 100028.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.2684+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2326+003	11000.	0.4852+001	70000.	0.1301+002
1500.	0.1049+003	12000.	0.4741+001	75000.	0.4189+002
2000.	0.5877+002	13500.	0.4513+001	80000.	0.4954+003
2500.	0.3744+002	15000.	0.4239+001	90000.	0.5217+002
3000.	0.2588+002	20000.	0.4205+001	100000.	0.1204+002
4000.	0.1442+002	25000.	0.3144+001	125000.	0.1460+004
5000.	0.9147+001	27500.	0.2779+001	150000.	0.9158+003
5500.	0.7527+001	30000.	0.2484+001	175000.	0.6042+003
6000.	0.6299+001	40000.	0.1804+001	200000.	0.4026+003
8000.	0.5065+001	50000.	0.1872+001	300000.	0.1200+003
10000.	0.4928+001	60000.	0.3406+001	400000.	0.4662+002

PRESS(ATM)	500.	ENTHALPY	0.1563+006 (BTU/LB)	0.8681+002 (KCAL/G)
TEMP (R)	16000.	FREE ENG	-0.3240+006 (BTU/LB)	-0.1800+003 (KCAL/G)
TEMP (K)	8889.	ENTROPY	0.3001+005 (BTU/LB-R)	0.3001+002 (CAL/G-K)
DEN(G/CM3)	0.7444-003			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.4606+003	0.
2	0.2997-002	82359.
3	0.4833-003	98643.
4	0.1904-004	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.4606+003 PFE (ATM) 0.2117+000
PPH2 (ATM) 0.3894+002 PFH- (ATM) 0.2647-001

IONIZATION POTENTIAL (1/CM) 105296.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.8113+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2695+002	11000.	0.1040+001	70000.	0.1801+002
1500.	0.1194+002	12000.	0.1046+001	75000.	0.5962+002
2000.	0.6705+001	13500.	0.1024+001	80000.	0.7116+003
2500.	0.4286+001	15000.	0.9776+000	90000.	0.7458+002
3000.	0.2974+001	20000.	0.7921+000	100000.	0.1696+002
4000.	0.1672+001	25000.	0.7049+000	125000.	0.1916+004
5000.	0.1070+001	27500.	0.6562+000	150000.	0.1270+004
5500.	0.8847+000	30000.	0.6258+000	175000.	0.8495+003
6000.	0.7437+000	40000.	0.7096+000	200000.	0.5288+003
8000.	0.8685+000	50000.	0.1379+001	300000.	0.1419+003
10000.	0.1010+001	60000.	0.3947+001	400000.	0.5344+002

TABLE XVI i

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 500 ATMOSPHERES FOR 13,000°R AND 10,000°R

PRESS(ATM)	500.	ENTHALPY	0.1178+006 (BTU/LB)	0.6542+002 (KCAL/G)
TEMP (R)	13000.	FREE ENG	-0.2414+006 (BTU/LB)	-0.1341+003 (KCAL/G)
TEMP (K)	7222.	ENTROPY	0.2763+005 (BTU/LB-R)	0.2763+002 (CAL/G-K)
DEN(G/CM3)	0.1047-002			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.3843+003	0.
2	0.1153-003	82359.
3	0.1012-004	98643.
4	0.7820-006	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.3843+003 PPE (ATM) 0.1620-001
PPH2 (ATM) 0.1157+003 PPH- (ATM) 0.3560-002

IONIZATION POTENTIAL (1/CM) 107841.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1829+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2537+001	11000.	0.1672+000	70000.	0.1968+002
1500.	0.1128+001	12000.	0.1714+000	75000.	0.6547+002
2000.	0.6345+000	13500.	0.1713+000	80000.	0.7825+003
2500.	0.4062+000	15000.	0.1669+000	90000.	0.8196+002
3000.	0.2822+000	20000.	0.1513+000	100000.	0.1859+002
4000.	0.1590+000	25000.	0.1587+000	125000.	0.2627+004
5000.	0.1020+000	27500.	0.1760+000	150000.	0.1972+004
5500.	0.8446-001	30000.	0.2013+000	175000.	0.1358+004
6000.	0.7116-001	40000.	0.4597+000	200000.	0.7280+003
8000.	0.1190+000	50000.	0.1290+001	300000.	0.1452+003
10000.	0.1581+000	60000.	0.4176+001	400000.	0.5397+002

PRESS(ATM)	500.	ENTHALPY	0.6464+005 (BTU/LB)	0.3591+002 (KCAL/G)
TEMP (R)	10001.	FREE ENG	-0.1701+006 (BTU/LB)	-0.9453+002 (KCAL/G)
TEMP (K)	5556.	ENTROPY	0.2348+005 (BTU/LB-R)	0.2348+002 (CAL/G-K)
DEN(G/CM3)	0.1779-002			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.1954+003	0.
2	0.4283-006	82359.
3	0.1421-007	98643.
4	0.7872-009	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.1954+003 PPE (ATM) 0.2783-003
PPH2 (ATM) 0.3046+003 PPH- (ATM) 0.8597-004

IONIZATION POTENTIAL (1/CM) 109213.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.8788-002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3711-001	11000.	0.6896-002	70000.	0.1051+002
1500.	0.1650-001	12000.	0.7655-002	75000.	0.3499+002
2000.	0.9283-002	13500.	0.8818-002	80000.	0.4185+003
2500.	0.5948-002	15000.	0.1019-001	90000.	0.4381+002
3000.	0.4143-002	20000.	0.1827-001	100000.	0.9933+001
4000.	0.2373-002	25000.	0.3531-001	125000.	0.4267+004
5000.	0.1603-002	27500.	0.4889-001	150000.	0.3668+004
5500.	0.1393-002	30000.	0.6707-001	175000.	0.2763+004
6000.	0.1257-002	40000.	0.2186+000	200000.	0.1192+004
8000.	0.3883-002	50000.	0.6701+000	300000.	0.9688+002
10000.	0.6067-002	60000.	0.2218+001	400000.	0.3740+002

TABLE XVI j

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 500 ATMOSPHERES FOR 7,000°R AND 5,000°R

PRESS(ATM)	500.	ENTHALPY	0.2912+005 (BTU/LB)	0.1618+002 (KCAL/G)
TEMP (R)	7000.	FREE ENG	-0.1085+006 (BTU/LB)	-0.6028+002 (KCAL/G)
TEMP (K)	3889.	ENTROPY	0.1966+005 (BTU/LB-R)	0.1966+002 (CAL/G-K)
DEN(G/CM3)	0.3069-002			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2826+002	0.
2	0.6640-011	82359.
3	0.3616-013	98643.
4	0.6444-015	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.2826+002 PFE (ATM) 0.1449-006
PPH2 (ATM) 0.4717+003 PFH- (ATM) 0.3090-007

IONIZATION POTENTIAL (1/CM) 109641.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.2362-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4748-007	11000.	0.2478-003	70000.	0.1341+001
1500.	0.2227-006	12000.	0.3297-003	75000.	0.4463+001
2000.	0.6542-006	13500.	0.4865-003	80000.	0.5341+002
2500.	0.1489-005	15000.	0.6914-003	90000.	0.5588+001
3000.	0.2885-005	20000.	0.1850-002	100000.	0.1267+001
4000.	0.8031-005	25000.	0.4124-002	125000.	0.7175+004
5000.	0.1745-004	27500.	0.5894-002	150000.	0.7177+004
5500.	0.2420-004	30000.	0.8248-002	175000.	0.5209+004
6000.	0.3254-004	40000.	0.2768-001	200000.	0.2013+004
8000.	0.8692-004	50000.	0.8533-001	300000.	0.2031+002
10000.	0.1813-003	60000.	0.2828+000	400000.	0.8300+001

PRESS(ATM)	500.	ENTHALPY	0.1747+005 (BTU/LB)	0.9703+001 (KCAL/G)
TEMP (R)	5000.	FREE ENG	-0.7135+005 (BTU/LB)	-0.3964+002 (KCAL/G)
TEMP (K)	2778.	ENTROPY	0.1776+005 (BTU/LB-R)	0.1776+002 (CAL/G-K)
DEN(G/CM3)	0.4414-002			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1684+001	0.
2	0.2022-017	82359.
3	0.9899-021	98643.
4	0.3659-023	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.1684+001 PFE (ATM) 0.6959-011
PPH2 (ATM) 0.4983+003 PFH- (ATM) 0.5016-012

IONIZATION POTENTIAL (1/CM) 109678.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.9915-006

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5250-008	11000.	0.2104-004	70000.	0.1134+000
1500.	0.2390-007	12000.	0.2795-004	75000.	0.3776+000
2000.	0.6828-007	13500.	0.4118-004	80000.	0.4519+001
2500.	0.1515-006	15000.	0.5849-004	90000.	0.4728+000
3000.	0.2871-006	20000.	0.1565-003	100000.	0.1072+000
4000.	0.7689-006	25000.	0.3488-003	125000.	0.1028+005
5000.	0.1621-005	27500.	0.4985-003	150000.	0.1041+005
5500.	0.2219-005	30000.	0.6977-003	175000.	0.7572+004
6000.	0.2950-005	40000.	0.2341-002	200000.	0.2887+004
8000.	0.7501-005	50000.	0.7219-002	300000.	0.1694+001
10000.	0.1543-004	60000.	0.2392-001	400000.	0.6913+000

TABLE XVI k

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 500 ATMOSPHERES FOR 3000 °R

PRESS(ATM)	500.	ENTHALPY	0.8967+004 (BTU/LB)	0.4982+001 (KCAL/G)
TEMP (R)	3001.	FREE ENG	-0.3793+005 (BTU/LB)	-0.2107+002 (KCAL/G)
TEMP (K)	1667.	ENTROPY	0.1563+005 (BTU/LB-R)	0.1563+002 (CAL/G-K)
DEN(G/CM3)	0.7369-002			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.2398-002	0.
2	0.0000+000	82359.
3	0.0000+000	98643.
4	0.0000+000	109300.
5	0.0000+000	130000.

PPHT (ATM) 0.2398-002 PFE (ATM) 0.0000+000
PPH2 (ATM) 0.5000+003 PFH- (ATM) 0.0000+000

IONIZATION POTENTIAL (1/CM) 109679.
PARTITION FUNCTION 0.0000+000
ROSSELAND MEAN OPACITY (1/CM) 0.1178-008

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2502-010	11000.	0.7033-007	70000.	0.3780-003
1500.	0.1070-009	12000.	0.9332-007	75000.	0.1258-002
2000.	0.2900-009	13500.	0.1374-006	80000.	0.1505-001
2500.	0.6151-009	15000.	0.1950-006	90000.	0.1575-002
3000.	0.1122-008	20000.	0.5214-006	100000.	0.3572-003
4000.	0.2839-008	25000.	0.1162-005	125000.	0.1716+005
5000.	0.5761-008	27500.	0.1661-005	150000.	0.1739+005
5500.	0.7780-008	30000.	0.2325-005	175000.	0.1265+005
6000.	0.1023-007	40000.	0.7802-005	200000.	0.4819+004
8000.	0.2538-007	50000.	0.2406-004	300000.	0.3981-002
10000.	0.5172-007	60000.	0.7973-004	400000.	0.1565-002

TABLE XVII a

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 750 ATMOSPHERES FOR 200,000°R AND 175,000°R

PRESS(ATM)	750.	ENTHALPY	0.2640+007 (BTU/LB)	0.1467+004 (KCAL/G)
TEMP (R)	200000.	FREE ENG	-0.1062+008 (BTU/LB)	-0.5899+004 (KCAL/G)
TEMP (K)	111111.	ENTROPY	0.6629+005 (BTU/LB-R)	0.6629+002 (CAL/G-K)
DEN(G/CM3)	0.4150-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3286+000	0.
2	0.4129+000	82408.
3	0.0000+000	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.7415+000 PPE (ATM) 0.3746+003
PPH2 (ATM) 0.3097-006 PPH- (ATM) 0.2458-004

IONIZATION POTENTIAL (1/CM) 89350.
PARTITION FUNCTION 0.4513+001
ROSSELAND MEAN OPACITY (1/CM) 0.1164-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2120+004	11000.	0.6061+001	70000.	0.7914-001
1500.	0.7523+003	12000.	0.4951+001	75000.	0.6678-001
2000.	0.3630+003	13500.	0.3768+001	80000.	0.5690-001
2500.	0.2071+003	15000.	0.2952+001	90000.	0.1978+000
3000.	0.1313+003	20000.	0.1518+001	100000.	0.1570+000
4000.	0.6428+002	25000.	0.9060+000	125000.	0.9425-001
5000.	0.3711+002	27500.	0.7264+000	150000.	0.6082-001
5500.	0.2938+002	30000.	0.5935+000	175000.	0.4140-001
6000.	0.2376+002	40000.	0.3029+000	200000.	0.2939-001
8000.	0.1275+002	50000.	0.1785+000	300000.	0.9892-002
10000.	0.7567+001	60000.	0.1152+000	400000.	0.4426-002

PRESS(ATM)	750.	ENTHALPY	0.2391+007 (BTU/LB)	0.1328+004 (KCAL/G)
TEMP (R)	175000.	FREE ENG	-0.8977+007 (BTU/LB)	-0.4987+004 (KCAL/G)
TEMP (K)	97222.	ENTROPY	0.6496+005 (BTU/LB-R)	0.6496+002 (CAL/G-K)
DEN(G/CM3)	0.4745-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5308+000	0.
2	0.5216+000	82408.
3	0.0000+000	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.1052+001 PPE (ATM) 0.3745+003
PPH2 (ATM) 0.6719-006 PPH- (ATM) 0.5604-004

IONIZATION POTENTIAL (1/CM) 87983.
PARTITION FUNCTION 0.3965+001
ROSSELAND MEAN OPACITY (1/CM) 0.2276-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3021+004	11000.	0.9047+001	70000.	0.1176+000
1500.	0.1078+004	12000.	0.7402+001	75000.	0.9906-001
2000.	0.5221+003	13500.	0.5643+001	80000.	0.8423-001
2500.	0.2989+003	15000.	0.4428+001	90000.	0.3692+000
3000.	0.1900+003	20000.	0.2284+001	100000.	0.2922+000
4000.	0.9349+002	25000.	0.1365+001	125000.	0.1740+000
5000.	0.5418+002	27500.	0.1094+001	150000.	0.1115+000
5500.	0.4297+002	30000.	0.8939+000	175000.	0.7540-001
6000.	0.3702+002	40000.	0.4553+000	200000.	0.5323-001
8000.	0.1891+002	50000.	0.2675+000	300000.	0.1769-001
10000.	0.1128+002	60000.	0.1720+000	400000.	0.7884-002

TABLE XVII b

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 750 ATMOSPHERES FOR 150,000°R AND 125,000°R

