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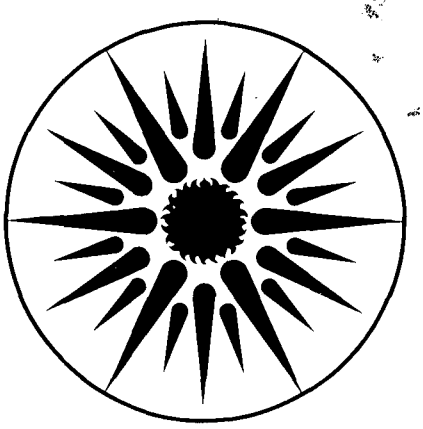

**APPLIED SCIENCE DIVISION**

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## DISCLAIMER

# THERMODYNAMIC PROPERTIES OF HYDROCARBONS

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ABSTRACT

A numerical technique for calculating thermodynamic properties of non-polar pure substances is presented. It is based on the use of the extended principle of corresponding states for the determination of P-V-T relations and their reduction to the Benedict-Webb-Rubin equation of state. Virial coefficients are deduced and combined with specific heat data to determine the internal energy, entropy, and bulk modulus of elasticity. On this basis an algorithm is developed to calculate properties for a state fixed by any two independent parameters. The technique thus established is applied to normal paraffins, and the results for all species, from methane to hexadecane, are presented in tabular and graphical form.

CONTENTS

APPENDICES

# 1 Introduction

Research on ignition of fuels at supercritical pressures and temperatures revealed a lack of fundamental thermodynamic information. A numerical method for calculating these properties for pure substances has been developed and applied to the normal parafins methane through hexadecane. Previous methods relied primarily upon experimental data, available in the literature, for production of thermodynamic charts and tables (for example Reynolds (1979); Din (1956); and Sage and Lacy (1950)). This work is based upon the extended principle of corresponding states, which has the advantage of direct volumetric data production and the ability to produce a continuous data grid free from the gaps typical of experimental data sets.

The extended principle of corresponding states provides the information required to define an equation of state, which is then used in conjunction with ideal gas specific heat data to produce a complete thermodynamic description of the substance. The process consists of four principle steps, enumerated below and described in detail in the remaining sections of this report.

1) predicting the dependence of specific volume upon pressure and temperature using the extended principle of corresponding states,

2) fitting these data to the appropriate P(v,T) function,

3) fitting available ideal gas specific heat data to an appropriate function, and

4) using these empirical expressions to derive other thermodynamic properties such as internal energy, entropy, isothermal and isobaric compressibilities, and the speed of sound.

This general technique for producing thermodynamic data is a marriage between Lee and Keslers' (1975) extended principle of corresponding states and the procedure documented by Reynolds (1979) for predicting thermodynamic properties given a volumetric data set. Nomenclature used in this report and the associated Appendices (I-III) is listed in Table 1. An introduction to the extended principle of corresponding states is given in Section 2. Volumetric data calculation and the construction of a data grid are presented in Sections 3 and 4; determination of the equation of state and the ideal gas specific heat equation is discussed in Sections 5 and 6. Details of property prediction are given in Section 7 and 8, and the numerical techniques used for plotting and table generation are presented in Section 9. Finally a brief note on the accuracy of the derived proper-ties is given in Section 10.

Calculation results, in the form of both pressure-enthalpy diagrams and tabulated data, for the normal paraffins methane to hexadecane are presented in Appendix I.

## 2. Extended Principle of Corresponding States

According to the principle of corresponding states, substances at identical reduced pressures, $P_r$, and temperatures, $T_r$, (pressure and temperature normalized by their critical values) have the same compressibility, Z. This concept provides the basis for predicting a pure substance's volumetric behavior based on the known behavior of another substance. In concept, experimental specific volume information would be required for one reference substance only; the corresponding states principle providing the means to relate this data to any other substance. Specific volume predictions derived from the corresponding states principle can be in error by 15% or more. The extended principle of corresponding states adds a parameter, the acentric factor, and reduces this error by approximately one order of magnitude.

Pitzer and his co-workers (Pitzer (1955); Pitzer et al. (1955); and Pitzer and Curl (1957)) postulated that the inaccuracy of the corresponding states principle was due to its failure to account for the variation between substances' intermolecular forces. These differences in forces are manifested in the shape of the intermolecular potential function, most specifically in the width of the potential well.

A macroscopic effect of this width is the Clapeyron coefficient (the derivative of the saturated pressure with respect to temperature), since the vapor-liquid equilibria provides a dramatic

and easily measurable manifestation of intermolecular forces. The slope of the saturation line may be approximated by the reduced pressure at a temperature significantly below the critical value. This reduced temperature is chosen as .7 and the resulting pressure is used in the definition of the acentric factor.

$$\omega = -\log P^{o}_{rs} - 1.00 \qquad (1)$$

Ideal fluids, monatomic gases and methane have essentially spherical molecular shapes , inverse sixth power attractive potentials and acentric factors equal to zero. Because an inverse sixth power attractive potential is assumed, the extended principle of corresponding states is only accurate for non-polar substances. Real fluids, with either non-spherical or globular molecular shapes, have acentric factors greater than zero. The acentric factor, based upon the Clapeyron coefficient, is the third parameter in Pitzer's extended principle of corresponding states.

The addition of a third correlating parameter provides a simple extension to the principle of corresponding states, ie. substances with identical acentric factors, reduced pressures, and temperatures, have identical compressibilities. Since the principle is implemented solely with experimentally derived specific volumes, its application requires the measurement and indexing of large quantities of data before it can be of any practical use. Pitzer recognized this limitation and simplified the problem by using the acentric factor as

a proportionality coefficient to be used with experimentally determined ideal fluid compressibilities ,$Z^{(0)}$, and their first order deviation, $Z^{(1)}$. This deviation is defined as the departure from ideal fluid behavior, normalized by the acentric factor. Tabular values used with Equation 2 specify the compressibility, Z, for the substance of interest by interpolation as follows

$$Z = Z^{(0)} + \omega Z^{(1)} \tag{2}$$

Volumetric behavior prediction by this relationship yielded an average deviation from experimental values equal to 0.2% for fluids whose acentric factors do not exceed 0.352 (Pitzer et al. (1955)), a significant improvement over predictions using the basic principle of corresponding states. Lee and Kesler (1975) significantly improved this tabular form of volumetric data prediction. Specific volume behaviors for two substances, a simple fluid and a reference fluid, were represented by a modified Benedict-Webb-Rubin (1940) equation. These specific volumes define compressibilities for the simple and reference fluid which are then used to find the compressibility for the substance of interest by interpolation as follows

$$Z = Z^{(0)} + \frac{\omega}{\omega_{ref}} \left(Z^{(r)} - Z^{(0)}\right) \tag{3}$$

Simple fluid compressibility data were compiled using Ar, Kr, Xe, and $CH_4$ . The basis for the reference fluid was octane ($\omega$ = 0.3987). Expressions for ideal fluid compressibility, $Z^{(0)}$, and reference fluid compressibility, $Z^{(r)}$, corresponding to the reduced Benedict-Webb-Rubin equation are presented in the next section. These functions replace and extend the original tabular data provided by Pitzer (1955). It should be noted that the extended principle of corresponding states assumes an inverse sixth power attractive potential and is therefore only accurate for non-polar substances.

## 3. Basic Compressibility Calculation

Generation of the P-v-T data used in this work to define an equation of state follows the method of Lee and Kesler (1975), which provides a virial equation, 4, expressed in terms of the reduced specific volume, $V_r$.

$$\frac{P_r V_r}{T_r} = 1 + \frac{B}{V_r} + \frac{C}{V_r^2} + \frac{D}{V_r^5} + \frac{C_4}{T_r^3 V_r^2}\left(\lambda + \frac{\gamma}{V_r^2}\right)\exp(-\gamma/V_r^2) \qquad (4)$$

The coefficients in this function are defined by Equations 5 - 7.

$$B = b_1 - \frac{b_2}{T_r} - \frac{b_3}{T_r^2} - \frac{b_4}{T_r^3} \tag{5}$$

$$C = c_1 - \frac{c_2}{T_r} + \frac{c_3}{T_r^3} \tag{6}$$

$$D = d_1 + \frac{d_2}{T_r} \tag{7}$$

These equations completely describe the volumetric behavior of the two base substances, the ideal and reference fluids. A separate family of parameters, $b_1 - b_4$, $c_1 - c_4$, $d_1$, $d_2$, $\beta$, and $\gamma$ is used for each substance; their values are listed in Table 2. The compilation of Passut and Danner (1973) provided values for acentric factors, critical temperatures, and pressures. Figure 1 illustrates the variation in acentric factor for normal paraffins.

The numerical implementation of these relations requires an iterative solution in $V_r$ for both the simple and reference fluids. Special care has to be taken in the liquid, or high density, region since the functional relationship is exceptionally stiff with respect to $V_r$. Solution is further complicated for subcritical states by the occurrence of three roots. This multiroot phenomenon corresponds to the well known Van der Waals behavior, as illustrated in Figure 2. Two of the roots are situated within the vapor dome and are of no

interest. The meaningful root lies outside of the dome and is identified by first using the empirical saturation pressure equation provided by Lee and Kesler, Equation 8, to define the fluid's phase. Once this is known, the appropriate root is easily chosen: liquid phases dictate the selection of the high density root and the converse for the gas phase.

$$\ln P_{rs} = 5.92714 - \frac{6.09648}{T_r} - 1.28862 \ln T_r + .169347 T_r^6$$

$$+ \omega\left(15.2518 - \frac{15.6875}{T_r} - 13.4721 \ln T_r + .43577 T_r^6\right) \qquad (8)$$

These nondimensionalized specific volumes, $V_r$, are used to calculate the ideal and reference compressibilities, Equation 9,

$$Z^{(a)} = \frac{P_r V_r^{(a)}}{T_r} \qquad (9)$$

where the superscript a, when equal to "0", denotes a simple fluid and when equal to "r" indicates a reference or base fluid. These two compressibilities form the basis for the interpolation defined by Equation 3.

The calculation just described has meaningful results only if the two base fluids and the fluid of interest are in the same phase.

This restriction creates a pressure region for which straightforward data generation is not possible due to the change in saturation pressure with acentric factor, illustrated in Figure 3. The minimum size for this pressure region is determined by the difference in saturation pressures of the two base fluids, whose acentric factors equal 0 and .3978. Unknown fluids with acentric factors greater than 0.3978 result in an increased zone of conflicting phases, since the three fluids must all be either liquid or gaseous.

Data generation may be accomplished in the saturation region by first determining the appropriate phase for the unknown fluid and then calculating specific volume data of a corresponding phase for the two base fluids. This calculation is based upon extending an isotherm from the saturation line into the vapor dome and determining an equivalent phase specific volume for the base fluid. The slope of the isotherm at the intersection of the saturation line is used to construct this extension into the vapor dome. This technique was first documented by Curl and Pitzer (1958) and provides the key to uninhibited data generation in the vicinity of the vapor dome.

## 4. Equation of State

The previous section described the details of finding the specific volume at a given pressure and temperature. This technique may now be utilized to produce a grid of specific volume data, in the temperature - pressure plane, used to find the coefficients in an

appropriate equation of state.

The final determination of state coefficients employed a grid size of 1600 data points, which represents the maximum that the CDC 7600 can accommodate in small core memory with the twenty four coefficient state equation. Preliminary work with a smaller number of coefficients was performed with a grid size of both 1600 and 2500 data points, and no significant change in the quality of the fit was observed.

The data grid was defined by the intersection of forty temperature and pressure points, whose range was approximately 450 K to 950 K and 0.1 to 10. MPa. The exact value for the low temperature varied from substance to substance due to the value of the saturation temperature at the minimum grid pressure. A full discussion of this is deferred until Section 7. Grid points were spaced evenly through the temperature range and logarithmically through the pressure range.

Supplemental data points were also used in the determination of coefficients, the purpose being to control properly the behavior of the equation of state. These points discourage multi-valued solutions and control the derivatives at the grid edges. The spacing of these control points, illustrated in Figure 4, was empirically determined. Twelve control points near each grid boundary were used to control derivatives and are located outside of the grid by one half of a grid spacing. In addition, five control points were located near the exterior at a distance of three grid spacings from the edge. These points are intended to control the global behavior of the function

near the temperature and pressure extremes. Thirty six additional points were added at saturation conditions to direct the equation of states' behavior across the vapor dome. These points represent the liquid and gas specific volumes at eighteen positions along the saturation line.

Actual prediction of the specific volume at a given temperature and pressure was described in Section 3. The repetitive application of this technique over a large range of temperatures and pressures results in several numerical pitfalls which must circumvented. These problems significantly effect the final form of the data prediction program and are listed along with their solutions below.

The grid is first divided into three regions, illustrated in Figure 5. Solution in the two supercritical regions is relatively straightforward since only one specific volume root exists for each point. However, the function describing this volumetric behavior is algebraically stiff with respect to the specific volume in the high density, liquid-like, region. The solution, determined using a Newton-Raphson technique, is extremely dependent on an accurate initial guess. A reasonable guess is found by moving through the data subgrids as illustrated in Figure 5; the solution from the previous point providing an appropriate guess for the next point.

Subcritical temperature and pressure points form a special region within the grid since either one or three roots are possible. In order to find the correct specific volume the number of solutions must first be identified. The two roots of the partial derivative of

Equation 4 with respect to specific volume provide the location of the minimum and maximum for the function. These values are found using a Newton-Raphson solution technique, subject to the same dependence on the initial guess, discussed above for the supercritical case. The roots of the partial derivative function, coupled with a high and low bound, divide the range of specific volumes into three parts. Each subrange contains at most one solution for the pressure function, Equation 4, found using a bisection scheme. In this manner the number and value of the roots are determined. If three roots exist the correct one is identified as discussed in Section 3.

Control points are treated similarly to the points within the grid. If the control point is supercritical in either pressure or temperature, solution is straightforward given an appropriate guess. This guess is provided by entering the grid and identifying the data point closest to the control point. The solution at this location provides the guess for the control point. Subcritical control points pose a separate problem as the data grid does not contain the roots of the derivative function, necessary for the subcritical solution scheme. This is circumvented by supplying a guess, determined empirically, which yields at least one convergent root for the derivative function. The remaining root is determined by dividing the specific volume range into two subranges, bounded by the high and low specific volume and the known root. The subrange used in the bisection solution for the remaining root is identified by perturbating about the known root. Once both roots of the derivative

function have been identified , calculation of the specific volume is identical to that described for the subcritical data point case.

## 5. Equation of State Coefficients

The data grid described in the last section provides the required information to produce an equation of state. The overall goal was to produce a state equation for heavy hydrocarbons with average deviations from the data grid no greater than two percent and a maximum deviation of fifteen percent. The functional form, Equation 10, was determined empirically, starting with the modified Benedict-Webb-Rubin (1940) equation of state, and evolving the function by adding terms to decrease the disagreement between the data grid and state equation values. Virial coefficients, represented by $F_1$ to $F_8$, and their specific temperature dependencies are listed in Appendix III.

$$P=\rho RT + F_1\rho^2 + F_2\rho^3 + F_3\rho^4 + F_4\rho^5 + F_5\rho^6 + (F_6 + F_7\rho^2 + F_8\rho^4)\,\rho^3\,(\exp(-\gamma\rho^2)) \qquad (10)$$

The large number of points in the generated data base eliminates the necessity for predetermined weighting factors, often used in previous work based on experimentally gathered data (Reynolds (1979)). The assumption here is that the data grid is dense enough to portray accurately the substance's behavior in all regions.

Three functional constraints are used with Equation 10 at the critical point insuring a proper transition from the subcritical two phase region to the supercritical region immediately above the dome. The first constraint requires the equation of state to pass exactly through the critical point, no error is permitted here. The second and third constraints, listed in Equations 11 and 12, force the function to have a point of inflection at the critical point.

$$\partial P/\partial \rho)_T = 0 \tag{11}$$

$$\partial^2 P/\partial \rho^2)_T = 0 \tag{12}$$

where $\rho=\rho_c$ and $T=T_c$

The addition of these three constraints reduces the number of independently determined coefficients from twenty-four to twenty-one. The process used to produce the coefficients required that the dependent coefficients be prespecified. These coefficients, denoted in the equations as $Y_1 - Y_3$, were chosen on the basis of their contribution near the critical point; a coefficient with little influence would be an inappropriate numerical choice.

Application of the method of least mean squares to Equation 10 results in a nonlinear set of simultaneous equations which have no unique solution. This nonlinearity is caused by the exponential term and can be eliminated by fixing the value for $\gamma$. The linearized

equations have one, unique solution. Final values for the coefficients in the equation of state were determined by fitting the data for a range of values in gamma, identifying the value which produced the best result, and using this fit as the final solution. This effectively circumvented the nonlinearity problem for the fitting process.

An additional obstacle to determining the equation of state is the stiffness of the data in the liquid region: changes of .01 percent or less in the specific volume significantly effect the pressure. Pressure variations corresponding to small perturbations in the specific volume have been smoothed out to produce a fit that is more representative of the data grid. This was accomplished by fitting the data four successive times. If a perturbation of .025 percent or less in specific volume, increased the accuracy at a point, the specific volume data was adjusted accordingly. The maximum possible perturbation is 0.1 percent, less than the accuracy of the data prediction scheme. This smoothing process is an essential ingredient to producing a suitable fit for the substances with higher acentric factors (i.e.pentadecane and hexadecane) and allows the equation of state to accurately represent the overall trends in the data.

Accuracies were still not acceptable for pentadecane and hexadecane after incorporating the smoothing process into the fit. To increase the accuracy, results of each fit and smoothing iteration were examined and all data points which still had an error greater than ten percent were flagged. The error at these data points was

weighted by a factor of 1.3 for the next fit. This weighting scheme produced acceptable results for the substances with high acentric factors.

Coefficients for the equation of state for methane through hexadecane are listed in Appendix II. The number of significant digits may be extreme, but for some regions in the thermodynamic state space, the pressure is determined by differences which are several orders of magnitude greater than the pressure itself. The use of eight significant digits reduced the accuracy of the constraints at the critical point by six orders of magnitude. Consequently, the calculations should be performed at an accuracy greater than eight digits. This constitutes double precision for many computers. The CDC 7600, on which these calculations were performed, carries sixteen digits in all single precision calculations and this was found to be adequate.

## 6. Ideal Gas Specific Heats

The ideal gas specific heat is readily represented by a power series in temperature, Equation 13, and the coefficients are easily evaluated by linear regression.

$$c_v^o = \sum_{i=1}^{6} G_i T^{i-2} \tag{13}$$

Actual specific heat data were provided by the classical compilation

of the American Petroleum Research Project No. 44 (1953) and the values of the resulting coefficients are listed in Appendix II.

## 7. Dependent Properties - Internal Energy and Entropy

The information required for the evaluation of internal energy and the entropy is contained in the equation of state and the ideal gas specific heat. The methodology closely follows that of Reynolds (1979) with the exception of the integration path through the vapor dome. Property calculations are performed using the density, $\rho$, rather than specific volume, as done by Reynolds(1979).

Internal energy for a simple substance is evaluated from the relation:

$$du = c_v + (\partial u/\partial v)_T \, dv \tag{14}$$

which when integrated yields the following equation.

$$u = \int_{T_o}^{T} c_v^o \, dT + \int_0^{\rho} \frac{1}{\rho^2} \left[ P - T \left( \frac{\partial P}{\partial T} \right)_\rho \right] d\rho + u_o \tag{15}$$

The integration is performed first at zero density and then at constant temperature. The ideal gas relation is valid at zero density which reduces the second integral to zero, simplifying property evaluation considerably. However, this path traverses regions in which no data points were used to constrain the equation of state, denoted as A and B in Figure 6.

The first region, A, represents the transition from a true ideal gas to the substances actual behavior on the gas side of the vapor dome. Luckily, the contribution of this unconstrained integral is negligible when compared to the specific heat contribution. This is partially due to a relatively small change in density across this region and partially due to the equation of state's reduction to an ideal gas relation for low densities.

The second region in question is the integration across the vapor dome. This integral drastically affects the value of both the internal energy and entropy since it represents the change of phase. If left unconstrained it will produce an unacceptable variability of the properties in the liquid region. In fact this effect could explain the inconsistency in vapor dome shape associated with different weighting factors, noted by Reynolds (1979). To produce thermodynamically consistent data and remove this unacceptable variability, the integral across the vapor dome is not used. Instead, the change in internal energy and entropy is deduced from the Clapeyron relationship, Equation 16.

$$\frac{dP_s}{dT_s} = \frac{h_{fg}}{T_s v_{fg}} \tag{16}$$

Proper utilization of the Clapeyron relation mandates an apriori knowledge of the saturation pressure behavior as a function of temperature. This is provided by the saturation pressure equation of

Lee and Kesler (1975), 8, a function of both acentric factor and temperature. Differentiation of this function with respect to temperature provides a usable relation for evaluating the slope of the saturation curve. The change in specific volume, $v_{fg}$, is provided by the equation of state. Equation 16 is used to calculate the enthalpy of vaporization, $h_{fg}$, from which the change in internal energy, $u_{fg}$, may be deduced.

The final integration path for states on the liquid side of the dome consists of four parts: a zero density integration, the constant temperature integration from density equal to zero to the saturated gas density, an internal energy change across the dome, and the constant temperature integration from the saturated liquid density to the density at the point in question, Equation 17. Appendix III lists the fully integrated form of this equation.

$$u = \int_{T_o}^{T} c_v^o \, dT + \int_{0}^{\rho_g} \frac{1}{\rho^2} \left[ P - T \left( \frac{\partial P}{\partial T} \right)_\rho \right] d\rho + u_{fg}$$

$$+ \int_{\rho_f}^{\rho} \frac{1}{\rho^2} \left[ P - T \left( \frac{\partial P}{\partial T} \right)_\rho \right] d\rho + u_o \qquad (17)$$

The entropy is defined in a similar manner, starting with a differential expression, Equation 18, and using the same integration path used for the internal energy.

$$ds = \frac{1}{T}\,du + \frac{P}{T}\,dv \qquad (18)$$

Before integration the term $R d\rho/\rho$ is added and subtracted, the final result being Equation 19.

$$s = \int_{T_o}^{T} \frac{c_v^o}{T}\,dT - R \ln \rho + \int_{0}^{\rho} \frac{1}{\rho^2}\left[\rho R - \left(\frac{\partial P}{\partial T}\right)_\rho\right] + S_o \qquad (19)$$

This integration is similarly susceptible to error when used to cross the vapor dome and is consequently broken into four segments for property evaluation on the liquid side of the dome. The Gibbs function equality across the dome, Equation 20, provides the vaporization entropy and the entropy in the liquid region is given by Equation 21. Fully evaluated integrals are found in Appendix III.

$$s_{fg} = h_{fg}/T \qquad (20)$$

$$s = \int_{T_o}^{T} \frac{c_v^o}{T}\,dT - R \ln \rho + \int_{0}^{\rho} \frac{1}{\rho^2}\left[\rho R - \left(\frac{\partial P}{\partial T}\right)_\rho\right] + s_{fg}$$

$$+ \int_{\rho_f}^{\rho} \frac{1}{\rho^2}\left[\rho R - \left(\frac{\partial P}{\partial T}\right)_\rho\right] + s_o \qquad (21)$$

The integration path produces an effective limit to property prediction on the liquid side of the vapor dome. Evaluation of liquid

properties requires the saturation specific volumes, available only within the fitting region. Therefore, the low temperature boundary for property prediction in the liquid region is the intersection of the saturation line with the low pressure of the fitting region.

Integration constants, corresponding to the starting values of the internal energy and entropy at $T_o$ and $\rho=0$ and the value of $T_o$ are given in Appendix III.

## 8. Derivatives

Several properties of interest are based on the derivatives of previously defined quantities. Equations for the isothermal and isobaric compressibilities along with the speed sound are developed below.

