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Thermophysical Properties of Parahydrogen from the Freezing Liquid Line to 5000 R for Pressures to 10,000 Psia

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Tables of thermophysical properties of para hydrogen are presented for temperatures from the melting line to 5000 R for pressures from 1 to 10,000 psia. The tables include entropy, enthalpy, internal energy, density, volume, speed of sound, specific heat, thermal conductivity, viscosity, thermal diffusivity, Prandtl number and the dielectric constant for 65 isobars. Also included in the isobaric tables are quantitites of special utility in heat transfer and thermodynamic calculations: $(\partial P/\partial V)_T$, $(\partial P/\partial T)_V$, $V(\partial H/\partial V)_P$, $V(\partial P/\partial U)_V$, $-V(\partial P/\partial V)_T$, $1/V(\partial V/\partial T)_P$.

In addition to the isobaric tables, tables for the saturated vapor and liquid are given which include all of the above properties, plus the surface tension. Tables for the P-T of the freezing liquid, index of refraction and the derived Joule-Thomson inversion curve are also presented.

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THERMOPHYSICAL PROPERTIES OF PARAHYDROGEN FROM THE FREEZING LIQUID LINE TO 5000 R FOR PRESSURES TO 10,000 PSIA*

Robert D. McCarty and Lloyd A. Weber

Tables of thermophysical properties of parahydrogen are presented for temperatures from the melting line to 5000 R for pressures from 1 to 10,000 psia. The tables include entropy, enthalpy, internal energy, density, volume, speed of sound, specific heat, thermal conductivity, viscosity, thermal diffusivity, Prandtl number and the dielectric constant for 65 isobars. Also included in the isobaric tables are quantities of special utility in heat transfer and thermodynamic calculations: $(\partial P/\partial V)_T$, $(\partial P/\partial T)_V$, $V(\partial H/\partial V)_P$, $V(\partial P/\partial U)_V$, $-V(\partial P/\partial V)_T$, $1/V(\partial V/\partial T)_P$.

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Key Words: Density; dielectric constant; enthalpy; entropy; equation of state; fixed points; heat transfer coefficients; hydrogen; index of refraction; Joule-Thomson coefficient; latent heat; melting point; Prandtl number; specific heat; speed of sound; surface tension; thermal conductivity; thermal diffusivity; vapor pressure; viscosity; volume.

1. Introduction

The purpose of this document is to assemble, under a single cover, data on many of the properties of hydrogen commonly used for engineering calculations, over as wide a temperature and pressure range as possible, and present these data in a form convenient to the engineer. All of the data presented here have been critically selected and represent the "best values" for that particular property at this time.

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2. Thermodynamic and Related Properties

2.1 PVT Surface

The PVT surface of Roder, et al. (1965), which is based on the experimental data of Goodwin, et al. (1963), was used to calculate all of the thermodynamic and related properties for temperatures below 90 K. The computer program used by Roder, et al. (1965) was modified to allow extrapolation to pressures of 10,000 psi, see Region B, figure 1. For densities greater than 5 lb/ft^3, the representation of the PVT surface by Roder, et al. (1965) was replaced with an empirical equation of state like that previously used for oxygen (Weber, L. A., 1970). This equation is cubic in both temperature and density and fits the experimental data with an average standard deviation of 0.01% in density. An equation of state of the modified Strobridge (1962) type was used to calculate all of the thermodynamic and related properties for temperatures above 100 K. To insure a smooth transition between the two surfaces a weighted average of the low and high temperature surfaces was used between 90 and 100 K. This average was calculated by equation (1).

$$P(\rho, T) = P_{\text{low range}}(\rho, T)\,[\,(100 - T)/10] + P_{\text{high range}}(\rho, T)\,[\,1 + (T-100)/10] \qquad (1)$$

The equation of state developed for temperatures above 100 K has not been previously published and will be described here. The equation of state is:

$$\begin{aligned} P_{atm} = {} & \rho R T + (N_1 T + N_2 + N_3/T + N_4/T^2 + N_5/T^4)\rho^2 \\ & + (N_6 T^2 + N_7 T + N_8)\rho^3 + N_9 \rho^4 T \\ & + \rho^3 (N_{10}/T^2 + N_{11}/T^3 + N_{12}/T^4) e^{\gamma\rho^2} \\ & + \rho^5 (N_{13}/T^2 + N_{14}/T^3 + N_{15}/T^4) e^{\gamma\rho^2} \\ & + N_{16}\rho^6 \end{aligned} \qquad (2)$$

where P is in atmospheres, T is in Kelvin, and ρ is in moles per liter. The parameters for equation (2) are given in table 1.

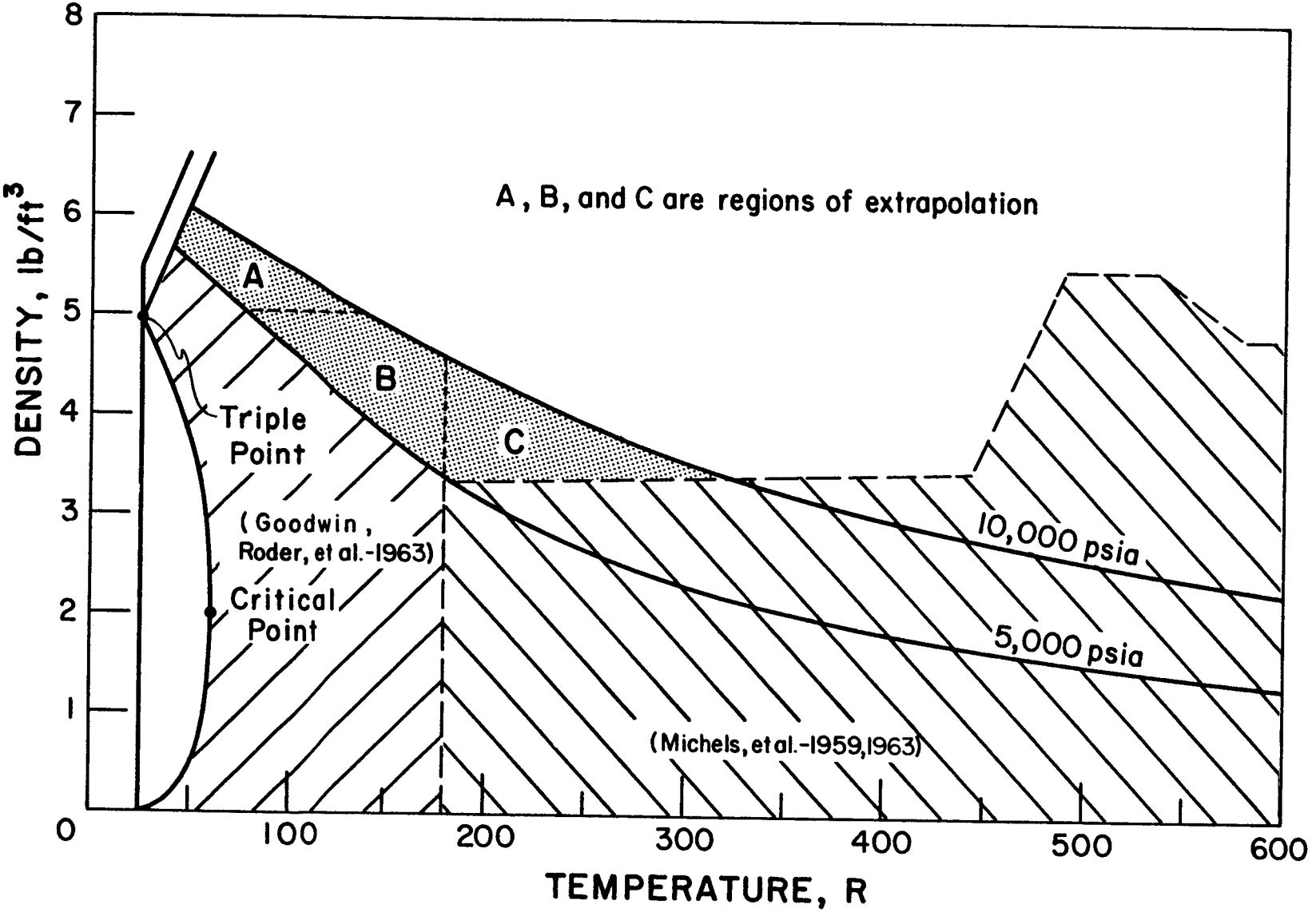

Figure 1. A density-temperature diagram showing regions of experimental data and regions of extrapolation below 600 R.

Table 1. Least squares estimates of parameters N_i in equation (2)

$N_1 = 1.4961551208 \times 10^{-3}$	$N_{10} = -3.1263011903 \times 10^{+1}$
$N_2 = -1.5006828624 \times 10^{-2}$	$N_{11} = 5.3359371204 \times 10^{+2}$
$N_3 = -2.8434013385 \times 10^{+1}$	$N_{12} = 8.8611547530 \times 10^{+4}$
$N_4 = 1.5564502978 \times 10^{+3}$	$N_{13} = 2.0727677845 \times 10^{-1}$
$N_5 = -2.1545800614 \times 10^{6}$	$N_{14} = -2.2517870830 \times 10^{+1}$
$N_6 = -3.5038610714 \times 10^{-8}$	$N_{15} = 6.8278056458 \times 10^{+2}$
$N_7 = 3.8441135632 \times 10^{-5}$	$N_{16} = 4.9195075735 \times 10^{-8}$
$N_8 = 1.4760364722 \times 10^{-3}$	$\gamma = -0.0018$
$N_9 = 9.7378323406 \times 10^{-8}$	$R = 0.0820535$

The PVT data used to estimate the coefficients for equation (2) consisted of the following: the 90 and 100 K isotherms of Roder, et al. (1965) extrapolated to 700 atmopsheres; all of the PVT sources used by Woolley, et al. (1948) in their compilation; and all of the isotherms reported by Michels, et al. (1959, 1963). In addition to the PVT data described above, the derivatives $(\partial P/\partial T)_\rho$, $(\partial P/\partial \rho)_T$, the internal energy and C_v data from the extrapolated 90 and 100 K isotherms of Roder, et al. were used in the fit. The internal energy and C_v values of Michels, et al. (1959, 1963) were also used in the fit. As a result of including the internal energy and C_v data of Michels, et al. in the fitting procedure, the disagreement between the calculated internal energies and C_v's and those of Michels, et al. was reduced by an order of magnitude. At 300 K, the maximum disagreement is about 2 BTU/lb in U for pressures less than 10,000 psi.

The highest temperature for the experimental PVT data used in the least squares fit is 673 K. At the time the equation was developed it was desirable to extrapolate the pressures at temperatures to 3000 K. An investigation of the contribution of the second and third virial terms in the equation of state for temperatures from 700 to 3000 K and pressures to 700 atmospheres indicated a strong compensating relationship between the two terms, i.e., if the results of the least squares estimation produced a small second virial for these high temperatures a large third virial resulted, and if the second virial turned out to be too large, the third virial was compensatingly small. Thus the calculated densities from the two extreme situations agreed to within 0.5%.

The uncertainties listed in table 2 are based on the goodness of fit in the region where experimental data exist and upon the variation in calculated density between various extrapolations into regions of pressure and temperature where no experimental data exist. (See figures 1 and 2.)

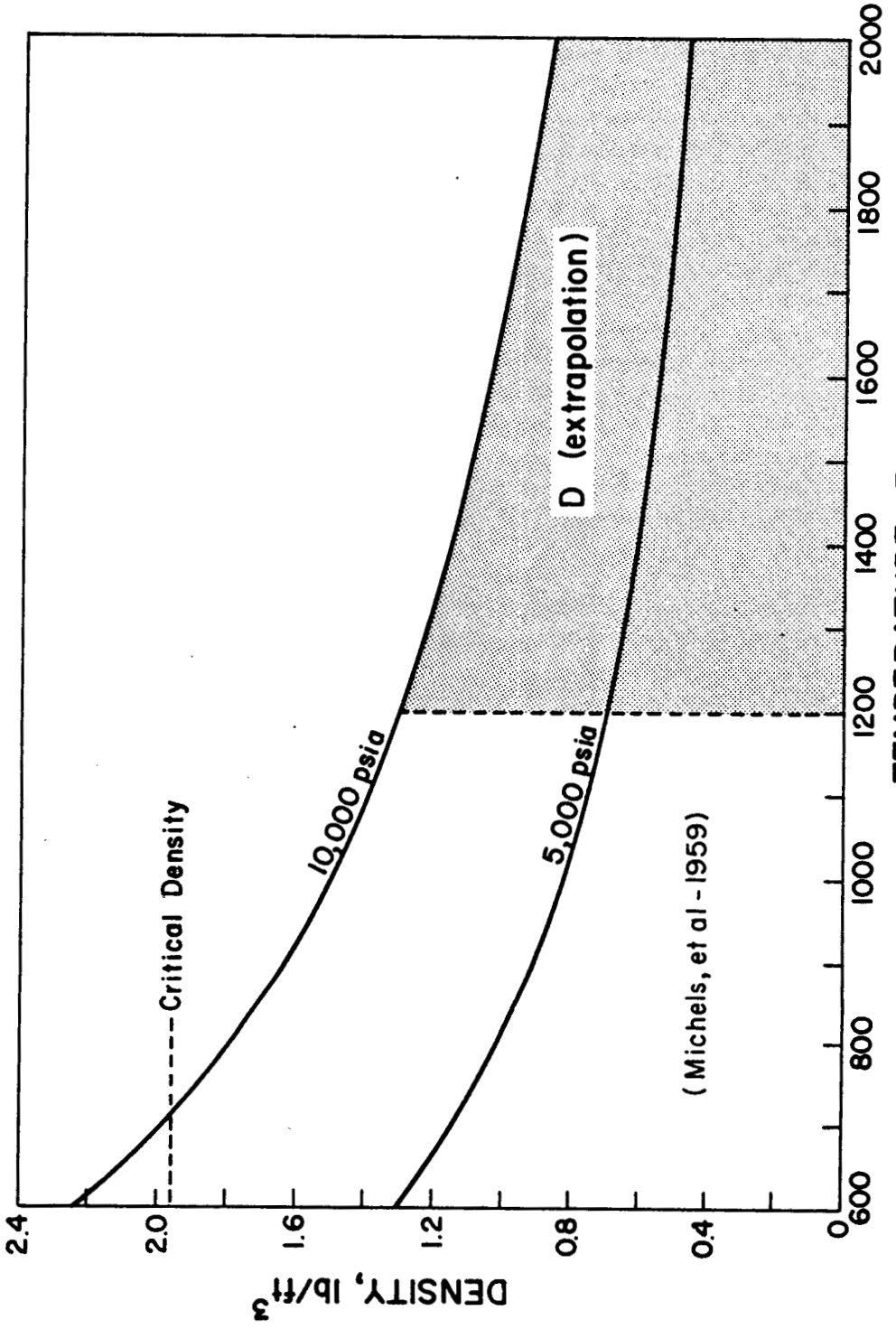

Figure 2. A density-temperature diagram showing regions of extrapolation above 600 R.

Table 2. Uncertainties in the PVT Data

Temperature Range	Pressure Range	Uncertainty in Density
700 - 3000 K	1 - 700 atm	1 % (extrapolation) Region D, figure 2
100 - 700 K	1 - 340 atm	0.5 %
100 - 170 K	340 - 680 atm	1 % (extrapolation) Region C, figure 1
170 - 700 K	340 - 680 atm	0.5 %
13 - 100 K	1 - 340 atm	0.1 % (except critical region)
Critical Region	$T_c \pm 1\%$, $\rho_c \pm 20\%$	6 %
Solid - 100 K	340 - 700 atm	1 % (extrapolation) Regions A and B, figure 1

2.2 Derived Thermodynamic Properties

The enthalpy H, speed of sound W, entropy S, specific heats C_p, C_v, and the internal energy U, were calculated for the lower temperature range directly from the equations taken from Roder, et al. (1965), and should be identical to those of Roder when proper unit conversion is applied. Except in the critical region, ($T_c \pm 1\%$, $\rho_c \pm 20\%$) and the region of extrapolation, the uncertainty in these derived properties calculated from Roder's equations is estimated to be less than 2%. It is difficult to assess the uncertainties of the derived properties in the critical region. For example, the specific heat near the critical point becomes very large but quantitative estimates are not available. In the extrapolated region below 100 K, the uncertainty of the derived properties is estimated to be no greater than 10%. For temperatures between 90 and 100 K, equation (1) was used for each property.

For the high temperature range, T > 100 K, the derived thermodynamic properties were calculated by means of the equation of state, equation (2), and the following relationships:

$$S = -R\ell n\left(\frac{\rho RT}{P_o}\right) + \int_{T_o}^{\rho}\left[\frac{R}{\rho} - \frac{1}{\rho^2}\left(\frac{\partial P}{\partial T}\right)_\rho\right]d\rho + \int_o^T C_P^o\,\frac{dT}{T} \qquad (3)$$

$$H = {}_T\int_o^\rho \left[\frac{P}{\rho^2} - \frac{T}{\rho^2}\left(\frac{\partial P}{\partial T}\right)_\rho\right] d\rho + \frac{P}{\rho} - RT + \int_o^T C_p^o \, dT \qquad (4)$$

$$C_v = C_v^o - {}_T\int_o^\rho \frac{T}{\rho^2}\left(\frac{\partial^2 P}{\partial T^2}\right)_\rho d\rho \qquad (5)$$

$$C_P = C_v + T\left(\frac{\partial P}{\partial T}\right)_\rho^2 \Big/ \rho^2\left(\frac{\partial P}{\partial \rho}\right)_T \qquad (6)$$

$$W = \left[\left(\frac{C_p}{C_v}\right)\left(\frac{\partial P}{\partial \rho}\right)_T\right]^{\frac{1}{2}} \qquad (7)$$

where P_o is 1 atmosphere and the ideal gas properties, C_p^o and C_v^o are for parahydrogen from Woolley, et al. (1948) who estimates the uncertainty in these properties to be less than 0.3%. The subscript T before the integral signs indicates an isothermal integration.

In all cases the input variable pair was pressure, P, and temperature, T. The uncertainty of the derived properties including the specific heat is estimated to be no more than 2% over the temperature range from 100 to 700 K for pressures less than 350 atmospheres. From 700 to 3000 K the uncertainty of the derived properties is probably no greater than 5%. At the upper limit of the temperature range dissociation is important and has been taken into account. For a detailed description of the dissociation calculations, see Roder, et al. (1972).

At the boundary of the high and low temperature surfaces for pressures below 350 atmospheres the disagreement between the two is no greater than 0.8% in any of the derived properties including specific heat. For pressures above 350 atmospheres the disagreement at the boundary of the high and low temperature surfaces is as much as 3%.

2.3 Related Properties

A number of parameters such as the specific heat input $[\, V(\partial H/\partial V)_P \,]$ are of use to the engineer. Several of the more useful quantities of this kind have been tabulated here for the convenience of the user. These quantities have been derived from the two PVT surfaces described in section 2.1.

Specific heat input

$$\theta = V\left(\frac{\partial H}{\partial V}\right)_P = \rho C_p \left[\left(\frac{\partial P}{\partial \rho}\right)_T \Big/ \left(\frac{\partial P}{\partial T}\right)_V\right] \qquad (8)$$

Energy derivative

$$\Phi = V\left(\frac{\partial P}{\partial U}\right)_V = \frac{V}{C_v}\left(\frac{\partial P}{\partial T}\right)_V \tag{9}$$

Isothermal bulk modulus

$$\alpha = V\left(\frac{\partial P}{\partial V}\right)_T = -\rho\left(\frac{\partial P}{\partial \rho}\right)_T \tag{10}$$

Volume expansivity

$$\beta = \frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P = \frac{1}{\rho}\left(\frac{\partial P}{\partial T}\right)_\rho \Big/ \left(\frac{\partial P}{\partial \rho}\right)_T \tag{11}$$

2.4 Extrapolations

An immediate need exists in NASA's space shuttle program for hydrogen property data at pressures to 10,000 pisa and temperatures to 5000 R. Since no experimental data exist for hydrogen properties over much of this pressure and temperature range, see figures 1 and 2, the existing data were extrapolated to these higher pressures and temperatures to provide interim values until new experimental data become available.

General methods of extrapolation were investigated with varying results. The extrapolations to higher temperatures varied little from method to method; however, the extrapolations to higher densities at the lower temperatures were much more dependent upon the method used. The largest disagreements, as much as 30%, occur in the derived properties such as Cp; however, the various extrapolations of density disagree by as much as 5%. The uncertainty of the tabulated values in appendix E is estimated to be less than the extremes just mentioned because some of the methods of extrapolation were discounted on the basis of behavior which was known to be incorrect. The actual methods used for the calculation of the tabular values varied from region to region and are described in the individual sections. Plots of some of the properties in the high density region of extrapolation are shown here in figures 3 through 8. These plots demonstrate the behavior of the properties in the extrapolated regions and provide a handy reference for the reader.

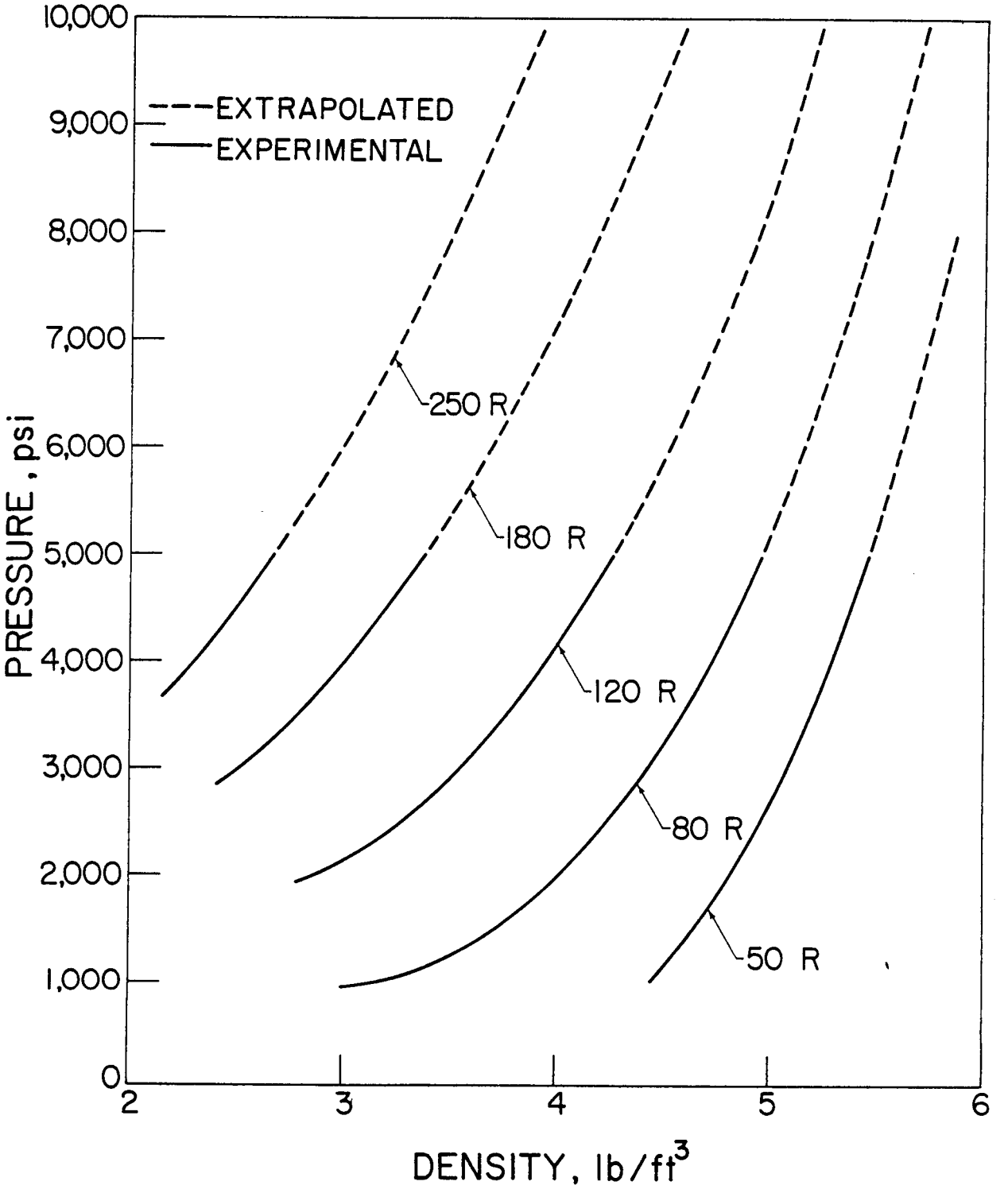

Figure 3. Pressure extrapolations at low temperatures.

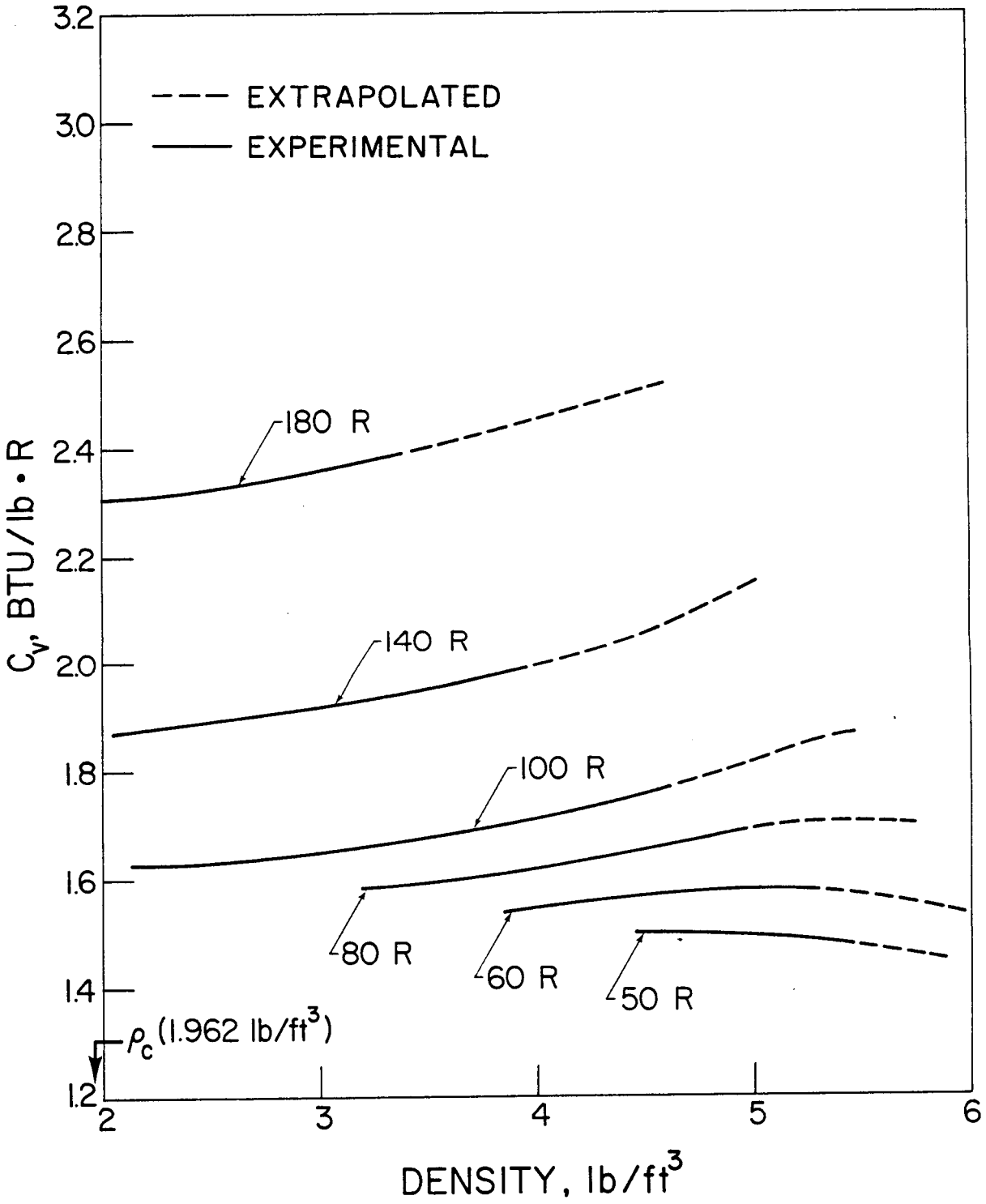

Figure 4. C_v extrapolations at low temperatures.

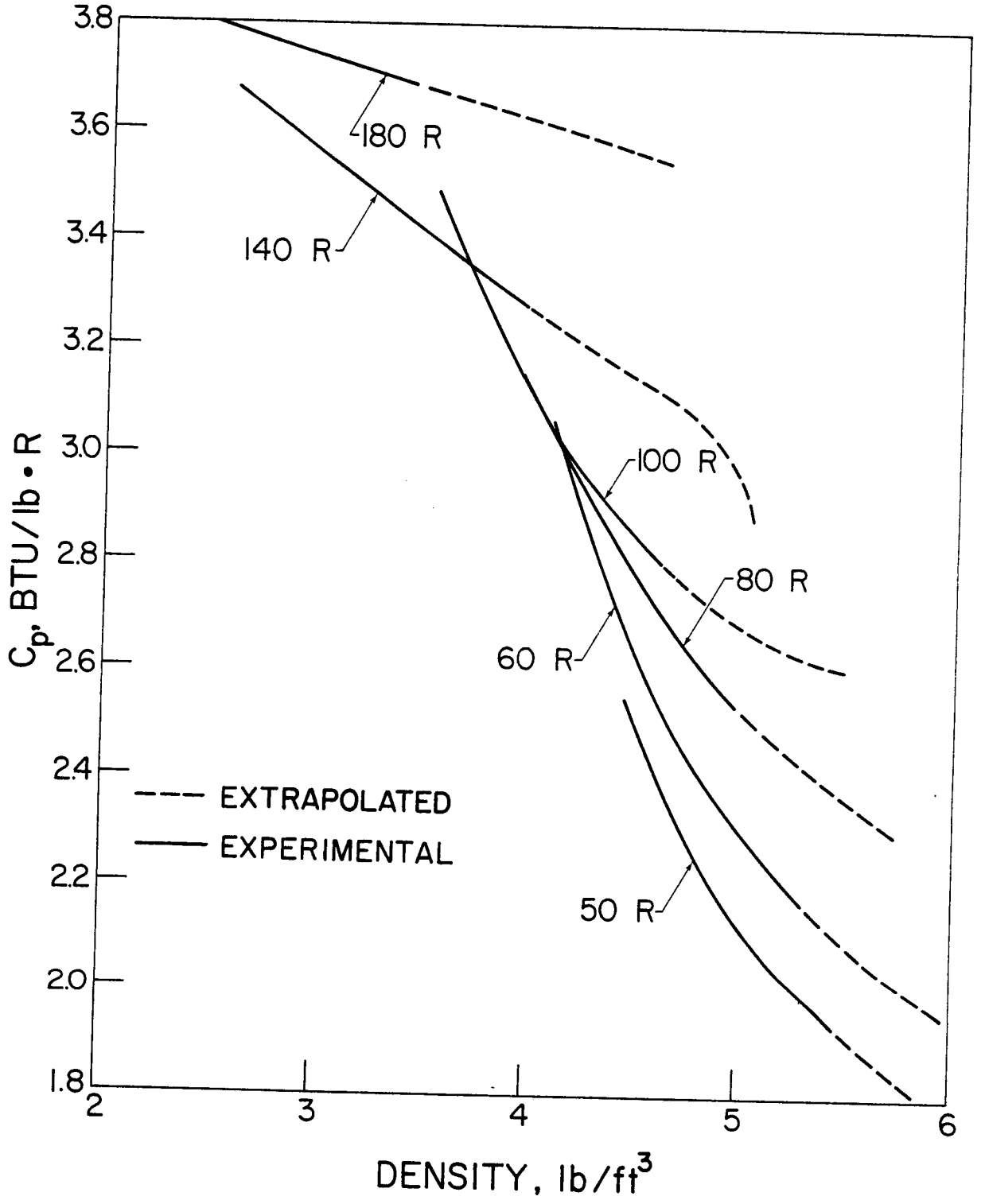

Figure 5. C_p extrapolations at low temperatures.

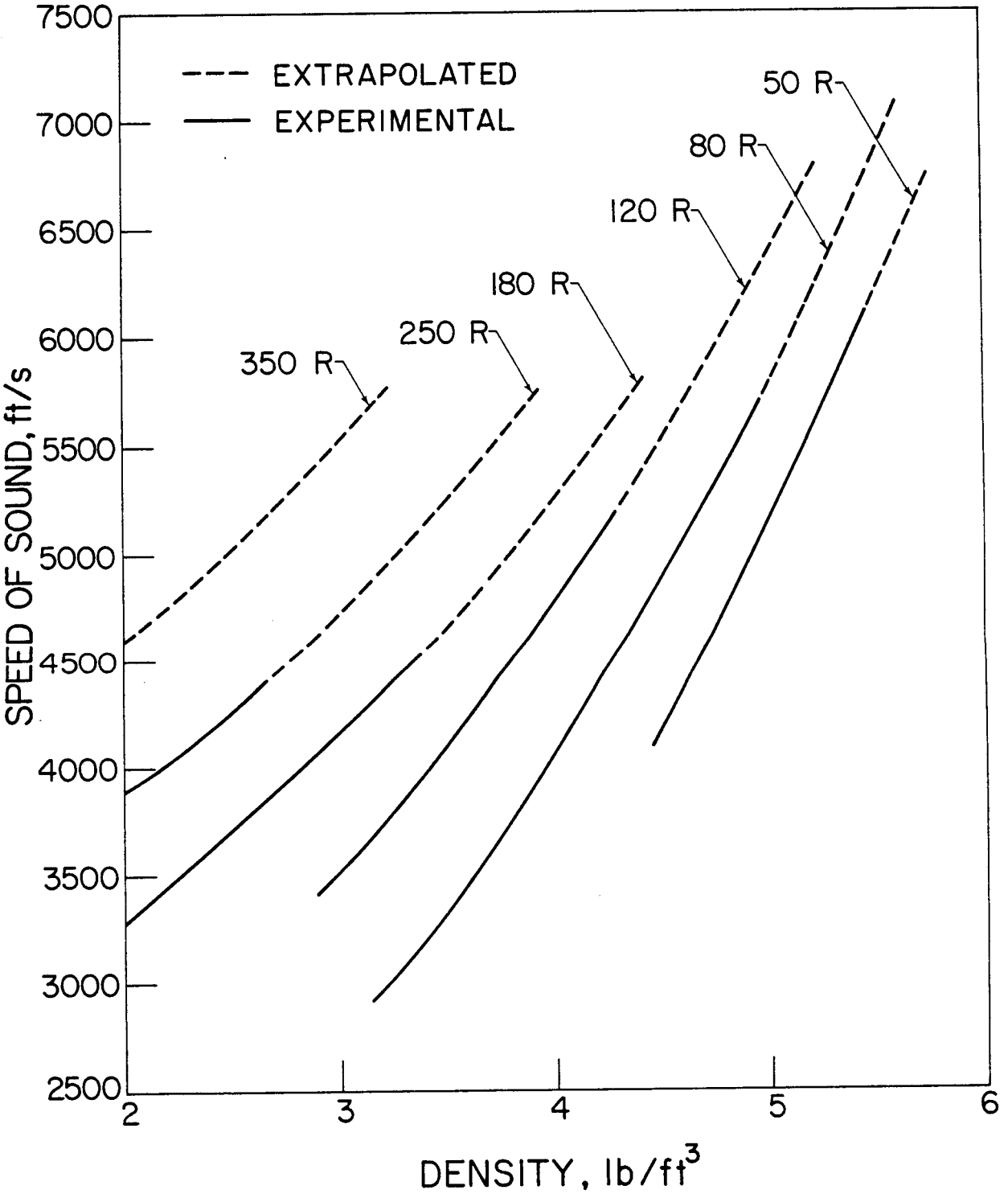

Figure 6. Speed of sound extrapolations at low temperatures.

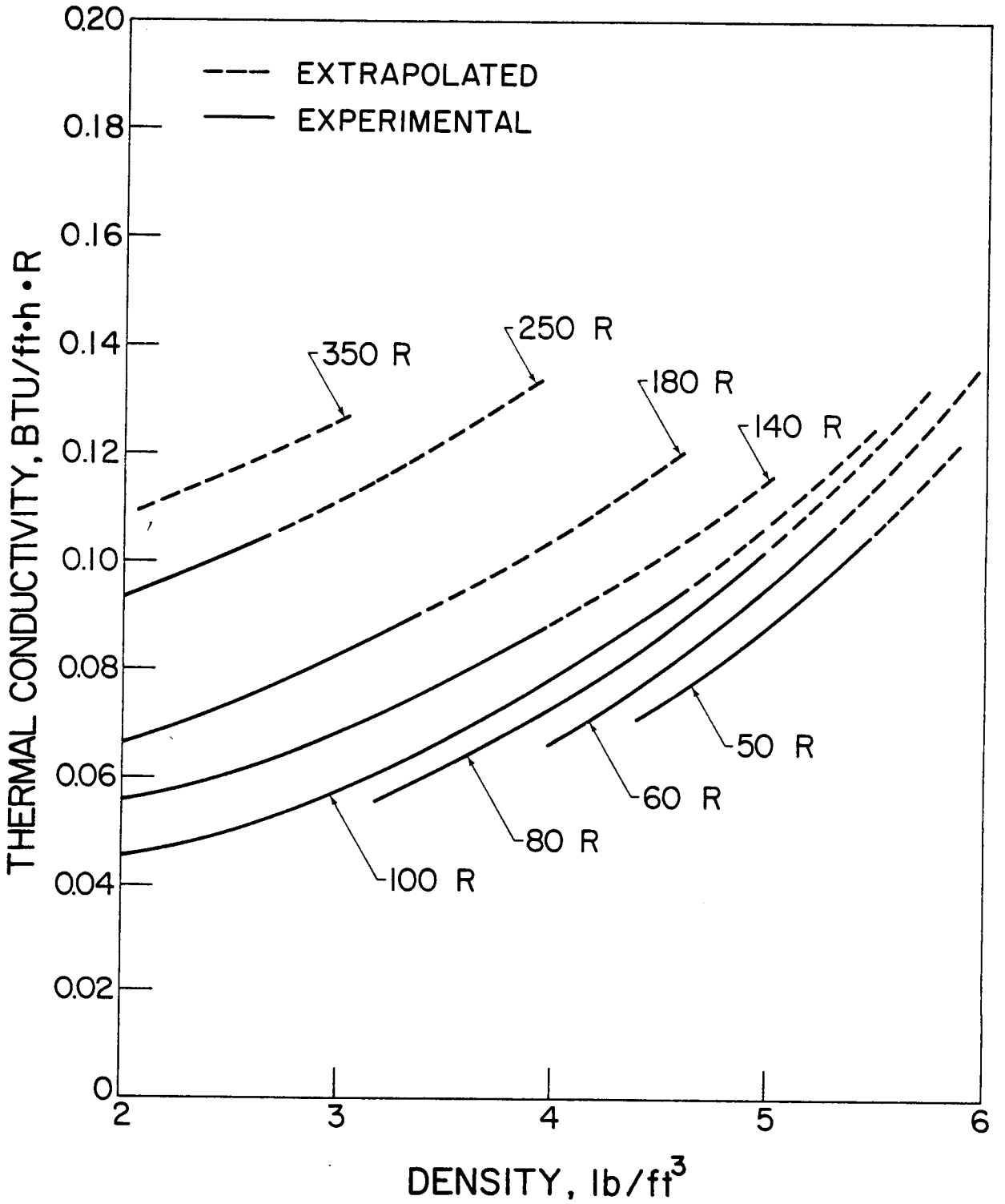

Figure 7. Thermal conductivity extrapolations at low temperatures.

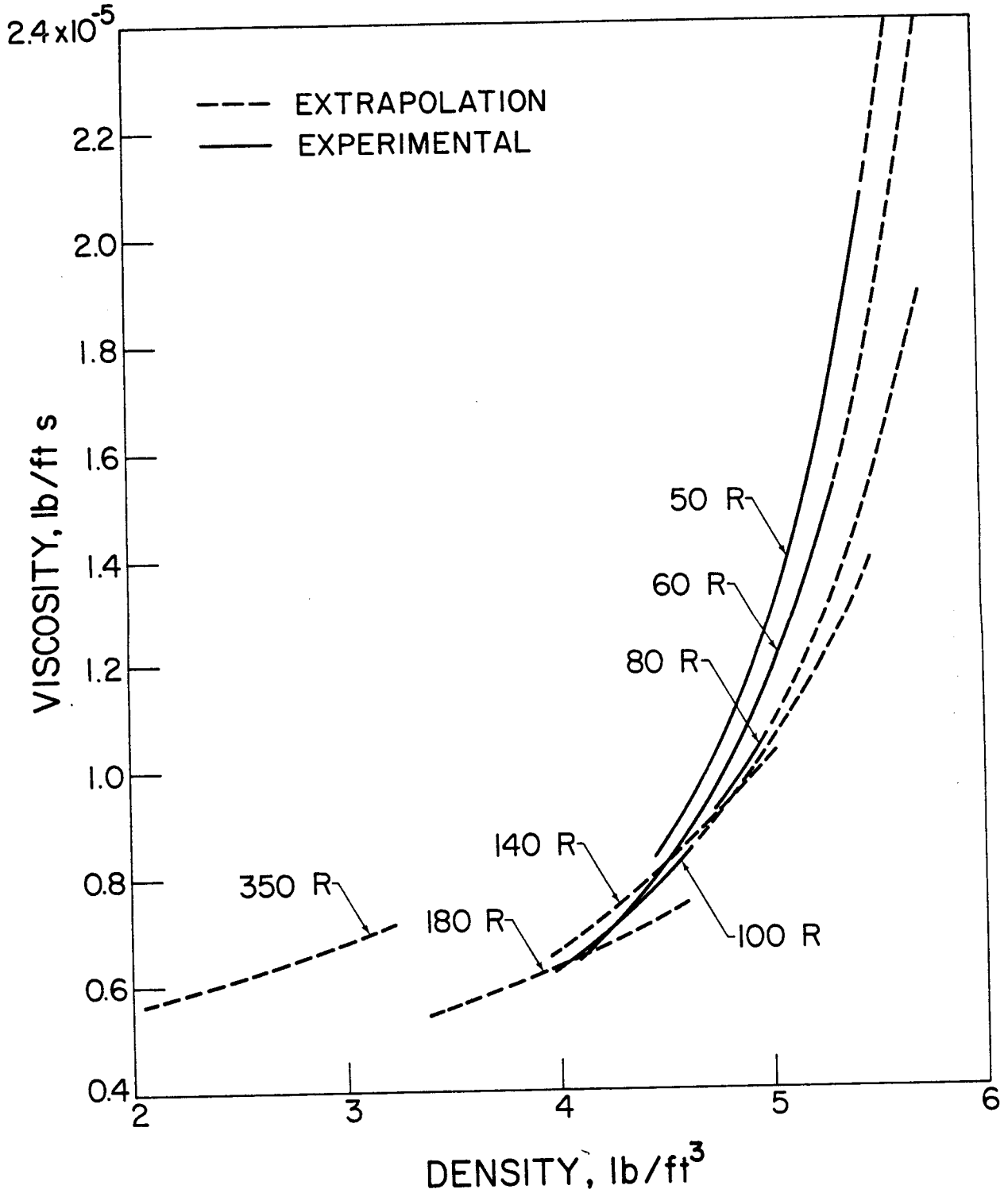

Figure 8. Viscosity extrapolations at low temperatures.

3. Transport Properties

3.1 Thermal Conductivity

The thermal conductivity values which appear in the tabulations in this document for temperatures below 100 K have been taken from Roder and Diller (1970). The original paper by Roder and Diller does not give interpolation formulas and the calculations necessary for the tabular values appearing here were performed with a computer program furnished by Roder. Roder and Diller (1970) assign an uncertainty of 3% for their measurements. In the range of their experimental data to 150 atmospheres this is a good estimate. The computer routine furnished by Roder was extrapolated to 700 atmospheres. The uncertainty of the thermal conductivity in the extrapolated region below 100 K is estimated to increase from 3% at 150 atmospheres to 10% at 700 atmospheres.

For temperatures of $T > 100$ K the thermal conductivity was calculated using a modified Enskog theory (Hanley, McCarty and Cohen, 1971). The uncertainty of the thermal conductivity calculations in the upper temperature region is estimated as follows. At 100 K and low densities where the calculations may be compared with the experimental data of Roder and Diller (1970) the agreement is very good, i.e., 1%. Comparing the two methods of extrapolation along the 100 K isotherm shows a 2% difference at 100 K and 700 atmospheres of pressure. For temperatures above 100 K no direct comparisons are possible, however, since similar calculations for other gases differ from experimental data by as much as 10%, the uncertainty is estimated to be on the order of 10%.

3.2 Viscosity

In the lower temperature range of $T < 100$ K the viscosities tabulated here are based on the experimental measurements of Diller (1965). These experimental data extend to a maximum of 350 atmospheres at temperatures below 100 K. Diller (1965) suggests using an interpolation formula of the type:

$$\eta = \eta_0 (T) + \eta_E (\rho, T) \tag{12}$$

where $\eta_0 (T)$ is the dilute gas contribution and $\eta_E (\rho, T)$ is called the excess or dense gas contribution. Woolley, et al. (1948) proposes

$$\eta_0 (T) = 8.5558 \left[T^{3/2} / (T + 19.55) \right] \left[(T + 650.39) / (T + 1175.9) \right] \tag{13}$$

for the dilute gas contribution and Diller proposes

$$\eta_E(\rho, T) = A(\rho)\, e^{[B(\rho)/T]} \tag{14}$$

for the excess viscosity contribution. The extrapolation of the functions $A(\rho)$ and $B(\rho)$ as originally published by Diller proved unsatisfactory. Therefore the functions were modified to the following:

$$A(\rho) = \frac{(306.4636\rho - 3350.628\rho^2 + 3868.092\rho^3)}{(1.0 - 18.47830\rho + 110.915\rho^2 + 25.3524\rho^3)} \times 10^{-6} \tag{15}$$

$$B(\rho) = 10.0 + 7.2[(\rho/.07)^6 - (\rho/.07)^{\frac{3}{2}}] - 17.63/e^{58.75(\rho/.07)^3} \tag{16}$$

where T is in Kelvin, ρ is in g/cm^3 and η is in $g/cm\text{-}s \times 10^{-6}$. Diller (1965) estimates the uncertainty of his data to be 0.5%. At the highest densities in the low temperature region of extrapolation the uncertainty in the calculated viscosities could easily reach 10%.

For temperatures of $T > 100$ K, the viscosity was calculated using a modified Enskog theory (Hanley, McCarty and Cohen, 1971). The Enskog theory for viscosity is very similar to that for thermal conductivity and the interested reader is referred to the original publication. The uncertainty of the viscosity calculations in the higher temperature region is estimated as follows. At 100 K where the calculated values may be compared to the experimental data of Diller (1970) the disagreement is about 4% at 5000 psia. Since the Enskog theory is not as accurate for viscosity as it is for thermal conductivity, the uncertainty for the viscosity in the upper temperature range of extrapolation is estimated to be 15%.

4. Surface Tension

Existing experimental data for the surface tension of hydrogen disagree by about 10%. Corruccini (1965a) showed that they could be made to agree by applying corrections to the data. He then combined the older data with additional recent measurements and published the following equation:

$$\gamma = \gamma_o (1 - T/T_c)^{1.065} \tag{17}$$

where γ_o = 5.328 for parahydrogen and 5.369 for normal hydrogen, and T_c = 32.976 K for parahydrogen and T_c = 33.18 for normal hydrogen. The surface tension, γ, is in dyn/cm. The maximum deviation of the experimental data from values calculated from the above equation is 1.3%, the average deviation is approximately 0.6%. No experimental data exist above the normal boiling point.

At the critical temperature, equation (17) is constrained to a value of zero. However, between the critical point and the normal boiling point, experience with other fluids has shown deviations of as much as 5%, expecially for temperatures above T/T_c = 0.8. The values of surface tension which appear in the tabulations were calculated from equation (17).

5. Dielectric Constant

The dielectric constant of a fluid may be calculated from the Clausius-Mossotti equation

$$\frac{\epsilon-1}{\epsilon+2}\frac{1}{\rho} = p \tag{18}$$

where ϵ is the dielectric constant, ρ is the density, and p is the specific polarization, a property of the substance having dimensions of specific volume. Recent measurements of the dielectric constant of parahydrogen by Stewart (1964) are used here. Stewart fit his data to an equation of the form

$$\frac{1}{p} = A + B\rho + C\rho^2 \tag{19}$$

where A = 0.99575, B = -0.09069 and C = 1.1227. The density, ρ, in equation (19) is in units of g/cm^3. Stewart estimates a maximum error of 0.1% in ϵ-1 using equations (18) and (19).

6. Index of Refraction

The refractive index of a non-polar fluid depends on the wavelength of the incident radiation and on the density of the fluid. The dependence on temperature at fixed densities is usually small enough to be neglected. In addition, the dependence on wavelength can be treated independently of the dependence on density. The Cauchy dispersion formula:

$$r_\Lambda = (\rho, \Lambda) = r_\infty(\rho) + \theta_1/\Lambda^2 + \theta_2/\Lambda^4 \tag{20}$$

accurately represents the wavelength dependence of r_Λ (specific refraction). Corruccini (1965b) pointed out the equivalence of the Maxwell's relation

$$\epsilon = n_\infty^2 \tag{21}$$

to

$$p = r_\infty \tag{22}$$

which allows the calculation of r_∞ from the polarizability as a function of density, and therefore

$$\frac{1}{p} = \frac{1}{r_\infty(\rho)} = 0.99575 - 0.09069\rho + 1.1227\rho^2 \tag{23}$$

where ρ is density in g/cm^3. Combining equation (20) and equation (23) Corruccini (1965b) found $\theta_1 = 0.7799569 \times 10^6$ and $\theta_2 = 0.495126 \times 10^{12}$. The specific refraction (r_Λ) is in cm^3/g, density is in g/cm^3, and the wavelength (Λ) is in Å. Values of the index of refraction in Table 3 have been calculated from equations (20), (23) and (24)

$$r_\Lambda = \frac{n^2 - 1}{n^2 + 2} \cdot \frac{1}{\rho} . \tag{24}$$

A comparison between Diller's (1968) experimentally determined indices of refraction and those calculated using the method outlined by Corruccini (1965b) agree to about 0.1% except near the critical point where the densities are uncertain. Figure 9 shows the variation of n with wavelength and density.

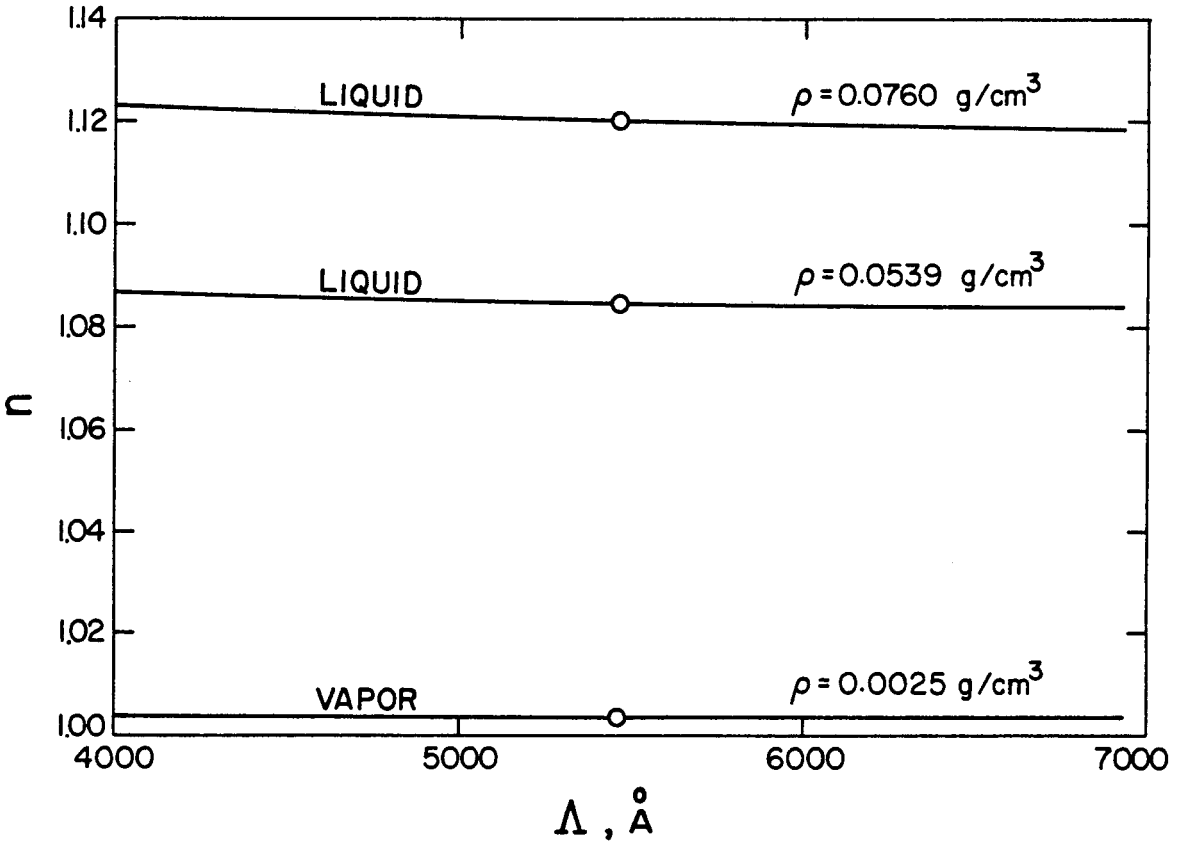

Figure 9. Index of refraction, n, as a function of density and wavelength. The points are experimental values from Diller (1968) at a wavelength of 5462 Å.

Table 3 Index of refraction of saturated liquid parahydrogen at three wavelengths

Temperature, K	Wavelength 4358 Å n	5462 Å n	6939 Å n
15	1.1222	1.1204	1.1191
16	1.1208	1.1189	1.1177
17	1.1192	1.1174	1.1162
18	1.1176	1.1158	1.1146
19	1.1159	1.1141	1.1129
20	1.1141	1.1124	1.1112
21	1.1123	1.1106	1.1095
22	1.1103	1.1086	1.1075
23	1.1082	1.1065	1.1054
24	1.1059	1.1042	1.1032
25	1.1034	1.1018	1.1008
26	1.1007	1.0991	1.0981
27	1.0977	1.0962	1.0952
28	1.0944	1.0929	1.0920
29	1.0906	1.0892	1.0883
30	1.0862	1.0849	1.0840

7. Thermal Diffusivity

The thermal diffusivity of a fluid is defined as

$$\alpha = \lambda/(\rho \cdot C_p) \tag{25}$$

where α is the thermal diffusivity, λ is the thermal conductivity, and C_p is the specific heat at constant pressure. The tabulations of thermal diffusivity in appendices D and E have been calculated using the above equation and the ρ, λ and C_p in the tables. The maximum uncertainty of α is estimated 10% except in the critical region and the regions of extrapolation.

8. Prandtl Number

The Prandtl number, Pr, is frequently used in engineering calculations and is defined as:

$$Pr = C_p \eta/\lambda \tag{26}$$

where C_p is the specific heat at constant pressure, η is the viscosity, and λ is the thermal conductivity. The tabulations of the Prandtl number in appendices D and E have been calculated from equation (26) using values of η, λ and C_p from the adjacent entries in the tables. Since Pr is a function of both η and λ, the uncertainty in Pr could be as much as 15% except in the regions of extrapolation.

9. Joule-Thomson Inversion Curve

The Joule-Thomson coefficient for a fluid is defined as

$$J = \left(\frac{\partial T}{\partial P}\right)_H \tag{27}$$

The locus of points where J = 0 is called the Joule-Thomson inversion curve. The inversion curve state points in Table 4 were calculated using the relationship:

$$T\left(\frac{\partial P}{\partial T}\right)_\rho = \rho\left(\frac{\partial P}{\partial \rho}\right)_T \tag{28}$$

Table 4 Joule-Thomson inversion curve

Temperature		Pressure		Density	
K	R	atm	psia	$mol/cm^3 \times 10^3$	lb_m/ft^3
28	50.4	9.87	145.1	30.06	3.783
29	52.2	15.05	221.2	29.90	3.763
30	54.0	20.08	295.1	29.73	3.742
31	55.8	25.01	367.6	29.56	3.720
32	57.6	29.85	438.7	29.40	3.700
34	61.2	39.16	575.5	29.05	3.656
36	64.8	48.06	706.3	28.70	3.612
40	72.0	64.59	949.2	27.99	3.523
50	90.0	98.93	1454.	26.16	3.292
60	108.0	124.4	1828.	24.30	3.058
80	144.0	153.5	2256.	20.58	2.590
100	180.0	161.4	2372.	17.04	2.145
120	216.0	162.1	2353.	14.12	1.777
140	252.0	140.5	2064.	10.86	1.367
160	288.0	102.2	1502.	7.176	0.9031
180	324.0	50.97	749.1	3.321	0.4179
200	360.0	.54	8.6	0.036	0.0045

10. The Melting Line

The melting curve for parahydrogen is reported by Goodwin (1962). The values given in Table 5 for T < 25 K were calculated from:

$$P_{atm} = P_t + (T - T_t)[A_1 e^{-\alpha/T} + A_2 T] \quad (29)$$

where P_t (the triple point pressure) is 0.0695 atm, T_c (the triple point temperature) is 13.803 K, A_1 = 30.3312, A_2 = 2.0/3.0 and α = 5.693. No data for pressures higher than 312.23 atmospheres were included in the determination of the above parameters. For temperatures above 22 K, the equation from Mills and Grilly (1955) was used

$$P_{kg/cm^2} = -270.52 + 2.53487 T^{1.764739} \quad (30)$$

where T is in K and P is in kg/cm^2. At T = 22 K the calculated pressures from the equations (29) and (30) disagree by less than 0.1%. At low temperature, i.e., T = 14 K, equation (30) becomes negative. At T = 50 K calculated pressures disagree by about 0.25%.

Table 5 Melting line for parahydrogen

Temperature		Pressure		Density	
K	R	atm	psia	$mol/cm^3 \times 10^3$	lb_m/ft^3
14	25.2	5.89	86.5	38.38	4.830
15	27.0	36.89	542.0	39.19	4.932
16	28.8	70.19	1031.	39.98	5.031
17	30.6	105.7	1553.	40.76	5.130
18	32.4	143.2	2105.	41.50	5.223
19	34.2	182.7	2685.	42.19	5.310
20	36.0	224.1	3293.	42.84	5.392
22	39.6	312.2	4588.	44.10	5.550
25	45.0	457.2	6719.	45.89	5.775
30	54.0	730.1	10730.		
35	63.0	1040.	15290.		
40	72.0	1386.	20370.		
45	81.0	1767.	25970.		
50	90.0	2182.	32060.		

11. Summary

The objective of the previous sections was: to describe how the calculations were performed in assembling the property tables, and to document the references used in preparing this document. In some cases, where the procedures of particular calculations have previously been documented in great length and detail, these descriptions were not repeated here.

In addition an uncertainty was assigned to every property where it was possible. Uncertainty is defined here to be an estimate of accuracy of a 95% confidence level. These assessments are given in the text of the section or subsection concerned with that property. Finally, the number of digits in the tables of appendices D and E should not be taken as an indication of the accuracy of the number. The tabulations are a direct copy of computer printouts where often more digits for a property are present than its accuracy justifies.

The preparatory work which went into the calculation of these tables has solved some of the existing problems with the PVT surface for hydrogen. In the past all attempts to join a high temperature PVT surface with the PVT surface of Roder, et al. (1965) at 100 K has been thwarted by the problem of discontinuities in the derived thermodynamic properties which were too large to allow a mechanical smoothing such as equation (1). Also the disagreement of the derived thermodynamic properties calculated by an equation of state such as equation (2) with older calculations such as Woolley, et al. (1948) was too large to be attributed to randomness in the data. Both of these problems were solved by including in the least squares fitting procedures the actual values of the derived thermodynamic properties in question.

Certain other problems which exist with the PVT surface of hydrogen were not solved and any future work should be aware of these problems. First, the hydrogen fixed points given here have not been corrected to the IPTS 68 temperature scale. Second, there is an apparent error in the densities near the critical point. This error may be as much as 6%, and it would seem that recent dielectric constant and index of refraction measurements offer a possibility of correcting this error. Third, there exists a disagreement of about 0.3% in density and 15 J/mol in enthalpy between Michels, et al. (1959, 1963) and Roder, et al. (1965). All efforts to explain this difference have not provided clear cut evidence for choosing one source in preference to the other.

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Appendix A, List of Symbols and Units

The calculation of the tables and properties presented here was performed in many different systems of units, and converted to engineering units at the very end of the calculations; therefore the reader is cautioned to pay particular attention to the units when consulting individual sections of this document. All conversion factors have been taken from the National Aeronautics and Space Administration Report Number SP-7012 (Mechtly 1964).

R = gas constant, 5.32328 ft^3 - $psia/lb_m$-R

P = pressure, psia

V = specific volume, ft^3/lb_m

T = absolute temperature, degrees Rankine

ρ = density, lb_m/ft^3

C_p = specific heat at constant pressure, BTU/lb_m-R

C_v = specific heat at constant volume, BTU/lb_m-R

S = entropy, BTU/lb_m-R

H = enthalpy, BTU/lb_m

U = internal energy BTU/lb_m

W = speed of sound, ft/s

$(\partial P/\partial T)_\rho$ = isochore derivative, psia/R

$(\partial P/\partial \rho)_T$ = isotherm derivative, ft^3-$psia/lb_m$

θ = specific heat input, BTU/lb_m

Φ = energy derivative, psia ft^3/BTU

α = isothermal bulk modulus, psia

β = volume expansivity, 1/R

n = index of refraction, dimensionless

r = specific refraction, ft^3/lb_m

Pr = Prandtl number, dimensionless

p = specific polarizability, ft^3/lb_m

J = Joule-Thomson coefficient, R/psia

λ = thermal conductivity, BTU/ft-hr-R

η = viscosity, lb_m/ft-s

ϵ = dielectric constant, dimensionless

γ = surface tension, lb_f/in

Λ = wavelength, angstrom

α = thermal diffusivity, ft^2/hr

Appendix B, Fixed Points

Critical Point

P_c = 187.51 psia (12.759 atm)

T_c = 59.357 R (32.976 K)

ρ_c = 1.962 lb_m/ft^3 (0.01559 mol/cm^3)

Normal Boiling Point

P = 14.696 psia (1 atm)

T = 36.482 R (20.268 K)

ρ_{gas} = 0.08351 lb_m/ft^3 (0.0006636 mol/cm^3)

ρ_{liquid} = 4.419 lb_m/ft^3 (0.03511 mol/cm^3)

Triple Point

P = 1.021 psia (0.0695 atm)

T = 24.845 R (13.803 K)

ρ_{gas} = 7.84×10^{-3} lb_m/ft^3 (6.23×10^{-5} mol/cm^3)

ρ_{liquid} = 4.808 lb_m/ft^3 (0.038207 mol/cm^3)

Appendix C, Conversion Factors

Temperature	1.8 R = 1 K
Pressure	14.695949 psia = 1 atm = 1.01325×10^5 N/m^2
Specific Volume	0.00794590 ft^3/lb_m = 1 cm^3/mol
Internal Energy, Enthalpy	0.213405 BTU/lb_m = 1 J/mol
Entropy, Specific Heat	0.118558 $BTU/lb_m R$ = 1 J/mol-K
Thermal Conductivity	0.0578176 BTU/ft-hr-R = 1 mW/cm-K
Viscosity	0.067196897 lb_m/ft-s = 1 g/cm-s
Speed of Sound	3.2808 ft/s = 1 m/s
Molecular Weight	2.01594*
Surface Tension	0.5710147 $\times 10^{-5}$ lb_f/in = 1 dyn/cm (1 dyn = 10^{-5} N)

* On the C^{12} = 12.000 scale

Appendix D, Saturation Properties

THERMODYNAMIC PROPERTIES OF COEXISTING GASEOUS AND LIQUID HYDROGEN

TEMP	PRESS	VOLUME	ISOTHERM DERIVATIVE	ISOCHORE DERIVATIVE	INTERNAL ENERGY	ENTHALPY	ENTROPY	C_v	C_p	VELOCITY OF SOUND	SURFACE TENSION
DEG. R	PSIA	CU FT/LB	CU FT-PSIA/LB	PSIA/R	BTU/LB	BTU/LB	BTU/LB-R	BTU / LB -R		FT/SEC	LB/IN X 10^5
24.845	1.021	0.20798	2724.08	76.77	-132.932	-132.892	1.18566	1.126	1.557	4177	1.7076
24.845	1.021	127.58583	128.17	0.04	36.241	60.357	8.96627	1.484	2.513	1003	
25	1.073	0.20817	2688.34	76.65	-132.689	-132.647	1.19542	1.129	1.568	4158	1.6995
25	1.073	122.06814	128.82	0.04	36.447	60.699	8.93163	1.484	2.516	1006	
26	1.462	0.20945	2593.05	75.75	-131.087	-131.030	1.25826	1.151	1.619	4110	1.6469
26	1.462	92.80760	132.85	0.06	37.759	62.879	8.71777	1.487	2.532	1024	
27	1.950	0.21078	2494.23	74.56	-129.436	-129.360	1.32059	1.174	1.669	4053	1.5943
27	1.950	71.90628	136.64	0.07	39.037	65.002	8.52002	1.491	2.551	1041	
28	2.553	0.21215	2404.74	73.57	-127.733	-127.633	1.38255	1.198	1.723	4003	1.5419
28	2.553	56.65205	140.16	0.10	40.277	67.362	8.33642	1.496	2.573	1057	
29	3.288	0.21358	2286.71	72.64	-125.976	-125.846	1.44425	1.221	1.786	3937	1.4896
29	3.288	45.30272	143.39	0.12	41.476	69.056	8.16526	1.501	2.598	1072	
30	4.170	0.21505	2194.82	71.86	-124.161	-123.995	1.50581	1.245	1.849	3887	1.4374
30	4.170	36.71097	146.32	0.15	42.632	70.977	8.00510	1.507	2.627	1087	
31	5.217	0.21659	2102.72	71.12	-122.287	-122.077	1.56732	1.267	1.915	3837	1.3853
31	5.217	30.10398	148.92	0.18	43.741	72.821	7.85466	1.513	2.659	1101	
32	6.446	0.21819	2010.33	70.41	-120.350	-120.090	1.62886	1.289	1.985	3787	1.3333
32	6.446	24.95046	151.19	0.22	44.801	74.584	7.71284	1.520	2.695	1114	
33	7.877	0.21986	1934.78	69.68	-118.350	-118.029	1.69048	1.310	2.051	3747	1.2815
33	7.877	20.87822	153.10	0.26	45.808	76.261	7.57869	1.527	2.734	1127	
34	9.527	0.22160	1846.02	68.93	-116.284	-115.693	1.75225	1.329	2.125	3697	1.2298
34	9.527	17.62207	154.63	0.31	46.759	77.848	7.45133	1.535	2.778	1139	
35	11.416	0.22342	1773.47	68.14	-114.150	-113.678	1.81420	1.348	2.195	3658	1.1782
35	11.416	14.99004	155.78	0.37	47.652	79.339	7.33002	1.543	2.826	1150	
36	13.561	0.22534	1696.09	67.37	-111.946	-111.380	1.87641	1.365	2.270	3616	1.1267
36	13.561	12.84116	156.53	0.43	48.482	80.729	7.21406	1.551	2.879	1160	
37	15.984	0.22735	1600.41	66.54	-109.670	-108.997	1.93894	1.380	2.360	3560	1.0754
37	15.984	11.09707	156.95	0.51	49.260	82.105	7.10534	1.559	2.935	1170	
38	18.694	0.22946	1520.15	65.59	-107.318	-106.524	2.00183	1.395	2.443	3512	1.0243
38	18.694	9.62028	156.84	0.59	49.954	83.256	6.99812	1.567	2.998	1179	
39	21.723	0.23170	1440.64	64.63	-104.888	-103.956	2.06516	1.408	2.532	3464	0.9733
39	21.723	8.38207	156.28	0.68	50.573	84.290	6.89440	1.576	3.068	1187	
40	25.089	0.23406	1368.34	63.59	-102.377	-101.289	2.12902	1.420	2.637	3406	0.9225
40	25.089	7.33729	155.23	0.78	51.110	85.199	6.79381	1.584	3.146	1195	
41	28.813	0.23656	1261.17	62.40	-99.780	-98.517	2.19346	1.431	2.743	3346	0.8718
41	28.813	6.45015	153.70	0.89	51.562	85.976	6.69599	1.592	3.233	1202	
42	32.915	0.23923	1182.83	61.1	-97.094	-95.636	2.25855	1.441	2.848	3291	0.8213
42	32.915	5.69217	151.65	1.02	51.921	86.614	6.60055	1.601	3.331	1209	
43	37.415	0.24207	1099.37	59.8	-94.314	-92.637	2.32440	1.451	2.969	3228	0.7710
43	37.415	5.04065	149.09	1.16	52.180	87.103	6.50708	1.610	3.441	1215	
44	42.334	0.24511	1018.64	58.4	-91.434	-89.513	2.39113	1.459	3.097	3165	0.7209
44	42.334	4.47736	145.98	1.32	52.332	87.431	6.41516	1.619	3.566	1220	
45	47.693	0.24838	936.66	56.9	-88.447	-86.254	2.45888	1.467	3.242	3097	0.6710
45	47.693	3.98762	142.30	1.49	52.367	87.584	6.32439	1.629	3.709	1225	
46	53.514	0.25190	858.98	55.2	-85.346	-82.850	2.52777	1.475	3.393	3026	0.6214
46	53.514	3.55950	138.03	1.69	52.274	87.546	6.23433	1.639	3.875	1230	
47	59.817	0.25572	780.15	53.5	-82.122	-79.289	2.59798	1.482	3.567	2949	0.5719
47	59.817	3.18328	133.15	1.91	52.038	87.298	6.14452	1.650	4.070	1233	
48	66.625	0.25989	702.10	51.7	-78.762	-75.556	2.66975	1.490	3.772	2870	0.5228
48	66.625	2.85095	127.60	2.16	51.645	86.817	6.05448	1.663	4.300	1236	
49	73.957	0.26445	621.20	49.7	-75.253	-71.631	2.74334	1.498	4.016	2778	0.4739
49	73.957	2.55587	121.36	2.44	51.074	86.077	5.96365	1.677	4.578	1239	
50	81.938	0.26948	546.06	47.7	-71.577	-67.493	2.81908	1.507	4.307	2689	0.4253
50	81.938	2.29249	114.38	2.75	50.302	85.043	5.87141	1.693	4.919	1241	
51	90.287	0.27510	474.29	45.5	-67.710	-63.111	2.89742	1.516	4.641	2593	0.3771
51	90.287	2.05512	108.60	3.11	49.239	83.674	5.77703	1.712	5.344	1242	
52	99.329	0.28142	403.81	43.3	-63.622	-58.446	2.97896	1.526	5.074	2494	0.3292
52	99.329	1.84276	97.95	3.53	48.022	81.916	5.67958	1.734	5.892	1242	
53	108.987	0.28863	332.87	41.0	-53.273	-53.448	3.06445	1.537	5.663	2384	0.2818
53	108.987	1.64388	88.34	4.01	46.419	79.696	5.57784	1.761	6.623	1241	

THERMODYNAMIC PROPERTIES OF COEXISTING GASEOUS AND LIQUID HYDROGEN

TEMPERATURE	DENSITY	$V(\partial H/\partial V)_p$	$V(\partial P/\partial U)_v$	$-V(\partial P/\partial V)_T$	$(\partial V/\partial T)_p/V$	THERMAL CONDUCTIVITY	VISCOSITY	THERMAL DIFFUSIVITY	DIELECTRIC CONSTANT	PRANDTL NUMBER
DEG. R	LB/CU FT	BTU/LB	PSIA-CU FT/BTU	PSIA	DEG. R	BTU/FT-HR-R	LB/FT-SEC X 10^5	SQ FT/HR		
24.845	4.80827	265.60	14.177	13098.11	0.0058609	0.04199	1.751	0.00561	1.25529	2.3374
24.845	0.00784	60.15	3.609	1.00	0.0417855	0.00719	0.050	0.36488	1.00038	0.6232
25	4.80377	264.16	14.127	12914.17	0.0059353	0.04250	1.730	0.00564	1.25503	2.2978
25	0.00819	60.49	3.610	1.06	0.0415883	0.00721	0.050	0.35006	1.00040	0.6258
26	4.77434	264.56	13.780	12380.10	0.0061184	0.04551	1.605	0.00589	1.25330	2.0547
26	0.01077	62.65	3.609	1.43	0.0404077	0.00739	0.052	0.27078	1.00052	0.6425
27	4.74423	264.93	13.384	11833.37	0.0063005	0.04800	1.496	0.00606	1.25154	1.8720
27	0.01391	64.76	3.609	1.90	0.0393821	0.00756	0.054	0.21324	1.00067	0.6592
28	4.71359	265.44	13.033	11334.96	0.0064909	0.05004	1.400	0.00616	1.24974	1.7352
28	0.01765	66.82	3.608	2.47	0.0384993	0.00775	0.057	0.17058	1.00085	0.6759
29	4.68219	263.30	12.705	10706.81	0.0067848	0.05168	1.315	0.00618	1.24790	1.6369
29	0.02207	68.82	3.607	3.17	0.0377489	0.00793	0.059	0.13836	1.00107	0.6927
30	4.65003	262.62	12.416	10205.95	0.0070405	0.05297	1.240	0.00616	1.24602	1.5581
30	0.02724	70.76	3.605	3.99	0.0371221	0.00813	0.061	0.11361	1.00132	0.7037
31	4.61705	261.41	12.156	9708.38	0.0073258	0.05402	1.172	0.00611	1.24410	1.4964
31	0.03322	72.62	3.604	4.95	0.0366118	0.00834	0.063	0.09439	1.00160	0.7263
32	4.58321	259.71	11.918	9213.78	0.0076421	0.05489	1.112	0.00603	1.24213	1.4469
32	0.04008	74.41	3.602	6.06	0.0362124	0.00856	0.066	0.07929	1.00194	0.7423
33	4.54844	259.02	11.697	8800.21	0.0079185	0.05555	1.056	0.00595	1.24011	1.4041
33	0.04790	76.12	3.601	7.33	0.0359198	0.00880	0.068	0.06717	1.00231	0.7586
34	4.51266	256.82	11.491	8330.47	0.0082741	0.05601	1.006	0.00584	1.23803	1.3736
34	0.05675	77.74	3.600	8.78	0.0357318	0.00904	0.070	0.05734	1.00274	0.7754
35	4.47582	255.67	11.296	7937.70	0.0085840	0.05631	0.959	0.00573	1.23590	1.3460
35	0.06671	79.27	3.599	10.39	0.0356477	0.00929	0.072	0.04928	1.00322	0.7928
36	4.43782	253.66	11.125	7526.95	0.0089505	0.05690	0.917	0.00565	1.23370	1.3168
36	0.07787	80.70	3.600	12.19	0.0356683	0.00962	0.075	0.04291	1.00376	0.8049
37	4.39858	249.66	10.960	7039.52	0.0094522	0.05748	0.877	0.00554	1.23143	1.2961
37	0.09011	82.05	3.601	14.14	0.0357698	0.00998	0.077	0.03775	1.00436	0.8156
38	4.35801	246.77	10.792	6624.83	0.0099007	0.05793	0.840	0.00544	1.22910	1.2754
38	0.10395	83.26	3.604	16.30	0.0360086	0.01036	0.079	0.03325	1.00503	0.8275
39	4.31600	243.60	10.635	6217.80	0.0103939	0.05824	0.805	0.00533	1.22668	1.2605
39	0.11938	84.37	3.608	18.64	0.0363705	0.01076	0.082	0.02938	1.00577	0.8406
40	4.27243	238.91	10.479	5760.67	0.0110382	0.05843	0.773	0.00519	1.22418	1.2557
40	0.13629	85.35	3.613	21.16	0.0368634	0.01117	0.084	0.02604	1.00659	0.8551
41	4.22718	234.36	10.313	5331.20	0.0117045	0.05851	0.742	0.00505	1.22159	1.2526
41	0.15504	86.22	3.619	23.83	0.0374994	0.01159	0.087	0.02313	1.00750	0.8712
42	4.18010	230.30	10.151	4944.35	0.0123677	0.05848	0.713	0.00491	1.21889	1.2503
42	0.17568	86.97	3.627	26.64	0.0382948	0.01204	0.089	0.02053	1.00850	0.8892
43	4.13102	225.43	9.980	4541.50	0.0131689	0.05835	0.685	0.00476	1.21609	1.2555
43	0.19839	87.61	3.637	29.58	0.0392710	0.01251	0.092	0.01833	1.00961	0.9094
44	4.07975	220.46	9.805	4155.81	0.0140457	0.05811	0.659	0.00460	1.21318	1.2642
44	0.22335	88.13	3.648	32.60	0.0404560	0.01301	0.095	0.01634	1.01082	0.9323
45	4.02608	214.98	9.628	3771.06	0.0150803	0.05778	0.634	0.00443	1.21013	1.2800
45	0.25078	88.55	3.660	35.69	0.0418864	0.01354	0.097	0.01456	1.01216	0.9564
46	3.96975	209.54	9.431	3409.93	0.0161905	0.05734	0.609	0.00426	1.20694	1.2978
46	0.28094	88.86	3.673	38.78	0.0436108	0.01411	0.100	0.01296	1.01363	0.9888
47	3.91047	203.55	9.224	3050.76	0.0175231	0.05679	0.586	0.00407	1.20359	1.3241
47	0.31414	89.06	3.687	41.83	0.0456941	0.01472	0.103	0.01152	1.01525	1.0241
48	3.84786	197.23	9.013	2701.56	0.0191226	0.05616	0.563	0.00387	1.20006	1.3606
48	0.35076	89.17	3.701	44.76	0.0482254	0.01539	0.106	0.01020	1.01703	1.0656
49	3.78148	190.00	8.766	2349.06	0.0211366	0.05542	0.540	0.00365	1.19633	1.4097
49	0.39126	89.19	3.715	47.48	0.0513292	0.01612	0.109	0.00900	1.01901	1.1151
50	3.71073	183.01	8.529	2026.39	0.0235331	0.05459	0.519	0.00342	1.19238	1.4727
50	0.43621	89.13	3.728	49.89	0.0551860	0.01694	0.112	0.00789	1.02122	1.1751
51	3.63503	175.70	8.262	1724.07	0.0264115	0.05364	0.497	0.00318	1.18815	1.5475
51	0.48635	88.98	3.740	51.85	0.0600662	0.01787	0.116	0.00667	1.02366	1.2491
52	3.55344	167.97	7.994	1434.92	0.0302079	0.05258	0.476	0.00292	1.18361	1.6519
52	0.54266	88.75	3.750	53.16	0.0663962	0.01895	0.120	0.00593	1.02644	1.3423
53	3.46460	159.34	7.699	1153.26	0.0355419	0.05139	0.454	0.00262	1.17869	1.8016
53	0.60647	88.44	3.757	53.57	0.0748895	0.02025	0.124	0.00504	1.02959	1.4630

THERMODYNAMIC PROPERTIES OF COEXISTING GASEOUS AND LIQUID HYDROGEN

TEMP	PRESS	VOLUME	ISOTHERM DERIVATIVE	ISOCHORE DERIVATIVE	INTERNAL ENERGY	ENTHALPY	ENTROPY	C_v	C_p	VELOCITY OF SOUND	SURFACE TENSION
DEG. R	PSIA	CU FT/LB	CU FT-PSIA/LB	PSIA/R	BTU/LB	BTU/LB	BTU/LB-R	BTU / LB -R		FT/SEC	LB/IN X 10^5
54	119.297	0.29702	268.61	38.5	-54.605	-48.044	3.15501	1.549	6.426	2272	0.2348
54	119.297	1.47131	77.63	4.58	44.410	76.912	5.47014	1.792	7.646	1239	
55	130.299	0.30701	207.33	35.9	-49.530	-42.122	3.25236	1.564	7.528	2150	0.1884
55	130.299	1.30700	65.66	5.27	41.878	73.413	5.35399	1.831	9.187	1235	
56	142.027	0.31335	151.44	33.0	-43.904	-35.505	3.35932	1.584	9.203	2019	0.1427
56	142.027	1.15273	52.14	6.12	38.627	68.943	5.22531	1.881	11.782	1230	
57	154.522	0.33548	98.55	29.8	-37.450	-27.851	3.48136	1.612	12.348	1870	0.0979
57	154.522	1.00436	38.78	7.15	34.350	63.088	5.07753	1.927	15.978	1221	
58	167.848	0.35906	49.14	26.1	-29.515	-18.355	3.63154	1.654	20.904	1696	0.0544
58	167.848	0.85453	23.81	8.74	28.004	54.564	4.88948	2.071	27.211	1204	
59	182.136	0.40705	10.95	19.8	-17.608	-3.880	3.86168	1.892	66.758	1338	0.0131
59	182.136	0.67562	6.43	11.55	16.563	39.383	4.59547	2.208	106.088	1196	
59	187.510	0.50368	-0.09	15.3	-1.129	16.568	4.19953	2.357	-7218.894	1146	0.0000
59	187.510	0.50368	-0.09	15.30	-1.325	16.372	4.19667	2.330	-7218.921	1152	

THERMODYNAMIC PROPERTIES OF COEXISTING GASEOUS AND LIQUID HYDROGEN

TEMPERATURE	DENSITY	$V(\partial H/\partial V)_p$	$V(\partial P/\partial U)_V$	$-V(\partial P/\partial V)_T$	$(\partial V/\partial T)_P/V$	THERMAL CONDUCTIVITY	VISCOSITY	THERMAL DIFFUSIVITY	DIELECTRIC CONSTANT	PRANDTL NUMBER
DEG. R	LB/CU FT	BTU/LB	PSIA-CU FT/BTU	PSIA	DEG. R	BTU/FT-HR-R	LB/FT-SEC X 10^5	SQ FT/HR		
54	3.36676	150.81	7.389	904.36	0.0426133	0.05005	0.433	0.00231	1.17329	1.9393
54	0.67967	88.05	3.761	52.76	0.0688406	0.02189	0.129	0.00421	1.03320	1.6248
55	3.25720	141.65	7.043	675.31	0.0531428	0.04960	0.410	0.00202	1.16727	2.2425
55	0.76511	87.59	3.760	50.23	0.1048799	0.02422	0.135	0.00345	1.03743	1.8458
56	3.13140	132.13	6.658	474.23	0.0696535	0.04978	0.387	0.00173	1.16033	2.5778
56	0.86751	87.06	3.752	45.23	0.1353227	0.02772	0.143	0.00271	1.04252	2.1821
57	2.98082	121.54	6.213	293.76	0.1015951	0.05103	0.362	0.00139	1.15221	3.1559
57	0.99566	86.24	3.729	38.62	0.1852706	0.03361	0.153	0.00207	1.04892	2.6596
58	2.78507	109.45	5.674	136.86	0.1909843	0.05695	0.333	0.00098	1.14165	4.4044
58	1.17023	86.78	3.605	27.86	0.3135561	0.04557	0.168	0.00143	1.05768	3.6020
59	2.45657	90.66	4.261	26.90	0.7303362	0.09753	0.292	0.00059	1.12413	7.1851
59	1.47794	87.22	3.540	9.50	1.2163884	0.12523	0.196	0.00080	1.07327	5.9749
59.357	1.96202	85.66	3.308	-0.18	-84.2719721	-6.99925	0.240	0.00049	1.09818	8.9201
59.357	1.96202	85.66	3.345	-0.18	-84.2719721	-6.99328	0.240	0.00049	1.09818	8.9201

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

1 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / L3 -R	CP	VELOCITY OF SOUND FT/SEC
• 25.000	131.12050	129.12	0.0408	36.485	60.765	9.00257	1.483	2.511	1006
26	136.55195	134.67	0.0392	37.988	63.273	9.10097	1.483	2.506	1027
28	147.38482	145.70	0.0363	40.986	68.278	9.28641	1.482	2.499	1067
30	158.18709	156.66	0.0338	43.978	73.270	9.45861	1.481	2.493	1105
32	168.96628	167.58	0.0316	46.964	78.252	9.61939	1.481	2.489	1142
34	179.72741	178.45	0.0297	49.947	83.228	9.77021	1.481	2.486	1178
36	190.47402	189.30	0.0280	52.927	88.197	9.91223	1.480	2.483	1213
38	201.20872	200.12	0.0265	55.904	93.162	10.04645	1.480	2.481	1247
40	211.93349	210.93	0.0252	58.879	98.123	10.17368	1.480	2.479	1279
42	222.64991	221.71	0.0240	61.852	103.081	10.29462	1.480	2.478	1311
44	233.35921	232.48	0.0229	64.824	108.035	10.40987	1.480	2.477	1343
46	244.06240	243.24	0.0218	67.794	112.988	10.51993	1.480	2.475	1373
48	254.76032	253.99	0.0209	70.763	117.938	10.62527	1.480	2.474	1403
50	265.45363	264.73	0.0201	73.731	122.886	10.72627	1.480	2.474	1432
52	276.14292	275.46	0.0193	76.699	127.833	10.82327	1.480	2.473	1460
54	286.82868	286.19	0.0186	79.665	132.778	10.91658	1.480	2.472	1488
56	297.51131	296.91	0.0179	82.631	137.722	11.00648	1.480	2.472	1516
58	308.19116	307.62	0.0173	85.596	142.665	11.09321	1.480	2.471	1543
60	318.86855	318.33	0.0167	88.561	147.607	11.17698	1.480	2.471	1569
62	329.54373	329.03	0.0162	91.526	152.548	11.25799	1.480	2.470	1595
64	340.21691	339.73	0.0157	94.490	157.489	11.33642	1.480	2.470	1621
66	350.88832	350.42	0.0152	97.455	162.430	11.41244	1.480	2.470	1646
68	361.55810	361.12	0.0147	100.419	167.370	11.48618	1.480	2.470	1671
70	372.22642	371.81	0.0143	103.385	172.311	11.55779	1.481	2.470	1695
75	398.89165	398.52	0.0134	110.802	184.666	11.72827	1.483	2.472	1754
80	425.55022	425.22	0.0125	118.231	197.031	11.88787	1.486	2.474	1811
85	452.20341	451.91	0.0118	125.678	209.414	12.03801	1.491	2.479	1866
90	478.85219	478.59	0.0111	133.155	221.825	12.17989	1.498	2.486	1918
95	505.49732	505.26	0.0105	140.675	234.279	12.31455	1.508	2.496	1968
100	532.13940	531.93	0.0100	148.253	246.791	12.44290	1.522	2.509	2016
105	558.77889	558.59	0.0095	155.908	259.379	12.56573	1.539	2.526	2061
110	585.41619	585.24	0.0091	163.660	272.063	12.68374	1.560	2.548	2104
115	612.05159	611.90	0.0087	171.528	284.863	12.79753	1.586	2.573	2144
120	638.68536	638.55	0.0083	179.534	297.801	12.90765	1.616	2.603	2183
125	665.31771	665.19	0.0080	187.708	310.899	13.01458	1.650	2.637	2219
130	691.94882	691.84	0.0077	196.047	324.177	13.11874	1.688	2.675	2253
135	718.57884	718.48	0.0074	204.595	337.657	13.22047	1.730	2.717	2286
140	745.20788	745.12	0.0071	213.363	351.355	13.32010	1.776	2.763	2317
150	798.46349	798.40	0.0067	231.623	379.477	13.51408	1.877	2.863	2375
160	851.71634	851.67	0.0063	250.936	408.651	13.70233	1.986	2.973	2430
180	958.14813	958.13	0.0056	292.941	470.364	14.06501	2.216	3.202	2533
200	1064.63217	1064.64	0.0050	339.489	536.631	14.41386	2.435	3.421	2632
220	1171.11200	1171.14	0.0045	390.124	606.982	14.74900	2.621	3.607	2733
240	1277.58874	1277.63	0.0042	444.051	680.626	15.06911	2.762	3.748	2834
260	1384.06313	1384.11	0.0038	500.310	756.601	15.37332	2.857	3.843	2937
280	1490.53567	1490.60	0.0036	558.053	834.060	15.66022	2.908	3.894	3041
300	1597.00672	1597.07	0.0033	616.421	912.143	15.92971	2.925	3.911	3145
320	1703.47656	1703.55	0.0031	674.868	990.306	16.18196	2.916	3.902	3250
340	1809.94542	1810.03	0.0029	732.959	1068.112	16.41752	2.891	3.876	3353
360	1916.41346	1916.50	0.0028	790.424	1145.292	16.63817	2.855	3.841	3456
380	2022.88081	2022.97	0.0026	847.110	1221.693	16.84473	2.813	3.799	3558
400	2129.34759	2129.44	0.0025	902.956	1297.254	17.03861	2.771	3.757	3657
420	2235.81388	2235.91	0.0024	957.969	1371.981	17.22088	2.731	3.716	3755
440	2342.27975	2342.38	0.0023	1012.202	1445.928	17.39294	2.693	3.678	3850
460	2448.74527	2448.85	0.0022	1065.710	1519.151	17.55569	2.659	3.645	3944
480	2555.21048	2555.32	0.0021	1118.583	1591.739	17.70993	2.629	3.615	4035
500	2661.67543	2661.79	0.0020	1170.896	1663.767	17.85713	2.603	3.589	4123
520	2768.14015	2768.25	0.0019	1222.731	1735.315	17.99756	2.581	3.567	4210
540	2874.60466	2874.72	0.0019	1274.151	1806.450	18.13180	2.562	3.548	4294
560	2981.06900	2981.19	0.0018	1325.155	1877.168	18.25990	2.547	3.533	4377
580	3087.53318	3087.65	0.0017	1375.948	1947.676	18.38347	2.534	3.520	4457
600	3193.99723	3194.12	0.0017	1426.549	2017.990	18.50273	2.524	3.510	4536
650	3460.15683	3460.28	0.0015	1552.194	2192.921	18.78304	2.505	3.491	4726
700	3726.31585	3726.44	0.0014	1677.191	2367.203	19.04161	2.495	3.480	4908
800	4258.63266	4258.76	0.0013	1926.062	2714.646	19.50586	2.487	3.473	5249
900	4790.94836	4791.08	0.0011	2174.779	3061.933	19.91460	2.486	3.471	5568
1000	5323.26333	5323.40	0.0010	2423.349	3409.073	20.28014	2.488	3.474	5868
1500	7984.83309	7984.97	0.0007	3676.800	5155.375	21.69538	2.536	3.522	7167
2000	10646.40034	10646.54	0.0005	4969.898	6941.323	22.72075	2.644	3.630	8229
2500	13308.07154	13308.11	0.0004	6327.869	8792.164	23.54613	2.791	3.777	9134
3000	15972.80667	15969.67	0.0003	7774.055	10731.786	24.24319	3.020	4.013	9914
3500	18670.40848	18631.24	0.0003	9448.746	12905.999	24.91479	3.798	4.844	10492
4000	21552.73166	21292.80	0.0003	11944.624	15935.606	25.91245	6.491	7.799	10886
5000	30430.82500	26615.93	0.0002	27388.787	33023.752	30.46359	26.475	31.705	12139

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

1 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-J0 FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 25.000	0.00763	60.56	3.609	0.98	0.0414674	0.00721	0.050	0.37634	1.00037	0.6250
26	0.00732	63.07	3.609	0.99	0.0397332	0.00735	0.052	0.40042	1.00035	0.6384
28	0.00678	68.10	3.608	0.99	0.0366918	0.00763	0.056	0.45032	1.00033	0.6633
30	0.00632	73.11	3.607	0.99	0.0341031	0.00792	0.061	0.50264	1.00031	0.6860
32	0.00592	78.11	3.606	0.99	0.0318675	0.00824	0.065	0.55911	1.00029	0.7045
34	0.00556	83.10	3.606	0.99	0.0299147	0.00856	0.069	0.61914	1.00027	0.7201
36	0.00525	88.09	3.605	0.99	0.0281925	0.00896	0.073	0.68717	1.00025	0.7285
38	0.00497	93.07	3.604	0.99	0.0266615	0.00947	0.077	0.76791	1.00024	0.7268
40	0.00472	98.04	3.604	1.00	0.0252909	0.00998	0.081	0.85309	1.00023	0.7249
42	0.00449	103.01	3.604	1.00	0.0240563	0.01049	0.085	0.94269	1.00022	0.7227
44	0.00429	107.97	3.603	1.00	0.0229382	0.01100	0.089	1.03672	1.00021	0.7204
46	0.00410	112.93	3.603	1.00	0.0219207	0.01151	0.093	1.13494	1.00020	0.7180
48	0.00393	117.88	3.603	1.00	0.0209905	0.01202	0.097	1.23720	1.00019	0.7157
50	0.00377	122.84	3.603	1.00	0.0201369	0.01252	0.100	1.34383	1.00018	0.7132
52	0.00362	127.79	3.602	1.00	0.0193506	0.01303	0.104	1.45481	1.00017	0.7107
54	0.00349	132.74	3.602	1.00	0.0186239	0.01353	0.108	1.57015	1.00017	0.7080
56	0.00336	137.69	3.602	1.00	0.0179502	0.01398	0.111	1.68299	1.00016	0.7082
58	0.00324	142.64	3.602	1.00	0.0173240	0.01443	0.115	1.79960	1.00016	0.7081
60	0.00314	147.59	3.601	1.00	0.0167402	0.01488	0.118	1.92020	1.00015	0.7077
62	0.00303	152.55	3.601	1.00	0.0161948	0.01533	0.122	2.04516	1.00015	0.7070
64	0.00294	157.50	3.600	1.00	0.0156839	0.01578	0.125	2.17397	1.00014	0.7060
66	0.00285	162.46	3.600	1.00	0.0152045	0.01624	0.129	2.30660	1.00014	0.7050
68	0.00277	167.43	3.599	1.00	0.0147537	0.01669	0.132	2.44302	1.00013	0.7039
70	0.00269	172.40	3.598	1.00	0.0143290	0.01714	0.135	2.58319	1.00013	0.7026
75	0.00251	184.90	3.593	1.00	0.0133674	0.01827	0.144	2.94889	1.00012	0.6995
80	0.00235	197.52	3.585	1.00	0.0125272	0.01940	0.152	3.33592	1.00011	0.6963
85	0.00221	210.32	3.573	1.00	0.0117867	0.02052	0.159	3.74339	1.00011	0.6933
90	0.00209	223.37	3.555	1.00	0.0111291	0.02165	0.167	4.16947	1.00010	0.6906
95	0.00198	236.78	3.531	1.00	0.0105411	0.02277	0.174	4.61137	1.00010	0.6885
100	0.00188	250.62	3.500	1.00	0.0100123	0.02389	0.182	5.06722	1.00009	0.6872
105	0.00179	264.98	3.460	1.00	0.0095341	0.02502	0.189	5.53343	1.00009	0.6867
110	0.00171	279.96	3.413	1.00	0.0090996	0.02623	0.196	6.02670	1.00008	0.6851
115	0.00163	295.64	3.358	1.00	0.0087030	0.02747	0.203	6.53475	1.00008	0.6837
120	0.00157	312.13	3.295	1.00	0.0083396	0.02872	0.210	7.04646	1.00008	0.6836
125	0.00150	329.38	3.227	1.00	0.0080054	0.02996	0.216	7.55983	1.00007	0.6848
130	0.00145	347.54	3.154	1.00	0.0076970	0.03121	0.223	8.07209	1.00007	0.6871
135	0.00139	366.60	3.077	1.00	0.0074114	0.03245	0.229	8.58255	1.00007	0.6904
140	0.00134	386.60	2.998	1.00	0.0071464	0.03370	0.235	9.08925	1.00006	0.6947
150	0.00125	429.30	2.837	1.00	0.0066693	0.03662	0.248	10.21332	1.00006	0.6972
160	0.00117	475.45	2.681	1.00	0.0062520	0.03981	0.260	11.40600	1.00006	0.6982
180	0.00104	576.22	2.403	1.00	0.0055569	0.05175	0.307	15.48445	1.00005	0.6846
200	0.00094	684.11	2.186	1.00	0.0050009	0.06130	0.343	19.07601	1.00005	0.6883
220	0.00085	793.47	2.031	1.00	0.0045468	0.06916	0.368	22.45534	1.00004	0.6909
240	0.00078	899.46	1.927	1.00	0.0041670	0.07554	0.388	25.74792	1.00004	0.6926
260	0.00072	999.00	1.864	1.00	0.0038464	0.08058	0.404	29.02548	1.00003	0.6935
280	0.00067	1090.16	1.831	1.00	0.0035716	0.08446	0.418	32.33357	1.00003	0.6939
300	0.00063	1173.19	1.820	1.00	0.0033334	0.08741	0.431	35.69498	1.00003	0.6938
320	0.00059	1248.64	1.826	1.00	0.0031251	0.08962	0.442	39.12369	1.00003	0.6934
340	0.00055	1317.99	1.842	1.00	0.0029412	0.09130	0.453	42.62987	1.00003	0.6929
360	0.00052	1382.58	1.865	1.00	0.0027778	0.09262	0.464	46.21638	1.00003	0.6922
380	0.00049	1443.65	1.892	1.00	0.0026316	0.09369	0.474	49.88742	1.00002	0.6915
400	0.00047	1502.87	1.921	1.00	0.0025000	0.09465	0.483	53.64444	1.00002	0.6908
420	0.00045	1560.86	1.950	1.00	0.0023809	0.09556	0.493	57.48923	1.00002	0.6901
440	0.00043	1618.50	1.977	1.00	0.0022727	0.09645	0.502	61.42010	1.00002	0.6894
460	0.00041	1676.53	2.002	1.00	0.0021739	0.09739	0.511	65.43712	1.00002	0.6888
480	0.00039	1735.00	2.025	1.00	0.0020833	0.09837	0.520	69.54361	1.00002	0.6882
500	0.00038	1794.38	2.045	1.00	0.0020000	0.09942	0.529	73.73959	1.00002	0.6877
520	0.00036	1854.71	2.063	1.00	0.0019230	0.10053	0.538	78.02443	1.00002	0.6873
540	0.00035	1915.84	2.078	1.00	0.0018518	0.10169	0.547	82.39456	1.00002	0.6869
560	0.00034	1978.42	2.090	1.00	0.0017857	0.10293	0.556	86.85574	1.00002	0.6866
580	0.00032	2041.66	2.101	1.00	0.0017241	0.10421	0.564	91.40774	1.00002	0.6863
600	0.00031	2105.82	2.109	1.00	0.0016666	0.10554	0.573	96.04876	1.00002	0.6861
650	0.00029	2269.30	2.125	1.00	0.0015384	0.10901	0.595	108.04447	1.00001	0.6856
700	0.00027	2436.36	2.134	1.00	0.0014285	0.11265	0.616	120.61295	1.00001	0.6852
800	0.00023	2778.39	2.140	1.00	0.0012500	0.12024	0.658	147.44036	1.00001	0.6847
900	0.00021	3124.28	2.142	1.00	0.0011111	0.12790	0.700	176.52427	1.00001	0.6843
1000	0.00019	3473.84	2.140	1.00	0.0010000	0.13562	0.742	207.82049	1.00001	0.6841
1500	0.00013	5282.69	2.099	1.00	0.0006667	0.17454	0.941	395.74377	1.00001	0.6836
2000	0.00009	7259.72	2.013	1.00	0.0005000	0.27727	1.128	813.25974	1.00000	0.5316
2500	0.00008	9442.18	1.907	1.00	0.0004000	0.33573	1.3041182.96752		1.00000	0.5262
3000	0.00006	12035.99	1.763	1.00	0.0003334	0.40937	1.4721629.50147		1.00000	0.5194
3500	0.00005	16918.86	1.404	1.00	0.0002863	0.59644	1.6332298.80871		1.00000	0.4775
4000	0.00005	30820.45	0.830	0.99	0.0002531	1.23893	1.7953423.73169		1.00000	0.4068
5000	0.00003	138651.05	0.230	0.87	0.0002287	6.53184	2.1806269.37164		1.00000	0.3810

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

5 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 24.862	0.20795	2735.08	75.770	-132.922	-132.730	1.18604	1.127	1.560	4166
25	0.20813	2684.28	75.662	-132.702	-132.509	1.19488	1.130	1.569	4156
26	0.20939	2535.00	75.801	-131.109	-130.915	1.25741	1.151	1.630	4077
28	0.21211	2349.59	73.612	-127.750	-127.554	1.38194	1.198	1.736	3972
30	0.21504	2181.25	71.868	-124.168	-123.969	1.50557	1.245	1.853	3879
• 30.806	0.21629	2120.95	71.259	-122.655	-122.455	1.55540	1.263	1.902	3847
• 30.806	31.25716	148.45	0.1743	43.530	72.470	7.88311	1.512	2.652	1098
32	32.62070	155.77	0.1665	45.418	75.520	7.98346	1.505	2.627	1122
34	34.88263	167.79	0.1551	48.545	80.842	8.14173	1.497	2.596	1161
36	37.12350	179.57	0.1454	51.640	86.011	8.28947	1.493	2.575	1198
38	39.34858	191.19	0.1370	54.713	91.144	8.42824	1.490	2.559	1233
40	41.56135	202.68	0.1295	57.769	96.249	8.55917	1.488	2.547	1268
42	43.76420	214.06	0.1229	60.813	101.333	8.68318	1.487	2.537	1301
44	45.95890	225.36	0.1169	63.847	106.399	8.80102	1.486	2.529	1333
46	48.14677	236.60	0.1115	66.873	111.451	8.91330	1.485	2.522	1364
48	50.32883	247.77	0.1066	69.892	116.490	9.02053	1.484	2.517	1395
50	52.50592	258.89	0.1021	72.906	121.519	9.12318	1.484	2.512	1425
52	54.67870	269.97	0.0980	75.914	126.539	9.22162	1.484	2.508	1454
54	56.84772	281.02	0.0942	78.918	131.551	9.31620	1.483	2.504	1483
56	59.01345	292.03	0.0907	81.918	136.557	9.40722	1.483	2.501	1511
58	61.17626	303.01	0.0875	84.915	141.556	9.49494	1.483	2.498	1538
60	63.33650	313.96	0.0845	87.909	146.550	9.57959	1.482	2.496	1565
62	65.49444	324.89	0.0817	90.901	151.540	9.66139	1.482	2.494	1591
64	67.65032	335.80	0.0791	93.890	156.525	9.74053	1.482	2.492	1617
66	69.80436	346.70	0.0766	96.878	161.507	9.81718	1.482	2.490	1643
68	71.95673	357.57	0.0743	99.864	166.486	9.89150	1.483	2.489	1668
70	74.10761	368.43	0.0721	102.850	171.463	9.96364	1.483	2.488	1692
75	79.47911	395.53	0.0672	110.312	183.899	10.13523	1.484	2.486	1752
80	84.84382	422.56	0.0629	117.779	196.333	10.29572	1.487	2.487	1809
85	90.20307	449.53	0.0592	125.259	208.775	10.44658	1.492	2.490	1864
90	95.55786	476.46	0.0559	132.765	221.239	10.58905	1.499	2.496	1917
95	100.90896	503.36	0.0529	140.310	233.738	10.72422	1.509	2.505	1967
100	106.25697	530.22	0.0502	147.911	246.291	10.85298	1.523	2.517	2015
105	111.60238	557.06	0.0478	155.586	258.915	10.97617	1.540	2.533	2060
110	116.94558	583.87	0.0456	163.355	271.631	11.09447	1.561	2.554	2104
115	122.28688	610.66	0.0436	171.240	284.461	11.20853	1.587	2.579	2144
120	127.62654	637.44	0.0418	179.261	297.425	11.31887	1.616	2.608	2183
125	132.96477	664.21	0.0401	187.440	310.547	11.42600	1.651	2.641	2219
130	138.30176	690.96	0.0386	195.799	323.848	11.53033	1.689	2.679	2254
135	143.63765	717.70	0.0371	204.358	337.347	11.63222	1.731	2.721	2286
140	148.97257	744.43	0.0358	213.136	351.065	11.73198	1.777	2.766	2317
150	159.63992	797.87	0.0334	231.414	379.219	11.92619	1.877	2.866	2376
160	170.30452	851.28	0.0313	250.742	408.421	12.11461	1.986	2.975	2430
180	191.61764	958.01	0.0278	292.780	470.192	12.47765	2.216	3.204	2533
200	212.93162	1064.69	0.0250	339.348	536.494	12.82669	2.435	3.423	2633
220	234.24136	1171.33	0.0227	389.997	606.873	13.16196	2.621	3.608	2733
240	255.54803	1277.93	0.0208	443.936	680.539	13.48216	2.762	3.749	2835
260	276.85235	1384.51	0.0192	500.206	756.533	13.78645	2.857	3.843	2938
280	298.15481	1491.07	0.0179	557.958	834.009	14.07341	2.908	3.894	3042
300	319.45579	1597.62	0.0167	616.334	912.106	14.34295	2.925	3.911	3146
320	340.75557	1704.15	0.0156	674.788	990.281	14.59525	2.916	3.903	3250
340	362.05435	1810.68	0.0147	732.886	1068.099	14.83084	2.891	3.877	3354
360	383.35232	1917.20	0.0139	790.356	1145.289	15.05152	2.855	3.841	3457
380	404.64960	2023.71	0.0132	847.048	1221.598	15.25809	2.813	3.799	3558
400	425.94631	2130.21	0.0125	902.898	1297.267	15.45199	2.771	3.757	3658
420	447.24253	2236.71	0.0119	957.915	1372.001	15.63428	2.731	3.717	3756
440	468.53833	2343.21	0.0114	1012.151	1445.954	15.80636	2.693	3.679	3851
460	489.83378	2449.70	0.0109	1065.663	1519.182	15.96912	2.659	3.645	3944
480	511.12893	2556.19	0.0104	1118.539	1591.775	16.12338	2.629	3.615	4035
500	532.42381	2662.67	0.0100	1170.855	1663.807	16.27058	2.603	3.589	4124
520	553.71846	2769.16	0.0096	1222.692	1735.360	16.41102	2.581	3.567	4211
540	575.01291	2875.64	0.0093	1274.114	1806.498	16.54527	2.562	3.548	4295
560	596.30718	2982.12	0.0089	1325.120	1877.220	16.67338	2.547	3.533	4378
580	617.60129	3088.60	0.0086	1375.915	1947.730	16.79695	2.534	3.520	4458
600	638.89527	3195.08	0.0083	1426.518	2018.048	16.91621	2.524	3.510	4537
650	692.12971	3461.26	0.0077	1552.167	2192.985	17.19653	2.505	3.491	4727
700	745.36356	3727.45	0.0071	1677.167	2367.272	17.45511	2.495	3.481	4908
800	851.83004	4259.80	0.0063	1926.043	2714.722	17.91938	2.487	3.473	5249
900	958.29546	4792.14	0.0056	2174.763	3062.015	18.32812	2.486	3.471	5568
1000	1064.76004	5324.47	0.0050	2423.336	3409.159	18.69366	2.488	3.474	5869
1500	1597.07816	7986.09	0.0033	3676.794	5155.472	20.10891	2.536	3.522	7168
2000	2129.39315	10647.67	0.0025	4969.891	6941.420	21.13428	2.644	3.630	8229
2500	2661.71652	13309.25	0.0020	6327.455	8791.844	21.95949	2.788	3.774	9136
3000	3194.31357	15970.82	0.0017	7763.472	10720.973	22.65286	2.965	3.953	9933
3500	3729.85029	18632.39	0.0014	9339.930	12793.266	23.29378	3.379	4.391	10592
4000	4281.91111	21293.95	0.0013	11315.249	15279.719	24.14867	4.648	5.774	11069
5000	5667.35478	26617.09	0.0010	20073.865	25321.068	27.17964	14.270	16.878	12065

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

5 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$(\partial H/\partial V)_P$ BTU/LB	$(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY μ LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 24.862	4.80887	264.40	14.170	13008.37	0.0059015	0.04206	1.713	0.00560	1.25533	2.2886
25	4.80464	263.89	14.126	12897.01	0.0059442	0.04251	1.694	0.00564	1.25508	2.2509
26	4.77572	260.31	13.785	12106.47	0.0062612	0.04552	1.573	0.00585	1.25338	2.0272
28	4.71458	261.18	13.037	11077.33	0.0066453	0.05005	1.373	0.00612	1.24980	1.7133
30	4.65040	261.51	12.417	10143.67	0.0073850	0.05298	1.217	0.00615	1.24605	1.5320
• 30.806	4.62351	261.71	12.204	9806.24	0.0072667	0.05382	1.163	0.00612	1.24448	1.4798
• 30.806	0.03199	17.27	15.079	4.75	0.0367019	0.00633	0.063	0.31208	1.00154	0.2264
32	0.03066	75.34	3.610	4.78	0.0348681	0.00846	0.065	0.10509	1.00148	0.7295
34	0.02867	80.49	3.615	4.81	0.0322543	0.00876	0.069	0.11767	1.00138	0.7408
36	0.02694	85.64	3.617	4.84	0.0300645	0.00913	0.073	0.13164	1.00130	0.7461
38	0.02541	90.77	3.618	4.86	0.0281887	0.00962	0.078	0.14800	1.00123	0.7420
40	0.02406	95.90	3.617	4.88	0.0265558	0.01012	0.082	0.16520	1.00116	0.7382
42	0.02285	101.01	3.616	4.89	0.0251169	0.01062	0.085	0.18326	1.00110	0.7345
44	0.02176	106.10	3.615	4.90	0.0238366	0.01113	0.089	0.20218	1.00105	0.7309
46	0.02077	111.18	3.615	4.91	0.0226883	0.01163	0.093	0.22193	1.00100	0.7275
48	0.01987	116.25	3.614	4.92	0.0216514	0.01213	0.097	0.24247	1.00096	0.7244
50	0.01905	121.30	3.613	4.93	0.0207096	0.01262	0.101	0.26388	1.00092	0.7212
52	0.01829	126.34	3.612	4.94	0.0198500	0.01312	0.104	0.28614	1.00088	0.7180
54	0.01759	131.37	3.611	4.94	0.0190617	0.01362	0.108	0.30926	1.00085	0.7148
56	0.01695	136.40	3.611	4.95	0.0183359	0.01407	0.112	0.33200	1.00082	0.7143
58	0.01635	141.42	3.610	4.95	0.0176653	0.01452	0.115	0.35549	1.00079	0.7136
60	0.01579	146.43	3.610	4.96	0.0170436	0.01496	0.119	0.37976	1.00076	0.7128
62	0.01527	151.44	3.609	4.96	0.0164655	0.01542	0.122	0.40488	1.00074	0.7116
64	0.01478	156.45	3.608	4.96	0.0159264	0.01587	0.126	0.43077	1.00071	0.7103
66	0.01433	161.46	3.607	4.97	0.0154224	0.01632	0.129	0.45742	1.00069	0.7089
68	0.01390	166.48	3.606	4.97	0.0149501	0.01677	0.132	0.48482	1.00067	0.7075
70	0.01349	171.50	3.604	4.97	0.0145066	0.01722	0.136	0.51296	1.00065	0.7060
75	0.01258	184.09	3.599	4.98	0.0135071	0.01834	0.144	0.58636	1.00061	0.7023
80	0.01179	196.79	3.591	4.98	0.0126387	0.01946	0.152	0.66400	1.00057	0.6987
85	0.01109	209.65	3.579	4.98	0.0118769	0.02059	0.160	0.74572	1.00054	0.6953
90	0.01046	222.77	3.561	4.99	0.0112029	0.02171	0.167	0.83116	1.00051	0.6923
95	0.00991	236.23	3.536	4.99	0.0106022	0.02283	0.175	0.91975	1.00048	0.6900
100	0.00941	250.11	3.504	4.99	0.0100632	0.02395	0.182	1.01112	1.00045	0.6885
105	0.00896	264.51	3.465	4.99	0.0095770	0.02507	0.189	1.10456	1.00043	0.6879
110	0.00855	279.52	3.417	4.99	0.0091359	0.02628	0.196	1.20341	1.00041	0.6880
115	0.00818	295.23	3.362	4.99	0.0087340	0.02752	0.203	1.30520	1.00039	0.6886
120	0.00784	311.71	3.299	4.99	0.0083662	0.02876	0.210	1.40772	1.00038	0.6894
125	0.00752	329.02	3.231	5.00	0.0080283	0.03001	0.216	1.51058	1.00036	0.6855
130	0.00723	347.19	3.157	5.00	0.0077168	0.03125	0.223	1.61320	1.00035	0.6877
135	0.00696	366.27	3.080	5.00	0.0074287	0.03249	0.229	1.71533	1.00034	0.6910
140	0.00671	386.28	3.001	5.00	0.0071614	0.03374	0.236	1.81684	1.00032	0.6953
150	0.00626	429.01	2.840	5.00	0.0066810	0.03666	0.248	2.04197	1.00030	0.6977
160	0.00587	475.18	2.683	5.00	0.0062611	0.03985	0.260	2.28080	1.00028	0.6986
180	0.00522	576.03	2.405	5.00	0.0055623	0.05175	0.307	3.09511	1.00011	0.6850
200	0.00470	683.95	2.188	5.00	0.0050043	0.06130	0.343	3.81360	1.00023	0.6885
220	0.00427	793.34	2.032	5.00	0.0045483	0.06916	0.368	4.48976	1.00021	0.6911
240	0.00391	899.39	1.929	5.00	0.0041686	0.07554	0.388	5.14461	1.00019	0.6928
260	0.00361	998.97	1.865	5.00	0.0038474	0.08058	0.404	5.80445	1.00017	0.6937
280	0.00335	1090.17	1.832	5.00	0.0035722	0.08446	0.418	6.46639	1.00016	0.6940
300	0.00313	1173.25	1.821	5.00	0.0033338	0.08741	0.431	7.13898	1.00015	0.6939
320	0.00293	1248.73	1.826	5.00	0.0031253	0.08962	0.442	7.82502	1.00014	0.6936
340	0.00276	1318.11	1.842	5.00	0.0029413	0.09130	0.453	8.52654	1.00013	0.6930
360	0.00261	1382.73	1.866	5.00	0.0027778	0.09262	0.464	9.24411	1.00013	0.6923
380	0.00247	1443.83	1.893	5.00	0.0026315	0.09369	0.474	9.97858	1.00012	0.6916
400	0.00235	1503.06	1.922	5.00	0.0024999	0.09466	0.483	10.73025	1.00011	0.6908
420	0.00224	1561.07	1.950	5.00	0.0023808	0.09556	0.493	11.49945	1.00011	0.6901
440	0.00213	1618.72	1.978	5.00	0.0022726	0.09646	0.502	12.28586	1.00010	0.6894
460	0.00204	1676.76	2.003	5.00	0.0021737	0.09740	0.511	13.08951	1.00010	0.6888
480	0.00196	1735.24	2.026	5.00	0.0020831	0.09838	0.520	13.91103	1.00009	0.6883
500	0.00188	1794.64	2.046	5.00	0.0019998	0.09943	0.529	14.75048	1.00009	0.6878
520	0.00181	1854.97	2.063	5.00	0.0019229	0.10054	0.538	15.60764	1.00009	0.6873
540	0.00174	1916.11	2.078	5.00	0.0018516	0.10170	0.547	16.48189	1.00008	0.6870
560	0.00168	1978.69	2.090	5.00	0.0017855	0.10294	0.556	17.37435	1.00008	0.6866
580	0.00162	2041.94	2.101	5.00	0.0017239	0.10422	0.564	18.28496	1.00008	0.6863
600	0.00157	2106.11	2.110	5.00	0.0016665	0.10555	0.573	19.21337	1.00008	0.6861
650	0.00144	2269.59	2.125	5.00	0.0015383	0.10902	0.595	21.61303	1.00007	0.6856
700	0.00134	2436.67	2.134	5.00	0.0014284	0.11266	0.616	24.12724	1.00006	0.6852
800	0.00117	2778.71	2.141	5.00	0.0012498	0.12025	0.659	29.49379	1.00006	0.6847
900	0.00104	3124.61	2.142	5.00	0.0011110	0.12792	0.700	35.31159	1.00005	0.6843
1000	0.00094	3474.18	2.140	5.00	0.0009999	0.13563	0.742	41.57208	1.00005	0.6841
1500	0.00063	5283.06	2.099	5.00	0.0006666	0.17456	0.941	79.16332	1.00003	0.6836
2000	0.00047	7260.02	2.013	5.00	0.0005000	0.27727	1.128	152.65951	1.00002	0.5317
2500	0.00038	9434.40	1.910	5.00	0.0004000	0.33529	1.304	236.49568	1.00002	0.5285
3000	0.00031	11859.77	1.796	5.00	0.0003333	0.40002	1.472	323.21142	1.00002	0.5237
3500	0.00027	15354.83	1.577	5.00	0.0002860	0.51505	1.633	437.49580	1.00001	0.5011
4000	0.00023	22969.65	1.151	4.97	0.0002514	0.83563	1.790	619.73457	1.00001	0.4453
5000	0.00018	79269.92	0.397	4.70	0.0002129	3.53131	2.141	1185.73541	1.00001	0.3684

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

10 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 24.883	0.20790	2718.17	75.779	-132.918	-132.533	1.18622	1.127	1.560	4169
25	0.20835	2694.42	75.686	-132.730	-132.345	1.19375	1.130	1.567	4161
26	0.20931	2543.06	75.876	-131.140	-130.752	1.25623	1.151	1.629	4083
28	0.21201	2357.17	73.691	-127.786	-127.393	1.38067	1.198	1.734	3977
30	0.21493	2189.05	71.944	-124.218	-123.812	1.50418	1.244	1.851	3884
32	0.21810	2018.55	70.470	-120.386	-119.982	1.62775	1.289	1.982	3792
34	0.22159	1846.97	68.935	-116.289	-115.878	1.75210	1.329	2.125	3698
• 34.263	0.22207	1829.35	68.721	-115.729	-115.318	1.76852	1.334	2.142	3689
• 34.263	16.87591	154.98	0.3278	47.000	78.249	7.41887	1.537	2.790	1142
36	17.91211	166.54	0.3069	49.872	83.040	7.55529	1.521	2.730	1177
38	19.08466	179.40	0.2866	53.110	88.450	7.70153	1.509	2.682	1215
40	20.24101	191.90	0.2692	56.298	93.779	7.83821	1.502	2.648	1252
42	21.38502	204.15	0.2542	59.451	99.050	7.96680	1.498	2.623	1287
44	22.51931	216.19	0.2409	62.577	104.276	8.08836	1.495	2.604	1321
46	23.64569	228.07	0.2290	65.682	109.467	8.20374	1.493	2.588	1353
48	24.76552	239.82	0.2184	68.771	114.630	8.31360	1.491	2.575	1385
50	25.87983	251.46	0.2087	71.847	119.769	8.41850	1.490	2.564	1416
52	26.98943	263.00	0.1999	74.911	124.888	8.51888	1.489	2.555	1446
54	28.09497	274.47	0.1919	77.965	129.989	8.61514	1.488	2.547	1475
56	29.19697	285.86	0.1845	81.011	135.076	8.70764	1.487	2.540	1504
58	30.29587	297.19	0.1777	84.050	140.150	8.79666	1.487	2.534	1532
60	31.39206	308.46	0.1714	87.083	145.212	8.88247	1.486	2.528	1559
62	32.48582	319.69	0.1655	90.109	150.264	8.96530	1.486	2.524	1586
64	33.57744	330.87	0.1600	93.131	155.308	9.04536	1.485	2.520	1612
66	34.66714	342.01	0.1549	96.149	160.343	9.12284	1.485	2.516	1638
68	35.75512	353.13	0.1501	99.163	165.372	9.19790	1.485	2.513	1664
70	36.84156	364.21	0.1457	102.175	170.395	9.27070	1.485	2.510	1689
75	39.55179	391.79	0.1356	109.695	182.934	9.44371	1.486	2.505	1749
80	42.25507	419.24	0.1268	117.210	195.455	9.60534	1.489	2.503	1807
85	44.95279	446.57	0.1191	124.733	207.974	9.75712	1.493	2.504	1863
90	47.64598	473.81	0.1123	132.276	220.503	9.90035	1.500	2.508	1916
95	50.33543	500.98	0.1063	139.853	233.061	10.03614	1.510	2.515	1966
100	53.02175	528.09	0.1009	147.483	245.665	10.16543	1.524	2.527	2014
105	55.70546	555.15	0.0960	155.183	258.334	10.28906	1.541	2.542	2060
110	58.38693	582.16	0.0915	162.975	271.091	10.40774	1.562	2.561	2103
115	61.06649	609.13	0.0875	170.879	283.958	10.52212	1.587	2.586	2144
120	63.74440	636.07	0.0838	178.918	296.956	10.63276	1.617	2.614	2183
125	66.42088	662.98	0.0804	187.114	310.108	10.74013	1.651	2.647	2219
130	69.09610	689.87	0.0773	195.489	323.436	10.84467	1.689	2.685	2254
135	71.77023	716.73	0.0744	204.062	336.961	10.94675	1.731	2.726	2286
140	74.44338	743.58	0.0717	212.852	350.701	11.04669	1.777	2.771	2318
150	79.78719	797.22	0.0669	231.153	378.897	11.24118	1.877	2.870	2376
160	85.12824	850.80	0.0627	250.500	408.134	11.42983	1.987	2.978	2431
180	95.80145	957.87	0.0557	292.578	469.977	11.79327	2.216	3.207	2534
200	106.46916	1064.76	0.0501	339.171	536.323	12.14255	2.435	3.425	2634
220	117.13264	1171.57	0.0455	389.839	606.737	12.47799	2.621	3.610	2734
240	127.79304	1278.31	0.0417	443.793	680.431	12.79832	2.762	3.750	2836
260	138.45108	1385.01	0.0385	500.076	756.449	13.10270	2.857	3.845	2939
280	149.10728	1491.67	0.0357	557.839	833.946	13.38973	2.908	3.895	3043
300	159.76199	1598.30	0.0334	616.225	912.061	13.65934	2.925	3.912	3147
320	170.41550	1704.91	0.0313	674.688	990.252	13.91168	2.916	3.903	3251
340	181.06802	1811.50	0.0294	732.794	1068.083	14.14731	2.891	3.878	3355
360	191.71972	1918.07	0.0278	790.272	1145.285	14.36803	2.855	3.842	3458
380	202.37074	2024.63	0.0263	846.969	1221.705	14.57463	2.813	3.800	3559
400	213.02118	2131.17	0.0250	902.825	1297.283	14.76856	2.771	3.758	3659
420	223.67114	2237.71	0.0238	957.847	1372.025	14.95087	2.731	3.717	3757
440	234.32069	2344.24	0.0227	1012.088	1445.986	15.12296	2.693	3.679	3852
460	244.96987	2450.76	0.0217	1065.604	1519.221	15.28574	2.659	3.645	3945
480	255.61876	2557.27	0.0208	1118.484	1591.820	15.44001	2.629	3.615	4036
500	266.26738	2663.78	0.0200	1170.803	1663.858	15.58722	2.603	3.589	4125
520	276.91577	2770.29	0.0192	1222.643	1735.416	15.72767	2.581	3.567	4212
540	287.56395	2876.79	0.0185	1274.068	1806.559	15.86193	2.562	3.548	4296
560	298.21196	2983.29	0.0179	1325.077	1877.285	15.99005	2.547	3.533	4378
580	308.85982	3089.78	0.0172	1375.674	1947.799	16.11363	2.534	3.520	4459
600	319.50754	3196.27	0.0167	1426.479	2018.120	16.23289	2.524	3.510	4538
650	346.12632	3462.49	0.0154	1552.133	2193.065	16.51323	2.505	3.491	4728
700	372.74453	3728.70	0.0143	1677.136	2367.358	16.77181	2.495	3.481	4909
800	425.97972	4261.09	0.0125	1926.019	2714.818	17.23609	2.487	3.473	5250
900	479.21378	4793.46	0.0111	2174.744	3062.118	17.64485	2.486	3.471	5569
1000	532.44713	5325.81	0.0100	2423.319	3409.267	18.01039	2.488	3.474	5869
1500	798.60878	7987.48	0.0067	3676.785	5155.593	19.42565	2.536	3.522	7169
2000	1064.76728	10649.09	0.0050	4969.885	6941.545	20.45103	2.644	3.630	8230
2500	1330.92809	13310.67	0.0040	5327.354	8791.872	21.27619	2.787	3.773	9137
3000	1597.18539	15972.25	0.0033	7760.962	10718.516	21.96869	2.952	3.939	9938
3500	1864.48196	18633.82	0.0029	9314.143	12766.659	22.60234	3.279	4.284	10620
4000	2137.62104	21295.39	0.0025	11166.100	15124.395	23.42340	4.210	5.293	11137
5000	2783.49371	26618.53	0.0020	18318.724	23473.000	26.08940	11.157	13.230	12082

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

10 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 24.883	4.81011	264.93	14.161	13036.22	0.0058897	0.04214	1.715	0.00561	1.25540	2.2860
25	4.80648	264.63	14.124	12950.67	0.0059216	0.04252	1.699	0.00565	1.25519	2.2535
26	4.77765	260.84	13.792	12149.84	0.0062450	0.04554	1.577	0.00585	1.25350	2.0302
28	4.71665	261.68	13.046	11117.96	0.0066281	0.05008	1.376	0.00612	1.24992	1.7154
30	4.65267	262.06	12.426	10184.93	0.0070638	0.05301	1.220	0.00616	1.24618	1.5332
32	4.58501	260.34	11.925	9255.04	0.0076142	0.05492	1.094	0.00604	1.24224	1.4220
34	4.51290	256.89	11.492	8335.19	0.0082703	0.05602	0.991	0.00584	1.23805	1.3533
* 34.263	4.50308	256.76	11.438	8237.69	0.0083422	0.05611	0.979	0.00582	1.23748	1.3453
* 34.263	0.05926	18.68	15.060	9.18	0.0356996	0.00704	0.071	0.17811	1.00286	0.2410
36	0.05583	82.71	3.615	9.30	0.0330055	0.00939	0.074	0.06161	1.00270	0.7760
38	0.05240	87.98	3.624	9.40	0.0304856	0.00985	0.078	0.07008	1.00253	0.7661
40	0.04940	93.26	3.628	9.48	0.0283983	0.01032	0.082	0.07890	1.00239	0.7583
42	0.04676	98.52	3.629	9.55	0.0266250	0.01081	0.086	0.08809	1.00226	0.7517
44	0.04441	103.77	3.629	9.60	0.0250904	0.01129	0.090	0.09768	1.00214	0.7459
46	0.04229	108.99	3.628	9.65	0.0237437	0.01178	0.094	0.10765	1.00204	0.7408
48	0.04038	114.13	3.627	9.68	0.0225491	0.01227	0.097	0.11801	1.00195	0.7362
50	0.03864	119.37	3.625	9.72	0.0214799	0.01276	0.101	0.12879	1.00187	0.7319
52	0.03705	124.53	3.624	9.74	0.0205160	0.01325	0.105	0.13997	1.00179	0.7278
54	0.03559	129.66	3.623	9.77	0.0196414	0.01374	0.108	0.15158	1.00172	0.7239
56	0.03425	134.79	3.622	9.79	0.0188435	0.01419	0.112	0.16307	1.00165	0.7224
58	0.03301	139.89	3.621	9.81	0.0181122	0.01463	0.116	0.17492	1.00159	0.7209
60	0.03186	144.99	3.620	9.83	0.0174388	0.01507	0.119	0.18716	1.00154	0.7194
62	0.03078	150.07	3.618	9.84	0.0168167	0.01552	0.123	0.19981	1.00149	0.7176
64	0.02978	155.15	3.617	9.85	0.0162399	0.01597	0.126	0.21284	1.00144	0.7158
66	0.02885	160.22	3.616	9.87	0.0157032	0.01642	0.129	0.22624	1.00139	0.7140
68	0.02797	165.29	3.615	9.88	0.0152026	0.01687	0.133	0.24002	1.00135	0.7121
70	0.02714	170.36	3.613	9.89	0.0147343	0.01732	0.136	0.25416	1.00131	0.7103
75	0.02528	183.08	3.607	9.91	0.0136853	0.01844	0.144	0.29103	1.00122	0.7058
80	0.02367	195.88	3.599	9.92	0.0127805	0.01955	0.152	0.33000	1.00114	0.7017
85	0.02225	208.83	3.586	9.93	0.0119913	0.02067	0.160	0.37101	1.00107	0.6978
90	0.02099	222.02	3.567	9.94	0.0112962	0.02179	0.168	0.41386	1.00101	0.6945
95	0.01987	235.54	3.542	9.95	0.0106792	0.02290	0.175	0.45829	1.00096	0.6919
100	0.01886	249.48	3.510	9.96	0.0101273	0.02402	0.182	0.50411	1.00091	0.6901
105	0.01795	263.93	3.470	9.97	0.0096308	0.02514	0.189	0.55095	1.00087	0.6893
110	0.01713	278.98	3.422	9.97	0.0091814	0.02634	0.196	0.60050	1.00083	0.6873
115	0.01638	294.72	3.367	9.97	0.0087727	0.02758	0.203	0.65151	1.00079	0.6857
120	0.01569	311.24	3.304	9.98	0.0083994	0.02883	0.210	0.70288	1.00076	0.6854
125	0.01506	328.57	3.235	9.98	0.0080569	0.03007	0.217	0.75442	1.00073	0.6863
130	0.01447	346.77	3.162	9.98	0.0077416	0.03131	0.223	0.80585	1.00070	0.6885
135	0.01393	365.86	3.084	9.99	0.0074502	0.03255	0.229	0.85693	1.00067	0.6918
140	0.01343	385.89	3.005	9.99	0.0071802	0.03379	0.236	0.90779	1.00065	0.6960
150	0.01253	428.65	2.843	9.99	0.0066955	0.03671	0.248	1.02056	1.00060	0.6982
160	0.01175	474.85	2.686	9.99	0.0062725	0.03989	0.260	1.14015	1.00057	0.6990
180	0.01044	575.80	2.407	10.00	0.0055690	0.05176	0.307	1.54644	1.00050	0.6854
200	0.00939	683.74	2.190	10.00	0.0050087	0.06130	0.343	1.90581	1.00045	0.6888
220	0.00854	793.19	2.034	10.00	0.0045512	0.06916	0.368	2.24407	1.00041	0.6914
240	0.00783	899.29	1.930	10.00	0.0041705	0.07553	0.388	2.57370	1.00038	0.6930
260	0.00722	998.93	1.866	10.00	0.0038487	0.08058	0.404	2.90162	1.00035	0.6939
280	0.00671	1090.19	1.833	10.00	0.0035731	0.08446	0.418	3.23299	1.00032	0.6942
300	0.00626	1173.32	1.822	10.00	0.0033344	0.08741	0.431	3.56948	1.00030	0.6941
320	0.00587	1248.84	1.827	10.00	0.0031256	0.08962	0.442	3.91269	1.00028	0.6937
340	0.00552	1318.27	1.843	10.00	0.0029415	0.09131	0.453	4.26362	1.00027	0.6931
360	0.00522	1382.92	1.866	10.00	0.0027778	0.09262	0.464	4.62258	1.00025	0.6924
380	0.00494	1444.04	1.894	10.00	0.0026315	0.09370	0.474	4.98998	1.00024	0.6917
400	0.00469	1503.30	1.922	10.00	0.0024998	0.09466	0.483	5.36598	1.00023	0.6909
420	0.00447	1561.33	1.951	10.00	0.0023807	0.09557	0.493	5.75074	1.00022	0.6902
440	0.00427	1619.00	1.978	10.00	0.0022724	0.09647	0.502	6.14409	1.00021	0.6895
460	0.00408	1677.06	2.003	10.00	0.0021735	0.09741	0.511	6.54606	1.00020	0.6889
480	0.00391	1735.55	2.026	10.00	0.0020829	0.09839	0.520	6.95697	1.00019	0.6883
500	0.00376	1794.96	2.046	10.00	0.0019996	0.09944	0.529	7.37683	1.00018	0.6878
520	0.00361	1855.30	2.064	10.00	0.0019227	0.10055	0.538	7.80555	1.00017	0.6874
540	0.00348	1916.45	2.079	10.00	0.0018514	0.10171	0.547	8.24281	1.00017	0.6870
560	0.00335	1979.04	2.091	10.00	0.0017853	0.10295	0.556	8.68917	1.00016	0.6867
580	0.00324	2042.29	2.102	10.00	0.0017237	0.10423	0.564	9.14461	1.00016	0.6864
600	0.00313	2106.47	2.110	10.00	0.0016663	0.10556	0.573	9.60895	1.00015	0.6861
650	0.00289	2269.97	2.126	10.00	0.0015381	0.10903	0.595	10.80910	1.00014	0.6856
700	0.00268	2437.05	2.135	10.00	0.0014282	0.11268	0.616	12.06694	1.00013	0.6852
800	0.00235	2779.11	2.141	10.00	0.0012497	0.12026	0.659	14.75047	1.00011	0.6847
900	0.00209	3125.03	2.142	10.00	0.0011109	0.12793	0.701	17.66005	1.00010	0.6843
1000	0.00188	3474.60	2.140	10.00	0.0009998	0.13565	0.742	20.79100	1.00009	0.6841
1500	0.00125	5283.51	2.099	10.00	0.0006666	0.17459	0.941	39.59068	1.00006	0.6836
2000	0.00094	7260.48	2.014	10.00	0.0004999	0.27727	1.128	81.33490	1.00005	0.5318
2500	0.00075	9432.96	1.910	10.00	0.0004000	0.33518	1.305	118.24127	1.00004	0.5286
3000	0.00063	11818.43	1.804	10.00	0.0003333	0.39781	1.472	161.28694	1.00003	0.5248
3500	0.00054	14984.14	1.625	9.99	0.0002859	0.49574	1.633	215.77101	1.00003	0.5079
4000	0.00047	21093.88	1.269	9.96	0.0002509	0.73924	1.789	298.51987	1.00002	0.4613
5000	0.00036	63256.93	0.499	9.56	0.0002091	2.72170	2.126	572.62853	1.00002	0.3721

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

14.696 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 24.903	0.20785	2714.95	75.789	-132.913	-132.348	1.18639	1.128	1.560	4172
25	0.20798	2703.91	75.712	-132.757	-132.191	1.19268	1.130	1.566	4166
26	0.20923	2550.61	75.946	-131.168	-130.599	1.25512	1.152	1.628	4087
28	0.21193	2364.27	73.766	-127.819	-127.242	1.37948	1.197	1.733	3982
30	0.21483	2196.35	72.016	-124.249	-123.664	1.50287	1.244	1.850	3889
32	0.21799	2026.01	70.544	-120.431	-119.838	1.62630	1.289	1.980	3798
34	0.22146	1854.20	69.014	-116.343	-115.740	1.75051	1.329	2.122	3704
36	0.22530	1691.52	67.392	-111.964	-111.351	1.87590	1.365	2.273	3613
• 36.483	0.22629	1645.33	66.983	-110.856	-110.240	1.90658	1.372	2.316	3586
• 36.483	11.97202	156.83	0.4675	48.872	81.452	7.16221	1.555	2.904	1165
38	12.58367	167.56	0.4417	51.469	85.713	7.27660	1.536	2.834	1197
40	13.40923	181.23	0.4118	54.818	91.309	7.42015	1.521	2.767	1236
42	14.21951	194.43	0.3865	58.097	96.793	7.55393	1.511	2.719	1273
44	15.01820	207.27	0.3647	61.326	102.196	7.67960	1.505	2.684	1309
46	15.80777	219.84	0.3456	64.518	107.536	7.79831	1.501	2.657	1343
48	16.58996	232.18	0.3285	67.682	112.828	7.91092	1.498	2.635	1376
50	17.36603	244.34	0.3133	70.822	118.081	8.01813	1.496	2.617	1407
52	18.13695	256.34	0.2995	73.944	123.300	8.12049	1.494	2.602	1438
54	18.90349	268.22	0.2869	77.050	128.492	8.21846	1.493	2.590	1468
56	19.66626	279.99	0.2755	80.142	133.660	8.31243	1.492	2.579	1497
58	20.42573	291.66	0.2649	83.223	138.808	8.40275	1.491	2.569	1526
60	21.18234	303.25	0.2552	86.294	143.938	8.48971	1.490	2.561	1554
62	21.93641	314.76	0.2462	89.356	149.051	8.57354	1.489	2.553	1581
64	22.68824	326.21	0.2379	92.410	154.151	8.65450	1.488	2.547	1608
66	23.43808	337.59	0.2301	95.457	159.239	8.73278	1.488	2.541	1634
68	24.18615	348.93	0.2229	98.498	164.316	8.80856	1.488	2.536	1660
70	24.93261	360.22	0.2161	101.535	169.384	8.88202	1.488	2.532	1685
75	26.79277	388.27	0.2008	109.111	182.022	9.05640	1.488	2.524	1746
80	28.64584	416.11	0.1876	116.673	194.627	9.21911	1.491	2.519	1805
85	30.49323	443.79	0.1761	124.237	207.218	9.37176	1.495	2.518	1861
90	32.33603	471.33	0.1659	131.814	219.810	9.51571	1.502	2.520	1914
95	34.17504	498.76	0.1569	139.422	232.423	9.65210	1.511	2.526	1965
100	36.01089	526.10	0.1488	147.079	245.075	9.78189	1.525	2.536	2013
105	37.84410	553.36	0.1416	154.803	257.788	9.90594	1.542	2.550	2059
110	39.67506	580.56	0.1350	162.616	270.584	10.02498	1.563	2.569	2103
115	41.50409	607.70	0.1290	170.540	283.485	10.13967	1.588	2.592	2144
120	43.33147	634.79	0.1235	178.596	296.514	10.25057	1.618	2.620	2183
125	45.15741	661.84	0.1185	186.808	309.695	10.35818	1.652	2.653	2219
130	46.98209	688.85	0.1138	195.197	323.049	10.46293	1.690	2.689	2254
135	48.80567	715.83	0.1096	203.783	336.598	10.56519	1.732	2.730	2287
140	50.62827	742.78	0.1056	212.585	350.360	10.66528	1.777	2.775	2318
150	54.27098	796.61	0.0985	230.907	378.595	10.86004	1.878	2.874	2377
160	57.91092	850.36	0.0923	250.273	407.866	11.04891	1.987	2.982	2431
180	65.18416	957.74	0.0819	292.389	469.775	11.41273	2.217	3.209	2534
200	72.44993	1064.83	0.0737	339.005	536.163	11.76223	2.436	3.426	2634
220	79.71146	1171.80	0.0669	389.690	606.609	12.09782	2.621	3.611	2735
240	86.96992	1278.67	0.0613	443.659	680.330	12.41826	2.762	3.752	2836
260	94.22602	1385.48	0.0566	499.953	756.371	12.72274	2.857	3.846	2939
280	101.48027	1492.24	0.0526	557.728	833.886	13.00984	2.908	3.896	3043
300	108.73304	1598.95	0.0490	616.123	912.018	13.27950	2.925	3.913	3148
320	115.98461	1705.62	0.0460	674.595	990.224	13.53189	2.917	3.904	3252
340	123.23519	1812.27	0.0433	732.708	1068.068	13.76757	2.891	3.878	3356
360	130.48495	1918.89	0.0409	790.192	1145.281	13.98832	2.855	3.842	3459
380	137.73403	2025.49	0.0387	846.895	1221.711	14.19495	2.814	3.800	3560
400	144.98253	2132.08	0.0368	902.757	1297.298	14.38889	2.772	3.758	3660
420	152.23055	2238.65	0.0350	957.783	1372.049	14.57122	2.731	3.717	3757
440	159.47816	2345.21	0.0334	1012.029	1446.017	14.74333	2.693	3.679	3853
460	166.72541	2451.76	0.0320	1065.548	1519.258	14.90612	2.659	3.645	3946
480	173.97236	2558.30	0.0306	1118.432	1591.863	15.06041	2.629	3.615	4037
500	181.21904	2664.83	0.0294	1170.754	1663.906	15.20763	2.603	3.589	4126
520	188.46549	2771.35	0.0283	1222.597	1735.468	15.34809	2.581	3.567	4212
540	195.71174	2877.87	0.0272	1274.025	1806.616	15.48235	2.562	3.548	4297
560	202.95782	2984.39	0.0262	1325.036	1877.345	15.61048	2.547	3.533	4379
580	210.20374	3090.89	0.0253	1375.836	1947.864	15.73407	2.534	3.521	4460
600	217.44952	3197.40	0.0245	1426.442	2018.188	15.85333	2.524	3.510	4539
650	235.56347	3463.65	0.0226	1552.101	2193.140	16.13366	2.505	3.492	4729
700	253.67684	3729.88	0.0210	1677.108	2367.439	16.39228	2.495	3.481	4910
800	289.90234	4262.31	0.0184	1925.996	2714.908	16.85657	2.487	3.473	5251
900	326.12674	4794.70	0.0163	2174.725	3062.214	17.26533	2.486	3.472	5570
1000	362.35041	5327.07	0.0147	2423.304	3409.368	17.63088	2.488	3.474	5870
1500	543.46370	7988.79	0.0098	3676.778	5155.706	19.04615	2.536	3.522	7169
2000	724.57382	10650.42	0.0073	4969.880	6941.663	20.07153	2.644	3.630	8230
2500	905.68480	13312.01	0.0055	6327.309	8791.950	20.89668	2.787	3.772	9137
3000	1086.84976	15973.59	0.0049	7759.900	10717.545	21.58881	2.946	3.933	9940
3500	1268.59802	18635.17	0.0042	9303.242	12755.479	22.21939	3.237	4.238	10632
4000	1453.62588	21296.74	0.0037	11103.048	15058.801	23.02614	4.024	5.091	11171
5000	1879.61030	26619.88	0.0029	17575.283	22690.268	25.53754	9.818	11.678	12101