PRESS(ATM)	750.	ENTHALPY	0.2141+007 (BTU/LB)	0.1189+004 (KCAL/G)
TEMP (R)	149999.	FREE ENG	-0.7372+007 (BTU/LB)	-0.4095+004 (KCAL/G)
TEMP (K)	83333.	ENTROPY	0.6342+005 (BTU/LB-R)	0.6342+002 (CAL/G-K)
DEN(G/CM3)	0.5539-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9404+000	0.
2	0.6606+000	82408.
3	0.0000+000	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.1601+001 PFE (ATM) 0.3742+003
PPH2 (ATM) 0.1712-005 PFH- (ATM) 0.1480-003

IONIZATION POTENTIAL (1/CM) 86250.
PARTITION FUNCTION 0.3405+001
ROSSELAND MEAN OPACITY (1/CM) 0.5212-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4559+004	11000.	0.1437+002	70000.	0.1838+000
1500.	0.1637+004	12000.	0.1177+002	75000.	0.1543+000
2000.	0.7970+003	13500.	0.8990+001	80000.	0.1309+000
2500.	0.4582+003	15000.	0.7063+001	90000.	0.7749+000
3000.	0.2923+003	20000.	0.3650+001	100000.	0.6114+000
4000.	0.1497+003	25000.	0.2180+001	125000.	0.3603+000
5000.	0.8876+002	27500.	0.1747+001	150000.	0.2287+000
5500.	0.7108+002	30000.	0.1426+001	175000.	0.1536+000
6000.	0.5807+002	40000.	0.7235+000	200000.	0.1078+000
8000.	0.2986+002	50000.	0.4229+000	300000.	0.3542-001
10000.	0.1788+002	60000.	0.2703+000	400000.	0.1574-001

PRESS(ATM)	750.	ENTHALPY	0.1890+007 (BTU/LB)	0.1050+004 (KCAL/G)
TEMP (R)	124999.	FREE ENG	-0.5808+007 (BTU/LB)	-0.3226+004 (KCAL/G)
TEMP (K)	69444.	ENTROPY	0.6158+005 (BTU/LB-R)	0.6158+002 (CAL/G-K)
DEN(G/CM3)	0.6657-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1901+001	0.
2	0.8166+000	82408.
3	0.0000+000	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.2717+001 PFE (ATM) 0.3736+003
PPH2 (ATM) 0.5638-005 PFH- (ATM) 0.4812-003

IONIZATION POTENTIAL (1/CM) 83950.
PARTITION FUNCTION 0.2859+001
ROSSELAND MEAN OPACITY (1/CM) 0.1512+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7443+004	11000.	0.2474+002	70000.	0.3049+000
1500.	0.2694+004	12000.	0.2028+002	75000.	0.2550+000
2000.	0.1293+004	13500.	0.1550+002	80000.	0.2155+000
2500.	0.7608+003	15000.	0.1218+002	90000.	0.1924+001
3000.	0.4949+003	20000.	0.6293+001	100000.	0.1507+001
4000.	0.2526+003	25000.	0.3751+001	125000.	0.8763+000
5000.	0.1506+003	27500.	0.3001+001	150000.	0.5506+000
5500.	0.1209+003	30000.	0.2446+001	175000.	0.3669+000
6000.	0.9894+002	40000.	0.1231+001	200000.	0.2561+000
8000.	0.5117+002	50000.	0.7132+000	300000.	0.8328-001
10000.	0.3075+002	60000.	0.4520+000	400000.	0.3694-001

TABLE XVII c

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 750 ATMOSPHERES FOR 100,000°R AND 90,000°R

PRESS(ATM)	750.	ENTHALPY	0.1634+007 (BTU/LB)	0.9079+003 (KCAL/G)
TEMP (R)	100001.	FREE ENG	-0.4295+007 (BTU/LB)	-0.2386+004 (KCAL/G)
TEMP (K)	55556.	ENTROPY	0.5929+005 (BTU/LB-R)	0.5929+002 (CAL/G-K)
DEN(G/CM3)	0.8354-004			

QHN	PPHN (ATM)	TERM (1/CM)				
1	0.4641+001	0.	PPHT (ATM)	0.5696+001	PFE (ATM)	0.3722+003
2	0.1055+001	82408.	PPH2 (ATM)	0.3029-004	PFH- (ATM)	0.2110-002
3	0.0000+000	99219.	IONIZATION POTENTIAL (1/CM)			80754.
4	0.0000+000	112538.	PARTITION FUNCTION			0.2454+001
5	0.0000+000	142354.	ROSSELAND MEAN OPACITY (1/CM)			0.6201+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1257+005	11000.	0.4813+002	70000.	0.5577+000
1500.	0.4752+004	12000.	0.3948+002	75000.	0.4641+000
2000.	0.2407+004	13500.	0.3018+002	80000.	0.3916+000
2500.	0.1427+004	15000.	0.2371+002	90000.	0.6041+001
3000.	0.9344+003	20000.	0.1221+002	100000.	0.4694+001
4000.	0.4814+003	25000.	0.7242+001	125000.	0.2687+001
5000.	0.2889+003	27500.	0.5779+001	150000.	0.1669+001
5500.	0.2324+003	30000.	0.4695+001	175000.	0.1104+001
6000.	0.1907+003	40000.	0.2333+001	200000.	0.7666+000
8000.	0.9919+002	50000.	0.1335+001	300000.	0.2477+000
10000.	0.5977+002	60000.	0.8358+000	400000.	0.1098+000

PRESS(ATM)	750.	ENTHALPY	0.1528+007 (BTU/LB)	0.8491+003 (KCAL/G)
TEMP (R)	90000.	FREE ENG	-0.3707+007 (BTU/LB)	-0.2059+004 (KCAL/G)
TEMP (K)	50000.	ENTROPY	0.5817+005 (BTU/LB-R)	0.5817+002 (CAL/G-K)
DEN(G/CM3)	0.9317-004			

QHN	PPHN (ATM)	TERM (1/CM)				
1	0.7233+001	0.	PPHT (ATM)	0.8474+001	PFE (ATM)	0.3708+003
2	0.1242+001	82408.	PPH2 (ATM)	0.7499-004	PFH- (ATM)	0.4337-002
3	0.0000+000	99219.	IONIZATION POTENTIAL (1/CM)			79077.
4	0.0000+000	112538.	PARTITION FUNCTION			0.2343+001
5	0.0000+000	142354.	ROSSELAND MEAN OPACITY (1/CM)			0.1280+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1658+005	11000.	0.6612+002	70000.	0.7430+000
1500.	0.6325+004	12000.	0.5425+002	75000.	0.6171+000
2000.	0.3224+004	13500.	0.4147+002	80000.	0.1396+002
2500.	0.1921+004	15000.	0.3258+002	90000.	0.1059+002
3000.	0.1262+004	20000.	0.1675+002	100000.	0.8198+001
4000.	0.6538+003	25000.	0.9908+001	125000.	0.4660+001
5000.	0.3938+003	27500.	0.7894+001	150000.	0.2882+001
5500.	0.3173+003	30000.	0.6403+001	175000.	0.1901+001
6000.	0.2606+003	40000.	0.3161+001	200000.	0.1318+001
8000.	0.1360+003	50000.	0.1797+001	300000.	0.4252+000
10000.	0.8208+002	60000.	0.1119+001	400000.	0.1885+000

TABLE XVII d

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 750 ATMOSPHERES FOR 80,000°R AND 70,000°R

PRESS(ATM)	750.	ENTHALPY	0.1418+007 (BTU/LB)	0.7878+003 (KCAL/G)
TEMP (R)	79999.	FREE ENG	-0.3132+007 (BTU/LB)	-0.1740+004 (KCAL/G)
TEMP (K)	44444.	ENTROPY	0.5687+005 (BTU/LB-R)	0.5687+002 (CAL/G-K)
DEN(G/CM3)	0.1055-003			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.1197+002	0.
2	0.1447+001	82408.
3	0.0000+000	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.1341+002 PFE (ATM) 0.3683+003
PPH2 (ATM) 0.2160-003 PFH- (ATM) 0.9779-002

IONIZATION POTENTIAL (1/CM) 77078.
PARTITION FUNCTION 0.2242+001
ROSSELAND MEAN OPACITY (1/CM) 0.2670+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2258+005	11000.	0.9367+002	70000.	0.1013+001
1500.	0.8700+004	12000.	0.7686+002	75000.	0.8400+000
2000.	0.4463+004	13500.	0.5873+002	80000.	0.2643+002
2500.	0.2673+004	15000.	0.4611+002	90000.	0.1994+002
3000.	0.1763+004	20000.	0.2363+002	100000.	0.1538+002
4000.	0.9178+003	25000.	0.1393+002	125000.	0.8681+001
5000.	0.5546+003	27500.	0.1107+002	150000.	0.5348+001
5500.	0.4475+003	30000.	0.8964+001	175000.	0.3519+001
6000.	0.3679+003	40000.	0.4390+001	200000.	0.2437+001
8000.	0.1925+003	50000.	0.2478+001	300000.	0.7854+000
10000.	0.1163+003	60000.	0.1534+001	400000.	0.3482+000

PRESS(ATM)	750.	ENTHALPY	0.1299+007 (BTU/LB)	0.7214+003 (KCAL/G)
TEMP (R)	70000.	FREE ENG	-0.2572+007 (BTU/LB)	-0.1429+004 (KCAL/G)
TEMP (K)	38889.	ENTROPY	0.5529+005 (BTU/LB-R)	0.5529+002 (CAL/G-K)
DEN(G/CM3)	0.1221-003			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.2130+002	0.
2	0.1641+001	82408.
3	0.0000+000	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.2294+002 PFE (ATM) 0.3635+003
PPH2 (ATM) 0.7564-003 PFH- (ATM) 0.2467-001

IONIZATION POTENTIAL (1/CM) 74671.
PARTITION FUNCTION 0.2154+001
ROSSELAND MEAN OPACITY (1/CM) 0.6342+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3194+005	11000.	0.1371+003	70000.	0.1417+001
1500.	0.1243+005	12000.	0.1124+003	75000.	0.6358+002
2000.	0.6416+004	13500.	0.8583+002	80000.	0.5467+002
2500.	0.3860+004	15000.	0.6731+002	90000.	0.4102+002
3000.	0.2554+004	20000.	0.3434+002	100000.	0.3151+002
4000.	0.1336+004	25000.	0.2013+002	125000.	0.1787+002
5000.	0.8097+003	27500.	0.1597+002	150000.	0.1064+002
5500.	0.6538+003	30000.	0.1289+002	175000.	0.7124+001
6000.	0.5379+003	40000.	0.6255+001	200000.	0.4930+001
8000.	0.2818+003	50000.	0.3504+001	300000.	0.1588+001
10000.	0.1702+003	60000.	0.2155+001	400000.	0.7034+000

TABLE XVII e

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 750 ATMOSPHERES FOR 60,000°R AND 50,000°R

PRESS(ATM)	750.	ENTHALPY	0.1159+007 (BTU/LB)	0.6442+003 (KCAL/G)
TEMP (R)	59999.	FREE ENG	-0.2033+007 (BTU/LB)	-0.1130+004 (KCAL/G)
TEMP (K)	33333.	ENTROPY	0.5321+005 (BTU/LB-R)	0.5321+002 (CAL/G-K)
DEN(G/CM3)	0.1462-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.4145+002	0.
2	0.1756+001	82408.
3	0.0000+000	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.4320+002 PPE (ATM) 0.3534+003
PPH2 (ATM) 0.3408-002 PPH- (ATM) 0.7122-001

IONIZATION POTENTIAL (1/CM) 71786.
PARTITION FUNCTION 0.2085+001
ROSSELAND MEAN OPACITY (1/CM) 0.1144+002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4694+005	11000.	0.2065+003	70000.	0.2047+001
1500.	0.1843+005	12000.	0.1691+003	75000.	0.1468+003
2000.	0.9571+004	13500.	0.1289+003	80000.	0.1261+003
2500.	0.5780+004	15000.	0.1009+003	90000.	0.9399+002
3000.	0.3836+004	20000.	0.5114+002	100000.	0.7190+002
4000.	0.2013+004	25000.	0.2980+002	125000.	0.4008+002
5000.	0.1222+004	27500.	0.2357+002	150000.	0.2454+002
5500.	0.9871+003	30000.	0.1898+002	175000.	0.1610+002
6000.	0.8123+003	40000.	0.9124+001	200000.	0.1114+002
8000.	0.4254+003	50000.	0.5079+001	300000.	0.3585+001
10000.	0.2566+003	60000.	0.3111+001	400000.	0.1586+001

PRESS(ATM)	750.	ENTHALPY	0.9803+006 (BTU/LB)	0.5446+003 (KCAL/G)
TEMP (R)	50000.	FREE ENG	-0.1529+007 (BTU/LB)	-0.8494+003 (KCAL/G)
TEMP (K)	27778.	ENTROPY	0.5019+005 (BTU/LB-R)	0.5019+002 (CAL/G-K)
DEN(G/CM3)	0.1853-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.8778+002	0.
2	0.1633+001	82408.
3	0.0000+000	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.8942+002 PPE (ATM) 0.3296+003
PPH2 (ATM) 0.2041-001 PPH- (ATM) 0.2338+000

IONIZATION POTENTIAL (1/CM) 68551.
PARTITION FUNCTION 0.2037+001
ROSSELAND MEAN OPACITY (1/CM) 0.2130+002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7002+005	11000.	0.3107+003	70000.	0.4467+003
1500.	0.2769+005	12000.	0.2542+003	75000.	0.3787+003
2000.	0.1444+005	13500.	0.1933+003	80000.	0.3256+003
2500.	0.8743+004	15000.	0.1510+003	90000.	0.2406+003
3000.	0.5811+004	20000.	0.7605+002	100000.	0.1834+003
4000.	0.3054+004	25000.	0.4411+002	125000.	0.1018+003
5000.	0.1854+004	27500.	0.3483+002	150000.	0.6222+002
5500.	0.1497+004	30000.	0.2801+002	175000.	0.4081+002
6000.	0.1231+004	40000.	0.1345+002	200000.	0.2821+002
8000.	0.6431+003	50000.	0.7509+001	300000.	0.9066+001
10000.	0.3868+003	60000.	0.4634+001	400000.	0.3990+001

TABLE XVII f

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 750 ATMOSPHERES FOR 40,000°R AND 30,000°R

PRESS(ATM)	750.	ENTHALPY	0.7103+006 (BTU/LB)	0.3946+003	(KCAL/G)
TEMP (R)	40000.	FREE ENG	-0.1089+007 (BTU/LB)	-0.6048+003	(KCAL/G)
TEMP (K)	22222.	ENTROPY	0.4497+005 (BTU/LB-R)	0.4497+002	(CAL/G-K)
DEN(G/CM3)	0.2668-003				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2157+003	0.
2	0.1272+001	82408.
3	0.0000+000	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.2169+003 PPE (ATM) 0.2653+003
PPH2 (ATM) 0.1987+000 PPH- (ATM) 0.8737+000