The isothermal compressibility, defined by Equation 22, is implemented by direct differentiation of the state equation.

$$\kappa = \frac{-1}{v}\left(\frac{\partial v}{\partial P}\right)_T \tag{22}$$

A similar situation is presented for the isobaric compressibility with the exception that a small amount of differential calculus is required to put the definition in a form with the specific volume and temperature as the independent variables. The result is given by Equation 23.

$$\beta = \frac{-1}{v}\left(\frac{\partial v}{\partial P}\right)_T \left(\frac{\partial P}{\partial T}\right)_v \qquad (23)$$

Calculations for the speed of sound are slightly more involved since the basic definition does not readily lend itself to formulation with independent variables of temperature and specific volume. The relationship for the speed of sound is transformed to these independent variables following exactly the development presented by Oppenheim et al. (1964) which yields Equation 24.

$$a^2 = \left(\frac{\partial P}{\partial \rho}\right)_S = -v^2 \gamma_s \left(\frac{\partial P}{\partial v}\right)_T \qquad (24)$$

This formulation requires the evaluation of the ratio of specific heats, $\gamma_s$, obtained from the relationship between specific heat and the isothermal and isobaric compressibilities (Callen (1960)),Equation 25.

$$\gamma_s = 1 + \frac{Tv\beta^2}{\kappa c_v} \qquad (25)$$

The value for the specific heat at constant volume, $c_v$, is evaluated by differentiating the initial internal energy equation, (15) which yields Equation 26.

$$c_v = c_v^o - \int_0^\rho \frac{1}{\rho^2} \left(\frac{\partial^2 P}{\partial T^2}\right)_\rho \, d\rho \qquad (26)$$

The density integral is subject to the same restrictions as those discussed for the evaluation of the internal energy and entropy and their evaluation in the liquid region. However, an easy replacement for the integral's value across the vapor dome is not available and the specific heat on the liquid side of the dome is evaluated numerically.

## 9. Numerical Techniques

The functions presented in the preceding sections used temperature and density as the independent variables and are not easily transformable to a different set of independent variables. Plotting and table generation, therefore, is a matter of iteratively solving for these independent variables given the values for two thermodynamic properties. The difficulty of the problem relates directly to the number of these undetermined independent variables. Iteration to determine one independent variable is relatively straightforward; solution for two undetermined independent variables is a two dimensional problem and is more involved.

Bisection is used for the one dimensional iteration case and the problem is reduced to specifying an appropriate range that contains the solution. Values of the independent variables at the four corners

of the fitting region are known; one of the corners typically provides an extreme value for the unknown independent variable. The other boundary is either an appropriate value from the saturation curve, or for the supercritical case, the value from a second corner point. For subcritical states the range is specifically limited to exclude the interior of the vapor dome and thereby eliminate the possibility of multiple roots. Once the range is specified, solution is a simple matter of repetitive calculation.

Definition of an appropriate range for the density within the liquid region is complicated by the near parallel behavior of temperature with respect to density. End point selection which simply specifies a corner point and a point on the dome results in a corresponding pressure range significantly beyond that of the original state equation fit. Several erroneous roots are normally contained within this range and a more confined region must be employed. An iterative scheme which starts at the vapor dome end point and marches slowly up the constant temperature line by changing the density is used. The first value which produces a pressure greater than the high pressure bound for the grid provides the second density endpoint.

Solution for two unknown independent variables requires iteration in two dimensions and convergence is not guaranteed. The same constraints for bisection bounds apply and, in addition, a reasonable guess for one of the independent variables is required. Each of the two dependent variables that define the state is matched with one of the independent variables. These variable pairs are used for

sequential one dimensional iteration; the independent variable being used to satisfy the condition imposed by the dependent variable. The solution for this independent-dependent variable pair is applied as a guess for the solution of the remaining variable pair, and the iteration passes sequentially from one variable set to the other. Convergence is achieved when the results from one iteration form a solution for the next. As an example, if pressure and enthalpy are defined, the solution is obtained by choosing a guess for the temperature, iteratively solving for $\rho$ given the pressure, iteratively solving for temperature given the enthalpy, resolving for $\rho$ given the pressure, etc., until the results of one iteration satisfy the conditions for the next. Figure 7a illustrates a two dimensional convergent iteration in the pressure-enthalpy plane. A flowchart for the process is provided by 7b. The pitfall of this technique is that if the iteration pairs are chosen incorrectly a divergent result may occur. Figure 8 illustrates a divergent, two dimensional iteration.

Proper choice of the iteration pairs is accomplished by selecting them so that the fixed independent variable influences the dependent variable as little as possible. In a geometrical sense this corresponds to choosing orthogonal variables. The pressure-enthalpy calculation provides a good example of this concept. Enthalpy is a very strong function of temperature: this mandates that the density remain fixed while a temperature is calculated which produces the specified value for enthalpy.

## 10. Accuracy

Accuracy estimates are somewhat difficult to make for the heavier parafins; if the data were readily available there would be no need to predict it. This dilemma is further complicated by large portions of available thermodynamic data not being derived from experiment but instead being inferred from a relatively small experimental data set. Therefore, properties reported from other compilations must be associated with both the error intrinsic to any experiment and the correlational error: that error due to the mathematical or graphical process which produces a fine mesh grid for tabulation and plotting.

A reasonable judgement of the data quality in this work may be made by splitting the property prediction algorithm into its two primary components, 1) the actual corresponding states compressibility calculation and 2) the fitting of this data to an appropriate equation of state, and examining the error associated with each. A small amount of applicable experimental/correlational data has also been used as a basis for comparison.

The error associated with the volumetric data production was examined by it creators, Lee and Kesler (1975). Comparison of their predictions with experimentally derived compressibilities for normal paraffins including methane through heptadecane indicated a good agreement between the two. Specifically, calculated compressibilities for heptadecane exhibited an average deviation of 2.8 percent from their experimental counterparts. Experimental-calculational

discrepancies improved for substances of lower molecular weight, dropping to approximately one percent for normal paraffins with twelve carbon atoms or less. The error associated with heptadecane is quite encouraging since its acentric factor is significantly greater than those of the base fluids and the calculation therefore represents an extrapolation instead of an interpolation.

Accuracies associated with the production of the equation of state have been quantified. Table 3 lists both the maximum and average deviations of the function from the data. The increased inaccuracy for substances with large acentric factors is due to an increase in the deviation from ideal fluid behavior.

The functional form for the equation of state evolved from the Benedict-Webb-Rubin (1940) equation originally used for low molecular weight paraffins. Accuracy is maintained by adding terms to this basic form. As an illustration of the required coefficient growth for increased acentric factor, an intermediate, eleven coefficient equation of state was developed for decane which gave quite acceptable accuracies. Twenty-four coefficients were required to produce acceptable results for hexadecane. A practical limit for the number of coefficients is posed by both computational storage limitations and the ability of the fitting algorithm to handle a large Jacobian matrix. The final form contains twenty-four coefficients and represents an effective limit from both a memory and algorithmic standpoint. Resulting accuracies for the normal paraffins methane through hexadecane are quite acceptable.

Errors in the original compressibility data and the resulting equation of state are spread unevenly through the data grid. The highest compressibility errors appear near the most complex region of the state space: the vapor dome. Equation of state errors typically appear at the two high pressure corners for the data set and in a small area near the critical point in the liquid portion of the grid.

A small amount of data for octane, Reynolds (1979), and for hexadecane, Lenoir and Hipkin (1970), was directly compared to the predicted values. The comparison with octane is really a test of the software since there is every reason to expect very good agreement between the two data sets. This expectation is based upon the calculation procedure for compressibilities; one of the base fluids is octane so no interpolation is involved. The correlation is good, as expected, with an exception in the immediate vicinity of the critical point caused by the difference in the values used for the critical temperatures and pressures (this work used values reported by Passut and Danner (1973)). Actual deviations between the two correlations are listed in Table 4. This table also includes a comparison with the experimental enthalpy data of Lenoir and Hipkin (1970) and shows the deviation in all cases to be three percent or less. Accuracy estimates for methane through heptane have not been made but are expected to be of the same order as that for octane.

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TABLE 1 Nomenclature

| | |
|---|---|
| $a$ | speed of sound |
| $b_i$ | i=1,2,3,4, constants in Lee and Kesler's equation of state |
| $c_i$ | i=1,2,3,4, constants in Lee and Kesler's of state |
| $c_v$ | specific heat at constant volume |
| $c_v^o$ | ideal gas specific heat at constant volume |
| $F_i$ | i= 1 to 8, virial coefficients |
| $G_i$ | i=1 to 6, constants in the specific heat equation |
| $h_{fg}$ | enthalpy of vaporization |
| $P$ | pressure |
| $P_c$ | critical pressure |
| $P_r$ | reduced pressure |
| $P_{rs}$ | reduced saturation pressure |
| $P_{rs}^o$ | reduced saturation pressure at $T_r = .70$ |
| $P_s$ | saturation pressure |
| $R$ | ideal gas constant |
| $s$ | entropy |
| $s_{fg}$ | entropy of vaporization |
| $s_o$ | entropy at $T=T_o$ and $\rho = 0$ |
| $T$ | temperature |
| $T_c$ | critical temperature |
| $T_o$ | reference or base temperature (300 K) |
| $T_r$ | reduced temperature |

| | |
|---|---|
| $u$ | internal energy |
| $u_{fg}$ | internal energy change for vaporization |
| $u_o$ | internal energy at $T=T_o$ and $\rho = 0$ |
| $v$ | specific volume |
| $v_{fg}$ | specific volume change for vaporization |
| $V_r$ | nondimensionalized specific volume, $P_c V/RT_c$ |
| $X_i$ | i=1 to 20, coefficients used in the derived equation of state |
| $Y_i$ | i=1 to 3, dependent coefficients in the derived equation of state |
| $Z$ | compressibility |
| $Z^{(r)}$ | reference fluid compressibility |
| $Z^{(0)}$ | simple fluid compressibility |
| $Z^{(1)}$ | first order deviation of compressibility from the simple fluid |
| $\beta$ | isobaric compressibilty |
| $\gamma$ | constant used in the derived equaiton of state, and in Lee and Keslers' formulation |
| $\gamma_s$ | specific heat ratio |
| $\kappa$ | isothermal compressibility |
| $\lambda$ | constant used in Lee and Keslers' equation of state |
| $\rho$ | density |
| $\rho_f$ | saturated liquid density |
| $\rho_g$ | saturated gas density |
| $\omega$ | acentric factor |
| $\omega_{ref}$ | acentric factor for the reference or base fluid |

TABLE 2 Coefficients for Lee and Kesler's Compressibility Function

| | Simple Fluid | Reference Fluid |
|---|---|---|
| $b_1$ | .1181193 | .2026579 |
| $b_2$ | .265728 | .331511 |
| $b_3$ | .154790 | .027655 |
| $b_4$ | .030323 | .203488 |
| $c_1$ | .0236744 | .0313385 |
| $c_2$ | .0186984 | .0503618 |
| $c_3$ | 0.0 | .016901 |
| $c_4$ | .042724 | .041577 |
| $d_1$ | $.155488 \times 10^{-4}$ | $.48736 \times 10^{-4}$ |
| $d_2$ | $.623689 \times 10^{-4}$ | $.740366 \times 10^{-5}$ |
| $\beta$ | .65392 | 1.226 |
| $\gamma$ | .060167 | .03754 |

Table 3 Maximum and Average Deviations between the Derived Equation of State and the Calculated Data

| | Maximum Deviation | Average Deviation |
|---|---|---|
| Octane | .82% | .063% |
| Nonane | 1.20 | .080 |
| Decane | 1.06 | .097 |
| Undecane | 1.87 | .172 |
| Dodecane | 2.71 | .232 |
| Tridecane | 4.14 | .273 |
| Tetradecane | 7.17 | .497 |
| Pentadecane | 9.51 | .825 |
| Hexadecane | 13.78 | 1.595 |

TABLE 4 Average Deviations of Calculated Properties from Literature Data

OCTANE

| | Saturation data | | Gas Region | |
|---|---|---|---|---|
| | liquid | gas | $P<P_c$ | $P>P_c$ |
| v | 5.% | .29% | .21% | 5.% |
| h | 1. | .17 | .18 | .27 |
| s | .83 | .15 | .17 | .26 |

HEXADECANE (experimental enthalpies)

| | |
|---|---|
| h(liquid, $P<P_c$) | 3.0% |
| h(gas, $P<P_c$) | 2.3 |
| h(gas, $P>P_c$) | 2.3 |

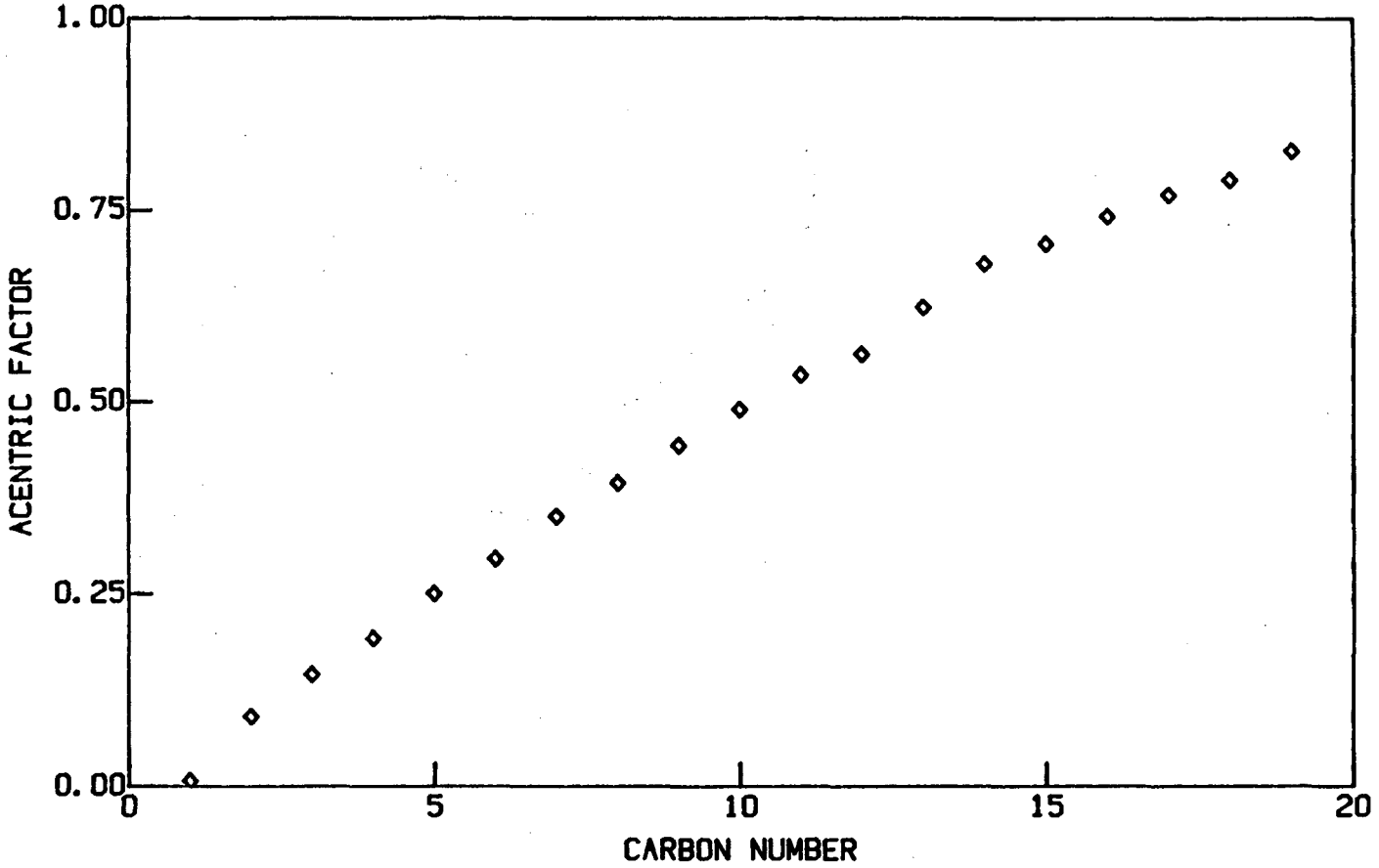



Figure 1 Acentric factor for normal paraffins.

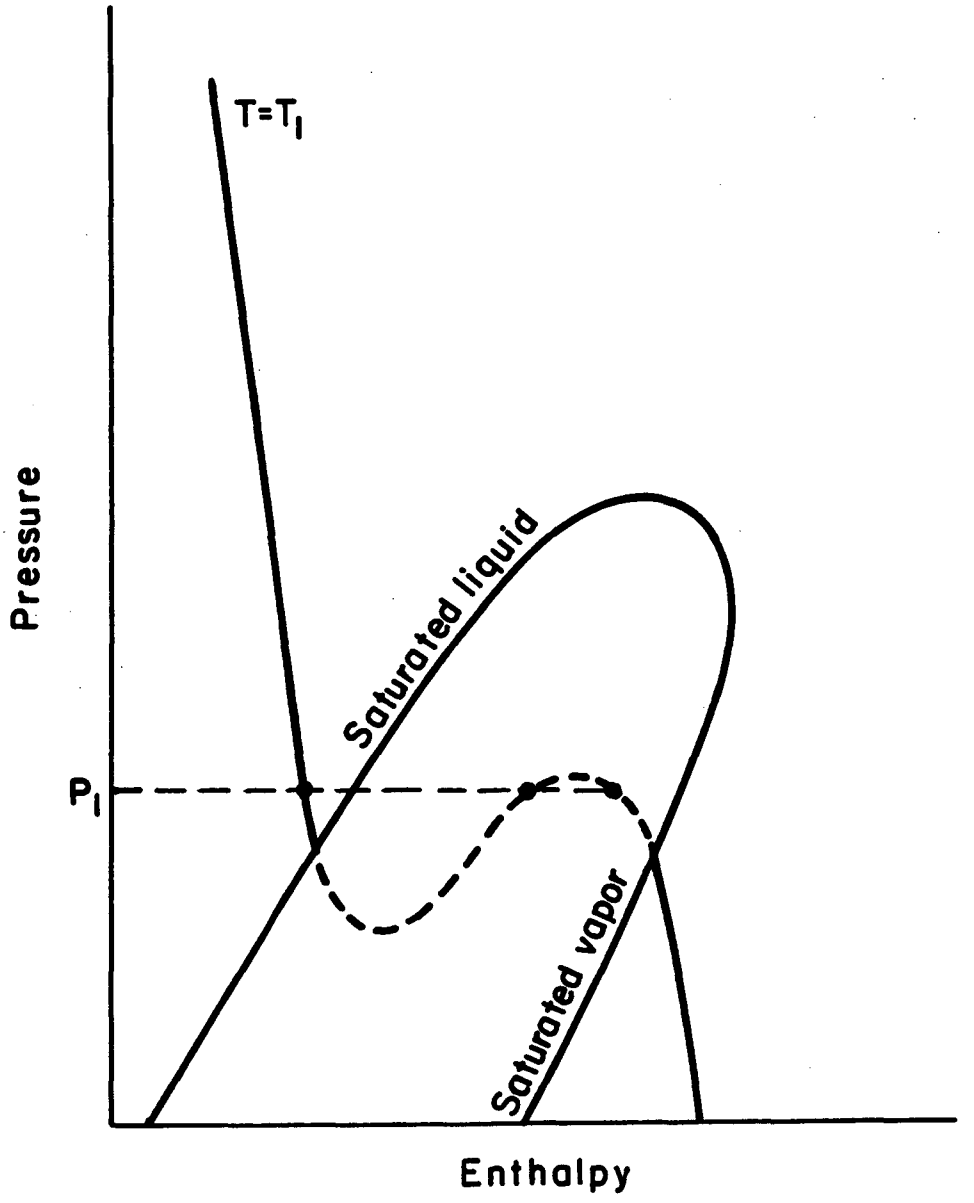



Figure 2 Triple root behavior for a subcritical state.

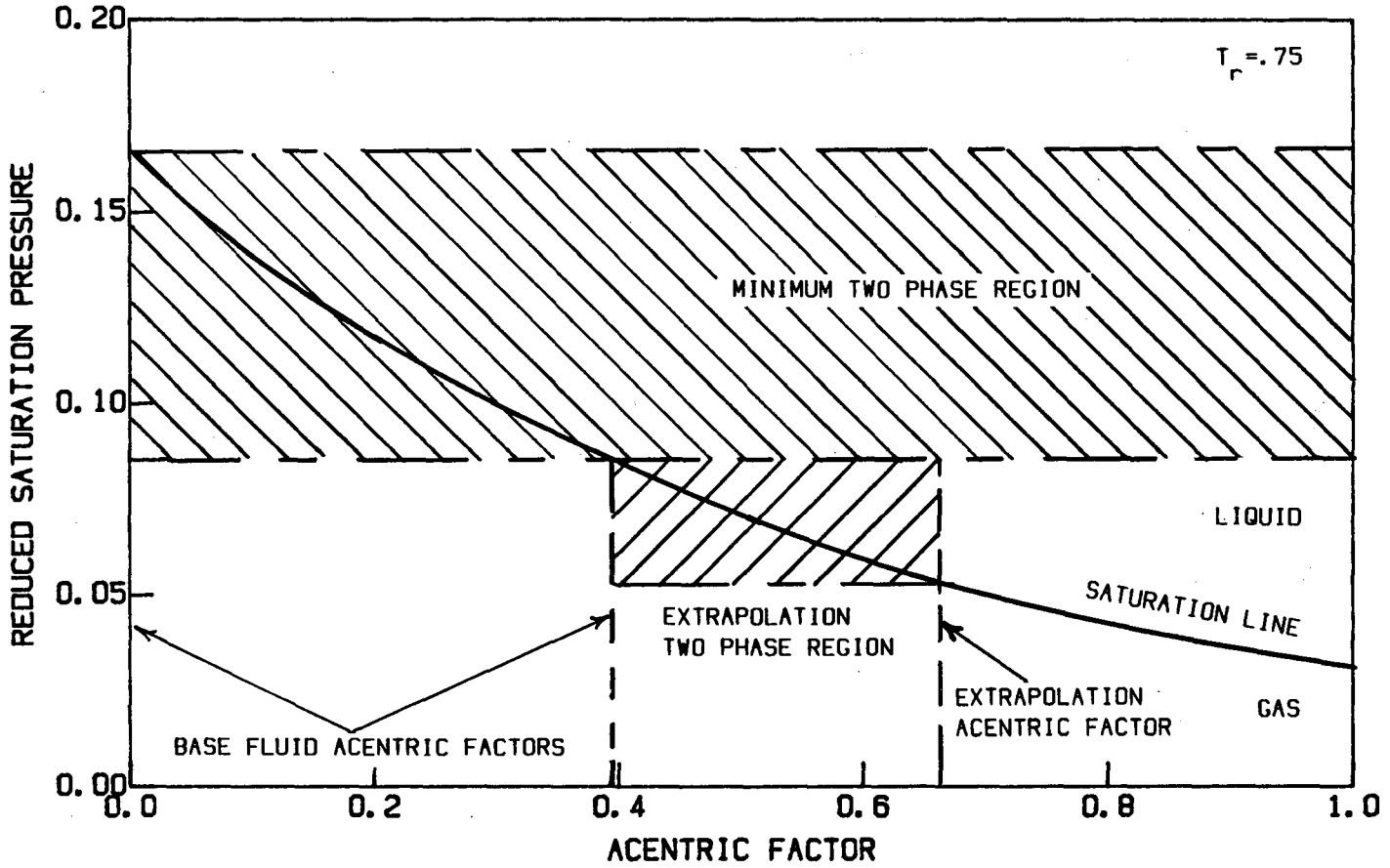



Figure 3 Dependence of the saturation pressure on the acentric factor and regions of conflicting phases.