• TWO-PHASE BOUNDARY

14.696 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)/V_P$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 24.903	4.81128	265.43	14.152	13062.39	0.0058786	0.04222	1.716	0.00562	1.25547	2.2835
25	4.80822	265.33	14.122	13000.97	0.0059005	0.04254	1.703	0.00565	1.25529	2.2559
26	4.77945	261.34	13.799	12190.49	0.0062300	0.04556	1.580	0.00585	1.25360	2.0330
28	4.71859	262.16	13.055	11156.05	0.0066122	0.05011	1.379	0.00613	1.25003	1.7173
30	4.65480	262.57	12.435	10223.57	0.0070441	0.05305	1.222	0.00616	1.24630	1.5344
32	4.58733	260.89	11.934	9293.95	0.0075903	0.05497	1.097	0.00605	1.24237	1.4227
34	4.51544	257.45	11.501	8372.54	0.0082429	0.05607	0.993	0.00585	1.23819	1.3537
36	4.43861	253.23	11.127	7508.02	0.0089761	0.05691	0.906	0.00564	1.23375	1.3029
* 36.483	4.41902	251.35	11.046	7270.73	0.0092127	0.05720	0.887	0.00559	1.23261	1.2926
* 36.483	0.08353	81.37	3.600	13.10	0.0356912	0.00979	0.076	0.04037	1.00404	0.8090
38	0.07947	85.42	3.619	13.32	0.0331737	0.01010	0.079	0.04487	1.00384	0.7954
40	0.07458	90.80	3.632	13.52	0.0304691	0.01054	0.083	0.05109	1.00360	0.7815
42	0.07033	96.20	3.638	13.67	0.0282697	0.01100	0.087	0.05750	1.00340	0.7708
44	0.06659	101.58	3.640	13.80	0.0264268	0.01147	0.090	0.06415	1.00322	0.7620
46	0.06326	106.93	3.640	13.91	0.0248487	0.01194	0.094	0.07103	1.00306	0.7547
48	0.06028	112.26	3.638	14.00	0.0234756	0.01242	0.098	0.07815	1.00291	0.7485
50	0.05758	117.55	3.637	14.07	0.0222656	0.01289	0.102	0.08555	1.00278	0.7429
52	0.05514	122.82	3.635	14.13	0.0211886	0.01337	0.105	0.09321	1.00266	0.7378
54	0.05290	128.06	3.633	14.19	0.0202220	0.01386	0.109	0.10114	1.00256	0.7330
56	0.05085	133.27	3.632	14.24	0.0193483	0.01430	0.113	0.10904	1.00246	0.7305
58	0.04896	138.46	3.630	14.28	0.0185538	0.01474	0.116	0.11719	1.00236	0.7282
60	0.04721	143.63	3.629	14.32	0.0178274	0.01518	0.120	0.12558	1.00228	0.7259
62	0.04559	148.78	3.628	14.35	0.0171605	0.01563	0.123	0.13426	1.00220	0.7235
64	0.04408	153.92	3.626	14.38	0.0165454	0.01607	0.126	0.14318	1.00213	0.7212
66	0.04267	159.05	3.625	14.40	0.0159760	0.01652	0.130	0.15235	1.00206	0.7189
68	0.04135	164.18	3.623	14.43	0.0154471	0.01696	0.133	0.16178	1.00200	0.7166
70	0.04011	169.30	3.621	14.45	0.0149542	0.01741	0.136	0.17145	1.00194	0.7144
75	0.03732	182.13	3.615	14.49	0.0138565	0.01852	0.145	0.19665	1.00180	0.7093
80	0.03491	195.02	3.606	14.53	0.0129161	0.01963	0.153	0.22327	1.00169	0.7045
85	0.03279	208.06	3.592	14.55	0.0121002	0.02075	0.160	0.25127	1.00158	0.7003
90	0.03093	221.32	3.574	14.58	0.0113849	0.02186	0.168	0.28052	1.00149	0.6966
95	0.02926	234.90	3.548	14.59	0.0107521	0.02297	0.175	0.31083	1.00141	0.6937
100	0.02777	248.89	3.516	14.61	0.0101880	0.02409	0.183	0.34209	1.00134	0.6916
105	0.02642	263.39	3.475	14.62	0.0095816	0.02520	0.190	0.37405	1.00128	0.6906
110	0.02520	278.48	3.427	14.63	0.0092243	0.02641	0.197	0.40784	1.00122	0.6885
115	0.02409	294.25	3.371	14.64	0.0088093	0.02764	0.203	0.44263	1.00116	0.6867
120	0.02308	310.79	3.308	14.65	0.0084306	0.02888	0.210	0.47766	1.00111	0.6863
125	0.02214	328.15	3.239	14.66	0.0080838	0.03012	0.217	0.51280	1.00107	0.6871
130	0.02128	346.37	3.166	14.66	0.0077648	0.03136	0.223	0.54786	1.00103	0.6892
135	0.02049	365.48	3.088	14.67	0.0074705	0.03259	0.230	0.58264	1.00099	0.6925
140	0.01975	385.52	3.008	14.67	0.0071979	0.03384	0.236	0.61732	1.00095	0.6966
150	0.01843	428.32	2.846	14.68	0.0067091	0.03676	0.248	0.69417	1.00089	0.6987
160	0.01727	474.54	2.689	14.68	0.0062831	0.03994	0.260	0.77567	1.00083	0.6994
180	0.01534	575.58	2.409	14.69	0.0055753	0.05177	0.307	1.05158	1.00074	0.6858
200	0.01380	683.55	2.192	14.70	0.0050127	0.06130	0.342	1.29619	1.00067	0.6892
220	0.01255	793.04	2.036	14.70	0.0045538	0.06916	0.368	1.52648	1.00061	0.6916
240	0.01150	899.20	1.931	14.70	0.0041722	0.07553	0.388	1.75091	1.00056	0.6932
260	0.01061	998.90	1.867	14.70	0.0038498	0.08058	0.404	1.97431	1.00051	0.6941
280	0.00985	1090.21	1.834	14.70	0.0035738	0.08446	0.418	2.19979	1.00048	0.6944
300	0.00920	1173.39	1.823	14.71	0.0033348	0.08741	0.431	2.42888	1.00044	0.6942
320	0.00862	1248.95	1.828	14.71	0.0031259	0.08962	0.442	2.66253	1.00042	0.6938
340	0.00811	1318.41	1.844	14.71	0.0029416	0.09131	0.453	2.90144	1.00039	0.6932
360	0.00766	1383.10	1.867	14.71	0.0027779	0.09263	0.464	3.14581	1.00037	0.6925
380	0.00726	1444.25	1.894	14.71	0.0026314	0.09370	0.474	3.39592	1.00035	0.6917
400	0.00690	1503.53	1.923	14.71	0.0024997	0.09467	0.483	3.65187	1.00033	0.6910
420	0.00657	1561.58	1.952	14.71	0.0023805	0.09557	0.493	3.91378	1.00032	0.6902
440	0.00627	1619.26	1.979	14.71	0.0022722	0.09647	0.502	4.18154	1.00030	0.6896
460	0.00600	1677.34	2.004	14.71	0.0021734	0.09741	0.511	4.45515	1.00029	0.6889
480	0.00575	1735.84	2.027	14.71	0.0020827	0.09839	0.520	4.73485	1.00028	0.6884
500	0.00552	1795.26	2.047	14.71	0.0019994	0.09944	0.529	5.02064	1.00027	0.6879
520	0.00531	1855.61	2.064	14.70	0.0019225	0.10056	0.538	5.31245	1.00026	0.6874
540	0.00511	1916.76	2.079	14.70	0.0018512	0.10171	0.547	5.61007	1.00025	0.6870
560	0.00493	1979.36	2.092	14.70	0.0017851	0.10296	0.556	5.91389	1.00024	0.6867
580	0.00476	2042.62	2.102	14.70	0.0017235	0.10424	0.565	6.22388	1.00023	0.6864
600	0.00460	2106.81	2.111	14.70	0.0016661	0.10557	0.573	6.53993	1.00022	0.6861
650	0.00425	2270.32	2.126	14.70	0.0015379	0.10904	0.595	7.35679	1.00020	0.6856
700	0.00394	2437.41	2.135	14.70	0.0014280	0.11269	0.616	8.21262	1.00019	0.6852
800	0.00345	2779.49	2.141	14.70	0.0012496	0.12027	0.659	10.03934	1.00017	0.6847
900	0.00307	3125.42	2.143	14.70	0.0011107	0.12794	0.701	12.01962	1.00015	0.6843
1000	0.00276	3475.00	2.140	14.70	0.0009997	0.13566	0.742	14.15056	1.00013	0.6841
1500	0.00184	5283.94	2.100	14.70	0.0006665	0.17461	0.942	26.94551	1.00009	0.6836
2000	0.00138	7260.92	2.014	14.70	0.0004999	0.27727	1.128	55.34825	1.00007	0.5318
2500	0.00110	9432.61	1.911	14.70	0.0003999	0.33514	1.305	80.45842	1.00005	0.5287
3000	0.00092	11801.22	1.807	14.70	0.0003333	0.39687	1.472	109.65920	1.00004	0.5253
3500	0.00079	14827.66	1.646	14.69	0.0002858	0.48757	1.633	145.93852	1.00004	0.5110
4000	0.00069	20299.41	1.327	14.65	0.0002508	0.69840	1.789	199.43043	1.00003	0.4695
5000	0.00053	56272.01	0.563	14.16	0.0002075	2.36829	2.120	381.17027	1.00003	0.3763

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

15 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 24.904	0.20784	2715.26	73.789	-132.913	-132.336	1.18640	1.128	1.560	4172
25	0.20797	2704.52	73.714	-132.758	-132.181	1.19262	1.130	1.565	4167
26	0.20922	2551.09	73.951	-131.170	-130.589	1.25505	1.152	1.628	4088
28	0.21192	2364.73	73.771	-127.821	-127.232	1.37940	1.197	1.733	3982
30	0.21483	2196.82	72.020	-124.251	-123.655	1.50278	1.244	1.849	3890
32	0.21798	2026.49	70.549	-120.434	-119.829	1.62621	1.289	1.980	3798
34	0.22145	1854.67	63.019	-116.346	-115.731	1.75040	1.329	2.122	3704
36	0.22529	1692.05	67.397	-111.968	-111.343	1.87579	1.365	2.273	3613
• 36.608	0.22655	1634.45	65.880	-110.571	-109.942	1.91439	1.374	2.326	3580
• 36.608	11.75296	156.87	0.4766	48.968	81.613	7.14838	1.556	2.912	1166
38	12.30213	166.76	0.4523	51.357	85.527	7.25330	1.538	2.845	1195
40	13.11369	180.52	0.4215	54.719	91.144	7.39735	1.522	2.775	1235
42	13.90975	193.79	0.3955	58.007	96.643	7.53151	1.512	2.726	1272
44	14.69408	206.68	0.3730	61.243	102.058	7.65746	1.506	2.690	1308
46	15.46920	219.29	0.3533	64.442	107.409	7.77640	1.502	2.662	1342
48	16.23688	231.68	0.3359	67.610	112.710	7.88920	1.499	2.639	1375
50	16.99840	243.87	0.3202	70.755	117.970	7.99657	1.496	2.621	1407
52	17.75475	255.91	0.3061	73.881	123.196	8.09906	1.495	2.606	1438
54	18.50669	267.82	0.2932	76.990	128.394	8.19715	1.493	2.592	1468
56	19.25483	279.61	0.2815	80.086	133.568	8.29122	1.492	2.581	1497
58	19.99968	291.30	0.2707	83.169	138.720	8.38162	1.491	2.571	1526
60	20.74165	302.91	0.2607	86.243	143.855	8.46866	1.490	2.563	1554
62	21.48107	314.44	0.2515	89.307	148.972	8.55256	1.489	2.555	1581
64	22.21824	325.90	0.2430	92.363	154.076	8.63358	1.489	2.548	1608
66	22.95343	337.31	0.2350	95.412	159.167	8.71191	1.488	2.543	1634
68	23.68683	348.66	0.2276	98.455	164.248	8.78774	1.488	2.538	1660
70	24.41863	359.96	0.2207	101.493	169.318	8.86124	1.488	2.533	1685
75	26.24211	388.04	0.2051	109.073	181.963	9.03571	1.488	2.525	1746
80	28.05849	415.91	0.1916	116.639	194.574	9.19849	1.491	2.520	1805
85	29.86919	443.61	0.1798	124.204	207.169	9.35120	1.495	2.518	1861
90	31.67529	471.17	0.1694	131.784	219.765	9.49520	1.502	2.521	1914
95	33.47760	498.62	0.1602	139.394	232.382	9.63162	1.511	2.526	1965
100	35.27675	525.97	0.1520	147.053	245.037	9.76145	1.525	2.536	2013
105	37.07325	553.25	0.1445	154.779	257.753	9.88552	1.542	2.551	2059
110	38.86751	580.46	0.1378	162.593	270.551	10.00459	1.563	2.569	2103
115	40.65984	607.61	0.1317	170.518	283.454	10.11930	1.588	2.593	2144
120	42.45051	634.71	0.1261	178.575	296.486	10.23022	1.618	2.621	2183
125	44.23974	661.77	0.1209	186.788	309.668	10.33784	1.652	2.653	2219
130	46.02771	688.79	0.1162	195.178	323.024	10.44260	1.690	2.690	2254
135	47.81459	715.77	0.1119	203.765	336.574	10.54487	1.732	2.731	2287
140	49.60048	742.73	0.1078	212.568	350.338	10.64498	1.777	2.775	2318
150	53.16978	796.58	0.1005	230.891	378.575	10.83975	1.878	2.874	2377
160	56.73630	850.33	0.0942	250.258	407.848	11.02864	1.987	2.982	2431
180	63.86280	957.73	0.0836	292.377	469.762	11.39248	2.217	3.209	2534
200	70.98175	1064.83	0.0752	338.994	536.152	11.74199	2.436	3.427	2634
220	78.09647	1171.81	0.0683	389.680	606.601	12.07759	2.621	3.611	2735
240	85.20811	1278.70	0.0626	443.650	680.323	12.39804	2.762	3.752	2836
260	92.31739	1385.51	0.0578	499.945	756.366	12.70252	2.857	3.846	2939
280	99.42482	1492.27	0.0536	557.721	833.882	12.98963	2.908	3.896	3043
300	106.53077	1598.99	0.0501	616.116	912.016	13.25930	2.925	3.913	3148
320	113.63552	1705.67	0.0469	674.589	990.222	13.51169	2.917	3.904	3252
340	120.73928	1812.32	0.0442	732.702	1068.067	13.74737	2.891	3.878	3356
360	127.84222	1918.94	0.0417	790.187	1145.281	13.96812	2.855	3.842	3459
380	134.94448	2025.55	0.0395	846.891	1221.712	14.17475	2.814	3.800	3560
400	142.04617	2132.14	0.0375	902.752	1297.299	14.36870	2.772	3.758	3660
420	149.14737	2238.71	0.0357	957.779	1372.050	14.55103	2.731	3.717	3758
440	156.24816	2345.27	0.0341	1012.025	1446.019	14.72314	2.693	3.679	3853
460	163.34859	2451.82	0.0326	1065.545	1519.261	14.88593	2.659	3.645	3946
480	170.44872	2558.36	0.0313	1118.428	1591.866	15.04022	2.629	3.615	4037
500	177.54858	2664.90	0.0300	1170.751	1663.909	15.18744	2.603	3.589	4126
520	184.64822	2771.42	0.0289	1222.594	1735.472	15.32790	2.581	3.567	4213
540	191.74765	2877.94	0.0278	1274.022	1806.619	15.46217	2.562	3.548	4297
560	198.84691	2984.46	0.0268	1325.033	1877.349	15.59029	2.547	3.533	4379
580	205.94601	3090.97	0.0259	1375.833	1947.868	15.71388	2.534	3.521	4460
600	213.04497	3197.47	0.0250	1426.440	2018.192	15.83315	2.524	3.510	4539
650	230.79187	3463.72	0.0231	1552.099	2193.145	16.11350	2.505	3.492	4729
700	248.53820	3729.96	0.0214	1677.106	2367.444	16.37209	2.495	3.481	4910
800	284.02961	4262.39	0.0188	1925.995	2714.914	16.83638	2.487	3.473	5251
900	319.51991	4794.78	0.0167	2174.724	3062.220	17.24515	2.486	3.472	5570
1000	355.00949	5327.16	0.0150	2423.303	3409.375	17.61069	2.488	3.474	5870
1500	532.45233	7988.68	0.0100	3676.777	5155.713	19.02597	2.536	3.522	7169
2000	709.89199	10650.50	0.0075	4969.879	6941.671	20.05135	2.644	3.630	8230
2500	887.33245	13312.10	0.0060	6327.307	8791.956	20.87649	2.787	3.772	9137
3000	1064.82525	15973.68	0.0050	7759.848	10717.500	21.56861	2.946	3.933	9940
3500	1242.88371	18635.25	0.0043	9302.718	12754.944	22.19904	3.235	4.236	10633
4000	1424.12258	21296.83	0.0038	11100.022	15055.656	23.00511	4.016	5.081	11173
5000	1840.83856	26619.96	0.0030	17539.593	22652.694	25.50908	9.754	11.604	12102

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

15 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 24.904	4.81135	265.46	14.152	13064.88	0.0058779	0.04222	1.716	0.00562	1.25548	2.2834
25	4.80833	265.37	14.122	13004.22	0.0058992	0.04254	1.703	0.00565	1.25530	2.2560
26	4.77956	261.38	13.799	12193.11	0.0062290	0.04556	1.580	0.00585	1.25361	2.0332
28	4.71872	262.19	13.055	11158.51	0.0066112	0.05011	1.379	0.00613	1.25004	1.7174
30	4.65494	262.61	12.435	10226.07	0.0070428	0.05305	1.223	0.00616	1.24631	1.5345
32	4.58748	260.93	11.934	9296.47	0.0075888	0.05497	1.097	0.00605	1.24238	1.4228
34	4.51561	257.49	11.501	8374.95	0.0082411	0.05607	0.994	0.00585	1.23820	1.3537
36	4.43879	253.28	11.127	7510.64	0.0089736	0.05692	0.906	0.00564	1.23376	1.3029
• 36.608	4.41411	250.95	11.026	7214.67	0.0092700	0.05727	0.882	0.00558	1.23233	1.2900
• 36.608	0.08508	81.54	3.601	13.35	0.0357072	0.00984	0.076	0.03972	1.00411	0.8104
38	0.08129	85.25	3.618	13.56	0.0333702	0.01012	0.079	0.04377	1.00393	0.7975
40	0.07626	90.65	3.632	13.77	0.0306169	0.01056	0.083	0.04988	1.00369	0.7832
42	0.07189	96.05	3.638	13.93	0.0283852	0.01101	0.087	0.05617	1.00347	0.7721
44	0.06805	101.44	3.640	14.07	0.0265194	0.01148	0.090	0.06269	1.00329	0.7632
46	0.06464	106.80	3.640	14.18	0.0249245	0.01195	0.094	0.06944	1.00312	0.7557
48	0.06159	112.13	3.639	14.27	0.0235386	0.01242	0.098	0.07643	1.00298	0.7493
50	0.05883	117.44	3.638	14.35	0.0223187	0.01290	0.102	0.08366	1.00284	0.7436
52	0.05632	122.71	3.636	14.41	0.0212339	0.01338	0.105	0.09118	1.00272	0.7384
54	0.05403	127.95	3.634	14.47	0.0202609	0.01386	0.109	0.09896	1.00261	0.7336
56	0.05194	133.17	3.632	14.52	0.0193820	0.01430	0.113	0.10671	1.00251	0.7310
58	0.05000	138.37	3.631	14.57	0.0185832	0.01475	0.116	0.11470	1.00242	0.7286
60	0.04821	143.54	3.629	14.60	0.0178532	0.01519	0.120	0.12292	1.00233	0.7263
62	0.04655	148.70	3.628	14.64	0.0171832	0.01563	0.123	0.13143	1.00225	0.7239
64	0.04501	153.84	3.627	14.67	0.0165656	0.01608	0.126	0.14017	1.00217	0.7215
66	0.04357	158.98	3.625	14.70	0.0159940	0.01652	0.130	0.14917	1.00210	0.7192
68	0.04222	164.11	3.624	14.72	0.0154632	0.01697	0.133	0.15840	1.00204	0.7169
70	0.04095	169.23	3.622	14.74	0.0149687	0.01742	0.136	0.16788	1.00198	0.7147
75	0.03811	182.07	3.615	14.79	0.0138677	0.01853	0.145	0.19257	1.00184	0.7095
80	0.03564	194.97	3.606	14.82	0.0129249	0.01964	0.153	0.21867	1.00172	0.7047
85	0.03348	208.01	3.593	14.85	0.0121073	0.02075	0.160	0.24610	1.00162	0.7004
90	0.03157	221.28	3.574	14.88	0.0113907	0.02186	0.168	0.27476	1.00152	0.6967
95	0.02987	234.86	3.549	14.89	0.0107569	0.02298	0.175	0.30447	1.00144	0.6938
100	0.02835	248.86	3.516	14.91	0.0101919	0.02409	0.183	0.33510	1.00137	0.6917
105	0.02697	263.35	3.476	14.92	0.0096849	0.02521	0.190	0.36642	1.00130	0.6907
110	0.02573	278.44	3.428	14.93	0.0092271	0.02641	0.197	0.39953	1.00124	0.6885
115	0.02459	294.22	3.372	14.94	0.0088116	0.02765	0.203	0.43361	1.00119	0.6868
120	0.02356	310.76	3.309	14.95	0.0084327	0.02889	0.210	0.46794	1.00114	0.6864
125	0.02260	328.12	3.240	14.96	0.0080855	0.03013	0.217	0.50237	1.00109	0.6872
130	0.02173	346.34	3.166	14.96	0.0077663	0.03137	0.223	0.53673	1.00105	0.6893
135	0.02091	365.46	3.088	14.97	0.0074718	0.03260	0.230	0.57080	1.00101	0.6926
140	0.02016	385.50	3.008	14.97	0.0071991	0.03384	0.236	0.60478	1.00097	0.6966
150	0.01881	428.29	2.847	14.98	0.0067100	0.03676	0.248	0.68009	1.00091	0.6987
160	0.01763	474.52	2.689	14.99	0.0062838	0.03994	0.260	0.75994	1.00085	0.6995
180	0.01566	575.56	2.409	15.00	0.0055757	0.05177	0.307	1.03023	1.00076	0.6858
200	0.01409	683.54	2.192	15.00	0.0050130	0.06130	0.342	1.26988	1.00068	0.6892
220	0.01280	793.03	2.036	15.00	0.0045540	0.06916	0.368	1.49551	1.00062	0.6916
240	0.01174	899.19	1.931	15.01	0.0041724	0.07553	0.388	1.71540	1.00057	0.6932
260	0.01083	998.90	1.867	15.01	0.0038499	0.08058	0.404	1.93428	1.00052	0.6941
280	0.01006	1098.21	1.834	15.01	0.0035739	0.08446	0.418	2.15520	1.00049	0.6944
300	0.00939	1173.39	1.823	15.01	0.0033349	0.08741	0.431	2.37965	1.00045	0.6943
320	0.00880	1248.96	1.828	15.01	0.0031259	0.08962	0.442	2.60858	1.00042	0.6938
340	0.00828	1318.42	1.844	15.01	0.0029416	0.09131	0.453	2.84266	1.00040	0.6932
360 ‡	0.00782	1383.11	1.867	15.01	0.0027779	0.09263	0.464	3.08208	1.00038	0.6925
380	0.00741	1444.26	1.894	15.01	0.0026314	0.09370	0.474	3.32712	1.00036	0.6917
400	0.00704	1503.54	1.923	15.01	0.0024997	0.09467	0.483	3.57789	1.00034	0.6910
420	0.00670	1561.60	1.952	15.01	0.0023805	0.09557	0.493	3.83450	1.00032	0.6902
440	0.00640	1619.28	1.979	15.01	0.0022722	0.09647	0.502	4.09684	1.00031	0.6896
460	0.00612	1677.35	2.004	15.01	0.0021733	0.09741	0.511	4.36492	1.00030	0.6889
480	0.00587	1735.86	2.027	15.01	0.0020827	0.09840	0.520	4.63895	1.00028	0.6884
500	0.00563	1795.27	2.047	15.01	0.0019994	0.09944	0.529	4.91895	1.00027	0.6879
520	0.00542	1855.63	2.064	15.01	0.0019224	0.10056	0.538	5.20485	1.00026	0.6874
540	0.00522	1916.78	2.079	15.01	0.0018512	0.10171	0.547	5.49645	1.00025	0.6870
560	0.00503	1979.38	2.092	15.01	0.0017851	0.10296	0.556	5.79412	1.00024	0.6867
580	0.00486	2042.65	2.102	15.01	0.0017235	0.10424	0.565	6.09783	1.00023	0.6864
600	0.00469	2106.83	2.111	15.01	0.0016661	0.10557	0.573	6.40748	1.00023	0.6861
650	0.00433	2270.34	2.126	15.01	0.0015379	0.10904	0.595	7.20779	1.00021	0.6856
700	0.00402	2437.44	2.135	15.01	0.0014280	0.11269	0.616	8.04630	1.00019	0.6852
800	0.00352	2779.51	2.141	15.01	0.0012495	0.12028	0.659	9.83602	1.00017	0.6847
900	0.00313	3125.44	2.143	15.01	0.0011107	0.12795	0.701	11.77620	1.00015	0.6843
1000	0.00282	3475.03	2.140	15.01	0.0009997	0.13566	0.742	13.86397	1.00014	0.6841
1500	0.00188	5283.97	2.100	15.00	0.0006665	0.17462	0.942	26.39979	1.00009	0.6836
2000	0.00141	7260.94	2.014	15.00	0.0004999	0.27727	1.128	54.22674	1.00007	0.5318
2500	0.00113	9432.60	1.911	15.00	0.0003999	0.33513	1.305	78.82788	1.00005	0.5288
3000	0.00094	11800.41	1.807	15.00	0.0003333	0.39643	1.472	107.43262	1.00005	0.5254
3500	0.00080	14420.16	1.647	14.99	0.0002858	0.48718	1.633	142.93887	1.00004	0.5112
4000	0.00070	20261.27	1.330	14.95	0.0002508	0.69643	1.789	195.20752	1.00003	0.4699
5000	0.00054	55933.54	3.566	14.46	0.0002075	2.35117	2.119	372.98989	1.00003	0.3765

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

20 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 24.925	0.20779	2720.36	73.799	-132.908	-132.139	1.18659	1.128	1.560	4175
25	0.20789	2714.60	73.740	-132.786	-132.016	1.19149	1.130	1.564	4172
26	0.20914	2559.11	76.026	-131.200	-130.426	1.25387	1.152	1.627	4093
28	0.21179	2386.19	73.872	-127.872	-127.087	1.37756	1.197	1.729	3996
30	0.21469	2213.06	72.115	-124.304	-123.508	1.50103	1.244	1.846	3900
32	0.21787	2034.39	70.627	-120.483	-119.676	1.62468	1.288	1.978	3804
34	0.22132	1862.33	69.103	-116.403	-115.583	1.74872	1.329	2.119	3710
36	0.22514	1700.61	67.479	-112.035	-111.201	1.87393	1.364	2.269	3620
38	0.22942	1522.37	65.615	-107.338	-106.489	2.00130	1.395	2.442	3514
* 38.444	0.23044	1485.13	65.157	-106.248	-105.395	2.02992	1.401	2.481	3491
* 38.444	9.04340	156.65	0.6263	50.239	83.731	6.95161	1.571	3.029	1183
40	9.53159	168.42	0.5892	53.010	88.310	7.06834	1.548	2.936	1216
42	10.15855	182.91	0.5486	56.469	94.091	7.20940	1.530	2.851	1257
44	10.77121	196.79	0.5146	59.840	99.730	7.34058	1.519	2.791	1294
46	11.37304	210.22	0.4853	63.146	105.266	7.46361	1.512	2.746	1330
48	11.96635	223.31	0.4597	66.406	110.722	7.57973	1.507	2.712	1364
50	12.55275	236.11	0.4371	69.628	116.117	7.68984	1.503	2.684	1397
52	13.13344	248.68	0.4168	72.822	121.461	7.79464	1.501	2.661	1429
54	13.70934	261.06	0.3985	75.991	126.763	7.89469	1.499	2.642	1460
56	14.28115	273.27	0.3818	79.140	132.030	7.99046	1.497	2.625	1490
58	14.84944	285.35	0.3667	82.272	137.266	8.08233	1.495	2.611	1519
60	15.41467	297.30	0.3527	85.389	142.476	8.17065	1.494	2.599	1548
62	15.97723	309.15	0.3399	88.492	147.663	8.25569	1.493	2.588	1576
64	16.53743	320.90	0.3280	91.584	152.829	8.33770	1.492	2.579	1603
66	17.09556	332.57	0.3170	94.666	157.978	8.41692	1.491	2.570	1630
68	17.65184	344.17	0.3067	97.739	163.112	8.49355	1.491	2.563	1656
70	18.20647	355.70	0.2972	100.805	168.232	8.56776	1.490	2.557	1681
75	19.58685	384.29	0.2757	108.445	180.985	8.74373	1.491	2.545	1743
80	20.95995	412.58	0.2573	116.063	193.687	8.90769	1.492	2.537	1802
85	22.32727	440.65	0.2413	123.673	206.361	9.06135	1.496	2.533	1859
90	23.68990	468.53	0.2272	131.291	219.025	9.20613	1.503	2.533	1913
95	25.04870	496.26	0.2147	138.934	231.701	9.34319	1.513	2.538	1964
100	26.40430	523.86	0.2035	146.621	244.409	9.47355	1.526	2.546	2013
105	27.75723	551.36	0.1935	154.373	257.171	9.59808	1.542	2.559	2059
110	29.10789	578.76	0.1844	162.210	270.010	9.71754	1.563	2.577	2102
115	30.45662	606.09	0.1761	170.156	282.951	9.83258	1.589	2.600	2144
120	31.80368	633.35	0.1686	178.232	296.016	9.94378	1.618	2.627	2182
125	33.14929	660.56	0.1617	186.462	309.229	10.05165	1.652	2.659	2219
130	34.49365	687.71	0.1553	194.867	322.612	10.15663	1.690	2.695	2254
135	35.83689	714.82	0.1495	203.467	336.188	10.25909	1.732	2.735	2287
140	37.17916	741.90	0.1440	212.284	349.975	10.35937	1.778	2.780	2318
150	39.86119	795.94	0.1343	230.629	378.254	10.55443	1.878	2.878	2377
160	42.54045	849.87	0.1258	250.016	407.562	10.74355	1.987	2.985	2432
180	47.89354	957.59	0.1116	292.175	469.547	11.10779	2.217	3.212	2535
200	53.23811	1064.91	0.1004	338.817	535.982	11.45753	2.436	3.428	2635
220	58.57844	1172.06	0.0912	389.522	606.465	11.79330	2.622	3.613	2736
240	63.91569	1279.09	0.0835	443.507	680.216	12.11387	2.763	3.753	2837
260	69.25059	1386.02	0.0771	499.815	756.282	12.41845	2.857	3.847	2940
280	74.58363	1492.88	0.0716	557.602	833.819	12.70563	2.908	3.897	3044
300	79.91520	1599.68	0.0668	616.008	911.970	12.97536	2.925	3.914	3149
320	85.24556	1706.43	0.0626	674.489	990.192	13.22781	2.917	3.905	3253
340	90.57494	1813.14	0.0589	732.610	1068.051	13.46352	2.891	3.879	3357
360	95.90350	1919.82	0.0556	790.102	1145.277	13.68431	2.855	3.843	3460
380	101.23138	2026.47	0.0527	846.812	1221.718	13.89097	2.814	3.801	3561
400	106.55868	2133.10	0.0500	902.680	1297.315	14.08494	2.772	3.759	3661
420	111.88550	2239.71	0.0477	957.712	1372.075	14.26729	2.731	3.718	3759
440	117.21191	2346.30	0.0455	1011.962	1446.051	14.43942	2.693	3.680	3854
460	122.53796	2452.88	0.0435	1065.486	1519.300	14.60223	2.659	3.646	3947
480	127.86371	2559.45	0.0417	1118.373	1591.911	14.75652	2.629	3.616	4038
500	133.18920	2666.01	0.0400	1170.699	1663.960	14.90376	2.603	3.590	4127
520	138.51445	2772.55	0.0385	1222.545	1735.528	15.04423	2.581	3.568	4214
540	143.83951	2879.09	0.0370	1273.976	1806.680	15.17851	2.562	3.549	4298
560	149.16438	2985.63	0.0357	1324.990	1877.414	15.30664	2.547	3.534	4380
580	154.48911	3092.15	0.0345	1375.792	1947.936	15.43023	2.534	3.521	4461
600	159.81369	3198.67	0.0333	1426.401	2018.265	15.54951	2.524	3.510	4540
650	173.12465	3464.95	0.0308	1552.065	2193.224	15.82987	2.506	3.492	4730
700	186.43503	3731.21	0.0286	1677.076	2367.531	16.08847	2.495	3.481	4911
800	213.05456	4263.68	0.0250	1925.971	2715.009	16.55278	2.487	3.473	5252
900	239.67238	4796.10	0.0222	2174.704	3062.323	16.96155	2.486	3.472	5571
1000	266.29067	5328.50	0.0200	2423.286	3409.483	17.32710	2.488	3.474	5871
1500	399.37409	7990.27	0.0133	3676.769	5155.834	18.74239	2.536	3.522	7170
2000	532.45434	10651.92	0.0100	4969.874	6941.797	19.76777	2.644	3.630	8231
2500	665.53475	13313.52	0.0080	6327.278	8792.058	20.59290	2.786	3.772	9138
3000	798.64901	15975.11	0.0067	7759.184	10716.947	21.28479	2.942	3.929	9942
3500	932.13064	18636.69	0.0057	9295.907	12748.014	21.91330	3.209	4.208	10641
4000	1067.67810	21298.26	0.0050	11060.631	15014.732	22.71044	3.900	4.954	11196
5000	1374.01105	26621.40	0.0040	17074.776	22163.369	25.11774	8.910	10.632	12121

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

20 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 24.925	4.81259	266.00	14.143	13091.97	0.0058661	0.04231	1.718	0.00563	1.25555	2.2808
25	4.81016	266.11	14.119	13057.67	0.0058770	0.04255	1.707	0.00566	1.25541	2.2586
26	4.78147	261.91	13.806	12236.29	0.0062131	0.04558	1.584	0.00586	1.25372	2.0363
28	4.72172	263.74	13.066	11266.90	0.0065566	0.05015	1.384	0.00614	1.25022	1.7179
30	4.65778	263.82	12.446	10307.96	0.0069960	0.05310	1.226	0.00618	1.24648	1.5346
32	4.58994	261.51	11.944	9337.75	0.0075636	0.05501	1.100	0.00606	1.24252	1.4235
34	4.51829	258.08	11.511	8414.57	0.0082123	0.05612	0.996	0.00586	1.23836	1.3541
36	4.44173	253.39	11.136	7553.66	0.0089333	0.05698	0.909	0.00565	1.23393	1.3025
38	4.35885	246.96	10.794	6635.76	0.0098881	0.05794	0.833	0.00544	1.22914	1.2635
* 38.444	4.33952	245.44	10.719	6444.75	0.0101101	0.05808	0.817	0.00539	1.22803	1.2570
* 38.444	0.11058	83.77	3.505	17.32	0.0361539	0.01054	0.080	0.03146	1.00535	0.8322
40	0.10491	88.03	3.627	17.67	0.0333470	0.01083	0.083	0.03516	1.00507	0.8141
42	0.09844	93.56	3.642	18.01	0.0304710	0.01124	0.087	0.04006	1.00476	0.7966
44	0.09284	99.09	3.649	18.27	0.0281660	0.01168	0.091	0.04508	1.00449	0.7832
46	0.08793	104.59	3.651	18.48	0.0262563	0.01213	0.095	0.05025	1.00425	0.7726
48	0.08357	110.06	3.651	18.66	0.0246359	0.01259	0.099	0.05557	1.00404	0.7639
50	0.07966	115.50	3.649	18.81	0.0232362	0.01305	0.102	0.06106	1.00385	0.7565
52	0.07614	120.89	3.647	18.93	0.0220103	0.01352	0.106	0.06674	1.00368	0.7499
54	0.07294	126.24	3.645	19.04	0.0209247	0.01399	0.109	0.07261	1.00352	0.7439
56	0.07002	131.56	3.643	19.14	0.0199544	0.01443	0.113	0.07850	1.00338	0.7402
58	0.06734	136.85	3.641	19.22	0.0190805	0.01487	0.117	0.08455	1.00325	0.7368
60	0.06487	142.10	3.639	19.29	0.0182880	0.01530	0.120	0.09078	1.00313	0.7336
62	0.06259	147.33	3.638	19.35	0.0175659	0.01575	0.123	0.09721	1.00302	0.7305
64	0.06047	152.54	3.636	19.40	0.0169042	0.01619	0.127	0.10382	1.00292	0.7275
66	0.05849	157.74	3.634	19.45	0.0162952	0.01663	0.130	0.11061	1.00283	0.7246
68	0.05665	162.92	3.633	19.50	0.0157322	0.01707	0.134	0.11758	1.00274	0.7219
70	0.05493	168.11	3.630	19.54	0.0152099	0.01752	0.137	0.12473	1.00265	0.7193
75	0.05103	181.06	3.624	19.62	0.0140544	0.01862	0.145	0.14334	1.00247	0.7132
80	0.04771	194.07	3.614	19.68	0.0130721	0.01973	0.153	0.16299	1.00230	0.7078
85	0.04479	207.20	3.600	19.74	0.0122251	0.02083	0.161	0.18364	1.00216	0.7030
90	0.04221	220.54	3.581	19.78	0.0114863	0.02194	0.168	0.20521	1.00204	0.6989
95	0.03992	234.19	3.555	19.81	0.0108354	0.02305	0.176	0.22756	1.00193	0.6957
100	0.03787	248.24	3.522	19.84	0.0102570	0.02417	0.183	0.25060	1.00183	0.6934
105	0.03603	262.78	3.481	19.86	0.0097393	0.02528	0.190	0.27415	1.00174	0.6922
110	0.03435	277.91	3.433	19.88	0.0092731	0.02648	0.197	0.29904	1.00166	0.6898
115	0.03283	293.72	3.377	19.90	0.0088506	0.02771	0.204	0.32466	1.00159	0.6879
120	0.03144	310.29	3.313	19.91	0.0084660	0.02895	0.210	0.35047	1.00152	0.6873
125	0.03017	327.68	3.244	19.93	0.0081142	0.03019	0.217	0.37635	1.00146	0.6881
130	0.02899	345.92	3.170	19.94	0.0077911	0.03142	0.223	0.40217	1.00140	0.6900
135	0.02790	365.06	3.092	19.95	0.0074933	0.03265	0.230	0.42774	1.00135	0.6933
140	0.02690	385.12	3.012	19.95	0.0072179	0.03389	0.236	0.45328	1.00130	0.6973
150	0.02509	427.94	2.850	19.97	0.0067245	0.03681	0.248	0.50986	1.00121	0.6993
160	0.02351	474.20	2.692	19.98	0.0062951	0.03999	0.260	0.56983	1.00113	0.6999
180	0.02088	575.33	2.411	19.99	0.0055824	0.05178	0.307	0.77212	1.00101	0.6863
200	0.01878	683.34	2.194	20.00	0.0050173	0.06130	0.342	0.95192	1.00091	0.6895
220	0.01707	792.88	2.037	20.01	0.0045568	0.06916	0.368	1.12124	1.00082	0.6919
240	0.01565	899.10	1.933	20.01	0.0041742	0.07553	0.388	1.28625	1.00076	0.6935
260	0.01444	998.86	1.868	20.01	0.0038512	0.08057	0.404	1.45052	1.00070	0.6943
280	0.01341	1090.23	1.835	20.02	0.0035747	0.08446	0.418	1.61630	1.00065	0.6946
300	0.01251	1173.46	1.824	20.02	0.0033354	0.08741	0.431	1.78474	1.00060	0.6944
320	0.01173	1249.08	1.829	20.02	0.0031262	0.08962	0.442	1.95653	1.00057	0.6940
340	0.01104	1318.58	1.845	20.02	0.0029417	0.09131	0.453	2.13217	1.00053	0.6933
360	0.01043	1383.30	1.868	20.02	0.0027779	0.09263	0.464	2.31183	1.00050	0.6926
380	0.00988	1444.48	1.895	20.02	0.0026314	0.09371	0.474	2.49569	1.00048	0.6918
400	0.00938	1503.79	1.924	20.02	0.0024996	0.09467	0.483	2.68385	1.00045	0.6911
420	0.00894	1561.86	1.952	20.02	0.0023804	0.09558	0.493	2.87638	1.00043	0.6903
440	0.00853	1619.56	1.980	20.02	0.0022720	0.09648	0.502	3.07321	1.00041	0.6896
460	0.00816	1677.65	2.005	20.02	0.0021732	0.09742	0.511	3.27434	1.00039	0.6890
480	0.00782	1736.16	2.027	20.02	0.0020825	0.09840	0.520	3.47994	1.00038	0.6884
500	0.00751	1795.59	2.047	20.02	0.0019992	0.09945	0.529	3.69001	1.00036	0.6879
520	0.00722	1855.96	2.065	20.02	0.0019222	0.10056	0.538	3.90451	1.00035	0.6875
540	0.00695	1917.12	2.080	20.02	0.0018510	0.10172	0.547	4.12327	1.00034	0.6870
560	0.00670	1979.73	2.092	20.02	0.0017849	0.10297	0.556	4.34659	1.00032	0.6867
580	0.00647	2043.00	2.103	20.02	0.0017233	0.10425	0.565	4.57444	1.00031	0.6864
600	0.00626	2107.19	2.111	20.02	0.0016659	0.10558	0.573	4.80674	1.00030	0.6862
650	0.00578	2270.71	2.127	20.01	0.0015377	0.10905	0.595	5.40714	1.00028	0.6856
700	0.00536	2437.82	2.136	20.01	0.0014279	0.11270	0.616	6.03618	1.00026	0.6852
800	0.00469	2779.92	2.142	20.01	0.0012494	0.12029	0.659	7.37880	1.00023	0.6847
900	0.00417	3125.86	2.143	20.01	0.0011106	0.12796	0.701	8.83428	1.00020	0.6843
1000	0.00376	3475.45	2.141	20.01	0.0009996	0.13568	0.742	10.40046	1.00018	0.6841
1500	0.00250	5284.42	2.100	20.01	0.0006664	0.17464	0.942	19.80434	1.00012	0.6836
2000	0.00188	7261.42	2.014	20.01	0.0004999	0.27727	1.129	40.67267	1.00009	0.5319
2500	0.00150	9432.59	1.911	20.00	0.0003999	0.33511	1.305	59.12232	1.00007	0.5289
3000	0.00125	11789.87	1.810	20.00	0.0003333	0.39624	1.473	80.53466	1.00006	0.5257
3500	0.00107	14722.61	1.660	19.99	0.0002858	0.48208	1.633	106.79223	1.00005	0.5132
4000	0.00094	19764.61	1.369	19.95	0.0002506	0.67089	1.789	144.58911	1.00005	0.4756
5000	0.00073	51499.77	3.617	19.37	0.0002065	2.12685	2.115	274.85339	1.00004	0.3806

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

25 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 24.945	0.20774	2725.46	75.809	-132.903	-131.942	1.18677	1.129	1.560	4178
25	0.20781	2724.65	75.766	-132.814	-131.852	1.19036	1.130	1.562	4178
26	0.20906	2594.94	76.075	-131.229	-130.262	1.25274	1.152	1.621	4113
28	0.21170	2394.34	73.939	-127.907	-126.927	1.37630	1.197	1.728	4001
30	0.21459	2221.17	72.187	-124.344	-123.351	1.49966	1.244	1.844	3906
32	0.21775	2042.27	70.705	-120.531	-119.523	1.62316	1.288	1.976	3810
34	0.22119	1869.96	69.186	-116.459	-115.435	1.74704	1.328	2.117	3716
36	0.22499	1709.14	67.561	-112.101	-111.059	1.87208	1.364	2.265	3626
38	0.22925	1538.96	65.711	-107.417	-106.356	1.99920	1.394	2.437	3521
* 39.975	0.23400	1350.56	63.517	-102.441	-101.358	2.12740	1.420	2.635	3407
* 39.975	7.36165	155.26	0.7772	51.098	85.177	6.79632	1.564	3.144	1195
40	7.36419	155.44	0.7768	51.141	85.232	6.79769	1.563	3.143	1196
42	7.89501	171.42	0.7163	54.820	91.369	6.94743	1.553	3.004	1239
44	8.40808	186.46	0.6673	58.354	97.278	7.08488	1.535	2.910	1280
46	8.90823	200.83	0.6261	61.789	103.028	7.21269	1.524	2.843	1318
48	9.39854	214.69	0.5907	65.153	108.662	7.33258	1.516	2.793	1353
50	9.88105	228.16	0.5598	68.463	114.206	7.44575	1.511	2.753	1388
52	10.35724	241.31	0.5324	71.732	119.679	7.55308	1.507	2.721	1421
54	10.82819	254.19	0.5079	74.967	125.094	7.65526	1.504	2.695	1452
56	11.29472	266.85	0.4859	78.173	130.460	7.75285	1.502	2.672	1483
58	11.75749	279.33	0.4658	81.356	135.786	7.84628	1.500	2.653	1513
60	12.21701	291.64	0.4475	84.520	141.076	7.93596	1.498	2.637	1542
62	12.67371	303.81	0.4307	87.665	146.335	8.02218	1.497	2.622	1570
64	13.12794	315.87	0.4152	90.794	151.567	8.10524	1.495	2.610	1598
66	13.58001	327.81	0.4009	93.910	156.776	8.18539	1.494	2.599	1625
68	14.03016	339.66	0.3876	97.015	161.965	8.26283	1.493	2.590	1652
70	14.47860	351.42	0.3752	100.110	167.136	8.33778	1.493	2.581	1678
75	15.59334	380.52	0.3476	107.813	180.000	8.51528	1.493	2.565	1741
80	16.70062	409.25	0.3240	115.483	192.796	8.68046	1.494	2.554	1800
85	17.80201	437.69	0.3035	123.138	205.549	8.83509	1.498	2.548	1857
90	18.89863	465.90	0.2855	130.795	218.282	8.98065	1.504	2.546	1911
95	19.99137	493.91	0.2697	138.472	231.018	9.11836	1.514	2.549	1963
100	21.08088	521.76	0.2555	146.189	243.779	9.24927	1.527	2.556	2012
105	22.16769	549.47	0.2428	153.966	256.588	9.37425	1.543	2.568	2058
110	23.25221	577.08	0.2313	161.827	269.469	9.49410	1.564	2.585	2102
115	24.33478	604.58	0.2209	169.793	282.447	9.60947	1.589	2.607	2143
120	25.41568	632.01	0.2114	177.888	295.546	9.72096	1.619	2.633	2182
125	26.49513	659.36	0.2026	186.135	308.789	9.82908	1.653	2.665	2219
130	27.57331	686.65	0.1946	194.555	322.201	9.93428	1.691	2.700	2254
135	28.65037	713.88	0.1872	203.170	335.802	10.03693	1.733	2.740	2287
140	29.72646	741.07	0.1804	211.999	349.613	10.13738	1.778	2.784	2319
150	31.87613	795.31	0.1681	230.368	377.933	10.33273	1.878	2.882	2377
160	34.02302	849.42	0.1574	249.773	407.277	10.52207	1.988	2.988	2432
180	38.31204	957.46	0.1397	291.974	469.333	10.88671	2.217	3.214	2536
200	42.59197	1064.99	0.1256	338.640	535.812	11.23669	2.436	3.430	2636
220	46.86767	1172.31	0.1141	389.364	606.329	11.57262	2.622	3.615	2736
240	51.14028	1279.48	0.1045	443.364	680.109	11.89332	2.763	3.754	2838
260	55.41054	1386.53	0.0964	499.685	756.199	12.19799	2.857	3.848	2941
280	59.67895	1493.48	0.0895	557.483	833.757	12.48525	2.908	3.898	3045
300	63.94588	1600.37	0.0835	615.899	911.926	12.75504	2.925	3.915	3150
320	68.21161	1707.19	0.0782	674.389	990.163	13.00754	2.917	3.906	3254
340	72.47636	1813.96	0.0736	732.519	1068.035	13.24329	2.891	3.880	3358
360	76.74029	1920.70	0.0695	790.017	1145.273	13.46412	2.855	3.843	3461
380	81.00353	2027.40	0.0659	846.734	1221.725	13.67080	2.814	3.801	3562
400	85.26621	2134.07	0.0626	902.607	1297.332	13.86480	2.772	3.759	3662
420	89.52840	2240.71	0.0596	957.644	1372.100	14.04717	2.731	3.718	3759
440	93.79018	2347.34	0.0569	1011.898	1446.083	14.21932	2.693	3.680	3855
460	98.05160	2453.95	0.0544	1065.427	1519.339	14.38214	2.659	3.646	3948
480	102.31272	2560.54	0.0521	1118.318	1591.956	14.53645	2.629	3.616	4039
500	106.57358	2667.12	0.0500	1170.647	1664.011	14.68370	2.603	3.590	4128
520	110.83420	2773.69	0.0481	1222.497	1735.584	14.82418	2.581	3.568	4214
540	115.09463	2880.25	0.0463	1273.930	1806.741	14.95846	2.562	3.549	4299
560	119.35488	2986.80	0.0447	1324.947	1877.479	15.08660	2.547	3.534	4381
580	123.61497	3093.34	0.0431	1375.752	1948.005	15.21020	2.534	3.521	4462
600	127.87493	3199.87	0.0417	1426.363	2018.337	15.32948	2.524	3.510	4541
650	138.52432	3466.19	0.0385	1552.031	2193.304	15.60986	2.506	3.492	4731
700	149.17313	3732.47	0.0357	1677.046	2367.617	15.86847	2.495	3.481	4912
800	170.46953	4264.98	0.0313	1925.947	2715.105	16.33279	2.487	3.473	5253
900	191.76481	4797.43	0.0278	2174.685	3062.426	16.74157	2.486	3.472	5571
1000	213.05938	5329.84	0.0250	2423.270	3409.590	17.10713	2.488	3.474	5872
1500	319.52715	7991.66	0.0167	3676.761	5155.955	18.52242	2.536	3.522	7170
2000	425.99174	10653.33	0.0125	4969.869	6941.922	19.54781	2.644	3.630	8231
2500	532.45618	13314.94	0.0100	6327.257	8792.168	20.37294	2.786	3.772	9138
3000	638.94471	15976.54	0.0083	7758.729	10716.611	21.06467	2.940	3.927	9943
3500	745.69607	18638.12	0.0071	9291.258	12743.326	21.69187	3.191	4.188	10646
4000	853.92568	21299.70	0.0063	11033.749	14986.846	22.48290	3.820	4.867	11212
5000	1095.60366	26622.84	0.0050	16757.437	21829.340	24.82422	8.332	9.968	12138

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

25 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)/V_P$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC x 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 24.945	4.81382	266.53	14.134	13119.87	0.0058544	0.04239	1.719	0.00564	1.25562	2.2783
25	4.81200	266.85	14.117	13111.00	0.0058550	0.04257	1.711	0.00566	1.25551	2.2612
26	4.78331	264.49	13.809	12412.38	0.0061289	0.04560	1.588	0.00588	1.25383	2.0324
28	4.72377	264.31	13.073	11310.31	0.0065373	0.05018	1.387	0.00615	1.25034	1.7197
30	4.66001	264.39	12.455	10350.70	0.0069741	0.05313	1.229	0.00618	1.24661	1.5357
32	4.59239	262.09	11.953	9378.90	0.0075388	0.05506	1.102	0.00607	1.24267	1.4242
34	4.52097	258.67	11.520	8454.04	0.0081838	0.05617	0.998	0.00587	1.23851	1.3545
36	4.44465	254.69	11.144	7596.54	0.0088936	0.05704	0.911	0.00567	1.23409	1.3021
38	4.36213	247.70	10.804	6678.23	0.0098395	0.05801	0.835	0.00546	1.22933	1.2628
* 39.975	4.27355	239.02	10.483	5771.70	0.0110222	0.05843	0.769	0.00519	1.22424	1.2478
* 39.975	0.13584	85.33	3.613	21.09	0.0368492	0.01116	0.084	0.02612	1.00657	0.8536
40	0.13579	85.39	3.613	21.11	0.0368026	0.01116	0.084	0.02615	1.00657	0.8533
42	0.12666	91.06	3.642	21.71	0.0329896	0.01151	0.088	0.03026	1.00613	0.8262
44	0.11893	96.72	3.655	22.18	0.0300882	0.01191	0.092	0.03441	1.00575	0.8067
46	0.11226	102.37	3.661	22.54	0.0277723	0.01233	0.095	0.03864	1.00543	0.7919
48	0.10640	107.98	3.662	22.84	0.0258609	0.01277	0.099	0.04298	1.00514	0.7802
50	0.10120	113.55	3.660	23.09	0.0242449	0.01322	0.103	0.04744	1.00489	0.7706
52	0.09655	119.06	3.658	23.30	0.0228534	0.01367	0.106	0.05203	1.00467	0.7623
54	0.09235	124.53	3.656	23.47	0.0216380	0.01413	0.110	0.05677	1.00446	0.7550
56	0.08854	129.95	3.653	23.63	0.0205642	0.01456	0.113	0.06154	1.00428	0.7499
58	0.08505	135.33	3.651	23.76	0.0196066	0.01499	0.117	0.06644	1.00411	0.7454
60	0.08185	140.66	3.649	23.87	0.0187451	0.01543	0.120	0.07148	1.00396	0.7413
62	0.07890	145.96	3.647	23.97	0.0179661	0.01586	0.124	0.07667	1.00381	0.7373
64	0.07617	151.24	3.646	24.06	0.0172567	0.01630	0.127	0.08200	1.00368	0.7337
66	0.07364	156.50	3.644	24.14	0.0166074	0.01674	0.131	0.08747	1.00356	0.7302
68	0.07128	161.75	3.642	24.21	0.0160101	0.01718	0.134	0.09308	1.00344	0.7270
70	0.06907	166.98	3.639	24.27	0.0154585	0.01762	0.137	0.09883	1.00334	0.7239
75	0.06413	180.06	3.632	24.40	0.0142454	0.01872	0.145	0.11379	1.00310	0.7170
80	0.05988	193.17	3.621	24.51	0.0132219	0.01982	0.153	0.12958	1.00289	0.7110
85	0.05617	206.39	3.607	24.59	0.0123447	0.02092	0.161	0.14616	1.00271	0.7057
90	0.05291	219.80	3.587	24.65	0.0115830	0.02202	0.168	0.16348	1.00256	0.7012
95	0.05002	233.52	3.561	24.71	0.0109146	0.02313	0.176	0.18141	1.00242	0.6977
100	0.04744	247.62	3.528	24.75	0.0103225	0.02424	0.183	0.19990	1.00229	0.6951
105	0.04511	262.21	3.487	24.79	0.0097941	0.02535	0.190	0.21879	1.00218	0.6936
110	0.04301	277.38	3.438	24.82	0.0093192	0.02654	0.197	0.23875	1.00208	0.6911
115	0.04109	293.23	3.382	24.84	0.0088898	0.02778	0.204	0.25930	1.00198	0.6890
120	0.03935	309.83	3.318	24.87	0.0084995	0.02901	0.211	0.27999	1.00190	0.6883
125	0.03774	327.24	3.249	24.89	0.0081430	0.03025	0.217	0.30074	1.00182	0.6889
130	0.03627	345.50	3.174	24.90	0.0078160	0.03148	0.224	0.32144	1.00175	0.6908
135	0.03490	364.66	3.096	24.92	0.0075149	0.03270	0.230	0.34190	1.00169	0.6941
140	0.03364	384.74	3.016	24.93	0.0072366	0.03394	0.236	0.36238	1.00162	0.6980
150	0.03137	427.59	2.853	24.95	0.0067389	0.03686	0.249	0.40772	1.00151	0.6998
160	0.02939	473.87	2.695	24.97	0.0063064	0.04003	0.261	0.45577	1.00142	0.7003
180	0.02610	575.10	2.413	24.99	0.0055891	0.05179	0.307	0.61726	1.00126	0.6867
200	0.02348	683.13	2.196	25.00	0.0050216	0.06130	0.342	0.76115	1.00113	0.6898
220	0.02134	792.73	2.039	25.01	0.0045597	0.06915	0.368	0.89667	1.00103	0.6922
240	0.01955	899.01	1.934	25.02	0.0041761	0.07552	0.388	1.02877	1.00094	0.6937
260	0.01805	998.83	1.869	25.02	0.0038524	0.08057	0.404	1.16026	1.00087	0.6945
280	0.01676	1090.26	1.836	25.03	0.0035755	0.08446	0.418	1.29297	1.00081	0.6947
300	0.01564	1173.54	1.825	25.03	0.0033359	0.08741	0.431	1.42779	1.00075	0.6946
320	0.01466	1249.20	1.830	25.03	0.0031265	0.08962	0.442	1.56530	1.00071	0.6941
340	0.01380	1318.74	1.846	25.03	0.0029419	0.09131	0.453	1.70589	1.00067	0.6935
360	0.01303	1383.49	1.869	25.03	0.0027779	0.09263	0.464	1.84968	1.00063	0.6927
380	0.01235	1444.70	1.896	25.03	0.0026313	0.09371	0.474	1.99683	1.00060	0.6919
400	0.01173	1504.03	1.924	25.03	0.0024995	0.09468	0.484	2.14742	1.00057	0.6911
420	0.01117	1562.12	1.953	25.03	0.0023802	0.09558	0.493	2.30151	1.00054	0.6904
440	0.01066	1619.84	1.980	25.03	0.0022719	0.09649	0.502	2.45904	1.00051	0.6897
460	0.01020	1677.94	2.005	25.03	0.0021730	0.09743	0.511	2.62000	1.00049	0.6890
480	0.00977	1736.47	2.028	25.03	0.0020823	0.09841	0.520	2.78453	1.00047	0.6884
500	0.00938	1795.91	2.048	25.03	0.0019990	0.09946	0.529	2.95265	1.00045	0.6879
520	0.00902	1856.28	2.065	25.03	0.0019220	0.10057	0.538	3.12430	1.00044	0.6875
540	0.00869	1917.46	2.080	25.03	0.0018508	0.10173	0.547	3.29937	1.00042	0.6871
560	0.00838	1980.07	2.093	25.02	0.0017847	0.10298	0.556	3.47807	1.00040	0.6867
580	0.00809	2043.35	2.103	25.02	0.0017231	0.10426	0.565	3.66041	1.00039	0.6864
600	0.00782	2107.55	2.112	25.02	0.0016656	0.10559	0.573	3.84630	1.00038	0.6862
650	0.00722	2271.09	2.127	25.02	0.0015375	0.10906	0.595	4.32675	1.00035	0.6856
700	0.00670	2438.21	2.136	25.02	0.0014277	0.11271	0.616	4.83011	1.00032	0.6853
800	0.00587	2780.32	2.142	25.02	0.0012492	0.12030	0.659	5.90447	1.00028	0.6847
900	0.00521	3126.27	2.143	25.02	0.0011105	0.12798	0.701	7.06912	1.00025	0.6844
1000	0.00469	3475.88	2.141	25.02	0.0009995	0.13570	0.742	8.32235	1.00023	0.6841
1500	0.00313	5284.87	2.100	25.01	0.0006664	0.17467	0.942	15.84708	1.00015	0.6836
2000	0.00235	7261.89	2.014	25.01	0.0004998	0.27727	1.129	32.54022	1.00011	0.5320
2500	0.00188	9432.74	1.911	25.01	0.0003999	0.33509	1.305	47.29942	1.00009	0.5290
3000	0.00157	11782.85	1.811	25.00	0.0003333	0.39584	1.473	64.40685	1.00008	0.5268
3500	0.00134	14656.21	1.669	24.99	0.0002858	0.47860	1.633	85.20732	1.00006	0.5146
4000	0.00117	19425.62	1.397	24.94	0.0002506	0.65344	1.789	114.63711	1.00006	0.4798
5000	0.00091	48445.60	0.657	24.38	0.0002058	1.97229	2.112	216.77108	1.00004	0.3843

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

30 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 24.966	0.20768	2730.56	78.820	-132.898	-131.745	1.18696	1.129	1.560	4181
25	0.20774	2734.67	75.791	-132.842	-131.688	1.18924	1.130	1.561	4183
26	0.20898	2604.55	75.104	-131.259	-130.098	1.25157	1.152	1.619	4119
28	0.21160	2402.46	74.006	-127.941	-126.766	1.37505	1.197	1.727	4006
30	0.21449	2229.25	72.260	-124.385	-123.193	1.49829	1.244	1.842	3911
32	0.21763	2056.14	70.784	-120.581	-119.372	1.62158	1.288	1.972	3819
34	0.22106	1877.55	69.269	-116.515	-115.287	1.74537	1.328	2.114	3721
36	0.22484	1717.63	67.642	-112.166	-110.917	1.87024	1.364	2.261	3633
38	0.22907	1539.50	65.806	-107.496	-106.223	1.99711	1.394	2.433	3528
40	0.23386	1356.20	63.696	-102.469	-101.170	2.12667	1.420	2.632	3412
• 41.299	0.23734	1235.47	62.033	-98.985	-97.667	2.21286	1.434	2.776	3328
• 41.299	6.21091	153.14	0.9300	51.679	86.182	6.66720	1.595	3.261	1204
42	6.37309	159.20	0.9019	53.036	88.440	6.72142	1.581	3.195	1221
44	6.82350	175.62	0.8331	56.773	94.679	6.86656	1.554	3.053	1264
46	7.25829	191.07	0.7770	60.361	100.682	7.00000	1.537	2.955	1304
48	7.68157	205.81	0.7298	63.846	106.519	7.12421	1.527	2.884	1342
50	8.09600	220.00	0.6891	67.256	112.231	7.24081	1.520	2.830	1378
52	8.50337	233.77	0.6536	70.608	117.846	7.35093	1.515	2.787	1412
54	8.90498	247.20	0.6220	73.915	123.384	7.45543	1.511	2.752	1444
56	9.30181	260.34	0.5938	77.184	128.858	7.55496	1.508	2.723	1476
58	9.69460	273.23	0.5683	80.423	134.278	7.65007	1.505	2.698	1506
60	10.08395	285.92	0.5451	83.635	139.654	7.74119	1.503	2.677	1536
62	10.47031	298.43	0.5240	86.824	144.989	7.82866	1.500	2.658	1565
64	10.85408	310.79	0.5046	89.993	150.290	7.91281	1.499	2.643	1593
66	11.23560	323.02	0.4868	93.145	155.561	7.99391	1.497	2.629	1621
68	11.61512	335.13	0.4702	96.282	160.807	8.07221	1.496	2.617	1648
70	11.99288	347.13	0.4549	99.407	166.030	8.14792	1.495	2.606	1674
75	12.93071	376.75	0.4208	107.176	179.008	8.32700	1.495	2.586	1738
80	13.86090	405.92	0.3917	114.900	191.900	8.49341	1.496	2.572	1798
85	14.78508	434.74	0.3666	122.600	204.734	8.64903	1.499	2.563	1855
90	15.70443	463.27	0.3446	130.296	217.537	8.79539	1.506	2.559	1910
95	16.61983	491.56	0.3252	138.007	230.334	8.93376	1.515	2.560	1962
100	17.53197	519.66	0.3079	145.755	243.148	9.06521	1.528	2.566	2011
105	18.44138	547.60	0.2925	153.559	256.004	9.19066	1.544	2.577	2058
110	19.34849	575.40	0.2785	161.443	268.927	9.31089	1.565	2.593	2102
115	20.25363	603.09	0.2659	169.430	281.943	9.42660	1.590	2.614	2143
120	21.15710	630.67	0.2544	177.544	295.076	9.53838	1.619	2.640	2182
125	22.05910	658.17	0.2438	185.808	308.350	9.64675	1.653	2.671	2219
130	22.95983	685.59	0.2341	194.244	321.790	9.75217	1.691	2.706	2254
135	23.85945	712.95	0.2252	202.873	335.416	9.85502	1.733	2.745	2287
140	24.75808	740.24	0.2169	211.715	349.250	9.95563	1.779	2.789	2319
150	26.55284	794.69	0.2021	230.106	377.612	10.15127	1.879	2.885	2378
160	28.34482	848.97	0.1892	249.531	406.992	10.34084	1.988	2.992	2433
180	31.92442	957.33	0.1678	291.772	469.118	10.70587	2.218	3.217	2536
200	35.49459	1065.07	0.1508	338.463	535.642	11.05609	2.436	3.432	2637
220	39.06052	1172.56	0.1370	389.205	606.194	11.39219	2.622	3.616	2737
240	42.62338	1279.87	0.1255	443.221	680.001	11.71301	2.763	3.756	2839
260	46.18387	1387.04	0.1157	499.556	756.116	12.01777	2.857	3.849	2942
280	49.74253	1494.09	0.1074	557.365	833.694	12.30511	2.908	3.899	3046
300	53.29970	1601.06	0.1002	615.791	911.881	12.57496	2.926	3.916	3151
320	56.85567	1707.95	0.0939	674.290	990.134	12.82751	2.917	3.906	3255
340	60.41066	1814.79	0.0884	732.427	1068.019	13.06331	2.891	3.880	3359
360	63.96483	1921.58	0.0835	789.933	1145.269	13.28416	2.855	3.844	3462
380	67.51832	2028.32	0.0790	846.656	1221.732	13.49088	2.814	3.802	3563
400	71.07124	2135.03	0.0751	902.534	1297.348	13.68490	2.772	3.760	3663
420	74.62367	2241.72	0.0715	957.576	1372.125	13.86729	2.731	3.719	3760
440	78.17570	2348.38	0.0682	1011.835	1446.116	14.03946	2.693	3.680	3856
460	81.72737	2455.01	0.0653	1065.368	1519.378	14.20229	2.659	3.646	3949
480	85.27873	2561.63	0.0625	1118.263	1592.002	14.35662	2.629	3.616	4040
500	88.82984	2668.23	0.0600	1170.596	1664.062	14.50388	2.603	3.590	4129
520	92.38071	2774.82	0.0577	1222.448	1735.640	14.64437	2.581	3.568	4215
540	95.93138	2881.40	0.0556	1273.885	1806.801	14.77866	2.562	3.549	4300
560	99.48188	2987.97	0.0536	1324.904	1877.544	14.90681	2.547	3.534	4382
580	103.03222	3094.53	0.0517	1375.711	1948.074	15.03041	2.535	3.521	4463
600	106.58243	3201.07	0.0500	1426.324	2018.409	15.14970	2.524	3.511	4542
650	115.45744	3467.42	0.0462	1551.997	2193.384	15.43009	2.506	3.492	4732
700	124.33187	3733.73	0.0429	1677.016	2367.703	15.68871	2.495	3.481	4913
800	142.07951	4266.27	0.0375	1925.923	2715.201	16.15304	2.487	3.473	5254
900	159.82604	4798.75	0.0333	2174.665	3062.529	16.56183	2.486	3.472	5572
1000	177.57185	5331.18	0.0300	2423.253	3409.698	16.92739	2.488	3.474	5872
1500	266.29585	7993.06	0.0200	3676.753	5156.076	18.34270	2.536	3.522	7171
2000	355.01668	10654.74	0.0150	4969.864	6942.048	19.36808	2.644	3.630	8232
2500	443.73715	13316.37	0.0120	6327.241	8792.283	20.19321	2.786	3.772	9139
3000	532.47585	15977.97	0.0100	7758.393	10716.396	20.88482	2.938	3.925	9944
3500	621.41445	18639.55	0.0086	9287.826	12739.900	21.51106	3.178	4.174	10651
4000	711.47764	21301.13	0.0075	11013.905	14966.296	22.29759	3.762	4.804	11225
5000	910.79118	26624.28	0.0060	16523.125	21582.741	24.59018	7.903	9.478	12153

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

30 PSIA ISOBAR

	TEMPERATURE DEG. R	DENSITY LB/CU FT	$(\partial H/\partial V)_P$ BTU/LB	$(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
*	24.966	4.81505	267.06	14.125	13147.80	0.0058428	0.04247	1.721	0.00565	1.25569	2.2757
	25	4.81382	267.59	14.115	13164.24	0.0058333	0.04258	1.715	0.00567	1.25562	2.2639
	26	4.78521	265.20	13.808	12463.32	0.0061062	0.04562	1.592	0.00589	1.25394	2.0344
	28	4.72582	264.87	13.080	11353.62	0.0065182	0.05021	1.391	0.00615	1.25046	1.7215
	30	4.66224	264.97	12.463	10393.32	0.0069525	0.05317	1.232	0.00619	1.24674	1.5369
	32	4.59494	263.18	11.962	9447.82	0.0074922	0.05510	1.105	0.00608	1.24281	1.4236
	34	4.52363	259.25	11.530	8493.37	0.0081556	0.05623	1.001	0.00588	1.23867	1.3549
	36	4.44756	255.39	11.153	7639.27	0.0088545	0.05710	0.913	0.00568	1.23426	1.3018
	38	4.36540	248.44	10.813	6720.51	0.0097918	0.05808	0.837	0.00547	1.22952	1.2621
	40	4.27607	239.62	10.489	5799.20	0.0109835	0.05851	0.770	0.00520	1.22439	1.2469
*	41.299	4.21329	232.95	10.265	5205.39	0.0119171	0.05851	0.730	0.00500	1.22079	1.2469
*	41.299	0.16101	86.46	3.622	24.66	0.0377198	0.01173	0.087	0.02233	1.00779	0.8751
	42	0.15691	88.50	3.635	24.98	0.0361040	0.01183	0.089	0.02359	1.00759	0.8626
	44	0.14655	94.33	3.658	25.74	0.0323680	0.01217	0.092	0.02720	1.00709	0.8344
	46	0.13777	100.13	3.668	26.32	0.0295170	0.01256	0.096	0.03084	1.00667	0.8141
	48	0.13018	105.88	3.671	26.79	0.0272393	0.01297	0.100	0.03453	1.00630	0.7986
	50	0.12352	111.58	3.671	27.17	0.0253602	0.01339	0.103	0.03831	1.00597	0.7861
	52	0.11760	117.23	3.669	27.49	0.0237726	0.01383	0.107	0.04219	1.00569	0.7758
	54	0.11230	122.81	3.666	27.76	0.0224071	0.01427	0.110	0.04618	1.00543	0.7670
	56	0.10751	128.33	3.664	27.99	0.0212156	0.01470	0.114	0.05021	1.00520	0.7603
	58	0.10315	133.81	3.661	28.18	0.0201640	0.01512	0.117	0.05434	1.00499	0.7545
	60	0.09917	139.23	3.658	28.35	0.0192262	0.01555	0.121	0.05859	1.00479	0.7493
	62	0.09551	144.60	3.657	28.50	0.0183849	0.01598	0.124	0.06295	1.00462	0.7445
	64	0.09213	149.94	3.655	28.63	0.0173239	0.01642	0.128	0.06743	1.00445	0.7401
	66	0.08900	155.27	3.653	28.75	0.0169313	0.01685	0.131	0.07203	1.00430	0.7361
	68	0.08609	160.57	3.651	28.85	0.0162974	0.01729	0.134	0.07673	1.00416	0.7323
	70	0.08338	165.86	3.648	28.94	0.0157145	0.01772	0.138	0.08156	1.00403	0.7287
	75	0.07734	179.06	3.640	29.14	0.0144410	0.01882	0.146	0.09409	1.00374	0.7209
	80	0.07215	192.27	3.629	29.29	0.0133747	0.01991	0.154	0.10731	1.00349	0.7142
	85	0.06764	205.58	3.614	29.40	0.0124661	0.02100	0.161	0.12118	1.00327	0.7084
	90	0.06368	219.07	3.594	29.50	0.0116810	0.02210	0.169	0.13565	1.00308	0.7035
	95	0.06017	232.85	3.568	29.58	0.0109946	0.02321	0.176	0.15065	1.00291	0.6996
	100	0.05704	247.01	3.534	29.64	0.0103886	0.02431	0.183	0.16610	1.00276	0.6968
	105	0.05423	261.65	3.493	29.69	0.0098492	0.02542	0.190	0.18188	1.00262	0.6951
	110	0.05168	276.86	3.444	29.74	0.0093655	0.02661	0.197	0.19856	1.00250	0.6924
	115	0.04937	292.74	3.387	29.78	0.0089291	0.02784	0.204	0.21572	1.00238	0.6901
	120	0.04727	309.37	3.323	29.81	0.0085330	0.02907	0.211	0.23300	1.00228	0.6893
	125	0.04533	326.80	3.253	29.84	0.0081717	0.03031	0.217	0.25033	1.00219	0.6898
	130	0.04355	345.09	3.179	29.86	0.0078408	0.03154	0.224	0.26762	1.00210	0.6916
	135	0.04191	364.27	3.100	29.88	0.0075364	0.03276	0.230	0.28468	1.00202	0.6948
	140	0.04039	384.36	3.020	29.90	0.0072554	0.03399	0.237	0.30178	1.00195	0.6987
	150	0.03766	427.25	2.857	29.93	0.0067533	0.03691	0.249	0.33963	1.00182	0.7004
	160	0.03528	473.55	2.698	29.95	0.0063176	0.04008	0.261	0.37973	1.00170	0.7008
	180	0.03132	574.88	2.416	29.99	0.0055958	0.05180	0.307	0.51403	1.00151	0.6872
	200	0.02817	682.94	2.197	30.01	0.0050258	0.06131	0.342	0.63397	1.00136	0.6902
	220	0.02560	792.58	2.041	30.02	0.0045625	0.06915	0.368	0.74697	1.00124	0.6924
	240	0.02346	898.92	1.935	30.03	0.0041780	0.07552	0.388	0.85711	1.00113	0.6939
	260	0.02165	998.80	1.871	30.03	0.0038536	0.08057	0.404	0.96676	1.00105	0.6947
	280	0.02010	1090.28	1.837	30.04	0.0035763	0.08445	0.418	1.07741	1.00097	0.6949
	300	0.01876	1173.61	1.826	30.04	0.0033364	0.08741	0.431	1.18983	1.00091	0.6947
	320	0.01759	1249.32	1.831	30.04	0.0031267	0.08962	0.442	1.30448	1.00085	0.6942
	340	0.01655	1318.90	1.847	30.04	0.0029420	0.09132	0.453	1.42170	1.00080	0.6936
	360	0.01563	1383.68	1.870	30.04	0.0027779	0.09264	0.464	1.54158	1.00075	0.6928
	380	0.01481	1444.92	1.897	30.04	0.0026313	0.09372	0.474	1.66426	1.00071	0.6920
	400	0.01407	1504.28	1.925	30.04	0.0024994	0.09468	0.484	1.78981	1.00068	0.6912
	420	0.01340	1562.39	1.954	30.04	0.0023801	0.09559	0.493	1.91827	1.00065	0.6905
	440	0.01279	1620.12	1.981	30.04	0.0022717	0.09649	0.502	2.04959	1.00062	0.6897
	460	0.01224	1678.24	2.006	30.04	0.0021728	0.09743	0.511	2.18377	1.00059	0.6891
	480	0.01173	1736.78	2.029	30.04	0.0020821	0.09842	0.520	2.32093	1.00057	0.6885
	500	0.01126	1796.23	2.049	30.04	0.0019988	0.09947	0.529	2.46107	1.00054	0.6880
	520	0.01082	1856.61	2.066	30.04	0.0019218	0.10058	0.538	2.60416	1.00052	0.6875
	540	0.01042	1917.80	2.081	30.04	0.0018506	0.10174	0.547	2.75010	1.00050	0.6871
	560	0.01005	1980.42	2.093	30.04	0.0017845	0.10299	0.556	2.89906	1.00049	0.6868
	580	0.00971	2043.71	2.104	30.03	0.0017229	0.10427	0.565	3.05105	1.00047	0.6865
	600	0.00938	2107.91	2.112	30.03	0.0016654	0.10560	0.573	3.20600	1.00045	0.6862
	650	0.00866	2271.46	2.127	30.03	0.0015373	0.10908	0.595	3.60649	1.00042	0.6857
	700	0.00804	2438.59	2.136	30.03	0.0014275	0.11272	0.616	4.02607	1.00039	0.6853
	800	0.00704	2780.72	2.142	30.03	0.0012491	0.12032	0.659	4.92158	1.00034	0.6847
	900	0.00626	3126.69	2.144	30.02	0.0011103	0.12799	0.701	5.89235	1.00030	0.6844
	1000	0.00563	3476.30	2.141	30.02	0.0009993	0.13571	0.742	6.93695	1.00027	0.6841
	1500	0.00376	5285.33	2.100	30.02	0.0006663	0.17469	0.942	13.20890	1.00018	0.6836
	2000	0.00282	7262.36	2.014	30.01	0.0004998	0.27727	1.129	27.11860	1.00014	0.5321
	2500	0.00225	9432.98	1.911	30.01	0.0003999	0.33507	1.305	39.41769	1.00011	0.5290
	3000	0.00188	11777.80	1.812	30.01	0.0003333	0.39555	1.473	53.66014	1.00009	0.5262
	3500	0.00161	14607.33	1.676	30.00	0.0002858	0.47603	1.634	70.86636	1.00008	0.5157
	4000	0.00141	19175.41	1.418	29.94	0.0002505	0.64056	1.789	94.87555	1.00007	0.4831
	5000	0.00110	46176.44	0.691	29.23	0.0002053	1.85745	2.110	178.49359	1.00005	0.3876

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

35 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 24.987	0.20763	2735.67	75.830	-132.893	-131.548	1.18714	1.130	1.560	4183
25	0.20766	2744.67	75.817	-132.869	-131.523	1.18812	1.130	1.559	4188
26	0.20889	2614.14	75.133	-131.289	-129.935	1.25041	1.152	1.618	4124
28	0.21151	2410.57	74.072	-127.976	-126.605	1.37379	1.197	1.725	4012
30	0.21439	2237.31	72.332	-124.425	-123.036	1.49692	1.243	1.840	3917
32	0.21792	2084.36	70.858	-120.629	-119.219	1.62007	1.288	1.969	3825
34	0.22093	1885.11	69.351	-116.571	-115.139	1.74371	1.328	2.112	3727
36	0.22470	1726.08	67.723	-112.232	-110.775	1.86840	1.363	2.258	3639
38	0.22890	1547.99	65.900	-107.574	-106.090	1.99503	1.394	2.428	3535
40	0.23365	1370.83	63.806	-102.566	-101.052	2.12423	1.420	2.621	3424
42	0.23914	1184.54	61.193	-97.134	-95.584	2.25759	1.441	2.847	3293
• 42.475	0.24055	1143.05	60.530	-95.786	-94.227	2.28971	1.446	2.905	3262
* 42.475	5.37081	150.50	1.085	52.057	86.865	6.55595	1.605	3.381	1212
44	5.68236	164.17	1.015	55.079	91.307	6.67258	1.577	3.227	1248
46	6.07313	180.88	0.9397	58.852	98.213	6.81275	1.553	3.087	1291
48	6.45027	196.62	0.8780	62.479	104.284	6.94196	1.539	2.989	1330
50	6.81724	211.62	0.8258	66.002	110.185	7.06242	1.529	2.916	1367
52	7.17630	226.07	0.7806	69.448	115.958	7.17563	1.522	2.859	1402
54	7.52902	240.08	0.7410	72.834	121.630	7.28266	1.517	2.814	1436
56	7.87652	253.72	0.7059	76.171	127.219	7.38431	1.513	2.777	1469
58	8.21969	267.06	0.6744	79.469	132.741	7.48120	1.510	2.746	1500
60	8.55918	280.14	0.6459	82.735	138.207	7.57385	1.507	2.719	1530
62	8.89551	293.01	0.6200	85.970	143.623	7.66263	1.504	2.696	1560
64	9.22913	305.69	0.5964	89.181	148.995	7.74792	1.502	2.677	1589
66	9.56038	318.20	0.5747	92.370	154.331	7.83002	1.500	2.660	1617
68	9.88957	330.57	0.5547	95.541	159.636	7.90921	1.499	2.645	1644
70	10.21693	342.82	0.5361	98.697	164.914	7.98570	1.498	2.632	1671
75	11.02858	372.98	0.4952	106.533	178.010	8.16641	1.497	2.607	1735
80	11.83239	402.59	0.4604	114.313	190.999	8.33407	1.498	2.590	1796
85	12.63006	431.79	0.4304	122.060	203.916	8.49069	1.501	2.578	1854
90	13.42283	460.64	0.4043	129.796	216.790	8.63786	1.507	2.572	1909
95	14.21160	489.22	0.3813	137.542	229.648	8.77690	1.516	2.572	1961
100	14.99707	517.57	0.3608	145.319	242.516	8.90891	1.529	2.576	2010
105	15.77978	545.73	0.3425	153.150	255.420	9.03482	1.545	2.586	2057
110	16.56017	573.73	0.3261	161.058	268.385	9.15545	1.566	2.601	2101
115	17.33859	601.60	0.3112	169.067	281.439	9.27149	1.591	2.621	2143
120	18.11532	629.34	0.2976	177.199	294.606	9.38357	1.620	2.646	2182
125	18.89058	656.99	0.2852	185.480	307.911	9.49219	1.654	2.676	2219
130	19.66456	684.54	0.2738	193.932	321.379	9.59783	1.692	2.711	2254
135	20.43743	712.02	0.2633	202.575	335.031	9.70087	1.733	2.750	2288
140	21.20931	739.43	0.2536	211.430	348.888	9.80166	1.779	2.793	2319
150	22.75056	794.07	0.2362	229.844	377.292	9.99758	1.879	2.889	2378
160	24.28902	848.53	0.2211	249.289	406.707	10.18738	1.988	2.995	2434
180	27.36187	957.20	0.1960	291.570	468.904	10.55281	2.218	3.219	2537
200	30.42506	1065.16	0.1761	338.286	535.472	10.90326	2.436	3.434	2638
220	33.48402	1172.82	0.1599	389.047	606.058	11.23952	2.622	3.618	2738
240	36.53990	1280.27	0.1465	443.078	679.895	11.56046	2.763	3.757	2840
260	39.59342	1387.55	0.1351	499.426	756.833	11.86533	2.857	3.850	2943
280	42.64510	1494.70	0.1254	557.247	833.632	12.15274	2.908	3.900	3047
300	45.69530	1601.75	0.1170	615.683	911.836	12.42265	2.926	3.916	3152
320	48.74430	1708.72	0.1096	674.190	990.105	12.67525	2.917	3.907	3256
340	51.79231	1815.62	0.1031	732.335	1068.004	12.91109	2.891	3.881	3360
360	54.83951	1922.46	0.0974	789.848	1145.266	13.13198	2.855	3.844	3463
380	57.88604	2029.25	0.0922	846.577	1221.740	13.33872	2.814	3.802	3564
400	60.93199	2136.00	0.0876	902.462	1297.365	13.53277	2.772	3.760	3664
420	63.97745	2242.72	0.0834	957.509	1372.150	13.71518	2.731	3.719	3761
440	67.02251	2349.41	0.0796	1011.772	1446.149	13.88736	2.693	3.681	3857
460	70.06721	2456.08	0.0762	1065.309	1519.418	14.05021	2.659	3.647	3950
480	73.11161	2562.72	0.0730	1118.208	1592.048	14.20455	2.629	3.616	4041
500	76.15574	2669.35	0.0701	1170.544	1664.113	14.35102	2.603	3.590	4130
520	79.19965	2775.96	0.0674	1222.399	1735.696	14.49232	2.581	3.568	4216
540	82.24336	2882.56	0.0649	1273.839	1806.862	14.62662	2.562	3.549	4301
560	85.28689	2989.14	0.0625	1324.860	1877.609	14.75478	2.547	3.534	4383
580	88.33026	3095.71	0.0604	1375.670	1948.143	14.87839	2.535	3.521	4464
600	91.37350	3202.28	0.0584	1426.285	2018.482	14.99769	2.524	3.511	4542
650	98.98110	3468.65	0.0539	1551.963	2193.464	15.27809	2.506	3.492	4732
700	106.58812	3734.98	0.0500	1676.986	2367.789	15.53672	2.495	3.481	4914
800	121.80093	4267.57	0.0438	1925.899	2715.297	16.00106	2.487	3.473	5254
900	137.01263	4800.07	0.0389	2174.645	3062.631	16.40986	2.486	3.472	5573
1000	152.22362	5332.53	0.0350	2423.237	3409.806	16.77542	2.488	3.474	5873
1500	228.27349	7994.45	0.0233	3676.745	5156.197	18.19074	2.536	3.522	7172
2000	304.32020	10656.16	0.0175	4969.859	6942.174	19.21613	2.644	3.630	8232
2500	380.36642	13317.79	0.0140	6327.227	8792.402	20.04125	2.786	3.772	9139
3000	456.42702	15979.39	0.0117	7758.132	10716.259	20.73278	2.937	3.924	9945
3500	532.64622	18640.98	0.0100	9285.158	12737.266	21.35826	3.167	4.163	10654
4000	609.75789	21302.57	0.0088	10998.481	14950.354	22.14130	3.716	4.754	11235
5000	779.20905	26625.72	0.0070	16340.984	21391.079	24.39600	7.569	9.097	12166

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

35 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 24.987	4.81629	267.60	14.117	13175.75	0.0058312	0.04255	1.722	0.00566	1.25577	2.2732
25	4.81565	268.32	14.113	13217.36	0.0058118	0.04259	1.720	0.00567	1.25573	2.2665
26	4.78710	265.91	13.807	12514.16	0.0060837	0.04564	1.596	0.00589	1.25405	2.0364
28	4.72786	265.44	13.086	11396.82	0.0054994	0.05023	1.394	0.00616	1.25058	1.7233
30	4.66446	265.54	12.471	10435.83	0.0069311	0.05320	1.235	0.00620	1.24687	1.5381
32	4.59736	263.79	11.970	9490.61	0.0074662	0.05515	1.108	0.00609	1.24295	1.4242
34	4.52628	259.83	11.539	8532.56	0.0081278	0.05628	1.003	0.00589	1.23882	1.3553
36	4.45046	256.09	11.161	7681.86	0.0088159	0.05716	0.915	0.00569	1.23443	1.3015
38	4.36864	249.17	10.823	6762.60	0.0097448	0.05815	0.839	0.00548	1.22971	1.2614
40	4.27986	240.98	10.500	5866.94	0.0108756	0.05860	0.772	0.00522	1.22460	1.2433
42	4.18158	230.46	10.155	4953.26	0.0123542	0.05851	0.711	0.00491	1.21898	1.2460
• 42.475	4.15706	228.01	10.072	4751.73	0.0127386	0.05843	0.698	0.00484	1.21758	1.2487
• 42.475	0.18619	87.29	3.632	28.02	0.0387341	0.01226	0.090	0.01948	1.00902	0.8971
44	0.17598	91.88	3.657	28.89	0.0351255	0.01247	0.093	0.02196	1.00852	0.8677
46	0.16466	97.85	3.674	29.78	0.0315514	0.01280	0.097	0.02519	1.00797	0.8398
48	0.15503	103.76	3.680	30.48	0.0288045	0.01318	0.100	0.02844	1.00750	0.8193
50	0.14669	109.61	3.681	31.04	0.0266013	0.01358	0.104	0.03175	1.00710	0.8034
52	0.13935	115.38	3.680	31.50	0.0247797	0.01399	0.107	0.03513	1.00674	0.7906
54	0.13282	121.08	3.677	31.89	0.0232391	0.01442	0.111	0.03858	1.00642	0.7799
56	0.12696	126.72	3.674	32.21	0.0219131	0.01484	0.115	0.04209	1.00614	0.7714
58	0.12166	132.29	3.671	32.49	0.0207559	0.01526	0.118	0.04569	1.00588	0.7642
60	0.11683	137.80	3.668	32.73	0.0197334	0.01568	0.121	0.04936	1.00565	0.7578
62	0.11242	143.24	3.666	32.94	0.0188238	0.01611	0.125	0.05315	1.00544	0.7520
64	0.10835	148.65	3.665	33.12	0.0180067	0.01654	0.128	0.05702	1.00524	0.7468
66	0.10460	154.03	3.662	33.28	0.0172675	0.01697	0.131	0.06099	1.00506	0.7421
68	0.10112	159.40	3.660	33.43	0.0165946	0.01740	0.135	0.06505	1.00489	0.7377
70	0.09788	164.74	3.657	33.55	0.0159785	0.01783	0.138	0.06921	1.00473	0.7337
75	0.09067	178.07	3.648	33.82	0.0146414	0.01892	0.146	0.08001	1.00438	0.7249
80	0.08451	191.39	3.637	34.02	0.0135303	0.02000	0.154	0.09139	1.00408	0.7175
85	0.07918	204.78	3.622	34.19	0.0125893	0.02109	0.162	0.10333	1.00383	0.7111
90	0.07450	218.35	3.601	34.32	0.0117801	0.02219	0.169	0.11578	1.00360	0.7058
95	0.07037	232.19	3.574	34.42	0.0110754	0.02328	0.176	0.12867	1.00340	0.7016
100	0.06668	246.40	3.540	34.51	0.0104551	0.02438	0.184	0.14195	1.00322	0.6985
105	0.06337	261.09	3.498	34.58	0.0099046	0.02549	0.191	0.15552	1.00306	0.6966
110	0.06039	276.34	3.449	34.65	0.0094121	0.02668	0.198	0.16985	1.00292	0.6936
115	0.05767	292.25	3.392	34.70	0.0089685	0.02791	0.204	0.18459	1.00279	0.6912
120	0.05520	308.91	3.328	34.74	0.0085666	0.02913	0.211	0.19944	1.00267	0.6903
125	0.05294	326.37	3.258	34.78	0.0082005	0.03037	0.218	0.21433	1.00256	0.6907
130	0.05085	344.68	3.183	34.81	0.0078657	0.03160	0.224	0.22918	1.00246	0.6923
135	0.04893	363.88	3.104	34.84	0.0075580	0.03281	0.230	0.24381	1.00236	0.6956
140	0.04715	383.99	3.024	34.86	0.0072742	0.03404	0.237	0.25849	1.00228	0.6993
150	0.04395	426.91	2.860	34.90	0.0067677	0.03695	0.249	0.29099	1.00212	0.7009
160	0.04117	473.24	2.701	34.93	0.0063288	0.04013	0.261	0.32542	1.00199	0.7012
180	0.03655	574.65	2.418	34.98	0.0056025	0.05181	0.307	0.44029	1.00176	0.6876
200	0.03287	682.74	2.199	35.01	0.0050301	0.06131	0.342	0.54313	1.00159	0.6905
220	0.02986	792.44	2.042	35.03	0.0045653	0.06915	0.368	0.64004	1.00144	0.6927
240	0.02737	898.83	1.937	35.04	0.0041798	0.07552	0.388	0.73450	1.00132	0.6941
260	0.02526	998.77	1.872	35.04	0.0038548	0.08057	0.404	0.82654	1.00122	0.6949
280	0.02345	1090.31	1.838	35.05	0.0035771	0.08445	0.418	0.92345	1.00113	0.6951
300	0.02188	1173.69	1.827	35.05	0.0033368	0.08741	0.431	1.01986	1.00106	0.6949
320	0.02052	1249.44	1.832	35.05	0.0031270	0.08963	0.442	1.11818	1.00099	0.6944
340	0.01931	1319.06	1.848	35.06	0.0029421	0.09132	0.453	1.21870	1.00093	0.6937
360	0.01824	1383.88	1.870	35.06	0.0027780	0.09264	0.464	1.32151	1.00088	0.6929
380	0.01728	1445.14	1.898	35.06	0.0026312	0.09372	0.474	1.42671	1.00083	0.6921
400	0.01641	1504.52	1.926	35.06	0.0024993	0.09469	0.484	1.53437	1.00079	0.6913
420	0.01563	1562.65	1.954	35.05	0.0023799	0.09560	0.493	1.64452	1.00075	0.6905
440	0.01492	1620.40	1.982	35.05	0.0022715	0.09650	0.502	1.75712	1.00072	0.6898
460	0.01427	1678.54	2.007	35.05	0.0021726	0.09744	0.511	1.87218	1.00069	0.6891
480	0.01368	1737.09	2.029	35.05	0.0020819	0.09843	0.521	1.98979	1.00066	0.6885
500	0.01313	1796.55	2.049	35.05	0.0019985	0.09948	0.530	2.10995	1.00063	0.6880
520	0.01263	1856.94	2.067	35.05	0.0019216	0.10059	0.538	2.23264	1.00061	0.6876
540	0.01216	1918.14	2.082	35.05	0.0018504	0.10175	0.547	2.35776	1.00059	0.6871
560	0.01173	1980.77	2.094	35.05	0.0017842	0.10299	0.556	2.48548	1.00057	0.6868
580	0.01132	2044.06	2.104	35.05	0.0017227	0.10428	0.565	2.61580	1.00055	0.6865
600	0.01094	2108.27	2.113	35.05	0.0016652	0.10561	0.573	2.74865	1.00053	0.6862
650	0.01010	2271.83	2.128	35.04	0.0015371	0.10909	0.595	3.09202	1.00049	0.6857
700	0.00938	2438.98	2.137	35.04	0.0014273	0.11274	0.616	3.45175	1.00045	0.6853
800	0.00821	2781.12	2.143	35.04	0.0012489	0.12033	0.659	4.21952	1.00040	0.6847
900	0.00730	3127.11	2.144	35.03	0.0011102	0.12801	0.701	5.05180	1.00035	0.6844
1000	0.00657	3476.73	2.142	35.03	0.0009992	0.13573	0.742	5.94737	1.00032	0.6841
1500	0.00438	5285.78	2.100	35.02	0.0006663	0.17472	0.942	11.32449	1.00021	0.6836
2000	0.00329	7262.84	2.014	35.02	0.0004998	0.27727	1.129	23.24601	1.00016	0.5322
2500	0.00263	9433.28	1.911	35.01	0.0003999	0.33506	1.306	33.78798	1.00013	0.5291
3000	0.00219	11774.00	1.813	35.01	0.0003332	0.39532	1.473	45.98670	1.00011	0.5264
3500	0.00188	14569.45	1.682	35.00	0.0002857	0.47403	1.634	60.64943	1.00009	0.5166
4000	0.00164	18981.30	1.436	34.94	0.0002505	0.63054	1.790	80.87540	1.00008	0.4857
5000	0.00128	44404.34	0.721	34.17	0.0002049	1.76775	2.108	151.42496	1.00006	0.3906

• TWO-PHASE BOUNDARY

40 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 25.008	0.20758	2740.77	75.840	-132.888	-131.351	1.18733	1.131	1.560	4186
26	0.20881	2623.70	75.162	-131.319	-129.772	1.24924	1.152	1.616	4129
28	0.21142	2418.64	74.138	-128.010	-126.444	1.37255	1.197	1.724	4017
30	0.21429	2245.33	72.404	-124.465	-122.878	1.49556	1.243	1.839	3922
32	0.21740	2072.55	70.932	-120.676	-119.066	1.61857	1.287	1.967	3830
34	0.22080	1892.64	69.433	-116.626	-114.991	1.74206	1.328	2.109	3733
36	0.22455	1734.49	67.803	-112.296	-110.633	1.86658	1.363	2.254	3645
38	0.22874	1556.43	65.994	-107.651	-105.957	1.99297	1.393	2.424	3541
40	0.23345	1380.27	63.906	-102.658	-100.929	2.12189	1.420	2.614	3431
42	0.23890	1194.33	61.317	-97.247	-95.477	2.25485	1.441	2.838	3301
• 43.536	0.24368	1057.22	59.044	-92.782	-90.977	2.36008	1.455	3.034	3195
• 43.536	4.72852	147.49	1.244	52.276	87.300	6.45761	1.615	3.506	1218
44	4.81663	151.99	1.216	53.248	88.924	6.49472	1.604	3.444	1230
46	5.17749	170.21	1.116	57.249	95.598	6.64308	1.572	3.244	1276
48	5.52194	187.08	1.037	61.043	101.944	6.77814	1.552	3.109	1318
50	5.85458	202.99	0.9706	64.696	108.061	6.90300	1.540	3.012	1356
52	6.17827	218.19	0.9143	68.247	114.009	7.01966	1.531	2.939	1393
54	6.49492	232.82	0.8654	71.721	119.828	7.12947	1.525	2.882	1428
56	6.80590	247.00	0.8224	75.133	125.543	7.23340	1.520	2.835	1461
58	7.11218	260.80	0.7842	78.495	131.174	7.33220	1.516	2.797	1493
60	7.41455	274.30	0.7499	81.817	136.736	7.42648	1.512	2.764	1524
62	7.71356	287.53	0.7188	85.102	142.236	7.51665	1.508	2.736	1554
64	8.00972	300.54	0.6906	88.356	147.684	7.60313	1.506	2.712	1584
66	8.30341	313.35	0.6648	91.585	153.088	7.68627	1.503	2.692	1612
68	8.59495	326.00	0.6411	94.792	158.454	7.76637	1.502	2.674	1640
70	8.88460	338.49	0.6191	97.980	163.787	7.84367	1.500	2.659	1667
75	9.60175	369.19	0.5709	105.885	177.004	8.02605	1.499	2.629	1732
80	10.31087	399.26	0.5301	113.721	190.093	8.19501	1.499	2.608	1794
85	11.01374	428.84	0.4951	121.516	203.094	8.35265	1.502	2.594	1852
90	11.71161	458.02	0.4646	129.293	216.040	8.50064	1.508	2.586	1907
95	12.40544	486.89	0.4379	137.074	228.960	8.64035	1.517	2.583	1960
100	13.09592	515.49	0.4142	144.883	241.883	8.77292	1.530	2.586	2010
105	13.78363	543.88	0.3930	152.741	254.835	8.89930	1.546	2.595	2057
110	14.46899	572.08	0.3740	160.672	267.843	9.02033	1.566	2.609	2101
115	15.15237	600.12	0.3568	168.702	280.935	9.13671	1.591	2.628	2143
120	15.83405	628.02	0.3411	176.854	294.136	9.24907	1.621	2.653	2182
125	16.51426	655.81	0.3268	185.152	307.472	9.35795	1.654	2.682	2220
130	17.19318	683.50	0.3137	193.619	320.968	9.46381	1.692	2.717	2255
135	17.87098	711.10	0.3016	202.277	334.646	9.56705	1.734	2.755	2288
140	18.54780	738.63	0.2904	211.145	348.527	9.66801	1.779	2.798	2320
150	19.89891	793.47	0.2704	229.582	376.972	9.86421	1.879	2.893	2379
160	21.24724	848.09	0.2531	249.047	406.423	10.05425	1.988	2.998	2434
180	23.93998	957.88	0.2242	291.369	468.590	10.42007	2.218	3.222	2538
200	26.62295	1065.25	0.2014	338.188	535.302	10.77075	2.436	3.436	2638
220	29.30168	1173.08	0.1829	388.888	605.923	11.10718	2.622	3.619	2739
240	31.97732	1280.67	0.1675	442.935	679.788	11.42824	2.763	3.758	2841
260	34.65061	1388.07	0.1545	499.296	755.950	11.73320	2.857	3.851	2944
280	37.32205	1495.32	0.1433	557.128	833.569	12.02069	2.909	3.901	3048
300	39.99202	1602.45	0.1337	615.574	911.792	12.29067	2.926	3.917	3153
320	42.66079	1709.49	0.1253	674.091	990.076	12.54331	2.917	3.908	3257
340	45.32857	1816.45	0.1179	732.244	1067.989	12.77919	2.891	3.881	3361
360	47.99554	1923.34	0.1113	789.764	1145.263	13.00012	2.855	3.845	3464
380	50.66183	2030.18	0.1054	846.499	1221.747	13.20689	2.814	3.803	3565
400	53.32756	2136.97	0.1001	902.389	1297.382	13.40096	2.772	3.761	3665
420	55.99280	2243.73	0.0954	957.441	1372.175	13.58340	2.731	3.719	3762
440	58.65762	2350.45	0.0910	1011.709	1446.182	13.75559	2.693	3.681	3858
460	61.32210	2457.15	0.0870	1065.250	1519.458	13.91846	2.659	3.647	3951
480	63.98627	2563.82	0.0834	1118.152	1592.093	14.07281	2.629	3.617	4042
500	66.65018	2670.46	0.0801	1170.492	1664.165	14.22009	2.603	3.591	4131
520	69.31386	2777.10	0.0770	1222.351	1735.753	14.36060	2.581	3.569	4217
540	71.97734	2883.71	0.0741	1273.793	1806.923	14.49491	2.562	3.549	4302
560	74.64065	2990.31	0.0715	1324.817	1877.674	14.62308	2.547	3.534	4384
580	77.30380	3096.90	0.0690	1375.629	1948.212	14.74670	2.535	3.521	4465
600	79.96681	3203.48	0.0667	1426.247	2018.554	14.86600	2.524	3.511	4543
650	86.62384	3469.88	0.0616	1551.929	2193.544	15.14641	2.506	3.492	4733
700	93.28030	3736.24	0.0572	1676.956	2367.876	15.40505	2.495	3.481	4915
800	106.59199	4268.86	0.0500	1925.875	2715.393	15.86940	2.487	3.474	5255
900	119.90257	4801.40	0.0445	2174.626	3062.734	16.27821	2.486	3.472	5574
1000	133.21244	5333.87	0.0400	2423.221	3409.914	16.64378	2.488	3.474	5874
1500	199.75672	7995.85	0.0267	3676.736	5156.318	18.05911	2.536	3.522	7172
2000	266.29784	10657.57	0.0200	4969.854	6942.300	19.08450	2.644	3.630	8233
2500	332.83837	13319.21	0.0160	6327.216	8792.522	19.90962	2.786	3.772	9140
3000	399.39061	15980.82	0.0133	7757.920	10716.173	20.60108	2.936	3.922	9946
3500	466.07263	18642.42	0.0114	9283.007	12735.168	21.22595	3.159	4.154	10657
4000	533.48514	21304.00	0.0100	10986.049	14937.528	22.00617	3.680	4.714	11244
5000	680.77514	26627.16	0.0080	16194.145	21236.590	24.23034	7.300	8.789	12178

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

40 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-JJ FT/BTU	$-V(\partial P/\partial V)_t$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 25.008	4.81751	268.13	14.108	13203.72	0.0058196	0.04264	1.723	0.00567	1.25584	2.2707
26	4.78899	266.62	13.805	12564.89	0.0060615	0.04566	1.600	0.00590	1.25416	2.0385
28	4.72990	266.00	13.093	11439.93	0.0064806	0.05026	1.397	0.00616	1.25069	1.7251
30	4.66667	266.11	12.479	10478.22	0.0069099	0.05324	1.238	0.00620	1.24700	1.5392
32	4.59978	264.40	11.978	9533.27	0.0074405	0.05519	1.110	0.00610	1.24310	1.4248
34	4.52892	260.41	11.548	8571.61	0.0081004	0.05633	1.006	0.00590	1.23898	1.3557
36	4.45334	256.78	11.170	7724.30	0.0087779	0.05721	0.917	0.00570	1.23460	1.3012
38	4.37187	249.90	10.833	6804.50	0.0096986	0.05822	0.841	0.00549	1.22989	1.2608
40	4.28348	241.84	10.509	5912.36	0.0108089	0.05868	0.774	0.00524	1.22481	1.2417
42	4.18580	231.40	10.167	4999.24	0.0122652	0.05861	0.713	0.00493	1.21922	1.2437
* 43.536	4.10380	222.93	9.886	4338.61	0.0136089	0.05823	0.670	0.00468	1.21455	1.2568
* 43.536	0.21148	87.91	3.643	31.19	0.0398786	0.01278	0.093	0.01724	1.01024	0.9198
44	0.20761	89.35	3.652	31.56	0.0385457	0.01282	0.094	0.01793	1.01006	0.9084
46	0.19314	95.52	3.678	32.87	0.0339616	0.01309	0.097	0.02089	1.00935	0.8700
48	0.18110	101.61	3.688	33.88	0.0306006	0.01342	0.101	0.02383	1.00877	0.8430
50	0.17081	107.61	3.691	34.67	0.0279928	0.01378	0.105	0.02679	1.00827	0.8227
52	0.16186	113.53	3.690	35.32	0.0258889	0.01417	0.108	0.02980	1.00783	0.8069
54	0.15397	119.35	3.687	35.85	0.0241428	0.01458	0.112	0.03286	1.00745	0.7939
56	0.14693	125.10	3.683	36.29	0.0226622	0.01499	0.115	0.03599	1.00711	0.7833
58	0.14060	130.77	3.680	36.67	0.0213858	0.01540	0.118	0.03917	1.00680	0.7744
60	0.13487	136.36	3.677	37.00	0.0202690	0.01582	0.122	0.04243	1.00652	0.7668
62	0.12964	141.88	3.676	37.28	0.0192843	0.01624	0.125	0.04578	1.00627	0.7599
64	0.12485	147.36	3.674	37.52	0.0184063	0.01666	0.129	0.04920	1.00604	0.7538
66	0.12043	152.81	3.672	37.74	0.0176169	0.01709	0.132	0.05270	1.00582	0.7483
68	0.11635	158.23	3.669	37.93	0.0169021	0.01751	0.135	0.05628	1.00563	0.7434
70	0.11255	163.63	3.666	38.10	0.0162508	0.01794	0.138	0.05994	1.00544	0.7388
75	0.10415	177.08	3.657	38.45	0.0148466	0.01902	0.146	0.06945	1.00504	0.7290
80	0.09698	190.50	3.645	38.72	0.0136889	0.02009	0.154	0.07945	1.00469	0.7208
85	0.09080	203.99	3.629	38.94	0.0127144	0.02118	0.162	0.08994	1.00439	0.7139
90	0.08539	217.63	3.608	39.11	0.0118803	0.02227	0.169	0.10087	1.00413	0.7081
95	0.08061	231.54	3.581	39.25	0.0111569	0.02336	0.177	0.11219	1.00390	0.7036
100	0.07636	245.80	3.546	39.36	0.0105222	0.02446	0.184	0.12384	1.00369	0.7002
105	0.07255	260.53	3.504	39.46	0.0099603	0.02556	0.191	0.13575	1.00351	0.6980
110	0.06911	275.82	3.454	39.54	0.0094588	0.02674	0.198	0.14832	1.00334	0.6949
115	0.06600	291.77	3.397	39.61	0.0090080	0.02797	0.205	0.16125	1.00319	0.6924
120	0.06316	308.46	3.333	39.66	0.0086002	0.02920	0.211	0.17427	1.00305	0.6913
125	0.06055	325.94	3.262	39.71	0.0082294	0.03043	0.218	0.18733	1.00293	0.6915
130	0.05816	344.28	3.187	39.75	0.0078905	0.03166	0.224	0.20035	1.00281	0.6931
135	0.05596	363.49	3.109	39.79	0.0075795	0.03286	0.231	0.21315	1.00270	0.6963
140	0.05391	383.62	3.027	39.82	0.0072929	0.03409	0.237	0.22603	1.00260	0.7000
150	0.05025	426.57	2.864	39.87	0.0067821	0.03700	0.249	0.25452	1.00243	0.7014
160	0.04706	472.93	2.704	39.92	0.0063400	0.04017	0.261	0.28469	1.00227	0.7016
180	0.04177	574.43	2.420	39.98	0.0056092	0.05181	0.307	0.38499	1.00202	0.6881
200	0.03756	682.55	2.201	40.01	0.0050344	0.06131	0.342	0.47500	1.00181	0.6908
220	0.03413	792.29	2.044	40.03	0.0045681	0.06915	0.368	0.55984	1.00165	0.6930
240	0.03127	898.74	1.938	40.05	0.0041817	0.07552	0.388	0.64255	1.00151	0.6944
260	0.02886	998.74	1.873	40.06	0.0038561	0.08057	0.404	0.72488	1.00139	0.6951
280	0.02679	1090.34	1.839	40.07	0.0035778	0.08445	0.418	0.80797	1.00129	0.6953
300	0.02500	1173.77	1.828	40.07	0.0033373	0.08741	0.431	0.89238	1.00121	0.6950
320	0.02344	1249.57	1.833	40.07	0.0031273	0.08963	0.442	0.97846	1.00113	0.6945
340	0.02206	1319.22	1.848	40.07	0.0029422	0.09132	0.453	1.06646	1.00107	0.6938
360	0.02084	1384.07	1.871	40.07	0.0027780	0.09264	0.464	1.15646	1.00101	0.6930
380	0.01974	1445.37	1.898	40.07	0.0026312	0.09372	0.474	1.24855	1.00095	0.6922
400	0.01875	1504.77	1.927	40.07	0.0024991	0.09469	0.484	1.34279	1.00091	0.6914
420	0.01786	1562.92	1.955	40.07	0.0023798	0.09560	0.493	1.43921	1.00086	0.6906
440	0.01705	1620.69	1.982	40.07	0.0022714	0.09651	0.502	1.53778	1.00082	0.6899
460	0.01631	1678.84	2.007	40.07	0.0021724	0.09745	0.512	1.63849	1.00079	0.6892
480	0.01563	1737.40	2.030	40.07	0.0020817	0.09843	0.521	1.74143	1.00075	0.6886
500	0.01500	1796.88	2.050	40.07	0.0019983	0.09949	0.530	1.84661	1.00072	0.6881
520	0.01443	1857.28	2.067	40.07	0.0019214	0.10060	0.538	1.95399	1.00070	0.6876
540	0.01389	1918.48	2.082	40.06	0.0018502	0.10176	0.547	2.06351	1.00067	0.6872
560	0.01340	1981.11	2.094	40.06	0.0017840	0.10300	0.556	2.17530	1.00065	0.6868
580	0.01294	2044.41	2.105	40.06	0.0017225	0.10429	0.565	2.28936	1.00062	0.6865
600	0.01251	2108.63	2.113	40.06	0.0016650	0.10562	0.573	2.40564	1.00060	0.6862
650	0.01154	2272.21	2.128	40.06	0.0015369	0.10910	0.595	2.70616	1.00056	0.6857
700	0.01072	2439.36	2.137	40.05	0.0014271	0.11275	0.616	3.02101	1.00052	0.6853
800	0.00938	2781.53	2.143	40.05	0.0012488	0.12034	0.659	3.69297	1.00045	0.6847
900	0.00834	3127.52	2.144	40.04	0.0011101	0.12802	0.701	4.42139	1.00040	0.6844
1000	0.00751	3477.15	2.142	40.04	0.0009991	0.13575	0.743	5.20519	1.00036	0.6841
1500	0.00501	5286.24	2.101	40.03	0.0006662	0.17474	0.942	9.91118	1.00024	0.6836
2000	0.00376	7263.32	2.014	40.02	0.0004997	0.27727	1.129	20.34157	1.00018	0.5322
2500	0.00300	9433.62	1.911	40.02	0.0003998	0.33505	1.306	29.56577	1.00015	0.5292
3000	0.00250	11771.03	1.814	40.01	0.0003332	0.39513	1.474	40.23327	1.00012	0.5266
3500	0.00215	14539.03	1.686	40.00	0.0002857	0.47242	1.634	53.00260	1.00010	0.5173
4000	0.00187	18824.36	1.450	39.93	0.0002504	0.62246	1.790	70.44546	1.00009	0.4880
5000	0.00147	42970.51	0.746	39.11	0.0002045	1.69516	2.107	131.30273	1.00007	0.3933

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

45 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 25.029	0.20752	2745.89	76.851	-132.883	-131.154	1.18752	1.131	1.560	4189
26	0.20873	2633.24	76.191	-131.348	-129.609	1.24809	1.152	1.614	4135
28	0.21133	2426.70	74.204	-128.044	-126.283	1.37130	1.197	1.723	4022
30	0.21418	2253.33	72.475	-124.505	-122.720	1.49421	1.243	1.837	3928
32	0.21729	2080.70	71.005	-120.723	-118.912	1.61708	1.287	1.965	3836
34	0.22068	1910.02	69.514	-116.681	-114.842	1.74041	1.327	2.103	3744
36	0.22441	1742.87	67.883	-112.360	-110.491	1.86476	1.363	2.250	3651
38	0.22857	1564.82	65.088	-107.727	-105.823	1.99092	1.393	2.419	3548
40	0.23326	1389.65	64.005	-102.749	-100.806	2.11957	1.419	2.607	3439
42	0.23866	1204.04	61.439	-97.359	-95.370	2.25214	1.441	2.829	3310
44	0.24498	1021.58	58.436	-91.495	-89.454	2.38972	1.459	3.094	3168
* 44.508	0.24674	976.77	57.619	-89.931	-87.875	2.42541	1.463	3.169	3130
* 44.508	4.22020	144.18	1.406	52.365	87.531	6.36894	1.624	3.636	1223
46	4.47374	158.95	1.310	55.533	92.811	6.48565	1.593	3.434	1260
48	4.79496	177.15	1.208	59.528	99.483	6.62765	1.567	3.250	1304
50	5.10226	194.08	1.125	63.332	105.848	6.75758	1.551	3.122	1345
52	5.39935	210.10	1.055	67.003	111.994	6.87811	1.540	3.028	1383
54	5.68860	225.41	0.9957	70.573	117.975	6.99098	1.532	2.956	1419
56	5.97161	240.16	0.9439	74.067	123.827	7.09739	1.526	2.898	1453
58	6.24954	254.46	0.8981	77.498	129.574	7.19824	1.521	2.851	1486
60	6.52329	268.39	0.8573	80.882	135.239	7.29426	1.517	2.811	1518
62	6.79347	282.01	0.8206	84.219	140.827	7.38588	1.513	2.778	1549
64	7.06064	295.35	0.7874	87.519	146.354	7.47362	1.509	2.750	1579
66	7.32524	308.48	0.7572	90.789	151.829	7.55785	1.507	2.725	1608
68	7.58760	321.40	0.7294	94.033	157.259	7.63890	1.505	2.705	1636
70	7.84799	334.15	0.7039	97.254	162.650	7.71704	1.503	2.687	1663
75	8.49179	365.40	0.6479	105.231	175.991	7.90114	1.501	2.651	1729
80	9.12736	395.93	0.6008	113.126	189.182	8.07141	1.501	2.626	1791
85	9.75654	425.89	0.5606	120.970	202.269	8.23009	1.504	2.609	1850
90	10.38065	455.41	0.5257	128.788	215.288	8.37892	1.509	2.599	1906
95	11.00066	484.57	0.4951	136.605	228.271	8.51931	1.518	2.595	1959
100	11.61728	513.42	0.4680	144.445	241.249	8.65245	1.531	2.597	2009
105	12.23110	542.03	0.4439	152.330	254.249	8.77930	1.547	2.604	2056
110	12.84257	570.43	0.4222	160.286	267.300	8.90072	1.567	2.617	2101
115	13.45203	598.65	0.4026	168.337	280.430	9.01745	1.592	2.636	2143
120	14.05979	626.71	0.3849	176.509	293.666	9.13011	1.621	2.659	2182
125	14.66606	654.65	0.3686	184.824	307.033	9.23924	1.655	2.688	2220
130	15.27105	682.47	0.3537	193.307	320.557	9.34532	1.693	2.722	2255
135	15.87492	710.19	0.3400	201.979	334.261	9.44875	1.734	2.760	2288
140	16.47779	737.83	0.3274	210.860	348.166	9.54988	1.780	2.802	2320
150	17.68102	792.87	0.3048	229.320	376.652	9.74638	1.880	2.897	2379
160	18.88145	847.66	0.2851	248.804	406.139	9.93664	1.989	3.002	2435
180	21.27855	956.96	0.2526	291.167	468.476	10.30285	2.219	3.225	2538
200	23.66578	1065.34	0.2268	337.931	535.133	10.65377	2.436	3.438	2639
220	26.04876	1173.35	0.2059	388.730	605.789	10.99036	2.622	3.621	2740
240	28.42867	1281.07	0.1885	442.792	679.881	11.31155	2.763	3.760	2842
260	30.80622	1388.59	0.1739	499.166	755.867	11.61661	2.858	3.852	2945
280	33.18192	1495.93	0.1613	557.010	833.507	11.90417	2.909	3.902	3049
300	35.55615	1603.15	0.1505	615.466	911.748	12.17421	2.926	3.918	3154
320	37.92918	1710.26	0.1410	673.991	990.047	12.42690	2.917	3.908	3258
340	40.30123	1817.28	0.1327	732.152	1057.974	12.66282	2.892	3.882	3362
360	42.67246	1924.22	0.1253	789.679	1145.260	12.88378	2.856	3.845	3465
380	45.04302	2031.11	0.1186	846.421	1221.754	13.09059	2.814	3.803	3566
400	47.41301	2137.94	0.1127	902.316	1297.399	13.28468	2.772	3.761	3666
420	49.78251	2244.74	0.1073	957.374	1372.200	13.46714	2.731	3.720	3763
440	52.15161	2351.49	0.1024	1011.647	1446.214	13.63935	2.693	3.682	3859
460	54.52035	2458.21	0.0979	1065.191	1519.497	13.80223	2.659	3.647	3952
480	56.88879	2564.91	0.0938	1118.097	1592.139	13.95660	2.629	3.617	4043
500	59.25697	2671.58	0.0901	1170.441	1664.216	14.10389	2.603	3.591	4132
520	61.62492	2778.23	0.0866	1222.302	1735.809	14.24441	2.581	3.569	4218
540	63.99267	2884.87	0.0834	1273.747	1806.984	14.37873	2.562	3.550	4303
560	66.36024	2991.49	0.0804	1324.774	1877.739	14.50690	2.547	3.535	4385
580	68.72766	3098.09	0.0776	1375.588	1948.281	14.63053	2.535	3.522	4466
600	71.09494	3204.68	0.0750	1426.208	2018.627	14.74983	2.524	3.511	4544
650	77.01265	3471.12	0.0693	1551.895	2193.624	15.03025	2.506	3.492	4734
700	82.92978	3737.50	0.0643	1676.926	2367.962	15.28690	2.495	3.481	4915
800	94.76282	4270.16	0.0563	1925.851	2715.489	15.75327	2.487	3.474	5256
900	106.59475	4802.72	0.0500	2174.606	3062.837	16.16208	2.486	3.472	5575
1000	118.42597	5335.21	0.0450	2423.204	3410.022	16.52766	2.488	3.474	5875
1500	177.57701	7997.24	0.0300	3676.728	5156.439	17.94300	2.536	3.522	7173
2000	236.72489	10658.98	0.0225	4969.849	6942.426	18.96840	2.644	3.630	8234
2500	295.87212	13320.64	0.0180	6327.206	8792.643	19.79352	2.786	3.772	9140
3000	355.02909	15982.25	0.0150	7757.745	10716.124	20.48491	2.935	3.921	9947
3500	414.29480	18643.85	0.0129	9281.225	12733.453	21.10929	3.152	4.147	10660
4000	474.17272	21305.44	0.0113	10975.750	14926.928	21.68717	3.649	4.681	11251
5000	604.37575	26628.59	0.0090	16072.504	21108.634	24.08603	7.076	8.534	12189

• *TWO-PHASE BOUNDARY*

45 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)/V_p$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 25.029	4.81874	268.66	14.100	13231.72	0.0058081	0.04272	1.725	0.00568	1.25591	2.2683
26	4.79088	267.32	13.804	12615.53	0.0060394	0.04567	1.604	0.00591	1.25427	2.0406
28	4.73193	266.56	13.100	11482.95	0.0064621	0.05029	1.400	0.00617	1.25081	1.7269
30	4.66887	266.68	12.488	10520.50	0.0068890	0.05328	1.241	0.00621	1.24712	1.5404
32	4.60219	265.01	11.987	9575.79	0.0074151	0.05524	1.113	0.00611	1.24324	1.4255
34	4.53154	261.85	11.557	8655.32	0.0080313	0.05638	1.008	0.00592	1.23913	1.3535
36	4.45621	257.47	11.178	7766.59	0.0087404	0.05727	0.920	0.00571	1.23476	1.3009
38	4.37507	250.62	10.842	6846.21	0.0095532	0.05829	0.843	0.00551	1.23008	1.2602
40	4.28708	242.70	10.518	5957.56	0.0107435	0.05875	0.776	0.00526	1.22502	1.2402
42	4.18998	232.34	10.178	5044.91	0.0121784	0.05870	0.715	0.00495	1.21946	1.2415
44	4.08193	220.76	9.811	4170.02	0.0140133	0.05816	0.659	0.00461	1.21330	1.2625
* 44.508	4.05281	217.70	9.716	3958.64	0.0145553	0.05795	0.646	0.00451	1.21165	1.2711
* 44.508	0.23696	88.36	3.654	34.17	0.0411492	0.01328	0.096	0.01541	1.01148	0.9434
46	0.22353	93.13	3.679	35.53	0.0368742	0.01341	0.098	0.01747	1.01083	0.9060
48	0.20855	99.42	3.695	36.94	0.0326882	0.01368	0.102	0.02018	1.01010	0.8702
50	0.19599	105.59	3.699	38.04	0.0295663	0.01401	0.105	0.02289	1.00949	0.8444
52	0.18521	111.66	3.699	38.91	0.0271179	0.01437	0.109	0.02562	1.00897	0.8248
54	0.17579	117.62	3.696	39.62	0.0251285	0.01475	0.112	0.02839	1.00851	0.8091
56	0.16746	123.48	3.693	40.22	0.0234693	0.01515	0.116	0.03122	1.00811	0.7961
58	0.16001	129.25	3.690	40.72	0.0220576	0.01555	0.119	0.03409	1.00774	0.7854
60	0.15330	134.94	3.687	41.14	0.0208356	0.01596	0.122	0.03703	1.00742	0.7763
62	0.14720	140.52	3.685	41.51	0.0197681	0.01637	0.126	0.04004	1.00712	0.7682
64	0.14163	146.07	3.684	41.83	0.0188237	0.01679	0.129	0.04311	1.00685	0.7611
66	0.13651	151.58	3.681	42.11	0.0179801	0.01721	0.132	0.04625	1.00660	0.7548
68	0.13179	157.06	3.678	42.36	0.0172205	0.01763	0.136	0.04945	1.00638	0.7492
70	0.12742	162.52	3.675	42.58	0.0165317	0.01805	0.139	0.05273	1.00616	0.7441
75	0.11776	176.09	3.666	43.03	0.0150568	0.01912	0.147	0.06123	1.00569	0.7332
80	0.10956	189.62	3.653	43.38	0.0138506	0.02019	0.155	0.07016	1.00530	0.7242
85	0.10250	203.20	3.637	43.65	0.0128414	0.02127	0.162	0.07952	1.00496	0.7167
90	0.09633	216.91	3.615	43.87	0.0119818	0.02235	0.170	0.08928	1.00466	0.7105
95	0.09090	230.88	3.587	44.05	0.0112392	0.02344	0.177	0.09937	1.00439	0.7056
100	0.08608	245.21	3.552	44.19	0.0105897	0.02453	0.184	0.10976	1.00416	0.7019
105	0.08176	259.98	3.510	44.32	0.0100164	0.02563	0.191	0.12037	1.00395	0.6995
110	0.07787	275.31	3.460	44.42	0.0095057	0.02681	0.198	0.13157	1.00376	0.6962
115	0.07434	291.30	3.402	44.50	0.0090476	0.02804	0.205	0.14310	1.00359	0.6935
120	0.07112	308.01	3.338	44.57	0.0086339	0.02926	0.212	0.15469	1.00344	0.6923
125	0.06818	325.52	3.267	44.64	0.0082583	0.03049	0.218	0.16633	1.00329	0.6924
130	0.06548	343.88	3.192	44.69	0.0079154	0.03171	0.225	0.17793	1.00316	0.6939
135	0.06299	363.11	3.113	44.74	0.0076010	0.03291	0.231	0.18931	1.00304	0.6971
140	0.06069	383.26	3.031	44.78	0.0073117	0.03415	0.237	0.20079	1.00293	0.7007
150	0.05656	426.23	2.867	44.84	0.0067965	0.03705	0.249	0.22615	1.00273	0.7020
160	0.05296	472.62	2.707	44.89	0.0063512	0.04022	0.261	0.25301	1.00256	0.7021
180	0.04700	574.20	2.422	44.97	0.0056158	0.05182	0.307	0.34197	1.00227	0.6885
200	0.04226	682.35	2.203	45.02	0.0050386	0.06131	0.342	0.42202	1.00204	0.6912
220	0.03839	792.15	2.045	45.04	0.0045708	0.06915	0.368	0.49746	1.00185	0.6933
240	0.03518	898.66	1.940	45.06	0.0041835	0.07552	0.388	0.57103	1.00170	0.6946
260	0.03246	998.71	1.874	45.07	0.0038573	0.08056	0.404	0.64426	1.00157	0.6953
280	0.03014	1090.37	1.840	45.08	0.0035786	0.08449	0.418	0.71816	1.00146	0.6954
300	0.02812	1173.85	1.829	45.09	0.0033378	0.08741	0.431	0.79324	1.00136	0.6952
320	0.02636	1249.69	1.834	45.09	0.0031275	0.08963	0.442	0.86979	1.00127	0.6946
340	0.02481	1319.38	1.849	45.09	0.0029424	0.09132	0.453	0.94805	1.00120	0.6939
360	0.02343	1384.27	1.872	45.09	0.0027780	0.09265	0.464	1.02808	1.00113	0.6931
380	0.02220	1445.59	1.899	45.09	0.0026311	0.09373	0.474	1.10998	1.00107	0.6923
400	0.02109	1505.01	1.927	45.09	0.0024990	0.09470	0.484	1.19379	1.00102	0.6915
420	0.02009	1563.19	1.956	45.09	0.0023796	0.09561	0.493	1.27953	1.00097	0.6907
440	0.01917	1620.97	1.983	45.09	0.0022712	0.09651	0.502	1.36718	1.00093	0.6899
460	0.01834	1679.13	2.008	45.09	0.0021722	0.09746	0.512	1.45673	1.00089	0.6892
480	0.01758	1737.71	2.031	45.09	0.0020815	0.09844	0.521	1.54826	1.00085	0.6886
500	0.01688	1797.20	2.050	45.08	0.0019981	0.09949	0.530	1.64179	1.00081	0.6881
520	0.01623	1857.61	2.068	45.08	0.0019212	0.10061	0.538	1.73727	1.00078	0.6876
540	0.01563	1918.82	2.083	45.08	0.0018499	0.10177	0.547	1.83465	1.00075	0.6872
560	0.01507	1981.46	2.095	45.08	0.0017838	0.10301	0.556	1.93405	1.00073	0.6869
580	0.01455	2044.77	2.105	45.08	0.0017223	0.10430	0.565	2.03546	1.00070	0.6865
600	0.01407	2108.99	2.114	45.08	0.0016648	0.10563	0.573	2.13885	1.00068	0.6863
650	0.01298	2272.58	2.129	45.07	0.0015367	0.10911	0.595	2.40606	1.00063	0.6857
700	0.01206	2439.75	2.138	45.07	0.0014270	0.11276	0.617	2.68599	1.00058	0.6853
800	0.01055	2781.93	2.144	45.06	0.0012486	0.12036	0.659	3.28344	1.00051	0.6848
900	0.00938	3127.94	2.145	45.06	0.0011100	0.12804	0.701	3.93107	1.00045	0.6844
1000	0.00844	3477.58	2.142	45.05	0.0009990	0.13577	0.743	4.62794	1.00041	0.6841
1500	0.00563	5286.69	2.101	45.04	0.0006662	0.17477	0.942	8.81194	1.00027	0.6836
2000	0.00422	7263.79	2.015	45.03	0.0004997	0.27727	1.130	18.08256	1.00020	0.5323
2500	0.00338	9433.99	1.912	45.02	0.0003998	0.33505	1.306	26.28187	1.00016	0.5293
3000	0.00282	11768.66	1.815	45.02	0.0003332	0.39498	1.474	35.75942	1.00014	0.5268
3500	0.00241	14513.92	1.690	45.00	0.0002857	0.47108	1.634	47.06519	1.00012	0.5180
4000	0.00211	18694.68	1.462	44.93	0.0002504	0.61577	1.790	62.37883	1.00010	0.4898
5000	0.00165	41779.25	0.769	44.06	0.0002043	1.63484	2.106	115.77629	1.00008	0.3958

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

50 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 25.049	0.20747	2751.00	75.862	-132.878	-130.957	1.18770	1.132	1.560	4192
26	0.20865	2642.75	75.219	-131.378	-129.446	1.24693	1.152	1.613	4140
28	0.21124	2434.72	74.270	-128.078	-126.122	1.37006	1.197	1.721	4027
30	0.21408	2261.30	72.547	-124.545	-122.563	1.49286	1.243	1.835	3933
32	0.21717	2088.82	71.079	-120.769	-118.759	1.61559	1.287	1.963	3842
34	0.22055	1918.26	69.591	-116.736	-114.694	1.73877	1.327	2.100	3750
36	0.22426	1751.20	67.963	-112.424	-110.348	1.86295	1.363	2.247	3658
38	0.22840	1573.17	66.180	-107.803	-105.689	1.98888	1.393	2.415	3555
40	0.23306	1398.98	64.104	-102.840	-100.682	2.11726	1.419	2.601	3446
42	0.23843	1213.67	61.560	-97.469	-95.262	2.24946	1.440	2.821	3318
44	0.24469	1031.87	58.579	-91.631	-89.366	2.38656	1.459	3.081	3177
* 45.406	0.24978	906.88	56.202	-87.202	-84.890	2.48670	1.470	3.297	3070
* 45.406	3.80695	140.64	1.572	52.345	87.593	6.28776	1.633	3.773	1227
46	3.90295	146.98	1.525	53.680	89.816	6.33641	1.618	3.670	1243
48	4.20819	166.76	1.393	57.921	96.883	6.48684	1.585	3.416	1291
50	4.49677	184.86	1.289	61.903	103.537	6.62267	1.564	3.247	1334
52	4.77357	201.79	1.204	65.709	109.906	6.74758	1.550	3.127	1373
54	5.04154	217.84	1.132	69.388	116.066	6.86383	1.541	3.037	1410
56	5.30265	233.21	1.071	72.971	122.066	6.97295	1.533	2.966	1446
58	5.55825	248.03	1.016	76.478	127.940	7.07601	1.527	2.909	1479
60	5.80935	262.42	0.9683	79.927	133.714	7.17388	1.522	2.862	1512
62	6.05665	276.43	0.9255	83.320	139.397	7.26705	1.517	2.822	1543
64	6.30079	290.13	0.8869	86.670	145.006	7.35611	1.513	2.789	1574
66	6.54222	303.57	0.8518	89.982	150.555	7.44147	1.510	2.760	1603
68	6.78133	316.78	0.8198	93.265	156.051	7.52351	1.508	2.736	1632
70	7.01839	329.79	0.7904	96.521	161.502	7.60252	1.506	2.715	1660
75	7.60364	361.60	0.7263	104.571	174.971	7.78838	1.503	2.674	1726
80	8.18045	392.60	0.6726	112.526	188.266	7.96000	1.503	2.645	1789
85	8.75074	422.95	0.6269	120.420	201.440	8.11974	1.505	2.625	1849
90	9.31587	452.81	0.5874	128.281	214.533	8.26942	1.511	2.613	1905
95	9.87685	482.25	0.5528	136.134	227.580	8.41050	1.519	2.607	1958
100	10.43440	511.36	0.5223	144.005	240.614	8.54421	1.532	2.607	2008
105	10.98912	540.19	0.4951	151.918	253.663	8.67154	1.548	2.613	2056
110	11.54147	568.79	0.4708	159.899	266.757	8.79336	1.568	2.625	2100
115	12.09181	597.18	0.4488	167.972	279.925	8.91043	1.593	2.643	2143
120	12.64043	625.41	0.4289	176.162	293.196	9.02338	1.622	2.666	2182
125	13.18756	653.50	0.4107	184.495	306.594	9.13277	1.655	2.694	2220
130	13.73340	681.45	0.3940	192.994	320.147	9.23907	1.693	2.727	2255
135	14.27811	709.29	0.3787	201.680	333.876	9.34269	1.735	2.765	2289
140	14.82184	737.04	0.3645	210.575	347.805	9.44400	1.780	2.807	2320
150	15.90675	792.28	0.3392	229.058	376.333	9.64078	1.880	2.901	2380
160	16.98887	847.24	0.3173	248.562	405.856	9.83128	1.989	3.005	2435
180	19.14943	956.85	0.2809	290.965	468.263	10.19788	2.219	3.227	2539
200	21.30007	1065.44	0.2522	337.754	534.964	10.54903	2.437	3.440	2640
220	23.44646	1173.61	0.2289	388.572	605.654	10.88579	2.622	3.622	2741
240	25.58976	1281.48	0.2096	442.649	679.575	11.20710	2.763	3.761	2843
260	27.73072	1389.11	0.1933	499.036	755.785	11.51225	2.858	3.853	2946
280	29.86983	1496.55	0.1793	556.891	833.446	11.79990	2.909	3.903	3050
300	32.00747	1603.85	0.1673	615.358	911.703	12.06999	2.926	3.919	3155
320	34.14391	1711.03	0.1567	673.892	990.018	12.32274	2.917	3.909	3259
340	36.27936	1818.11	0.1475	732.061	1067.959	12.55870	2.892	3.883	3363
360	38.41401	1925.11	0.1392	789.595	1145.257	12.77969	2.856	3.846	3466
380	40.54798	2032.04	0.1319	846.343	1221.762	12.98653	2.814	3.804	3567
400	42.68138	2138.92	0.1252	902.244	1297.416	13.18064	2.772	3.762	3667
420	44.81430	2245.75	0.1192	957.306	1372.226	13.36312	2.731	3.720	3764
440	46.94680	2352.53	0.1138	1011.584	1446.247	13.53535	2.693	3.682	3860
460	49.07896	2459.28	0.1088	1065.132	1519.537	13.69825	2.659	3.648	3953
480	51.21081	2566.00	0.1043	1118.042	1592.185	13.85263	2.629	3.617	4044
500	53.34240	2672.70	0.1001	1170.389	1664.267	13.99993	2.604	3.591	4133
520	55.47377	2779.37	0.0962	1222.254	1735.865	14.14046	2.581	3.569	4219
540	57.60493	2886.02	0.0927	1273.701	1807.045	14.27479	2.563	3.550	4304
560	59.73592	2992.66	0.0894	1324.731	1877.805	14.40296	2.548	3.535	4386
580	61.86675	3099.28	0.0863	1375.547	1948.350	14.52660	2.535	3.522	4467
600	63.99745	3205.89	0.0834	1426.169	2018.699	14.64591	2.524	3.511	4545
650	69.32370	3472.35	0.0770	1551.861	2193.705	14.92635	2.506	3.492	4735
700	74.64937	3738.76	0.0715	1676.896	2368.048	15.18500	2.495	3.482	4916
800	85.29948	4271.46	0.0625	1925.827	2715.585	15.64939	2.487	3.474	5257
900	95.94849	4804.04	0.0556	2174.587	3062.940	16.05821	2.486	3.472	5575
1000	106.59679	5336.56	0.0500	2423.188	3410.130	16.42379	2.488	3.474	5875
1500	159.63324	7998.63	0.0333	3676.720	5156.560	17.83914	2.536	3.522	7174
2000	213.06653	10660.39	0.0250	4969.844	6942.552	18.86454	2.644	3.630	8234
2500	266.29912	13322.06	0.0200	6327.197	8792.766	19.68966	2.786	3.772	9141
3000	319.53997	15983.68	0.0167	7757.596	10716.103	20.38100	2.934	3.921	9947
3500	372.87363	18645.28	0.0143	9279.717	12732.022	21.00495	3.146	4.140	10662
4000	426.73003	21306.87	0.0125	10967.038	14917.980	21.78086	3.624	4.653	11258
5000	543.36348	26630.03	0.0100	15969.590	21000.400	23.95832	6.886	8.319	12199

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

50 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 25.049	4.81997	269.20	14.091	13259.73	0.0057966	0.04280	1.726	0.00569	1.25598	2.2658
26	4.79276	268.03	13.803	12666.06	0.0060176	0.04569	1.607	0.00591	1.25438	2.0426
28	4.73395	267.11	13.106	11525.86	0.0064438	0.05032	1.404	0.00618	1.25093	1.7287
30	4.67106	267.24	12.496	10562.67	0.0068682	0.05331	1.244	0.00622	1.24725	1.5416
32	4.60459	265.61	11.995	9618.18	0.0073900	0.05528	1.116	0.00612	1.24338	1.4261
34	4.53416	262.49	11.566	8697.80	0.0080010	0.05643	1.010	0.00593	1.23928	1.3537
36	4.45907	258.16	11.186	7808.74	0.0087034	0.05733	0.922	0.00572	1.23493	1.3006
38	4.37826	251.34	10.851	6887.73	0.0096085	0.05836	0.846	0.00552	1.23026	1.2597
40	4.29066	243.55	10.527	6002.53	0.0106795	0.05883	0.778	0.00527	1.22522	1.2388
42	4.19413	233.26	10.190	5090.28	0.0120937	0.05879	0.718	0.00497	1.21970	1.2394
44	4.08679	221.81	9.825	4217.02	0.0138911	0.05827	0.661	0.00463	1.21358	1.2592
• 45.406	4.00355	213.00	9.549	3630.74	0.0154794	0.05761	0.624	0.00436	1.20885	1.2858
• 45.406	0.26268	88.63	3.665	36.94	0.0425479	0.01377	0.098	0.01389	1.01274	0.9684
46	0.25622	90.66	3.677	37.66	0.0404840	0.01379	0.099	0.01467	1.01242	0.9497
48	0.23763	97.18	3.699	39.63	0.0351521	0.01398	0.103	0.01722	1.01152	0.9021
50	0.22238	103.54	3.707	41.11	0.0313634	0.01425	0.106	0.01974	1.01077	0.8690
52	0.20949	109.77	3.708	42.27	0.0284888	0.01458	0.109	0.02225	1.01015	0.8447
54	0.19835	115.87	3.706	43.21	0.0262087	0.01493	0.113	0.02479	1.00961	0.8257
56	0.18858	121.85	3.702	43.98	0.0243418	0.01532	0.116	0.02738	1.00913	0.8099
58	0.17991	127.73	3.699	44.62	0.0227760	0.01571	0.120	0.03001	1.00871	0.7971
60	0.17214	133.51	3.696	45.17	0.0214360	0.01610	0.123	0.03269	1.00833	0.7863
62	0.16511	139.17	3.695	45.64	0.0202772	0.01651	0.126	0.03543	1.00799	0.7769
64	0.15871	144.78	3.693	46.05	0.0192603	0.01692	0.130	0.03823	1.00768	0.7687
66	0.15285	150.36	3.691	46.40	0.0183581	0.01733	0.133	0.04108	1.00740	0.7616
68	0.14746	155.90	3.688	46.71	0.0175504	0.01775	0.136	0.04399	1.00714	0.7553
70	0.14248	161.42	3.685	46.99	0.0168217	0.01817	0.139	0.04696	1.00689	0.7495
75	0.13152	175.11	3.674	47.56	0.0152723	0.01922	0.147	0.05465	1.00636	0.7375
80	0.12224	188.74	3.661	47.99	0.0140154	0.02029	0.155	0.06273	1.00591	0.7277
85	0.11428	202.41	3.644	48.33	0.0129703	0.02136	0.163	0.07119	1.00553	0.7196
90	0.10734	216.20	3.622	48.61	0.0120845	0.02244	0.170	0.08000	1.00519	0.7129
95	0.10125	230.24	3.594	48.83	0.0113223	0.02352	0.177	0.08911	1.00489	0.7077
100	0.09584	244.62	3.558	49.01	0.0105577	0.02461	0.184	0.09849	1.00463	0.7037
105	0.09100	259.44	3.516	49.16	0.0100727	0.02570	0.192	0.10807	1.00440	0.7011
110	0.08664	274.81	3.465	49.28	0.0095529	0.02688	0.198	0.11818	1.00419	0.6975
115	0.08270	290.82	3.407	49.39	0.0090874	0.02810	0.205	0.12857	1.00400	0.6946
120	0.07911	307.57	3.342	49.48	0.0086677	0.02932	0.212	0.13903	1.00382	0.6933
125	0.07583	325.10	3.272	49.55	0.0082872	0.03055	0.218	0.14953	1.00366	0.6933
130	0.07282	343.48	3.196	49.62	0.0079403	0.03177	0.225	0.15999	1.00352	0.6947
135	0.07004	362.74	3.117	49.68	0.0076226	0.03297	0.231	0.17024	1.00338	0.6979
140	0.06747	382.90	3.035	49.73	0.0073304	0.03420	0.237	0.18059	1.00326	0.7014
150	0.06287	425.90	2.870	49.81	0.0068108	0.03710	0.250	0.20346	1.00304	0.7025
160	0.05886	472.31	2.710	49.87	0.0063623	0.04027	0.262	0.22767	1.00284	0.7025
180	0.05222	573.99	2.424	49.97	0.0056225	0.05183	0.307	0.30757	1.00252	0.6890
200	0.04695	682.16	2.205	50.02	0.0050429	0.06131	0.342	0.37963	1.00227	0.6915
220	0.04265	792.01	2.047	50.06	0.0045736	0.06915	0.368	0.44757	1.00206	0.6935
240	0.03908	898.57	1.941	50.08	0.0041853	0.07551	0.388	0.51381	1.00189	0.6948
260	0.03606	998.69	1.876	50.09	0.0038585	0.08056	0.404	0.57976	1.00174	0.6955
280	0.03348	1090.40	1.842	50.10	0.0035794	0.08445	0.418	0.64631	1.00162	0.6956
300	0.03124	1173.93	1.830	50.11	0.0033383	0.08741	0.431	0.71392	1.00151	0.6953
320	0.02929	1249.81	1.835	50.11	0.0031278	0.08963	0.442	0.78285	1.00141	0.6948
340	0.02756	1319.55	1.850	50.11	0.0029425	0.09133	0.453	0.85332	1.00133	0.6940
360	0.02603	1384.46	1.873	50.11	0.0027780	0.09265	0.464	0.92539	1.00126	0.6932
380	0.02466	1445.81	1.900	50.11	0.0026310	0.09373	0.474	0.99913	1.00119	0.6924
400	0.02343	1505.26	1.928	50.11	0.0024989	0.09470	0.484	1.07458	1.00113	0.6915
420	0.02231	1563.45	1.956	50.11	0.0023795	0.09561	0.493	1.15178	1.00108	0.6907
440	0.02130	1621.25	1.984	50.11	0.0022710	0.09652	0.502	1.23069	1.00103	0.6900
460	0.02038	1679.43	2.009	50.11	0.0021720	0.09746	0.512	1.31132	1.00098	0.6893
480	0.01953	1738.02	2.031	50.11	0.0020813	0.09845	0.521	1.39373	1.00094	0.6887
500	0.01875	1797.52	2.051	50.10	0.0019979	0.09950	0.530	1.47793	1.00091	0.6881
520	0.01803	1857.94	2.068	50.10	0.0019210	0.10062	0.539	1.56389	1.00087	0.6877
540	0.01736	1919.16	2.083	50.10	0.0018497	0.10178	0.547	1.65156	1.00084	0.6872
560	0.01674	1981.81	2.095	50.10	0.0017836	0.10302	0.556	1.74105	1.00081	0.6869
580	0.01616	2045.12	2.106	50.10	0.0017221	0.10431	0.565	1.83234	1.00078	0.6866
600	0.01563	2109.35	2.114	50.09	0.0016646	0.10564	0.574	1.92542	1.00075	0.6863
650	0.01443	2272.96	2.129	50.09	0.0015365	0.10912	0.595	2.16597	1.00070	0.6857
700	0.01340	2440.13	2.138	50.08	0.0014268	0.11277	0.617	2.41797	1.00065	0.6853
800	0.01172	2782.33	2.144	50.08	0.0012485	0.12037	0.659	2.95581	1.00057	0.6848
900	0.01042	3128.35	2.145	50.07	0.0011098	0.12805	0.701	3.53881	1.00050	0.6844
1000	0.00938	3478.00	2.142	50.06	0.0009989	0.13578	0.743	4.16614	1.00045	0.6841
1500	0.00626	5287.14	2.101	50.04	0.0006661	0.17479	0.942	7.93255	1.00030	0.6836
2000	0.00469	7264.27	2.015	50.03	0.0004997	0.27727	1.130	16.27535	1.00023	0.5324
2500	0.00376	9434.38	1.912	50.03	0.0003998	0.33504	1.306	23.65477	1.00018	0.5294
3000	0.00313	11766.74	1.815	50.02	0.0003332	0.39485	1.474	32.18104	1.00015	0.5269
3500	0.00268	14492.77	1.693	50.00	0.0002857	0.46995	1.635	42.32207	1.00013	0.5185
4000	0.00234	18585.04	1.472	49.93	0.0002503	0.61011	1.790	55.95656	1.00011	0.4915
5000	0.00184	40768.97	0.789	49.01	0.0002040	1.58368	2.105	103.44468	1.00009	0.3981

• TWO-PHASE BOUNDARY

C2.