IONIZATION POTENTIAL (1/CM) 66412.
PARTITION FUNCTION 0.2012+001
ROSSELAND MEAN OPACITY (1/CM) 0.2616+002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8874+005	11000.	0.4078+003	70000.	0.1390+004
1500.	0.3556+005	12000.	0.3341+003	75000.	0.1175+004
2000.	0.1869+005	13500.	0.2547+003	80000.	0.1023+004
2500.	0.1137+005	15000.	0.1995+003	90000.	0.7431+003
3000.	0.7583+004	20000.	0.1017+003	100000.	0.5641+003
4000.	0.3998+004	25000.	0.5991+002	125000.	0.3125+003
5000.	0.2429+004	27500.	0.4775+002	150000.	0.1910+003
5500.	0.1961+004	30000.	0.3879+002	175000.	0.1253+003
6000.	0.1612+004	40000.	0.1942+002	200000.	0.8649+002
8000.	0.8420+003	50000.	0.1137+002	300000.	0.2763+002
10000.	0.5071+003	60000.	0.7400+001	400000.	0.1194+002

PRESS(ATM)	750.	ENTHALPY	0.3501+006 (BTU/LB)	0.1945+003	(KCAL/G)
TEMP (R)	30001.	FREE ENG	-0.7437+006 (BTU/LB)	-0.4132+003	(KCAL/G)
TEMP (K)	16667.	ENTROPY	0.3646+005 (BTU/LB-R)	0.3646+002	(CAL/G-K)
DEN(G/CM3)	0.4805-003				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5444+003	0.
2	0.7207+000	82408.
3	0.0000+000	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.5452+003 PPE (ATM) 0.1010+003
PPH2 (ATM) 0.2902+001 PPH- (ATM) 0.1963+001

IONIZATION POTENTIAL (1/CM) 74691.
PARTITION FUNCTION 0.2003+001
ROSSELAND MEAN OPACITY (1/CM) 0.2309+002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.2840+005	11000.	0.2067+003	70000.	0.1350+002
1500.	0.1263+005	12000.	0.1751+003	75000.	0.3989+004
2000.	0.7055+004	13500.	0.1404+003	80000.	0.3650+004
2500.	0.4470+004	15000.	0.1155+003	90000.	0.2523+004
3000.	0.3069+004	20000.	0.6809+002	100000.	0.1903+004
4000.	0.1682+004	25000.	0.4573+002	125000.	0.1060+004
5000.	0.1047+004	27500.	0.3870+002	150000.	0.6506+003
5500.	0.8536+003	30000.	0.3323+002	175000.	0.4269+003
6000.	0.7072+003	40000.	0.1995+002	200000.	0.2925+003
8000.	0.3877+003	50000.	0.1366+002	300000.	0.9106+002
10000.	0.2485+003	60000.	0.1081+002	400000.	0.3671+002

TABLE XVII g

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 750 ATMOSPHERES FOR 26,000°R AND 23,000°R

PRESS(ATM)	750.	ENTHALPY	0.2510+006 (BTU/LB)	0.1394+003 (KCAL/G)
TEMP (R)	25999.	FREE ENG	-0.6177+006 (BTU/LB)	-0.3432+003 (KCAL/G)
TEMP (K)	14444.	ENTROPY	0.3341+005 (BTU/LB-R)	0.3341+002 (CAL/G-K)
DEN(G/CM3)	0.6152-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.6739+003	0.
2	0.4838+000	82408.
3	0.0000+000	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.6744+003 PPE (ATM) 0.3409+002
PPH2 (ATM) 0.7439+001 PPH- (ATM) 0.1271+001

IONIZATION POTENTIAL (1/CM) 85074.
PARTITION FUNCTION 0.2001+001
ROSSELAND MEAN OPACITY (1/CM) 0.1586+002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7865+004	11000.	0.8442+002	70000.	0.1878+002
1500.	0.3284+004	12000.	0.7450+002	75000.	0.5141+002
2000.	0.1702+004	13500.	0.6299+002	80000.	0.5713+003
2500.	0.1044+004	15000.	0.5417+002	90000.	0.3622+004
3000.	0.7730+003	20000.	0.3556+002	100000.	0.2721+004
4000.	0.4786+003	25000.	0.2562+002	125000.	0.1529+004
5000.	0.3199+003	27500.	0.2228+002	150000.	0.9445+003
5500.	0.2675+003	30000.	0.1957+002	175000.	0.6205+003
6000.	0.2264+003	40000.	0.1259+002	200000.	0.4214+003
8000.	0.1373+003	50000.	0.9394+001	300000.	0.1284+003
10000.	0.9707+002	60000.	0.9125+001	400000.	0.4941+002

PRESS(ATM)	750.	ENTHALPY	0.2118+006 (BTU/LB)	0.1176+003 (KCAL/G)
TEMP (R)	23000.	FREE ENG	-0.5228+006 (BTU/LB)	-0.2905+003 (KCAL/G)
TEMP (K)	12778.	ENTROPY	0.3194+005 (BTU/LB-R)	0.3194+002 (CAL/G-K)
DEN(G/CM3)	0.7227-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.7129+003	0.
2	0.2665+000	82408.
3	0.1070-001	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.7131+003 PPE (ATM) 0.1110+002
PPH2 (ATM) 0.1378+002 PPH- (ATM) 0.6437+000

IONIZATION POTENTIAL (1/CM) 92804.
PARTITION FUNCTION 0.2001+001
ROSSELAND MEAN OPACITY (1/CM) 0.9966+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1865+004	11000.	0.4046+002	70000.	0.2292+002
1500.	0.7882+003	12000.	0.3640+002	75000.	0.7019+002
2000.	0.4290+003	13500.	0.3148+002	80000.	0.8153+003
2500.	0.2679+003	15000.	0.2753+002	90000.	0.8671+002
3000.	0.1824+003	20000.	0.1869+002	100000.	0.3257+004
4000.	0.9943+002	25000.	0.1372+002	125000.	0.1855+004
5000.	0.6206+002	27500.	0.1201+002	150000.	0.1156+004
5500.	0.5073+002	30000.	0.1062+002	175000.	0.7613+003
6000.	0.4220+002	40000.	0.7109+001	200000.	0.5109+003
8000.	0.2887+002	50000.	0.5941+001	300000.	0.1523+003
10000.	0.2465+002	60000.	0.7666+001	400000.	0.5673+002

TABLE XVII h

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 750 ATMOSPHERES FOR 20,000°R AND 16,000°R

PRESS(ATM)	750.	ENTHALPY	0.1860+006 (BTU/LB)	0.1033+003 (KCAL/G)
TEMP (R)	20000.	FREE ENG	-0.4302+006 (BTU/LB)	-0.2390+003 (KCAL/G)
TEMP (K)	11111.	ENTROPY	0.3081+005 (BTU/LB-R)	0.3081+002 (CAL/G-K)
DEN(G/CM3)	0.8552-003			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.7169+003	0.
2	0.6663-001	82408.
3	0.8241-002	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.7170+003 PPE (ATM) 0.2885+001
PPH2 (ATM) 0.2684+002 PPH- (ATM) 0.2643+000

IONIZATION POTENTIAL (1/CM) 98961.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.5207+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4417+003	11000.	0.9251+001	70000.	0.2856+002
1500.	0.1945+003	12000.	0.9063+001	75000.	0.9234+002
2000.	0.1086+003	13500.	0.8651+001	80000.	0.1093+004
2500.	0.6906+002	15000.	0.8141+001	90000.	0.1151+003
3000.	0.4769+002	20000.	0.7705+001	100000.	0.3770+004
4000.	0.2657+002	25000.	0.5850+001	125000.	0.2213+004
5000.	0.1686+002	27500.	0.5202+001	150000.	0.1405+004
5500.	0.1388+002	30000.	0.4677+001	175000.	0.9295+003
6000.	0.1162+002	40000.	0.3494+001	200000.	0.6092+003
8000.	0.9506+001	50000.	0.3802+001	300000.	0.1748+003
10000.	0.9362+001	60000.	0.7286+001	400000.	0.6296+002

PRESS(ATM)	750.	ENTHALPY	0.1509+006 (BTU/LB)	0.8386+002 (KCAL/G)
TEMP (R)	16000.	FREE ENG	-0.3133+006 (BTU/LB)	-0.1740+003 (KCAL/G)
TEMP (K)	8889.	ENTROPY	0.2901+005 (BTU/LB-R)	0.2901+002 (CAL/G-K)
DEN(G/CM3)	0.1149-002			

QHN	PPHN (ATM)	TEHM (1/CM)
1	0.6675+003	0.
2	0.4309-002	82408.
3	0.5921-003	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.6675+003 PPE (ATM) 0.2629+000
PPH2 (ATM) 0.8180+002 PPH- (ATM) 0.4763-001

IONIZATION POTENTIAL (1/CM) 104915.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1508+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4823+002	11000.	0.1866+001	70000.	0.3809+002
1500.	0.2138+002	12000.	0.1879+001	75000.	0.1282+003
2000.	0.1201+002	13500.	0.1840+001	80000.	0.1505+004
2500.	0.7677+001	15000.	0.1759+001	90000.	0.1579+003
3000.	0.5329+001	20000.	0.1432+001	100000.	0.3590+002
4000.	0.2997+001	25000.	0.1270+001	125000.	0.2943+004
5000.	0.1919+001	27500.	0.1193+001	150000.	0.2006+004
5500.	0.1586+001	30000.	0.1151+001	175000.	0.1351+004
6000.	0.1379+001	40000.	0.1390+001	200000.	0.8112+003
8000.	0.1550+001	50000.	0.2842+001	300000.	0.2013+003
10000.	0.1811+001	60000.	0.8303+001	400000.	0.6920+002

TABLE XVII i

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 750 ATMOSPHERES FOR 13,000°R AND 10,000°R

PRESS(ATM)	750.	ENTHALPY	0.1099+006 (BTU/LB)	0.6105+002 (KCAL/G)
TEMP (R)	13000.	FREE ENG	-0.2344+006 (BTU/LB)	-0.1302+003 (KCAL/G)
TEMP (K)	7222.	ENTROPY	0.2649+005 (BTU/LB-R)	0.2649+002 (CAL/G-K)
DEN(G/CM3)	0.1650-002			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5299+003	0.
2	0.1574-003	82408.
3	0.1245-004	99219.
4	0.2152-006	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.5299+003 PPE (ATM) 0.1926-001
PPH2 (ATM) 0.2200+003 PPH- (ATM) 0.5836-002

IONIZATION POTENTIAL (1/CM) 107717.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.3135+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4156+001	11000.	0.2750+000	70000.	0.3826+002
1500.	0.1847+001	12000.	0.2822+000	75000.	0.1273+003
2000.	0.1039+001	13500.	0.2827+000	80000.	0.1519+004
2500.	0.6655+000	15000.	0.2765+000	90000.	0.1593+003
3000.	0.4624+000	20000.	0.2562+000	100000.	0.3614+002
4000.	0.2605+000	25000.	0.2784+000	125000.	0.4104+004
5000.	0.1672+000	27500.	0.3144+000	150000.	0.3206+004
5500.	0.1385+000	30000.	0.3665+000	175000.	0.2226+004
6000.	0.1167+000	40000.	0.8771+000	200000.	0.1137+004
8000.	0.1953+000	50000.	0.2496+001	300000.	0.1963+003
10000.	0.2597+000	60000.	0.8110+001	400000.	0.6676+002

PRESS(ATM)	750.	ENTHALPY	0.6036+005 (BTU/LB)	0.3353+002 (KCAL/G)
TEMP (R)	10001.	FREE ENG	-0.1658+006 (BTU/LB)	-0.9211+002 (KCAL/G)
TEMP (K)	5556.	ENTROPY	0.2261+005 (BTU/LB-R)	0.2261+002 (CAL/G-K)
DEN(G/CM3)	0.2763-002			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2503+003	0.
2	0.5416-006	82408.
3	0.1569-007	99219.
4	0.2205-009	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.2503+003 PPE (ATM) 0.3159-003
PPH2 (ATM) 0.4997+003 PPH- (ATM) 0.1250-003

IONIZATION POTENTIAL (1/CM) 109191.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1361-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5395-001	11000.	0.1056-001	70000.	0.1836+002
1500.	0.2398-001	12000.	0.1185-001	75000.	0.6111+002
2000.	0.1350-001	13500.	0.1390-001	80000.	0.7305+003
2500.	0.8649-002	15000.	0.1638-001	90000.	0.7652+002
3000.	0.6027-002	20000.	0.3078-001	100000.	0.1735+002
4000.	0.3464-002	25000.	0.6079-001	125000.	0.6595+004
5000.	0.2364-002	27500.	0.8459-001	150000.	0.6099+004
5500.	0.2073-002	30000.	0.1164+000	175000.	0.4371+004
6000.	0.1893-002	40000.	0.3814+000	200000.	0.1843+004
8000.	0.5826-002	50000.	0.1170+001	300000.	0.1223+003
10000.	0.9210-002	60000.	0.3874+001	400000.	0.4452+002

TABLE XVII j

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 750 ATMOSPHERES FOR 7,000°R AND 5,000°R

PRESS(ATM)	750.	ENTHALPY	0.2859+005 (BTU/LB)	0.1588+002	(KCAL/G)
TEMP (R)	7000.	FREE ENG	-0.1057+006 (BTU/LB)	-0.5870+002	(KCAL/G)
TEMP (K)	3889.	ENTROPY	0.1918+005 (BTU/LB-R)	0.1918+002	(CAL/G-K)
DEN(G/CM3)	0.4628-002				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3480+002	0.
2	0.8027-011	82408.
3	0.3598-013	99219.
4	0.1310-015	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.3480+002 PFE (ATM) 0.1608-006
PPH2 (ATM) 0.7152+003 PFH- (ATM) 0.4222-007

IONIZATION POTENTIAL (1/CM) 109640.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.4195-004

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6434-007	11000.	0.4391-003	70000.	0.2382+001
1500.	0.3956-006	12000.	0.5847-003	75000.	0.7929+001
2000.	0.1162-005	13500.	0.8633-003	80000.	0.9485+002
2500.	0.2644-005	15000.	0.1227-002	90000.	0.9927+001
3000.	0.5125-005	20000.	0.3286-002	100000.	0.2251+001
4000.	0.1427-004	25000.	0.7325-002	125000.	0.1081+005
5000.	0.3100-004	27500.	0.1047-001	150000.	0.1084+005
5500.	0.4299-004	30000.	0.1465-001	175000.	0.7870+004
6000.	0.5780-004	40000.	0.4916-001	200000.	0.3034+004
8000.	0.1538-003	50000.	0.1516+000	300000.	0.2475+002
10000.	0.3211-003	60000.	0.5024+000	400000.	0.9715+001

PRESS(ATM)	750.	ENTHALPY	0.1744+005 (BTU/LB)	0.9686+001	(KCAL/G)
TEMP (R)	5000.	FREE ENG	-0.6934+005 (BTU/LB)	-0.3852+002	(KCAL/G)
TEMP (K)	2778.	ENTROPY	0.1735+005 (BTU/LB-R)	0.1735+002	(CAL/G-K)
DEN(G/CM3)	0.6624-002				

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2063+001	0.
2	0.2415-017	82408.
3	0.9002-021	99219.
4	0.4613-024	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.2063+001 PFE (ATM) 0.7702-011
PPH2 (ATM) 0.7479+003 PFH- (ATM) 0.6802-012

IONIZATION POTENTIAL (1/CM) 109677.
PARTITION FUNCTION 0.2000+001
ROSSELAND MEAN OPACITY (1/CM) 0.1816-005

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.9616-008	11000.	0.3853-004	70000.	0.2077+000
1500.	0.4377-007	12000.	0.5119-004	75000.	0.6916+000
2000.	0.1251-006	13500.	0.7544-004	80000.	0.8273+001
2500.	0.2776-006	15000.	0.1071-003	90000.	0.8680+000
3000.	0.5259-006	20000.	0.2866-003	100000.	0.1963+000
4000.	0.1408-005	25000.	0.6389-003	125000.	0.1543+005
5000.	0.2968-005	27500.	0.9131-003	150000.	0.1563+005
5500.	0.4064-005	30000.	0.1278-002	175000.	0.1136+005
6000.	0.5403-005	40000.	0.4289-002	200000.	0.4332+004
8000.	0.1374-004	50000.	0.1322-001	300000.	0.2051+001
10000.	0.2827-004	60000.	0.4382-001	400000.	0.7994+000

TABLE XVII k

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 750 ATMOSPHERES FOR 3000 °R

PRESS(ATM)	750.	ENTHALPY	0.8967+004 (BTU/LB)	0.4982+001 (KCAL/G)
TEMP (R)	3001.	FREE ENG	-0.3672+005 (BTU/LB)	-0.2040+002 (KCAL/G)
TEMP (K)	1667.	ENTROPY	0.1523+005 (BTU/LB-R)	0.1523+002 (CAL/G-K)
DEN(G/CM3)	0.1105-001			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2937-002	0.
2	0.0000+000	82408.
3	0.0000+000	99219.
4	0.0000+000	112538.
5	0.0000+000	142354.