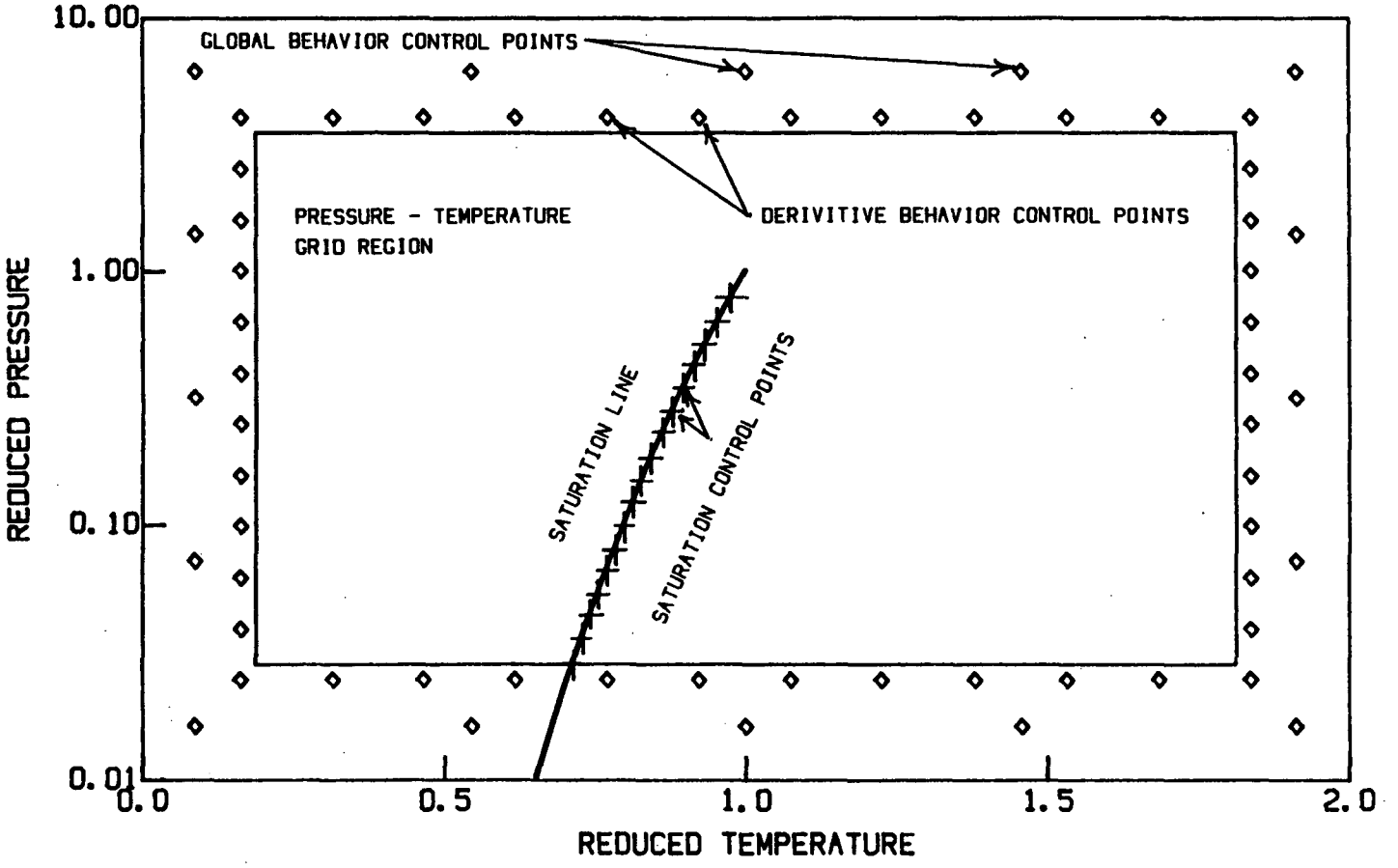



Figure 4 Control point positions for the data grid.

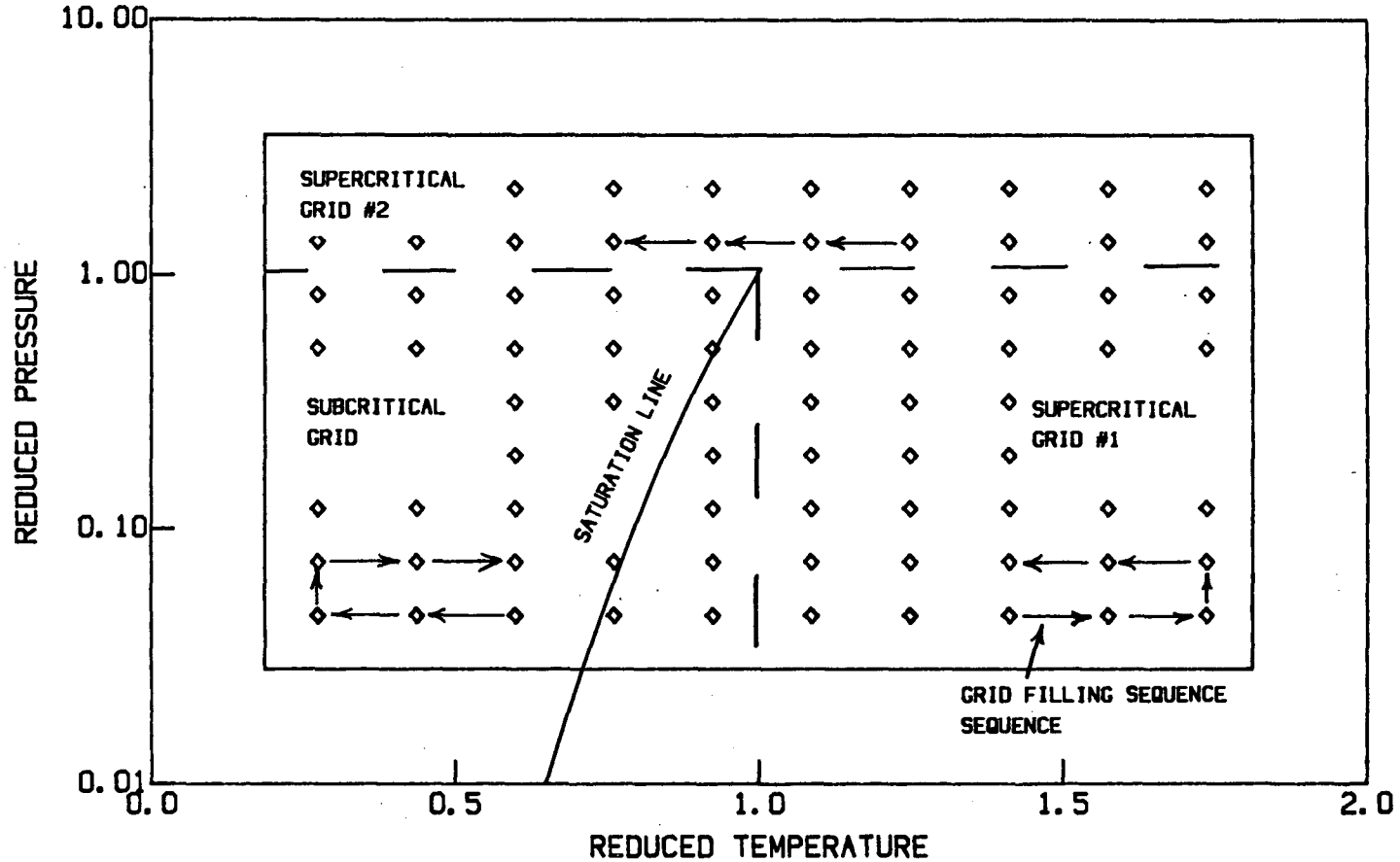



Figure 5 Grid regions and filling sequence.

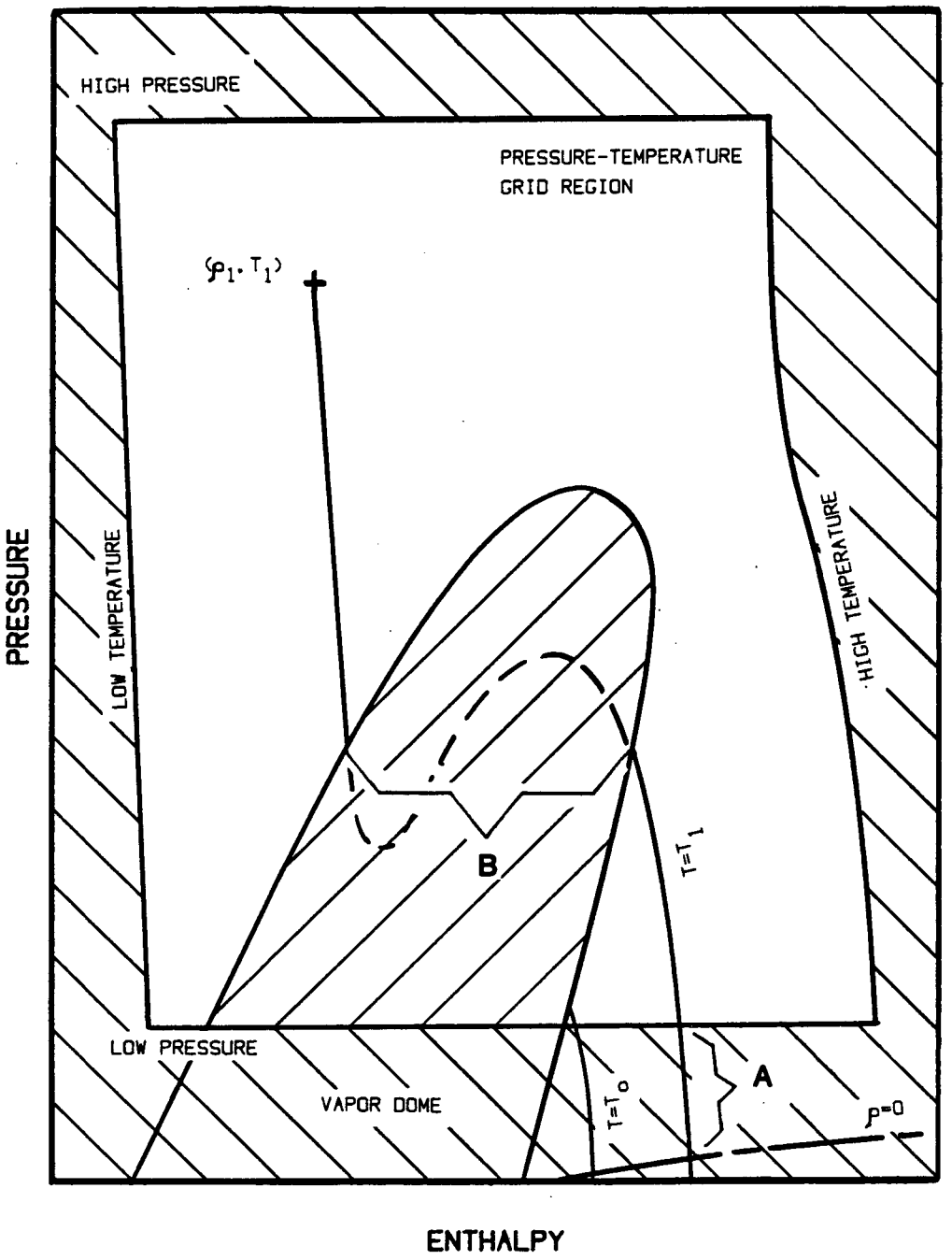
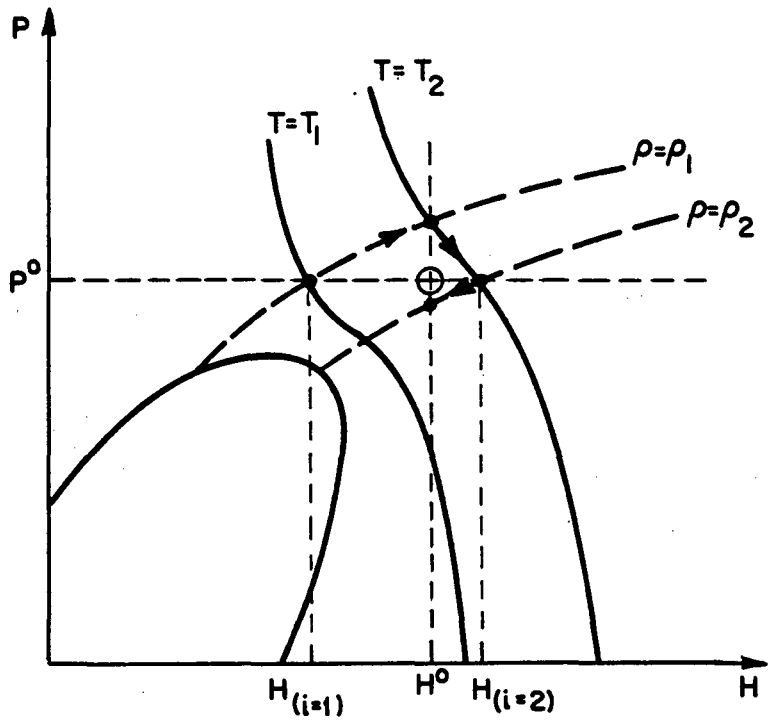
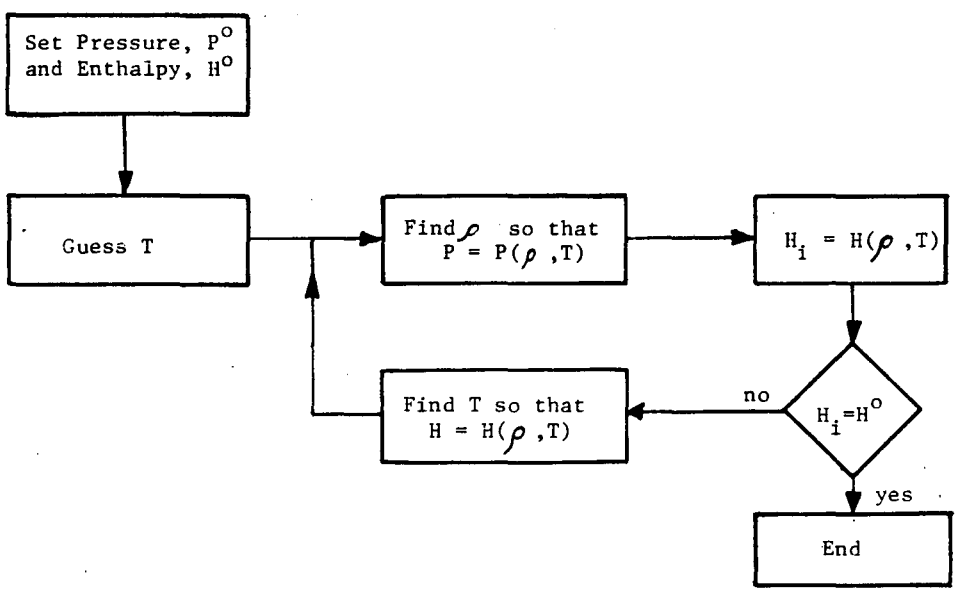



Figure 6 Integration path for property calculation.

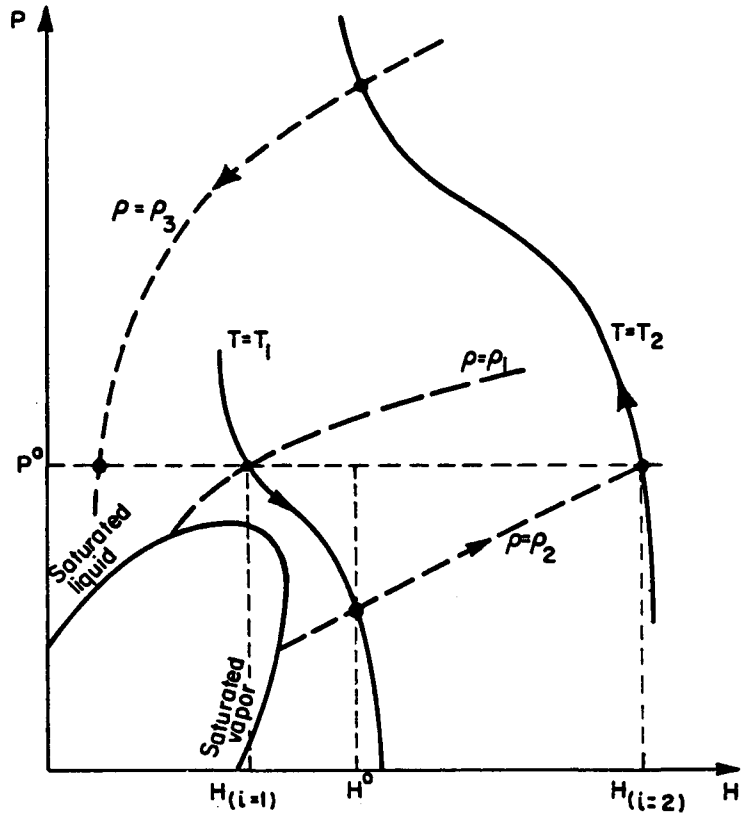



(a)

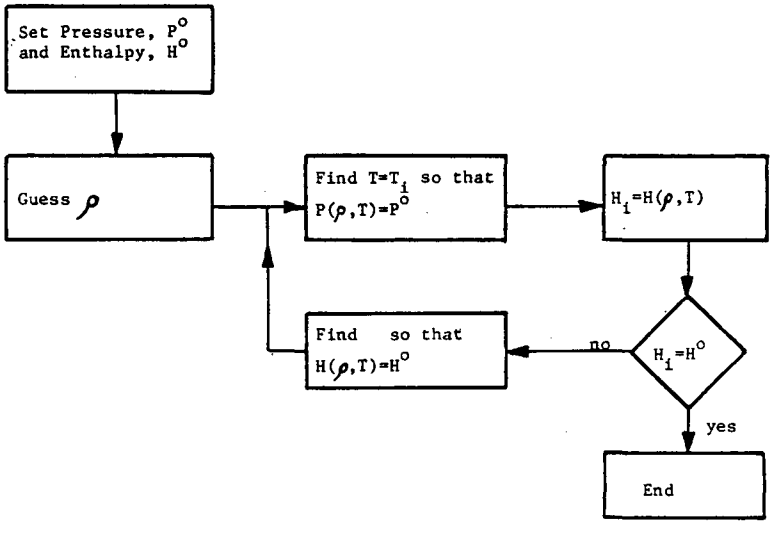



(b)

Figure 7 Convergent two dimensional iteration to evaluate specific volume and temperature for given pressure and enthalpy.




(a)



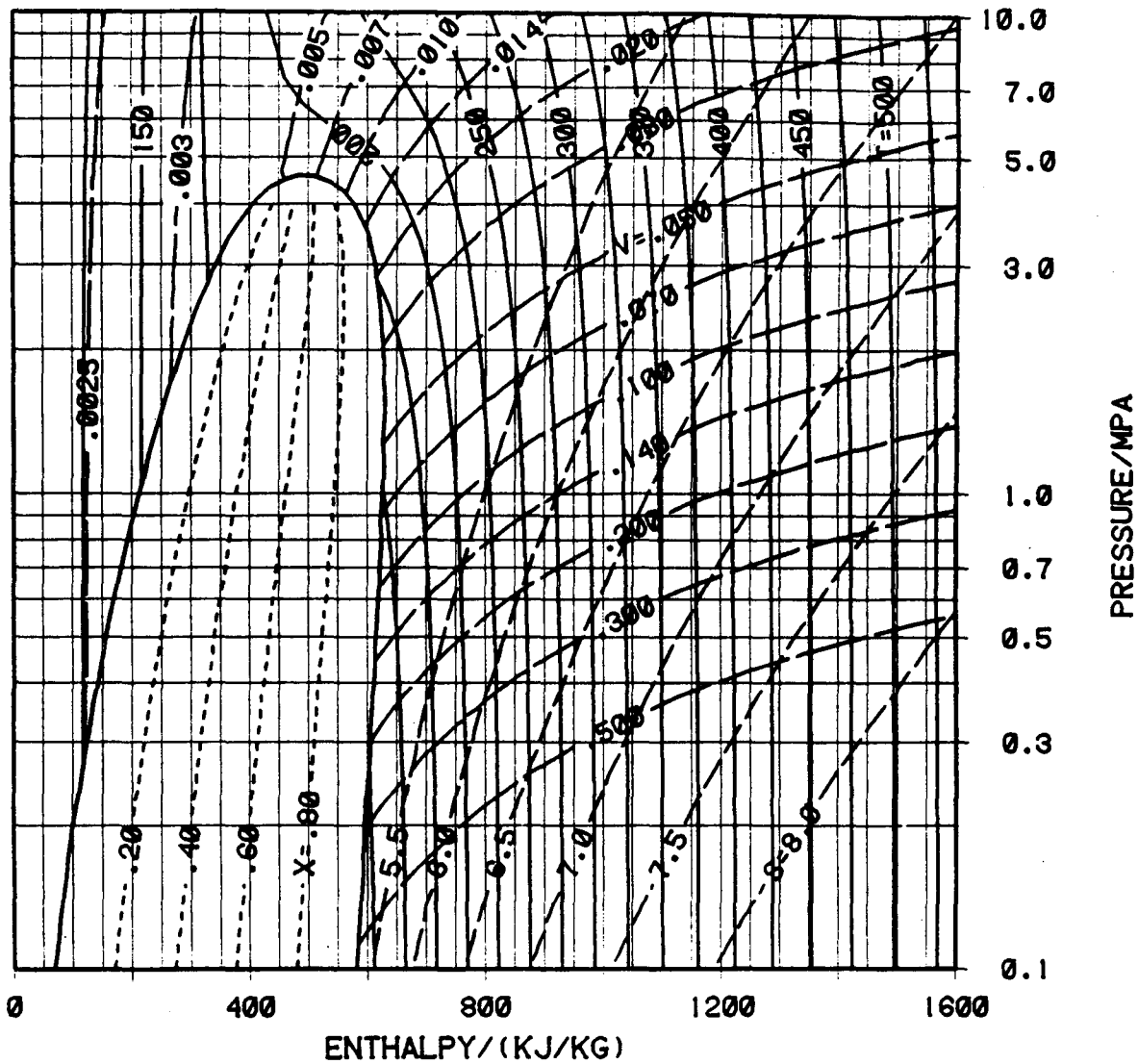

(b)

Figure 8 Divergent computational scheme in an attempt to evaluate specific volume and temperature for given pressure and enthalpy.

## APPENDIX I: THERMODYNAMIC PROPERTIES OF NORMAL PARAFFINS

Graphs and tables for normal paraffins methane through hexadecane are presented in this appendix. They are ordered by increasing molecular weight. A pressure-enthalpy diagram is presented for each substance in addition to a table of saturation properties and a general properties tables indexed by pressure and temperature. Units throughout the appendix are in SI Metric and are listed below.

| | |
|---|---|
| Temperature | K |
| Enthalpy(H) | kJ/kg |
| Entropy(S) | kJ/kg•K |
| Specific Volume(V) | $m^3/kg$ |
| Pressure | MPa |
| Speed of Sound(C) | m/sec |
| Isothermal Compressibility(Kappa) | 1/MPa |
| Isobaric Compressibility(Beta) | 1000/K |


10.0
7.0
5.0
3.0
1.0
0.7
0.5
0.3
0.1
PRESSURE/MPA
0
400
800
1200
1600
ENTHALPY/(KJ/KG)
.0025
.005
.007
.010
.014
.020
.003
150
200
250
300
350
400
450
T=500
V=.050
.030
.070
.100
.140
.200
.300
.500
X=.80
.60
.40
.20
5.5
6.0
6.5
7.0
7.5
8.0

METHANE

PROPERTIES OF SATURATED METHANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 115.00000 | .13290 | .00239 | .42864 | 80.55130 | 507.26486 | 587.81616 | .78729 | 4.41100 | 5.19829 |
| 120.00000 | .19283 | .00244 | .30405 | 98.74400 | 496.70862 | 595.45262 | .94090 | 4.13924 | 5.08014 |
| 125.00000 | .27115 | .00249 | .22162 | 117.40889 | 485.07593 | 602.48482 | 1.09170 | 3.88061 | 4.97230 |
| 130.00000 | .37096 | .00254 | .16534 | 136.49474 | 472.35606 | 608.85079 | 1.23943 | 3.63351 | 4.87294 |
| 135.00000 | .49540 | .00260 | .12583 | 155.95375 | 458.53091 | 614.48466 | 1.38388 | 3.39653 | 4.78041 |
| 140.00000 | .64766 | .00266 | .09739 | 175.74541 | 443.56725 | 619.31266 | 1.52492 | 3.16834 | 4.69326 |
| 145.00000 | .83095 | .00273 | .07645 | 195.84841 | 427.39772 | 623.24613 | 1.66254 | 2.94757 | 4.61011 |
| 150.00000 | 1.04857 | .00280 | .06072 | 216.27383 | 409.89805 | 626.17188 | 1.79694 | 2.73265 | 4.52960 |
| 155.00000 | 1.30396 | .00288 | .04865 | 237.08217 | 390.85534 | 627.93751 | 1.92864 | 2.52165 | 4.45029 |
| 160.00000 | 1.60075 | .00297 | .03923 | 258.41269 | 369.91425 | 628.32694 | 2.05856 | 2.31196 | 4.37053 |
| 165.00000 | 1.94296 | .00308 | .03174 | 280.52305 | 346.49641 | 627.01946 | 2.18826 | 2.09998 | 4.28824 |
| 170.00000 | 2.33506 | .00320 | .02565 | 303.87032 | 319.63710 | 623.50743 | 2.32029 | 1.88022 | 4.20051 |
| 175.00000 | 2.78228 | .00336 | .02060 | 329.26811 | 287.64742 | 616.91553 | 2.45900 | 1.64370 | 4.10270 |
| 180.00000 | 3.29075 | .00358 | .01626 | 358.27950 | 247.23220 | 605.51170 | 2.61247 | 1.37351 | 3.98598 |
| 185.00000 | 3.86792 | .00393 | .01229 | 394.62067 | 190.21011 | 584.83078 | 2.79966 | 1.02816 | 3.82783 |
| 190.00000 | 4.52284 | .00503 | .00760 | 459.13894 | 68.09964 | 527.23858 | 3.12792 | .35842 | 3.48634 |
| 190.58000 | 5.26675 | .00621 | .00621 | 498.51178 | 0. | 498.51178 | 3.31081 | 0. | 3.31081 |