100 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 25.255	0.20695	2819.91	75.976	-132.824	-128.992	1.18956	1.137	1.558	4231
26	0.20785	2736.47	75.503	-131.662	-127.813	1.23557	1.153	1.598	4192
28	0.21036	2513.71	74.917	-128.408	-124.513	1.35784	1.197	1.709	4078
30	0.21310	2339.52	73.248	-124.929	-120.983	1.47959	1.241	1.820	3986
32	0.21607	2168.27	71.793	-121.220	-117.219	1.60102	1.285	1.942	3897
34	0.21931	1998.99	70.352	-117.263	-113.202	1.72275	1.325	2.074	3808
36	0.22287	1832.61	68.769	-113.041	-108.914	1.84529	1.360	2.214	3718
38	0.22680	1662.64	67.073	-108.531	-104.332	1.96914	1.391	2.370	3623
40	0.23120	1489.08	65.056	-103.705	-99.423	2.09499	1.417	2.542	3518
42	0.23620	1311.65	62.716	-98.517	-94.143	2.22378	1.438	2.740	3402
44	0.24195	1129.67	59.959	-92.919	-88.439	2.35644	1.457	2.975	3269
46	0.24870	949.68	55.775	-86.828	-82.223	2.49456	1.473	3.261	3121
48	0.25687	773.36	53.008	-80.115	-75.359	2.64059	1.487	3.618	2952
50	0.26720	589.83	48.614	-72.559	-67.611	2.79867	1.504	4.153	2746
52	0.28127	403.94	43.400	-63.682	-58.474	2.97776	1.526	5.078	2496
• 52.072	0.28190	398.83	43.183	-63.320	-58.100	2.98494	1.527	5.109	2487
• 52.072	1.82826	97.30	3.562	47.919	81.774	5.67245	1.736	5.938	1242
54	2.04310	128.17	3.092	54.212	92.045	5.86629	1.676	4.789	1303
56	2.23222	154.30	2.770	59.652	100.987	6.02894	1.638	4.208	1355
58	2.40376	177.19	2.532	64.515	109.027	6.17004	1.612	3.857	1401
60	2.56397	197.97	2.343	69.030	116.508	6.29687	1.591	3.617	1444
62	2.71598	217.22	2.190	73.265	123.557	6.41245	1.571	3.442	1485
64	2.86201	235.36	2.062	77.307	130.304	6.51956	1.557	3.311	1523
66	3.00339	252.64	1.952	81.206	136.820	6.61983	1.547	3.209	1558
68	3.14103	269.22	1.856	84.992	143.155	6.71439	1.539	3.128	1592
70	3.27561	285.23	1.771	88.688	149.343	6.80408	1.533	3.062	1624
75	3.60163	323.31	1.594	97.636	164.329	7.01090	1.524	2.940	1700
80	3.91653	359.32	1.455	106.289	178.813	7.19789	1.520	2.858	1769
85	4.22339	393.80	1.340	114.747	192.952	7.36935	1.520	2.801	1833
90	4.52414	427.13	1.245	123.075	206.850	7.52822	1.523	2.760	1894
95	4.82013	459.56	1.163	131.323	220.579	7.67669	1.531	2.733	1950
100	5.11229	491.24	1.092	139.538	234.204	7.81647	1.541	2.716	2003
105	5.40135	522.32	1.030	147.745	247.763	7.94878	1.556	2.709	2052
110	5.68785	552.92	0.9754	155.982	261.306	8.07478	1.576	2.709	2099
115	5.97221	583.10	0.9266	164.283	274.872	8.19538	1.599	2.718	2143
120	6.25477	612.92	0.8828	172.676	288.497	8.31136	1.628	2.733	2183
125	6.53578	642.45	0.8431	181.190	302.215	8.42335	1.661	2.755	2222
130	6.81546	671.72	0.8071	189.852	316.056	8.53191	1.698	2.782	2258
135	7.09397	700.76	0.7742	198.686	330.047	8.63752	1.739	2.815	2292
140	7.37148	729.61	0.7439	207.715	344.215	8.74056	1.784	2.853	2325
150	7.92392	786.79	0.6903	226.435	373.164	8.94026	1.883	2.939	2385
160	8.47354	843.43	0.6442	246.139	403.846	9.13307	1.992	3.038	2441
180	9.56911	955.92	0.5682	288.943	466.137	9.50349	2.222	3.253	2546
200	10.65503	1066.63	0.5090	335.981	533.284	9.85700	2.438	3.459	2648
220	11.73668	1176.48	0.4612	386.988	604.320	10.19541	2.623	3.638	2749
240	12.81526	1285.71	0.4217	441.221	678.524	10.51795	2.764	3.774	2852
260	13.89148	1394.48	0.3885	497.741	754.973	10.82406	2.859	3.864	2955
280	14.96587	1502.86	0.3602	555.711	832.838	11.11246	2.910	3.912	3060
300	16.03879	1610.99	0.3358	614.278	911.273	11.38317	2.927	3.927	3164
320	17.11053	1718.87	0.3145	672.901	989.742	11.63641	2.918	3.916	3269
340	18.18129	1826.55	0.2957	731.149	1067.817	11.87279	2.893	3.889	3373
360	19.25125	1934.07	0.2791	788.753	1145.234	12.09412	2.857	3.852	3476
380	20.32054	2041.45	0.2642	845.564	1221.845	12.30124	2.815	3.809	3577
400	21.38927	2148.73	0.2509	901.521	1297.593	12.49560	2.773	3.766	3677
420	22.45752	2255.91	0.2389	956.634	1372.487	12.67828	2.732	3.724	3774
440	23.52536	2363.01	0.2279	1010.957	1446.583	12.85068	2.694	3.685	3870
460	24.59286	2470.04	0.2180	1064.547	1519.940	13.01373	2.660	3.651	3963
480	25.66006	2577.01	0.2088	1117.494	1592.649	13.16824	2.630	3.620	4054
500	26.72699	2683.93	0.2004	1169.875	1664.786	13.31565	2.604	3.594	4142
520	27.79371	2790.80	0.1927	1221.770	1736.434	13.45628	2.582	3.571	4229
540	28.86022	2897.64	0.1855	1273.246	1807.659	13.59069	2.563	3.552	4313
560	29.92657	3004.44	0.1788	1324.301	1878.460	13.71895	2.548	3.537	4395
580	30.99276	3111.21	0.1727	1375.142	1949.044	13.84265	2.535	3.524	4476
600	32.05881	3217.96	0.1669	1425.785	2019.428	13.96202	2.525	3.513	4555
650	34.72346	3484.72	0.1540	1551.524	2194.509	14.24258	2.506	3.494	4744
700	37.38754	3751.38	0.1430	1676.599	2368.914	14.50133	2.495	3.483	4925
800	42.71448	4284.44	0.1251	1925.589	2716.546	14.96584	2.488	3.474	5265
900	48.04034	4817.29	0.1112	2174.392	3063.969	15.37474	2.486	3.473	5583
1000	53.36548	5350.00	0.1000	2423.026	3411.210	15.74037	2.488	3.475	5883
1500	79.98623	8012.56	0.0667	3676.640	5157.769	17.15583	2.536	3.522	7180
2000	106.60386	10674.51	0.0500	4969.796	6943.810	18.18126	2.644	3.630	8246
2500	133.22060	13336.27	0.0400	6327.133	8794.018	19.00038	2.786	3.772	9146
3000	159.83999	15997.95	0.0333	7756.780	10716.583	19.69745	2.930	3.916	9953
3500	186.49209	18659.58	0.0286	9271.546	12724.874	20.31910	3.115	4.107	10676
4000	213.32905	21321.19	0.0250	10919.856	14870.132	21.08431	3.485	4.501	11295
5000	270.15881	26644.38	0.0200	15412.223	20414.833	23.14586	5.856	7.150	12269

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

100 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 25.255	4.83213	275.77	14.010	13626.18	0.0056491	0.04362	1.741	0.00579	1.25670	2.2383
26	4.81128	274.96	13.792	13165.90	0.0058107	0.04588	1.646	0.00597	1.25547	2.0643
28	4.75386	272.59	13.169	11949.84	0.0062693	0.05059	1.437	0.00623	1.25210	1.7477
30	4.69261	272.79	12.573	10978.45	0.0066720	0.05366	1.273	0.00628	1.24851	1.5543
32	4.62807	271.51	12.073	10034.91	0.0071544	0.05571	1.142	0.00620	1.24474	1.4334
34	4.55973	268.76	11.648	9114.86	0.0077184	0.05694	1.034	0.00602	1.24077	1.3567
36	4.48693	264.78	11.270	8222.69	0.0083631	0.05791	0.944	0.00583	1.23654	1.2996
38	4.40915	259.02	10.940	7330.85	0.0091495	0.05902	0.867	0.00565	1.23204	1.2526
40	4.32522	251.69	10.615	6440.62	0.0101009	0.05960	0.799	0.00542	1.22721	1.2265
42	4.23376	242.58	10.298	5553.22	0.0112937	0.05968	0.738	0.00515	1.22196	1.2192
44	4.13316	231.66	9.956	4669.10	0.0128416	0.05930	0.682	0.00482	1.21622	1.2317
46	4.02089	219.33	9.587	3818.55	0.0148682	0.05846	0.630	0.00446	1.20984	1.2648
48	3.89295	205.51	9.154	3010.64	0.0176068	0.05713	0.580	0.00406	1.20260	1.3218
50	3.74258	188.58	8.634	2207.49	0.0220225	0.05525	0.530	0.00355	1.19415	1.4341
52	3.55533	168.03	8.000	1436.15	0.0302194	0.05262	0.478	0.00291	1.18371	1.6605
• 52.072	3.54733	167.40	7.973	1414.80	0.0305221	0.05250	0.476	0.00290	1.18327	1.6675
• 52.072	0.54697	88.73	3.751	53.22	0.0669217	0.01903	0.120	0.00586	1.02666	1.3461
54	0.48945	97.17	3.770	62.73	0.0492883	0.01807	0.121	0.00771	1.02383	1.1592
56	0.44798	105.00	3.775	69.13	0.0400758	0.01785	0.124	0.00947	1.02179	1.0508
58	0.41601	112.29	3.776	73.71	0.0343474	0.01788	0.126	0.01114	1.02023	0.9820
60	0.39002	119.19	3.775	77.21	0.0303448	0.01802	0.129	0.01278	1.01895	0.9337
62	0.36819	125.68	3.785	79.98	0.0273842	0.01824	0.132	0.01440	1.01789	0.8975
64	0.34940	132.04	3.789	82.24	0.0250727	0.01851	0.135	0.01600	1.01697	0.8699
66	0.33296	138.31	3.790	84.12	0.0232033	0.01881	0.138	0.01760	1.01616	0.8480
68	0.31837	144.48	3.787	85.71	0.0216508	0.01913	0.141	0.01921	1.01545	0.8302
70	0.30529	150.58	3.783	87.08	0.0203346	0.01947	0.144	0.02083	1.01481	0.8153
75	0.27765	165.57	3.767	89.77	0.0177593	0.02038	0.152	0.02496	1.01347	0.7869
80	0.25533	180.28	3.747	91.74	0.0158545	0.02133	0.159	0.02923	1.01238	0.7665
85	0.23678	194.85	3.724	93.24	0.0143737	0.02232	0.166	0.03366	1.01147	0.7509
90	0.22104	209.41	3.696	94.41	0.0131816	0.02333	0.173	0.03824	1.01071	0.7387
95	0.20746	224.09	3.662	95.34	0.0121965	0.02435	0.181	0.04295	1.01005	0.7293
100	0.19561	239.01	3.622	96.09	0.0113646	0.02539	0.187	0.04779	1.00947	0.7219
105	0.18514	254.28	3.575	96.70	0.0106527	0.02644	0.194	0.05273	1.00896	0.7167
110	0.17581	270.03	3.521	97.21	0.0100341	0.02759	0.201	0.05791	1.00851	0.7110
115	0.16744	286.37	3.460	97.63	0.0094907	0.02878	0.208	0.06323	1.00810	0.7063
120	0.15988	303.39	3.392	97.99	0.0090086	0.02997	0.214	0.06859	1.00774	0.7034
125	0.15300	321.17	3.318	98.30	0.0085774	0.03117	0.221	0.07395	1.00740	0.7022
130	0.14673	339.75	3.240	98.56	0.0081891	0.03237	0.227	0.07930	1.00710	0.7025
135	0.14096	359.19	3.158	98.78	0.0078371	0.03351	0.233	0.08445	1.00682	0.7055
140	0.13566	379.52	3.074	98.96	0.0075163	0.03472	0.239	0.08973	1.00656	0.7082
150	0.12620	422.80	2.905	99.29	0.0069524	0.03760	0.252	0.10137	1.00610	0.7079
160	0.11801	469.45	2.741	99.54	0.0064718	0.04075	0.263	0.11365	1.00571	0.7068
180	0.10450	571.90	2.447	99.90	0.0056682	0.05194	0.308	0.15277	1.00505	0.6934
200	0.09385	680.37	2.224	100.11	0.0050846	0.06134	0.342	0.18892	1.00454	0.6948
220	0.08520	790.70	2.063	100.24	0.0046008	0.06914	0.368	0.22386	1.00412	0.6962
240	0.07803	897.84	1.955	100.33	0.0042032	0.07550	0.387	0.25638	1.00377	0.6972
260	0.07199	998.53	1.888	100.38	0.0038701	0.08055	0.404	0.28956	1.00348	0.6975
280	0.06682	1098.78	1.852	100.42	0.0035868	0.08445	0.418	0.32303	1.00323	0.6974
300	0.06235	1174.81	1.840	100.44	0.0033428	0.08742	0.431	0.35701	1.00301	0.6969
320	0.05844	1251.13	1.844	100.46	0.0031303	0.08965	0.443	0.39166	1.00282	0.6961
340	0.05500	1321.24	1.859	100.46	0.0029435	0.09135	0.454	0.42707	1.00266	0.6952
360	0.05194	1386.47	1.881	100.46	0.0027780	0.09269	0.464	0.46327	1.00251	0.6942
380	0.04921	1448.10	1.907	100.46	0.0026303	0.09378	0.474	0.50030	1.00238	0.6933
400	0.04675	1507.77	1.935	100.46	0.0024977	0.09476	0.484	0.53819	1.00226	0.6923
420	0.04453	1566.16	1.963	100.45	0.0023779	0.09568	0.493	0.57694	1.00215	0.6914
440	0.04251	1624.12	1.990	100.45	0.0022692	0.09659	0.503	0.61654	1.00205	0.6906
460	0.04066	1682.44	2.015	100.44	0.0021700	0.09754	0.512	0.65700	1.00196	0.6898
480	0.03897	1741.16	2.037	100.43	0.0020792	0.09853	0.521	0.69835	1.00188	0.6891
500	0.03742	1800.76	2.057	100.42	0.0019958	0.09958	0.530	0.74059	1.00181	0.6885
520	0.03598	1861.27	2.074	100.41	0.0019188	0.10070	0.539	0.78370	1.00174	0.6880
540	0.03465	1922.57	2.089	100.40	0.0018476	0.10187	0.548	0.82767	1.00167	0.6875
560	0.03342	1985.30	2.101	100.39	0.0017815	0.10312	0.557	0.87255	1.00161	0.6872
580	0.03227	2048.68	2.111	100.39	0.0017200	0.10441	0.565	0.91833	1.00156	0.6868
600	0.03119	2112.97	2.119	100.38	0.0016626	0.10574	0.574	0.96499	1.00151	0.6865
650	0.02880	2276.71	2.134	100.36	0.0015346	0.10923	0.596	1.08559	1.00139	0.6859
700	0.02675	2444.00	2.142	100.34	0.0014250	0.11289	0.617	1.21191	1.00129	0.6854
800	0.02341	2786.37	2.148	100.30	0.0012470	0.12051	0.660	1.48148	1.00113	0.6848
900	0.02082	3132.51	2.148	100.28	0.0011085	0.12821	0.702	1.77367	1.00100	0.6844
1000	0.01874	3482.26	2.145	100.25	0.0009978	0.13595	0.744	2.08804	1.00090	0.6841
1500	0.01250	5291.69	2.103	100.17	0.0006656	0.17504	0.944	3.97528	1.00060	0.6836
2000	0.00938	7269.03	2.016	100.13	0.0004994	0.27727	1.131	8.14291	1.00045	0.5332
2500	0.00751	9436.76	1.913	100.11	0.0003996	0.33501	1.308	11.83316	1.00036	0.5303
3000	0.00626	11758.71	1.819	100.09	0.0003330	0.39415	1.477	16.08715	1.00030	0.5281
3500	0.00536	14380.68	1.711	100.06	0.0002856	0.46384	1.637	21.06457	1.00026	0.5219
4000	0.00469	17993.65	1.530	99.95	0.0002501	0.57943	1.793	27.46301	1.00023	0.5014
5000	0.00370	35260.25	0.923	98.62	0.0002028	1.30452	2.103	49.28779	1.00018	0.4149

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

150 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 25.460	0.20644	2873.16	77.102	-132.765	-127.031	1.19143	1.142	1.558	4261
26	0.20707	2827.77	75.780	-131.930	-126.179	1.22455	1.154	1.584	4241
28	0.20950	2590.46	75.546	-128.720	-122.901	1.34597	1.197	1.698	4127
30	0.21216	2415.23	73.926	-125.292	-119.399	1.46675	1.240	1.806	4036
32	0.21502	2244.76	72.481	-121.645	-115.672	1.58699	1.283	1.924	3949
34	0.21814	2076.41	71.081	-117.758	-111.700	1.70739	1.323	2.051	3863
36	0.22155	1910.49	69.552	-113.618	-107.464	1.82840	1.358	2.186	3775
38	0.22530	1746.60	67.885	-109.209	-102.951	1.95039	1.388	2.331	3686
40	0.22947	1576.71	65.971	-104.505	-98.132	2.07397	1.415	2.492	3586
42	0.23416	1401.75	63.790	-99.473	-92.969	2.19989	1.437	2.675	3477
44	0.23949	1229.15	61.206	-94.075	-87.423	2.32886	1.456	2.880	3356
46	0.24566	1055.96	58.241	-88.248	-81.425	2.46216	1.471	3.123	3222
48	0.25294	878.02	54.843	-81.912	-74.887	2.60126	1.485	3.433	3066
50	0.26178	704.62	50.951	-74.927	-67.656	2.74881	1.500	3.837	2890
52	0.27305	535.82	45.443	-67.045	-59.460	2.90947	1.516	4.406	2686
54	0.28863	362.93	41.130	-57.738	-49.721	3.09315	1.537	5.420	2435
56	0.31444	184.90	34.179	-45.481	-36.748	3.32878	1.575	8.053	2093
* 56.645	0.32917	116.72	31.023	-39.860	-30.717	3.43582	1.601	10.973	1925
* 56.645	1.05663	43.89	5.739	36.013	65.363	5.13275	1.913	14.029	1221
58	1.23480	81.39	5.538	45.126	79.424	5.37837	1.806	7.976	1290
60	1.41189	119.30	4.651	53.588	92.804	5.60534	1.721	5.737	1357
62	1.55532	149.00	4.119	60.060	103.261	5.77685	1.659	4.822	1417
64	1.68238	174.62	3.742	65.621	112.351	5.92119	1.620	4.310	1467
66	1.79934	197.67	3.452	70.642	120.620	6.04845	1.594	3.980	1512
68	1.90933	218.95	3.219	75.303	128.337	6.16364	1.577	3.749	1553
70	2.01419	238.89	3.024	79.709	135.655	6.26972	1.564	3.577	1591
75	2.26063	284.64	2.648	89.977	152.768	6.50597	1.546	3.294	1676
80	2.49190	326.36	2.371	99.563	168.778	6.71267	1.537	3.122	1752
85	2.71305	365.36	2.156	108.729	184.086	6.89832	1.534	3.008	1822
90	2.92696	402.37	1.981	117.619	198.918	7.06789	1.536	2.929	1885
95	3.13541	437.88	1.837	126.328	213.418	7.22469	1.542	2.874	1945
100	3.33958	472.18	1.713	134.937	227.696	7.37118	1.551	2.835	2000
105	3.54037	505.53	1.608	143.471	241.808	7.50889	1.565	2.811	2051
110	3.73843	538.11	1.516	151.991	255.829	7.63934	1.583	2.799	2099
115	3.93423	570.04	1.435	160.537	269.814	7.76367	1.606	2.796	2144
120	4.12814	601.44	1.363	169.147	283.810	7.88280	1.634	2.803	2186
125	4.32044	632.37	1.298	177.853	297.857	7.99749	1.666	2.817	2226
130	4.51137	662.92	1.240	186.687	311.995	8.10838	1.703	2.839	2263
135	4.70112	693.12	1.187	195.676	326.254	8.21600	1.743	2.866	2298
140	4.88984	723.03	1.138	204.845	340.665	8.32082	1.788	2.899	2331
150	5.26467	782.09	1.055	223.809	370.040	8.52345	1.886	2.979	2392
160	5.63668	840.34	0.9807	243.718	400.282	8.71860	1.994	3.072	2449
180	6.37657	955.41	0.8619	286.916	464.031	9.09272	2.225	3.279	2554
200	7.10750	1068.18	0.7703	334.207	531.625	9.44859	2.440	3.479	2656
220	7.83416	1179.68	0.6967	385.406	603.007	9.78865	2.625	3.653	2758
240	8.55775	1290.25	0.6363	439.796	677.495	10.11244	2.765	3.787	2861
260	9.27899	1400.13	0.5856	496.449	754.182	10.41950	2.860	3.875	2965
280	9.99841	1509.46	0.5425	554.535	832.250	10.70865	2.911	3.922	3069
300	10.71637	1618.36	0.5054	613.203	910.860	10.97997	2.928	3.935	3174
320	11.43315	1726.91	0.4731	671.916	989.482	11.23370	2.919	3.924	3279
340	12.14897	1835.17	0.4447	730.242	1067.691	11.47048	2.894	3.895	3383
360	12.86400	1943.19	0.4196	787.917	1145.226	11.69215	2.858	3.857	3486
380	13.57836	2051.02	0.3972	844.790	1221.941	11.89955	2.816	3.814	3587
400	14.29216	2158.68	0.3770	900.803	1297.782	12.09415	2.774	3.770	3687
420	15.00549	2266.20	0.3589	955.967	1372.758	12.27703	2.733	3.728	3784
440	15.71843	2373.60	0.3424	1010.335	1446.929	12.44961	2.695	3.689	3880
460	16.43102	2480.90	0.3273	1063.966	1520.352	12.61280	2.661	3.654	3973
480	17.14331	2588.11	0.3136	1116.950	1593.121	12.76744	2.631	3.623	4064
500	17.85535	2695.25	0.3009	1169.364	1665.313	12.91497	2.605	3.596	4152
520	18.56716	2802.32	0.2893	1221.290	1737.011	13.05569	2.583	3.574	4239
540	19.27878	2909.33	0.2785	1272.794	1808.281	13.19019	2.564	3.554	4323
560	19.99023	3016.30	0.2685	1323.875	1879.123	13.31852	2.548	3.539	4405
580	20.70153	3123.22	0.2592	1374.739	1949.743	13.44228	2.536	3.525	4485
600	21.41269	3230.09	0.2505	1425.404	2020.162	13.56171	2.525	3.515	4564
650	23.19012	3497.15	0.2311	1551.190	2195.317	13.84239	2.506	3.495	4753
700	24.96698	3764.03	0.2146	1676.303	2369.784	14.10123	2.496	3.484	4934
800	28.51951	4297.45	0.1877	1925.353	2717.509	14.56586	2.488	3.475	5274
900	32.07096	4830.56	0.1668	2174.199	3065.000	14.97484	2.486	3.473	5591
1000	35.62171	5363.45	0.1501	2422.865	3412.291	15.34054	2.488	3.475	5891
1500	53.37052	8026.49	0.1000	3676.562	5158.978	16.75610	2.536	3.522	7186
2000	71.11624	10688.61	0.0750	4969.749	6945.069	17.78156	2.644	3.630	8245
2500	88.86104	13350.46	0.0600	6327.088	8795.287	18.60668	2.786	3.772	9151
3000	106.60710	16012.18	0.0500	7756.406	10717.518	19.29763	2.928	3.914	9958
3500	124.37088	18673.85	0.0429	9267.917	12722.434	19.91827	3.101	4.091	10684
4000	142.23530	21335.48	0.0375	10898.947	14849.665	20.67874	3.423	4.434	11315
5000	179.68284	26658.70	0.0300	15165.240	20156.099	22.68893	5.398	6.633	12312

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

150 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC x 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 25.460	4.84411	281.20	13.936	13917.91	0.0055398	0.04442	1.755	0.00589	1.25740	2.2159
26	4.82932	281.71	13.783	13656.20	0.0056224	0.04605	1.686	0.00602	1.25653	2.0873
28	4.77320	277.91	13.227	12364.81	0.0061098	0.05045	1.471	0.00627	1.25323	1.7678
30	4.71345	278.13	12.645	11384.07	0.0064938	0.05401	1.302	0.00634	1.24973	1.5680
32	4.65067	277.15	12.147	10439.61	0.0069429	0.05612	1.168	0.00627	1.24606	1.4418
34	4.58425	274.72	11.724	9518.79	0.0074674	0.05742	1.058	0.00611	1.24219	1.3611
36	4.51370	271.04	11.350	8623.36	0.0080656	0.05847	0.966	0.00593	1.23809	1.3005
38	4.43852	266.17	11.016	7752.33	0.0087567	0.05966	0.887	0.00577	1.23374	1.2479
40	4.35788	259.50	10.699	6871.12	0.0095012	0.06033	0.819	0.00556	1.22909	1.2171
42	4.27063	251.00	10.396	5986.38	0.0106558	0.06051	0.757	0.00530	1.22408	1.2050
44	4.17558	241.49	10.070	5132.40	0.0119254	0.06027	0.702	0.00501	1.21864	1.2072
46	4.07069	230.46	9.724	4298.47	0.0135493	0.05958	0.650	0.00469	1.21266	1.2266
48	3.95358	217.31	9.340	3471.32	0.0157989	0.05847	0.601	0.00431	1.20602	1.2711
50	3.81995	202.72	8.893	2691.61	0.0189296	0.05691	0.554	0.00388	1.19849	1.3449
52	3.66228	186.16	8.363	1962.33	0.0236672	0.05481	0.506	0.00340	1.18967	1.4659
54	3.46463	165.70	7.723	1257.42	0.0327098	0.05194	0.456	0.00277	1.17869	1.7138
56	3.18029	138.55	6.822	588.05	0.0581229	0.04947	0.397	0.00193	1.16306	2.3253
• 56.645	3.03790	125.41	6.379	354.58	0.0874930	0.05038	0.371	0.00151	1.15530	2.9114
• 56.645	0.94640	86.48	3.723	41.54	0.1622275	0.03065	0.148	0.00231	1.04646	2.4387
58	0.80985	94.94	3.786	65.91	0.0840159	0.02428	0.142	0.00376	1.03965	1.6850
60	0.70827	104.23	3.814	84.50	0.0550405	0.02203	0.141	0.00542	1.03462	1.3232
62	0.64296	112.13	3.863	95.80	0.0430009	0.02127	0.142	0.00686	1.03139	1.1578
64	0.59440	119.54	3.887	103.79	0.0360555	0.02100	0.143	0.00820	1.02899	1.0601
66	0.55576	126.65	3.897	109.86	0.0314259	0.02095	0.146	0.00947	1.02709	0.9950
68	0.52374	133.55	3.898	114.67	0.0280691	0.02103	0.148	0.01071	1.02551	0.9482
70	0.49648	140.29	3.894	118.60	0.0254968	0.02120	0.150	0.01193	1.02417	0.9127
75	0.44235	156.63	3.873	125.91	0.0210310	0.02180	0.157	0.01496	1.02152	0.8527
80	0.40130	172.44	3.844	130.97	0.0181064	0.02256	0.163	0.01800	1.01951	0.8146
85	0.36859	187.91	3.812	134.67	0.0160083	0.02341	0.170	0.02111	1.01790	0.7879
90	0.34165	203.22	3.776	137.47	0.0144131	0.02432	0.177	0.02430	1.01659	0.7682
95	0.31894	218.53	3.735	139.66	0.0131505	0.02526	0.184	0.02756	1.01548	0.7533
100	0.29944	233.97	3.689	141.39	0.0121185	0.02624	0.191	0.03090	1.01453	0.7418
105	0.28246	249.66	3.637	142.79	0.0112604	0.02723	0.197	0.03430	1.01370	0.7334
110	0.26749	265.76	3.580	143.94	0.0105313	0.02833	0.204	0.03785	1.01297	0.7252
115	0.25418	282.40	3.515	144.89	0.0099024	0.02949	0.210	0.04148	1.01232	0.7184
120	0.24224	299.68	3.443	145.69	0.0093532	0.03065	0.217	0.04513	1.01174	0.7139
125	0.23148	317.67	3.366	146.37	0.0088684	0.03182	0.223	0.04879	1.01122	0.7114
130	0.22166	336.45	3.285	146.94	0.0084367	0.03299	0.229	0.05243	1.01074	0.7105
135	0.21272	356.05	3.200	147.44	0.0080493	0.03407	0.236	0.05589	1.01030	0.7133
140	0.20451	376.53	3.114	147.86	0.0076993	0.03526	0.242	0.05948	1.00991	0.7151
150	0.18995	420.07	2.940	148.55	0.0070906	0.03812	0.254	0.06737	1.00920	0.7133
160	0.17741	466.94	2.772	149.08	0.0065779	0.04124	0.265	0.07568	1.00859	0.7111
180	0.15682	570.03	2.470	149.83	0.0057528	0.05205	0.308	0.10122	1.00759	0.6980
200	0.14070	678.77	2.244	150.29	0.0051252	0.06138	0.342	0.12540	1.00681	0.6982
220	0.12765	789.59	2.080	150.58	0.0046270	0.06915	0.367	0.14827	1.00617	0.6990
240	0.11685	897.27	1.969	150.77	0.0042202	0.07549	0.387	0.17061	1.00565	0.6995
260	0.10777	998.92	1.900	150.89	0.0038811	0.08055	0.404	0.19286	1.00521	0.6995
280	0.10002	1091.30	1.863	150.97	0.0035937	0.08445	0.418	0.21530	1.00484	0.6991
300	0.09332	1175.81	1.850	151.02	0.0033469	0.08743	0.431	0.23808	1.00451	0.6984
320	0.08746	1252.55	1.853	151.04	0.0031324	0.08967	0.443	0.26129	1.00423	0.6974
340	0.08231	1323.02	1.867	151.06	0.0029443	0.09138	0.454	0.28501	1.00398	0.6964
360	0.07774	1386.57	1.889	151.06	0.0027778	0.09273	0.464	0.30926	1.00376	0.6953
380	0.07365	1450.45	1.915	151.05	0.0026294	0.09383	0.474	0.33405	1.00356	0.6941
400	0.06997	1510.35	1.943	151.04	0.0024963	0.09481	0.484	0.35941	1.00338	0.6931
420	0.06664	1568.92	1.970	151.02	0.0023762	0.09574	0.494	0.38534	1.00322	0.6921
440	0.06362	1627.05	1.997	151.01	0.0022673	0.09666	0.503	0.41184	1.00307	0.6912
460	0.06086	1685.50	2.021	150.99	0.0021680	0.09761	0.512	0.43891	1.00294	0.6903
480	0.05833	1744.33	2.043	150.97	0.0020771	0.09861	0.521	0.46657	1.00282	0.6896
500	0.05601	1804.04	2.063	150.95	0.0019936	0.09967	0.530	0.49482	1.00271	0.6889
520	0.05386	1864.64	2.080	150.93	0.0019166	0.10079	0.539	0.52365	1.00260	0.6884
540	0.05187	1926.03	2.094	150.91	0.0018454	0.10196	0.548	0.55305	1.00251	0.6879
560	0.05002	1988.83	2.106	150.89	0.0017793	0.10321	0.557	0.58306	1.00242	0.6874
580	0.04831	2052.27	2.116	150.87	0.0017178	0.10451	0.566	0.61366	1.00233	0.6870
600	0.04670	2116.62	2.124	150.85	0.0016605	0.10585	0.574	0.64486	1.00226	0.6867
650	0.04312	2280.49	2.138	150.80	0.0015327	0.10934	0.596	0.72547	1.00208	0.6860
700	0.04005	2447.88	2.147	150.76	0.0014232	0.11301	0.618	0.80990	1.00193	0.6855
800	0.03506	2790.42	2.151	150.68	0.0012454	0.12064	0.660	0.99005	1.00169	0.6849
900	0.03118	3136.68	2.151	150.62	0.0011072	0.12836	0.703	1.18529	1.00151	0.6844
1000	0.02807	3486.52	2.148	150.57	0.0009967	0.13612	0.744	1.39534	1.00136	0.6841
1500	0.01874	5296.23	2.105	150.39	0.0006650	0.17530	0.945	2.65620	1.00090	0.6836
2000	0.01406	7273.79	2.017	150.30	0.0004990	0.27727	1.133	5.43210	1.00068	0.5340
2500	0.01125	9443.49	1.914	150.24	0.0003994	0.33499	1.310	7.89280	1.00054	0.5311
3000	0.00938	11758.05	1.821	150.20	0.0003329	0.39384	1.479	10.72639	1.00045	0.5292
3500	0.00804	14334.03	1.719	150.15	0.0002854	0.46113	1.640	14.01713	1.00039	0.5239
4000	0.00703	17734.63	1.558	150.00	0.0002500	0.56583	1.796	18.15212	1.00034	0.5066
5000	0.00557	32801.27	0.999	148.37	0.0002022	1.17970	2.104	31.95922	1.00027	0.4258

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

187.510 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 25.612	0.20606	2912.75	77.142	-132.717	-125.562	1.19284	1.146	1.557	4282
26	0.20650	2894.77	75.983	-132.122	-124.952	1.21650	1.154	1.574	4277
28	0.20889	2664.08	75.930	-128.943	-121.690	1.33732	1.197	1.686	4170
30	0.21146	2479.20	74.394	-125.558	-118.215	1.45716	1.240	1.794	4077
32	0.21426	2309.46	72.970	-121.950	-114.510	1.57672	1.282	1.909	3992
34	0.21729	2140.11	71.601	-118.112	-110.567	1.69622	1.321	2.033	3906
36	0.22061	1973.58	70.115	-114.027	-106.367	1.81624	1.356	2.164	3820
38	0.22423	1806.97	68.468	-109.688	-101.902	1.93692	1.387	2.305	3730
40	0.22825	1638.72	65.634	-105.067	-97.142	2.05898	1.414	2.459	3634
42	0.23273	1471.03	64.527	-100.140	-92.059	2.18296	1.436	2.628	3532
44	0.23780	1297.17	62.067	-94.870	-86.613	2.30960	1.455	2.823	3415
46	0.24360	1129.55	59.252	-89.215	-80.757	2.43975	1.470	3.041	3290
48	0.25035	959.35	56.069	-83.106	-74.413	2.57471	1.484	3.310	3148
50	0.25840	792.05	52.450	-76.441	-67.469	2.71641	1.498	3.645	2988
52	0.26831	625.39	48.344	-69.060	-59.744	2.86786	1.512	4.103	2804
54	0.28120	460.94	43.657	-60.655	-50.891	3.03484	1.529	4.798	2589
56	0.29959	299.88	38.075	-50.576	-40.174	3.22961	1.552	6.052	2327
58	0.33245	133.49	30.607	-36.722	-25.178	3.49235	1.601	9.931	1959
60	0.81309	35.33	9.140	29.491	57.723	4.89156	2.003	19.369	1258
62	1.03453	87.04	6.735	45.077	80.998	5.27403	1.781	8.184	1361
64	1.17924	123.12	5.678	53.930	94.875	5.49451	1.691	6.006	1423
66	1.29793	153.13	5.040	60.770	105.837	5.66324	1.641	5.057	1478
68	1.40332	179.35	4.582	66.639	115.365	5.80550	1.610	4.514	1526
70	1.50030	203.12	4.229	71.922	124.016	5.93090	1.590	4.159	1569
75	1.72017	255.70	3.599	83.643	143.370	6.19816	1.562	3.643	1662
80	1.92035	302.16	3.167	94.149	160.827	6.42358	1.549	3.363	1743
85	2.10844	344.73	2.846	103.968	177.176	6.62187	1.545	3.189	1816
90	2.28827	384.60	2.593	113.355	192.808	6.80059	1.545	3.071	1882
95	2.46209	422.45	2.388	122.459	207.947	6.96432	1.550	2.989	1943
100	2.63126	458.70	2.216	131.398	222.759	7.11629	1.559	2.931	1999
105	2.79686	493.73	2.071	140.201	237.313	7.25831	1.571	2.893	2052
110	2.95958	527.77	1.946	148.950	251.712	7.39228	1.589	2.869	2101
115	3.11997	560.99	1.837	157.693	266.024	7.51952	1.611	2.858	2147
120	3.27840	593.53	1.740	166.474	280.306	7.64109	1.638	2.857	2190
125	3.43520	625.49	1.654	175.332	294.608	7.75785	1.670	2.865	2230
130	3.59060	656.96	1.577	184.300	308.972	7.87052	1.706	2.881	2267
135	3.74480	688.01	1.508	193.410	323.436	7.97969	1.747	2.905	2302
140	3.89796	718.68	1.444	202.687	338.031	8.08585	1.791	2.934	2336
150	4.20167	779.10	1.333	221.838	367.727	8.29070	1.889	3.008	2398
160	4.50253	838.50	1.239	241.904	398.240	8.48759	1.996	3.096	2455
180	5.09975	955.30	1.087	285.392	462.465	8.86442	2.227	3.299	2560
200	5.68862	1069.59	0.9692	332.876	530.395	9.22207	2.441	3.493	2663
220	6.27321	1182.30	0.8756	384.221	602.038	9.56337	2.625	3.665	2765
240	6.85472	1293.86	0.7989	438.729	676.737	9.88808	2.766	3.796	2868
260	7.43391	1404.55	0.7348	495.483	753.601	10.19585	2.861	3.884	2972
280	8.01127	1514.56	0.6803	553.656	831.821	10.48557	2.912	3.929	3077
300	8.58718	1624.03	0.6335	612.400	910.562	10.75733	2.929	3.941	3182
320	9.16193	1733.07	0.5928	671.179	989.298	11.01144	2.920	3.929	3287
340	9.73572	1841.75	0.5571	729.565	1067.607	11.24852	2.895	3.900	3391
360	10.30872	1950.14	0.5254	787.292	1145.229	11.47044	2.858	3.861	3493
380	10.88106	2058.29	0.4972	844.212	1222.022	11.67805	2.817	3.818	3595
400	11.45285	2166.23	0.4720	900.268	1297.931	11.87282	2.775	3.774	3694
420	12.02417	2274.00	0.4491	955.469	1372.969	12.05585	2.734	3.731	3792
440	12.59510	2381.62	0.4284	1009.871	1447.195	12.22856	2.695	3.692	3887
460	13.16568	2489.12	0.4096	1063.532	1520.668	12.39187	2.661	3.656	3980
480	13.73597	2596.51	0.3923	1116.544	1593.481	12.54659	2.631	3.625	4071
500	14.30601	2703.80	0.3765	1168.983	1665.713	12.69421	2.605	3.598	4160
520	14.87583	2811.02	0.3619	1220.932	1737.448	12.83500	2.583	3.576	4246
540	15.44545	2918.16	0.3483	1272.458	1808.751	12.96956	2.564	3.556	4330
560	16.01491	3025.24	0.3358	1323.558	1879.623	13.09794	2.549	3.540	4412
580	16.58421	3132.26	0.3241	1374.439	1950.272	13.22176	2.536	3.527	4492
600	17.15338	3239.24	0.3133	1425.120	2020.716	13.34123	2.525	3.516	4571
650	18.57583	3506.50	0.2890	1550.941	2195.927	13.62200	2.507	3.496	4760
700	19.99772	3773.56	0.2683	1676.683	2370.440	13.88091	2.496	3.485	4940
800	22.84032	4307.24	0.2346	1925.178	2718.234	14.34563	2.488	3.476	5280
900	25.68185	4840.52	0.2085	2174.056	3065.775	14.75467	2.486	3.474	5597
1000	28.52267	5373.55	0.1876	2422.746	3413.104	15.12041	2.488	3.475	5896
1500	42.72194	8036.93	0.1250	3676.504	5159.885	16.53605	2.536	3.522	7191
2000	56.91813	10699.18	0.0938	4969.715	6946.013	17.56153	2.644	3.630	8249
2500	71.11339	13361.09	0.0750	6327.060	8796.243	18.38666	2.786	3.771	9154
3000	85.30945	16022.85	0.0625	7756.225	10718.321	19.07756	2.927	3.913	9962
3500	99.51813	18684.54	0.0536	9266.208	12721.654	19.69772	3.094	4.084	10689
4000	113.79882	21346.19	0.0469	10889.119	14840.416	20.45596	3.394	4.402	11325
5000	143.59035	26669.42	0.0375	15049.181	20034.893	22.44202	5.182	6.389	12337

• TWO-PHASE BOUNDARY

187.510 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-J/ FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 25.612	4.85300	285.33	13.874	14135.56	0.0054573	0.04501	1.766	0.00596	1.25793	2.1993
26	4.84256	286.66	13.776	14018.07	0.0054917	0.04619	1.716	0.00606	1.25731	2.1054
28	4.78729	283.22	13.255	12753.72	0.0059536	0.05104	1.496	0.00632	1.25406	1.7790
30	4.72981	282.76	12.690	11724.16	0.0063454	0.05426	1.325	0.00640	1.25064	1.5772
32	4.66722	281.99	12.197	10778.77	0.0067698	0.05643	1.188	0.00633	1.24703	1.4468
34	4.60209	279.67	11.777	9848.97	0.0072699	0.05778	1.076	0.00617	1.24323	1.3633
36	4.53294	276.13	11.406	8945.76	0.0078378	0.05887	0.983	0.00600	1.23921	1.3003
38	4.45964	271.25	11.071	8058.44	0.0084965	0.06013	0.903	0.00585	1.23496	1.2457
40	4.38120	264.96	10.760	7179.55	0.0092811	0.06085	0.833	0.00565	1.23043	1.2123
42	4.29678	257.42	10.460	6320.70	0.0102088	0.06111	0.772	0.00541	1.22558	1.1947
44	4.20522	248.10	10.147	5454.88	0.0113783	0.06095	0.716	0.00513	1.22033	1.1939
46	4.10512	238.02	9.815	4636.95	0.0127781	0.06037	0.665	0.00484	1.21462	1.2056
48	3.99441	226.21	9.457	3832.04	0.0146317	0.05939	0.617	0.00449	1.20833	1.2370
50	3.86998	213.03	9.047	3065.20	0.0171114	0.05800	0.570	0.00411	1.20131	1.2904
52	3.72700	197.82	8.577	2330.81	0.0207413	0.05617	0.525	0.00367	1.19328	1.3803
54	3.55619	180.15	8.031	1639.20	0.0266331	0.05377	0.479	0.00315	1.18376	1.5373
56	3.33791	159.09	7.348	1000.97	0.0380379	0.05033	0.429	0.00249	1.17170	1.8557
58	3.00795	130.23	6.355	401.52	0.0762266	0.04968	0.367	0.00166	1.15368	2.6433
60	1.22988	92.09	5.709	43.45	0.2103338	0.03909	0.175	0.00164	1.06069	3.1170
62	0.96662	102.24	3.913	84.14	0.0800469	0.02679	0.159	0.00339	1.04747	1.7458
64	0.84801	110.45	3.959	104.41	0.0543788	0.02439	0.155	0.00479	1.04155	1.3761
66	0.77045	116.37	3.985	117.98	0.0427195	0.02347	0.155	0.00602	1.03770	1.2000
68	0.71260	125.89	3.993	127.81	0.0358545	0.02307	0.155	0.00717	1.03483	1.0947
70	0.66653	133.14	3.991	135.38	0.0312370	0.02292	0.157	0.00827	1.03255	1.0241
75	0.58134	150.48	3.964	148.65	0.0242093	0.02309	0.162	0.01090	1.02835	0.9184
80	0.52074	167.08	3.926	157.35	0.0201304	0.02362	0.168	0.01349	1.02536	0.8590
85	0.47428	183.20	3.884	163.50	0.0174051	0.02433	0.174	0.01609	1.02308	0.8204
90	0.43701	199.04	3.840	168.07	0.0154290	0.02513	0.180	0.01873	1.02125	0.7931
95	0.40616	214.79	3.793	171.58	0.0139172	0.02600	0.187	0.02142	1.01974	0.7731
100	0.38005	230.59	3.741	174.33	0.0127121	0.02692	0.193	0.02416	1.01847	0.7579
105	0.35754	246.57	3.686	176.53	0.0117316	0.02786	0.200	0.02694	1.01736	0.7467
110	0.33789	262.91	3.625	178.33	0.0109120	0.02892	0.206	0.02984	1.01640	0.7363
115	0.32052	279.75	3.557	179.81	0.0102146	0.03004	0.213	0.03280	1.01556	0.7279
120	0.30503	297.21	3.482	181.04	0.0096123	0.03117	0.219	0.03577	1.01480	0.7220
125	0.29110	315.35	3.403	182.08	0.0090857	0.03232	0.225	0.03874	1.01412	0.7183
130	0.27851	334.25	3.319	182.97	0.0086206	0.03347	0.231	0.04170	1.01351	0.7166
135	0.26704	353.97	3.233	183.72	0.0082061	0.03450	0.237	0.04468	1.01295	0.7192
140	0.25654	374.54	3.144	184.37	0.0078339	0.03568	0.243	0.04740	1.01244	0.7202
150	0.23800	418.26	2.967	185.43	0.0071915	0.03851	0.255	0.05379	1.01153	0.7173
160	0.22210	465.28	2.795	186.23	0.0066550	0.04161	0.267	0.06051	1.01076	0.7142
180	0.19609	568.71	2.488	187.32	0.0058002	0.05215	0.308	0.08062	1.00950	0.7014
200	0.17579	677.69	2.259	188.02	0.0051548	0.06141	0.342	0.10001	1.00851	0.7007
220	0.15941	788.87	2.092	188.47	0.0046460	0.06916	0.367	0.11838	1.00771	0.7011
240	0.14588	896.96	1.980	188.75	0.0042325	0.07550	0.387	0.13632	1.00706	0.7013
260	0.13452	998.62	1.909	188.94	0.0038889	0.08055	0.404	0.15419	1.00651	0.7010
280	0.12482	1091.79	1.872	189.05	0.0035986	0.08446	0.418	0.17222	1.00604	0.7004
300	0.11645	1176.64	1.857	189.12	0.0033497	0.08744	0.431	0.19051	1.00563	0.6995
320	0.10915	1253.63	1.860	189.16	0.0031338	0.08969	0.443	0.20915	1.00528	0.6984
340	0.10271	1324.43	1.874	189.17	0.0029447	0.09141	0.454	0.22819	1.00497	0.6973
360	0.09701	1390.20	1.895	189.17	0.0027775	0.09276	0.464	0.24765	1.00469	0.6960
380	0.09190	1452.27	1.921	189.16	0.0026286	0.09387	0.475	0.26755	1.00444	0.6948
400	0.08731	1512.33	1.948	189.14	0.0024952	0.09486	0.484	0.28789	1.00422	0.6937
420	0.08317	1571.04	1.976	189.12	0.0023749	0.09579	0.494	0.30870	1.00402	0.6926
440	0.07940	1629.28	2.002	189.09	0.0022657	0.09671	0.503	0.32996	1.00384	0.6916
460	0.07596	1687.83	2.026	189.06	0.0021664	0.09767	0.512	0.35167	1.00367	0.6907
480	0.07280	1746.75	2.048	189.03	0.0020754	0.09867	0.522	0.37385	1.00352	0.6899
500	0.06990	1806.53	2.067	189.00	0.0019919	0.09973	0.531	0.39650	1.00338	0.6892
520	0.06722	1867.20	2.084	188.97	0.0019149	0.10086	0.540	0.41962	1.00325	0.6886
540	0.06474	1928.64	2.098	188.93	0.0018437	0.10203	0.548	0.44319	1.00313	0.6881
560	0.06244	1991.49	2.110	188.90	0.0017776	0.10329	0.557	0.46724	1.00302	0.6876
580	0.06030	2054.99	2.120	188.87	0.0017162	0.10458	0.566	0.49178	1.00291	0.6872
600	0.05830	2119.38	2.128	188.84	0.0016589	0.10592	0.575	0.51679	1.00282	0.6869
650	0.05383	2283.34	2.142	188.77	0.0015312	0.10943	0.597	0.58140	1.00260	0.6862
700	0.05001	2450.81	2.150	188.70	0.0014218	0.11310	0.618	0.64907	1.00242	0.6856
800	0.04378	2793.46	2.154	188.58	0.0012443	0.12075	0.661	0.79343	1.00211	0.6849
900	0.03894	3139.81	2.154	188.48	0.0011063	0.12847	0.703	0.94989	1.00188	0.6845
1000	0.03506	3489.72	2.151	188.40	0.0009959	0.13625	0.745	1.11820	1.00169	0.6841
1500	0.02341	5299.63	2.106	188.12	0.0006646	0.17548	0.946	2.12845	1.00113	0.6836
2000	0.01757	7277.36	2.018	187.97	0.0004988	0.27727	1.134	4.34754	1.00085	0.5347
2500	0.01406	9447.10	1.915	187.88	0.0003992	0.33498	1.312	6.31633	1.00068	0.5318
3000	0.01172	11759.20	1.822	187.82	0.0003328	0.39369	1.481	8.58232	1.00057	0.5299
3500	0.01005	14313.62	1.723	187.75	0.0002854	0.45986	1.642	11.20448	1.00049	0.5251
4000	0.00879	17614.47	1.572	187.58	0.0002499	0.55943	1.798	14.46202	1.00042	0.5094
5000	0.00696	31643.09	1.039	185.73	0.0002019	1.12081	2.105	25.18893	1.00034	0.4320

* TWO-PHASE BOUNDARY

200 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 25.662	0.20593	2925.82	77.154	-132.700	-125.074	1.19331	1.147	1.557	4290
26	0.20634	2890.38	77.034	-132.177	-124.536	1.21414	1.154	1.575	4275
28	0.20868	2684.81	75.012	-129.016	-121.287	1.33446	1.197	1.683	4182
30	0.21124	2498.23	74.537	-125.642	-117.819	1.45409	1.239	1.791	4089
32	0.21401	2328.76	73.126	-122.047	-114.121	1.57338	1.281	1.905	4004
34	0.21702	2159.51	71.766	-118.226	-110.189	1.69258	1.321	2.028	3919
36	0.22030	1993.19	70.294	-114.159	-106.000	1.81225	1.356	2.158	3834
38	0.22389	1826.61	68.658	-109.842	-101.550	1.93254	1.386	2.297	3744
40	0.22785	1658.84	65.850	-105.247	-96.809	2.05412	1.413	2.449	3650
42	0.23228	1492.54	64.761	-100.352	-91.750	2.17751	1.435	2.614	3549
44	0.23726	1319.02	62.344	-95.123	-86.336	2.30341	1.454	2.806	3434
46	0.24295	1152.70	59.573	-89.519	-80.521	2.43263	1.470	3.018	3311
48	0.24955	983.78	55.453	-83.477	-74.235	2.56637	1.484	3.277	3172
50	0.25737	818.28	52.904	-76.906	-67.375	2.70636	1.498	3.595	3017
52	0.26692	653.23	48.903	-69.664	-59.779	2.85528	1.511	4.023	2838
54	0.27914	489.97	44.384	-61.488	-51.150	3.01805	1.527	4.659	2632
56	0.29607	333.52	39.091	-51.858	-40.893	3.20446	1.548	5.712	2388
58	0.32377	176.18	32.382	-39.346	-27.355	3.44175	1.586	8.287	2065
60	0.43496	12.87	18.375	-10.792	5.316	3.99290	2.013	57.170	1301
62	0.88259	64.05	9.166	37.607	70.293	5.06563	1.844	11.154	1340
64	1.04401	105.19	6.610	48.974	87.638	5.34129	1.722	7.088	1416
66	1.16762	137.61	5.714	56.901	100.144	5.53382	1.661	5.614	1468
68	1.27390	165.86	5.133	63.380	110.559	5.68933	1.623	4.869	1518
70	1.37002	191.10	4.699	69.668	119.806	5.82339	1.599	4.411	1563
75	1.58449	246.16	3.953	81.403	140.084	6.10343	1.567	3.780	1659
80	1.77738	294.26	3.456	92.269	158.093	6.33601	1.553	3.453	1741
85	1.95744	338.05	3.092	102.333	174.826	6.53895	1.548	3.254	1814
90	2.12887	378.87	2.809	111.902	190.744	6.72095	1.548	3.121	1881
95	2.29416	417.49	2.581	121.147	206.108	6.88711	1.553	3.030	1943
100	2.45456	454.39	2.391	130.203	221.107	7.04100	1.561	2.965	1999
105	2.61138	489.97	2.231	139.101	235.812	7.18450	1.574	2.921	2053
110	2.76529	524.49	2.094	147.929	250.340	7.31967	1.591	2.893	2102
115	2.91683	558.13	1.974	156.740	264.764	7.44790	1.613	2.878	2148
120	3.06641	591.04	1.869	165.580	279.143	7.57030	1.640	2.875	2191
125	3.21433	623.33	1.776	174.489	293.531	7.68776	1.671	2.881	2231
130	3.36085	655.10	1.692	183.503	307.971	7.80103	1.707	2.896	2269
135	3.50616	686.42	1.617	192.654	322.503	7.91072	1.748	2.918	2304
140	3.65044	717.34	1.548	201.968	337.160	8.01732	1.792	2.946	2338
150	3.93636	778.20	1.428	221.182	366.964	8.22291	1.889	3.018	2400
160	4.21945	837.97	1.327	241.301	397.567	8.42039	1.997	3.105	2457
180	4.78097	955.31	1.162	284.884	461.946	8.79810	2.228	3.305	2562
200	5.33435	1070.11	1.036	332.433	529.988	9.15634	2.441	3.498	2665
220	5.88346	1183.21	0.9356	383.626	601.717	9.49806	2.626	3.669	2768
240	6.42948	1295.10	0.8533	438.374	676.486	9.82307	2.767	3.800	2871
260	6.97318	1406.05	0.7847	495.162	753.411	10.13108	2.861	3.886	2975
280	7.51506	1516.29	0.7264	553.364	831.681	10.42098	2.912	3.931	3079
300	8.05550	1625.95	0.6763	612.133	910.465	10.69290	2.929	3.943	3184
320	8.59477	1735.15	0.6328	670.935	989.239	10.94712	2.921	3.931	3289
340	9.13308	1843.97	0.5945	729.341	1067.580	11.18431	2.895	3.902	3393
360	9.67061	1952.48	0.5607	787.085	1145.232	11.40631	2.859	3.863	3496
380	10.20748	2060.73	0.5306	844.021	1222.050	11.61399	2.817	3.819	3597
400	10.74380	2168.77	0.5036	900.090	1297.982	11.80882	2.775	3.775	3697
420	11.27966	2276.62	0.4792	955.303	1373.041	11.99190	2.734	3.732	3795
440	11.81512	2384.31	0.4571	1009.717	1447.284	12.16465	2.696	3.692	3890
460	12.35023	2491.87	0.4370	1063.388	1520.774	12.32799	2.662	3.657	3983
480	12.88506	2599.32	0.4186	1116.409	1593.602	12.48275	2.631	3.626	4074
500	13.41964	2706.66	0.4016	1168.857	1665.848	12.63039	2.605	3.599	4162
520	13.95399	2813.92	0.3860	1220.814	1737.594	12.77121	2.583	3.576	4248
540	14.48815	2921.11	0.3716	1272.346	1808.908	12.90579	2.564	3.556	4332
560	15.02214	3028.22	0.3582	1323.452	1879.791	13.03419	2.549	3.541	4414
580	15.55599	3135.28	0.3458	1374.339	1950.449	13.15803	2.536	3.527	4495
600	16.08970	3242.29	0.3342	1425.026	2020.901	13.27751	2.526	3.516	4573
650	17.42350	3509.62	0.3083	1550.859	2196.131	13.55831	2.507	3.497	4762
700	18.75674	3776.73	0.2862	1676.010	2370.658	13.81724	2.496	3.485	4943
800	21.42204	4310.50	0.2503	1925.120	2718.476	14.28200	2.488	3.476	5282
900	24.08627	4843.84	0.2224	2174.009	3066.034	14.69106	2.486	3.474	5599
1000	26.74981	5376.92	0.2001	2422.706	3413.374	15.05680	2.489	3.476	5898
1500	40.06263	8040.40	0.1334	3676.485	5160.187	16.47247	2.536	3.522	7193
2000	53.37238	10702.70	0.1000	4969.703	6946.327	17.49796	2.644	3.630	8251
2500	66.68121	13364.62	0.0800	6327.051	8796.561	18.32309	2.786	3.771	9156
3000	79.99071	16026.40	0.0667	7756.176	10718.599	19.01397	2.927	3.913	9963
3500	93.31167	18688.09	0.0571	9265.748	12721.507	19.63401	3.093	4.083	10691
4000	106.69800	21349.75	0.0500	10886.478	14837.994	20.39165	3.386	4.394	11328
5000	134.58751	26672.99	0.0400	15017.990	20002.383	22.37123	5.124	6.324	12344

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

200 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-J FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 25.662	4.85594	286.70	13.853	14207.61	0.0054305	0.04521	1.770	0.00598	1.25810	2.1939
26	4.84643	286.38	13.773	14008.05	0.0054993	0.04622	1.725	0.00606	1.25754	2.1154
28	4.79194	284.78	13.256	12865.44	0.0059082	0.05111	1.504	0.00634	1.25434	1.7830
30	4.73400	284.13	12.703	11826.62	0.0063024	0.05434	1.332	0.00641	1.25094	1.5805
32	4.67260	283.42	12.212	10881.38	0.0067203	0.05653	1.195	0.00635	1.24734	1.4489
34	4.60790	281.17	11.793	9950.83	0.0072121	0.05789	1.082	0.00620	1.24357	1.3645
36	4.53925	277.71	11.424	9047.57	0.0077693	0.05900	0.988	0.00602	1.23958	1.3006
38	4.46652	272.90	11.088	8158.60	0.0084154	0.06028	0.908	0.00588	1.23536	1.2452
40	4.38876	266.72	10.779	7280.26	0.0091823	0.06103	0.838	0.00568	1.23087	1.2110
42	4.30521	259.40	10.480	6425.72	0.0100784	0.06131	0.776	0.00545	1.22606	1.1920
44	4.21474	250.20	10.171	5559.32	0.0112144	0.06117	0.721	0.00517	1.22087	1.1902
46	4.11605	240.38	9.844	4744.57	0.0125560	0.06062	0.669	0.00488	1.21524	1.1999
48	4.00723	228.85	9.493	3942.24	0.0143200	0.05968	0.621	0.00454	1.20906	1.2285
50	3.88547	216.06	9.092	3179.40	0.0166397	0.05834	0.576	0.00418	1.20218	1.2768
52	3.74651	201.32	8.636	2447.34	0.0199822	0.05659	0.531	0.00375	1.19438	1.3581
54	3.58244	184.26	8.116	1755.30	0.0252857	0.05431	0.485	0.00325	1.18522	1.4989
56	3.37761	164.62	7.477	1126.49	0.0347016	0.05109	0.437	0.00265	1.17388	1.7604
58	3.08860	139.25	6.610	544.14	0.0595100	0.04939	0.381	0.00193	1.15806	2.3035
60	2.29908	92.04	3.971	29.58	0.6211455	0.08664	0.273	0.00066	1.11580	6.4786
62	1.13303	99.13	3.909	72.57	0.1125254	0.03096	0.170	0.00245	1.05581	2.2103
64	0.95785	108.04	4.007	100.76	0.0655093	0.02625	0.162	0.00387	1.04703	1.5715
66	0.85644	115.79	4.017	117.85	0.0484820	0.02463	0.159	0.00512	1.04197	1.3058
68	0.78499	123.51	4.028	130.20	0.0394201	0.02393	0.159	0.00626	1.03842	1.1634
70	0.72992	130.92	4.026	139.48	0.0336912	0.02362	0.160	0.00734	1.03569	1.0729
75	0.63112	148.57	3.997	155.36	0.0254427	0.02358	0.164	0.00988	1.03080	0.9446
80	0.56263	165.42	3.955	165.56	0.0208770	0.02401	0.169	0.01236	1.02743	0.8758
85	0.51087	181.74	3.909	172.70	0.0179045	0.02466	0.175	0.01483	1.02488	0.8322
90	0.46973	197.74	3.863	177.97	0.0157847	0.02542	0.181	0.01734	1.02286	0.8020
95	0.43590	213.63	3.813	181.98	0.0141817	0.02626	0.188	0.01988	1.02120	0.7801
100	0.40740	229.55	3.759	185.12	0.0129144	0.02715	0.194	0.02248	1.01980	0.7635
105	0.38294	245.61	3.703	187.63	0.0118908	0.02808	0.201	0.02510	1.01861	0.7513
110	0.36163	262.03	3.640	189.67	0.0110399	0.02912	0.207	0.02784	1.01756	0.7401
115	0.34284	278.34	3.571	191.35	0.0103188	0.03023	0.213	0.03063	1.01665	0.7311
120	0.32611	296.44	3.496	192.75	0.0096984	0.03135	0.220	0.03344	1.01583	0.7247
125	0.31111	314.63	3.415	193.92	0.0091577	0.03249	0.226	0.03624	1.01510	0.7207
130	0.29754	333.58	3.331	194.92	0.0086813	0.03363	0.232	0.03903	1.01444	0.7187
135	0.28521	353.33	3.243	195.78	0.0082577	0.03465	0.238	0.04164	1.01383	0.7211
140	0.27394	373.93	3.154	196.51	0.0078781	0.03582	0.244	0.04439	1.01328	0.7220
150	0.25404	417.70	2.975	197.69	0.0072245	0.03864	0.256	0.05040	1.01232	0.7187
160	0.23700	464.77	2.803	198.60	0.0066802	0.04174	0.267	0.05672	1.01149	0.7153
180	0.20916	568.30	2.494	199.82	0.0058158	0.05218	0.308	0.07548	1.01013	0.7025
200	0.18746	677.36	2.264	200.61	0.0051645	0.06143	0.342	0.09367	1.00908	0.7016
220	0.16997	788.65	2.096	201.11	0.0046522	0.06917	0.367	0.11091	1.00823	0.7018
240	0.15553	896.88	1.983	201.43	0.0042364	0.07550	0.387	0.12776	1.00753	0.7018
260	0.14341	998.67	1.912	201.64	0.0038915	0.08055	0.404	0.14454	1.00694	0.7015
280	0.13307	1091.96	1.874	201.77	0.0035001	0.08446	0.418	0.16146	1.00644	0.7009
300	0.12414	1176.94	1.860	201.84	0.0033506	0.08745	0.431	0.17863	1.00600	0.6999
320	0.11635	1254.09	1.862	201.88	0.0031342	0.08970	0.443	0.19613	1.00563	0.6988
340	0.10949	1324.91	1.876	201.90	0.0029448	0.09142	0.454	0.21400	1.00529	0.6975
360	0.10341	1390.75	1.897	201.90	0.0027774	0.09277	0.465	0.23227	1.00500	0.6963
380	0.09797	1452.89	1.923	201.88	0.0026284	0.09388	0.475	0.25094	1.00474	0.6950
400	0.09308	1513.00	1.950	201.86	0.0024948	0.09487	0.484	0.27004	1.00450	0.6939
420	0.08866	1571.75	1.977	201.83	0.0023744	0.09580	0.494	0.28956	1.00429	0.6928
440	0.08464	1630.03	2.004	201.80	0.0022652	0.09673	0.503	0.30951	1.00409	0.6917
460	0.08097	1688.61	2.028	201.77	0.0021658	0.09769	0.513	0.32988	1.00391	0.6908
480	0.07761	1747.56	2.050	201.73	0.0020749	0.09869	0.522	0.35069	1.00375	0.6900
500	0.07452	1807.36	2.069	201.69	0.0019913	0.09975	0.531	0.37195	1.00360	0.6893
520	0.07166	1868.05	2.085	201.66	0.0019143	0.10088	0.540	0.39364	1.00346	0.6887
540	0.06902	1929.51	2.100	201.62	0.0018431	0.10205	0.549	0.41575	1.00334	0.6882
560	0.06657	1992.38	2.111	201.58	0.0017771	0.10331	0.557	0.43832	1.00322	0.6877
580	0.06428	2055.89	2.121	201.55	0.0017157	0.10461	0.566	0.46134	1.00311	0.6873
600	0.06215	2120.30	2.129	201.51	0.0016584	0.10595	0.575	0.48480	1.00300	0.6869
650	0.05739	2284.29	2.143	201.43	0.0015307	0.10945	0.597	0.54542	1.00277	0.6862
700	0.05331	2451.79	2.151	201.35	0.0014214	0.11313	0.618	0.60890	1.00258	0.6857
800	0.04668	2794.48	2.155	201.22	0.0012439	0.12078	0.661	0.74433	1.00225	0.6850
900	0.04152	3140.86	2.155	201.10	0.0011060	0.12851	0.703	0.89110	1.00201	0.6845
1000	0.03738	3490.78	2.151	201.01	0.0009956	0.13629	0.745	1.04899	1.00181	0.6841
1500	0.02496	5300.77	2.107	200.70	0.0006645	0.17555	0.946	1.99666	1.00121	0.6836
2000	0.01874	7278.55	2.079	200.53	0.0004987	0.27727	1.135	4.07669	1.00090	0.5349
2500	0.01500	9448.31	1.915	200.43	0.0003992	0.33498	1.313	5.92263	1.00072	0.5320
3000	0.01250	11759.75	1.822	200.35	0.0003328	0.39365	1.481	8.04694	1.00060	0.5301
3500	0.01072	14308.40	1.724	200.28	0.0002853	0.45951	1.643	10.50277	1.00052	0.5255
4000	0.00937	17582.45	1.575	200.10	0.0002499	0.55771	1.799	13.54410	1.00045	0.5102
5000	0.00743	31331.64	1.051	198.18	0.0002018	1.10496	2.105	23.51643	1.00036	0.4338

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

210 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 25.702	0.20583	2936.26	77.165	-132.687	-124.683	1.19369	1.148	1.557	4295
26	0.20619	2905.39	77.061	-132.226	-124.208	1.21204	1.154	1.573	4282
28	0.20852	2701.30	76.077	-129.073	-120.965	1.33219	1.197	1.680	4191
30	0.21106	2513.37	74.650	-125.708	-117.501	1.45165	1.239	1.788	4099
32	0.21382	2344.10	73.250	-122.125	-113.810	1.57073	1.281	1.901	4014
34	0.21680	2174.93	71.897	-118.316	-109.885	1.68969	1.320	2.024	3930
36	0.22006	2008.81	70.436	-114.264	-105.706	1.80909	1.355	2.152	3845
38	0.22361	1845.48	68.812	-109.964	-101.268	1.92905	1.386	2.289	3758
40	0.22754	1674.77	67.020	-105.389	-96.541	2.05027	1.413	2.441	3662
42	0.23192	1509.54	64.946	-100.519	-91.501	2.17320	1.435	2.604	3562
44	0.23684	1341.58	62.561	-95.322	-86.112	2.29852	1.454	2.787	3452
46	0.24245	1170.89	59.826	-89.757	-80.329	2.42704	1.470	3.001	3327
48	0.24893	1002.91	56.753	-83.767	-74.087	2.55983	1.484	3.253	3191
50	0.25657	838.68	53.258	-77.267	-67.290	2.69854	1.497	3.559	3039
52	0.26585	674.68	49.334	-70.128	-59.790	2.84558	1.511	3.966	2864
54	0.27760	516.48	44.937	-62.118	-51.323	3.00530	1.525	4.538	2668
56	0.29355	360.26	39.838	-52.794	-41.379	3.18604	1.545	5.481	2433
58	0.31833	205.08	33.580	-41.066	-28.687	3.40854	1.577	7.562	2134
60	0.37815	55.02	24.012	-21.635	-6.930	3.77646	1.674	18.323	1670
62	0.75821	44.36	9.818	29.554	59.038	4.85957	1.915	16.256	1321
64	0.94321	90.09	7.471	44.409	81.087	5.21019	1.749	8.282	1406
66	1.07220	124.95	6.357	53.503	95.197	5.42746	1.679	6.224	1465
68	1.18016	154.99	5.618	60.600	106.492	5.59614	1.634	5.206	1512
70	1.27614	181.47	5.107	66.671	116.295	5.73826	1.607	4.640	1558
75	1.48725	238.58	4.251	79.557	137.391	6.02964	1.571	3.899	1656
80	1.67511	288.01	3.697	90.735	155.873	6.26832	1.557	3.529	1739
85	1.84950	332.77	3.296	101.006	172.926	6.47515	1.551	3.308	1813
90	2.01497	374.35	2.987	110.726	189.081	6.65986	1.551	3.163	1881
95	2.17407	413.60	2.739	120.089	204.630	6.82803	1.555	3.063	1943
100	2.32832	451.01	2.533	129.241	219.781	6.98347	1.563	2.992	2000
105	2.47887	487.02	2.361	138.216	234.610	7.12818	1.575	2.943	2053
110	2.62647	521.92	2.214	147.108	249.242	7.26433	1.592	2.912	2103
115	2.77169	555.89	2.086	155.975	263.756	7.39336	1.614	2.895	2149
120	2.91492	589.10	1.974	164.863	278.213	7.51642	1.641	2.890	2192
125	3.05650	621.66	1.874	173.814	292.670	7.63445	1.672	2.894	2233
130	3.19667	653.66	1.785	182.865	307.172	7.74820	1.708	2.907	2270
135	3.33563	685.20	1.705	192.048	321.758	7.85830	1.748	2.928	2306
140	3.47355	716.32	1.632	201.392	336.465	7.96526	1.792	2.955	2339
150	3.74676	777.52	1.505	220.657	366.354	8.17145	1.890	3.026	2401
160	4.01713	837.59	1.397	240.818	397.030	8.36939	1.997	3.111	2459
180	4.55311	955.34	1.223	284.478	461.531	8.74781	2.229	3.310	2564
200	5.08111	1070.54	1.090	332.078	529.664	9.10652	2.441	3.502	2667
220	5.60485	1183.96	0.9838	383.510	601.462	9.44857	2.626	3.672	2769
240	6.12550	1296.10	0.8971	438.090	676.289	9.77382	2.767	3.802	2873
260	6.64383	1407.27	0.8247	494.905	753.259	10.08202	2.861	3.888	2977
280	7.16034	1517.68	0.7633	553.130	831.569	10.37208	2.912	3.933	3081
300	7.67541	1627.49	0.7106	611.920	910.389	10.64411	2.930	3.945	3186
320	8.18932	1736.82	0.6648	670.740	989.192	10.89843	2.921	3.932	3291
340	8.70227	1845.75	0.6246	729.161	1067.560	11.13569	2.895	3.903	3395
360	9.21444	1954.36	0.5891	786.919	1145.235	11.35777	2.859	3.864	3498
380	9.72595	2062.69	0.5574	843.867	1222.074	11.56550	2.817	3.820	3600
400	10.23691	2170.80	0.5290	899.948	1298.024	11.76038	2.775	3.776	3699
420	10.74741	2278.71	0.5033	955.171	1373.098	11.94350	2.734	3.733	3797
440	11.25752	2386.47	0.4801	1009.594	1447.357	12.11628	2.696	3.693	3892
460	11.76728	2494.08	0.4590	1063.273	1520.859	12.27965	2.662	3.658	3985
480	12.27675	2601.57	0.4396	1116.302	1593.699	12.43444	2.631	3.626	4076
500	12.78598	2708.96	0.4218	1168.756	1665.956	12.58210	2.605	3.600	4164
520	13.29498	2816.25	0.4054	1220.719	1737.711	12.72294	2.583	3.577	4250
540	13.80379	2923.47	0.3903	1272.256	1809.035	12.85754	2.564	3.557	4334
560	14.31243	3030.62	0.3762	1323.368	1879.925	12.98595	2.549	3.541	4416
580	14.82092	3137.71	0.3631	1374.260	1950.591	13.10900	2.536	3.528	4497
600	15.32928	3244.74	0.3509	1424.951	2021.050	13.22929	2.526	3.517	4575
650	16.59970	3512.12	0.3238	1550.793	2196.294	13.51011	2.507	3.497	4764
700	17.86956	3779.28	0.3005	1675.952	2370.834	13.76906	2.496	3.485	4944
800	20.40812	4313.11	0.2628	1925.073	2718.676	14.23385	2.488	3.476	5284
900	22.94560	4846.50	0.2335	2173.971	3066.240	14.64292	2.486	3.474	5601
1000	25.48240	5379.61	0.2101	2422.675	3413.591	15.00868	2.489	3.476	5906
1500	38.16150	8043.18	0.1400	3676.469	5160.429	16.42437	2.536	3.522	7194
2000	50.83754	10705.51	0.1050	4969.694	6946.579	17.44986	2.644	3.630	8252
2500	63.51266	13367.46	0.0840	6327.643	8796.816	18.27499	2.786	3.771	9157
3000	76.18838	16029.24	0.0700	7756.139	10718.824	18.96587	2.927	3.913	9964
3500	88.87473	18690.94	0.0600	9265.410	12721.426	19.58581	3.091	4.081	10692
4000	101.62183	21352.66	0.0525	10884.535	14836.233	20.34301	3.381	4.387	11330
5000	126.15418	26675.84	0.0420	14995.050	19978.493	22.31781	5.061	6.276	12349

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

210 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-J FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 25.702	4.85829	287.80	13.837	14265.19	0.0054093	0.04536	1.772	0.00600	1.25824	2.1897
26	4.84990	287.54	13.767	14090.85	0.0054689	0.04626	1.733	0.00607	1.25775	2.1204
28	4.79564	286.01	13.257	12954.49	0.0058726	0.05116	1.511	0.00635	1.25455	1.7862
30	4.73797	285.23	12.713	11908.25	0.0062688	0.05441	1.338	0.00642	1.25117	1.5832
32	4.67687	284.56	12.225	10963.07	0.0066815	0.05661	1.200	0.00637	1.24759	1.4507
34	4.61252	282.35	11.806	10031.88	0.0071669	0.05798	1.087	0.00621	1.24384	1.3655
36	4.54426	278.96	11.437	9128.54	0.0077160	0.05911	0.992	0.00604	1.23987	1.3009
38	4.47200	274.49	11.103	8252.97	0.0083379	0.06040	0.912	0.00590	1.23568	1.2441
40	4.39475	268.11	10.794	7360.20	0.0091058	0.06116	0.842	0.00570	1.23121	1.2101
42	4.31187	260.96	10.496	6508.96	0.0099779	0.06146	0.780	0.00547	1.22644	1.1900
44	4.22227	252.38	10.190	5664.51	0.0110443	0.06134	0.724	0.00521	1.22131	1.1851
46	4.12464	242.22	9.867	4829.52	0.0123875	0.06082	0.673	0.00491	1.21573	1.1956
48	4.01726	230.91	9.521	4028.94	0.0140864	0.05991	0.625	0.00458	1.20963	1.2222
50	3.89752	218.41	9.126	3268.78	0.0162928	0.05861	0.580	0.00423	1.20286	1.2669
52	3.76154	204.00	8.682	2537.83	0.0194395	0.05691	0.535	0.00382	1.19522	1.3424
54	3.60234	187.88	8.179	1860.53	0.0241527	0.05472	0.491	0.00335	1.18633	1.4644
56	3.40661	168.86	7.570	1227.27	0.0324606	0.05165	0.444	0.00277	1.17548	1.6954
58	3.14137	145.07	6.776	644.25	0.0521235	0.04957	0.391	0.00209	1.16093	2.1472
60	2.64448	111.03	5.425	145.50	0.1650289	0.05339	0.314	0.00110	1.13412	3.8851
62	1.31889	96.87	3.888	58.51	0.1678078	0.03745	0.185	0.00175	1.06519	2.8956
64	1.06021	105.88	4.028	95.51	0.0782230	0.02820	0.168	0.00321	1.05215	1.7812
66	0.93266	114.09	4.059	116.54	0.0545495	0.02579	0.164	0.00444	1.04577	1.4206
68	0.84734	121.69	4.057	131.33	0.0427791	0.02472	0.162	0.00560	1.04152	1.2288
70	0.78361	129.21	4.056	142.20	0.0359120	0.02424	0.162	0.00667	1.03835	1.1178
75	0.67238	147.10	4.024	160.42	0.0265025	0.02400	0.165	0.00915	1.03284	0.9675
80	0.59698	164.13	3.978	171.93	0.0215026	0.02434	0.170	0.01155	1.02912	0.8901
85	0.54069	180.61	3.930	179.93	0.0183169	0.02493	0.176	0.01394	1.02635	0.8421
90	0.49629	196.75	3.881	185.78	0.0160756	0.02566	0.182	0.01635	1.02416	0.8094
95	0.45997	212.74	3.830	190.24	0.0143965	0.02647	0.189	0.01879	1.02238	0.7858
100	0.42949	228.75	3.773	193.70	0.0130780	0.02734	0.195	0.02128	1.02089	0.7680
105	0.40341	244.88	3.716	196.47	0.0120190	0.02825	0.201	0.02379	1.01961	0.7550
110	0.38074	261.35	3.652	198.71	0.0111425	0.02928	0.208	0.02641	1.01850	0.7432
115	0.36079	278.31	3.582	200.56	0.0104023	0.03038	0.214	0.02909	1.01752	0.7337
120	0.34306	295.85	3.507	202.10	0.0097673	0.03149	0.220	0.03177	1.01666	0.7269
125	0.32717	314.08	3.425	203.39	0.0092151	0.03262	0.226	0.03445	1.01588	0.7226
130	0.31283	333.05	3.340	204.48	0.0087297	0.03376	0.232	0.03712	1.01518	0.7203
135	0.29979	352.83	3.252	205.42	0.0082988	0.03476	0.238	0.03960	1.01455	0.7227
140	0.28789	373.46	3.162	206.22	0.0079133	0.03593	0.244	0.04223	1.01396	0.7233
150	0.26690	417.27	2.983	207.52	0.0072507	0.03875	0.256	0.04798	1.01294	0.7197
160	0.24893	464.38	2.810	208.50	0.0067001	0.04184	0.267	0.05402	1.01207	0.7161
180	0.21963	567.93	2.498	209.82	0.0058283	0.05221	0.308	0.07181	1.01064	0.7034
200	0.19681	677.10	2.268	210.69	0.0051722	0.06144	0.342	0.08914	1.00953	0.7023
220	0.17842	788.49	2.100	211.24	0.0046571	0.06917	0.367	0.10558	1.00864	0.7023
240	0.16325	896.82	1.986	211.59	0.0042396	0.07550	0.387	0.12164	1.00790	0.7023
260	0.15052	998.71	1.915	211.82	0.0038935	0.08056	0.404	0.13764	1.00728	0.7020
280	0.13966	1092.11	1.877	211.96	0.0036014	0.08446	0.418	0.15377	1.00676	0.7012
300	0.13029	1177.18	1.862	212.04	0.0033513	0.08745	0.431	0.17014	1.00630	0.7002
320	0.12211	1254.41	1.864	212.08	0.0031346	0.08970	0.443	0.18683	1.00591	0.6990
340	0.11491	1325.30	1.878	212.10	0.0029448	0.09143	0.454	0.20386	1.00556	0.6978
360	0.10853	1391.20	1.899	212.10	0.0027773	0.09278	0.465	0.22127	1.00525	0.6965
380	0.10282	1453.38	1.924	212.08	0.0026281	0.09389	0.475	0.23907	1.00497	0.6952
400	0.09769	1513.54	1.951	212.06	0.0024945	0.09488	0.484	0.25727	1.00472	0.6940
420	0.09305	1572.32	1.979	212.02	0.0023740	0.09582	0.494	0.27588	1.00450	0.6929
440	0.08883	1630.63	2.005	211.99	0.0022648	0.09674	0.503	0.29489	1.00429	0.6919
460	0.08498	1689.24	2.029	211.95	0.0021654	0.09770	0.513	0.31430	1.00411	0.6909
480	0.08145	1748.21	2.051	211.91	0.0020744	0.09870	0.522	0.33414	1.00394	0.6901
500	0.07821	1808.03	2.070	211.87	0.0019909	0.09977	0.531	0.35439	1.00378	0.6894
520	0.07522	1868.74	2.087	211.83	0.0019139	0.10090	0.540	0.37507	1.00363	0.6888
540	0.07244	1930.21	2.101	211.79	0.0018427	0.10207	0.549	0.39614	1.00350	0.6882
560	0.06987	1993.10	2.112	211.75	0.0017766	0.10333	0.557	0.41765	1.00338	0.6877
580	0.06747	2056.62	2.122	211.71	0.0017152	0.10463	0.566	0.43958	1.00326	0.6873
600	0.06523	2121.04	2.130	211.67	0.0016579	0.10597	0.575	0.46194	1.00315	0.6870
650	0.06024	2285.05	2.144	211.58	0.0015303	0.10948	0.597	0.51970	1.00291	0.6862
700	0.05596	2452.57	2.152	211.49	0.0014210	0.11315	0.618	0.58019	1.00270	0.6857
800	0.04900	2795.29	2.156	211.34	0.0012436	0.12081	0.661	0.70923	1.00237	0.6850
900	0.04358	3141.69	2.155	211.22	0.0011057	0.12854	0.704	0.84907	1.00210	0.6845
1000	0.03924	3491.64	2.152	211.11	0.0009954	0.13633	0.745	0.99951	1.00190	0.6841
1500	0.02620	5301.67	2.107	210.77	0.0006644	0.17560	0.947	1.90244	1.00127	0.6836
2000	0.01967	7279.50	2.019	210.58	0.0004987	0.27727	1.135	3.88306	1.00095	0.5350
2500	0.01574	9449.28	1.915	210.47	0.0003991	0.33498	1.313	5.64118	1.00076	0.5322
3000	0.01313	11760.25	1.822	210.39	0.0003327	0.39362	1.482	7.66422	1.00063	0.5303
3500	0.01125	14304.64	1.725	210.31	0.0002853	0.45926	1.644	10.00131	1.00054	0.5258
4000	0.00984	17558.98	1.578	210.12	0.0002499	0.55645	1.800	12.88883	1.00047	0.5108
5000	0.00780	31102.55	1.059	208.15	0.0002018	1.09329	2.106	22.32575	1.00038	0.4352

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

220 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 25.742	0.20573	2946.68	77.176	-132.673	-124.292	1.19406	1.149	1.557	4301
26	0.20604	2920.32	77.089	-132.275	-123.881	1.20994	1.154	1.570	4290
28	0.20836	2717.71	75.141	-129.130	-120.642	1.32994	1.197	1.677	4200
30	0.21089	2528.41	74.763	-125.774	-117.183	1.44922	1.239	1.785	4108
32	0.21362	2359.34	73.373	-122.201	-113.499	1.56810	1.281	1.898	4024
34	0.21659	2190.23	72.028	-118.404	-109.581	1.68683	1.320	2.019	3940
36	0.21982	2024.31	70.577	-114.367	-105.412	1.80595	1.355	2.147	3855
38	0.22334	1861.39	68.964	-110.084	-100.985	1.92561	1.386	2.282	3769
40	0.22724	1690.54	67.189	-105.529	-96.272	2.04646	1.412	2.434	3674
42	0.23156	1526.35	65.129	-100.684	-91.251	2.16894	1.435	2.594	3575
44	0.23642	1359.61	62.773	-95.517	-85.886	2.29371	1.454	2.774	3467
46	0.24195	1188.80	60.075	-89.990	-80.134	2.42153	1.470	2.984	3344
48	0.24832	1021.66	57.048	-84.051	-73.935	2.55342	1.484	3.229	3210
50	0.25579	860.95	53.608	-77.622	-67.201	2.69084	1.497	3.519	3062
52	0.26482	698.91	49.753	-70.577	-59.789	2.83615	1.510	3.902	2892
54	0.27614	539.26	45.464	-62.717	-51.467	2.99314	1.524	4.447	2700
56	0.29125	384.50	40.540	-53.660	-41.795	3.16893	1.542	5.302	2475
58	0.31383	235.67	34.626	-42.536	-29.752	3.38009	1.571	6.952	2198
60	0.35906	90.38	25.495	-26.222	-11.595	3.68736	1.638	12.764	1806
62	0.62308	27.57	12.381	17.844	43.227	4.58388	2.019	26.802	1302
64	0.84691	75.56	8.509	39.148	73.650	5.06810	1.782	9.927	1396
66	0.98435	113.38	7.051	49.812	89.913	5.31856	1.702	6.894	1459
68	1.09380	144.10	6.171	57.643	102.202	5.50210	1.646	5.628	1511
70	1.19015	171.87	5.545	64.163	112.648	5.65355	1.615	4.899	1554
75	1.39866	231.07	4.565	77.664	134.642	5.95738	1.576	4.026	1654
80	1.58209	281.83	3.946	89.174	153.625	6.20254	1.560	3.609	1738
85	1.75139	327.57	3.505	99.663	171.011	6.41341	1.553	3.364	1813
90	1.91147	369.91	3.168	109.540	187.409	6.60092	1.553	3.205	1881
95	2.06502	409.77	2.900	119.023	203.148	6.77113	1.557	3.096	1943
100	2.21361	447.68	2.678	128.274	218.452	6.92816	1.565	3.019	2000
105	2.35847	484.13	2.494	137.327	233.407	7.07409	1.577	2.966	2054
110	2.50034	519.40	2.336	146.286	248.145	7.21122	1.594	2.932	2104
115	2.63981	553.70	2.199	155.208	262.748	7.34105	1.615	2.912	2150
120	2.77728	587.20	2.080	164.144	277.285	7.46479	1.642	2.904	2194
125	2.91308	620.02	1.974	173.138	291.811	7.58338	1.673	2.907	2234
130	3.04748	652.26	1.879	182.226	306.374	7.69761	1.709	2.919	2272
135	3.18066	684.01	1.793	191.442	321.016	7.80812	1.749	2.939	2307
140	3.31279	715.33	1.716	200.815	335.772	7.91545	1.793	2.965	2341
150	3.57444	776.87	1.582	220.132	365.747	8.12223	1.891	3.033	2403
160	3.83325	837.24	1.468	240.336	396.495	8.32064	1.998	3.118	2460
180	4.34599	955.39	1.284	284.071	461.118	8.69975	2.229	3.316	2566
200	4.85092	1070.99	1.144	331.723	529.340	9.05894	2.442	3.506	2669
220	5.35159	1184.72	1.032	383.195	601.208	9.40132	2.626	3.675	2771
240	5.84917	1297.12	0.9409	437.807	676.091	9.72682	2.767	3.805	2875
260	6.34443	1408.50	0.8648	494.648	753.108	10.03521	2.862	3.891	2979
280	6.83788	1519.09	0.8003	552.897	831.459	10.32541	2.913	3.935	3083
300	7.32989	1629.05	0.7450	611.707	910.312	10.59756	2.930	3.947	3188
320	7.82074	1738.50	0.6969	670.544	989.146	10.85198	2.921	3.933	3293
340	8.31063	1847.54	0.6547	728.981	1067.540	11.08932	2.895	3.904	3397
360	8.79975	1956.24	0.6174	786.754	1145.238	11.31146	2.859	3.865	3500
380	9.28821	2064.66	0.5842	843.714	1222.098	11.51925	2.817	3.821	3602
400	9.77612	2172.84	0.5544	899.806	1298.066	11.71418	2.775	3.776	3701
420	10.26356	2280.82	0.5275	955.039	1373.157	11.89734	2.734	3.733	3799
440	10.75061	2388.63	0.5031	1009.471	1447.430	12.07015	2.696	3.694	3894
460	11.23733	2496.29	0.4809	1063.158	1520.945	12.23355	2.662	3.658	3987
480	11.72375	2603.83	0.4606	1116.194	1593.797	12.38836	2.632	3.627	4078
500	12.20992	2711.25	0.4420	1168.655	1666.064	12.53605	2.606	3.600	4166
520	12.69588	2818.59	0.4248	1220.624	1737.829	12.67690	2.583	3.577	4252
540	13.18164	2925.84	0.4089	1272.167	1809.161	12.81152	2.564	3.557	4336
560	13.66723	3033.02	0.3942	1323.284	1880.060	12.93995	2.549	3.541	4418
580	14.15268	3140.13	0.3805	1374.180	1950.733	13.06381	2.536	3.528	4498
600	14.63799	3247.19	0.3677	1424.876	2021.199	13.18332	2.526	3.517	4577
650	15.85079	3514.63	0.3392	1550.727	2196.457	13.46416	2.507	3.497	4766
700	17.06304	3781.83	0.3149	1675.894	2371.009	13.72312	2.496	3.485	4946
800	19.48637	4315.72	0.2754	1925.027	2718.863	14.18793	2.488	3.476	5285
900	21.90863	4849.16	0.2447	2173.933	3066.447	14.59702	2.486	3.474	5603
1000	24.33020	5382.31	0.2202	2422.643	3413.808	14.96279	2.489	3.476	5901
1500	36.43319	8045.96	0.1467	3676.454	5160.671	16.37850	2.536	3.522	7195
2000	48.53314	10706.33	0.1100	4969.686	6946.831	17.40400	2.644	3.630	8253
2500	60.63215	13370.29	0.0880	6327.037	8797.072	18.22913	2.786	3.771	9158
3000	72.73170	16032.07	0.0733	7756.105	10719.052	18.92000	2.927	3.913	9965
3500	84.84116	18693.78	0.0629	9265.094	12721.357	19.53985	3.090	4.080	10693
4000	97.00727	21355.44	0.0550	10882.726	14834.613	20.29665	3.375	4.382	11333
5000	122.30776	26678.69	0.0440	14973.692	19956.270	22.26701	5.041	6.231	12354

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

220 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 25.742	4.86063	288.83	13.821	14322.69	0.0053884	0.04552	1.775	0.00602	1.25838	2.1856
26	4.85335	288.69	13.761	14173.36	0.0054390	0.04629	1.741	0.00607	1.25795	2.1255
28	4.79933	287.24	13.258	13043.20	0.0058376	0.05121	1.518	0.00636	1.25477	1.7895
30	4.74191	286.31	12.723	11989.51	0.0062357	0.05447	1.344	0.00643	1.25140	1.5859
32	4.68112	285.69	12.237	11044.35	0.0066435	0.05669	1.205	0.00638	1.24784	1.4524
34	4.61710	283.53	11.819	10112.48	0.0071226	0.05807	1.092	0.00623	1.24410	1.3665
36	4.54922	280.20	11.451	9209.05	0.0076639	0.05921	0.997	0.00606	1.24015	1.3013
38	4.47740	275.82	11.117	8334.19	0.0082749	0.06052	0.916	0.00592	1.23599	1.2438
40	4.40068	269.48	10.810	7439.55	0.0090314	0.06130	0.846	0.00572	1.23156	1.2093
42	4.31846	262.50	10.512	6591.46	0.0098808	0.06161	0.784	0.00550	1.22682	1.1881
44	4.22967	254.11	10.208	5750.70	0.0109158	0.06151	0.728	0.00524	1.22173	1.1820
46	4.13310	244.03	9.889	4913.43	0.0122266	0.06101	0.677	0.00495	1.21621	1.1916
48	4.02710	232.91	9.548	4114.34	0.0138655	0.06013	0.629	0.00462	1.21019	1.2164
50	3.90939	220.95	9.160	3365.80	0.0159273	0.05888	0.584	0.00428	1.20353	1.2560
52	3.77614	206.97	8.725	2639.18	0.0186517	0.05723	0.540	0.00388	1.19604	1.3243
54	3.62129	191.00	8.238	1952.81	0.0232812	0.05511	0.496	0.00342	1.18738	1.4392
56	3.43350	172.66	7.656	1320.20	0.0307079	0.05217	0.450	0.00287	1.17697	1.6458
58	3.18649	150.77	6.918	750.96	0.0461081	0.04974	0.399	0.00225	1.16340	2.0099
60	2.78504	121.26	5.807	251.71	0.1052616	0.05002	0.334	0.00141	1.14165	3.0695
62	1.60492	95.78	3.821	44.25	0.2798223	0.05030	0.210	0.00117	1.07976	4.0259
64	1.18076	104.09	4.043	89.22	0.0953716	0.03077	0.177	0.00262	1.05821	2.0602
66	1.01590	112.63	4.077	115.18	0.0612137	0.02709	0.169	0.00387	1.04993	1.5468
68	0.91424	120.14	4.100	131.74	0.0468452	0.02564	0.166	0.00498	1.04485	1.3108
70	0.84023	127.59	4.087	144.41	0.0383972	0.02491	0.165	0.00605	1.04117	1.1688
75	0.71497	145.69	4.052	165.21	0.0276311	0.02443	0.167	0.00849	1.03495	0.9922
80	0.63208	162.90	4.003	178.14	0.0221537	0.02467	0.172	0.01082	1.03085	0.9051
85	0.57098	179.52	3.952	187.04	0.0187405	0.02520	0.177	0.01312	1.02784	0.8525
90	0.52316	195.78	3.900	193.52	0.0163718	0.02590	0.183	0.01544	1.02548	0.8170
95	0.48426	211.88	3.846	198.43	0.0146140	0.02668	0.190	0.01779	1.02357	0.7917
100	0.45175	227.97	3.788	202.24	0.0132427	0.02753	0.196	0.02019	1.02198	0.7727
105	0.42403	244.16	3.729	205.28	0.0121478	0.02843	0.202	0.02260	1.02062	0.7588
110	0.39995	260.70	3.665	207.73	0.0112452	0.02945	0.208	0.02512	1.01944	0.7463
115	0.37882	277.70	3.594	209.75	0.0104858	0.03054	0.214	0.02768	1.01840	0.7363
120	0.36006	295.29	3.517	211.43	0.0098360	0.03184	0.221	0.03025	1.01749	0.7292
125	0.34328	313.54	3.436	212.84	0.0092724	0.03276	0.227	0.03283	1.01667	0.7245
130	0.32814	332.55	3.350	214.03	0.0087779	0.03389	0.233	0.03538	1.01593	0.7219
135	0.31440	352.35	3.261	215.05	0.0083397	0.03488	0.239	0.03776	1.01526	0.7243
140	0.30186	373.00	3.171	215.93	0.0079482	0.03605	0.245	0.04028	1.01465	0.7247
150	0.27976	416.85	2.990	217.34	0.0072768	0.03885	0.256	0.04578	1.01357	0.7208
160	0.26088	464.00	2.816	218.41	0.0067199	0.04194	0.268	0.05156	1.01265	0.7170
180	0.23010	567.68	2.503	219.83	0.0058406	0.05224	0.308	0.06847	1.01115	0.7043
200	0.20615	676.85	2.272	220.78	0.0051799	0.06145	0.342	0.08503	1.00998	0.7029
220	0.18686	788.33	2.103	221.38	0.0046619	0.06918	0.368	0.10073	1.00905	0.7029
240	0.17096	896.76	1.989	221.76	0.0042427	0.07551	0.387	0.11608	1.00828	0.7028
260	0.15762	998.77	1.917	222.01	0.0038954	0.08056	0.404	0.13137	1.00763	0.7024
280	0.14624	1092.27	1.879	222.16	0.0036025	0.08447	0.418	0.14678	1.00708	0.7016
300	0.13643	1177.42	1.864	222.25	0.0033519	0.08746	0.431	0.16243	1.00660	0.7005
320	0.12787	1254.73	1.866	222.29	0.0031349	0.08971	0.443	0.17837	1.00618	0.6993
340	0.12033	1325.69	1.879	222.31	0.0029449	0.09144	0.454	0.19464	1.00582	0.6980
360	0.11364	1391.65	1.900	222.31	0.0027772	0.09279	0.465	0.21127	1.00550	0.6967
380	0.10766	1453.88	1.926	222.29	0.0026279	0.09390	0.475	0.22828	1.00521	0.6954
400	0.10229	1514.87	1.953	222.26	0.0024942	0.09490	0.485	0.24567	1.00495	0.6942
420	0.09743	1572.99	1.98	222.22	0.0023736	0.09583	0.494	0.26344	1.00471	0.6930
440	0.09302	1631.23	2.006	222.19	0.0022644	0.09675	0.503	0.28160	1.00450	0.6920
460	0.08899	1689.87	2.030	222.14	0.0021649	0.09772	0.513	0.30015	1.00430	0.6910
480	0.08530	1748.86	2.052	222.10	0.0020740	0.09872	0.522	0.31909	1.00412	0.6902
500	0.08190	1808.70	2.071	222.05	0.0019904	0.09979	0.531	0.33844	1.00396	0.6895
520	0.07877	1869.42	2.088	222.01	0.0019134	0.10092	0.540	0.35818	1.00381	0.6888
540	0.07586	1930.91	2.102	221.96	0.0018422	0.10209	0.549	0.37831	1.00367	0.6883
560	0.07317	1993.81	2.113	221.92	0.0017762	0.10335	0.558	0.39885	1.00354	0.6878
580	0.07066	2057.35	2.123	221.88	0.0017148	0.10465	0.566	0.41980	1.00341	0.6874
600	0.06832	2121.78	2.131	221.83	0.0016575	0.10599	0.575	0.44115	1.00330	0.6870
650	0.06309	2285.82	2.145	221.73	0.0015299	0.10950	0.597	0.49632	1.00305	0.6863
700	0.05861	2453.35	2.153	221.64	0.0014206	0.11318	0.619	0.55408	1.00283	0.6857
800	0.05132	2796.11	2.157	221.47	0.0012433	0.12083	0.661	0.67732	1.00248	0.6850
900	0.04564	3142.53	2.156	221.34	0.0011054	0.12857	0.704	0.81087	1.00220	0.6845
1000	0.04110	3492.49	2.152	221.22	0.0009952	0.13636	0.746	0.95453	1.00198	0.6841
1500	0.02745	5302.58	2.107	220.84	0.0006643	0.17565	0.947	1.81678	1.00133	0.6836
2000	0.02060	7280.45	2.319	220.64	0.0004986	0.27727	1.136	3.70703	1.00099	0.5352
2500	0.01649	9450.26	1.916	220.51	0.0003991	0.33498	1.313	5.38532	1.00080	0.5323
3000	0.01375	11760.78	1.823	220.43	0.0003327	0.39360	1.482	7.31631	1.00066	0.5305
3500	0.01179	14301.22	1.726	220.34	0.0002853	0.45903	1.644	9.54556	1.00057	0.5261
4000	0.01031	17537.21	1.581	220.14	0.0002498	0.55527	1.800	12.29383	1.00050	0.5114
5000	0.00818	30869.25	1.068	218.13	0.0002017	1.08242	2.106	21.24709	1.00039	0.4365

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

230 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 25.782	0.20564	2957.07	77.188	-132.659	-123.901	1.19444	1.150	1.556	4387
26	0.20590	2935.19	77.116	-132.323	-123.554	1.20786	1.154	1.568	4298
28	0.20820	2734.04	76.205	-129.186	-120.319	1.32770	1.197	1.674	4209
30	0.21071	2543.37	74.875	-125.839	-116.865	1.44680	1.239	1.783	4117
32	0.21343	2374.48	73.495	-122.277	-113.187	1.56549	1.281	1.895	4034
34	0.21637	2205.42	72.157	-118.492	-109.277	1.68398	1.320	2.015	3950
36	0.21958	2039.70	70.717	-114.469	-105.117	1.80284	1.354	2.142	3866
38	0.22308	1877.17	69.115	-110.202	-100.701	1.92220	1.385	2.276	3780
40	0.22693	1711.48	67.355	-105.668	-96.003	2.04269	1.412	2.423	3689
42	0.23122	1542.96	65.310	-100.846	-90.999	2.16473	1.434	2.584	3588
44	0.23602	1377.40	62.983	-95.709	-85.657	2.28896	1.454	2.761	3481
46	0.24146	1206.43	60.319	-90.219	-79.935	2.41611	1.470	2.967	3359
48	0.24772	1045.13	57.329	-84.329	-73.778	2.54711	1.484	3.199	3231
50	0.25505	881.02	53.948	-77.963	-67.101	2.68338	1.497	3.486	3083
52	0.26384	720.52	50.174	-71.010	-59.773	2.82704	1.509	3.851	2918
54	0.27477	561.06	45.968	-63.289	-51.586	2.98148	1.523	4.366	2730
56	0.28913	407.19	41.198	-54.470	-42.156	3.15290	1.540	5.153	2512
58	0.30990	262.94	35.580	-43.853	-30.655	3.35456	1.565	6.531	2254
60	0.34730	123.62	28.277	-29.309	-14.517	3.62776	1.618	10.286	1908
62	0.49198	24.89	15.261	2.124	23.077	4.24206	1.996	31.522	1349
64	0.75380	61.75	9.789	32.961	65.065	4.91081	1.822	12.272	1388
66	0.90156	101.11	7.839	45.742	84.140	5.20464	1.725	7.762	1452
68	1.01504	134.22	6.768	54.513	97.744	5.40782	1.661	6.088	1510
70	1.11130	162.34	6.028	61.534	108.851	5.56888	1.623	5.204	1553
75	1.31759	223.65	4.894	75.720	131.836	5.88644	1.580	4.162	1652
80	1.49712	275.75	4.205	87.586	151.348	6.13846	1.563	3.692	1737
85	1.66183	322.45	3.721	98.303	169.080	6.35353	1.556	3.422	1813
90	1.81701	365.54	3.354	108.343	185.729	6.54391	1.555	3.249	1881
95	1.96551	406.01	3.064	117.950	201.660	6.71620	1.559	3.131	1943
100	2.10895	444.43	2.826	127.302	217.122	6.87485	1.567	3.047	2001
105	2.24860	481.31	2.628	136.436	232.203	7.02202	1.579	2.989	2055
110	2.38525	516.94	2.459	145.460	247.048	7.16014	1.595	2.951	2105
115	2.51946	551.57	2.314	154.439	261.743	7.29078	1.617	2.929	2152
120	2.65166	585.35	2.186	163.425	276.358	7.41519	1.643	2.919	2195
125	2.78220	618.43	2.074	172.461	290.954	7.53435	1.674	2.920	2235
130	2.91131	650.91	1.973	181.586	305.578	7.64907	1.710	2.931	2273
135	3.03921	682.86	1.883	190.836	320.275	7.76000	1.750	2.949	2309
140	3.16607	714.37	1.801	200.239	335.081	7.86769	1.794	2.974	2342
150	3.41715	776.26	1.659	219.607	365.142	8.07506	1.891	3.041	2405
160	3.66539	836.91	1.539	239.853	395.962	8.27393	1.998	3.125	2462
180	4.15690	955.46	1.345	283.664	460.706	8.65374	2.230	3.321	2568
200	4.64077	1071.45	1.198	331.368	529.017	9.01340	2.442	3.510	2671
220	5.12037	1185.50	1.080	382.879	600.954	9.35611	2.626	3.678	2773
240	5.59689	1298.15	0.9848	437.523	675.893	9.68185	2.767	3.807	2876
260	6.07109	1409.74	0.9050	494.392	752.958	9.99043	2.862	3.893	2981
280	6.54348	1520.50	0.8374	552.664	831.349	10.28078	2.913	3.937	3085
300	7.01443	1630.61	0.7794	611.494	910.237	10.55306	2.930	3.948	3190
320	7.48422	1740.19	0.7290	670.349	989.100	10.80757	2.921	3.935	3295
340	7.95306	1849.34	0.6848	728.802	1067.521	11.04499	2.895	3.905	3399
360	8.42112	1958.13	0.6457	786.588	1145.242	11.26719	2.859	3.866	3502
380	8.88853	2066.63	0.6109	843.561	1222.122	11.47504	2.818	3.822	3604
400	9.35539	2174.88	0.5798	899.664	1298.108	11.67001	2.775	3.777	3703
420	9.82179	2282.93	0.5516	954.907	1373.215	11.85321	2.734	3.734	3801
440	10.28780	2390.79	0.5261	1009.348	1447.503	12.02606	2.696	3.694	3896
460	10.75346	2498.50	0.5029	1063.044	1521.031	12.18949	2.662	3.659	3989
480	11.21884	2606.09	0.4817	1116.087	1593.895	12.34433	2.632	3.628	4080
500	11.68397	2713.55	0.4622	1168.555	1666.172	12.49203	2.606	3.601	4168
520	12.14888	2820.92	0.4442	1220.530	1737.947	12.63291	2.583	3.577	4254
540	12.61359	2928.21	0.4276	1272.078	1809.288	12.76754	2.564	3.558	4338
560	13.07814	3035.42	0.4122	1323.200	1880.195	12.89598	2.549	3.542	4420
580	13.54255	3142.56	0.3978	1374.101	1950.875	13.01985	2.536	3.528	4500
600	14.00682	3249.64	0.3845	1424.801	2021.348	13.13937	2.526	3.517	4579
650	15.16701	3517.13	0.3547	1550.661	2196.621	13.42024	2.507	3.497	4768
700	16.32666	3784.38	0.3292	1675.836	2371.184	13.67922	2.496	3.486	4948
800	18.64477	4318.34	0.2879	1924.981	2719.057	14.14406	2.488	3.477	5287
900	20.96183	4851.82	0.2558	2173.895	3066.655	14.55316	2.486	3.474	5604
1000	23.27820	5385.00	0.2302	2422.612	3414.025	14.91894	2.489	3.476	5903
1500	34.85518	8048.74	0.1534	3676.439	5160.913	16.33468	2.536	3.522	7196
2000	46.42912	10711.14	0.1150	4969.677	6947.082	17.36018	2.644	3.630	8254
2500	58.00213	13373.11	0.0920	6327.030	8797.327	18.18531	2.786	3.771	9159
3000	69.57561	16034.91	0.0767	7756.073	10719.282	18.87617	2.926	3.913	9966
3500	81.15035	18696.62	0.0657	9264.800	12721.315	19.49594	3.089	4.079	10694
4000	92.79410	21358.29	0.0575	10881.037	14833.116	20.25235	3.370	4.376	11335
5000	116.97147	26681.54	0.0460	14953.742	19935.530	22.21857	5.004	6.189	12359

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

230 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)/V_P$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 25.782	4.86296	289.97	13.806	14380.10	0.0053677	0.04567	1.778	0.00603	1.25852	2.1815
26	4.85679	289.83	13.755	14255.57	0.0054095	0.04633	1.749	0.00608	1.25815	2.1307
28	4.80299	288.46	13.259	13131.56	0.0058032	0.05126	1.525	0.00637	1.25498	1.7928
30	4.74583	287.39	12.733	12070.43	0.0062031	0.05454	1.350	0.00645	1.25163	1.5887
32	4.68534	286.81	12.249	11125.23	0.0066062	0.05677	1.210	0.00639	1.24809	1.4543
34	4.62164	284.69	11.832	10192.65	0.0070793	0.05817	1.096	0.00624	1.24437	1.3675
36	4.55415	281.43	11.464	9289.09	0.0076129	0.05932	1.001	0.00608	1.24044	1.3017
38	4.48275	277.13	11.131	8414.87	0.0082135	0.06064	0.920	0.00594	1.23630	1.2435
40	4.40655	271.33	10.824	7541.74	0.0089309	0.06143	0.850	0.00575	1.23189	1.2069
42	4.32497	264.01	10.527	6673.24	0.0097868	0.06176	0.788	0.00553	1.22720	1.1864
44	4.23698	255.81	10.226	5836.02	0.0107921	0.06168	0.732	0.00527	1.22215	1.1791
46	4.14142	245.80	9.910	4996.33	0.0120727	0.06121	0.681	0.00498	1.21669	1.1879
48	4.03679	235.40	9.573	4218.96	0.0135884	0.06035	0.633	0.00467	1.21074	1.2077
50	3.92086	223.23	9.193	3454.35	0.0156175	0.05913	0.588	0.00433	1.20418	1.2473
52	3.79023	209.62	8.770	2730.93	0.0183724	0.05753	0.544	0.00394	1.19683	1.3106
54	3.63944	193.95	8.294	2041.96	0.0225119	0.05549	0.500	0.00349	1.18839	1.4172
56	3.45867	176.16	7.735	1408.33	0.0292529	0.05267	0.456	0.00296	1.17836	1.6050
58	3.22688	155.75	7.044	848.48	0.0419342	0.05003	0.407	0.00237	1.16561	1.9142
60	2.87934	129.47	5.071	355.94	0.0794438	0.04904	0.348	0.00166	1.14672	2.6302
62	2.03258	98.06	4.009	50.58	0.3214705	0.05934	0.248	0.00093	1.10185	4.7448
64	1.32662	102.69	4.051	81.92	0.1195033	0.03428	0.189	0.00211	1.06558	2.4368
66	1.10918	111.05	4.097	112.15	0.0698961	0.02868	0.175	0.00333	1.05461	1.7081
68	0.98518	118.96	4.135	132.23	0.0511806	0.02663	0.170	0.00444	1.04840	1.4006
70	0.90009	126.15	4.126	146.12	0.0412511	0.02566	0.168	0.00548	1.04415	1.2292
75	0.75896	144.35	4.082	169.74	0.0288325	0.02490	0.169	0.00788	1.03713	1.0190
80	0.66795	161.71	4.029	184.18	0.0228308	0.02502	0.173	0.01015	1.03262	0.9210
85	0.60175	178.47	3.974	194.03	0.0191752	0.02549	0.179	0.01238	1.02935	0.8632
90	0.55035	194.85	3.919	201.18	0.0166732	0.02614	0.184	0.01462	1.02682	0.8248
95	0.50877	211.05	3.863	206.57	0.0148339	0.02698	0.190	0.01689	1.02478	0.7977
100	0.47417	227.22	3.803	210.73	0.0134086	0.02773	0.197	0.01919	1.02308	0.7774
105	0.44472	243.48	3.743	214.05	0.0122770	0.02861	0.203	0.02152	1.02163	0.7626
110	0.41924	260.06	3.677	216.73	0.0113461	0.02962	0.209	0.02394	1.02038	0.7495
115	0.39691	277.11	3.606	218.92	0.0105692	0.03069	0.215	0.02640	1.01929	0.7389
120	0.37712	294.74	3.528	220.75	0.0099045	0.03179	0.221	0.02887	1.01832	0.7314
125	0.35943	313.03	3.446	222.28	0.0093294	0.03290	0.227	0.03134	1.01746	0.7264
130	0.34349	332.06	3.359	223.58	0.0088258	0.03402	0.233	0.03380	1.01668	0.7236
135	0.32903	351.89	3.270	224.68	0.0083804	0.03500	0.239	0.03607	1.01597	0.7258
140	0.31585	372.57	3.179	225.63	0.0079830	0.03616	0.245	0.03849	1.01533	0.7261
150	0.29264	416.45	2.997	227.16	0.0073026	0.03896	0.257	0.04378	1.01420	0.7219
160	0.27282	463.63	2.822	228.33	0.0067395	0.04204	0.268	0.04932	1.01323	0.7178
180	0.24056	567.38	2.508	229.85	0.0058529	0.05227	0.308	0.06543	1.01166	0.7053
200	0.21548	676.61	2.276	230.88	0.0051875	0.06147	0.342	0.08127	1.01044	0.7036
220	0.19530	788.18	2.106	231.53	0.0046667	0.06918	0.368	0.09631	1.00946	0.7034
240	0.17867	896.72	1.992	231.94	0.0042658	0.07551	0.387	0.11101	1.00865	0.7033
260	0.16472	998.83	1.920	232.20	0.0038973	0.08056	0.404	0.12564	1.00797	0.7028
280	0.15282	1092.43	1.881	232.37	0.0036037	0.08447	0.418	0.14040	1.00740	0.7019
300	0.14256	1177.67	1.866	232.46	0.0033526	0.08746	0.431	0.15538	1.00690	0.7008
320	0.13361	1255.06	1.868	232.51	0.0031352	0.08971	0.443	0.17064	1.00646	0.6996
340	0.12574	1326.08	1.881	232.53	0.0029449	0.09144	0.454	0.18623	1.00608	0.6982
360	0.11875	1392.10	1.902	232.53	0.0027770	0.09280	0.465	0.20215	1.00574	0.6969
380	0.11250	1454.36	1.927	232.51	0.0026277	0.09391	0.475	0.21843	1.00544	0.6956
400	0.10689	1514.62	1.954	232.47	0.0024938	0.09491	0.485	0.23507	1.00517	0.6943
420	0.10181	1573.47	1.982	232.43	0.0023733	0.09584	0.494	0.25209	1.00492	0.6932
440	0.09720	1631.84	2.008	232.39	0.0022640	0.09677	0.504	0.26947	1.00470	0.6921
460	0.09299	1690.50	2.032	232.34	0.0021645	0.09773	0.513	0.28722	1.00450	0.6912
480	0.08914	1749.51	2.053	232.30	0.0020735	0.09874	0.522	0.30535	1.00431	0.6903
500	0.08559	1809.37	2.072	232.25	0.0019900	0.09980	0.531	0.32387	1.00414	0.6896
520	0.08231	1870.11	2.089	232.20	0.0019130	0.10093	0.540	0.34277	1.00398	0.6889
540	0.07928	1931.62	2.103	232.15	0.0018418	0.10211	0.549	0.36203	1.00383	0.6883
560	0.07646	1994.53	2.114	232.10	0.0017758	0.10337	0.558	0.38169	1.00370	0.6879
580	0.07384	2058.08	2.124	232.05	0.0017144	0.10467	0.566	0.40174	1.00357	0.6874
600	0.07139	2122.52	2.132	232.00	0.0016571	0.10601	0.575	0.42217	1.00345	0.6870
650	0.06593	2286.58	2.146	231.89	0.0015295	0.10952	0.597	0.47497	1.00319	0.6863
700	0.06125	2454.13	2.153	231.79	0.0014203	0.11320	0.619	0.53025	1.00296	0.6857
800	0.05363	2796.92	2.157	231.61	0.0012430	0.12086	0.661	0.64819	1.00259	0.6850
900	0.04771	3143.37	2.157	231.46	0.0011052	0.12860	0.704	0.77598	1.00230	0.6845
1000	0.04296	3493.34	2.153	231.33	0.0009950	0.13639	0.746	0.91346	1.00207	0.6842
1500	0.02869	5303.49	2.108	230.92	0.0006642	0.17570	0.947	1.73858	1.00139	0.6836
2000	0.02154	7281.41	2.020	230.70	0.0004985	0.27727	1.136	3.54631	1.00104	0.5354
2500	0.01724	9451.23	1.916	230.56	0.0003990	0.33498	1.314	5.15171	1.00083	0.5325
3000	0.01437	11761.34	1.823	230.47	0.0003327	0.39357	1.483	6.99866	1.00069	0.5307
3500	0.01232	14298.09	1.727	230.37	0.0002853	0.45881	1.645	9.12957	1.00059	0.5263
4000	0.01078	17516.95	1.583	230.17	0.0002498	0.55417	1.801	11.75117	1.00052	0.5119
5000	0.00855	30690.01	1.075	228.18	0.0002017	1.07227	2.107	20.26551	1.00041	0.4378

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

240 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 25.822	0.20554	2967.43	77.201	-132.645	-123.511	1.19482	1.151	1.556	4312
26	0.20575	2949.98	77.143	-132.371	-123.227	1.20579	1.154	1.566	4305
28	0.20805	2750.28	76.269	-129.242	-119.996	1.32547	1.197	1.671	4218
30	0.21054	2558.25	74.986	-125.904	-116.547	1.44440	1.239	1.780	4127
32	0.21324	2389.52	73.617	-122.352	-112.875	1.56269	1.280	1.891	4044
34	0.21616	2220.50	72.286	-118.579	-108.972	1.68116	1.319	2.012	3960
36	0.21934	2054.96	70.856	-114.570	-104.822	1.79975	1.354	2.138	3877
38	0.22281	1892.81	69.265	-110.319	-100.417	1.91882	1.385	2.270	3792
40	0.22664	1727.89	67.515	-105.804	-95.732	2.03895	1.412	2.415	3701
42	0.23087	1559.39	65.488	-101.006	-90.746	2.16057	1.434	2.574	3601
44	0.23562	1394.97	63.190	-95.898	-85.427	2.28427	1.453	2.748	3496
46	0.24099	1223.79	60.561	-90.444	-79.734	2.41077	1.470	2.952	3375
48	0.24714	1064.35	57.604	-84.600	-73.617	2.54093	1.483	3.176	3249
50	0.25432	900.62	54.281	-78.296	-66.993	2.67609	1.496	3.456	3104
52	0.26289	741.49	50.582	-71.429	-59.746	2.81819	1.509	3.805	2943
54	0.27345	586.35	45.460	-63.838	-51.685	2.97025	1.522	4.275	2762
56	0.28715	434.69	41.835	-55.234	-42.472	3.13772	1.538	4.981	2554
58	0.30645	287.15	36.458	-45.036	-31.417	3.33158	1.561	6.230	2304
60	0.33865	149.53	29.755	-31.721	-16.671	3.58128	1.603	9.147	1988
62	0.42436	42.59	19.882	-8.834	10.025	4.01798	1.818	21.008	1510
64	0.66348	49.63	11.406	25.587	55.073	4.73420	1.861	15.536	1385
66	0.82367	89.65	8.743	41.254	77.859	5.08528	1.747	8.816	1448
68	0.94101	123.70	7.415	51.133	92.953	5.31075	1.677	6.633	1505
70	1.03929	153.99	6.549	58.814	105.002	5.48546	1.634	5.533	1554
75	1.24313	216.33	5.240	73.723	128.969	5.81662	1.584	4.308	1651
80	1.41922	269.75	4.473	85.970	149.042	6.07590	1.566	3.779	1737
85	1.57977	317.42	3.942	96.927	167.134	6.29534	1.559	3.482	1813
90	1.73049	361.25	3.545	107.136	184.040	6.48866	1.558	3.293	1881
95	1.87435	402.32	3.232	116.870	200.109	6.66309	1.561	3.166	1944
100	2.01308	441.24	2.976	126.325	215.790	6.82337	1.569	3.075	2001
105	2.14796	478.54	2.764	135.540	230.999	6.97180	1.580	3.013	2056
110	2.27981	514.54	2.584	144.633	245.951	7.11092	1.597	2.971	2106
115	2.40920	549.49	2.430	153.669	260.738	7.24238	1.618	2.946	2153
120	2.53658	583.56	2.294	162.704	275.433	7.36747	1.644	2.934	2196
125	2.66228	616.89	2.175	171.783	290.098	7.48720	1.675	2.933	2237
130	2.78655	649.59	2.069	180.946	304.785	7.60240	1.711	2.942	2275
135	2.90961	681.76	1.973	190.230	319.537	7.71374	1.751	2.959	2310
140	3.03162	713.46	1.887	199.663	334.393	7.82179	1.795	2.984	2344
150	3.27302	775.68	1.737	219.082	364.540	8.02976	1.892	3.049	2406
160	3.51157	836.62	1.610	239.371	395.431	8.22910	1.999	3.151	2464
180	3.98359	955.54	1.407	283.257	466.294	8.60959	2.230	3.326	2569
200	4.44815	1071.93	1.252	331.013	528.695	8.96972	2.442	3.514	2673
220	4.90843	1186.29	1.129	382.564	600.702	9.31276	2.627	3.681	2775
240	5.36565	1299.19	1.029	437.240	675.697	9.63876	2.767	3.810	2878
260	5.82054	1410.99	0.9452	494.136	752.809	9.94752	2.862	3.895	2983
280	6.27362	1521.92	0.8745	552.431	831.240	10.23802	2.913	3.939	3087
300	6.72527	1632.18	0.8138	611.281	910.162	10.51042	2.930	3.950	3193
320	7.17576	1741.89	0.7611	670.154	989.056	10.76503	2.921	3.936	3297
340	7.62536	1851.14	0.7149	728.623	1067.503	11.00293	2.896	3.906	3401
360	8.07406	1960.03	0.6741	786.423	1145.247	11.22480	2.859	3.867	3504
380	8.52217	2068.61	0.6378	843.409	1222.147	11.43270	2.818	3.823	3606
400	8.96974	2176.93	0.6052	899.523	1298.151	11.62771	2.775	3.778	3705
420	9.41684	2285.04	0.5758	954.776	1373.274	11.81095	2.734	3.735	3803
440	9.86355	2392.96	0.5492	1009.225	1447.576	11.98384	2.696	3.695	3898
460	10.30993	2500.72	0.5249	1062.929	1521.118	12.14730	2.662	3.660	3991
480	10.75601	2608.35	0.5027	1115.980	1593.993	12.30216	2.632	3.628	4081
500	11.20185	2715.86	0.4825	1168.454	1666.281	12.44988	2.606	3.601	4170
520	11.64746	2823.26	0.4636	1220.435	1738.066	12.59078	2.584	3.578	4256
540	12.09289	2930.58	0.4462	1271.989	1809.415	12.72542	2.564	3.558	4340
560	12.53815	3037.82	0.4301	1323.116	1880.330	12.85388	2.549	3.542	4422
580	12.98326	3144.99	0.4152	1374.022	1951.017	12.97777	2.536	3.529	4502
600	13.42824	3252.09	0.4012	1424.726	2021.497	13.09750	2.526	3.518	4581
650	14.54021	3519.64	0.3701	1550.596	2196.785	13.37819	2.507	3.498	4769
700	15.65164	3786.93	0.3435	1675.778	2371.360	13.63719	2.496	3.486	4950
800	17.87331	4320.95	0.3004	1924.935	2719.251	14.10265	2.488	3.477	5289
900	20.09393	4854.49	0.2669	2173.857	3066.862	14.51117	2.486	3.474	5606
1000	22.31386	5387.70	0.2402	2422.581	3414.242	14.87696	2.489	3.476	5904
1500	33.40866	8051.53	0.1600	3676.424	5161.155	16.29271	2.536	3.522	7198
2000	44.50043	10713.95	0.1200	4969.668	6947.334	17.31822	2.644	3.630	8255
2500	55.59127	13375.94	0.0960	6327.023	8797.582	18.14336	2.786	3.771	9160
3000	66.68253	16037.75	0.0800	7756.042	10719.514	18.83421	2.926	3.912	9967
3500	77.78246	18699.47	0.0686	9264.524	12721.293	19.45390	3.058	4.038	10696
4000	88.93212	21361.13	0.0600	10879.454	14831.730	20.02996	3.160	4.371	11337
5000	112.08137	26684.39	0.0480	14935.052	19916.116	22.17228	4.969	6.150	12364

• TWO-PHASE BOUNDARY

240 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC x 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 25.822	4.86529	291.06	13.790	14437.42	0.0053473	0.04583	1.781	0.00605	1.25865	2.1775
26	4.86021	290.97	13.750	14337.50	0.0053805	0.04636	1.757	0.00609	1.25835	2.1358
28	4.80664	289.68	13.260	13219.58	0.0057694	0.05131	1.532	0.00639	1.25520	1.7961
30	4.74973	288.46	12.743	12151.00	0.0061712	0.05460	1.356	0.00646	1.25186	1.5915
32	4.68953	287.32	12.260	11205.72	0.0065696	0.05684	1.216	0.00641	1.24833	1.4561
34	4.62616	286.85	11.844	10272.39	0.0070369	0.05826	1.101	0.00626	1.24463	1.3687
36	4.55905	282.65	11.478	9368.67	0.0075638	0.05942	1.005	0.00610	1.24073	1.3021
38	4.48806	278.43	11.145	8495.04	0.0081536	0.06076	0.924	0.00596	1.23661	1.2433
40	4.41237	272.76	10.838	7624.09	0.0088554	0.06156	0.854	0.00578	1.23223	1.2058
42	4.33140	265.51	10.542	6754.33	0.0096957	0.06191	0.791	0.00555	1.22757	1.1847
44	4.24420	257.49	10.244	5920.50	0.0106731	0.06185	0.735	0.00530	1.22256	1.1764
46	4.14962	247.54	9.931	5078.27	0.0119254	0.06140	0.684	0.00501	1.21716	1.1844
48	4.04627	237.44	9.597	4306.64	0.0133757	0.06057	0.637	0.00471	1.21128	1.2018
50	3.93208	225.44	9.225	3541.32	0.0153278	0.05939	0.592	0.00437	1.20481	1.2393
52	3.80391	212.18	8.812	2820.56	0.0179332	0.05783	0.548	0.00400	1.19759	1.2983
54	3.65691	197.28	8.348	2144.23	0.0216676	0.05586	0.505	0.00357	1.18937	1.3915
56	3.48245	180.22	7.811	1513.77	0.0276365	0.05314	0.461	0.00306	1.17967	1.5564
58	3.26317	160.11	7.158	937.02	0.0389080	0.05037	0.415	0.00248	1.16759	1.8455
60	2.95294	135.74	6.285	441.55	0.0673870	0.04908	0.360	0.00182	1.15070	2.4154
62	2.35651	106.04	4.640	100.36	0.1981082	0.05300	0.281	0.00107	1.11883	4.0163
64	1.50721	101.89	4.066	74.80	0.1524827	0.03909	0.204	0.00167	1.07476	2.9241
66	1.21408	109.76	4.123	108.84	0.0803251	0.03057	0.183	0.00286	1.05989	1.9019
68	1.06269	117.60	4.160	131.46	0.0564074	0.02778	0.175	0.00394	1.05228	1.5070
70	0.96220	125.19	4.165	148.17	0.0441956	0.02647	0.172	0.00497	1.04725	1.2950
75	0.80442	143.07	4.113	174.02	0.0301104	0.02538	0.172	0.00733	1.03939	1.0481
80	0.70461	160.57	4.055	190.07	0.0235341	0.02538	0.175	0.00953	1.03444	0.9379
85	0.63300	177.46	3.996	200.93	0.0196208	0.02578	0.180	0.01170	1.03090	0.8744
90	0.57787	193.95	3.938	208.76	0.0169796	0.02639	0.185	0.01387	1.02818	0.8329
95	0.53352	210.25	3.886	214.65	0.0150562	0.02712	0.191	0.01606	1.02599	0.8038
100	0.49675	226.50	3.838	219.19	0.0135756	0.02793	0.197	0.01828	1.02419	0.7822
105	0.46556	242.82	3.797	222.79	0.0124067	0.02879	0.203	0.02053	1.02265	0.7664
110	0.43863	259.45	3.690	225.69	0.0114511	0.02978	0.210	0.02285	1.02133	0.7526
115	0.41508	276.54	3.617	228.08	0.0106524	0.03085	0.216	0.02523	1.02018	0.7415
120	0.39423	294.21	3.539	230.06	0.0099729	0.03193	0.222	0.02761	1.01916	0.7336
125	0.37562	312.53	3.456	231.71	0.0093862	0.03304	0.228	0.02998	1.01825	0.7283
130	0.35887	331.59	3.369	233.12	0.0088735	0.03415	0.234	0.03235	1.01743	0.7252
135	0.34369	351.45	3.279	234.31	0.0084207	0.03512	0.240	0.03453	1.01669	0.7274
140	0.32986	372.14	3.187	235.34	0.0080174	0.03627	0.246	0.03686	1.01601	0.7275
150	0.30553	416.07	3.004	236.99	0.0073282	0.03907	0.257	0.04194	1.01482	0.7229
160	0.28477	463.28	2.829	238.25	0.0067589	0.04214	0.269	0.04726	1.01381	0.7186
180	0.25103	567.09	2.513	239.87	0.0058651	0.05230	0.308	0.06264	1.01217	0.7062
200	0.22481	676.38	2.280	240.98	0.0051950	0.06148	0.342	0.07783	1.01089	0.7043
220	0.20373	788.04	2.110	241.68	0.0046715	0.06919	0.368	0.09225	1.00987	0.7040
240	0.18637	896.68	1.995	242.13	0.0042488	0.07552	0.387	0.10635	1.00902	0.7037
260	0.17181	998.89	1.922	242.42	0.0038993	0.08057	0.404	0.12040	1.00832	0.7032
280	0.15940	1092.59	1.883	242.59	0.0036049	0.08448	0.418	0.13456	1.00771	0.7023
300	0.14869	1177.92	1.868	242.69	0.0033532	0.08747	0.431	0.14893	1.00719	0.7012
320	0.13936	1255.39	1.869	242.75	0.0031355	0.08972	0.443	0.16356	1.00674	0.6998
340	0.13114	1326.48	1.883	242.76	0.0029450	0.09145	0.454	0.17851	1.00634	0.6985
360	0.12385	1392.56	1.903	242.76	0.0027769	0.09281	0.465	0.19378	1.00599	0.6971
380	0.11734	1454.83	1.929	242.73	0.0026274	0.09392	0.475	0.20940	1.00567	0.6957
400	0.11149	1515.16	1.956	242.70	0.0024935	0.09492	0.485	0.22536	1.00539	0.6945
420	0.10619	1574.05	1.983	242.65	0.0023729	0.09586	0.494	0.24168	1.00513	0.6933
440	0.10138	1632.45	2.009	242.61	0.0022636	0.09678	0.504	0.25835	1.00490	0.6922
460	0.09699	1691.13	2.033	242.55	0.0021640	0.09775	0.513	0.27537	1.00469	0.6913
480	0.09297	1750.16	2.055	242.50	0.0020730	0.09875	0.522	0.29276	1.00449	0.6904
500	0.08927	1810.04	2.074	242.45	0.0019895	0.09982	0.531	0.31052	1.00432	0.6896
520	0.08586	1870.80	2.090	242.39	0.0019125	0.10095	0.540	0.32864	1.00415	0.6890
540	0.08269	1932.32	2.104	242.34	0.0018413	0.10213	0.549	0.34711	1.00400	0.6884
560	0.07976	1995.25	2.115	242.29	0.0017753	0.10339	0.558	0.36596	1.00385	0.6879
580	0.07702	2058.81	2.125	242.23	0.0017139	0.10469	0.567	0.38518	1.00372	0.6875
600	0.07447	2123.26	2.133	242.18	0.0016567	0.10603	0.575	0.40478	1.00360	0.6871
650	0.06877	2287.35	2.147	242.06	0.0015291	0.10954	0.597	0.45540	1.00332	0.6863
700	0.06389	2454.92	2.154	241.95	0.0014199	0.11323	0.619	0.50840	1.00309	0.6858
800	0.05595	2797.74	2.158	241.75	0.0012427	0.12089	0.662	0.62148	1.00270	0.6850
900	0.04977	3144.21	2.157	241.59	0.0011049	0.12863	0.704	0.74401	1.00240	0.6845
1000	0.04482	3494.20	2.154	241.45	0.0009947	0.13643	0.746	0.87582	1.00216	0.6842
1500	0.02993	5304.40	2.108	241.00	0.0006641	0.17575	0.947	1.66689	1.00145	0.6836
2000	0.02247	7282.36	2.020	240.76	0.0004985	0.27727	1.136	3.39698	1.00108	0.5355
2500	0.01799	9452.21	1.916	240.61	0.0003990	0.33498	1.314	4.93756	1.00087	0.5327
3000	0.01500	11761.94	1.823	240.51	0.0003326	0.39355	1.483	6.70749	1.00072	0.5309
3500	0.01286	14295.23	1.727	240.41	0.0002852	0.45860	1.645	8.74834	1.00062	0.5266
4000	0.01124	17498.05	1.585	240.20	0.0002498	0.55314	1.801	11.25426	1.00054	0.5124
5000	0.00892	30503.36	1.083	238.08	0.0002016	1.06275	2.107	19.36858	1.00043	0.4390

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

250 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 25.862	0.20544	2977.78	77.214	-132.631	-123.121	1.19520	1.152	1.556	4318
26	0.20561	2964.70	77.170	-132.418	-122.899	1.20373	1.154	1.563	4313
28	0.20789	2766.43	76.333	-129.297	-119.673	1.32325	1.197	1.669	4227
30	0.21037	2573.04	75.097	-125.968	-116.229	1.44202	1.239	1.778	4136
32	0.21305	2404.47	73.738	-122.426	-112.563	1.56031	1.280	1.888	4054
34	0.21595	2235.48	72.413	-118.665	-108.668	1.67836	1.319	2.008	3970
36	0.21911	2070.11	70.993	-114.670	-104.526	1.79669	1.354	2.133	3887
38	0.22255	1908.32	69.414	-110.435	-100.132	1.91547	1.384	2.264	3803
40	0.22634	1744.14	67.673	-105.939	-95.461	2.03525	1.411	2.408	3713
42	0.23053	1575.64	65.665	-101.164	-90.491	2.15646	1.434	2.565	3614
44	0.23522	1412.31	63.394	-96.084	-85.194	2.27965	1.453	2.736	3510
46	0.24051	1246.77	60.798	-90.667	-79.533	2.40546	1.469	2.930	3394
48	0.24657	1083.23	57.875	-84.865	-73.451	2.53487	1.483	3.154	3267
50	0.25361	919.80	54.606	-78.620	-66.880	2.66896	1.496	3.427	3124
52	0.26197	761.87	50.978	-71.835	-59.707	2.80959	1.509	3.763	2967
54	0.27221	608.34	45.941	-64.364	-51.762	2.95947	1.521	4.205	2791
56	0.28532	457.43	42.437	-55.952	-42.743	3.12341	1.536	4.860	2589
58	0.30336	315.12	37.273	-46.119	-32.075	3.31058	1.557	5.915	2355
60	0.33184	178.79	31.025	-33.709	-18.347	3.54300	1.593	8.180	2062
62	0.39335	67.46	22.533	-14.951	3.258	3.89667	1.710	15.080	1660
64	0.57877	42.72	13.439	17.012	43.805	4.54018	1.882	18.667	1401
66	0.75027	79.06	9.788	36.288	71.021	4.95960	1.765	10.101	1448
68	0.87201	114.13	8.131	47.519	87.887	5.21158	1.694	7.248	1503
70	0.97165	145.00	7.102	55.905	100.886	5.40008	1.647	5.903	1552
75	1.17449	209.15	5.604	71.671	126.042	5.74776	1.588	4.464	1650
80	1.34753	263.87	4.751	84.326	146.708	6.01471	1.569	3.870	1737
85	1.50431	312.48	4.176	95.533	165.173	6.23869	1.561	3.544	1813
90	1.65094	357.05	3.739	105.917	182.344	6.43504	1.560	3.339	1882
95	1.79056	398.71	3.403	115.782	198.673	6.61164	1.563	3.201	1945
100	1.92494	438.12	3.128	125.344	214.456	6.77359	1.571	3.103	2002
105	2.05544	475.83	2.902	134.642	229.795	6.92328	1.582	3.036	2057
110	2.18287	512.20	2.711	143.803	244.855	7.06340	1.598	2.991	2107
115	2.30783	547.46	2.547	152.898	259.734	7.19569	1.619	2.963	2154
120	2.43076	581.81	2.403	161.982	274.510	7.32146	1.646	2.949	2198
125	2.55201	615.39	2.277	171.104	289.245	7.44176	1.677	2.947	2238
130	2.67183	648.32	2.165	180.306	303.993	7.55745	1.712	2.954	2276
135	2.79043	680.69	2.064	189.623	318.801	7.66921	1.752	2.970	2312
140	2.90798	712.58	1.973	199.086	333.706	7.77762	1.795	2.993	2346
150	3.14045	775.13	1.815	218.558	363.939	7.98618	1.893	3.057	2408
160	3.37009	836.35	1.682	238.890	394.902	8.18598	1.999	3.138	2466
180	3.82417	955.64	1.469	282.850	459.883	8.56716	2.231	3.331	2571
200	4.27036	1072.42	1.306	330.658	528.375	8.92777	2.443	3.518	2675
220	4.71347	1187.09	1.178	382.248	600.450	9.27114	2.627	3.684	2777
240	5.15292	1300.24	1.073	436.957	675.502	9.59738	2.768	3.812	2881
260	5.59004	1412.25	0.9856	493.880	752.661	9.90633	2.862	3.897	2985
280	6.02536	1523.36	0.9117	552.198	831.131	10.19698	2.913	3.941	3090
300	6.45925	1633.76	0.8483	611.069	910.088	10.46949	2.931	3.951	3195
320	6.89198	1743.59	0.7933	669.960	989.012	10.72420	2.922	3.938	3299
340	7.32376	1852.95	0.7451	728.444	1067.485	10.96178	2.896	3.908	3403
360	7.75477	1961.93	0.7025	786.258	1145.252	11.18411	2.860	3.866	3506
380	8.18512	2070.60	0.6646	843.256	1222.172	11.39207	2.818	3.824	3608
400	8.61494	2178.99	0.6306	899.381	1298.194	11.58713	2.776	3.779	3707
420	9.04429	2287.16	0.6000	954.644	1373.334	11.77041	2.735	3.736	3805
440	9.47325	2395.14	0.5722	1009.103	1447.650	11.94333	2.696	3.696	3900
460	9.90188	2502.95	0.5469	1062.815	1521.205	12.10681	2.662	3.660	3993
480	10.33021	2610.62	0.5238	1115.873	1594.092	12.26170	2.632	3.629	4083
500	10.75830	2718.17	0.5025	1168.354	1666.390	12.40945	2.606	3.602	4172
520	11.18617	2825.61	0.4830	1220.341	1738.185	12.55036	2.584	3.578	4258
540	11.61384	2932.96	0.4649	1271.900	1809.543	12.68502	2.565	3.558	4342
560	12.04136	3040.22	0.4481	1323.632	1880.465	12.81350	2.549	3.543	4424
580	12.46872	3147.42	0.4325	1373.943	1951.160	12.93739	2.536	3.529	4504
600	12.89595	3254.55	0.4180	1424.651	2021.646	13.05694	2.526	3.518	4582
650	13.96356	3522.15	0.3856	1550.530	2196.948	13.33785	2.507	3.498	4771
700	15.03062	3789.48	0.3579	1675.720	2371.536	13.59687	2.496	3.486	4952
800	17.16357	4323.57	0.3130	1924.888	2719.445	14.06175	2.488	3.477	5290
900	19.29546	4857.15	0.2781	2173.820	3067.069	14.47089	2.486	3.474	5607
1000	21.42667	5390.40	0.2502	2422.549	3414.459	14.83669	2.489	3.476	5906
1500	32.07787	8054.31	0.1667	3676.409	5161.397	16.25246	2.536	3.522	7199
2000	42.72604	10716.76	0.1250	4969.659	6947.585	17.27798	2.644	3.630	8256
2500	53.37327	13378.77	0.1000	6327.017	8797.838	18.10311	2.786	3.771	9161
3000	64.02089	16040.58	0.0833	7756.014	10719.747	18.79395	2.926	3.912	9968
3500	74.67665	18702.31	0.0714	9264.264	12721.288	19.41358	3.087	4.076	10697
4000	85.37918	21363.98	0.0625	10877.967	14830.444	20.16930	3.361	4.366	11339
5000	107.58377	26687.24	0.0500	14917.495	19897.895	22.12797	4.936	6.113	12368