PPHT (ATM) 0.2937-002 PHE (ATM) 0.0000+000
PPH2 (ATM) 0.7500+003 PHH- (ATM) 0.0000+000

IONIZATION POTENTIAL (1/CM) 109679.
PARTITION FUNCTION 0.0000+000
ROSSELAND MEAN OPACITY (1/CM) 0.2165-008

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4597-010	11000.	0.1292-006	70000.	0.6943-003
1500.	0.1966-009	12000.	0.1714-006	75000.	0.2312-002
2000.	0.5327-009	13500.	0.2524-006	80000.	0.2763-001
2500.	0.1130-008	15000.	0.3582-006	90000.	0.2694-002
3000.	0.2062-008	20000.	0.9578-006	100000.	0.6542-003
4000.	0.5215-008	25000.	0.2135-005	125000.	0.2575+005
5000.	0.1058-007	27500.	0.3052-005	150000.	0.2609+005
5500.	0.1429-007	30000.	0.4271-005	175000.	0.1697+005
6000.	0.1880-007	40000.	0.1433-004	200000.	0.7228+004
8000.	0.4662-007	50000.	0.4419-004	300000.	0.4793-002
10000.	0.9501-007	60000.	0.1465-003	400000.	0.1757-002

TABLE XVIII a

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1000 ATMOSPHERES FOR 200,000°R AND 175,000°R

PRESS(ATM)	1000.	ENTHALPY	0.2639+007 (BTU/LB)	0.1466+004 (KCAL/G)
TEMP (R)	200000.	FREE ENG	-0.1039+008 (BTU/LB)	-0.5772+004 (KCAL/G)
TEMP (K)	111111.	ENTROPY	0.6515+005 (BTU/LB-R)	0.6515+002 (CAL/G-K)
DEN(G/CM3)	0.5534-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.5675+000	0.
2	0.5974+000	82458.
3	0.0000+000	99795.
4	0.0000+000	115776.
5	0.0000+000	154708.

PPHT (ATM) 0.1165+001 PPE (ATM) 0.4994+003
PPH2 (ATM) 0.7644-006 PPH- (ATM) 0.5659-004

IONIZATION POTENTIAL (1/CM) 87059.
PARTITION FUNCTION 0.4105+001
ROSSELAND MEAN OPACITY (1/CM) 0.2006-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3767+004	11000.	0.1058+002	70000.	0.1357+000
1500.	0.1337+004	12000.	0.8636+001	75000.	0.1144+000
2000.	0.6451+003	13500.	0.6562+001	80000.	0.9746-001
2500.	0.3680+003	15000.	0.5136+001	90000.	0.3409+000
3000.	0.2333+003	20000.	0.2632+001	100000.	0.2706+000
4000.	0.1142+003	25000.	0.1567+001	125000.	0.1624+000
5000.	0.6831+002	27500.	0.1255+001	150000.	0.1048+000
5500.	0.5438+002	30000.	0.1025+001	175000.	0.7135-001
6000.	0.4419+002	40000.	0.5215+000	200000.	0.5064-001
8000.	0.2235+002	50000.	0.3068+000	300000.	0.1704-001
10000.	0.1323+002	60000.	0.1977+000	400000.	0.7627-002

PRESS(ATM)	1000.	ENTHALPY	0.2390+007 (BTU/LB)	0.1328+004 (KCAL/G)
TEMP (R)	175000.	FREE ENG	-0.8778+007 (BTU/LB)	-0.4876+004 (KCAL/G)
TEMP (K)	97222.	ENTROPY	0.6382+005 (BTU/LB-R)	0.6382+002 (CAL/G-K)
DEN(G/CM3)	0.6328-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.9100+000	0.
2	0.7269+000	82458.
3	0.0000+000	99795.
4	0.0000+000	115776.
5	0.0000+000	154708.

PPHT (ATM) 0.1637+001 PPE (ATM) 0.4992+003
PPH2 (ATM) 0.1626-005 PPH- (ATM) 0.1281-003

IONIZATION POTENTIAL (1/CM) 85519.
PARTITION FUNCTION 0.3598+001
ROSSELAND MEAN OPACITY (1/CM) 0.3895-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5368+004	11000.	0.1572+002	70000.	0.2000+000
1500.	0.1915+004	12000.	0.1285+002	75000.	0.1683+000
2000.	0.9278+003	13500.	0.9776+001	80000.	0.1431+000
2500.	0.5311+003	15000.	0.7660+001	90000.	0.6320+000
3000.	0.3377+003	20000.	0.3935+001	100000.	0.5002+000
4000.	0.1703+003	25000.	0.2345+001	125000.	0.2978+000
5000.	0.1000+003	27500.	0.1878+001	150000.	0.1907+000
5500.	0.7977+002	30000.	0.1532+001	175000.	0.1290+000
6000.	0.6493+002	40000.	0.7781+000	200000.	0.9108-001
8000.	0.3303+002	50000.	0.4562+000	300000.	0.3027-001
10000.	0.1962+002	60000.	0.2928+000	400000.	0.1349-001

TABLE XVIII b

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1000 ATMOSPHERES FOR 150,000°R AND 125,000°R

PRESS(ATM)	1000.	ENTHALPY	0.2140+007 (BTU/LB)	0.1189+004 (KCAL/G)
TEMP (R)	149999.	FREE ENG	-0.7200+007 (BTU/LB)	-0.4000+004 (KCAL/G)
TEMP (K)	83333.	ENTROPY	0.6227+005 (BTU/LB-R)	0.6227+002 (CAL/G-K)
DEN(G/CM3)	0.7388-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1596+001	0.
2	0.8668+000	82458.
3	0.0000+000	99795.
4	0.0000+000	115776.
5	0.0000+000	154708.

PPHT (ATM) 0.2462+001 PFE (ATM) 0.4988+003
PPH2 (ATM) 0.4049-005 PFH- (ATM) 0.3348-003

IONIZATION POTENTIAL (1/CM) 83565.
PARTITION FUNCTION 0.3087+001
ROSSELAND MEAN OPACITY (1/CM) 0.8828-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8100+004	11000.	0.2480+002	70000.	0.3091+000
1500.	0.2824+004	12000.	0.2028+002	75000.	0.2593+000
2000.	0.1396+004	13500.	0.1545+002	80000.	0.2198+000
2500.	0.8124+003	15000.	0.1212+002	90000.	0.1315+001
3000.	0.5238+003	20000.	0.6232+001	100000.	0.1036+001
4000.	0.2637+003	25000.	0.3711+001	125000.	0.6105+000
5000.	0.1556+003	27500.	0.2970+001	150000.	0.3875+000
5500.	0.1243+003	30000.	0.2421+001	175000.	0.2602+000
6000.	0.1014+003	40000.	0.1224+001	200000.	0.1827+000
8000.	0.5185+002	50000.	0.7133+000	300000.	0.6000-001
10000.	0.3091+002	60000.	0.4551+000	400000.	0.2665-001

PRESS(ATM)	1000.	ENTHALPY	0.1888+007 (BTU/LB)	0.1049+004 (KCAL/G)
TEMP (R)	124999.	FREE ENG	-0.5665+007 (BTU/LB)	-0.3147+004 (KCAL/G)
TEMP (K)	69444.	ENTROPY	0.6043+005 (BTU/LB-R)	0.6043+002 (CAL/G-K)
DEN(G/CM3)	0.8881-004			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3114+001	0.
2	0.1088+001	82458.
3	0.0000+000	99795.
4	0.0000+000	115776.
5	0.0000+000	154708.

PPHT (ATM) 0.4202+001 PFE (ATM) 0.4979+003
PPH2 (ATM) 0.1348-004 PFH- (ATM) 0.1051-002

IONIZATION POTENTIAL (1/CM) 80981.
PARTITION FUNCTION 0.2699+001
ROSSELAND MEAN OPACITY (1/CM) 0.2483+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1253+005	11000.	0.4270+002	70000.	0.5144+000
1500.	0.4633+004	12000.	0.3496+002	75000.	0.4300+000
2000.	0.2309+004	13500.	0.2667+002	80000.	0.3634+000
2500.	0.1352+004	15000.	0.2092+002	90000.	0.3159+001
3000.	0.8762+003	20000.	0.1076+002	100000.	0.2474+001
4000.	0.4446+003	25000.	0.6395+001	125000.	0.1439+001
5000.	0.2639+003	27500.	0.5111+001	150000.	0.9036+000
5500.	0.2114+003	30000.	0.4160+001	175000.	0.6021+000
6000.	0.1727+003	40000.	0.2087+001	200000.	0.4202+000
8000.	0.8885+002	50000.	0.1207+001	300000.	0.1366+000
10000.	0.5316+002	60000.	0.7635+000	400000.	0.6060-001

TABLE XVIII c

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1000 ATMOSPHERES FOR 100,000°R AND 90,000°R

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PRESS(ATM)     1000.      ENTHALPY  0.1631+007 (BTU/LB)      0.9062+003 (KCAL/G)
TEMP (R)     100001.      FREE ENG -0.4181+007 (BTU/LB)     -0.2323+004 (KCAL/G)
TEMP (K)      55556.      ENTROPY   0.5612+005 (BTU/LB-R)    0.5612+002 (CAL/G-K)
DEN(G/CM3)   0.1116-003

QHN PPHN (ATM)    TEHM (1/CM)      PPHT (ATM) 0.9109+001   PPE  (ATM) 0.4954+003
 1  0.7546+001          0.        PPH2 (ATM) 0.7748-004   PPH- (ATM) 0.4566-002
 2  0.1564+001       82458.
 3  0.0000+000       99795.        IONIZATION POTENTIAL (1/CM)       77369.
 4  0.0000+000      115776.        PARTITION FUNCTION              0.2415+001
 5  0.0000+000      154708.        ROSSELAND MEAN OPACITY (1/CM)   0.1038+001

WAVE NUMBER     ABS CO       WAVE NUMBER     ABS CO       WAVE NUMBER     ABS CO
  (1/CM)        (1/CM)         (1/CM)        (1/CM)         (1/CM)        (1/CM)
   1000.     0.2258+005        11000.     0.8375+002        70000.     0.9583+000
   1500.     0.8490+004        12000.     0.6864+002        75000.     0.7974+000
   2000.     0.4282+004        13500.     0.5241+002        80000.     0.1293+002
   2500.     0.2531+004        15000.     0.4114+002        90000.     0.9847+001
   3000.     0.1653+004        20000.     0.2113+002       100000.     0.7651+001
   4000.     0.8482+003        25000.     0.1251+002       125000.     0.4378+001
   5000.     0.5074+003        27500.     0.9976+001       150000.     0.2720+001
   5500.     0.4078+003        30000.     0.8100+001       175000.     0.1798+001
   6000.     0.3341+003        40000.     0.4018+001       200000.     0.1249+001
   8000.     0.1732+003        50000.     0.2296+001       300000.     0.4034+000
  10000.     0.1041+003        60000.     0.1437+001       400000.     0.1768+000


PRESS(ATM)     1000.      ENTHALPY  0.1525+007 (BTU/LB)      0.8469+003 (KCAL/G)
TEMP (R)      90000.      FREE ENG -0.3605+007 (BTU/LB)     -0.2003+004 (KCAL/G)
TEMP (K)      50000.      ENTROPY   0.5700+005 (BTU/LB-R)    0.5700+002 (CAL/G-K)
DEN(G/CM3)   0.1245-003

QHN PPHN (ATM)    TEHM (1/CM)      PPHT (ATM) 0.1335+002   PPE  (ATM) 0.4933+003
 1  0.1156+002          0.        PPH2 (ATM) 0.1860-003   PPH- (ATM) 0.9221-002
 2  0.1790+001       82458.
 3  0.0000+000       99795.        IONIZATION POTENTIAL (1/CM)       75478.
 4  0.0000+000      115776.        PARTITION FUNCTION              0.2310+001
 5  0.0000+000      154708.        ROSSELAND MEAN OPACITY (1/CM)   0.2046+001

WAVE NUMBER     ABS CO       WAVE NUMBER     ABS CO       WAVE NUMBER     ABS CO
  (1/CM)        (1/CM)         (1/CM)        (1/CM)         (1/CM)        (1/CM)
   1000.     0.2985+005        11000.     0.1145+003        70000.     0.1270+001
   1500.     0.1131+005        12000.     0.9389+002        75000.     0.1055+001
   2000.     0.5735+004        13500.     0.7168+002        80000.     0.2237+002
   2500.     0.3404+004        15000.     0.5625+002        90000.     0.1696+002
   3000.     0.2230+004        20000.     0.2683+002       100000.     0.1313+002
   4000.     0.1149+004        25000.     0.1702+002       125000.     0.7461+001
   5000.     0.6897+003        27500.     0.1355+002       150000.     0.4614+001
   5500.     0.5550+003        30000.     0.1099+002       175000.     0.3043+001
   6000.     0.4552+003        40000.     0.5414+001       200000.     0.2110+001
   8000.     0.2366+003        50000.     0.3075+001       300000.     0.6805+000
   0000.     0.1424+003        60000.     0.1914+001       400000.     0.3016+000
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TABLE XVIII d

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1000 ATMOSPHERES FOR 80,000°R AND 70,000°R

PRESS(ATM)	1000.	ENTHALPY	0.1413+007 (BTU/LB)	0.7850+003 (KCAL/G)
TEMP (R)	79999.	FREE ENG	-0.3042+007 (BTU/LB)	-0.1690+004 (KCAL/G)
TEMP (K)	44444.	ENTROPY	0.5569+005 (BTU/LB-R)	0.5569+002 (CAL/G-K)
DEN(G/CM3)	0.1411-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.1868+002	0.
2	0.2010+001	82458.
3	0.0000+000	99795.
4	0.0000+000	115776.
5	0.0000+000	154708.