THERMODYNAMIC PROPERTIES OF METHANE

| P/(MPA) | | TEMPERATURES/(K) 115.000 | 125.000 | 150.000 | 175.000 | 200.000 | 225.000 | 250.000 | 275.000 | 300.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .57642 | .63136 | .76610 | .89879 | 1.03041 | 1.16142 | 1.29205 | 1.42244 | 1.55266 |
| | H/(KJ/KG) | 589.8 | 611.5 | 665.0 | 717.7 | 770.3 | 823.0 | 876.4 | 930.6 | 986.0 |
| | S/(KJ/KG K) | 5.3575 | 5.5386 | 5.9283 | 6.2536 | 6.5343 | 6.7828 | 7.0076 | 7.2142 | 7.4070 |
| | C/(M/SEC) | 276.2751 | 289.3656 | 319.2010 | 345.9179 | 370.2008 | 392.4475 | 412.9426 | 431.9197 | 449.5851 |
| | KAPPA/(1/MPA) | 10.3529 | 10.2695 | 10.1518 | 10.0942 | 10.0622 | 10.0428 | 10.0304 | 10.0220 | 10.0162 |
| | BETA/(1000/K) | 9.6 | 8.6 | 7.0 | 5.9 | 5.1 | 4.5 | 4.0 | 3.7 | 3.4 |
| .1013 | V/(M3/KG) | .56861 | .62288 | .75593 | .88692 | 1.01685 | 1.14616 | 1.27511 | 1.40380 | 1.53232 |
| | H/(KJ/KG) | 589.7 | 611.5 | 664.9 | 717.7 | 770.2 | 823.0 | 876.3 | 930.6 | 986.0 |
| | S/(KJ/KG K) | 5.3503 | 5.5314 | 5.9213 | 6.2466 | 6.5274 | 6.7760 | 7.0007 | 7.2074 | 7.4002 |
| | C/(M/SEC) | 276.1988 | 289.3048 | 319.1637 | 345.8934 | 370.1840 | 392.4357 | 412.9342 | 431.9137 | 449.5808 |
| | KAPPA/(1/MPA) | 10.2226 | 10.1390 | 10.0212 | 9.9634 | 9.9314 | 9.9121 | 9.8996 | 9.8913 | 9.8854 |
| | BETA/(1000/K) | 9.6 | 8.7 | 7.0 | 5.9 | 5.1 | 4.5 | 4.0 | 3.7 | 3.4 |
| .2000 | V/(M3/KG) | .00239 | .30696 | .37716 | .44513 | .51198 | .57821 | .64406 | .70965 | .77507 |
| | H/(KJ/KG) | 80.6 | 606.4 | 661.4 | 715.1 | 768.3 | 821.4 | 875.1 | 929.5 | 985.1 |
| | S/(KJ/KG K) | .7866 | 5.1512 | 5.5533 | 5.8844 | 6.1682 | 6.4187 | 6.6446 | 6.8521 | 7.0455 |
| | C/(M/SEC) | 1906.4916 | 284.6271 | 316.3407 | 344.0518 | 368.9267 | 391.5541 | 412.3076 | 431.4675 | 449.2663 |
| | KAPPA/(1/MPA) | .0019 | 5.2916 | 5.1585 | 5.0966 | 5.0632 | 5.0433 | 5.0306 | 5.0221 | 5.0162 |
| | BETA/(1000/K) | 4.0 | 9.4 | 7.3 | 6.0 | 5.2 | 4.6 | 4.1 | 3.7 | 3.4 |
| .3000 | V/(M3/KG) | .00239 | .00249 | .24740 | .29386 | .33915 | .38380 | .42806 | .47205 | .51588 |
| | H/(KJ/KG) | 80.8 | 117.4 | 657.8 | 712.5 | 766.3 | 819.8 | 873.8 | 928.4 | 984.1 |
| | S/(KJ/KG K) | .7857 | 1.0914 | 5.3267 | 5.6641 | 5.9512 | 6.2036 | 6.4308 | 6.6391 | 6.8331 |
| | C/(M/SEC) | 1907.6191 | 1557.2947 | 313.3790 | 342.1491 | 367.6392 | 390.6568 | 411.6728 | 431.0173 | 448.9505 |
| | KAPPA/(1/MPA) | .0019 | .0025 | 3.4991 | 3.4325 | 3.3976 | 3.3771 | 3.3641 | 3.3555 | 3.3496 |
| | BETA/(1000/K) | 4.0 | 4.2 | 7.7 | 6.2 | 5.3 | 4.6 | 4.1 | 3.7 | 3.4 |
| .4000 | V/(M3/KG) | .00239 | .00249 | .18242 | .21819 | .25272 | .28659 | .32005 | .35326 | .38628 |
| | H/(KJ/KG) | 80.9 | 117.6 | 654.1 | 709.8 | 764.2 | 818.2 | 872.4 | 927.3 | 983.2 |
| | S/(KJ/KG K) | .7847 | 1.0903 | 5.1607 | 5.5046 | 5.7952 | 6.0496 | 6.2780 | 6.4872 | 6.6817 |
| | C/(M/SEC) | 1908.7450 | 1558.7469 | 310.3067 | 340.2084 | 366.3380 | 389.7554 | 411.0383 | 430.5694 | 448.6378 |
| | KAPPA/(1/MPA) | .0019 | .0025 | 2.6738 | 2.6020 | 2.5654 | 2.5442 | 2.5310 | 2.5223 | 2.5162 |
| | BETA/(1000/K) | 4.0 | 4.2 | 8.1 | 6.4 | 5.4 | 4.7 | 4.2 | 3.7 | 3.4 |
| .5000 | V/(M3/KG) | .00239 | .00249 | .14336 | .17276 | .20085 | .22825 | .25525 | .28197 | .30852 |
| | H/(KJ/KG) | 81.0 | 117.7 | 650.2 | 707.1 | 762.2 | 816.6 | 871.1 | 926.2 | 982.3 |
| | S/(KJ/KG K) | .7837 | 1.0893 | 5.0273 | 5.3783 | 5.6725 | 5.9290 | 6.1587 | 6.3687 | 6.5638 |
| | C/(M/SEC) | 1909.8686 | 1560.1956 | 307.1128 | 338.2277 | 365.0230 | 388.8503 | 410.4043 | 430.1239 | 448.3283 |
| | KAPPA/(1/MPA) | .0019 | .0025 | 2.1828 | 2.1049 | 2.0665 | 2.0447 | 2.0312 | 2.0224 | 2.0163 |
| | BETA/(1000/K) | 4.0 | 4.2 | 8.5 | 6.6 | 5.5 | 4.8 | 4.2 | 3.8 | 3.4 |
| .6000 | V/(M3/KG) | .00239 | .00249 | .11725 | .14244 | .16626 | .18936 | .21204 | .23445 | .25669 |
| | H/(KJ/KG) | 81.1 | 117.8 | 646.2 | 704.4 | 760.1 | 815.0 | 869.8 | 925.1 | 981.4 |
| | S/(KJ/KG K) | .7828 | 1.0882 | 4.9144 | 5.2730 | 5.5709 | 5.8295 | 6.0605 | 6.2713 | 6.4670 |
| | C/(M/SEC) | 1910.9894 | 1561.6407 | 303.7844 | 336.2051 | 363.6939 | 387.9413 | 409.7707 | 429.6807 | 448.0219 |
| | KAPPA/(1/MPA) | .0019 | .0025 | 1.8595 | 1.7746 | 1.7343 | 1.7119 | 1.6981 | 1.6891 | 1.6830 |
| | BETA/(1000/K) | 4.0 | 4.2 | 9.0 | 6.8 | 5.6 | 4.8 | 4.2 | 3.8 | 3.5 |

## THERMODYNAMIC PROPERTIES OF METHANE

TEMPERATURES/(K)

| P/(MPA) | | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 | 525.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | 1.68276 | 1.81276 | 1.94270 | 2.07259 | 2.20243 | 2.33224 | 2.46203 | 2.59179 | 2.72153 |
| | H/(KJ/KG) | 1042.8 | 1101.3 | 1161.7 | 1224.0 | 1288.5 | 1355.2 | 1424.3 | 1495.7 | 1569.5 |
| | S/(KJ/KG K) | 7.5890 | 7.7623 | 7.9288 | 8.0898 | 8.2462 | 8.3987 | 8.5480 | 8.6945 | 8.8385 |
| | C/(M/SEC) | 466.1242 | 481.7029 | 496.4669 | 510.5418 | 524.0338 | 537.0314 | 549.6078 | 561.8226 | 573.7243 |
| | KAPPA/(1/MPA) | 10.0119 | 10.0088 | 10.0065 | 10.0047 | 10.0033 | 10.0022 | 10.0013 | 10.0006 | 10.0000 |
| | BETA/(1000/K) | 3.1 | 2.9 | 2.7 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 |
| .1013 | V/(M3/KG) | 1.66072 | 1.78904 | 1.91728 | 2.04547 | 2.17362 | 2.30173 | 2.42983 | 2.55789 | 2.68594 |
| | H/(KJ/KG) | 1042.8 | 1101.3 | 1161.6 | 1224.0 | 1288.5 | 1355.2 | 1424.3 | 1495.7 | 1569.5 |
| | S/(KJ/KG K) | 7.5821 | 7.7555 | 7.9220 | 8.0830 | 8.2393 | 8.3919 | 8.5412 | 8.6877 | 8.8317 |
| | C/(M/SEC) | 466.1213 | 481.7010 | 496.4658 | 510.5413 | 524.0338 | 537.0319 | 549.6086 | 561.8237 | 573.7256 |
| | KAPPA/(1/MPA) | 9.8812 | 9.8781 | 9.8757 | 9.8739 | 9.8725 | 9.8714 | 9.8705 | 9.8698 | 9.8693 |
| | BETA/(1000/K) | 3.1 | 2.9 | 2.7 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 |
| .2000 | V/(M3/KG) | .84037 | .90558 | .97072 | 1.03581 | 1.10086 | 1.16587 | 1.23085 | 1.29582 | 1.36076 |
| | H/(KJ/KG) | 1042.0 | 1100.6 | 1161.1 | 1223.5 | 1288.0 | 1354.8 | 1423.9 | 1495.4 | 1569.2 |
| | S/(KJ/KG K) | 7.2278 | 7.4015 | 7.5683 | 7.7294 | 7.8859 | 8.0386 | 8.1880 | 8.3346 | 8.4787 |
| | C/(M/SEC) | 465.9055 | 481.5609 | 496.3850 | 510.5076 | 524.0380 | 537.0672 | 549.6695 | 561.9060 | 573.8259 |
| | KAPPA/(1/MPA) | 5.0119 | 5.0088 | 5.0065 | 5.0046 | 5.0033 | 5.0021 | 5.0013 | 5.0006 | 5.0000 |
| | BETA/(1000/K) | 3.1 | 2.9 | 2.7 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 |
| .3000 | V/(M3/KG) | .55958 | .60319 | .64673 | .69022 | .73367 | .77708 | .82047 | .86383 | .90718 |
| | H/(KJ/KG) | 1041.2 | 1099.9 | 1160.5 | 1223.0 | 1287.6 | 1354.4 | 1423.6 | 1495.1 | 1568.9 |
| | S/(KJ/KG K) | 7.0158 | 7.1898 | 7.3568 | 7.5182 | 7.6748 | 7.8276 | 7.9771 | 8.1238 | 8.2679 |
| | C/(M/SEC) | 465.6901 | 481.4225 | 496.3065 | 510.4767 | 524.0456 | 537.1060 | 549.7342 | 561.9922 | 573.9302 |
| | KAPPA/(1/MPA) | 3.3453 | 3.3421 | 3.3398 | 3.3380 | 3.3366 | 3.3355 | 3.3346 | 3.3339 | 3.3333 |
| | BETA/(1000/K) | 3.1 | 2.9 | 2.7 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 |
| .4000 | V/(M3/KG) | .41919 | .45200 | .48474 | .51743 | .55007 | .58269 | .61527 | .64784 | .68038 |
| | H/(KJ/KG) | 1040.4 | 1099.3 | 1159.9 | 1222.4 | 1287.1 | 1354.0 | 1423.2 | 1494.7 | 1568.6 |
| | S/(KJ/KG K) | 6.8649 | 7.0392 | 7.2064 | 7.3680 | 7.5248 | 7.6777 | 7.8273 | 7.9740 | 8.1182 |
| | C/(M/SEC) | 465.4783 | 481.2876 | 496.2316 | 510.4493 | 524.0563 | 537.1479 | 549.8018 | 562.0811 | 574.0371 |
| | KAPPA/(1/MPA) | 2.5119 | 2.5088 | 2.5064 | 2.5046 | 2.5032 | 2.5021 | 2.5012 | 2.5005 | 2.5000 |
| | BETA/(1000/K) | 3.1 | 2.9 | 2.7 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 |
| .5000 | V/(M3/KG) | .33495 | .36128 | .38754 | .41375 | .43992 | .46605 | .49216 | .51824 | .54431 |
| | H/(KJ/KG) | 1039.7 | 1098.6 | 1159.3 | 1221.9 | 1286.7 | 1353.6 | 1422.8 | 1494.4 | 1568.3 |
| | S/(KJ/KG K) | 6.7474 | 6.9220 | 7.0895 | 7.2512 | 7.4082 | 7.5612 | 7.7109 | 7.8577 | 8.0020 |
| | C/(M/SEC) | 465.2699 | 481.1562 | 496.1601 | 510.4252 | 524.0703 | 537.1928 | 549.8722 | 562.1729 | 574.1467 |
| | KAPPA/(1/MPA) | 2.0119 | 2.0087 | 2.0064 | 2.0046 | 2.0032 | 2.0021 | 2.0012 | 2.0005 | 1.9999 |
| | BETA/(1000/K) | 3.1 | 2.9 | 2.7 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 |
| .6000 | V/(M3/KG) | .27879 | .30080 | .32275 | .34464 | .36648 | .38830 | .41009 | .43185 | .45360 |
| | H/(KJ/KG) | 1038.9 | 1097.9 | 1158.7 | 1221.4 | 1286.2 | 1353.2 | 1422.5 | 1494.1 | 1568.0 |
| | S/(KJ/KG K) | 6.6511 | 6.8260 | 6.9937 | 7.1556 | 7.3128 | 7.4659 | 7.6157 | 7.7626 | 7.9069 |
| | C/(M/SEC) | 465.0650 | 481.0284 | 496.0921 | 510.4045 | 524.0875 | 537.2409 | 549.9456 | 562.2673 | 574.2588 |
| | KAPPA/(1/MPA) | 1.6786 | 1.6754 | 1.6730 | 1.6712 | 1.6698 | 1.6687 | 1.6678 | 1.6671 | 1.6666 |
| | BETA/(1000/K) | 3.2 | 2.9 | 2.7 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 |

THERMODYNAMIC PROPERTIES OF METHANE

TEMPERATURES/(K)

| P/(MPA) | | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 | 750.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | 2.85126 | 2.98098 | 3.11067 | 3.24037 | 3.37006 | 3.49974 | 3.62940 | 3.75907 | 3.88874 |
| | H/(KJ/KG) | 1645.7 | 1724.2 | 1805.1 | 1888.4 | 1973.8 | 2061.5 | 2151.3 | 2243.1 | 2336.9 |
| | S/(KJ/KG K) | 8.9803 | 9.1199 | 9.2577 | 9.3935 | 9.5276 | 9.6599 | 9.7905 | 9.9194 | 10.0466 |
| | C/(M/SEC) | 585.3522 | 596.7379 | 607.9071 | 618.8804 | 629.6742 | 640.3020 | 650.7741 | 661.0987 | 671.2819 |
| | KAPPA/(1/MPA) | 9.9996 | 9.9992 | 9.9989 | 9.9986 | 9.9984 | 9.9983 | 9.9981 | 9.9980 | 9.9979 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| .1013 | V/(M3/KG) | 2.81398 | 2.94200 | 3.07001 | 3.19800 | 3.32600 | 3.45398 | 3.58196 | 3.70993 | 3.83789 |
| | H/(KJ/KG) | 1645.7 | 1724.2 | 1805.1 | 1888.4 | 1973.8 | 2061.5 | 2151.3 | 2243.1 | 2336.9 |
| | S/(KJ/KG K) | 8.9734 | 9.1131 | 9.2508 | 9.3867 | 9.5208 | 9.6531 | 9.7837 | 9.9126 | 10.0398 |
| | C/(M/SEC) | 585.3537 | 596.7396 | 607.9090 | 618.8823 | 629.6763 | 640.3042 | 650.7764 | 661.1010 | 671.2844 |
| | KAPPA/(1/MPA) | 9.8688 | 9.8684 | 9.8682 | 9.8679 | 9.8677 | 9.8675 | 9.8674 | 9.8672 | 9.8671 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| .2000 | V/(M3/KG) | 1.42569 | 1.49061 | 1.55551 | 1.62041 | 1.68529 | 1.75017 | 1.81505 | 1.87991 | 1.94478 |
| | H/(KJ/KG) | 1645.4 | 1724.0 | 1804.9 | 1888.2 | 1973.7 | 2061.3 | 2151.1 | 2243.0 | 2336.8 |
| | S/(KJ/KG K) | 8.6205 | 8.7602 | 8.8979 | 9.0338 | 9.1679 | 9.3003 | 9.4309 | 9.5598 | 9.6871 |
| | C/(M/SEC) | 585.4693 | 596.8682 | 608.0487 | 619.0317 | 629.8340 | 640.4691 | 650.9475 | 661.2776 | 671.4657 |
| | KAPPA/(1/MPA) | 4.9996 | 4.9992 | 4.9989 | 4.9986 | 4.9984 | 4.9982 | 4.9981 | 4.9980 | 4.9979 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| .3000 | V/(M3/KG) | .95050 | .99382 | 1.03713 | 1.08042 | 1.12371 | 1.16699 | 1.21026 | 1.25353 | 1.29679 |
| | H/(KJ/KG) | 1645.2 | 1723.8 | 1804.7 | 1888.0 | 1973.5 | 2061.2 | 2151.0 | 2242.9 | 2336.7 |
| | S/(KJ/KG K) | 8.4098 | 8.5495 | 8.6873 | 8.8233 | 8.9574 | 9.0898 | 9.2204 | 9.3494 | 9.4766 |
| | C/(M/SEC) | 585.5889 | 597.0008 | 608.1925 | 619.1852 | 629.9958 | 640.6381 | 651.1228 | 661.4584 | 671.6512 |
| | KAPPA/(1/MPA) | 3.3329 | 3.3325 | 3.3322 | 3.3319 | 3.3317 | 3.3316 | 3.3314 | 3.3313 | 3.3312 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| .4000 | V/(M3/KG) | .71291 | .74543 | .77794 | .81043 | .84292 | .87540 | .90787 | .94034 | .97280 |
| | H/(KJ/KG) | 1644.9 | 1723.5 | 1804.5 | 1887.8 | 1973.3 | 2061.0 | 2150.9 | 2242.8 | 2336.6 |
| | S/(KJ/KG K) | 8.2602 | 8.4000 | 8.5378 | 8.6738 | 8.8079 | 8.9404 | 9.0710 | 9.2000 | 9.3273 |
| | C/(M/SEC) | 585.7110 | 597.1359 | 608.3386 | 619.3408 | 630.1597 | 640.8091 | 651.3000 | 661.6409 | 671.8385 |
| | KAPPA/(1/MPA) | 2.4995 | 2.4991 | 2.4988 | 2.4986 | 2.4984 | 2.4982 | 2.4981 | 2.4980 | 2.4979 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| .5000 | V/(M3/KG) | .57036 | .59640 | .62242 | .64844 | .67444 | .70044 | .72644 | .75242 | .77841 |
| | H/(KJ/KG) | 1644.6 | 1723.3 | 1804.3 | 1887.6 | 1973.2 | 2060.9 | 2150.7 | 2242.6 | 2336.5 |
| | S/(KJ/KG K) | 8.1440 | 8.2838 | 8.4217 | 8.5577 | 8.6919 | 8.8244 | 8.9551 | 9.0841 | 9.2114 |
| | C/(M/SEC) | 585.8355 | 597.2733 | 608.4870 | 619.4986 | 630.3256 | 640.9820 | 651.4790 | 661.8253 | 672.0274 |
| | KAPPA/(1/MPA) | 1.9995 | 1.9991 | 1.9988 | 1.9986 | 1.9984 | 1.9982 | 1.9980 | 1.9979 | 1.9978 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| .6000 | V/(M3/KG) | .47533 | .49704 | .51875 | .54044 | .56213 | .58381 | .60548 | .62715 | .64881 |
| | H/(KJ/KG) | 1644.4 | 1723.1 | 1804.1 | 1887.4 | 1973.0 | 2060.7 | 2150.6 | 2242.5 | 2336.4 |
| | S/(KJ/KG K) | 8.0490 | 8.1889 | 8.3268 | 8.4629 | 8.5971 | 8.7295 | 8.8603 | 8.9893 | 9.1166 |
| | C/(M/SEC) | 585.9626 | 597.4130 | 608.6376 | 619.6585 | 630.4935 | 641.1569 | 651.6599 | 662.0114 | 672.2180 |
| | KAPPA/(1/MPA) | 1.6661 | 1.6657 | 1.6654 | 1.6652 | 1.6650 | 1.6648 | 1.6647 | 1.6646 | 1.6645 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |

THERMODYNAMIC PROPERTIES OF METHANE

TEMPERATURES/(K)

| P/(MPA) | | 115.000 | 125.000 | 150.000 | 175.000 | 200.000 | 225.000 | 250.000 | 275.000 | 300.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00239 | .00249 | .09852 | .12076 | .14154 | .16157 | .18118 | .20051 | .21966 |
| | H/(KJ/KG) | 81.3 | 117.9 | 642.1 | 701.5 | 758.0 | 813.4 | 868.5 | 924.0 | 980.4 |
| | S/(KJ/KG K) | .7818 | 1.0872 | 4.8151 | 5.1820 | 5.4838 | 5.7445 | 5.9768 | 6.1886 | 6.3849 |
| | C/(M/SEC) | 1912.1080 | 1563.0824 | 300.3064 | 334.1386 | 362.3503 | 387.0286 | 409.1378 | 429.2400 | 447.7189 |
| | KAPPA/(1/MPA) | .0019 | .0025 | 1.6328 | 1.5398 | 1.4974 | 1.4743 | 1.4602 | 1.4511 | 1.4449 |
| | BETA/(1000/K) | 4.0 | 4.2 | 9.5 | 7.1 | 5.7 | 4.9 | 4.3 | 3.8 | 3.5 |
| .8000 | V/(M3/KG) | .00239 | .00249 | .08441 | .10448 | .12299 | .14073 | .15803 | .17505 | .19189 |
| | H/(KJ/KG) | 81.4 | 118.0 | 637.8 | 698.7 | 755.9 | 811.7 | 867.2 | 922.9 | 979.5 |
| | S/(KJ/KG K) | .7809 | 1.0861 | 4.7256 | 5.1013 | 5.4072 | 5.6702 | 5.9038 | 6.1165 | 6.3134 |
| | C/(M/SEC) | 1913.2254 | 1564.5211 | 296.6603 | 332.0257 | 360.9922 | 386.1123 | 408.5056 | 428.8019 | 447.4192 |
| | KAPPA/(1/MPA) | .0019 | .0025 | 1.4673 | 1.3648 | 1.3201 | 1.2962 | 1.2819 | 1.2726 | 1.2663 |
| | BETA/(1000/K) | 4.0 | 4.2 | 10.1 | 7.3 | 5.9 | 5.0 | 4.3 | 3.9 | 3.5 |
| .9000 | V/(M3/KG) | .00239 | .00249 | .07336 | .09179 | .10855 | .12451 | .14002 | .15525 | .17029 |
| | H/(KJ/KG) | 81.5 | 118.1 | 633.3 | 695.7 | 753.7 | 810.0 | 865.8 | 921.8 | 978.6 |
| | S/(KJ/KG K) | .7799 | 1.0851 | 4.6431 | 5.0286 | 5.3387 | 5.6039 | 5.8390 | 6.0525 | 6.2500 |
| | C/(M/SEC) | 1914.3394 | 1565.9562 | 292.8236 | 329.8641 | 359.6192 | 385.1924 | 407.8743 | 428.3664 | 447.1229 |
| | KAPPA/(1/MPA) | .0019 | .0025 | 1.3435 | 1.2296 | 1.1826 | 1.1579 | 1.1432 | 1.1338 | 1.1275 |
| | BETA/(1000/K) | 4.0 | 4.2 | 10.9 | 7.6 | 6.0 | 5.0 | 4.4 | 3.9 | 3.5 |
| 1.0000 | V/(M3/KG) | .00239 | .00249 | .06446 | .08162 | .09699 | .11153 | .12561 | .13940 | .15301 |
| | H/(KJ/KG) | 81.7 | 118.3 | 628.6 | 692.7 | 751.6 | 808.3 | 864.5 | 920.7 | 977.6 |
| | S/(KJ/KG K) | .7790 | 1.0840 | 4.5658 | 4.9619 | 5.2765 | 5.5441 | 5.7806 | 5.9950 | 6.1931 |
| | C/(M/SEC) | 1915.4518 | 1567.3881 | 288.7683 | 327.6509 | 358.2311 | 384.2691 | 407.2439 | 427.9337 | 446.8300 |
| | KAPPA/(1/MPA) | .0019 | .0025 | 1.2500 | 1.1226 | 1.0728 | 1.0473 | 1.0323 | 1.0228 | 1.0164 |
| | BETA/(1000/K) | 4.0 | 4.2 | 11.7 | 7.8 | 6.1 | 5.1 | 4.4 | 3.9 | 3.5 |
| 2.0000 | V/(M3/KG) | .00238 | .00248 | .00278 | .03509 | .04473 | .05304 | .06074 | .06810 | .07526 |
| | H/(KJ/KG) | 83.0 | 119.5 | 216.7 | 657.6 | 728.0 | 790.7 | 850.5 | 909.3 | 968.2 |
| | S/(KJ/KG K) | .7695 | 1.0737 | 1.7821 | 4.4571 | 4.8338 | 5.1295 | 5.3817 | 5.6059 | 5.8106 |
| | C/(M/SEC) | 1926.4607 | 1581.5264 | 1077.0593 | 301.7962 | 343.4638 | 374.8769 | 401.0255 | 423.7817 | 444.1068 |
| | KAPPA/(1/MPA) | .0018 | .0024 | .0055 | .6900 | .5900 | .5533 | .5346 | .5236 | .5165 |
| | BETA/(1000/K) | 3.9 | 4.1 | 5.5 | 12.5 | 7.8 | 6.0 | 4.9 | 4.3 | 3.8 |
| 3.0000 | V/(M3/KG) | .00238 | .00247 | .00277 | .00334 | .02691 | .03341 | .03907 | .04433 | .04935 |
| | H/(KJ/KG) | 84.3 | 120.7 | 217.3 | 328.3 | 700.0 | 771.4 | 835.8 | 897.6 | 958.5 |
| | S/(KJ/KG K) | .7602 | 1.0636 | 1.7673 | 2.4496 | 4.5206 | 4.8573 | 5.1290 | 5.3645 | 5.5764 |
| | C/(M/SEC) | 1874.6567 | 1595.3181 | 1099.7844 | 654.4459 | 326.9519 | 365.3539 | 395.0918 | 420.0329 | 441.8103 |
| | KAPPA/(1/MPA) | .0018 | .0023 | .0052 | .0243 | .4512 | .3939 | .3703 | .3576 | .3499 |
| | BETA/(1000/K) | 3.9 | 4.1 | 5.3 | 12.6 | 10.8 | 7.1 | 5.6 | 4.6 | 4.0 |
| 4.0000 | V/(M3/KG) | .00237 | .00247 | .00276 | .00327 | .01752 | .02348 | .02821 | .03244 | .03640 |
| | H/(KJ/KG) | 85.6 | 121.9 | 217.9 | 325.1 | 664.5 | 750.0 | 820.2 | 885.4 | 948.6 |
| | S/(KJ/KG K) | .7510 | 1.0536 | 1.7530 | 2.4119 | 4.2339 | 4.6378 | 4.9342 | 5.1827 | 5.4026 |
| | C/(M/SEC) | 1947.8681 | 1608.8351 | 1121.5333 | 702.9969 | 308.9117 | 356.1230 | 389.6971 | 416.8348 | 440.0261 |
| | KAPPA/(1/MPA) | .0018 | .0023 | .0049 | .0187 | .4217 | .3194 | .2893 | .2749 | .2665 |
| | BETA/(1000/K) | 3.9 | 4.0 | 5.1 | 10.4 | 16.8 | 8.7 | 6.3 | 5.0 | 4.2 |

## THERMODYNAMIC PROPERTIES OF METHANE

TEMPERATURES/(K)

| P/(MPA) | | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 | 525.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .23868 | .25761 | .27647 | .29527 | .31403 | .33276 | .35146 | .37014 | .38880 |
| | H/(KJ/KG) | 1038.1 | 1097.2 | 1158.1 | 1220.9 | 1285.7 | 1352.8 | 1422.1 | 1493.8 | 1567.8 |
| | S/(KJ/KG K) | 6.5693 | 6.7446 | 6.9126 | 7.0746 | 7.2319 | 7.3852 | 7.5351 | 7.6821 | 7.8265 |
| | C/(M/SEC) | 464.8637 | 480.9042 | 496.0277 | 510.3872 | 524.1079 | 537.2920 | 550.0220 | 562.3646 | 574.3735 |
| | KAPPA/(1/MPA) | 1.4405 | 1.4373 | 1.4349 | 1.4331 | 1.4317 | 1.4306 | 1.4297 | 1.4290 | 1.4284 |
| | BETA/(1000/K) | 3.2 | 2.9 | 2.7 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 |
| .8000 | V/(M3/KG) | .20860 | .22521 | .24176 | .25825 | .27469 | .29111 | .30750 | .32386 | .34021 |
| | H/(KJ/KG) | 1037.3 | 1096.5 | 1157.5 | 1220.3 | 1285.3 | 1352.4 | 1421.7 | 1493.4 | 1567.5 |
| | S/(KJ/KG K) | 6.4983 | 6.6739 | 6.8421 | 7.0044 | 7.1618 | 7.3152 | 7.4652 | 7.6122 | 7.7567 |
| | C/(M/SEC) | 464.6659 | 480.7837 | 495.9668 | 510.3732 | 524.1316 | 537.3461 | 550.1012 | 562.4645 | 574.4909 |
| | KAPPA/(1/MPA) | 1.2619 | 1.2587 | 1.2563 | 1.2545 | 1.2530 | 1.2520 | 1.2511 | 1.2504 | 1.2498 |
| | BETA/(1000/K) | 3.2 | 2.9 | 2.7 | 2.6 | 2.4 | 2.3 | 2.1 | 2.0 | 1.9 |
| .9000 | V/(M3/KG) | .18520 | .20001 | .21476 | .22945 | .24410 | .25871 | .27330 | .28786 | .30241 |
| | H/(KJ/KG) | 1036.5 | 1095.8 | 1156.9 | 1219.8 | 1284.8 | 1352.0 | 1421.4 | 1493.1 | 1567.2 |
| | S/(KJ/KG K) | 6.4354 | 6.6113 | 6.7798 | 6.9422 | 7.0998 | 7.2533 | 7.4034 | 7.5506 | 7.6951 |
| | C/(M/SEC) | 464.4718 | 480.6667 | 495.9094 | 510.3627 | 524.1585 | 537.4034 | 550.1832 | 562.5672 | 574.6108 |
| | KAPPA/(1/MPA) | 1.1230 | 1.1198 | 1.1174 | 1.1155 | 1.1141 | 1.1130 | 1.1122 | 1.1115 | 1.1109 |
| | BETA/(1000/K) | 3.2 | 3.0 | 2.7 | 2.6 | 2.4 | 2.3 | 2.1 | 2.0 | 1.9 |
| 1.0000 | V/(M3/KG) | .16648 | .17986 | .19316 | .20641 | .21962 | .23280 | .24594 | .25907 | .27217 |
| | H/(KJ/KG) | 1035.7 | 1095.1 | 1156.3 | 1219.3 | 1284.4 | 1351.6 | 1421.0 | 1492.8 | 1566.9 |
| | S/(KJ/KG K) | 6.3789 | 6.5552 | 6.7239 | 6.8865 | 7.0443 | 7.1979 | 7.3481 | 7.4953 | 7.6399 |
| | C/(M/SEC) | 464.2814 | 480.5535 | 495.8555 | 510.3555 | 524.1886 | 537.4636 | 550.2682 | 562.6726 | 574.7333 |
| | KAPPA/(1/MPA) | 1.0119 | 1.0086 | 1.0062 | 1.0044 | 1.0030 | 1.0019 | 1.0010 | 1.0003 | .9998 |
| | BETA/(1000/K) | 3.2 | 3.0 | 2.7 | 2.6 | 2.4 | 2.3 | 2.1 | 2.0 | 1.9 |
| 2.0000 | V/(M3/KG) | .08226 | .08917 | .09600 | .10277 | .10950 | .11620 | .12287 | .12951 | .13614 |
| | H/(KJ/KG) | 1027.6 | 1088.2 | 1150.3 | 1214.1 | 1279.8 | 1347.5 | 1417.4 | 1489.6 | 1564.0 |
| | S/(KJ/KG K) | 6.0010 | 6.1806 | 6.3518 | 6.5164 | 6.6757 | 6.8306 | 6.9818 | 7.1298 | 7.2751 |
| | C/(M/SEC) | 462.5887 | 479.6278 | 495.5154 | 510.4717 | 524.6666 | 538.2328 | 551.2747 | 563.8746 | 576.0977 |
| | KAPPA/(1/MPA) | .5117 | .5084 | .5059 | .5040 | .5026 | .5016 | .5007 | .5000 | .4995 |
| | BETA/(1000/K) | 3.4 | 3.1 | 2.8 | 2.6 | 2.5 | 2.3 | 2.2 | 2.0 | 1.9 |
| 3.0000 | V/(M3/KG) | .05421 | .05896 | .06363 | .06825 | .07282 | .07736 | .08187 | .08635 | .09081 |
| | H/(KJ/KG) | 1019.5 | 1081.3 | 1144.3 | 1208.8 | 1275.2 | 1343.5 | 1413.9 | 1486.4 | 1561.3 |
| | S/(KJ/KG K) | 5.7718 | 5.9549 | 6.1288 | 6.2954 | 6.4562 | 6.6124 | 6.7646 | 6.9135 | 7.0595 |
| | C/(M/SEC) | 461.3123 | 479.0965 | 495.5444 | 510.9320 | 525.4652 | 539.3011 | 552.5607 | 565.3385 | 577.7083 |
| | KAPPA/(1/MPA) | .3449 | .3414 | .3389 | .3370 | .3356 | .3346 | .3337 | .3331 | .3326 |
| | BETA/(1000/K) | 3.5 | 3.2 | 2.9 | 2.7 | 2.5 | 2.3 | 2.2 | 2.1 | 2.0 |
| 4.0000 | V/(M3/KG) | .04019 | .04387 | .04747 | .05101 | .05450 | .05796 | .06138 | .06479 | .06817 |
| | H/(KJ/KG) | 1011.2 | 1074.3 | 1138.3 | 1203.6 | 1270.6 | 1339.5 | 1410.4 | 1483.3 | 1558.5 |
| | S/(KJ/KG K) | 5.6032 | 5.7901 | 5.9667 | 6.1354 | 6.2978 | 6.4552 | 6.6085 | 6.7582 | 6.9049 |
| | C/(M/SEC) | 460.5015 | 478.9864 | 495.9554 | 511.7403 | 526.5827 | 540.6630 | 554.1186 | 567.0552 | 579.5549 |
| | KAPPA/(1/MPA) | .2613 | .2577 | .2551 | .2533 | .2519 | .2509 | .2501 | .2495 | .2490 |
| | BETA/(1000/K) | 3.7 | 3.3 | 3.0 | 2.8 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 |

THERMODYNAMIC PROPERTIES OF METHANE

| P/(MPA) | | TEMPERATURES/(K) 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 | 750.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .40745 | .42608 | .44470 | .46331 | .48191 | .50050 | .51909 | .53767 | .55625 |
| | H/(KJ/KG) | 1644.1 | 1722.9 | 1803.9 | 1887.3 | 1972.8 | 2060.6 | 2150.5 | 2242.4 | 2336.3 |
| | S/(KJ/KG K) | 7.9686 | 8.1085 | 8.2465 | 8.3826 | 8.5168 | 8.6493 | 8.7801 | 8.9091 | 9.0364 |
| | C/(M/SEC) | 586.0921 | 597.5551 | 608.7904 | 619.8205 | 630.6635 | 641.3337 | 651.8426 | 662.1992 | 672.4103 |
| | KAPPA/(1/MPA) | 1.4280 | 1.4276 | 1.4273 | 1.4271 | 1.4269 | 1.4267 | 1.4266 | 1.4265 | 1.4264 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| .8000 | V/(M3/KG) | .35654 | .37285 | .38916 | .40545 | .42174 | .43802 | .45429 | .47056 | .48682 |
| | H/(KJ/KG) | 1643.9 | 1722.6 | 1803.7 | 1887.1 | 1972.7 | 2060.5 | 2150.4 | 2242.3 | 2336.2 |
| | S/(KJ/KG K) | 7.8989 | 8.0389 | 8.1769 | 8.3130 | 8.4473 | 8.5798 | 8.7106 | 8.8396 | 8.9670 |
| | C/(M/SEC) | 586.2241 | 597.6995 | 608.9455 | 619.9846 | 630.8354 | 641.5124 | 652.0272 | 662.3888 | 672.6043 |
| | KAPPA/(1/MPA) | 1.2494 | 1.2490 | 1.2487 | 1.2485 | 1.2483 | 1.2481 | 1.2480 | 1.2479 | 1.2478 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| .9000 | V/(M3/KG) | .31694 | .33146 | .34596 | .36046 | .37494 | .38942 | .40390 | .41836 | .43283 |
| | H/(KJ/KG) | 1643.6 | 1722.4 | 1803.5 | 1886.9 | 1972.5 | 2060.3 | 2150.2 | 2242.2 | 2336.1 |
| | S/(KJ/KG K) | 7.8373 | 7.9774 | 8.1154 | 8.2516 | 8.3859 | 8.5184 | 8.6492 | 8.7783 | 8.9057 |
| | C/(M/SEC) | 586.3586 | 597.8463 | 609.1027 | 620.1509 | 631.0094 | 641.6930 | 652.2135 | 662.5802 | 672.8000 |
| | KAPPA/(1/MPA) | 1.1105 | 1.1101 | 1.1098 | 1.1096 | 1.1094 | 1.1092 | 1.1091 | 1.1090 | 1.1089 |
| | BETA/(1000/K) | 1.8 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| 1.0000 | V/(M3/KG) | .28526 | .29834 | .31141 | .32446 | .33751 | .35055 | .36358 | .37661 | .38963 |
| | H/(KJ/KG) | 1643.4 | 1722.2 | 1803.3 | 1886.7 | 1972.4 | 2060.2 | 2150.1 | 2242.1 | 2336.0 |
| | S/(KJ/KG K) | 7.7822 | 7.9223 | 8.0604 | 8.1966 | 8.3309 | 8.4635 | 8.5943 | 8.7234 | 8.8508 |
| | C/(M/SEC) | 586.4955 | 597.9954 | 609.2621 | 620.3192 | 631.1853 | 641.8755 | 652.4017 | 662.7732 | 672.9973 |
| | KAPPA/(1/MPA) | .9993 | .9990 | .9987 | .9984 | .9982 | .9981 | .9980 | .9979 | .9978 |
| | BETA/(1000/K) | 1.8 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| 2.0000 | V/(M3/KG) | .14275 | .14934 | .15593 | .16250 | .16907 | .17563 | .18218 | .18873 | .19527 |
| | H/(KJ/KG) | 1640.8 | 1719.9 | 1801.3 | 1884.9 | 1970.8 | 2058.8 | 2148.9 | 2241.0 | 2335.1 |
| | S/(KJ/KG K) | 7.4180 | 7.5586 | 7.6971 | 7.8336 | 7.9683 | 8.1012 | 8.2322 | 8.3615 | 8.4891 |
| | C/(M/SEC) | 587.9959 | 599.6106 | 610.9747 | 622.1146 | 633.0515 | 643.8024 | 654.3806 | 664.7968 | 675.0591 |
| | KAPPA/(1/MPA) | .4991 | .4987 | .4985 | .4982 | .4981 | .4979 | .4978 | .4977 | .4976 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 |
| 3.0000 | V/(M3/KG) | .09526 | .09970 | .10412 | .10854 | .11294 | .11734 | .12173 | .12612 | .13050 |
| | H/(KJ/KG) | 1638.3 | 1717.7 | 1799.3 | 1883.2 | 1969.2 | 2057.4 | 2147.7 | 2240.0 | 2334.2 |
| | S/(KJ/KG K) | 7.2029 | 7.3440 | 7.4829 | 7.6198 | 7.7548 | 7.8880 | 8.0193 | 8.1488 | 8.2766 |
| | C/(M/SEC) | 589.7283 | 601.4448 | 612.8945 | 624.1065 | 635.1045 | 645.9070 | 656.5291 | 666.9824 | 677.2761 |
| | KAPPA/(1/MPA) | .3322 | .3318 | .3316 | .3314 | .3312 | .3311 | .3310 | .3309 | .3308 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 |
| 4.0000 | V/(M3/KG) | .07154 | .07489 | .07824 | .08157 | .08490 | .08821 | .09152 | .09483 | .09813 |
| | H/(KJ/KG) | 1635.9 | 1715.6 | 1797.4 | 1881.5 | 1967.8 | 2056.1 | 2146.6 | 2239.0 | 2333.4 |
| | S/(KJ/KG K) | 7.0489 | 7.1905 | 7.3299 | 7.4671 | 7.6024 | 7.7358 | 7.8674 | 7.9971 | 8.1251 |
| | C/(M/SEC) | 591.6819 | 603.4871 | 615.0106 | 626.2843 | 637.3338 | 648.1794 | 658.8373 | 669.3205 | 679.6389 |
| | KAPPA/(1/MPA) | .2486 | .2483 | .2480 | .2478 | .2477 | .2476 | .2475 | .2474 | .2473 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 |

THERMODYNAMIC PROPERTIES OF METHANE

TEMPERATURES/(K)

| P/(MPA) | | 115.000 | 125.000 | 150.000 | 175.000 | 200.000 | 225.000 | 250.000 | 275.000 | 300.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00237 | .00246 | .00274 | .00322 | .01116 | .01744 | .02167 | .02531 | .02865 |
| | H/(KJ/KG) | 86.9 | 123.1 | 218.6 | 322.8 | 612.2 | 726.0 | 803.8 | 872.8 | 938.5 |
| | S/(KJ/KG K) | .7419 | 1.0439 | 1.7393 | 2.3805 | 3.9014 | 4.4413 | 4.7695 | 5.0330 | 5.2615 |
| | C/(M/SEC) | 1958.2835 | 1622.0633 | 1142.4124 | 744.7495 | 293.1410 | 348.0540 | 385.2093 | 414.3696 | 438.8509 |
| | KAPPA/(1/MPA) | .0017 | .0022 | .0046 | .0154 | .5095 | .2796 | .2414 | .2252 | .2163 |
| | BETA/(1000/K) | 3.8 | 3.9 | 4.9 | 9.0 | 35.5 | 10.9 | 7.1 | 5.5 | 4.5 |
| 6.0000 | V/(M3/KG) | .00236 | .00246 | .00273 | .00317 | .00626 | .01335 | .01731 | .02057 | .02349 |
| | H/(KJ/KG) | 88.2 | 124.4 | 219.3 | 321.2 | 523.1 | 699.1 | 786.4 | 859.9 | 928.3 |
| | S/(KJ/KG K) | .7329 | 1.0342 | 1.7261 | 2.3532 | 3.4131 | 4.2539 | 4.6228 | 4.9032 | 5.1411 |
| | C/(M/SEC) | 1968.5073 | 1635.0240 | 1162.5149 | 781.8766 | 317.4347 | 342.8265 | 382.1284 | 412.8505 | 438.3886 |
| | KAPPA/(1/MPA) | .0017 | .0022 | .0044 | .0131 | .5116 | .2558 | .2094 | .1918 | .1826 |
| | BETA/(1000/K) | 3.8 | 3.9 | 4.7 | 8.1 | 75.8 | 13.9 | 8.1 | 5.9 | 4.8 |
| 7.0000 | V/(M3/KG) | .00236 | .00245 | .00272 | .00313 | .00463 | .01044 | .01422 | .01720 | .01982 |
| | H/(KJ/KG) | 89.6 | 125.7 | 220.2 | 320.1 | 467.6 | 669.5 | 768.4 | 846.8 | 918.0 |
| | S/(KJ/KG K) | .7241 | 1.0248 | 1.7134 | 2.3289 | 3.1096 | 4.0699 | 4.4879 | 4.7871 | 5.0350 |
| | C/(M/SEC) | 1978.5678 | 1647.7226 | 1181.9020 | 815.5932 | 397.8829 | 343.2001 | 381.0755 | 412.5098 | 438.7444 |
| | KAPPA/(1/MPA) | .0017 | .0021 | .0042 | .0115 | .1605 | .2347 | .1857 | .1674 | .1581 |
| | BETA/(1000/K) | 3.7 | 3.8 | 4.6 | 7.4 | 38.6 | 17.4 | 9.2 | 6.4 | 5.1 |
| 8.0000 | V/(M3/KG) | .00236 | .00245 | .00271 | .00310 | .00415 | .00838 | .01193 | .01469 | .01709 |
| | H/(KJ/KG) | 90.9 | 126.9 | 221.0 | 319.4 | 446.4 | 639.1 | 750.0 | 833.5 | 907.7 |
| | S/(KJ/KG K) | .7153 | 1.0155 | 1.7011 | 2.3069 | 2.9819 | 3.8932 | 4.3621 | 4.6811 | 4.9393 |
| | C/(M/SEC) | 1988.4619 | 1660.1759 | 1200.6446 | 846.6499 | 468.1025 | 352.0403 | 382.7070 | 413.5770 | 440.0167 |
| | KAPPA/(1/MPA) | .0016 | .0021 | .0040 | .0102 | .0751 | .2042 | .1658 | .1483 | .1393 |
| | BETA/(1000/K) | 3.7 | 3.8 | 4.5 | 6.8 | 22.5 | 20.2 | 10.2 | 6.9 | 5.3 |
| 9.0000 | V/(M3/KG) | .00235 | .00244 | .00270 | .00307 | .00392 | .00697 | .01020 | .01277 | .01498 |
| | H/(KJ/KG) | 92.3 | 128.2 | 221.9 | 318.9 | 435.2 | 611.2 | 731.6 | 820.3 | 897.4 |
| | S/(KJ/KG K) | .7067 | 1.0063 | 1.6891 | 2.2866 | 2.9057 | 3.7350 | 4.2444 | 4.5832 | 4.8519 |
| | C/(M/SEC) | 1998.1877 | 1672.4088 | 1218.7963 | 875.5655 | 524.9400 | 369.6602 | 387.5358 | 416.2457 | 442.2878 |
| | KAPPA/(1/MPA) | .0016 | .0020 | .0039 | .0092 | .0470 | .1643 | .1475 | .1325 | .1243 |
| | BETA/(1000/K) | 3.7 | 3.7 | 4.4 | 6.4 | 16.1 | 20.9 | 11.1 | 7.4 | 5.6 |
| 10.0000 | V/(M3/KG) | .00235 | .00244 | .00269 | .00304 | .00376 | .00603 | .00888 | .01126 | .01332 |
| | H/(KJ/KG) | 93.7 | 129.6 | 222.9 | 318.7 | 428.1 | 587.8 | 713.9 | 807.3 | 887.3 |
| | S/(KJ/KG K) | .6981 | .9972 | 1.6775 | 2.2678 | 2.8508 | 3.6024 | 4.1355 | 4.4924 | 4.7711 |
| | C/(M/SEC) | 2007.7728 | 1684.3987 | 1236.4047 | 902.6927 | 573.0779 | 393.7239 | 395.7265 | 420.6380 | 445.6144 |
| | KAPPA/(1/MPA) | .0016 | .0020 | .0037 | .0084 | .0338 | .1263 | .1297 | .1189 | .1117 |
| | BETA/(1000/K) | 3.6 | 3.7 | 4.3 | 6.0 | 12.8 | 19.8 | 11.8 | 7.8 | 5.8 |