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

250 PSIA ISOBAR

TEMPERATURE	DENSITY	$V(\partial H/\partial V)_P$	$V(\partial P/\partial U)_V$	$-V(\partial P/\partial V)_T$	$(\partial V/\partial T)/V_P$	THERMAL CONDUCTIVITY	VISCOSITY	THERMAL DIFFUSIVITY	DIELECTRIC CONSTANT	PRANDTL NUMBER
DEG. R	LB/CU FT	BTU/LB	PSIA-CU FT/BTU	PSIA	1/DEG. R	BTU/FT-HR-R	LB/FT-SEC X 10^5	SQ FT/HR		
* 25.862	4.86761	292.14	13.775	14494.66	0.0053271	0.04598	1.784	0.00607	1.25879	2.1735
26	4.86361	292.10	13.744	14419.14	0.0053519	0.04639	1.765	0.00610	1.25855	2.1410
28	4.81026	290.89	13.261	13307.27	0.0057362	0.05136	1.538	0.00640	1.25541	1.7995
30	4.75361	289.53	12.752	12231.24	0.0061397	0.05467	1.362	0.00647	1.25208	1.5943
32	4.69369	289.02	12.272	11285.82	0.0065337	0.05692	1.221	0.00642	1.24858	1.4580
34	4.63064	287.00	11.857	10351.72	0.0069953	0.05835	1.106	0.00628	1.24489	1.3698
36	4.56390	283.85	11.491	9447.80	0.0075143	0.05952	1.010	0.00611	1.24101	1.3026
38	4.49332	279.72	11.159	8574.69	0.0080952	0.06087	0.928	0.00598	1.23691	1.2431
40	4.41814	274.17	10.852	7705.85	0.0087820	0.06169	0.858	0.00580	1.23256	1.2049
42	4.33777	266.98	10.557	6834.74	0.0096075	0.06206	0.795	0.00558	1.22793	1.1831
44	4.25132	259.13	10.261	6084.17	0.0105584	0.06202	0.739	0.00533	1.22297	1.1739
46	4.15777	249.84	9.952	5183.78	0.0117285	0.06159	0.688	0.00506	1.21762	1.1783
48	4.05559	239.43	9.621	4393.12	0.0131740	0.06078	0.640	0.00475	1.21180	1.1963
50	3.94305	227.60	9.255	3626.81	0.0150561	0.05964	0.595	0.00441	1.20543	1.2319
52	3.81721	214.65	8.853	2908.21	0.0175291	0.05813	0.552	0.00405	1.19834	1.2870
54	3.67366	200.18	8.401	2234.83	0.0210041	0.05622	0.510	0.00364	1.19030	1.3725
56	3.50484	183.60	7.881	1603.20	0.0264702	0.05359	0.467	0.00315	1.18091	1.5234
58	3.29638	164.84	7.262	1038.77	0.0358824	0.05066	0.421	0.00260	1.16942	1.7709
60	3.01348	142.04	6.464	536.78	0.0575841	0.04911	0.370	0.00199	1.15398	2.2187
62	2.54223	114.78	5.182	171.51	0.1313813	0.04969	0.303	0.00130	1.12867	3.3152
64	1.72780	102.52	4.133	73.81	0.1820860	0.04429	0.223	0.00137	1.08607	3.3887
66	1.33285	108.76	4.160	105.38	0.0928826	0.03285	0.193	0.00244	1.06590	2.1335
68	1.14678	116.54	4.187	130.88	0.0621243	0.02986	0.181	0.00350	1.05650	1.6260
70	1.02917	124.04	4.191	149.23	0.0475891	0.02737	0.176	0.00450	1.05060	1.3696
75	0.85143	141.87	4.145	178.08	0.0314675	0.02590	0.174	0.00681	1.04172	1.0796
80	0.74210	159.49	4.082	195.82	0.0242636	0.02575	0.177	0.00897	1.03629	0.9556
85	0.66476	176.50	4.019	207.72	0.0200770	0.02609	0.181	0.01107	1.03246	0.8860
90	0.60572	193.10	3.958	216.27	0.0172908	0.02665	0.186	0.01318	1.02955	0.8412
95	0.55849	209.48	3.897	222.67	0.0152807	0.02734	0.192	0.01530	1.02722	0.8101
100	0.51950	225.81	3.833	227.60	0.0137434	0.02813	0.198	0.01749	1.02530	0.7871
105	0.48651	242.18	3.771	231.50	0.0125366	0.02897	0.204	0.01961	1.02368	0.7704
110	0.45811	258.87	3.703	234.64	0.0115541	0.02995	0.210	0.02186	1.02229	0.7558
115	0.43331	276.00	3.629	237.22	0.0107355	0.03101	0.216	0.02415	1.02107	0.7442
120	0.41139	293.70	3.550	239.35	0.0100410	0.03208	0.222	0.02645	1.02000	0.7359
125	0.39185	312.05	3.466	241.14	0.0094427	0.03318	0.228	0.02874	1.01904	0.7302
130	0.37428	331.14	3.378	242.65	0.0089209	0.03429	0.234	0.03101	1.01818	0.7269
135	0.35837	351.02	3.288	243.94	0.0084609	0.03524	0.240	0.03311	1.01741	0.7290
140	0.34388	371.73	3.195	245.04	0.0080516	0.03639	0.246	0.03536	1.01670	0.7288
150	0.31843	415.69	3.012	246.82	0.0073535	0.03917	0.258	0.04025	1.01545	0.7240
160	0.29673	462.94	2.835	248.17	0.0067781	0.04225	0.269	0.04537	1.01440	0.7195
180	0.26149	566.80	2.518	249.90	0.0058773	0.05233	0.309	0.06007	1.01268	0.7071
200	0.23414	676.15	2.284	251.10	0.0052025	0.06150	0.342	0.07467	1.01135	0.7050
220	0.21216	787.90	2.113	251.85	0.0046762	0.06920	0.368	0.08853	1.01028	0.7045
240	0.19406	896.65	1.997	252.33	0.0042518	0.07552	0.387	0.10208	1.00940	0.7042
260	0.17889	998.97	1.925	252.64	0.0039011	0.08057	0.404	0.11557	1.00866	0.7036
280	0.16597	1092.76	1.885	252.82	0.0036060	0.08448	0.418	0.12918	1.00803	0.7026
300	0.15482	1178.18	1.870	252.93	0.0033539	0.08747	0.431	0.14299	1.00749	0.7015
320	0.14510	1255.73	1.871	252.99	0.0031357	0.08973	0.443	0.15705	1.00702	0.7001
340	0.13654	1326.89	1.884	253.01	0.0029450	0.09146	0.454	0.17141	1.00661	0.6987
360	0.12895	1393.02	1.905	253.00	0.0027768	0.09282	0.465	0.18609	1.00624	0.6973
380	0.12217	1455.40	1.930	252.97	0.0026271	0.09393	0.475	0.20109	1.00591	0.6959
400	0.11608	1515.71	1.957	252.93	0.0024932	0.09493	0.485	0.21642	1.00561	0.6946
420	0.11057	1574.63	1.984	252.88	0.0023725	0.09587	0.494	0.23210	1.00535	0.6934
440	0.10556	1633.06	2.010	252.83	0.0022631	0.09680	0.504	0.24812	1.00510	0.6923
460	0.10099	1691.77	2.034	252.78	0.0021636	0.09776	0.513	0.26447	1.00488	0.6914
480	0.09680	1750.82	2.056	252.72	0.0020726	0.09877	0.522	0.28117	1.00468	0.6905
500	0.09295	1810.72	2.075	252.66	0.0019890	0.09984	0.531	0.29823	1.00449	0.6897
520	0.08940	1871.49	2.091	252.60	0.0019128	0.10097	0.540	0.31564	1.00432	0.6891
540	0.08610	1933.03	2.105	252.54	0.0018409	0.10215	0.549	0.33338	1.00416	0.6885
560	0.08305	1995.97	2.117	252.48	0.0017749	0.10341	0.558	0.35149	1.00401	0.6880
580	0.08020	2059.54	2.126	252.43	0.0017135	0.10471	0.567	0.36995	1.00388	0.6875
600	0.07754	2124.00	2.134	252.37	0.0016562	0.10605	0.575	0.38877	1.00375	0.6871
650	0.07161	2288.11	2.148	252.24	0.0015287	0.10957	0.597	0.43739	1.00346	0.6863
700	0.06653	2455.70	2.155	252.12	0.0014195	0.11325	0.619	0.48830	1.00321	0.6858
800	0.05826	2798.55	2.159	251.90	0.0012424	0.12092	0.662	0.59691	1.00281	0.6850
900	0.05183	3145.04	2.158	251.72	0.0011047	0.12866	0.704	0.71459	1.00250	0.6845
1000	0.04667	3495.05	2.154	251.57	0.0009945	0.13646	0.746	0.84118	1.00225	0.6842
1500	0.03117	5305.30	2.109	251.09	0.0006640	0.17580	0.948	1.60093	1.00151	0.6836
2000	0.02340	7283.31	2.020	250.83	0.0004984	0.27727	1.137	3.26344	1.00113	0.5357
2500	0.01874	9453.19	1.916	250.66	0.0003990	0.33498	1.315	4.74055	1.00090	0.5329
3000	0.01562	11762.56	1.823	250.55	0.0003326	0.39353	1.484	6.43962	1.00075	0.5311
3500	0.01339	14292.61	1.726	250.44	0.0002852	0.45841	1.646	8.39769	1.00065	0.5269
4000	0.01171	17480.35	1.588	250.22	0.0002498	0.55218	1.802	10.79755	1.00057	0.5130
5000	0.00930	30328.03	1.090	248.06	0.0002016	1.05381	2.108	18.54592	1.00045	0.4402

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

260 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 25.902	0.20534	2988.10	77.228	-132.617	-122.730	1.19558	1.152	1.556	4323
26	0.20547	2979.35	77.197	-132.464	-122.572	1.20169	1.155	1.561	4320
28	0.20773	2782.50	75.396	-129.351	-119.350	1.32105	1.197	1.666	4236
30	0.21020	2587.75	75.207	-126.031	-115.911	1.43964	1.239	1.775	4145
32	0.21286	2419.32	73.858	-122.499	-112.250	1.55774	1.280	1.885	4063
34	0.21575	2250.36	72.540	-118.750	-108.363	1.67557	1.319	2.004	3980
36	0.21888	2085.15	71.130	-114.768	-104.230	1.79365	1.353	2.128	3898
38	0.22229	1923.70	69.561	-110.549	-99.846	1.91215	1.384	2.259	3814
40	0.22605	1760.24	67.830	-106.071	-95.188	2.03159	1.411	2.400	3724
42	0.23019	1596.15	65.843	-101.321	-90.238	2.15233	1.434	2.553	3629
44	0.23483	1429.44	63.596	-96.266	-84.960	2.27508	1.453	2.724	3524
46	0.24005	1264.88	61.028	-90.884	-79.326	2.40028	1.469	2.915	3409
48	0.24602	1101.78	58.140	-85.125	-73.281	2.52891	1.483	3.134	3284
50	0.25292	938.57	54.924	-78.937	-66.760	2.66198	1.496	3.400	3143
52	0.26109	781.70	51.364	-72.229	-59.659	2.80120	1.508	3.724	2990
54	0.27102	629.54	47.404	-64.869	-51.821	2.94906	1.520	4.142	2819
56	0.28359	482.43	43.012	-56.637	-42.983	3.10972	1.535	4.733	2625
58	0.30058	338.67	38.027	-47.112	-32.641	3.29110	1.554	5.697	2398
60	0.32624	206.62	32.145	-35.412	-19.705	3.51022	1.585	7.498	2128
62	0.37540	92.87	24.652	-18.945	-0.871	3.81861	1.652	12.239	1785
64	0.50802	43.73	15.802	8.222	32.681	4.35046	1.835	19.298	1460
66	0.68148	70.17	13.999	30.817	63.527	4.82750	1.779	11.565	1454
68	0.80762	104.70	8.927	43.653	82.536	5.11004	1.709	7.960	1503
70	0.90876	136.21	7.701	52.848	96.501	5.31399	1.659	6.319	1550
75	1.11102	202.12	5.990	69.563	123.053	5.67970	1.592	4.635	1651
80	1.28137	258.11	5.040	82.654	144.346	5.95477	1.571	3.965	1737
85	1.43470	307.64	4.405	94.124	163.197	6.18345	1.563	3.607	1813
90	1.57757	352.93	3.939	104.688	180.640	6.38290	1.562	3.385	1882
95	1.71327	395.18	3.577	114.688	197.173	6.56172	1.565	3.237	1946
100	1.84366	435.07	3.283	124.358	213.121	6.72536	1.573	3.132	2003
105	1.97010	473.19	3.042	133.740	228.591	6.87632	1.584	3.060	2058
110	2.09345	509.91	2.839	142.971	243.760	7.01747	1.600	3.011	2109
115	2.21431	545.48	2.665	152.125	258.733	7.15058	1.621	2.980	2156
120	2.33314	580.11	2.513	161.259	273.588	7.27703	1.647	2.964	2199
125	2.45027	613.94	2.380	170.425	288.394	7.39791	1.678	2.960	2240
130	2.56598	647.09	2.262	179.665	303.204	7.51408	1.713	2.966	2278
135	2.68046	679.67	2.155	189.016	318.067	7.62626	1.753	2.980	2314
140	2.79389	711.74	2.060	198.510	333.022	7.73504	1.796	3.003	2348
150	3.01813	774.61	1.894	218.033	363.341	7.94419	1.893	3.065	2410
160	3.23954	836.12	1.754	238.408	394.376	8.14446	2.000	3.144	2468
180	3.67704	955.76	1.531	282.443	459.474	8.52631	2.232	3.336	2573
200	4.10742	1072.93	1.361	330.303	528.055	8.88739	2.443	3.522	2677
220	4.53353	1187.91	1.227	381.933	600.199	9.23109	2.627	3.688	2779
240	4.95657	1301.31	1.117	436.674	675.307	9.55757	2.768	3.815	2883
260	5.37729	1413.52	1.026	493.624	752.513	9.86672	2.863	3.899	2987
280	5.79621	1524.80	0.9489	551.965	831.024	10.15751	2.914	3.942	3092
300	6.21370	1635.35	0.8828	610.857	910.015	10.43014	2.931	3.953	3197
320	6.63004	1745.30	0.8255	669.765	988.968	10.68495	2.922	3.939	3302
340	7.04543	1854.77	0.7753	728.265	1067.467	10.92260	2.896	3.909	3406
360	7.46004	1963.84	0.7309	786.094	1145.257	11.14500	2.860	3.869	3508
380	7.87401	2072.59	0.6914	843.104	1222.198	11.35302	2.818	3.824	3610
400	8.28744	2181.05	0.6561	899.240	1298.238	11.54813	2.776	3.780	3709
420	8.70040	2289.28	0.6241	954.513	1373.394	11.73144	2.735	3.737	3807
440	9.11298	2397.31	0.5952	1008.980	1447.724	11.90439	2.696	3.697	3902
460	9.52522	2505.18	0.5689	1062.701	1521.292	12.06791	2.662	3.661	3995
480	9.93717	2612.89	0.5448	1115.766	1594.190	12.22282	2.632	3.629	4085
500	10.34887	2720.48	0.5227	1168.254	1666.499	12.37059	2.606	3.602	4174
520	10.76036	2827.95	0.5024	1220.247	1738.303	12.51152	2.584	3.579	4260
540	11.17165	2935.34	0.4836	1271.812	1809.671	12.64620	2.565	3.559	4344
560	11.58278	3042.63	0.4661	1322.949	1880.601	12.77469	2.550	3.543	4426
580	11.99376	3149.85	0.4499	1373.864	1951.303	12.89860	2.537	3.529	4506
600	12.40462	3257.01	0.4348	1424.576	2021.796	13.01815	2.526	3.518	4584
650	13.43127	3524.66	0.4011	1550.465	2197.113	13.29909	2.507	3.498	4773
700	14.45738	3792.03	0.3722	1675.662	2371.712	13.55813	2.496	3.486	4953
800	16.50842	4326.19	0.3255	1924.842	2719.640	14.02303	2.488	3.477	5292
900	18.55841	4859.81	0.2892	2173.782	3067.276	14.43219	2.486	3.474	5609
1000	20.60772	5393.09	0.2602	2422.518	3414.676	14.79799	2.489	3.476	5907
1500	30.84944	8057.09	0.1734	3676.394	5161.639	16.21379	2.536	3.522	7200
2000	41.08813	10719.58	0.1300	4969.651	6947.837	17.23931	2.644	3.630	8257
2500	51.32589	13381.59	0.1040	6327.010	8798.093	18.06445	2.786	3.771	9162
3000	61.56399	16043.42	0.0867	7755.986	10719.982	18.75528	2.926	3.912	9969
3500	71.80976	18705.15	0.0743	9264.020	12721.298	19.37484	3.066	4.075	10698
4000	82.09962	21366.82	0.0650	10876.566	14829.249	20.13024	3.357	4.362	11341
5000	103.43327	26690.09	0.0520	14900.960	19880.751	22.08548	4.905	6.078	12372

• TWO-PHASE BOUNDARY

260 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 25.902	4.86932	293.21	13.760	14551.80	0.0053071	0.04614	1.787	0.00609	1.25893	2.1697
26	4.86700	293.22	13.739	14500.49	0.0053238	0.04643	1.773	0.00611	1.25875	2.1463
28	4.81387	292.09	13.262	13394.62	0.0057035	0.05141	1.545	0.00641	1.25562	1.8029
30	4.75747	290.59	12.762	12311.13	0.0061088	0.05473	1.368	0.00648	1.25231	1.5972
32	4.69783	290.12	12.283	11365.55	0.0064984	0.05708	1.226	0.00644	1.24882	1.4599
34	4.63509	288.14	11.869	10430.63	0.0069545	0.05844	1.111	0.00629	1.24515	1.3710
36	4.56872	285.05	11.504	9526.49	0.0074666	0.05963	1.014	0.00613	1.24129	1.3032
38	4.49854	280.99	11.172	8653.84	0.0080382	0.06099	0.932	0.00600	1.23721	1.2430
40	4.42385	275.57	10.865	7787.04	0.0087107	0.06183	0.861	0.00582	1.23289	1.2040
42	4.34415	268.85	10.572	6933.92	0.0094958	0.06221	0.799	0.00561	1.22830	1.1803
44	4.25835	260.76	10.278	6087.06	0.0104478	0.06218	0.743	0.00536	1.22337	1.1715
46	4.16573	251.64	9.971	5269.16	0.0115822	0.06178	0.692	0.00509	1.21807	1.1746
48	4.06474	241.38	9.644	4478.45	0.0129823	0.06100	0.644	0.00479	1.21232	1.1912
50	3.95378	229.70	9.285	3710.88	0.0148007	0.05988	0.599	0.00445	1.20604	1.2250
52	3.83014	217.04	8.892	2994.01	0.0171557	0.05841	0.556	0.00410	1.19907	1.2768
54	3.68981	202.96	8.450	2322.87	0.0204074	0.05656	0.514	0.00370	1.19120	1.3556
56	3.52623	187.19	7.947	1701.16	0.0252841	0.05402	0.472	0.00324	1.18210	1.4881
58	3.32691	168.81	7.355	1126.72	0.0337503	0.05099	0.428	0.00269	1.17109	1.7201
60	3.06527	147.73	6.618	633.36	0.0507531	0.04930	0.379	0.00215	1.15679	2.0749
62	2.66379	122.83	5.602	247.39	0.0996473	0.04864	0.319	0.00149	1.13515	2.8921
64	1.96844	105.13	4.374	86.09	0.1835558	0.04747	0.245	0.00125	1.09851	3.5816
66	1.46739	108.26	4.214	102.97	0.1068226	0.03550	0.204	0.00209	1.07273	2.3919
68	1.23828	115.60	4.219	129.64	0.0688570	0.03054	0.188	0.00310	1.06111	1.7665
70	1.10039	123.00	4.218	149.88	0.0513773	0.02836	0.181	0.00408	1.05417	1.4540
75	0.90007	140.78	4.180	181.93	0.0329229	0.02645	0.177	0.00634	1.04415	1.1145
80	0.78041	158.47	4.110	201.43	0.0250191	0.02614	0.178	0.00845	1.03819	0.9744
85	0.69701	175.58	4.042	214.43	0.0203435	0.02640	0.183	0.01050	1.03406	0.8981
90	0.63389	192.28	3.978	223.72	0.0176064	0.02691	0.188	0.01254	1.03094	0.8497
95	0.58368	208.75	3.915	230.66	0.0155072	0.02757	0.193	0.01459	1.02846	0.8165
100	0.54240	225.14	3.848	235.98	0.0139128	0.02833	0.199	0.01668	1.02643	0.7920
105	0.50759	241.57	3.784	240.19	0.0126668	0.02916	0.205	0.01877	1.02472	0.7743
110	0.47768	258.30	3.716	243.57	0.0116570	0.03012	0.211	0.02094	1.02325	0.7591
115	0.45161	275.48	3.641	246.34	0.0108185	0.03117	0.217	0.02316	1.02197	0.7469
120	0.42861	293.21	3.561	248.64	0.0101089	0.03223	0.223	0.02537	1.02084	0.7381
125	0.40812	311.59	3.476	250.56	0.0094998	0.03332	0.229	0.02758	1.01984	0.7321
130	0.38972	330.70	3.388	252.18	0.0089680	0.03442	0.235	0.02978	1.01894	0.7285
135	0.37307	350.60	3.297	253.56	0.0085007	0.03536	0.241	0.03188	1.01812	0.7306
140	0.35792	371.34	3.204	254.75	0.0080856	0.03651	0.247	0.03397	1.01738	0.7302
150	0.33133	415.34	3.019	256.65	0.0073787	0.03928	0.258	0.03869	1.01608	0.7250
160	0.30869	462.62	2.842	258.10	0.0067971	0.04235	0.269	0.04363	1.01498	0.7203
180	0.27196	566.53	2.522	259.93	0.0058893	0.05236	0.309	0.05770	1.01319	0.7080
200	0.24346	675.93	2.288	261.22	0.0052099	0.06151	0.342	0.07175	1.01180	0.7057
220	0.22058	787.77	2.117	262.03	0.0046809	0.06921	0.368	0.08508	1.01069	0.7051
240	0.20175	896.62	2.000	262.54	0.0042548	0.07552	0.388	0.09813	1.00977	0.7047
260	0.18597	999.84	1.927	262.87	0.0039030	0.08057	0.404	0.11111	1.00900	0.7040
280	0.17253	1092.93	1.888	263.07	0.0036071	0.08448	0.418	0.12421	1.00835	0.7030
300	0.16093	1178.44	1.872	263.16	0.0033545	0.08748	0.431	0.13750	1.00779	0.7018
320	0.15083	1256.07	1.873	263.24	0.0031360	0.08974	0.443	0.15104	1.00730	0.7004
340	0.14194	1327.29	1.886	263.26	0.0029450	0.09147	0.454	0.16486	1.00687	0.6989
360	0.13405	1393.46	1.907	263.25	0.0027766	0.09283	0.465	0.17898	1.00648	0.6975
380	0.12700	1455.91	1.932	263.22	0.0026269	0.09395	0.475	0.19342	1.00614	0.6961
400	0.12066	1516.26	1.959	263.18	0.0024928	0.09495	0.485	0.20818	1.00584	0.6948
420	0.11494	1575.22	1.986	263.12	0.0023721	0.09588	0.494	0.22326	1.00556	0.6936
440	0.10973	1633.67	2.012	263.07	0.0022627	0.09681	0.504	0.23867	1.00531	0.6924
460	0.10498	1692.40	2.035	263.00	0.0021631	0.09778	0.513	0.25441	1.00508	0.6915
480	0.10063	1751.48	2.057	262.94	0.0020721	0.09879	0.522	0.27048	1.00487	0.6906
500	0.09663	1811.40	2.076	262.88	0.0019886	0.09986	0.531	0.28689	1.00467	0.6898
520	0.09293	1872.19	2.092	262.81	0.0019116	0.10099	0.540	0.30364	1.00449	0.6891
540	0.08951	1933.73	2.106	262.75	0.0018404	0.10217	0.549	0.32071	1.00433	0.6885
560	0.08634	1996.69	2.118	262.69	0.0017744	0.10343	0.558	0.33813	1.00417	0.6880
580	0.08338	2060.27	2.127	262.62	0.0017130	0.10473	0.567	0.35589	1.00403	0.6876
600	0.08062	2124.74	2.135	262.56	0.0016558	0.10607	0.576	0.37400	1.00390	0.6872
650	0.07445	2288.88	2.149	262.42	0.0015283	0.10959	0.597	0.42077	1.00360	0.6864
700	0.06917	2456.49	2.156	262.29	0.0014192	0.11327	0.619	0.46975	1.00334	0.6858
800	0.06058	2799.37	2.159	262.06	0.0012421	0.12094	0.662	0.57423	1.00293	0.6850
900	0.05388	3145.88	2.159	261.87	0.0011044	0.12869	0.704	0.68743	1.00260	0.6845
1000	0.04853	3495.91	2.155	261.70	0.0009943	0.13649	0.746	0.80921	1.00234	0.6842
1500	0.03242	5306.21	2.109	261.17	0.0006638	0.17585	0.948	1.54005	1.00157	0.6836
2000	0.02434	7284.26	2.020	260.89	0.0004983	0.27727	1.137	3.13833	1.00118	0.5358
2500	0.01948	9454.16	1.916	260.72	0.0003989	0.33498	1.315	4.55869	1.00094	0.5330
3000	0.01624	11763.20	1.824	260.60	0.0003326	0.39351	1.484	6.19237	1.00078	0.5313
3500	0.01393	14290.20	1.729	260.48	0.0002852	0.45823	1.646	8.07409	1.00067	0.5271
4000	0.01218	17463.75	1.590	260.25	0.0002498	0.55127	1.803	10.37636	1.00059	0.5134
5000	0.00967	30162.93	1.096	258.04	0.0002015	1.04538	2.109	17.78875	1.00047	0.4414

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

270 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM. DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 25.942	0.20524	2998.39	77.243	-132.602	-122.340	1.19596	1.153	1.556	4329
26	0.20532	2993.93	77.224	-132.510	-122.244	1.19966	1.155	1.559	4327
28	0.20758	2798.50	75.459	-129.405	-119.026	1.31886	1.197	1.663	4245
30	0.21003	2602.37	75.316	-126.093	-115.593	1.43728	1.239	1.773	4154
32	0.21268	2434.08	73.977	-122.571	-111.938	1.55520	1.280	1.882	4073
34	0.21554	2265.14	72.666	-118.834	-108.057	1.67281	1.318	2.000	3990
36	0.21865	2100.08	71.266	-114.866	-103.934	1.79063	1.353	2.124	3908
38	0.22204	1938.96	69.707	-110.661	-99.560	1.90885	1.384	2.253	3824
40	0.22576	1776.20	67.986	-106.203	-94.915	2.02795	1.411	2.393	3736
42	0.22987	1612.84	65.018	-101.474	-89.981	2.14831	1.433	2.544	3642
44	0.23445	1446.36	63.796	-96.446	-84.724	2.27057	1.453	2.713	3537
46	0.23960	1282.74	61.255	-91.096	-79.117	2.39517	1.469	2.900	3425
48	0.24548	1120.02	58.402	-85.380	-73.107	2.52304	1.483	3.114	3301
50	0.25225	956.94	55.235	-79.246	-66.634	2.65514	1.496	3.374	3162
52	0.26023	805.20	51.735	-72.611	-59.600	2.79305	1.508	3.676	3015
54	0.26988	650.01	47.851	-65.356	-51.864	2.93900	1.520	4.085	2845
56	0.28197	504.97	43.562	-57.284	-43.186	3.09674	1.534	4.632	2658
58	0.29804	365.18	38.737	-48.036	-33.135	3.27382	1.551	5.471	2443
60	0.32146	233.32	33.151	-36.909	-20.838	3.48135	1.578	6.986	2187
62	0.36248	118.04	25.309	-22.089	-3.966	3.75767	1.632	10.477	1874
64	0.45802	52.97	18.160	0.650	23.549	4.19384	1.783	17.260	1541
66	0.61820	63.83	12.391	24.897	55.805	4.69076	1.784	13.019	1469
68	0.74760	96.61	9.611	39.528	76.905	5.00607	1.723	8.734	1506
70	0.85033	128.26	8.349	49.644	92.157	5.22725	1.671	6.765	1551
75	1.05387	196.37	6.384	67.460	120.150	5.61428	1.598	4.799	1653
80	1.22013	252.48	5.339	80.953	141.955	5.89595	1.574	4.064	1738
85	1.37030	302.92	4.647	92.698	161.208	6.12950	1.566	3.672	1814
90	1.50970	348.91	4.143	103.449	178.928	6.33214	1.564	3.433	1883
95	1.64178	391.73	3.754	113.587	195.670	6.51321	1.567	3.274	1947
100	1.76846	432.09	3.440	123.366	211.785	6.67856	1.575	3.161	2005
105	1.89115	470.62	3.185	132.836	227.387	6.83082	1.585	3.084	2059
110	2.01072	507.68	2.969	142.137	242.667	6.97299	1.601	3.031	2110
115	2.12778	543.56	2.785	151.350	257.732	7.10693	1.622	2.998	2157
120	2.24281	578.46	2.625	160.536	272.669	7.23407	1.648	2.979	2201
125	2.35613	612.53	2.484	169.746	287.544	7.35552	1.679	2.973	2242
130	2.46802	645.91	2.359	179.024	302.417	7.47219	1.714	2.977	2280
135	2.57869	678.68	2.248	188.409	317.335	7.58479	1.753	2.991	2316
140	2.68830	710.93	2.147	197.934	332.340	7.69392	1.797	3.012	2350
150	2.90491	774.13	1.973	217.509	362.745	7.90367	1.894	3.072	2412
160	3.11869	835.91	1.827	237.927	393.852	8.10440	2.000	3.151	2470
180	3.54083	955.90	1.593	282.036	459.065	8.48692	2.232	3.342	2575
200	3.95601	1073.45	1.416	329.948	527.736	8.84848	2.443	3.525	2679
220	4.36692	1188.74	1.275	381.618	599.950	9.19251	2.627	3.691	2781
240	4.77477	1302.39	1.161	436.391	675.114	9.51923	2.768	3.817	2885
260	5.18031	1414.80	1.066	493.368	752.366	9.82856	2.863	3.901	2989
280	5.58405	1526.25	0.9862	551.733	830.917	10.11951	2.914	3.944	3094
300	5.98635	1636.94	0.9174	610.645	909.942	10.39226	2.931	3.955	3199
320	6.38751	1747.02	0.8578	669.571	988.925	10.64716	2.922	3.940	3304
340	6.78772	1856.60	0.8055	728.087	1067.450	10.88489	2.896	3.910	3408
360	7.18716	1965.76	0.7594	785.929	1145.263	11.10736	2.860	3.870	3510
380	7.58595	2074.58	0.7183	842.952	1222.224	11.31542	2.818	3.825	3612
400	7.98420	2183.12	0.6815	899.099	1298.282	11.51058	2.776	3.781	3711
420	8.38199	2291.41	0.6484	954.382	1373.454	11.69394	2.735	3.737	3809
440	8.77940	2399.50	0.6183	1008.858	1447.799	11.86692	2.697	3.697	3904
460	9.17646	2507.41	0.5909	1062.586	1521.379	12.03047	2.663	3.662	3997
480	9.57324	2615.16	0.5659	1115.659	1594.290	12.18540	2.632	3.630	4087
500	9.96978	2722.79	0.5430	1168.153	1666.609	12.33319	2.606	3.603	4176
520	10.36609	2830.30	0.5218	1220.153	1738.423	12.47414	2.584	3.579	4262
540	10.76222	2937.72	0.5022	1271.723	1809.798	12.60884	2.565	3.559	4346
560	11.15818	3045.04	0.4841	1322.865	1880.737	12.73734	2.550	3.543	4428
580	11.55399	3152.29	0.4672	1373.785	1951.446	12.86126	2.537	3.530	4508
600	11.94967	3259.47	0.4515	1424.502	2021.946	12.98083	2.526	3.518	4586
650	12.93841	3527.17	0.4165	1550.399	2197.277	13.26179	2.507	3.498	4775
700	13.92659	3794.59	0.3866	1675.605	2371.888	13.52084	2.496	3.486	4955
800	15.90180	4328.81	0.3380	1924.797	2719.634	13.98578	2.488	3.477	5294
900	17.87596	4862.48	0.3003	2173.745	3067.484	14.39494	2.486	3.474	5610
1000	19.84944	5395.79	0.2702	2422.487	3414.693	14.76076	2.489	3.476	5909
1500	29.71200	8059.87	0.1800	3676.379	5161.881	16.17658	2.536	3.523	7201
2000	39.57155	10722.39	0.1350	4969.642	6948.088	17.20210	2.644	3.630	8258
2500	49.43017	13384.42	0.1080	6327.004	8798.348	18.02724	2.786	3.771	9163
3000	59.28908	16046.25	0.0900	7755.960	10720.218	18.71807	2.926	3.912	9970
3500	69.15523	18707.98	0.0771	9263.789	12721.322	19.33757	3.085	4.074	10699
4000	79.06306	21369.66	0.0675	10875.244	14828.135	20.09267	3.353	4.357	11342
5000	99.59119	26692.93	0.0540	14885.353	19864.583	22.04466	4.876	6.046	12377

• *TWO-PHASE BOUNDARY*

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

270 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$(\partial H/\partial V)_P$ BTU/LB	$(\partial P/\partial U)_V$ PSIA-J J FT/BTU	$-(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)/V_P$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 25.942	4.87223	294.29	13.746	14608.86	0.0052874	0.04629	1.790	0.00611	1.25906	2.1658
26	4.87037	294.34	13.733	14581.57	0.0052960	0.04646	1.781	0.00612	1.25895	2.1515
28	4.81746	293.28	13.263	13481.65	0.0056713	0.05145	1.552	0.00642	1.25584	1.8064
30	4.76130	291.64	12.771	12390.69	0.0060785	0.05479	1.374	0.00649	1.25254	1.6001
32	4.70194	291.21	12.295	11444.90	0.0064637	0.05707	1.231	0.00645	1.24906	1.4619
34	4.63952	289.26	11.881	10509.14	0.0069145	0.05852	1.115	0.00631	1.24541	1.3722
36	4.57351	286.23	11.516	9604.74	0.0074199	0.05973	1.019	0.00615	1.24157	1.3038
38	4.50371	282.25	11.186	8732.50	0.0079825	0.06110	0.936	0.00602	1.23751	1.2430
40	4.42951	276.95	10.879	7867.67	0.0086412	0.06196	0.865	0.00584	1.23322	1.2032
42	4.35038	270.36	10.587	7016.45	0.0094090	0.06236	0.803	0.00563	1.22866	1.1787
44	4.26530	262.36	10.295	6169.17	0.0103411	0.06235	0.746	0.00539	1.22377	1.1692
46	4.17358	253.41	9.990	5353.60	0.0114418	0.06196	0.695	0.00512	1.21852	1.1712
48	4.07373	243.29	9.667	4562.66	0.0127999	0.06120	0.648	0.00482	1.21283	1.1864
50	3.96429	231.75	9.314	3793.60	0.0145601	0.06012	0.603	0.00449	1.20663	1.2186
52	3.84272	219.82	8.928	3094.17	0.0167203	0.05869	0.560	0.00416	1.19977	1.2634
54	3.70541	205.62	8.498	2408.54	0.0198672	0.05689	0.519	0.00376	1.19208	1.3406
56	3.54648	190.42	8.009	1790.86	0.0243246	0.05444	0.477	0.00331	1.18322	1.4606
58	3.35531	173.06	7.442	1225.30	0.0316146	0.05146	0.434	0.00280	1.17266	1.6600
60	3.11082	152.95	6.753	725.83	0.0456735	0.04956	0.387	0.00228	1.15927	1.9640
62	2.75879	129.68	5.845	325.64	0.0807931	0.04832	0.332	0.00167	1.14024	2.5951
64	2.18333	109.93	4.665	115.66	0.1570138	0.04798	0.265	0.00127	1.10972	3.4373
66	1.61760	108.48	4.294	103.25	0.1200059	0.03836	0.217	0.00182	1.08041	2.6476
68	1.33761	115.05	4.257	129.23	0.0759183	0.03217	0.196	0.00275	1.06614	1.9177
70	1.17602	122.21	4.248	150.83	0.0553510	0.02943	0.187	0.00370	1.05797	1.5452
75	0.94888	140.08	4.210	186.34	0.0342603	0.02700	0.179	0.00593	1.04658	1.1486
80	0.81959	157.51	4.138	206.93	0.0257999	0.02655	0.180	0.00797	1.04014	0.9943
85	0.72977	174.71	4.066	221.06	0.0210198	0.02671	0.184	0.00997	1.03568	0.9107
90	0.66239	191.50	3.998	231.11	0.0179262	0.02718	0.189	0.01195	1.03235	0.8586
95	0.60909	208.05	3.933	238.60	0.0157354	0.02781	0.194	0.01394	1.02972	0.8231
100	0.56547	224.51	3.863	244.33	0.0140813	0.02854	0.200	0.01597	1.02757	0.7971
105	0.52878	240.99	3.799	248.85	0.0127971	0.02935	0.206	0.01800	1.02576	0.7784
110	0.49734	257.76	3.729	252.49	0.0117598	0.03030	0.212	0.02010	1.02421	0.7623
115	0.46997	274.97	3.653	255.46	0.0109011	0.03133	0.218	0.02224	1.02287	0.7496
120	0.44587	292.74	3.572	257.92	0.0101764	0.03238	0.224	0.02438	1.02169	0.7404
125	0.42442	311.15	3.487	259.97	0.0095549	0.03346	0.230	0.02652	1.02064	0.7341
130	0.40518	330.29	3.397	261.71	0.0090148	0.03456	0.235	0.02864	1.01970	0.7302
135	0.38779	350.21	3.306	263.19	0.0085403	0.03548	0.241	0.03059	1.01884	0.7322
140	0.37198	370.96	3.212	264.45	0.0081193	0.03662	0.247	0.03269	1.01807	0.7316
150	0.34424	414.99	3.026	266.49	0.0074036	0.03939	0.259	0.03724	1.01671	0.7261
160	0.32065	462.30	2.848	268.03	0.0068160	0.04245	0.270	0.04202	1.01556	0.7211
180	0.28242	566.26	2.527	269.97	0.0059013	0.05239	0.309	0.05551	1.01370	0.7089
200	0.25278	675.72	2.292	271.35	0.0052173	0.06153	0.342	0.06904	1.01225	0.7064
220	0.22899	787.65	2.120	272.21	0.0045856	0.06921	0.368	0.08190	1.01110	0.7057
240	0.20943	896.60	2.003	272.76	0.0042577	0.07553	0.388	0.09447	1.01014	0.7051
260	0.19304	999.13	1.930	273.11	0.0039048	0.08058	0.404	0.10699	1.00935	0.7044
280	0.17908	1093.12	1.890	273.32	0.0036082	0.08449	0.419	0.11962	1.00867	0.7033
300	0.16705	1178.71	1.874	273.45	0.0033551	0.08748	0.431	0.13243	1.00809	0.7021
320	0.15656	1256.41	1.875	273.51	0.0031362	0.08974	0.443	0.14548	1.00758	0.7006
340	0.14732	1327.70	1.888	273.52	0.0029450	0.09148	0.454	0.15880	1.00713	0.6992
360	0.13914	1393.95	1.908	273.51	0.0027765	0.09284	0.465	0.17241	1.00673	0.6977
380	0.13182	1456.42	1.933	273.48	0.0026266	0.09396	0.475	0.18632	1.00638	0.6963
400	0.12525	1516.81	1.960	273.43	0.0024925	0.09496	0.485	0.20054	1.00606	0.6949
420	0.11930	1575.80	1.987	273.37	0.0023717	0.09590	0.494	0.21508	1.00577	0.6937
440	0.11390	1634.28	2.013	273.31	0.0022623	0.09683	0.504	0.22993	1.00551	0.6926
460	0.10897	1693.04	2.037	273.24	0.0021627	0.09779	0.513	0.24509	1.00527	0.6916
480	0.10446	1752.14	2.058	273.17	0.0020717	0.09880	0.522	0.26058	1.00505	0.6907
500	0.10030	1812.07	2.077	273.10	0.0019881	0.09987	0.531	0.27639	1.00485	0.6899
520	0.09647	1872.88	2.093	273.03	0.0019111	0.10101	0.540	0.29253	1.00466	0.6892
540	0.09292	1934.44	2.107	272.97	0.0018400	0.10218	0.549	0.30898	1.00449	0.6886
560	0.08962	1997.41	2.119	272.90	0.0017740	0.10345	0.558	0.32576	1.00433	0.6881
580	0.08655	2061.00	2.128	272.83	0.0017126	0.10475	0.567	0.34288	1.00418	0.6876
600	0.08368	2125.49	2.136	272.77	0.0016554	0.10609	0.576	0.36032	1.00404	0.6872
650	0.07729	2289.65	2.149	272.61	0.0015279	0.10961	0.597	0.40539	1.00374	0.6864
700	0.07181	2457.28	2.157	272.47	0.0014188	0.11330	0.619	0.45257	1.00347	0.6858
800	0.06289	2800.13	2.160	272.22	0.0012417	0.12097	0.662	0.55323	1.00304	0.6850
900	0.05594	3146.72	2.159	272.01	0.0011041	0.12873	0.704	0.66229	1.00270	0.6845
1000	0.05038	3496.76	2.155	271.84	0.0009941	0.13653	0.746	0.77961	1.00243	0.6842
1500	0.03366	5307.12	2.109	271.27	0.0006637	0.17590	0.948	1.48368	1.00163	0.6836
2000	0.02527	7285.21	2.021	270.96	0.0004983	0.27727	1.137	3.02248	1.00122	0.5360
2500	0.02023	9455.14	1.917	270.77	0.0003989	0.33498	1.315	4.39030	1.00098	0.5332
3000	0.01687	11763.87	1.824	270.64	0.0003326	0.39349	1.485	5.96343	1.00081	0.5315
3500	0.01446	14287.99	1.729	270.52	0.0002852	0.45806	1.647	7.77453	1.00070	0.5274
4000	0.01265	17448.14	1.592	270.29	0.0002497	0.55041	1.803	9.98672	1.00061	0.5139
5000	0.01004	30007.10	1.103	268.03	0.0002015	1.03742	2.109	17.08963	1.00048	0.4425

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

280 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 25.982	0.20515	3008.66	77.258	-132.587	-121.951	1.19634	1.154	1.556	4335
26	0.20518	3008.45	77.251	-132.555	-121.917	1.19763	1.155	1.557	4335
28	0.20742	2814.41	75.522	-129.458	-118.703	1.31666	1.197	1.661	4254
30	0.20986	2616.92	75.425	-126.155	-115.274	1.43494	1.238	1.770	4163
32	0.21249	2448.75	74.095	-122.643	-111.625	1.55266	1.279	1.879	4082
34	0.21534	2279.81	72.791	-118.917	-107.752	1.67006	1.318	1.996	4000
36	0.21842	2114.90	71.401	-114.962	-103.637	1.78763	1.353	2.119	3918
38	0.22179	1954.09	69.852	-110.772	-99.273	1.90559	1.383	2.248	3835
40	0.22547	1792.01	68.140	-106.332	-94.641	2.02436	1.411	2.386	3748
42	0.22954	1629.35	66.191	-101.624	-89.723	2.14433	1.433	2.535	3654
44	0.23407	1463.08	63.993	-96.623	-84.487	2.26611	1.453	2.702	3551
46	0.23916	1300.34	61.479	-91.306	-78.906	2.39013	1.469	2.885	3440
48	0.24494	1137.96	58.659	-85.630	-72.930	2.51728	1.483	3.095	3317
50	0.25160	981.10	55.538	-79.548	-66.503	2.64843	1.496	3.338	3185
52	0.25940	825.48	52.090	-72.983	-59.534	2.78508	1.508	3.637	3037
54	0.26877	673.72	48.284	-65.831	-51.896	2.92917	1.519	4.019	2873
56	0.28044	526.51	44.087	-57.902	-43.361	3.08432	1.532	4.543	2689
58	0.29570	388.03	39.404	-48.899	-33.567	3.25609	1.549	5.307	2482
60	0.31731	259.32	34.064	-38.248	-21.796	3.45551	1.573	6.578	2242
62	0.35276	145.07	27.712	-24.608	-6.318	3.70906	1.617	9.180	1953
64	0.42523	68.50	20.259	-5.127	16.920	4.07751	1.731	14.571	1634
66	0.56213	61.52	13.949	18.748	47.893	4.55435	1.779	13.993	1497
68	0.69194	89.39	10.788	35.153	71.029	4.90006	1.735	9.584	1513
70	0.79593	120.53	9.052	46.285	87.553	5.13971	1.682	7.264	1553
75	0.99924	189.68	6.806	65.241	117.050	5.54760	1.605	4.992	1653
80	1.16329	247.01	5.649	79.223	139.538	5.83815	1.577	4.167	1739
85	1.31056	298.31	4.895	91.255	159.205	6.07675	1.568	3.740	1815
90	1.44674	344.99	4.352	102.199	177.210	6.28264	1.566	3.481	1885
95	1.57547	388.37	3.936	112.479	194.164	6.46601	1.570	3.311	1948
100	1.69870	429.19	3.601	122.373	210.448	6.63310	1.577	3.191	2006
105	1.81790	468.11	3.329	131.928	226.183	6.78666	1.587	3.108	2061
110	1.93396	505.52	3.101	141.301	241.574	6.92986	1.603	3.052	2112
115	2.04750	541.70	2.906	150.574	256.734	7.06464	1.623	3.015	2159
120	2.15898	576.86	2.737	159.811	271.751	7.19247	1.649	2.994	2203
125	2.26876	611.18	2.589	169.066	286.697	7.31450	1.680	2.986	2244
130	2.37711	644.77	2.458	178.383	301.632	7.43165	1.715	2.989	2282
135	2.48423	677.74	2.341	187.803	316.606	7.54467	1.754	3.001	2318
140	2.59030	710.17	2.235	197.358	331.661	7.65417	1.798	3.021	2351
150	2.79982	773.68	2.053	216.985	362.151	7.86451	1.894	3.080	2414
160	3.00651	835.74	1.900	237.447	393.330	8.06570	2.001	3.158	2472
180	3.41436	956.06	1.656	281.628	458.658	8.44889	2.233	3.347	2577
200	3.81543	1073.99	1.471	329.594	527.418	8.81092	2.444	3.529	2681
220	4.21224	1189.58	1.325	381.303	599.701	9.15528	2.628	3.694	2783
240	4.60598	1303.48	1.206	436.108	674.921	9.48225	2.768	3.820	2887
260	4.99741	1416.09	1.107	493.112	752.220	9.79177	2.863	3.904	2991
280	5.38705	1527.72	1.024	551.501	830.810	10.08286	2.914	3.946	3096
300	5.77525	1638.55	0.9521	610.433	909.870	10.35572	2.931	3.956	3201
320	6.16231	1748.75	0.8901	669.377	988.883	10.61072	2.922	3.942	3306
340	6.54843	1858.43	0.8358	727.909	1067.434	10.84854	2.897	3.911	3410
360	6.93377	1967.68	0.7879	785.765	1145.270	11.07107	2.860	3.871	3513
380	7.31847	2076.59	0.7452	842.800	1222.251	11.27919	2.818	3.826	3614
400	7.70263	2185.19	0.7070	898.958	1298.327	11.47439	2.776	3.781	3713
420	8.08633	2293.54	0.6726	954.251	1373.515	11.65779	2.735	3.738	3811
440	8.46964	2401.68	0.6414	1008.736	1447.874	11.83080	2.697	3.698	3906
460	8.85262	2509.64	0.6130	1062.473	1521.467	11.99438	2.663	3.662	3999
480	9.23532	2617.44	0.5870	1115.552	1594.389	12.14934	2.632	3.630	4089
500	9.61776	2725.11	0.5632	1168.053	1666.719	12.29715	2.606	3.603	4178
520	9.99999	2832.66	0.5412	1220.059	1738.542	12.43812	2.584	3.580	4264
540	10.38203	2940.10	0.5209	1271.635	1809.927	12.57283	2.565	3.560	4348
560	10.76390	3047.46	0.5021	1322.782	1880.873	12.70135	2.550	3.544	4430
580	11.14563	3154.73	0.4846	1373.706	1951.589	12.82528	2.537	3.530	4510
600	11.52723	3261.94	0.4683	1424.427	2022.096	12.94486	2.526	3.519	4588
650	12.48075	3529.69	0.4320	1550.334	2197.441	13.22584	2.507	3.499	4777
700	13.43373	3797.14	0.4009	1675.547	2372.064	13.48491	2.496	3.487	4957
800	15.33852	4331.43	0.3506	1924.751	2720.028	13.94987	2.488	3.477	5295
900	17.24226	4865.14	0.3115	2173.708	3067.691	14.35905	2.487	3.475	5612
1000	19.14532	5398.49	0.2802	2422.456	3415.110	14.72488	2.489	3.476	5910
1500	28.65581	8062.65	0.1867	3676.364	5162.123	16.14072	2.536	3.523	7203
2000	38.16330	10725.20	0.1400	4969.633	6948.340	17.16625	2.644	3.638	8259
2500	47.66986	13387.24	0.1120	6326.998	8798.504	17.99139	2.786	3.771	9164
3000	57.17667	16049.08	0.0933	7755.936	10720.455	18.68221	2.926	3.912	9971
3500	66.69033	18710.82	0.0800	9263.571	12721.359	19.30165	3.084	4.074	10700
4000	76.24345	21372.50	0.0700	10873.993	14827.095	20.05647	3.350	4.353	11344
5000	96.02441	26695.78	0.0560	14870.589	19849.303	22.00539	4.849	6.015	12381

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

280 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-3U FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 25.982	4.87453	295.36	13.732	14665.83	0.0052679	0.04644	1.793	0.00612	1.25920	2.1621
26	4.87373	295.46	13.728	14662.37	0.0052686	0.04649	1.789	0.00613	1.25915	2.1568
28	4.82103	294.47	13.265	13568.35	0.0056397	0.05150	1.559	0.00643	1.25605	1.8098
30	4.76512	292.69	12.781	12469.93	0.0060486	0.05486	1.380	0.00650	1.25276	1.6030
32	4.70603	292.29	12.306	11523.89	0.0064297	0.05715	1.237	0.00646	1.24930	1.4639
34	4.64391	290.38	11.893	10587.25	0.0068753	0.05861	1.120	0.00632	1.24567	1.3734
36	4.57825	287.41	11.529	9682.57	0.0073742	0.05983	1.023	0.00617	1.24184	1.3044
38	4.50884	283.50	11.199	8810.68	0.0079281	0.06122	0.940	0.00604	1.23781	1.2430
40	4.43511	278.32	10.892	7947.75	0.0085735	0.06208	0.869	0.00587	1.23354	1.2025
42	4.35654	271.85	10.602	7098.33	0.0093248	0.06250	0.806	0.00566	1.22901	1.1773
44	4.27217	263.93	10.311	6250.54	0.0102380	0.06251	0.750	0.00541	1.22416	1.1671
46	4.18132	255.16	10.009	5437.15	0.0113071	0.06214	0.699	0.00515	1.21896	1.1679
48	4.08258	245.16	9.689	4645.82	0.0126261	0.06141	0.651	0.00486	1.21334	1.1819
50	3.97460	234.40	9.341	3899.48	0.0142424	0.06035	0.607	0.00455	1.20721	1.2085
52	3.85503	222.22	8.962	3182.23	0.0163689	0.05896	0.564	0.00420	1.20047	1.2533
54	3.72064	208.63	8.543	2506.66	0.0192624	0.05722	0.523	0.00383	1.19293	1.3222
56	3.56584	193.47	8.068	1877.45	0.0234824	0.05483	0.482	0.00338	1.18430	1.4367
58	3.38186	176.73	7.522	1312.25	0.0300280	0.05197	0.439	0.00290	1.17412	1.6154
60	3.15153	157.82	6.872	817.25	0.0416813	0.04986	0.395	0.00241	1.16149	1.8738
62	2.83482	136.22	6.046	411.23	0.0673877	0.04820	0.344	0.00185	1.14432	2.3553
64	2.35168	115.85	4.977	161.08	0.1257677	0.04747	0.283	0.00139	1.11858	3.1306
66	1.77896	109.79	4.407	109.44	0.1274573	0.04095	0.231	0.00164	1.08870	2.8358
68	1.44521	114.76	4.303	129.18	0.0835090	0.03399	0.205	0.00245	1.07161	2.0818
70	1.25639	121.53	4.282	151.44	0.0597707	0.03061	0.193	0.00335	1.06203	1.6475
75	1.00076	139.22	4.236	189.82	0.0358537	0.02761	0.183	0.00553	1.04918	1.1889
80	0.85963	156.61	4.168	212.34	0.0266047	0.02697	0.183	0.00753	1.04213	1.0152
85	0.76303	173.89	4.091	227.62	0.0215052	0.02704	0.186	0.00948	1.03733	0.9239
90	0.69121	190.76	4.019	238.46	0.0182497	0.02745	0.190	0.01141	1.03377	0.8677
95	0.63473	207.38	3.950	246.51	0.0159652	0.02804	0.195	0.01334	1.03098	0.8298
100	0.58869	223.90	3.879	252.66	0.0142511	0.02875	0.201	0.01531	1.02871	0.8022
105	0.55009	240.43	3.813	257.50	0.0129274	0.02954	0.207	0.01727	1.02681	0.7824
110	0.51707	257.25	3.742	261.39	0.0118623	0.03047	0.212	0.01931	1.02518	0.7657
115	0.48840	274.43	3.665	264.57	0.0109835	0.03149	0.218	0.02139	1.02378	0.7523
120	0.46318	292.23	3.583	267.19	0.0102437	0.03254	0.224	0.02346	1.02254	0.7427
125	0.44077	310.73	3.497	269.39	0.0096105	0.03361	0.230	0.02553	1.02144	0.7360
130	0.42068	329.89	3.407	271.24	0.0090613	0.03469	0.236	0.02759	1.02045	0.7319
135	0.40254	349.83	3.315	272.81	0.0085795	0.03561	0.242	0.02947	1.01957	0.7337
140	0.38606	370.60	3.221	274.16	0.0081527	0.03674	0.248	0.03150	1.01876	0.7330
150	0.35717	414.66	3.034	276.33	0.0074283	0.03950	0.259	0.03590	1.01735	0.7272
160	0.33261	462.01	2.855	277.98	0.0068346	0.04255	0.270	0.04052	1.01615	0.7219
180	0.29288	566.00	2.532	280.01	0.0059132	0.05242	0.309	0.05348	1.01421	0.7099
200	0.26209	675.52	2.296	281.49	0.0052246	0.06154	0.342	0.06653	1.01271	0.7071
220	0.23740	787.54	2.123	282.41	0.0046902	0.06922	0.368	0.07894	1.01151	0.7062
240	0.21711	896.59	2.006	283.00	0.0042606	0.07554	0.388	0.09108	1.01052	0.7056
260	0.20010	999.22	1.932	283.37	0.0039066	0.08058	0.404	0.10316	1.00969	0.7048
280	0.18563	1093.30	1.892	283.59	0.0036093	0.08449	0.419	0.11535	1.00899	0.7037
300	0.17315	1178.98	1.876	283.72	0.0033556	0.08749	0.431	0.12772	1.00838	0.7024
320	0.16228	1256.76	1.877	283.78	0.0031365	0.08975	0.443	0.14031	1.00785	0.7009
340	0.15271	1328.12	1.890	283.80	0.0029450	0.09149	0.454	0.15317	1.00739	0.6994
360	0.14422	1394.42	1.910	283.78	0.0027763	0.09285	0.465	0.16630	1.00698	0.6979
380	0.13664	1456.93	1.935	283.75	0.0026263	0.09397	0.475	0.17973	1.00661	0.6964
400	0.12983	1517.37	1.962	283.69	0.0024921	0.09497	0.485	0.19345	1.00628	0.6951
420	0.12367	1576.39	1.988	283.63	0.0023713	0.09591	0.495	0.20748	1.00598	0.6938
440	0.11807	1634.90	2.014	283.56	0.0022618	0.09684	0.504	0.22181	1.00571	0.6927
460	0.11296	1693.68	2.038	283.49	0.0021622	0.09781	0.513	0.23644	1.00546	0.6917
480	0.10828	1752.80	2.059	283.42	0.0020712	0.09882	0.522	0.25138	1.00524	0.6908
500	0.10397	1812.75	2.078	283.34	0.0019876	0.09989	0.531	0.26664	1.00503	0.6900
520	0.10000	1873.58	2.095	283.27	0.0019107	0.10102	0.540	0.28221	1.00483	0.6893
540	0.09632	1935.15	2.109	283.19	0.0018395	0.10220	0.549	0.29808	1.00466	0.6886
560	0.09290	1998.13	2.120	283.12	0.0017735	0.10347	0.558	0.31428	1.00449	0.6881
580	0.08972	2061.74	2.129	283.05	0.0017122	0.10477	0.567	0.33079	1.00434	0.6877
600	0.08675	2126.23	2.137	282.98	0.0016549	0.10611	0.576	0.34762	1.00419	0.6873
650	0.08012	2290.41	2.150	282.81	0.0015275	0.10963	0.598	0.39110	1.00387	0.6864
700	0.07444	2458.06	2.158	282.66	0.0014184	0.11332	0.619	0.43662	1.00360	0.6859
800	0.06520	2801.00	2.161	282.39	0.0012414	0.12100	0.662	0.53373	1.00315	0.6851
900	0.05800	3147.56	2.160	282.16	0.0011039	0.12876	0.705	0.63894	1.00280	0.6845
1000	0.05223	3497.62	2.156	281.97	0.0009939	0.13656	0.747	0.75212	1.00252	0.6842
1500	0.03490	5308.03	2.110	281.36	0.0006636	0.17595	0.948	1.43134	1.00169	0.6836
2000	0.02620	7286.16	2.021	281.03	0.0004982	0.27727	1.138	2.91491	1.00127	0.5362
2500	0.02098	9456.12	1.917	280.83	0.0003988	0.33497	1.316	4.23394	1.00101	0.5334
3000	0.01749	11764.56	1.824	280.69	0.0003325	0.39347	1.485	5.75086	1.00084	0.5316
3500	0.01499	14285.95	1.730	280.56	0.0002851	0.45790	1.647	7.49642	1.00072	0.5276
4000	0.01312	17433.44	1.593	280.32	0.0002497	0.54959	1.804	9.62520	1.00063	0.5144
5000	0.01041	29859.72	1.109	278.01	0.0002014	1.02989	2.110	16.44219	1.00050	0.4435

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

290 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 26.021	0.20505	3018.91	77.274	-132.572	-121.561	1.19672	1.155	1.556	4340
28	0.20727	2830.24	75.584	-129.510	-118.380	1.31451	1.197	1.658	4263
30	0.20969	2631.39	75.534	-126.216	-114.956	1.43260	1.238	1.768	4172
32	0.21231	2463.33	74.213	-122.714	-111.312	1.55015	1.279	1.876	4091
34	0.21513	2294.39	72.915	-118.999	-107.446	1.66733	1.318	1.993	4009
36	0.21820	2129.62	71.535	-115.057	-103.340	1.78466	1.352	2.115	3928
38	0.22154	1969.10	69.996	-110.882	-98.986	1.90235	1.383	2.242	3846
40	0.22519	1807.68	68.293	-106.459	-94.367	2.02079	1.410	2.379	3759
42	0.22922	1645.69	66.362	-101.773	-89.464	2.14039	1.433	2.526	3666
44	0.23370	1482.42	64.189	-96.799	-84.249	2.26166	1.453	2.689	3566
46	0.23872	1317.71	61.699	-91.511	-78.692	2.38516	1.469	2.871	3454
48	0.24442	1158.72	58.912	-85.875	-72.750	2.51159	1.483	3.073	3336
50	0.25096	1000.24	55.834	-79.843	-66.367	2.64185	1.496	3.313	3204
52	0.25860	845.27	52.435	-73.345	-59.458	2.77730	1.508	3.602	3059
54	0.26772	694.27	48.697	-66.285	-51.909	2.91973	1.519	3.967	2898
56	0.27899	547.16	44.591	-58.492	-43.511	3.07240	1.532	4.464	2718
58	0.29351	412.09	40.043	-49.717	-33.955	3.24000	1.547	5.147	2520
60	0.31363	283.15	34.908	-39.461	-22.519	3.43207	1.568	6.272	2290
62	0.34496	169.75	28.931	-26.731	-8.207	3.66818	1.606	8.342	2021
64	0.40297	86.97	22.068	-9.527	12.113	3.99043	1.690	12.466	1724
66	0.51510	63.43	15.610	12.753	40.413	4.42593	1.765	14.223	1539
68	0.64087	84.24	11.860	30.575	64.990	4.79313	1.743	10.378	1524
70	0.74540	114.32	9.813	42.780	82.808	5.05155	1.693	7.759	1558
75	0.94846	183.47	7.249	62.968	113.901	5.48158	1.612	5.191	1654
80	1.11042	241.70	5.969	77.465	137.095	5.78131	1.579	4.271	1740
85	1.25500	293.83	5.151	89.796	157.189	6.02510	1.570	3.809	1817
90	1.38820	341.17	4.565	100.940	175.486	6.23433	1.569	3.531	1886
95	1.51379	385.09	4.120	111.365	192.656	6.42003	1.572	3.349	1950
100	1.63382	426.36	3.763	121.374	209.110	6.58888	1.579	3.221	2007
105	1.74977	465.67	3.475	131.018	224.981	6.74376	1.589	3.133	2062
110	1.86255	503.41	3.234	140.464	240.483	6.88800	1.604	3.072	2113
115	1.97280	539.89	3.028	149.797	255.737	7.02362	1.625	3.032	2161
120	2.08099	575.32	2.850	159.086	270.835	7.15214	1.650	3.009	2205
125	2.18747	609.86	2.695	168.385	285.853	7.27474	1.681	3.000	2246
130	2.29252	643.67	2.557	177.742	300.850	7.39238	1.716	3.001	2284
135	2.39634	676.83	2.434	187.196	315.879	7.50582	1.755	3.012	2320
140	2.49910	709.44	2.324	196.781	330.984	7.61568	1.798	3.031	2353
150	2.70201	773.27	2.133	216.462	361.560	7.82661	1.895	3.088	2416
160	2.90210	835.59	1.973	236.967	392.810	8.02827	2.002	3.164	2474
180	3.29664	956.23	1.719	281.221	458.251	8.41212	2.233	3.352	2579
200	3.68457	1074.55	1.526	329.239	527.101	8.77462	2.444	3.533	2683
220	4.06824	1190.44	1.374	380.988	599.453	9.11931	2.628	3.697	2785
240	4.44884	1304.58	1.250	435.826	674.729	9.44652	2.769	3.823	2889
260	4.82714	1417.48	1.148	492.857	752.075	9.75623	2.863	3.906	2993
280	5.20364	1529.19	1.061	551.269	830.705	10.04747	2.914	3.948	3098
300	5.57872	1640.16	0.9867	610.221	909.799	10.32045	2.931	3.958	3203
320	5.95265	1750.48	0.9224	669.183	988.842	10.57555	2.923	3.943	3308
340	6.32565	1860.27	0.8661	727.730	1067.419	10.81344	2.897	3.913	3412
360	6.69787	1969.61	0.8164	785.601	1145.277	11.03603	2.860	3.872	3515
380	7.06945	2078.59	0.7721	842.648	1222.278	11.24421	2.819	3.827	3616
400	7.44048	2187.27	0.7325	898.817	1298.372	11.43946	2.776	3.782	3715
420	7.81107	2295.68	0.6968	954.120	1373.576	11.62289	2.735	3.739	3813
440	8.18126	2403.88	0.6645	1008.614	1447.949	11.79594	2.697	3.699	3908
460	8.55112	2511.88	0.6350	1062.359	1521.555	11.95954	2.663	3.663	4001
480	8.92070	2619.73	0.6081	1115.446	1594.489	12.11453	2.632	3.631	4091
500	9.29003	2727.43	0.5834	1167.954	1666.829	12.26236	2.606	3.604	4180
520	9.65914	2835.01	0.5606	1219.965	1738.662	12.40335	2.584	3.580	4266
540	10.02806	2942.49	0.5396	1271.547	1810.155	12.53808	2.565	3.560	4350
560	10.39682	3049.87	0.5201	1322.699	1881.009	12.66661	2.550	3.544	4432
580	10.76544	3157.17	0.5020	1373.627	1951.733	12.79056	2.537	3.530	4512
600	11.13392	3264.40	0.4851	1424.353	2022.246	12.91015	2.526	3.519	4590
650	12.05466	3532.21	0.4475	1550.269	2197.606	13.19115	2.507	3.499	4779
700	12.97485	3799.70	0.4153	1675.489	2372.241	13.45024	2.496	3.487	4959
800	14.81408	4334.05	0.3631	1924.705	2720.223	13.91522	2.488	3.477	5297
900	16.65226	4867.81	0.3226	2173.670	3067.699	14.32442	2.487	3.475	5614
1000	18.48975	5401.19	0.2903	2422.425	3415.328	14.69026	2.489	3.476	5912
1500	27.67247	8065.42	0.1934	3676.350	5162.365	16.10612	2.536	3.523	7204
2000	36.85217	10728.00	0.1450	4969.625	6948.592	17.13166	2.644	3.630	8260
2500	46.03094	13390.07	0.1160	6326.991	8798.859	17.95680	2.786	3.771	9164
3000	55.20994	16051.91	0.0967	7755.912	10720.694	18.64762	2.926	3.912	9972
3500	64.39542	18713.66	0.0829	9263.364	12721.407	19.26699	3.063	4.073	10701
4000	73.61834	21375.34	0.0725	10872.808	14826.123	20.02154	3.346	4.350	11346
5000	92.70437	26698.62	0.0580	14856.596	19834.834	21.96755	4.823	5.985	12384

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

290 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-J FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 26.021	4.87683	296.43	13.717	14722.71	0.0052486	0.04659	1.795	0.00614	1.25933	2.1584
28	4.82459	295.65	13.266	13654.73	0.0056086	0.05155	1.566	0.00644	1.25625	1.8134
30	4.76891	293.73	12.790	12548.85	0.0060192	0.05492	1.386	0.00651	1.25298	1.6060
32	4.71009	293.36	12.317	11602.52	0.0063963	0.05723	1.242	0.00648	1.24953	1.4659
34	4.64827	291.50	11.904	10664.98	0.0068369	0.05870	1.125	0.00634	1.24592	1.3747
36	4.58297	288.57	11.542	9759.97	0.0073294	0.05993	1.027	0.00618	1.24212	1.3051
38	4.51394	284.74	11.212	8888.39	0.0078749	0.06133	0.944	0.00606	1.23811	1.2431
40	4.44067	279.67	10.905	8027.29	0.0085076	0.06221	0.873	0.00589	1.23386	1.2018
42	4.36265	273.32	10.616	7179.58	0.0092432	0.06264	0.810	0.00568	1.22936	1.1759
44	4.27902	265.76	10.328	6343.32	0.0101192	0.06267	0.754	0.00545	1.22456	1.1641
46	4.18895	256.87	10.028	5519.83	0.0111777	0.06232	0.702	0.00518	1.21940	1.1648
48	4.09131	247.31	9.711	4740.67	0.0124270	0.06161	0.655	0.00490	1.21383	1.1761
50	3.98470	236.51	9.368	3985.64	0.0140089	0.06059	0.611	0.00459	1.20779	1.2020
52	3.86698	224.54	8.995	3268.63	0.0160420	0.05923	0.568	0.00425	1.20114	1.2440
54	3.73525	211.23	8.585	2593.28	0.0187783	0.05754	0.527	0.00388	1.19374	1.3084
56	3.58440	196.36	8.123	1961.24	0.0227360	0.05522	0.486	0.00345	1.18533	1.4157
58	3.40707	180.47	7.597	1404.01	0.0285202	0.05246	0.445	0.00299	1.17551	1.5717
60	3.18842	162.20	6.981	902.80	0.0386658	0.05020	0.401	0.00251	1.16350	1.8056
62	2.89891	141.89	6.216	492.09	0.0587926	0.04839	0.353	0.00200	1.14778	2.1932
64	2.48155	121.92	5.261	215.82	0.1022507	0.04714	0.298	0.00152	1.12545	2.8400
66	1.94138	112.19	4.556	123.14	0.1267723	0.04293	0.245	0.00155	1.09711	2.9204
68	1.56038	115.02	4.361	131.44	0.0902297	0.03586	0.215	0.00221	1.07748	2.2368
70	1.34156	121.27	4.321	153.37	0.0639838	0.03186	0.200	0.00306	1.06634	1.7502
75	1.05434	138.51	4.264	193.44	0.0374746	0.02825	0.186	0.00516	1.05186	1.2312
80	0.90056	155.78	4.196	217.67	0.0274202	0.02740	0.185	0.00712	1.04417	1.0368
85	0.79681	173.13	4.116	234.13	0.0219991	0.02738	0.187	0.00902	1.03901	0.9375
90	0.72036	190.06	4.040	245.76	0.0185766	0.02773	0.191	0.01090	1.03522	0.8770
95	0.66059	206.75	3.969	254.39	0.0161962	0.02828	0.196	0.01279	1.03226	0.8367
100	0.61206	223.33	3.895	260.96	0.0144211	0.02896	0.202	0.01469	1.02986	0.8074
105	0.57150	239.90	3.827	266.13	0.0130576	0.02973	0.207	0.01661	1.02786	0.7866
110	0.53690	256.76	3.755	270.28	0.0119647	0.03065	0.213	0.01858	1.02616	0.7690
115	0.50689	274.04	3.677	273.67	0.0110656	0.03165	0.219	0.02059	1.02468	0.7551
120	0.48054	291.86	3.595	276.46	0.0103105	0.03269	0.225	0.02261	1.02339	0.7450
125	0.45715	310.32	3.507	278.80	0.0096658	0.03375	0.231	0.02461	1.02224	0.7380
130	0.43620	329.50	3.417	280.77	0.0091075	0.03483	0.236	0.02661	1.02121	0.7336
135	0.41730	349.47	3.324	282.44	0.0086185	0.03573	0.242	0.02843	1.02029	0.7353
140	0.40014	370.26	3.229	283.88	0.0081858	0.03686	0.248	0.03039	1.01945	0.7344
150	0.37009	414.35	3.041	286.18	0.0074527	0.03961	0.259	0.03466	1.01798	0.7282
160	0.34458	461.72	2.861	287.93	0.0068531	0.04266	0.271	0.03913	1.01673	0.7228
180	0.30334	565.75	2.537	290.06	0.0059251	0.05246	0.309	0.05159	1.01472	0.7108
200	0.27140	675.32	2.300	291.63	0.0052319	0.06156	0.343	0.06420	1.01316	0.7077
220	0.24581	787.43	2.127	292.62	0.0046947	0.06923	0.368	0.07619	1.01191	0.7068
240	0.22478	896.59	2.009	293.24	0.0042635	0.07554	0.388	0.08792	1.01089	0.7061
260	0.20716	999.31	1.935	293.63	0.0039084	0.08059	0.404	0.09960	1.01003	0.7052
280	0.19217	1093.49	1.894	293.87	0.0036103	0.08450	0.419	0.11138	1.00931	0.7041
300	0.17925	1179.26	1.878	294.00	0.0033562	0.08750	0.432	0.12333	1.00868	0.7027
320	0.16799	1257.11	1.879	294.07	0.0031367	0.08976	0.443	0.13550	1.00813	0.7012
340	0.15809	1328.53	1.891	294.08	0.0029450	0.09150	0.454	0.14793	1.00765	0.6996
360	0.14930	1394.89	1.912	294.07	0.0027761	0.09286	0.465	0.16062	1.00722	0.6981
380	0.14145	1457.45	1.937	294.03	0.0026260	0.09398	0.475	0.17359	1.00684	0.6966
400	0.13440	1517.92	1.963	293.97	0.0024918	0.09499	0.485	0.18685	1.00650	0.6952
420	0.12802	1576.98	1.990	293.90	0.0023709	0.09593	0.495	0.20041	1.00619	0.6940
440	0.12223	1635.52	2.016	293.83	0.0022614	0.09686	0.504	0.21425	1.00591	0.6928
460	0.11694	1694.33	2.039	293.75	0.0021618	0.09783	0.513	0.22839	1.00566	0.6918
480	0.11210	1753.46	2.061	293.67	0.0020707	0.09884	0.522	0.24282	1.00542	0.6908
500	0.10764	1813.43	2.079	293.59	0.0019872	0.09991	0.531	0.25757	1.00520	0.6900
520	0.10353	1874.27	2.096	293.51	0.0019102	0.10104	0.540	0.27261	1.00501	0.6893
540	0.09972	1935.86	2.110	293.43	0.0018390	0.10222	0.549	0.28794	1.00482	0.6887
560	0.09618	1998.85	2.121	293.35	0.0017731	0.10349	0.558	0.30358	1.00465	0.6882
580	0.09289	2062.47	2.130	293.27	0.0017117	0.10479	0.567	0.31954	1.00449	0.6877
600	0.08982	2126.98	2.138	293.19	0.0016545	0.10614	0.576	0.33580	1.00434	0.6873
650	0.08296	2291.18	2.151	293.02	0.0015271	0.10966	0.598	0.37780	1.00401	0.6865
700	0.07707	2458.85	2.158	292.85	0.0014181	0.11335	0.619	0.42177	1.00372	0.6859
800	0.06758	2801.82	2.162	292.56	0.0012411	0.12102	0.662	0.51557	1.00326	0.6851
900	0.06005	3148.40	2.161	292.32	0.0011036	0.12879	0.705	0.61721	1.00290	0.6845
1000	0.05408	3498.48	2.156	292.12	0.0009937	0.13660	0.747	0.72653	1.00261	0.6842
1500	0.03614	5308.94	2.110	291.46	0.0006635	0.17600	0.949	1.38260	1.00175	0.6836
2000	0.02714	7287.11	2.021	291.11	0.0004982	0.27727	1.138	2.81475	1.00131	0.5363
2500	0.02172	9457.10	1.917	290.89	0.0003988	0.33497	1.316	4.08837	1.00105	0.5335
3000	0.01811	11765.26	1.824	290.74	0.0003325	0.39345	1.486	5.55295	1.00087	0.5318
3500	0.01553	14284.08	1.730	290.61	0.0002851	0.45774	1.648	7.23754	1.00075	0.5279
4000	0.01358	17419.56	1.595	290.35	0.0002497	0.54882	1.804	9.28889	1.00066	0.5148
5000	0.01079	29720.05	1.115	288.00	0.0002014	1.02276	2.110	15.84096	1.00052	0.4446

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

300 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 26.061	0.20495	3029.13	77.291	-132.557	-121.171	1.19710	1.156	1.556	4346
28	0.20712	2845.99	76.646	-129.562	-118.056	1.31236	1.197	1.656	4271
30	0.20953	2645.77	75.641	-126.277	-114.637	1.43028	1.238	1.766	4181
32	0.21213	2477.83	74.330	-122.784	-110.999	1.54765	1.279	1.874	4101
34	0.21493	2308.88	73.038	-119.080	-107.140	1.66462	1.317	1.989	4019
36	0.21798	2144.23	71.667	-115.151	-103.042	1.78171	1.352	2.111	3938
38	0.22129	1983.99	70.138	-110.991	-98.698	1.89913	1.383	2.237	3856
40	0.22491	1823.21	68.444	-106.586	-94.091	2.01726	1.410	2.373	3770
42	0.22890	1661.87	66.532	-101.919	-89.203	2.13649	1.433	2.518	3679
44	0.23333	1499.33	64.377	-96.970	-84.008	2.25731	1.452	2.678	3579
46	0.23830	1334.85	61.917	-91.713	-78.475	2.38026	1.469	2.858	3469
48	0.24391	1176.90	59.162	-86.115	-72.565	2.50601	1.483	3.055	3352
50	0.25034	1019.01	56.125	-80.132	-66.225	2.63540	1.496	3.289	3222
52	0.25782	864.59	52.773	-73.698	-59.375	2.76970	1.507	3.569	3080
54	0.26671	714.21	49.098	-66.725	-51.909	2.91056	1.518	3.919	2922
56	0.27759	571.60	45.082	-59.064	-43.643	3.06084	1.531	4.372	2750
58	0.29149	433.78	40.649	-50.481	-34.288	3.22491	1.545	5.021	2555
60	0.31032	307.41	35.699	-40.581	-23.343	3.41037	1.565	6.000	2337
62	0.33851	191.39	30.039	-28.561	-9.756	3.63298	1.597	7.799	2081
64	0.38738	106.59	23.580	-12.890	8.629	3.92458	1.661	10.937	1803
66	0.47771	70.29	17.285	7.334	33.872	4.31272	1.737	13.592	1596
68	0.59480	81.51	13.016	25.886	58.928	4.68716	1.746	11.005	1543
70	0.69865	108.68	10.632	39.145	77.957	4.96315	1.701	8.283	1566
75	0.90109	177.52	7.715	60.637	110.695	5.41600	1.619	5.401	1656
80	1.06114	236.58	6.293	75.685	134.633	5.72540	1.583	4.376	1740
85	1.20322	289.48	5.413	88.321	155.162	5.97447	1.573	3.879	1819
90	1.33363	337.46	4.784	99.670	173.756	6.18711	1.571	3.581	1888
95	1.45631	381.91	4.308	110.244	191.144	6.37519	1.574	3.387	1951
100	1.57333	423.62	3.929	120.371	207.772	6.54581	1.581	3.251	2009
105	1.68624	463.30	3.623	130.105	223.779	6.70202	1.591	3.157	2064
110	1.79597	501.37	3.369	139.624	239.393	6.84731	1.606	3.093	2115
115	1.90315	538.14	3.152	149.019	254.742	6.98577	1.626	3.050	2163
120	2.00826	573.82	2.965	158.360	269.922	7.11298	1.651	3.024	2207
125	2.11165	608.60	2.802	167.704	285.010	7.23617	1.682	3.013	2247
130	2.21361	642.61	2.657	177.100	300.070	7.35430	1.717	3.013	2286
135	2.31434	675.97	2.529	186.589	315.155	7.46816	1.756	3.022	2322
140	2.41402	708.75	2.413	196.205	330.309	7.57838	1.799	3.040	2356
150	2.61076	772.89	2.213	215.938	360.971	7.78990	1.896	3.096	2418
160	2.80468	835.48	2.047	236.487	392.292	7.99202	2.002	3.171	2476
180	3.18678	956.42	1.782	280.814	457.846	8.37652	2.234	3.357	2581
200	3.56245	1075.12	1.581	328.884	526.785	8.73950	2.444	3.537	2685
220	3.93385	1191.31	1.423	380.673	599.206	9.08451	2.628	3.700	2787
240	4.30219	1305.69	1.295	435.543	674.538	9.41197	2.769	3.825	2891
260	4.66823	1418.71	1.188	492.602	751.331	9.72187	2.864	3.908	2995
280	5.03248	1530.67	1.098	551.037	830.601	10.01325	2.915	3.950	3100
300	5.39530	1641.79	1.021	610.010	909.729	10.28635	2.932	3.959	3205
320	5.75698	1752.23	0.9548	668.990	988.801	10.54154	2.923	3.945	3310
340	6.11772	1862.11	0.8964	727.553	1067.404	10.77952	2.897	3.914	3414
360	6.47769	1971.55	0.8449	785.437	1145.285	11.00218	2.861	3.873	3517
380	6.83703	2080.61	0.7991	842.496	1222.306	11.21040	2.819	3.828	3618
400	7.19582	2189.35	0.7580	898.677	1298.418	11.40570	2.777	3.783	3717
420	7.55416	2297.83	0.7210	953.990	1373.637	11.58917	2.735	3.740	3815
440	7.91211	2406.07	0.6876	1008.493	1448.025	11.76226	2.697	3.699	3910
460	8.26972	2514.13	0.6571	1062.245	1521.644	11.92589	2.663	3.663	4003
480	8.62706	2622.01	0.6292	1115.340	1594.589	12.08090	2.633	3.631	4093
500	8.98414	2729.76	0.6036	1167.854	1666.940	12.22875	2.607	3.604	4182
520	9.34102	2837.37	0.5801	1219.871	1738.782	12.36976	2.584	3.581	4268
540	9.69770	2944.88	0.5583	1271.458	1810.184	12.50450	2.565	3.561	4352
560	10.05422	3052.29	0.5381	1322.615	1881.146	12.63305	2.550	3.544	4433
580	10.41059	3159.62	0.5194	1373.549	1951.877	12.75701	2.537	3.531	4514
600	10.76683	3266.87	0.5019	1424.279	2022.396	12.87661	2.526	3.519	4592
650	11.65697	3534.72	0.4629	1550.204	2197.771	13.15764	2.507	3.499	4780
700	12.54657	3802.26	0.4296	1675.432	2372.417	13.41674	2.496	3.487	4960
800	14.32460	4336.67	0.3757	1924.659	2720.418	13.88175	2.488	3.478	5299
900	16.10159	4870.47	0.3338	2173.633	3068.106	14.29096	2.487	3.475	5615
1000	17.87790	5403.89	0.3003	2422.394	3415.545	14.65681	2.489	3.476	5913
1500	26.75467	8068.20	0.2001	3676.335	5162.607	16.07269	2.536	3.523	7205
2000	35.62844	10730.81	0.1500	4969.617	6948.843	17.09823	2.644	3.630	8261
2500	44.50128	13392.89	0.1200	6326.985	8799.115	17.92338	2.786	3.771	9165
3000	53.37432	16054.74	0.1000	7755.890	10720.933	18.61419	2.926	3.912	9972
3500	62.25352	18716.49	0.0857	9263.167	12721.466	19.23351	3.063	4.072	10702
4000	71.16829	21378.18	0.0750	10871.682	14825.214	19.98781	3.343	4.346	11348
5000	89.60633	26701.46	0.0600	14843.308	19821.108	21.93106	4.798	5.958	12388

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

300 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)/V_P$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 26.061	4.87912	297.49	13.704	14779.50	0.0052296	0.04674	1.798	0.00616	1.25947	2.1547
28	4.82812	296.82	13.267	13740.79	0.0055780	0.05160	1.573	0.00646	1.25646	1.8169
30	4.77268	294.76	12.799	12627.44	0.0059902	0.05498	1.392	0.00652	1.25320	1.6030
32	4.71413	294.43	12.328	11680.79	0.0063635	0.05730	1.247	0.00649	1.24977	1.4680
34	4.65261	292.60	11.916	10742.31	0.0067991	0.05879	1.130	0.00635	1.24618	1.3761
36	4.58765	289.72	11.554	9836.96	0.0072855	0.06003	1.032	0.00620	1.24239	1.3058
38	4.51899	285.96	11.225	8965.64	0.0078230	0.06145	0.948	0.00608	1.23840	1.2432
40	4.44618	281.01	10.918	8106.31	0.0084433	0.06234	0.877	0.00591	1.23418	1.2012
42	4.36869	274.77	10.631	7268.21	0.0091639	0.06279	0.814	0.00571	1.22971	1.1746
44	4.28573	267.35	10.343	6425.70	0.0100186	0.06283	0.757	0.00547	1.22494	1.1620
46	4.19648	258.55	10.046	5601.67	0.0110533	0.06250	0.706	0.00521	1.21983	1.1619
48	4.09988	249.19	9.732	4825.13	0.0122612	0.06182	0.659	0.00493	1.21432	1.1718
50	3.99461	238.56	9.394	4070.55	0.0137881	0.06081	0.614	0.00463	1.20835	1.1960
52	3.87868	226.80	9.026	3353.47	0.0157369	0.05949	0.572	0.00430	1.20180	1.2355
54	3.74943	213.74	8.625	2677.89	0.0183346	0.05785	0.531	0.00394	1.19454	1.2958
56	3.60238	199.68	8.176	2059.13	0.0218937	0.05559	0.491	0.00353	1.18633	1.3901
58	3.43067	184.83	7.668	1488.15	0.0273152	0.05293	0.450	0.00307	1.17681	1.5380
60	3.22253	166.50	7.080	990.65	0.0360359	0.05053	0.408	0.00261	1.16537	1.7440
62	2.95412	146.79	6.369	565.38	0.0531304	0.04873	0.362	0.00212	1.15076	2.0863
64	2.58145	127.63	5.500	275.17	0.0856922	0.04704	0.311	0.00167	1.13076	2.6008
66	2.09331	115.70	4.755	147.13	0.1174762	0.04406	0.259	0.00155	1.10501	2.8765
68	1.68124	115.87	4.434	137.04	0.0949790	0.03768	0.225	0.00204	1.08367	2.3646
70	1.43133	121.18	4.366	155.56	0.0683492	0.03320	0.207	0.00280	1.07090	1.8584
75	1.10976	137.90	4.293	197.00	0.0391636	0.02893	0.190	0.00483	1.05464	1.2764
80	0.94238	155.01	4.218	222.95	0.0282269	0.02784	0.187	0.00675	1.04626	1.0586
85	0.83110	172.41	4.142	240.59	0.0225003	0.02772	0.189	0.00860	1.04071	0.9516
90	0.74983	189.41	4.062	253.03	0.0189064	0.02801	0.193	0.01043	1.03668	0.8867
95	0.68667	206.16	3.987	262.25	0.0164283	0.02853	0.197	0.01227	1.03355	0.8437
100	0.63559	222.79	3.910	269.25	0.0145914	0.02918	0.203	0.01412	1.03102	0.8128
105	0.59303	239.40	3.841	274.75	0.0131877	0.02992	0.208	0.01598	1.02892	0.7908
110	0.55680	256.29	3.768	279.17	0.0120667	0.03083	0.214	0.01790	1.02714	0.7724
115	0.52545	273.60	3.689	282.76	0.0111472	0.03182	0.220	0.01986	1.02560	0.7579
120	0.49794	291.45	3.606	285.73	0.0103770	0.03284	0.225	0.02181	1.02424	0.7473
125	0.47356	309.94	3.518	288.21	0.0097206	0.03390	0.231	0.02376	1.02305	0.7399
130	0.45175	329.14	3.426	290.30	0.0091533	0.03497	0.237	0.02569	1.02198	0.7352
135	0.43209	349.12	3.333	292.08	0.0086571	0.03585	0.243	0.02745	1.02101	0.7369
140	0.41425	369.93	3.238	293.60	0.0082186	0.03697	0.249	0.02936	1.02014	0.7358
150	0.38303	414.05	3.048	296.04	0.0074770	0.03972	0.260	0.03350	1.01861	0.7293
160	0.35655	461.45	2.868	297.89	0.0068713	0.04276	0.271	0.03783	1.01732	0.7236
180	0.31380	565.51	2.542	300.12	0.0059368	0.05249	0.309	0.04982	1.01523	0.7117
200	0.28071	675.14	2.304	301.79	0.0052491	0.06158	0.343	0.06202	1.01361	0.7084
220	0.25420	787.33	2.138	302.84	0.0046992	0.06924	0.368	0.07362	1.01232	0.7073
240	0.23244	896.59	2.012	303.49	0.0042663	0.07555	0.388	0.08497	1.01126	0.7066
260	0.21421	999.41	1.937	303.91	0.0039102	0.08059	0.404	0.09628	1.01038	0.7056
280	0.19871	1093.69	1.897	304.16	0.0036114	0.08451	0.419	0.10767	1.00962	0.7044
300	0.18535	1179.54	1.880	304.30	0.0033567	0.08750	0.432	0.11924	1.00897	0.7030
320	0.17370	1257.47	1.881	304.37	0.0031369	0.08977	0.443	0.13101	1.00841	0.7014
340	0.16346	1328.96	1.893	304.38	0.0029450	0.09151	0.455	0.14303	1.00791	0.6999
360	0.15438	1395.36	1.913	304.36	0.0027759	0.09287	0.465	0.15531	1.00747	0.6983
380	0.14626	1457.97	1.938	304.31	0.0026257	0.09399	0.475	0.16786	1.00708	0.6968
400	0.13897	1518.48	1.964	304.25	0.0024914	0.09500	0.485	0.18069	1.00672	0.6954
420	0.13238	1577.57	1.991	304.18	0.0023704	0.09594	0.495	0.19381	1.00640	0.6941
440	0.12639	1636.14	2.017	304.10	0.0022609	0.09687	0.504	0.20720	1.00611	0.6929
460	0.12092	1694.97	2.041	304.02	0.0021613	0.09784	0.513	0.22087	1.00585	0.6919
480	0.11591	1754.13	2.062	303.93	0.0020703	0.09885	0.522	0.23484	1.00561	0.6909
500	0.11131	1814.12	2.081	303.84	0.0019867	0.09993	0.532	0.24909	1.00538	0.6901
520	0.10705	1874.97	2.097	303.75	0.0019097	0.10106	0.540	0.26364	1.00518	0.6894
540	0.10312	1936.58	2.111	303.67	0.0018386	0.10224	0.549	0.27847	1.00499	0.6888
560	0.09946	1999.58	2.122	303.58	0.0017726	0.10351	0.558	0.29360	1.00481	0.6882
580	0.09606	2063.21	2.131	303.50	0.0017113	0.10481	0.567	0.30903	1.00464	0.6878
600	0.09288	2127.72	2.139	303.42	0.0016541	0.10616	0.576	0.32476	1.00449	0.6873
650	0.08579	2291.95	2.152	303.23	0.0015267	0.10968	0.598	0.36538	1.00415	0.6865
700	0.07970	2459.64	2.159	303.05	0.0014177	0.11337	0.619	0.40791	1.00385	0.6859
800	0.06981	2802.64	2.162	302.74	0.0012408	0.12105	0.662	0.49863	1.00337	0.6851
900	0.06211	3149.24	2.161	302.48	0.0011034	0.12882	0.705	0.59692	1.00300	0.6845
1000	0.05593	3499.33	2.157	302.27	0.0009934	0.13663	0.747	0.70265	1.00270	0.6842
1500	0.03738	5309.84	2.118	301.56	0.0006634	0.17605	0.949	1.33712	1.00181	0.6836
2000	0.02807	7288.06	2.021	301.19	0.0004981	0.27727	1.138	2.72127	1.00136	0.5365
2500	0.02247	9458.08	1.917	300.96	0.0003988	0.33497	1.317	3.95250	1.00108	0.5337
3000	0.01874	11765.98	1.824	300.80	0.0003325	0.39343	1.486	5.36823	1.00090	0.5320
3500	0.01606	14282.35	1.731	300.65	0.0002851	0.45760	1.649	6.99596	1.00078	0.5281
4000	0.01405	17406.43	1.597	300.39	0.0002497	0.54809	1.805	8.97523	1.00068	0.5153
5000	0.01116	29587.45	1.121	297.99	0.0002014	1.01598	2.111	15.28120	1.00054	0.4456

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

350 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 26.258	0.20448	3079.88	77.382	-132.479	-119.226	1.19900	1.160	1.555	4374
28	0.20638	2912.52	75.947	-129.811	-116.435	1.30189	1.196	1.645	4308
30	0.20872	2726.86	75.087	-126.569	-113.042	1.41892	1.238	1.752	4228
32	0.21124	2554.75	74.868	-123.124	-109.434	1.53532	1.278	1.858	4148
34	0.21396	2389.67	73.616	-119.472	-105.605	1.65136	1.316	1.970	4070
36	0.21690	2224.22	72.296	-115.604	-101.547	1.76733	1.351	2.088	3991
38	0.22008	2063.56	70.828	-111.516	-97.253	1.88339	1.381	2.210	3911
40	0.22356	1903.88	69.182	-107.192	-92.702	2.00008	1.409	2.339	3827
42	0.22737	1740.46	67.355	-102.622	-87.886	2.11755	1.431	2.479	3737
44	0.23158	1581.08	65.283	-97.791	-82.782	2.23626	1.451	2.629	3643
46	0.23626	1424.26	62.956	-92.675	-77.363	2.35669	1.468	2.791	3542
48	0.24150	1263.80	60.354	-87.251	-71.600	2.47931	1.482	2.977	3429
50	0.24743	1112.39	57.495	-81.486	-65.450	2.60482	1.495	3.179	3311
52	0.25423	961.74	54.361	-75.334	-58.857	2.73409	1.507	3.419	3180
54	0.26214	816.95	50.968	-68.734	-51.744	2.86829	1.517	3.702	3039
56	0.27155	676.66	47.295	-61.595	-43.996	3.00914	1.528	4.055	2885
58	0.28302	543.87	43.334	-53.798	-35.447	3.15911	1.539	4.509	2717
60	0.29753	419.84	39.043	-45.119	-25.836	3.32198	1.553	5.124	2533
62	0.31676	307.88	34.384	-35.283	-14.754	3.50361	1.571	5.994	2333
64	0.34388	212.58	29.336	-23.831	-1.544	3.71320	1.598	7.271	2117
66	0.38457	142.84	24.149	-10.228	14.696	3.96294	1.640	9.020	1908
68	0.44499	107.60	19.201	5.233	34.073	4.25212	1.684	10.227	1740
70	0.52186	105.11	15.434	20.519	54.341	4.54611	1.704	9.704	1665
75	0.70823	156.06	10.399	48.278	94.179	5.09714	1.647	6.474	1686
80	0.86003	215.82	8.124	66.494	122.233	5.45978	1.604	4.955	1757
85	0.99070	270.66	6.805	80.795	145.003	5.73609	1.585	4.229	1829
90	1.10874	320.72	5.944	93.187	165.045	5.96531	1.581	3.837	1899
95	1.21921	367.49	5.303	104.552	183.570	6.16569	1.583	3.584	1963
100	1.32372	411.16	4.795	115.301	201.091	6.34550	1.590	3.405	2020
105	1.42397	452.56	4.396	125.503	217.791	6.50848	1.599	3.282	2075
110	1.52094	492.15	4.067	135.402	233.975	6.65907	1.613	3.197	2126
115	1.61533	530.26	3.791	145.112	249.803	6.79979	1.632	3.138	2173
120	1.70763	567.16	3.555	154.720	265.393	6.93250	1.657	3.101	2217
125	1.79820	603.03	3.350	164.294	280.837	7.05859	1.687	3.079	2258
130	1.88733	638.03	3.170	173.890	296.209	7.17917	1.721	3.071	2297
135	1.97524	672.28	3.010	183.555	311.572	7.29513	1.760	3.075	2333
140	2.06210	705.89	2.868	193.328	326.974	7.40715	1.803	3.087	2366
150	2.23321	771.50	2.624	213.327	358.063	7.62162	1.899	3.135	2429
160	2.40153	835.35	2.421	234.094	389.738	7.82603	2.005	3.203	2487
180	2.73192	957.67	2.101	278.777	455.834	8.21372	2.236	3.383	2591
200	3.05673	1078.21	1.860	327.113	525.221	8.57906	2.446	3.556	2695
220	3.37729	1195.87	1.672	379.102	597.986	8.92572	2.629	3.715	2798
240	3.69481	1311.45	1.519	434.134	673.597	9.25440	2.770	3.838	2901
260	4.01004	1425.44	1.393	491.330	751.222	9.56522	2.865	3.919	3005
280	4.32348	1538.22	1.287	549.882	830.089	9.85734	2.916	3.959	3110
300	4.63553	1650.03	1.196	608.956	909.387	10.13103	2.933	3.967	3216
320	4.94643	1761.06	1.117	668.025	988.606	10.38669	2.924	3.951	3320
340	5.25641	1871.45	1.048	726.666	1067.337	10.62505	2.898	3.920	3424
360	5.56563	1981.32	0.9878	784.620	1145.331	10.84804	2.862	3.879	3527
380	5.87421	2090.76	0.9340	841.742	1222.452	11.05653	2.820	3.833	3629
400	6.18227	2199.84	0.8858	897.977	1298.653	11.25206	2.777	3.787	3728
420	6.48987	2308.61	0.8425	953.340	1373.951	11.43572	2.736	3.743	3825
440	6.79709	2417.12	0.8032	1007.887	1448.410	11.60897	2.698	3.703	3920
460	7.10398	2525.41	0.7675	1061.680	1522.092	11.77274	2.664	3.666	4013
480	7.41059	2633.50	0.7349	1114.811	1595.095	11.92787	2.633	3.634	4103
500	7.71695	2741.43	0.7049	1167.358	1667.497	12.07583	2.607	3.607	4192
520	8.02310	2849.22	0.6773	1219.405	1739.387	12.21693	2.585	3.583	4277
540	8.32907	2956.88	0.6519	1271.020	1810.831	12.35176	2.566	3.563	4361
560	8.63488	3064.43	0.6283	1322.202	1881.833	12.48038	2.550	3.546	4443
580	8.94054	3171.88	0.6063	1373.158	1952.599	12.60440	2.537	3.532	4523
600	9.24607	3279.25	0.5859	1423.909	2023.152	12.72406	2.527	3.521	4601
650	10.00943	3547.35	0.5404	1549.881	2198.597	13.00520	2.508	3.500	4789
700	10.77226	3815.09	0.5014	1675.147	2373.302	13.26439	2.497	3.488	4969
800	12.29677	4349.80	0.4384	1924.432	2721.392	13.72952	2.489	3.478	5307
900	13.82025	4883.82	0.3895	2173.448	3069.146	14.13881	2.487	3.475	5623
1000	15.34306	5417.39	0.3504	2422.241	3416.633	14.50471	2.489	3.477	5921
1500	22.95237	8082.09	0.2334	3676.262	5163.817	15.92069	2.536	3.523	7211
2000	30.55870	10744.84	0.1750	4969.575	6950.101	16.94626	2.644	3.630	8267
2500	38.16412	13406.99	0.1400	6326.956	8800.393	17.77141	2.786	3.771	9170
3000	45.76961	16068.88	0.1167	7755.791	10722.143	18.46220	2.925	3.911	9977
3500	53.37996	18730.65	0.1000	9262.313	12721.895	19.08129	3.079	4.068	10707
4000	61.01853	21392.35	0.0875	10866.797	14821.440	19.83448	3.328	4.330	11355
5000	76.77877	26715.65	0.0700	14785.648	19761.720	21.76574	4.690	5.837	12405

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

350 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 26.258	4.89049	302.74	13.640	15062.13	0.0051376	0.04749	1.813	0.00624	1.26014	2.1372
28	4.84535	301.77	13.273	14112.15	0.0054526	0.05184	1.607	0.00650	1.25748	1.8367
30	4.79118	300.78	12.829	13064.86	0.0058238	0.05529	1.422	0.00659	1.25429	1.6214
32	4.73403	300.17	12.374	12094.25	0.0061904	0.05768	1.274	0.00656	1.25094	1.4773
34	4.67385	298.84	11.968	11168.99	0.0065911	0.05922	1.153	0.00643	1.24742	1.3809
36	4.61046	296.11	11.610	10254.68	0.0070500	0.06052	1.053	0.00629	1.24372	1.3079
38	4.54375	292.53	11.286	9376.31	0.0075540	0.06200	0.969	0.00618	1.23984	1.2428
40	4.47299	287.94	10.981	8516.04	0.0081237	0.06296	0.896	0.00602	1.23573	1.1979
42	4.39804	281.78	10.699	7654.59	0.0087993	0.06348	0.832	0.00582	1.23140	1.1695
44	4.31818	274.97	10.416	6827.37	0.0095619	0.06360	0.775	0.00560	1.22681	1.1529
46	4.23269	267.28	10.131	6026.45	0.0104431	0.06336	0.723	0.00536	1.22190	1.1469
48	4.14065	258.09	9.832	5233.21	0.0115330	0.06278	0.676	0.00509	1.21665	1.1537
50	4.04154	248.71	9.513	4498.21	0.0127818	0.06191	0.632	0.00482	1.21101	1.1685
52	3.93347	237.93	9.172	3782.97	0.0143698	0.06074	0.591	0.00452	1.20489	1.1968
54	3.81471	226.33	8.809	3116.42	0.0163546	0.05929	0.551	0.00420	1.19820	1.2384
56	3.68259	213.66	8.408	2491.87	0.0189798	0.05729	0.512	0.00384	1.19080	1.3058
58	3.53332	199.98	7.968	1921.65	0.0225502	0.05499	0.474	0.00345	1.18249	1.4006
60	3.36103	185.18	7.482	1411.09	0.0276690	0.05234	0.436	0.00304	1.17297	1.5374
62	3.15693	169.45	6.933	971.95	0.0353758	0.05037	0.397	0.00266	1.16178	1.7020
64	2.90801	153.22	6.311	618.19	0.0474544	0.04837	0.357	0.00229	1.14827	1.9311
66	2.60032	138.72	5.662	371.42	0.0650180	0.04623	0.315	0.00197	1.13176	2.2154
68	2.24725	128.79	5.074	241.81	0.0794042	0.04338	0.277	0.00189	1.11308	2.3508
70	1.91622	126.64	4.727	201.42	0.0766287	0.03959	0.248	0.00213	1.09580	2.1878
75	1.41198	137.19	4.471	220.36	0.0471902	0.03271	0.213	0.00358	1.06992	1.5159
80	1.16275	153.05	4.355	250.95	0.0323718	0.03030	0.201	0.00526	1.05731	1.1855
85	1.00938	169.76	4.253	273.20	0.0249100	0.02955	0.199	0.00692	1.04961	1.0247
90	0.90192	186.75	4.169	289.27	0.0205479	0.02952	0.200	0.00853	1.04424	0.9376
95	0.82020	203.74	4.083	301.42	0.0175930	0.02981	0.204	0.01014	1.04017	0.8813
100	0.75545	220.54	3.992	310.61	0.0154386	0.03030	0.208	0.01178	1.03695	0.8408
105	0.70226	237.30	3.915	317.82	0.0138312	0.03093	0.213	0.01342	1.03432	0.8126
110	0.65749	254.32	3.835	323.58	0.0125691	0.03175	0.218	0.01510	1.03210	0.7898
115	0.61907	271.75	3.751	328.27	0.0115481	0.03267	0.223	0.01682	1.03021	0.7721
120	0.58561	289.71	3.663	332.13	0.0107023	0.03363	0.229	0.01852	1.02856	0.7591
125	0.55611	308.29	3.571	335.35	0.0099885	0.03464	0.234	0.02023	1.02711	0.7499
130	0.52985	327.58	3.476	338.06	0.0093764	0.03567	0.240	0.02192	1.02581	0.7437
135	0.50627	347.63	3.379	340.35	0.0088448	0.03648	0.245	0.02343	1.02465	0.7449
140	0.48494	368.51	3.280	342.32	0.0083779	0.03757	0.251	0.02510	1.02361	0.7427
150	0.44779	412.76	3.086	345.47	0.0075941	0.04028	0.262	0.02869	1.02178	0.7345
160	0.41640	460.27	2.900	347.84	0.0069594	0.04329	0.273	0.03245	1.02024	0.7277
180	0.36604	564.43	2.567	350.55	0.0059943	0.05266	0.310	0.04252	1.01778	0.7163
200	0.32715	674.32	2.325	352.73	0.0052741	0.06168	0.343	0.05301	1.01588	0.7119
220	0.29610	786.95	2.147	354.09	0.0047211	0.06930	0.368	0.06300	1.01436	0.7101
240	0.27065	896.69	2.026	354.96	0.0042799	0.07559	0.388	0.07277	1.01312	0.7089
260	0.24937	1000.01	1.950	355.47	0.0039185	0.08063	0.404	0.08251	1.01209	0.7077
280	0.23129	1094.75	1.908	355.78	0.0036162	0.08454	0.419	0.09233	1.01121	0.7062
300	0.21573	1181.02	1.890	355.95	0.0033592	0.08754	0.432	0.10229	1.01045	0.7045
320	0.20217	1259.31	1.890	356.03	0.0031377	0.08981	0.444	0.11242	1.00979	0.7028
340	0.19024	1331.11	1.902	356.03	0.0029447	0.09155	0.455	0.12277	1.00921	0.7010
360	0.17967	1397.79	1.921	355.99	0.0027749	0.09293	0.465	0.13334	1.00870	0.6993
380	0.17024	1460.62	1.946	355.92	0.0026242	0.09405	0.476	0.14414	1.00824	0.6977
400	0.16175	1521.32	1.972	355.83	0.0024895	0.09506	0.485	0.15518	1.00783	0.6962
420	0.15409	1580.57	1.998	355.73	0.0023683	0.09601	0.495	0.16646	1.00746	0.6948
440	0.14712	1639.27	2.024	355.61	0.0022587	0.09695	0.504	0.17798	1.00712	0.6935
460	0.14077	1698.22	2.047	355.49	0.0021590	0.09792	0.514	0.18974	1.00681	0.6924
480	0.13494	1757.47	2.068	355.37	0.0020679	0.09894	0.523	0.20174	1.00653	0.6914
500	0.12958	1817.55	2.087	355.25	0.0019843	0.10002	0.532	0.21400	1.00627	0.6905
520	0.12464	1878.48	2.102	355.13	0.0019073	0.10115	0.541	0.22651	1.00603	0.6897
540	0.12006	1940.15	2.116	355.01	0.0018362	0.10234	0.550	0.23926	1.00581	0.6891
560	0.11581	2003.22	2.127	354.89	0.0017703	0.10360	0.559	0.25226	1.00560	0.6885
580	0.11185	2066.91	2.136	354.78	0.0017098	0.10491	0.568	0.26552	1.00541	0.6880
600	0.10815	2131.47	2.144	354.66	0.0016519	0.10626	0.576	0.27904	1.00523	0.6875
650	0.09991	2295.81	2.157	354.40	0.0015247	0.10979	0.598	0.31395	1.00483	0.6867
700	0.09283	2463.59	2.163	354.16	0.0014159	0.11349	0.620	0.35049	1.00449	0.6860
800	0.08132	2806.73	2.166	353.74	0.0012393	0.12119	0.663	0.42843	1.00393	0.6852
900	0.07236	3153.44	2.164	353.38	0.0011021	0.12897	0.706	0.51287	1.00350	0.6846
1000	0.06518	3503.62	2.160	353.08	0.0009923	0.13680	0.748	0.60369	1.00315	0.6842
1500	0.04357	5314.38	2.112	352.12	0.0006629	0.17630	0.950	1.14868	1.00210	0.6836
2000	0.03272	7292.81	2.023	351.61	0.0004978	0.27727	1.140	2.33401	1.00158	0.5373
2500	0.02620	9462.99	1.918	351.30	0.0003986	0.33497	1.319	3.38960	1.00127	0.5346
3000	0.02185	11769.79	1.826	351.08	0.0003323	0.39336	1.489	4.60304	1.00105	0.5329
3500	0.01873	14275.57	1.733	350.89	0.0002850	0.45697	1.651	5.99562	1.00090	0.5293
4000	0.01639	17350.22	1.604	350.59	0.0002496	0.54491	1.808	7.67833	1.00079	0.5173
5000	0.01302	29012.45	1.146	347.96	0.0002012	0.98653	2.114	12.97753	1.00063	0.4502

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

400 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 26.454	0.20401	3130.03	77.488	-132.396	-117.285	1.20090	1.164	1.555	4401
28	0.20566	2982.81	77.161	-130.050	-114.816	1.29158	1.196	1.634	4345
30	0.20793	2800.61	75.437	-126.847	-111.446	1.40783	1.237	1.739	4269
32	0.21038	2626.24	73.374	-123.446	-107.863	1.52340	1.277	1.845	4192
34	0.21302	2462.70	74.172	-119.844	-104.066	1.63850	1.315	1.953	4117
36	0.21586	2297.43	72.901	-116.034	-100.045	1.75339	1.349	2.068	4039
38	0.21894	2137.19	71.484	-112.010	-95.794	1.86829	1.380	2.186	3961
40	0.22228	1980.10	69.893	-107.762	-91.298	1.98359	1.407	2.310	3881
42	0.22593	1821.99	68.132	-103.283	-86.549	2.09942	1.430	2.442	3796
44	0.22994	1664.93	66.142	-98.555	-81.524	2.21630	1.451	2.583	3706
46	0.23437	1506.91	63.926	-93.565	-76.205	2.33449	1.468	2.736	3608
48	0.23929	1352.90	61.457	-88.293	-70.569	2.45441	1.482	2.903	3504
50	0.24481	1199.71	58.741	-82.713	-64.580	2.57663	1.495	3.091	3390
52	0.25106	1055.42	55.798	-76.792	-58.196	2.70181	1.507	3.297	3271
54	0.25822	911.82	52.626	-70.492	-51.366	2.83069	1.516	3.541	3141
56	0.26655	773.45	49.223	-63.750	-44.007	2.96448	1.526	3.834	3000
58	0.27642	644.36	45.589	-56.482	-36.008	3.10480	1.536	4.183	2851
60	0.28839	523.83	41.719	-48.584	-27.223	3.25368	1.547	4.617	2692
62	0.30332	412.27	37.620	-39.901	-17.435	3.41412	1.559	5.185	2520
64	0.32257	314.78	33.297	-30.250	-6.357	3.58991	1.576	5.919	2341
66	0.34826	234.46	28.818	-19.407	6.388	3.78595	1.598	6.848	2157
68	0.38317	177.40	24.401	-7.298	21.083	4.00524	1.626	7.831	1989
70	0.42932	145.83	20.393	5.696	37.496	4.24309	1.654	8.468	1866
75	0.57463	152.24	13.619	35.499	78.062	4.80360	1.656	7.243	1756
80	0.71293	203.02	10.274	56.809	109.615	5.21148	1.620	5.534	1793
85	0.83368	256.79	8.409	72.998	134.748	5.51650	1.598	4.611	1853
90	0.94231	307.30	7.210	86.597	156.393	5.76407	1.591	4.094	1914
95	1.04283	355.39	6.362	98.749	175.991	5.97608	1.592	3.771	1975
100	1.13812	401.02	5.729	110.156	194.456	6.16558	1.599	3.563	2034
105	1.22870	443.81	5.220	120.854	211.863	6.33546	1.607	3.409	2089
110	1.31598	484.66	4.807	131.151	228.624	6.49143	1.620	3.302	2139
115	1.40066	523.93	4.463	141.190	244.935	6.63645	1.639	3.227	2186
120	1.48325	561.87	4.172	151.073	260.936	6.77266	1.663	3.177	2230
125	1.56412	598.70	3.921	160.883	276.736	6.90165	1.692	3.146	2271
130	1.64355	634.59	3.702	170.684	292.420	7.02469	1.726	3.130	2309
135	1.72177	669.65	3.509	180.528	308.058	7.14272	1.764	3.127	2345
140	1.79895	704.01	3.338	190.460	323.707	7.25654	1.807	3.134	2379
150	1.95075	770.96	3.045	210.728	355.218	7.47393	1.902	3.173	2441
160	2.09979	835.97	2.804	231.714	387.244	7.68059	2.007	3.235	2499
180	2.39116	959.40	2.427	276.740	453.851	8.07134	2.239	3.409	2602
200	2.67776	1081.72	2.144	325.343	523.683	8.43902	2.447	3.576	2706
220	2.96015	1200.79	1.923	377.535	596.790	8.78732	2.631	3.731	2809
240	3.23951	1317.50	1.746	432.730	672.678	9.11720	2.771	3.850	2912
260	3.51660	1432.45	1.599	490.063	750.534	9.42895	2.866	3.929	3016
280	3.79192	1546.01	1.476	548.732	829.597	9.72179	2.917	3.968	3121
300	4.06585	1658.48	1.371	607.908	909.063	9.99606	2.934	3.975	3226
320	4.33866	1770.08	1.280	667.066	988.427	10.25220	2.925	3.958	3331
340	4.61056	1880.96	1.201	725.785	1067.285	10.49094	2.899	3.926	3435
360	4.88169	1991.26	1.131	783.808	1145.391	10.71425	2.863	3.884	3538
380	5.15220	2101.06	1.069	840.991	1222.611	10.92301	2.821	3.838	3639
400	5.42219	2210.46	1.014	897.282	1298.899	11.11876	2.778	3.791	3738
420	5.69173	2319.52	0.9642	952.694	1374.275	11.30261	2.737	3.747	3835
440	5.96089	2428.28	0.9191	1007.285	1448.804	11.47603	2.699	3.706	3930
460	6.22973	2536.79	0.8782	1061.118	1522.549	11.63994	2.664	3.669	4023
480	6.49829	2645.09	0.8407	1114.285	1595.608	11.79519	2.634	3.637	4113
500	6.76661	2753.20	0.8064	1166.865	1668.062	11.94325	2.608	3.609	4201
520	7.03472	2861.15	0.7748	1218.942	1739.998	12.08444	2.585	3.585	4287
540	7.30264	2968.95	0.7456	1270.584	1811.485	12.21935	2.566	3.565	4371
560	7.57041	3076.64	0.7185	1321.791	1882.525	12.34804	2.551	3.548	4453
580	7.83803	3184.21	0.6934	1372.771	1953.327	12.47212	2.538	3.534	4532
600	8.10552	3291.69	0.6700	1423.543	2023.912	12.59183	2.527	3.523	4610
650	8.77380	3560.03	0.6178	1549.560	2199.428	12.87309	2.508	3.502	4799
700	9.44155	3827.96	0.5733	1674.864	2374.191	13.13237	2.497	3.489	4978
800	10.77591	4362.96	0.5011	1924.207	2722.370	13.59761	2.489	3.479	5315
900	12.10925	4897.18	0.4452	2173.265	3070.187	14.00698	2.487	3.476	5631
1000	13.44193	5430.90	0.4005	2422.089	3417.722	14.37293	2.489	3.477	5929
1500	20.10062	8095.97	0.2668	3676.191	5165.028	15.78302	2.536	3.523	7218
2000	26.75638	10758.86	0.2000	4969.535	6951.358	16.81461	2.644	3.630	8272
2500	33.41122	13421.06	0.1600	6326.929	8801.671	17.63978	2.786	3.771	9175
3000	40.06606	16082.99	0.1333	7755.709	10723.369	18.33054	2.925	3.911	9982
3500	46.72484	18744.78	0.1143	9261.623	12722.493	18.94944	3.077	4.066	10712
4000	53.40672	21406.49	0.1000	10862.859	14818.650	19.70174	3.317	4.318	11462
5000	67.16606	26729.80	0.0800	14739.168	19714.102	21.62334	4.604	5.739	12420

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

400 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-J FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 26.454	4.90171	307.89	13.582	15342.53	0.0050505	0.04823	1.627	0.00633	1.26080	2.1209
28	4.86236	307.13	13.266	14503.49	0.0053201	0.05207	1.642	0.00655	1.25848	1.8554
30	4.80927	306.35	12.844	13468.91	0.0056750	0.05559	1.452	0.00665	1.25535	1.6346
32	4.75331	305.50	12.415	12483.35	0.0060380	0.05804	1.300	0.00662	1.25207	1.4877
34	4.69447	304.42	12.016	11561.07	0.0064156	0.05964	1.177	0.00650	1.24862	1.3877
36	4.63262	301.88	11.663	10643.13	0.0068495	0.06100	1.075	0.00637	1.24501	1.3118
38	4.56754	298.55	11.342	9761.71	0.0073229	0.06254	0.989	0.00626	1.24122	1.2442
40	4.49876	294.42	11.040	8907.99	0.0078461	0.06357	0.914	0.00612	1.23723	1.1963
42	4.42617	289.02	10.762	8064.45	0.0084485	0.06415	0.850	0.00594	1.23303	1.1642
44	4.34899	282.72	10.484	7240.75	0.0091348	0.06435	0.792	0.00573	1.22858	1.1444
46	4.26682	275.23	10.208	6429.70	0.0099423	0.06419	0.740	0.00550	1.22386	1.1361
48	4.17904	267.07	9.922	5653.81	0.0108700	0.06370	0.693	0.00525	1.21883	1.1368
50	4.08479	257.90	9.616	4900.57	0.0119866	0.06293	0.649	0.00498	1.21346	1.1480
52	3.98305	248.41	9.298	4203.80	0.0132733	0.06189	0.608	0.00471	1.20769	1.1664
54	3.87263	237.62	8.963	3531.16	0.0149032	0.06059	0.569	0.00442	1.20146	1.1978
56	3.75166	226.01	8.597	2901.72	0.0169632	0.05879	0.532	0.00409	1.19466	1.2489
58	3.61767	213.89	8.204	2331.08	0.0195572	0.05675	0.496	0.00375	1.18718	1.3154
60	3.46755	201.01	7.779	1816.42	0.0229678	0.05445	0.460	0.00340	1.17885	1.4040
62	3.29681	187.35	7.318	1359.19	0.0276779	0.05207	0.424	0.00305	1.16944	1.5213
64	3.10014	173.46	6.817	975.87	0.0341204	0.05023	0.389	0.00274	1.15869	1.6493
66	2.87144	159.99	6.280	673.25	0.0428049	0.04821	0.353	0.00245	1.14630	1.8069
68	2.60983	148.59	5.749	462.99	0.0527037	0.04597	0.319	0.00225	1.13227	1.9562
70	2.32925	141.04	5.293	339.67	0.0600390	0.04343	0.288	0.00220	1.11739	2.0233
75	1.74025	140.91	4.725	264.93	0.0514055	0.03680	0.240	0.00292	1.08671	1.6976
80	1.40266	153.40	4.522	284.76	0.0360784	0.03310	0.219	0.00426	1.06944	1.3204
85	1.19950	168.88	4.387	308.02	0.0273007	0.03162	0.212	0.00572	1.05916	1.1106
90	1.06123	185.17	4.271	326.11	0.0221088	0.03115	0.210	0.00717	1.05220	0.9924
95	0.95892	202.00	4.167	340.79	0.0186681	0.03117	0.211	0.00862	1.04708	0.9188
100	0.87864	219.10	4.077	352.35	0.0162601	0.03150	0.214	0.01006	1.04308	0.8711
105	0.81387	235.89	3.992	361.20	0.0144522	0.03199	0.218	0.01153	1.03985	0.8358
110	0.75989	252.96	3.905	368.29	0.0130518	0.03270	0.222	0.01304	1.03717	0.8081
115	0.71395	270.45	3.815	374.06	0.0119317	0.03355	0.227	0.01456	1.03490	0.7868
120	0.67420	288.47	3.722	378.81	0.0110127	0.03445	0.232	0.01609	1.03293	0.7713
125	0.63934	307.10	3.625	382.77	0.0102432	0.03540	0.238	0.01760	1.03121	0.7600
130	0.60844	326.44	3.526	386.11	0.0095881	0.03638	0.243	0.01910	1.02968	0.7523
135	0.58080	346.55	3.425	388.93	0.0090225	0.03712	0.248	0.02044	1.02832	0.7529
140	0.55588	367.47	3.324	391.35	0.0085285	0.03819	0.254	0.02192	1.02709	0.7496
150	0.51262	411.81	3.123	395.21	0.0077044	0.04084	0.265	0.02511	1.02497	0.7398
160	0.47624	459.42	2.933	398.12	0.0070421	0.04382	0.275	0.02844	1.02318	0.7317
180	0.41821	563.57	2.592	401.23	0.0060494	0.05286	0.310	0.03707	1.02033	0.7209
200	0.37345	673.71	2.346	403.96	0.0053675	0.06179	0.343	0.04627	1.01814	0.7153
220	0.33782	786.74	2.164	405.65	0.0047417	0.06937	0.368	0.05505	1.01640	0.7129
240	0.30869	896.95	2.041	406.70	0.0042927	0.07564	0.388	0.06364	1.01498	0.7113
260	0.28437	1000.74	1.962	407.34	0.0039262	0.08067	0.405	0.07220	1.01379	0.7097
280	0.26372	1095.93	1.919	407.71	0.0036205	0.08458	0.419	0.08083	1.01279	0.7079
300	0.24595	1182.61	1.900	407.90	0.0033613	0.08758	0.432	0.08958	1.01192	0.7061
320	0.23049	1261.25	1.899	407.98	0.0031383	0.08986	0.444	0.09850	1.01117	0.7041
340	0.21689	1333.36	1.910	407.97	0.0029442	0.09161	0.455	0.10759	1.01051	0.7022
360	0.20485	1400.29	1.929	407.90	0.0027737	0.09299	0.466	0.11687	1.00992	0.7003
380	0.19409	1463.34	1.953	407.80	0.0026225	0.09412	0.476	0.12636	1.00940	0.6985
400	0.18443	1524.22	1.979	407.67	0.0024875	0.09513	0.486	0.13605	1.00893	0.6969
420	0.17569	1583.62	2.005	407.52	0.0023661	0.09609	0.495	0.14596	1.00851	0.6954
440	0.16776	1642.45	2.030	407.37	0.0022563	0.09703	0.505	0.15607	1.00812	0.6941
460	0.16052	1701.51	2.053	407.21	0.0021565	0.09801	0.514	0.16639	1.00777	0.6929
480	0.15389	1760.86	2.074	407.04	0.0020654	0.09902	0.523	0.17693	1.00745	0.6918
500	0.14778	1821.02	2.092	406.88	0.0019819	0.10010	0.532	0.18769	1.00715	0.6909
520	0.14215	1882.02	2.108	406.72	0.0019049	0.10125	0.541	0.19866	1.00688	0.6901
540	0.13694	1943.76	2.122	406.56	0.0018339	0.10243	0.550	0.20985	1.00662	0.6894
560	0.13209	2006.89	2.132	406.40	0.0017680	0.10370	0.559	0.22126	1.00639	0.6888
580	0.12758	2070.63	2.141	406.25	0.0017068	0.10501	0.568	0.23290	1.00617	0.6882
600	0.12337	2135.24	2.149	406.10	0.0016497	0.10637	0.577	0.24475	1.00597	0.6878
650	0.11398	2299.69	2.161	405.76	0.0015227	0.10990	0.599	0.27537	1.00551	0.6868
700	0.10591	2467.56	2.168	405.44	0.0014140	0.11361	0.621	0.30743	1.00512	0.6861
800	0.09280	2810.84	2.170	404.88	0.0012377	0.12132	0.664	0.37578	1.00449	0.6852
900	0.08258	3157.65	2.168	404.42	0.0011008	0.12912	0.706	0.44983	1.00399	0.6846
1000	0.07439	3507.90	2.163	404.03	0.0009912	0.13697	0.749	0.52948	1.00359	0.6842
1500	0.04975	5318.92	2.114	402.77	0.0006623	0.17655	0.952	1.00735	1.00240	0.6836
2000	• 0.03737	7297.56	2.024	402.10	0.0004975	0.27727	1.142	2.04356	1.00160	0.5381
2500	0.02993	9467.91	1.919	401.69	0.0003983	0.33497	1.321	2.96743	1.00145	0.5354
3000	0.02496	11773.86	1.827	401.41	0.0003322	0.39330	1.491	4.02920	1.00121	0.5338
3500	0.02140	14271.14	1.736	401.17	0.0002849	0.45646	1.654	5.24590	1.00103	0.5304
4000	0.01872	17305.98	1.610	400.82	0.0002495	0.54235	1.811	6.70849	1.00090	0.5191
5000	0.01489	28549.65	1.167	397.97	0.0002010	0.96277	2.117	11.26743	1.00072	0.4543

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

450 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 26.647	0.20355	3179.66	77.570	-132.309	-115.348	1.20280	1.168	1.555	4428
28	0.20496	3051.49	77.369	-130.275	-113.196	1.28156	1.196	1.623	4380
30	0.20717	2872.57	76.777	-127.111	-109.848	1.39704	1.237	1.726	4309
32	0.20955	2695.84	75.867	-123.752	-106.290	1.51182	1.277	1.832	4234
34	0.21211	2533.61	74.711	-120.196	-102.522	1.62603	1.314	1.938	4161
36	0.21487	2368.31	73.486	-116.441	-98.537	1.73990	1.348	2.050	4085
38	0.21784	2208.30	72.117	-112.478	-94.325	1.85373	1.379	2.165	4008
40	0.22106	2053.43	70.576	-108.300	-89.879	1.96774	1.406	2.284	3931
42	0.22457	1897.03	68.870	-103.902	-85.189	2.08215	1.429	2.410	3849
44	0.22840	1743.60	66.960	-99.269	-80.238	2.19731	1.450	2.543	3764
46	0.23260	1589.30	64.837	-94.392	-75.010	2.31348	1.467	2.686	3672
48	0.23725	1434.06	62.489	-89.255	-69.485	2.43104	1.482	2.844	3571
50	0.24243	1288.08	59.900	-83.835	-63.634	2.55044	1.496	3.011	3466
52	0.24823	1144.75	57.112	-78.111	-57.426	2.67217	1.507	3.197	3355
54	0.25479	1004.23	54.115	-72.055	-50.825	2.79673	1.516	3.409	3234
56	0.26230	870.43	50.926	-65.621	-43.764	2.92509	1.525	3.651	3107
58	0.27102	741.65	47.548	-58.760	-36.177	3.05820	1.535	3.939	2970
60	0.28129	621.04	43.989	-51.404	-27.965	3.19737	1.543	4.283	2825
62	0.29363	511.04	40.252	-43.469	-19.001	3.34431	1.553	4.692	2674
64	0.30878	411.80	36.375	-34.852	-9.122	3.50110	1.565	5.195	2517
66	0.32774	326.99	32.399	-25.457	1.853	3.66993	1.579	5.794	2357
68	0.35184	259.57	28.423	-15.221	14.097	3.85264	1.597	6.448	2203
70	0.38243	211.04	24.624	-4.228	27.639	4.04889	1.616	7.063	2067
75	0.48705	171.56	17.093	23.837	64.423	4.55641	1.646	7.256	1872
80	0.60565	201.97	12.699	47.107	97.574	4.98500	1.627	5.966	1852
85	0.71557	249.88	10.198	65.078	124.705	5.31426	1.608	4.962	1890
90	0.81549	299.32	8.622	79.910	147.863	5.57917	1.599	4.351	1943
95	0.90790	347.17	7.530	92.934	168.587	5.80336	1.599	3.967	1997
100	0.99482	392.56	6.720	104.964	187.860	6.00117	1.606	3.714	2051
105	1.07825	437.19	6.091	116.182	206.030	6.17849	1.614	3.533	2105
110	1.15781	479.01	5.587	126.887	223.365	6.33979	1.627	3.406	2156
115	1.23481	519.21	5.168	137.262	240.156	6.48908	1.645	3.315	2202
120	1.30974	558.03	4.816	147.428	256.565	6.62876	1.668	3.252	2245
125	1.38297	595.67	4.515	157.478	272.718	6.76064	1.697	3.212	2286
130	1.45479	632.32	4.254	167.486	288.710	6.88609	1.730	3.188	2323
135	1.52541	668.10	4.025	177.511	304.621	7.00618	1.768	3.178	2359
140	1.59502	703.12	3.822	187.603	320.512	7.12177	1.810	3.180	2392
150	1.73169	771.27	3.477	208.142	352.440	7.34203	1.905	3.210	2454
160	1.86565	837.34	3.195	229.349	384.810	7.55092	2.009	3.267	2511
180	2.12646	961.64	2.759	274.705	451.899	7.94457	2.241	3.435	2613
200	2.38329	1085.64	2.432	323.577	522.172	8.31459	2.449	3.595	2717
220	2.63595	1206.05	2.178	375.972	595.620	8.66451	2.632	3.746	2820
240	2.88560	1323.87	1.975	431.332	671.782	8.99559	2.773	3.863	2923
260	3.13299	1439.71	1.807	488.801	749.867	9.30825	2.867	3.940	3027
280	3.37865	1554.04	1.667	547.588	829.123	9.60182	2.918	3.977	3132
300	3.62292	1667.15	1.548	606.866	908.756	9.87666	2.935	3.983	3237
320	3.86608	1779.29	1.444	666.112	988.264	10.13326	2.926	3.965	3342
340	4.10833	1890.64	1.355	724.910	1067.248	10.37238	2.900	3.932	3446
360	4.34984	2001.34	1.276	783.002	1145.464	10.59600	2.864	3.889	3548
380	4.59073	2111.53	1.205	840.246	1222.782	10.80503	2.822	3.842	3650
400	4.83110	2221.21	1.143	896.591	1299.156	11.00100	2.779	3.796	3749
420	5.07103	2330.54	1.086	952.052	1374.610	11.18505	2.738	3.751	3846
440	5.31058	2439.55	1.035	1006.688	1449.207	11.35862	2.699	3.709	3941
460	5.54982	2548.27	0.9891	1060.560	1523.014	11.52267	2.665	3.672	4033
480	5.78878	2656.76	0.9468	1113.763	1596.129	11.67804	2.635	3.640	4123
500	6.02750	2765.05	0.9080	1166.376	1668.634	11.82621	2.608	3.611	4211
520	6.26601	2873.15	0.8723	1218.483	1740.616	11.96749	2.586	3.587	4297
540	6.50435	2981.10	0.8394	1270.152	1812.145	12.10247	2.567	3.567	4381
560	6.74252	3088.91	0.8089	1321.384	1883.223	12.23123	2.551	3.550	4462
580	6.98055	3196.60	0.7805	1372.386	1954.060	12.35538	2.538	3.536	4542
600	7.21846	3304.18	0.7541	1423.179	2024.677	12.47514	2.528	3.524	4620
650	7.81277	3572.75	0.6954	1549.242	2200.263	12.75651	2.509	3.503	4808
700	8.40656	3840.87	0.6452	1674.583	2375.083	13.01587	2.497	3.490	4987
800	9.59302	4376.14	0.5639	1923.984	2723.350	13.48123	2.489	3.480	5324
900	10.77847	4910.56	0.5009	2173.684	3071.231	13.89068	2.487	3.476	5639
1000	11.96326	5444.43	0.4506	2421.940	3418.812	14.25667	2.489	3.478	5936
1500	17.88259	8109.85	0.3001	3676.122	5166.238	15.67286	2.536	3.523	7224
2000	23.79900	10772.85	0.2250	4969.497	6952.615	16.69849	2.644	3.630	8278
2500	29.71450	13435.11	0.1800	6326.904	8802.949	17.52366	2.786	3.772	9180
3000	35.62995	16097.07	0.1500	7755.641	10724.606	18.21441	2.925	3.911	9986
3500	41.54866	18758.88	0.1286	9261.051	12723.211	18.83316	3.075	4.063	10717
4000	47.48674	21420.60	0.1125	10859.597	14816.563	19.58472	3.307	4.307	11369
5000	59.69455	26743.92	0.0900	14700.668	19674.884	21.49831	4.532	5.658	12434

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

450 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)/V_p$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 26.647	4.91280	313.05	13.522	15621.01	0.0043658	0.04895	1.841	0.00641	1.26146	2.1054
28	4.87899	312.35	13.260	14888.17	0.0051967	0.05230	1.678	0.00660	1.25946	1.8747
30	4.82693	311.76	12.858	13865.66	0.0055372	0.05588	1.482	0.00671	1.25639	1.6484
32	4.77208	310.67	12.454	12864.76	0.0058973	0.05839	1.327	0.00668	1.25317	1.4989
34	4.71449	309.83	12.062	11944.67	0.0062547	0.06005	1.201	0.00657	1.24979	1.3952
36	4.65408	307.45	11.713	11022.32	0.0066670	0.06146	1.097	0.00644	1.24626	1.3166
38	4.59051	304.33	11.396	10137.21	0.0071141	0.06307	1.009	0.00635	1.24256	1.2465
40	4.52356	300.61	11.097	9288.83	0.0075980	0.06415	0.933	0.00621	1.23866	1.1960
42	4.45301	295.60	10.820	8447.49	0.0081527	0.06480	0.867	0.00604	1.23458	1.1613
44	4.37833	289.91	10.548	7634.04	0.0087712	0.06506	0.809	0.00584	1.23027	1.1384
46	4.29915	283.08	10.279	6832.63	0.0094893	0.06498	0.757	0.00563	1.22571	1.1265
48	4.21492	275.13	10.003	6044.44	0.0103383	0.06457	0.709	0.00539	1.22088	1.1250
50	4.12496	267.10	9.710	5313.26	0.0112737	0.06389	0.666	0.00514	1.21575	1.1294
52	4.02856	258.19	9.408	4611.71	0.0123842	0.06296	0.625	0.00489	1.21027	1.1425
54	3.92487	248.30	9.093	3941.46	0.0137296	0.06180	0.587	0.00462	1.20440	1.1650
56	3.81241	237.92	8.757	3318.45	0.0153465	0.06014	0.550	0.00432	1.19807	1.2021
58	3.68982	226.72	8.397	2736.54	0.0173754	0.05829	0.515	0.00401	1.19120	1.2527
60	3.55505	214.94	8.017	2207.83	0.0199241	0.05624	0.481	0.00369	1.18370	1.3180
62	3.40560	202.86	7.608	1740.39	0.0231283	0.05398	0.447	0.00338	1.17543	1.3997
64	3.23854	190.48	7.178	1333.64	0.0272751	0.05196	0.414	0.00309	1.16624	1.4920
66	3.05119	178.41	6.723	997.71	0.0324734	0.05013	0.382	0.00284	1.15603	1.5905
68	2.84219	167.38	6.261	737.75	0.0385261	0.04814	0.351	0.00263	1.14472	1.6930
70	2.61486	158.28	5.826	551.83	0.0446217	0.04602	0.322	0.00249	1.13254	1.7787
75	2.05316	149.53	5.059	352.25	0.0485256	0.04039	0.267	0.00271	1.10292	1.7265
80	1.65112	156.66	4.727	333.48	0.0380798	0.03605	0.239	0.00366	1.08213	1.4248
85	1.39748	169.91	4.539	349.21	0.0292035	0.03385	0.226	0.00488	1.06918	1.1939
90	1.22626	185.24	4.397	367.05	0.0234900	0.03291	0.221	0.00617	1.06051	1.0511
95	1.10144	201.48	4.275	382.39	0.0196918	0.03264	0.220	0.00747	1.05422	0.9612
100	1.00520	218.10	4.163	394.61	0.0170299	0.03276	0.221	0.00877	1.04940	0.9020
105	0.92743	235.15	4.069	405.47	0.0150226	0.03309	0.224	0.01010	1.04551	0.8596
110	0.86370	252.23	3.977	413.72	0.0135048	0.03370	0.227	0.01146	1.04233	0.8273
115	0.80984	269.71	3.880	420.48	0.0122917	0.03446	0.232	0.01284	1.03965	0.8022
120	0.76351	287.73	3.782	426.06	0.0113039	0.03529	0.236	0.01421	1.03735	0.7838
125	0.72308	306.38	3.680	430.72	0.0104821	0.03618	0.241	0.01558	1.03535	0.7704
130	0.68738	325.74	3.577	434.65	0.0097865	0.03712	0.246	0.01694	1.03358	0.7611
135	0.65556	345.87	3.472	437.98	0.0091889	0.03778	0.251	0.01813	1.03201	0.7610
140	0.62695	366.81	3.368	440.83	0.0086692	0.03881	0.256	0.01947	1.03060	0.7566
150	0.57747	411.21	3.162	445.39	0.0078074	0.04142	0.267	0.02234	1.02816	0.7450
160	0.53601	458.88	2.967	448.82	0.0071192	0.04436	0.277	0.02533	1.02612	0.7357
180	0.47027	562.93	2.618	452.23	0.0061019	0.05306	0.311	0.03285	1.02289	0.7255
200	0.41959	673.30	2.367	455.52	0.0053391	0.06192	0.344	0.04105	1.02040	0.7188
220	0.37937	786.72	2.182	457.54	0.0047611	0.06946	0.369	0.04888	1.01843	0.7158
240	0.34655	897.38	2.055	458.78	0.0043046	0.07570	0.389	0.05655	1.01683	0.7137
260	0.31918	1001.63	1.975	459.53	0.0039332	0.08072	0.405	0.06420	1.01549	0.7117
280	0.29598	1097.24	1.930	459.96	0.0036244	0.08463	0.420	0.07190	1.01436	0.7097
300	0.27602	1184.31	1.910	460.17	0.0033630	0.08764	0.432	0.07972	1.01339	0.7076
320	0.25866	1263.29	1.908	460.23	0.0031385	0.08991	0.444	0.08767	1.01254	0.7054
340	0.24341	1335.69	1.919	460.20	0.0029435	0.09167	0.456	0.09579	1.01180	0.7033
360	0.22989	1402.87	1.937	460.10	0.0027723	0.09305	0.466	0.10407	1.01114	0.7013
380	0.21783	1466.12	1.961	459.95	0.0026206	0.09419	0.476	0.11254	1.01055	0.6994
400	0.20699	1527.18	1.986	459.77	0.0024853	0.09521	0.486	0.12118	1.01003	0.6977
420	0.19720	1586.72	2.012	459.58	0.0023637	0.09616	0.496	0.13002	1.00955	0.6961
440	0.18838	1645.68	2.037	459.37	0.0022539	0.09711	0.505	0.13904	1.00912	0.6946
460	0.18019	1704.84	2.060	459.16	0.0021540	0.09809	0.514	0.14824	1.00872	0.6934
480	0.17275	1764.28	2.080	458.95	0.0020629	0.09911	0.524	0.15764	1.00836	0.6922
500	0.16591	1824.52	2.098	458.74	0.0019794	0.10020	0.533	0.16723	1.00803	0.6913
520	0.15959	1885.60	2.114	458.53	0.0019025	0.10134	0.542	0.17701	1.00772	0.6904
540	0.15374	1947.40	2.127	458.32	0.0018315	0.10253	0.551	0.18698	1.00744	0.6897
560	0.14831	2010.58	2.136	458.12	0.0017657	0.10380	0.560	0.19715	1.00718	0.6890
580	0.14326	2074.37	2.147	457.93	0.0017045	0.10511	0.569	0.20752	1.00693	0.6884
600	0.13853	2139.04	2.154	457.74	0.0016475	0.10647	0.577	0.21809	1.00670	0.6880
650	0.12800	2303.59	2.166	457.30	0.0015207	0.11002	0.599	0.24537	1.00619	0.6870
700	0.11895	2471.54	2.172	456.89	0.0014122	0.11373	0.621	0.27393	1.00575	0.6862
800	0.10424	2814.96	2.173	456.18	0.0012362	0.12146	0.664	0.33484	1.00504	0.6853
900	0.09278	3161.87	2.171	455.59	0.0010995	0.12927	0.707	0.40081	1.00448	0.6846
1000	0.08359	3512.20	2.166	455.10	0.0009901	0.13714	0.749	0.47176	1.00404	0.6842
1500	0.05592	5323.46	2.116	453.51	0.0006618	0.17680	0.953	0.89743	1.00270	0.6836
2000	0.04202	7302.30	2.025	452.66	0.0004971	0.27727	1.143	1.81766	1.00203	0.5390
2500	0.03365	9472.84	1.920	452.14	0.0003981	0.33496	1.323	2.63987	1.00163	0.5363
3000	0.02807	11778.11	1.828	451.78	0.0003320	0.39325	1.494	3.58291	1.00136	0.5348
3500	0.02407	14268.39	1.737	451.49	0.0002848	0.45603	1.657	4.66312	1.00116	0.5315
4000	0.02106	17270.28	1.615	451.09	0.0002494	0.54023	1.814	5.95598	1.00102	0.5208
5000	0.01675	28167.02	1.186	448.01	0.0002009	0.94306	2.120	9.94908	1.00081	0.4580