PPHT (ATM)	0.2069+002	PPE (ATM)	0.4897+003
PPH2 (ATM)	0.5141-003	PPH- (ATM)	0.2030-001
IONIZATION POTENTIAL (1/CM)			73225.
PARTITION FUNCTION			0.2215+001
ROSSELAND MEAN OPACITY (1/CM)			0.4686+001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.4077+005	11000.	0.1614+003	70000.	0.1720+001
1500.	0.1557+005	12000.	0.1323+003	75000.	0.4799+002
2000.	0.7936+004	13500.	0.1009+003	80000.	0.4137+002
2500.	0.4729+004	15000.	0.7914+002	90000.	0.3121+002
3000.	0.3107+004	20000.	0.4043+002	100000.	0.2406+002
4000.	0.1609+004	25000.	0.2378+002	125000.	0.1358+002
5000.	0.9679+003	27500.	0.1889+002	150000.	0.8364+001
5500.	0.7796+003	30000.	0.1528+002	175000.	0.5504+001
6000.	0.6399+003	40000.	0.7471+001	200000.	0.3812+001
8000.	0.3332+003	50000.	0.4213+001	300000.	0.1228+001
10000.	0.2006+003	60000.	0.2605+001	400000.	0.5442+000

PRESS(ATM)	1000.	ENTHALPY	0.1292+007 (BTU/LB)	0.7178+003 (KCAL/G)
TEMP (R)	70000.	FREE ENG	-0.2495+007 (BTU/LB)	-0.1386+004 (KCAL/G)
TEMP (K)	38889.	ENTROPY	0.5410+005 (BTU/LB-R)	0.5410+002 (CAL/G-K)
DEN(G/CM3)	0.1634-003			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3222+002	0.
2	0.2167+001	82458.
3	0.0000+000	99795.
4	0.0000+000	115776.
5	0.0000+000	154708.

PPHT (ATM)	0.3439+002	PPE (ATM)	0.4828+003
PPH2 (ATM)	0.1700-002	PPH- (ATM)	0.4957-001
IONIZATION POTENTIAL (1/CM)			70512.
PARTITION FUNCTION			0.2135+001
ROSSELAND MEAN OPACITY (1/CM)			0.1002+002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5781+005	11000.	0.2348+003	70000.	0.2393+001
1500.	0.2224+005	12000.	0.1923+003	75000.	0.9638+002
2000.	0.1140+005	13500.	0.1465+003	80000.	0.8292+002
2500.	0.6817+004	15000.	0.1147+003	90000.	0.6218+002
3000.	0.4491+004	20000.	0.5833+002	100000.	0.4775+002
4000.	0.2333+004	25000.	0.3413+002	125000.	0.2677+002
5000.	0.1407+004	27500.	0.2704+002	150000.	0.1643+002
5500.	0.1134+004	30000.	0.2182+002	175000.	0.1079+002
6000.	0.9311+003	40000.	0.1057+002	200000.	0.7470+001
8000.	0.4851+003	50000.	0.5916+001	300000.	0.2415+001
10000.	0.2919+003	60000.	0.3637+001	400000.	0.1065+001

TABLE XVIII e

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1000 ATMOSPHERES FOR 60,000°R AND 50,000°R

PRESS(ATM)	1000.	ENTHALPY	0.1152+007 (BTU/LB)	0.6402+003 (KCAL/G)
TEMP (R)	59999.	FREE ENG	-0.1970+007 (BTU/LB)	-0.1094+004 (KCAL/G)
TEMP (K)	33333.	ENTROPY	0.5203+005 (BTU/LB-R)	0.5203+002 (CAL/G-K)
DEN(G/CM3)	0.1957-003			

QHN	PPHN (ATM)	TEHM (1/CM)			
1	0.6001+002	0.	PPHT (ATM) 0.6217+002	PPE (ATM)	0.4689+003
2	0.2157+001	82458.	PPH2 (ATM) 0.7057-002	PPH- (ATM)	0.1368+000
3	0.0000+000	99795.	IONIZATION POTENTIAL (1/CM)		67254.
4	0.0000+000	115776.	PARTITION FUNCTION		0.2072+001
5	0.0000+000	154708.	ROSSELAND MEAN OPACITY (1/CM)		0.2274+002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.8521+005	11000.	0.3516+003	70000.	0.2505+003
1500.	0.3301+005	12000.	0.2876+003	75000.	0.2130+003
2000.	0.1699+005	13500.	0.2188+003	80000.	0.1831+003
2500.	0.1019+005	15000.	0.1710+003	90000.	0.1363+003
3000.	0.6728+004	20000.	0.8637+002	100000.	0.1043+003
4000.	0.3504+004	25000.	0.5022+002	125000.	0.5813+002
5000.	0.2115+004	27500.	0.3969+002	150000.	0.3559+002
5500.	0.1704+004	30000.	0.3194+002	175000.	0.2335+002
6000.	0.1400+004	40000.	0.1534+002	200000.	0.1615+002
8000.	0.7286+003	50000.	0.8537+001	300000.	0.5145+001
10000.	0.4377+003	60000.	0.5232+001	400000.	0.2295+001

PRESS(ATM)	1000.	ENTHALPY	0.9765+006 (BTU/LB)	0.5425+003 (KCAL/G)
TEMP (R)	50000.	FREE ENG	-0.1479+007 (BTU/LB)	-0.8217+003 (KCAL/G)
TEMP (K)	27778.	ENTROPY	0.4911+005 (BTU/LB-R)	0.4911+002 (CAL/G-K)
DEN(G/CM3)	0.2475-003			

QHN	PPHN (ATM)	TEHM (1/CM)			
1	0.1200+003	0.	PPHT (ATM) 0.1218+003	PPE (ATM)	0.4378+003
2	0.1816+001	82458.	PPH2 (ATM) 0.3790-001	PPH- (ATM)	0.4246+000
3	0.0000+000	99795.	IONIZATION POTENTIAL (1/CM)		63553.
4	0.0000+000	115776.	PARTITION FUNCTION		0.2030+001
5	0.0000+000	154708.	ROSSELAND MEAN OPACITY (1/CM)		0.3480+002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1277+006	11000.	0.5294+003	70000.	0.6117+003
1500.	0.4977+005	12000.	0.4324+003	75000.	0.5185+003
2000.	0.2570+005	13500.	0.3282+003	80000.	0.4470+003
2500.	0.1545+005	15000.	0.2560+003	90000.	0.3245+003
3000.	0.1021+005	20000.	0.1285+003	100000.	0.2511+003
4000.	0.5322+004	25000.	0.7442+002	125000.	0.1394+003
5000.	0.3211+004	27500.	0.5873+002	150000.	0.8520+002
5500.	0.2587+004	30000.	0.4722+002	175000.	0.5567+002
6000.	0.2123+004	40000.	0.2266+002	200000.	0.3862+002
8000.	0.1102+004	50000.	0.1266+002	300000.	0.1240+002
10000.	0.6600+003	60000.	0.7823+001	400000.	0.5441+001

TABLE XVIII f

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1000 ATMOSPHERES FOR 40,000°R AND 30,000°R

PRESS(ATM)	1000.	ENTHALPY	0.7205+006 (BTU/LB)	0.4003+003	(KCAL/G)
TEMP (R)	40000.	FREE ENG	-0.1051+007 (BTU/LB)	-0.5839+003	(KCAL/G)
TEMP (K)	22222.	ENTROPY	0.4429+005 (BTU/LB-R)	0.4429+002	(CAL/G-K)
DEN(G/CM3)	0.3523-003				

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.2762+003	0.	PPHT (ATM) 0.2775+003	PFE (ATM)	0.3592+003
2	0.1255+001	82458.	PPH2 (ATM) 0.3251+000	PFH- (ATM)	0.1515+001
3	0.0000+000	99795.	IONIZATION POTENTIAL (1/CM)		60716.
4	0.0000+000	115776.	PARTITION FUNCTION		0.2009+001
5	0.0000+000	154708.	ROSSELAND MEAN OPACITY (1/CM)		0.4466+002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1688+006	11000.	0.7162+003	70000.	0.1782+004
1500.	0.6646+005	12000.	0.5856+003	75000.	0.1507+004
2000.	0.3452+005	13500.	0.4455+003	80000.	0.1321+004
2500.	0.2083+005	15000.	0.3483+003	90000.	0.9535+003
3000.	0.1380+005	20000.	0.1767+003	100000.	0.7233+003
4000.	0.7205+004	25000.	0.1039+003	125000.	0.4008+003
5000.	0.4348+004	27500.	0.8271+002	150000.	0.2451+003
5500.	0.3501+004	30000.	0.6714+002	175000.	0.1607+003
6000.	0.2872+004	40000.	0.3354+002	200000.	0.1109+003
8000.	0.1489+004	50000.	0.1961+002	300000.	0.3535+002
10000.	0.8921+003	60000.	0.1275+002	400000.	0.1516+002

PRESS(ATM)	1000.	ENTHALPY	0.3624+006 (BTU/LB)	0.2013+003	(KCAL/G)
TEMP (R)	30001.	FREE ENG	-0.7213+006 (BTU/LB)	-0.4007+003	(KCAL/G)
TEMP (K)	16667.	ENTROPY	0.3612+005 (BTU/LB-R)	0.3612+002	(CAL/G-K)
DEN(G/CM3)	0.6315-003				

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.6986+003	0.	PPHT (ATM) 0.6994+003	PFE (ATM)	0.1479+003
2	0.7566+000	82458.	PPH2 (ATM) 0.4775+001	PFH- (ATM)	0.3690+001
3	0.0000+000	99795.	IONIZATION POTENTIAL (1/CM)		68759.
4	0.0000+000	115776.	PARTITION FUNCTION		0.2002+001
5	0.0000+000	154708.	ROSSELAND MEAN OPACITY (1/CM)		0.4696+002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6883+005	11000.	0.3949+003	70000.	0.6051+004
1500.	0.2886+005	12000.	0.3335+003	75000.	0.5128+004
2000.	0.1531+005	13500.	0.2663+003	80000.	0.4785+004
2500.	0.9464+004	15000.	0.2183+003	90000.	0.3249+004
3000.	0.6380+004	20000.	0.1280+003	100000.	0.2444+004
4000.	0.3412+004	25000.	0.8571+002	125000.	0.1364+004
5000.	0.2091+004	27500.	0.7248+002	150000.	0.8388+003
5500.	0.1693+004	30000.	0.6220+002	175000.	0.5505+003
6000.	0.1395+004	40000.	0.3729+002	200000.	0.3762+003
8000.	0.7522+003	50000.	0.2547+002	300000.	0.1160+003
10000.	0.4768+003	60000.	0.1991+002	400000.	0.4538+002

TABLE XVIII g

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1000 ATMOSPHERES FOR 26,000°R AND 23,000°R

PRESS(ATM)	1000.	ENTHALPY	0.2506+006 (BTU/LB)	0.1392+003	(KCAL/G)
TEMP (R)	25999.	FREE ENG	-0.6026+006 (BTU/LB)	-0.3348+003	(KCAL/G)
TEMP (K)	14444.	ENTROPY	0.3282+005 (BTU/LB-R)	0.3282+002	(CAL/G-K)
DEN(G/CM3)	0.8224-003				

GHN	PPHN (ATM)	TERM (1/CM)
1	0.8943+003	0.
2	0.4782+000	82458.
3	0.0000+000	99795.
4	0.0000+000	115776.
5	0.0000+000	154708.

PPHT (ATM) 0.8948+003 PPE (ATM) 0.4606+002
PPH2 (ATM) 0.1310+002 PPH- (ATM) 0.2280+001

IONIZATION POTENTIAL (1/CM) 81875.
PARTITION FUNCTION 0.2001+001
ROSSELAND MEAN OPACITY (1/CM) 0.2740+002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7570+004	11000.	0.1312+003	70000.	0.3306+002
1500.	0.4367+004	12000.	0.1167+003	75000.	0.9058+002
2000.	0.2747+004	13500.	0.9982+002	80000.	0.1006+004
2500.	0.1866+004	15000.	0.8671+002	90000.	0.4833+004
3000.	0.1342+004	20000.	0.5843+002	100000.	0.3617+004
4000.	0.7805+003	25000.	0.4289+002	125000.	0.2043+004
5000.	0.5044+003	27500.	0.3755+002	150000.	0.1267+004
5500.	0.4188+003	30000.	0.3318+002	175000.	0.8328+003
6000.	0.3495+003	40000.	0.2170+002	200000.	0.5623+003
8000.	0.2097+003	50000.	0.1635+002	300000.	0.1683+003
10000.	0.1498+003	60000.	0.1599+002	400000.	0.6130+002

PRESS(ATM)	1000.	ENTHALPY	0.2101+006 (BTU/LB)	0.1167+003	(KCAL/G)
TEMP (R)	23000.	FREE ENG	-0.5101+006 (BTU/LB)	-0.2834+003	(KCAL/G)
TEMP (K)	12778.	ENTROPY	0.3131+005 (BTU/LB-R)	0.3131+002	(CAL/G-K)
DEN(G/CM3)	0.9709-003				

GHN	PPHN (ATM)	TERM (1/CM)
1	0.9468+003	0.
2	0.3495+000	82458.
3	0.0000+000	99795.
4	0.0000+000	115776.
5	0.0000+000	154708.