THERMODYNAMIC PROPERTIES OF METHANE

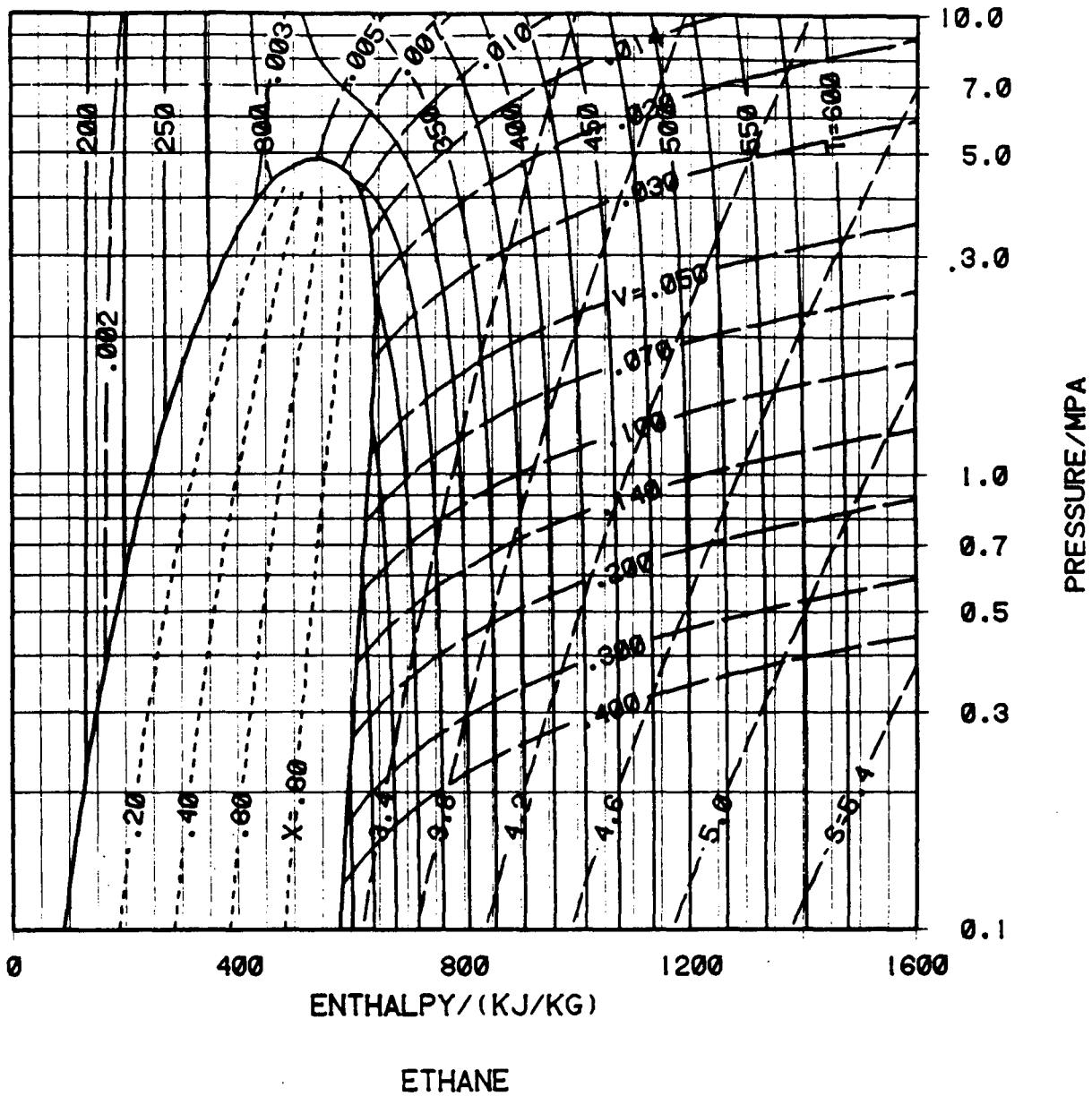
TEMPERATURES/(K)

| P/(MPA) | | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 | 525.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .03180 | .03484 | .03779 | .04068 | .04352 | .04633 | .04911 | .05186 | .05460 |
| | H/(KJ/KG) | 1002.9 | 1067.3 | 1132.3 | 1198.4 | 1266.1 | 1335.5 | 1406.9 | 1480.3 | 1555.8 |
| | S/(KJ/KG K) | 5.4678 | 5.6585 | 5.8380 | 6.0088 | 6.1728 | 6.3315 | 6.4858 | 6.6364 | 6.7838 |
| | C/(M/SEC) | 460.2084 | 479.3246 | 496.7607 | 512.9001 | 528.0167 | 542.3128 | 555.9403 | 569.0152 | 581.6273 |
| | KAPPA/(1/MPA) | .2109 | .2073 | .2047 | .2029 | .2016 | .2006 | .1998 | .1992 | .1987 |
| | BETA/(1000/K) | 3.9 | 3.4 | 3.1 | 2.8 | 2.6 | 2.4 | 2.3 | 2.1 | 2.0 |
| 6.0000 | V/(M3/KG) | .02622 | .02883 | .03135 | .03381 | .03622 | .03859 | .04094 | .04326 | .04556 |
| | H/(KJ/KG) | 994.5 | 1060.2 | 1126.3 | 1193.3 | 1261.7 | 1331.6 | 1403.5 | 1477.3 | 1553.2 |
| | S/(KJ/KG K) | 5.3533 | 5.5481 | 5.7304 | 5.9033 | 6.0691 | 6.2291 | 6.3844 | 6.5358 | 6.6839 |
| | C/(M/SEC) | 460.4859 | 480.1376 | 497.9718 | 514.4137 | 529.7644 | 544.2441 | 558.0174 | 571.2093 | 583.9156 |
| | KAPPA/(1/MPA) | .1770 | .1734 | .1710 | .1692 | .1679 | .1669 | .1662 | .1656 | .1651 |
| | BETA/(1000/K) | 4.1 | 3.6 | 3.2 | 2.9 | 2.6 | 2.4 | 2.3 | 2.1 | 2.0 |
| 7.0000 | V/(M3/KG) | .02225 | .02455 | .02676 | .02891 | .03101 | .03308 | .03511 | .03713 | .03912 |
| | H/(KJ/KG) | 986.2 | 1053.3 | 1120.4 | 1188.2 | 1257.3 | 1327.8 | 1400.1 | 1474.3 | 1550.6 |
| | S/(KJ/KG K) | 5.2533 | 5.4522 | 5.6374 | 5.8125 | 5.9799 | 6.1412 | 6.2976 | 6.4499 | 6.5987 |
| | C/(M/SEC) | 461.3850 | 481.4493 | 499.5981 | 516.2825 | 531.8221 | 546.4505 | 560.3419 | 573.6279 | 586.4098 |
| | KAPPA/(1/MPA) | .1526 | .1491 | .1467 | .1450 | .1437 | .1428 | .1421 | .1415 | .1411 |
| | BETA/(1000/K) | 4.2 | 3.7 | 3.3 | 2.9 | 2.7 | 2.5 | 2.3 | 2.2 | 2.0 |
| 8.0000 | V/(M3/KG) | .01929 | .02135 | .02333 | .02525 | .02712 | .02895 | .03075 | .03253 | .03429 |
| | H/(KJ/KG) | 977.8 | 1046.3 | 1114.5 | 1183.2 | 1252.9 | 1324.0 | 1396.8 | 1471.5 | 1548.1 |
| | S/(KJ/KG K) | 5.1639 | 5.3669 | 5.5551 | 5.7325 | 5.9015 | 6.0641 | 6.2215 | 6.3746 | 6.5241 |
| | C/(M/SEC) | 462.9510 | 483.2799 | 501.6467 | 518.5060 | 534.1851 | 548.9248 | 562.9048 | 576.2618 | 589.1002 |
| | KAPPA/(1/MPA) | .1340 | .1306 | .1283 | .1267 | .1255 | .1246 | .1239 | .1234 | .1230 |
| | BETA/(1000/K) | 4.4 | 3.8 | 3.3 | 3.0 | 2.7 | 2.5 | 2.3 | 2.2 | 2.0 |
| 9.0000 | V/(M3/KG) | .01700 | .01888 | .02068 | .02241 | .02410 | .02575 | .02737 | .02897 | .03055 |
| | H/(KJ/KG) | 969.5 | 1039.4 | 1108.7 | 1178.2 | 1248.6 | 1320.3 | 1393.6 | 1468.7 | 1545.6 |
| | S/(KJ/KG K) | 5.0827 | 5.2900 | 5.4811 | 5.6606 | 5.8314 | 5.9953 | 6.1537 | 6.3077 | 6.4578 |
| | C/(M/SEC) | 465.2206 | 485.6445 | 504.1213 | 521.0819 | 536.8478 | 551.6593 | 565.6978 | 579.1016 | 591.9773 |
| | KAPPA/(1/MPA) | .1193 | .1161 | .1139 | .1123 | .1112 | .1104 | .1098 | .1093 | .1089 |
| | BETA/(1000/K) | 4.6 | 3.9 | 3.4 | 3.0 | 2.8 | 2.5 | 2.4 | 2.2 | 2.1 |
| 10.0000 | V/(M3/KG) | .01518 | .01692 | .01856 | .02015 | .02169 | .02319 | .02467 | .02612 | .02755 |
| | H/(KJ/KG) | 961.4 | 1032.7 | 1103.0 | 1173.4 | 1244.4 | 1316.7 | 1390.4 | 1465.9 | 1543.2 |
| | S/(KJ/KG K) | 5.0082 | 5.2196 | 5.4137 | 5.5953 | 5.7677 | 5.9329 | 6.0924 | 6.2472 | 6.3980 |
| | C/(M/SEC) | 468.2184 | 488.5519 | 507.0225 | 524.0064 | 539.8036 | 554.6459 | 568.7116 | 582.1380 | 595.0315 |
| | KAPPA/(1/MPA) | .1072 | .1042 | .1022 | .1008 | .0997 | .0990 | .0984 | .0979 | .0976 |
| | BETA/(1000/K) | 4.7 | 4.0 | 3.5 | 3.1 | 2.8 | 2.6 | 2.4 | 2.2 | 2.1 |

THERMODYNAMIC PROPERTIES OF METHANE

TEMPERATURES/(K)

| P/(MPA) | | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 | 750.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .05732 | .06002 | .06272 | .06540 | .06808 | .07075 | .07341 | .07607 | .07872 |
| | H/(KJ/KG) | 1633.5 | 1713.5 | 1795.6 | 1879.9 | 1966.3 | 2054.9 | 2145.5 | 2238.1 | 2332.6 |
| | S/(KJ/KG K) | 6.9284 | 7.0705 | 7.2103 | 7.3479 | 7.4835 | 7.6172 | 7.7490 | 7.8790 | 8.0071 |
| | C/(M/SEC) | 593.8463 | 605.7269 | 617.3125 | 628.6374 | 639.7291 | 650.6094 | 661.2957 | 671.8018 | 682.1386 |
| | KAPPA/(1/MPA) | .1984 | .1981 | .1978 | .1977 | .1975 | .1974 | .1973 | .1972 | .1972 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 |
| 6.0000 | V/(M3/KG) | .04785 | .05012 | .05238 | .05464 | .05688 | .05911 | .06134 | .06357 | .06579 |
| | H/(KJ/KG) | 1631.2 | 1711.4 | 1793.8 | 1878.3 | 1965.0 | 2053.7 | 2144.5 | 2237.2 | 2331.9 |
| | S/(KJ/KG K) | 6.8291 | 6.9717 | 7.1119 | 7.2499 | 7.3858 | 7.5198 | 7.6518 | 7.7820 | 7.9103 |
| | C/(M/SEC) | 596.2110 | 608.1537 | 619.7899 | 631.1558 | 642.2806 | 653.1875 | 663.8949 | 674.4175 | 684.7666 |
| | KAPPA/(1/MPA) | .1648 | .1645 | .1643 | .1641 | .1640 | .1639 | .1638 | .1638 | .1637 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 |
| 7.0000 | V/(M3/KG) | .04110 | .04306 | .04501 | .04695 | .04889 | .05081 | .05273 | .05465 | .05656 |
| | H/(KJ/KG) | 1628.9 | 1709.4 | 1792.0 | 1876.8 | 1963.6 | 2052.6 | 2143.5 | 2236.4 | 2331.2 |
| | S/(KJ/KG K) | 6.7444 | 6.8875 | 7.0281 | 7.1665 | 7.3028 | 7.4370 | 7.5693 | 7.6996 | 7.8282 |
| | C/(M/SEC) | 598.7659 | 610.7574 | 622.4326 | 633.8296 | 644.9788 | 655.9045 | 666.6261 | 677.1588 | 687.5147 |
| | KAPPA/(1/MPA) | .1408 | .1405 | .1403 | .1402 | .1401 | .1400 | .1399 | .1399 | .1398 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 |
| 8.0000 | V/(M3/KG) | .03604 | .03777 | .03949 | .04120 | .04290 | .04459 | .04628 | .04796 | .04964 |
| | H/(KJ/KG) | 1626.7 | 1707.5 | 1790.4 | 1875.3 | 1962.4 | 2051.5 | 2142.6 | 2235.6 | 2330.5 |
| | S/(KJ/KG K) | 6.6705 | 6.8141 | 6.9551 | 7.0939 | 7.2304 | 7.3649 | 7.4974 | 7.6280 | 7.7567 |
| | C/(M/SEC) | 601.5012 | 613.5282 | 625.2311 | 636.6493 | 647.8144 | 658.7515 | 669.4805 | 680.0175 | 690.3748 |
| | KAPPA/(1/MPA) | .1227 | .1225 | .1223 | .1222 | .1221 | .1220 | .1219 | .1219 | .1219 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 |
| 9.0000 | V/(M3/KG) | .03211 | .03366 | .03520 | .03673 | .03825 | .03976 | .04127 | .04277 | .04427 |
| | H/(KJ/KG) | 1624.6 | 1705.6 | 1788.7 | 1873.9 | 1961.2 | 2050.4 | 2141.7 | 2234.9 | 2329.9 |
| | S/(KJ/KG K) | 6.6048 | 6.7488 | 6.8903 | 7.0294 | 7.1663 | 7.3010 | 7.4338 | 7.5646 | 7.6935 |
| | C/(M/SEC) | 604.4073 | 616.4566 | 628.1760 | 639.6060 | 650.7787 | 661.7199 | 672.4502 | 682.9857 | 693.3395 |
| | KAPPA/(1/MPA) | .1086 | .1084 | .1083 | .1081 | .1080 | .1080 | .1079 | .1079 | .1079 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 |
| 10.0000 | V/(M3/KG) | .02897 | .03038 | .03177 | .03315 | .03453 | .03590 | .03726 | .03862 | .03997 |
| | H/(KJ/KG) | 1622.5 | 1703.8 | 1787.1 | 1872.5 | 1960.0 | 2049.4 | 2140.9 | 2234.2 | 2329.4 |
| | S/(KJ/KG K) | 6.5455 | 6.6901 | 6.8320 | 6.9714 | 7.1086 | 7.2436 | 7.3766 | 7.5076 | 7.6367 |
| | C/(M/SEC) | 607.4750 | 619.5335 | 631.2585 | 642.6909 | 653.8634 | 664.8018 | 675.5272 | 686.0561 | 696.4014 |
| | KAPPA/(1/MPA) | .0973 | .0971 | .0970 | .0969 | .0968 | .0967 | .0967 | .0967 | .0967 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 |


10.0
7.0
5.0
.3.0
1.0
0.7
0.5
0.3
0.1
PRESSURE/MPA
0
400
800
1200
1600
ENTHALPY/(KJ/KG)
ETHANE

## PROPERTIES OF SATURATED ETHANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 185.00000 | .10544 | .00186 | .46775 | 91.52337 | 489.56928 | 581.09265 | .54763 | 2.64632 | 3.19395 |
| 190.00000 | .13696 | .00188 | .36700 | 104.07286 | 482.57043 | 586.64329 | .61425 | 2.53984 | 3.15409 |
| 195.00000 | .17529 | .00191 | .29175 | 116.87440 | 475.17165 | 592.04605 | .68037 | 2.43678 | 3.11715 |
| 200.00000 | .22133 | .00193 | .23469 | 129.91717 | 467.36954 | 597.28672 | .74597 | 2.33685 | 3.08281 |
| 205.00000 | .27600 | .00196 | .19084 | 143.18824 | 459.16296 | 602.35120 | .81098 | 2.23982 | 3.05080 |
| 210.00000 | .34023 | .00199 | .15671 | 156.67363 | 450.55159 | 607.22522 | .87536 | 2.14548 | 3.02084 |
| 215.00000 | .41498 | .00201 | .12983 | 170.35918 | 441.53481 | 611.89399 | .93906 | 2.05365 | 2.99271 |
| 220.00000 | .50123 | .00204 | .10842 | 184.23151 | 432.11019 | 616.34171 | 1.00203 | 1.96414 | 2.96617 |
| 225.00000 | .59995 | .00207 | .09120 | 198.27907 | 422.27194 | 620.55101 | 1.06426 | 1.87676 | 2.94102 |
| 230.00000 | .71215 | .00211 | .07721 | 212.49341 | 412.00879 | 624.50220 | 1.12571 | 1.79134 | 2.91705 |
| 235.00000 | .83883 | .00214 | .06574 | 226.86945 | 401.30307 | 628.17252 | 1.18638 | 1.70767 | 2.89406 |
| 240.00000 | .98103 | .00218 | .05625 | 241.41144 | 390.12258 | 631.53402 | 1.24632 | 1.62551 | 2.87183 |
| 245.00000 | 1.13980 | .00222 | .04834 | 256.12816 | 378.42521 | 634.55337 | 1.30557 | 1.54459 | 2.85016 |
| 250.00000 | 1.31626 | .00226 | .04170 | 271.04057 | 366.14798 | 637.18855 | 1.36423 | 1.46459 | 2.82882 |
| 255.00000 | 1.51156 | .00230 | .03607 | 286.18409 | 353.20194 | 639.38603 | 1.42244 | 1.38511 | 2.80755 |
| 260.00000 | 1.72692 | .00235 | .03126 | 301.61298 | 339.46335 | 641.07633 | 1.48041 | 1.30563 | 2.78604 |
| 265.00000 | 1.96366 | .00241 | .02712 | 317.40714 | 324.76005 | 642.16719 | 1.53843 | 1.22551 | 2.76394 |
| 270.00000 | 2.22322 | .00247 | .02354 | 333.68207 | 308.85079 | 642.53286 | 1.59691 | 1.14389 | 2.74080 |
| 275.00000 | 2.50717 | .00254 | .02039 | 350.60450 | 291.39161 | 641.99612 | 1.65640 | 1.05961 | 2.71601 |
| 280.00000 | 2.81725 | .00262 | .01761 | 368.42091 | 271.87433 | 640.29524 | 1.71772 | .97098 | 2.68870 |
| 285.00000 | 3.15543 | .00271 | .01512 | 387.50207 | 249.51971 | 637.02178 | 1.78207 | .87551 | 2.65758 |
| 290.00000 | 3.52391 | .00284 | .01284 | 408.45684 | 223.01524 | 631.47208 | 1.85139 | .76902 | 2.62041 |
| 295.00000 | 3.92521 | .00300 | .01069 | 432.40600 | 189.84303 | 622.24903 | 1.92925 | .64354 | 2.57279 |
| 300.00000 | 4.36220 | .00327 | .00853 | 462.03902 | 143.65042 | 605.68943 | 2.02423 | .47883 | 2.50307 |
| 305.42000 | 4.83819 | .00488 | .00488 | 537.43905 | 0. | 537.43905 | 2.26698 | 0. | 2.26698 |

## THERMODYNAMIC PROPERTIES OF ETHANE

| P/(MPA) | | TEMPERATURES/(K) 185.000 | 200.000 | 225.000 | 250.000 | 275.000 | 300.000 | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .49416 | .53837 | .61085 | .68235 | .75320 | .82364 | .89379 | .96373 | 1.03352 | 1.10319 | 1.17278 | 1.24230 |
| | H/(KJ/KG) | 581.4 | 603.2 | 640.5 | 679.6 | 720.7 | 763.9 | 809.4 | 857.5 | 908.0 | 961.2 | 1017.0 | 1075.5 |
| | S/(KJ/KG K) | 3.2097 | 3.3228 | 3.4989 | 3.6635 | 3.8199 | 3.9703 | 4.1161 | 4.2584 | 4.3979 | 4.5351 | 4.6705 | 4.8041 |
| | C/(M/SEC) | 247.5337 | 257.6355 | 273.0272 | 287.0399 | 300.0087 | 312.1632 | 323.6667 | 334.6390 | 345.1691 | 355.3247 | 365.1581 | 374.7097 |
| | KAPPA/(1/MPA) | 10.3651 | 10.2808 | 10.1900 | 10.1345 | 10.0986 | 10.0741 | 10.0569 | 10.0444 | 10.0351 | 10.0280 | 10.0225 | 10.0182 |
| | BETA/(1000/K) | 6.0 | 5.4 | 4.7 | 4.2 | 3.8 | 3.4 | 3.1 | 2.9 | 2.7 | 2.5 | 2.4 | 2.2 |
| .1013 | V/(M3/KG) | .48746 | .53114 | .60271 | .67330 | .74326 | .81279 | .88203 | .95107 | 1.01995 | 1.08873 | 1.15741 | 1.22603 |
| | H/(KJ/KG) | 581.3 | 603.1 | 640.5 | 679.6 | 720.6 | 763.9 | 809.4 | 857.4 | 908.0 | 961.2 | 1017.0 | 1075.5 |
| | S/(KJ/KG K) | 3.2058 | 3.3190 | 3.4951 | 3.6597 | 3.8162 | 3.9666 | 4.1124 | 4.2547 | 4.3942 | 4.5315 | 4.6668 | 4.8004 |
| | C/(M/SEC) | 247.4580 | 257.5741 | 272.9823 | 287.0059 | 299.9823 | 312.1422 | 323.6499 | 334.6253 | 345.1579 | 355.3155 | 365.1505 | 374.7034 |
| | KAPPA/(1/MPA) | 10.2348 | 10.1503 | 10.0594 | 10.0038 | 9.9678 | 9.9434 | 9.9261 | 9.9137 | 9.9043 | 9.8973 | 9.8918 | 9.8875 |
| | BETA/(1000/K) | 6.0 | 5.4 | 4.7 | 4.2 | 3.8 | 3.4 | 3.1 | 2.9 | 2.7 | 2.5 | 2.4 | 2.2 |
| .2000 | V/(M3/KG) | .00186 | .26143 | .29953 | .33653 | .37286 | .40875 | .44434 | .47972 | .51494 | .55005 | .58507 | .62002 |
| | H/(KJ/KG) | 91.6 | 598.3 | 636.8 | 676.7 | 718.3 | 761.9 | 807.8 | 856.0 | 906.8 | 960.1 | 1016.1 | 1074.6 |
| | S/(KJ/KG K) | .5472 | 3.1145 | 3.2959 | 3.4637 | 3.6222 | 3.7740 | 3.9208 | 4.0638 | 4.2038 | 4.3415 | 4.4771 | 4.6110 |
| | C/(M/SEC) | 1536.0875 | 252.8543 | 269.5693 | 284.4378 | 297.9943 | 310.5711 | 322.3892 | 333.6024 | 344.3217 | 354.6287 | 364.5852 | 374.2384 |
| | KAPPA/(1/MPA) | .0017 | 5.3045 | 5.2003 | 5.1395 | 5.1011 | 5.0755 | 5.0577 | 5.0449 | 5.0354 | 5.0282 | 5.0226 | 5.0183 |
| | BETA/(1000/K) | 2.5 | 5.9 | 5.0 | 4.4 | 3.9 | 3.5 | 3.2 | 2.9 | 2.7 | 2.5 | 2.4 | 2.3 |
| .3000 | V/(M3/KG) | .00186 | .00193 | .19561 | .22119 | .24604 | .27043 | .29451 | .31837 | .34208 | .36566 | .38916 | .41259 |
| | H/(KJ/KG) | 91.7 | 130.0 | 633.0 | 673.7 | 715.9 | 759.9 | 806.1 | 854.6 | 905.5 | 959.0 | 1015.1 | 1073.8 |
| | S/(KJ/KG K) | .5467 | .7456 | 3.1719 | 3.3433 | 3.5040 | 3.6572 | 3.8050 | 3.9488 | 4.0893 | 4.2274 | 4.3633 | 4.4975 |
| | C/(M/SEC) | 1536.9307 | 1311.5729 | 265.9586 | 281.7596 | 295.9397 | 308.9571 | 321.0996 | 332.5596 | 343.4713 | 353.9318 | 364.0127 | 373.7684 |
| | KAPPA/(1/MPA) | .0017 | .0022 | 3.5453 | 3.4783 | 3.4372 | 3.4103 | 3.3919 | 3.3787 | 3.3690 | 3.3617 | 3.3560 | 3.3516 |
| | BETA/(1000/K) | 2.5 | 2.7 | 5.3 | 4.5 | 4.0 | 3.6 | 3.3 | 3.0 | 2.8 | 2.6 | 2.4 | 2.3 |
| .4000 | V/(M3/KG) | .00186 | .00193 | .14354 | .16346 | .18260 | .20125 | .21958 | .23769 | .25564 | .27347 | .29121 | .30888 |
| | H/(KJ/KG) | 91.8 | 130.1 | 629.0 | 670.6 | 713.4 | 757.9 | 804.4 | 853.1 | 904.3 | 957.9 | 1014.1 | 1072.9 |
| | S/(KJ/KG K) | .5462 | .7450 | 3.0800 | 3.2551 | 3.4182 | 3.5729 | 3.7218 | 3.8663 | 4.0074 | 4.1459 | 4.2821 | 4.4165 |
| | C/(M/SEC) | 1537.7725 | 1312.6446 | 262.1758 | 278.9991 | 293.8426 | 307.3204 | 319.7978 | 331.5104 | 342.6182 | 353.2341 | 363.4407 | 373.2997 |
| | KAPPA/(1/MPA) | .0017 | .0022 | 2.7253 | 2.6508 | 2.6068 | 2.5786 | 2.5594 | 2.5458 | 2.5359 | 2.5285 | 2.5228 | 2.5183 |
| | BETA/(1000/K) | 2.5 | 2.7 | 5.7 | 4.8 | 4.1 | 3.7 | 3.3 | 3.0 | 2.8 | 2.6 | 2.4 | 2.3 |
| .5000 | V/(M3/KG) | .00186 | .00193 | .11219 | .12877 | .14450 | .15973 | .17462 | .18928 | .20378 | .21815 | .23243 | .24665 |
| | H/(KJ/KG) | 91.9 | 130.2 | 624.9 | 667.4 | 710.9 | 755.8 | 802.7 | 851.7 | 903.0 | 956.8 | 1013.2 | 1072.0 |
| | S/(KJ/KG K) | .5458 | .7445 | 3.0052 | 3.1845 | 3.3501 | 3.5064 | 3.6564 | 3.8016 | 3.9433 | 4.0822 | 4.2187 | 4.3533 |
| | C/(M/SEC) | 1538.6129 | 1313.7140 | 258.1971 | 276.1494 | 291.7009 | 305.6601 | 318.4836 | 330.4549 | 341.7621 | 352.5357 | 362.8693 | 372.8323 |
| | KAPPA/(1/MPA) | .0017 | .0022 | 2.2406 | 2.1573 | 2.1099 | 2.0802 | 2.0603 | 2.0464 | 2.0362 | 2.0287 | 2.0229 | 2.0184 |
| | BETA/(1000/K) | 2.5 | 2.7 | 6.1 | 5.0 | 4.3 | 3.8 | 3.4 | 3.1 | 2.8 | 2.6 | 2.5 | 2.3 |
| .6000 | V/(M3/KG) | .00186 | .00193 | .00207 | .10559 | .11908 | .13203 | .14463 | .15700 | .16920 | .18127 | .19325 | .20516 |
| | H/(KJ/KG) | 92.0 | 130.3 | 198.3 | 664.2 | 708.3 | 753.7 | 800.9 | 850.2 | 901.7 | 955.7 | 1012.2 | 1071.2 |
| | S/(KJ/KG K) | .5453 | .7440 | 1.0643 | 3.1249 | 3.2931 | 3.4511 | 3.6022 | 3.7482 | 3.8904 | 4.0297 | 4.1666 | 4.3015 |
| | C/(M/SEC) | 1539.4517 | 1314.7812 | 1034.9196 | 273.2026 | 289.5119 | 303.9756 | 317.1566 | 329.3930 | 340.9033 | 351.8366 | 362.2985 | 372.3663 |
| | KAPPA/(1/MPA) | .0017 | .0022 | .0035 | 1.8311 | 1.7799 | 1.7485 | 1.7279 | 1.7135 | 1.7032 | 1.6955 | 1.6896 | 1.6851 |
| | BETA/(1000/K) | 2.5 | 2.7 | 3.1 | 5.3 | 4.4 | 3.9 | 3.4 | 3.1 | 2.9 | 2.7 | 2.5 | 2.3 |