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

500 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 26.840	0.20310	3228.59	77.623	-132.218	-113.414	1.20471	1.171	1.554	4455
28	0.20428	3118.65	77.573	-130.489	-111.575	1.27179	1.195	1.613	4415
30	0.20643	2942.83	77.110	-127.361	-108.248	1.38654	1.237	1.715	4348
32	0.20875	2768.87	76.302	-124.041	-104.713	1.50058	1.276	1.819	4276
34	0.21124	2606.64	75.206	-120.530	-100.972	1.61396	1.313	1.922	4205
36	0.21392	2445.98	74.022	-116.824	-97.018	1.72694	1.347	2.030	4133
38	0.21679	2286.07	72.713	-112.921	-92.849	1.83963	1.377	2.142	4059
40	0.21990	2129.96	71.228	-108.808	-88.448	1.95249	1.405	2.258	3982
42	0.22327	1976.03	69.577	-104.485	-83.813	2.06554	1.428	2.378	3904
44	0.22694	1822.18	67.741	-99.940	-78.928	2.17915	1.449	2.506	3821
46	0.23095	1666.10	65.698	-95.164	-73.781	2.29354	1.467	2.644	3730
48	0.23537	1519.65	63.444	-90.144	-68.353	2.40905	1.482	2.786	3638
50	0.24024	1373.17	60.982	-84.867	-62.625	2.52595	1.496	2.943	3538
52	0.24566	1228.80	58.319	-79.314	-56.570	2.64468	1.507	3.116	3430
54	0.25173	1093.13	55.478	-73.463	-50.157	2.76568	1.517	3.301	3320
56	0.25859	959.41	52.465	-67.285	-43.343	2.88956	1.526	3.515	3200
58	0.26642	831.44	49.296	-60.746	-36.079	3.01700	1.534	3.762	3073
60	0.27548	713.09	45.970	-53.798	-28.292	3.14897	1.542	4.041	2942
62	0.28609	604.47	42.508	-46.390	-19.902	3.28650	1.550	4.359	2806
64	0.29869	505.22	38.937	-38.468	-10.814	3.43075	1.559	4.732	2665
66	0.31385	416.70	35.301	-29.978	-0.920	3.58295	1.570	5.170	2521
68	0.33231	342.54	31.654	-20.882	9.885	3.74421	1.582	5.649	2381
70	0.35484	285.03	28.106	-11.209	21.644	3.91462	1.595	6.118	2251
75	0.43157	210.97	20.455	14.315	54.273	4.36462	1.624	6.754	2016
80	0.52829	214.63	15.294	37.946	86.858	4.78567	1.625	6.131	1937
85	0.62591	251.35	12.145	57.260	115.211	5.12973	1.613	5.231	1943
90	0.71718	296.75	10.148	73.231	139.632	5.40908	1.605	4.580	1981
95	0.80225	342.88	8.783	87.109	161.386	5.64442	1.605	4.152	2027
100	0.88235	388.54	7.784	99.786	181.480	5.85066	1.611	3.860	2077
105	0.95860	432.11	7.020	111.486	200.240	6.03376	1.619	3.657	2126
110	1.03182	474.54	6.411	122.601	218.134	6.20027	1.632	3.510	2174
115	1.10320	516.16	5.908	133.342	235.484	6.35453	1.650	3.403	2220
120	1.17189	555.65	5.487	143.793	252.294	6.49763	1.673	3.327	2262
125	1.23892	593.96	5.131	154.086	268.793	6.63233	1.701	3.276	2302
130	1.30457	631.25	4.824	164.303	285.088	6.76016	1.734	3.245	2339
135	1.36905	667.63	4.556	174.510	301.266	6.88227	1.772	3.229	2374
140	1.43253	703.23	4.320	184.763	317.396	6.99959	1.814	3.225	2407
150	1.55701	772.44	3.920	205.573	349.731	7.22267	1.907	3.247	2468
160	1.67885	839.46	3.595	227.000	382.439	7.43374	2.012	3.298	2525
180	1.91502	964.42	3.098	272.674	449.979	7.83016	2.244	3.460	2625
200	2.14798	1089.99	2.724	321.816	520.690	8.20249	2.450	3.614	2729
220	2.37681	1211.68	2.436	374.415	594.475	8.55402	2.633	3.761	2831
240	2.60266	1330.54	2.206	429.939	670.910	8.88628	2.774	3.875	2934
260	2.82628	1447.25	2.017	487.546	749.221	9.19985	2.869	3.950	3038
280	3.04817	1562.30	1.859	546.450	828.569	9.49413	2.920	3.986	3143
300	3.26869	1676.02	1.725	605.829	908.466	9.76954	2.937	3.990	3248
320	3.48812	1788.69	1.609	665.164	988.117	10.02659	2.928	3.972	3353
340	3.70665	1900.49	1.509	724.040	1067.225	10.26610	2.901	3.937	3457
360	3.92444	2011.58	1.420	782.200	1145.550	10.49003	2.865	3.894	3559
380	4.14162	2122.08	1.342	839.506	1222.964	10.69932	2.823	3.847	3660
400	4.35829	2232.09	1.272	895.905	1299.424	10.89551	2.780	3.800	3759
420	4.57452	2341.68	1.209	951.415	1374.954	11.07974	2.739	3.754	3856
440	4.79039	2450.92	1.152	1006.094	1449.620	11.25347	2.700	3.712	3951
460	5.00594	2559.85	1.100	1060.006	1523.488	11.41766	2.666	3.675	4043
480	5.22121	2668.53	1.053	1113.245	1596.659	11.57314	2.635	3.642	4134
500	5.43625	2776.98	1.010	1165.890	1669.214	11.72141	2.609	3.614	4221
520	5.65109	2885.23	0.9701	1218.027	1741.241	11.86279	2.587	3.589	4307
540	5.86574	2993.31	0.9334	1269.723	1812.811	11.99785	2.567	3.569	4390
560	6.08024	3101.25	0.8994	1320.979	1883.927	12.12668	2.552	3.552	4472
580	6.29460	3209.05	0.8678	1372.004	1954.799	12.25088	2.539	3.537	4551
600	6.50883	3316.73	0.8384	1422.818	2025.448	12.37070	2.528	3.526	4629
650	7.04397	3585.52	0.7730	1548.926	2201.102	12.65218	2.509	3.504	4817
700	7.57859	3853.81	0.7172	1674.305	2375.979	12.91163	2.498	3.491	4996
800	8.64672	4389.36	0.6267	1923.764	2724.333	13.37711	2.489	3.481	5332
900	9.71385	4923.96	0.5567	2172.905	3072.276	13.78662	2.487	3.477	5647
1000	10.78033	5457.96	0.5007	2421.792	3419.904	14.15267	2.489	3.478	5944
1500	16.10814	8123.71	0.3335	3676.053	5167.449	15.56896	2.536	3.523	7230
2000	21.43308	10786.83	0.2500	4969.460	6953.872	16.59461	2.644	3.630	8283
2500	26.75711	13449.14	0.2000	6326.881	8804.226	17.41979	2.786	3.772	9185
3000	32.08103	16111.13	0.1667	7755.581	10725.851	18.11053	2.924	3.910	9990
3500	37.40774	18772.95	0.1429	9260.568	12724.018	18.72914	3.073	4.061	10721
4000	42.75096	21434.68	0.1250	10856.839	14814.999	19.48008	3.299	4.298	11375
5000	53.72071	26758.01	0.1000	14668.098	19641.908	21.38691	4.471	5.590	12446

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

500 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 26.840	4.92375	318.21	13.460	15896.77	0.0048829	0.04966	1.856	0.00649	1.26210	2.0905
28	4.89524	317.43	13.256	15686.93	0.0050812	0.05252	1.714	0.00665	1.26042	1.8946
30	4.84416	317.02	12.873	14255.55	0.0054091	0.05617	1.513	0.00676	1.25741	1.6629
32	4.79032	316.18	12.484	13263.79	0.0057526	0.05874	1.354	0.00674	1.25424	1.5092
34	4.73390	315.44	12.100	12339.58	0.0060947	0.06045	1.225	0.00664	1.25093	1.4024
36	4.67472	313.61	11.757	11434.27	0.0064737	0.06191	1.118	0.00652	1.24747	1.3200
38	4.61276	310.68	11.444	10545.12	0.0068954	0.06358	1.029	0.00643	1.24385	1.2477
40	4.54747	307.06	11.149	9685.94	0.0073537	0.06472	0.952	0.00630	1.24005	1.1954
42	4.47886	302.51	10.876	8850.37	0.0078614	0.06543	0.885	0.00614	1.23607	1.1580
44	4.40642	297.03	10.608	8029.29	0.0084367	0.06575	0.826	0.00595	1.23189	1.1332
46	4.32986	290.31	10.344	7213.99	0.0091070	0.06573	0.773	0.00574	1.22748	1.1196
48	4.24869	283.54	10.076	6456.55	0.0098262	0.06540	0.725	0.00552	1.22282	1.1126
50	4.16255	275.83	9.795	5715.90	0.0106689	0.06481	0.682	0.00529	1.21789	1.1144
52	4.07074	267.23	9.505	5002.12	0.0116588	0.06397	0.641	0.00504	1.21266	1.1240
54	3.97258	258.35	9.208	4342.55	0.0127755	0.06291	0.603	0.00480	1.20710	1.1390
56	3.86714	248.57	8.893	3710.18	0.0141407	0.06139	0.567	0.00452	1.20115	1.1689
58	3.75347	238.18	8.561	3120.78	0.0157960	0.05969	0.533	0.00423	1.19476	1.2089
60	3.63006	227.53	8.212	2588.56	0.0177588	0.05782	0.500	0.00394	1.18787	1.2572
62	3.49544	216.68	7.843	2112.89	0.0201182	0.05579	0.468	0.00366	1.18039	1.3155
64	3.34800	205.56	7.459	1691.46	0.0230198	0.05359	0.437	0.00338	1.17225	1.3877
66	3.18624	194.45	7.057	1327.69	0.0265878	0.05187	0.406	0.00315	1.16338	1.4580
68	3.00924	183.96	6.650	1030.79	0.0307088	0.05009	0.377	0.00295	1.15375	1.5319
70	2.81813	174.85	6.254	803.25	0.0349909	0.04819	0.350	0.00280	1.14343	1.5986
75	2.31712	161.42	5.435	488.85	0.0418425	0.04326	0.293	0.00276	1.11675	1.6482
80	1.89290	162.86	4.971	406.28	0.0376438	0.03890	0.259	0.00335	1.09459	1.4713
85	1.59769	172.98	4.713	401.57	0.0302426	0.03616	0.242	0.00433	1.07939	1.2597
90	1.39434	186.74	4.534	413.77	0.0245264	0.03477	0.233	0.00544	1.06902	1.1056
95	1.24650	202.05	4.390	427.40	0.0205493	0.03418	0.229	0.00660	1.06153	1.0035
100	1.13334	218.33	4.263	440.34	0.0176781	0.03407	0.229	0.00779	1.05583	0.9335
105	1.04319	234.80	4.157	450.77	0.0155741	0.03426	0.230	0.00898	1.05130	0.8851
110	0.96916	251.83	4.053	459.90	0.0139397	0.03474	0.233	0.01021	1.04759	0.8475
115	0.90645	269.50	3.949	467.87	0.0126265	0.03540	0.236	0.01148	1.04446	0.8183
120	0.85332	287.48	3.843	474.15	0.0115719	0.03616	0.241	0.01274	1.04182	0.7967
125	0.80716	306.10	3.736	479.42	0.0107024	0.03699	0.245	0.01399	1.03952	0.7811
130	0.76654	325.45	3.629	483.87	0.0099696	0.03787	0.250	0.01523	1.03750	0.7700
135	0.73044	345.57	3.520	487.66	0.0093426	0.03845	0.254	0.01631	1.03571	0.7692
140	0.69807	366.52	3.412	490.90	0.0087993	0.03945	0.259	0.01752	1.03411	0.7636
150	0.64226	410.93	3.200	496.10	0.0079025	0.04201	0.270	0.02014	1.03135	0.7502
160	0.59565	458.63	3.000	500.02	0.0071903	0.04491	0.280	0.02286	1.02905	0.7397
180	0.52219	562.51	2.644	503.61	0.0061515	0.05328	0.312	0.02949	1.02544	0.7301
200	0.46555	673.10	2.388	507.45	0.0053689	0.06206	0.345	0.03689	1.02265	0.7223
220	0.42073	786.88	2.199	509.79	0.0047792	0.06956	0.369	0.04396	1.02046	0.7186
240	0.38422	897.97	2.070	511.22	0.0043155	0.07578	0.389	0.05089	1.01867	0.7161
260	0.35382	1002.65	1.988	512.07	0.0039396	0.08079	0.406	0.05780	1.01718	0.7138
280	0.32807	1098.68	1.941	512.54	0.0036277	0.08469	0.420	0.06477	1.01592	0.7115
300	0.30593	1186.12	1.920	512.75	0.0033643	0.08769	0.433	0.07183	1.01484	0.7091
320	0.28669	1265.43	1.918	512.79	0.0031385	0.08997	0.445	0.07902	1.01391	0.7068
340	0.26979	1338.10	1.927	512.72	0.0029425	0.09173	0.456	0.08635	1.01308	0.7045
360	0.25481	1405.52	1.945	512.58	0.0027707	0.09312	0.466	0.09384	1.01235	0.7023
380	0.24145	1468.97	1.969	512.38	0.0026187	0.09426	0.477	0.10148	1.01170	0.7003
400	0.22945	1530.19	1.994	512.15	0.0024831	0.09528	0.487	0.10929	1.01112	0.6984
420	0.21860	1589.88	2.019	511.90	0.0023613	0.09624	0.496	0.11727	1.01059	0.6967
440	0.20875	1648.95	2.044	511.63	0.0022514	0.09719	0.506	0.12541	1.01011	0.6952
460	0.19976	1708.21	2.066	511.36	0.0021515	0.09817	0.515	0.13372	1.00967	0.6939
480	0.19153	1767.74	2.086	511.09	0.0020604	0.09920	0.524	0.14221	1.00927	0.6927
500	0.18395	1828.06	2.104	510.83	0.0019768	0.10029	0.533	0.15086	1.00891	0.6917
520	0.17696	1889.20	2.119	510.56	0.0019000	0.10143	0.542	0.15969	1.00857	0.6908
540	0.17048	1951.07	2.133	510.30	0.0018290	0.10263	0.551	0.16869	1.00825	0.6900
560	0.16447	2014.30	2.143	510.05	0.0017633	0.10390	0.560	0.17787	1.00796	0.6893
580	0.15887	2078.14	2.152	509.81	0.0017022	0.10522	0.569	0.18723	1.00769	0.6887
600	0.15364	2142.86	2.159	509.57	0.0016453	0.10658	0.578	0.19676	1.00743	0.6882
650	0.14197	2307.50	2.170	509.02	0.0015186	0.11013	0.600	0.22138	1.00687	0.6871
700	0.13195	2475.54	2.176	508.51	0.0014103	0.11385	0.622	0.24714	1.00638	0.6864
800	0.11565	2819.09	2.177	507.63	0.0012346	0.12160	0.665	0.30208	1.00559	0.6853
900	0.10295	3166.09	2.174	506.90	0.0010982	0.12943	0.708	0.36159	1.00498	0.6847
1000	0.09276	3516.50	2.169	506.29	0.0009891	0.13730	0.750	0.42558	1.00448	0.6842
1500	0.06208	5327.99	2.118	504.32	0.0006613	0.17705	0.954	0.80950	1.00300	0.6836
2000	0.04666	7307.05	2.027	503.28	0.0004968	0.27727	1.145	1.63693	1.00225	0.5398
2500	0.03737	9477.76	1.921	502.64	0.0003979	0.33496	1.325	2.37639	1.00180	0.5372
3000	0.03117	11782.58	1.828	502.20	0.0003319	0.39321	1.496	3.22589	1.00151	0.5357
3500	0.02673	14266.87	1.739	501.85	0.0002847	0.45568	1.660	4.19711	1.00129	0.5326
4000	0.02339	17248.93	1.620	501.38	0.0002493	0.53843	1.817	5.35520	1.00113	0.5223
5000	0.01861	27844.04	1.202	498.09	0.0002008	0.92638	2.124	8.90253	1.00090	0.4613

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

550 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / L3 -R	CP	VELOCITY OF SOUND FT/SEC
• 27.030	0.20265	3250.74	77.696	-132.124	-111.485	1.20861	1.175	1.556	4467
28	0.20362	3184.00	77.757	-130.691	-109.953	1.26229	1.195	1.603	4449
30	0.20572	3007.33	77.379	-127.596	-106.644	1.37639	1.236	1.704	4383
32	0.20798	2837.50	75.672	-124.317	-103.135	1.48960	1.275	1.806	4315
34	0.21040	2675.53	75.680	-120.848	-99.420	1.60219	1.312	1.909	4246
36	0.21300	2516.57	74.543	-117.191	-95.498	1.71427	1.346	2.014	4177
38	0.21578	2356.50	73.286	-113.340	-91.364	1.82602	1.376	2.123	4104
40	0.21879	2201.06	71.854	-109.289	-87.006	1.93777	1.404	2.236	4030
42	0.22204	2049.37	70.253	-105.035	-82.421	2.04961	1.427	2.351	3954
44	0.22557	1896.95	68.480	-100.570	-77.598	2.16179	1.449	2.473	3874
46	0.22940	1747.71	66.512	-95.886	-72.522	2.27457	1.466	2.601	3790
48	0.23360	1599.72	64.350	-90.974	-67.183	2.38818	1.482	2.737	3700
50	0.23821	1452.94	61.996	-85.824	-61.563	2.50287	1.496	2.886	3603
52	0.24331	1313.90	59.444	-80.418	-55.638	2.61906	1.508	3.041	3504
54	0.24896	1176.14	55.734	-74.744	-49.388	2.73698	1.517	3.213	3397
56	0.25530	1047.08	53.866	-68.779	-42.778	2.85716	1.526	3.399	3287
58	0.26244	922.92	50.863	-62.499	-35.771	2.98010	1.534	3.608	3171
60	0.27057	804.09	47.730	-55.875	-28.319	3.10640	1.542	3.846	3049
62	0.27991	693.06	44.484	-48.873	-20.366	3.23677	1.549	4.117	2921
64	0.29076	592.97	41.151	-41.458	-11.846	3.37201	1.556	4.418	2792
66	0.30348	504.67	37.765	-33.597	-2.689	3.51287	1.565	4.746	2663
68	0.31851	425.64	34.371	-25.273	7.165	3.65995	1.574	5.119	2533
70	0.33633	363.11	31.038	-16.500	17.753	3.81339	1.582	5.472	2412
75	0.39540	264.14	23.522	6.813	47.083	4.21784	1.606	6.154	2165
80	0.47306	240.54	17.919	29.767	77.946	4.61629	1.618	6.043	2040
85	0.55766	261.94	14.200	49.790	106.585	4.96396	1.614	5.382	2012
90	0.64013	300.07	11.774	66.684	131.877	5.25326	1.609	4.764	2029
95	0.71822	343.62	10.113	81.344	154.491	5.49790	1.609	4.313	2065
100	0.79219	387.63	8.909	94.643	175.323	5.71172	1.615	3.995	2107
105	0.86273	430.91	7.994	106.838	194.703	5.90087	1.623	3.769	2153
110	0.93046	473.26	7.270	118.355	213.117	6.07223	1.636	3.605	2198
115	0.99591	513.96	6.681	129.409	230.838	6.22979	1.655	3.489	2241
120	1.06000	554.78	6.188	140.174	248.130	6.37698	1.678	3.401	2283
125	1.12186	593.59	5.770	150.714	264.970	6.51447	1.706	3.340	2320
130	1.18238	631.37	5.412	161.140	281.560	6.64460	1.738	3.300	2356
135	1.24177	668.25	5.103	171.530	297.998	6.76866	1.776	3.278	2391
140	1.30019	704.33	4.831	181.943	314.361	6.88770	1.817	3.269	2423
150	1.41461	774.45	4.374	203.023	347.094	7.11353	1.910	3.283	2483
160	1.52645	842.30	4.004	224.670	380.132	7.32673	2.014	3.328	2539
180	1.74233	967.75	3.443	270.648	448.096	7.72577	2.246	3.485	2638
200	1.95570	1094.78	3.021	320.060	519.238	8.10038	2.452	3.633	2741
220	2.16498	1217.67	2.697	372.863	593.356	8.45350	2.635	3.776	2843
240	2.37133	1337.52	2.440	428.552	670.061	8.78894	2.775	3.887	2946
260	2.57547	1455.05	2.229	486.297	748.596	9.10141	2.870	3.968	3050
280	2.77790	1570.79	2.053	545.318	828.234	9.39639	2.921	3.994	3155
300	2.97898	1685.10	1.904	604.799	908.193	9.67236	2.938	3.998	3259
320	3.17898	1798.27	1.775	664.222	987.985	9.92987	2.929	3.978	3364
340	3.37809	1910.50	1.664	723.175	1067.216	10.16975	2.903	3.943	3468
360	3.57647	2021.97	1.565	781.404	1145.649	10.33399	2.866	3.899	3570
380	3.77424	2132.79	1.479	838.770	1223.158	10.60354	2.824	3.851	3671
400	3.97151	2243.09	1.401	895.224	1299.703	10.79994	2.781	3.804	3770
420	4.16835	2352.93	1.331	950.782	1375.308	10.98436	2.740	3.758	3867
440	4.36482	2462.39	1.269	1005.505	1450.041	11.15824	2.701	3.716	3961
460	4.56099	2571.53	1.212	1059.456	1523.970	11.32256	2.667	3.678	4054
480	4.75688	2680.38	1.159	1112.731	1597.195	11.47817	2.636	3.645	4144
500	4.95254	2788.99	1.112	1165.408	1669.800	11.62654	2.610	3.616	4231
520	5.14799	2897.39	1.068	1217.574	1741.872	11.76800	2.587	3.592	4317
540	5.34327	3005.60	1.027	1269.297	1813.483	11.90314	2.568	3.571	4400
560	5.53840	3113.65	0.9900	1320.578	1884.637	12.03203	2.552	3.554	4481
580	5.73338	3221.56	0.9552	1371.625	1955.542	12.15630	2.539	3.539	4561
600	5.92825	3329.34	0.9228	1422.460	2026.223	12.27617	2.529	3.527	4639
650	6.41496	3598.34	0.8507	1548.613	2201.945	12.55776	2.509	3.505	4826
700	6.90117	3866.80	0.7892	1674.029	2376.879	12.81729	2.498	3.492	5004
800	7.87248	4402.60	0.6896	1923.545	2725.318	13.28289	2.490	3.481	5340
900	8.84280	4937.38	0.6124	2172.728	3073.323	13.69247	2.487	3.477	5655
1000	9.81247	5471.51	0.5509	2421.645	3420.997	14.05857	2.489	3.478	5951
1500	14.65631	8137.57	0.3668	3675.986	5168.660	15.47496	2.537	3.523	7236
2000	19.49730	10800.80	0.2751	4969.424	6955.129	16.50064	2.644	3.630	8288
2500	24.33740	13463.15	0.2200	6326.859	8805.504	17.32583	2.786	3.772	9190
3000	29.17736	16125.16	0.1833	7755.530	10727.101	18.01656	2.924	3.910	9995
3500	34.01971	18786.93	0.1571	9260.152	12724.893	18.63506	3.071	4.060	10726
4000	38.87637	21448.73	0.1375	10854.466	14813.834	19.38546	3.292	4.291	11380
5000	48.83537	26772.07	0.1100	14640.078	19613.720	21.28646	4.418	5.531	12457

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

550 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 27.030	4.93457	321.32	13.405	16041.02	0.0048436	0.05036	1.870	0.00656	1.26274	2.0808
28	4.91113	322.39	13.250	15637.04	0.0049726	0.05274	1.750	0.00670	1.26136	1.9149
30	4.86087	321.92	12.880	14618.21	0.0052934	0.05645	1.544	0.00682	1.25839	1.6776
32	4.80817	321.41	12.504	13643.17	0.0056198	0.05908	1.381	0.00680	1.25529	1.5199
34	4.75285	320.71	12.136	12716.39	0.0059514	0.06084	1.249	0.00671	1.25204	1.4105
36	4.69493	319.16	11.798	11815.13	0.0063091	0.06236	1.140	0.00660	1.24865	1.3252
38	4.63429	316.37	11.490	10920.71	0.0067107	0.06408	1.049	0.00651	1.24511	1.2507
40	4.57056	313.00	11.198	10060.08	0.0071425	0.06527	0.970	0.00639	1.24140	1.1963
42	4.50368	308.86	10.928	9229.73	0.0076115	0.06604	0.902	0.00624	1.23751	1.1565
44	4.43331	303.74	10.664	8409.77	0.0081429	0.06642	0.843	0.00606	1.23344	1.1296
46	4.35911	297.94	10.405	7618.45	0.0087304	0.06646	0.789	0.00586	1.22916	1.1121
48	4.28077	291.32	10.144	6848.04	0.0093968	0.06620	0.741	0.00565	1.22466	1.1034
50	4.19796	283.90	9.872	6099.40	0.0101642	0.06568	0.697	0.00542	1.21991	1.1029
52	4.11006	276.23	9.593	5400.20	0.0110077	0.06493	0.657	0.00520	1.21490	1.1072
54	4.01666	267.57	9.310	4724.17	0.0120094	0.06396	0.619	0.00496	1.20960	1.1192
56	3.91700	258.80	9.011	4101.41	0.0131336	0.06254	0.583	0.00470	1.20396	1.1411
58	3.81038	249.44	8.700	3516.66	0.0144635	0.06096	0.549	0.00443	1.19796	1.1706
60	3.69592	239.47	8.377	2971.85	0.0160606	0.05924	0.517	0.00417	1.19155	1.2088
62	3.57257	229.18	8.038	2476.00	0.0179662	0.05739	0.486	0.00390	1.18467	1.2557
64	3.43926	218.93	7.688	2039.38	0.0201784	0.05540	0.456	0.00365	1.17729	1.3098
66	3.29503	208.97	7.324	1662.93	0.0227098	0.05344	0.427	0.00342	1.16935	1.3664
68	3.13960	199.03	6.957	1336.33	0.0257203	0.05181	0.400	0.00322	1.16084	1.4217
70	2.97330	190.35	6.597	1079.63	0.0287485	0.05008	0.374	0.00308	1.15180	1.4693
75	2.52909	174.78	5.791	668.02	0.0352117	0.04560	0.317	0.00293	1.12797	1.5415
80	2.11389	171.48	5.240	508.48	0.0352410	0.04148	0.279	0.00325	1.10609	1.4646
85	1.79321	178.04	4.986	469.71	0.0302316	0.03845	0.258	0.00398	1.08944	1.2985
90	1.56219	189.67	4.884	468.77	0.0251159	0.03667	0.246	0.00494	1.07757	1.1504
95	1.39234	203.92	4.913	478.44	0.0211379	0.03577	0.240	0.00596	1.06892	1.0412
100	1.26233	219.42	4.969	489.32	0.0182071	0.03543	0.238	0.00703	1.06233	0.9644
105	1.15912	235.50	4.249	499.47	0.0160055	0.03545	0.238	0.00811	1.05712	0.9096
110	1.07474	252.25	4.134	508.63	0.0142931	0.03581	0.239	0.00924	1.05288	0.8670
115	1.00411	269.49	4.022	516.87	0.0129468	0.03638	0.242	0.01038	1.04934	0.8351
120	0.94340	287.67	3.909	523.38	0.0118236	0.03705	0.245	0.01155	1.04631	0.8105
125	0.89138	306.26	3.795	529.11	0.0109059	0.03781	0.249	0.01270	1.04371	0.7923
130	0.84575	325.56	3.681	533.98	0.0101360	0.03864	0.253	0.01384	1.04144	0.7791
135	0.80530	345.65	3.569	538.14	0.0094827	0.03914	0.258	0.01483	1.03943	0.7775
140	0.76912	366.57	3.457	541.72	0.0089181	0.04010	0.263	0.01595	1.03763	0.7707
150	0.70691	410.96	3.239	547.46	0.0079896	0.04260	0.272	0.01835	1.03455	0.7555
160	0.65511	458.68	3.034	551.80	0.0072554	0.04546	0.282	0.02085	1.03199	0.7436
180	0.57394	562.33	2.676	555.44	0.0061980	0.05352	0.313	0.02676	1.02798	0.7346
200	0.51133	673.10	2.410	553.79	0.0053967	0.06222	0.345	0.03350	1.02490	0.7257
220	0.46190	787.22	2.217	562.44	0.0047961	0.06967	0.370	0.03995	1.02247	0.7214
240	0.42170	898.71	2.085	564.04	0.0043255	0.07586	0.389	0.04628	1.02050	0.7184
260	0.38828	1003.81	2.000	564.97	0.0039452	0.08086	0.406	0.05258	1.01887	0.7158
280	0.35998	1100.24	1.952	565.46	0.0036305	0.08475	0.420	0.05894	1.01748	0.7132
300	0.33569	1188.03	1.930	565.66	0.0033652	0.08776	0.433	0.06539	1.01630	0.7106
320	0.31457	1267.66	1.927	565.68	0.0031382	0.09003	0.445	0.07195	1.01527	0.7081
340	0.29603	1340.60	1.936	565.56	0.0029413	0.09180	0.456	0.07864	1.01436	0.7056
360	0.27961	1408.24	1.954	565.35	0.0027689	0.09319	0.467	0.08547	1.01356	0.7033
380	0.26495	1471.88	1.976	565.09	0.0026165	0.09433	0.477	0.09245	1.01285	0.7011
400	0.25179	1533.26	2.001	564.79	0.0024807	0.09536	0.487	0.09957	1.01221	0.6992
420	0.23990	1593.08	2.026	564.48	0.0023588	0.09632	0.497	0.10685	1.01163	0.6974
440	0.22910	1652.27	2.050	564.14	0.0022488	0.09727	0.506	0.11427	1.01110	0.6958
460	0.21925	1711.63	2.072	563.81	0.0021489	0.09826	0.515	0.12185	1.01062	0.6944
480	0.21022	1771.24	2.092	563.47	0.0020578	0.09929	0.524	0.12958	1.01018	0.6931
500	0.20192	1831.63	2.110	563.14	0.0019743	0.10038	0.534	0.13748	1.00978	0.6920
520	0.19425	1892.84	2.125	562.82	0.0018975	0.10153	0.543	0.14553	1.00941	0.6911
540	0.18715	1954.76	2.138	562.50	0.0018266	0.10273	0.552	0.15373	1.00906	0.6902
560	0.18056	2018.05	2.148	562.19	0.0017609	0.10400	0.561	0.16209	1.00874	0.6895
580	0.17442	2081.94	2.157	561.90	0.0016999	0.10532	0.569	0.17062	1.00844	0.6889
600	0.16868	2146.69	2.163	561.61	0.0016431	0.10669	0.578	0.17931	1.00817	0.6884
650	0.15589	2311.44	2.175	560.93	0.0015166	0.11024	0.600	0.20175	1.00754	0.6873
700	0.14498	2479.55	2.180	560.31	0.0014084	0.11397	0.622	0.22523	1.00701	0.6865
800	0.12702	2823.23	2.181	559.24	0.0012331	0.12173	0.666	0.27528	1.00614	0.6854
900	0.11309	3170.32	2.177	558.35	0.0010969	0.12958	0.709	0.32950	1.00547	0.6847
1000	0.10191	3520.80	2.171	557.61	0.0009880	0.13747	0.751	0.38780	1.00493	0.6843
1500	0.06823	5332.53	2.120	555.23	0.0006607	0.17730	0.956	0.73755	1.00330	0.6836
2000	0.05129	7311.78	2.028	553.96	0.0004965	0.27727	1.147	1.48906	1.00248	0.5406
2500	0.04109	9482.68	1.922	553.19	0.0003977	0.33496	1.327	2.16147	1.00198	0.5380
3000	0.03427	11786.99	1.829	552.66	0.0003317	0.39318	1.499	2.93381	1.00166	0.5366
3500	0.02939	14266.31	1.741	552.24	0.0002846	0.45537	1.663	3.81600	1.00142	0.5336
4000	0.02572	17216.44	1.624	551.72	0.0002492	0.53689	1.821	4.86450	1.00124	0.5238
5000	0.02048	27566.84	1.216	548.21	0.0002007	0.91202	2.127	8.05212	1.00099	0.4644

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

600 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP BTU / LB -R	VELOCITY OF SOUND FT/SEC
• 27.220	0.20221	3381.70	77.788	-132.025	-109.559	1.20852	1.178	1.555	4495
28	0.20298	3248.20	77.876	-130.882	-108.330	1.25301	1.194	1.593	4480
30	0.20503	3073.26	77.642	-127.822	-105.042	1.36641	1.235	1.693	4418
32	0.20723	2904.52	77.033	-124.579	-101.555	1.47891	1.275	1.794	4353
34	0.20959	2742.66	75.142	-121.151	-97.865	1.59074	1.311	1.896	4286
36	0.21211	2585.20	75.050	-117.538	-93.972	1.70198	1.345	1.998	4218
38	0.21481	2424.84	73.842	-113.738	-89.872	1.81283	1.375	2.105	4147
40	0.21773	2269.85	72.460	-109.744	-85.554	1.92354	1.403	2.215	4075
42	0.22087	2120.14	70.905	-105.554	-81.015	2.03425	1.427	2.326	4002
44	0.22426	1968.81	69.191	-101.164	-76.248	2.14512	1.448	2.444	3924
46	0.22794	1822.68	67.290	-96.565	-71.240	2.25642	1.466	2.566	3844
48	0.23195	1675.92	65.209	-91.752	-65.982	2.36831	1.482	2.695	3758
50	0.23633	1534.68	62.945	-86.712	-60.455	2.48110	1.496	2.831	3668
52	0.24114	1392.42	60.502	-81.439	-54.648	2.59497	1.508	2.980	3570
54	0.24644	1259.87	57.902	-75.920	-48.539	2.71025	1.518	3.134	3471
56	0.25233	1128.34	55.163	-70.139	-42.104	2.82725	1.527	3.307	3365
58	0.25892	1007.29	52.297	-64.077	-35.310	2.94644	1.535	3.490	3257
60	0.26631	888.58	49.331	-57.719	-28.131	3.06811	1.542	3.700	3143
62	0.27469	778.93	46.258	-51.037	-20.518	3.19292	1.549	3.929	3025
64	0.28427	679.12	43.107	-44.009	-12.426	3.32136	1.555	4.175	2906
66	0.29527	586.14	39.915	-36.619	-3.813	3.45386	1.562	4.449	2786
68	0.30800	508.86	36.723	-28.857	5.363	3.59081	1.569	4.735	2667
70	0.32276	440.80	33.570	-20.732	15.128	3.73234	1.575	5.028	2553
75	0.37033	322.87	26.270	0.828	41.973	4.10253	1.593	5.665	2306
80	0.43332	277.56	20.456	22.728	70.872	4.47552	1.608	5.802	2154
85	0.50561	281.66	15.304	42.868	99.042	4.81743	1.612	5.410	2092
90	0.57929	310.57	13.472	60.392	124.754	5.11151	1.611	4.880	2087
95	0.65065	348.96	11.510	75.713	148.002	5.36301	1.613	4.440	2110
100	0.71891	390.50	10.087	89.579	169.453	5.58317	1.619	4.113	2144
105	0.78430	432.57	9.011	102.244	189.383	5.77770	1.627	3.872	2184
110	0.84721	474.03	8.166	114.149	208.277	5.95353	1.640	3.696	2225
115	0.90802	515.19	7.483	125.529	226.412	6.11478	1.658	3.566	2266
120	0.96705	555.12	6.917	136.550	243.993	6.26444	1.681	3.473	2305
125	1.02461	594.19	6.446	147.339	261.177	6.40474	1.710	3.406	2342
130	1.08123	632.69	6.026	158.000	278.129	6.53772	1.742	3.358	2377
135	1.13631	669.95	5.665	168.576	294.824	6.66373	1.779	3.325	2408
140	1.19046	706.42	5.355	179.148	311.412	6.78439	1.820	3.312	2440
150	1.29642	777.30	4.837	200.496	344.533	7.01289	1.913	3.318	2499
160	1.39987	845.87	4.420	222.363	377.691	7.22817	2.017	3.367	2554
180	1.59870	971.67	3.793	268.628	446.249	7.62969	2.248	3.510	2651
200	1.79569	1100.02	3.322	318.310	517.817	8.00655	2.453	3.651	2754
220	1.98865	1224.02	2.962	371.318	592.265	8.36124	2.636	3.790	2856
240	2.17872	1344.80	2.676	427.172	669.236	8.69584	2.777	3.899	2958
260	2.36660	1463.12	2.442	485.054	747.993	9.01120	2.871	3.970	3062
280	2.55280	1579.52	2.248	544.193	827.818	9.30687	2.922	4.003	3166
300	2.73766	1694.39	2.083	603.774	907.938	9.58340	2.939	4.005	3271
320	2.92145	1808.03	1.942	663.285	987.869	9.84136	2.930	3.985	3375
340	3.10436	1920.68	1.819	722.315	1067.221	10.08161	2.904	3.949	3479
360	3.28656	2032.50	1.711	780.612	1145.761	10.30615	2.867	3.904	3581
380	3.46815	2143.64	1.616	838.039	1223.364	10.51595	2.825	3.856	3682
400	3.64925	2254.21	1.531	894.547	1299.992	10.71257	2.782	3.807	3781
420	3.82992	2364.30	1.455	950.153	1375.672	10.89717	2.740	3.761	3877
440	4.01023	2473.97	1.386	1004.920	1450.471	11.07121	2.702	3.719	3972
460	4.19023	2583.30	1.323	1058.910	1524.461	11.23567	2.667	3.681	4064
480	4.36997	2692.32	1.266	1112.220	1597.740	11.39139	2.637	3.647	4154
500	4.54947	2801.08	1.214	1164.930	1670.393	11.53986	2.610	3.618	4241
520	4.72878	2909.62	1.166	1217.125	1742.510	11.68140	2.588	3.594	4327
540	4.90791	3017.96	1.122	1268.874	1814.161	11.81662	2.568	3.572	4410
560	5.08689	3126.12	1.081	1320.180	1885.352	11.94558	2.553	3.555	4491
580	5.26573	3234.13	1.043	1371.250	1956.291	12.06991	2.540	3.541	4570
600	5.44445	3342.01	1.007	1422.104	2027.003	12.18983	2.529	3.529	4648
650	5.89080	3611.20	0.9284	1548.302	2202.793	12.47153	2.510	3.507	4835
700	6.33666	3879.82	0.8612	1673.755	2377.781	12.73114	2.498	3.493	5013
800	7.22728	4415.87	0.7525	1923.328	2726.306	13.19685	2.490	3.482	5349
900	8.11692	4950.82	0.6682	2172.552	3074.372	13.60651	2.488	3.478	5663
1000	9.00592	5485.07	0.6010	2421.501	3422.092	13.97265	2.490	3.479	5959
1500	13.44645	8151.42	0.4002	3675.921	5169.572	15.38914	2.537	3.523	7243
2000	17.88415	10814.74	0.3001	4969.389	6956.385	16.41484	2.644	3.631	8294
2500	22.32096	13477.14	0.2400	6326.838	8806.781	17.24005	2.786	3.772	9194
3000	26.75762	16139.16	0.2000	7755.485	10728.357	17.93077	2.924	3.910	9999
3500	31.19635	18801.01	0.1714	9259.790	12725.821	18.54917	3.070	4.058	10730
4000	35.64764	21462.75	0.1500	10852.397	14812.984	19.29911	3.286	4.284	11386
5000	44.76593	26786.10	0.1200	14615.638	19589.300	21.19503	4.373	5.480	12467

• TWO-PHASE BOUNDARY

600 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 27.220	4.94526	326.50	13.356	16327.79	0.0047642	0.05104	1.885	0.00664	1.26338	2.0675
28	4.92671	327.37	13.236	16002.95	0.0048663	0.05295	1.786	0.00675	1.26228	1.9348
30	4.87735	326.92	12.887	14989.38	0.0051798	0.05673	1.575	0.00687	1.25936	1.6926
32	4.82560	326.50	12.525	14016.07	0.0054960	0.05941	1.408	0.00686	1.25631	1.5311
34	4.77132	325.82	12.171	13086.14	0.0058185	0.06122	1.273	0.00677	1.25312	1.4191
36	4.71457	324.52	11.837	12188.11	0.0061576	0.06279	1.162	0.00666	1.24980	1.3310
38	4.65519	321.86	11.533	11288.08	0.0065416	0.06456	1.068	0.00659	1.24633	1.2544
40	4.59291	318.70	11.245	10425.24	0.0069504	0.06581	0.989	0.00647	1.24270	1.1980
42	4.52764	314.94	10.977	9599.21	0.0073865	0.06663	0.920	0.00633	1.23890	1.1560
44	4.45916	310.14	10.716	8779.25	0.0078812	0.06707	0.859	0.00615	1.23493	1.1272
46	4.38714	304.87	10.462	7996.36	0.0084151	0.06717	0.805	0.00597	1.23077	1.1072
48	4.31134	298.63	10.207	7225.47	0.0090248	0.06697	0.757	0.00576	1.22641	1.0964
50	4.23140	292.08	9.943	6493.85	0.0096930	0.06651	0.713	0.00555	1.22183	1.0918
52	4.14703	284.42	9.673	5774.42	0.0104776	0.06584	0.672	0.00533	1.21701	1.0949
54	4.05772	276.69	9.401	5112.19	0.0113262	0.06496	0.634	0.00511	1.21193	1.1014
56	3.96301	268.11	9.117	4471.64	0.0123363	0.06363	0.599	0.00485	1.20656	1.1205
58	3.86226	259.61	8.822	3890.42	0.0134426	0.06215	0.565	0.00461	1.20087	1.1429
60	3.75505	250.24	8.521	3336.35	0.0147860	0.06055	0.534	0.00436	1.19485	1.1740
62	3.64047	240.82	8.204	2835.68	0.0163129	0.05883	0.503	0.00411	1.18845	1.2099
64	3.51784	231.41	7.879	2389.05	0.0180434	0.05700	0.474	0.00388	1.18163	1.2505
66	3.38670	221.99	7.545	1991.84	0.0200393	0.05507	0.446	0.00366	1.17438	1.2980
68	3.24674	213.01	7.209	1652.15	0.0222276	0.05337	0.420	0.00347	1.16669	1.3405
70	3.09824	204.54	6.878	1365.69	0.0245812	0.05178	0.394	0.00332	1.15858	1.3788
75	2.70026	187.99	5.106	871.83	0.0301324	0.04766	0.339	0.00312	1.13710	1.4508
80	2.30776	181.67	5.511	640.53	0.0319359	0.04375	0.299	0.00327	1.11626	1.4252
85	1.97782	184.84	5.112	557.08	0.0292671	0.04063	0.273	0.00380	1.09900	1.3102
90	1.72624	194.18	4.844	536.12	0.0251291	0.03857	0.259	0.00458	1.08599	1.1794
95	1.53693	206.89	4.643	536.33	0.0214598	0.03739	0.251	0.00548	1.07628	1.0725
100	1.39099	221.46	4.479	543.19	0.0185699	0.03683	0.247	0.00644	1.06885	0.9922
105	1.27502	236.97	4.345	551.54	0.0163384	0.03667	0.245	0.00743	1.06297	0.9328
110	1.18035	253.26	4.220	559.52	0.0145945	0.03690	0.246	0.00846	1.05819	0.8865
115	1.10130	270.40	4.098	567.38	0.0131888	0.03737	0.248	0.00951	1.05422	0.8508
120	1.03407	288.17	3.979	574.03	0.0120507	0.03796	0.250	0.01057	1.05084	0.8243
125	0.97598	306.68	3.860	579.91	0.0111052	0.03866	0.254	0.01163	1.04794	0.8044
130	0.92487	326.03	3.740	585.16	0.0102984	0.03942	0.257	0.01269	1.04538	0.7893
135	0.88004	346.09	3.618	589.59	0.0096082	0.03984	0.262	0.01361	1.04315	0.7859
140	0.84001	366.97	3.502	593.40	0.0090249	0.04076	0.266	0.01465	1.04115	0.7778
150	0.77136	411.30	3.278	599.57	0.0080682	0.04320	0.275	0.01688	1.03774	0.7607
160	0.71435	459.00	3.068	604.25	0.0073143	0.04602	0.285	0.01919	1.03492	0.7476
180	0.62551	562.40	2.697	607.79	0.0062410	0.05377	0.315	0.02449	1.03053	0.7391
200	0.55689	673.31	2.432	612.59	0.0054224	0.06239	0.346	0.03068	1.02714	0.7291
220	0.50285	787.75	2.234	615.50	0.0048115	0.06979	0.370	0.03662	1.02449	0.7242
240	0.45899	899.62	2.099	617.25	0.0043346	0.07596	0.390	0.04244	1.02233	0.7208
260	0.42255	1005.11	2.013	618.24	0.0039502	0.08094	0.406	0.04824	1.02055	0.7179
280	0.39173	1101.91	1.964	618.74	0.0036329	0.08483	0.421	0.05410	1.01904	0.7150
300	0.36528	1190.05	1.940	618.92	0.0033658	0.08783	0.434	0.06003	1.01774	0.7122
320	0.34230	1269.98	1.936	618.88	0.0031375	0.09010	0.446	0.06606	1.01662	0.7094
340	0.32213	1343.18	1.945	618.70	0.0029399	0.09187	0.457	0.07222	1.01563	0.7068
360	0.30427	1411.03	1.962	618.43	0.0027670	0.09326	0.467	0.07850	1.01476	0.7043
380	0.28834	1474.86	1.984	618.09	0.0026142	0.09441	0.477	0.08492	1.01399	0.7020
400	0.27403	1536.39	2.008	617.72	0.0024782	0.09544	0.487	0.09147	1.01329	0.6999
420	0.26110	1596.34	2.033	617.32	0.0023562	0.09640	0.497	0.09816	1.01266	0.6980
440	0.24936	1655.63	2.057	616.92	0.0022461	0.09736	0.506	0.10499	1.01209	0.6964
460	0.23865	1715.08	2.079	616.50	0.0021462	0.09835	0.516	0.11196	1.01157	0.6949
480	0.22883	1774.77	2.099	616.10	0.0020551	0.09938	0.525	0.11907	1.01109	0.6936
500	0.21981	1835.23	2.116	615.69	0.0019717	0.10047	0.534	0.12633	1.01065	0.6924
520	0.21147	1896.51	2.131	615.30	0.0018949	0.10163	0.543	0.13372	1.01024	0.6914
540	0.20375	1958.48	2.143	614.92	0.0018241	0.10283	0.552	0.14126	1.00987	0.6905
560	0.19658	2021.82	2.153	614.54	0.0017585	0.10411	0.561	0.14895	1.00952	0.6898
580	0.18991	2085.76	2.162	614.19	0.0016976	0.10543	0.570	0.15679	1.00920	0.6891
600	0.18367	2150.55	2.168	613.84	0.0016408	0.10679	0.579	0.16477	1.00889	0.6886
650	0.16976	2315.39	2.179	613.02	0.0015145	0.11036	0.601	0.18539	1.00822	0.6874
700	0.15781	2483.58	2.184	612.28	0.0014065	0.11409	0.623	0.20696	1.00764	0.6866
800	0.13836	2827.38	2.184	611.00	0.0012315	0.12187	0.666	0.25295	1.00669	0.6855
900	0.12320	3174.56	2.180	609.94	0.0010956	0.12973	0.709	0.30276	1.00596	0.6848
1000	0.11104	3525.11	2.174	609.05	0.0009869	0.13764	0.752	0.35632	1.00537	0.6843
1500	0.07437	5337.06	2.122	606.21	0.0006602	0.17755	0.957	0.67759	1.00359	0.6835
2000	0.05592	7316.52	2.029	604.71	0.0004962	0.27727	1.149	1.36584	1.00270	0.5414
2500	0.04480	9487.61	1.923	603.79	0.0003975	0.33496	1.329	1.98236	1.00216	0.5389
3000	0.03737	11791.55	1.830	603.16	0.0003316	0.39315	1.501	2.69041	1.00180	0.5375
3500	0.03206	14266.49	1.742	602.67	0.0002845	0.45510	1.665	3.49851	1.00155	0.5346
4000	0.02805	17195.78	1.627	602.08	0.0002491	0.53554	1.824	4.45621	1.00135	0.5252
5000	0.02234	27325.70	1.229	598.36	0.0002005	0.89949	2.131	7.34780	1.00108	0.4673

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

650 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 27.408	0.20178	3352.16	77.898	-131.924	-107.636	1.21042	1.181	1.555	4522
28	0.20235	3311.11	77.992	-131.062	-106.707	1.24397	1.193	1.583	4511
30	0.20435	3137.81	77.899	-128.036	-103.439	1.35667	1.235	1.683	4452
32	0.20650	2970.04	77.386	-124.828	-99.974	1.46848	1.274	1.783	4389
34	0.20880	2810.98	75.571	-121.439	-96.307	1.57961	1.310	1.883	4326
36	0.21126	2659.76	73.521	-117.867	-92.440	1.69010	1.344	1.983	4261
38	0.21388	2499.99	74.355	-114.116	-88.372	1.80007	1.374	2.086	4193
40	0.21671	2345.14	73.030	-110.177	-84.093	1.90978	1.402	2.193	4122
42	0.21974	2194.46	71.530	-106.048	-79.599	2.01940	1.426	2.301	4051
44	0.22301	2045.80	69.868	-101.725	-74.883	2.12910	1.447	2.414	3976
46	0.22655	1898.52	68.034	-97.205	-69.936	2.23903	1.466	2.532	3898
48	0.23039	1748.70	66.029	-92.481	-64.751	2.34936	1.482	2.658	3812
50	0.23456	1610.73	63.840	-87.544	-59.311	2.46039	1.496	2.785	3727
52	0.23913	1473.85	61.496	-82.387	-53.605	2.57227	1.509	2.921	3636
54	0.24413	1341.42	58.994	-77.004	-47.620	2.68521	1.519	3.065	3541
56	0.24965	1212.08	56.365	-71.382	-41.334	2.79950	1.528	3.222	3441
58	0.25576	1090.58	53.622	-65.507	-34.724	2.91547	1.536	3.388	3339
60	0.26256	974.79	50.785	-59.369	-27.767	3.03339	1.542	3.569	3232
62	0.27018	864.55	47.859	-52.951	-20.431	3.15363	1.549	3.769	3122
64	0.27877	764.47	44.867	-46.237	-12.683	3.27662	1.555	3.980	3011
66	0.28851	672.43	41.839	-39.216	-4.490	3.40267	1.561	4.209	2898
68	0.29958	590.01	38.802	-31.885	4.174	3.53198	1.567	4.451	2787
70	0.31222	516.28	35.800	-24.251	13.329	3.66466	1.572	4.708	2677
75	0.35132	387.12	28.737	-4.069	38.289	4.00887	1.585	5.254	2438
80	0.40406	323.01	22.845	16.744	65.378	4.35846	1.600	5.508	2270
85	0.46567	309.95	18.393	36.604	92.652	4.68945	1.609	5.334	2182
90	0.53098	326.98	15.209	54.457	118.367	4.98353	1.612	4.936	2154
95	0.59584	359.26	12.954	70.282	141.999	5.23917	1.615	4.532	2161
100	0.65873	397.36	11.309	84.640	163.927	5.46422	1.622	4.208	2186
105	0.71938	437.37	10.066	97.734	184.321	5.66328	1.630	3.961	2219
110	0.77794	477.84	9.094	110.005	203.640	5.84306	1.643	3.776	2256
115	0.83464	518.28	8.309	121.696	222.155	6.00769	1.661	3.637	2293
120	0.88973	557.76	7.663	132.986	240.077	6.16025	1.685	3.537	2329
125	0.94344	596.72	7.120	144.007	257.561	6.30302	1.713	3.463	2364
130	0.99595	634.93	6.655	154.861	274.736	6.43775	1.746	3.411	2398
135	1.04743	672.83	6.254	165.630	291.702	6.56581	1.783	3.377	2430
140	1.09812	709.49	5.898	176.378	308.551	6.68836	1.824	3.356	2460
150	1.19684	780.97	5.310	197.993	342.047	6.91946	1.916	3.352	2516
160	1.29313	850.16	4.843	220.073	375.717	7.13675	2.019	3.386	2570
180	1.47743	976.19	4.150	266.617	444.444	7.54063	2.251	3.534	2665
200	1.66050	1105.73	3.627	316.567	516.429	7.91969	2.455	3.669	2767
220	1.83962	1230.75	3.228	369.780	591.201	8.27593	2.637	3.805	2868
240	2.01588	1352.40	2.913	425.799	668.435	8.61168	2.778	3.911	2970
260	2.18998	1471.46	2.657	483.819	747.410	8.92791	2.873	3.988	3073
280	2.36243	1588.47	2.444	543.674	827.421	9.22427	2.924	4.012	3178
300	2.53355	1703.88	2.264	602.755	907.700	9.50135	2.940	4.013	3282
320	2.70362	1817.98	2.109	662.354	987.768	9.75975	2.931	3.991	3386
340	2.87282	1931.02	1.975	721.461	1067.240	10.00036	2.905	3.954	3490
360	3.04131	2043.18	1.857	779.826	1145.885	10.22521	2.868	3.909	3592
380	3.20921	2154.62	1.754	837.313	1223.581	10.43526	2.826	3.860	3693
400	3.37661	2265.45	1.661	893.875	1300.292	10.63209	2.783	3.811	3791
420	3.54360	2375.77	1.578	949.529	1376.045	10.81687	2.741	3.765	3888
440	3.71023	2485.65	1.503	1004.339	1450.911	10.99106	2.703	3.722	3982
460	3.87655	2595.16	1.435	1058.368	1524.959	11.15565	2.668	3.684	4074
480	4.04261	2704.35	1.373	1111.713	1598.292	11.31148	2.637	3.650	4164
500	4.20845	2813.25	1.316	1164.454	1670.993	11.46005	2.611	3.621	4251
520	4.37408	2921.92	1.264	1216.678	1743.154	11.60169	2.588	3.596	4337
540	4.53955	3030.38	1.216	1268.455	1814.845	11.73698	2.569	3.574	4420
560	4.70486	3138.65	1.171	1319.784	1886.072	11.86601	2.553	3.557	4501
580	4.87003	3246.76	1.130	1370.676	1957.045	11.99039	2.540	3.542	4580
600	5.03509	3354.72	1.092	1421.752	2027.787	12.11037	2.529	3.530	4657
650	5.44730	3624.11	1.006	1547.994	2203.644	12.39217	2.510	3.508	4844
700	5.85900	3892.89	0.9333	1673.484	2378.688	12.65187	2.499	3.494	5022
800	6.68134	4429.16	0.8154	1923.114	2727.296	13.11769	2.490	3.483	5357
900	7.50271	4964.27	0.7240	2172.379	3075.423	13.52742	2.488	3.479	5671
1000	8.32345	5498.64	0.6512	2421.358	3423.188	13.89361	2.490	3.479	5966
1500	12.42270	8165.26	0.4336	3675.857	5171.083	15.31019	2.537	3.524	7249
2000	16.51915	10828.67	0.3251	4969.356	6957.641	16.33592	2.644	3.631	8299
2500	20.61473	13491.10	0.2600	6326.819	8808.358	17.16113	2.786	3.772	9199
3000	24.71013	16153.14	0.2167	7755.445	10729.616	17.85185	2.924	3.910	10004
3500	28.80735	18814.93	0.1857	9259.471	12726.793	18.47017	3.069	4.057	10735
4000	32.91571	21476.74	0.1625	10850.573	14812.387	19.21969	3.281	4.278	11391
5000	41.32380	26800.09	0.1300	14594.077	19567.908	21.11113	4.332	5.435	12476

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

650 PSIA ISOBAR

TEMPERATURE	DENSITY	$V(\partial H/\partial V)_P$	$V(\partial P/\partial U)_V$	$-V(\partial P/\partial V)_T$	$(\partial V/\partial T)/V_P$	THERMAL CONDUCTIVITY	VISCOSITY	THERMAL DIFFUSIVITY	DIELECTRIC CONSTANT	PRANDTL NUMBER
DEG. R	LB/CU FT	BTU/LB	PSIA-CU FT/BTU	PSIA	1/DEG. R	BTU/FT-HR-R	LB/FT-SEC X 10^5	SQ FT/HR		
• 27.408	4.95583	331.59	13.312	16612.76	0.0046890	0.05172	1.899	0.00671	1.26400	2.0552
28	4.94197	332.21	13.224	16363.37	0.0047662	0.05316	1.823	0.00679	1.26318	1.9551
30	4.89349	331.79	12.894	15354.85	0.0050732	0.05700	1.607	0.00692	1.26032	1.7080
32	4.84264	331.45	12.545	14382.84	0.0053804	0.05974	1.436	0.00692	1.25732	1.5428
34	4.78932	331.07	12.200	13462.70	0.0056876	0.06160	1.297	0.00683	1.25418	1.4277
36	4.73359	330.07	11.871	12571.28	0.0060074	0.06321	1.184	0.00673	1.25091	1.3365
38	4.67543	327.96	11.571	11688.51	0.0063614	0.06504	1.088	0.00667	1.24751	1.2568
40	4.61456	324.98	11.288	10821.81	0.0067484	0.06634	1.007	0.00656	1.24396	1.1986
42	4.55084	321.32	11.023	9986.63	0.0071625	0.06721	0.937	0.00642	1.24025	1.1552
44	4.48405	316.98	10.766	9173.43	0.0076163	0.06770	0.876	0.00625	1.23637	1.1240
46	4.41402	311.84	10.515	8380.10	0.0081185	0.06785	0.821	0.00607	1.23233	1.1027
48	4.34054	305.55	10.266	7590.28	0.0085991	0.06771	0.772	0.00587	1.22809	1.0910
50	4.26323	299.60	10.007	6866.92	0.0092968	0.06732	0.727	0.00567	1.22365	1.0837
52	4.18189	292.81	9.747	6163.48	0.0099774	0.06671	0.687	0.00546	1.21900	1.0827
54	4.09617	285.45	9.484	5494.70	0.0107365	0.06590	0.649	0.00525	1.21411	1.0865
56	4.00567	277.50	9.211	4855.21	0.0116092	0.06465	0.614	0.00501	1.20897	1.1010
58	3.90995	269.41	8.930	4264.10	0.0125751	0.06326	0.581	0.00478	1.20356	1.1193
60	3.80864	260.91	8.645	3712.62	0.0135790	0.06176	0.549	0.00454	1.19786	1.1426
62	3.70123	252.02	8.347	3199.90	0.0149563	0.06016	0.519	0.00431	1.19184	1.1716
64	3.58717	243.27	8.044	2742.30	0.0163611	0.05846	0.491	0.00409	1.18548	1.2033
66	3.46611	234.49	7.733	2330.71	0.0179513	0.05667	0.464	0.00388	1.17877	1.2401
68	3.33796	225.89	7.420	1969.44	0.0197020	0.05481	0.438	0.00369	1.17170	1.2800
70	3.20287	217.47	7.112	1653.58	0.0216502	0.05333	0.413	0.00354	1.16429	1.3136
75	2.84156	201.13	6.380	1100.01	0.0261243	0.04948	0.359	0.00331	1.14469	1.3720
80	2.47488	192.72	5.770	799.41	0.0285776	0.04578	0.317	0.00336	1.12509	1.3732
85	2.14746	193.04	5.323	665.60	0.0276335	0.04267	0.289	0.00372	1.10784	1.3003
90	1.88332	199.85	5.010	615.81	0.0246979	0.04042	0.272	0.00435	1.09410	1.1948
95	1.67831	210.95	4.779	602.96	0.0214848	0.03901	0.262	0.00513	1.08352	1.0952
100	1.51806	224.45	4.593	603.22	0.0187482	0.03824	0.256	0.00599	1.07532	1.0151
105	1.39008	239.22	4.444	607.94	0.0165563	0.03791	0.254	0.00689	1.06880	0.9535
110	1.28545	255.05	4.307	614.24	0.0148052	0.03802	0.253	0.00783	1.06350	0.9044
115	1.19813	271.82	4.175	620.96	0.0133807	0.03837	0.254	0.00881	1.05909	0.8659
120	1.12393	289.31	4.047	626.88	0.0122240	0.03889	0.256	0.00978	1.05535	0.8372
125	1.05995	307.64	3.922	632.49	0.0112574	0.03951	0.258	0.01076	1.05214	0.8155
130	1.00407	326.78	3.797	637.51	0.0104397	0.04022	0.262	0.01174	1.04934	0.7992
135	0.95471	346.65	3.675	642.36	0.0097365	0.04055	0.265	0.01258	1.04687	0.7957
140	0.91065	367.65	3.552	646.09	0.0091295	0.04143	0.269	0.01355	1.04467	0.7858
150	0.83554	411.94	3.318	652.53	0.0081382	0.04381	0.278	0.01564	1.04093	0.7660
160	0.77332	459.59	3.102	657.44	0.0073670	0.04659	0.287	0.01779	1.03784	0.7516
180	0.67685	562.70	2.724	660.74	0.0062804	0.05404	0.316	0.02259	1.03306	0.7435
200	0.60223	673.73	2.453	665.90	0.0054460	0.06257	0.347	0.02832	1.02938	0.7325
220	0.54359	788.49	2.252	669.03	0.0048256	0.06993	0.371	0.03381	1.02649	0.7270
240	0.49606	900.68	2.114	670.88	0.0043427	0.07607	0.391	0.03920	1.02415	0.7232
260	0.45662	1006.55	2.026	671.90	0.0039546	0.08103	0.407	0.04458	1.02222	0.7199
280	0.42329	1103.71	1.975	672.39	0.0036347	0.08491	0.421	0.05000	1.02058	0.7167
300	0.39470	1192.17	1.950	672.53	0.0033660	0.08790	0.434	0.05550	1.01918	0.7137
320	0.36988	1272.36	1.945	672.43	0.0031366	0.09018	0.446	0.06109	1.01797	0.7107
340	0.34809	1345.83	1.953	672.17	0.0029383	0.09194	0.457	0.06679	1.01690	0.7079
360	0.32881	1413.83	1.970	671.81	0.0027649	0.09334	0.468	0.07261	1.01596	0.7053
380	0.31160	1477.89	1.992	671.39	0.0026118	0.09449	0.478	0.07856	1.01512	0.7029
400	0.29615	1539.57	2.015	670.93	0.0024756	0.09552	0.488	0.08462	1.01437	0.7007
420	0.28220	1599.64	2.040	673.44	0.0023535	0.09649	0.497	0.09082	1.01369	0.6987
440	0.26955	1659.03	2.063	669.95	0.0022434	0.09745	0.507	0.09714	1.01307	0.6969
460	0.25796	1718.57	2.085	669.45	0.0021435	0.09844	0.516	0.10359	1.01251	0.6954
480	0.24736	1778.34	2.105	668.96	0.0020524	0.09947	0.525	0.11018	1.01199	0.6940
500	0.23762	1838.87	2.122	668.48	0.0019690	0.10057	0.535	0.11689	1.01152	0.6928
520	0.22862	1900.20	2.136	668.01	0.0018923	0.10172	0.544	0.12374	1.01108	0.6917
540	0.22029	1962.23	2.149	667.55	0.0018216	0.10293	0.553	0.13072	1.01067	0.6908
560	0.21255	2025.62	2.159	667.11	0.0017561	0.10421	0.562	0.13783	1.01030	0.6901
580	0.20534	2089.60	2.167	666.68	0.0016952	0.10553	0.570	0.14509	1.00995	0.6894
600	0.19861	2154.43	2.173	666.27	0.0016385	0.10690	0.579	0.15247	1.00962	0.6888
650	0.18358	2319.35	2.184	665.30	0.0015124	0.11047	0.601	0.17155	1.00889	0.6876
700	0.17066	2487.62	2.188	664.43	0.0014047	0.11422	0.623	0.19151	1.00826	0.6867
800	0.14967	2831.54	2.188	662.91	0.0012300	0.12200	0.667	0.23406	1.00724	0.6855
900	0.13329	3178.81	2.184	661.66	0.0010943	0.12988	0.710	0.28013	1.00645	0.6848
1000	0.12014	3529.43	2.177	660.62	0.0009858	0.13781	0.753	0.32968	1.00581	0.6843
1500	0.08050	5341.60	2.123	657.29	0.0006596	0.17780	0.958	0.62686	1.00389	0.6835
2000	0.06054	7321.25	2.031	655.52	0.0004959	0.27727	1.150	1.26157	1.00292	0.5422
2500	0.04851	9492.53	1.924	654.44	0.0003973	0.33496	1.332	1.83081	1.00234	0.5397
3000	0.04047	11796.18	1.831	653.71	0.0003315	0.39312	1.504	2.48447	1.00195	0.5384
3500	0.03471	14267.27	1.743	653.13	0.0002843	0.45487	1.668	3.22995	1.00168	0.5357
4000	0.03038	17178.20	1.630	652.48	0.0002491	0.53435	1.827	4.11119	1.00147	0.5266
5000	0.02420	27113.57	1.240	648.54	0.0002004	0.88843	2.134	6.75513	1.00117	0.4700

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

700 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 27.594	0.20136	3402.05	78.023	-131.818	-105.718	1.21231	1.184	1.554	4549
28	0.20174	3372.77	78.105	-131.233	-105.084	1.23514	1.192	1.574	4542
30	0.20370	3201.11	78.147	-128.238	-101.834	1.34721	1.234	1.674	4485
32	0.20580	3036.71	77.698	-125.064	-98.388	1.45838	1.273	1.772	4425
34	0.20803	2878.27	76.956	-121.712	-94.747	1.56874	1.310	1.871	4363
36	0.21043	2722.54	75.977	-118.182	-90.906	1.67849	1.343	1.969	4300
38	0.21298	2568.10	74.854	-114.475	-86.868	1.78763	1.374	2.070	4234
40	0.21572	2413.32	73.583	-110.587	-82.625	1.89644	1.401	2.175	4165
42	0.21866	2263.20	72.133	-106.515	-78.172	2.00507	1.425	2.280	4096
44	0.22182	2116.54	70.519	-102.257	-73.504	2.11364	1.447	2.389	4024
46	0.22523	1970.22	68.746	-97.808	-68.614	2.22231	1.465	2.502	3948
48	0.22892	1826.12	65.802	-93.165	-63.493	2.33127	1.482	2.619	3869
50	0.23291	1687.85	64.694	-88.322	-58.133	2.44067	1.497	2.742	3785
52	0.23725	1548.20	62.438	-83.273	-52.520	2.55073	1.509	2.874	3696
54	0.24199	1418.45	60.024	-78.011	-46.644	2.66161	1.519	3.007	3606
56	0.24718	1292.43	57.491	-72.529	-40.489	2.77352	1.529	3.149	3512
58	0.25289	1169.05	54.857	-66.819	-34.039	2.88667	1.537	3.305	3413
60	0.25921	1055.39	52.128	-60.868	-27.270	3.00142	1.543	3.465	3313
62	0.26620	944.81	49.339	-54.672	-20.167	3.11786	1.550	3.646	3209
64	0.27402	842.57	46.478	-48.216	-12.697	3.23643	1.555	3.837	3103
66	0.28277	752.85	43.578	-41.492	-4.839	3.35732	1.561	4.026	2999
68	0.29260	668.54	40.678	-34.504	3.423	3.48063	1.566	4.234	2894
70	0.30368	594.24	37.802	-27.257	12.106	3.60647	1.570	4.444	2792
75	0.33773	453.14	30.960	-8.175	35.602	3.93050	1.580	4.931	2560
80	0.38183	373.16	25.071	11.642	61.136	4.26000	1.593	5.231	2383
85	0.43466	344.55	21.425	31.019	87.360	4.57821	1.605	5.206	2275
90	0.49232	350.39	18.959	48.941	112.756	4.86862	1.612	4.927	2228
95	0.55105	374.51	14.430	65.108	136.535	5.12584	1.617	4.587	2219
100	0.60889	408.18	12.566	79.865	158.789	5.35424	1.624	4.280	2232
105	0.66513	445.01	11.153	93.336	179.551	5.55688	1.632	4.037	2258
110	0.71970	484.21	10.048	105.943	199.232	5.74002	1.645	3.845	2290
115	0.77269	523.33	9.161	117.928	218.065	5.90766	1.664	3.703	2323
120	0.82425	562.65	8.431	129.473	236.314	6.06284	1.688	3.595	2356
125	0.87455	601.43	7.819	140.717	254.078	6.20789	1.716	3.515	2389
130	0.92376	639.55	7.298	151.770	271.508	6.34462	1.749	3.459	2421
135	0.97199	677.09	6.848	162.714	288.704	6.47442	1.786	3.422	2451
140	1.01935	713.86	6.455	173.618	305.747	6.59839	1.827	3.399	2481
150	1.11187	785.46	5.796	195.517	339.640	6.83223	1.918	3.387	2535
160	1.20198	855.14	5.274	217.810	373.611	7.05146	2.021	3.413	2587
180	1.37374	981.35	4.512	264.615	442.681	7.45757	2.253	3.557	2680
200	1.54482	1111.91	3.935	314.833	515.075	7.83879	2.456	3.687	2781
220	1.71203	1237.87	3.498	368.250	590.165	8.19656	2.639	3.819	2881
240	1.87643	1360.32	3.153	424.433	667.658	8.53343	2.779	3.923	2983
260	2.03871	1480.06	2.874	482.590	746.850	8.85053	2.874	3.990	3086
280	2.19935	1597.66	2.641	541.961	827.043	9.14757	2.925	4.020	3190
300	2.35869	1713.57	2.445	601.743	907.479	9.42518	2.942	4.020	3294
320	2.51698	1828.10	2.277	661.429	987.683	9.68403	2.932	3.997	3398
340	2.67442	1941.52	2.132	720.613	1067.273	9.92500	2.906	3.960	3501
360	2.83115	2054.01	2.004	779.045	1146.022	10.15014	2.869	3.914	3603
380	2.98731	2165.74	1.892	836.592	1223.810	10.36044	2.827	3.864	3704
400	3.14297	2276.82	1.791	893.207	1300.602	10.55748	2.784	3.815	3802
420	3.29822	2387.36	1.702	948.909	1376.428	10.74243	2.742	3.768	3899
440	3.45312	2497.43	1.620	1003.761	1451.358	10.91678	2.703	3.725	3993
460	3.60772	2607.11	1.547	1057.829	1525.465	11.08150	2.669	3.687	4085
480	3.76205	2716.46	1.480	1111.209	1598.851	11.23744	2.638	3.652	4174
500	3.91617	2825.51	1.419	1163.983	1671.600	11.38611	2.612	3.623	4261
520	4.07008	2934.30	1.362	1216.236	1743.804	11.52783	2.589	3.598	4347
540	4.22383	3042.87	1.310	1268.038	1815.535	11.66319	2.569	3.576	4430
560	4.37742	3151.24	1.262	1319.392	1886.798	11.79229	2.554	3.559	4510
580	4.53089	3259.45	1.218	1370.506	1957.805	11.91673	2.541	3.544	4589
600	4.68423	3367.50	1.176	1421.402	2028.577	12.03676	2.530	3.532	4667
650	5.06716	3637.06	1.084	1547.689	2204.499	12.31867	2.510	3.509	4853
700	5.44960	3905.99	1.005	1673.215	2379.597	12.57844	2.499	3.495	5031
800	6.21340	4442.48	0.8783	1922.901	2728.289	13.04437	2.490	3.483	5365
900	6.97625	4977.74	0.7799	2172.207	3076.476	13.45418	2.486	3.479	5679
1000	7.73848	5512.22	0.7014	2421.217	3424.286	13.82042	2.490	3.480	5974
1500	11.54519	8179.09	0.4669	3675.795	5172.295	15.23710	2.537	3.524	7255
2000	15.34915	10842.58	0.3501	4969.324	6958.897	16.26285	2.644	3.631	8305
2500	19.15224	13505.04	0.2800	6326.802	8809.334	17.08807	2.786	3.772	9204
3000	22.95513	16167.10	0.2333	7755.410	10730.878	17.77879	2.924	3.910	10008
3500	26.75963	18828.95	0.2000	9259.188	12727.799	18.39702	3.068	4.056	10739
4000	30.57410	21490.70	0.1750	10848.950	14811.996	19.14618	3.276	4.273	11396
5000	38.37435	26814.05	0.1400	14574.870	19548.994	21.03362	4.296	5.395	12485

• TWO-PHASE BOUNDARY

700 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	V(DH/DV)$_P$ BTU/LB	V(DP/DV)$_T$ PSIA-CU FT/BTU	-V(DP/DV)$_T$ PSIA	(DV/DT)$_P$/V 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 27.594	4.96628	336.60	13.272	16895.55	0.0046180	0.05238	1.913	0.00679	1.26462	2.0439
28	4.95692	336.93	13.214	16718.54	0.0046718	0.05337	1.861	0.00684	1.26407	1.9759
30	4.90922	336.54	12.902	15714.94	0.0049728	0.05727	1.638	0.00697	1.26125	1.7238
32	4.85920	336.53	12.560	14755.96	0.0052655	0.06005	1.463	0.00697	1.25829	1.5541
34	4.80692	336.10	12.223	13825.98	0.0055660	0.06197	1.322	0.00689	1.25522	1.4365
36	4.75222	335.30	11.903	12938.08	0.0058723	0.06363	1.205	0.00680	1.25200	1.3429
38	4.69518	333.43	11.607	12057.71	0.0062080	0.06550	1.108	0.00674	1.24866	1.2608
40	4.63558	330.60	11.329	11187.15	0.0065775	0.06685	1.026	0.00663	1.24518	1.2009
42	4.57326	327.16	11.067	10350.20	0.0069692	0.06777	0.954	0.00650	1.24155	1.1558
44	4.50808	323.21	10.812	9541.53	0.0073907	0.06831	0.892	0.00634	1.23777	1.1227
46	4.43988	318.36	10.566	8747.56	0.0078589	0.06852	0.837	0.00617	1.23382	1.0997
48	4.36843	313.06	10.326	7985.99	0.0083649	0.06842	0.787	0.00598	1.22970	1.0844
50	4.29355	307.16	10.068	7246.88	0.0089271	0.06809	0.742	0.00578	1.22539	1.0760
52	4.21498	300.37	9.815	6525.63	0.0095681	0.06754	0.701	0.00558	1.22089	1.0742
54	4.13243	293.60	9.561	5861.65	0.0102401	0.06680	0.663	0.00538	1.21618	1.0748
56	4.04561	286.38	9.297	5228.69	0.0109954	0.06562	0.628	0.00515	1.21124	1.0852
58	3.95428	278.49	9.028	4622.75	0.0118667	0.06431	0.595	0.00492	1.20606	1.1011
60	3.85795	270.67	8.754	4071.62	0.0128026	0.06289	0.564	0.00470	1.20063	1.1190
62	3.75651	262.28	8.474	3549.18	0.0139014	0.06139	0.535	0.00448	1.19494	1.1432
64	3.64940	253.83	8.188	3074.86	0.0151155	0.05979	0.507	0.00427	1.18895	1.1704
66	3.53642	245.97	7.894	2662.40	0.0163680	0.05812	0.480	0.00408	1.18266	1.1970
68	3.41759	237.82	7.601	2284.80	0.0178036	0.05639	0.455	0.00390	1.17609	1.2290
70	3.29297	230.05	7.314	1956.81	0.0193184	0.05474	0.431	0.00374	1.16923	1.2587
75	2.96095	213.63	6.618	1341.73	0.0230743	0.05113	0.377	0.00350	1.15113	1.3091
80	2.61893	203.92	6.009	977.27	0.0256545	0.04761	0.335	0.00348	1.13275	1.3231
85	2.30066	202.33	5.531	792.69	0.0257669	0.04455	0.304	0.00372	1.11589	1.2795
90	2.03121	206.77	5.181	711.71	0.0238285	0.04220	0.285	0.00422	1.10178	1.1963
95	1.81472	216.02	4.919	679.62	0.0212325	0.04061	0.273	0.00488	1.09055	1.1089
100	1.64235	228.32	4.711	670.38	0.0187447	0.03966	0.266	0.00564	1.08168	1.0324
105	1.50346	242.14	4.545	669.05	0.0165700	0.03917	0.262	0.00645	1.07457	0.9714
110	1.38946	257.47	4.395	672.80	0.0149349	0.03914	0.260	0.00733	1.06877	0.9203
115	1.29418	273.75	4.254	677.28	0.0135267	0.03940	0.260	0.00822	1.06394	0.8804
120	1.21322	291.05	4.118	682.61	0.0123512	0.03982	0.261	0.00913	1.05985	0.8494
125	1.14344	309.20	3.985	687.70	0.0113692	0.04037	0.263	0.01004	1.05633	0.8259
130	1.08254	328.20	3.855	692.34	0.0105406	0.04102	0.266	0.01095	1.05327	0.8083
135	1.02882	348.06	3.727	696.60	0.0098303	0.04128	0.269	0.01173	1.05058	0.8042
140	0.98102	368.77	3.602	700.32	0.0092171	0.04211	0.273	0.01263	1.04819	0.7937
150	0.89938	412.82	3.359	706.43	0.0082047	0.04443	0.281	0.01459	1.04411	0.7718
160	0.83196	460.44	3.137	711.45	0.0074135	0.04716	0.290	0.01661	1.04075	0.7557
180	0.72794	563.26	2.751	719.36	0.0063159	0.05432	0.317	0.02098	1.03559	0.7478
200	0.64732	674.37	2.475	719.76	0.0054674	0.06278	0.348	0.02630	1.03160	0.7359
220	0.58410	789.34	2.270	723.04	0.0048383	0.07008	0.372	0.03142	1.02848	0.7298
240	0.53293	901.98	2.129	724.95	0.0043499	0.07619	0.391	0.03644	1.02596	0.7256
260	0.49051	1008.12	2.038	725.98	0.0039582	0.08113	0.408	0.04145	1.02388	0.7219
280	0.45468	1105.62	1.986	726.43	0.0036360	0.08500	0.422	0.04650	1.02212	0.7185
300	0.42396	1194.40	1.961	726.49	0.0033658	0.08798	0.435	0.05162	1.02062	0.7152
320	0.39730	1274.88	1.955	726.31	0.0031354	0.09026	0.447	0.05683	1.01931	0.7120
340	0.37391	1348.56	1.962	725.96	0.0029365	0.09202	0.458	0.06215	1.01817	0.7091
360	0.35321	1416.82	1.978	725.50	0.0027625	0.09342	0.468	0.06757	1.01715	0.7063
380	0.33475	1480.99	1.999	724.98	0.0026093	0.09457	0.478	0.07311	1.01625	0.7037
400	0.31817	1542.80	2.022	724.42	0.0024729	0.09560	0.488	0.07876	1.01544	0.7014
420	0.30319	1602.99	2.047	723.83	0.0023507	0.09658	0.498	0.08453	1.01471	0.6993
440	0.28959	1662.48	2.070	723.24	0.0022406	0.09754	0.507	0.09042	1.01405	0.6975
460	0.27718	1722.10	2.091	722.65	0.0021407	0.09853	0.517	0.09643	1.01344	0.6958
480	0.26581	1781.35	2.111	722.07	0.0020497	0.09957	0.526	0.10256	1.01289	0.6944
500	0.25535	1842.54	2.127	721.50	0.0019663	0.10067	0.535	0.10881	1.01238	0.6932
520	0.24570	1903.92	2.142	720.94	0.0018897	0.10182	0.544	0.11519	1.01191	0.6921
540	0.23675	1966.00	2.154	720.41	0.0018190	0.10303	0.553	0.12168	1.01147	0.6911
560	0.22844	2029.44	2.164	719.89	0.0017536	0.10431	0.562	0.12831	1.01107	0.6903
580	0.22071	2093.46	2.172	719.38	0.0016928	0.10564	0.571	0.13506	1.01069	0.6896
600	0.21348	2158.33	2.178	718.90	0.0016362	0.10701	0.580	0.14193	1.01034	0.6890
650	0.19735	2323.34	2.188	717.77	0.0015104	0.11059	0.602	0.15969	1.00956	0.6877
700	0.18350	2491.68	2.193	716.75	0.0014028	0.11434	0.624	0.17827	1.00888	0.6868
800	0.16094	2835.71	2.191	714.98	0.0012284	0.12214	0.668	0.21786	1.00779	0.6856
900	0.14334	3183.07	2.187	713.53	0.0010930	0.13003	0.711	0.26074	1.00694	0.6848
1000	0.12922	3533.75	2.180	712.31	0.0009847	0.13797	0.754	0.30685	1.00625	0.6843
1500	0.08662	5346.13	2.125	708.44	0.0006591	0.17805	0.959	0.58338	1.00419	0.6835
2000	0.06515	7325.98	2.032	706.40	0.0004956	0.27727	1.152	1.17220	1.00315	0.5431
2500	0.05221	9497.45	1.925	705.14	0.0003971	0.33496	1.334	1.70091	1.00252	0.5406
3000	0.04356	11800.86	1.832	704.29	0.0003313	0.39310	1.506	2.30795	1.00210	0.5393
3500	0.03737	14268.54	1.745	703.63	0.0002842	0.45465	1.671	2.99982	1.00180	0.5367
4000	0.03271	17163.12	1.633	702.91	0.0002490	0.53329	1.830	3.81581	1.00158	0.5279
5000	0.02606	26925.16	1.250	698.75	0.0002004	0.87856	2.138	6.24969	1.00126	0.4725

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

750 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 27.780	0.20094	3451.42	78.131	-131.710	-103.804	1.21420	1.187	1.554	4576
28	0.20114	3439.95	78.214	-131.396	-103.463	1.22642	1.191	1.564	4575
30	0.20306	3263.28	78.358	-128.430	-100.230	1.33792	1.233	1.664	4517
32	0.20511	3100.56	77.999	-125.289	-96.804	1.44845	1.272	1.761	4459
34	0.20729	2940.08	77.332	-121.973	-93.184	1.55815	1.309	1.859	4398
36	0.20963	2787.66	75.421	-118.482	-89.369	1.66718	1.342	1.956	4336
38	0.21212	2634.44	75.340	-114.818	-85.359	1.77555	1.373	2.055	4274
40	0.21478	2479.58	74.121	-110.978	-81.150	1.88350	1.400	2.157	4207
42	0.21763	2334.94	72.717	-106.959	-76.735	1.99120	1.424	2.259	4141
44	0.22069	2188.58	71.148	-102.760	-72.111	2.09873	1.446	2.364	4071
46	0.22397	2039.33	69.433	-98.380	-67.274	2.20622	1.465	2.475	3995
48	0.22752	1899.64	67.546	-93.813	-62.215	2.31388	1.482	2.587	3920
50	0.23134	1760.13	65.510	-89.055	-56.926	2.42183	1.497	2.705	3839
52	0.23549	1626.82	63.321	-84.101	-51.396	2.53026	1.510	2.826	3756
54	0.24000	1496.67	60.998	-78.948	-45.618	2.63929	1.520	2.952	3669
56	0.24490	1367.15	58.553	-73.593	-39.581	2.74905	1.529	3.089	3577
58	0.25028	1249.19	56.009	-68.025	-33.266	2.85984	1.538	3.227	3485
60	0.25617	1134.76	53.383	-62.239	-26.662	2.97177	1.545	3.375	3390
62	0.26266	1026.31	50.696	-56.232	-19.754	3.08503	1.551	3.534	3292
64	0.26984	923.38	47.947	-49.993	-12.517	3.19989	1.556	3.705	3191
66	0.27781	831.32	45.172	-43.519	-4.937	3.31652	1.561	3.877	3092
68	0.28667	745.77	42.387	-36.812	3.000	3.43498	1.566	4.059	2993
70	0.29654	668.70	39.618	-29.881	11.302	3.55530	1.569	4.244	2895
75	0.32637	518.89	32.988	-11.694	33.632	3.86327	1.577	4.679	2671
80	0.36442	427.25	27.140	7.249	57.860	4.17590	1.589	4.980	2491
85	0.41017	384.61	22.372	26.067	83.031	4.48132	1.602	5.048	2370
90	0.46112	376.79	18.688	43.874	107.914	4.76583	1.611	4.878	2305
95	0.51419	394.55	15.920	60.227	131.637	5.02242	1.618	4.605	2281
100	0.56728	422.89	13.846	75.286	154.069	5.25264	1.626	4.327	2283
105	0.61941	456.40	12.267	89.076	175.099	5.45791	1.634	4.094	2301
110	0.67031	492.95	11.028	101.982	195.074	5.64378	1.648	3.906	2327
115	0.71991	531.02	10.032	114.236	214.217	5.81399	1.667	3.758	2355
120	0.76828	568.99	9.217	126.022	232.720	5.97151	1.690	3.649	2385
125	0.81553	607.30	8.534	137.479	250.740	6.11864	1.719	3.565	2416
130	0.86177	645.21	7.954	148.721	268.404	6.25722	1.752	3.505	2445
135	0.90711	682.47	7.453	159.835	285.815	6.38864	1.789	3.463	2474
140	0.95165	719.34	7.017	170.893	303.059	6.51406	1.830	3.437	2502
150	1.03864	791.56	6.293	193.061	337.307	6.75036	1.922	3.421	2555
160	1.12329	860.81	5.713	215.571	371.573	6.97150	2.023	3.441	2604
180	1.28412	987.15	4.879	262.624	440.963	7.37972	2.255	3.560	2695
200	1.44476	1118.58	4.248	313.108	513.755	7.76305	2.458	3.705	2795
220	1.60161	1245.36	3.771	366.728	589.159	8.12231	2.640	3.833	2894
240	1.75570	1368.55	3.396	423.075	666.907	8.46029	2.781	3.935	2995
260	1.90771	1488.93	3.092	481.368	746.511	8.77824	2.875	4.000	3098
280	2.05810	1607.08	2.840	540.855	826.684	9.07595	2.926	4.028	3201
300	2.20721	1723.46	2.628	600.737	907.274	9.35410	2.943	4.027	3305
320	2.35529	1838.41	2.446	660.510	987.612	9.61337	2.934	4.004	3409
340	2.50253	1952.18	2.289	719.770	1067.320	9.85470	2.907	3.965	3512
360	2.64907	2064.98	2.152	778.269	1146.171	10.08013	2.870	3.919	3614
380	2.79504	2176.98	2.030	835.876	1224.050	10.29068	2.828	3.869	3715
400	2.94052	2288.30	1.922	892.544	1300.922	10.48793	2.785	3.819	3813
420	3.08560	2399.05	1.825	948.293	1376.820	10.67306	2.743	3.772	3909
440	3.23033	2509.31	1.738	1003.188	1451.815	10.84755	2.704	3.728	4003
460	3.37476	2619.16	1.659	1057.295	1525.980	11.01240	2.670	3.689	4095
480	3.51893	2728.65	1.587	1110.709	1599.417	11.16845	2.639	3.655	4184
500	3.66288	2837.83	1.521	1163.514	1672.214	11.31722	2.612	3.625	4272
520	3.80664	2946.75	1.461	1215.796	1744.461	11.45902	2.589	3.600	4356
540	3.95023	3055.42	1.405	1267.625	1816.231	11.59446	2.570	3.578	4439
560	4.09367	3163.90	1.353	1319.003	1887.530	11.72362	2.554	3.561	4520
580	4.23697	3272.19	1.306	1370.139	1958.569	11.84812	2.541	3.545	4599
600	4.38017	3380.32	1.261	1421.055	2029.371	11.96820	2.530	3.533	4676
650	4.73772	3650.06	1.162	1547.386	2205.359	12.25021	2.511	3.510	4862
700	5.09478	3919.12	1.078	1672.948	2380.510	12.51007	2.499	3.496	5040
800	5.80786	4455.82	0.9412	1922.691	2729.284	12.97611	2.491	3.484	5374
900	6.51998	4991.23	0.8357	2172.037	3077.531	13.38598	2.488	3.480	5686
1000	7.23149	5525.81	0.7516	2421.077	3425.385	13.75227	2.490	3.480	5981
1500	10.78468	8192.92	0.5003	3675.734	5173.507	15.16904	2.537	3.524	7261
2000	14.33513	10856.47	0.3751	4969.294	6960.152	16.19482	2.644	3.631	8310
2500	17.88472	13518.96	0.3000	6326.786	8810.610	17.02005	2.786	3.772	9209
3000	21.43411	16181.03	0.2500	7755.379	10732.142	17.71076	2.924	3.910	10012
3500	24.98494	18842.88	0.2143	9258.935	12728.835	18.32893	3.067	4.055	10743
4000	28.54474	21504.64	0.1875	10847.493	14811.778	19.07776	3.271	4.268	11401
5000	35.81889	26827.98	0.1500	14557.619	19532.136	20.96161	4.264	5.358	12494

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

750 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 27.780	4.97661	341.61	13.232	17176.39	0.0045488	0.05304	1.928	0.00686	1.26523	2.0331
28	4.97177	342.05	13.206	17102.63	0.0045732	0.05357	1.899	0.00689	1.26495	1.9963
30	4.92472	341.26	12.905	16070.74	0.0048758	0.05753	1.671	0.00702	1.26216	1.7396
32	4.87552	341.38	12.574	15116.85	0.0051597	0.06037	1.491	0.00703	1.25926	1.5662
34	4.82412	341.00	12.247	14183.27	0.0054524	0.06233	1.346	0.00695	1.25623	1.4458
36	4.77039	340.38	11.934	13298.23	0.0057467	0.06404	1.227	0.00686	1.25307	1.3498
38	4.71442	338.73	11.642	12419.87	0.0060661	0.06596	1.128	0.00681	1.24979	1.2654
40	4.65601	336.04	11.368	11544.94	0.0064202	0.06736	1.044	0.00671	1.24637	1.2038
42	4.59500	333.25	11.109	10729.05	0.0067775	0.06832	0.971	0.00658	1.24282	1.1561
44	4.53131	329.52	10.857	9917.12	0.0071743	0.06891	0.908	0.00643	1.23911	1.1215
46	4.46482	324.60	10.614	9105.24	0.0076256	0.06916	0.852	0.00626	1.23526	1.0977
48	4.39528	319.75	10.372	8349.44	0.0080899	0.06912	0.802	0.00608	1.23124	1.0804
50	4.32257	314.16	10.125	7668.28	0.0086104	0.06884	0.757	0.00589	1.22706	1.0705
52	4.24644	308.23	9.877	6908.18	0.0091661	0.06835	0.715	0.00570	1.22269	1.0649
54	4.16672	301.78	9.631	6236.20	0.0097812	0.06767	0.677	0.00550	1.21813	1.0639
56	4.08323	294.52	9.376	5582.37	0.0104889	0.06655	0.642	0.00528	1.21337	1.0733
58	3.99559	287.59	9.116	4991.27	0.0112213	0.06530	0.609	0.00506	1.20840	1.0841
60	3.90366	280.10	8.854	4429.70	0.0120511	0.06396	0.578	0.00485	1.20321	1.0990
62	3.80721	272.41	8.586	3907.38	0.0129744	0.06254	0.549	0.00465	1.19778	1.1175
64	3.70592	264.39	8.314	3421.97	0.0140115	0.06104	0.522	0.00445	1.19210	1.1397
66	3.59964	256.81	8.037	2992.46	0.0150952	0.05946	0.495	0.00426	1.18618	1.1625
68	3.48839	249.10	7.760	2601.53	0.0162930	0.05783	0.470	0.00408	1.18000	1.1884
70	3.37227	241.59	7.488	2255.04	0.0175687	0.05616	0.447	0.00392	1.17359	1.2154
75	3.06404	225.53	6.827	1589.90	0.0207485	0.05265	0.394	0.00367	1.15672	1.2603
80	2.74411	215.14	6.226	1172.43	0.0231482	0.04929	0.351	0.00361	1.13945	1.2767
85	2.43803	211.56	5.729	937.78	0.0238583	0.04630	0.319	0.00376	1.12314	1.2523
90	2.16862	214.42	5.350	821.45	0.0227505	0.04390	0.297	0.00415	1.10895	1.1897
95	1.94482	221.97	5.060	767.33	0.0207478	0.04217	0.284	0.00471	1.09728	1.1149
100	1.76281	232.99	4.831	745.48	0.0185733	0.04106	0.275	0.00538	1.08787	1.0440
105	1.61443	245.90	4.649	736.83	0.0166479	0.04043	0.270	0.00612	1.08025	0.9850
110	1.49185	260.46	4.486	735.40	0.0149958	0.04027	0.268	0.00691	1.07398	0.9343
115	1.38907	276.33	4.334	737.62	0.0136011	0.04043	0.267	0.00774	1.06875	0.8929
120	1.30161	293.17	4.189	740.68	0.0124455	0.04077	0.267	0.00858	1.06432	0.8611
125	1.22620	311.08	4.049	744.68	0.0114604	0.04125	0.269	0.00943	1.06051	0.8362
130	1.16040	329.91	3.912	748.71	0.0106231	0.04183	0.271	0.01029	1.05719	0.8172
135	1.10240	349.60	3.779	752.35	0.0099069	0.04201	0.274	0.01100	1.05427	0.8125
140	1.05080	370.25	3.649	755.89	0.0092835	0.04280	0.277	0.01185	1.05168	0.8009
150	0.96279	414.27	3.401	762.11	0.0082572	0.04506	0.285	0.01368	1.04728	0.7776
160	0.89024	461.52	3.172	766.33	0.0074551	0.04774	0.293	0.01558	1.04366	0.7598
180	0.77874	564.07	2.779	768.74	0.0063472	0.05462	0.319	0.01959	1.03811	0.7520
200	0.69216	675.22	2.497	774.24	0.0054864	0.06299	0.349	0.02457	1.03382	0.7392
220	0.62437	790.41	2.288	777.57	0.0048494	0.07024	0.373	0.02935	1.03047	0.7325
240	0.56957	903.27	2.144	779.49	0.0043561	0.07632	0.392	0.03405	1.02777	0.7279
260	0.52419	1009.82	2.051	780.48	0.0039612	0.08124	0.408	0.03874	1.02553	0.7239
280	0.48588	1107.65	1.997	780.86	0.0036369	0.08509	0.423	0.04347	1.02365	0.7202
300	0.45306	1196.72	1.971	780.83	0.0033653	0.08807	0.435	0.04827	1.02204	0.7167
320	0.42458	1277.47	1.964	780.54	0.0031348	0.09035	0.447	0.05315	1.02065	0.7133
340	0.39960	1351.37	1.971	780.08	0.0029344	0.09211	0.458	0.05813	1.01942	0.7102
360	0.37749	1419.82	1.986	779.51	0.0027602	0.09350	0.469	0.06320	1.01834	0.7073
380	0.35778	1484.14	2.007	778.87	0.0026066	0.09466	0.479	0.06839	1.01738	0.7046
400	0.34008	1546.08	2.030	778.19	0.0024701	0.09569	0.489	0.07368	1.01651	0.7021
420	0.32409	1606.38	2.053	777.50	0.0023479	0.09667	0.498	0.07908	1.01573	0.7000
440	0.30957	1665.97	2.076	776.80	0.0022377	0.09763	0.508	0.08460	1.01502	0.6980
460	0.29632	1725.67	2.098	776.10	0.0021379	0.09863	0.517	0.09022	1.01438	0.6963
480	0.28418	1785.58	2.117	775.42	0.0020469	0.09966	0.526	0.09596	1.01378	0.6948
500	0.27301	1846.23	2.133	774.75	0.0019636	0.10076	0.535	0.10181	1.01324	0.6935
520	0.26270	1907.67	2.147	774.11	0.0018871	0.10192	0.545	0.10778	1.01274	0.6924
540	0.25315	1969.80	2.160	773.48	0.0018165	0.10313	0.554	0.11385	1.01227	0.6914
560	0.24428	2033.28	2.169	772.88	0.0017511	0.10442	0.563	0.12005	1.01184	0.6906
580	0.23602	2097.34	2.177	772.29	0.0016905	0.10574	0.571	0.12637	1.01144	0.6898
600	0.22830	2162.25	2.183	771.73	0.0016339	0.10712	0.580	0.13280	1.01106	0.6892
650	0.21107	2327.34	2.193	770.43	0.0015063	0.11070	0.603	0.14941	1.01022	0.6879
700	0.19628	2495.75	2.197	769.24	0.0014009	0.11446	0.625	0.16679	1.00951	0.6869
800	0.17218	2839.89	2.195	767.21	0.0012268	0.12227	0.668	0.20383	1.00833	0.6857
900	0.15337	3187.33	2.190	765.53	0.0010917	0.13018	0.712	0.24394	1.00742	0.6849
1000	0.13828	3538.07	2.183	764.13	0.0009836	0.13814	0.755	0.28706	1.00669	0.6843
1500	0.09272	5350.66	2.127	759.68	0.0006586	0.17830	0.961	0.54569	1.00448	0.6835
2000	0.06976	7330.71	2.033	757.33	0.0004953	0.27727	1.154	1.09474	1.00337	0.5439
2500	0.05591	9502.37	1.926	755.89	0.0003969	0.33496	1.336	1.58632	1.00270	0.5415
3000	0.04665	11805.58	1.833	754.92	0.0003312	0.39307	1.509	2.15497	1.00225	0.5402
3500	0.04002	14270.22	1.746	754.17	0.0002841	0.45447	1.674	2.80043	1.00193	0.5377
4000	0.03503	17150.14	1.636	753.37	0.0002489	0.53234	1.833	3.56009	1.00169	0.5292
5000	0.02792	26756.48	1.260	748.99	0.0002003	0.86970	2.141	5.81367	1.00135	0.4749

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

800 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 27.964	0.20053	3499.91	75.230	-131.598	-101.893	1.21608	1.189	1.553	4602
28	0.20056	3501.94	78.246	-131.548	-101.838	1.21801	1.190	1.555	4604
30	0.20243	3324.27	75.565	-128.613	-96.625	1.32884	1.232	1.655	4548
32	0.20444	3163.12	78.294	-125.503	-95.218	1.43874	1.271	1.751	4493
34	0.20657	3002.49	77.701	-122.221	-91.620	1.54781	1.308	1.848	4433
36	0.20885	2853.41	76.847	-118.768	-87.830	1.65612	1.342	1.943	4376
38	0.21128	2703.33	75.799	-115.143	-83.844	1.76384	1.372	2.039	4315
40	0.21387	2552.21	74.619	-111.349	-79.667	1.87096	1.400	2.139	4251
42	0.21663	2402.92	73.271	-107.381	-75.289	1.97774	1.424	2.239	4184
44	0.21960	2257.38	71.752	-103.239	-70.708	2.08430	1.446	2.342	4116
46	0.22277	2114.22	70.085	-98.920	-65.919	2.19073	1.465	2.447	4045
48	0.22619	1973.31	68.259	-94.423	-60.916	2.29718	1.482	2.555	3971
50	0.22987	1835.69	65.288	-89.744	-55.692	2.40380	1.497	2.668	3893
52	0.23384	1698.26	64.165	-84.880	-50.240	2.51071	1.510	2.787	3810
54	0.23813	1569.88	61.923	-79.827	-44.550	2.61807	1.521	2.906	3728
56	0.24279	1446.80	59.555	-74.583	-38.616	2.72597	1.530	3.030	3642
58	0.24786	1326.45	57.094	-69.143	-32.425	2.83460	1.539	3.160	3553
60	0.25340	1210.50	54.560	-63.504	-25.966	2.94406	1.546	3.300	3460
62	0.25946	1103.72	51.959	-57.660	-19.225	3.05458	1.552	3.443	3368
64	0.26611	1000.44	49.324	-51.608	-12.187	3.16629	1.557	3.598	3272
66	0.27343	908.34	46.645	-45.344	-4.838	3.27936	1.562	3.751	3179
68	0.28151	821.33	43.956	-38.875	2.828	3.39377	1.566	3.914	3083
70	0.29043	742.51	41.286	-32.205	10.819	3.50959	1.569	4.079	2990
75	0.31699	586.60	34.845	-14.763	32.196	3.80442	1.576	4.464	2775
80	0.35038	483.68	29.065	3.422	55.326	4.10289	1.586	4.762	2594
85	0.39046	429.07	24.226	21.673	79.516	4.39640	1.599	4.881	2463
90	0.43566	411.79	20.379	39.247	103.786	4.67387	1.610	4.800	2385
95	0.48360	418.85	17.408	55.658	127.298	4.92817	1.618	4.595	2347
100	0.53228	440.89	15.142	70.924	149.775	5.15885	1.628	4.356	2338
105	0.58061	470.93	13.397	84.972	170.983	5.36584	1.636	4.134	2348
110	0.62810	504.82	12.025	98.137	191.182	5.55380	1.650	3.952	2367
115	0.67457	540.65	10.924	110.634	210.564	5.72614	1.669	3.808	2390
120	0.72002	577.78	10.018	122.641	229.304	5.88568	1.693	3.694	2417
125	0.76450	614.75	9.263	134.300	247.552	6.03467	1.722	3.610	2444
130	0.80808	652.17	8.622	145.722	265.431	6.17492	1.755	3.547	2471
135	0.85084	689.31	8.070	157.000	283.042	6.30786	1.792	3.502	2498
140	0.89285	725.71	7.590	168.205	300.470	6.43463	1.833	3.474	2524
150	0.97493	798.16	6.794	190.631	335.056	6.67326	1.925	3.452	2575
160	1.05480	868.23	6.158	213.361	369.617	6.89630	2.026	3.466	2623
180	1.20594	993.64	5.252	260.647	439.293	7.30645	2.257	3.602	2711
200	1.35737	1125.75	4.564	311.393	512.473	7.69182	2,459	3.722	2809
220	1.50513	1253.25	4.046	365.215	588.182	8.05254	2.641	3.847	2908
240	1.65018	1377.10	3.640	421.725	666.180	8.39161	2.782	3.946	3008
260	1.79318	1498.06	3.311	480.154	745.793	8.71040	2.877	4.010	3110
280	1.93460	1616.73	3.040	539.757	826.344	9.00876	2.928	4.037	3214
300	2.07474	1733.56	2.811	599.738	907.087	9.28744	2.944	4.034	3317
320	2.21388	1848.89	2.616	659.597	987.557	9.54714	2.935	4.010	3421
340	2.35218	1962.99	2.447	718.933	1067.360	9.78882	2.908	3.971	3524
360	2.48980	2076.09	2.299	777.499	1146.333	10.01454	2.871	3.924	3625
380	2.62684	2188.34	2.169	835.164	1224.301	10.22533	2.829	3.873	3726
400	2.76342	2299.89	2.053	891.885	1301.253	10.42278	2.786	3.823	3824
420	2.89958	2410.84	1.950	947.682	1377.221	10.60808	2.744	3.775	3920
440	3.03541	2521.28	1.856	1002.619	1452.280	10.78273	2.705	3.731	4014
460	3.17094	2631.29	1.772	1056.764	1526.502	10.94770	2.670	3.692	4105
480	3.30622	2740.93	1.695	1110.213	1599.991	11.10387	2.639	3.657	4195
500	3.44128	2850.24	1.624	1163.049	1672.834	11.25272	2.613	3.628	4282
520	3.57614	2959.26	1.559	1215.360	1745.123	11.39461	2.590	3.602	4366
540	3.71084	3068.05	1.500	1267.214	1816.932	11.53012	2.571	3.580	4449
560	3.84539	3176.61	1.445	1318.616	1888.266	11.65935	2.555	3.562	4530
580	3.97981	3284.99	1.393	1369.774	1959.337	11.78390	2.542	3.547	4609
600	4.11412	3393.20	1.346	1420.710	2030.170	11.90403	2.531	3.534	4686
650	4.44947	3663.10	1.240	1547.085	2206.222	12.18615	2.511	3.511	4871
700	4.78433	3932.30	1.150	1672.684	2381.426	12.44608	2.500	3.497	5049
800	5.45301	4469.19	1.004	1922.482	2730.282	12.91223	2.491	3.485	5382
900	6.12075	5004.74	0.8916	2171.869	3078.587	13.32218	2.488	3.480	5694
1000	6.78788	5539.41	0.8018	2420.940	3426.485	13.68851	2.490	3.480	5989
1500	10.11922	8206.73	0.5337	3675.674	5174.719	15.10538	2.537	3.524	7267
2000	13.44786	10870.35	0.4001	4969.265	6961.408	16.13118	2.644	3.631	8315
2500	16.77564	13532.86	0.3200	6326.771	8811.886	16.95642	2.786	3.772	9213
3000	20.10321	16194.93	0.2667	7755.352	10733.407	17.64713	2.923	3.910	10017
3500	23.43207	18856.79	0.2286	9258.707	12729.894	18.26524	3.066	4.054	10748
4000	26.76908	21518.54	0.2000	10846.176	14811.703	19.01377	3.268	4.264	11406
5000	33.58344	26841.87	0.1600	14542.014	19517.007	20.89438	4.235	5.326	12502

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

800 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 27.964	4.98683	346.54	13.192	17453.47	0.0044822	0.05368	1.942	0.00693	1.26584	2.0228
28	4.98616	346.91	13.188	17461.26	0.0044811	0.05377	1.937	0.00694	1.26580	2.0164
30	4.93992	345.86	12.909	16421.62	0.0047842	0.05779	1.703	0.00707	1.26306	1.7558
32	4.89152	346.11	12.589	15472.47	0.0050602	0.06168	1.519	0.00708	1.26020	1.5786
34	4.84094	345.76	12.270	14534.89	0.0053458	0.06268	1.371	0.00701	1.25722	1.4555
36	4.78818	345.51	11.963	13662.66	0.0056246	0.06444	1.250	0.00693	1.25411	1.3568
38	4.73309	344.26	11.674	12795.11	0.0059240	0.06640	1.148	0.00688	1.25088	1.2696
40	4.67583	342.05	11.402	11933.69	0.0062528	0.06785	1.062	0.00678	1.24753	1.2056
42	4.61612	338.99	11.148	11092.16	0.0066056	0.06886	0.989	0.00666	1.24405	1.1574
44	4.55382	335.51	10.898	10279.71	0.0069800	0.06949	0.924	0.00652	1.24042	1.1212
46	4.48885	331.35	10.658	9490.42	0.0073848	0.06979	0.867	0.00635	1.23665	1.0948
48	4.42108	326.60	10.420	8724.18	0.0078241	0.06980	0.817	0.00618	1.23273	1.0764
50	4.35035	321.44	10.178	7985.91	0.0083047	0.06956	0.771	0.00599	1.22866	1.0646
52	4.27652	315.41	9.935	7262.64	0.0088350	0.06912	0.729	0.00580	1.22441	1.0587
54	4.19936	309.35	9.696	6592.47	0.0093930	0.06850	0.691	0.00561	1.21999	1.0557
56	4.11873	302.99	9.448	5965.69	0.0099997	0.06743	0.656	0.00540	1.21540	1.0610
58	4.03445	296.23	9.196	5351.52	0.0105687	0.06625	0.623	0.00520	1.21060	1.0701
60	3.94637	288.94	8.944	4777.09	0.0114212	0.06497	0.592	0.00499	1.20562	1.0830
62	3.85422	281.84	8.686	4253.99	0.0122142	0.06362	0.563	0.00480	1.20042	1.0972
64	3.75788	274.25	8.428	3759.55	0.0131196	0.06220	0.536	0.00460	1.19501	1.1159
66	3.65720	267.15	8.163	3321.97	0.0140413	0.06071	0.510	0.00443	1.18938	1.1341
68	3.55227	259.78	7.899	2917.58	0.0150658	0.05917	0.485	0.00426	1.18354	1.1555
70	3.44316	252.59	7.642	2556.59	0.0161489	0.05759	0.462	0.00410	1.17750	1.1779
75	3.15466	237.08	7.010	1850.53	0.0188294	0.05404	0.410	0.00384	1.16166	1.2180
80	2.85408	226.17	6.422	1380.48	0.0210543	0.05083	0.367	0.00374	1.14536	1.2361
85	2.56106	221.41	5.916	1098.88	0.0220462	0.04792	0.333	0.00383	1.12967	1.2229
90	2.29534	222.63	5.515	945.20	0.0215601	0.04550	0.310	0.00413	1.11561	1.1772
95	2.06782	228.61	5.202	866.10	0.0200994	0.04368	0.294	0.00460	1.10368	1.1149
100	1.87871	238.28	4.952	828.30	0.0182805	0.04244	0.285	0.00519	1.09386	1.0513
105	1.72232	250.31	4.753	811.10	0.0165172	0.04167	0.278	0.00585	1.08579	0.9946
110	1.59211	264.13	4.577	803.73	0.0149620	0.04141	0.275	0.00658	1.07910	0.9450
115	1.48243	279.37	4.415	801.47	0.0136296	0.04146	0.273	0.00735	1.07350	0.9040
120	1.38884	295.88	4.261	802.45	0.0124844	0.04172	0.273	0.00813	1.06874	0.8711
125	1.30804	313.36	4.114	804.12	0.0115197	0.04212	0.274	0.00892	1.06464	0.8457
130	1.23750	331.97	3.971	807.06	0.0106833	0.04265	0.276	0.00972	1.06108	0.8258
135	1.17530	351.55	3.832	810.15	0.0099613	0.04275	0.278	0.01039	1.05794	0.8204
140	1.12001	372.00	3.696	812.80	0.0093376	0.04350	0.281	0.01118	1.05516	0.8081
150	1.02571	415.94	3.441	818.69	0.0082984	0.04569	0.288	0.01290	1.05042	0.7831
160	0.94805	463.27	3.206	823.12	0.0074818	0.04832	0.296	0.01470	1.04654	0.7638
180	0.82923	565.14	2.807	823.95	0.0063742	0.05493	0.320	0.01839	1.04062	0.7561
200	0.73672	676.28	2.519	829.36	0.0055029	0.06322	0.350	0.02306	1.03603	0.7425
220	0.66440	791.67	2.306	832.66	0.0048591	0.07042	0.374	0.02755	1.03245	0.7353
240	0.60599	904.81	2.159	834.51	0.0043613	0.07646	0.393	0.03197	1.02956	0.7302
260	0.55767	1011.66	2.064	835.42	0.0039635	0.08135	0.409	0.03638	1.02718	0.7260
280	0.51690	1109.79	2.009	835.69	0.0036373	0.08520	0.423	0.04083	1.02518	0.7220
300	0.48199	1199.14	1.981	835.55	0.0033644	0.08817	0.436	0.04534	1.02346	0.7182
320	0.45170	1280.13	1.973	835.14	0.0031323	0.09044	0.448	0.04993	1.02197	0.7146
340	0.42514	1354.25	1.979	834.54	0.0029321	0.09220	0.459	0.05461	1.02067	0.7113
360	0.40164	1422.88	1.994	833.84	0.0027576	0.09359	0.469	0.05939	1.01952	0.7082
380	0.38068	1487.35	2.014	833.07	0.0026038	0.09474	0.479	0.06426	1.01850	0.7054
400	0.36187	1549.42	2.037	832.26	0.0024672	0.09578	0.489	0.06924	1.01758	0.7029
420	0.34488	1609.82	2.060	831.44	0.0023450	0.09676	0.499	0.07432	1.01675	0.7006
440	0.32944	1669.49	2.083	830.62	0.0022348	0.09772	0.508	0.07950	1.01599	0.6986
460	0.31536	1729.27	2.104	829.81	0.0021350	0.09872	0.518	0.08479	1.01530	0.6968
480	0.30246	1789.25	2.123	829.02	0.0020441	0.09976	0.527	0.09018	1.01468	0.6953
500	0.29059	1849.96	2.139	828.25	0.0019609	0.10086	0.536	0.09568	1.01413	0.6939
520	0.27963	1911.45	2.153	827.50	0.0018844	0.10202	0.545	0.10129	1.01356	0.6927
540	0.26948	1973.62	2.165	826.78	0.0018139	0.10323	0.554	0.10701	1.01307	0.6917
560	0.26005	2037.14	2.174	826.08	0.0017486	0.10452	0.563	0.11283	1.01261	0.6908
580	0.25127	2101.24	2.182	825.41	0.0016880	0.10585	0.572	0.11877	1.01218	0.6900
600	0.24307	2166.19	2.188	824.77	0.0016316	0.10723	0.581	0.12481	1.01178	0.6894
650	0.22475	2331.36	2.197	823.27	0.0015062	0.11082	0.603	0.14042	1.01089	0.6880
700	0.20902	2499.83	2.201	821.91	0.0013990	0.11458	0.625	0.15675	1.01012	0.6870
800	0.18338	2844.08	2.198	819.58	0.0012253	0.12241	0.669	0.19155	1.00888	0.6857
900	0.16338	3191.59	2.193	817.67	0.0010904	0.13033	0.713	0.22923	1.00791	0.6849
1000	0.14732	3542.40	2.186	816.07	0.0009825	0.13831	0.755	0.26975	1.00713	0.6843
1500	0.09882	5355.19	2.129	811.00	0.0006580	0.17855	0.962	0.51272	1.00478	0.6835
2000	0.07436	7335.43	2.035	808.33	0.0004950	0.27727	1.155	1.02697	1.00359	0.5447
2500	0.05961	9507.28	1.927	806.70	0.0003967	0.33495	1.338	1.48981	1.00288	0.5423
3000	0.04974	11810.34	1.834	805.59	0.0003310	0.39306	1.511	2.02111	1.00240	0.5411
3500	0.04268	14272.23	1.747	804.74	0.0002840	0.45429	1.677	2.62599	1.00206	0.5386
4000	0.03736	17138.91	1.638	803.86	0.0002488	0.53148	1.836	3.33655	1.00180	0.5334
5000	0.02978	26604.38	1.269	799.26	0.0002002	0.86168	2.145	5.43377	1.00144	0.4772

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

850 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 28.147	0.20012	3547.67	78.348	-131.484	-99.985	1.21795	1.192	1.553	4628
30	0.20182	3384.12	78.768	-128.786	-97.020	1.31996	1.231	1.646	4578
32	0.20378	3224.46	78.584	-125.707	-93.632	1.42925	1.271	1.742	4525
34	0.20587	3069.76	78.043	-122.457	-90.054	1.53771	1.307	1.837	4470
36	0.20809	2916.45	77.243	-119.040	-86.286	1.64537	1.341	1.931	4412
38	0.21046	2768.28	76.244	-115.454	-82.327	1.75238	1.371	2.026	4353
40	0.21298	2618.16	75.106	-111.703	-78.180	1.85873	1.399	2.123	4290
42	0.21567	2469.02	73.809	-107.783	-73.836	1.96468	1.423	2.221	4225
44	0.21855	2324.12	72.338	-103.693	-69.295	2.07032	1.445	2.321	4159
46	0.22162	2182.44	70.715	-99.434	-64.551	2.17574	1.465	2.423	4090
48	0.22492	2042.29	68.947	-95.003	-59.601	2.28107	1.482	2.528	4018
50	0.22846	1906.59	67.030	-90.396	-54.437	2.38646	1.497	2.636	3943
52	0.23227	1773.42	64.976	-85.613	-49.054	2.49202	1.511	2.747	3865
54	0.23638	1645.13	62.799	-80.651	-43.445	2.59786	1.521	2.861	3786
56	0.24082	1517.73	60.508	-75.510	-37.606	2.70403	1.531	2.982	3700
58	0.24563	1399.49	58.123	-70.185	-31.523	2.81074	1.540	3.104	3615
60	0.25085	1287.41	55.666	-64.673	-25.190	2.91810	1.547	3.230	3529
62	0.25654	1175.93	53.151	-58.975	-18.597	3.02618	1.553	3.369	3437
64	0.26274	1077.52	50.597	-53.085	-11.731	3.13518	1.559	3.502	3349
66	0.26953	980.94	48.005	-47.005	-4.582	3.24515	1.564	3.649	3257
68	0.27697	895.94	45.413	-40.737	2.856	3.35618	1.567	3.791	3168
70	0.28512	815.32	42.826	-34.291	10.586	3.46820	1.570	3.940	3079
75	0.30908	653.47	35.562	-17.477	31.171	3.75213	1.575	4.289	2871
80	0.33878	541.21	30.859	0.049	53.372	4.03860	1.584	4.575	2691
85	0.37431	476.78	25.986	17.761	76.676	4.32136	1.597	4.720	2555
90	0.41464	448.90	22.016	35.037	100.301	4.59144	1.609	4.703	2465
95	0.45802	447.33	18.880	51.406	123.497	4.84231	1.619	4.560	2416
100	0.50267	462.92	16.440	66.796	145.914	5.07237	1.629	4.361	2396
105	0.54746	488.48	14.536	81.041	167.210	5.28021	1.638	4.159	2397
110	0.59176	518.70	13.036	94.421	187.562	5.46960	1.652	3.989	2409
115	0.63536	552.87	11.826	107.133	207.137	5.64365	1.671	3.846	2428
120	0.67813	588.15	10.835	119.341	226.076	5.80487	1.695	3.735	2450
125	0.72007	624.49	10.005	131.165	244.522	5.95548	1.724	3.648	2474
130	0.76123	660.58	9.301	142.778	262.593	6.09724	1.757	3.584	2498
135	0.80165	697.19	8.697	154.211	280.387	6.23156	1.795	3.538	2523
140	0.84138	733.65	8.171	165.558	297.989	6.35960	1.836	3.507	2548
150	0.91904	805.51	7.302	188.234	332.888	6.60038	1.928	3.481	2596
160	0.99463	875.25	6.610	211.176	367.728	6.82524	2.030	3.493	2641
180	1.13718	1000.81	5.630	258.685	437.673	7.23722	2.259	3.624	2727
200	1.28044	1133.44	4.884	309.690	511.227	7.62457	2.460	3.738	2824
220	1.42013	1261.53	4.324	363.712	587.236	7.98671	2.643	3.860	2922
240	1.55718	1385.97	3.886	420.384	665.479	8.32686	2.783	3.957	3021
260	1.69222	1507.46	3.532	478.947	745.298	8.64647	2.878	4.019	3123
280	1.82569	1626.60	3.241	538.665	826.024	8.94548	2.929	4.045	3226
300	1.95793	1743.85	2.995	598.745	906.917	9.22468	2.946	4.041	3329
320	2.08915	1859.54	2.786	658.690	987.517	9.48480	2.936	4.016	3433
340	2.21957	1973.96	2.606	718.101	1067.454	9.72682	2.909	3.976	3535
360	2.34930	2087.34	2.448	776.733	1146.507	9.95283	2.872	3.928	3637
380	2.47848	2199.84	2.309	834.458	1224.563	10.16386	2.830	3.877	3737
400	2.60718	2311.60	2.185	891.231	1301.593	10.36151	2.787	3.826	3835
420	2.73549	2422.74	2.074	947.074	1377.632	10.54698	2.745	3.778	3931
440	2.86345	2533.35	1.975	1002.054	1452.753	10.72177	2.706	3.734	4024
460	2.99113	2643.51	1.884	1056.237	1527.031	10.88687	2.671	3.695	4116
480	3.11855	2753.28	1.802	1109.720	1600.571	11.04315	2.640	3.660	4205
500	3.24576	2862.71	1.727	1162.588	1673.461	11.19210	2.613	3.630	4292
520	3.37278	2971.85	1.658	1214.926	1745.792	11.33407	2.591	3.604	4376
540	3.49963	3080.73	1.594	1266.807	1817.639	11.46965	2.571	3.582	4459
560	3.62634	3189.39	1.536	1318.233	1889.008	11.59894	2.555	3.564	4539
580	3.75292	3297.84	1.481	1369.413	1960.111	11.72355	2.542	3.549	4618
600	3.87939	3406.12	1.431	1420.369	2030.973	11.84373	2.531	3.536	4695
650	4.19513	3676.18	1.318	1546.787	2207.088	12.12595	2.512	3.513	4880
700	4.51040	3945.51	1.222	1672.422	2382.345	12.38596	2.500	3.498	5057
800	5.13991	4482.59	1.067	1922.275	2731.282	12.85222	2.491	3.485	5390
900	5.76849	5018.26	0.9474	2171.703	3079.645	13.26223	2.489	3.481	5702
1000	6.39646	5553.02	0.8520	2420.804	3427.587	13.62861	2.490	3.481	5996
1500	9.53205	8220.54	0.5670	3675.616	5175.931	15.04557	2.537	3.524	7273
2000	12.66496	10884.21	0.4251	4969.237	6962.663	16.07140	2.644	3.631	8320
2500	15.79702	13546.74	0.3400	6326.758	8813.161	16.89665	2.786	3.772	9218
3000	18.92887	16208.81	0.2833	7755.328	10734.675	17.58736	2.923	3.909	10021
3500	22.06188	18870.67	0.2429	9258.501	12730.974	18.20541	3.065	4.053	10752
4000	25.20234	21532.41	0.2125	10844.979	14811.750	18.95366	3.264	4.260	11411
5000	31.61143	26855.74	0.1700	14527.808	19503.351	20.83132	4.208	5.296	12509

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

850 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)/V_p$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 28.147	4.99694	351.34	13.158	17727.49	0.0044196	0.05432	1.956	0.00700	1.26644	2.0132
30	4.95484	350.34	12.915	16767.80	0.0046976	0.05804	1.736	0.00712	1.26394	1.7724
32	4.90720	350.73	12.604	15823.08	0.0049664	0.06098	1.548	0.00713	1.26113	1.5914
34	4.85748	350.94	12.289	14911.03	0.0052339	0.06303	1.396	0.00706	1.25819	1.4645
36	4.80552	350.43	11.988	14015.05	0.0055114	0.06483	1.272	0.00699	1.25513	1.3641
38	4.75140	349.45	11.704	13153.21	0.0057966	0.06684	1.168	0.00694	1.25195	1.2747
40	4.69519	347.45	11.435	12292.84	0.0061097	0.06833	1.081	0.00686	1.24866	1.2088
42	4.63664	344.54	11.185	11447.96	0.0064474	0.06938	1.006	0.00674	1.24524	1.1592
44	4.57565	341.28	10.939	10634.36	0.0068023	0.07006	0.940	0.00660	1.24169	1.1216
46	4.51214	337.44	10.701	9847.49	0.0071816	0.07040	0.883	0.00644	1.23800	1.0936
48	4.44601	332.96	10.467	9080.04	0.0075933	0.07045	0.831	0.00627	1.23417	1.0740
50	4.37710	328.20	10.228	8345.34	0.0080320	0.07027	0.785	0.00609	1.23020	1.0604
52	4.30531	322.84	9.990	7635.13	0.0085101	0.06987	0.743	0.00591	1.22607	1.0521
54	4.23045	317.05	9.757	6959.63	0.0090234	0.06930	0.705	0.00573	1.22177	1.0475
56	4.15249	310.61	9.515	6302.34	0.0096008	0.06829	0.669	0.00551	1.21732	1.0524
58	4.07118	304.29	9.271	5697.58	0.0102014	0.06716	0.636	0.00531	1.21269	1.0591
60	3.98648	297.77	9.027	5132.14	0.0108465	0.06594	0.606	0.00512	1.20788	1.0681
62	3.89808	290.51	8.778	4583.85	0.0115954	0.06465	0.577	0.00492	1.20289	1.0819
64	3.80600	283.88	8.529	4101.05	0.0123377	0.06329	0.550	0.00475	1.19771	1.0947
66	3.71016	276.67	8.275	3639.45	0.0131902	0.06188	0.524	0.00457	1.19234	1.1121
68	3.61056	270.03	8.024	3234.84	0.0140389	0.06041	0.499	0.00441	1.18678	1.1281
70	3.50734	263.09	7.778	2859.61	0.0149761	0.05891	0.476	0.00426	1.18105	1.1468
75	3.23542	248.03	7.174	2114.25	0.0172930	0.05535	0.424	0.00399	1.16607	1.1841
80	2.95176	236.87	6.600	1597.51	0.0193166	0.05227	0.381	0.00387	1.15063	1.2016
85	2.67160	231.38	6.091	1273.77	0.0204008	0.04943	0.347	0.00392	1.13557	1.1942
90	2.41172	231.26	5.674	1082.63	0.0203461	0.04702	0.322	0.00415	1.12175	1.1609
95	2.18333	235.87	5.341	976.67	0.0193308	0.04513	0.305	0.00453	1.10972	1.1100
100	1.98938	244.29	5.072	920.93	0.0178513	0.04379	0.294	0.00505	1.09960	1.0537
105	1.82660	255.30	4.857	892.26	0.0162916	0.04290	0.287	0.00565	1.09116	1.0007
110	1.68987	268.23	4.669	876.54	0.0148724	0.04253	0.282	0.00631	1.08412	0.9536
115	1.57391	282.97	4.496	870.17	0.0135902	0.04249	0.280	0.00702	1.07817	0.9127
120	1.47465	298.97	4.334	867.31	0.0124927	0.04267	0.279	0.00775	1.07310	0.8802
125	1.38876	316.21	4.178	867.27	0.0115357	0.04300	0.280	0.00849	1.06874	0.8539
130	1.31367	334.41	4.029	867.79	0.0107185	0.04347	0.281	0.00923	1.06493	0.8338
135	1.24743	353.78	3.884	869.70	0.0100002	0.04350	0.283	0.00986	1.06158	0.8200
140	1.18852	374.18	3.744	871.96	0.0093713	0.04420	0.285	0.01061	1.05860	0.8147
150	1.08809	417.85	3.480	876.47	0.0083316	0.04632	0.291	0.01223	1.05355	0.7886
160	1.00540	464.99	3.239	879.97	0.0075111	0.04890	0.299	0.01393	1.04941	0.7683
180	0.87937	566.47	2.835	880.08	0.0063968	0.05525	0.322	0.01734	1.04311	0.7601
200	0.78098	677.57	2.541	885.19	0.0055170	0.06346	0.352	0.02174	1.03822	0.7457
220	0.70416	793.10	2.323	888.32	0.0048673	0.07061	0.375	0.02598	1.03441	0.7380
240	0.64219	906.49	2.174	890.05	0.0043656	0.07661	0.394	0.03014	1.03135	0.7326
260	0.59094	1013.63	2.077	890.82	0.0039651	0.08148	0.410	0.03431	1.02882	0.7288
280	0.54774	1112.05	2.020	890.95	0.0036372	0.08531	0.424	0.03851	1.02669	0.7237
300	0.51074	1201.66	1.991	890.66	0.0033631	0.08827	0.437	0.04276	1.02487	0.7197
320	0.47866	1282.89	1.983	890.09	0.0031303	0.09053	0.448	0.04710	1.02330	0.7159
340	0.45054	1357.20	1.988	889.35	0.0029297	0.09229	0.459	0.05152	1.02192	0.7124
360	0.42566	1426.00	2.002	888.49	0.0027548	0.09368	0.470	0.05602	1.02070	0.7092
380	0.40347	1490.61	2.022	887.58	0.0026009	0.09484	0.480	0.06063	1.01961	0.7063
400	0.38356	1552.80	2.044	886.63	0.0024642	0.09587	0.490	0.06532	1.01864	0.7036
420	0.36557	1613.30	2.067	885.67	0.0023419	0.09685	0.499	0.07012	1.01776	0.7012
440	0.34923	1673.86	2.090	884.72	0.0022318	0.09782	0.509	0.07501	1.01696	0.6991
460	0.33432	1732.91	2.110	883.78	0.0021320	0.09882	0.518	0.08000	1.01623	0.6973
480	0.32066	1792.95	2.129	882.87	0.0020412	0.09986	0.527	0.08509	1.01556	0.6957
500	0.30809	1853.71	2.145	881.98	0.0019581	0.10096	0.536	0.09028	1.01495	0.6943
520	0.29649	1915.25	2.159	881.13	0.0018817	0.10213	0.546	0.09557	1.01438	0.6931
540	0.28574	1977.47	2.170	880.30	0.0018113	0.10333	0.555	0.10096	1.01386	0.6920
560	0.27576	2041.03	2.179	879.50	0.0017461	0.10463	0.564	0.10646	1.01337	0.6911
580	0.26646	2105.17	2.187	878.74	0.0016856	0.10596	0.573	0.11206	1.01292	0.6903
600	0.25777	2170.15	2.192	878.01	0.0016293	0.10734	0.581	0.11776	1.01250	0.6896
650	0.23837	2335.39	2.201	876.38	0.0015041	0.11093	0.604	0.13249	1.01155	0.6882
700	0.22171	2503.93	2.205	874.76	0.0013971	0.11470	0.626	0.14789	1.01074	0.6871
800	0.19456	2848.24	2.202	872.11	0.0012237	0.12255	0.670	0.18072	1.00942	0.6858
900	0.17336	3195.87	2.196	869.94	0.0010891	0.13048	0.713	0.21626	1.00839	0.6849
1000	0.15634	3546.73	2.188	868.14	0.0009814	0.13847	0.756	0.25447	1.00757	0.6844
1500	0.10491	5359.73	2.131	862.41	0.0006575	0.17880	0.963	0.48363	1.00507	0.6835
2000	0.07896	7340.15	2.036	859.48	0.0004946	0.27727	1.157	0.96716	1.00382	0.5455
2500	0.06330	9512.19	1.928	857.55	0.0003965	0.33495	1.340	1.40289	1.00306	0.5432
3000	0.05283	11815.12	1.835	856.30	0.0003309	0.39304	1.514	1.90301	1.00255	0.5420
3500	0.04533	14274.54	1.748	855.35	0.0002839	0.45414	1.680	2.47211	1.00219	0.5396
4000	0.03968	17129.17	1.641	854.38	0.0002487	0.53070	1.840	3.13948	1.00192	0.5316
5000	0.03163	26466.40	1.277	849.56	0.0002001	0.85438	2.149	5.09990	1.00153	0.4794

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

900 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 28.328	0.19972	3594.63	78.482	-131.366	-98.082	1.21982	1.194	1.552	4653
30	0.20123	3442.90	75.967	-128.950	-95.415	1.31127	1.230	1.637	4608
32	0.20315	3286.65	76.854	-125.900	-92.044	1.42003	1.270	1.732	4558
34	0.20519	3131.91	79.372	-122.682	-88.486	1.52784	1.307	1.826	4504
36	0.20736	2978.10	77.631	-119.299	-84.740	1.63488	1.340	1.920	4446
38	0.20968	2831.73	73.679	-115.750	-80.807	1.74121	1.370	2.013	4390
40	0.21213	2682.50	73.580	-112.041	-76.688	1.84684	1.398	2.108	4328
42	0.21475	2537.98	74.332	-108.165	-72.376	1.95202	1.423	2.203	4267
44	0.21754	2393.88	72.905	-104.126	-67.872	2.05678	1.445	2.301	4203
46	0.22052	2252.74	71.324	-99.922	-63.170	2.16126	1.464	2.400	4136
48	0.22371	2113.78	69.610	-95.552	-58.269	2.26555	1.482	2.501	4066
50	0.22712	1974.89	67.744	-91.014	-53.162	2.36977	1.497	2.607	3991
52	0.23079	1842.36	65.754	-86.306	-47.843	2.47407	1.511	2.715	3916
54	0.23473	1715.50	63.634	-81.427	-42.308	2.57852	1.522	2.823	3839
56	0.23897	1593.32	61.414	-76.378	-36.552	2.68318	1.532	2.934	3760
58	0.24355	1475.12	59.098	-71.157	-30.568	2.78817	1.541	3.049	3677
60	0.24850	1358.65	56.711	-65.763	-24.349	2.89358	1.548	3.172	3591
62	0.25386	1252.71	54.274	-60.193	-17.886	2.99954	1.555	3.295	3507
64	0.25968	1152.07	51.790	-54.448	-11.171	3.10614	1.560	3.421	3421
66	0.26601	1055.52	49.293	-48.527	-4.194	3.21347	1.565	3.556	3333
68	0.27291	969.02	46.773	-42.435	3.047	3.32155	1.569	3.686	3248
70	0.28042	887.24	44.260	-36.180	10.554	3.43035	1.571	3.821	3162
75	0.30227	719.75	38.155	-19.906	30.468	3.70503	1.575	4.142	2961
80	0.32902	601.25	32.539	-2.952	51.881	3.98134	1.583	4.407	2785
85	0.36083	526.87	27.651	14.258	74.393	4.25449	1.596	4.570	2644
90	0.39706	489.20	23.594	31.208	97.380	4.51727	1.609	4.598	2545
95	0.43642	479.14	20.324	47.463	120.194	4.76399	1.620	4.508	2486
100	0.47742	488.21	17.731	62.904	142.469	4.99256	1.631	4.349	2456
105	0.51894	508.52	15.685	77.287	163.770	5.20046	1.640	4.173	2448
110	0.56032	535.84	14.057	90.844	184.225	5.39080	1.654	4.013	2454
115	0.60123	567.01	12.743	103.740	203.938	5.56608	1.673	3.878	2467
120	0.64151	600.29	11.661	116.128	223.039	5.72869	1.698	3.769	2485
125	0.68112	635.48	10.758	128.142	241.655	5.88069	1.727	3.682	2506
130	0.72006	671.14	9.991	139.893	259.895	6.02378	1.760	3.617	2528
135	0.75834	706.46	9.333	151.473	277.855	6.15934	1.798	3.570	2550
140	0.79601	742.32	8.762	162.955	295.615	6.28853	1.839	3.538	2572
150	0.86968	814.05	7.818	185.871	330.809	6.53135	1.932	3.509	2617
160	0.94141	883.61	7.067	209.020	365.911	6.75789	2.033	3.517	2661
180	1.07627	1008.69	5.912	256.739	436.105	7.17161	2.260	3.644	2745
200	1.21221	1141.64	5.207	307.999	510.021	7.56087	2.462	3.754	2840
220	1.34470	1270.22	4.604	362.219	586.320	7.92440	2.644	3.873	2936
240	1.47461	1395.16	4.133	419.051	664.804	8.26559	2.785	3.968	3035
260	1.60256	1517.13	3.755	477.749	744.824	8.58601	2.879	4.028	3136
280	1.72896	1636.71	3.443	537.580	825.722	8.88566	2.930	4.053	3238
300	1.85415	1754.33	3.181	597.759	906.763	9.16537	2.947	4.048	3341
320	1.97834	1870.37	2.957	657.789	987.492	9.42591	2.937	4.022	3444
340	2.10173	1985.09	2.765	717.275	1067.541	9.66827	2.911	3.981	3547
360	2.22446	2098.73	2.596	775.973	1146.692	9.89456	2.873	3.933	3648
380	2.34663	2211.46	2.448	833.756	1224.835	10.10583	2.831	3.881	3748
400	2.46834	2323.42	2.317	890.581	1301.944	10.30368	2.788	3.830	3846
420	2.58965	2434.75	2.199	946.471	1378.051	10.48932	2.746	3.782	3941
440	2.71063	2545.52	2.093	1001.493	1453.234	10.66425	2.707	3.737	4035
460	2.83132	2655.82	1.997	1055.713	1527.568	10.82947	2.672	3.697	4126
480	2.95176	2765.72	1.910	1109.231	1601.159	10.98585	2.641	3.662	4215
500	3.07199	2875.26	1.830	1162.130	1674.094	11.13490	2.614	3.632	4302
520	3.19203	2984.50	1.757	1214.496	1746.466	11.27695	2.591	3.606	4386
540	3.31191	3093.48	1.689	1266.403	1818.351	11.41261	2.572	3.584	4469
560	3.43164	3202.22	1.627	1317.852	1889.755	11.54196	2.556	3.566	4549
580	3.55125	3310.75	1.569	1369.054	1960.890	11.66663	2.543	3.550	4628
600	3.67075	3419.10	1.515	1420.030	2031.780	11.78685	2.532	3.537	4704
650	3.96907	3689.31	1.396	1546.491	2207.959	12.06917	2.512	3.514	4890
700	4.26692	3958.75	1.294	1672.162	2383.268	12.32926	2.500	3.499	5066
800	4.86160	4496.01	1.130	1922.071	2732.284	12.79563	2.491	3.486	5399
900	5.45536	5031.80	1.003	2171.539	3080.705	13.20571	2.489	3.481	5710
1000	6.04852	5566.63	0.9022	2420.669	3428.690	13.57213	2.491	3.481	6004
1500	9.01011	8234.34	0.6004	3675.559	5177.144	14.98918	2.537	3.524	7280
2000	11.96904	10898.06	0.4501	4969.211	6963.918	16.01504	2.645	3.631	8326
2500	14.92713	13560.59	0.3600	6326.746	8814.436	16.84030	2.786	3.772	9223
3000	17.88500	16222.66	0.3000	7755.307	10735.943	17.53100	2.923	3.909	10025
3500	20.84393	18884.51	0.2571	9258.314	12732.072	18.14900	3.064	4.052	10756
4000	23.80969	21546.25	0.2250	10843.885	14811.903	18.89701	3.261	4.257	11415
5000	29.85890	26869.57	0.1800	14514.804	19490.958	20.77196	4.184	5.269	12517

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

900 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$(\partial H/\partial V)_p$ BTU/LB	$(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 28.328	5.00695	356.03	13.128	17998.09	0.0043606	0.05494	1.971	0.00707	1.26703	2.0045
30	4.96953	354.71	12.922	17109.49	0.0046154	0.05829	1.770	0.00716	1.26481	1.7893
32	4.92249	355.42	12.617	16178.49	0.0048740	0.06128	1.576	0.00719	1.26203	1.6040
34	4.87353	355.70	12.308	15263.45	0.0051346	0.06338	1.421	0.00712	1.25914	1.4744
36	4.82247	355.22	12.013	14361.79	0.0054054	0.06522	1.294	0.00704	1.25613	1.3718
38	4.76927	354.49	11.733	13505.28	0.0056777	0.06727	1.189	0.00701	1.25300	1.2802
40	4.71407	352.69	11.467	12645.47	0.0059768	0.06881	1.099	0.00692	1.24977	1.2125
42	4.65657	350.33	11.221	11818.29	0.0062896	0.06990	1.023	0.00681	1.24641	1.1607
44	4.59684	347.30	10.977	11004.27	0.0066251	0.07062	0.956	0.00668	1.24292	1.1217
46	4.53467	343.73	10.741	10215.45	0.0069820	0.07100	0.898	0.00652	1.23931	1.0924
48	4.47005	339.52	10.511	9448.69	0.0073672	0.07109	0.846	0.00636	1.23556	1.0713
50	4.40287	334.66	10.275	8695.17	0.0077910	0.07095	0.799	0.00618	1.23168	1.0573
52	4.33296	329.59	10.042	7982.87	0.0082369	0.07060	0.757	0.00600	1.22765	1.0477
54	4.26023	324.18	9.813	7308.42	0.0087069	0.07008	0.718	0.00583	1.22348	1.0414
56	4.18459	318.54	9.578	6667.39	0.0092111	0.06911	0.683	0.00563	1.21915	1.0433
58	4.10595	312.53	9.340	6056.76	0.0097574	0.06803	0.650	0.00543	1.21467	1.0482
60	4.02421	305.84	9.102	5467.50	0.0103725	0.06686	0.619	0.00524	1.21002	1.0569
62	3.93921	299.54	8.862	4934.67	0.0109986	0.06563	0.590	0.00506	1.20521	1.0660
64	3.85090	293.02	8.621	4436.52	0.0116735	0.06433	0.563	0.00488	1.20023	1.0772
66	3.75922	286.23	8.378	3967.93	0.0124228	0.06298	0.537	0.00471	1.19509	1.0918
68	3.66425	279.82	8.137	3550.74	0.0131728	0.06158	0.513	0.00456	1.18978	1.1053
70	3.56608	273.18	7.901	3163.97	0.0139887	0.06015	0.490	0.00441	1.18431	1.1208
75	3.30832	258.43	7.321	2381.18	0.0160238	0.05658	0.439	0.00413	1.17007	1.1558
80	3.03932	247.51	6.762	1827.39	0.0178062	0.05360	0.395	0.00400	1.15538	1.1700
85	2.77138	241.31	6.252	1460.15	0.0189369	0.05084	0.361	0.00401	1.14091	1.1672
90	2.51850	240.12	5.824	1232.04	0.0191502	0.04845	0.335	0.00418	1.12741	1.1431
95	2.29139	243.53	5.476	1097.89	0.0185122	0.04653	0.316	0.00450	1.11540	1.1020
100	2.09459	250.83	5.191	1022.60	0.0173387	0.04510	0.303	0.00495	1.10508	1.0527
105	1.92702	260.74	4.962	979.94	0.0160061	0.04412	0.295	0.00549	1.09636	1.0046
110	1.78469	272.98	4.761	956.32	0.0146993	0.04365	0.290	0.00610	1.08900	0.9591
115	1.66326	287.00	4.578	943.09	0.0135115	0.04353	0.287	0.00675	1.08275	0.9199
120	1.55882	302.45	4.407	935.75	0.0124618	0.04362	0.285	0.00742	1.07740	0.8878
125	1.46816	319.35	4.244	932.98	0.0115311	0.04389	0.285	0.00812	1.07277	0.8615
130	1.38877	337.38	4.087	932.06	0.0107195	0.04429	0.286	0.00882	1.06874	0.8406
135	1.31866	356.37	3.937	931.58	0.0100186	0.04425	0.287	0.00940	1.06518	0.8349
140	1.25626	376.56	3.792	932.54	0.0093954	0.04491	0.290	0.01010	1.06202	0.8212
150	1.14985	420.11	3.520	936.03	0.0083522	0.04696	0.295	0.01164	1.05666	0.7938
160	1.06224	467.13	3.272	938.60	0.0075294	0.04949	0.302	0.01325	1.05226	0.7725
180	0.92914	568.05	2.863	937.22	0.0064147	0.05559	0.324	0.01642	1.04560	0.7639
200	0.82494	679.06	2.564	941.78	0.0055286	0.06372	0.353	0.02057	1.04040	0.7489
220	0.74366	794.72	2.341	944.61	0.0048740	0.07081	0.376	0.02458	1.03637	0.7407
240	0.67814	908.33	2.189	946.12	0.0043688	0.07677	0.395	0.02853	1.03313	0.7349
260	0.62400	1015.73	2.090	946.69	0.0039660	0.08162	0.411	0.03247	1.03045	0.7299
280	0.57838	1114.41	2.031	946.64	0.0036366	0.08543	0.425	0.03644	1.02820	0.7254
300	0.53933	1204.28	2.001	946.17	0.0033615	0.08838	0.437	0.04048	1.02628	0.7212
320	0.50547	1285.72	1.992	945.42	0.0031280	0.09063	0.449	0.04458	1.02461	0.7172
340	0.47580	1360.23	1.996	944.50	0.0029270	0.09239	0.460	0.04877	1.02316	0.7136
360	0.44955	1429.18	2.010	943.48	0.0027519	0.09378	0.470	0.05304	1.02187	0.7102
380	0.42614	1493.93	2.029	942.40	0.0025979	0.09493	0.480	0.05740	1.02072	0.7071
400	0.40513	1556.23	2.051	941.29	0.0024611	0.09597	0.490	0.06185	1.01969	0.7043
420	0.38615	1616.83	2.074	940.18	0.0023389	0.09695	0.500	0.06639	1.01876	0.7019
440	0.36892	1676.66	2.096	939.09	0.0022288	0.09791	0.509	0.07102	1.01792	0.6997
460	0.35319	1736.59	2.116	938.02	0.0021291	0.09892	0.519	0.07575	1.01715	0.6978
480	0.33878	1796.66	2.135	936.97	0.0020383	0.09996	0.528	0.08057	1.01645	0.6961
500	0.32552	1857.50	2.151	935.96	0.0019553	0.10106	0.537	0.08548	1.01580	0.6946
520	0.31328	1919.08	2.164	934.99	0.0018790	0.10223	0.546	0.09049	1.01520	0.6934
540	0.30194	1981.34	2.176	934.05	0.0018087	0.10344	0.555	0.09560	1.01465	0.6923
560	0.29141	2044.94	2.184	933.14	0.0017436	0.10473	0.564	0.10080	1.01414	0.6913
580	0.28159	2109.11	2.192	932.28	0.0016832	0.10607	0.573	0.10610	1.01366	0.6905
600	0.27242	2174.13	2.197	931.45	0.0016270	0.10745	0.582	0.11150	1.01321	0.6898
650	0.25195	2339.44	2.206	929.52	0.0015019	0.11105	0.604	0.12544	1.01221	0.6883
700	0.23436	2508.04	2.209	927.78	0.0013952	0.11482	0.626	0.14002	1.01136	0.6872
800	0.20569	2852.49	2.206	924.80	0.0012221	0.12268	0.670	0.17109	1.00996	0.6858
900	0.18331	3200.15	2.199	922.36	0.0010878	0.13063	0.714	0.20473	1.00888	0.6850
1000	0.16533	3551.07	2.191	920.33	0.0009803	0.13864	0.757	0.24089	1.00800	0.6844
1500	0.11099	5364.26	2.132	913.90	0.0006570	0.17905	0.965	0.45776	1.00537	0.6835
2000	0.08355	7344.87	2.037	910.52	0.0004943	0.27727	1.159	0.91400	1.00404	0.5463
2500	0.06699	9517.10	1.929	908.45	0.0003963	0.33495	1.342	1.32563	1.00324	0.5441
3000	0.05591	11819.92	1.835	907.05	0.0003307	0.39302	1.516	1.79803	1.00270	0.5429
3500	0.04798	14277.03	1.749	906.00	0.0002838	0.45400	1.683	2.33535	1.00232	0.5406
4000	0.04200	17120.71	1.643	904.94	0.0002486	0.52998	1.843	2.96444	1.00203	0.5328
5000	0.03343	26340.55	1.285	899.88	0.0002000	0.84769	2.152	4.80420	1.00162	0.4816