PPHT (ATM) 0.9471+003 PPE (ATM) 0.1429+002
PPH2 (ATM) 0.2430+002 PPH- (ATM) 0.1100+001

IONIZATION POTENTIAL (1/CM) 91004.
PARTITION FUNCTION 0.2001+001
ROSSELAND MEAN OPACITY (1/CM) 0.1674+002

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.3185+004	11000.	0.6195+002	70000.	0.4029+002
1500.	0.1382+004	12000.	0.5622+002	75000.	0.1238+003
2000.	0.7186+003	13500.	0.4918+002	80000.	0.1439+004
2500.	0.4485+003	15000.	0.4342+002	90000.	0.1530+003
3000.	0.3052+003	20000.	0.3011+002	100000.	0.4334+004
4000.	0.1663+003	25000.	0.2241+002	125000.	0.2493+004
5000.	0.1038+003	27500.	0.1973+002	150000.	0.1563+004
5500.	0.8488+002	30000.	0.1752+002	175000.	0.1031+004
6000.	0.7062+002	40000.	0.1189+002	200000.	0.6853+003
8000.	0.4856+002	50000.	0.1008+002	300000.	0.1991+003
10000.	0.6895+002	60000.	0.1326+002	400000.	0.6916+002

TABLE XVIII h

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1000 ATMOSPHERES FOR 20,000°R AND 16,000°R

PRESS(ATM)	1000.	ENTHALPY	0.1638+006 (BTU/LB)	0.1021+003 (KCAL/G)
TEMP (R)	20000.	FREE ENG	-0.4197+006 (BTU/LB)	-0.2332+003 (KCAL/G)
TEMP (K)	11111.	ENTROPY	0.3017+005 (BTU/LB-R)	0.3017+002 (CAL/G-K)
DEN(G/CM3)	0.1153-002			

QHN	PPHN (ATM)	TEHM (1/CM)			
1	0.9455+003	0.	PPHT (ATM) 0.9456+003	PFE (ATM) 0.3498+001	
2	0.8731-001	82458.	PPH2 (ATM) 0.4669+002	PFH- (ATM) 0.4225+000	
3	0.8388-002	99795.	IONIZATION POTENTIAL (1/CM)	98111.	
4	0.0000+000	115776.	PARTITION FUNCTION	0.2000+001	
5	0.0000+000	154708.	ROSSELAND MEAN OPACITY (1/CM)	0.8352+001	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6921+003	11000.	0.1468+002	70000.	0.4964+002
1500.	0.3038+003	12000.	0.1440+002	75000.	0.1609+003
2000.	0.1694+003	13500.	0.1377+002	80000.	0.1904+004
2500.	0.1077+003	15000.	0.1297+002	90000.	0.2006+003
3000.	0.7434+002	20000.	0.1193+002	100000.	0.4983+004
4000.	0.4141+002	25000.	0.9142+001	125000.	0.2979+004
5000.	0.2630+002	27500.	0.8162+001	150000.	0.1913+004
5500.	0.2166+002	30000.	0.7366+001	175000.	0.1269+004
6000.	0.1814+002	40000.	0.5607+001	200000.	0.8188+003
8000.	0.1497+002	50000.	0.6300+001	300000.	0.2264+003
10000.	0.1483+002	60000.	0.1247+002	400000.	0.7499+002

PRESS(ATM)	1000.	ENTHALPY	0.1465+006 (BTU/LB)	0.8140+002 (KCAL/G)
TEMP (R)	16000.	FREE ENG	-0.3060+006 (BTU/LB)	-0.1700+003 (KCAL/G)
TEMP (K)	8889.	ENTROPY	0.2828+005 (BTU/LB-R)	0.2828+002 (CAL/G-K)
DEN(G/CM3)	0.1570-002			

QHN	PPHN (ATM)	TEHM (1/CM)			
1	0.8626+003	0.	PPHT (ATM) 0.8626+003	PFE (ATM) 0.3059+000	
2	0.5523-002	82458.	PPH2 (ATM) 0.1366+003	PFH- (ATM) 0.7161-001	
3	0.6029+003	99795.	IONIZATION POTENTIAL (1/CM)	104628.	
4	0.0000+000	115776.	PARTITION FUNCTION	0.2000+001	
5	0.0000+000	154708.	ROSSELAND MEAN OPACITY (1/CM)	0.2321+001	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7228+002	11000.	0.2800+001	70000.	0.6405+002
1500.	0.3205+002	12000.	0.2822+001	75000.	0.2123+003
2000.	0.1800+002	13500.	0.2765+001	80000.	0.2528+004
2500.	0.1151+002	15000.	0.2645+001	90000.	0.2657+003
3000.	0.7993+001	20000.	0.2160+001	100000.	0.6038+002
4000.	0.4496+001	25000.	0.1916+001	125000.	0.4004+004
5000.	0.2948+001	27500.	0.1813+001	150000.	0.2795+004
5500.	0.2437+001	30000.	0.1764+001	175000.	0.1892+004
6000.	0.2048+001	40000.	0.2226+001	200000.	0.1103+004
8000.	0.2317+001	50000.	0.4703+001	300000.	0.2549+003
10000.	0.2715+001	60000.	0.1391+002	400000.	0.7922+002

TABLE XVIII I

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1000 ATMOSPHERES FOR 13,000°R AND 10,000°R

PRESS(ATM)	1000.	ENTHALPY	0.1044+006 (BTU/LB)	0.5800+002 (KCAL/G)
TEMP (R)	13000.	FREE ENG	-0.2297+006 (BTU/LB)	-0.1276+003 (KCAL/G)
TEMP (K)	7222.	ENTROPY	0.2570+005 (BTU/LB-R)	0.2570+002 (CAL/G-K)
DEN(G/CM3)	0.2280-002			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.6593+003	0.
2	0.1939-003	82458.
3	0.1367-004	99795.
4	0.0000+000	115776.
5	0.0000+000	154708.

PPHT (ATM)	0.6593+003	PPE (ATM)	0.2168-001
PPH2 (ATM)	0.3406+003	PPH- (ATM)	0.8172-002
IONIZATION POTENTIAL (1/CM)			107628.
PARTITION FUNCTION			0.2000+001
ROSSELAND MEAN OPACITY (1/CM)			0.4536+000

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.5817+001	11000.	0.3861+000	70000.	0.6037+002
1500.	0.2586+001	12000.	0.3966+000	75000.	0.2008+003
2000.	0.1455+001	13500.	0.3981+000	80000.	0.2394+004
2500.	0.9315+000	15000.	0.3905+000	90000.	0.2514+003
3000.	0.6473+000	20000.	0.3679+000	100000.	0.5704+002
4000.	0.3647+000	25000.	0.4106+000	125000.	0.5639+004
5000.	0.2341+000	27500.	0.4696+000	150000.	0.4526+004
5500.	0.1939+000	30000.	0.5546+000	175000.	0.3159+004
6000.	0.1635+000	40000.	0.1368+001	200000.	0.1563+004
8000.	0.2746+000	50000.	0.3928+001	300000.	0.2397+003
10000.	0.3643+000	60000.	0.1279+002	400000.	0.7426+002

PRESS(ATM)	1000.	ENTHALPY	0.5775+005 (BTU/LB)	0.3208+002 (KCAL/G)
TEMP (R)	10001.	FREE ENG	-0.1627+006 (BTU/LB)	-0.9041+002 (KCAL/G)
TEMP (K)	5556.	ENTROPY	0.2205+005 (BTU/LB-R)	0.2205+002 (CAL/G-K)
DEN(G/CM3)	0.3765-002			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.2969+003	0.
2	0.6342-006	82458.
3	0.1603-007	99795.
4	0.3955-010	115776.
5	0.0000+000	154708.

PPHT (ATM)	0.2969+003	PPE (ATM)	0.3447-003
PPH2 (ATM)	0.7031+003	PPH- (ATM)	0.1618-003
IONIZATION POTENTIAL (1/CM)			109175.
PARTITION FUNCTION			0.2000+001
ROSSELAND MEAN OPACITY (1/CM)			0.1849-001

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.6983-001	11000.	0.1427-001	70000.	0.2716+002
1500.	0.3104-001	12000.	0.1615-001	75000.	0.9042+002
2000.	0.1747-001	13500.	0.1920-001	80000.	0.1080+004
2500.	0.1120-001	15000.	0.2292-001	90000.	0.1132+003
3000.	0.7809-002	20000.	0.4451-001	100000.	0.2567+002
4000.	0.4502-002	25000.	0.8913-001	125000.	0.8961+004
5000.	0.3098-002	27500.	0.1244+000	150000.	0.8386+004
5500.	0.2737-002	30000.	0.1716+000	175000.	0.6022+004
6000.	0.2523-002	40000.	0.5639+000	200000.	0.2505+004
8000.	0.7741-002	50000.	0.1731+001	300000.	0.1432+003
10000.	0.1235-001	60000.	0.5732+001	400000.	0.4909+002

TABLE XVIII j

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1000 ATMOSPHERES FOR 7,000°R AND 5,000°R

PRESS(ATM)	1000.	ENTHALPY	0.2827+005 (BTU/LB)	0.1571+002 (KCAL/G)
TEMP (R)	7000.	FREE ENG	-0.1036+006 (BTU/LB)	-0.5758+002 (KCAL/G)
TEMP (K)	3889.	ENTROPY	0.1884+005 (BTU/LB-R)	0.1884+002 (CAL/G-K)
DEN(G/CM3)	0.6190-002			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.4031+002	0.	PPHT (ATM) 0.4031+002	PFE (ATM) 0.1731-006	
2	0.9128-011	82458.	PPH2 (ATM) 0.9597+003	PFH- (ATM) 0.5263-007	
3	0.3369-013	99795.	IONIZATION POTENTIAL (1/CM)	109639.	
4	0.1881-016	115776.	PARTITION FUNCTION	0.2000+001	
5	0.0000+000	154708.	ROSSELAND MEAN OPACITY (1/CM)	0.6324-004	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1272-006	11000.	0.6611-003	70000.	0.3591+001
1500.	0.5965-006	12000.	0.8805-003	75000.	0.1195+002
2000.	0.1752-005	13500.	0.1301-002	80000.	0.1429+003
2500.	0.3987-005	15000.	0.1649-002	90000.	0.1497+002
3000.	0.7727-005	20000.	0.4953-002	100000.	0.3394+001
4000.	0.2151-004	25000.	0.1104-001	125000.	0.1445+005
5000.	0.4674-004	27500.	0.1578-001	150000.	0.1451+005
5500.	0.6481-004	30000.	0.2209-001	175000.	0.1054+005
6000.	0.8714-004	40000.	0.7412-001	200000.	0.4056+004
8000.	0.2313-003	50000.	0.2285+000	300000.	0.2837+002
10000.	0.4833-003	60000.	0.7574+000	400000.	0.1068+002

PRESS(ATM)	1000.	ENTHALPY	0.1742+005 (BTU/LB)	0.9676+001 (KCAL/G)
TEMP (R)	5000.	FREE ENG	-0.6791+005 (BTU/LB)	-0.3773+002 (KCAL/G)
TEMP (K)	2778.	ENTROPY	0.1706+005 (BTU/LB-R)	0.1706+002 (CAL/G-K)
DEN(G/CM3)	0.8833-002			

QHN	PPHN (ATM)	TERM (1/CM)			
1	0.2383+001	0.	PPHT (ATM) 0.2383+001	PFE (ATM) 0.8277-011	
2	0.2718-017	82458.	PPH2 (ATM) 0.9976+003	PFH- (ATM) 0.8442-012	
3	0.7716-021	99795.	IONIZATION POTENTIAL (1/CM)	109677.	
4	0.4135-025	115776.	PARTITION FUNCTION	0.2000+001	
5	0.0000+000	154708.	ROSSELAND MEAN OPACITY (1/CM)	0.2791-005	

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.1478-007	11000.	0.5922-004	70000.	0.3193+000
1500.	0.6727-007	12000.	0.7867-004	75000.	0.1063+001
2000.	0.1922-006	13500.	0.1159-003	80000.	0.1271+002
2500.	0.4266-006	15000.	0.1646-003	90000.	0.1331+001
3000.	0.8082-006	20000.	0.4404-003	100000.	0.3017+000
4000.	0.2165-005	25000.	0.9819-003	125000.	0.2058+005
5000.	0.4562-005	27500.	0.1403-002	150000.	0.2084+005
5500.	0.6246-005	30000.	0.1964-002	175000.	0.1516+005
6000.	0.8304-005	40000.	0.6591-002	200000.	0.5777+004
8000.	0.2112-004	50000.	0.2032-001	300000.	0.2340+001
10000.	0.4345-004	60000.	0.6735-001	400000.	0.8685+000

TABLE XVIII k

THE COMPOSITION, OPACITY, AND THERMODYNAMIC PROPERTIES OF HYDROGEN AT A PRESSURE OF 1000 ATMOSPHERES FOR 3000 °R

PRESS(ATM)	1000.	ENTHALPY	0.8967+004 (BTU/LB)	0.4982+001 (KCAL/G)
TEMP (R)	3001.	FREE ENG	-0.3586+005 (BTU/LB)	-0.1992+002 (KCAL/G)
TEMP (K)	1667.	ENTROPY	0.1494+005 (BTU/LB-R)	0.1494+002 (CAL/G-K)
DEN(G/CM3)	0.1474-001			

QHN	PPHN (ATM)	TERM (1/CM)
1	0.3392+002	0.
2	0.0000+000	82458.
3	0.0000+000	99795.
4	0.0000+000	115776.
5	0.0000+000	154708.

PPHT (ATM)	0.3392+002	PPE (ATM)	0.0000+000
PPH2 (ATM)	0.1000+004	PPH- (ATM)	0.0000+000

IONIZATION POTENTIAL (1/CM)	109679.
PARTITION FUNCTION	0.0000+000
ROSSELAND MEAN OPACITY (1/CM)	0.3333-006

WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)	WAVE NUMBER (1/CM)	ABS CO (1/CM)
1000.	0.7077-010	11000.	0.1989-006	70000.	0.1069-002
1500.	0.3027-009	12000.	0.2639-006	75000.	0.3558-002
2000.	0.8202-009	13500.	0.3885-006	80000.	0.4249-001
2500.	0.1740-008	15000.	0.5515-006	90000.	0.4455-002
3000.	0.3174-008	20000.	0.1475-005	100000.	0.1010-002
4000.	0.8030-008	25000.	0.3287-005	125000.	0.3433+005
5000.	0.1629-007	27500.	0.4699-005	150000.	0.3479+005
5500.	0.2201-007	30000.	0.6576-005	175000.	0.2530+005
6000.	0.2894-007	40000.	0.2207-004	200000.	0.9637+004
8000.	0.7177-007	50000.	0.6804-004	300000.	0.5439-002
10000.	0.1463-006	60000.	0.2255-003	400000.	0.1645-002