## THERMODYNAMIC PROPERTIES OF ETHANE

TEMPERATURES/(K)

| P/(MPA) | | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 | 750.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | 1.31177 | 1.38119 | 1.45059 | 1.51995 | 1.58928 | 1.65860 | 1.72790 | 1.79719 | 1.86646 | 1.93572 | 2.00497 | 2.07422 |
| | H/(KJ/KG) | 1136.6 | 1200.3 | 1266.5 | 1335.3 | 1406.5 | 1480.0 | 1555.7 | 1633.7 | 1713.7 | 1795.6 | 1879.5 | 1965.1 |
| | S/(KJ/KG K) | 4.9362 | 5.0669 | 5.1962 | 5.3241 | 5.4506 | 5.5758 | 5.6995 | 5.8217 | 5.9424 | 6.0617 | 6.1793 | 6.2954 |
| | C/(M/SEC) | 384.0119 | 393.0904 | 401.9665 | 410.6573 | 419.1774 | 427.5389 | 435.7521 | 443.8256 | 451.7670 | 459.5827 | 467.2779 | 474.8573 |
| | KAPPA/(1/MPA) | 10.0148 | 10.0120 | 10.0097 | 10.0078 | 10.0062 | 10.0049 | 10.0038 | 10.0029 | 10.0021 | 10.0014 | 10.0008 | 10.0003 |
| | BETA/(1000/K) | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| .1013 | V/(M3/KG) | 1.29459 | 1.36311 | 1.43160 | 1.50006 | 1.56849 | 1.63690 | 1.70530 | 1.77368 | 1.84204 | 1.91040 | 1.97875 | 2.04709 |
| | H/(KJ/KG) | 1136.6 | 1200.3 | 1266.5 | 1335.3 | 1406.5 | 1480.0 | 1555.7 | 1633.7 | 1713.6 | 1795.6 | 1879.5 | 1965.1 |
| | S/(KJ/KG K) | 4.9326 | 5.0632 | 5.1925 | 5.3204 | 5.4470 | 5.5721 | 5.6958 | 5.8180 | 5.9388 | 6.0580 | 6.1757 | 6.2918 |
| | C/(M/SEC) | 384.0067 | 393.0863 | 401.9631 | 410.6547 | 419.1754 | 427.5374 | 435.7510 | 443.8249 | 451.7667 | 459.5827 | 467.2782 | 474.8578 |
| | KAPPA/(1/MPA) | 9.8840 | 9.8812 | 9.8789 | 9.8770 | 9.8755 | 9.8742 | 9.8730 | 9.8721 | 9.8713 | 9.8706 | 9.8700 | 9.8695 |
| | BETA/(1000/K) | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| .2000 | V/(M3/KG) | .65492 | .68977 | .72459 | .75938 | .79415 | .82889 | .86362 | .89834 | .93304 | .96773 | 1.00241 | 1.03708 |
| | H/(KJ/KG) | 1135.8 | 1199.6 | 1265.9 | 1334.7 | 1405.9 | 1479.5 | 1555.3 | 1633.3 | 1713.3 | 1795.3 | 1879.1 | 1964.8 |
| | S/(KJ/KG K) | 4.7433 | 4.8741 | 5.0035 | 5.1316 | 5.2582 | 5.3834 | 5.5071 | 5.6294 | 5.7502 | 5.8695 | 5.9872 | 6.1034 |
| | C/(M/SEC) | 383.6255 | 392.7758 | 401.7130 | 410.4564 | 419.0219 | 427.4230 | 435.6709 | 443.7750 | 451.7434 | 459.5831 | 467.2997 | 474.8982 |
| | KAPPA/(1/MPA) | 5.0148 | 5.0120 | 5.0097 | 5.0078 | 5.0062 | 5.0049 | 5.0038 | 5.0028 | 5.0020 | 5.0014 | 5.0008 | 5.0003 |
| | BETA/(1000/K) | 2.1 | 2.0 | 1.9 | 1.8 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| .3000 | V/(M3/KG) | .43597 | .45930 | .48259 | .50586 | .52910 | .55233 | .57553 | .59872 | .62190 | .64506 | .66822 | .69137 |
| | H/(KJ/KG) | 1135.1 | 1198.9 | 1265.3 | 1334.2 | 1405.4 | 1479.0 | 1554.9 | 1632.9 | 1712.9 | 1794.9 | 1878.8 | 1964.5 |
| | S/(KJ/KG K) | 4.6299 | 4.7609 | 4.8905 | 5.0186 | 5.1453 | 5.2706 | 5.3944 | 5.5168 | 5.6376 | 5.7569 | 5.8746 | 5.9908 |
| | C/(M/SEC) | 383.2410 | 392.4633 | 401.4617 | 410.2577 | 418.8688 | 427.3094 | 435.5919 | 443.7265 | 451.7219 | 459.5855 | 467.3235 | 474.9411 |
| | KAPPA/(1/MPA) | 3.3481 | 3.3453 | 3.3430 | 3.3411 | 3.3395 | 3.3382 | 3.3371 | 3.3362 | 3.3353 | 3.3347 | 3.3341 | 3.3336 |
| | BETA/(1000/K) | 2.1 | 2.0 | 1.9 | 1.8 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| .4000 | V/(M3/KG) | .32649 | .34406 | .36160 | .37910 | .39658 | .41404 | .43149 | .44892 | .46633 | .48374 | .50113 | .51852 |
| | H/(KJ/KG) | 1134.3 | 1198.2 | 1264.7 | 1333.6 | 1404.9 | 1478.5 | 1554.4 | 1632.4 | 1712.5 | 1794.6 | 1878.5 | 1964.2 |
| | S/(KJ/KG K) | 4.5492 | 4.6803 | 4.8100 | 4.9382 | 5.0650 | 5.1904 | 5.3142 | 5.4366 | 5.5575 | 5.6769 | 5.7947 | 5.9109 |
| | C/(M/SEC) | 382.8581 | 392.1528 | 401.2127 | 410.0613 | 418.7179 | 427.1981 | 435.5152 | 443.6803 | 451.7026 | 459.5901 | 467.3494 | 474.9860 |
| | KAPPA/(1/MPA) | 2.5148 | 2.5120 | 2.5096 | 2.5077 | 2.5062 | 2.5048 | 2.5037 | 2.5028 | 2.5020 | 2.5013 | 2.5007 | 2.5002 |
| | BETA/(1000/K) | 2.2 | 2.0 | 1.9 | 1.8 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 |
| .5000 | V/(M3/KG) | .26081 | .27492 | .28900 | .30305 | .31707 | .33108 | .34506 | .35903 | .37299 | .38694 | .40088 | .41481 |
| | H/(KJ/KG) | 1133.5 | 1197.5 | 1264.0 | 1333.0 | 1404.4 | 1478.1 | 1554.0 | 1632.0 | 1712.2 | 1794.2 | 1878.2 | 1963.9 |
| | S/(KJ/KG K) | 4.4862 | 4.6175 | 4.7473 | 4.8757 | 5.0025 | 5.1280 | 5.2519 | 5.3744 | 5.4953 | 5.6147 | 5.7325 | 5.8488 |
| | C/(M/SEC) | 382.4771 | 391.8443 | 400.9658 | 409.8672 | 418.5693 | 427.0891 | 435.4408 | 443.6363 | 451.6854 | 459.5967 | 467.3772 | 475.0328 |
| | KAPPA/(1/MPA) | 2.0148 | 2.0120 | 2.0096 | 2.0077 | 2.0061 | 2.0048 | 2.0037 | 2.0028 | 2.0020 | 2.0013 | 2.0007 | 2.0002 |
| | BETA/(1000/K) | 2.2 | 2.1 | 1.9 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 |
| .6000 | V/(M3/KG) | .21702 | .22883 | .24060 | .25234 | .26407 | .27576 | .28745 | .29911 | .31077 | .32241 | .33404 | .34567 |
| | H/(KJ/KG) | 1132.7 | 1196.8 | 1263.4 | 1332.4 | 1403.9 | 1477.6 | 1553.5 | 1631.6 | 1711.8 | 1793.9 | 1877.9 | 1963.6 |
| | S/(KJ/KG K) | 4.4346 | 4.5660 | 4.6960 | 4.8244 | 4.9514 | 5.0769 | 5.2009 | 5.3234 | 5.4444 | 5.5638 | 5.6817 | 5.7980 |
| | C/(M/SEC) | 382.0979 | 391.5380 | 400.7212 | 409.6755 | 418.4231 | 426.9824 | 435.3687 | 443.5945 | 451.6704 | 459.6055 | 467.4071 | 475.0815 |
| | KAPPA/(1/MPA) | 1.6815 | 1.6786 | 1.6763 | 1.6744 | 1.6728 | 1.6714 | 1.6703 | 1.6694 | 1.6686 | 1.6679 | 1.6673 | 1.6668 |
| | BETA/(1000/K) | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 |

THERMODYNAMIC PROPERTIES OF ETHANE

| P/(MPA) | | TEMPERATURES/(K) 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | 2.14345 | 2.21268 | 2.28190 | 2.35112 | 2.42033 | 2.48955 | 2.55875 | 2.62795 |
| | H/(KJ/KG) | 2052.4 | 2141.4 | 2232.0 | 2324.1 | 2417.8 | 2512.9 | 2609.5 | 2707.7 |
| | S/(KJ/KG K) | 6.4100 | 6.5230 | 6.6345 | 6.7445 | 6.8531 | 6.9602 | 7.0662 | 7.1709 |
| | C/(M/SEC) | 482.3245 | 489.6825 | 496.9336 | 504.0796 | 511.1214 | 518.0596 | 524.8942 | 531.6248 |
| | KAPPA/(1/MPA) | 9.9998 | 9.9994 | 9.9991 | 9.9988 | 9.9986 | 9.9983 | 9.9981 | 9.9980 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | 2.11542 | 2.18375 | 2.25207 | 2.32038 | 2.38869 | 2.45699 | 2.52529 | 2.59359 |
| | H/(KJ/KG) | 2052.4 | 2141.4 | 2232.0 | 2324.1 | 2417.8 | 2512.9 | 2609.5 | 2707.7 |
| | S/(KJ/KG K) | 6.4064 | 6.5194 | 6.6309 | 6.7409 | 6.8494 | 6.9566 | 7.0625 | 7.1672 |
| | C/(M/SEC) | 482.3252 | 489.6835 | 496.9348 | 504.0809 | 511.1229 | 518.0612 | 524.8960 | 531.6267 |
| | KAPPA/(1/MPA) | 9.8691 | 9.8687 | 9.8683 | 9.8681 | 9.8678 | 9.8675 | 9.8674 | 9.8672 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | 1.07174 | 1.10640 | 1.14105 | 1.17570 | 1.21034 | 1.24498 | 1.27961 | 1.31424 |
| | H/(KJ/KG) | 2052.2 | 2141.2 | 2231.8 | 2323.9 | 2417.6 | 2512.7 | 2609.3 | 2707.5 |
| | S/(KJ/KG K) | 6.2179 | 6.3310 | 6.4425 | 6.5525 | 6.6611 | 6.7683 | 6.8742 | 6.9790 |
| | C/(M/SEC) | 482.3826 | 489.7561 | 497.0212 | 504.1798 | 511.2330 | 518.1816 | 525.0255 | 531.7647 |
| | KAPPA/(1/MPA) | 4.9998 | 4.9994 | 4.9991 | 4.9988 | 4.9985 | 4.9983 | 4.9981 | 4.9980 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .3000 | V/(M3/KG) | .71451 | .73765 | .76077 | .78389 | .80701 | .83013 | .85324 | .87634 |
| | H/(KJ/KG) | 2051.9 | 2140.9 | 2231.5 | 2323.7 | 2417.3 | 2512.5 | 2609.2 | 2707.4 |
| | S/(KJ/KG K) | 6.1054 | 6.2185 | 6.3300 | 6.4401 | 6.5487 | 6.6559 | 6.7618 | 6.8666 |
| | C/(M/SEC) | 482.4427 | 489.8315 | 497.1105 | 504.2816 | 511.3462 | 518.3051 | 525.1584 | 531.9060 |
| | KAPPA/(1/MPA) | 3.3331 | 3.3327 | 3.3324 | 3.3321 | 3.3319 | 3.3316 | 3.3314 | 3.3313 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .4000 | V/(M3/KG) | .53590 | .55327 | .57063 | .58799 | .60535 | .62270 | .64005 | .65739 |
| | H/(KJ/KG) | 2051.6 | 2140.7 | 2231.3 | 2323.5 | 2417.1 | 2512.3 | 2609.0 | 2707.2 |
| | S/(KJ/KG K) | 6.0255 | 6.1386 | 6.2502 | 6.3602 | 6.4688 | 6.5761 | 6.6820 | 6.7868 |
| | C/(M/SEC) | 482.5046 | 489.9088 | 497.2016 | 504.3852 | 511.4611 | 518.4301 | 525.2927 | 532.0487 |
| | KAPPA/(1/MPA) | 2.4998 | 2.4994 | 2.4990 | 2.4988 | 2.4985 | 2.4983 | 2.4981 | 2.4979 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .5000 | V/(M3/KG) | .42873 | .44264 | .45655 | .47045 | .48435 | .49825 | .51214 | .52603 |
| | H/(KJ/KG) | 2051.3 | 2140.4 | 2231.1 | 2323.3 | 2416.9 | 2512.1 | 2608.8 | 2707.1 |
| | S/(KJ/KG K) | 5.9635 | 6.0766 | 6.1881 | 6.2982 | 6.4068 | 6.5141 | 6.6201 | 6.7249 |
| | C/(M/SEC) | 482.5683 | 489.9878 | 497.2944 | 504.4904 | 511.5775 | 518.5567 | 525.4285 | 532.1929 |
| | KAPPA/(1/MPA) | 1.9997 | 1.9994 | 1.9990 | 1.9987 | 1.9985 | 1.9983 | 1.9981 | 1.9979 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .6000 | V/(M3/KG) | .35728 | .36889 | .38050 | .39210 | .40369 | .41528 | .42687 | .43845 |
| | H/(KJ/KG) | 2051.1 | 2140.2 | 2230.8 | 2323.0 | 2416.7 | 2511.9 | 2608.6 | 2706.9 |
| | S/(KJ/KG K) | 5.9127 | 6.0258 | 6.1374 | 6.2475 | 6.3561 | 6.4634 | 6.5694 | 6.6742 |
| | C/(M/SEC) | 482.6340 | 490.0687 | 497.3889 | 504.5973 | 511.6955 | 518.6849 | 525.5658 | 532.3385 |
| | KAPPA/(1/MPA) | 1.6664 | 1.6660 | 1.6657 | 1.6654 | 1.6651 | 1.6649 | 1.6647 | 1.6645 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |

## THERMODYNAMIC PROPERTIES OF ETHANE

### TEMPERATURES/(K)

| P/(MPA) | | 185.000 | 200.000 | 225.000 | 250.000 | 275.000 | 300.000 | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00186 | .00193 | .00207 | .08900 | .10091 | .11224 | .12321 | .13394 | .14450 | .15493 | .16526 | .17553 |
| | H/(KJ/KG) | 92.1 | 130.3 | 198.3 | 660.8 | 705.7 | 751.6 | 799.2 | 848.7 | 900.5 | 954.6 | 1011.2 | 1070.3 |
| | S/(KJ/KG K) | .5448 | .7435 | 1.0636 | 3.0728 | 3.2438 | 3.4035 | 3.5557 | 3.7026 | 3.8454 | 3.9851 | 4.1223 | 4.2574 |
| | C/(M/SEC) | 1540.2891 | 1315.8461 | 1036.4260 | 270.1494 | 287.2731 | 302.2659 | 315.8168 | 328.3247 | 340.0418 | 351.1369 | 361.7284 | 371.9017 |
| | KAPPA/(1/MPA) | .0017 | .0022 | .0035 | 1.6009 | 1.5453 | 1.5122 | 1.4907 | 1.4759 | 1.4654 | 1.4576 | 1.4516 | 1.4470 |
| | BETA/(1000/K) | 2.5 | 2.7 | 3.1 | 5.5 | 4.6 | 4.0 | 3.5 | 3.2 | 2.9 | 2.7 | 2.5 | 2.3 |
| .8000 | V/(M3/KG) | .00186 | .00193 | .00207 | .07651 | .08725 | .09738 | .10714 | .11664 | .12597 | .13517 | .14427 | .15330 |
| | H/(KJ/KG) | 92.2 | 130.4 | 198.4 | 657.4 | 703.0 | 749.5 | 797.4 | 847.2 | 899.2 | 953.5 | 1010.2 | 1069.4 |
| | S/(KJ/KG K) | .5444 | .7430 | 1.0630 | 3.0259 | 3.2000 | 3.3616 | 3.5150 | 3.6626 | 3.8060 | 3.9461 | 4.0837 | 4.2191 |
| | C/(M/SEC) | 1541.1250 | 1316.9088 | 1037.9278 | 266.9791 | 284.9813 | 300.5302 | 314.4637 | 327.2500 | 339.1775 | 350.4367 | 361.1590 | 371.4386 |
| | KAPPA/(1/MPA) | .0017 | .0022 | .0035 | 1.4311 | 1.3705 | 1.3355 | 1.3131 | 1.2979 | 1.2871 | 1.2791 | 1.2731 | 1.2685 |
| | BETA/(1000/K) | 2.5 | 2.7 | 3.1 | 5.8 | 4.8 | 4.1 | 3.6 | 3.2 | 2.9 | 2.7 | 2.5 | 2.3 |
| .9000 | V/(M3/KG) | .00186 | .00193 | .00207 | .06676 | .07661 | .08582 | .09463 | .10318 | .11155 | .11980 | .12794 | .13602 |
| | H/(KJ/KG) | 92.3 | 130.5 | 198.5 | 653.8 | 700.3 | 747.3 | 795.6 | 845.7 | 897.9 | 952.4 | 1009.2 | 1068.6 |
| | S/(KJ/KG K) | .5439 | .7425 | 1.0623 | 2.9830 | 3.1603 | 3.3239 | 3.4785 | 3.6270 | 3.7710 | 3.9115 | 4.0494 | 4.1851 |
| | C/(M/SEC) | 1541.9596 | 1317.9693 | 1039.4249 | 263.6791 | 282.6333 | 298.7675 | 313.0973 | 326.1688 | 338.3107 | 349.7361 | 360.5904 | 370.9771 |
| | KAPPA/(1/MPA) | .0017 | .0021 | .0035 | 1.3020 | 1.2357 | 1.1985 | 1.1752 | 1.1596 | 1.1485 | 1.1404 | 1.1343 | 1.1296 |
| | BETA/(1000/K) | 2.5 | 2.7 | 3.1 | 6.2 | 4.9 | 4.2 | 3.7 | 3.3 | 3.0 | 2.7 | 2.5 | 2.4 |
| 1.0000 | V/(M3/KG) | .00186 | .00193 | .00207 | .05891 | .06808 | .07656 | .08462 | .09241 | .10002 | .10750 | .11488 | .12219 |
| | H/(KJ/KG) | 92.4 | 130.6 | 198.5 | 650.1 | 697.5 | 745.1 | 793.8 | 844.2 | 896.6 | 951.2 | 1008.2 | 1067.7 |
| | S/(KJ/KG K) | .5434 | .7420 | 1.0617 | 2.9431 | 3.1239 | 3.2895 | 3.4454 | 3.5947 | 3.7393 | 3.8804 | 4.0186 | 4.1545 |
| | C/(M/SEC) | 1542.7926 | 1319.0277 | 1040.9173 | 260.2343 | 280.2254 | 296.9767 | 311.7172 | 325.0811 | 337.4412 | 349.0350 | 360.0227 | 370.5172 |
| | KAPPA/(1/MPA) | .0017 | .0021 | .0035 | 1.2020 | 1.1290 | 1.0894 | 1.0651 | 1.0490 | 1.0377 | 1.0295 | 1.0233 | 1.0186 |
| | BETA/(1000/K) | 2.5 | 2.6 | 3.1 | 6.6 | 5.1 | 4.3 | 3.7 | 3.3 | 3.0 | 2.8 | 2.6 | 2.4 |
| 2.0000 | V/(M3/KG) | .00185 | .00193 | .00206 | .00225 | .02900 | .03457 | .03941 | .04386 | .04808 | .05215 | .05609 | .05996 |
| | H/(KJ/KG) | 93.4 | 131.5 | 199.2 | 271.0 | 664.8 | 720.7 | 774.5 | 828.2 | 883.1 | 939.7 | 998.2 | 1058.8 |
| | S/(KJ/KG K) | .5388 | .7369 | 1.0554 | 1.3581 | 2.8439 | 3.0388 | 3.2108 | 3.3702 | 3.5217 | 3.6676 | 3.8094 | 3.9481 |
| | C/(M/SEC) | 1514.4333 | 1323.3294 | 1055.5696 | 823.2902 | 251.6131 | 277.2514 | 297.1082 | 313.8527 | 328.6232 | 342.0225 | 354.4107 | 366.0203 |
| | KAPPA/(1/MPA) | .0016 | .0021 | .0034 | .0062 | .7047 | .6172 | .5777 | .5552 | .5409 | .5312 | .5241 | .5189 |
| | BETA/(1000/K) | 2.5 | 2.6 | 3.0 | 3.9 | 8.5 | 5.9 | 4.7 | 3.9 | 3.4 | 3.1 | 2.8 | 2.6 |
| 3.0000 | V/(M3/KG) | .00185 | .00192 | .00206 | .00223 | .00252 | .02000 | .02410 | .02757 | .03072 | .03367 | .03649 | .03922 |
| | H/(KJ/KG) | 94.4 | 132.5 | 199.9 | 271.1 | 349.6 | 690.0 | 752.3 | 810.8 | 868.8 | 927.5 | 987.7 | 1049.7 |
| | S/(KJ/KG K) | .5342 | .7319 | 1.0493 | 1.3494 | 1.6482 | 2.8485 | 3.0479 | 3.2214 | 3.3814 | 3.5331 | 3.6790 | 3.8207 |
| | C/(M/SEC) | 1559.1582 | 1339.7446 | 1069.7880 | 843.9570 | 590.5619 | 252.8621 | 280.8564 | 302.0334 | 319.6672 | 335.0877 | 348.9837 | 361.7613 |
| | KAPPA/(1/MPA) | .0016 | .0021 | .0032 | .0058 | .0151 | .5080 | .4297 | .3964 | .3779 | .3662 | .3582 | .3525 |
| | BETA/(1000/K) | 2.5 | 2.6 | 2.9 | 3.8 | 6.4 | 9.3 | 6.1 | 4.8 | 4.0 | 3.4 | 3.0 | 2.7 |
| 4.0000 | V/(M3/KG) | .00185 | .00192 | .00205 | .00222 | .00248 | .01165 | .01619 | .01932 | .02199 | .02441 | .02669 | .02885 |
| | H/(KJ/KG) | 95.4 | 133.4 | 200.6 | 271.3 | 348.0 | 642.4 | 725.7 | 791.4 | 853.4 | 914.8 | 976.9 | 1040.4 |
| | S/(KJ/KG K) | .5297 | .7270 | 1.0433 | 1.3412 | 1.6331 | 2.6378 | 2.9053 | 3.1001 | 3.2713 | 3.4299 | 3.5804 | 3.7254 |
| | C/(M/SEC) | 1567.1375 | 1349.7710 | 1083.6003 | 863.6139 | 631.0335 | 219.2403 | 262.8447 | 289.8377 | 310.7814 | 328.3930 | 343.8620 | 357.8286 |
| | KAPPA/(1/MPA) | .0016 | .0020 | .0031 | .0055 | .0128 | .6505 | .3769 | .3230 | .2986 | .2845 | .2755 | .2693 |
| | BETA/(1000/K) | 2.4 | 2.5 | 2.9 | 3.6 | 5.7 | 23.2 | 8.7 | 5.9 | 4.6 | 3.8 | 3.3 | 2.9 |