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

950 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 28.508	0.19933	3640.73	79.632	-131.246	-96.182	1.22167	1.196	1.552	4679
30	0.20065	3507.92	79.127	-129.105	-93.808	1.30281	1.228	1.628	4640
32	0.20253	3346.50	73.120	-126.084	-90.457	1.41094	1.269	1.723	4589
34	0.20453	3192.83	78.695	-122.897	-86.918	1.51819	1.306	1.816	4536
36	0.20665	3038.44	75.010	-119.546	-83.193	1.62464	1.339	1.909	4480
38	0.20891	2895.71	77.101	-116.034	-79.283	1.73030	1.370	2.000	4426
40	0.21131	2750.20	75.032	-112.362	-75.190	1.83528	1.398	2.093	4368
42	0.21386	2603.63	74.823	-108.530	-70.910	1.93968	1.422	2.187	4307
44	0.21657	2459.87	73.447	-104.539	-66.441	2.04361	1.444	2.282	4244
46	0.21946	2319.52	71.912	-100.387	-61.780	2.14721	1.464	2.379	4178
48	0.22255	2181.69	70.242	-96.074	-56.924	2.25053	1.482	2.477	4111
50	0.22585	2046.96	68.432	-91.599	-51.869	2.35371	1.498	2.578	4040
52	0.22938	1915.73	65.496	-86.961	-46.609	2.45684	1.512	2.681	3967
54	0.23317	1788.39	64.434	-82.159	-41.142	2.56001	1.523	2.785	3892
56	0.23723	1662.19	62.261	-77.197	-35.465	2.66323	1.533	2.895	3813
58	0.24160	1545.55	60.028	-72.070	-29.569	2.76667	1.542	3.004	3734
60	0.24630	1433.19	57.708	-66.780	-23.452	2.87036	1.550	3.116	3654
62	0.25138	1326.62	55.336	-61.326	-17.104	2.97442	1.556	3.231	3572
64	0.25687	1222.18	52.925	-55.710	-10.522	3.07890	1.562	3.354	3487
66	0.26281	1128.57	50.493	-49.930	-3.698	3.18389	1.567	3.474	3405
68	0.26925	1041.06	48.039	-43.992	3.373	3.28943	1.570	3.594	3322
70	0.27622	958.75	45.606	-37.905	10.687	3.39544	1.572	3.718	3241
75	0.29632	785.79	39.645	-22.102	30.024	3.66216	1.576	4.015	3045
80	0.32065	660.46	34.117	-5.651	50.756	3.92968	1.583	4.267	2872
85	0.34940	577.75	29.239	11.099	72.563	4.19430	1.595	4.439	2729
90	0.38218	531.45	25.116	27.718	94.948	4.45018	1.608	4.498	2624
95	0.41802	513.89	21.732	43.812	117.348	4.69241	1.620	4.445	2556
100	0.45572	515.59	19.008	59.245	139.413	4.91884	1.632	4.327	2516
105	0.49427	531.58	16.829	73.719	160.667	5.12627	1.642	4.173	2501
110	0.53292	554.66	15.082	87.411	181.159	5.31694	1.656	4.029	2500
115	0.57135	582.99	13.664	100.461	200.969	5.49309	1.676	3.902	2508
120	0.60934	614.96	12.495	113.008	220.201	5.65680	1.700	3.795	2522
125	0.64679	648.06	11.520	125.176	238.955	5.80993	1.729	3.712	2539
130	0.68368	682.66	10.691	137.073	257.341	5.95417	1.763	3.646	2558
135	0.72000	717.73	9.978	148.789	275.447	6.09084	1.800	3.598	2578
140	0.75578	753.00	9.360	160.400	293.353	6.22108	1.842	3.565	2598
150	0.82581	823.38	8.340	183.545	328.816	6.46576	1.935	3.535	2640
160	0.89402	892.48	7.531	206.893	364.164	6.69390	2.036	3.541	2681
180	1.02197	1017.30	6.399	254.812	434.591	7.10927	2.262	3.663	2763
200	1.15132	1150.36	5.533	306.321	508.855	7.50036	2.463	3.770	2856
220	1.27733	1279.31	4.887	360.736	585.436	7.86524	2.646	3.886	2951
240	1.40083	1404.67	4.383	417.728	664.154	8.20745	2.786	3.979	3048
260	1.52241	1527.07	3.978	476.559	744.373	8.52866	2.881	4.038	3149
280	1.64248	1647.04	3.646	536.504	825.440	8.82894	2.932	4.060	3251
300	1.76135	1765.01	3.367	596.779	906.626	9.10915	2.948	4.055	3354
320	1.87925	1881.36	3.129	656.895	987.481	9.37010	2.939	4.028	3456
340	1.99635	1996.36	2.924	716.454	1067.641	9.61279	2.912	3.987	3558
360	2.11280	2110.25	2.746	775.218	1146.890	9.83936	2.875	3.938	3659
380	2.22870	2223.20	2.588	833.059	1225.119	10.05086	2.832	3.885	3759
400	2.34414	2335.36	2.449	889.936	1302.304	10.24890	2.789	3.834	3857
420	2.45919	2446.85	2.324	945.873	1378.479	10.43471	2.747	3.785	3952
440	2.57391	2557.78	2.212	1000.936	1453.724	10.60979	2.707	3.740	4046
460	2.68835	2668.21	2.110	1055.194	1528.113	10.77513	2.673	3.700	4137
480	2.80255	2778.23	2.018	1108.745	1601.753	10.93162	2.642	3.665	4226
500	2.91653	2887.89	1.933	1161.675	1674.733	11.08076	2.615	3.634	4312
520	3.03032	2997.23	1.856	1214.070	1747.147	11.22289	2.592	3.608	4396
540	3.14396	3106.29	1.784	1266.002	1819.069	11.35861	2.572	3.585	4479
560	3.25745	3215.11	1.718	1317.474	1890.507	11.48803	2.557	3.567	4559
580	3.37082	3323.71	1.657	1368.698	1961.673	11.61275	2.543	3.552	4637
600	3.48408	3432.13	1.600	1419.693	2032.592	11.73303	2.532	3.539	4714
650	3.76681	3702.48	1.474	1546.198	2208.833	12.01545	2.512	3.515	4899
700	4.04907	3972.03	1.367	1671.904	2384.194	12.27561	2.501	3.500	5075
800	4.61259	4509.45	1.193	1921.868	2733.288	12.74208	2.492	3.487	5407
900	5.17520	5045.36	1.059	2171.376	3081.767	13.15223	2.489	3.482	5718
1000	5.73721	5580.28	0.9524	2420.536	3429.794	13.51870	2.491	3.481	6011
1500	8.54310	8248.14	0.6338	3675.503	5178.356	14.93584	2.537	3.524	7286
2000	11.34636	10911.89	0.4751	4969.186	6965.172	15.96173	2.645	3.631	8331
2500	14.14880	13574.43	0.3800	6326.735	8815.711	16.78699	2.786	3.772	9227
3000	16.95130	16236.49	0.3167	7755.289	10737.212	17.47769	2.923	3.909	10030
3500	19.75418	18898.34	0.2714	9258.143	12733.184	18.09564	3.064	4.051	10760
4000	22.56364	21560.07	0.2375	10842.880	14812.147	18.84343	3.258	4.253	11420
5000	28.29116	26883.37	0.1900	14502.843	19479.661	20.71589	4.162	5.243	12524

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

950 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-J FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 28.508	5.01684	360.60	13.103	18264.95	0.0043051	0.05556	1.985	0.00713	1.26762	1.9966
30	4.98382	359.62	12.924	17482.82	0.0045260	0.05853	1.803	0.00722	1.26566	1.8050
32	4.93759	359.90	12.631	16523.65	0.0047883	0.06158	1.605	0.00724	1.26292	1.6172
34	4.88934	360.34	12.327	15610.86	0.0050410	0.06371	1.447	0.00717	1.26007	1.4846
36	4.83906	359.88	12.037	14703.17	0.0053056	0.06560	1.317	0.00710	1.25711	1.3799
38	4.78676	359.57	11.760	13861.07	0.0055624	0.06770	1.209	0.00707	1.25403	1.2858
40	4.73244	358.23	11.496	13015.15	0.0058418	0.06927	1.118	0.00699	1.25084	1.2158
42	4.67604	355.83	11.253	12174.69	0.0061457	0.07040	1.040	0.00688	1.24754	1.1629
44	4.61745	352.97	11.013	11358.34	0.0064663	0.07116	0.972	0.00675	1.24412	1.1227
46	4.55657	349.60	10.780	10569.07	0.0068040	0.07159	0.913	0.00660	1.24058	1.0921
48	4.49336	345.71	10.552	9803.12	0.0071653	0.07172	0.860	0.00644	1.23691	1.0697
50	4.42771	341.43	10.320	9063.35	0.0075504	0.07162	0.813	0.00627	1.23312	1.0537
52	4.35955	336.72	10.091	8351.74	0.0079619	0.07131	0.770	0.00610	1.22918	1.0426
54	4.28875	331.51	9.866	7669.95	0.0084008	0.07083	0.731	0.00593	1.22511	1.0352
56	4.21531	325.70	9.636	7006.65	0.0088888	0.06990	0.696	0.00573	1.22091	1.0370
58	4.13909	320.11	9.404	6397.17	0.0093835	0.06887	0.662	0.00554	1.21655	1.0401
60	4.06002	314.16	9.173	5818.78	0.0099176	0.06775	0.632	0.00536	1.21206	1.0456
62	3.97799	308.11	8.939	5277.29	0.0104856	0.06657	0.603	0.00518	1.20741	1.0530
64	3.89302	301.49	8.706	4757.66	0.0111241	0.06533	0.576	0.00500	1.20261	1.0638
66	3.80502	295.41	8.471	4294.23	0.0117584	0.06403	0.550	0.00484	1.19766	1.0743
68	3.71404	289.26	8.237	3866.53	0.0124244	0.06268	0.526	0.00470	1.19256	1.0855
70	3.62025	282.96	8.012	3470.92	0.0131394	0.06131	0.503	0.00456	1.18732	1.0984
75	3.37478	268.59	7.453	2651.87	0.0149500	0.05783	0.452	0.00427	1.17373	1.1298
80	3.11869	257.64	6.910	2059.76	0.0165636	0.05487	0.409	0.00412	1.15970	1.1443
85	2.86207	251.02	6.404	1653.56	0.0176826	0.05218	0.374	0.00411	1.14579	1.1441
90	2.61660	249.02	5.968	1390.60	0.0180616	0.04981	0.346	0.00423	1.13263	1.1262
95	2.39223	251.47	5.606	1229.35	0.0176773	0.04786	0.327	0.00450	1.12072	1.0919
100	2.19431	257.56	5.307	1131.36	0.0168006	0.04638	0.313	0.00488	1.11030	1.0501
105	2.02320	266.68	5.065	1075.49	0.0156474	0.04531	0.303	0.00537	1.10136	1.0055
110	1.87646	278.02	4.852	1040.79	0.0144910	0.04475	0.297	0.00592	1.09374	0.9631
115	1.75025	291.37	4.659	1020.39	0.0133911	0.04455	0.293	0.00652	1.08722	0.9253
120	1.64111	306.48	4.479	1009.21	0.0123811	0.04457	0.291	0.00716	1.08161	0.8934
125	1.54609	322.85	4.309	1001.97	0.0114972	0.04477	0.291	0.00780	1.07675	0.8679
130	1.46268	340.57	4.147	998.51	0.0107067	0.04511	0.291	0.00846	1.07249	0.8470
135	1.38889	359.46	3.990	996.84	0.0100097	0.04501	0.292	0.00981	1.06874	0.8408
140	1.32313	379.46	3.840	996.32	0.0093944	0.04562	0.294	0.00967	1.06541	0.8268
150	1.21094	422.59	3.560	997.06	0.0083647	0.04761	0.299	0.01112	1.05974	0.7988
160	1.11854	469.43	3.306	998.28	0.0075436	0.05008	0.305	0.01264	1.05508	0.7768
180	0.97650	569.89	2.891	999.43	0.0064280	0.05593	0.326	0.01560	1.04806	0.7675
200	0.86857	680.77	2.586	999.17	0.0055376	0.06399	0.355	0.01954	1.04258	0.7519
220	0.78289	796.51	2.359	1001.55	0.0048791	0.07102	0.377	0.02334	1.03832	0.7433
240	0.71386	918.32	2.204	1002.74	0.0043711	0.07694	0.396	0.02709	1.03489	0.7371
260	0.65685	1017.96	2.102	1003.06	0.0039663	0.08176	0.412	0.03083	1.03207	0.7319
280	0.60883	1116.89	2.042	1002.77	0.0036355	0.08555	0.426	0.03461	1.02970	0.7271
300	0.56775	1206.98	2.011	1002.08	0.0033596	0.08849	0.438	0.03844	1.02768	0.7227
320	0.53213	1286.63	2.001	1001.13	0.0031255	0.09074	0.450	0.04234	1.02592	0.7185
340	0.50891	1363.32	2.005	1000.01	0.0029242	0.09249	0.461	0.04631	1.02439	0.7147
360	0.47331	1432.43	2.018	998.79	0.0027469	0.09388	0.471	0.05037	1.02303	0.7112
380	0.44869	1497.30	2.037	997.53	0.0025947	0.09503	0.481	0.05451	1.02183	0.7079
400	0.42660	1559.71	2.058	996.25	0.0024580	0.09607	0.491	0.05874	1.02074	0.7051
420	0.40664	1620.39	2.081	994.98	0.0023357	0.09704	0.500	0.06306	1.01977	0.7025
440	0.38851	1680.31	2.103	993.73	0.0022257	0.09801	0.510	0.06746	1.01888	0.7002
460	0.37198	1740.29	2.123	992.51	0.0021260	0.09901	0.519	0.07194	1.01807	0.6983
480	0.35682	1800.44	2.141	991.32	0.0020353	0.10006	0.528	0.07652	1.01733	0.6965
500	0.34287	1861.31	2.156	990.18	0.0019524	0.10116	0.537	0.08119	1.01665	0.6950
520	0.33000	1922.94	2.170	989.08	0.0018762	0.10233	0.547	0.08595	1.01602	0.6937
540	0.31807	1985.23	2.181	988.02	0.0018060	0.10354	0.556	0.09080	1.01544	0.6925
560	0.30699	2048.87	2.190	987.00	0.0017411	0.10484	0.565	0.09574	1.01490	0.6916
580	0.29666	2113.07	2.197	986.03	0.0016807	0.10617	0.574	0.10077	1.01439	0.6907
600	0.28702	2178.12	2.202	985.09	0.0016246	0.10756	0.583	0.10598	1.01392	0.6900
650	0.26548	2343.50	2.210	982.92	0.0014998	0.11116	0.605	0.11913	1.01287	0.6884
700	0.24697	2512.16	2.213	980.97	0.0013932	0.11494	0.627	0.13298	1.01197	0.6874
800	0.21680	2856.70	2.209	977.64	0.0012206	0.12282	0.671	0.16247	1.01050	0.6859
900	0.19323	3204.44	2.202	974.91	0.0010865	0.13079	0.715	0.19441	1.00936	0.6850
1000	0.17430	3555.42	2.194	972.65	0.0009792	0.13881	0.758	0.22874	1.00844	0.6844
1500	0.11705	5368.79	2.134	965.47	0.0006564	0.17930	0.966	0.43463	1.00566	0.6835
2000	0.08813	7349.58	2.038	961.71	0.0004940	0.27727	1.161	0.86644	1.00426	0.5472
2500	0.07068	9522.01	1.930	959.40	0.0003961	0.33495	1.344	1.25650	1.00342	0.5449
3000	0.05899	11824.75	1.836	957.85	0.0003306	0.39301	1.519	1.70410	1.00285	0.5438
3500	0.05062	14279.85	1.750	956.68	0.0002837	0.45386	1.685	2.21301	1.00245	0.5416
4000	0.04432	17113.35	1.645	955.52	0.0002485	0.52932	1.846	2.80795	1.00214	0.5340
5000	0.03535	26225.22	1.292	950.24	0.0001999	0.84154	2.156	4.54054	1.00171	0.4836

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

1000 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 28.688	0.19894	3685.92	78.796	-131.123	-94.285	1.22351	1.198	1.553	4703
30	0.20008	3567.11	73.280	-129.253	-92.203	1.29447	1.227	1.619	4669
32	0.20192	3405.28	79.381	-126.259	-88.869	1.40204	1.268	1.715	4620
34	0.20388	3252.59	73.011	-123.101	-85.348	1.50875	1.305	1.807	4568
36	0.20596	3105.32	78.374	-119.783	-81.645	1.61456	1.338	1.898	4516
38	0.20817	2957.29	77.505	-116.304	-77.757	1.71966	1.369	1.988	4461
40	0.21051	2813.58	76.471	-112.669	-73.689	1.82398	1.397	2.079	4405
42	0.21299	2667.66	75.301	-108.879	-69.439	1.92765	1.421	2.171	4345
44	0.21563	2524.11	73.974	-104.932	-65.003	2.03082	1.444	2.265	4283
46	0.21844	2384.40	72.484	-100.829	-60.380	2.13358	1.464	2.359	4220
48	0.22144	2247.52	71.855	-96.571	-55.567	2.23598	1.481	2.455	4154
50	0.22463	2113.46	69.097	-92.155	-50.560	2.33817	1.498	2.553	4085
52	0.22804	1983.41	67.208	-87.582	-45.356	2.44022	1.512	2.652	4015
54	0.23168	1856.94	65.207	-82.853	-39.951	2.54220	1.524	2.753	3942
56	0.23559	1734.92	63.104	-77.969	-34.345	2.64414	1.534	2.855	3868
58	0.23977	1618.45	60.916	-72.928	-28.530	2.74617	1.543	2.959	3791
60	0.24426	1505.76	58.657	-67.734	-22.505	2.84830	1.551	3.065	3713
62	0.24908	1395.99	56.344	-62.386	-16.262	2.95063	1.558	3.177	3632
64	0.25428	1295.58	53.999	-56.884	-9.799	3.05323	1.563	3.288	3553
66	0.25988	1200.51	51.623	-51.232	-3.110	3.15615	1.568	3.400	3473
68	0.26592	1110.11	49.250	-45.431	3.810	3.25943	1.572	3.517	3392
70	0.27243	1028.34	46.870	-39.493	10.955	3.36298	1.574	3.629	3314
75	0.29105	852.44	41.047	-24.101	29.794	3.62285	1.577	3.903	3126
80	0.31336	719.93	35.603	-8.096	49.930	3.88268	1.584	4.145	2954
85	0.33957	630.07	30.743	8.236	71.115	4.13974	1.595	4.318	2811
90	0.36942	576.64	26.573	24.529	92.936	4.38917	1.609	4.394	2701
95	0.40221	550.70	23.106	40.433	114.912	4.62882	1.621	4.380	2625
100	0.43697	546.49	20.268	55.813	136.727	4.85067	1.634	4.291	2579
105	0.47277	556.60	17.969	70.331	157.875	5.05706	1.644	4.165	2556
110	0.50895	576.45	16.107	84.127	178.370	5.24777	1.659	4.033	2548
115	0.54507	601.89	14.590	97.304	198.236	5.42440	1.678	3.915	2551
120	0.58091	630.93	13.338	109.985	217.555	5.58886	1.702	3.816	2560
125	0.61636	662.25	12.287	122.290	236.423	5.74292	1.731	3.736	2573
130	0.65136	695.61	11.397	134.319	254.933	5.88812	1.765	3.672	2589
135	0.68587	729.71	10.630	146.162	273.166	6.02575	1.803	3.624	2607
140	0.71990	764.25	9.965	157.893	291.200	6.15693	1.845	3.590	2625
150	0.78659	833.67	8.868	181.257	326.913	6.40334	1.938	3.559	2663
160	0.85162	902.63	7.999	204.798	362.494	6.63297	2.040	3.563	2703
180	0.97330	1026.64	6.789	252.904	433.134	7.04987	2.264	3.682	2781
200	1.09666	1159.62	5.862	304.658	507.729	7.44272	2.465	3.785	2872
220	1.21680	1288.80	5.172	359.266	584.584	7.80890	2.647	3.899	2965
240	1.33452	1414.51	4.634	416.415	663.531	8.15211	2.788	3.990	3062
260	1.45035	1537.27	4.204	475.377	743.944	8.47410	2.882	4.046	3162
280	1.56471	1657.59	3.850	535.434	825.176	8.77499	2.933	4.068	3264
300	1.67789	1775.89	3.553	595.807	906.506	9.05570	2.950	4.062	3366
320	1.79011	1892.53	3.301	656.006	987.486	9.31705	2.940	4.034	3468
340	1.90154	2007.79	3.084	715.640	1067.754	9.56007	2.913	3.992	3570
360	2.01234	2121.90	2.895	774.469	1147.099	9.78692	2.876	3.942	3671
380	2.12259	2235.06	2.729	832.367	1225.413	9.99864	2.833	3.889	3770
400	2.23239	2347.40	2.581	889.296	1302.673	10.19688	2.790	3.837	3868
420	2.34180	2459.05	2.449	945.278	1378.917	10.38286	2.747	3.788	3963
440	2.45089	2570.12	2.331	1000.383	1454.221	10.55807	2.708	3.743	4056
460	2.55970	2680.69	2.223	1054.678	1528.665	10.72354	2.673	3.702	4147
480	2.66827	2790.82	2.126	1108.263	1602.354	10.88013	2.642	3.667	4236
500	2.77663	2900.58	2.037	1161.223	1675.379	11.02936	2.615	3.636	4322
520	2.88480	3010.01	1.955	1213.646	1747.833	11.17157	2.593	3.610	4406
540	2.99282	3119.16	1.879	1265.604	1819.792	11.30737	2.573	3.587	4489
560	3.10069	3228.06	1.810	1317.100	1891.264	11.43684	2.557	3.569	4569
580	3.20844	3336.73	1.745	1368.344	1962.461	11.56162	2.544	3.553	4647
600	3.31608	3445.21	1.685	1419.360	2033.408	11.68194	2.533	3.540	4723
650	3.58478	3715.69	1.552	1545.907	2209.711	11.96446	2.513	3.516	4908
700	3.85301	3985.35	1.439	1671.649	2385.122	12.22470	2.501	3.501	5084
800	4.38848	4522.92	1.256	1921.667	2734.295	12.69128	2.492	3.487	5415
900	4.92305	5058.93	1.115	2171.215	3082.830	13.10149	2.489	3.482	5726
1000	5.45703	5593.92	1.003	2420.405	3430.899	13.46800	2.491	3.482	6019
1500	8.12279	8261.92	0.6571	3675.449	5179.569	14.88524	2.537	3.524	7292
2000	10.78595	10925.70	0.5001	4969.162	6966.426	15.91114	2.645	3.631	8336
2500	13.44829	13588.24	0.4000	6326.726	8816.985	16.73642	2.786	3.772	9232
3000	16.11039	16250.29	0.3333	7755.273	10738.482	17.42712	2.923	3.909	10034
3500	18.77339	18912.13	0.2857	9257.987	12734.310	18.04503	3.063	4.051	10764
4000	21.44221	21573.85	0.2500	10841.954	14812.470	18.79260	3.255	4.250	11424
5000	26.88043	26897.14	0.2000	14491.793	19469.320	20.66276	4.141	5.220	12531

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

1000 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 28.688	5.02664	365.07	13.080	18527.75	0.0042529	0.05617	1.999	0.00720	1.26820	1.9894
30	4.99798	364.05	12.927	17828.35	0.0044469	0.05878	1.837	0.00726	1.26650	1.8218
32	4.95243	364.27	12.645	16864.40	0.0047070	0.06187	1.635	0.00729	1.26380	1.6308
34	4.90486	364.80	12.346	15953.47	0.0049526	0.06405	1.472	0.00723	1.26099	1.4952
36	4.85542	365.09	12.060	15077.63	0.0051980	0.06597	1.340	0.00716	1.25807	1.3872
38	4.80386	364.44	11.786	14206.43	0.0054556	0.06811	1.229	0.00713	1.25504	1.2919
40	4.75043	363.38	11.524	13365.74	0.0057214	0.06973	1.136	0.00706	1.25190	1.2199
42	4.69503	361.16	11.283	12524.75	0.0060122	0.07090	1.057	0.00695	1.24865	1.1655
44	4.63752	358.45	11.047	11705.64	0.0063195	0.07170	0.988	0.00682	1.24529	1.1241
46	4.57784	355.29	10.817	10915.40	0.0066405	0.07216	0.928	0.00668	1.24182	1.0924
48	4.51595	351.67	10.591	10149.67	0.0069811	0.07233	0.875	0.00652	1.23822	1.0687
50	4.45176	347.66	10.363	9408.61	0.0073441	0.07227	0.827	0.00636	1.23451	1.0516
52	4.38521	343.25	10.136	8697.66	0.0077272	0.07200	0.784	0.00619	1.23066	1.0392
54	4.31621	338.33	9.916	8014.96	0.0081357	0.07156	0.744	0.00602	1.22669	1.0307
56	4.24475	333.19	9.691	7364.30	0.0085690	0.07067	0.708	0.00583	1.22259	1.0301
58	4.17069	327.88	9.464	6750.07	0.0090244	0.06968	0.675	0.00565	1.21836	1.0318
60	4.09406	322.16	9.239	6164.68	0.0095150	0.06860	0.644	0.00547	1.21399	1.0360
62	4.01474	316.06	9.010	5604.52	0.0100534	0.06747	0.615	0.00529	1.20949	1.0429
64	3.93272	310.21	8.784	5095.16	0.0105981	0.06627	0.588	0.00513	1.20485	1.0502
66	3.84799	304.29	8.555	4619.56	0.0111748	0.06502	0.563	0.00497	1.20007	1.0591
68	3.76057	298.15	8.332	4174.65	0.0117974	0.06373	0.539	0.00482	1.19516	1.0699
70	3.67064	292.27	8.113	3774.64	0.0124171	0.06242	0.516	0.00469	1.19013	1.0798
75	3.43581	278.47	7.573	2928.82	0.0140147	0.05906	0.465	0.00440	1.17709	1.1058
80	3.19118	267.47	7.044	2297.43	0.0154970	0.05606	0.422	0.00424	1.16365	1.1220
85	2.94491	260.61	6.543	1855.50	0.0165686	0.05344	0.386	0.00420	1.15026	1.1228
90	2.70693	258.09	6.103	1560.94	0.0170237	0.05110	0.358	0.00430	1.13746	1.1082
95	2.48628	259.56	5.732	1369.19	0.0168759	0.04914	0.337	0.00451	1.12570	1.0815
100	2.28851	264.81	5.421	1250.65	0.0162055	0.04760	0.322	0.00485	1.11525	1.0448
105	2.11521	272.90	5.167	1177.32	0.0152626	0.04647	0.311	0.00527	1.10616	1.0051
110	1.96484	283.60	4.943	1132.63	0.0142213	0.04584	0.305	0.00578	1.09832	0.9646
115	1.83463	296.33	4.740	1104.25	0.0132125	0.04556	0.300	0.00634	1.09158	0.9285
120	1.72143	310.77	4.552	1086.10	0.0122803	0.04551	0.298	0.00693	1.08574	0.8982
125	1.62242	326.69	4.374	1074.44	0.0114360	0.04565	0.296	0.00753	1.08066	0.8731
130	1.53526	344.09	4.206	1067.94	0.0106717	0.04594	0.296	0.00815	1.07620	0.8525
135	1.45801	362.71	4.044	1063.92	0.0099918	0.04577	0.297	0.00866	1.07226	0.8464
140	1.38908	382.50	3.889	1061.60	0.0093868	0.04634	0.298	0.00929	1.06875	0.8322
150	1.27131	425.33	3.600	1059.85	0.0083672	0.04825	0.303	0.01067	1.06278	0.8036
160	1.17424	472.10	3.340	1059.90	0.0075468	0.05068	0.308	0.01211	1.05789	0.7808
180	1.02743	571.93	2.919	1059.80	0.0064365	0.05629	0.327	0.01488	1.05051	0.7710
200	0.91186	682.70	2.608	1057.41	0.0055440	0.06427	0.356	0.01862	1.04473	0.7549
220	0.82183	798.49	2.377	1059.17	0.0048826	0.07124	0.379	0.02224	1.04025	0.7459
240	0.74933	912.46	2.219	1059.94	0.0043723	0.07712	0.397	0.02580	1.03665	0.7394
260	0.68949	1020.32	2.115	1059.93	0.0039659	0.08191	0.413	0.02936	1.03369	0.7339
280	0.63914	1119.47	2.054	1059.36	0.0036340	0.08568	0.426	0.03296	1.03120	0.7288
300	0.59599	1209.78	2.021	1058.41	0.0033573	0.08861	0.439	0.03661	1.02907	0.7242
320	0.55863	1291.63	2.010	1057.22	0.0031228	0.09085	0.450	0.04032	1.02723	0.7198
340	0.52589	1366.48	2.013	1055.87	0.0029212	0.09259	0.461	0.04411	1.02562	0.7158
360	0.49694	1435.74	2.026	1054.45	0.0027457	0.09398	0.472	0.04797	1.02420	0.7121
380	0.47112	1500.73	2.045	1052.99	0.0025915	0.09513	0.482	0.05192	1.02293	0.7088
400	0.44795	1563.24	2.066	1051.52	0.0024547	0.09617	0.491	0.05595	1.02179	0.7058
420	0.42702	1624.80	2.088	1050.07	0.0023325	0.09714	0.501	0.06006	1.02076	0.7031
440	0.40801	1683.98	2.109	1048.65	0.0022225	0.09811	0.510	0.06425	1.01983	0.7008
460	0.39067	1744.03	2.129	1047.27	0.0021229	0.09912	0.520	0.06852	1.01898	0.6987
480	0.37477	1804.24	2.147	1045.93	0.0020324	0.10016	0.529	0.07288	1.01821	0.6969
500	0.36015	1865.15	2.162	1044.64	0.0019495	0.10127	0.538	0.07733	1.01749	0.6954
520	0.34664	1926.82	2.175	1043.40	0.0018735	0.10244	0.547	0.08186	1.01683	0.6940
540	0.33413	1989.15	2.186	1042.22	0.0018034	0.10365	0.556	0.08648	1.01622	0.6928
560	0.32251	2052.82	2.195	1041.08	0.0017385	0.10495	0.565	0.09118	1.01565	0.6918
580	0.31168	2117.06	2.202	1039.98	0.0016783	0.10628	0.574	0.09598	1.01512	0.6909
600	0.30156	2182.13	2.207	1038.94	0.0016222	0.10767	0.583	0.10086	1.01463	0.6901
650	0.27896	2347.58	2.215	1036.52	0.0014977	0.11128	0.605	0.11346	1.01353	0.6886
700	0.25954	2516.29	2.217	1034.35	0.0013913	0.11507	0.628	0.12664	1.01258	0.6875
800	0.22787	2860.93	2.213	1030.64	0.0012190	0.12295	0.672	0.15472	1.01104	0.6860
900	0.20313	3208.73	2.205	1027.60	0.0010852	0.13094	0.716	0.18512	1.00984	0.6850
1000	0.18325	3559.76	2.197	1025.09	0.0009781	0.13897	0.759	0.21781	1.00887	0.6844
1500	0.12311	5373.32	2.136	1017.13	0.0006559	0.17955	0.967	0.41380	1.00595	0.6835
2000	0.09271	7354.29	2.040	1012.96	0.0004937	0.27727	1.162	0.82363	1.00448	0.5480
2500	0.07436	9526.91	1.931	1010.41	0.0003959	0.33495	1.346	1.19428	1.00359	0.5458
3000	0.06207	11829.59	1.837	1008.68	0.0003305	0.39299	1.521	1.61957	1.00300	0.5447
3500	0.05327	14282.79	1.751	1007.39	0.0002836	0.45374	1.688	2.10291	1.00257	0.5426
4000	0.04664	17106.96	1.647	1006.14	0.0002485	0.52871	1.849	2.66720	1.00225	0.5352
5000	0.03720	26119.06	1.298	1000.62	0.0001999	0.83585	2.160	4.30401	1.00180	0.4856

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

1200 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 29.393	0.19738	3827.51	82.140	-130.639	-86.780	1.22928	1.210	1.584	4818
30	0.19789	3783.66	81.989	-129.784	-85.812	1.26188	1.222	1.609	4803
32	0.19963	3641.19	80.332	-126.877	-82.517	1.36820	1.263	1.681	4739
34	0.20144	3489.55	80.214	-123.826	-79.064	1.47284	1.301	1.772	4693
36	0.20336	3347.54	79.734	-120.623	-75.436	1.57652	1.335	1.858	4647
38	0.20539	3201.75	79.028	-117.269	-71.630	1.67938	1.366	1.945	4596
40	0.20753	3058.39	78.133	-113.769	-67.655	1.78134	1.394	2.031	4543
42	0.20979	2919.45	77.082	-110.124	-63.507	1.88251	1.419	2.116	4490
44	0.21218	2778.00	75.910	-106.338	-59.190	1.98292	1.442	2.203	4434
46	0.21471	2644.35	74.594	-102.409	-54.698	2.08274	1.463	2.289	4379
48	0.21739	2510.69	73.124	-98.339	-50.033	2.18201	1.481	2.376	4319
50	0.22022	2379.67	71.530	-94.128	-45.193	2.28080	1.498	2.464	4258
52	0.22323	2251.56	69.827	-89.779	-40.176	2.37918	1.513	2.552	4194
54	0.22641	2127.48	68.010	-85.292	-34.981	2.47720	1.526	2.640	4130
56	0.22979	2007.04	66.109	-80.674	-29.613	2.57482	1.537	2.730	4063
58	0.23338	1891.15	64.117	-75.921	-24.063	2.67218	1.547	2.819	3995
60	0.23718	1779.69	62.068	-71.040	-18.336	2.76927	1.556	2.909	3926
62	0.24124	1670.48	59.960	-66.029	-12.424	2.86618	1.563	3.001	3855
64	0.24554	1569.28	57.820	-60.896	-6.335	2.96285	1.569	3.091	3785
66	0.25012	1473.53	55.655	-55.642	-0.063	3.05935	1.575	3.182	3714
68	0.25500	1383.15	53.480	-50.272	6.391	3.15568	1.579	3.272	3644
70	0.26019	1297.81	51.299	-44.791	13.025	3.25183	1.581	3.360	3575
75	0.27467	1109.80	45.934	-30.658	30.376	3.49118	1.584	3.576	3407
80	0.29149	961.92	40.811	-16.018	48.753	3.72832	1.589	3.770	3250
85	0.31079	848.54	36.085	-1.022	68.037	3.96234	1.600	3.933	3109
90	0.33254	767.75	31.865	14.119	88.012	4.19067	1.612	4.050	2989
95	0.35654	716.76	28.169	29.191	108.417	4.41130	1.626	4.105	2895
100	0.38238	688.28	25.046	44.113	129.080	4.62331	1.640	4.108	2826
105	0.40957	677.49	22.386	58.511	149.520	4.82277	1.652	4.065	2779
110	0.43763	680.97	20.156	72.428	169.672	5.01029	1.667	3.995	2749
115	0.46617	693.32	18.286	85.874	189.460	5.18622	1.687	3.919	2732
120	0.49490	711.99	16.718	98.905	208.875	5.35149	1.711	3.847	2723
125	0.52364	735.09	15.393	111.596	227.952	5.50725	1.740	3.786	2722
130	0.55227	761.12	14.260	124.028	246.748	5.65469	1.774	3.736	2725
135	0.58073	790.06	13.283	136.274	265.316	5.79486	1.813	3.695	2732
140	0.60896	820.51	12.432	148.400	283.715	5.92869	1.855	3.666	2741
150	0.66462	883.54	11.026	172.515	320.199	6.18042	1.949	3.637	2764
160	0.71917	949.66	9.912	196.743	356.548	6.41501	2.052	3.637	2793
180	0.82082	1071.37	8.385	245.501	427.894	6.83719	2.271	3.744	2861
200	0.92476	1202.05	7.206	298.165	503.655	7.23618	2.471	3.839	2941
220	1.02607	1330.89	6.331	353.507	581.507	7.60713	2.653	3.945	3028
240	1.12526	1457.13	5.656	411.264	661.306	7.95405	2.794	4.029	3120
260	1.22278	1580.76	5.116	470.739	742.450	8.27897	2.888	4.080	3217
280	1.31894	1702.05	4.676	531.235	824.313	8.58220	2.939	4.097	3316
300	1.41401	1821.32	4.309	591.986	906.191	8.86479	2.955	4.087	3416
320	1.50820	1938.87	3.997	652.516	987.648	9.12768	2.945	4.056	3517
340	1.60165	2054.97	3.730	712.439	1068.336	9.37198	2.918	4.011	3618
360	1.69449	2169.84	3.498	771.523	1148.051	9.59989	2.880	3.960	3717
380	1.78682	2283.68	3.294	829.649	1226.694	9.81250	2.837	3.905	3816
400	1.87873	2396.64	3.114	886.779	1304.246	10.01149	2.793	3.851	3912
420	1.97027	2508.84	2.953	942.942	1380.750	10.19810	2.751	3.800	4007
440	2.06150	2620.41	2.808	998.209	1456.290	10.37386	2.712	3.754	4099
460	2.15246	2731.41	2.678	1052.651	1530.945	10.53980	2.676	3.713	4190
480	2.24320	2841.94	2.559	1106.370	1604.825	10.69680	2.645	3.676	4278
500	2.33373	2952.06	2.451	1159.450	1678.022	10.84638	2.618	3.644	4363
520	2.42409	3061.81	2.352	1211.983	1750.634	10.98890	2.595	3.617	4447
540	2.51430	3171.24	2.261	1264.041	1822.736	11.12496	2.575	3.594	4528
560	2.60437	3280.40	2.177	1315.629	1894.339	11.25468	2.559	3.575	4608
580	2.69432	3389.31	2.099	1366.957	1965.656	11.37967	2.546	3.559	4685
600	2.78417	3498.00	2.026	1418.051	2036.715	11.50018	2.534	3.545	4761
650	3.00841	3768.93	1.866	1544.767	2213.258	11.78308	2.514	3.520	4944
700	3.23220	4038.95	1.729	1670.649	2388.867	12.04362	2.502	3.505	5119
800	3.67882	4577.03	1.509	1920.884	2738.345	12.51060	2.493	3.490	5448
900	4.12458	5113.37	1.339	2170.589	3087.100	12.92107	2.490	3.484	5757
1000	4.56977	5648.59	1.204	2419.897	3435.334	13.28776	2.491	3.483	6049
1500	6.79175	8316.99	0.8006	3675.246	5184.423	14.70535	2.537	3.525	7316
2000	9.01123	10980.79	0.6001	4969.079	6971.441	15.73135	2.645	3.631	8357
2500	11.22993	13643.27	0.4800	6326.702	8822.076	16.55666	2.786	3.772	9251
3000	13.44839	16305.26	0.4000	7755.233	10743.566	17.24736	2.923	3.909	10051
3500	15.66749	18967.03	0.3428	9257.479	12738.913	17.86512	3.061	4.049	10780
4000	17.89102	21628.70	0.3000	10838.864	14814.384	18.61198	3.246	4.240	11441
5000	22.41473	26951.90	0.2400	14454.751	19435.471	20.47444	4.071	5.142	12556

• *TWO-PHASE BOUNDARY*

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

1200 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)/V_P$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 29.393	5.06642	373.87	13.400	19391.77	0.0042358	0.05854	2.061	0.00730	1.27057	2.0070
30	5.05334	375.12	13.277	19120.12	0.0042881	0.05973	1.981	0.00735	1.26979	1.9203
32	5.00918	381.70	12.701	18239.40	0.0044043	0.06299	1.755	0.00748	1.26717	1.6860
34	4.96417	382.63	12.423	17322.73	0.0046306	0.06533	1.577	0.00743	1.26450	1.5392
36	4.91747	383.70	12.146	16461.41	0.0048437	0.06741	1.432	0.00738	1.26173	1.4212
38	4.86887	383.64	11.884	15588.91	0.0050695	0.06971	1.312	0.00736	1.25886	1.3177
40	4.81862	383.07	11.630	14737.21	0.0053017	0.07148	1.212	0.00730	1.25590	1.2393
42	4.76664	381.97	11.395	13915.95	0.0055391	0.07280	1.126	0.00722	1.25285	1.1782
44	4.71296	379.97	11.168	13092.61	0.0057979	0.07374	1.052	0.00710	1.24970	1.1319
46	4.65743	377.91	10.950	12315.85	0.0060568	0.07434	0.988	0.00697	1.24646	1.0953
48	4.60007	375.21	10.733	11549.37	0.0063315	0.07465	0.932	0.00683	1.24311	1.0672
50	4.54084	372.18	10.514	10805.70	0.0066196	0.07472	0.881	0.00668	1.23967	1.0459
52	4.47975	368.69	10.300	10086.44	0.0069229	0.07460	0.836	0.00652	1.23613	1.0297
54	4.41669	364.78	10.092	9396.41	0.0072379	0.07430	0.795	0.00637	1.23248	1.0170
56	4.35181	360.63	9.882	8734.28	0.0075689	0.07355	0.758	0.00619	1.22874	1.0124
58	4.28493	356.27	9.670	8103.44	0.0079123	0.07269	0.723	0.00602	1.22490	1.0100
60	4.21614	351.62	9.464	7503.41	0.0082719	0.07176	0.692	0.00585	1.22095	1.0096
62	4.14531	346.58	9.254	6924.66	0.0086590	0.07077	0.662	0.00569	1.21691	1.0113
64	4.07263	341.69	9.048	6391.10	0.0090470	0.06973	0.635	0.00554	1.21277	1.0137
66	3.99802	336.81	8.841	5891.19	0.0094472	0.06863	0.610	0.00540	1.20854	1.0173
68	3.92156	331.84	8.638	5424.13	0.0098597	0.06751	0.586	0.00526	1.20422	1.0217
70	3.84332	326.73	8.443	4987.89	0.0102847	0.06635	0.563	0.00514	1.19981	1.0264
75	3.64068	314.57	7.964	4040.43	0.0113686	0.06339	0.512	0.00487	1.18846	1.0400
80	3.43069	304.69	7.485	3298.69	0.0123719	0.06046	0.469	0.00468	1.17681	1.0515
85	3.21765	297.56	7.010	2730.32	0.0132164	0.05789	0.432	0.00458	1.16510	1.0559
90	3.00713	293.41	6.572	2308.72	0.0138019	0.05570	0.402	0.00457	1.15363	1.0510
95	2.80474	292.76	6.181	2010.34	0.0140221	0.05375	0.377	0.00467	1.14271	1.0374
100	2.61522	295.22	5.839	1800.01	0.0139141	0.05213	0.359	0.00485	1.13256	1.0171
105	2.44160	300.34	5.550	1654.17	0.0135333	0.05081	0.344	0.00512	1.12333	0.9917
110	2.28504	308.38	5.291	1556.05	0.0129534	0.04997	0.334	0.00547	1.11506	0.9613
115	2.14516	318.70	5.054	1487.28	0.0122952	0.04946	0.327	0.00588	1.10772	0.9319
120	2.02063	331.08	4.836	1438.67	0.0116205	0.04918	0.322	0.00634	1.10122	0.9061
125	1.90972	345.27	4.632	1403.81	0.0109649	0.04910	0.319	0.00679	1.09546	0.8843
130	1.81069	361.05	4.439	1378.15	0.0103469	0.04919	0.317	0.00727	1.09034	0.8661
135	1.72197	378.47	4.256	1360.46	0.0097639	0.04882	0.316	0.00767	1.08577	0.8611
140	1.64215	397.28	4.082	1347.40	0.0092268	0.04921	0.316	0.00817	1.08167	0.8478
150	1.50461	438.51	3.760	1329.39	0.0082940	0.05085	0.318	0.00929	1.07463	0.8194
160	1.39049	484.58	3.474	1320.50	0.0075061	0.05307	0.322	0.01049	1.06882	0.7950
180	1.21829	582.85	3.031	1305.24	0.0064241	0.05784	0.336	0.01268	1.06011	0.7832
200	1.08136	692.48	2.697	1299.84	0.0055435	0.06551	0.363	0.01578	1.05321	0.7660
220	0.97459	808.14	2.449	1297.08	0.0048813	0.07224	0.384	0.01879	1.04787	0.7558
240	0.88868	922.49	2.278	1294.92	0.0043675	0.07794	0.402	0.02177	1.04358	0.7481
260	0.81781	1030.98	2.166	1292.76	0.0039578	0.08260	0.417	0.02475	1.04005	0.7415
280	0.75818	1130.85	2.098	1290.46	0.0036234	0.08628	0.430	0.02777	1.03709	0.7355
300	0.70721	1221.87	2.062	1288.05	0.0033450	0.08915	0.442	0.03084	1.03456	0.7300
320	0.66304	1304.37	2.047	1285.55	0.0031094	0.09134	0.453	0.03397	1.03238	0.7249
340	0.62436	1379.79	2.048	1283.03	0.0029072	0.09306	0.464	0.03715	1.03047	0.7202
360	0.59015	1449.53	2.058	1280.53	0.0027316	0.09442	0.474	0.04041	1.02878	0.7159
380	0.55965	1514.93	2.075	1278.07	0.0025774	0.09556	0.484	0.04373	1.02728	0.7121
400	0.53228	1577.77	2.094	1275.67	0.0024408	0.09659	0.494	0.04712	1.02593	0.7087
420	0.50755	1638.82	2.115	1273.35	0.0023189	0.09756	0.503	0.05058	1.02472	0.7056
440	0.48508	1699.05	2.135	1271.12	0.0022093	0.09853	0.513	0.05411	1.02361	0.7030
460	0.46458	1759.30	2.154	1268.97	0.0021102	0.09953	0.522	0.05771	1.02261	0.7006
480	0.44579	1819.68	2.170	1266.92	0.0020201	0.10058	0.531	0.06138	1.02169	0.6986
500	0.42858	1880.75	2.185	1264.95	0.0019377	0.10169	0.540	0.06512	1.02084	0.6968
520	0.41253	1942.57	2.197	1263.08	0.0018621	0.10286	0.549	0.06893	1.02005	0.6953
540	0.39773	2005.03	2.207	1261.28	0.0017925	0.10408	0.558	0.07281	1.01933	0.6939
560	0.38397	2068.82	2.215	1259.57	0.0017281	0.10538	0.567	0.07677	1.01866	0.6928
580	0.37115	2133.17	2.221	1257.94	0.0016683	0.10673	0.576	0.08080	1.01803	0.6918
600	0.35917	2198.35	2.226	1256.39	0.0016127	0.10812	0.585	0.08491	1.01744	0.6909
650	0.33240	2364.03	2.232	1252.80	0.0014891	0.11175	0.608	0.09550	1.01614	0.6892
700	0.30939	2532.94	2.233	1249.60	0.0013836	0.11556	0.630	0.10658	1.01501	0.6879
800	0.27183	2877.91	2.227	1244.16	0.0012127	0.12349	0.675	0.13018	1.01318	0.6862
900	0.24245	3225.97	2.218	1239.73	0.0010800	0.13154	0.719	0.15572	1.01175	0.6852
1000	0.21883	3577.20	2.208	1236.08	0.0009737	0.13964	0.762	0.18319	1.01060	0.6845
1500	0.14724	5391.44	2.143	1224.57	0.0006538	0.18054	0.972	0.34786	1.00712	0.6835
2000	0.11097	7373.11	2.045	1218.57	0.0004925	0.27727	1.169	0.68807	1.00537	0.5513
2500	0.08905	9546.48	1.935	1214.90	0.0003951	0.33495	1.355	0.99724	1.00430	0.5493
3000	0.07436	11849.06	1.840	1212.43	0.0003299	0.39295	1.531	1.35187	1.00359	0.5483
3500	0.06383	14296.02	1.755	1210.60	0.0002832	0.45334	1.700	1.75439	1.00308	0.5485
4000	0.05589	17088.99	1.653	1208.91	0.0002481	0.52667	1.862	2.22212	1.00270	0.5397
5000	0.04461	25766.64	1.321	1202.42	0.0001996	0.81676	2.175	3.56006	1.00215	0.4929

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

1400 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 30.083	0.19596	4000.31	83.011	-130.103	-79.301	1.23584	1.222	1.590	4911
32	0.19753	3864.48	82.541	-127.387	-76.180	1.33642	1.259	1.666	4868
34	0.19922	3720.33	81.318	-124.423	-72.777	1.43954	1.296	1.740	4811
36	0.20100	3580.67	81.008	-121.320	-69.214	1.54138	1.331	1.825	4769
38	0.20288	3438.97	80.421	-118.074	-65.480	1.64231	1.363	1.907	4722
40	0.20485	3296.89	79.650	-114.689	-61.583	1.74224	1.391	1.990	4673
42	0.20693	3157.34	78.716	-111.168	-57.523	1.84129	1.417	2.070	4623
44	0.20912	3022.13	77.638	-107.516	-53.302	1.93945	1.440	2.151	4573
46	0.21143	2890.97	75.453	-103.731	-48.921	2.03683	1.461	2.231	4522
48	0.21385	2758.30	75.137	-99.817	-44.377	2.13350	1.481	2.313	4468
50	0.21641	2629.65	73.688	-95.773	-39.670	2.22959	1.498	2.394	4412
52	0.21911	2504.19	72.127	-91.603	-34.801	2.32506	1.514	2.475	4354
54	0.22195	2380.81	70.469	-87.310	-29.771	2.41997	1.528	2.555	4295
56	0.22494	2262.95	68.721	-82.897	-24.582	2.51433	1.540	2.635	4235
58	0.22810	2147.15	66.895	-78.365	-19.233	2.60818	1.551	2.715	4173
60	0.23143	2037.76	65.002	-73.719	-13.724	2.70156	1.560	2.794	4112
62	0.23494	1930.10	63.058	-68.963	-8.058	2.79445	1.568	2.873	4048
64	0.23864	1830.20	61.076	-64.100	-2.234	2.88690	1.575	2.950	3986
66	0.24254	1733.37	59.070	-59.134	3.744	2.97887	1.581	3.028	3922
68	0.24666	1641.49	57.049	-54.069	9.877	3.07041	1.585	3.104	3859
70	0.25101	1554.38	55.023	-48.912	16.160	3.16148	1.588	3.179	3797
75	0.26293	1357.70	49.998	-35.655	32.508	3.38700	1.592	3.360	3643
80	0.27650	1198.56	45.143	-21.954	49.725	3.60918	1.597	3.523	3500
85	0.29178	1069.86	40.584	-7.912	67.729	3.82769	1.607	3.670	3364
90	0.30880	970.93	36.408	6.337	86.392	4.04101	1.619	3.789	3244
95	0.32749	899.88	32.664	20.654	105.553	4.24820	1.633	3.870	3143
100	0.34766	851.81	29.366	35.009	125.137	4.44913	1.647	3.913	3062
105	0.36906	823.21	26.493	49.051	144.727	4.64029	1.660	3.918	3000
110	0.39142	809.08	24.014	62.812	164.284	4.82225	1.676	3.900	2953
115	0.41444	807.72	21.882	76.257	183.698	4.99486	1.696	3.864	2920
120	0.43789	814.88	20.055	89.398	202.918	5.15846	1.720	3.823	2897
125	0.46159	828.41	18.486	102.269	221.932	5.31371	1.749	3.784	2881
130	0.48540	846.45	17.133	114.923	240.760	5.46140	1.783	3.750	2872
135	0.50923	868.83	15.960	127.418	259.432	5.60235	1.821	3.722	2868
140	0.53303	892.93	14.934	139.809	277.992	5.73735	1.864	3.703	2867
150	0.58028	948.40	13.231	164.472	314.906	5.99203	1.959	3.685	2875
160	0.62693	1008.37	11.874	189.243	351.769	6.22994	2.063	3.691	2891
180	0.71409	1127.68	10.018	238.519	423.641	6.65626	2.277	3.789	2949
200	0.80366	1253.03	8.582	291.966	500.294	7.05995	2.477	3.882	3017
220	0.89107	1379.58	7.518	347.972	578.976	7.43485	2.659	3.984	3095
240	0.97678	1504.35	6.698	406.295	659.517	7.78500	2.800	4.064	3181
260	1.06102	1628.48	6.046	466.254	741.316	8.11255	2.894	4.111	3274
280	1.14406	1750.04	5.516	527.167	823.755	8.41791	2.945	4.124	3370
300	1.22610	1869.79	5.075	588.282	906.137	8.70225	2.961	4.111	3468
320	1.30731	1987.81	4.702	649.129	988.040	8.96658	2.950	4.077	3567
340	1.38785	2104.43	4.383	709.331	1069.121	9.21207	2.923	4.030	3666
360	1.46782	2219.82	4.107	768.663	1149.184	9.44097	2.885	3.976	3765
380	1.54731	2334.13	3.864	827.008	1228.136	9.65442	2.841	3.919	3862
400	1.62640	2447.52	3.650	884.334	1305.964	9.85412	2.797	3.864	3958
420	1.70514	2560.13	3.460	940.673	1382.717	10.04134	2.755	3.812	4051
440	1.78358	2672.05	3.289	996.099	1458.479	10.21762	2.715	3.764	4143
460	1.86178	2783.39	3.135	1050.683	1533.334	10.38400	2.680	3.722	4232
480	1.93975	2894.22	2.995	1104.531	1607.396	10.54138	2.648	3.685	4319
500	2.01754	3004.60	2.868	1157.729	1680.759	10.69130	2.621	3.652	4404
520	2.09515	3114.59	2.751	1210.369	1753.521	10.83411	2.598	3.625	4487
540	2.17263	3224.24	2.644	1262.524	1825.761	10.97044	2.577	3.601	4568
560	2.24997	3333.59	2.545	1314.202	1897.489	11.10038	2.561	3.581	4647
580	2.32720	3442.68	2.453	1365.613	1968.921	11.22557	2.548	3.564	4724
600	2.40433	3551.53	2.368	1416.782	2040.086	11.34627	2.536	3.550	4799
650	2.59678	3822.79	2.179	1543.664	2216.859	11.62954	2.516	3.524	4981
700	2.78880	4093.06	2.019	1669.683	2392.658	11.89035	2.504	3.508	5154
800	3.17193	4631.51	1.761	1920.130	2742.429	12.35773	2.494	3.492	5482
900	3.55423	5168.07	1.563	2169.989	3091.396	12.76846	2.491	3.486	5788
1000	3.93599	5703.42	1.405	2419.414	3439.788	13.13531	2.492	3.485	6078
1500	5.84093	8371.94	0.9341	3675.065	5189.280	14.55324	2.538	3.525	7340
2000	7.74348	11035.61	0.7001	4969.018	6976.453	15.57933	2.645	3.631	8378
2500	9.64528	13697.96	0.5600	6326.699	8827.161	16.40467	2.786	3.772	9269
3000	11.54684	16359.83	0.4666	7755.226	10748.652	17.09537	2.923	3.909	10068
3500	13.44839	19021.50	0.3999	9257.113	12743.630	17.71302	3.060	4.047	10796
4000	15.35445	21683.09	0.3500	10836.495	14817.013	18.45934	3.239	4.233	11458
5000	19.22649	27006.15	0.2800	14425.994	19410.308	20.31580	4.017	5.082	12578

* TWO-PHASE BOUNDARY

C.3.

1400 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 30.083	5.10298	391.02	13.317	20413.53	0.0040665	0.06077	2.118	0.00749	1.27275	1.9947
32	5.06262	394.39	12.952	19564.38	0.0042189	0.06405	1.881	0.00759	1.27034	1.7614
34	5.01964	399.64	12.499	18674.75	0.0043544	0.06655	1.685	0.00762	1.26779	1.5863
36	4.97524	401.27	12.232	17814.68	0.0045473	0.06878	1.527	0.00758	1.26515	1.4587
38	4.92913	402.01	11.974	16951.15	0.0047443	0.07123	1.397	0.00758	1.26242	1.3466
40	4.88159	402.00	11.727	16094.07	0.0049490	0.07313	1.288	0.00753	1.25961	1.2616
42	4.83248	401.31	11.497	15257.77	0.0051590	0.07458	1.196	0.00745	1.25672	1.1952
44	4.78189	400.39	11.272	14451.46	0.0053723	0.07565	1.117	0.00735	1.25374	1.1433
46	4.72976	399.06	11.061	13673.61	0.0055913	0.07637	1.048	0.00724	1.25069	1.1025
48	4.67608	396.97	10.853	12898.01	0.0058255	0.07680	0.988	0.00710	1.24755	1.0711
50	4.62077	394.76	10.642	12151.91	0.0060639	0.07699	0.935	0.00696	1.24432	1.0462
52	4.56393	392.12	10.436	11428.97	0.0063109	0.07698	0.887	0.00682	1.24101	1.0266
54	4.50552	388.92	10.239	10726.76	0.0065695	0.07680	0.844	0.00667	1.23762	1.0111
56	4.44557	385.73	10.038	10060.10	0.0068310	0.07615	0.805	0.00650	1.23415	1.0031
58	4.38408	382.10	9.839	9413.27	0.0071064	0.07540	0.770	0.00633	1.23060	0.9980
60	4.32102	378.43	9.644	8805.20	0.0073823	0.07458	0.737	0.00618	1.22697	0.9941
62	4.25646	374.37	9.448	8215.40	0.0076756	0.07370	0.707	0.00603	1.22326	0.9923
64	4.19041	370.46	9.256	7669.29	0.0079637	0.07277	0.679	0.00589	1.21948	0.9911
66	4.12296	366.34	9.064	7146.60	0.0082655	0.07179	0.653	0.00575	1.21564	0.9915
68	4.05411	362.12	8.876	6654.77	0.0085726	0.07078	0.629	0.00562	1.21172	0.9926
70	3.98393	357.74	8.697	6192.55	0.0088853	0.06974	0.606	0.00551	1.20774	0.9941
75	3.80323	346.99	8.258	5163.64	0.0096828	0.06706	0.555	0.00525	1.19756	1.0002
80	3.61670	338.27	7.819	4334.85	0.0104139	0.06438	0.510	0.00505	1.18713	1.0055
85	3.42726	331.58	7.368	3666.76	0.0110682	0.06182	0.473	0.00492	1.17662	1.0104
90	3.23831	327.20	6.943	3144.19	0.0115793	0.05960	0.441	0.00486	1.16623	1.0094
95	3.05352	325.53	6.552	2747.79	0.0118873	0.05771	0.415	0.00488	1.15615	1.0012
100	2.87636	326.50	6.197	2450.10	0.0119856	0.05607	0.393	0.00498	1.14656	0.9885
105	2.70957	329.87	5.890	2230.54	0.0118772	0.05469	0.377	0.00515	1.13760	0.9712
110	2.55481	335.72	5.609	2067.05	0.0116177	0.05373	0.363	0.00539	1.12934	0.9496
115	2.41289	344.15	5.348	1948.95	0.0112278	0.05308	0.353	0.00569	1.12181	0.9263
120	2.28366	354.74	5.106	1860.91	0.0107767	0.05264	0.346	0.00603	1.11499	0.9049
125	2.16643	367.32	4.878	1794.69	0.0103044	0.05240	0.341	0.00639	1.10884	0.8862
130	2.06015	381.66	4.664	1743.81	0.0098252	0.05232	0.337	0.00677	1.10328	0.8704
135	1.96374	397.87	4.462	1706.15	0.0093543	0.05182	0.335	0.00709	1.09827	0.8663
140	1.87608	415.42	4.271	1675.21	0.0089148	0.05205	0.334	0.00749	1.09372	0.8553
150	1.72330	455.19	3.920	1634.38	0.0080953	0.05344	0.334	0.00842	1.08584	0.8289
160	1.59508	499.99	3.609	1608.44	0.0073826	0.05546	0.336	0.00942	1.07926	0.8055
180	1.40039	597.35	3.142	1579.19	0.0063435	0.05953	0.346	0.01122	1.06933	0.7923
200	1.24440	705.41	2.785	1559.34	0.0055034	0.06690	0.371	0.01385	1.06142	0.7754
220	1.12224	820.47	2.520	1548.23	0.0048559	0.07340	0.391	0.01642	1.05527	0.7647
240	1.02377	934.78	2.337	1540.73	0.0043474	0.07890	0.408	0.01897	1.05033	0.7563
260	0.94249	1043.55	2.217	1534.82	0.0039395	0.08342	0.422	0.02153	1.04626	0.7488
280	0.87408	1143.84	2.143	1529.68	0.0036058	0.08699	0.435	0.02413	1.04285	0.7420
300	0.81560	1235.33	2.102	1524.96	0.0033278	0.08977	0.446	0.02677	1.03994	0.7356
320	0.76493	1318.27	2.084	1520.53	0.0030925	0.09191	0.457	0.02947	1.03742	0.7298
340	0.72054	1394.10	2.081	1516.33	0.0028907	0.09358	0.467	0.03223	1.03522	0.7245
360	0.68128	1464.18	2.090	1512.32	0.0027154	0.09492	0.477	0.03504	1.03328	0.7196
380	0.64628	1529.88	2.104	1508.51	0.0025618	0.09604	0.487	0.03792	1.03155	0.7153
400	0.61486	1592.97	2.122	1504.88	0.0024258	0.09705	0.496	0.04085	1.03000	0.7115
420	0.58646	1654.23	2.142	1501.42	0.0023044	0.09802	0.506	0.04384	1.02860	0.7081
440	0.56067	1714.63	2.161	1498.14	0.0021954	0.09898	0.515	0.04690	1.02733	0.7051
460	0.53712	1775.04	2.178	1495.02	0.0020969	0.09998	0.524	0.05001	1.02617	0.7025
480	0.51553	1835.55	2.194	1492.05	0.0020073	0.10102	0.533	0.05318	1.02511	0.7002
500	0.49565	1896.74	2.208	1489.24	0.0019255	0.10213	0.542	0.05642	1.02413	0.6982
520	0.47729	1958.67	2.219	1486.57	0.0018505	0.10330	0.551	0.05971	1.02323	0.6965
540	0.46027	2021.23	2.228	1484.03	0.0017814	0.10452	0.560	0.06307	1.02240	0.6950
560	0.44445	2085.12	2.235	1481.62	0.0017175	0.10583	0.570	0.06649	1.02162	0.6938
580	0.42970	2149.55	2.241	1479.32	0.0016582	0.10718	0.579	0.06998	1.02090	0.6927
600	0.41592	2214.82	2.245	1477.14	0.0016030	0.10857	0.588	0.07353	1.02022	0.6917
650	0.38509	2380.69	2.249	1472.13	0.0014804	0.11222	0.610	0.08268	1.01871	0.6897
700	0.35858	2549.77	2.249	1467.68	0.0013758	0.11605	0.633	0.09226	1.01742	0.6883
800	0.31527	2895.03	2.240	1460.15	0.0012064	0.12404	0.677	0.11265	1.01530	0.6865
900	0.28135	3243.30	2.230	1454.06	0.0010747	0.13213	0.722	0.13473	1.01365	0.6853
1000	0.25407	3594.70	2.218	1449.04	0.0009694	0.14029	0.766	0.15847	1.01232	0.6846
1500	0.17121	5409.54	2.150	1433.32	0.0006517	0.18153	0.978	0.30076	1.00829	0.6834
2000	0.12914	7391.88	2.050	1425.15	0.0004913	0.27727	1.176	0.59124	1.00625	0.5546
2500	0.10368	9565.99	1.939	1420.17	0.0003943	0.33495	1.363	0.85650	1.00501	0.5527
3000	0.08660	11868.64	1.843	1416.82	0.0003293	0.39291	1.541	1.16067	1.00419	0.5520
3500	0.07436	14310.88	1.758	1414.36	0.0002828	0.45302	1.711	1.50554	1.00359	0.5503
4000	0.06513	17079.76	1.659	1412.17	0.0002478	0.52508	1.875	1.90483	1.00315	0.5441
5000	0.05201	25497.72	1.340	1404.63	0.0001993	0.80192	2.190	3.03385	1.00251	0.4996

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

1600 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / L3 -R	CP	VELOCITY OF SOUND FT/SEC
• 30.757	0.19462	4169.78	83.858	-129.534	-71.872	1.24232	1.233	1.597	5002
32	0.19558	4083.35	83.584	-127.804	-69.858	1.30651	1.257	1.645	4975
34	0.19718	3944.40	83.069	-124.913	-66.492	1.40853	1.293	1.721	4932
36	0.19883	3801.83	82.199	-121.896	-62.986	1.50871	1.327	1.795	4882
38	0.20058	3667.92	81.733	-118.745	-59.317	1.60790	1.359	1.875	4841
40	0.20242	3530.09	81.056	-115.461	-55.488	1.70609	1.388	1.953	4797
42	0.20435	3390.50	80.223	-112.048	-51.504	1.80328	1.414	2.031	4749
44	0.20637	3259.96	79.250	-108.510	-47.366	1.89951	1.438	2.107	4703
46	0.20850	3128.20	78.147	-104.848	-43.076	1.99486	1.460	2.183	4655
48	0.21072	2997.37	76.944	-101.066	-38.634	2.08938	1.480	2.259	4605
50	0.21306	2868.46	75.627	-97.162	-34.038	2.18318	1.498	2.336	4552
52	0.21551	2744.90	74.194	-93.140	-29.289	2.27630	1.515	2.412	4499
54	0.21808	2624.04	72.661	-89.005	-24.393	2.36870	1.529	2.486	4446
56	0.22078	2504.62	71.045	-84.760	-19.349	2.46042	1.542	2.561	4390
58	0.22360	2395.94	69.353	-80.407	-14.159	2.55148	1.554	2.632	4336
60	0.22657	2286.24	67.593	-75.949	-8.821	2.64196	1.563	2.703	4279
62	0.22968	2180.24	65.782	-71.392	-3.343	2.73178	1.572	2.774	4222
64	0.23294	2079.01	63.929	-66.739	2.277	2.82099	1.580	2.844	4164
66	0.23636	1981.26	62.048	-61.994	8.035	2.90956	1.586	2.913	4106
68	0.23995	1889.18	60.150	-57.161	13.930	2.99756	1.591	2.980	4048
70	0.24370	1800.81	58.246	-52.248	19.956	3.08490	1.595	3.045	3991
75	0.25389	1599.04	53.500	-39.645	35.577	3.30040	1.600	3.202	3851
80	0.26530	1429.43	48.864	-26.643	51.959	3.51181	1.605	3.347	3716
85	0.27798	1283.95	44.464	-13.317	69.042	3.71916	1.615	3.479	3588
90	0.29196	1177.62	40.369	0.241	86.741	3.92146	1.627	3.593	3471
95	0.30720	1089.64	36.624	13.928	104.944	4.11828	1.641	3.684	3367
100	0.32361	1027.22	33.254	27.756	123.635	4.31005	1.655	3.743	3280
105	0.34107	981.88	30.261	41.396	142.446	4.49360	1.668	3.778	3209
110	0.35939	954.27	27.618	54.885	161.364	4.66961	1.685	3.787	3153
115	0.37840	937.93	25.298	68.188	180.299	4.83796	1.705	3.785	3106
120	0.39792	933.72	23.273	81.287	199.182	4.99869	1.729	3.770	3071
125	0.41780	938.34	21.505	94.196	217.980	5.15217	1.758	3.749	3045
130	0.43791	948.06	19.965	106.944	236.686	5.29891	1.792	3.732	3025
135	0.45816	962.23	18.615	119.569	255.311	5.43949	1.830	3.719	3010
140	0.47848	981.01	17.428	132.117	273.880	5.57456	1.872	3.710	3001
150	0.51914	1025.46	15.446	157.144	310.954	5.83034	1.967	3.709	2993
160	0.55958	1078.19	13.859	182.317	348.106	6.07012	2.072	3.725	2996
180	0.63561	1194.63	11.666	232.009	420.385	6.49969	2.283	3.818	3042
200	0.71407	1312.39	9.978	286.100	497.662	6.90666	2.482	3.915	3097
220	0.79086	1434.78	8.724	342.688	577.001	7.28469	2.665	4.016	3165
240	0.86624	1557.89	7.757	401.523	656.169	7.63757	2.836	4.094	3245
260	0.94037	1680.35	6.990	461.932	740.541	7.96742	2.990	4.138	3333
280	1.01344	1801.47	6.367	523.238	823.497	8.27470	2.951	4.149	3426
300	1.08562	1921.10	5.850	584.697	906.341	8.56063	2.966	4.133	3521
320	1.15705	2039.27	5.415	645.848	988.654	8.82628	2.956	4.096	3618
340	1.22784	2156.10	5.043	706.319	1070.160	9.07288	2.928	4.047	3716
360	1.29811	2271.73	4.721	765.868	1150.489	9.30271	2.889	3.991	3813
380	1.36793	2386.31	4.439	824.445	1229.732	9.51695	2.846	3.933	3909
400	1.43737	2499.97	4.191	881.961	1307.822	9.71732	2.801	3.877	4003
420	1.50649	2612.83	3.970	938.471	1384.808	9.90511	2.758	3.823	4096
440	1.57533	2725.00	3.772	994.049	1460.782	10.08188	2.718	3.774	4187
460	1.64392	2836.55	3.594	1048.772	1535.829	10.24868	2.683	3.731	4275
480	1.71231	2947.58	3.433	1102.746	1610.064	10.40644	2.651	3.693	4361
500	1.78052	3058.14	3.286	1156.058	1683.584	10.55668	2.624	3.660	4446
520	1.84857	3168.30	3.151	1208.802	1756.489	10.69977	2.600	3.631	4528
540	1.91647	3278.10	3.028	1261.054	1828.860	10.83635	2.580	3.607	4608
560	1.98426	3387.58	2.914	1312.819	1900.709	10.96651	2.564	3.587	4686
580	2.05194	3496.79	2.808	1364.311	1972.251	11.09189	2.550	3.570	4762
600	2.11952	3605.75	2.710	1415.554	2043.517	11.21276	2.538	3.555	4837
650	2.28811	3877.23	2.494	1542.598	2220.511	11.49638	2.518	3.528	5017
700	2.45630	4147.67	2.310	1668.751	2396.493	11.75747	2.505	3.511	5190
800	2.79178	4686.33	2.014	1919.406	2746.545	12.22522	2.495	3.495	5515
900	3.12647	5222.99	1.787	2169.417	3095.716	12.63619	2.492	3.487	5819
1000	3.46063	5758.39	1.606	2418.956	3444.260	13.00320	2.493	3.486	6108
1500	5.12776	8426.76	1.068	3674.905	5194.140	14.42146	2.538	3.526	7364
2000	6.79258	11090.19	0.8001	4968.976	6981.466	15.44763	2.645	3.632	8399
2500	8.45670	13752.32	0.6399	6326.716	8832.238	16.27301	2.786	3.772	9287
3000	10.12058	16414.01	0.5332	7755.246	10753.736	16.96371	2.923	3.909	10084
3500	11.78484	19075.55	0.4571	9256.848	12748.421	17.56127	3.058	4.045	10812
4000	13.45197	21737.01	0.3999	10834.618	14820.123	18.32715	3.233	4.226	11474
5000	16.83619	27059.90	0.3199	14402.849	19391.018	20.17879	3.974	5.033	12599

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

1600 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)/V_P$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 30.757	5.13817	407.92	13.239	21425.01	0.0039140	0.06292	2.174	0.00767	1.27485	1.9863
32	5.11295	410.78	13.008	20877.99	0.0040035	0.06507	2.012	0.00774	1.27334	1.8310
34	5.07143	414.54	12.666	20003.72	0.0041527	0.06770	1.797	0.00775	1.27087	1.6452
36	5.02933	417.63	12.316	19120.64	0.0042990	0.07007	1.626	0.00776	1.26836	1.4996
38	4.98546	419.44	12.062	18286.25	0.0044696	0.07267	1.484	0.00777	1.26576	1.3787
40	4.94018	420.26	11.817	17439.28	0.0046479	0.07470	1.367	0.00774	1.26308	1.2865
42	4.89356	420.02	11.591	16591.61	0.0048352	0.07627	1.267	0.00767	1.26032	1.2147
44	4.84560	419.96	11.370	15796.44	0.0050170	0.07746	1.182	0.00759	1.25749	1.1578
46	4.79627	419.09	11.160	15003.69	0.0052085	0.07829	1.109	0.00748	1.25459	1.1130
48	4.74562	417.67	10.957	14224.37	0.0054093	0.07882	1.045	0.00735	1.25162	1.0780
50	4.69357	415.93	10.753	13463.32	0.0056172	0.07911	0.988	0.00721	1.24857	1.0505
52	4.64016	414.03	10.555	12736.77	0.0058252	0.07920	0.938	0.00708	1.24545	1.0279
54	4.58545	411.64	10.364	12032.39	0.0060388	0.07912	0.893	0.00694	1.24226	1.0095
56	4.52946	408.89	10.172	11344.57	0.0062625	0.07856	0.852	0.00677	1.23901	0.9995
58	4.47221	406.60	9.981	10715.13	0.0064724	0.07790	0.815	0.00662	1.23569	0.9909
60	4.41361	403.55	9.795	10090.56	0.0066986	0.07716	0.781	0.00647	1.23230	0.9849
62	4.35385	400.35	9.609	9492.46	0.0069299	0.07637	0.750	0.00632	1.22886	0.9805
64	4.29288	397.01	9.428	8924.95	0.0071630	0.07552	0.721	0.00619	1.22535	0.9772
66	4.23080	393.54	9.245	8382.29	0.0074023	0.07463	0.694	0.00606	1.22179	0.9754
68	4.16758	390.04	9.069	7873.31	0.0076397	0.07370	0.669	0.00594	1.21818	0.9740
70	4.10336	386.28	8.902	7389.37	0.0078824	0.07275	0.646	0.00582	1.21452	0.9732
75	3.93870	376.95	8.492	6298.13	0.0084946	0.07028	0.594	0.00557	1.20518	0.9738
80	3.76935	369.06	8.075	5388.01	0.0090690	0.06779	0.549	0.00537	1.19565	0.9757
85	3.59740	363.13	7.652	4648.48	0.0095818	0.06539	0.510	0.00522	1.18605	0.9778
90	3.42516	359.02	7.243	4033.53	0.0100084	0.06314	0.478	0.00513	1.17651	0.9783
95	3.25523	356.82	6.857	3547.03	0.0103252	0.06126	0.450	0.00510	1.16716	0.9747
100	3.09010	357.29	6.501	3174.22	0.0104761	0.05957	0.427	0.00515	1.15814	0.9648
105	2.93197	359.39	6.186	2878.85	0.0105114	0.05816	0.408	0.00525	1.14956	0.9530
110	2.78251	364.13	5.892	2655.26	0.0104012	0.05715	0.392	0.00542	1.14151	0.9357
115	2.64270	370.87	5.616	2478.66	0.0102062	0.05641	0.380	0.00564	1.13402	0.9179
120	2.51306	380.11	5.356	2346.49	0.0099181	0.05587	0.371	0.00590	1.12712	0.9003
125	2.39350	391.57	5.111	2245.92	0.0095754	0.05550	0.363	0.00618	1.12078	0.8839
130	2.28358	404.74	4.880	2164.98	0.0092218	0.05529	0.358	0.00649	1.11499	0.8702
135	2.18265	419.64	4.661	2100.33	0.0088631	0.05472	0.354	0.00674	1.10969	0.8670
140	2.08994	436.41	4.455	2050.26	0.0085206	0.05481	0.352	0.00707	1.10484	0.8572
150	1.92626	474.28	4.076	1975.30	0.0078198	0.05598	0.350	0.00784	1.09632	0.8337
160	1.78706	517.86	3.743	1926.80	0.0071930	0.05783	0.350	0.00869	1.08912	0.8120
180	1.57280	614.89	3.249	1878.91	0.0062089	0.06131	0.356	0.01021	1.07812	0.7985
200	1.40042	721.14	2.870	1837.90	0.0054288	0.06843	0.380	0.01248	1.06933	0.7831
220	1.26445	835.25	2.589	1814.11	0.0048087	0.07468	0.399	0.01470	1.06244	0.7727
240	1.15442	949.17	2.395	1798.45	0.0043132	0.07998	0.415	0.01692	1.05689	0.7638
260	1.06341	1057.89	2.266	1786.90	0.0039119	0.08434	0.428	0.01916	1.05231	0.7557
280	0.98674	1158.33	2.187	1777.58	0.0035817	0.08778	0.440	0.02144	1.04847	0.7482
300	0.92113	1250.05	2.141	1769.59	0.0033060	0.09047	0.451	0.02377	1.04520	0.7411
320	0.86427	1333.25	2.120	1762.48	0.0030722	0.09254	0.461	0.02614	1.04236	0.7346
340	0.81444	1409.33	2.115	1756.01	0.0028716	0.09416	0.471	0.02857	1.03988	0.7286
360	0.77035	1479.64	2.121	1750.03	0.0026975	0.09546	0.481	0.03105	1.03769	0.7233
380	0.73103	1545.52	2.134	1744.46	0.0025447	0.09655	0.490	0.03358	1.03574	0.7185
400	0.69571	1608.78	2.150	1739.26	0.0024096	0.09755	0.499	0.03617	1.03400	0.7142
420	0.66379	1670.17	2.168	1734.38	0.0022891	0.09850	0.508	0.03881	1.03242	0.7105
440	0.63479	1730.69	2.186	1729.80	0.0021808	0.09945	0.518	0.04151	1.03098	0.7072
460	0.60830	1791.20	2.202	1725.48	0.0020830	0.10044	0.527	0.04425	1.02968	0.7043
480	0.58401	1851.81	2.217	1721.40	0.0019942	0.10148	0.536	0.04705	1.02848	0.7018
500	0.56163	1913.08	2.230	1717.56	0.0019130	0.10259	0.545	0.04991	1.02738	0.6996
520	0.54096	1975.09	2.240	1713.92	0.0018386	0.10376	0.554	0.05282	1.02636	0.6978
540	0.52179	2037.72	2.249	1710.48	0.0017700	0.10498	0.563	0.05578	1.02542	0.6961
560	0.50397	2101.68	2.255	1707.23	0.0017067	0.10629	0.572	0.05880	1.02454	0.6947
580	0.48734	2166.18	2.260	1704.14	0.0016479	0.10764	0.581	0.06187	1.02372	0.6935
600	0.47181	2231.51	2.263	1701.21	0.0015932	0.10904	0.590	0.06500	1.02296	0.6924
650	0.43704	2397.54	2.266	1694.51	0.0014717	0.11270	0.612	0.07308	1.02126	0.6903
700	0.40712	2566.76	2.265	1688.59	0.0013680	0.11654	0.635	0.08153	1.01979	0.6888
800	0.35819	2912.26	2.254	1678.62	0.0012000	0.12458	0.680	0.09952	1.01740	0.6867
900	0.31985	3260.71	2.242	1670.57	0.0010695	0.13273	0.725	0.11899	1.01552	0.6854
1000	0.28896	3612.26	2.229	1663.97	0.0009650	0.14095	0.769	0.13993	1.01402	0.6846
1500	0.19502	5427.64	2.157	1643.36	0.0006496	0.18251	0.983	0.26544	1.00944	0.6834
2000	0.14722	7410.61	2.055	1632.69	0.0004901	0.27727	1.184	0.51861	1.00712	0.6579
2500	0.11825	9585.45	1.942	1626.28	0.0003935	0.33495	1.372	0.75093	1.00572	0.6562
3000	0.09881	11888.27	1.846	1621.85	0.0003288	0.39288	1.551	1.01726	1.00478	0.6557
3500	0.08485	14326.82	1.761	1618.65	0.0002824	0.45277	1.723	1.31897	1.00410	0.6542
4000	0.07434	17076.39	1.664	1615.98	0.0002475	0.52386	1.888	1.66722	1.00359	0.6484
5000	0.05940	25285.26	1.355	1607.25	0.0001991	0.78994	2.206	2.64234	1.00287	0.6059

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

1800 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 31.418	0.19334	4336.16	84.684	-128.934	-64.490	1.24871	1.244	1.603	5089
32	0.19377	4296.37	84.569	-128.136	-63.550	1.27835	1.255	1.625	5077
34	0.19528	4159.80	84.117	-125.315	-60.225	1.37911	1.291	1.700	5037
36	0.19686	4023.54	83.575	-122.367	-56.752	1.47835	1.325	1.773	4995
38	0.19850	3887.76	82.943	-119.296	-53.133	1.57619	1.356	1.846	4953
40	0.20020	3754.85	82.379	-116.106	-49.380	1.67241	1.385	1.922	4912
42	0.20200	3620.10	81.627	-112.789	-45.461	1.76800	1.412	1.996	4869
44	0.20388	3482.89	80.743	-109.351	-41.396	1.86255	1.436	2.070	4823
46	0.20585	3357.43	79.732	-105.796	-37.185	1.95614	1.458	2.142	4779
48	0.20791	3229.00	78.607	-102.126	-32.829	2.04883	1.479	2.214	4733
50	0.21006	3101.11	77.387	-98.343	-28.328	2.14069	1.498	2.287	4683
52	0.21231	2975.67	76.069	-94.448	-23.683	2.23180	1.515	2.359	4633
54	0.21466	2860.66	74.649	-90.447	-18.897	2.32209	1.530	2.428	4586
56	0.21712	2745.11	73.140	-86.341	-13.972	2.41166	1.544	2.496	4535
58	0.21969	2632.17	71.560	-82.136	-8.910	2.50047	1.556	2.565	4483
60	0.22238	2522.32	69.916	-77.834	-3.714	2.58854	1.567	2.631	4430
62	0.22518	2417.47	69.217	-73.439	1.615	2.67592	1.576	2.697	4376
64	0.22810	2314.68	66.477	-68.957	7.073	2.76254	1.584	2.761	4324
66	0.23115	2218.39	64.792	-64.389	12.557	2.84847	1.591	2.824	4270
68	0.23434	2123.08	62.909	-59.743	18.365	2.93366	1.597	2.886	4216
70	0.23766	2034.88	61.097	-55.022	24.193	3.01813	1.601	2.944	4164
75	0.24658	1832.80	55.589	-42.932	39.257	3.22595	1.607	3.082	4036
80	0.25646	1654.53	52.152	-30.477	55.003	3.42916	1.613	3.215	3908
85	0.26732	1506.65	47.888	-17.709	71.391	3.62809	1.624	3.336	3787
90	0.27919	1381.15	43.876	-4.704	88.352	3.82195	1.636	3.447	3672
95	0.29205	1284.76	40.166	8.467	105.810	4.01072	1.649	3.533	3571
100	0.30585	1205.67	36.770	21.632	123.774	4.19503	1.664	3.606	3479
105	0.32051	1149.84	33.707	35.088	141.916	4.37205	1.677	3.650	3405
110	0.33592	1109.13	30.961	48.280	160.246	4.54259	1.693	3.680	3342
115	0.35197	1082.44	28.512	61.375	178.691	4.70657	1.713	3.695	3288
120	0.36853	1066.63	26.341	74.352	197.187	4.86400	1.738	3.701	3244
125	0.38548	1060.41	24.419	87.210	215.696	5.01513	1.767	3.701	3208
130	0.40273	1061.55	22.720	99.964	234.198	5.16026	1.800	3.699	3179
135	0.42018	1068.17	21.217	112.637	252.686	5.29981	1.838	3.698	3155
140	0.43777	1080.47	19.887	125.263	271.175	5.43429	1.880	3.699	3138
150	0.47316	1114.03	17.649	150.510	308.218	5.68986	1.975	3.713	3115
160	0.50860	1158.18	15.846	175.958	345.480	5.93033	2.080	3.742	3107
180	0.57631	1270.74	13.313	225.992	418.081	6.36245	2.289	3.833	3140
200	0.64553	1379.25	11.382	280.588	495.749	6.77148	2.488	3.938	3180
220	0.71377	1495.90	9.940	337.671	575.580	7.15185	2.671	4.042	3238
240	0.78094	1615.72	8.827	396.962	657.259	7.50696	2.812	4.119	3311
260	0.84708	1736.23	7.944	457.781	740.124	7.83877	2.908	4.162	3394
280	0.91231	1856.24	7.227	519.453	823.536	8.14774	2.956	4.171	3483
300	0.97674	1975.28	6.633	581.237	906.796	8.43511	2.972	4.152	3576
320	1.04050	2093.15	6.134	642.675	989.484	8.70198	2.961	4.114	3671
340	1.10367	2209.88	5.707	703.402	1071.269	8.94960	2.933	4.063	3766
360	1.16636	2325.51	5.339	763.200	1151.961	9.18030	2.894	4.006	3862
380	1.22863	2440.16	5.018	821.961	1231.477	9.39528	2.850	3.946	3956
400	1.29054	2553.91	4.735	879.659	1309.812	9.59628	2.805	3.888	4050
420	1.35215	2666.89	4.483	936.333	1387.021	9.78460	2.762	3.834	4141
440	1.41350	2779.17	4.258	992.060	1463.194	9.96184	2.722	3.784	4231
460	1.47461	2890.84	4.056	1046.918	1538.422	10.12905	2.686	3.740	4318
480	1.53553	3001.98	3.872	1101.013	1612.822	10.28716	2.654	3.701	4404
500	1.59627	3112.64	3.705	1154.437	1686.493	10.43771	2.626	3.667	4487
520	1.65687	3222.89	3.553	1207.283	1759.535	10.58107	2.603	3.638	4568
540	1.71733	3332.78	3.413	1259.627	1832.031	10.71788	2.582	3.613	4648
560	1.77767	3442.34	3.284	1311.478	1903.995	10.84825	2.566	3.592	4725
580	1.83791	3551.61	3.164	1363.048	1975.643	10.97382	2.552	3.575	4801
600	1.89805	3660.63	3.054	1414.364	2047.006	11.09485	2.540	3.560	4875
650	2.04808	3932.23	2.809	1541.566	2224.213	11.37881	2.519	3.532	5054
700	2.19770	4202.75	2.601	1667.850	2400.370	11.64016	2.507	3.515	5225
800	2.49611	4741.48	2.268	1918.709	2758.693	12.10828	2.496	3.497	5547
900	2.79375	5278.14	2.011	2168.870	3100.059	12.51947	2.493	3.489	5850
1000	3.09089	5813.50	1.807	2418.522	3448.750	12.88664	2.494	3.487	6137
1500	4.57301	8481.48	1.201	3674.765	5199.002	14.30521	2.538	3.526	7388
2000	6.05293	11144.52	0.9000	4968.955	6986.464	15.33147	2.645	3.632	8419
2500	7.53217	13806.35	0.7199	6326.753	8837.309	16.15688	2.786	3.772	9305
3000	9.01117	16467.82	0.5998	7755.291	10758.817	16.84758	2.923	3.909	10101
3500	10.49049	19129.16	0.5141	9256.661	12753.260	17.46507	3.057	4.044	10827
4000	11.97222	21790.49	0.4499	10833.099	14823.573	18.21058	3.228	4.221	11489
5000	14.97759	27113.16	0.3599	14383.715	19375.915	20.05822	3.938	4.993	12618

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

1800 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)/V_P$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 31.418	5.17211	424.61	13.166	22427.07	0.0037760	0.06504	2.231	0.00784	1.27688	1.9795
32	5.16063	426.04	13.061	22172.22	0.0038142	0.06604	2.151	0.00788	1.27619	1.9052
34	5.12079	430.38	12.722	21301.47	0.0039489	0.06881	1.915	0.00791	1.27381	1.7029
36	5.07980	433.66	12.419	20438.78	0.0040890	0.07130	1.727	0.00792	1.27137	1.5462
38	5.03769	435.98	12.144	19585.32	0.0042349	0.07402	1.573	0.00796	1.26886	1.4129
40	4.99510	437.60	11.903	18755.84	0.0043922	0.07620	1.447	0.00794	1.26633	1.3142
42	4.95059	438.22	11.678	17921.66	0.0045546	0.07788	1.340	0.00788	1.26369	1.2363
44	4.90490	438.02	11.461	17083.24	0.0047265	0.07917	1.249	0.00780	1.26099	1.1756
46	4.85800	438.15	11.253	16310.41	0.0048884	0.08011	1.170	0.00770	1.25822	1.1264
48	4.80989	437.43	11.052	15531.12	0.0050613	0.08073	1.102	0.00758	1.25539	1.0876
50	4.76059	436.28	10.852	14763.11	0.0052419	0.08112	1.042	0.00745	1.25249	1.0571
52	4.71008	434.69	10.659	14015.65	0.0054275	0.08130	0.988	0.00732	1.24953	1.0324
54	4.65846	433.36	10.474	13326.27	0.0056017	0.08130	0.941	0.00719	1.24652	1.0111
56	4.60566	431.52	10.287	12643.06	0.0057850	0.08081	0.898	0.00703	1.24344	0.9983
58	4.55180	429.37	10.103	11981.10	0.0059728	0.08022	0.859	0.00687	1.24030	0.9885
60	4.49690	426.88	9.925	11342.63	0.0061640	0.07955	0.824	0.00672	1.23712	0.9806
62	4.44092	424.39	9.747	10735.79	0.0063541	0.07883	0.791	0.00658	1.23388	0.9742
64	4.38393	421.50	9.573	10147.55	0.0065510	0.07806	0.761	0.00645	1.23059	0.9694
66	4.32610	418.81	9.399	9596.98	0.0067419	0.07724	0.734	0.00632	1.22726	0.9655
68	4.26735	415.61	9.232	9059.91	0.0069436	0.07638	0.708	0.00620	1.22389	0.9630
70	4.20772	412.51	9.072	8562.19	0.0071357	0.07549	0.684	0.00610	1.22047	0.9602
75	4.05542	404.81	8.686	7432.75	0.0076134	0.07318	0.631	0.00586	1.21179	0.9562
80	3.89929	397.69	8.291	6451.48	0.0080837	0.07084	0.585	0.00565	1.20296	0.9557
85	3.74084	392.59	7.884	5636.13	0.0084967	0.06856	0.546	0.00549	1.19406	0.9556
90	3.58182	388.59	7.489	4947.04	0.0088696	0.06641	0.512	0.00538	1.18519	0.9560
95	3.42407	386.98	7.113	4399.09	0.0091306	0.06443	0.483	0.00533	1.17645	0.9528
100	3.26961	386.62	6.759	3942.08	0.0093276	0.06272	0.458	0.00532	1.16795	0.9479
105	3.12006	388.52	6.443	3587.57	0.0093955	0.06129	0.437	0.00538	1.15977	0.9375
110	2.97691	392.40	6.143	3301.78	0.0093770	0.06026	0.420	0.00550	1.15200	0.9236
115	2.84115	398.51	5.857	3075.39	0.0092712	0.05948	0.406	0.00567	1.14466	0.9083
120	2.71349	406.66	5.586	2894.28	0.0091010	0.05886	0.395	0.00586	1.13781	0.8939
125	2.59414	416.92	5.328	2750.86	0.0088769	0.05841	0.386	0.00608	1.13143	0.8805
130	2.48305	429.12	5.083	2635.89	0.0086196	0.05810	0.379	0.00633	1.12553	0.8687
135	2.37995	443.08	4.850	2542.18	0.0083461	0.05750	0.374	0.00653	1.12007	0.8654
140	2.28433	459.02	4.631	2468.16	0.0080575	0.05747	0.370	0.00680	1.11503	0.8570
150	2.11347	495.39	4.229	2354.47	0.0074959	0.05846	0.365	0.00745	1.10607	0.8357
160	1.96618	537.71	3.874	2277.19	0.0069585	0.06014	0.364	0.00818	1.09839	0.8158
180	1.73519	634.82	3.352	2204.97	0.0060376	0.06316	0.367	0.00950	1.08645	0.8022
200	1.54913	739.24	2.953	2136.64	0.0053270	0.07004	0.390	0.01148	1.07691	0.7892
220	1.40100	852.20	2.656	2095.76	0.0047430	0.07606	0.407	0.01343	1.06936	0.7795
240	1.28050	965.47	2.451	2068.94	0.0042666	0.08117	0.422	0.01539	1.06325	0.7707
260	1.18052	1073.88	2.315	2049.65	0.0038758	0.08535	0.434	0.01737	1.05820	0.7622
280	1.09612	1174.22	2.230	2034.67	0.0035519	0.08866	0.445	0.01939	1.05396	0.7540
300	1.02381	1265.96	2.180	2022.31	0.0032800	0.09125	0.456	0.02146	1.05033	0.7463
320	0.96108	1349.24	2.156	2011.69	0.0030490	0.09324	0.465	0.02358	1.04719	0.7392
340	0.90607	1425.42	2.148	2002.29	0.0028505	0.09480	0.475	0.02575	1.04444	0.7327
360	0.85737	1495.83	2.152	1993.82	0.0026779	0.09606	0.484	0.02797	1.04202	0.7268
380	0.81391	1561.80	2.163	1986.08	0.0025265	0.09711	0.493	0.03024	1.03986	0.7216
400	0.77487	1625.14	2.178	1978.94	0.0023925	0.09808	0.502	0.03255	1.03792	0.7169
420	0.73956	1686.61	2.195	1972.33	0.0022730	0.09901	0.511	0.03492	1.03617	0.7128
440	0.70747	1747.19	2.211	1966.17	0.0021657	0.09994	0.520	0.03733	1.03458	0.7092
460	0.67814	1807.76	2.227	1960.41	0.0020687	0.10092	0.529	0.03980	1.03313	0.7061
480	0.65124	1868.42	2.240	1955.01	0.0019807	0.10196	0.538	0.04230	1.03180	0.7034
500	0.62646	1929.74	2.252	1949.94	0.0019002	0.10306	0.547	0.04486	1.03057	0.7010
520	0.60355	1991.79	2.262	1945.17	0.0018265	0.10423	0.556	0.04747	1.02944	0.6990
540	0.58230	2054.46	2.270	1940.68	0.0017585	0.10545	0.565	0.05012	1.02840	0.6972
560	0.56253	2118.49	2.275	1936.43	0.0016957	0.10675	0.574	0.05283	1.02742	0.6957
580	0.54410	2183.04	2.279	1932.42	0.0016375	0.10810	0.583	0.05558	1.02651	0.6943
600	0.52686	2248.42	2.282	1928.62	0.0015833	0.10951	0.592	0.05839	1.02567	0.6932
650	0.48826	2414.56	2.283	1919.96	0.0014629	0.11318	0.615	0.06562	1.02377	0.6909
700	0.45502	2583.89	2.281	1912.33	0.0013602	0.11704	0.638	0.07319	1.02214	0.6892
800	0.40062	2929.59	2.267	1899.54	0.0011937	0.12512	0.683	0.08930	1.01947	0.6870
900	0.35794	3278.20	2.254	1889.27	0.0010643	0.13332	0.728	0.10675	1.01738	0.6856
1000	0.32353	3629.87	2.240	1880.85	0.0009607	0.14160	0.772	0.12551	1.01570	0.6847
1500	0.21867	5445.73	2.164	1854.68	0.0006475	0.18350	0.988	0.23797	1.01059	0.6834
2000	0.16521	7429.30	2.059	1841.18	0.0004888	0.27727	1.190	0.46211	1.00800	0.5611
2500	0.13276	9604.84	1.946	1832.99	0.0003927	0.33495	1.381	0.66882	1.00642	0.5597
3000	0.11097	11907.92	1.849	1827.49	0.0003282	0.39286	1.562	0.90571	1.00537	0.5593
3500	0.09532	14343.51	1.764	1823.48	0.0002820	0.45255	1.735	1.17389	1.00461	0.5581
4000	0.08353	17077.19	1.668	1820.09	0.0002472	0.52273	1.901	1.48265	1.00404	0.5527
5000	0.06677	25113.08	1.369	1810.25	0.0001986	0.78002	2.221	2.33988	1.00323	0.5118

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

2000 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 32.066	0.19213	4499.69	85.492	-128.306	-57.152	1.25500	1.254	1.610	5173
34	0.19351	4369.72	85.109	-125.636	-53.970	1.35134	1.289	1.680	5136
36	0.19500	4235.64	84.627	-122.756	-50.539	1.44940	1.323	1.751	5097
38	0.19655	4102.03	84.058	-119.757	-46.965	1.54598	1.354	1.822	5057
40	0.19817	3969.06	83.401	-116.641	-43.251	1.64124	1.383	1.893	5017
42	0.19983	3840.84	82.944	-113.413	-39.406	1.73502	1.409	1.966	4982
44	0.20159	3708.82	82.131	-110.063	-35.404	1.82810	1.434	2.037	4939
46	0.20343	3581.61	81.205	-106.602	-31.262	1.92017	1.457	2.106	4897
48	0.20535	3453.22	80.163	-103.031	-26.981	2.01125	1.478	2.175	4853
50	0.20735	3328.01	79.018	-99.352	-22.561	2.10146	1.497	2.244	4807
52	0.20943	3202.67	77.786	-95.568	-18.005	2.19081	1.515	2.313	4759
54	0.21160	3087.18	76.469	-91.682	-13.315	2.27931	1.531	2.379	4715
56	0.21387	2971.38	75.057	-87.697	-8.490	2.36704	1.545	2.444	4667
58	0.21623	2859.81	73.570	-83.616	-3.536	2.45396	1.558	2.508	4619
60	0.21869	2750.77	72.024	-79.446	1.544	2.54007	1.569	2.571	4570
62	0.22124	2644.12	70.425	-75.189	6.747	2.62538	1.579	2.633	4519
64	0.22390	2543.33	68.777	-70.848	12.072	2.70990	1.588	2.693	4470
66	0.22666	2449.14	67.100	-66.429	17.514	2.79363	1.596	2.750	4422
68	0.22953	2355.41	65.393	-61.935	23.072	2.87659	1.602	2.806	4372
70	0.23252	2265.81	63.674	-57.372	28.739	2.95873	1.606	2.860	4324
75	0.24048	2059.03	59.355	-45.701	43.360	3.16044	1.613	2.987	4203
80	0.24921	1874.92	55.097	-33.686	58.608	3.35722	1.620	3.110	4083
85	0.25873	1720.30	50.969	-21.372	74.447	3.54950	1.632	3.223	3967
90	0.26905	1587.88	47.038	-8.818	90.824	3.73669	1.644	3.329	3857
95	0.28018	1477.63	43.367	3.921	107.663	3.91898	1.658	3.415	3755
100	0.29207	1391.40	39.976	16.891	125.058	4.09724	1.672	3.487	3666
105	0.30466	1322.80	36.872	29.798	142.634	4.26874	1.685	3.540	3588
110	0.31793	1268.99	34.056	42.701	160.444	4.43445	1.702	3.583	3519
115	0.33175	1231.50	31.520	55.569	178.431	4.59435	1.722	3.613	3460
120	0.34605	1206.36	29.240	68.385	196.543	4.74851	1.747	3.632	3409
125	0.36073	1191.82	27.200	81.141	214.737	4.89706	1.775	3.645	3367
130	0.37573	1184.57	25.376	93.845	232.996	5.04028	1.809	3.656	3331
135	0.39096	1183.76	23.746	106.509	251.300	5.17845	1.846	3.666	3300
140	0.40637	1189.60	22.288	119.159	269.657	5.31196	1.888	3.676	3276
150	0.43751	1212.13	19.820	144.518	306.550	5.56649	1.982	3.705	3240
160	0.46869	1246.17	17.817	170.143	343.795	5.80685	2.087	3.746	3219
180	0.52975	1354.33	14.944	220.460	416.651	6.24091	2.295	3.837	3239
200	0.59156	1452.76	12.784	275.440	494.521	6.65099	2.494	3.952	3266
220	0.65281	1562.67	11.161	332.930	574.695	7.03300	2.677	4.061	3314
240	0.71328	1678.16	9.904	392.619	656.778	7.38985	2.818	4.140	3379
260	0.77292	1795.91	8.905	453.807	740.055	7.72332	2.913	4.183	3457
280	0.83179	1914.20	8.093	515.815	823.864	8.03376	2.962	4.190	3542
300	0.88996	2032.15	7.422	577.902	907.495	8.32241	2.977	4.170	3631
320	0.94753	2149.36	6.858	639.612	990.525	8.59038	2.966	4.130	3724
340	1.00457	2265.68	6.377	700.581	1072.619	8.83894	2.936	4.078	3817
360	1.06116	2381.07	5.962	760.597	1153.593	9.07045	2.899	4.019	3911
380	1.11736	2495.58	5.600	819.553	1233.364	9.28611	2.854	3.958	4004
400	1.17323	2609.28	5.281	877.428	1311.930	9.48770	2.809	3.899	4096
420	1.22882	2722.22	4.998	934.260	1389.347	9.67654	2.766	3.844	4186
440	1.28415	2834.51	4.746	990.131	1465.711	9.85422	2.725	3.793	4275
460	1.33927	2946.19	4.519	1045.119	1541.111	10.02181	2.689	3.748	4362
480	1.39420	3057.35	4.313	1099.333	1615.668	10.18025	2.657	3.708	4446
500	1.44896	3168.05	4.126	1152.865	1689.481	10.33109	2.629	3.674	4529
520	1.50358	3278.32	3.955	1205.809	1762.654	10.47471	2.605	3.644	4609
540	1.55807	3388.23	3.799	1258.244	1835.270	10.61175	2.585	3.619	4688
560	1.61246	3497.81	3.654	1310.178	1907.344	10.74232	2.568	3.598	4764
580	1.66674	3607.10	3.521	1361.825	1979.093	10.86806	2.554	3.580	4839
600	1.72093	3716.13	3.397	1413.211	2050.550	10.98925	2.542	3.564	4913
650	1.85608	3987.75	3.124	1540.568	2227.960	11.27354	2.521	3.536	5090
700	1.99065	4258.27	2.893	1666.981	2404.286	11.53514	2.506	3.513	5260
800	2.25959	4796.94	2.521	1918.041	2754.869	12.00361	2.497	3.493	5580
900	2.52757	5333.51	2.235	2168.348	3104.425	12.41503	2.494	3.491	5881
1000	2.79508	5868.74	2.006	2418.111	3453.256	12.78235	2.494	3.488	6166
1500	4.12917	8536.08	1.334	3674.646	5203.867	14.26122	2.539	3.527	7412
2000	5.46114	11198.61	1.0000	4968.953	6991.464	15.22755	2.646	3.632	8439
2500	6.79247	13860.06	0.7938	6326.613	8842.372	16.05249	2.786	3.772	9323
3000	8.12357	16521.24	0.6664	7755.361	10763.892	16.74370	2.923	3.909	10117
3500	9.45494	19182.37	0.5712	9256.538	12758.134	17.36113	3.057	4.043	10842
4000	10.78835	21843.51	0.4998	10831.850	14827.271	18.10633	3.224	4.217	11504
5000	13.49105	27165.93	0.3999	14367.566	19363.919	19.95059	3.967	4.959	12636

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

2000 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-J FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)/V_P$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 32.066	5.20490	441.80	13.100	23420.44	0.0036503	0.06789	2.287	0.00801	1.27884	1.9755
34	5.16769	445.71	12.776	22581.34	0.0037690	0.06988	2.039	0.00805	1.27661	1.7643
36	5.12823	449.52	12.476	21721.37	0.0038960	0.07249	1.834	0.00807	1.27425	1.5947
38	5.08776	452.37	12.204	20870.18	0.0040277	0.07534	1.667	0.00813	1.27184	1.4512
40	5.04626	454.43	11.952	20028.93	0.0041640	0.07762	1.529	0.00813	1.26937	1.3424
42	5.00422	455.49	11.761	19220.39	0.0043154	0.07942	1.415	0.00807	1.26687	1.2605
44	4.96048	456.13	11.544	18397.55	0.0044643	0.08081	1.317	0.00800	1.26428	1.1946
46	4.91565	456.57	11.339	17605.96	0.0046123	0.08184	1.232	0.00791	1.26163	1.1417
48	4.86977	456.28	11.140	16816.42	0.0047669	0.08255	1.159	0.00779	1.25892	1.0997
50	4.82280	455.85	10.942	16050.33	0.0049232	0.08302	1.095	0.00767	1.25615	1.0660
52	4.77479	454.75	10.751	15292.07	0.0050867	0.08328	1.039	0.00754	1.25333	1.0388
54	4.72579	453.82	10.572	14569.34	0.0052414	0.08336	0.989	0.00742	1.25045	1.0155
56	4.67569	452.45	10.390	13893.28	0.0054024	0.08294	0.943	0.00726	1.24752	1.0009
58	4.62467	450.94	10.211	13225.67	0.0055627	0.08241	0.903	0.00710	1.24455	0.9890
60	4.57276	449.33	10.038	12578.59	0.0057259	0.08180	0.866	0.00696	1.24152	0.9794
62	4.51996	446.48	9.866	11951.29	0.0058927	0.08114	0.832	0.00682	1.23846	0.9717
64	4.46631	444.74	9.698	11359.30	0.0060547	0.08042	0.801	0.00669	1.23535	0.9651
66	4.41188	442.82	9.532	10805.33	0.0062099	0.07966	0.772	0.00657	1.23220	0.9594
68	4.35669	440.36	9.371	10261.77	0.0063725	0.07885	0.745	0.00645	1.22902	0.9551
70	4.30079	437.68	9.219	9744.71	0.0065342	0.07802	0.721	0.00634	1.22581	0.9512
75	4.15835	430.91	8.849	8562.19	0.0069322	0.07585	0.666	0.00611	1.21765	0.9443
80	4.01270	424.64	8.473	7523.48	0.0073233	0.07362	0.619	0.00590	1.20937	0.9417
85	3.86506	420.38	8.082	6647.90	0.0076669	0.07144	0.579	0.00573	1.20103	0.9401
90	3.71677	417.21	7.697	5901.77	0.0079701	0.06936	0.544	0.00561	1.19271	0.9387
95	3.56916	415.34	7.330	5273.92	0.0082229	0.06743	0.514	0.00553	1.18448	0.9368
100	3.42383	415.50	6.982	4763.91	0.0083913	0.06568	0.488	0.00550	1.17643	0.9324
105	3.28217	416.87	6.666	4341.65	0.0084926	0.06416	0.466	0.00552	1.16864	0.9254
110	3.14536	419.98	6.363	3991.42	0.0085324	0.06312	0.447	0.00560	1.16115	0.9141
115	3.01433	425.68	6.072	3712.16	0.0084911	0.06231	0.432	0.00572	1.15402	0.9011
120	2.88977	433.37	5.793	3486.10	0.0083876	0.06164	0.419	0.00587	1.14729	0.8886
125	2.77213	442.77	5.526	3303.89	0.0082327	0.06113	0.408	0.00605	1.14095	0.8768
130	2.66147	454.23	5.271	3152.69	0.0080490	0.06076	0.400	0.00624	1.13503	0.8666
135	2.55779	467.49	5.028	3027.81	0.0078427	0.06054	0.394	0.00641	1.12950	0.8634
140	2.46080	482.77	4.797	2927.37	0.0076138	0.06042	0.388	0.00664	1.12435	0.8559
150	2.28564	517.92	4.375	2770.49	0.0071539	0.06085	0.382	0.00719	1.11510	0.8363
160	2.13269	558.85	4.003	2657.69	0.0067038	0.06240	0.379	0.00781	1.10707	0.8181
180	1.88768	656.47	3.450	2556.55	0.0058455	0.06503	0.379	0.00898	1.09432	0.8041
200	1.69045	759.25	3.032	2455.81	0.0052058	0.07172	0.400	0.01073	1.08415	0.7938
220	1.53184	871.00	2.722	2393.76	0.0046627	0.07753	0.416	0.01246	1.07602	0.7853
240	1.40198	983.45	2.507	2352.75	0.0042096	0.08243	0.430	0.01420	1.06941	0.7768
260	1.29380	1091.34	2.363	2323.55	0.0038325	0.08644	0.441	0.01597	1.06392	0.7681
280	1.20223	1191.37	2.273	2301.31	0.0035169	0.08961	0.451	0.01779	1.05930	0.7595
300	1.12364	1282.95	2.219	2283.42	0.0032505	0.09209	0.461	0.01965	1.05534	0.7513
320	1.05538	1366.16	2.191	2268.39	0.0030232	0.09399	0.470	0.02156	1.05191	0.7436
340	0.99545	1442.38	2.181	2255.37	0.0028273	0.09549	0.479	0.02352	1.04891	0.7366
360	0.94236	1512.73	2.183	2243.84	0.0026569	0.09669	0.488	0.02553	1.04626	0.7303
380	0.89496	1578.68	2.192	2233.46	0.0025072	0.09771	0.497	0.02758	1.04389	0.7246
400	0.85234	1642.02	2.205	2224.00	0.0023746	0.09864	0.506	0.02968	1.04177	0.7195
420	0.81379	1703.50	2.221	2215.32	0.0022563	0.09955	0.514	0.03183	1.03985	0.7151
440	0.77873	1764.09	2.236	2207.30	0.0021501	0.10046	0.523	0.03401	1.03811	0.7112
460	0.74668	1824.67	2.250	2199.86	0.0020541	0.10143	0.532	0.03624	1.03652	0.7079
480	0.71726	1885.35	2.263	2192.91	0.0019668	0.10245	0.541	0.03852	1.03506	0.7049
500	0.69015	1946.69	2.274	2186.43	0.0018872	0.10354	0.550	0.04084	1.03372	0.7024
520	0.66508	2008.77	2.283	2180.34	0.0018141	0.10471	0.559	0.04320	1.03248	0.7002
540	0.64182	2071.47	2.290	2174.63	0.0017469	0.10592	0.568	0.04561	1.03133	0.6983
560	0.62017	2135.52	2.294	2169.25	0.0016847	0.10723	0.577	0.04806	1.03026	0.6966
580	0.59998	2200.10	2.298	2164.17	0.0016270	0.10858	0.586	0.05056	1.02927	0.6952
600	0.58108	2265.51	2.300	2159.38	0.0015733	0.10998	0.595	0.05310	1.02833	0.6939
650	0.53877	2431.74	2.300	2148.48	0.0014541	0.11366	0.617	0.05966	1.02625	0.6914
700	0.50230	2601.16	2.296	2138.91	0.0013523	0.11754	0.640	0.06652	1.02446	0.6896
800	0.44256	2947.03	2.281	2122.93	0.0011874	0.12566	0.685	0.08114	1.02153	0.6872
900	0.39564	3295.76	2.265	2110.13	0.0010592	0.13391	0.731	0.09696	1.01923	0.6857
1000	0.35777	3647.54	2.250	2099.67	0.0009564	0.14225	0.776	0.11398	1.01738	0.6848
1500	0.24218	5463.82	2.170	2067.26	0.0006455	0.18448	0.993	0.21600	1.01174	0.6834
2000	0.18311	7447.95	2.064	2050.60	0.0004876	0.27727	1.197	0.41691	1.00887	0.5644
2500	0.14722	9624.18	1.950	2040.50	0.0003920	0.33494	1.389	0.60312	1.00712	0.5633
3000	0.12310	11927.56	1.852	2033.74	0.0003277	0.39284	1.572	0.81648	1.00595	0.5630
3500	0.10576	14360.72	1.767	2028.82	0.0002816	0.45238	1.747	1.05784	1.00511	0.5620
4000	0.09269	17081.05	1.672	2024.73	0.0002469	0.52184	1.915	1.33514	1.00448	0.5569
5000	0.07412	24970.80	1.381	2013.63	0.0001986	0.77162	2.237	2.09931	1.00358	0.5176

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

2200 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 32.702	0.19096	4660.58	85.283	-127.652	-49.858	1.26120	1.264	1.616	5255
34	0.19185	4574.66	86.052	-125.885	-47.729	1.32503	1.287	1.662	5232
36	0.19326	4442.59	85.625	-123.066	-44.335	1.42201	1.321	1.732	5195
38	0.19473	4310.98	85.114	-120.133	-40.804	1.51748	1.352	1.800	5157
40	0.19626	4179.98	84.518	-117.086	-37.135	1.61155	1.381	1.868	5119
42	0.19785	4049.78	83.837	-113.929	-33.331	1.70435	1.407	1.936	5080
44	0.19949	3925.55	83.432	-110.665	-29.398	1.79581	1.432	2.007	5048
46	0.20121	3795.97	82.572	-107.287	-25.317	1.88651	1.455	2.075	5007
48	0.20301	3672.95	81.608	-103.804	-21.102	1.97620	1.476	2.141	4967
50	0.20488	3547.41	80.543	-100.217	-16.754	2.06494	1.497	2.207	4923
52	0.20682	3425.35	79.383	-96.529	-12.274	2.15279	1.515	2.273	4879
54	0.20884	3309.13	78.144	-92.745	-7.667	2.23973	1.531	2.336	4836
56	0.21094	3192.12	75.824	-88.865	-2.931	2.32585	1.546	2.399	4790
58	0.21313	3079.56	75.425	-84.894	1.930	2.41114	1.560	2.461	4745
60	0.21539	2971.47	73.959	-80.836	6.911	2.49557	1.571	2.520	4699
62	0.21775	2865.75	72.443	-76.697	12.009	2.57914	1.582	2.579	4652
64	0.22018	2768.31	73.885	-72.478	17.221	2.66188	1.591	2.634	4608
66	0.22271	2670.55	69.285	-68.184	22.545	2.74379	1.600	2.689	4561
68	0.22533	2576.44	67.660	-63.820	27.977	2.82488	1.606	2.742	4514
70	0.22805	2485.41	66.017	-59.390	33.512	2.90511	1.611	2.793	4468
75	0.23526	2277.51	61.873	-48.067	47.773	3.10184	1.619	2.911	4356
80	0.24310	2091.82	57.762	-36.420	62.613	3.29337	1.627	3.024	4243
85	0.25159	1930.09	53.758	-24.482	78.009	3.48027	1.639	3.131	4133
90	0.26073	1787.99	49.918	-12.303	93.915	3.66209	1.652	3.231	4025
95	0.27054	1671.33	45.290	0.069	110.282	3.83904	1.666	3.317	3926
100	0.28099	1575.21	42.914	12.695	127.163	4.01225	1.681	3.390	3837
105	0.29204	1497.52	39.796	25.292	144.262	4.17909	1.694	3.447	3758
110	0.30364	1435.97	36.940	37.926	161.622	4.34060	1.710	3.495	3687
115	0.31574	1388.76	34.338	50.571	179.196	4.49683	1.730	3.533	3624
120	0.32827	1353.64	31.980	63.210	196.942	4.64788	1.755	3.564	3569
125	0.34118	1329.12	29.846	75.839	214.827	4.79391	1.784	3.590	3520
130	0.35439	1313.64	27.921	88.458	232.827	4.93510	1.817	3.611	3478
135	0.36784	1307.20	26.186	101.077	250.928	5.07173	1.854	3.629	3442
140	0.38148	1305.44	24.624	113.711	269.119	5.20404	1.896	3.648	3411
150	0.40917	1316.68	21.947	139.109	305.798	5.45708	1.989	3.690	3364
160	0.43719	1343.06	19.762	164.834	342.937	5.69676	2.094	3.740	3334
180	0.49243	1443.79	16.551	215.392	416.000	6.13227	2.301	3.835	3339
200	0.54808	1531.88	14.177	270.649	493.928	6.54264	2.500	3.960	3353
220	0.60350	1634.40	12.381	328.469	574.322	6.92569	2.683	4.075	3391
240	0.65838	1744.82	10.983	388.497	656.709	7.28387	2.824	4.156	3449
260	0.71263	1859.16	9.870	450.013	740.323	7.61869	2.919	4.200	3520
280	0.76623	1975.17	8.964	512.327	824.473	7.93039	2.968	4.207	3601
300	0.81923	2091.60	8.215	574.694	908.432	8.22017	2.983	4.186	3688
320	0.87169	2207.79	7.586	636.658	991.768	8.48913	2.971	4.145	3777
340	0.92368	2323.41	7.049	697.857	1074.146	8.73855	2.943	4.091	3869
360	0.97526	2438.33	6.587	758.079	1155.380	8.97080	2.903	4.031	3961
380	1.02647	2552.52	6.184	817.222	1235.388	9.18711	2.858	3.969	4052
400	1.07738	2665.99	5.830	875.266	1314.170	9.38925	2.813	3.909	4143
420	1.12802	2778.79	5.516	932.251	1391.784	9.57857	2.769	3.853	4232
440	1.17842	2890.96	5.235	988.260	1468.326	9.75667	2.729	3.801	4320
460	1.22862	3002.57	4.983	1043.374	1543.890	9.92462	2.692	3.756	4405
480	1.27864	3113.66	4.755	1097.703	1618.595	10.08338	2.660	3.715	4489
500	1.32850	3224.31	4.548	1151.339	1692.545	10.23450	2.632	3.680	4570
520	1.37823	3334.55	4.359	1204.380	1765.843	10.37836	2.608	3.650	4650
540	1.42783	3444.42	4.186	1256.903	1838.574	10.51561	2.587	3.624	4728
560	1.47733	3553.97	4.026	1308.918	1910.752	10.64637	2.570	3.603	4804
580	1.52673	3663.23	3.878	1360.640	1982.599	10.77229	2.556	3.584	4878
600	1.57605	3772.23	3.742	1412.095	2054.145	10.89363	2.544	3.569	4951
650	1.69902	4043.77	3.440	1539.603	2231.750	11.17824	2.523	3.540	5127
700	1.82163	4314.21	3.184	1666.143	2408.239	11.44008	2.510	3.521	5295
800	2.06606	4852.70	2.774	1917.399	2759.073	11.90888	2.499	3.501	5613
900	2.30978	5389.07	2.459	2167.851	3108.811	12.32051	2.495	3.492	5912
1000	2.55303	5924.11	2.209	2417.723	3457.779	12.68798	2.495	3.490	6195
1500	3.76598	8590.57	1.468	3674.547	5208.735	14.10714	2.539	3.527	7435
2000	4.97690	11252.46	1.100	4968.971	6996.461	15.13355	2.646	3.632	8459
2500	6.18720	13913.45	0.8797	6326.887	8847.429	15.95901	2.787	3.772	9341
3000	7.39729	16574.29	0.7330	7755.453	10768.962	16.64973	2.923	3.908	10133
3500	8.60759	19235.15	0.6283	9256.467	12763.031	17.26711	3.056	4.042	10857
4000	9.81968	21896.09	0.5498	10830.814	14831.158	18.01204	3.221	4.213	11519
5000	12.27499	27218.20	0.4398	14353.711	19354.304	19.85339	3.881	4.929	12653

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

2200 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 32.702	5.23664	457.19	13.040	24405.78	0.0035353	0.06905	2.343	0.00816	1.28875	1.9742
34	5.21241	460.57	12.827	23845.02	0.0036068	0.07091	2.168	0.00819	1.27929	1.8294
36	5.17433	464.88	12.530	22987.43	0.0037249	0.07364	1.945	0.00822	1.27701	1.6662
38	5.13531	468.22	12.261	22138.22	0.0038447	0.07661	1.764	0.00829	1.27468	1.4921
40	5.09535	470.84	12.012	21298.46	0.0039683	0.07900	1.615	0.00830	1.27229	1.3753
42	5.05443	472.57	11.787	20469.32	0.0040957	0.08089	1.491	0.00827	1.26986	1.2843
44	5.01287	473.42	11.620	19678.26	0.0042398	0.08239	1.386	0.00819	1.26739	1.2159
46	4.96988	474.00	11.417	18865.52	0.0043769	0.08350	1.296	0.00810	1.26484	1.1593
48	4.92591	474.58	11.221	18092.63	0.0045106	0.08429	1.218	0.00799	1.26223	1.1135
50	4.88099	474.53	11.025	17314.86	0.0046517	0.08484	1.150	0.00787	1.25958	1.0771
52	4.83511	474.17	10.837	16561.97	0.0047931	0.08517	1.090	0.00775	1.25687	1.0470
54	4.78835	473.61	10.660	15845.26	0.0049317	0.08532	1.037	0.00763	1.25412	1.0216
56	4.74062	472.57	10.482	15132.65	0.0050767	0.08495	0.989	0.00747	1.25132	1.0054
58	4.69204	471.42	10.307	14449.43	0.0052199	0.08448	0.946	0.00732	1.24848	0.9920
60	4.64266	470.08	10.138	13795.53	0.0053611	0.08392	0.907	0.00717	1.24559	0.9807
62	4.59252	468.51	9.971	13161.03	0.0055044	0.08332	0.872	0.00703	1.24267	0.9714
64	4.54165	467.19	9.809	12572.68	0.0056380	0.08265	0.839	0.00691	1.23971	0.9630
66	4.49008	465.41	9.647	11990.99	0.0057781	0.08193	0.810	0.00679	1.23672	0.9566
68	4.43784	463.41	9.492	11433.85	0.0059175	0.08117	0.782	0.00667	1.23370	0.9511
70	4.38502	461.07	9.346	10898.57	0.0060574	0.08039	0.757	0.00656	1.23065	0.9462
75	4.25066	455.46	8.991	9680.91	0.0063912	0.07831	0.700	0.00633	1.22293	0.9367
80	4.11360	450.42	8.629	8604.90	0.0067127	0.07618	0.652	0.00613	1.21510	0.9315
85	3.97479	446.79	8.251	7671.71	0.0070073	0.07409	0.611	0.00595	1.20722	0.9289
90	3.83531	443.87	7.878	6857.49	0.0072794	0.07207	0.575	0.00582	1.19936	0.9275
95	3.69630	442.63	7.517	6177.72	0.0074930	0.07019	0.544	0.00573	1.19157	0.9247
100	3.55869	442.85	7.174	5606.01	0.0078550	0.06846	0.517	0.00567	1.18391	0.9210
105	3.42424	444.21	6.862	5127.85	0.0077608	0.06690	0.493	0.00567	1.17646	0.9153
110	3.29340	447.41	6.559	4729.24	0.0078110	0.06576	0.473	0.00571	1.16925	0.9058
115	3.16719	452.53	6.265	4398.45	0.0078069	0.06494	0.457	0.00580	1.16234	0.8944
120	3.04625	459.57	5.982	4123.93	0.0077555	0.06424	0.442	0.00592	1.15576	0.8837
125	2.93103	468.54	5.708	3895.71	0.0076613	0.06369	0.431	0.00605	1.14951	0.8738
130	2.82179	479.43	5.445	3706.82	0.0075323	0.06326	0.421	0.00621	1.14362	0.8650
135	2.71857	492.46	5.194	3553.70	0.0073686	0.06265	0.413	0.00635	1.13808	0.8612
140	2.62135	506.99	4.955	3422.01	0.0071957	0.06245	0.407	0.00653	1.13288	0.8552
150	2.44396	541.10	4.514	3217.91	0.0068202	0.06316	0.398	0.00700	1.12345	0.8368
160	2.28733	581.46	4.126	3072.01	0.0064328	0.06459	0.393	0.00755	1.11518	0.8192
180	2.03073	679.28	3.542	2931.93	0.0056452	0.06690	0.390	0.00859	1.10175	0.8048
200	1.82454	788.72	3.108	2794.98	0.0050724	0.07344	0.411	0.01016	1.09106	0.7972
220	1.65701	891.34	2.785	2708.21	0.0045716	0.07905	0.426	0.01171	1.08243	0.7902
240	1.51888	1002.88	2.560	2650.16	0.0041443	0.08376	0.438	0.01327	1.07536	0.7823
260	1.40326	1110.11	2.410	2608.89	0.0037831	0.08760	0.448	0.01486	1.06947	0.7736
280	1.30510	1209.68	2.314	2577.79	0.0034776	0.09063	0.458	0.01651	1.06449	0.7647
300	1.22066	1300.94	2.256	2553.13	0.0032178	0.09299	0.467	0.01820	1.06023	0.7561
320	1.14719	1383.92	2.225	2532.76	0.0029951	0.09480	0.475	0.01994	1.05652	0.7479
340	1.08262	1459.91	2.213	2515.38	0.0028025	0.09622	0.484	0.02172	1.05328	0.7404
360	1.02537	1530.20	2.213	2500.20	0.0026346	0.09736	0.492	0.02355	1.05041	0.7336
380	0.97421	1596.09	2.221	2486.69	0.0024869	0.09833	0.501	0.02543	1.04785	0.7275
400	0.92818	1659.38	2.233	2474.51	0.0023560	0.09924	0.509	0.02735	1.04555	0.7221
420	0.88651	1720.80	2.247	2463.42	0.0022391	0.10011	0.518	0.02931	1.04347	0.7174
440	0.84859	1781.35	2.261	2453.25	0.0021340	0.10101	0.526	0.03131	1.04158	0.7132
460	0.81392	1841.91	2.274	2443.85	0.0020391	0.10196	0.535	0.03335	1.03986	0.7096
480	0.78208	1902.57	2.285	2435.14	0.0019528	0.10296	0.544	0.03543	1.03828	0.7064
500	0.75273	1963.91	2.296	2427.03	0.0018740	0.10405	0.553	0.03756	1.03682	0.7037
520	0.72557	2025.98	2.304	2419.45	0.0018017	0.10520	0.561	0.03972	1.03547	0.7014
540	0.70036	2088.69	2.310	2412.34	0.0017351	0.10641	0.570	0.04192	1.03423	0.6993
560	0.67690	2152.75	2.314	2405.67	0.0016735	0.10771	0.579	0.04417	1.03306	0.6975
580	0.65500	2217.35	2.316	2399.40	0.0016164	0.10906	0.588	0.04646	1.03198	0.6960
600	0.63450	2282.78	2.318	2393.48	0.0015633	0.11047	0.597	0.04879	1.03097	0.6947
650	0.58857	2449.07	2.317	2380.06	0.0014453	0.11415	0.620	0.05479	1.02870	0.6920
700	0.54896	2618.55	2.311	2368.32	0.0013445	0.11804	0.643	0.06108	1.02675	0.6900
800	0.48401	2964.55	2.294	2348.76	0.0011811	0.12619	0.688	0.07446	1.02356	0.6875
900	0.43294	3313.39	2.277	2333.15	0.0010540	0.13450	0.734	0.08896	1.02106	0.6859
1000	0.39169	3665.25	2.260	2320.42	0.0009521	0.14290	0.779	0.10454	1.01903	0.6849
1500	0.26553	5481.90	2.177	2281.09	0.0006434	0.18548	0.998	0.19802	1.01288	0.6833
2000	0.20093	7466.57	2.069	2260.94	0.0004864	0.27727	1.204	0.37992	1.00973	0.5677
2500	0.16162	9643.46	1.953	2248.75	0.0003912	0.33494	1.398	0.54936	1.00782	0.5668
3000	0.13518	11947.17	1.855	2240.59	0.0003271	0.39282	1.582	0.74346	1.00654	0.5667
3500	0.11618	14378.32	1.770	2234.67	0.0002812	0.45222	1.758	0.96291	1.00562	0.5659
4000	0.10184	17087.24	1.676	2229.82	0.0002465	0.52106	1.928	1.21455	1.00492	0.5611
5000	0.08147	24851.44	1.391	2217.37	0.0001984	0.76439	2.253	1.90347	1.00394	0.5231

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

2400 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 33.327	0.18985	4819.00	87.059	-126.976	-42.605	1.26731	1.273	1.623	5335
34	0.19029	4775.07	86.951	-126.071	-41.504	1.30001	1.285	1.646	5323
36	0.19163	4644.85	86.577	-123.308	-38.144	1.39602	1.319	1.714	5288
38	0.19303	4515.08	86.119	-120.434	-34.656	1.49047	1.350	1.780	5253
40	0.19447	4385.90	85.579	-117.450	-31.023	1.58348	1.379	1.847	5216
42	0.19598	4257.48	84.955	-114.360	-27.264	1.67517	1.405	1.912	5180
44	0.19754	4130.00	84.249	-111.166	-23.375	1.76561	1.430	1.977	5142
46	0.19916	4003.79	83.848	-107.868	-19.359	1.85488	1.454	2.046	5113
48	0.20085	3886.43	82.948	-104.463	-15.202	1.94333	1.475	2.110	5075
50	0.20261	3762.53	81.957	-100.959	-10.918	2.03077	1.496	2.174	5034
52	0.20443	3640.14	80.876	-97.357	-6.506	2.11728	1.515	2.238	4991
54	0.20632	3525.19	79.704	-93.661	-1.971	2.20286	1.531	2.298	4951
56	0.20828	3409.19	78.457	-89.875	2.688	2.28758	1.547	2.359	4908
58	0.21031	3295.04	77.142	-86.001	7.466	2.37140	1.561	2.419	4864
60	0.21242	3185.58	75.757	-82.043	12.360	2.45437	1.573	2.476	4820
62	0.21460	3084.95	74.310	-78.006	17.366	2.53644	1.584	2.531	4778
64	0.21686	2983.86	72.822	-73.893	22.483	2.61768	1.594	2.585	4734
66	0.21920	2885.54	71.299	-69.708	27.706	2.69803	1.603	2.637	4690
68	0.22161	2790.62	69.745	-65.455	33.032	2.77753	1.610	2.688	4646
70	0.22411	2699.02	68.167	-61.141	38.455	2.85613	1.615	2.736	4602
75	0.23070	2488.67	64.180	-50.115	52.413	3.04869	1.624	2.848	4496
80	0.23783	2299.93	60.201	-38.780	66.915	3.23584	1.633	2.954	4389
85	0.24550	2134.00	56.315	-27.162	81.943	3.41829	1.646	3.056	4284
90	0.25373	1989.59	52.560	-15.303	97.458	3.59563	1.660	3.149	4182
95	0.26251	1866.74	48.984	-3.243	113.418	3.76820	1.674	3.232	4086
100	0.27182	1760.93	45.627	9.083	129.883	3.93713	1.689	3.306	3996
105	0.28165	1673.61	42.509	21.465	146.572	4.09997	1.702	3.367	3917
110	0.29195	1603.17	39.627	33.792	163.541	4.25784	1.718	3.419	3844
115	0.30270	1547.64	36.982	46.224	180.748	4.41082	1.739	3.463	3779
120	0.31384	1504.21	34.562	58.688	198.161	4.55903	1.763	3.501	3720
125	0.32531	1471.36	32.357	71.177	215.750	4.70263	1.792	3.535	3667
130	0.33708	1450.07	30.352	83.693	233.496	4.84183	1.825	3.563	3621
135	0.34909	1435.25	28.532	96.242	251.382	4.97683	1.863	3.590	3580
140	0.36129	1426.66	25.879	108.835	269.397	5.10787	1.904	3.617	3544
150	0.38614	1428.86	24.023	134.219	305.823	5.35916	1.997	3.669	3488
160	0.41137	1444.90	21.669	159.991	342.809	5.59784	2.100	3.730	3448
180	0.46190	1537.67	18.129	210.754	416.830	6.03435	2.307	3.827	3438
200	0.51238	1615.64	15.555	266.204	493.913	6.44448	2.506	3.963	3440
220	0.56286	1710.44	13.594	324.282	574.426	6.82810	2.689	4.084	3469
240	0.61302	1815.26	12.061	384.596	657.031	7.18722	2.830	4.169	3519
260	0.66270	1925.70	10.836	446.480	740.915	7.52512	2.925	4.214	3585
280	0.71186	2038.96	9.838	508.989	825.352	7.83589	2.974	4.221	3662
300	0.76051	2153.47	9.011	571.613	909.596	8.12665	2.989	4.200	3744
320	0.80869	2268.31	8.317	633.813	993.207	8.39649	2.977	4.158	3831
340	0.85644	2382.98	7.725	695.228	1075.842	8.64670	2.947	4.104	3921
360	0.90381	2497.21	7.215	755.647	1157.315	8.87963	2.906	4.043	4011
380	0.95086	2610.90	6.771	814.968	1237.543	9.09653	2.863	3.980	4101
400	0.99761	2724.00	6.381	873.172	1316.526	9.29919	2.817	3.919	4190
420	1.04411	2836.51	6.035	930.304	1394.325	9.48896	2.773	3.862	4278
440	1.09040	2948.47	5.726	986.447	1471.036	9.66745	2.732	3.810	4364
460	1.13649	3059.90	5.449	1041.683	1546.754	9.83575	2.696	3.763	4449
480	1.18241	3170.86	5.199	1096.122	1621.601	9.99481	2.663	3.722	4531
500	1.22818	3281.39	4.971	1149.861	1695.681	10.14619	2.635	3.687	4612
520	1.27382	3391.53	4.763	1202.995	1769.098	10.29029	2.611	3.656	4691
540	1.31934	3501.31	4.573	1255.603	1841.938	10.42775	2.590	3.629	4768
560	1.36476	3610.78	4.398	1307.697	1914.218	10.55869	2.573	3.608	4843
580	1.41009	3719.96	4.236	1359.492	1986.158	10.68477	2.558	3.589	4917
600	1.45534	3828.90	4.086	1411.015	2057.789	10.80626	2.546	3.573	4989
650	1.56816	4100.27	3.756	1538.671	2235.583	11.09116	2.525	3.543	5163
700	1.68062	4370.55	3.476	1665.334	2412.227	11.35323	2.511	3.523	5330
800	1.90480	4908.75	3.028	1916.783	2763.303	11.82236	2.500	3.503	5645
900	2.12828	5444.83	2.683	2167.377	3113.217	12.23420	2.496	3.494	5943
1000	2.35131	5979.60	2.410	2417.358	3462.316	12.60180	2.496	3.491	6224
1500	3.46329	8644.95	1.601	3674.467	5213.605	14.02124	2.540	3.527	7458
2000	4.57331	11306.08	1.200	4969.008	7001.455	15.04773	2.646	3.632	8479
2500	5.68275	13966.53	0.9595	6326.982	8852.479	15.87322	2.787	3.772	9359
3000	6.79198	16626.97	0.7995	7755.567	10774.026	16.56394	2.923	3.908	10149
3500	7.90141	19287.53	0.6853	9256.442	12767.945	17.18127	3.055	4.042	10872
4000	9.01239	21948.23	0.5997	10829.948	14835.191	17.92598	3.218	4.210	11533
5000	11.26175	27269.99	0.4798	14341.667	19346.560	19.76478	3.858	4.904	12670

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

2400 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-3U FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 33.327	5.26741	473.19	12.982	25383.65	0.0034297	0.07095	2.339	0.00838	1.28259	1.9753
34	5.25520	475.00	12.877	25093.95	0.0034650	0.07191	2.304	0.00831	1.28186	1.6982
36	5.21835	479.78	12.581	24238.47	0.0035719	0.07475	2.661	0.00836	1.27965	1.7007
38	5.18064	483.59	12.316	23390.99	0.0036817	0.07784	1.865	0.00844	1.27733	1.5355
40	5.14205	486.67	12.069	22552.54	0.0037946	0.08033	1.704	0.00846	1.27508	1.4133
42	5.10259	488.86	11.847	21724.18	0.0039106	0.08232	1.570	0.00844	1.27272	1.3127
44	5.06223	490.58	11.634	20907.05	0.0040297	0.08389	1.457	0.00836	1.27032	1.2362
46	5.02111	491.20	11.488	20120.58	0.0041656	0.08510	1.361	0.00828	1.26787	1.1781
48	4.97882	492.21	11.293	19349.82	0.0042868	0.08596	1.278	0.00816	1.26536	1.1290
50	4.93571	492.69	11.100	18570.77	0.0044132	0.08658	1.205	0.00807	1.26281	1.0896
52	4.89171	492.69	10.915	17806.50	0.0045419	0.08698	1.141	0.00795	1.26021	1.0572
54	4.84691	492.65	10.744	17086.25	0.0046648	0.08719	1.085	0.00783	1.25757	1.0295
56	4.80121	492.13	10.565	16368.25	0.0047933	0.08688	1.035	0.00767	1.25488	1.0113
58	4.75480	491.25	10.394	15667.23	0.0049238	0.08645	0.989	0.00752	1.25215	0.9966
60	4.70762	490.20	10.230	14996.50	0.0050516	0.08594	0.949	0.00737	1.24939	0.9844
62	4.65978	489.59	10.065	14375.18	0.0051693	0.08536	0.912	0.00724	1.24659	0.9727
64	4.61123	488.35	9.907	13759.28	0.0052926	0.08476	0.878	0.00711	1.24376	0.9635
66	4.56211	486.96	9.750	13164.14	0.0054162	0.08408	0.847	0.00699	1.24090	0.9561
68	4.51239	485.34	9.599	12592.39	0.0055387	0.08336	0.818	0.00687	1.23802	0.9496
70	4.46217	483.39	9.458	12043.47	0.0056601	0.08262	0.792	0.00677	1.23511	0.9457
75	4.33459	478.65	9.115	10787.35	0.0059496	0.08063	0.733	0.00653	1.22775	0.9321
80	4.20472	474.50	8.765	9670.57	0.0062252	0.07858	0.684	0.00633	1.22030	0.9251
85	4.07328	471.68	8.399	8692.39	0.0064787	0.07655	0.641	0.00615	1.21281	0.9214
90	3.94123	469.85	8.036	7841.41	0.0067029	0.07459	0.604	0.00601	1.20533	0.9185
95	3.80945	469.19	7.682	7111.25	0.0068882	0.07274	0.572	0.00591	1.19790	0.9151
100	3.67894	469.45	7.344	6478.34	0.0070431	0.07103	0.544	0.00584	1.19060	0.9120
105	3.55055	470.70	7.034	5942.25	0.0071538	0.06948	0.520	0.00581	1.18345	0.9072
110	3.42519	473.78	6.733	5491.17	0.0072166	0.06831	0.499	0.00583	1.17651	0.8991
115	3.30360	478.77	6.438	5112.78	0.0072342	0.06740	0.481	0.00589	1.16981	0.8897
120	3.18638	485.56	6.151	4792.99	0.0072109	0.06668	0.466	0.00598	1.16339	0.8801
125	3.07398	494.16	5.873	4522.92	0.0071540	0.06609	0.453	0.00608	1.15726	0.8715
130	2.96667	504.99	5.605	4301.89	0.0070554	0.06562	0.442	0.00621	1.15144	0.8633
135	2.86461	517.38	5.348	4111.43	0.0069398	0.06503	0.433	0.00632	1.14593	0.8598
140	2.76786	531.44	5.101	3948.79	0.0068068	0.06477	0.425	0.00647	1.14072	0.8547
150	2.58977	565.20	4.646	3700.41	0.0064920	0.06537	0.414	0.00688	1.13120	0.8470
160	2.43091	604.55	4.244	3512.41	0.0061693	0.06671	0.408	0.00736	1.12276	0.8205
180	2.16496	702.81	3.629	3328.99	0.0054458	0.06877	0.402	0.00830	1.10876	0.8046
200	1.95168	803.26	3.180	3153.22	0.0049331	0.07518	0.421	0.00972	1.09764	0.7996
220	1.77664	912.89	2.845	3038.83	0.0044735	0.08062	0.436	0.01111	1.08858	0.7943
240	1.63127	1023.54	2.612	2961.20	0.0040729	0.08514	0.447	0.01252	1.08111	0.7871
260	1.50897	1130.02	2.455	2905.82	0.0037289	0.08881	0.456	0.01397	1.07485	0.7786
280	1.40476	1229.30	2.355	2864.26	0.0034346	0.09170	0.464	0.01546	1.06955	0.7695
300	1.31490	1319.81	2.293	2831.61	0.0031824	0.09393	0.472	0.01701	1.06499	0.7606
320	1.23657	1402.46	2.259	2804.93	0.0029650	0.09564	0.480	0.01860	1.06103	0.7520
340	1.16763	1478.19	2.245	2782.43	0.0027763	0.09699	0.488	0.02024	1.05755	0.7441
360	1.10642	1548.27	2.243	2762.98	0.0026113	0.09807	0.497	0.02192	1.05447	0.7368
380	1.05168	1614.00	2.249	2745.84	0.0024658	0.09899	0.505	0.02365	1.05173	0.7304
400	1.00239	1677.16	2.259	2730.52	0.0023367	0.09986	0.513	0.02542	1.04926	0.7246
420	0.95775	1738.48	2.272	2716.67	0.0022214	0.10070	0.521	0.02723	1.04702	0.7190
440	0.91710	1798.95	2.285	2704.03	0.0021176	0.10157	0.530	0.02907	1.04499	0.7151
460	0.87991	1859.45	2.297	2692.42	0.0020238	0.10250	0.538	0.03095	1.04314	0.7113
480	0.84573	1920.06	2.308	2681.70	0.0019385	0.10349	0.547	0.03288	1.04144	0.7079
500	0.81421	1981.36	2.317	2671.75	0.0018606	0.10456	0.555	0.03483	1.03987	0.7050
520	0.78504	2043.42	2.324	2662.49	0.0017891	0.10571	0.564	0.03683	1.03842	0.7025
540	0.75795	2106.11	2.330	2653.83	0.0017232	0.10691	0.573	0.03886	1.03708	0.7003
560	0.73273	2170.17	2.333	2645.72	0.0016623	0.10821	0.582	0.04094	1.03583	0.6985
580	0.70917	2234.77	2.335	2638.10	0.0016058	0.10955	0.591	0.04305	1.03466	0.6968
600	0.68713	2300.21	2.336	2630.93	0.0015532	0.11096	0.600	0.04520	1.03357	0.6954
650	0.63769	2466.53	2.333	2614.71	0.0014364	0.11464	0.622	0.05074	1.03113	0.6925
700	0.59502	2636.06	2.326	2600.55	0.0013366	0.11854	0.645	0.05654	1.02902	0.6904
800	0.52499	2982.16	2.307	2577.04	0.0011748	0.12673	0.691	0.06898	1.02557	0.6877
900	0.46986	3331.08	2.288	2558.32	0.0010489	0.13509	0.737	0.08229	1.02287	0.6860
1000	0.42529	3683.02	2.271	2543.09	0.0009478	0.14354	0.782	0.09669	1.02068	0.6849
1500	0.28874	5499.97	2.183	2496.17	0.0006413	0.18643	1.003	0.18305	1.01401	0.6833
2000	0.21866	7485.15	2.073	2472.19	0.0004853	0.23727	1.211	0.34910	1.01059	0.5710
2500	0.17597	9662.68	1.957	2457.71	0.0003904	0.33494	1.407	0.58456	1.00852	0.5703
3000	0.14723	11966.75	1.858	2448.03	0.0003266	0.39280	1.593	0.68260	1.00712	0.5705
3500	0.12656	14396.21	1.772	2441.03	0.0002808	0.45209	1.770	0.88380	1.00612	0.5698
4000	0.11096	17095.25	1.679	2435.34	0.0002462	0.52039	1.941	1.11413	1.00537	0.5654
5000	0.08880	24750.10	1.400	2421.47	0.0001981	0.75869	2.269	1.74099	1.00429	0.5285