IONIZATION POTENTIAL LOWERING AS A FUNCTION OF TEMPERATURE

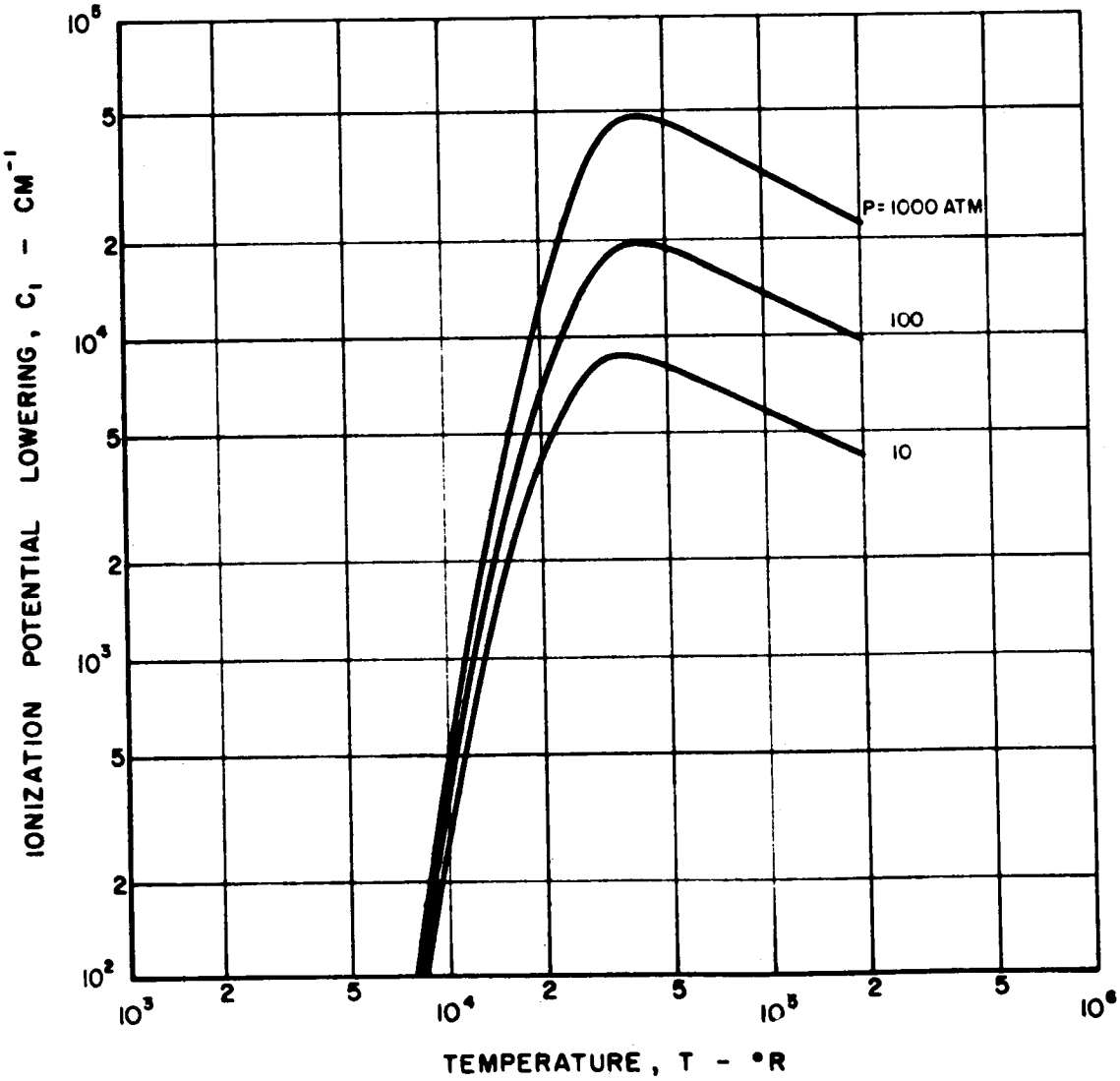


FIG. 2

COMPOSITION OF HYDROGEN AS A FUNCTION OF TEMPERATURE AT A PRESSURE OF 10 ATMOSPHERES

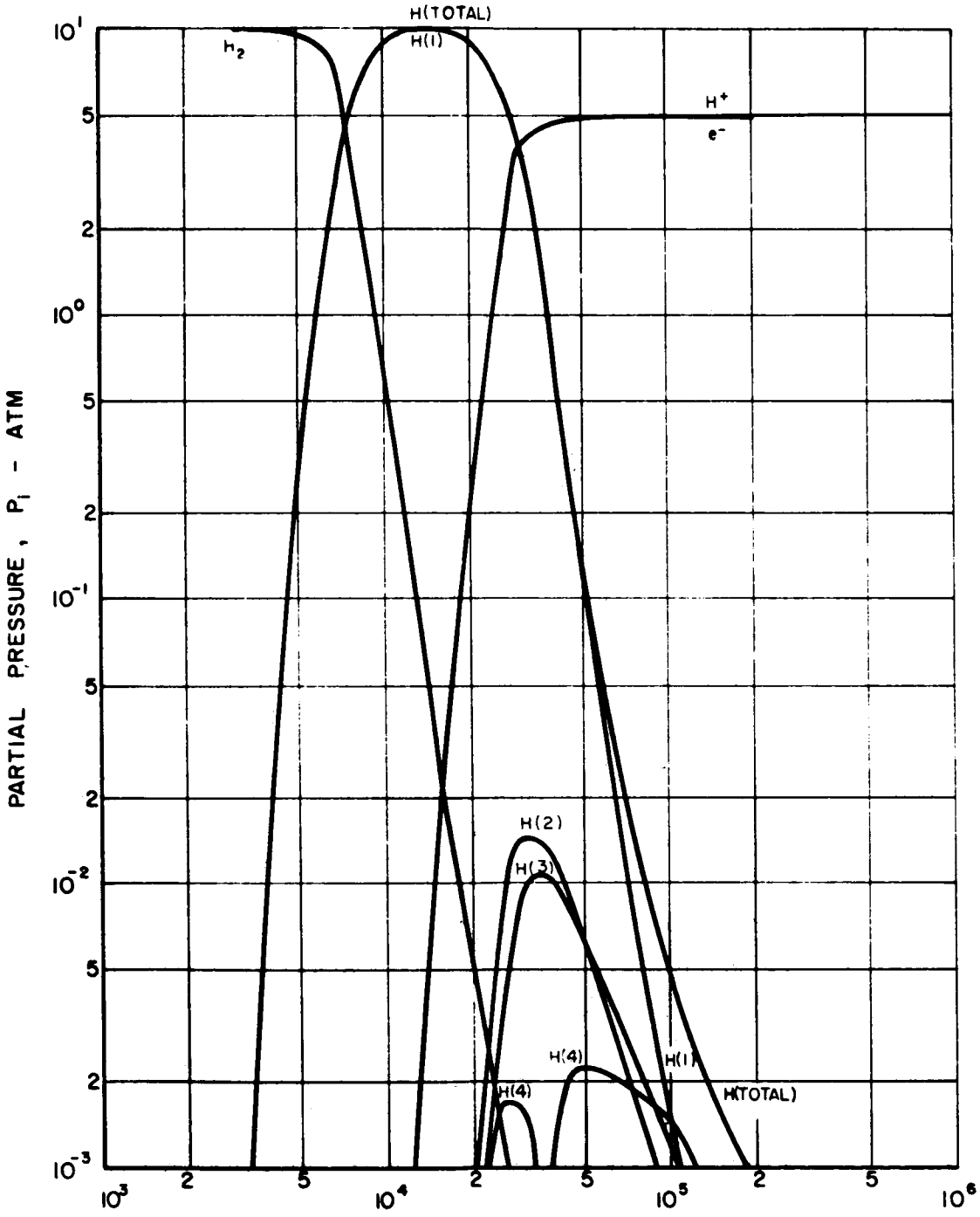


FIG. 3

COMPOSITION OF HYDROGEN AS A FUNCTION OF TEMPERATURE AT A PRESSURE OF 100 ATMOSPHERES

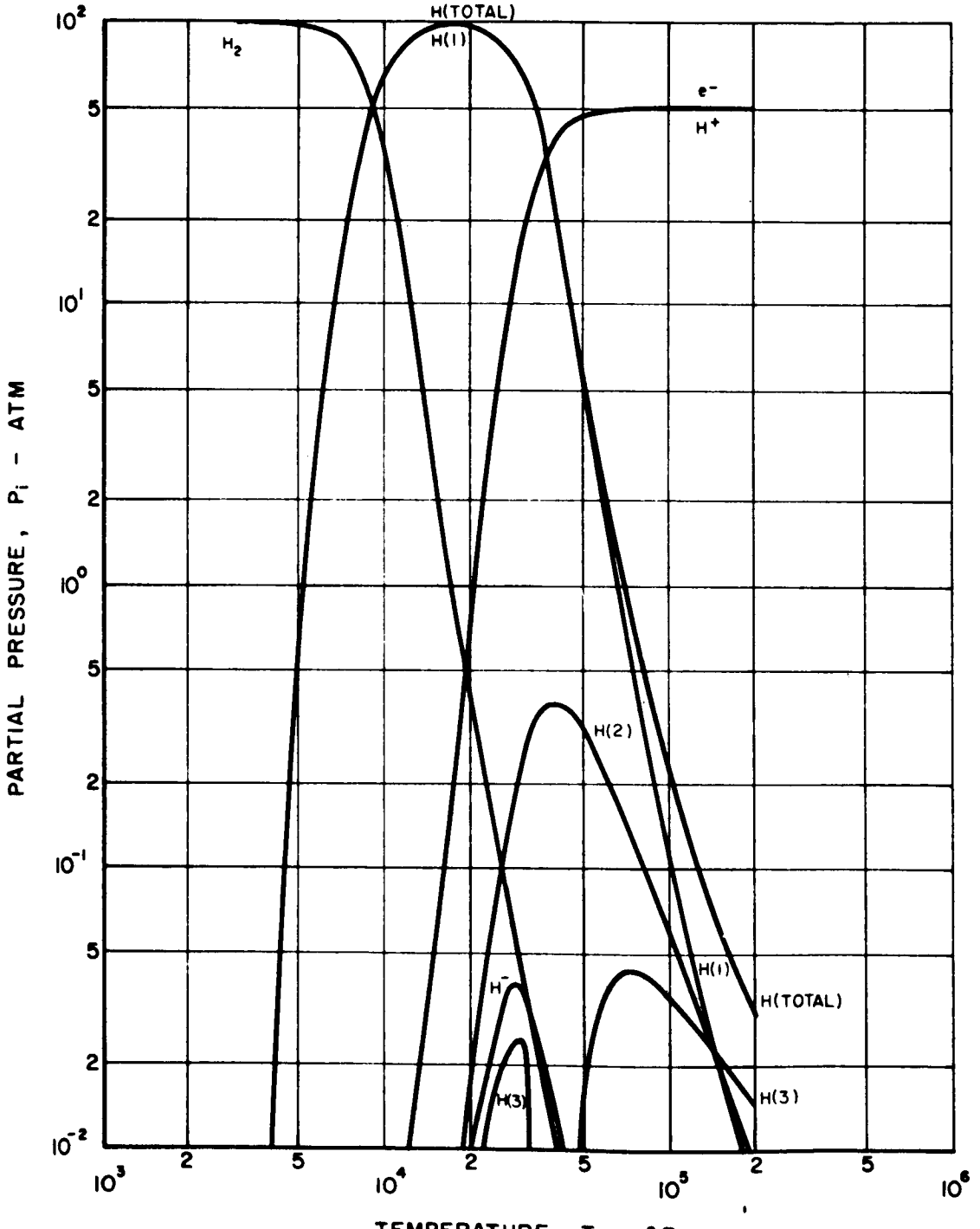


FIG. 4

TOTAL ABSORPTION COEFFICIENT OF HYDROGEN AS A FUNCTION OF WAVE NUMBER AT A PRESSURE OF 10 ATMOSPHERES

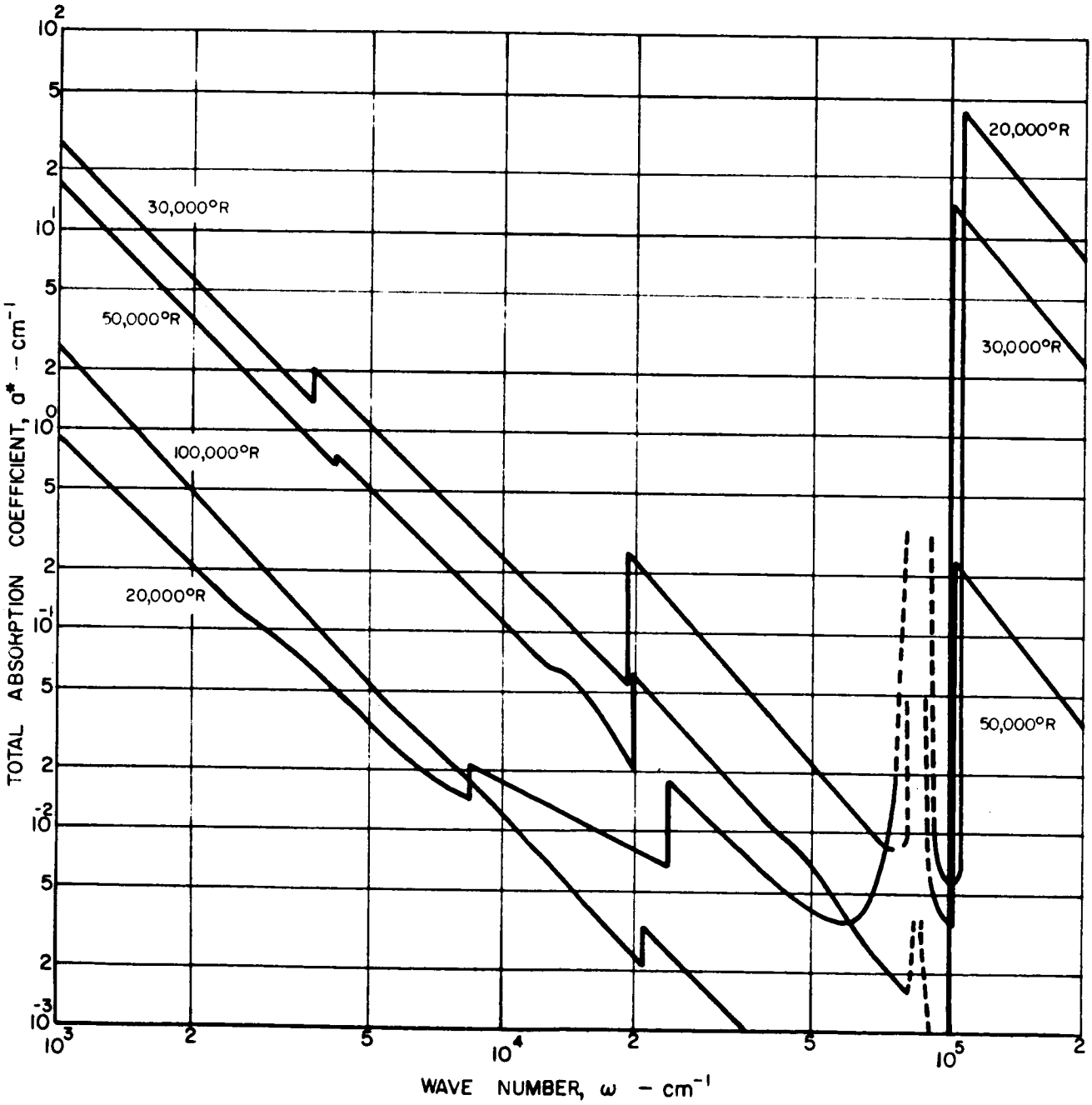