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

2600 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 33.941	0.18678	4975.12	87.621	-126.278	-35.392	1.27333	1.282	1.629	5412
34	0.18881	4971.33	87.812	-126.200	-35.296	1.27615	1.283	1.631	5411
36	0.19010	4842.82	87.486	-123.489	-31.967	1.37127	1.317	1.697	5378
38	0.19142	4714.76	87.079	-120.669	-28.507	1.46479	1.348	1.762	5344
40	0.19280	4587.27	85.590	-117.743	-24.918	1.55684	1.377	1.827	5310
42	0.19423	4460.51	85.020	-114.713	-21.200	1.64752	1.404	1.890	5275
44	0.19571	4334.64	85.369	-111.583	-17.356	1.73692	1.429	1.953	5240
46	0.19725	4209.85	84.639	-108.353	-13.387	1.82514	1.452	2.016	5204
48	0.19885	4090.54	84.201	-105.024	-9.290	1.91232	1.474	2.083	5175
50	0.20050	3971.68	83.269	-101.594	-5.061	1.99862	1.495	2.145	5138
52	0.20222	3850.41	82.257	-98.069	-0.710	2.08395	1.514	2.206	5098
54	0.20400	3731.47	81.163	-94.453	3.761	2.16832	1.531	2.266	5058
56	0.20584	3620.35	79.978	-90.750	8.352	2.25179	1.547	2.323	5019
58	0.20775	3507.57	78.733	-86.962	13.056	2.33433	1.562	2.381	4977
60	0.20971	3396.05	77.426	-83.094	17.873	2.41598	1.575	2.437	4935
62	0.21175	3294.67	76.054	-79.148	22.800	2.49675	1.587	2.490	4895
64	0.21386	3193.64	74.625	-75.128	27.834	2.57666	1.597	2.542	4853
66	0.21603	3095.24	73.163	-71.039	32.968	2.65566	1.606	2.592	4811
68	0.21827	2999.35	71.674	-66.884	38.202	2.73378	1.614	2.641	4769
70	0.22058	2911.36	70.162	-62.670	43.529	2.81099	1.619	2.686	4730
75	0.22667	2699.38	66.318	-51.903	57.227	2.99997	1.629	2.792	4629
80	0.23321	2508.23	62.465	-40.837	71.445	3.18346	1.639	2.893	4528
85	0.24022	2337.00	58.672	-29.496	86.159	3.36210	1.653	2.990	4426
90	0.24770	2187.44	55.003	-17.914	101.343	3.53566	1.667	3.081	4328
95	0.25566	2057.42	51.484	-6.126	116.960	3.70451	1.681	3.162	4234
100	0.26407	1946.82	48.149	5.941	133.075	3.86985	1.697	3.234	4146
105	0.27291	1851.63	45.036	18.015	149.409	4.02923	1.710	3.296	4067
110	0.28218	1772.65	42.145	30.178	166.034	4.18390	1.726	3.352	3993
115	0.29184	1708.37	39.468	42.411	182.915	4.33397	1.747	3.401	3925
120	0.30184	1657.98	37.004	54.795	200.026	4.47962	1.771	3.443	3864
125	0.31216	1617.67	34.741	67.053	217.340	4.62097	1.800	3.483	3808
130	0.32274	1589.41	32.674	79.456	234.841	4.75825	1.833	3.518	3759
135	0.33356	1567.76	30.783	91.922	252.515	4.89165	1.871	3.552	3714
140	0.34458	1554.66	29.054	104.457	270.353	5.02140	1.912	3.583	3674
150	0.36705	1544.80	25.043	129.788	306.505	5.27079	2.004	3.647	3609
160	0.38995	1551.75	23.535	155.567	343.307	5.50829	2.107	3.715	3560
180	0.43647	1634.80	19.674	206.508	416.646	5.94543	2.314	3.817	3535
200	0.48257	1703.11	16.914	262.085	494.416	6.35496	2.512	3.961	3527
220	0.52884	1790.15	14.797	320.361	574.969	6.73876	2.695	4.089	3547
240	0.57495	1889.11	13.134	380.911	657.721	7.09852	2.836	4.178	3590
260	0.62073	1995.22	11.800	442.964	741.814	7.43525	2.930	4.225	3651
280	0.66609	2105.36	10.711	505.800	826.489	7.74890	2.980	4.233	3723
300	0.71102	2217.62	9.808	568.658	910.979	8.04051	2.994	4.212	3802
320	0.75554	2330.82	9.049	631.078	994.833	8.31114	2.982	4.170	3886
340	0.79968	2444.29	8.402	692.694	1077.700	8.56205	2.952	4.115	3973
360	0.84348	2557.63	7.844	753.298	1159.391	8.79560	2.912	4.053	4061
380	0.88698	2670.65	7.359	812.788	1239.823	9.01305	2.867	3.990	4149
400	0.93021	2783.23	6.933	871.147	1318.994	9.21620	2.821	3.928	4237
420	0.97320	2895.35	6.555	928.419	1396.965	9.40639	2.777	3.870	4324
440	1.01598	3006.98	6.218	984.690	1473.836	9.58525	2.736	3.817	4409
460	1.05859	3118.16	5.916	1040.043	1549.700	9.75387	2.699	3.770	4492
480	1.10103	3228.90	5.643	1094.590	1624.682	9.91322	2.666	3.729	4574
500	1.14333	3339.24	5.395	1148.427	1698.885	10.06485	2.638	3.692	4654
520	1.18551	3449.22	5.168	1201.652	1772.416	10.20917	2.613	3.661	4732
540	1.22758	3558.86	4.961	1254.344	1845.361	10.34683	2.592	3.634	4808
560	1.26955	3668.20	4.771	1306.515	1917.737	10.47795	2.575	3.612	4882
580	1.31143	3777.27	4.595	1358.380	1989.766	10.60419	2.561	3.593	4955
600	1.35323	3886.09	4.432	1409.969	2061.480	10.72581	2.549	3.577	5027
650	1.45744	4157.22	4.072	1537.769	2239.454	11.01101	2.526	3.546	5199
700	1.56132	4427.27	3.768	1664.553	2416.249	11.27330	2.513	3.526	5365
800	1.76834	4965.06	3.281	1916.192	2767.559	11.74274	2.501	3.505	5678
900	1.97469	5500.78	2.907	2166.927	3117.643	12.15478	2.497	3.495	5973
1000	2.18061	6035.20	2.611	2417.014	3466.869	12.52252	2.497	3.492	6253
1500	3.20713	8699.22	1.734	3674.407	5218.478	13.94223	2.540	3.528	7481
2000	4.23177	11359.46	1.299	4969.063	7006.445	14.96879	2.647	3.632	8499
2500	5.25585	14019.30	1.039	6327.097	8857.523	15.79430	2.787	3.772	9376
3000	6.27974	16679.28	0.8661	7755.702	10779.082	16.48502	2.923	3.908	10165
3500	7.30380	19339.50	0.7423	9256.458	12772.870	17.10232	3.055	4.041	10887
4000	8.32925	21999.94	0.6496	10829.224	14839.339	17.84682	3.216	4.207	11547
5000	10.40449	27321.30	0.5197	14331.082	19340.317	19.68338	3.838	4.881	12686

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

2600 PSIA ISOBAR

TEMPERATURE	DENSITY	$V(\partial H/\partial V)_P$	$V(\partial P/\partial U)_V$	$-V(\partial P/\partial V)_T$	$(\partial V/\partial T)_P/V$	THERMAL CONDUCTIVITY	VISCOSITY	THERMAL DIFFUSIVITY	DIELECTRIC CONSTANT	PRANDTL NUMBER
DEG. R	LB/CU FT	BTU/LB	PSIA-JU FT/BTU	PSIA	1/DEG. R	BTU/FT-HR-R	LB/FT-SEC X 10^5	SQ FT/HR		
* 33.941	5.29728	488.87	12.933	26354.59	0.0033323	0.07279	2.455	0.00843	1.28439	1.9778
34	5.29624	489.04	12.924	26329.35	0.0033352	0.07287	2.446	0.00844	1.28433	1.9709
36	5.26051	494.26	12.631	25475.75	0.0034341	0.07583	2.182	0.00849	1.28218	1.7583
38	5.22398	498.50	12.368	24629.80	0.0035355	0.07903	1.970	0.00858	1.27999	1.5814
40	5.18663	502.02	12.124	23792.49	0.0036394	0.08162	1.796	0.00861	1.27775	1.4474
42	5.14847	504.64	11.904	22964.82	0.0037457	0.08370	1.652	0.00860	1.27546	1.3430
44	5.10949	506.80	11.694	22147.84	0.0038545	0.08536	1.531	0.00855	1.27314	1.2611
46	5.06969	508.37	11.497	21342.64	0.0039657	0.08664	1.428	0.00848	1.27076	1.1959
48	5.02900	508.95	11.359	20571.33	0.0040931	0.08758	1.339	0.00836	1.26834	1.1463
50	4.98743	510.24	11.167	19808.50	0.0042037	0.08826	1.261	0.00825	1.26588	1.1035
52	4.94511	510.70	10.985	19040.70	0.0043200	0.08872	1.194	0.00813	1.26337	1.0686
54	4.90201	510.63	10.814	18291.72	0.0044372	0.08899	1.134	0.00801	1.26082	1.0393
56	4.85812	510.96	10.641	17586.07	0.0045473	0.08872	1.081	0.00786	1.25823	1.0188
58	4.81359	510.60	10.472	16884.00	0.0046632	0.08834	1.033	0.00771	1.25561	1.0023
60	4.76838	509.74	10.312	16193.66	0.0047812	0.08788	0.990	0.00756	1.25295	0.9885
62	4.72252	509.46	10.151	15559.16	0.0048880	0.08736	0.951	0.00743	1.25026	0.9762
64	4.67602	508.65	9.995	14933.55	0.0049971	0.08677	0.916	0.00730	1.24754	0.9657
66	4.62901	507.69	9.841	14327.88	0.0051063	0.08613	0.883	0.00716	1.24480	0.9572
68	4.58147	506.38	9.694	13741.46	0.0052159	0.08545	0.854	0.00706	1.24203	0.9498
70	4.53347	505.21	9.558	13198.60	0.0053159	0.08473	0.826	0.00696	1.23924	0.9425
75	4.41171	501.35	9.226	11908.55	0.0055690	0.08282	0.765	0.00672	1.23219	0.9290
80	4.28789	498.05	8.886	10755.02	0.0058080	0.08083	0.714	0.00652	1.22507	0.9204
85	4.16281	495.86	8.529	9728.49	0.0060310	0.07886	0.671	0.00633	1.21791	0.9156
90	4.03706	494.65	8.175	8830.83	0.0062286	0.07694	0.633	0.00619	1.21075	0.9122
95	3.91150	494.34	7.829	8047.61	0.0063974	0.07513	0.600	0.00607	1.20365	0.9089
100	3.78694	495.21	7.494	7372.50	0.0065308	0.07344	0.571	0.00600	1.19664	0.9051
105	3.66415	496.57	7.188	6784.64	0.0066380	0.07189	0.546	0.00595	1.18977	0.9007
110	3.54381	499.57	6.889	6281.94	0.0067090	0.07072	0.524	0.00595	1.18307	0.8936
115	3.42658	504.36	6.594	5853.86	0.0067423	0.06978	0.505	0.00599	1.17659	0.8854
120	3.31299	511.14	6.305	5492.88	0.0067368	0.06898	0.488	0.00605	1.17033	0.8774
125	3.20352	519.55	6.024	5182.25	0.0067039	0.06836	0.474	0.00613	1.16433	0.8697
130	3.09844	530.17	5.752	4924.69	0.0066347	0.06786	0.462	0.00623	1.15859	0.8624
135	2.99794	542.28	5.489	4700.05	0.0065495	0.06729	0.452	0.00632	1.15314	0.8588
140	2.90211	556.39	5.237	4511.80	0.0064396	0.06698	0.444	0.00644	1.14795	0.8541
150	2.72442	589.36	4.770	4208.67	0.0061880	0.06750	0.431	0.00679	1.13839	0.8378
160	2.56445	628.18	4.356	3979.39	0.0059143	0.06875	0.422	0.00722	1.12985	0.8217
180	2.29111	726.72	3.711	3745.51	0.0052527	0.07062	0.413	0.00807	1.11538	0.8040
200	2.07226	826.53	3.249	3529.28	0.0047924	0.07692	0.432	0.00937	1.10392	0.8013
220	1.89094	935.38	2.903	3385.07	0.0043714	0.08221	0.445	0.01063	1.09449	0.7976
240	1.73928	1045.20	2.662	3285.69	0.0039974	0.08656	0.455	0.01191	1.08666	0.7913
260	1.61101	1150.91	2.499	3214.32	0.0036711	0.09007	0.464	0.01323	1.08007	0.7831
280	1.50130	1249.22	2.394	3160.78	0.0033888	0.09281	0.471	0.01460	1.07446	0.7740
300	1.40643	1339.48	2.329	3118.92	0.0031448	0.09492	0.479	0.01602	1.06963	0.7648
320	1.32355	1421.69	2.293	3084.96	0.0029333	0.09653	0.486	0.01749	1.06543	0.7559
340	1.25050	1497.06	2.276	3056.57	0.0027488	0.09779	0.493	0.01900	1.06173	0.7476
360	1.18556	1566.87	2.272	3032.23	0.0025870	0.09881	0.501	0.02056	1.05846	0.7400
380	1.12742	1632.37	2.277	3010.96	0.0024441	0.09968	0.509	0.02216	1.05553	0.7331
400	1.07503	1695.34	2.286	2992.06	0.0023170	0.10050	0.517	0.02380	1.05290	0.7271
420	1.02754	1756.51	2.297	2975.08	0.0022033	0.10131	0.525	0.02548	1.05052	0.7217
440	0.98427	1816.86	2.309	2959.67	0.0021010	0.10215	0.533	0.02719	1.04835	0.7170
460	0.94465	1877.26	2.320	2945.58	0.0020084	0.10306	0.541	0.02894	1.04637	0.7129
480	0.90824	1937.80	2.330	2932.61	0.0019241	0.10403	0.550	0.03072	1.04455	0.7094
500	0.87463	1999.04	2.338	2920.62	0.0018471	0.10509	0.558	0.03254	1.04288	0.7063
520	0.84352	2061.05	2.345	2909.48	0.0017764	0.10622	0.567	0.03439	1.04133	0.7037
540	0.81461	2123.72	2.350	2899.09	0.0017113	0.10742	0.576	0.03628	1.03989	0.7013
560	0.78768	2187.75	2.352	2889.38	0.0016511	0.10871	0.585	0.03821	1.03855	0.6994
580	0.76253	2252.34	2.353	2880.28	0.0015952	0.11005	0.594	0.04017	1.03731	0.6976
600	0.73897	2317.78	2.353	2871.72	0.0015432	0.11145	0.603	0.04217	1.03614	0.6961
650	0.68613	2484.11	2.349	2852.41	0.0014276	0.11514	0.625	0.04732	1.03352	0.6931
700	0.64048	2653.67	2.341	2835.60	0.0013288	0.11905	0.648	0.05271	1.03127	0.6909
800	0.56550	2999.84	2.320	2807.75	0.0011685	0.12727	0.694	0.06420	1.02757	0.6880
900	0.50641	3348.83	2.300	2785.64	0.0010437	0.13567	0.740	0.07665	1.02466	0.6862
1000	0.45859	3700.82	2.281	2767.67	0.0009435	0.14418	0.786	0.09004	1.02231	0.6850
1500	0.31181	5518.04	2.189	2712.46	0.0006393	0.18741	1.008	0.17037	1.01513	0.6833
2000	0.23631	7303.69	2.078	2684.33	0.0004841	0.27727	1.218	0.32302	1.01145	0.5744
2500	0.19026	9081.85	1.960	2667.37	0.0003896	0.33494	1.415	0.46665	1.00921	0.5739
3000	0.15924	10886.30	1.861	2656.04	0.0003261	0.39279	1.603	0.63111	1.00771	0.5742
3500	0.13691	14414.32	1.775	2647.87	0.0002804	0.45197	1.782	0.81687	1.00662	0.5738
4000	0.12006	17104.63	1.683	2641.29	0.0002459	0.51979	1.955	1.02922	1.00581	0.5696
5000	0.09611	24663.21	1.409	2625.92	0.0001979	0.75252	2.286	1.60405	1.00465	0.5338

* TWO-PHASE BOUNDARY

2800 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 34.546	0.18775	5129.07	88.571	-125.561	-28.217	1.27924	1.290	1.635	5488
36	0.18864	5036.85	85.359	-123.614	-25.805	1.34763	1.315	1.682	5465
38	0.18991	4910.38	87.998	-120.844	-22.377	1.44030	1.346	1.746	5433
40	0.19123	4784.46	87.556	-117.971	-18.822	1.53146	1.375	1.809	5400
42	0.19259	4659.25	87.038	-114.997	-15.142	1.62123	1.402	1.871	5367
44	0.19400	4534.89	85.439	-111.926	-11.339	1.70968	1.427	1.932	5334
46	0.19546	4411.55	85.761	-108.757	-7.414	1.79691	1.450	1.993	5299
48	0.19697	4289.40	85.006	-105.494	-3.367	1.88301	1.473	2.054	5264
50	0.19854	4168.63	84.173	-102.137	0.801	1.96809	1.494	2.115	5228
52	0.20017	4055.48	83.541	-98.680	5.186	2.05251	1.514	2.178	5199
54	0.20185	3936.76	82.511	-95.137	9.519	2.13577	1.531	2.236	5160
56	0.20359	3825.23	81.405	-91.509	14.048	2.21813	1.548	2.292	5123
58	0.20538	3714.17	80.215	-87.798	18.689	2.29956	1.563	2.348	5084
60	0.20723	3604.17	78.972	-84.010	23.437	2.38004	1.576	2.402	5044
62	0.20914	3495.23	77.675	-80.145	28.292	2.45964	1.588	2.455	5003
64	0.21112	3398.39	76.313	-76.209	33.251	2.53835	1.599	2.504	4965
66	0.21315	3300.16	74.907	-72.205	38.309	2.61618	1.609	2.553	4925
68	0.21524	3203.99	73.470	-68.138	43.461	2.69308	1.617	2.600	4885
70	0.21740	3115.40	72.012	-64.013	48.704	2.76907	1.623	2.643	4848
75	0.22306	2902.06	68.298	-53.474	62.177	2.95495	1.634	2.745	4752
80	0.22912	2709.02	64.559	-42.644	76.148	3.13526	1.645	2.841	4656
85	0.23558	2536.25	60.866	-31.545	90.597	3.31068	1.659	2.935	4559
90	0.24244	2379.77	57.273	-20.207	105.495	3.48096	1.673	3.024	4463
95	0.24972	2245.19	53.814	-8.658	120.816	3.64662	1.688	3.103	4372
100	0.25738	2126.24	50.521	3.177	136.627	3.80884	1.704	3.176	4285
105	0.26543	2022.74	47.411	15.030	152.651	3.96520	1.717	3.240	4204
110	0.27386	1943.24	44.507	26.992	168.982	4.11713	1.734	3.291	4134
115	0.28261	1872.14	41.816	39.041	185.572	4.26461	1.755	3.343	4065
120	0.29169	1813.12	39.318	51.172	202.407	4.40791	1.779	3.391	4001
125	0.30105	1767.16	37.012	63.382	219.470	4.54722	1.808	3.434	3943
130	0.31065	1732.02	34.889	75.671	236.740	4.68268	1.841	3.474	3891
135	0.32048	1703.32	32.941	88.045	254.210	4.81454	1.878	3.513	3843
140	0.33050	1685.02	31.150	100.511	271.870	4.94299	1.919	3.550	3800
150	0.35098	1664.43	28.004	125.763	307.740	5.19044	2.011	3.623	3727
160	0.37190	1663.02	25.358	151.522	344.344	5.42665	2.114	3.698	3671
180	0.41496	1734.28	21.185	202.616	417.766	5.86412	2.320	3.806	3630
200	0.45731	1793.50	18.251	258.269	495.378	6.27281	2.518	3.957	3613
220	0.49996	1872.92	15.988	316.693	575.913	6.65652	2.701	4.091	3625
240	0.54257	1965.88	14.200	377.436	658.753	7.01666	2.842	4.184	3662
260	0.58497	2067.42	12.762	439.704	743.001	7.35401	2.936	4.234	3716
280	0.62704	2174.15	11.584	502.757	827.870	7.66838	2.985	4.244	3784
300	0.66876	2283.87	10.606	565.828	912.571	7.96071	2.999	4.223	3860
320	0.71012	2395.18	9.782	628.449	996.638	8.23203	2.987	4.181	3941
340	0.75115	2507.23	9.080	690.254	1079.714	8.48357	2.957	4.125	4025
360	0.79187	2619.51	8.475	751.031	1161.604	8.71769	2.917	4.063	4111
380	0.83231	2731.70	7.948	810.682	1242.222	8.93565	2.871	3.999	4198
400	0.87251	2843.64	7.486	869.187	1321.568	9.13924	2.825	3.937	4284
420	0.91248	2955.24	7.076	926.594	1399.702	9.32983	2.781	3.878	4370
440	0.95226	3066.46	6.711	982.989	1476.722	9.50904	2.739	3.824	4454
460	0.99187	3177.29	5.383	1038.455	1552.725	9.67797	2.702	3.777	4536
480	1.03133	3287.74	6.087	1093.106	1627.834	9.83758	2.669	3.735	4617
500	1.07065	3397.84	5.819	1147.038	1702.154	9.98946	2.640	3.698	4695
520	1.10986	3507.60	5.574	1200.350	1775.793	10.13399	2.616	3.667	4772
540	1.14895	3617.05	5.350	1253.124	1848.838	10.27184	2.595	3.639	4848
560	1.18796	3726.22	5.144	1305.369	1921.307	10.40313	2.578	3.617	4922
580	1.22688	3835.13	4.953	1357.304	1993.421	10.52951	2.563	3.597	4994
600	1.26572	3943.80	4.777	1408.957	2065.215	10.65127	2.551	3.581	5064
650	1.36256	4214.60	4.388	1536.898	2243.363	10.93675	2.528	3.549	5236
700	1.45906	4484.36	4.060	1663.801	2420.303	11.19926	2.515	3.529	5400
800	1.65138	5021.64	3.534	1915.626	2771.838	11.66900	2.502	3.507	5710
900	1.84304	5556.90	3.132	2166.499	3122.086	12.08124	2.498	3.497	6003
1000	2.03428	6090.92	2.812	2416.692	3471.435	12.44910	2.498	3.493	6282
1500	2.98753	8753.33	1.867	3674.366	5223.353	13.86907	2.541	3.528	7504
2000	3.93897	11412.62	1.399	4969.137	7011.432	14.89569	2.647	3.633	8518
2500	4.88989	14071.76	1.119	6327.230	8862.560	15.72123	2.787	3.773	9393
3000	5.84063	16731.24	0.9325	7755.858	10784.132	16.41196	2.923	3.908	10180
3500	6.79152	19391.08	0.7993	9256.509	12777.803	17.02922	3.054	4.041	10901
4000	7.74365	22051.21	0.6995	10828.618	14843.580	17.77353	3.213	4.204	11561
5000	9.66974	27372.13	0.5596	14321.693	19335.300	19.60811	3.820	4.861	12701

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

2800 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 34.546	5.32631	504.36	12.887	27319.03	0.0032421	0.07457	2.511	0.00856	1.28614	1.9820
36	5.30100	508.35	12.680	26780.37	0.0033093	0.07667	2.309	0.00862	1.28461	1.8190
38	5.26554	513.00	12.419	25855.80	0.0034034	0.08018	2.079	0.00872	1.28248	1.6298
40	5.22932	516.93	12.177	25019.49	0.0034996	0.08287	1.892	0.00876	1.28031	1.4866
42	5.19234	519.96	11.959	24192.41	0.0035977	0.08504	1.737	0.00876	1.27809	1.3752
44	5.15460	522.52	11.752	23375.54	0.0036978	0.08678	1.607	0.00871	1.27583	1.2877
46	5.11610	524.51	11.557	22569.91	0.0037998	0.08813	1.496	0.00864	1.27353	1.2180
48	5.07684	526.08	11.370	21776.58	0.0039035	0.08914	1.401	0.00855	1.27119	1.1621
50	5.03683	527.47	11.184	20996.67	0.0040089	0.08989	1.319	0.00844	1.26881	1.1171
52	4.99571	528.16	11.046	20259.97	0.0041234	0.09040	1.247	0.00831	1.26637	1.0813
54	4.95417	528.45	10.878	19503.34	0.0042306	0.09072	1.183	0.00819	1.26390	1.0499
56	4.91188	529.06	10.709	18789.04	0.0043326	0.09050	1.127	0.00804	1.26140	1.0277
58	4.86897	529.25	10.542	18084.19	0.0044357	0.09016	1.077	0.00789	1.25887	1.0094
60	4.82550	528.90	10.384	17391.95	0.0045407	0.08974	1.032	0.00774	1.25631	0.9941
62	4.78140	528.24	10.228	16712.10	0.0046478	0.08925	0.991	0.00760	1.25372	0.9813
64	4.73674	528.22	10.076	16097.28	0.0047407	0.08870	0.954	0.00748	1.25110	0.9694
66	4.69156	527.68	9.924	15482.92	0.0048380	0.08809	0.920	0.00735	1.24845	0.9597
68	4.64594	526.74	9.780	14885.55	0.0049356	0.08744	0.889	0.00724	1.24579	0.9513
70	4.59989	525.89	9.646	14330.47	0.0050251	0.08675	0.860	0.00714	1.24310	0.9432
75	4.48315	522.84	9.323	13010.37	0.0052495	0.08490	0.797	0.00690	1.23632	0.9279
80	4.36461	520.35	9.993	11823.80	0.0054601	0.08297	0.745	0.00669	1.22948	0.9178
85	4.24492	519.07	8.645	10766.18	0.0056535	0.08104	0.699	0.00651	1.22260	0.9118
90	4.12471	518.20	8.298	9815.85	0.0058348	0.07917	0.661	0.00635	1.21574	0.9082
95	4.00454	518.48	7.959	8990.96	0.0059854	0.07738	0.627	0.00623	1.20891	0.9046
100	3.88524	519.41	7.631	8260.94	0.0061156	0.07570	0.597	0.00613	1.20217	0.9015
105	3.76746	520.73	7.327	7620.58	0.0062214	0.07417	0.571	0.00608	1.19555	0.8975
110	3.65156	524.74	7.029	7095.85	0.0062723	0.07300	0.548	0.00607	1.18907	0.8893
115	3.53839	529.62	6.735	6624.36	0.0063124	0.07205	0.528	0.00609	1.18277	0.8818
120	3.42832	536.13	6.446	6215.94	0.0063253	0.07122	0.510	0.00613	1.17668	0.8750
125	3.32174	544.67	6.162	5870.04	0.0063052	0.07052	0.495	0.00618	1.17081	0.8685
130	3.21901	555.13	5.887	5575.39	0.0062577	0.06998	0.482	0.00626	1.16518	0.8620
135	3.12029	567.07	5.621	5316.74	0.0061958	0.06945	0.471	0.00633	1.15978	0.8583
140	3.02572	581.04	5.364	5098.42	0.0061097	0.06910	0.462	0.00643	1.15464	0.8542
150	2.84917	613.62	4.886	4742.25	0.0059051	0.06954	0.447	0.00674	1.14510	0.8390
160	2.68892	652.18	4.461	4471.74	0.0056707	0.07073	0.437	0.00711	1.13649	0.8232
180	2.40988	750.77	3.789	4179.41	0.0050690	0.07244	0.425	0.00790	1.12165	0.8031
200	2.18663	850.28	3.314	3921.83	0.0046536	0.07866	0.443	0.00909	1.10998	0.8025
220	2.00817	958.56	2.959	3746.17	0.0042678	0.08381	0.455	0.01024	1.10016	0.8004
240	1.84306	1067.65	2.711	3623.24	0.0039193	0.08801	0.464	0.01141	1.09201	0.7950
260	1.70949	1172.60	2.542	3534.23	0.0036109	0.09136	0.472	0.01262	1.08513	0.7873
280	1.59478	1270.20	2.433	3467.30	0.0033409	0.09395	0.479	0.01388	1.07924	0.7782
300	1.49530	1359.85	2.365	3415.07	0.0031056	0.09595	0.485	0.01519	1.07416	0.7688
320	1.40820	1441.53	2.326	3372.90	0.0029002	0.09746	0.492	0.01655	1.06972	0.7596
340	1.33129	1516.49	2.306	3337.85	0.0027203	0.09863	0.499	0.01796	1.06582	0.7509
360	1.26283	1585.94	2.301	3308.00	0.0025620	0.09958	0.506	0.01941	1.06236	0.7430
380	1.20147	1651.15	2.304	3282.06	0.0024218	0.10039	0.513	0.02090	1.05926	0.7358
400	1.14612	1713.88	2.312	3259.16	0.0022968	0.10117	0.521	0.02242	1.05647	0.7294
420	1.09591	1774.86	2.322	3238.68	0.0021849	0.10194	0.529	0.02399	1.05395	0.7238
440	1.05013	1835.05	2.333	3220.18	0.0020841	0.10275	0.537	0.02558	1.05165	0.7189
460	1.00820	1895.32	2.343	3203.33	0.0019927	0.10363	0.545	0.02722	1.04956	0.7146
480	0.96962	1955.76	2.352	3187.87	0.0019096	0.10459	0.553	0.02888	1.04762	0.7108
500	0.93401	2016.92	2.359	3173.62	0.0018335	0.10563	0.561	0.03058	1.04584	0.7076
520	0.90102	2078.87	2.365	3160.41	0.0017637	0.10675	0.570	0.03231	1.04419	0.7048
540	0.87036	2141.49	2.369	3148.12	0.0016993	0.10793	0.579	0.03408	1.04266	0.7024
560	0.84178	2205.49	2.371	3136.66	0.0016398	0.10922	0.587	0.03588	1.04124	0.7003
580	0.81508	2270.06	2.371	3125.92	0.0015846	0.11056	0.596	0.03771	1.03991	0.6984
600	0.79006	2335.48	2.371	3115.85	0.0015331	0.11195	0.605	0.03957	1.03867	0.6968
650	0.73391	2501.80	2.365	3093.16	0.0014188	0.11564	0.628	0.04439	1.03589	0.6936
700	0.68537	2671.37	2.356	3073.45	0.0013210	0.11956	0.651	0.04943	1.03348	0.6913
800	0.60556	3017.60	2.332	3040.88	0.0011623	0.12781	0.697	0.06018	1.02954	0.6882
900	0.54258	3366.63	2.311	3015.08	0.0010386	0.13626	0.743	0.07182	1.02644	0.6863
1000	0.49157	3718.66	2.290	2994.14	0.0009393	0.14482	0.789	0.08434	1.02393	0.6851
1500	0.33472	5536.10	2.196	2929.97	0.0006373	0.18838	1.013	0.15951	1.01625	0.6833
2000	0.25387	7522.20	2.082	2897.36	0.0004629	0.27727	1.225	0.30065	1.01231	0.5777
2500	0.20450	9700.97	1.963	2877.73	0.0003889	0.33494	1.424	0.43415	1.00991	0.5775
3000	0.17121	12005.80	1.863	2864.63	0.0003255	0.39278	1.614	0.58697	1.00829	0.5780
3500	0.14724	14432.59	1.777	2855.19	0.0002800	0.45186	1.795	0.75951	1.00712	0.5777
4000	0.12914	17115.29	1.686	2847.65	0.0002456	0.51926	1.969	0.95648	1.00625	0.5738
5000	0.10342	24588.12	1.416	2838.70	0.0001977	0.74757	2.303	1.48709	1.00500	0.5390

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

3000 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 35.142	0.18676	5281.00	83.310	-124.826	-21.080	1.28507	1.299	1.641	5561
36	0.18727	5227.23	83.198	-123.690	-19.659	1.32500	1.313	1.668	5548
38	0.18848	5102.25	88.882	-120.966	-16.260	1.41688	1.344	1.731	5518
40	0.18974	4977.81	88.487	-118.142	-12.737	1.50723	1.373	1.793	5487
42	0.19104	4854.05	83.014	-115.220	-9.091	1.59616	1.400	1.853	5456
44	0.19239	4731.10	87.463	-112.202	-5.326	1.68374	1.425	1.913	5424
46	0.19378	4609.13	85.834	-109.090	-1.441	1.77007	1.449	1.972	5391
48	0.19522	4488.29	85.130	-105.887	2.562	1.85525	1.471	2.031	5358
50	0.19671	4368.75	85.350	-102.591	6.684	1.93937	1.493	2.090	5323
52	0.19824	4250.71	84.495	-99.206	10.923	2.02250	1.513	2.149	5288
54	0.19985	4138.10	83.770	-95.726	15.295	2.10501	1.531	2.208	5258
56	0.20150	4021.61	82.724	-92.166	19.768	2.18634	1.548	2.264	5221
58	0.20319	3914.33	81.605	-88.526	24.351	2.26675	1.563	2.318	5185
60	0.20494	3806.57	80.416	-84.809	29.040	2.34622	1.577	2.370	5148
62	0.20674	3698.92	79.176	-81.019	33.830	2.42475	1.590	2.422	5109
64	0.20860	3599.49	77.885	-77.158	38.721	2.50240	1.601	2.470	5072
66	0.21051	3500.10	76.541	-73.231	43.710	2.57916	1.611	2.518	5034
68	0.21247	3404.62	75.156	-69.242	48.792	2.65501	1.620	2.563	4996
70	0.21450	3315.39	73.744	-65.196	53.960	2.72992	1.626	2.605	4960
75	0.21979	3099.50	70.152	-54.862	67.234	2.91305	1.638	2.704	4868
80	0.22543	2903.55	66.519	-44.243	80.988	3.09056	1.650	2.797	4775
85	0.23143	2726.58	62.917	-33.359	95.205	3.26316	1.664	2.888	4682
90	0.23778	2568.51	59.395	-22.236	109.856	3.43063	1.680	2.974	4590
95	0.24449	2428.17	55.990	-10.900	124.919	3.59350	1.695	3.053	4501
100	0.25155	2310.57	52.734	0.730	140.470	3.75305	1.711	3.121	4419
105	0.25894	2203.86	49.652	12.389	156.233	3.90686	1.725	3.183	4341
110	0.26664	2109.18	46.751	24.160	172.284	4.05619	1.741	3.242	4265
115	0.27466	2031.80	44.038	36.040	188.618	4.20139	1.762	3.295	4196
120	0.28296	1971.89	41.514	48.021	205.211	4.34263	1.787	3.342	4133
125	0.29152	1917.46	39.175	60.096	222.039	4.48001	1.816	3.390	4072
130	0.30031	1875.27	37.008	72.273	239.098	4.61383	1.849	3.434	4017
135	0.30930	1843.29	35.011	84.552	256.371	4.74420	1.886	3.476	3967
140	0.31847	1816.54	33.166	96.943	273.859	4.87140	1.927	3.519	3920
150	0.33725	1787.81	29.902	122.097	309.449	5.11691	2.019	3.599	3843
160	0.35648	1777.69	27.136	147.814	345.844	5.35178	2.121	3.680	3780
180	0.39652	1835.42	22.663	199.044	419.316	5.78929	2.327	3.793	3723
200	0.43565	1886.14	19.565	254.734	496.745	6.19701	2.524	3.951	3698
220	0.47515	1958.22	17.164	313.265	577.219	6.58042	2.707	4.091	3703
240	0.51472	2045.17	15.258	374.163	660.099	6.94074	2.848	4.188	3733
260	0.55416	2141.99	13.718	436.612	744.458	7.27853	2.942	4.241	3782
280	0.59336	2245.10	12.454	499.858	829.482	7.59347	2.991	4.252	3845
300	0.63227	2352.06	11.402	563.120	914.360	7.88642	3.005	4.232	3918
320	0.67088	2461.27	10.515	625.926	998.613	8.15834	2.992	4.190	3996
340	0.70919	2571.72	9.759	687.906	1081.876	8.41045	2.962	4.135	4078
360	0.74723	2682.75	9.106	748.847	1163.946	8.64508	2.921	4.072	4162
380	0.78501	2793.97	8.538	808.648	1244.736	8.86351	2.876	4.007	4247
400	0.82257	2905.15	8.040	867.293	1324.244	9.06751	2.829	3.944	4332
420	0.85992	3016.13	7.598	924.829	1402.529	9.25847	2.784	3.885	4416
440	0.89709	3126.84	7.205	981.342	1479.690	9.43801	2.743	3.831	4498
460	0.93409	3237.25	6.851	1036.916	1555.823	9.60723	2.705	3.783	4580
480	0.97096	3347.35	6.533	1091.668	1631.053	9.76710	2.672	3.740	4659
500	1.00769	3457.14	6.244	1145.692	1705.485	9.91920	2.643	3.703	4737
520	1.04432	3566.63	5.980	1199.090	1779.228	10.06394	2.619	3.671	4813
540	1.08084	3675.84	5.739	1251.941	1852.368	10.20196	2.597	3.644	4888
560	1.11727	3784.79	5.517	1304.260	1924.926	10.33341	2.580	3.621	4961
580	1.15362	3893.50	5.312	1356.262	1997.122	10.45995	2.565	3.601	5032
600	1.18990	4002.00	5.123	1407.977	2068.992	10.58183	2.553	3.584	5102
650	1.28033	4272.39	4.705	1536.057	2247.307	10.86758	2.530	3.552	5272
700	1.37045	4541.80	4.352	1663.676	2424.387	11.13029	2.516	3.531	5434
800	1.55000	5078.46	3.788	1915.084	2776.140	11.60033	2.504	3.509	5743
900	1.72893	5613.20	3.356	2166.093	3126.547	12.01275	2.499	3.498	6034
1000	1.90745	6146.74	3.013	2416.390	3476.014	12.38074	2.499	3.494	6310
1500	2.79718	8807.46	2.000	3674.343	5228.230	13.80096	2.541	3.528	7527
2000	3.68518	11465.56	1.499	4969.230	7016.416	14.82765	2.647	3.633	8538
2500	4.57268	14123.92	1.199	6327.382	8867.591	15.65320	2.788	3.773	9410
3000	5.46002	16782.84	0.9990	7756.033	10789.175	16.34394	2.923	3.908	10195
3500	6.34749	19442.25	0.8563	9256.594	12782.741	16.96117	3.054	4.040	10916
4000	7.23608	22102.05	0.7493	10828.115	14847.895	17.70532	3.211	4.202	11575
5000	9.03299	27422.49	0.5995	14313.302	19331.299	19.53810	3.804	4.843	12716

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

3000 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC x 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 35.142	5.35456	519.68	12.845	28277.39	0.0031583	0.07629	2.566	0.00868	1.28784	1.9877
36	5.33998	522.09	12.727	27913.28	0.0031955	0.07789	2.442	0.00874	1.28696	1.8829
38	5.30549	527.12	12.466	27069.94	0.0032834	0.08130	2.193	0.00885	1.28489	1.6808
40	5.27030	531.44	12.228	26234.53	0.0033729	0.08409	1.991	0.00890	1.28277	1.5280
42	5.23439	534.84	12.013	25407.96	0.0034640	0.08634	1.824	0.00890	1.28061	1.4092
44	5.19777	537.80	11.807	24591.17	0.0035567	0.08816	1.685	0.00887	1.27841	1.3159
46	5.16044	540.17	11.615	23785.13	0.0036508	0.08958	1.566	0.00880	1.27618	1.2415
48	5.12241	542.14	11.429	22990.85	0.0037463	0.09066	1.465	0.00871	1.27391	1.1818
50	5.08368	543.94	11.245	22209.35	0.0038430	0.09146	1.378	0.00861	1.27160	1.1336
52	5.04427	545.31	11.069	21441.70	0.0039407	0.09204	1.301	0.00849	1.26925	1.0939
54	5.00371	545.84	10.935	20705.87	0.0040457	0.09240	1.234	0.00836	1.26684	1.0615
56	4.96289	546.31	10.768	19958.78	0.0041448	0.09222	1.174	0.00821	1.26442	1.0380
58	4.92145	547.17	10.606	19264.16	0.0042361	0.09192	1.121	0.00806	1.26197	1.0179
60	4.87946	547.38	10.450	18573.97	0.0043295	0.09153	1.074	0.00791	1.25949	1.0008
62	4.83697	547.21	10.295	17891.55	0.0044254	0.09108	1.031	0.00778	1.25698	0.9867
64	4.79392	547.27	10.147	17255.67	0.0045136	0.09055	0.992	0.00765	1.25445	0.9740
66	4.75040	546.96	9.999	16626.90	0.0046034	0.08997	0.956	0.00752	1.25190	0.9635
68	4.70645	546.46	9.857	16023.67	0.0046903	0.08935	0.924	0.00741	1.24932	0.9541
70	4.66211	545.91	9.726	15456.73	0.0047710	0.08869	0.894	0.00730	1.24673	0.9451
75	4.54984	543.48	9.411	14102.21	0.0049745	0.08690	0.829	0.00706	1.24019	0.9282
80	4.43593	541.60	9.089	12879.96	0.0051645	0.08501	0.774	0.00685	1.23359	0.9170
85	4.32098	540.85	8.749	11781.51	0.0053403	0.08312	0.728	0.00666	1.22697	0.9103
90	4.20555	540.83	8.408	10801.99	0.0054985	0.08128	0.688	0.00650	1.22035	0.9057
95	4.09014	541.49	8.076	9931.56	0.0056376	0.07951	0.653	0.00637	1.21377	0.9021
100	3.97539	543.67	7.753	9185.41	0.0057411	0.07785	0.622	0.00627	1.20726	0.8978
105	3.86195	545.62	7.454	8511.19	0.0058337	0.07631	0.595	0.00621	1.20086	0.8935
110	3.75036	548.57	7.158	7910.20	0.0059103	0.07515	0.571	0.00618	1.19459	0.8874
115	3.64089	553.57	6.864	7397.56	0.0059530	0.07420	0.551	0.00618	1.18847	0.8802
120	3.53405	560.97	6.574	6968.77	0.0059572	0.07336	0.532	0.00621	1.18253	0.8729
125	3.43035	569.20	6.289	6577.55	0.0059558	0.07263	0.516	0.00625	1.17679	0.8676
130	3.32994	579.49	6.011	6244.56	0.0059264	0.07201	0.502	0.00630	1.17126	0.8626
135	3.23315	591.72	5.742	5959.63	0.0058747	0.07151	0.490	0.00636	1.16595	0.8582
140	3.14002	605.21	5.482	5703.98	0.0058146	0.07112	0.480	0.00644	1.16086	0.8552
150	2.96512	637.99	4.996	5301.08	0.0056408	0.07151	0.464	0.00670	1.15136	0.8403
160	2.80522	676.36	4.561	4986.81	0.0054416	0.07263	0.452	0.00704	1.14273	0.8251
180	2.52197	774.79	3.862	4628.86	0.0048961	0.07422	0.436	0.00776	1.12759	0.8021
200	2.29543	874.28	3.377	4329.52	0.0045190	0.08038	0.454	0.00886	1.11561	0.8034
220	2.10461	982.23	3.013	4121.29	0.0041647	0.08541	0.466	0.00992	1.10560	0.8027
240	1.94281	1090.72	2.757	3973.38	0.0038401	0.08946	0.474	0.01099	1.09718	0.7983
260	1.80453	1194.95	2.584	3865.30	0.0035490	0.09267	0.480	0.01211	1.09002	0.7910
280	1.68531	1291.83	2.471	3783.69	0.0032915	0.09513	0.486	0.01327	1.08388	0.7821
300	1.58159	1380.82	2.399	3720.00	0.0030651	0.09700	0.492	0.01449	1.07857	0.7726
320	1.49058	1461.93	2.358	3668.72	0.0028662	0.09841	0.498	0.01576	1.07392	0.7631
340	1.41005	1536.39	2.337	3626.26	0.0026911	0.09950	0.504	0.01707	1.06982	0.7542
360	1.33828	1605.43	2.329	3590.27	0.0025364	0.10038	0.511	0.01842	1.06617	0.7459
380	1.27387	1670.30	2.331	3559.15	0.0023990	0.10113	0.518	0.01981	1.06291	0.7384
400	1.21571	1732.75	2.337	3531.81	0.0022764	0.10186	0.525	0.02124	1.05998	0.7318
420	1.16290	1793.49	2.347	3507.46	0.0021663	0.10259	0.532	0.02271	1.05731	0.7259
440	1.11472	1853.49	2.357	3485.55	0.0020670	0.10337	0.540	0.02420	1.05489	0.7207
460	1.07056	1913.61	2.366	3465.66	0.0019769	0.10422	0.548	0.02573	1.05267	0.7162
480	1.02991	1973.92	2.374	3447.47	0.0018949	0.10515	0.556	0.02730	1.05063	0.7123
500	0.99236	2034.98	2.380	3431.74	0.0018199	0.10618	0.565	0.02889	1.04875	0.7089
520	0.95756	2096.85	2.385	3417.27	0.0017509	0.10729	0.573	0.03052	1.04701	0.7059
540	0.92521	2159.41	2.388	3404.91	0.0016874	0.10846	0.582	0.03217	1.04540	0.7034
560	0.89504	2223.37	2.389	3394.53	0.0016285	0.10974	0.590	0.03386	1.04389	0.7011
580	0.86683	2287.90	2.389	3385.02	0.0015739	0.11107	0.599	0.03558	1.04249	0.6992
600	0.84040	2353.30	2.388	3376.29	0.0015231	0.11246	0.608	0.03733	1.04117	0.6975
650	0.78105	2519.58	2.381	3356.94	0.0014099	0.11614	0.630	0.04186	1.03822	0.6942
700	0.72969	2689.15	2.370	3314.09	0.0013132	0.12006	0.653	0.04659	1.03568	0.6917
800	0.64516	3035.41	2.345	3276.42	0.0011561	0.12834	0.699	0.05669	1.03150	0.6885
900	0.57839	3384.47	2.322	3246.63	0.0010336	0.13684	0.746	0.06763	1.02820	0.6865
1000	0.52426	3736.53	2.300	3222.49	0.0009351	0.14545	0.792	0.07941	1.02554	0.6852
1500	0.35750	5554.15	2.202	3148.69	0.0006353	0.18934	1.019	0.15010	1.01736	0.6833
2000	0.27136	7540.68	2.087	3111.26	0.0004817	0.27727	1.232	0.28127	1.01316	0.5810
2500	0.21669	9720.04	1.967	3088.76	0.0003881	0.33494	1.433	0.40598	1.01059	0.5810
3000	0.18315	12025.26	1.866	3073.77	0.0003250	0.39277	1.624	0.54870	1.00887	0.5818
3500	0.15754	14450.98	1.780	3062.98	0.0002796	0.45177	1.807	0.70979	1.00762	0.5817
4000	0.13820	17126.84	1.688	3054.42	0.0002453	0.51879	1.983	0.89346	1.00669	0.5781
5000	0.11071	24522.82	1.424	3035.81	0.0001975	0.74311	2.319	1.38605	1.00535	0.5442

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

3200 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 35.729	0.18580	5431.00	90.038	-124.076	-13.978	1.29079	1.306	1.647	5633
36	0.18596	5414.22	90.007	-123.720	-13.530	1.30328	1.310	1.655	5629
38	0.18713	5290.64	89.733	-121.041	-10.158	1.39443	1.342	1.717	5600
40	0.18833	5167.59	89.381	-118.262	-6.664	1.48403	1.371	1.777	5571
42	0.18958	5045.19	88.952	-115.387	-3.050	1.57218	1.398	1.836	5541
44	0.19087	4923.58	88.446	-112.419	0.681	1.65896	1.423	1.895	5511
46	0.19220	4802.89	87.864	-109.360	4.528	1.74447	1.447	1.953	5480
48	0.19357	4683.29	87.207	-106.210	8.491	1.82880	1.470	2.010	5448
50	0.19499	4564.93	86.476	-102.972	12.570	1.91204	1.492	2.068	5415
52	0.19645	4447.98	85.671	-99.645	16.764	1.99428	1.512	2.125	5382
54	0.19796	4332.63	84.795	-96.234	21.070	2.07554	1.531	2.181	5346
56	0.19954	4219.58	83.961	-92.735	25.508	2.15622	1.548	2.238	5316
58	0.20115	4110.47	82.902	-89.157	30.037	2.23569	1.564	2.291	5281
60	0.20281	4002.15	81.771	-85.506	34.670	2.31422	1.578	2.342	5245
62	0.20452	3897.52	80.582	-81.783	39.404	2.39183	1.591	2.391	5209
64	0.20627	3796.77	79.347	-77.991	44.235	2.46852	1.603	2.439	5173
66	0.20807	3696.68	78.065	-74.134	49.160	2.54430	1.614	2.486	5136
68	0.20993	3599.93	76.739	-70.216	54.177	2.61919	1.623	2.530	5100
70	0.21183	3510.62	75.375	-66.242	59.279	2.69314	1.629	2.571	5065
75	0.21681	3293.47	71.886	-56.092	72.377	2.87383	1.642	2.667	4977
80	0.22209	3096.67	68.351	-45.662	85.940	3.04887	1.655	2.757	4889
85	0.22770	2918.44	64.836	-34.969	99.953	3.21901	1.670	2.845	4800
90	0.23361	2759.46	61.387	-24.039	114.389	3.38403	1.686	2.928	4712
95	0.23984	2615.06	58.041	-12.895	129.223	3.54441	1.702	3.005	4626
100	0.24638	2488.23	54.822	-1.451	144.540	3.70157	1.718	3.076	4543
105	0.25321	2377.70	51.756	10.030	160.070	3.85310	1.732	3.130	4466
110	0.26033	2284.34	48.863	21.636	175.894	4.00032	1.749	3.191	4395
115	0.26771	2197.72	45.153	33.355	191.987	4.14338	1.769	3.248	4324
120	0.27535	2126.57	43.610	45.192	208.353	4.28269	1.794	3.301	4257
125	0.28323	2071.79	41.237	57.144	224.975	4.41839	1.823	3.347	4198
130	0.29132	2021.42	39.038	69.207	241.831	4.55061	1.856	3.396	4139
135	0.29960	1984.79	36.996	81.393	258.924	4.67962	1.893	3.441	4088
140	0.30806	1953.19	35.109	93.706	276.246	4.80561	1.934	3.487	4039
150	0.32538	1912.08	31.744	118.750	311.557	5.04920	2.026	3.576	3954
160	0.34315	1895.21	28.868	144.409	347.743	5.28271	2.128	3.662	3887
180	0.38052	1937.70	24.109	195.757	421.233	5.72005	2.334	3.781	3814
200	0.41686	1980.51	20.856	251.457	498.467	6.12673	2.530	3.944	3782
220	0.45361	2045.57	18.324	310.062	578.850	6.50970	2.713	4.089	3779
240	0.49051	2126.61	16.306	371.082	661.732	6.87003	2.854	4.191	3804
260	0.52735	2218.66	14.668	433.684	746.166	7.20811	2.948	4.246	3848
280	0.56402	2318.00	13.321	497.097	831.310	7.52350	2.996	4.259	3907
300	0.60046	2422.03	12.196	560.532	916.336	7.81696	3.010	4.240	3976
320	0.63664	2528.97	11.247	623.507	1000.751	8.08940	2.997	4.198	4051
340	0.67256	2637.64	10.437	685.648	1084.178	8.34201	2.967	4.143	4131
360	0.70824	2747.29	9.738	746.742	1166.412	8.57711	2.926	4.080	4213
380	0.74369	2857.41	9.129	806.685	1247.360	8.79596	2.880	4.015	4296
400	0.77892	2967.70	8.594	865.463	1327.017	9.00035	2.833	3.952	4379
420	0.81397	3077.97	8.120	923.122	1405.443	9.19165	2.788	3.892	4462
440	0.84885	3188.09	7.696	979.748	1482.736	9.37149	2.746	3.838	4543
460	0.88357	3298.01	7.320	1035.427	1558.992	9.54099	2.709	3.789	4623
480	0.91817	3407.68	6.978	1090.275	1634.337	9.70110	2.675	3.746	4702
500	0.95263	3517.10	6.669	1144.388	1708.875	9.85342	2.646	3.709	4779
520	0.98700	3626.28	6.386	1197.868	1782.716	9.99835	2.621	3.676	4854
540	1.02126	3735.20	5.128	1250.796	1855.948	10.13655	2.600	3.648	4928
560	1.05544	3843.90	5.890	1303.186	1928.590	10.26815	2.582	3.625	5000
580	1.08954	3952.38	5.671	1355.254	2000.865	10.39483	2.567	3.605	5070
600	1.12357	4060.66	5.468	1407.030	2072.808	10.51684	2.555	3.588	5140
650	1.20840	4330.58	5.021	1535.245	2251.284	10.80284	2.532	3.555	5308
700	1.29292	4599.57	4.644	1662.377	2428.506	11.06576	2.518	3.534	5469
800	1.46130	5135.52	4.041	1914.566	2780.463	11.53607	2.505	3.511	5775
900	1.62908	5669.65	3.580	2165.709	3131.024	11.94868	2.500	3.499	6064
1000	1.79646	6202.66	3.214	2416.108	3480.606	12.31679	2.500	3.495	6339
1500	2.63060	8861.42	2.133	3674.338	5233.109	13.73725	2.542	3.529	7550
2000	3.46307	11518.28	1.598	4969.341	7021.397	14.76400	2.648	3.633	8557
2500	4.29508	14175.79	1.279	6327.553	8872.616	15.58957	2.788	3.773	9427
3000	5.12693	16834.09	1.065	7756.229	10794.210	16.28031	2.924	3.908	10211
3500	5.95891	19493.03	0.9133	9256.709	12787.681	16.89751	3.054	4.040	10930
4000	6.79191	22152.47	0.7992	10827.699	14852.271	17.64152	3.209	4.200	11588
5000	8.47586	27472.38	0.6394	14305.752	19328.150	19.47267	3.790	4.827	12730

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

3200 PSIA ISOBAR

TEMPERATURE	DENSITY	$V(\partial H/\partial V)_P$	$V(\partial P/\partial U)_V$	$-V(\partial P/\partial V)_T$	$(\partial V/\partial T)_P/V$	THERMAL CONDUCTIVITY	VISCOSITY	THERMAL DIFFUSIVITY	DIELECTRIC CONSTANT	PRANDTL NUMBER
DEG. R	LB/CU FT	BTU/LB	PSIA-CU FT/BTU	PSIA	1/DEG. R	BTU/FT-HR-R	LB/FT-SEC X 10^5	SQ FT/HR		
• 35.729	5.38207	534.67	12.809	29230.03	0.0030803	0.07834	2.622	0.00884	1.28951	1.9846
36	5.37757	535.49	12.772	29115.32	0.0030914	0.07888	2.581	0.00886	1.28923	1.9501
38	5.34398	540.89	12.515	28273.08	0.0031738	0.08239	2.312	0.00898	1.28721	1.7343
40	5.30973	545.58	12.278	27438.47	0.0032575	0.08527	2.094	0.00904	1.28514	1.5715
42	5.27480	549.34	12.065	26612.35	0.0033425	0.08761	1.915	0.00905	1.28304	1.4450
44	5.23920	552.66	11.861	25795.61	0.0034287	0.08950	1.766	0.00902	1.28090	1.3456
46	5.20294	555.40	11.676	24989.19	0.0035161	0.09099	1.639	0.00896	1.27872	1.2664
48	5.16603	557.74	11.487	24194.02	0.0036045	0.09213	1.531	0.00887	1.27651	1.2028
50	5.12846	559.93	11.305	23411.09	0.0036938	0.09299	1.438	0.00877	1.27427	1.1513
52	5.09026	561.69	11.136	22641.38	0.0037838	0.09362	1.357	0.00865	1.27199	1.1089
54	5.05142	562.91	10.967	21885.93	0.0038744	0.09404	1.286	0.00854	1.26968	1.0733
56	5.01142	563.65	10.822	21146.09	0.0039705	0.09389	1.222	0.00837	1.26730	1.0488
58	4.97133	564.64	10.662	20434.53	0.0040569	0.09362	1.166	0.00822	1.26492	1.0272
60	4.93072	565.12	10.508	19733.48	0.0041438	0.09326	1.116	0.00808	1.26252	1.0089
62	4.88960	565.57	10.356	19057.33	0.0042284	0.09284	1.071	0.00794	1.26009	0.9931
64	4.84801	565.62	10.210	18406.78	0.0043108	0.09234	1.030	0.00781	1.25763	0.9795
66	4.80599	565.78	10.065	17766.23	0.0043940	0.09179	0.993	0.00768	1.25516	0.9681
68	4.76355	565.48	9.927	17148.46	0.0044756	0.09119	0.959	0.00757	1.25267	0.9580
70	4.72075	565.24	9.799	16572.75	0.0045481	0.09055	0.928	0.00746	1.25016	0.9482
75	4.61242	563.52	9.489	15190.87	0.0047322	0.08881	0.860	0.00722	1.24383	0.9295
80	4.50261	562.42	9.174	13943.09	0.0049022	0.08696	0.803	0.00701	1.23745	0.9169
85	4.39183	562.46	8.841	12817.28	0.0050585	0.08511	0.755	0.00681	1.23104	0.9091
90	4.28059	563.33	8.508	11812.10	0.0051970	0.08329	0.714	0.00665	1.22465	0.9036
95	4.16945	564.52	8.181	10903.35	0.0053232	0.08154	0.678	0.00651	1.21829	0.8997
100	4.05882	566.57	7.863	10099.30	0.0054283	0.07989	0.647	0.00640	1.21199	0.8961
105	3.94930	569.00	7.568	9390.24	0.0055117	0.07836	0.619	0.00633	1.20578	0.8917
110	3.84131	573.12	7.275	8774.85	0.0055685	0.07720	0.594	0.00630	1.19970	0.8845
115	3.73541	577.82	6.983	8209.39	0.0056219	0.07625	0.573	0.00628	1.19375	0.8784
120	3.63172	584.56	6.693	7723.09	0.0056467	0.07540	0.554	0.00629	1.18796	0.8726
125	3.53064	593.74	6.407	7314.76	0.0056376	0.07465	0.537	0.00632	1.18234	0.8666
130	3.43263	603.70	6.127	6936.79	0.0056261	0.07401	0.522	0.00635	1.17692	0.8627
135	3.33774	616.11	5.854	6624.71	0.0055845	0.07348	0.509	0.00640	1.17169	0.8585
140	3.24616	629.70	5.592	6340.38	0.0055374	0.07306	0.498	0.00645	1.16666	0.8559
150	3.07329	661.94	5.098	5876.37	0.0054019	0.07340	0.480	0.00668	1.15723	0.8424
160	2.91418	700.59	4.655	5523.00	0.0052269	0.07448	0.467	0.00698	1.14860	0.8272
180	2.62801	798.69	3.931	5092.31	0.0047343	0.07598	0.447	0.00765	1.13324	0.8011
200	2.39891	898.38	3.436	4751.07	0.0043897	0.08209	0.465	0.00868	1.12107	0.8040
220	2.20454	1006.21	3.064	4509.53	0.0040634	0.08701	0.476	0.00965	1.11084	0.8047
240	2.03871	1114.24	2.803	4335.55	0.0037609	0.09093	0.483	0.01064	1.10217	0.8012
260	1.89628	1217.84	2.624	4207.19	0.0034865	0.09399	0.489	0.01167	1.09477	0.7944
280	1.77298	1314.30	2.507	4109.78	0.0032412	0.09632	0.494	0.01276	1.08840	0.7857
300	1.66539	1402.32	2.433	4033.62	0.0030237	0.09808	0.499	0.01389	1.08286	0.7761
320	1.57074	1482.60	2.389	3972.36	0.0028314	0.09938	0.504	0.01507	1.07801	0.7665
340	1.48685	1556.73	2.366	3921.77	0.0026612	0.10039	0.510	0.01630	1.07373	0.7573
360	1.41195	1625.31	2.357	3879.03	0.0025103	0.10119	0.516	0.01757	1.06991	0.7487
380	1.34465	1689.78	2.357	3842.23	0.0023759	0.10189	0.522	0.01887	1.06650	0.7409
400	1.28382	1751.91	2.363	3810.00	0.0022556	0.10256	0.529	0.02022	1.06342	0.7340
420	1.22854	1812.39	2.371	3781.42	0.0021475	0.10325	0.536	0.02159	1.06062	0.7279
440	1.17807	1872.17	2.380	3755.78	0.0020498	0.10400	0.544	0.02300	1.05808	0.7225
460	1.13177	1932.10	2.388	3732.57	0.0019611	0.10483	0.552	0.02444	1.05575	0.7178
480	1.08913	1992.26	2.395	3711.40	0.0018802	0.10573	0.560	0.02592	1.05360	0.7137
500	1.04972	2053.21	2.401	3691.98	0.0018062	0.10674	0.568	0.02742	1.05163	0.7101
520	1.01318	2114.99	2.405	3674.05	0.0017382	0.10783	0.576	0.02895	1.04980	0.7070
540	0.97918	2177.47	2.407	3657.44	0.0016754	0.10899	0.585	0.03051	1.04810	0.7043
560	0.94747	2241.37	2.407	3641.99	0.0016173	0.11026	0.593	0.03210	1.04651	0.7020
580	0.91782	2305.86	2.407	3627.56	0.0015633	0.11158	0.602	0.03373	1.04503	0.7000
600	0.89002	2371.22	2.405	3614.05	0.0015130	0.11297	0.611	0.03538	1.04364	0.6982
650	0.82754	2537.46	2.396	3583.74	0.0014012	0.11665	0.633	0.03965	1.04053	0.6947
700	0.77344	2707.01	2.385	3557.51	0.0013055	0.12058	0.656	0.04411	1.03785	0.6921
800	0.68432	3053.28	2.357	3514.35	0.0011499	0.12888	0.702	0.05364	1.03343	0.6887
900	0.61384	3402.36	2.333	3488.29	0.0010285	0.13741	0.749	0.06397	1.02995	0.6866
1000	0.55665	3754.44	2.310	3452.72	0.0009309	0.14608	0.796	0.07509	1.02713	0.6853
1500	0.38014	5572.20	2.208	3368.59	0.0006333	0.19031	1.024	0.14187	1.01847	0.6833
2000	0.28876	7559.13	2.091	3326.03	0.0004806	0.23727	1.239	0.26431	1.01401	0.5843
2500	0.23282	9739.06	1.970	3300.47	0.0003874	0.33494	1.442	0.38132	1.01128	0.5846
3000	0.19505	12044.67	1.868	3283.46	0.0003245	0.39276	1.635	0.51522	1.00945	0.5856
3500	0.16782	14469.46	1.782	3271.24	0.0002792	0.45168	1.819	0.66629	1.00812	0.5857
4000	0.14723	17139.17	1.691	3261.59	0.0002450	0.51836	1.997	0.83834	1.00712	0.5823
5000	0.11798	24465.73	1.430	3241.25	0.0001973	0.73908	2.336	1.29789	1.00571	0.5493

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

3400 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 36.308	0.18488	5579.20	90.758	-123.318	-6.911	1.29642	1.313	1.653	5703
38	0.18583	5475.79	90.554	-121.071	-4.072	1.37286	1.340	1.704	5680
40	0.18699	5354.05	90.243	-118.335	-0.605	1.46176	1.369	1.763	5652
42	0.18819	5232.94	89.856	-115.504	2.979	1.54919	1.396	1.821	5624
44	0.18943	5112.59	89.393	-112.583	6.578	1.63523	1.421	1.878	5595
46	0.19070	4993.13	88.855	-109.572	10.492	1.71998	1.445	1.935	5565
48	0.19202	4874.70	88.243	-106.473	14.418	1.80353	1.468	1.991	5535
50	0.19337	4757.46	87.557	-103.287	18.458	1.88597	1.490	2.048	5504
52	0.19477	4641.57	86.799	-100.015	22.610	1.96739	1.511	2.104	5472
54	0.19621	4527.18	85.970	-96.660	26.872	2.04781	1.530	2.158	5440
56	0.19769	4414.47	85.072	-93.224	31.242	2.12727	1.548	2.212	5406
58	0.19925	4300.37	84.120	-89.702	35.741	2.20621	1.565	2.266	5372
60	0.20082	4194.88	83.045	-86.111	40.324	2.28390	1.579	2.316	5338
62	0.20244	4088.86	81.907	-82.450	45.004	2.36062	1.593	2.365	5303
64	0.20411	3986.97	80.716	-78.722	49.781	2.43645	1.605	2.412	5268
66	0.20582	3889.89	79.485	-74.929	54.650	2.51136	1.616	2.457	5234
68	0.20757	3792.02	79.215	-71.076	59.607	2.58536	1.625	2.501	5199
70	0.20937	3698.03	75.909	-67.167	64.649	2.65843	1.632	2.541	5164
75	0.21407	3484.41	73.515	-57.184	77.590	2.83697	1.646	2.633	5081
80	0.21904	3283.75	70.075	-46.927	90.980	3.00977	1.659	2.722	4996
85	0.22430	3101.30	66.641	-36.408	104.810	3.17770	1.675	2.809	4909
90	0.22984	2942.79	63.260	-25.651	119.056	3.34054	1.691	2.888	4825
95	0.23566	2797.98	59.970	-14.679	133.691	3.49878	1.708	2.963	4743
100	0.24175	2664.73	56.794	-3.405	148.800	3.65379	1.724	3.034	4661
105	0.24811	2551.94	53.749	7.915	164.122	3.80329	1.739	3.094	4587
110	0.25472	2450.99	50.867	19.366	179.735	3.94855	1.756	3.151	4514
115	0.26157	2368.41	48.150	30.944	195.628	4.08984	1.776	3.203	4448
120	0.26865	2287.76	45.605	42.645	211.785	4.22736	1.801	3.259	4379
125	0.27595	2222.14	43.219	54.474	228.208	4.36144	1.830	3.312	4316
130	0.28344	2171.75	40.982	66.434	244.887	4.49227	1.863	3.359	4259
135	0.29111	2125.06	38.909	78.525	261.805	4.61996	1.901	3.410	4203
140	0.29894	2091.48	36.977	90.760	278.971	4.74481	1.941	3.456	4153
150	0.31501	2040.84	33.527	115.686	314.012	4.98654	2.033	3.551	4064
160	0.33150	2013.46	30.553	141.275	349.986	5.21868	2.135	3.644	3990
180	0.36649	2040.80	25.523	192.728	423.466	5.65563	2.340	3.769	3902
200	0.40039	2076.18	22.124	248.416	500.500	6.06126	2.536	3.936	3864
220	0.43474	2134.57	19.468	307.067	580.771	6.44370	2.718	4.085	3855
240	0.46927	2209.86	17.342	368.182	663.628	6.80391	2.859	4.191	3874
260	0.50381	2297.14	15.611	430.911	748.105	7.14216	2.953	4.249	3913
280	0.53824	2392.64	14.182	494.471	833.340	7.45789	3.002	4.264	3968
300	0.57248	2493.61	12.988	558.059	918.488	7.75177	3.015	4.247	4034
320	0.60651	2598.14	11.978	621.188	1003.041	8.02465	3.002	4.206	4106
340	0.64032	2704.90	11.114	683.478	1086.615	8.27770	2.971	4.150	4184
360	0.67390	2813.03	10.368	744.714	1168.995	8.51323	2.930	4.087	4264
380	0.70728	2921.94	9.719	804.793	1250.087	8.73247	2.884	4.022	4345
400	0.74046	3031.25	9.148	863.696	1329.883	8.93721	2.837	3.958	4426
420	0.77347	3140.71	8.643	921.471	1408.440	9.12883	2.792	3.898	4508
440	0.80632	3250.16	8.193	978.205	1485.857	9.30896	2.750	3.844	4588
460	0.83903	3359.51	7.789	1033.985	1562.229	9.47871	2.712	3.795	4667
480	0.87161	3468.71	7.424	1088.926	1637.682	9.63906	2.678	3.751	4744
500	0.90408	3577.71	7.094	1143.126	1712.321	9.79159	2.649	3.713	4820
520	0.93644	3686.51	6.793	1196.686	1786.256	9.93670	2.624	3.681	4895
540	0.96871	3795.11	6.517	1249.688	1859.575	10.07507	2.602	3.652	4968
560	1.00090	3903.51	6.264	1302.146	1932.299	10.20682	2.585	3.629	5039
580	1.03301	4011.73	6.030	1354.278	2004.649	10.33362	2.570	3.608	5109
600	1.06506	4119.76	5.814	1406.114	2076.662	10.45575	2.557	3.591	5177
650	1.14493	4389.13	5.338	1534.461	2255.294	10.74200	2.534	3.558	5344
700	1.22451	4657.65	4.936	1661.705	2432.640	11.00511	2.519	3.536	5503
800	1.38303	5192.61	4.294	1914.070	2784.807	11.47570	2.506	3.513	5807
900	1.54096	5726.26	3.803	2165.345	3135.516	11.88848	2.501	3.501	6094
1000	1.69851	6258.68	3.415	2415.846	3485.210	12.25671	2.501	3.496	6367
1500	2.48359	8915.29	2.266	3674.351	5237.990	13.67741	2.542	3.529	7572
2000	3.26707	11570.79	1.698	4969.469	7026.375	14.70421	2.648	3.633	8576
2500	4.05010	14227.36	1.358	6327.741	8877.635	15.52980	2.788	3.773	9444
3000	4.83299	16884.99	1.132	7756.444	10799.239	16.22055	2.924	3.908	10226
3500	5.61600	19543.43	0.9702	9256.854	12792.621	16.83772	3.054	4.039	10944
4000	6.39996	22202.47	0.8490	10827.362	14856.698	17.58159	3.208	4.198	11602
5000	7.98428	27521.80	0.6793	14298.921	19325.725	19.41127	3.777	4.812	12745

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

3400 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 36.308	5.40889	549.49	12.776	30177.30	0.0030075	0.08045	2.678	0.00900	1.29113	1.9806
38	5.38114	554.33	12.562	29465.98	0.0030732	0.08346	2.437	0.00910	1.28945	1.7906
40	5.34774	559.36	12.326	28632.09	0.0031518	0.08643	2.202	0.00917	1.28743	1.6172
42	5.31372	563.46	12.115	27806.36	0.0032315	0.08885	2.009	0.00918	1.28538	1.4825
44	5.27906	567.13	11.913	26989.66	0.0033121	0.09081	1.849	0.00916	1.28329	1.3769
46	5.24378	570.21	11.724	26182.87	0.0033936	0.09236	1.714	0.00910	1.28117	1.2927
48	5.20788	572.91	11.543	25386.88	0.0034759	0.09356	1.599	0.00902	1.27902	1.2250
50	5.17137	575.47	11.362	24602.62	0.0035589	0.09448	1.500	0.00892	1.27683	1.1702
52	5.13427	577.60	11.189	23831.04	0.0036423	0.09516	1.413	0.00881	1.27462	1.1249
54	5.09658	579.19	11.028	23073.10	0.0037260	0.09563	1.338	0.00869	1.27237	1.0870
56	5.05831	580.68	10.866	22329.78	0.0038098	0.09552	1.271	0.00854	1.27009	1.0600
58	5.01891	581.45	10.712	21583.16	0.0038975	0.09527	1.212	0.00838	1.26774	1.0376
60	4.97952	582.50	10.561	20848.50	0.0039756	0.09494	1.159	0.00823	1.26541	1.0177
62	4.93971	583.14	10.410	20197.77	0.0040553	0.09455	1.111	0.00809	1.26305	1.0008
64	4.89942	583.60	10.266	19533.84	0.0041321	0.09408	1.069	0.00796	1.26067	0.9861
66	4.85873	584.17	10.124	18899.91	0.0042056	0.09355	1.030	0.00784	1.25827	0.9734
68	4.81767	584.06	9.989	18268.71	0.0042813	0.09297	0.994	0.00772	1.25585	0.9625
70	4.77625	583.63	9.864	17662.71	0.0043543	0.09235	0.962	0.00761	1.25341	0.9525
75	4.67143	583.06	9.559	16277.18	0.0045165	0.09065	0.891	0.00737	1.24727	0.9316
80	4.56533	582.36	9.251	14991.41	0.0046744	0.08884	0.832	0.00715	1.24109	0.9160
85	4.45828	582.80	8.924	13826.47	0.0048198	0.08701	0.783	0.00695	1.23488	0.9096
90	4.35077	584.61	8.597	12803.40	0.0049409	0.08521	0.740	0.00678	1.22868	0.9031
95	4.24335	586.68	8.277	11872.82	0.0050510	0.08348	0.703	0.00664	1.22251	0.8985
100	4.13647	588.90	7.962	11022.57	0.0051525	0.08184	0.671	0.00652	1.21641	0.8952
105	4.03047	591.98	7.670	10285.53	0.0052257	0.08031	0.642	0.00644	1.21038	0.8904
110	3.92588	596.02	7.380	9622.29	0.0052863	0.07915	0.617	0.00640	1.20446	0.8839
115	3.82301	602.22	7.091	9054.46	0.0053178	0.07820	0.594	0.00639	1.19867	0.8764
120	3.72230	608.57	6.802	8515.71	0.0053555	0.07734	0.575	0.00638	1.19302	0.8717
125	3.62387	617.07	6.516	8052.77	0.0053670	0.87658	0.557	0.00638	1.18753	0.8673
130	3.52802	628.01	6.234	7661.98	0.0053487	0.07593	0.542	0.00641	1.18220	0.8626
135	3.43512	639.72	5.960	7299.83	0.0053301	0.07538	0.528	0.00644	1.17706	0.8599
140	3.34512	653.91	5.694	6996.27	0.0052853	0.07493	0.516	0.00648	1.17209	0.8571
150	3.17451	686.22	5.195	6478.67	0.0051749	0.07522	0.497	0.00667	1.16274	0.8443
160	3.01656	724.46	4.744	6073.72	0.0050303	0.07626	0.482	0.00694	1.15415	0.8299
180	2.72858	822.38	3.997	5568.47	0.0045835	0.07770	0.458	0.00755	1.13862	0.8001
200	2.49753	922.47	3.493	5185.34	0.0042666	0.08377	0.476	0.00852	1.12629	0.8044
220	2.30025	1030.37	3.114	4910.03	0.0039649	0.08860	0.486	0.00943	1.11586	0.8064
240	2.13097	1138.09	2.846	4709.15	0.0036826	0.09240	0.492	0.01035	1.10698	0.8038
260	1.98467	1241.12	2.664	4559.53	0.0034239	0.09533	0.497	0.01130	1.09936	0.7976
280	1.85791	1336.62	2.543	4445.31	0.0031904	0.09753	0.501	0.01231	1.09278	0.7890
300	1.74677	1424.24	2.466	4355.77	0.0029818	0.09917	0.506	0.01337	1.08704	0.7794
320	1.64877	1504.09	2.420	4283.72	0.0027961	0.10038	0.510	0.01448	1.08201	0.7696
340	1.56172	1577.44	2.395	4224.31	0.0026310	0.10130	0.515	0.01563	1.07755	0.7602
360	1.48389	1645.52	2.384	4174.25	0.0024839	0.10203	0.521	0.01682	1.07358	0.7514
380	1.41387	1709.57	2.384	4131.25	0.0023525	0.10266	0.527	0.01805	1.07001	0.7434
400	1.35051	1771.34	2.388	4093.72	0.0022347	0.10329	0.534	0.01932	1.06679	0.7362
420	1.29287	1831.52	2.395	4060.53	0.0021285	0.10394	0.540	0.02062	1.06387	0.7298
440	1.24020	1891.05	2.403	4030.84	0.0020325	0.10464	0.548	0.02195	1.06121	0.7242
460	1.19185	1950.78	2.410	4004.04	0.0019452	0.10544	0.555	0.02331	1.05877	0.7193
480	1.14730	2010.78	2.416	3979.65	0.0018655	0.10633	0.563	0.02471	1.05653	0.7150
500	1.10610	2071.59	2.421	3957.31	0.0017925	0.10731	0.571	0.02613	1.05446	0.7113
520	1.06788	2133.26	2.424	3936.74	0.0017254	0.10839	0.579	0.02758	1.05254	0.7081
540	1.03230	2195.65	2.426	3917.70	0.0016634	0.10954	0.588	0.02905	1.05075	0.7053
560	0.99910	2259.43	2.425	3900.02	0.0016060	0.11079	0.596	0.03056	1.04909	0.7029
580	0.96804	2323.92	2.424	3883.52	0.0015527	0.11211	0.605	0.03209	1.04754	0.7008
600	0.93892	2389.25	2.422	3868.10	0.0015030	0.11349	0.614	0.03366	1.04608	0.6989
650	0.87342	2555.42	2.412	3833.54	0.0013924	0.11716	0.636	0.03770	1.04282	0.6952
700	0.81666	2724.94	2.399	3803.70	0.0012978	0.12109	0.659	0.04193	1.03999	0.6925
800	0.72305	3071.21	2.370	3754.67	0.0011438	0.12942	0.705	0.05095	1.03535	0.6890
900	0.64895	3420.29	2.343	3716.03	0.0010235	0.13799	0.752	0.06074	1.03168	0.6868
1000	0.58875	3772.38	2.319	3684.80	0.0009267	0.14671	0.799	0.07128	1.02871	0.6854
1500	0.40264	5590.25	2.214	3589.68	0.0006313	0.19127	1.029	0.13461	1.01957	0.6833
2000	0.30609	7577.55	2.095	3541.64	0.0004796	0.27727	1.246	0.24934	1.01485	0.5876
2500	0.24691	9758.03	1.973	3512.84	0.0003866	0.33494	1.451	0.35957	1.01197	0.5882
3000	0.20691	12064.03	1.871	3493.69	0.0003240	0.39275	1.645	0.48568	1.01002	0.5895
3500	0.17806	14488.01	1.784	3479.95	0.0002788	0.45161	1.832	0.62790	1.00862	0.5898
4000	0.15625	17152.17	1.694	3469.16	0.0002447	0.51797	2.011	0.78973	1.00756	0.5866
5000	0.12525	24415.61	1.436	3447.00	0.0001971	0.73541	2.354	1.22031	1.00606	0.5544

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

3600 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 36.879	0.18399	5725.68	91.469	-122.531	0.121	1.30196	1.320	1.658	5772
38	0.18460	5657.92	91.350	-121.061	1.999	1.35210	1.338	1.691	5757
40	0.18572	5537.41	91.077	-118.365	5.440	1.44035	1.367	1.750	5730
42	0.18687	5417.53	90.730	-115.576	8.997	1.52710	1.394	1.807	5703
44	0.18806	5298.37	90.308	-112.698	12.666	1.61245	1.420	1.863	5676
46	0.18928	5180.07	89.811	-109.732	16.448	1.69650	1.443	1.919	5648
48	0.19054	5062.77	89.241	-106.680	20.340	1.77932	1.466	1.974	5619
50	0.19184	4946.60	88.599	-103.543	24.344	1.86103	1.489	2.029	5589
52	0.19318	4831.71	87.885	-100.322	28.457	1.94169	1.510	2.084	5559
54	0.19456	4718.26	87.100	-97.019	32.678	2.02134	1.528	2.137	5528
56	0.19598	4606.40	86.247	-93.637	37.005	2.10002	1.547	2.190	5497
58	0.19744	4496.32	85.326	-90.177	41.438	2.17779	1.564	2.242	5464
60	0.19896	4388.68	84.253	-86.636	45.994	2.25502	1.580	2.293	5427
62	0.20050	4279.00	83.164	-83.032	50.626	2.33095	1.594	2.340	5395
64	0.20208	4174.75	82.017	-79.361	55.353	2.40599	1.606	2.386	5360
66	0.20371	4078.40	80.821	-75.627	60.170	2.48010	1.618	2.430	5327
68	0.20538	3981.49	79.595	-71.834	65.074	2.55330	1.628	2.473	5294
70	0.20708	3885.67	78.338	-67.986	70.060	2.62556	1.635	2.513	5260
75	0.21153	3670.86	75.053	-58.156	82.858	2.80213	1.650	2.604	5180
80	0.21624	3469.00	71.698	-48.055	96.093	2.97294	1.664	2.690	5098
85	0.22120	3286.06	68.336	-37.694	109.760	3.13889	1.680	2.774	5014
90	0.22641	3122.65	65.024	-27.097	123.833	3.29975	1.697	2.853	4932
95	0.23187	2972.79	61.795	-16.282	138.289	3.45605	1.713	2.928	4851
100	0.23758	2838.59	58.665	-5.162	153.213	3.60917	1.731	2.998	4773
105	0.24352	2722.86	55.646	6.010	168.349	3.75686	1.745	3.056	4700
110	0.24970	2617.83	52.769	17.321	183.775	3.90038	1.762	3.113	4629
115	0.25609	2526.35	50.053	28.764	199.481	4.04000	1.788	3.168	4560
120	0.26269	2449.82	47.504	40.342	215.458	4.17600	1.808	3.220	4496
125	0.26949	2380.25	45.104	52.057	231.702	4.30860	1.837	3.274	4433
130	0.27646	2318.37	42.859	63.912	248.206	4.43806	1.870	3.328	4372
135	0.28360	2271.69	40.745	75.915	264.969	4.56459	1.908	3.377	4316
140	0.29089	2228.37	38.784	88.070	281.982	4.68833	1.949	3.429	4262
150	0.30585	2169.41	35.250	112.875	316.763	4.92826	2.040	3.528	4169
160	0.32124	2135.95	32.195	138.387	352.532	5.15907	2.142	3.625	4093
180	0.35409	2144.46	26.907	189.928	425.370	5.59544	2.347	3.758	3988
200	0.38585	2172.83	23.369	245.590	502.805	6.00001	2.542	3.928	3944
220	0.41806	2224.88	20.595	304.266	582.352	6.38186	2.724	4.081	3930
240	0.45049	2294.62	18.367	365.453	665.763	6.74186	2.865	4.191	3943
260	0.48299	2377.20	16.546	428.288	750.257	7.08019	2.958	4.252	3979
280	0.51541	2468.82	15.039	491.974	835.558	7.39616	3.007	4.269	4030
300	0.54770	2566.65	13.776	555.698	920.805	7.69038	3.020	4.252	4092
320	0.57980	2668.66	12.706	618.966	1005.476	7.96364	3.007	4.212	4162
340	0.61172	2773.40	11.790	681.395	1089.178	8.21708	2.976	4.157	4236
360	0.64343	2879.91	10.998	742.763	1171.691	8.45298	2.935	4.094	4314
380	0.67496	2987.50	10.308	802.968	1252.914	8.67258	2.888	4.028	4394
400	0.70632	3095.74	9.702	861.990	1332.837	8.87765	2.841	3.965	4474
420	0.73751	3204.30	9.165	919.876	1411.516	9.06957	2.795	3.904	4553
440	0.76855	3313.01	8.687	976.714	1489.049	9.24997	2.753	3.849	4632
460	0.79946	3421.73	8.257	1032.590	1565.530	9.41996	2.715	3.800	4710
480	0.83025	3530.39	7.870	1087.620	1641.085	9.58053	2.681	3.756	4787
500	0.86093	3638.92	7.519	1141.904	1715.820	9.73325	2.652	3.718	4862
520	0.89152	3747.31	7.199	1195.541	1789.845	9.87854	2.627	3.685	4935
540	0.92201	3855.55	6.906	1248.615	1863.248	10.01706	2.605	3.656	5007
560	0.95243	3963.61	6.637	1301.140	1936.049	10.14895	2.587	3.633	5078
580	0.98277	4071.52	6.389	1353.334	2008.472	10.27588	2.572	3.612	5147
600	1.01305	4179.28	6.160	1405.228	2080.552	10.39813	2.559	3.594	5215
650	1.08852	4448.04	5.654	1533.704	2259.333	10.68462	2.536	3.561	5379
700	1.16370	4716.04	5.228	1661.057	2436.805	10.94792	2.521	3.539	5538
800	1.31345	5250.31	4.548	1913.596	2789.170	11.41877	2.508	3.514	5838
900	1.46263	5783.02	4.027	2165.002	3140.024	11.83172	2.502	3.502	6123
1000	1.61144	6314.80	3.615	2415.604	3489.825	12.20007	2.502	3.497	6395
1500	2.35289	8969.06	2.399	3674.382	5242.873	13.62099	2.543	3.529	7594
2000	3.09281	11623.08	1.797	4969.615	7031.350	14.64784	2.648	3.633	8595
2500	3.83230	14278.65	1.438	6327.948	8882.648	15.47345	2.788	3.773	9460
3000	4.57168	16935.55	1.198	7756.678	10804.260	16.16420	2.924	3.908	10241
3500	5.31116	19593.44	1.027	9257.025	12797.562	16.76135	3.054	4.039	10957
4000	6.05151	22252.05	0.8988	10827.094	14861.167	17.52509	3.206	4.196	11615
5000	7.54731	27570.75	0.7192	14292.710	19323.920	19.35342	3.765	4.798	12758

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

3600 PSIA ISOBAR

TEMPERATURE	DENSITY	$V(\partial H/\partial V)_p$	$V(\partial P/\partial U)_v$	$-V(\partial P/\partial V)_T$	$(\partial V/\partial T)_p/V$	THERMAL CONDUCTIVITY	VISCOSITY	THERMAL DIFFUSIVITY	DIELECTRIC CONSTANT	PRANDTL NUMBER
DEG. R	LB/CU FT	BTU/LB	PSIA-CU FT/BTU	PSIA	1/DEG. R	BTU/FT-HR-R	LB/FT-SEC X 10^5	SQ FT/HR		
* 36.879	5.43587	564.14	12.746	31119.49	0.0029393	0.08251	2.734	0.00916	1.29271	1.9780
38	5.41707	567.45	12.607	30649.31	0.0029805	0.08450	2.567	0.00922	1.29162	1.8496
40	5.38447	572.81	12.373	29816.05	0.0030546	0.08756	2.314	0.00929	1.28965	1.6650
42	5.35128	577.23	12.164	28990.67	0.0031296	0.09006	2.107	0.00932	1.28765	1.5219
44	5.31748	581.23	11.964	28173.99	0.0032054	0.09209	1.936	0.00930	1.28561	1.4098
46	5.28310	584.65	11.777	27366.84	0.0032817	0.09371	1.791	0.00924	1.28354	1.3203
48	5.24814	587.69	11.597	26570.09	0.0033587	0.09496	1.668	0.00917	1.28144	1.2484
50	5.21260	590.59	11.418	25784.62	0.0034361	0.09593	1.563	0.00907	1.27930	1.1902
52	5.17650	593.08	11.247	25011.32	0.0035138	0.09665	1.471	0.00896	1.27714	1.1420
54	5.13984	595.02	11.087	24251.11	0.0035916	0.09717	1.391	0.00885	1.27495	1.1016
56	5.10266	596.87	10.926	23504.91	0.0036693	0.09710	1.321	0.00869	1.27273	1.0727
58	5.06496	598.46	10.769	22773.67	0.0037467	0.09689	1.259	0.00853	1.27048	1.0485
60	5.02619	599.12	10.610	22018.12	0.0038265	0.09657	1.202	0.00838	1.26818	1.0275
62	4.98754	600.48	10.461	21341.67	0.0038968	0.09621	1.152	0.00824	1.26588	1.0091
64	4.94844	601.04	10.318	20658.52	0.0039701	0.09576	1.107	0.00811	1.26357	0.9934
66	4.90897	602.01	10.176	20020.74	0.0040369	0.09526	1.067	0.00798	1.26123	0.9796
68	4.86914	602.30	10.043	19386.40	0.0041057	0.09470	1.029	0.00786	1.25888	0.9677
70	4.82899	601.97	9.920	18763.85	0.0041750	0.09410	0.995	0.00775	1.25651	0.9571
75	4.72736	601.99	9.622	17353.46	0.0043250	0.09243	0.922	0.00751	1.25055	0.9347
80	4.62457	601.93	9.319	16042.63	0.0044692	0.09066	0.861	0.00729	1.24454	0.9197
85	4.52088	603.14	8.997	14855.87	0.0045999	0.08885	0.810	0.00708	1.23851	0.9102
90	4.41678	605.23	8.677	13792.04	0.0047146	0.08707	0.766	0.00691	1.23248	0.9034
95	4.31272	607.55	8.362	12820.81	0.0048197	0.08535	0.728	0.00676	1.22649	0.8988
100	4.20914	610.53	8.054	11948.02	0.0049100	0.08372	0.694	0.00663	1.22055	0.8951
105	4.10636	614.13	7.765	11181.03	0.0049768	0.08219	0.665	0.00655	1.21469	0.8902
110	4.00483	618.54	7.476	10483.95	0.0050333	0.08103	0.639	0.00650	1.20893	0.8837
115	3.90486	624.41	7.188	9865.05	0.0050738	0.08007	0.616	0.00647	1.20327	0.8771
120	3.80674	632.22	6.902	9325.83	0.0050938	0.07921	0.595	0.00646	1.19775	0.8712
125	3.71077	641.09	6.616	8832.58	0.0051065	0.07844	0.577	0.00646	1.19238	0.8670
130	3.61718	651.19	6.335	8385.97	0.0051108	0.07777	0.561	0.00646	1.18715	0.8641
135	3.52610	663.88	6.058	8010.21	0.0050866	0.07719	0.547	0.00648	1.18209	0.8607
140	3.43776	677.35	5.790	7660.61	0.0050628	0.07672	0.534	0.00651	1.17720	0.8592
150	3.26954	709.96	5.285	7092.98	0.0049697	0.07698	0.513	0.00667	1.16794	0.8468
160	3.11295	748.72	4.829	6649.12	0.0048420	0.07799	0.497	0.00691	1.15938	0.8325
180	2.82417	845.83	4.059	6056.32	0.0044428	0.07938	0.469	0.00748	1.14375	0.7993
200	2.59169	946.46	3.547	5631.32	0.0041498	0.08542	0.486	0.00839	1.13130	0.8047
220	2.39202	1054.59	3.161	5321.97	0.0038698	0.09017	0.496	0.00924	1.12071	0.8079
240	2.21979	1162.15	2.888	5093.57	0.0036059	0.09386	0.502	0.01009	1.11164	0.8062
260	2.07046	1264.72	2.702	4921.88	0.0033618	0.09667	0.506	0.01098	1.10382	0.8004
280	1.94020	1359.58	2.578	4798.00	0.0031397	0.09876	0.509	0.01192	1.09704	0.7921
300	1.82583	1446.53	2.498	4686.27	0.0029396	0.10028	0.513	0.01292	1.09112	0.7826
320	1.72472	1525.72	2.456	4602.70	0.0027605	0.10139	0.517	0.01396	1.08591	0.7727
340	1.63475	1598.47	2.423	4533.81	0.0026004	0.10222	0.521	0.01504	1.08129	0.7630
360	1.55416	1666.03	2.411	4475.85	0.0024573	0.10288	0.526	0.01617	1.07716	0.7540
380	1.48156	1729.62	2.409	4426.17	0.0023290	0.10345	0.532	0.01733	1.07346	0.7457
400	1.41579	1791.01	2.412	4382.92	0.0022136	0.10402	0.538	0.01853	1.07011	0.7383
420	1.35592	1850.86	2.418	4344.77	0.0021095	0.10463	0.545	0.01976	1.06707	0.7317
440	1.30115	1910.12	2.425	4310.72	0.0020151	0.10530	0.552	0.02103	1.06429	0.7259
460	1.25084	1969.63	2.431	4280.04	0.0019293	0.10607	0.559	0.02232	1.06175	0.7208
480	1.20445	2029.44	2.437	4252.19	0.0018508	0.10693	0.566	0.02363	1.05941	0.7164
500	1.16153	2090.11	2.441	4226.72	0.0017789	0.10789	0.574	0.02498	1.05725	0.7125
520	1.12169	2151.66	2.443	4203.31	0.0017127	0.10895	0.582	0.02636	1.05524	0.7092
540	1.08459	2213.95	2.445	4181.67	0.0016515	0.11008	0.591	0.02776	1.05338	0.7063
560	1.04995	2277.71	2.443	4161.60	0.0015948	0.11133	0.599	0.02919	1.05164	0.7038
580	1.01753	2342.88	2.441	4142.90	0.0015422	0.11263	0.608	0.03065	1.05001	0.7016
600	0.98711	2407.36	2.438	4125.43	0.0014931	0.11401	0.616	0.03213	1.04849	0.6996
650	0.91868	2573.45	2.427	4086.33	0.0013837	0.11767	0.639	0.03597	1.04507	0.6958
700	0.85933	2742.93	2.413	4052.63	0.0012981	0.12160	0.661	0.03999	1.04212	0.6930
800	0.76135	3089.18	2.382	3997.35	0.0011376	0.12995	0.708	0.04857	1.03725	0.6892
900	0.68370	3438.26	2.354	3953.85	0.0010185	0.13857	0.755	0.05787	1.03340	0.6869
1000	0.62056	3790.35	2.329	3918.73	0.0009226	0.14734	0.802	0.06790	1.03028	0.6855
1500	0.42501	5608.29	2.220	3811.93	0.0006293	0.19223	1.034	0.12815	1.02067	0.6833
2000	0.32333	7595.94	2.099	3758.10	0.0004783	0.27727	1.253	0.23604	1.01569	0.5909
2500	0.26094	9776.96	1.976	3725.87	0.0003859	0.33494	1.460	0.34023	1.01265	0.5919
3000	0.21874	12083.35	1.873	3704.45	0.0003234	0.39274	1.656	0.45941	1.01060	0.5933
3500	0.18828	14506.61	1.786	3689.11	0.0002784	0.45153	1.844	0.59378	1.00912	0.5938
4000	0.16525	17165.71	1.696	3677.11	0.0002444	0.51761	2.025	0.74653	1.00800	0.5909
5000	0.13250	24371.46	1.442	3653.05	0.0001969	0.73205	2.371	1.15152	1.00641	0.5594

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

3800 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / L3 -R	CP	VELOCITY OF SOUND FT/SEC
• 37.443	0.18313	5870.54	92.172	-121.739	7.121	1.30739	1.327	1.664	5839
38	0.18342	5837.20	92.120	-121.014	8.053	1.33209	1.336	1.680	5832
40	0.18450	5717.88	91.885	-118.356	11.470	1.41972	1.365	1.737	5806
42	0.18561	5599.15	91.576	-115.606	15.001	1.50585	1.392	1.793	5781
44	0.18676	5481.13	91.192	-112.769	18.643	1.59055	1.418	1.849	5755
46	0.18793	5363.94	90.735	-109.846	22.395	1.67394	1.442	1.903	5728
48	0.18915	5247.70	90.205	-106.838	26.256	1.75609	1.464	1.958	5701
50	0.19039	5132.56	89.604	-103.746	30.226	1.83711	1.487	2.012	5672
52	0.19168	5018.64	88.931	-100.572	34.303	1.91708	1.508	2.066	5643
54	0.19300	4906.09	88.189	-97.317	38.487	1.99601	1.527	2.118	5614
56	0.19436	4795.07	87.379	-93.986	42.774	2.07397	1.546	2.170	5584
58	0.19575	4685.73	86.501	-90.577	47.165	2.15101	1.564	2.221	5553
60	0.19719	4578.24	85.559	-87.094	51.656	2.22714	1.580	2.270	5521
62	0.19868	4460.88	84.365	-83.536	56.265	2.30269	1.595	2.318	5480
64	0.20019	4362.75	83.262	-79.919	60.945	2.37697	1.608	2.362	5450
66	0.20174	4260.18	82.103	-76.239	65.714	2.45036	1.620	2.407	5415
68	0.20332	4167.07	80.902	-72.501	70.569	2.52282	1.630	2.448	5384
70	0.20495	4071.60	79.678	-68.710	75.504	2.59435	1.638	2.487	5352
75	0.20918	3849.93	76.511	-59.021	88.169	2.76908	1.654	2.578	5273
80	0.21364	3651.36	73.226	-49.064	101.266	2.93811	1.668	2.661	5195
85	0.21833	3464.35	69.942	-38.848	114.784	3.10226	1.685	2.744	5113
90	0.22326	3299.42	66.693	-28.397	128.701	3.26133	1.702	2.822	5034
95	0.22841	3148.44	63.511	-17.726	142.997	3.41590	1.719	2.895	4956
100	0.23378	3013.09	60.421	-6.746	157.757	3.56734	1.736	2.963	4880
105	0.23937	2892.10	57.453	4.288	172.723	3.71336	1.751	3.023	4809
110	0.24516	2781.82	54.587	15.469	187.980	3.85531	1.769	3.080	4737
115	0.25115	2688.62	51.870	26.789	203.516	3.99343	1.790	3.134	4670
120	0.25733	2600.91	49.312	38.249	219.324	4.12798	1.815	3.191	4603
125	0.26369	2532.47	46.917	49.856	235.406	4.25927	1.844	3.243	4542
130	0.27022	2470.39	44.648	61.615	251.756	4.38751	1.877	3.295	4483
135	0.27689	2415.13	42.526	73.530	268.368	4.51290	1.914	3.350	4425
140	0.28371	2371.43	40.522	85.611	285.247	4.63566	1.955	3.400	4371
150	0.29771	2302.24	35.922	110.291	319.776	4.87385	2.047	3.505	4273
160	0.31211	2257.90	33.790	135.718	355.335	5.10331	2.148	3.608	4191
180	0.34302	2248.54	28.263	187.337	428.708	5.53895	2.354	3.747	4072
200	0.37289	2270.23	24.592	242.960	505.349	5.94250	2.548	3.919	4023
220	0.40321	2316.25	21.706	301.646	585.365	6.32372	2.729	4.076	4003
240	0.43377	2380.64	19.380	362.885	668.112	6.68345	2.870	4.189	4012
260	0.46443	2458.60	17.473	425.806	752.604	7.02176	2.963	4.253	4043
280	0.49506	2546.36	15.890	489.600	837.951	7.33790	3.012	4.272	4090
300	0.52558	2641.01	14.560	553.446	923.276	7.63239	3.025	4.257	4149
320	0.55596	2740.41	13.431	616.840	1008.047	7.90598	3.011	4.217	4216
340	0.58618	2843.05	12.464	679.395	1091.862	8.15976	2.980	4.163	4289
360	0.61622	2947.84	11.627	740.887	1174.492	8.39600	2.939	4.100	4365
380	0.64609	3054.03	10.897	801.209	1255.834	8.61591	2.892	4.034	4443
400	0.67580	3161.10	10.256	860.343	1335.875	8.82128	2.845	3.970	4521
420	0.70536	3268.71	9.687	918.335	1414.667	9.01348	2.799	3.910	4599
440	0.73478	3376.60	9.180	975.272	1492.308	9.19413	2.756	3.854	4677
460	0.76408	3484.64	8.726	1031.241	1568.892	9.36435	2.718	3.805	4754
480	0.79327	3592.70	8.316	1086.357	1644.544	9.52513	2.684	3.761	4829
500	0.82235	3700.71	7.944	1140.721	1719.371	9.67803	2.655	3.722	4903
520	0.85133	3808.65	7.605	1194.432	1793.480	9.82349	2.629	3.689	4976
540	0.88024	3916.47	7.295	1247.576	1866.963	9.96216	2.607	3.660	5047
560	0.90907	4024.18	7.011	1300.166	1939.838	10.09419	2.590	3.636	5116
580	0.93783	4131.75	6.748	1352.421	2012.331	10.22124	2.574	3.615	5185
600	0.96653	4239.20	6.505	1404.372	2084.476	10.34360	2.561	3.598	5252
650	1.03805	4507.30	5.971	1532.973	2263.402	10.63032	2.538	3.564	5415
700	1.10929	4774.72	5.520	1660.434	2440.995	10.89380	2.523	3.541	5572
800	1.25119	5308.02	4.801	1913.144	2793.551	11.36491	2.509	3.516	5870
900	1.39253	5839.93	4.251	2164.678	3144.545	11.77803	2.503	3.503	6153
1000	1.53352	6371.00	3.816	2415.380	3494.451	12.14648	2.503	3.498	6423
1500	2.23593	9022.73	2.532	3674.429	5247.758	13.56762	2.543	3.530	7616
2000	2.93686	11675.16	1.897	4969.779	7036.322	14.59453	2.649	3.633	8613
2500	3.63740	14329.65	1.517	6328.172	8867.655	15.42015	2.789	3.773	9477
3000	4.33783	16985.77	1.264	7756.930	10809.274	16.11090	2.924	3.908	10255
3500	5.03836	19643.07	1.084	9257.223	12802.500	16.72803	3.053	4.038	10971
4000	5.73970	22301.22	0.9486	10826.889	14865.671	17.47166	3.205	4.194	11628
5000	7.15634	27619.25	0.7590	14287.039	19322.650	19.29874	3.753	4.785	12772

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

3800 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 37.443	5.46064	578.57	12.720	32056.87	0.0028753	0.08453	2.790	0.00931	1.29427	1.9766
38	5.45186	580.28	12.652	31823.64	0.0028947	0.08552	2.703	0.00934	1.29373	1.9114
40	5.42001	585.96	12.420	30990.98	0.0029649	0.08866	2.431	0.00942	1.29180	1.7152
42	5.38759	590.69	12.212	30165.91	0.0030357	0.09124	2.209	0.00944	1.28984	1.5632
44	5.35459	595.00	12.014	29349.22	0.0031071	0.09334	2.025	0.00943	1.28785	1.4442
46	5.32104	598.73	11.828	28541.73	0.0031790	0.09502	1.871	0.00938	1.28582	1.3493
48	5.28693	602.08	11.650	27744.26	0.0032513	0.09632	1.740	0.00931	1.28377	1.2730
50	5.25229	605.32	11.473	26957.66	0.0033239	0.09734	1.628	0.00921	1.28168	1.2112
52	5.21711	608.14	11.303	26182.78	0.0033966	0.09811	1.531	0.00910	1.27957	1.1601
54	5.18141	610.42	11.144	25420.48	0.0034692	0.09867	1.446	0.00899	1.27743	1.1172
56	5.14521	612.62	10.985	24671.65	0.0035417	0.09863	1.372	0.00883	1.27527	1.0862
58	5.10852	614.56	10.829	23937.18	0.0036137	0.09846	1.306	0.00868	1.27308	1.0602
60	5.07137	616.12	10.680	23217.97	0.0036850	0.09818	1.247	0.00853	1.27086	1.0381
62	5.03378	616.91	10.509	22452.89	0.0037574	0.09782	1.194	0.00838	1.26860	1.0185
64	4.99531	618.36	10.367	21793.28	0.0038205	0.09740	1.147	0.00825	1.26634	1.0013
66	4.95694	619.06	10.225	21117.45	0.0038879	0.09691	1.104	0.00812	1.26407	0.9869
68	4.91826	620.06	10.091	20494.72	0.0039475	0.09637	1.065	0.00801	1.26178	0.9737
70	4.87926	620.87	9.970	19866.42	0.0040107	0.09579	1.029	0.00789	1.25948	0.9621
75	4.78060	620.04	9.679	18404.95	0.0041571	0.09416	0.953	0.00764	1.25367	0.9388
80	4.68076	621.06	9.379	17091.17	0.0042844	0.09241	0.889	0.00742	1.24782	0.9220
85	4.58013	622.53	9.063	15867.17	0.0044080	0.09063	0.836	0.00721	1.24195	0.9118
90	4.47910	625.29	8.748	14778.43	0.0045129	0.08886	0.791	0.00703	1.23609	0.9044
95	4.37808	628.29	8.439	13784.09	0.0046075	0.08715	0.752	0.00688	1.23025	0.8991
100	4.27747	631.97	8.134	12888.39	0.0046880	0.08552	0.718	0.00675	1.22447	0.8949
105	4.17764	635.71	7.852	12082.16	0.0047552	0.08399	0.687	0.00665	1.21875	0.8906
110	4.07892	640.31	7.565	11346.80	0.0048108	0.08263	0.661	0.00659	1.21313	0.8843
115	3.98161	646.83	7.278	10705.04	0.0048453	0.08188	0.637	0.00656	1.20761	0.8774
120	3.88601	653.93	6.992	10107.15	0.0048789	0.08100	0.616	0.00653	1.20221	0.8727
125	3.79227	663.77	6.710	9603.80	0.0048852	0.08022	0.597	0.00652	1.19694	0.8681
130	3.70071	674.77	6.428	9142.19	0.0048837	0.07954	0.580	0.00652	1.19181	0.8648
135	3.61150	687.00	6.151	8722.23	0.0048756	0.07895	0.565	0.00653	1.18684	0.8627
140	3.52469	701.38	5.880	8358.55	0.0048480	0.07845	0.552	0.00655	1.18201	0.8606
150	3.35899	734.04	5.370	7733.19	0.0047745	0.07868	0.529	0.00668	1.17286	0.8490
160	3.20402	772.42	4.909	7234.37	0.0046707	0.07966	0.513	0.00689	1.16436	0.8357
180	2.91525	869.04	4.119	6555.06	0.0043116	0.08104	0.488	0.00742	1.14866	0.7985
200	2.66174	970.30	3.600	6048.16	0.0040393	0.08705	0.497	0.00828	1.13611	0.8050
220	2.48012	1078.80	3.207	5744.58	0.0037785	0.09173	0.506	0.00907	1.12537	0.8092
240	2.30536	1186.32	2.929	5488.22	0.0035311	0.09532	0.511	0.00987	1.11613	0.8083
260	2.15319	1288.52	2.738	5293.83	0.0033006	0.09802	0.514	0.01070	1.10814	0.8031
280	2.01997	1382.81	2.612	5143.56	0.0030892	0.09998	0.517	0.01159	1.10119	0.7950
300	1.90265	1469.11	2.530	5024.91	0.0028976	0.10140	0.520	0.01252	1.09510	0.7855
320	1.79868	1547.65	2.480	4929.13	0.0027249	0.10241	0.523	0.01350	1.08972	0.7755
340	1.70597	1619.79	2.451	4850.16	0.0025698	0.10316	0.527	0.01453	1.08495	0.7658
360	1.62280	1686.80	2.438	4783.76	0.0024306	0.10375	0.532	0.01559	1.08068	0.7565
380	1.54777	1749.91	2.435	4726.94	0.0023054	0.10425	0.537	0.01670	1.07684	0.7480
400	1.47973	1810.89	2.436	4677.57	0.0021925	0.10478	0.543	0.01783	1.07336	0.7404
420	1.41771	1870.39	2.441	4634.09	0.0020904	0.10534	0.549	0.01900	1.07021	0.7336
440	1.36094	1929.36	2.447	4595.37	0.0019978	0.10597	0.556	0.02020	1.06732	0.7276
460	1.30876	1988.63	2.453	4560.55	0.0019133	0.10671	0.563	0.02143	1.06468	0.7223
480	1.26061	2048.25	2.458	4528.99	0.0018361	0.10754	0.570	0.02268	1.06224	0.7177
500	1.21603	2108.75	2.461	4500.19	0.0017652	0.10848	0.578	0.02396	1.05999	0.7137
520	1.17463	2170.16	2.462	4473.74	0.0017000	0.10952	0.586	0.02527	1.05790	0.7103
540	1.13605	2232.35	2.463	4449.33	0.0016396	0.11064	0.594	0.02661	1.05596	0.7072
560	1.10003	2296.03	2.461	4426.71	0.0015837	0.11187	0.602	0.02797	1.05415	0.7046
580	1.06629	2360.33	2.458	4405.66	0.0015317	0.11317	0.611	0.02936	1.05246	0.7023
600	1.03463	2425.55	2.455	4386.01	0.0014832	0.11453	0.619	0.03077	1.05087	0.7003
650	0.96335	2591.55	2.442	4342.10	0.0013751	0.11819	0.641	0.03443	1.04730	0.6963
700	0.90148	2760.98	2.427	4304.29	0.0012825	0.12212	0.664	0.03826	1.04422	0.6934
800	0.79924	3107.20	2.394	4242.38	0.0011316	0.13049	0.711	0.04643	1.03913	0.6895
900	0.71812	3456.26	2.365	4193.74	0.0010136	0.13914	0.758	0.05531	1.03510	0.6871
1000	0.65210	3808.34	2.338	4154.50	0.0009185	0.14796	0.806	0.06487	1.03184	0.6856
1500	0.44724	5626.33	2.226	4035.34	0.0006273	0.19319	1.039	0.12238	1.02176	0.6833
2000	0.34050	7614.30	2.103	3975.39	0.0004772	0.27727	1.260	0.22413	1.01653	0.5942
2500	0.27492	9795.84	1.979	3939.53	0.0003851	0.33494	1.469	0.32292	1.01333	0.5955
3000	0.23053	12102.61	1.876	3915.73	0.0003229	0.39273	1.667	0.43591	1.01117	0.5972
3500	0.19848	14525.25	1.789	3898.70	0.0002780	0.45147	1.857	0.56325	1.00961	0.5979
4000	0.17423	17179.72	1.699	3885.43	0.0002441	0.51728	2.039	0.70789	1.00843	0.5953
5000	0.13974	24332.48	1.447	3859.41	0.0001967	0.72896	2.388	1.09011	1.00676	0.5645

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

4000 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / L3 -R	CP	VELOCITY OF SOUND FT/SEC
• 38.000	0.18229	6013.85	92.869	-120.935	14.090	1.31274	1.334	1.669	5905
38	0.18229	6013.82	92.869	-120.934	14.090	1.31276	1.334	1.669	5905
40	0.18334	5895.62	92.669	-118.311	17.485	1.39981	1.363	1.726	5860
42	0.18441	5777.99	92.396	-115.598	20.992	1.48535	1.390	1.781	5856
44	0.18551	5661.06	92.050	-112.799	24.608	1.56945	1.416	1.835	5831
46	0.18665	5544.92	91.630	-109.916	28.332	1.65222	1.440	1.889	5806
48	0.18781	5429.71	91.139	-106.949	32.163	1.73375	1.463	1.942	5780
50	0.18902	5315.55	90.576	-103.901	36.102	1.81413	1.485	1.996	5752
52	0.19025	5202.56	89.943	-100.770	40.146	1.89344	1.507	2.049	5725
54	0.19152	5090.89	89.241	-97.562	44.295	1.97172	1.526	2.100	5697
56	0.19282	4980.68	88.471	-94.277	48.545	2.04900	1.545	2.151	5668
58	0.19416	4872.08	87.635	-90.916	52.897	2.12536	1.563	2.201	5638
60	0.19553	4765.23	86.733	-87.482	57.348	2.20081	1.579	2.250	5608
62	0.19694	4660.30	85.769	-83.979	61.896	2.27536	1.595	2.298	5577
64	0.19839	4557.46	84.743	-80.408	66.537	2.34904	1.609	2.344	5546
66	0.19989	4446.56	83.342	-76.775	71.279	2.42199	1.621	2.384	5504
68	0.20140	4345.51	82.168	-73.087	76.088	2.49378	1.632	2.426	5470
70	0.20295	4255.38	80.964	-69.347	80.976	2.56463	1.640	2.463	5440
75	0.20698	4028.28	77.881	-59.791	93.518	2.73766	1.657	2.553	5362
80	0.21123	3830.12	74.669	-49.965	106.489	2.90506	1.672	2.634	5287
85	0.21568	3641.35	71.458	-39.884	119.871	3.06755	1.690	2.716	5208
90	0.22035	3473.67	68.260	-29.567	133.646	3.22561	1.707	2.793	5131
95	0.22523	3319.55	65.141	-19.029	147.795	3.37999	1.725	2.865	5055
100	0.23030	3182.34	62.108	-8.181	162.403	3.52767	1.742	2.933	4982
105	0.23558	3058.66	59.160	2.727	177.218	3.67242	1.757	2.992	4912
110	0.24104	2946.45	56.327	13.788	192.323	3.81295	1.775	3.050	4842
115	0.24668	2849.12	53.610	24.994	207.706	3.94971	1.797	3.104	4775
120	0.25249	2758.81	51.043	36.345	223.360	4.08295	1.821	3.159	4708
125	0.25846	2683.01	48.629	47.849	239.290	4.21300	1.850	3.213	4646
130	0.26459	2616.87	46.383	59.513	255.494	4.34010	1.884	3.269	4587
135	0.27086	2560.81	44.229	71.345	271.972	4.46447	1.921	3.322	4530
140	0.27727	2512.21	42.217	83.353	288.721	4.58630	1.962	3.376	4475
150	0.29040	2434.32	38.549	107.911	323.011	4.82283	2.054	3.484	4374
160	0.30394	2384.40	35.341	133.251	358.374	5.05102	2.155	3.589	4289
180	0.33309	2352.96	29.592	184.933	431.650	5.48576	2.360	3.737	4154
200	0.36127	2368.20	25.794	240.511	508.103	5.88832	2.553	3.911	4100
220	0.38990	2408.46	22.800	299.192	587.984	6.26889	2.734	4.071	4076
240	0.41878	2467.70	20.380	360.468	670.657	6.62829	2.875	4.187	4080
260	0.44779	2541.17	18.391	423.458	755.131	6.96653	2.968	4.253	4107
280	0.47680	2625.09	16.734	487.345	840.505	7.28277	3.017	4.274	4151
300	0.50574	2716.54	15.339	551.297	925.891	7.57747	3.030	4.261	4207
320	0.53456	2813.29	14.154	614.805	1010.746	7.85133	3.016	4.222	4271
340	0.56323	2913.75	13.136	677.475	1094.658	8.10540	2.985	4.168	4341
360	0.59176	3016.74	12.255	739.082	1177.394	8.34194	2.943	4.105	4415
380	0.62014	3121.45	11.485	799.515	1258.844	8.56215	2.896	4.040	4491
400	0.64836	3227.29	10.808	858.755	1338.992	8.76780	2.849	3.976	4568
420	0.67645	3333.87	10.209	916.847	1417.890	8.96025	2.803	3.915	4645
440	0.70441	3440.90	9.674	973.878	1495.632	9.14114	2.760	3.859	4721
460	0.73226	3548.18	9.194	1029.935	1572.313	9.31158	2.721	3.810	4797
480	0.75999	3655.60	8.761	1085.135	1648.056	9.47254	2.687	3.765	4871
500	0.78763	3763.06	8.369	1139.576	1722.969	9.62563	2.658	3.727	4944
520	0.81518	3870.50	8.011	1193.360	1797.160	9.77124	2.632	3.693	5016
540	0.84265	3977.88	7.684	1246.571	1870.719	9.91006	2.610	3.664	5086
560	0.87005	4085.18	7.384	1299.224	1943.666	10.04221	2.592	3.640	5155
580	0.89739	4192.40	7.107	1351.538	2016.225	10.16938	2.576	3.619	5223
600	0.92466	4299.51	6.851	1403.544	2088.433	10.29185	2.564	3.601	5289
650	0.99262	4566.88	6.287	1532.269	2267.498	10.57879	2.540	3.566	5451
700	1.06033	4833.67	5.812	1659.834	2445.209	10.84244	2.525	3.543	5606
800	1.19515	5365.93	5.053	1912.712	2797.950	11.31380	2.511	3.518	5902
900	1.32944	5896.96	4.474	2164.374	3149.080	11.72708	2.504	3.504	6183
1000	1.46338	6427.29	4.016	2415.174	3499.087	12.09564	2.504	3.499	6451
1500	2.13064	9076.31	2.664	3674.494	5252.644	13.51699	2.544	3.530	7638
2000	2.79648	11727.03	1.996	4969.960	7041.291	14.54395	2.649	3.633	8632
2500	3.46196	14380.37	1.597	6326.414	8892.656	15.36959	2.789	3.773	9493
3000	4.12733	17035.65	1.331	7757.201	10814.280	16.06034	2.924	3.908	10270
3500	4.79281	19692.32	1.141	9257.445	12807.436	16.67745	3.053	4.038	10984
4000	5.45904	22349.97	0.9983	10826.741	14870.205	17.42097	3.204	4.193	11641
5000	6.80446	27667.28	0.7989	14281.842	19321.846	19.24691	3.743	4.774	12785

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

4000 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 38.000	5.48562	592.83	12.695	32989.72	0.0028151	0.08652	2.846	0.00945	1.29578	1.9763
38	5.48562	592.83	12.695	32989.53	0.0028151	0.08652	2.846	0.00945	1.29578	1.9762
40	5.45446	598.81	12.465	32157.39	0.0028817	0.08974	2.554	0.00953	1.29389	1.7676
42	5.42275	603.83	12.259	31332.60	0.0029489	0.09239	2.315	0.00957	1.29197	1.6064
44	5.39049	608.44	12.062	30515.96	0.0030164	0.09456	2.116	0.00956	1.29002	1.4802
46	5.35771	612.47	11.879	29708.38	0.0030843	0.09630	1.954	0.00951	1.28803	1.3796
48	5.32440	616.13	11.702	28909.94	0.0031525	0.09766	1.814	0.00944	1.28602	1.2988
50	5.29057	619.69	11.526	28122.28	0.0032208	0.09873	1.695	0.00935	1.28399	1.2333
52	5.25624	622.83	11.358	27345.93	0.0032891	0.09954	1.592	0.00924	1.28192	1.1792
54	5.22142	625.43	11.200	26581.71	0.0033572	0.10013	1.502	0.00913	1.27983	1.1337
56	5.18613	627.96	11.042	25830.46	0.0034251	0.10012	1.423	0.00898	1.27772	1.1005
58	5.15038	630.24	10.887	25094.04	0.0034924	0.09998	1.354	0.00882	1.27558	1.0728
60	5.11419	632.13	10.740	24370.29	0.0035590	0.09973	1.292	0.00867	1.27342	1.0490
62	5.07758	633.91	10.592	23663.07	0.0036246	0.09941	1.236	0.00852	1.27123	1.0288
64	5.04058	635.35	10.450	22972.23	0.0036890	0.09901	1.187	0.00838	1.26903	1.0113
66	5.00288	636.38	10.274	22245.60	0.0037464	0.09853	1.142	0.00826	1.26679	0.9944
68	4.96524	636.95	10.139	21576.48	0.0038082	0.09800	1.101	0.00814	1.26456	0.9808
70	4.92731	637.83	10.016	20967.55	0.0038614	0.09744	1.064	0.00803	1.26231	0.9679
75	4.83136	637.95	9.728	19462.08	0.0040017	0.09585	0.984	0.00777	1.25665	0.9432
80	4.73425	639.72	9.432	18132.75	0.0041179	0.09412	0.918	0.00755	1.25095	0.9250
85	4.63643	641.78	9.122	16882.87	0.0042326	0.09235	0.863	0.00733	1.24523	0.9139
90	4.53819	644.93	8.811	15764.20	0.0043301	0.09059	0.816	0.00715	1.23951	0.9058
95	4.43994	648.30	8.507	14738.58	0.0044197	0.08889	0.776	0.00699	1.23382	0.9003
100	4.34209	652.50	8.210	13818.02	0.0044947	0.08726	0.740	0.00685	1.22818	0.8960
105	4.24488	656.67	7.930	12983.65	0.0045565	0.08573	0.709	0.00675	1.22260	0.8914
110	4.14873	661.83	7.647	12224.01	0.0046079	0.08457	0.682	0.00668	1.21710	0.8851
115	4.05388	668.67	7.361	11549.97	0.0046416	0.08361	0.657	0.00665	1.21171	0.8784
120	3.96061	676.29	7.075	10926.58	0.0046715	0.08274	0.635	0.00661	1.20642	0.8736
125	3.86904	685.93	6.792	10380.66	0.0046846	0.08195	0.616	0.00659	1.20126	0.8695
130	3.77940	697.07	6.516	9890.21	0.0046898	0.08124	0.598	0.00658	1.19622	0.8669
135	3.69189	710.08	6.237	9454.23	0.0046783	0.08064	0.583	0.00657	1.19132	0.8644
140	3.60664	724.54	5.966	9060.66	0.0046593	0.08012	0.569	0.00658	1.18657	0.8630
150	3.44348	757.52	5.451	8382.51	0.0045987	0.08033	0.546	0.00670	1.17752	0.8519
160	3.29017	796.62	4.984	7845.09	0.0045049	0.08128	0.528	0.00688	1.16908	0.8385
180	3.00219	891.99	4.176	7064.04	0.0041891	0.08266	0.490	0.00737	1.15337	0.7979
200	2.76799	993.96	3.650	6555.14	0.0039349	0.08865	0.507	0.00819	1.14073	0.8052
220	2.56479	1102.94	3.251	6177.20	0.0036911	0.09327	0.516	0.00893	1.12987	0.8104
240	2.38787	1210.53	2.969	5892.54	0.0034587	0.09676	0.520	0.00968	1.12049	0.8103
260	2.23320	1312.46	2.774	5674.93	0.0032407	0.09936	0.523	0.01046	1.11234	0.8056
280	2.09733	1406.24	2.645	5505.67	0.0030394	0.10122	0.525	0.01129	1.10522	0.7977
300	1.97732	1491.93	2.560	5371.45	0.0028557	0.10253	0.527	0.01217	1.09897	0.7883
320	1.87071	1569.81	2.509	5262.86	0.0026893	0.10345	0.530	0.01310	1.09344	0.7783
340	1.77546	1641.34	2.479	5173.24	0.0025392	0.10411	0.533	0.01407	1.08852	0.7684
360	1.68987	1707.79	2.464	5097.91	0.0024038	0.10462	0.537	0.01508	1.08412	0.7589
380	1.61255	1770.40	2.459	5033.50	0.0022817	0.10507	0.542	0.01613	1.08015	0.7502
400	1.54235	1830.95	2.460	4977.60	0.0021714	0.10554	0.547	0.01721	1.07656	0.7424
420	1.47830	1890.09	2.464	4928.46	0.0020714	0.10606	0.553	0.01832	1.07329	0.7354
440	1.41962	1948.75	2.469	4884.76	0.0019804	0.10665	0.560	0.01947	1.07030	0.7292
460	1.36564	2007.77	2.474	4845.54	0.0018974	0.10735	0.567	0.02063	1.06756	0.7238
480	1.31580	2067.17	2.478	4810.04	0.0018215	0.10816	0.574	0.02183	1.06504	0.7190
500	1.26963	2127.50	2.480	4777.68	0.0017517	0.10906	0.581	0.02305	1.06270	0.7149
520	1.22672	2188.77	2.481	4748.00	0.0016873	0.11010	0.589	0.02430	1.06053	0.7113
540	1.18673	2250.83	2.481	4720.65	0.0016278	0.11126	0.597	0.02557	1.05851	0.7082
560	1.14935	2314.42	2.479	4695.32	0.0015726	0.11242	0.605	0.02687	1.05663	0.7055
580	1.11435	2378.65	2.475	4671.78	0.0015212	0.11371	0.614	0.02820	1.05487	0.7031
600	1.08148	2443.81	2.471	4649.82	0.0014733	0.11506	0.622	0.02955	1.05322	0.7010
650	1.00743	2609.71	2.457	4600.81	0.0013665	0.11871	0.644	0.03304	1.04951	0.6969
700	0.94311	2779.08	2.441	4558.67	0.0012749	0.12263	0.667	0.03670	1.04629	0.6938
800	0.83671	3125.25	2.406	4489.75	0.0011255	0.13102	0.714	0.04452	1.04099	0.6898
900	0.75220	3474.29	2.375	4435.67	0.0010086	0.13971	0.761	0.05300	1.03679	0.6872
1000	0.68335	3826.35	2.347	4392.08	0.0009144	0.14858	0.809	0.06215	1.03338	0.6857
1500	0.46934	5644.36	2.231	4259.89	0.0006254	0.19414	1.044	0.11718	1.02284	0.6832
2000	0.35759	7632.64	2.187	4193.58	0.0004760	0.27727	1.267	0.21341	1.01737	0.5976
2500	0.28885	9814.68	1.982	4153.83	0.0003844	0.33494	1.478	0.38734	1.01401	0.5991
3000	0.24229	12121.63	1.878	4127.52	0.0003224	0.39272	1.678	0.41475	1.01174	0.6011
3500	0.20865	14543.91	1.791	4108.72	0.0002777	0.45141	1.869	0.53577	1.01011	0.6020
4000	0.18318	17194.13	1.781	4094.12	0.0002438	0.51697	2.054	0.67312	1.00887	0.5996
5000	0.14696	24297.99	1.452	4066.05	0.0001965	0.72610	2.406	1.03495	1.00711	0.5695

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

5000 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 40.688	0.17848	6709.59	95.263	-116.766	48.481	1.33811	1.363	1.694	6217
42	0.17908	6635.68	95.182	-115.081	50.726	1.39240	1.380	1.728	6204
44	0.18003	6523.52	95.001	-112.447	54.232	1.47395	1.406	1.779	6184
46	0.18099	6412.05	95.748	-109.733	57.840	1.55413	1.430	1.829	6164
48	0.18198	6301.37	95.426	-106.943	61.548	1.63303	1.453	1.879	6143
50	0.18300	6191.59	95.034	-104.075	65.355	1.71074	1.477	1.929	6121
52	0.18404	6082.81	94.575	-101.132	69.262	1.78735	1.498	1.978	6099
54	0.18510	5975.13	94.047	-98.115	73.266	1.86290	1.518	2.026	6077
56	0.18620	5868.67	93.454	-95.027	77.365	1.93743	1.538	2.073	6053
58	0.18731	5763.53	92.796	-91.867	81.559	2.01101	1.557	2.120	6029
60	0.18845	5659.85	92.074	-88.639	85.845	2.08366	1.575	2.166	6005
62	0.18962	5557.72	91.290	-85.344	90.221	2.15541	1.592	2.211	5980
64	0.19082	5457.28	90.445	-81.985	94.686	2.22628	1.607	2.254	5955
66	0.19204	5358.65	89.541	-78.563	99.237	2.29630	1.622	2.297	5928
68	0.19328	5261.96	88.581	-75.082	103.871	2.36546	1.636	2.337	5902
70	0.19455	5167.32	87.564	-71.547	108.583	2.43375	1.647	2.375	5876
75	0.19784	4940.57	84.796	-62.493	120.676	2.60060	1.670	2.461	5808
80	0.20122	4705.09	81.858	-53.202	133.100	2.76094	1.691	2.528	5709
85	0.20478	4476.20	77.959	-43.662	145.938	2.91684	1.712	2.608	5621
90	0.20850	4306.37	74.967	-33.885	159.162	3.06799	1.732	2.678	5553
95	0.21236	4126.57	72.042	-23.893	172.723	3.21461	1.751	2.749	5478
100	0.21636	3985.83	69.243	-13.578	186.745	3.35849	1.770	2.813	5417
105	0.22050	3849.47	65.472	-3.193	200.956	3.49715	1.786	2.871	5354
110	0.22476	3734.26	63.832	7.365	215.462	3.63210	1.805	2.928	5297
115	0.22913	3613.30	61.255	18.089	230.237	3.76345	1.827	2.988	5232
120	0.23364	3522.86	58.732	28.994	245.309	3.89174	1.853	3.040	5175
125	0.23826	3441.31	56.367	40.082	260.674	4.01718	1.882	3.095	5120
130	0.24296	3357.83	54.021	51.348	276.294	4.13970	1.916	3.151	5058
135	0.24776	3282.04	51.787	62.805	292.197	4.25973	1.953	3.207	4997
140	0.25265	3204.58	49.718	74.459	308.375	4.37739	1.994	3.270	4935
150	0.26269	3077.94	45.952	98.420	341.632	4.60680	2.085	3.400	4822
160	0.27305	3019.24	42.559	123.323	376.133	4.82945	2.186	3.512	4740
180	0.29535	2879.49	35.878	175.178	448.633	5.25828	2.393	3.692	4537
200	0.31731	2863.63	31.517	230.471	524.255	5.65646	2.580	3.873	4463
220	0.33964	2877.52	28.046	289.013	603.475	6.03387	2.759	4.043	4420
240	0.36225	2913.46	25.206	350.312	685.703	6.39133	2.898	4.170	4407
260	0.38502	2966.27	22.843	413.471	769.949	6.72865	2.991	4.247	4417
280	0.40789	3032.05	20.853	477.642	855.288	7.04476	3.040	4.277	4446
300	0.43077	3107.80	19.160	541.959	940.795	7.33987	3.052	4.270	4488
320	0.45363	3191.13	17.708	605.884	1025.887	7.61449	3.038	4.236	4540
340	0.47644	3280.18	16.452	669.000	1110.118	7.86953	3.006	4.185	4600
360	0.49917	3373.53	15.359	731.062	1193.226	8.10713	2.963	4.125	4664
380	0.52181	3470.07	14.400	791.948	1275.078	8.32843	2.915	4.060	4732
400	0.54437	3568.98	13.554	851.632	1355.643	8.53514	2.867	3.997	4801
420	0.56683	3669.64	12.802	910.152	1434.960	8.72862	2.820	3.936	4871
440	0.58920	3771.59	12.130	967.592	1513.116	8.91047	2.776	3.880	4941
460	0.61149	3874.48	11.527	1024.038	1590.199	9.08180	2.737	3.829	5011
480	0.63370	3978.06	10.982	1079.605	1666.329	9.24359	2.702	3.784	5080
500	0.65584	4082.15	10.487	1134.393	1741.612	9.39743	2.672	3.745	5148
520	0.67791	4186.59	10.037	1188.505	1816.155	9.54374	2.645	3.710	5216
540	0.69991	4291.29	9.625	1242.024	1890.047	9.68318	2.623	3.680	5282
560	0.72186	4396.17	9.246	1294.966	1963.308	9.81591	2.604	3.655	5346
580	0.74375	4501.18	8.897	1347.552	2036.164	9.94360	2.588	3.633	5410
600	0.76559	4606.27	8.575	1399.813	2108.650	10.06653	2.575	3.614	5473
650	0.82002	4869.19	7.865	1529.113	2288.340	10.35448	2.550	3.578	5626
700	0.87422	5132.21	7.267	1657.173	2466.586	10.61893	2.533	3.553	5774
800	0.98214	5658.18	6.314	1910.852	2820.176	11.09142	2.518	3.525	6058
900	1.08958	6184.03	5.588	2163.126	3171.931	11.50544	2.511	3.510	6328
1000	1.19672	6709.89	5.014	2414.405	3522.407	11.87450	2.509	3.503	6588
1500	1.73031	9342.88	3.325	3675.062	5277.098	13.29680	2.547	3.531	7746
2000	2.26273	11983.51	2.491	4971.112	7066.098	14.32397	2.651	3.634	8723
2500	2.79490	14629.92	1.993	6329.879	8917.582	15.14966	2.791	3.773	9572
3000	3.32703	17280.18	1.661	7758.828	10839.210	15.84042	2.926	3.908	10341
3500	3.85927	19933.05	1.424	9258.902	12832.060	16.45743	3.053	4.037	11049
4000	4.39207	22587.74	1.247	10826.712	14893.175	17.20052	3.199	4.187	11702
5000	5.46708	27900.71	0.9977	14261.317	19323.097	19.02177	3.702	4.727	12846

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

5000 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 40.688	5.60291	661.59	12.609	37593.24	0.0025606	0.09596	3.127	0.01011	1.30293	1.9876
42	5.58399	665.52	12.483	37053.60	0.0025958	0.09786	2.915	0.01815	1.30177	1.8524
44	5.55478	671.43	12.294	36236.71	0.0025493	0.10034	2.640	0.01016	1.29999	1.6851
46	5.52513	676.75	12.118	35427.41	0.0027027	0.10236	2.413	0.01013	1.29819	1.5523
48	5.49505	681.75	11.948	34626.39	0.0027559	0.10396	2.222	0.01007	1.29636	1.4459
50	5.46456	686.69	11.778	33834.33	0.0028088	0.10525	2.061	0.00999	1.29450	1.3597
52	5.43366	691.25	11.616	33051.94	0.0028614	0.10626	1.923	0.00989	1.29263	1.2885
54	5.40237	695.25	11.465	32279.89	0.0029135	0.10703	1.803	0.00978	1.29073	1.2288
56	5.37071	699.25	11.312	31518.91	0.0029650	0.10715	1.700	0.00962	1.28882	1.1840
58	5.33868	703.02	11.162	30769.68	0.0030158	0.10712	1.609	0.00946	1.28689	1.1463
60	5.30631	706.42	11.019	30032.91	0.0030658	0.10697	1.529	0.00931	1.28493	1.1141
62	5.27362	709.74	10.876	29309.29	0.0031147	0.10675	1.457	0.00916	1.28297	1.0865
64	5.24062	712.74	10.738	28599.52	0.0031625	0.10643	1.394	0.00901	1.28098	1.0627
66	5.20733	715.68	10.600	27904.27	0.0032089	0.10604	1.337	0.00887	1.27899	1.0423
68	5.17379	718.24	10.468	27224.23	0.0032537	0.10559	1.285	0.00873	1.27698	1.0243
70	5.14000	720.29	10.346	26560.03	0.0032969	0.10508	1.239	0.00861	1.27496	1.0080
75	5.05469	724.86	10.044	24973.08	0.0033955	0.10361	1.140	0.00833	1.26987	0.9749
80	4.96970	729.39	9.646	23382.87	0.0034665	0.10201	1.061	0.00812	1.26482	0.9467
85	4.88324	731.32	9.325	21858.37	0.0035666	0.10031	0.995	0.00788	1.25971	0.9316
90	4.79605	737.74	9.024	20653.55	0.0036298	0.09858	0.940	0.00768	1.25458	0.9190
95	4.70899	741.51	8.736	19431.99	0.0037074	0.09689	0.893	0.00748	1.24947	0.9118
100	4.62185	748.37	8.463	18421.92	0.0037587	0.09525	0.852	0.00733	1.24438	0.9056
105	4.53523	754.11	8.205	17458.24	0.0038075	0.09370	0.816	0.00720	1.23934	0.9003
110	4.44919	762.01	7.949	16614.44	0.0038420	0.09252	0.785	0.00710	1.23436	0.8937
115	4.36425	769.20	7.683	15769.34	0.0038844	0.09155	0.756	0.00702	1.22946	0.8889
120	4.28017	780.56	7.406	15078.45	0.0038951	0.09063	0.731	0.00696	1.22462	0.8833
125	4.19718	793.21	7.134	14443.82	0.0039025	0.08979	0.709	0.00691	1.21987	0.8797
130	4.11593	806.12	6.850	13820.61	0.0039087	0.08903	0.688	0.00686	1.21524	0.8772
135	4.03616	820.35	6.569	13246.82	0.0039094	0.08836	0.670	0.00683	1.21070	0.8757
140	3.95810	834.31	6.300	12684.04	0.0039197	0.08777	0.654	0.00678	1.20628	0.8768
150	3.80682	866.90	5.790	11717.17	0.0039217	0.08789	0.625	0.00679	1.19776	0.8705
160	3.66229	912.37	5.315	11057.33	0.0038489	0.08876	0.602	0.00698	1.18967	0.8571
180	3.38581	1003.39	4.429	9749.40	0.0036800	0.09032	0.541	0.00722	1.17434	0.7957
200	3.15151	1109.07	3.877	9024.76	0.0034923	0.09627	0.557	0.00789	1.16149	0.8064
220	2.94428	1221.39	3.453	8472.21	0.0033103	0.10064	0.564	0.00845	1.15023	0.8152
240	2.76056	1330.61	3.150	8042.78	0.0031340	0.10378	0.566	0.00901	1.14033	0.8182
260	2.59726	1432.36	2.940	7704.16	0.0029650	0.10593	0.565	0.00960	1.13160	0.8158
280	2.45167	1524.53	2.798	7433.60	0.0028052	0.10733	0.564	0.01024	1.12386	0.8093
300	2.32142	1607.75	2.704	7214.50	0.0026558	0.10819	0.563	0.01092	1.11698	0.8004
320	2.20442	1682.75	2.644	7034.60	0.0025173	0.10868	0.563	0.01164	1.11083	0.7903
340	2.09890	1751.33	2.608	6884.79	0.0023897	0.10896	0.564	0.01240	1.10531	0.7799
360	2.00333	1814.96	2.587	6758.28	0.0022726	0.10913	0.566	0.01321	1.10032	0.7698
380	1.91639	1874.99	2.578	6650.00	0.0021655	0.10927	0.568	0.01404	1.09581	0.7603
400	1.83699	1933.26	2.574	6556.19	0.0020673	0.10948	0.572	0.01491	1.09170	0.7516
420	1.76420	1990.42	2.573	6473.96	0.0019775	0.10977	0.576	0.01581	1.08794	0.7438
440	1.69720	2047.38	2.574	6401.15	0.0018950	0.11016	0.581	0.01673	1.08449	0.7368
460	1.63534	2104.97	2.575	6336.09	0.0018192	0.11070	0.587	0.01768	1.08132	0.7307
480	1.57802	2163.17	2.575	6277.48	0.0017494	0.11136	0.593	0.01865	1.07838	0.7252
500	1.52476	2222.53	2.574	6224.31	0.0016849	0.11215	0.599	0.01964	1.07566	0.7205
520	1.47513	2282.94	2.572	6175.76	0.0016252	0.11307	0.606	0.02066	1.07313	0.7164
540	1.42875	2344.32	2.569	6131.19	0.0015698	0.11408	0.614	0.02170	1.07077	0.7127
560	1.38532	2407.37	2.563	6090.08	0.0015182	0.11523	0.621	0.02276	1.06856	0.7096
580	1.34454	2471.14	2.557	6052.08	0.0014701	0.11645	0.629	0.02384	1.06649	0.7068
600	1.30617	2535.94	2.550	6016.59	0.0014251	0.11776	0.638	0.02495	1.06455	0.7044
650	1.21948	2701.19	2.530	5937.89	0.0013245	0.12133	0.659	0.02781	1.06017	0.6995
700	1.14387	2870.17	2.508	5870.59	0.0012379	0.12523	0.681	0.03081	1.05636	0.6959
800	1.01819	3215.97	2.463	5761.10	0.0010960	0.13368	0.728	0.03725	1.05005	0.6911
900	0.91778	3564.80	2.425	5675.60	0.0009845	0.14253	0.776	0.04425	1.04503	0.6881
1000	0.83562	3916.71	2.392	5606.89	0.0008943	0.15164	0.825	0.05181	1.04094	0.6862
1500	0.57793	5734.50	2.259	5399.52	0.0006158	0.19887	1.069	0.09745	1.02818	0.6832
2000	0.44194	7724.02	2.126	5296.03	0.0004704	0.27727	1.302	0.17266	1.02150	0.6142
2500	0.35779	9808.29	1.996	5234.50	0.0003808	0.33494	1.523	0.24811	1.01738	0.6176
3000	0.30057	12217.23	1.889	5193.87	0.0003199	0.39270	1.733	0.33432	1.01458	0.6209
3500	0.25912	14637.26	1.800	5164.98	0.0002758	0.45116	1.934	0.43133	1.01256	0.6231
4000	0.22768	17270.50	1.711	5142.84	0.0002424	0.51573	2.128	0.54185	1.01103	0.6219
5000	0.18291	24176.42	1.474	5103.40	0.0001955	0.71448	2.498	0.82640	1.00886	0.5949

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

5500 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 41.979	0.17676	7045.97	97.916	-114.606	65.416	1.34997	1.374	1.705	6363
42	0.17677	7044.83	97.915	-114.580	65.451	1.35081	1.375	1.705	6363
44	0.17765	6934.74	97.807	-112.014	68.912	1.43130	1.401	1.755	6345
46	0.17855	6825.30	97.628	-109.372	72.472	1.51042	1.425	1.804	6327
48	0.17947	6716.60	97.380	-106.655	76.129	1.58823	1.449	1.853	6309
50	0.18042	6608.75	97.063	-103.863	79.883	1.66486	1.472	1.901	6289
52	0.18138	6501.82	96.679	-100.997	83.734	1.74038	1.494	1.949	6269
54	0.18237	6395.93	96.228	-98.060	87.679	1.81482	1.514	1.996	6249
56	0.18339	6291.16	95.711	-95.053	91.717	1.88824	1.534	2.042	6228
58	0.18442	6187.63	95.129	-91.976	95.848	1.96071	1.554	2.088	6207
60	0.18548	6085.44	94.484	-88.832	100.068	2.03225	1.572	2.132	6185
62	0.18656	5984.69	93.777	-85.623	104.377	2.10288	1.589	2.176	6162
64	0.18766	5885.49	93.009	-82.350	108.772	2.17265	1.605	2.219	6139
66	0.18878	5787.96	92.182	-79.016	113.251	2.24156	1.621	2.260	6115
68	0.18993	5692.20	91.298	-75.622	117.812	2.30964	1.635	2.300	6091
70	0.19110	5598.32	90.358	-72.174	122.449	2.37685	1.647	2.337	6067
75	0.19411	5372.62	87.778	-63.338	134.354	2.54109	1.673	2.423	6005
80	0.19725	5161.15	84.893	-54.220	146.671	2.70004	1.697	2.502	5937
85	0.20046	4953.26	81.060	-44.869	159.294	2.85333	1.721	2.560	5842
90	0.20378	4684.50	77.835	-35.313	172.225	3.00112	1.744	2.639	5731
95	0.20729	4536.33	74.953	-25.524	185.588	3.14560	1.765	2.701	5671
100	0.21090	4365.72	72.104	-15.423	199.366	3.28697	1.784	2.765	5599
105	0.21463	4214.13	69.495	-5.250	213.338	3.42329	1.801	2.827	5536
110	0.21847	4100.56	66.894	5.102	227.607	3.55604	1.820	2.880	5484
115	0.22241	3966.16	64.405	15.626	242.144	3.68528	1.842	2.943	5419
120	0.22647	3880.80	61.973	26.340	256.984	3.81159	1.868	2.995	5370
125	0.23064	3807.78	59.664	37.255	272.150	3.93541	1.897	3.048	5324
130	0.23486	3679.32	57.364	48.352	287.542	4.05614	1.931	3.119	5247
135	0.23920	3642.45	55.194	59.673	303.283	4.17496	1.969	3.165	5208
140	0.24357	3568.15	53.055	71.187	319.247	4.29186	2.010	3.223	5149
150	0.25253	3421.36	49.138	94.882	352.073	4.51748	2.101	3.351	5028
160	0.26177	3276.63	45.699	119.532	386.135	4.73729	2.201	3.495	4909
180	0.28154	3146.10	38.825	171.408	458.143	5.16285	2.408	3.674	4716
200	0.30130	3114.24	34.221	226.545	533.409	5.55915	2.592	3.856	4633
220	0.32142	3115.40	30.540	284.979	612.325	5.93511	2.770	4.030	4582
240	0.34178	3140.56	27.516	346.231	694.322	6.29156	2.909	4.161	4562
260	0.36233	3183.90	24.987	409.403	778.416	6.62828	3.002	4.241	4565
280	0.38297	3241.29	22.847	473.638	863.678	6.94409	3.050	4.274	4588
300	0.40366	3309.58	21.019	538.060	949.172	7.23916	3.062	4.271	4624
320	0.42436	3386.36	19.445	602.120	1034.306	7.51392	3.048	4.239	4671
340	0.44502	3469.67	18.080	665.391	1118.619	7.76920	3.015	4.190	4726
360	0.46563	3558.02	16.887	727.621	1201.840	8.00713	2.973	4.131	4786
380	0.48617	3650.23	15.839	788.681	1283.826	8.22879	2.924	4.067	4850
400	0.50665	3745.37	14.911	848.540	1364.539	8.43588	2.876	4.004	4916
420	0.52705	3842.75	14.086	907.233	1444.011	8.62974	2.828	3.944	4982
440	0.54738	3941.84	13.348	964.843	1522.325	8.81195	2.784	3.888	5050
460	0.56764	4042.22	12.685	1021.453	1599.566	8.98364	2.745	3.837	5117
480	0.58783	4143.59	12.085	1077.178	1675.853	9.14576	2.709	3.792	5183
500	0.60795	4245.70	11.541	1132.116	1751.287	9.29991	2.679	3.752	5249
520	0.62802	4348.38	11.045	1186.371	1825.976	9.44650	2.652	3.717	5314
540	0.64803	4451.50	10.590	1240.027	1900.008	9.58621	2.629	3.687	5378
560	0.66798	4554.94	10.173	1293.098	1973.404	9.71918	2.610	3.661	5441
580	0.68789	4658.64	9.789	1345.806	2046.387	9.84710	2.594	3.639	5503
600	0.70775	4762.52	9.433	1398.184	2118.995	9.97024	2.580	3.620	5564
650	0.75724	5022.80	8.651	1527.747	2298.959	10.25862	2.555	3.583	5713
700	0.80652	5283.57	7.992	1656.037	2477.443	10.52342	2.538	3.557	5857
800	0.90463	5805.82	6.942	1910.094	2831.414	10.99643	2.522	3.528	6134
900	1.00230	6328.61	6.142	2162.062	3183.454	11.41078	2.514	3.512	6400
1000	1.09968	6851.84	5.511	2414.172	3534.141	11.78006	2.512	3.505	6655
1500	1.58461	9475.37	3.654	3675.490	5289.338	13.20280	2.549	3.532	7799
2000	2.06847	12109.99	2.738	4971.839	7078.478	14.23085	2.653	3.634	8766
2500	2.55214	14752.24	2.191	6330.768	8929.996	15.05576	2.792	3.773	9610
3000	3.03579	17399.48	1.826	7759.806	10851.612	15.74651	2.926	3.908	10375
3500	3.51956	20050.06	1.566	9259.830	12844.326	16.36348	3.054	4.036	11081
4000	4.00384	22702.95	1.371	10827.067	14904.777	17.10639	3.198	4.184	11731
5000	4.98061	28013.29	1.097	14253.606	19326.115	18.92579	3.686	4.708	12875

• TWO-PHASE BOUNDARY

5500 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 41.979	5.65739	694.08	12.592	39861.80	0.0024564	0.10041	3.269	0.01041	1.30626	1.9984
42	5.65710	694.19	12.590	39853.34	0.0024569	0.10044	3.266	0.01041	1.30625	1.9962
44	5.62910	700.61	12.405	39036.32	0.0025055	0.10306	2.943	0.01043	1.30453	1.8043
46	5.60069	706.49	12.231	38226.37	0.0025539	0.10520	2.677	0.01041	1.30279	1.6526
48	5.57188	712.05	12.065	37424.15	0.0026021	0.10692	2.455	0.01036	1.30104	1.5312
50	5.54270	717.59	11.898	36630.29	0.0026498	0.10831	2.267	0.01028	1.29926	1.4330
52	5.51314	722.75	11.738	35845.46	0.0026971	0.10940	2.108	0.01018	1.29746	1.3520
54	5.48322	727.35	11.590	35070.31	0.0027438	0.11025	1.971	0.01008	1.29564	1.2842
56	5.45297	731.98	11.439	34305.50	0.0027900	0.11043	1.852	0.00992	1.29380	1.2328
58	5.42238	736.41	11.292	33551.67	0.0028353	0.11045	1.748	0.00976	1.29195	1.1898
60	5.39147	740.46	11.151	32809.49	0.0028798	0.11035	1.657	0.00960	1.29007	1.1526
62	5.36028	744.45	11.009	32079.60	0.0029233	0.11016	1.576	0.00944	1.28819	1.1209
64	5.32880	748.13	10.873	31362.63	0.0029656	0.10988	1.504	0.00929	1.28629	1.0936
66	5.29707	751.77	10.737	30659.23	0.0030067	0.10952	1.440	0.00915	1.28438	1.0701
68	5.26510	755.04	10.606	29970.01	0.0030463	0.10909	1.383	0.00901	1.28246	1.0494
70	5.23292	757.78	10.485	29295.59	0.0030844	0.10860	1.331	0.00888	1.28052	1.0309
75	5.15169	764.11	10.185	27678.09	0.0031714	0.10718	1.220	0.00859	1.27566	0.9933
80	5.06969	771.05	9.869	26165.42	0.0032445	0.10556	1.132	0.00832	1.27076	0.9659
85	4.98842	780.48	9.440	24708.96	0.0032806	0.10391	1.061	0.00814	1.26593	0.9410
90	4.90729	779.42	9.095	22988.23	0.0033859	0.10225	1.002	0.00790	1.26113	0.9306
95	4.82424	788.54	8.804	21884.36	0.0034249	0.10055	0.950	0.00772	1.25623	0.9189
100	4.74162	793.82	8.523	20700.58	0.0034832	0.09891	0.906	0.00754	1.25138	0.9122
105	4.65921	798.73	8.284	19634.53	0.0035394	0.09734	0.868	0.00739	1.24656	0.9076
110	4.57719	808.20	8.032	18769.02	0.0035640	0.09615	0.834	0.00729	1.24178	0.8998
115	4.49610	814.95	7.778	17832.27	0.0036117	0.09516	0.804	0.00719	1.23707	0.8957
120	4.41568	828.27	7.515	17136.40	0.0036165	0.09423	0.778	0.00712	1.23242	0.8900
125	4.33578	843.53	7.253	16509.72	0.0036139	0.09335	0.753	0.00706	1.22782	0.8857
130	4.25792	851.69	6.977	15666.26	0.0036617	0.09256	0.732	0.00697	1.22335	0.8876
135	4.18066	873.16	6.706	15227.82	0.0036245	0.09184	0.712	0.00694	1.21893	0.8833
140	4.10567	889.93	6.430	14649.65	0.0036216	0.09123	0.694	0.00689	1.21465	0.8831
150	3.95990	923.86	5.907	13548.26	0.0036269	0.09132	0.664	0.00688	1.20638	0.8767
160	3.82010	957.37	5.434	12517.06	0.0036509	0.09217	0.638	0.00690	1.19850	0.8713
180	3.55189	1057.42	4.539	11174.59	0.0034744	0.09391	0.565	0.00720	1.18352	0.7951
200	3.31890	1164.77	3.978	10335.85	0.0033109	0.09985	0.580	0.00780	1.17065	0.8071
220	3.11124	1278.93	3.544	9692.75	0.0031509	0.10414	0.587	0.00831	1.15929	0.8173
240	2.92582	1389.40	3.233	9188.73	0.0029945	0.10713	0.588	0.00880	1.14923	0.8216
260	2.75993	1491.59	3.016	8787.36	0.0028435	0.10911	0.586	0.00932	1.14038	0.8200
280	2.61115	1583.45	2.869	8463.47	0.0026995	0.11032	0.584	0.00988	1.13234	0.8141
300	2.47731	1665.83	2.771	8198.86	0.0025637	0.11099	0.581	0.01049	1.12522	0.8055
320	2.35652	1739.67	2.708	7980.00	0.0024367	0.11130	0.580	0.01114	1.11883	0.7954
340	2.24711	1806.95	2.668	7796.72	0.0023189	0.11140	0.580	0.01183	1.11307	0.7849
360	2.14764	1869.26	2.645	7641.35	0.0022100	0.11141	0.580	0.01256	1.10785	0.7746
380	2.05687	1928.03	2.633	7508.06	0.0021096	0.11142	0.582	0.01332	1.10311	0.7648
400	1.97375	1985.16	2.627	7392.41	0.0020171	0.11149	0.585	0.01411	1.09879	0.7558
420	1.89734	2041.29	2.625	7291.01	0.0019320	0.11167	0.588	0.01492	1.09482	0.7476
440	1.82688	2097.37	2.624	7201.25	0.0018536	0.11197	0.592	0.01577	1.09118	0.7403
460	1.76168	2154.20	2.623	7121.10	0.0017813	0.11242	0.597	0.01663	1.08781	0.7339
480	1.70117	2211.74	2.622	7048.97	0.0017144	0.11300	0.603	0.01752	1.08470	0.7282
500	1.64486	2270.53	2.619	6983.60	0.0016525	0.11373	0.609	0.01843	1.08181	0.7232
520	1.59231	2330.52	2.615	6923.99	0.0015951	0.11459	0.615	0.01936	1.07911	0.7188
540	1.54315	2391.52	2.610	6869.33	0.0015417	0.11556	0.622	0.02031	1.07660	0.7149
560	1.49705	2454.25	2.603	6818.97	0.0014919	0.11666	0.630	0.02128	1.07425	0.7116
580	1.45372	2517.77	2.596	6772.37	0.0014454	0.11786	0.638	0.02228	1.07204	0.7087
600	1.41292	2582.35	2.588	6729.08	0.0014018	0.11914	0.646	0.02329	1.06996	0.7061
650	1.32058	2747.22	2.564	6633.03	0.0013042	0.12266	0.666	0.02592	1.06528	0.7009
700	1.23989	2915.97	2.540	6551.03	0.0012199	0.12653	0.689	0.02869	1.06120	0.6970
800	1.10543	3261.54	2.491	6417.90	0.0010817	0.13500	0.735	0.03461	1.05442	0.6918
900	0.99771	3610.22	2.449	6314.09	0.0009728	0.14393	0.784	0.04108	1.04902	0.6886
1000	0.90936	3962.03	2.413	6230.76	0.0008845	0.15315	0.833	0.04806	1.04461	0.6865
1500	0.63107	5779.55	2.272	5979.62	0.0006110	0.20121	1.081	0.09028	1.03068	0.6832
2000	0.48345	7769.53	2.135	5854.55	0.0004677	0.27727	1.320	0.15783	1.02353	0.6226
2500	0.39183	9954.77	2.003	5788.35	0.0003790	0.33494	1.546	0.22656	1.01904	0.6269
3000	0.32940	12264.51	1.894	5731.45	0.0003186	0.39269	1.762	0.30505	1.01599	0.6311
3500	0.28413	14683.83	1.805	5696.76	0.0002749	0.45107	1.968	0.39333	1.01378	0.6339
4000	0.24976	17310.50	1.716	5670.30	0.0002417	0.51524	2.166	0.49305	1.01211	0.6333
5000	0.20078	24138.76	1.482	5624.47	0.0001950	0.70990	2.546	0.75100	1.00972	0.6078

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

6000 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP BTU / LB -R	VELOCITY OF SOUND FT/SEC
* 43.240	0.17515	7375.68	93.547	-112.406	82.189	1.36131	1.386	1.716	6504
44	0.17546	7334.61	93.524	-111.446	83.501	1.39139	1.396	1.734	6498
46	0.17631	7227.04	93.414	-108.868	87.018	1.46955	1.420	1.782	6482
48	0.17717	7120.18	93.235	-106.218	90.629	1.54640	1.444	1.830	6466
50	0.17806	7014.10	98.988	-103.494	94.336	1.62205	1.467	1.877	6448
52	0.17896	6908.91	98.673	-100.698	98.137	1.69659	1.489	1.924	6430
54	0.17989	6804.68	98.292	-97.833	102.031	1.77005	1.510	1.969	6412
56	0.18083	6701.51	97.846	-94.898	106.015	1.84249	1.530	2.015	6393
58	0.18180	6599.50	97.335	-91.896	110.089	1.91398	1.550	2.059	6374
60	0.18278	6498.74	96.761	-88.828	114.252	1.98454	1.568	2.103	6354
62	0.18379	6399.32	93.125	-85.695	118.501	2.05420	1.586	2.146	6333
64	0.18481	6301.35	95.428	-82.500	122.834	2.12299	1.603	2.188	6312
66	0.18586	6204.93	94.671	-79.243	127.251	2.19094	1.619	2.229	6291
68	0.18692	6110.15	93.858	-75.928	131.748	2.25806	1.634	2.268	6269
70	0.18800	6017.12	92.988	-72.559	136.321	2.32434	1.646	2.305	6247
75	0.19079	5792.86	90.579	-63.917	148.061	2.48631	1.674	2.390	6190
80	0.19369	5581.72	87.859	-54.986	160.214	2.64315	1.701	2.469	6127
85	0.19669	5385.22	84.861	-45.783	172.752	2.79541	1.728	2.542	6058
90	0.19972	5215.92	81.100	-36.367	185.530	2.94147	1.754	2.592	5976
95	0.20289	4979.44	77.727	-26.748	198.674	3.08355	1.777	2.655	5872
100	0.20616	4746.74	74.832	-16.828	212.226	3.22256	1.798	2.727	5775
105	0.20952	4591.31	72.050	-6.845	225.935	3.35630	1.816	2.781	5708
110	0.21301	4419.87	69.543	3.319	239.982	3.48700	1.835	2.846	5636
115	0.21661	4326.28	67.161	13.672	254.334	3.61459	1.857	2.899	5594
120	0.22027	4215.03	64.794	24.204	268.932	3.73885	1.883	2.957	5538
125	0.22409	4145.82	62.569	34.962	283.937	3.86135	1.912	3.010	5498
130	0.22792	3999.31	60.332	45.906	299.138	3.98060	1.946	3.084	5419
135	0.23187	3983.11	58.207	57.085	314.706	4.09810	1.984	3.127	5393
140	0.23583	3861.90	56.162	68.465	330.480	4.21283	2.025	3.202	5319
150	0.24391	3783.52	52.212	91.929	362.920	4.43664	2.117	3.307	5233
160	0.25233	3631.92	48.591	116.395	396.741	4.65489	2.217	3.443	5112
180	0.26995	3415.63	41.659	168.200	468.124	5.07654	2.423	3.657	4887
200	0.28791	3367.02	35.834	223.181	543.062	5.47112	2.604	3.841	4797
220	0.30620	3355.17	32.960	281.497	621.594	5.84572	2.780	4.017	4739
240	0.32473	3369.64	29.763	342.682	703.467	6.20120	2.919	4.151	4712
260	0.34343	3403.79	27.079	405.838	787.402	6.53727	3.012	4.235	4709
280	0.36224	3453.08	24.799	470.104	872.568	6.85273	3.059	4.271	4726
300	0.38111	3514.18	22.844	534.596	958.825	7.14767	3.072	4.270	4757
320	0.40000	3584.57	21.154	598.756	1043.168	7.42246	3.057	4.241	4800
340	0.41887	3662.23	19.684	662.148	1127.531	7.67789	3.025	4.193	4850
360	0.43771	3745.59	18.397	724.514	1210.831	7.91604	2.982	4.136	4906
380	0.45651	3833.40	17.262	785.720	1292.919	8.13798	2.933	4.073	4966
400	0.47525	3924.69	16.257	845.729	1373.749	8.34537	2.884	4.010	5028
420	0.49393	4018.67	15.361	904.573	1453.349	8.53954	2.836	3.950	5092
440	0.51255	4114.77	14.558	962.332	1531.796	8.72206	2.792	3.894	5157
460	0.53111	4212.50	13.836	1019.088	1609.172	8.89405	2.752	3.844	5221
480	0.54961	4311.51	13.182	1074.955	1685.594	9.05646	2.716	3.799	5285
500	0.56806	4411.51	12.589	1130.031	1761.162	9.21088	2.685	3.759	5348
520	0.58645	4512.30	12.048	1184.417	1835.980	9.35773	2.659	3.724	5411
540	0.60479	4613.71	11.552	1238.199	1910.139	9.49767	2.635	3.693	5473
560	0.62308	4715.59	11.096	1291.390	1983.655	9.63087	2.616	3.667	5534
580	0.64133	4817.86	10.677	1344.213	2056.754	9.75898	2.600	3.645	5594
600	0.65954	4920.43	10.288	1396.700	2129.472	9.88231	2.586	3.625	5653
650	0.70491	5177.83	9.434	1526.512	2309.690	10.17110	2.560	3.588	5798
700	0.75008	5436.15	8.714	1655.022	2488.394	10.43623	2.543	3.561	5939
800	0.84001	5954.34	7.569	1909.441	2842.723	10.90971	2.526	3.531	6210
900	0.92952	6473.80	6.695	2162.295	3195.029	11.32438	2.517	3.514	6471
1000	1.01876	6994.17	6.007	2414.033	3545.918	11.69387	2.515	3.506	6721
1500	1.46311	9607.36	3.982	3676.010	5301.584	13.11701	2.551	3.532	7851
2000	1.90649	12235.35	2.984	4972.661	7090.844	14.14433	2.654	3.634	8810
2500	2.34972	14873.01	2.388	6331.758	8942.382	14.97005	2.793	3.773	9648
3000	2.79296	17516.88	1.991	7760.889	10863.973	15.66079	2.927	3.908	10408
3500	3.23632	20164.89	1.707	9260.881	12856.559	16.27772	3.054	4.036	11111
4000	3.68016	22815.77	1.494	10827.627	14916.421	17.02048	3.197	4.182	11760
5000	4.57510	28123.16	1.196	14247.141	19330.254	18.83827	3.672	4.692	12902

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

6000 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$(\partial H/\partial V)_P$ BTU/LB	$(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 43.240	5.70948	725.91	12.580	42111.28	0.0023639	0.10469	3.412	0.01069	1.30946	2.0133
44	5.69919	728.47	12.512	41801.31	0.0023809	0.10569	3.277	0.01069	1.30883	1.9360
46	5.67186	734.85	12.342	40990.77	0.0024253	0.10795	2.966	0.01068	1.30715	1.7630
48	5.64417	740.92	12.179	40187.46	0.0024693	0.10978	2.708	0.01063	1.30546	1.6250
50	5.61612	747.00	12.014	39392.81	0.0025129	0.11126	2.492	0.01055	1.30374	1.5135
52	5.58772	752.71	11.857	38605.04	0.0025560	0.11244	2.308	0.01046	1.30200	1.4217
54	5.55899	757.86	11.711	37827.16	0.0025985	0.11336	2.151	0.01036	1.30025	1.3449
56	5.52995	763.06	11.563	37059.00	0.0026403	0.11359	2.015	0.01020	1.29848	1.2864
58	5.50060	768.08	11.417	36301.17	0.0026813	0.11365	1.897	0.01003	1.29669	1.2372
60	5.47096	772.73	11.278	35554.30	0.0027215	0.11359	1.793	0.00987	1.29489	1.1950
62	5.44104	777.34	11.139	34818.99	0.0027607	0.11344	1.702	0.00972	1.29308	1.1589
64	5.41088	781.65	11.004	34095.84	0.0027988	0.11319	1.621	0.00956	1.29125	1.1277
66	5.38047	785.94	10.869	33385.45	0.0028357	0.11285	1.549	0.00941	1.28941	1.1009
68	5.34985	789.86	10.739	32688.41	0.0028713	0.11245	1.484	0.00927	1.28756	1.0774
70	5.31904	793.24	10.619	32005.29	0.0029054	0.11198	1.426	0.00913	1.28570	1.0563
75	5.24128	801.22	10.322	30361.99	0.0029833	0.11058	1.303	0.00883	1.28102	1.0140
80	5.16281	809.96	10.006	28817.31	0.0030486	0.10899	1.206	0.00855	1.27632	0.9833
85	5.08402	820.27	9.659	27378.57	0.0030996	0.10731	1.126	0.00830	1.27162	0.9608
90	5.00699	834.61	9.237	26116.05	0.0031054	0.10567	1.062	0.00814	1.26704	0.9379
95	4.92869	838.46	8.875	24542.11	0.0031671	0.10399	1.007	0.00795	1.26240	0.9259
100	4.85056	838.94	8.560	23024.33	0.0032501	0.10237	0.960	0.00774	1.25778	0.9208
105	4.77291	845.69	8.315	21913.92	0.0032879	0.10081	0.920	0.00760	1.25322	0.9133
110	4.69460	849.11	8.075	20749.52	0.0033515	0.09962	0.884	0.00746	1.24863	0.9088
115	4.61658	861.97	7.835	19972.62	0.0033627	0.09860	0.852	0.00737	1.24407	0.9013
120	4.53989	873.17	7.581	19135.77	0.0033860	0.09766	0.823	0.00728	1.23961	0.8973
125	4.46245	889.99	7.332	18500.55	0.0033820	0.09674	0.797	0.00720	1.23512	0.8931
130	4.38742	897.02	7.066	17546.65	0.0034384	0.09592	0.774	0.00709	1.23079	0.8963
135	4.31268	922.80	6.804	17177.89	0.0033885	0.09517	0.753	0.00706	1.22649	0.8910
140	4.24035	933.77	6.541	16375.80	0.0034295	0.09452	0.734	0.00696	1.22234	0.8958
150	4.09991	982.56	6.017	15512.08	0.0033659	0.09460	0.702	0.00698	1.21432	0.8833
160	3.96309	1019.94	5.531	14393.63	0.0033759	0.09540	0.674	0.00699	1.20656	0.8759
180	3.70439	1110.70	4.642	12652.81	0.0032924	0.09735	0.588	0.00719	1.19202	0.7946
200	3.47328	1219.48	4.073	11694.60	0.0031497	0.10330	0.603	0.00774	1.17917	0.8078
220	3.26587	1335.41	3.630	10957.53	0.0030080	0.10752	0.609	0.00820	1.16774	0.8193
240	3.07950	1447.21	3.311	10376.81	0.0028682	0.11038	0.609	0.00864	1.15756	0.8246
260	2.91180	1550.02	3.088	9911.14	0.0027322	0.11221	0.606	0.00910	1.14847	0.8239
280	2.76058	1641.80	2.936	9532.51	0.0026015	0.11325	0.603	0.00960	1.14033	0.8185
300	2.62391	1723.57	2.834	9220.89	0.0024774	0.11375	0.599	0.01015	1.13302	0.8102
320	2.50002	1796.44	2.768	8961.47	0.0023606	0.11388	0.597	0.01074	1.12643	0.8002
340	2.38736	1862.56	2.725	8743.07	0.0022514	0.11383	0.595	0.01137	1.12046	0.7896
360	2.28460	1923.65	2.701	8557.16	0.0021499	0.11370	0.595	0.01203	1.11504	0.7791
380	2.19053	1981.22	2.687	8397.20	0.0020557	0.11357	0.596	0.01273	1.11010	0.7690
400	2.10415	2037.25	2.679	8258.15	0.0019686	0.11352	0.597	0.01345	1.10558	0.7597
420	2.02457	2092.38	2.675	8136.10	0.0018880	0.11359	0.600	0.01420	1.10143	0.7513
440	1.95102	2147.56	2.673	8028.00	0.0018134	0.11380	0.604	0.01498	1.09761	0.7437
460	1.88285	2203.63	2.670	7931.48	0.0017444	0.11416	0.608	0.01577	1.09407	0.7369
480	1.81947	2260.52	2.667	7844.65	0.0016804	0.11467	0.613	0.01659	1.09079	0.7310
500	1.76039	2318.75	2.663	7766.00	0.0016210	0.11533	0.619	0.01743	1.08775	0.7257
520	1.70519	2378.27	2.658	7694.33	0.0015658	0.11614	0.625	0.01829	1.08490	0.7211
540	1.65348	2438.87	2.651	7628.66	0.0015143	0.11706	0.631	0.01917	1.08225	0.7171
560	1.60493	2501.29	2.643	7568.21	0.0014662	0.11812	0.638	0.02007	1.07976	0.7136
580	1.55926	2564.54	2.634	7512.31	0.0014212	0.11927	0.646	0.02099	1.07742	0.7105
600	1.51621	2628.90	2.624	7460.42	0.0013790	0.12053	0.654	0.02193	1.07522	0.7077
650	1.41863	2793.37	2.598	7345.41	0.0012843	0.12399	0.674	0.02436	1.07025	0.7022
700	1.33318	2961.87	2.571	7247.37	0.0012024	0.12784	0.696	0.02693	1.06592	0.6981
800	1.19046	3307.18	2.517	7088.43	0.0010677	0.13632	0.743	0.03243	1.05870	0.6925
900	1.07582	3655.71	2.472	6984.65	0.0009613	0.14531	0.791	0.03843	1.05294	0.6890
1000	0.98158	4007.41	2.433	6865.35	0.0008750	0.15464	0.841	0.04493	1.04822	0.6868
1500	0.68347	5824.60	2.284	6566.38	0.0006064	0.20354	1.094	0.08431	1.03339	0.6833
2000	0.52452	7814.95	2.144	6417.73	0.0004650	0.27727	1.337	0.14547	1.02555	0.6310
2500	0.42558	10001.05	2.009	6329.70	0.0003773	0.33494	1.569	0.20859	1.02069	0.6364
3000	0.35804	12311.53	1.899	6271.80	0.0003174	0.39268	1.790	0.28065	1.01739	0.6414
3500	0.30899	14730.28	1.809	6230.80	0.0002740	0.45098	2.002	0.36166	1.01499	0.6450
4000	0.27173	17351.27	1.720	6199.67	0.0002410	0.51482	2.206	0.45305	1.01318	0.6450
5000	0.21857	24111.96	1.490	6147.00	0.0001946	0.70590	2.595	0.68835	1.01059	0.6209

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

6500 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
* 44.471	0.17363	7699.30	101.160	-110.173	98.810	1.37216	1.396	1.726	6641
46	0.17424	7618.45	101.119	-108.242	101.477	1.43112	1.415	1.762	6630
48	0.17505	7513.29	101.005	-105.652	105.348	1.50710	1.439	1.809	6615
50	0.17589	7408.88	100.823	-102.991	108.711	1.58188	1.462	1.855	6599
52	0.17674	7305.30	100.575	-100.259	112.468	1.65554	1.485	1.901	6583
54	0.17761	7202.64	100.259	-97.458	116.314	1.72812	1.505	1.945	6567
56	0.17849	7100.98	99.879	-94.591	120.250	1.79968	1.526	1.990	6550
58	0.17940	7000.41	99.434	-91.656	124.274	1.87029	1.546	2.034	6533
60	0.18032	6901.01	98.926	-88.656	128.385	1.93997	1.564	2.077	6515
62	0.18126	6802.88	98.355	-85.593	132.581	2.00876	1.583	2.119	6496
64	0.18222	6706.12	97.724	-82.468	136.860	2.07669	1.600	2.160	6477
66	0.18320	6610.80	97.033	-79.282	141.221	2.14378	1.616	2.201	6457
68	0.18419	6517.02	96.285	-76.038	145.662	2.21006	1.632	2.239	6437
70	0.18520	6424.88	95.479	-72.740	150.177	2.27550	1.645	2.276	6417
75	0.18781	6202.29	93.229	-64.275	161.772	2.43546	1.675	2.361	6365
80	0.19050	5991.94	90.663	-55.514	173.781	2.59044	1.704	2.441	6307
85	0.19329	5795.22	87.811	-46.471	186.182	2.74104	1.734	2.516	6242
90	0.19616	5613.43	84.705	-37.175	198.930	2.88675	1.761	2.581	6173
95	0.19901	5504.07	81.175	-27.683	211.847	3.02645	1.786	2.621	6116
100	0.20199	5265.11	77.661	-17.889	225.230	3.16374	1.811	2.676	6004
105	0.20506	4952.18	74.631	-8.047	238.766	3.29578	1.830	2.750	5871
110	0.20826	4834.59	71.918	1.971	252.637	3.42481	1.850	2.795	5817
115	0.21149	4650.44	69.461	12.143	266.694	3.54976	1.873	2.861	5737
120	0.21490	4536.94	67.275	22.536	281.194	3.67318	1.898	2.922	5688
125	0.21834	4455.96	65.053	33.121	295.923	3.79343	1.928	2.976	5645
130	0.22186	4303.17	62.928	43.921	310.958	3.91137	1.962	3.052	5569
135	0.22549	4288.56	60.873	54.966	326.377	4.02776	1.999	3.097	5548
140	0.22912	4166.43	58.903	66.222	341.995	4.14136	2.040	3.173	5479
150	0.23648	4054.55	55.128	89.458	374.093	4.36284	2.132	3.296	5389
160	0.24407	4000.92	51.451	113.723	407.487	4.57844	2.233	3.401	5313
180	0.26006	3688.51	44.389	165.461	478.478	4.99782	2.437	3.641	5053
200	0.27652	3622.34	39.364	220.288	553.109	5.39077	2.615	3.826	4955
220	0.29327	3596.97	35.312	278.486	631.472	5.76409	2.790	4.005	4891
240	0.31027	3600.58	31.954	339.584	713.029	6.11863	2.928	4.142	4857
260	0.32743	3625.58	29.124	402.706	796.805	6.45406	3.021	4.228	4849
280	0.34470	3666.93	25.712	466.979	881.867	6.76914	3.069	4.267	4860
300	0.36203	3721.02	24.636	531.515	967.269	7.06388	3.081	4.268	4887
320	0.37940	3785.16	22.836	595.748	1052.402	7.33863	3.066	4.241	4925
340	0.39676	3857.26	21.266	659.235	1136.790	7.59415	3.033	4.195	4971
360	0.41411	3935.68	19.888	721.712	1220.145	7.83246	2.990	4.139	5024
380	0.43142	4019.09	18.670	783.039	1302.310	8.05459	2.941	4.077	5086
400	0.44869	4106.47	17.589	843.176	1383.233	8.26223	2.892	4.015	5148
420	0.46591	4196.99	16.624	902.151	1462.937	8.45665	2.844	3.956	5208
440	0.48309	4290.00	15.759	960.042	1541.496	8.63944	2.799	3.900	5262
460	0.50021	4384.98	14.979	1016.929	1618.988	8.81168	2.759	3.850	5324
480	0.51727	4481.53	14.273	1072.924	1695.527	8.97434	2.723	3.805	5385
500	0.53429	4579.32	13.631	1128.125	1771.212	9.12900	2.692	3.765	5447
520	0.55126	4678.11	13.045	1182.632	1846.147	9.27607	2.665	3.730	5507
540	0.56819	4777.70	12.509	1236.529	1920.417	9.41623	2.641	3.699	5567
560	0.58508	4877.92	12.016	1289.833	1994.043	9.54962	2.622	3.673	5626
580	0.60192	4978.67	11.561	1342.762	2067.248	9.67792	2.605	3.650	5684
600	0.61873	5079.84	11.140	1395.351	2140.067	9.80142	2.591	3.630	5742
650	0.66060	5334.15	10.214	1525.399	2320.518	10.09059	2.565	3.592	5883
700	0.70230	5589.83	9.434	1654.118	2499.428	10.35602	2.547	3.565	6020
800	0.78530	6103.67	8.193	1908.889	2854.093	10.82996	2.530	3.534	6285
900	0.86791	6619.55	7.247	2162.021	3206.652	11.24492	2.521	3.517	6541
1000	0.95025	7136.85	6.501	2413.983	3557.730	11.61462	2.518	3.508	6787
1500	1.36024	9738.88	4.309	3676.618	5313.835	13.03812	2.553	3.532	7902
2000	1.76934	12359.65	3.230	4973.576	7103.196	14.06550	2.656	3.634	8852
2500	2.17833	14992.26	2.584	6332.845	8954.739	14.89122	2.794	3.773	9684
3000	2.58737	17632.42	2.155	7762.076	10876.296	15.58195	2.928	3.908	10441
3500	2.99654	20277.61	1.848	9262.052	12868.757	16.19885	3.054	4.035	11140
4000	3.40614	22926.26	1.618	10828.372	14928.087	16.94147	3.196	4.180	11787
5000	4.23187	28230.37	1.295	14241.699	19335.282	18.75782	3.660	4.677	12929

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

6500 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_P$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_P/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^2	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 44.471	5.75942	756.75	12.578	44343.52	0.0022813	0.10884	3.556	0.01095	1.31253	2.0305
46	5.73923	761.96	12.451	43724.05	0.0023127	0.11061	3.286	0.01094	1.31129	1.8844
48	5.71251	768.50	12.290	42919.77	0.0023533	0.11254	2.987	0.01089	1.30965	1.7278
50	5.68546	775.07	12.128	42122.89	0.0023936	0.11411	2.736	0.01082	1.30799	1.6016
52	5.65808	781.28	11.974	41334.00	0.0024332	0.11537	2.525	0.01073	1.30631	1.4979
54	5.63039	786.92	11.830	40553.78	0.0024723	0.11637	2.345	0.01062	1.30461	1.4113
56	5.60241	792.65	11.683	39782.57	0.0025106	0.11664	2.190	0.01046	1.30290	1.3450
58	5.57414	798.21	11.540	39021.22	0.0025482	0.11675	2.055	0.01030	1.30117	1.2891
60	5.54560	803.41	11.403	38270.23	0.0025849	0.11672	1.938	0.01013	1.29943	1.2413
62	5.51680	808.60	11.265	37530.17	0.0026207	0.11660	1.835	0.00997	1.29768	1.2004
64	5.48777	813.48	11.131	36801.63	0.0026554	0.11638	1.744	0.00982	1.29591	1.1650
66	5.45852	818.37	10.997	36085.16	0.0026890	0.11606	1.662	0.00966	1.29414	1.1347
68	5.42906	822.90	10.869	35381.33	0.0027213	0.11567	1.590	0.00951	1.29235	1.1081
70	5.39943	826.87	10.750	34690.68	0.0027523	0.11522	1.525	0.00938	1.29056	1.0843
75	5.32467	836.41	10.455	33025.16	0.0028230	0.11385	1.388	0.00906	1.28604	1.0366
80	5.24923	846.85	10.139	31453.10	0.0028825	0.11227	1.281	0.00876	1.28150	1.0025
85	5.17349	859.06	9.791	29981.53	0.0029288	0.11059	1.194	0.00850	1.27696	0.9777
90	5.09785	871.99	9.433	28616.44	0.0029600	0.10888	1.122	0.00827	1.27244	0.9578
95	5.02493	882.86	9.043	27657.59	0.0029356	0.10728	1.064	0.00815	1.26818	0.9360
100	4.95075	898.28	8.663	26866.25	0.0029794	0.10566	1.014	0.00797	1.26370	0.9247
105	4.87665	889.74	9.363	24150.05	0.0030903	0.10410	0.971	0.00776	1.25932	0.9230
110	4.80170	902.28	8.695	23214.22	0.0030980	0.10290	0.932	0.00767	1.25491	0.9117
115	4.72842	905.66	7.844	21989.24	0.0031589	0.10192	0.899	0.00753	1.25061	0.9083
120	4.65334	916.39	7.616	21111.92	0.0031866	0.10092	0.868	0.00742	1.24622	0.9049
125	4.57998	933.64	7.367	20408.21	0.0031876	0.10001	0.841	0.00734	1.24194	0.9010
130	4.50733	940.68	7.117	19395.84	0.0032444	0.09916	0.817	0.00721	1.23772	0.9047
135	4.43469	967.66	6.867	19018.43	0.0032007	0.09836	0.794	0.00716	1.23352	0.9001
140	4.36455	979.68	6.615	18184.56	0.0032592	0.09767	0.774	0.00705	1.22947	0.9053
150	4.22865	1025.14	6.115	17145.28	0.0032154	0.09773	0.739	0.00701	1.22167	0.8978
160	4.09725	1043.50	5.624	16392.76	0.0031386	0.09856	0.710	0.00707	1.21417	0.8823
180	3.84523	1163.39	4.737	14163.18	0.0031297	0.10067	0.660	0.00719	1.19992	0.7942
200	3.61643	1273.38	4.162	13099.93	0.0030649	0.10663	0.626	0.00771	1.18711	0.8084
220	3.40977	1390.96	3.712	12264.86	0.0028791	0.11079	0.631	0.00811	1.17566	0.8211
240	3.22302	1504.09	3.386	11604.74	0.0027536	0.11354	0.630	0.00851	1.16539	0.8275
260	3.05411	1607.62	3.157	11072.92	0.0026302	0.11523	0.626	0.00892	1.15618	0.8275
280	2.90108	1699.47	3.001	10638.06	0.0025109	0.11611	0.622	0.00938	1.14798	0.8226
300	2.76216	1780.79	2.895	10278.07	0.0023969	0.11646	0.617	0.00988	1.14042	0.8145
320	2.63575	1852.84	2.826	9976.72	0.0022890	0.11644	0.614	0.01042	1.13365	0.8046
340	2.52039	1917.94	2.782	9721.80	0.0021875	0.11624	0.611	0.01099	1.12751	0.7939
360	2.41482	1977.92	2.754	9503.94	0.0020926	0.11597	0.610	0.01160	1.12191	0.7832
380	2.31791	2034.38	2.739	9315.91	0.0020041	0.11571	0.609	0.01224	1.11680	0.7730
400	2.22870	2089.34	2.729	9152.09	0.0019219	0.11555	0.610	0.01291	1.11210	0.7634
420	2.14632	2143.51	2.723	9008.07	0.0018455	0.11552	0.612	0.01361	1.10778	0.7547
440	2.07003	2197.83	2.719	8880.41	0.0017746	0.11563	0.615	0.01432	1.10380	0.7469
460	1.99918	2253.14	2.715	8766.36	0.0017087	0.11591	0.619	0.01506	1.10011	0.7399
480	1.93321	2309.38	2.711	8663.74	0.0016474	0.11635	0.623	0.01582	1.09668	0.7337
500	1.87163	2367.06	2.709	8570.81	0.0015904	0.11695	0.628	0.01660	1.09349	0.7282
520	1.81401	2426.11	2.698	8486.15	0.0015373	0.11769	0.634	0.01740	1.09051	0.7234
540	1.75997	2486.32	2.691	8408.61	0.0014876	0.11856	0.640	0.01821	1.08772	0.7192
560	1.70918	2548.41	2.681	8337.26	0.0014412	0.11958	0.647	0.01905	1.08511	0.7155
580	1.66135	2611.39	2.671	8271.32	0.0013977	0.12070	0.654	0.01991	1.08265	0.7122
600	1.61622	2675.52	2.660	8210.14	0.0013569	0.12192	0.662	0.02078	1.08034	0.7094
650	1.51377	2839.58	2.631	8074.65	0.0012650	0.12533	0.682	0.02305	1.07510	0.7035
700	1.42388	3007.82	2.601	7959.28	0.0011853	0.12915	0.704	0.02544	1.07052	0.6991
800	1.27340	3352.88	2.543	7772.42	0.0010541	0.13763	0.750	0.03058	1.06289	0.6932
900	1.15220	3701.25	2.495	7627.04	0.0009501	0.14669	0.799	0.03620	1.05678	0.6895
1000	1.05235	4052.83	2.453	7510.47	0.0008656	0.15611	0.849	0.04229	1.05176	0.6871
1500	0.73516	5869.65	2.296	7159.68	0.0006018	0.20585	1.106	0.07927	1.03595	0.6833
2000	0.56518	7860.26	2.152	6985.46	0.0004623	0.27727	1.355	0.13506	1.02755	0.6394
2500	0.45907	10047.17	2.015	6882.45	0.0003755	0.33494	1.593	0.19338	1.02234	0.6459
3000	0.38649	12358.32	1.904	6814.61	0.0003162	0.39267	1.820	0.25999	1.01878	0.6519
3500	0.33372	14776.58	1.813	6767.01	0.0002731	0.45091	2.037	0.33484	1.01620	0.6562
4000	0.29359	17292.58	1.724	6730.86	0.0002403	0.51444	2.246	0.41920	1.01424	0.6570
5000	0.23630	24093.81	1.498	6670.89	0.0001941	0.70247	2.646	0.63547	1.01145	0.6342

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

7000 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 45.676	0.17219	8017.35	102.757	-107.913	115.287	1.38255	1.406	1.736	6773
46	0.17232	8000.52	102.755	-107.509	115.850	1.39483	1.410	1.744	6770
48	0.17309	7896.96	102.702	-104.975	119.383	1.47081	1.434	1.789	6757
50	0.17388	7794.10	102.583	-102.372	123.008	1.54399	1.457	1.835	6743
52	0.17468	7692.04	102.396	-99.698	126.723	1.61685	1.480	1.880	6729
54	0.17550	7590.86	102.143	-96.958	130.527	1.68863	1.501	1.924	6715
56	0.17634	7490.62	101.824	-94.152	134.419	1.75939	1.521	1.968	6699
58	0.17719	7391.42	101.441	-91.279	138.398	1.82920	1.542	2.011	6684
60	0.17806	7293.33	100.995	-88.342	142.462	1.89809	1.560	2.053	6668
62	0.17895	7196.45	100.486	-85.343	146.610	1.96610	1.579	2.095	6651
64	0.17985	7100.84	99.917	-82.282	150.840	2.03325	1.596	2.135	6633
66	0.18077	7006.61	99.287	-79.162	155.151	2.09957	1.614	2.175	6615
68	0.18170	6913.84	98.600	-75.983	159.541	2.16509	1.629	2.214	6597
70	0.18265	6822.61	97.855	-72.749	164.005	2.22979	1.643	2.250	6579
75	0.18509	6601.84	95.754	-64.446	175.469	2.38796	1.674	2.335	6531
80	0.18762	6392.59	93.331	-55.842	187.350	2.54127	1.705	2.416	6477
85	0.19023	6196.13	90.615	-46.946	199.627	2.69038	1.738	2.492	6417
90	0.19291	6013.70	87.636	-37.783	212.264	2.83482	1.768	2.560	6351
95	0.19564	5846.38	84.426	-28.384	225.213	2.97482	1.796	2.617	6282
100	0.19843	5695.13	81.016	-18.679	238.526	3.11142	1.820	2.661	6210
105	0.20141	5541.06	77.288	-8.888	252.186	3.24456	1.842	2.692	6125
110	0.20398	5149.35	74.377	0.937	265.336	3.36681	1.865	2.776	5958
115	0.20700	5084.32	71.779	11.006	279.327	3.49118	1.889	2.814	5923
120	0.21005	4869.72	69.281	21.238	293.504	3.61186	1.915	2.882	5826
125	0.21319	4688.08	67.188	31.673	308.018	3.73037	1.945	2.958	5747
130	0.21649	4647.58	65.180	42.353	322.968	3.84766	1.978	3.009	5723
135	0.21982	4558.58	63.140	53.258	338.197	3.96263	2.015	3.071	5674
140	0.22317	4453.30	61.305	64.391	353.664	4.07514	2.050	3.146	5618
150	0.22993	4351.83	57.688	87.403	385.438	4.29444	2.147	3.270	5541
160	0.23727	4322.48	54.086	111.599	419.152	4.51207	2.248	3.376	5485
180	0.25151	3965.02	47.024	163.120	489.132	4.92548	2.450	3.626	5214
200	0.26668	3880.55	41.818	217.795	563.471	5.31690	2.626	3.813	5109
220	0.28215	3841.06	37.602	275.860	641.579	5.68900	2.799	3.993	5038
240	0.29783	3833.44	34.093	336.875	722.929	6.04263	2.937	4.132	4999
260	0.31368	3849.16	31.125	399.949	806.547	6.37744	3.029	4.222	4985
280	0.32964	3882.58	28.587	464.213	891.500	6.69211	3.077	4.263	4992
300	0.34567	3929.74	25.396	528.773	976.838	6.98663	3.089	4.266	5014
320	0.36174	3987.73	24.492	593.057	1061.945	7.26130	3.074	4.241	5048
340	0.37781	4054.35	22.826	656.618	1146.342	7.51684	3.042	4.197	5091
360	0.39388	4127.87	21.360	719.184	1229.732	7.75525	2.998	4.141	5139
380	0.40992	4206.90	20.062	780.613	1311.955	7.97754	2.949	4.080	5193
400	0.42593	4290.36	18.908	840.859	1392.952	8.18537	2.900	4.019	5249
420	0.44190	4377.37	17.876	899.949	1472.742	8.38000	2.852	3.960	5307
440	0.45783	4467.23	15.950	957.956	1551.395	8.56300	2.807	3.905	5366
460	0.47371	4559.39	15.114	1014.960	1628.987	8.73547	2.766	3.855	5425
480	0.48955	4653.39	15.356	1071.071	1705.629	8.89834	2.730	3.810	5485
500	0.50534	4748.89	14.667	1126.385	1781.417	9.05322	2.699	3.770	5544
520	0.52110	4845.59	14.037	1181.003	1856.455	9.20049	2.671	3.735	5602
540	0.53681	4943.28	13.461	1235.008	1930.827	9.34084	2.648	3.704	5660
560	0.55249	5041.76	12.930	1288.415	2004.552	9.47441	2.628	3.678	5717
580	0.56812	5140.91	12.441	1341.445	2077.853	9.60289	2.611	3.655	5774
600	0.58373	5240.60	11.988	1394.130	2150.765	9.72654	2.597	3.635	5830
650	0.62261	5491.64	10.991	1524.401	2331.433	10.01605	2.570	3.596	5967
700	0.66132	5744.53	10.151	1653.320	2510.535	10.28177	2.552	3.569	6101
800	0.73837	6253.74	8.814	1908.429	2865.516	10.75613	2.534	3.537	6360
900	0.81505	6765.82	7.796	2161.833	3218.316	11.17138	2.524	3.519	6610
1000	0.89149	7279.85	6.993	2414.016	3569.575	11.54126	2.521	3.509	6852
1500	1.27200	9869.95	4.634	3677.310	5326.092	12.96512	2.555	3.533	7952
2000	1.65170	12482.93	3.474	4974.582	7115.535	13.99255	2.657	3.634	8893
2500	2.03134	15110.05	2.781	6334.029	8967.069	14.81827	2.795	3.773	9720
3000	2.41104	17746.16	2.319	7763.364	10888.583	15.50898	2.929	3.908	10472
3500	2.79089	20388.25	1.988	9263.337	12888.918	16.12584	3.055	4.035	11169
4000	3.17115	23034.45	1.741	10829.287	14939.764	16.86833	3.195	4.178	11814
5000	3.93757	28334.96	1.394	14237.114	19341.027	18.68341	3.649	4.665	12954

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

7000 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_V$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 45.676	5.80741	786.77	12.584	46560.06	0.0022070	0.11283	3.701	0.01119	1.31549	2.0505
46	5.80326	787.93	12.557	46429.12	0.0022131	0.11320	3.638	0.01119	1.31524	2.0178
48	5.77741	794.89	12.399	45623.96	0.0022511	0.11523	3.292	0.01115	1.31364	1.8404
50	5.75124	801.91	12.240	44825.78	0.0022885	0.11688	3.004	0.01107	1.31203	1.6979
52	5.72477	808.58	12.088	44035.17	0.0023253	0.11822	2.761	0.01098	1.31040	1.5810
54	5.69800	814.68	11.946	43252.69	0.0023615	0.11928	2.555	0.01088	1.30876	1.4836
56	5.67095	820.89	11.802	42478.92	0.0023970	0.11961	2.378	0.01072	1.30710	1.4086
58	5.64363	826.95	11.660	41714.43	0.0024318	0.11975	2.226	0.01055	1.30542	1.3455
60	5.61606	832.65	11.525	40959.77	0.0024657	0.11975	2.093	0.01039	1.30373	1.2916
62	5.58825	838.37	11.388	40215.50	0.0024987	0.11966	1.976	0.01022	1.30203	1.2455
64	5.56021	843.79	11.256	39482.18	0.0025307	0.11946	1.874	0.01006	1.30032	1.2057
66	5.53197	849.24	11.124	38760.35	0.0025616	0.11917	1.783	0.00990	1.29860	1.1715
68	5.50353	854.32	10.996	38050.55	0.0025913	0.11879	1.701	0.00975	1.29687	1.1415
70	5.47493	858.85	10.878	37353.29	0.0026197	0.11836	1.629	0.00961	1.29513	1.1147
75	5.40278	869.85	10.585	35668.33	0.0026846	0.11701	1.477	0.00927	1.29076	1.0613
80	5.33000	881.90	10.269	34072.46	0.0027392	0.11542	1.358	0.00896	1.28636	1.0232
85	5.25690	895.91	9.920	32572.48	0.0027820	0.11374	1.262	0.00868	1.28196	0.9959
90	5.18388	910.78	9.560	31174.27	0.0028112	0.11202	1.184	0.00844	1.27758	0.9746
95	5.11131	926.29	9.196	29882.66	0.0028252	0.11032	1.120	0.00825	1.27324	0.9563
100	5.03961	942.57	8.831	28701.24	0.0028227	0.10868	1.066	0.00810	1.26897	0.9391
105	4.96891	958.32	8.451	27510.88	0.0028094	0.10698	1.017	0.00800	1.26454	0.9215
110	4.90248	942.14	8.133	25244.59	0.0029462	0.10609	0.981	0.00780	1.26085	0.9243
115	4.83083	962.78	7.866	24561.49	0.0029224	0.10506	0.945	0.00773	1.25662	0.9111
120	4.76082	964.28	7.598	23183.83	0.0029884	0.10411	0.913	0.00759	1.25251	0.9102
125	4.69055	968.05	7.365	21989.67	0.0030554	0.10319	0.885	0.00744	1.24839	0.9131
130	4.61917	991.15	7.134	21467.97	0.0030362	0.10228	0.858	0.00736	1.24422	0.9092
135	4.54907	1008.76	6.888	20737.34	0.0030448	0.10146	0.835	0.00726	1.24015	0.9097
140	4.48092	1023.87	6.655	19954.91	0.0030722	0.10074	0.813	0.00715	1.23619	0.9144
150	4.34919	1072.98	6.177	18926.95	0.0030479	0.10077	0.777	0.00708	1.22859	0.9876
160	4.21459	1137.30	5.709	18217.50	0.0029689	0.10142	0.744	0.00713	1.22087	0.8916
180	3.97596	1215.64	4.827	15764.77	0.0029828	0.10386	0.632	0.00720	1.20729	0.7938
200	3.74977	1326.64	4.247	14551.18	0.0028738	0.10985	0.648	0.00768	1.19456	0.8090
220	3.54427	1445.73	3.790	13613.76	0.0027620	0.11395	0.652	0.00805	1.18310	0.8229
240	3.35759	1560.13	3.457	12871.11	0.0026488	0.11661	0.651	0.00840	1.17278	0.8302
260	3.18794	1664.41	3.223	12270.90	0.0025365	0.11817	0.646	0.00878	1.16348	0.8309
280	3.03358	1756.41	3.062	11778.14	0.0024271	0.11892	0.640	0.00920	1.15507	0.8264
300	2.89291	1837.41	2.954	11368.38	0.0023219	0.11912	0.635	0.00965	1.14745	0.8186
320	2.76443	1908.78	2.882	11023.82	0.0022217	0.11896	0.630	0.01015	1.14054	0.8087
340	2.64682	1972.97	2.835	10731.12	0.0021271	0.11862	0.627	0.01068	1.13424	0.7980
360	2.53886	2031.94	2.806	10480.07	0.0020381	0.11822	0.624	0.01124	1.12849	0.7872
380	2.43950	2087.35	2.789	10262.75	0.0019548	0.11785	0.623	0.01184	1.12322	0.7767
400	2.34781	2141.32	2.777	10072.96	0.0018771	0.11758	0.623	0.01246	1.11837	0.7670
420	2.26296	2194.56	2.770	9905.83	0.0018046	0.11745	0.624	0.01310	1.11390	0.7580
440	2.18424	2248.05	2.765	9757.49	0.0017371	0.11747	0.627	0.01377	1.10977	0.7499
460	2.11100	2302.64	2.759	9624.87	0.0016742	0.11767	0.630	0.01446	1.10594	0.7427
480	2.04270	2358.24	2.753	9505.48	0.0016155	0.11803	0.634	0.01517	1.10237	0.7363
500	1.97885	2415.37	2.746	9397.34	0.0015607	0.11857	0.638	0.01589	1.09905	0.7306
520	1.91903	2473.96	2.738	9298.82	0.0015096	0.11926	0.644	0.01664	1.09595	0.7257
540	1.86286	2533.77	2.729	9208.61	0.0014617	0.12008	0.650	0.01740	1.09304	0.7212
560	1.81000	2595.55	2.718	9125.61	0.0014169	0.12105	0.656	0.01819	1.09031	0.7174
580	1.76018	2658.25	2.707	9048.92	0.0013748	0.12214	0.663	0.01899	1.08774	0.7140
600	1.71312	2722.16	2.695	8977.88	0.0013353	0.12333	0.670	0.01981	1.08531	0.7110
650	1.60615	2885.81	2.663	8820.37	0.0012461	0.12668	0.690	0.02193	1.07982	0.7048
700	1.51212	3053.80	2.631	8686.41	0.0011687	0.13046	0.711	0.02418	1.07502	0.7002
800	1.35433	3398.60	2.569	8469.62	0.0010407	0.13893	0.757	0.02900	1.06699	0.6960
900	1.22691	3746.82	2.517	8301.06	0.0009391	0.14805	0.806	0.03429	1.06054	0.6900
1000	1.12172	4098.29	2.473	8165.93	0.0008563	0.15757	0.857	0.04003	1.05524	0.6874
1500	0.78616	5914.72	2.308	7759.39	0.0005973	0.20814	1.118	0.07496	1.03848	0.6833
2000	0.60544	7905.56	2.160	7557.61	0.0004597	0.27727	1.373	0.12602	1.02954	0.6478
2500	0.49229	10093.14	2.021	7438.48	0.0003738	0.33494	1.617	0.18833	1.02397	0.6556
3000	0.41476	12404.89	1.908	7360.37	0.0003150	0.39266	1.849	0.24226	1.02016	0.6625
3500	0.35831	14822.72	1.817	7305.28	0.0002722	0.45084	2.072	0.31165	1.01740	0.6677
4000	0.31534	17434.30	1.728	7263.75	0.0002397	0.51411	2.287	0.39019	1.01530	0.6692
5000	0.25396	24082.64	1.504	7196.06	0.0001937	0.69923	2.698	0.59025	1.01231	0.6479

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

7500 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 46.857	0.17083	8330.26	104.341	-105.628	131.625	1.39248	1.415	1.746	6901
48	0.17125	8272.01	104.336	-104.282	133.636	1.43487	1.429	1.772	6894
50	0.17200	8170.63	104.275	-101.651	137.224	1.50811	1.452	1.817	6881
52	0.17276	8070.00	104.147	-99.033	140.902	1.58024	1.475	1.861	6869
54	0.17354	7970.21	103.953	-96.348	144.668	1.65128	1.496	1.904	6856
56	0.17434	7871.33	103.693	-93.598	148.519	1.72131	1.517	1.947	6842
58	0.17514	7773.43	103.369	-90.783	152.456	1.79039	1.537	1.990	6828
60	0.17597	7676.60	102.981	-87.905	156.478	1.85856	1.556	2.031	6814
62	0.17681	7580.90	102.531	-84.965	160.582	1.92585	1.575	2.073	6798
64	0.17766	7486.44	102.020	-81.964	164.768	1.99229	1.593	2.113	6783
66	0.17853	7393.27	101.449	-78.903	169.033	2.05792	1.610	2.152	6766
68	0.17941	7301.49	100.818	-75.784	173.377	2.12275	1.626	2.191	6750
70	0.18030	7211.17	100.131	-72.611	177.794	2.18677	1.641	2.227	6733
75	0.18260	6992.31	98.169	-64.457	189.141	2.34331	1.673	2.312	6689
80	0.18498	6784.36	95.882	-55.999	200.905	2.49513	1.706	2.393	6640
85	0.18744	6588.51	93.295	-47.240	213.072	2.64288	1.740	2.471	6583
90	0.18995	6405.92	90.437	-38.201	225.607	2.78617	1.774	2.542	6521
95	0.19253	6237.64	87.337	-28.910	238.470	2.92525	1.804	2.602	6455
100	0.19514	6084.58	84.026	-19.291	251.719	3.06119	1.832	2.650	6386
105	0.19778	5947.50	80.536	-9.620	265.057	3.19133	1.853	2.683	6315
110	0.20058	5895.84	77.448	0.238	278.806	3.31914	1.877	2.711	6281
115	0.20315	5580.94	74.142	10.187	292.321	3.43917	1.904	2.769	6133
120	0.20580	5257.46	71.558	20.296	306.114	3.55653	1.932	2.849	5993
125	0.20865	5144.09	69.059	30.616	320.394	3.67313	1.962	2.897	5931
130	0.21160	4913.90	66.952	41.141	335.015	3.78786	1.996	2.979	5829
135	0.21483	4827.94	65.136	51.952	350.312	3.90333	2.032	3.046	5790
140	0.21796	4794.75	63.248	62.978	365.684	4.01514	2.072	3.100	5764
150	0.22438	4701.57	59.768	85.816	397.430	4.23413	2.163	3.225	5699
160	0.23095	4647.48	56.393	109.750	430.496	4.44752	2.263	3.345	5641
180	0.24403	4245.29	49.570	161.119	500.031	4.85862	2.463	3.612	5370
200	0.25810	4141.92	44.200	215.644	574.092	5.24857	2.636	3.799	5259
220	0.27245	4087.69	39.833	273.581	651.954	5.61950	2.808	3.982	5182
240	0.28701	4068.39	36.183	334.503	733.103	5.97226	2.945	4.124	5137
260	0.30173	4074.58	33.085	397.520	816.566	6.30644	3.038	4.215	5118
280	0.31657	4099.96	30.427	461.762	901.408	6.62070	3.085	4.258	5120
300	0.33147	4140.16	28.126	526.330	986.676	6.91498	3.097	4.264	5138
320	0.34641	4192.03	26.121	590.650	1071.749	7.18954	3.082	4.240	5168
340	0.36137	4253.21	24.363	654.267	1156.142	7.44507	3.050	4.197	5207
360	0.37633	4321.85	22.813	716.906	1239.554	7.68354	3.006	4.143	5253
380	0.39127	4396.52	21.438	778.420	1321.819	7.90594	2.957	4.083	5303
400	0.40619	4476.05	20.213	838.760	1402.874	8.11392	2.907	4.023	5357
420	0.42107	4559.53	19.116	897.949	1482.735	8.30872	2.859	3.964	5412
440	0.43592	4646.21	18.130	956.060	1561.469	8.49191	2.814	3.909	5468
460	0.45073	4735.49	17.239	1013.168	1639.147	8.66457	2.773	3.859	5525
480	0.46551	4826.89	16.431	1069.384	1715.879	8.82764	2.737	3.814	5583
500	0.48024	4920.02	15.696	1124.802	1791.759	8.98270	2.705	3.774	5639
520	0.49494	5014.57	15.023	1179.522	1866.869	9.13015	2.678	3.739	5696
540	0.50960	5110.28	14.407	1233.626	1941.353	9.27068	2.654	3.708	5752
560	0.52422	5206.96	13.840	1287.130	2015.168	9.40442	2.634	3.682	5807
580	0.53881	5304.44	13.316	1340.253	2088.557	9.53304	2.617	3.659	5862
600	0.55338	5402.58	12.832	1393.028	2161.555	9.65684	2.602	3.639	5916
650	0.58966	5650.19	11.765	1523.511	2342.423	9.94667	2.575	3.600	6050
700	0.62578	5900.15	10.866	1652.622	2521.705	10.21266	2.557	3.572	6180
800	0.69767	6404.49	9.433	1908.058	2876.986	10.66742	2.538	3.539	6433
900	0.76922	6912.56	8.343	2161.728	3230.015	11.10294	2.528	3.521	6679
1000	0.84052	7423.14	7.483	2414.129	3581.447	11.47301	2.524	3.511	6916
1500	1.19547	10000.60	4.959	3678.083	5338.352	12.89720	2.557	3.533	8001
2000	1.54968	12605.22	3.718	4975.675	7127.862	13.92467	2.659	3.634	8934
2500	1.90385	15226.42	2.976	6335.306	8979.373	14.75037	2.797	3.773	9755
3000	2.25813	17858.15	2.482	7764.752	10900.833	15.44107	2.930	3.907	10503
3500	2.61256	20496.86	2.129	9264.734	12893.043	16.05789	3.056	4.034	11197
4000	2.96738	23140.40	1.864	10830.360	14951.443	16.80026	3.194	4.177	11839
5000	3.68240	28436.97	1.492	14233.257	19347.358	18.61418	3.639	4.653	12978

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

7500 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 46.857	5.85363	815.97	12.597	48762.28	0.0021398	0.11667	3.647	0.01142	1.31835	2.0727
48	5.83926	820.20	12.507	48302.46	0.0021601	0.11784	3.628	0.01139	1.31746	1.9638
50	5.81383	827.63	12.350	47503.11	0.0021951	0.11958	3.296	0.01132	1.31589	1.8029
52	5.78822	834.72	12.200	46710.94	0.0022296	0.12099	3.018	0.01123	1.31431	1.6714
54	5.76227	841.23	12.061	45926.50	0.0022635	0.12212	2.783	0.01113	1.31271	1.5622
56	5.73605	847.89	11.918	45150.34	0.0022966	0.12249	2.582	0.01097	1.31110	1.4777
58	5.70958	854.41	11.778	44383.01	0.0023290	0.12267	2.409	0.01080	1.30947	1.4067
60	5.68287	860.58	11.645	43625.06	0.0023606	0.12270	2.258	0.01063	1.30783	1.3461
62	5.65592	866.79	11.509	42877.63	0.0023913	0.12264	2.127	0.01046	1.30618	1.2943
64	5.62877	872.71	11.379	42139.44	0.0024210	0.12246	2.012	0.01030	1.30451	1.2496
66	5.60142	878.68	11.247	41412.83	0.0024497	0.12218	1.910	0.01013	1.30284	1.2112
68	5.57389	884.28	11.121	40697.70	0.0024772	0.12182	1.819	0.00998	1.30116	1.1776
70	5.54620	889.33	11.004	39994.57	0.0025036	0.12139	1.738	0.00983	1.29947	1.1477
75	5.47636	901.68	10.712	38292.41	0.0025637	0.12006	1.570	0.00948	1.29522	1.0880
80	5.40590	915.27	10.397	36675.55	0.0026143	0.11848	1.438	0.00916	1.29095	1.0455
85	5.33514	931.00	10.047	35150.62	0.0026542	0.11678	1.333	0.00886	1.28667	1.0154
90	5.26441	947.72	9.685	33723.44	0.0026817	0.11504	1.248	0.00860	1.28241	0.9923
95	5.19409	965.18	9.318	32398.85	0.0026957	0.11331	1.177	0.00838	1.27819	0.9731
100	5.12452	983.50	8.950	31180.59	0.0026948	0.11164	1.118	0.00822	1.27403	0.9558
105	5.05612	1001.73	8.594	30071.25	0.0026782	0.11006	1.069	0.00811	1.26996	0.9379
110	4.98549	1028.79	8.276	29393.64	0.0026348	0.10880	1.024	0.00805	1.26576	0.9188
115	4.92248	1026.13	7.912	27472.04	0.0026988	0.10796	0.989	0.00792	1.26203	0.9134
120	4.85903	1016.98	7.622	25546.17	0.0028011	0.10713	0.958	0.00774	1.25828	0.9167
125	4.79263	1034.13	7.342	24653.70	0.0028012	0.10624	0.928	0.00765	1.25438	0.9110
130	4.72582	1033.26	7.099	23622.23	0.0028831	0.10537	0.901	0.00748	1.25046	0.9170
135	4.65477	1050.84	6.887	22472.96	0.0028984	0.10443	0.875	0.00737	1.24630	0.9183
140	4.58795	1078.17	6.652	21998.05	0.0028752	0.10366	0.852	0.00729	1.24241	0.9172
150	4.45678	1130.74	6.281	20953.88	0.0028524	0.10358	0.812	0.00721	1.23480	0.9105
160	4.32990	1193.51	5.754	20123.13	0.0028024	0.10432	0.779	0.00720	1.22748	0.8990
180	4.09781	1267.55	4.912	17396.40	0.0028494	0.10694	0.653	0.00723	1.21420	0.7934
200	3.87448	1379.41	4.328	16047.75	0.0027543	0.11297	0.669	0.00767	1.20156	0.8096
220	3.67044	1499.87	3.864	15003.64	0.0026549	0.11703	0.673	0.00801	1.19012	0.8245
240	3.48413	1615.45	3.526	14175.02	0.0025526	0.11959	0.671	0.00832	1.17977	0.8327
260	3.31418	1720.45	3.286	13503.88	0.0024500	0.12184	0.665	0.00866	1.17039	0.8341
280	3.15889	1812.66	3.122	12951.32	0.0023493	0.12166	0.659	0.00904	1.16189	0.8301
300	3.01686	1893.40	3.010	12490.28	0.0022518	0.12172	0.652	0.00946	1.15416	0.8224
320	2.88671	1964.18	2.936	12101.21	0.0021586	0.12143	0.647	0.00992	1.14712	0.8126
340	2.76721	2027.56	2.887	11769.54	0.0020700	0.12097	0.642	0.01042	1.14069	0.8019
360	2.65723	2085.60	2.856	11484.16	0.0019865	0.12045	0.639	0.01094	1.13480	0.7909
380	2.55576	2140.05	2.837	11236.44	0.0019079	0.11997	0.637	0.01150	1.12939	0.7803
400	2.46191	2193.09	2.824	11019.61	0.0018343	0.11960	0.636	0.01208	1.12440	0.7703
420	2.37488	2245.46	2.816	10828.33	0.0017654	0.11937	0.637	0.01268	1.11980	0.7612
440	2.29398	2298.15	2.809	10658.32	0.0017010	0.11931	0.638	0.01330	1.11553	0.7529
460	2.21864	2352.04	2.802	10506.16	0.0016409	0.11943	0.641	0.01395	1.11157	0.7455
480	2.14828	2407.02	2.795	10369.10	0.0015846	0.11972	0.644	0.01461	1.10788	0.7388
500	2.08229	2463.62	2.786	10244.89	0.0015320	0.12019	0.648	0.01529	1.10444	0.7330
520	2.02046	2521.76	2.777	10131.72	0.0014828	0.12083	0.653	0.01599	1.10122	0.7278
540	1.96233	2581.19	2.767	10028.08	0.0014367	0.12160	0.659	0.01671	1.09819	0.7233
560	1.90753	2642.65	2.755	9932.73	0.0013933	0.12253	0.665	0.01744	1.09535	0.7193
580	1.85593	2705.03	2.742	9844.64	0.0013526	0.12358	0.671	0.01820	1.09268	0.7157
600	1.80709	2768.78	2.729	9762.95	0.0013143	0.12473	0.678	0.01897	1.09015	0.7126
650	1.69591	2932.83	2.694	9582.19	0.0012278	0.12802	0.698	0.02097	1.08443	0.7062
700	1.59800	3099.76	2.660	9428.45	0.0011524	0.13177	0.719	0.02308	1.07941	0.7013
800	1.43333	3444.32	2.594	9179.77	0.0010276	0.14023	0.765	0.02764	1.07100	0.6947
900	1.30002	3792.40	2.539	8986.48	0.0009265	0.14940	0.814	0.03264	1.06424	0.6905
1000	1.18973	4143.77	2.492	8831.56	0.0008473	0.15902	0.865	0.03807	1.05867	0.6878
1500	0.83643	5959.79	2.319	8365.39	0.0005928	0.21042	1.130	0.07120	1.04098	0.6863
2000	0.64530	7950.78	2.167	8134.03	0.0004571	0.27727	1.391	0.11824	1.03150	0.6563
2500	0.52525	10136.97	2.026	7997.68	0.0003721	0.33494	1.641	0.16902	1.02559	0.6653
3000	0.44284	12451.26	1.912	7908.38	0.0003138	0.39265	1.880	0.22692	1.02154	0.6733
3500	0.38277	14868.69	1.820	7845.52	0.0002713	0.45078	2.109	0.29192	1.01860	0.6794
4000	0.33700	17476.33	1.731	7798.27	0.0002390	0.51381	2.330	0.36504	1.01636	0.6817
5000	0.27156	24077.21	1.510	7722.41	0.0001933	0.69641	2.752	0.55113	1.01317	0.6618

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

8000 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 48.015	0.16954	8638.43	105.914	-103.325	147.833	1.40199	1.424	1.756	7025
50	0.17025	8539.19	105.909	-100.842	151.362	1.47401	1.447	1.800	7014
52	0.17098	8439.92	105.837	-98.275	155.005	1.54545	1.470	1.843	7003
54	0.17172	8341.45	105.699	-95.642	158.735	1.61582	1.491	1.886	6991
56	0.17247	8243.86	105.496	-92.945	162.549	1.68517	1.512	1.928	6979
58	0.17324	8147.21	105.228	-90.184	166.448	1.75359	1.533	1.971	6967
60	0.17402	8051.57	104.896	-87.360	170.431	1.82109	1.552	2.012	6954
62	0.17482	7957.03	104.502	-84.475	174.495	1.88772	1.571	2.052	6940
64	0.17563	7863.66	104.045	-81.530	178.639	1.95351	1.589	2.092	6926
66	0.17645	7771.54	103.529	-78.525	182.863	2.01849	1.607	2.131	6911
68	0.17728	7680.73	102.953	-75.462	187.164	2.08269	1.623	2.169	6896
70	0.17813	7591.32	102.320	-72.345	191.539	2.14610	1.638	2.205	6881
75	0.18031	7374.42	100.491	-64.331	202.779	2.30116	1.672	2.290	6841
80	0.18256	7167.89	98.332	-56.008	214.436	2.45160	1.706	2.372	6795
85	0.18488	6972.90	95.868	-47.378	226.501	2.59813	1.742	2.451	6742
90	0.18726	6790.53	93.124	-38.457	238.944	2.74035	1.778	2.524	6683
95	0.18969	6621.77	90.131	-29.269	251.729	2.87858	1.811	2.588	6620
100	0.19215	6467.52	86.916	-19.733	264.918	3.01390	1.842	2.641	6554
105	0.19464	6328.53	83.509	-10.122	278.220	3.14370	1.867	2.678	6486
110	0.19715	6205.38	79.941	-0.365	291.684	3.26897	1.890	2.705	6415
115	0.19975	6302.42	77.720	9.563	305.472	3.39149	1.916	2.730	6451
120	0.20215	5986.46	74.180	19.632	319.095	3.50738	1.947	2.782	6295
125	0.20466	5444.93	71.253	29.863	333.044	3.62125	1.979	2.883	6062
130	0.20743	5415.01	68.826	40.319	347.601	3.73544	2.014	2.920	6031
135	0.21020	5122.29	65.803	50.973	362.367	3.84690	2.051	3.007	5899
140	0.21309	4900.38	64.861	61.674	377.538	3.95726	2.091	3.101	5803
150	0.21901	4895.77	61.540	84.483	408.919	4.17383	2.180	3.211	5779
160	0.22515	4844.58	58.397	108.224	441.762	4.38590	2.280	3.337	5732
180	0.23743	4529.30	52.033	159.412	511.132	4.79650	2.475	3.598	5523
200	0.25053	4406.60	45.516	213.790	584.925	5.18504	2.645	3.787	5406
220	0.26391	4337.09	42.009	271.599	662.550	5.55484	2.817	3.971	5322
240	0.27750	4305.61	39.228	332.424	743.503	5.90674	2.953	4.115	5272
260	0.29124	4301.92	35.006	395.377	826.815	6.24032	3.045	4.209	5248
280	0.30509	4319.05	32.234	459.588	911.546	6.55416	3.093	4.254	5246
300	0.31902	4352.20	29.828	524.154	996.739	6.84819	3.105	4.261	5260
320	0.33298	4397.92	27.727	588.496	1081.771	7.12261	3.090	4.239	5287
340	0.34697	4453.65	25.880	652.155	1166.151	7.37810	3.057	4.197	5322
360	0.36096	4517.42	24.248	714.853	1249.574	7.61660	3.014	4.144	5365
380	0.37494	4587.72	22.798	776.439	1331.870	7.83909	2.964	4.085	5412
400	0.38890	4663.32	21.505	836.859	1412.973	8.04719	2.914	4.025	5463
420	0.40284	4743.25	20.345	896.136	1492.892	8.24213	2.866	3.967	5515
440	0.41674	4826.72	19.300	954.338	1571.694	8.42548	2.821	3.913	5569
460	0.43062	4913.08	18.356	1011.540	1649.447	8.59830	2.780	3.863	5624
480	0.44445	5001.83	17.499	1067.851	1726.258	8.76154	2.743	3.818	5679
500	0.45826	5092.55	16.717	1123.363	1802.220	8.91677	2.711	3.779	5734
520	0.47203	5184.89	16.003	1178.177	1877.433	9.06439	2.684	3.743	5788
540	0.48577	5278.58	15.347	1232.374	1951.981	9.20507	2.660	3.712	5843
560	0.49947	5373.39	14.744	1285.968	2025.878	9.33896	2.640	3.686	5896
580	0.51315	5469.14	14.187	1339.179	2099.348	9.46772	2.622	3.663	5949
600	0.52680	5565.67	13.671	1392.039	2172.425	9.59166	2.608	3.643	6002
650	0.56080	5809.72	12.535	1522.723	2353.480	9.88179	2.580	3.603	6132
700	0.59466	6056.62	11.577	1652.017	2532.932	10.14803	2.561	3.575	6259
800	0.66203	6555.87	10.050	1907.771	2888.497	10.62317	2.542	3.542	6506
900	0.72908	7059.74	8.887	2161.701	3241.745	11.03895	2.531	3.523	6746
1000	0.79589	7566.71	7.971	2414.317	3593.342	11.40919	2.527	3.512	6980
1500	1.12846	10130.83	5.282	3678.933	5350.616	12.83369	2.559	3.533	8050
2000	1.46034	12726.56	3.961	4976.854	7140.178	13.86119	2.660	3.634	8974
2500	1.79223	15341.41	3.171	6336.675	8991.654	14.68689	2.798	3.773	9789
3000	2.12424	17968.42	2.645	7766.237	10913.050	15.37756	2.931	3.907	10533
3500	2.45642	20603.49	2.269	9266.239	12905.133	15.99434	3.056	4.034	11224
4000	2.78897	23244.14	1.986	10831.581	14963.116	16.73661	3.194	4.175	11865
5000	3.45903	28536.45	1.591	14230.030	19354.173	18.54948	3.631	4.643	13002

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

8000 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 48.015	5.89822	844.56	12.613	50951.34	0.0020787	0.12040	3.995	0.01163	1.32111	2.0972
50	5.87374	852.31	12.459	50156.94	0.0021116	0.12221	3.617	0.01156	1.31960	1.9176
52	5.84879	859.78	12.311	49363.35	0.0021440	0.12370	3.299	0.01147	1.31805	1.7699
54	5.82358	866.69	12.174	48577.13	0.0021759	0.12488	3.031	0.01137	1.31649	1.6475
56	5.79811	873.76	12.033	47798.80	0.0022071	0.12529	2.802	0.01121	1.31492	1.5526
58	5.77240	880.70	11.895	47028.91	0.0022375	0.12551	2.606	0.01103	1.31333	1.4730
60	5.74645	887.30	11.763	46267.99	0.0022671	0.12557	2.436	0.01086	1.31174	1.4050
62	5.72029	893.96	11.629	45516.55	0.0022959	0.12553	2.289	0.01069	1.31013	1.3470
64	5.69392	900.34	11.500	44775.11	0.0023237	0.12537	2.159	0.01052	1.30851	1.2970
66	5.66737	906.80	11.370	44044.19	0.0023506	0.12511	2.045	0.01036	1.30688	1.2541
68	5.64064	912.89	11.245	43324.28	0.0023763	0.12476	1.943	0.01020	1.30524	1.2165
70	5.61376	918.42	11.128	42615.87	0.0024010	0.12434	1.853	0.01004	1.30359	1.1831
75	5.54597	932.05	10.838	40898.32	0.0024571	0.12302	1.666	0.00969	1.29946	1.1167
80	5.47758	947.08	10.523	39262.75	0.0025045	0.12143	1.521	0.00935	1.29529	1.0695
85	5.40889	964.44	10.172	37715.67	0.0025419	0.11972	1.406	0.00903	1.29113	1.0361
90	5.34021	982.94	9.808	36262.83	0.0025680	0.11796	1.312	0.00875	1.28698	1.0109
95	5.27187	1002.28	9.439	34909.09	0.0025819	0.11621	1.236	0.00852	1.28286	0.9905
100	5.20421	1022.58	9.067	33658.35	0.0025823	0.11450	1.172	0.00833	1.27880	0.9728
105	5.13760	1042.82	8.708	32513.42	0.0025685	0.11288	1.118	0.00820	1.27481	0.9551
110	5.07237	1065.26	8.338	31475.97	0.0025397	0.11171	1.073	0.00814	1.27092	0.9351
115	5.00622	1108.25	8.104	31551.29	0.0024633	0.11069	1.032	0.00810	1.26699	0.9163
120	4.94679	1110.43	7.702	29613.78	0.0025049	0.10991	1.000	0.00799	1.26347	0.9107
125	4.88614	1076.64	7.367	26604.68	0.0026782	0.10911	0.970	0.00774	1.25988	0.9228
130	4.82093	1107.43	7.090	26105.39	0.0026365	0.10821	0.941	0.00769	1.25604	0.9142
135	4.75727	1100.25	6.827	24368.09	0.0027332	0.10739	0.916	0.00751	1.25230	0.9229
140	4.69291	1099.58	6.611	22997.06	0.0028204	0.10661	0.892	0.00733	1.24853	0.9339
150	4.56602	1166.39	6.181	22354.20	0.0027529	0.10652	0.850	0.00727	1.24113	0.9226
160	4.44142	1229.62	5.767	21516.83	0.0027140	0.10723	0.815	0.00723	1.23391	0.9128
180	4.21183	1319.17	4.992	19076.63	0.0027276	0.10992	0.673	0.00725	1.22071	0.7929
200	3.99150	1431.78	4.406	17568.96	0.0026446	0.11599	0.689	0.00767	1.20817	0.8108
220	3.78918	1553.50	3.936	16434.00	0.0025562	0.12002	0.693	0.00798	1.19677	0.8259
240	3.60364	1670.16	3.592	15515.88	0.0024638	0.12250	0.691	0.00826	1.18640	0.8351
260	3.43360	1775.85	3.348	14771.04	0.0023699	0.12383	0.684	0.00857	1.17697	0.8371
280	3.27770	1868.25	3.180	14156.56	0.0022769	0.12434	0.677	0.00892	1.16839	0.8335
300	3.13464	1948.79	3.065	13642.59	0.0021864	0.12428	0.669	0.00931	1.16057	0.8261
320	3.00316	2019.03	2.988	13207.64	0.0020993	0.12387	0.663	0.00973	1.15342	0.8164
340	2.88209	2081.68	2.937	12835.81	0.0020162	0.12329	0.657	0.01019	1.14687	0.8056
360	2.77038	2138.87	2.904	12515.00	0.0019375	0.12266	0.653	0.01068	1.14086	0.7945
380	2.66703	2192.42	2.884	12235.85	0.0018632	0.12207	0.651	0.01120	1.13533	0.7837
400	2.57134	2244.59	2.870	11990.99	0.0017934	0.12160	0.649	0.01175	1.13022	0.7736
420	2.48239	2296.12	2.860	11774.60	0.0017278	0.12128	0.649	0.01231	1.12549	0.7642
440	2.39956	2348.06	2.851	11582.00	0.0016664	0.12113	0.650	0.01290	1.12110	0.7557
460	2.32226	2401.28	2.843	11409.44	0.0016088	0.12118	0.652	0.01351	1.11702	0.7481
480	2.24995	2455.67	2.835	11253.88	0.0015549	0.12141	0.655	0.01413	1.11322	0.7413
500	2.18217	2511.76	2.825	11112.83	0.0015043	0.12182	0.658	0.01477	1.10966	0.7353
520	2.11851	2569.47	2.815	10984.25	0.0014569	0.12240	0.663	0.01543	1.10633	0.7300
540	2.05860	2628.52	2.803	10866.48	0.0014124	0.12312	0.668	0.01611	1.10320	0.7252
560	2.00211	2689.68	2.790	10758.12	0.0013705	0.12401	0.674	0.01680	1.10026	0.7211
580	1.94875	2751.86	2.776	10658.00	0.0013311	0.12502	0.680	0.01751	1.09749	0.7174
600	1.89827	2815.33	2.762	10565.15	0.0012940	0.12614	0.687	0.01824	1.09487	0.7142
650	1.78317	2978.19	2.725	10359.74	0.0012099	0.12937	0.706	0.02013	1.08892	0.7075
700	1.68164	3145.69	2.688	10185.06	0.0011366	0.13308	0.726	0.02213	1.08369	0.7024
800	1.51050	3490.02	2.618	9902.61	0.0010149	0.14153	0.772	0.02645	1.07493	0.6955
900	1.37160	3837.98	2.560	9683.11	0.0009178	0.15074	0.821	0.03120	1.06786	0.6910
1000	1.25645	4189.26	2.510	9507.17	0.0008384	0.16045	0.873	0.03636	1.06203	0.6881
1500	0.88616	6004.89	2.329	8977.57	0.0005884	0.21268	1.143	0.06793	1.04345	0.6834
2000	0.68477	7995.96	2.174	8714.79	0.0004545	0.27727	1.409	0.11142	1.03345	0.6648
2500	0.55796	10184.70	2.031	8559.96	0.0003704	0.33494	1.665	0.15911	1.02720	0.6751
3000	0.47076	12497.45	1.916	8458.75	0.0003126	0.39265	1.910	0.21347	1.02291	0.6843
3500	0.40710	14914.49	1.823	8387.62	0.0002705	0.45072	2.146	0.27447	1.01979	0.6914
4000	0.35856	17518.50	1.734	8334.31	0.0002383	0.51153	2.373	0.34303	1.01741	0.6946
5000	0.28913	24076.54	1.516	8249.85	0.0001928	0.69385	2.807	0.51696	1.01402	0.6761

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

8500 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 49.152	0.16831	8942.19	107.479	-101.004	163.916	1.41111	1.432	1.765	7146
50	0.16860	8900.41	107.492	-99.955	165.422	1.44148	1.442	1.784	7142
52	0.16930	8802.44	107.474	-97.435	169.033	1.51229	1.465	1.827	7132
54	0.17000	8705.23	107.390	-94.851	172.729	1.58203	1.486	1.869	7122
56	0.17072	8608.87	107.240	-92.204	176.508	1.65076	1.507	1.911	7111
58	0.17146	8513.41	107.025	-89.493	180.372	1.71855	1.528	1.953	7100
60	0.17220	8418.93	106.747	-86.721	184.318	1.78544	1.547	1.993	7088
62	0.17296	8325.50	106.406	-83.887	188.345	1.85145	1.567	2.034	7076
64	0.17373	8233.19	105.003	-80.994	192.452	1.91664	1.585	2.073	7063
66	0.17451	8142.08	105.539	-78.042	196.637	1.98104	1.603	2.112	7050
68	0.17531	8052.23	105.015	-75.032	200.899	2.04465	1.620	2.150	7036
70	0.17612	7963.72	104.433	-71.968	205.235	2.10749	1.635	2.185	7023
75	0.17819	7748.78	102.732	-64.085	216.375	2.26118	1.670	2.270	6986
80	0.18032	7543.79	100.695	-55.890	227.935	2.41037	1.705	2.353	6944
85	0.18252	7349.82	98.347	-47.381	239.907	2.55576	1.743	2.433	6894
90	0.18478	7167.93	95.714	-38.572	252.265	2.69701	1.781	2.508	6839
95	0.18708	6999.07	92.822	-29.483	264.976	2.83445	1.817	2.575	6779
100	0.18942	6844.10	89.700	-20.029	278.109	2.96919	1.850	2.631	6715
105	0.19178	6703.76	86.375	-10.478	291.376	3.09864	1.878	2.674	6650
110	0.19415	6578.66	82.877	-0.757	304.832	3.22383	1.905	2.707	6580
115	0.19652	6469.24	79.232	9.106	318.427	3.34469	1.931	2.730	6508
120	0.19897	6757.73	78.050	19.113	332.288	3.46265	1.958	2.751	6632
125	0.20123	6441.39	74.203	29.339	346.075	3.57520	1.994	2.795	6468
130	0.20380	5906.97	70.738	39.756	360.533	3.68856	2.030	2.877	6228
135	0.20622	5576.37	68.553	50.334	374.915	3.79706	2.069	2.965	6084
140	0.20880	5436.78	65.227	61.146	389.798	3.90532	2.110	3.022	6006
150	0.21397	4999.48	63.085	83.482	420.270	4.11567	2.200	3.213	5815
160	0.21970	4995.98	60.023	107.017	452.815	4.32605	2.299	3.330	5790
180	0.23154	4816.95	54.418	157.960	522.401	4.73852	2.486	3.585	5672
200	0.24380	4674.68	48.769	212.196	595.936	5.12570	2.654	3.774	5549
220	0.25633	4589.40	44.134	269.877	673.330	5.49440	2.824	3.961	5460
240	0.26906	4545.28	40.229	330.603	754.893	5.84547	2.961	4.106	5404
260	0.28194	4531.32	36.891	393.488	837.255	6.17845	3.053	4.202	5376
280	0.29493	4539.94	34.010	457.660	921.875	6.49188	3.100	4.249	5369
300	0.30800	4565.87	31.503	522.215	1006.992	6.78564	3.112	4.258	5379
320	0.32110	4605.33	29.308	586.569	1091.978	7.05991	3.097	4.237	5402
340	0.33424	4655.56	27.376	650.260	1176.339	7.31534	3.064	4.197	5435
360	0.34738	4714.45	25.665	713.005	1259.765	7.55385	3.021	4.145	5474
380	0.36051	4780.36	24.143	774.651	1342.083	7.77640	2.971	4.086	5519
400	0.37363	4852.02	22.782	835.141	1423.222	7.98459	2.921	4.028	5567
420	0.38673	4928.37	21.561	894.494	1503.191	8.17966	2.873	3.970	5617
440	0.39980	5008.60	20.460	952.777	1582.050	8.36314	2.827	3.916	5669
460	0.41284	5092.02	19.463	1010.064	1659.869	8.53611	2.787	3.867	5721
480	0.42586	5178.08	18.558	1066.461	1736.750	8.69950	2.750	3.822	5774
500	0.43884	5266.34	17.732	1122.060	1812.786	8.85487	2.718	3.782	5827
520	0.45180	5356.42	16.976	1176.961	1888.074	9.00264	2.690	3.747	5880
540	0.46472	5448.03	15.282	1231.243	1962.597	9.14347	2.665	3.716	5932
560	0.47761	5540.92	15.643	1284.921	2036.671	9.27749	2.645	3.690	5984
580	0.49048	5634.90	15.053	1338.215	2110.216	9.40639	2.628	3.667	6035
600	0.50332	5729.78	14.506	1391.156	2183.366	9.53045	2.613	3.647	6087
650	0.53531	5970.15	13.301	1522.031	2364.596	9.82386	2.585	3.607	6213
700	0.56717	6213.87	12.284	1651.500	2544.207	10.08733	2.566	3.578	6336
800	0.63056	6707.83	11.664	1907.562	2900.043	10.56284	2.546	3.544	6578
900	0.69363	7207.34	9.430	2161.748	3253.501	10.97887	2.535	3.524	6813
1000	0.75648	7710.54	8.457	2414.576	3605.258	11.34928	2.531	3.514	7042
1500	1.06929	10260.68	5.605	3679.858	5362.882	12.77408	2.561	3.534	8098
2000	1.38145	12846.93	4.203	4978.115	7152.483	13.80160	2.662	3.634	9013
2500	1.69367	15455.08	3.365	6338.134	9003.912	14.62728	2.800	3.773	9823
3000	2.00602	18077.02	2.807	7767.818	10925.234	15.31792	2.933	3.907	10563
3500	2.31856	20708.47	2.408	9267.850	12917.187	15.93466	3.057	4.033	11250
4000	2.63146	23345.72	2.109	10832.942	14974.779	16.67682	3.194	4.174	11889
5000	3.26184	28633.41	1.689	14227.354	19361.392	18.48874	3.623	4.633	13024

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

8500 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CJ FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)/V_p$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
• 49.152	5.94130	872.62	12.631	53128.28	0.0020230	0.12402	4.145	0.01182	1.32379	2.1237
50	5.93108	876.03	12.567	52789.09	0.0020362	0.12479	3.969	0.01179	1.32315	2.0425
52	5.90680	883.86	12.421	51994.20	0.0020670	0.12634	3.605	0.01171	1.32165	1.8769
54	5.88225	891.11	12.286	51206.34	0.0020972	0.12758	3.300	0.01161	1.32012	1.7400
56	5.85745	898.56	12.147	50426.04	0.0021267	0.12803	3.040	0.01144	1.31859	1.6337
58	5.83243	905.91	12.011	49653.81	0.0021554	0.12828	2.819	0.01126	1.31704	1.5445
60	5.80717	912.90	11.880	48890.17	0.0021834	0.12837	2.627	0.01109	1.31548	1.4686
62	5.78171	919.99	11.748	48135.63	0.0022105	0.12836	2.461	0.01092	1.31391	1.4038
64	5.75606	926.80	11.620	47390.70	0.0022368	0.12821	2.316	0.01074	1.31233	1.3480
66	5.73022	933.70	11.490	46655.87	0.0022621	0.12797	2.188	0.01057	1.31074	1.3002
68	5.70421	940.26	11.366	45931.62	0.0022863	0.12763	2.075	0.01041	1.30914	1.2583
70	5.67805	946.24	11.251	45218.45	0.0023095	0.12722	1.975	0.01025	1.30753	1.2212
75	5.61210	961.07	10.962	43486.99	0.0023624	0.12590	1.767	0.00988	1.30349	1.1474
80	5.54557	977.46	10.648	41834.58	0.0024070	0.12431	1.607	0.00953	1.29943	1.0950
85	5.47872	996.38	10.296	40267.63	0.0024423	0.12258	1.480	0.00919	1.29536	1.0581
90	5.41186	1016.57	9.930	38791.83	0.0024674	0.12080	1.379	0.00890	1.29131	1.0305
95	5.34529	1037.72	9.558	37412.07	0.0024811	0.11901	1.295	0.00865	1.28728	1.0086
100	5.27935	1059.93	9.183	36132.36	0.0024825	0.11728	1.226	0.00844	1.28331	0.9902
105	5.21434	1082.13	8.820	34955.72	0.0024710	0.11561	1.168	0.00829	1.27941	0.9724
110	5.15061	1106.63	8.446	33884.13	0.0024459	0.11441	1.119	0.00821	1.27559	0.9528
115	5.08847	1134.03	9.062	32918.54	0.0024069	0.11345	1.077	0.00817	1.27188	0.9327
120	5.02585	1197.09	7.931	33963.34	0.0022981	0.11248	1.040	0.00814	1.26816	0.9153
125	4.96934	1205.76	7.489	32009.45	0.0023181	0.11174	1.009	0.00804	1.26480	0.9090
130	4.90674	1178.82	7.102	28983.94	0.0024406	0.11084	0.979	0.00785	1.26110	0.9151
135	4.84924	1169.53	6.833	27041.15	0.0025352	0.11014	0.954	0.00766	1.25771	0.9249
140	4.78916	1188.06	6.554	26037.62	0.0025435	0.10940	0.930	0.00756	1.25417	0.9251
150	4.67348	1189.83	6.135	23364.94	0.0027000	0.10952	0.890	0.00729	1.24739	0.9393
160	4.55169	1261.55	5.737	22740.19	0.0026395	0.11019	0.852	0.00727	1.24030	0.9268
180	4.31886	1370.53	5.068	20803.73	0.0026158	0.11280	0.793	0.00729	1.22684	0.7924
200	4.10166	1483.82	4.480	19173.94	0.0025435	0.11893	0.709	0.00768	1.21442	0.8103
220	3.90124	1606.71	4.005	17904.37	0.0024650	0.12293	0.713	0.00796	1.20307	0.8273
240	3.71666	1724.38	3.656	16893.25	0.0023814	0.12534	0.710	0.00821	1.19270	0.8373
260	3.54683	1830.68	3.407	16071.83	0.0022954	0.12657	0.703	0.00849	1.18324	0.8400
280	3.39061	1923.26	3.235	15393.15	0.0022094	0.12696	0.694	0.00881	1.17460	0.8368
300	3.24680	2003.60	3.118	14824.44	0.0021251	0.12679	0.686	0.00917	1.16670	0.8296
320	3.11425	2073.36	3.038	14342.16	0.0020435	0.12626	0.679	0.00957	1.15946	0.8199
340	2.99189	2135.32	2.986	13928.93	0.0019654	0.12557	0.672	0.01000	1.15281	0.8091
360	2.87872	2191.71	2.951	13571.60	0.0018911	0.12484	0.668	0.01046	1.14669	0.7980
380	2.77385	2244.42	2.929	13260.01	0.0018207	0.12414	0.664	0.01095	1.14105	0.7870
400	2.67645	2295.76	2.914	12986.18	0.0017544	0.12358	0.662	0.01146	1.13583	0.7767
420	2.58580	2346.52	2.902	12743.79	0.0016919	0.12318	0.661	0.01200	1.13099	0.7672
440	2.50125	2397.74	2.893	12527.75	0.0016332	0.12295	0.662	0.01255	1.12649	0.7585
460	2.42222	2450.32	2.884	12333.98	0.0015780	0.12293	0.663	0.01313	1.12230	0.7507
480	2.34820	2504.14	2.874	12159.14	0.0015262	0.12309	0.665	0.01372	1.11839	0.7437
500	2.27872	2559.75	2.863	12000.51	0.0014776	0.12344	0.669	0.01432	1.11473	0.7375
520	2.21339	2617.04	2.851	11855.84	0.0014319	0.12397	0.673	0.01495	1.11130	0.7320
540	2.15184	2675.73	2.839	11723.27	0.0013889	0.12464	0.677	0.01559	1.10807	0.7272
560	2.09374	2736.60	2.824	11601.27	0.0013484	0.12549	0.683	0.01624	1.10504	0.7229
580	2.03882	2798.53	2.810	11488.54	0.0013102	0.12646	0.689	0.01692	1.10217	0.7191
600	1.98681	2861.48	2.794	11383.98	0.0012742	0.12755	0.695	0.01760	1.09947	0.7157
650	1.86807	3024.29	2.755	11152.65	0.0011926	0.13071	0.714	0.01940	1.09331	0.7088
700	1.76314	3191.56	2.715	10955.94	0.0011212	0.13439	0.734	0.02130	1.08789	0.7035
800	1.58589	3535.69	2.641	10637.90	0.0010025	0.14281	0.779	0.02541	1.07879	0.6962
900	1.44169	3883.55	2.580	10390.74	0.0009075	0.15206	0.829	0.02993	1.07143	0.6916
1000	1.32191	4234.75	2.528	10192.61	0.0008298	0.16186	0.881	0.03485	1.06534	0.6885
1500	0.93520	6050.01	2.340	9595.82	0.0005841	0.21493	1.155	0.06504	1.04598	0.6834
2000	0.72387	8041.13	2.181	9299.61	0.0004519	0.27727	1.427	0.10540	1.03539	0.6733
2500	0.59044	10230.32	2.036	9125.22	0.0003688	0.33494	1.690	0.15037	1.02880	0.6851
3000	0.49850	12543.47	1.920	9011.38	0.0003115	0.39264	1.942	0.20159	1.02427	0.6955
3500	0.43130	14960.13	1.826	8931.50	0.0002696	0.45068	2.184	0.25906	1.02097	0.7036
4000	0.38002	17560.85	1.737	8871.78	0.0002377	0.51329	2.418	0.32360	1.01846	0.7077
5000	0.30658	24079.86	1.521	8778.30	0.0001924	0.69153	2.864	0.48685	1.01488	0.6908

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

9000 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 50.268	0.16714	9241.84	103.036	-98.669	179.880	1.41986	1.440	1.775	7264
52	0.16772	9158.11	103.062	-96.522	182.985	1.48060	1.460	1.812	7256
54	0.16839	9062.11	103.030	-93.985	186.650	1.54975	1.481	1.853	7247
56	0.16908	8966.92	108.932	-91.384	190.397	1.61789	1.502	1.895	7238
58	0.16978	8872.61	108.769	-88.721	194.228	1.68510	1.523	1.936	7228
60	0.17049	8779.24	103.542	-85.997	198.140	1.75141	1.543	1.976	7218
62	0.17122	8686.88	103.251	-83.213	202.132	1.81686	1.562	2.016	7207
64	0.17195	8595.60	107.899	-80.369	206.204	1.88149	1.581	2.055	7196
66	0.17270	8505.47	107.485	-77.466	210.353	1.94533	1.599	2.094	7184
68	0.17346	8416.56	107.012	-74.506	214.579	2.00840	1.616	2.132	7171
70	0.17423	8328.94	106.479	-71.491	218.878	2.07071	1.631	2.167	7159
75	0.17621	8115.97	104.899	-63.732	229.927	2.22313	1.667	2.252	7126
80	0.17824	7912.56	102.980	-55.659	241.396	2.37115	1.704	2.335	7087
85	0.18034	7719.75	100.744	-47.265	253.281	2.51550	1.744	2.417	7040
90	0.18249	7538.53	98.217	-38.564	265.560	2.65584	1.783	2.493	6988
95	0.18468	7369.84	95.423	-29.569	278.203	2.79254	1.821	2.562	6931
100	0.18690	7214.51	92.391	-20.195	291.282	2.92673	1.857	2.622	6870
105	0.18915	7073.28	89.146	-10.706	304.515	3.05585	1.888	2.669	6807
110	0.19140	6946.75	85.717	-1.024	317.961	3.18094	1.918	2.707	6740
115	0.19366	6835.40	82.131	8.825	331.573	3.30195	1.948	2.736	6669
120	0.19591	6739.54	78.412	18.818	345.305	3.41884	1.978	2.756	6596
125	0.19812	6659.34	74.585	28.932	359.113	3.53157	2.007	2.766	6521
130	0.20076	6830.96	74.010	39.367	373.949	3.64788	2.043	2.821	6610
135	0.20286	6388.01	70.757	49.928	388.000	3.75382	2.085	2.891	6406
140	0.20501	6751.76	63.213	60.681	402.340	3.85807	2.129	3.010	6138
150	0.20988	5364.15	63.993	82.919	432.702	4.06757	2.220	3.154	5942
160	0.21537	5169.75	61.270	106.278	465.197	4.27738	2.316	3.314	5854
180	0.22626	5108.05	55.731	156.733	533.812	4.68419	2.497	3.572	5818
200	0.23778	4946.14	50.962	210.829	607.097	5.07005	2.663	3.762	5690
220	0.24955	4844.74	45.210	268.384	684.267	5.43768	2.832	3.950	5595
240	0.26152	4787.53	42.190	329.009	764.842	5.78794	2.968	4.098	5534
260	0.27364	4762.91	38.742	391.823	847.857	6.12032	3.060	4.196	5501
280	0.28587	4762.71	35.756	455.952	932.365	6.43334	3.107	4.245	5490
300	0.29817	4781.20	33.152	520.489	1017.404	6.72683	3.119	4.255	5497
320	0.31052	4814.27	30.868	584.846	1102.341	7.00095	3.104	4.235	5516
340	0.32289	4858.91	28.852	648.560	1186.677	7.25630	3.071	4.196	5545
360	0.33528	4912.85	27.065	711.344	1270.101	7.49481	3.028	4.145	5582
380	0.34766	4974.34	25.473	773.039	1352.433	7.71740	2.978	4.088	5624
400	0.36003	5042.01	24.047	833.589	1433.602	7.92566	2.928	4.029	5669
420	0.37239	5114.77	22.766	893.009	1513.612	8.12083	2.880	3.972	5717
440	0.38472	5191.73	21.609	951.366	1592.522	8.30443	2.834	3.919	5767
460	0.39703	5272.17	20.561	1008.729	1670.397	8.47752	2.793	3.870	5817
480	0.40931	5355.51	19.608	1065.204	1747.341	8.64104	2.756	3.825	5868
500	0.42156	5441.27	18.739	1120.884	1823.443	8.79655	2.724	3.786	5919
520	0.43379	5529.06	17.942	1175.864	1898.799	8.94446	2.696	3.751	5970
540	0.44599	5618.55	17.211	1230.226	1973.492	9.08541	2.671	3.720	6021
560	0.45816	5709.48	16.536	1283.983	2047.535	9.21956	2.651	3.693	6071
580	0.47031	5801.63	15.913	1337.355	2121.150	9.34858	2.633	3.670	6121
600	0.48243	5894.82	15.336	1390.372	2194.368	9.47276	2.618	3.650	6170
650	0.51263	6131.48	14.063	1521.429	2375.762	9.76343	2.590	3.610	6293
700	0.54271	6371.85	12.988	1651.067	2555.525	10.03013	2.571	3.581	6413
800	0.60256	6860.33	11.275	1907.428	2911.620	10.50598	2.550	3.547	6649
900	0.66209	7355.31	9.970	2161.864	3265.280	10.92225	2.539	3.526	6879
1000	0.72142	7854.61	8.941	2414.903	3617.190	11.29282	2.534	3.515	7105
1500	1.01664	10390.16	5.925	3680.855	5375.150	12.71791	2.564	3.534	8146
2000	1.31128	12966.55	4.444	4979.457	7164.777	13.74545	2.664	3.634	9052
2500	1.60599	15567.45	3.559	6339.680	9016.148	14.57110	2.801	3.772	9855
3000	1.90086	18183.99	2.969	7769.493	10937.387	15.26171	2.934	3.907	10591
3500	2.19593	20810.95	2.547	9269.564	12929.206	15.87841	3.058	4.033	11276
4000	2.49136	23445.17	2.231	10834.437	14986.427	16.62048	3.194	4.173	11912
5000	3.08648	28727.91	1.787	14225.165	19368.951	18.43151	3.616	4.624	13046

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

9000 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 50.268	5.98301	899.96	12.654	55293.98	0.0019719	0.12754	4.295	0.01201	1.32639	2.1516
52	5.96248	907.01	12.530	54605.03	0.0019373	0.12892	3.940	0.01194	1.32511	1.9932
54	5.93854	914.59	12.397	53815.68	0.0020260	0.13023	3.593	0.01184	1.32362	1.8403
56	5.91436	922.39	12.260	53033.56	0.0020540	0.13072	3.299	0.01167	1.32212	1.7213
58	5.88995	930.10	12.125	52259.19	0.0020813	0.13100	3.048	0.01149	1.32060	1.6217
60	5.86532	937.47	11.996	51493.07	0.0021079	0.13111	2.833	0.01131	1.31908	1.5371
62	5.84050	944.95	11.865	50735.69	0.0021336	0.13112	2.646	0.01113	1.31754	1.4649
64	5.81548	952.16	11.738	49987.56	0.0021585	0.13099	2.484	0.01096	1.31599	1.4029
66	5.79029	959.49	11.610	49249.15	0.0021825	0.13076	2.341	0.01078	1.31444	1.3497
68	5.76494	966.47	11.487	48520.95	0.0022055	0.13043	2.215	0.01061	1.31287	1.3032
70	5.73944	972.88	11.372	47803.43	0.0022274	0.13002	2.103	0.01045	1.31130	1.2620
75	5.67514	988.84	11.085	46059.32	0.0022775	0.12871	1.874	0.01007	1.30735	1.1803
80	5.61027	1006.51	10.771	44391.64	0.0023198	0.12711	1.697	0.00970	1.30338	1.1223
85	5.54509	1026.92	10.419	42806.70	0.0023535	0.12536	1.558	0.00935	1.29940	1.0814
90	5.47987	1048.72	10.051	41310.16	0.0023775	0.12355	1.447	0.00904	1.29543	1.0511
95	5.41490	1071.61	9.677	39906.95	0.0023911	0.12174	1.356	0.00877	1.29149	1.0275
100	5.35049	1095.66	9.298	38601.17	0.0023935	0.11996	1.281	0.00855	1.28760	1.0081
105	5.28694	1119.75	8.932	37396.01	0.0023838	0.11826	1.218	0.00838	1.28377	0.9899
110	5.22456	1146.25	8.554	36293.72	0.0023618	0.11703	1.165	0.00827	1.28002	0.9705
115	5.16365	1175.77	8.166	35295.59	0.0023269	0.11603	1.120	0.00821	1.27637	0.9510
120	5.10450	1208.96	7.768	34401.97	0.0022793	0.11510	1.082	0.00818	1.27284	0.9322
125	5.04739	1246.52	7.363	33612.29	0.0022198	0.11427	1.048	0.00818	1.26944	0.9136
130	4.98102	1297.04	7.272	34025.11	0.0021752	0.11318	1.014	0.00805	1.26550	0.9101
135	4.92959	1286.79	6.884	31490.30	0.0022470	0.11260	0.990	0.00790	1.26245	0.9151
140	4.87783	1238.06	6.569	28856.12	0.0024313	0.11205	0.968	0.00763	1.25939	0.9359
150	4.76455	1259.50	6.051	25557.78	0.0025039	0.11213	0.925	0.00746	1.25273	0.9361
160	4.64327	1298.42	5.697	24004.52	0.0025524	0.11273	0.884	0.00733	1.24563	0.9360
180	4.41965	1421.65	5.140	22575.83	0.0025129	0.11560	0.712	0.00732	1.23265	0.7919
200	4.20563	1535.58	4.551	20801.65	0.0024499	0.12179	0.729	0.00770	1.22035	0.8106
220	4.00727	1659.57	4.072	19414.18	0.0023802	0.12576	0.733	0.00794	1.20906	0.8285
240	3.82384	1778.18	3.718	18306.74	0.0023046	0.12810	0.729	0.00818	1.19871	0.8393
260	3.65445	1885.04	3.465	17405.83	0.0022258	0.12925	0.721	0.00843	1.18923	0.8427
280	3.49813	1977.77	3.290	16660.56	0.0021461	0.12953	0.712	0.00872	1.18054	0.8399
300	3.35380	2057.91	3.169	16035.19	0.0020675	0.12925	0.703	0.00906	1.17257	0.8329
320	3.22043	2127.18	3.088	15504.02	0.0019909	0.12862	0.695	0.00943	1.16525	0.8233
340	3.09701	2188.49	3.033	15048.09	0.0019173	0.12782	0.688	0.00984	1.15852	0.8125
360	2.98261	2244.13	2.997	14653.12	0.0018470	0.12698	0.682	0.01027	1.15230	0.8012
380	2.87638	2296.04	2.974	14308.09	0.0017803	0.12620	0.678	0.01073	1.14656	0.7902
400	2.77754	2346.60	2.957	14004.37	0.0017171	0.12555	0.675	0.01122	1.14124	0.7797
420	2.68538	2396.62	2.944	13735.12	0.0016575	0.12506	0.673	0.01172	1.13630	0.7700
440	2.59930	2447.15	2.934	13494.85	0.0016013	0.12476	0.673	0.01225	1.13171	0.7611
460	2.51872	2499.12	2.923	13279.10	0.0015484	0.12467	0.674	0.01279	1.12742	0.7532
480	2.44314	2552.41	2.912	13084.26	0.0014986	0.12476	0.676	0.01335	1.12341	0.7460
500	2.37212	2607.55	2.900	12907.35	0.0014518	0.12506	0.679	0.01393	1.11965	0.7397
520	2.30526	2664.44	2.887	12745.93	0.0014077	0.12553	0.682	0.01452	1.11613	0.7341
540	2.24221	2722.80	2.874	12597.95	0.0013661	0.12616	0.687	0.01513	1.11281	0.7291
560	2.18264	2783.38	2.858	12461.72	0.0013270	0.12696	0.692	0.01575	1.10969	0.7247
580	2.12627	2845.08	2.842	12335.81	0.0012900	0.12790	0.698	0.01639	1.10674	0.7208
600	2.07284	2908.15	2.826	12219.02	0.0012551	0.12895	0.704	0.01704	1.10395	0.7173
650	1.95071	3070.29	2.784	11960.58	0.0011758	0.13205	0.722	0.01875	1.09759	0.7101
700	1.84260	3237.36	2.742	11740.79	0.0011063	0.13569	0.742	0.02056	1.09199	0.7046
800	1.65960	3581.31	2.664	11385.40	0.0009903	0.14409	0.787	0.02448	1.08256	0.6970
900	1.51036	3929.09	2.600	11109.18	0.0008974	0.15338	0.836	0.02880	1.07493	0.6921
1000	1.38615	4280.24	2.545	10887.70	0.0008212	0.16326	0.889	0.03351	1.06860	0.6889
1500	0.98363	6095.16	2.350	10220.05	0.0005798	0.21717	1.167	0.06248	1.04832	0.6835
2000	0.76261	8086.28	2.187	9888.47	0.0004494	0.27727	1.445	0.10005	1.03731	0.6818
2500	0.62267	10275.87	2.040	9693.38	0.0003671	0.33493	1.714	0.14259	1.03039	0.6952
3000	0.52608	12589.34	1.923	9566.18	0.0003103	0.39264	1.973	0.19103	1.02563	0.7069
3500	0.45539	15005.62	1.829	9477.05	0.0002688	0.45063	2.223	0.24536	1.02216	0.7162
4000	0.40139	17603.29	1.740	9410.60	0.0002370	0.51306	2.463	0.30633	1.01951	0.7212
5000	0.32399	24086.57	1.525	9307.67	0.0001920	0.68940	2.923	0.46013	1.01573	0.7059

* TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

9500 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 51.366	0.16602	9537.65	110.588	-96.322	195.729	1.42826	1.448	1.784	7379
52	0.16622	9507.43	110.607	-95.544	196.864	1.45022	1.455	1.797	7376
54	0.16687	9412.59	110.625	-93.050	200.499	1.51881	1.476	1.838	7369
56	0.16753	9318.52	110.577	-90.495	204.216	1.58640	1.497	1.879	7361
58	0.16820	9225.31	110.463	-87.877	208.016	1.65307	1.518	1.920	7352
60	0.16889	9133.01	110.286	-85.199	211.896	1.71884	1.538	1.960	7343
62	0.16958	9041.68	110.045	-82.460	215.856	1.78375	1.558	2.000	7333
64	0.17029	8951.40	109.741	-79.663	219.894	1.84786	1.576	2.039	7323
66	0.17100	8862.23	109.376	-76.807	224.010	1.91119	1.595	2.077	7313
68	0.17173	8774.23	108.951	-73.895	228.202	1.97375	1.612	2.114	7302
70	0.17247	8687.48	108.466	-70.927	232.467	2.03556	1.628	2.150	7291
75	0.17436	8476.48	107.003	-63.286	243.430	2.18681	1.665	2.235	7261
80	0.17630	8274.69	105.196	-55.328	254.814	2.33373	1.703	2.318	7225
85	0.17830	8083.12	103.068	-47.044	266.619	2.47710	1.744	2.401	7181
90	0.18035	7902.73	100.643	-38.446	278.824	2.61659	1.785	2.479	7132
95	0.18244	7734.42	97.945	-29.543	291.403	2.75260	1.825	2.551	7078
100	0.18457	7579.01	95.000	-20.248	304.432	2.88628	1.863	2.614	7019
105	0.18671	7437.23	91.834	-10.820	317.631	3.01507	1.896	2.665	6959
110	0.18887	7309.69	88.474	-1.181	331.065	3.14004	1.929	2.707	6894
115	0.19102	7196.87	84.945	8.650	344.689	3.26117	1.962	2.741	6825
120	0.19317	7099.13	81.274	18.649	358.464	3.37841	1.995	2.767	6753
125	0.19529	7016.69	77.483	28.797	372.345	3.49174	2.029	2.784	6679
130	0.19738	6949.64	73.595	39.075	386.291	3.60113	2.062	2.793	6604
135	0.20002	7364.15	74.348	49.632	401.493	3.71579	2.098	2.846	6606
140	0.20185	6979.59	70.912	60.406	415.493	3.81753	2.144	2.905	6619
150	0.20582	5922.69	65.872	82.587	444.650	4.01876	2.241	3.103	6164
160	0.21052	5395.58	62.021	105.766	476.096	4.22203	2.346	3.276	5916
180	0.22149	5402.40	58.974	155.704	545.341	4.63311	2.568	3.560	5961
200	0.23234	5220.90	53.099	209.665	616.386	5.01770	2.671	3.750	5828
220	0.24344	5103.13	48.240	267.094	695.336	5.38428	2.839	3.940	5728
240	0.25473	5032.47	44.113	327.618	775.728	5.73374	2.975	4.090	5662
260	0.26617	4996.80	40.559	390.358	858.596	6.06553	3.066	4.189	5624
280	0.27772	4987.45	37.474	454.440	942.994	6.37814	3.114	4.240	5609
300	0.28935	4998.25	34.777	518.953	1027.953	6.67136	3.126	4.251	5612
320	0.30102	5024.75	32.406	583.308	1112.838	6.94531	3.111	4.233	5628
340	0.31271	5063.67	30.310	647.037	1197.146	7.20057	3.078	4.195	5654
360	0.32443	5112.58	28.448	709.851	1280.561	7.43905	3.034	4.145	5688
380	0.33614	5169.59	26.787	771.589	1362.903	7.66167	2.985	4.088	5728
400	0.34784	5233.24	25.299	832.191	1444.094	7.86999	2.935	4.031	5771
420	0.35953	5302.36	23.959	891.671	1524.139	8.06524	2.886	3.974	5816
440	0.37120	5376.01	22.748	950.092	1603.092	8.24895	2.840	3.921	5864
460	0.38285	5453.44	21.650	1007.524	1681.019	8.42215	2.799	3.872	5912
480	0.39448	5534.02	20.651	1064.071	1758.018	8.58579	2.762	3.828	5961
500	0.40608	5617.25	19.738	1119.824	1834.180	8.74142	2.730	3.789	6010
520	0.41766	5702.71	18.902	1174.879	1909.599	8.88945	2.702	3.754	6059
540	0.42921	5790.05	18.133	1229.316	1984.356	9.03052	2.677	3.723	6108
560	0.44074	5878.98	17.424	1283.147	2058.463	9.16479	2.656	3.697	6156
580	0.45224	5969.27	16.769	1336.592	2132.142	9.29393	2.639	3.673	6205
600	0.46372	6060.72	16.161	1389.681	2205.425	9.41821	2.624	3.653	6253
650	0.49232	6293.42	14.821	1520.911	2386.973	9.70913	2.595	3.613	6372
700	0.52080	6530.50	13.689	1650.713	2566.879	9.97604	2.575	3.584	6489
800	0.57747	7013.34	11.884	1907.363	2923.221	10.45222	2.554	3.549	6719
900	0.63385	7503.65	10.508	2162.046	3277.077	10.86872	2.543	3.528	6945
1000	0.69002	7998.90	9.423	2415.294	3629.137	11.23945	2.538	3.516	7166
1500	0.96951	10519.29	5.245	3681.921	5387.419	12.66482	2.566	3.534	8192
2000	1.24844	13085.26	4.684	4960.876	7177.062	13.69237	2.666	3.634	9090
2500	1.52748	15678.56	3.751	6341.312	9028.364	14.51799	2.803	3.772	9887
3000	1.80670	18289.37	3.130	7771.260	10949.510	15.20857	2.935	3.907	10619
3500	2.08614	20911.87	2.686	9271.380	12941.192	15.82522	3.059	4.033	11301
4000	2.36592	23542.53	2.352	10836.060	14998.057	16.56720	3.194	4.171	11935
5000	2.92949	28819.97	1.885	14223.412	19376.798	18.37741	3.610	4.616	13066

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

9500 PSIA ISOBAR

TEMPERATURE	DENSITY	$V(\partial H/\partial V)_p$	$V(\partial P/\partial U)_v$	$-V(\partial P/\partial V)_T$	$(\partial V/\partial T)/V_p$	THERMAL CONDUCTIVITY	VISCOSITY	THERMAL DIFFUSIVITY	DIELECTRIC CONSTANT	PRANDTL NUMBER
DEG. R	LB/CU FT	BTU/LB	PSIA-CU FT/BTU	PSIA	1/DEG. R	BTU/FT-HR-R	LB/FT-SEC $\times 10^5$	SQ FT/HR		
• 51.366	6.02342	926.70	12.682	57449.26	0.0019250	0.13096	4.448	0.01219	1.32891	2.1811
52	6.01605	929.30	12.638	57197.22	0.0019338	0.13146	4.307	0.01216	1.32845	2.1196
54	5.99267	937.18	12.507	56406.49	0.0019612	0.13282	3.912	0.01206	1.32699	1.9490
56	5.96905	945.30	12.372	55622.70	0.0019880	0.13335	3.580	0.01189	1.32552	1.8161
58	5.94521	953.35	12.238	54846.36	0.0020140	0.13366	3.297	0.01171	1.32403	1.7050
60	5.92116	961.07	12.111	54077.94	0.0020394	0.13380	3.055	0.01153	1.32254	1.6108
62	5.89691	968.92	11.981	53317.96	0.0020639	0.13382	2.845	0.01135	1.32103	1.5306
64	5.87248	976.51	11.856	52566.88	0.0020876	0.13371	2.663	0.01117	1.31952	1.4617
66	5.84787	984.23	11.728	51825.19	0.0021105	0.13349	2.504	0.01099	1.31800	1.4027
68	5.82311	991.61	11.606	51093.36	0.0021324	0.13317	2.364	0.01082	1.31646	1.3512
70	5.79821	998.41	11.492	50371.85	0.0021533	0.13277	2.240	0.01065	1.31493	1.3057
75	5.73542	1015.44	11.207	48616.16	0.0022010	0.13146	1.986	0.01026	1.31106	1.2153
80	5.67206	1034.33	10.894	46934.51	0.0022413	0.12984	1.791	0.00987	1.30716	1.1513
85	5.60837	1056.15	10.540	45333.17	0.0022736	0.12808	1.639	0.00951	1.30326	1.1061
90	5.54464	1079.50	10.171	43817.77	0.0022969	0.12624	1.517	0.00918	1.29937	1.0727
95	5.48111	1104.06	9.794	42393.25	0.0023104	0.12439	1.418	0.00890	1.29551	1.0471
100	5.41810	1129.87	9.413	41063.82	0.0023135	0.12258	1.337	0.00866	1.29169	1.0265
105	5.35587	1155.79	9.043	39832.80	0.0023055	0.12084	1.269	0.00847	1.28792	1.0077
110	5.29471	1184.23	8.662	38702.69	0.0022860	0.11957	1.212	0.00834	1.28424	0.9881
115	5.23492	1215.81	8.270	37675.05	0.0022547	0.11853	1.164	0.00826	1.28064	0.9690
120	5.17677	1251.16	7.868	36750.58	0.0022115	0.11757	1.123	0.00821	1.27716	0.9510
125	5.12052	1290.98	7.459	35929.15	0.0021565	0.11670	1.087	0.00819	1.27379	0.9335
130	5.06642	1336.17	7.045	35209.82	0.0020902	0.11593	1.056	0.00819	1.27057	0.9159
135	4.99954	1410.44	7.090	36817.32	0.0020194	0.11480	1.022	0.00806	1.26659	0.9132
140	4.95413	1416.68	6.675	34577.76	0.0020548	0.11439	1.001	0.00795	1.26390	0.9156
150	4.85865	1355.59	5.850	28776.31	0.0022891	0.11490	0.962	0.00762	1.25826	0.9358
160	4.75021	1353.80	5.580	25630.12	0.0024198	0.11577	0.924	0.00744	1.25189	0.9413
180	4.51483	1472.52	5.209	24390.88	0.0024179	0.11831	0.730	0.00736	1.23816	0.7914
200	4.30402	1587.08	4.620	22470.84	0.0023630	0.12456	0.748	0.00772	1.22599	0.8108
220	4.10782	1712.15	4.136	20962.75	0.0023012	0.12853	0.752	0.00794	1.21477	0.8296
240	3.92570	1851.63	3.777	19755.94	0.0022329	0.13081	0.747	0.00815	1.20445	0.8412
260	3.75694	1939.01	3.521	18772.66	0.0021605	0.13187	0.739	0.00838	1.19496	0.8452
280	3.60071	2031.63	3.342	17958.39	0.0020867	0.13205	0.729	0.00865	1.18624	0.8428
300	3.45608	2111.75	3.219	17274.36	0.0020132	0.13167	0.719	0.00896	1.17821	0.8361
320	3.32209	2180.55	3.136	16692.64	0.0019413	0.13093	0.710	0.00931	1.17083	0.8266
340	3.19781	2241.22	3.079	16192.66	0.0018718	0.13004	0.702	0.00969	1.16402	0.8157
360	3.08237	2296.13	3.042	15758.88	0.0018052	0.12910	0.696	0.01010	1.15772	0.8044
380	2.97497	2347.28	3.017	15379.40	0.0017418	0.12823	0.691	0.01054	1.15189	0.7932
400	2.87487	2397.10	2.999	15044.88	0.0016816	0.12750	0.688	0.01100	1.14648	0.7826
420	2.78139	2446.40	2.985	14747.93	0.0016246	0.12693	0.686	0.01148	1.14145	0.7727
440	2.69394	2496.29	2.973	14482.64	0.0015707	0.12656	0.685	0.01198	1.13676	0.7637
460	2.61196	2547.68	2.961	14244.18	0.0015200	0.12639	0.685	0.01250	1.13238	0.7556
480	2.53498	2600.45	2.949	14028.65	0.0014721	0.12643	0.687	0.01303	1.12828	0.7483
500	2.46256	2655.15	2.936	13832.82	0.0014269	0.12667	0.689	0.01358	1.12444	0.7418
520	2.39430	2711.66	2.922	13654.02	0.0013843	0.12709	0.692	0.01414	1.12083	0.7361
540	2.32987	2769.69	2.907	13490.05	0.0013442	0.12767	0.696	0.01472	1.11743	0.7309
560	2.26894	2830.01	2.891	13339.03	0.0013062	0.12844	0.701	0.01531	1.11422	0.7264
580	2.21123	2891.48	2.874	13199.42	0.0012704	0.12933	0.706	0.01592	1.11119	0.7224
600	2.15649	2954.38	2.857	13069.88	0.0012365	0.13036	0.712	0.01655	1.10832	0.7188
650	2.03128	3116.19	2.812	12783.18	0.0011594	0.13339	0.730	0.01818	1.10178	0.7114
700	1.92011	3283.06	2.768	12539.29	0.0010917	0.13699	0.749	0.01991	1.09600	0.7057
800	1.73168	3626.87	2.687	12144.87	0.0009785	0.14537	0.794	0.02365	1.08627	0.6978
900	1.57766	3974.60	2.619	11838.24	0.0008876	0.15469	0.844	0.02779	1.07836	0.6927
1000	1.44923	4325.72	2.562	11592.28	0.0008129	0.16465	0.897	0.03231	1.07181	0.6893
1500	1.03145	6140.34	2.359	10850.16	0.0005755	0.21939	1.179	0.06019	1.05071	0.6835
2000	0.80100	8131.43	2.193	10481.28	0.0004469	0.27727	1.463	0.09526	1.03922	0.6904
2500	0.65467	10321.35	2.045	10264.35	0.0003655	0.33493	1.740	0.13562	1.03197	0.7053
3000	0.55349	12635.08	1.927	10123.06	0.0003092	0.39263	2.006	0.18158	1.02698	0.7185
3500	0.47936	15050.96	1.832	10024.21	0.0002679	0.45059	2.262	0.23309	1.02333	0.7290
4000	0.42267	17645.79	1.742	9950.67	0.0002364	0.51285	2.510	0.29087	1.02055	0.7351
5000	0.34136	24096.17	1.529	9837.89	0.0001916	0.68744	2.984	0.43624	1.01657	0.7215

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

10000 PSIA ISOBAR

TEMPERATURE DEG. R	VOLUME CU FT/LB	ISOTHERM DERIVATIVE CU FT-PSIA/LB	ISOCHORE DERIVATIVE PSIA/R	INTERNAL ENERGY BTU/LB	ENTHALPY BTU/LB	ENTROPY BTU/LB-R	CV BTU / LB -R	CP	VELOCITY OF SOUND FT/SEC
• 52.446	0.16494	9829.86	112.134	-93.966	211.468	1.43631	1.454	1.792	7491
54	0.16543	9757.08	112.179	-92.055	214.277	1.48911	1.471	1.824	7487
56	0.16607	9664.11	112.179	-89.542	217.966	1.55618	1.492	1.865	7480
58	0.16671	9571.95	112.114	-86.967	221.736	1.62232	1.513	1.905	7472
60	0.16737	9480.68	111.985	-84.332	225.586	1.68759	1.533	1.945	7464
62	0.16803	9390.35	111.791	-81.638	229.516	1.75200	1.553	1.984	7456
64	0.16871	9301.04	111.535	-78.886	233.523	1.81561	1.572	2.023	7447
66	0.16940	9212.80	111.217	-76.075	237.607	1.87845	1.590	2.061	7437
68	0.17010	9125.70	110.838	-73.207	241.767	1.94055	1.608	2.098	7428
70	0.17081	9039.80	110.399	-70.285	246.000	2.00189	1.624	2.134	7418
75	0.17262	8830.74	109.049	-62.756	256.882	2.15202	1.662	2.219	7391
80	0.17448	8630.60	107.351	-54.908	268.188	2.29792	1.700	2.303	7358
85	0.17640	8440.34	105.328	-46.730	279.917	2.44037	1.743	2.387	7317
90	0.17836	8260.89	103.001	-38.238	292.052	2.57907	1.785	2.466	7271
95	0.18037	8093.12	100.395	-29.417	304.570	2.71442	1.827	2.540	7219
100	0.18240	7937.85	97.535	-20.199	317.551	2.84760	1.867	2.606	7163
105	0.18445	7795.79	94.446	-10.833	330.718	2.97608	1.903	2.660	7105
110	0.18652	7667.56	91.154	-1.238	344.138	3.10093	1.939	2.707	7042
115	0.18858	7553.65	87.684	8.569	357.772	3.22213	1.975	2.746	6975
120	0.19064	7454.45	84.061	18.569	371.582	3.33968	2.011	2.777	6905
125	0.19268	7370.22	80.308	28.742	385.527	3.45353	2.048	2.800	6832
130	0.19468	7301.10	76.447	39.073	399.569	3.56367	2.085	2.815	6758
135	0.19664	7247.10	72.498	49.542	413.668	3.67009	2.122	2.823	6683
140	0.19921	7999.90	74.916	60.182	429.070	3.76197	2.156	2.877	7034
150	0.20282	7028.19	67.949	82.462	458.034	3.98175	2.257	3.008	6587
160	0.20705	6218.28	63.313	105.632	489.039	4.18191	2.359	3.178	6229
180	0.21716	5699.72	61.154	154.852	556.971	4.58492	2.517	3.549	6181
200	0.22741	5498.83	55.182	208.679	629.782	4.96828	2.678	3.739	5963
220	0.23790	5364.55	50.225	265.985	706.518	5.33384	2.846	3.930	5858
240	0.24859	5280.14	45.997	326.408	786.729	5.68251	2.981	4.082	5787
260	0.25942	5233.08	42.345	389.072	869.453	6.01372	3.073	4.183	5745
280	0.27036	5214.27	39.165	453.104	953.739	6.32592	3.120	4.235	5726
300	0.28137	5217.11	36.378	517.590	1038.618	6.61886	3.132	4.248	5725
320	0.29244	5236.82	33.923	581.937	1123.449	6.89263	3.117	4.231	5738
340	0.30353	5269.88	31.750	645.675	1207.726	7.14780	3.085	4.194	5762
360	0.31463	5313.64	29.816	708.513	1291.129	7.38625	3.041	4.145	5793
380	0.32574	5366.08	28.088	770.287	1373.475	7.60887	2.991	4.089	5830
400	0.33685	5425.64	26.538	830.934	1454.684	7.81724	2.941	4.032	5870
420	0.34794	5491.08	25.141	890.466	1534.758	8.01256	2.892	3.976	5914
440	0.35902	5561.39	23.877	948.946	1613.749	8.19636	2.846	3.923	5959
460	0.37008	5635.76	22.730	1006.441	1691.721	8.36966	2.805	3.875	6005
480	0.38111	5713.56	21.685	1063.054	1768.771	8.53341	2.768	3.831	6052
500	0.39213	5794.22	20.730	1118.875	1844.987	8.68915	2.736	3.791	6100
520	0.40312	5877.31	19.855	1173.999	1920.463	8.83729	2.707	3.757	6147
540	0.41408	5962.45	19.049	1228.506	1995.279	8.97848	2.682	3.726	6194
560	0.42503	6049.35	18.306	1282.407	2069.447	9.11285	2.662	3.700	6241
580	0.43595	6137.75	17.619	1335.921	2143.186	9.24209	2.644	3.676	6288
600	0.44685	6227.43	15.982	1389.078	2216.528	9.36648	2.629	3.656	6334
650	0.47402	6456.15	15.575	1520.475	2398.222	9.65764	2.600	3.616	6450
700	0.50106	6689.78	14.386	1650.433	2578.265	9.92475	2.580	3.587	6564
800	0.55488	7166.83	12.489	1907.366	2934.845	10.40125	2.558	3.551	6789
900	0.60840	7652.33	11.043	2162.291	3288.890	10.81797	2.546	3.530	7010
1000	0.66173	8143.41	9.903	2415.746	3641.095	11.18885	2.541	3.518	7227
1500	0.92704	10648.08	6.563	3683.054	5399.689	12.61448	2.569	3.534	8239
2000	1.19184	13203.15	4.923	4982.372	7189.337	13.64204	2.668	3.634	9127
2500	1.45676	15788.46	3.944	6343.029	9040.560	14.46763	2.804	3.772	9919
3000	1.72190	18393.19	3.291	7773.118	10961.605	15.15817	2.937	3.906	10647
3500	1.98725	21010.97	2.824	9273.296	12953.144	15.77478	3.060	4.032	11325
4000	2.25295	23637.84	2.474	10837.807	15009.669	16.51667	3.194	4.170	11957
5000	2.78812	28909.62	1.982	14222.053	19384.891	18.32612	3.604	4.609	13086

• TWO-PHASE BOUNDARY

THERMODYNAMIC PROPERTIES OF PARAHYDROGEN

10000 PSIA ISOBAR

TEMPERATURE DEG. R	DENSITY LB/CU FT	$V(\partial H/\partial V)_p$ BTU/LB	$V(\partial P/\partial U)_v$ PSIA-CU FT/BTU	$-V(\partial P/\partial V)_T$ PSIA	$(\partial V/\partial T)_p/V$ 1/DEG. R	THERMAL CONDUCTIVITY BTU/FT-HR-R	VISCOSITY LB/FT-SEC X 10^5	THERMAL DIFFUSIVITY SQ FT/HR	DIELECTRIC CONSTANT	PRANDTL NUMBER
* 52.446	6.06263	952.61	12.717	59594.83	0.0018816	0.13429	4.602	0.01236	1.33136	2.2113
54	6.04484	958.93	12.616	58979.97	0.0019020	0.13537	4.261	0.01228	1.33024	2.0667
56	6.02173	967.36	12.483	58194.64	0.0019277	0.13593	3.885	0.01211	1.32880	1.9185
58	5.99841	975.73	12.351	57416.47	0.0019527	0.13627	3.566	0.01192	1.32735	1.7948
60	5.97488	983.77	12.225	56645.94	0.0019769	0.13644	3.294	0.01174	1.32588	1.6901
62	5.95116	991.96	12.096	55883.54	0.0020004	0.13648	3.059	0.01156	1.32440	1.6012
64	5.92727	999.90	11.972	55129.75	0.0020231	0.13638	2.856	0.01137	1.32292	1.5248
66	5.90320	1007.99	11.846	54385.03	0.0020450	0.13617	2.678	0.01119	1.32142	1.4595
68	5.87898	1015.75	11.724	53649.84	0.0020659	0.13586	2.522	0.01101	1.31992	1.4025
70	5.85462	1022.93	11.612	52924.65	0.0020860	0.13546	2.385	0.01084	1.31841	1.3523
75	5.79320	1040.96	11.328	51158.29	0.0021316	0.13415	2.104	0.01044	1.31462	1.2527
80	5.73121	1061.01	11.015	49463.81	0.0021703	0.13252	1.890	0.01004	1.31080	1.1821
85	5.66890	1084.17	10.661	47847.42	0.0022013	0.13073	1.723	0.00966	1.30697	1.1322
90	5.60651	1109.00	10.290	46314.73	0.0022239	0.12886	1.590	0.00932	1.30315	1.0955
95	5.54430	1135.15	9.911	44870.73	0.0022374	0.12698	1.483	0.00902	1.29935	1.0678
100	5.48255	1162.67	9.526	43519.67	0.0022412	0.12513	1.395	0.00876	1.29560	1.0455
105	5.42152	1190.34	9.154	42265.05	0.0022346	0.12335	1.321	0.00855	1.29189	1.0258
110	5.36149	1220.67	8.769	41109.53	0.0022173	0.12205	1.260	0.00841	1.28826	1.0059
115	5.30273	1254.24	8.373	40054.94	0.0021891	0.12097	1.208	0.00831	1.28472	0.9870
120	5.24549	1291.68	7.968	39102.28	0.0021498	0.11997	1.164	0.00824	1.28128	0.9695
125	5.19004	1333.69	7.555	38251.78	0.0020994	0.11906	1.125	0.00819	1.27795	0.9528
130	5.13661	1381.14	7.138	37502.89	0.0020384	0.11825	1.093	0.00818	1.27475	0.9364
135	5.08541	1435.10	6.718	36854.46	0.0019671	0.11756	1.064	0.00819	1.27170	0.9208
140	5.01977	1542.38	5.923	40157.65	0.0018656	0.11644	1.032	0.00806	1.26779	0.9177
150	4.93043	1534.02	5.105	34652.01	0.0019609	0.11707	0.993	0.00789	1.26250	0.9182
160	4.82967	1507.58	5.556	30032.22	0.0021082	0.11810	0.955	0.00769	1.25655	0.9251
180	4.60492	1523.15	5.275	26246.79	0.0023299	0.12094	0.749	0.00740	1.24339	0.7909
200	4.39733	1638.35	4.685	24180.15	0.0022821	0.12727	0.767	0.00774	1.23136	0.8109
220	4.20338	1764.48	4.199	22549.26	0.0022274	0.13124	0.770	0.00794	1.22022	0.8306
240	4.02269	1884.81	3.836	21240.34	0.0021656	0.13346	0.766	0.00813	1.20994	0.8430
260	3.85471	1992.64	3.575	20172.03	0.0020992	0.13444	0.757	0.00834	1.20045	0.8476
280	3.69875	2085.52	3.394	19286.31	0.0020307	0.13453	0.746	0.00859	1.19170	0.8456
300	3.55399	2165.19	3.268	18541.56	0.0019620	0.13405	0.735	0.00888	1.18364	0.8391
320	3.41955	2233.51	3.182	17907.68	0.0018943	0.13321	0.726	0.00921	1.17620	0.8297
340	3.29460	2293.55	3.124	17362.12	0.0018287	0.13222	0.717	0.00957	1.16932	0.8189
360	3.17830	2347.75	3.085	16888.34	0.0017655	0.13120	0.710	0.00996	1.16295	0.8075
380	3.06990	2398.15	3.059	16473.36	0.0017051	0.13024	0.704	0.01037	1.15704	0.7962
400	2.96870	2447.25	3.039	16107.11	0.0016476	0.12942	0.700	0.01081	1.15155	0.7854
420	2.87405	2495.87	3.024	15781.64	0.0015930	0.12878	0.698	0.01127	1.14644	0.7754
440	2.78538	2545.13	3.012	15490.56	0.0015414	0.12834	0.696	0.01174	1.14167	0.7662
460	2.70215	2595.97	2.999	15228.68	0.0014926	0.12811	0.696	0.01224	1.13720	0.7580
480	2.62390	2648.26	2.986	14991.79	0.0014465	0.12809	0.697	0.01274	1.13302	0.7506
500	2.55020	2702.53	2.972	14776.41	0.0014029	0.12827	0.699	0.01327	1.12909	0.7439
520	2.48067	2758.68	2.956	14579.65	0.0013618	0.12864	0.702	0.01380	1.12540	0.7380
540	2.41496	2816.40	2.941	14399.11	0.0013229	0.12918	0.706	0.01436	1.12192	0.7328
560	2.35278	2876.48	2.923	14232.78	0.0012862	0.12990	0.710	0.01492	1.11863	0.7282
580	2.29383	2937.73	2.905	14078.95	0.0012514	0.13076	0.715	0.01551	1.11553	0.7240
600	2.23787	3000.45	2.887	13936.20	0.0012185	0.13176	0.721	0.01610	1.11258	0.7203
650	2.10964	3161.97	2.840	13620.13	0.0011435	0.13473	0.738	0.01766	1.10587	0.7127
700	1.99576	3328.67	2.794	13351.19	0.0010775	0.13828	0.757	0.01932	1.09993	0.7068
800	1.88221	3672.37	2.709	12916.10	0.0009678	0.14663	0.801	0.02291	1.08990	0.6986
900	1.64365	4020.08	2.638	12577.73	0.0008788	0.15599	0.851	0.02689	1.08174	0.6933
1000	1.51118	4371.19	2.579	12306.20	0.0008047	0.16602	0.904	0.03123	1.07497	0.6897
1500	1.07870	6185.56	2.369	11486.05	0.0005714	0.22160	1.191	0.05813	1.05308	0.6836
2000	0.83904	8176.59	2.199	11077.96	0.0004444	0.27727	1.482	0.09094	1.04111	0.6990
2500	0.68645	10366.78	2.049	10838.04	0.0003639	0.33493	1.765	0.12935	1.03354	0.7156
3000	0.58075	12680.70	1.929	10681.94	0.0003081	0.39263	2.039	0.17306	1.02832	0.7303
3500	0.50321	15096.16	1.834	10572.89	0.0002671	0.45055	2.303	0.22285	1.02450	0.7421
4000	0.44386	17688.32	1.745	10491.93	0.0002358	0.51266	2.559	0.27695	1.02159	0.7493
5000	0.35866	24108.26	1.533	10368.87	0.0001912	0.68563	3.048	0.41477	1.01742	0.7375

* TWO-PHASE BOUNDARY