FIG. 5

TOTAL ABSORPTION COEFFICIENT OF HYDROGEN AS A FUNCTION OF WAVE NUMBER AT A PRESSURE OF 100 ATMOSPHERES

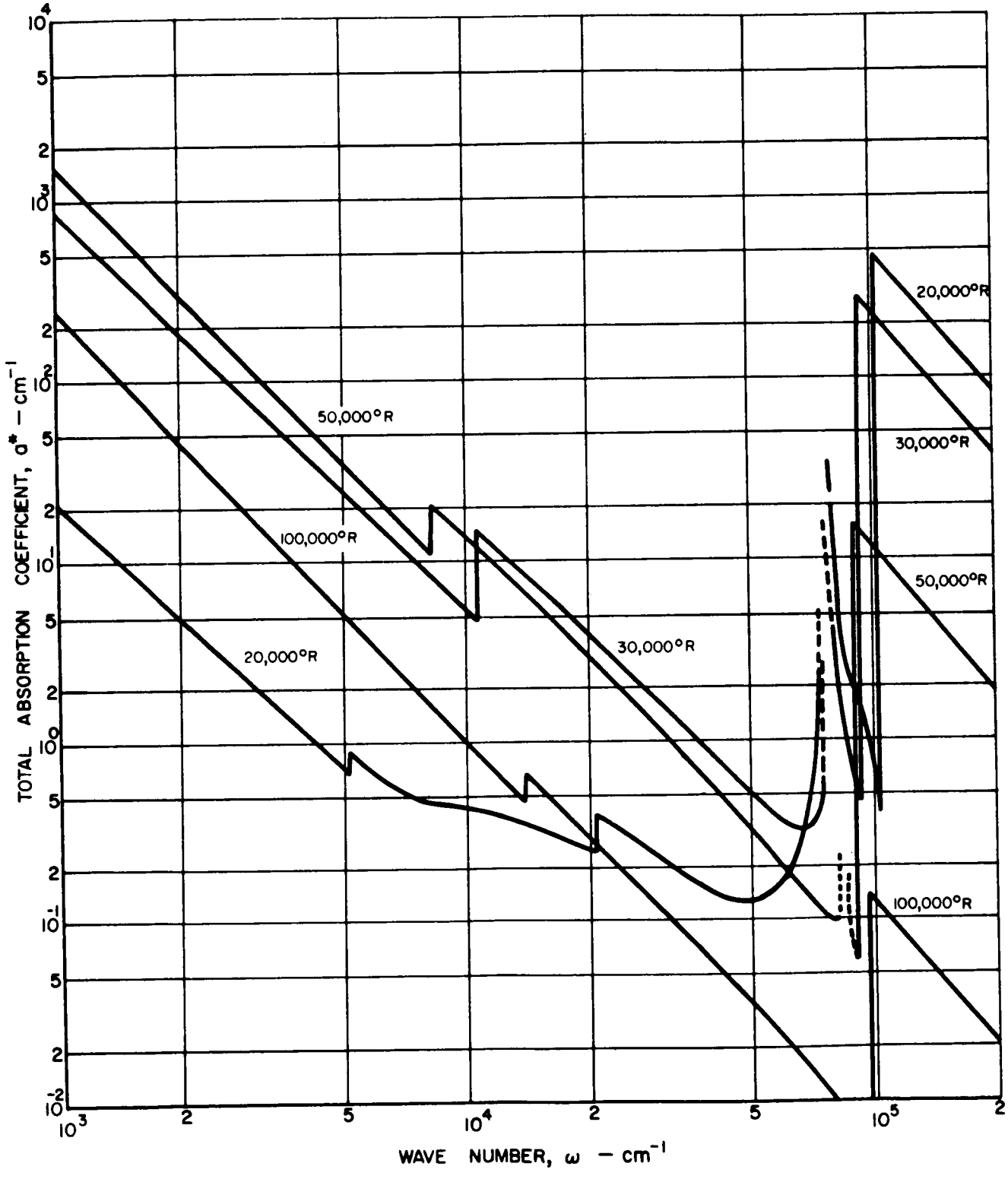
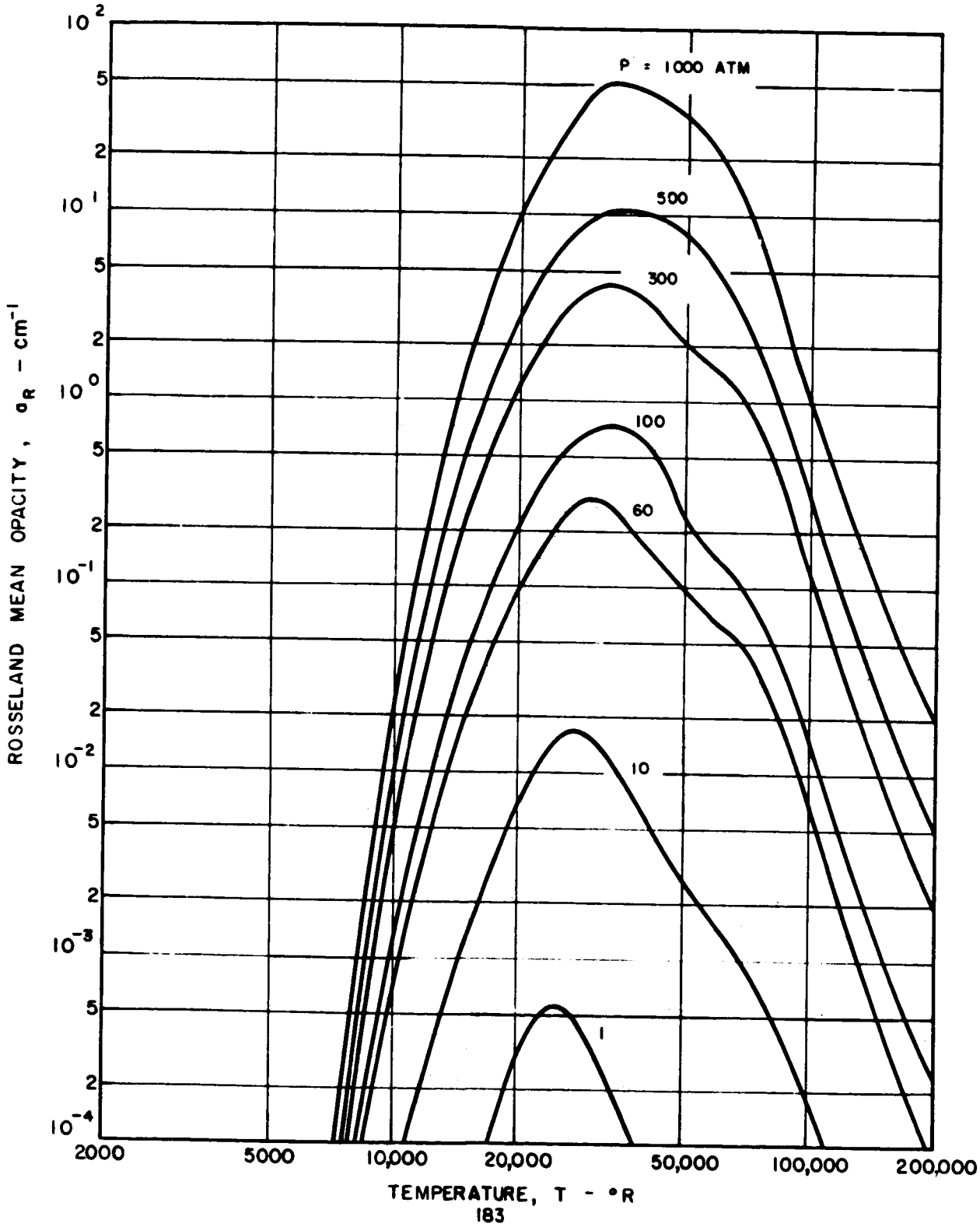


FIG. 6

ROSSELAND MEAN OPACITY OF HYDROGEN AS A FUNCTION OF TEMPERATURE FOR VARIOUS TOTAL PRESSURES



ENTHALPY OF HYDROGEN AS A FUNCTION OF TEMPERATURE

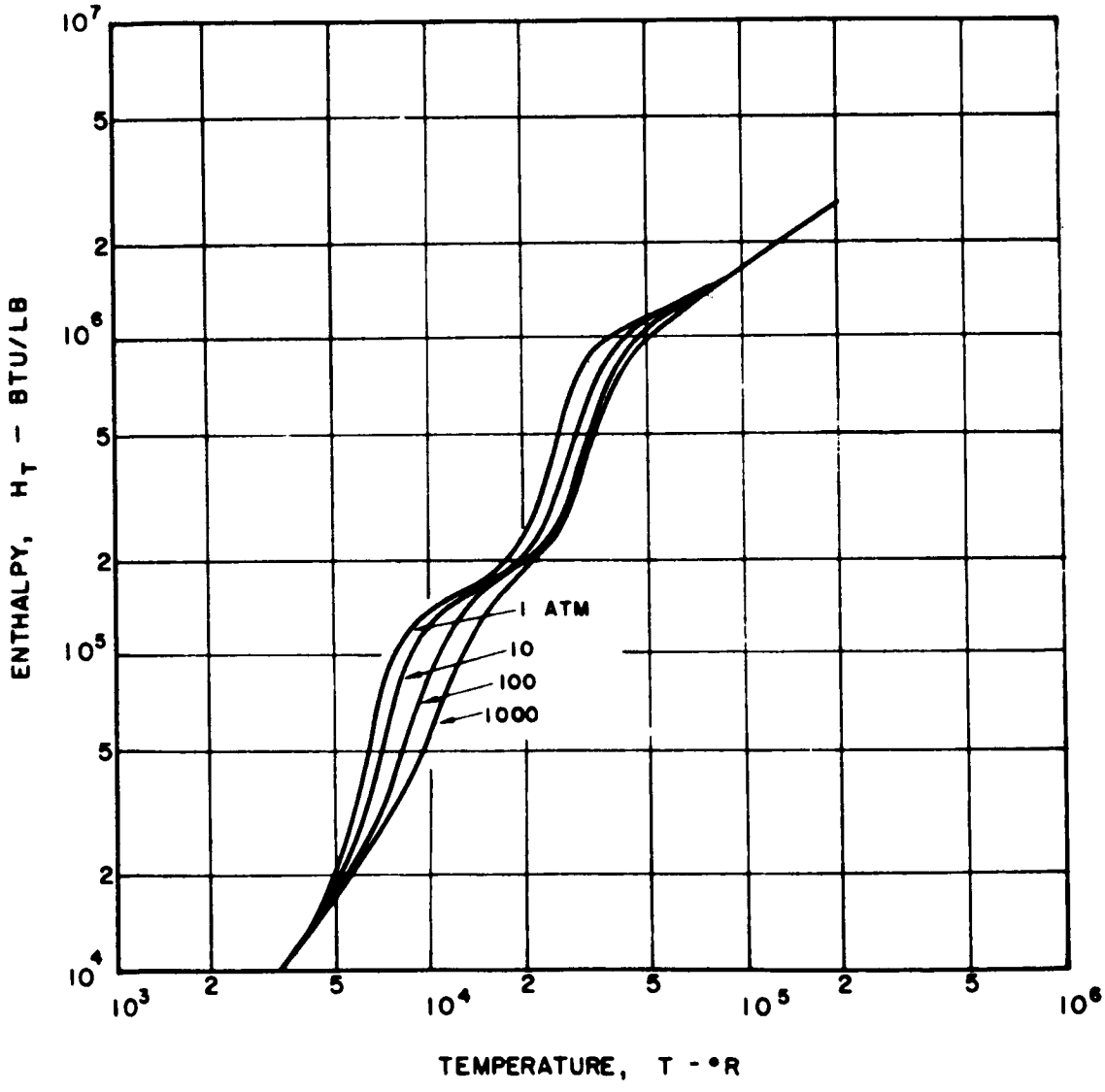
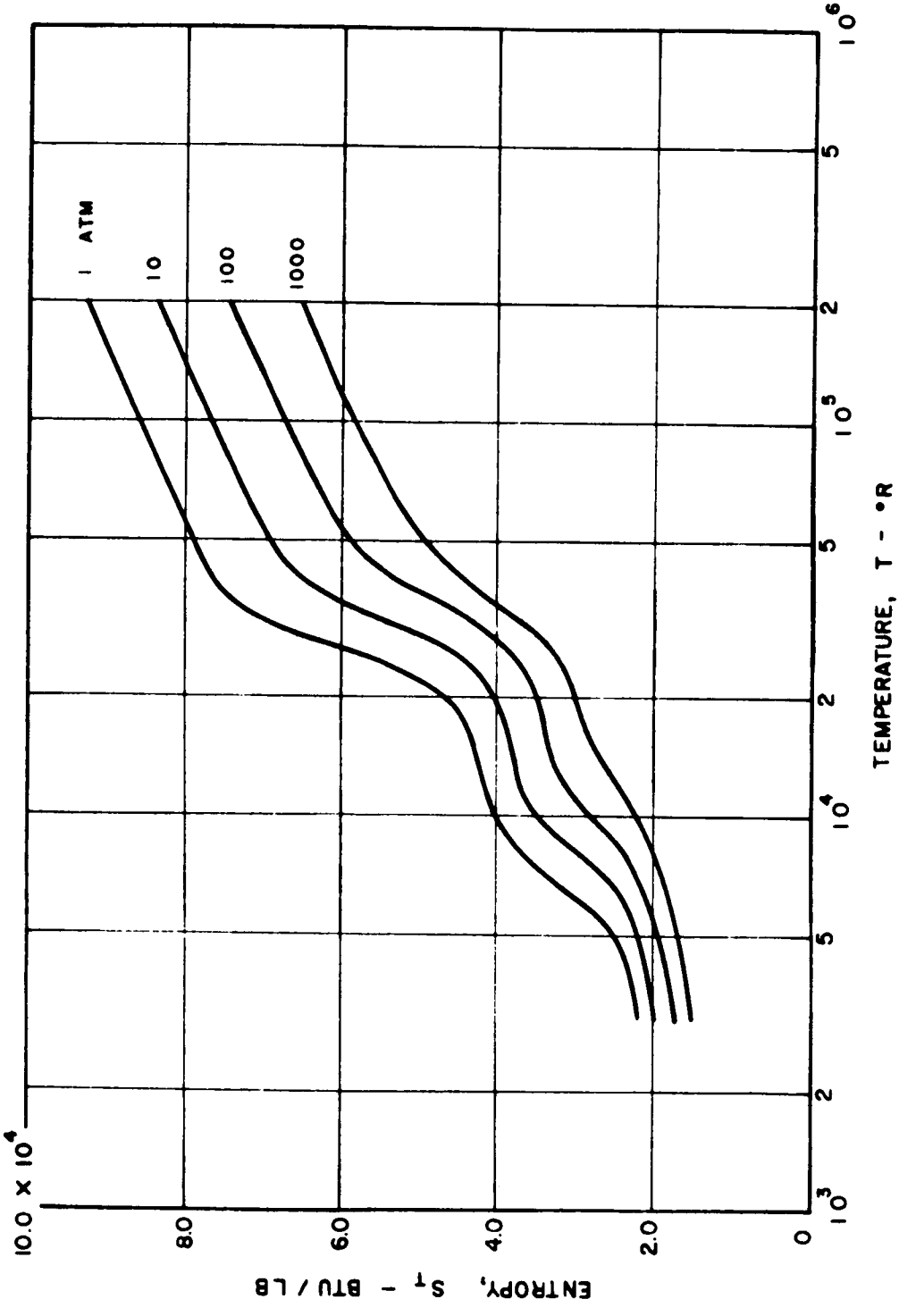


FIG. 8

ENTROPY OF HYDROGEN AS A FUNCTION OF TEMPERATURE



NASA-Langley, 1963