## THERMODYNAMIC PROPERTIES OF ETHANE

| P/(MPA) | | TEMPERATURES/(K) 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 | 750.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .18574 | .19590 | .20603 | .21613 | .22620 | .23626 | .24629 | .25631 | .26632 | .27632 | .28630 | .29628 |
| | H/(KJ/KG) | 1132.0 | 1196.1 | 1262.8 | 1331.9 | 1403.3 | 1477.1 | 1553.1 | 1631.2 | 1711.4 | 1793.5 | 1877.5 | 1963.3 |
| | S/(KJ/KG K) | 4.3907 | 4.5223 | 4.6524 | 4.7809 | 4.9080 | 5.0336 | 5.1577 | 5.2802 | 5.4013 | 5.5207 | 5.6386 | 5.7549 |
| | C/(M/SEC) | 381.7207 | 391.2338 | 400.4790 | 409.4861 | 418.2792 | 426.8781 | 435.2988 | 443.5549 | 451.6576 | 459.6163 | 467.4390 | 475.1322 |
| | KAPPA/(1/MPA) | 1.4434 | 1.4405 | 1.4382 | 1.4362 | 1.4346 | 1.4333 | 1.4322 | 1.4313 | 1.4305 | 1.4298 | 1.4292 | 1.4287 |
| | BETA/(1000/K) | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 |
| .8000 | V/(M3/KG) | .16228 | .17121 | .18010 | .18897 | .19781 | .20663 | .21543 | .22421 | .23299 | .24175 | .25050 | .25924 |
| | H/(KJ/KG) | 1131.2 | 1195.4 | 1262.1 | 1331.3 | 1402.8 | 1476.6 | 1552.7 | 1630.8 | 1711.0 | 1793.2 | 1877.2 | 1963.0 |
| | S/(KJ/KG K) | 4.3526 | 4.4843 | 4.6145 | 4.7432 | 4.8703 | 4.9960 | 5.1201 | 5.2428 | 5.3638 | 5.4834 | 5.6013 | 5.7176 |
| | C/(M/SEC) | 381.3453 | 390.9318 | 400.2390 | 409.2990 | 418.1377 | 426.7761 | 435.2312 | 443.5175 | 451.6469 | 459.6292 | 467.4728 | 475.1848 |
| | KAPPA/(1/MPA) | 1.2648 | 1.2619 | 1.2596 | 1.2576 | 1.2560 | 1.2547 | 1.2536 | 1.2527 | 1.2519 | 1.2512 | 1.2506 | 1.2501 |
| | BETA/(1000/K) | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 |
| .9000 | V/(M3/KG) | .14404 | .15201 | .15994 | .16784 | .17572 | .18358 | .19142 | .19925 | .20706 | .21486 | .22265 | .23044 |
| | H/(KJ/KG) | 1130.4 | 1194.7 | 1261.5 | 1330.7 | 1402.3 | 1476.1 | 1552.2 | 1630.4 | 1710.7 | 1792.9 | 1876.9 | 1962.7 |
| | S/(KJ/KG K) | 4.3187 | 4.4507 | 4.5810 | 4.7098 | 4.8370 | 4.9628 | 5.0870 | 5.2096 | 5.3308 | 5.4503 | 5.5683 | 5.6847 |
| | C/(M/SEC) | 380.9719 | 390.6320 | 400.0014 | 409.1144 | 417.9986 | 426.6764 | 435.1660 | 443.4824 | 451.6383 | 459.6442 | 467.5087 | 475.2394 |
| | KAPPA/(1/MPA) | 1.1260 | 1.1230 | 1.1207 | 1.1187 | 1.1171 | 1.1158 | 1.1147 | 1.1137 | 1.1129 | 1.1123 | 1.1117 | 1.1112 |
| | BETA/(1000/K) | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 |
| 1.0000 | V/(M3/KG) | .12944 | .13664 | .14381 | .15094 | .15806 | .16515 | .17222 | .17928 | .18632 | .19335 | .20038 | .20739 |
| | H/(KJ/KG) | 1129.6 | 1194.0 | 1260.9 | 1330.1 | 1401.8 | 1475.7 | 1551.8 | 1630.0 | 1710.3 | 1792.5 | 1876.6 | 1962.4 |
| | S/(KJ/KG K) | 4.2884 | 4.4205 | 4.5509 | 4.6798 | 4.8071 | 4.9329 | 5.0572 | 5.1800 | 5.3011 | 5.4207 | 5.5387 | 5.6551 |
| | C/(M/SEC) | 380.6006 | 390.3345 | 399.7661 | 408.9321 | 417.8619 | 426.5791 | 435.1030 | 443.4495 | 451.6319 | 459.6612 | 467.5466 | 475.2959 |
| | KAPPA/(1/MPA) | 1.0149 | 1.0119 | 1.0095 | 1.0076 | 1.0060 | 1.0047 | 1.0035 | 1.0026 | 1.0018 | 1.0011 | 1.0005 | 1.0000 |
| | BETA/(1000/K) | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 |
| 2.0000 | V/(M3/KG) | .06376 | .06752 | .07123 | .07491 | .07857 | .08220 | .08582 | .08942 | .09301 | .09658 | .10015 | .10370 |
| | H/(KJ/KG) | 1121.7 | 1186.9 | 1254.5 | 1324.4 | 1396.5 | 1470.9 | 1547.4 | 1626.0 | 1706.6 | 1789.1 | 1873.4 | 1959.5 |
| | S/(KJ/KG K) | 4.0841 | 4.2179 | 4.3497 | 4.4797 | 4.6080 | 4.7346 | 4.8595 | 4.9828 | 5.1045 | 5.2245 | 5.3428 | 5.4596 |
| | C/(M/SEC) | 377.0098 | 387.4921 | 397.5503 | 407.2468 | 416.6301 | 425.7382 | 434.6015 | 443.2444 | 451.6873 | 459.9464 | 468.0356 | 475.9662 |
| | KAPPA/(1/MPA) | .5149 | .5118 | .5093 | .5073 | .5057 | .5044 | .5032 | .5023 | .5015 | .5008 | .5003 | .4998 |
| | BETA/(1000/K) | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 |
| 3.0000 | V/(M3/KG) | .04188 | .04449 | .04705 | .04958 | .05209 | .05457 | .05704 | .05948 | .06192 | .06434 | .06676 | .06916 |
| | H/(KJ/KG) | 1113.7 | 1179.8 | 1248.1 | 1318.6 | 1391.2 | 1466.1 | 1543.0 | 1622.0 | 1702.9 | 1785.7 | 1870.3 | 1956.6 |
| | S/(KJ/KG K) | 3.9590 | 4.0947 | 4.2279 | 4.3591 | 4.4883 | 4.6157 | 4.7413 | 4.8652 | 4.9874 | 5.1078 | 5.2265 | 5.3436 |
| | C/(M/SEC) | 373.6813 | 384.9206 | 395.6050 | 405.8268 | 415.6556 | 425.1452 | 434.3377 | 443.2670 | 451.9603 | 460.4396 | 468.7233 | 476.8264 |
| | KAPPA/(1/MPA) | .3482 | .3449 | .3424 | .3403 | .3387 | .3374 | .3362 | .3353 | .3345 | .3339 | .3333 | .3329 |
| | BETA/(1000/K) | 2.5 | 2.3 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 |
| 4.0000 | V/(M3/KG) | .03095 | .03298 | .03498 | .03693 | .03886 | .04077 | .04266 | .04453 | .04639 | .04824 | .05007 | .05190 |
| | H/(KJ/KG) | 1105.5 | 1172.5 | 1241.6 | 1312.8 | 1386.0 | 1461.3 | 1538.7 | 1618.0 | 1699.3 | 1782.4 | 1867.2 | 1953.8 |
| | S/(KJ/KG K) | 3.8663 | 4.0038 | 4.1386 | 4.2710 | 4.4012 | 4.5294 | 4.6557 | 4.7802 | 4.9028 | 5.0237 | 5.1428 | 5.2602 |
| | C/(M/SEC) | 370.6793 | 382.6665 | 393.9638 | 404.6958 | 414.9549 | 424.8110 | 434.3188 | 443.5210 | 452.4522 | 461.1402 | 469.6077 | 477.8733 |
| | KAPPA/(1/MPA) | .2647 | .2613 | .2587 | .2567 | .2550 | .2537 | .2526 | .2517 | .2509 | .2503 | .2497 | .2493 |
| | BETA/(1000/K) | 2.7 | 2.4 | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 |

THERMODYNAMIC PROPERTIES OF ETHANE

| P/(MPA) | | TEMPERATURES/(K) 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .30625 | .31622 | .32617 | .33613 | .34607 | .35602 | .36596 | .37589 |
| | H/(KJ/KG) | 2050.8 | 2139.9 | 2230.6 | 2322.8 | 2416.5 | 2511.8 | 2608.5 | 2706.7 |
| | S/(KJ/KG K) | 5.8697 | 5.9828 | 6.0945 | 6.2046 | 6.3132 | 6.4205 | 6.5265 | 6.6313 |
| | C/(M/SEC) | 482.7015 | 490.1513 | 497.4852 | 504.7058 | 511.8152 | 518.8146 | 525.7046 | 532.4856 |
| | KAPPA/(1/MPA) | 1.4283 | 1.4279 | 1.4275 | 1.4273 | 1.4270 | 1.4268 | 1.4266 | 1.4264 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .8000 | V/(M3/KG) | .26798 | .27671 | .28543 | .29415 | .30286 | .31157 | .32028 | .32898 |
| | H/(KJ/KG) | 2050.5 | 2139.7 | 2230.4 | 2322.6 | 2416.3 | 2511.6 | 2608.3 | 2706.6 |
| | S/(KJ/KG K) | 5.8324 | 5.9456 | 6.0572 | 6.1674 | 6.2760 | 6.3833 | 6.4894 | 6.5942 |
| | C/(M/SEC) | 482.7709 | 490.2358 | 497.5832 | 504.8160 | 511.9364 | 518.9458 | 525.8449 | 532.6340 |
| | KAPPA/(1/MPA) | 1.2497 | 1.2493 | 1.2490 | 1.2487 | 1.2484 | 1.2482 | 1.2480 | 1.2478 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .9000 | V/(M3/KG) | .23821 | .24598 | .25374 | .26150 | .26925 | .27700 | .28475 | .29249 |
| | H/(KJ/KG) | 2050.3 | 2139.4 | 2230.1 | 2322.4 | 2416.1 | 2511.4 | 2608.1 | 2706.4 |
| | S/(KJ/KG K) | 5.7995 | 5.9127 | 6.0243 | 6.1345 | 6.2432 | 6.3505 | 6.4565 | 6.5614 |
| | C/(M/SEC) | 482.8422 | 490.3220 | 497.6829 | 504.9279 | 512.0593 | 519.0786 | 525.9867 | 532.7839 |
| | KAPPA/(1/MPA) | 1.1107 | 1.1104 | 1.1100 | 1.1098 | 1.1095 | 1.1093 | 1.1091 | 1.1089 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| 1.0000 | V/(M3/KG) | .21440 | .22140 | .22839 | .23538 | .24237 | .24935 | .25632 | .26330 |
| | H/(KJ/KG) | 2050.0 | 2139.2 | 2229.9 | 2322.2 | 2415.9 | 2511.2 | 2608.0 | 2706.3 |
| | S/(KJ/KG K) | 5.7700 | 5.8832 | 5.9949 | 6.1051 | 6.2138 | 6.3211 | 6.4272 | 6.5320 |
| | C/(M/SEC) | 482.9153 | 490.4100 | 497.7843 | 505.0414 | 512.1837 | 519.2128 | 526.1299 | 532.9352 |
| | KAPPA/(1/MPA) | .9996 | .9992 | .9989 | .9986 | .9984 | .9982 | .9980 | .9978 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| 2.0000 | V/(M3/KG) | .10725 | .11080 | .11433 | .11787 | .12139 | .12491 | .12843 | .13195 |
| | H/(KJ/KG) | 2047.3 | 2136.7 | 2227.6 | 2320.0 | 2414.0 | 2509.4 | 2606.3 | 2704.7 |
| | S/(KJ/KG K) | 5.5747 | 5.6882 | 5.8001 | 5.9105 | 6.0194 | 6.1269 | 6.2331 | 6.3381 |
| | C/(M/SEC) | 483.7475 | 491.3873 | 498.8918 | 506.2660 | 513.5138 | 520.6382 | 527.6413 | 534.5245 |
| | KAPPA/(1/MPA) | .4994 | .4990 | .4987 | .4984 | .4982 | .4980 | .4978 | .4976 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| 3.0000 | V/(M3/KG) | .07156 | .07395 | .07633 | .07871 | .08108 | .08345 | .08582 | .08818 |
| | H/(KJ/KG) | 2044.6 | 2134.2 | 2225.3 | 2317.9 | 2412.0 | 2507.6 | 2604.6 | 2703.2 |
| | S/(KJ/KG K) | 5.4590 | 5.5727 | 5.6849 | 5.7955 | 5.9046 | 6.0122 | 6.1186 | 6.2237 |
| | C/(M/SEC) | 484.7612 | 492.5381 | 500.1652 | 507.6495 | 514.9962 | 522.2096 | 529.2929 | 536.2484 |
| | KAPPA/(1/MPA) | .3325 | .3321 | .3318 | .3315 | .3313 | .3311 | .3310 | .3308 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| 4.0000 | V/(M3/KG) | .05372 | .05553 | .05734 | .05914 | .06094 | .06273 | .06452 | .06631 |
| | H/(KJ/KG) | 2042.0 | 2131.8 | 2223.1 | 2315.9 | 2410.1 | 2505.8 | 2603.0 | 2701.7 |
| | S/(KJ/KG K) | 5.3759 | 5.4899 | 5.6023 | 5.7131 | 5.8223 | 5.9302 | 6.0367 | 6.1419 |
| | C/(M/SEC) | 485.9524 | 493.8578 | 501.5997 | 509.1867 | 516.6254 | 523.9215 | 531.0789 | 538.1010 |
| | KAPPA/(1/MPA) | .2489 | .2486 | .2483 | .2480 | .2478 | .2476 | .2475 | .2473 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |

THERMODYNAMIC PROPERTIES OF ETHANE

TEMPERATURES/(K)

| P/(MPA) | | 185.000 | 200.000 | 225.000 | 250.000 | 275.000 | 300.000 | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00185 | .00191 | .00205 | .00221 | .00245 | .00305 | .01112 | .01428 | .01672 | .01885 | .02081 | .02264 |
| | H/(KJ/KG) | 96.4 | 134.3 | 201.3 | 271.6 | 346.8 | 448.5 | 691.6 | 769.6 | 836.9 | 901.5 | 965.8 | 1030.8 |
| | S/(KJ/KG K) | .5252 | .7222 | 1.0374 | 1.3334 | 1.6198 | 1.9724 | 2.7587 | 2.9902 | 3.1762 | 3.3431 | 3.4989 | 3.6476 |
| | C/(M/SEC) | 1574.9816 | 1359.6397 | 1097.0351 | 882.3852 | 660.8156 | 361.9165 | 243.9287 | 277.8590 | 302.3355 | 322.1752 | 339.2029 | 354.3287 |
| | KAPPA/(1/MPA) | .0016 | .0020 | .0030 | .0052 | .0112 | .0739 | .3836 | .2852 | .2526 | .2360 | .2259 | .2192 |
| | BETA/(1000/K) | 2.4 | 2.5 | 2.8 | 3.5 | 5.2 | 18.3 | 14.1 | 7.5 | 5.4 | 4.3 | 3.6 | 3.2 |
| 6.0000 | V/(M3/KG) | .00184 | .00191 | .00204 | .00220 | .00243 | .00289 | .00736 | .01086 | .01320 | .01515 | .01689 | .01851 |
| | H/(KJ/KG) | 97.5 | 135.3 | 202.1 | 271.9 | 345.9 | 438.9 | 642.7 | 744.7 | 819.2 | 887.7 | 954.4 | 1021.2 |
| | S/(KJ/KG K) | .5208 | .7174 | 1.0317 | 1.3259 | 1.6077 | 1.9305 | 2.5801 | 2.8836 | 3.0895 | 3.2662 | 3.4280 | 3.5806 |
| | C/(M/SEC) | 1582.7077 | 1369.3146 | 1110.1186 | 900.3787 | 688.0683 | 423.8170 | 231.3046 | 267.5224 | 294.9407 | 316.7618 | 335.2011 | 351.3851 |
| | KAPPA/(1/MPA) | .0015 | .0019 | .0029 | .0049 | .0099 | .0399 | .4477 | .2651 | .2228 | .2037 | .1927 | .1856 |
| | BETA/(1000/K) | 2.4 | 2.5 | 2.8 | 3.4 | 4.8 | 11.4 | 27.8 | 9.8 | 6.4 | 4.8 | 4.0 | 3.4 |
| 7.0000 | V/(M3/KG) | .00184 | .00191 | .00203 | .00219 | .00240 | .00279 | .00484 | .00839 | .01068 | .01251 | .01411 | .01557 |
| | H/(KJ/KG) | 98.5 | 136.3 | 202.8 | 272.3 | 345.2 | 433.3 | 582.2 | 716.6 | 800.4 | 873.3 | 942.7 | 1011.4 |
| | S/(KJ/KG K) | .5164 | .7127 | 1.0262 | 1.3186 | 1.5966 | 1.9025 | 2.3757 | 2.7761 | 3.0077 | 3.1958 | 3.3642 | 3.5212 |
| | C/(M/SEC) | 1590.3145 | 1378.8150 | 1122.8722 | 917.6592 | 713.3110 | 470.6208 | 250.8337 | 261.7395 | 289.5136 | 312.5719 | 332.0839 | 349.1328 |
| | KAPPA/(1/MPA) | .0015 | .0019 | .0028 | .0046 | .0090 | .0279 | .3351 | .2492 | .2009 | .1800 | .1685 | .1613 |
| | BETA/(1000/K) | 2.4 | 2.4 | 2.7 | 3.2 | 4.4 | 8.7 | 36.4 | 12.9 | 7.5 | 5.4 | 4.3 | 3.6 |
| 8.0000 | V/(M3/KG) | .00184 | .00190 | .00203 | .00218 | .00238 | .00273 | .00383 | .00662 | .00882 | .01055 | .01204 | .01338 |
| | H/(KJ/KG) | 99.5 | 137.3 | 203.7 | 272.7 | 344.8 | 429.5 | 544.0 | 686.9 | 780.9 | 858.6 | 930.9 | 1001.5 |
| | S/(KJ/KG K) | .5121 | .7080 | 1.0207 | 1.3117 | 1.5863 | 1.8807 | 2.2450 | 2.6699 | 2.9296 | 3.1303 | 3.3058 | 3.4672 |
| | C/(M/SEC) | 1597.8131 | 1388.1482 | 1135.3170 | 934.3058 | 736.9129 | 509.6720 | 298.3513 | 264.4353 | 287.2061 | 310.0850 | 330.0946 | 347.7098 |
| | KAPPA/(1/MPA) | .0015 | .0019 | .0028 | .0044 | .0082 | .0216 | .1541 | .2208 | .1816 | .1611 | .1497 | .1426 |
| | BETA/(1000/K) | 2.3 | 2.4 | 2.7 | 3.1 | 4.2 | 7.2 | 24.2 | 15.5 | 8.6 | 6.0 | 4.7 | 3.9 |
| 9.0000 | V/(M3/KG) | .00183 | .00190 | .00202 | .00217 | .00236 | .00267 | .00343 | .00543 | .00743 | .00906 | .01045 | .01170 |
| | H/(KJ/KG) | 100.6 | 138.2 | 204.5 | 273.2 | 344.5 | 426.8 | 524.7 | 659.3 | 761.2 | 843.8 | 919.1 | 991.7 |
| | S/(KJ/KG K) | .5078 | .7035 | 1.0154 | 1.3049 | 1.5767 | 1.8625 | 2.1746 | 2.5738 | 2.8555 | 3.0689 | 3.2515 | 3.4176 |
| | C/(M/SEC) | 1605.1814 | 1397.3112 | 1147.4716 | 950.3771 | 759.1217 | 543.7749 | 348.9166 | 276.9146 | 289.0404 | 309.7594 | 329.4644 | 347.2451 |
| | KAPPA/(1/MPA) | .0015 | .0018 | .0027 | .0042 | .0075 | .0177 | .0810 | .1764 | .1614 | .1447 | .1342 | .1275 |
| | BETA/(1000/K) | 2.3 | 2.4 | 2.6 | 3.1 | 4.0 | 6.3 | 15.7 | 16.3 | 9.6 | 6.6 | 5.0 | 4.1 |
| 10.0000 | V/(M3/KG) | .00183 | .00190 | .00202 | .00216 | .00235 | .00263 | .00321 | .00465 | .00639 | .00790 | .00920 | .01036 |
| | H/(KJ/KG) | 101.6 | 139.2 | 205.3 | 273.7 | 344.4 | 424.7 | 513.6 | 636.4 | 742.4 | 829.2 | 907.4 | 981.9 |
| | S/(KJ/KG K) | .5036 | .6990 | 1.0101 | 1.2984 | 1.5676 | 1.8467 | 2.1302 | 2.4942 | 2.7869 | 3.0113 | 3.2009 | 3.3715 |
| | C/(M/SEC) | 1612.4568 | 1406.3282 | 1159.3487 | 965.9326 | 780.1572 | 574.3623 | 394.0602 | 296.6747 | 295.3537 | 311.9092 | 330.3746 | 347.8431 |
| | KAPPA/(1/MPA) | .0014 | .0018 | .0026 | .0040 | .0070 | .0151 | .0515 | .1323 | .1397 | .1293 | .1208 | .1148 |
| | BETA/(1000/K) | 2.3 | 2.4 | 2.6 | 3.0 | 3.8 | 5.6 | 11.5 | 15.3 | 10.2 | 7.0 | 5.3 | 4.3 |

THERMODYNAMIC PROPERTIES OF ETHANE

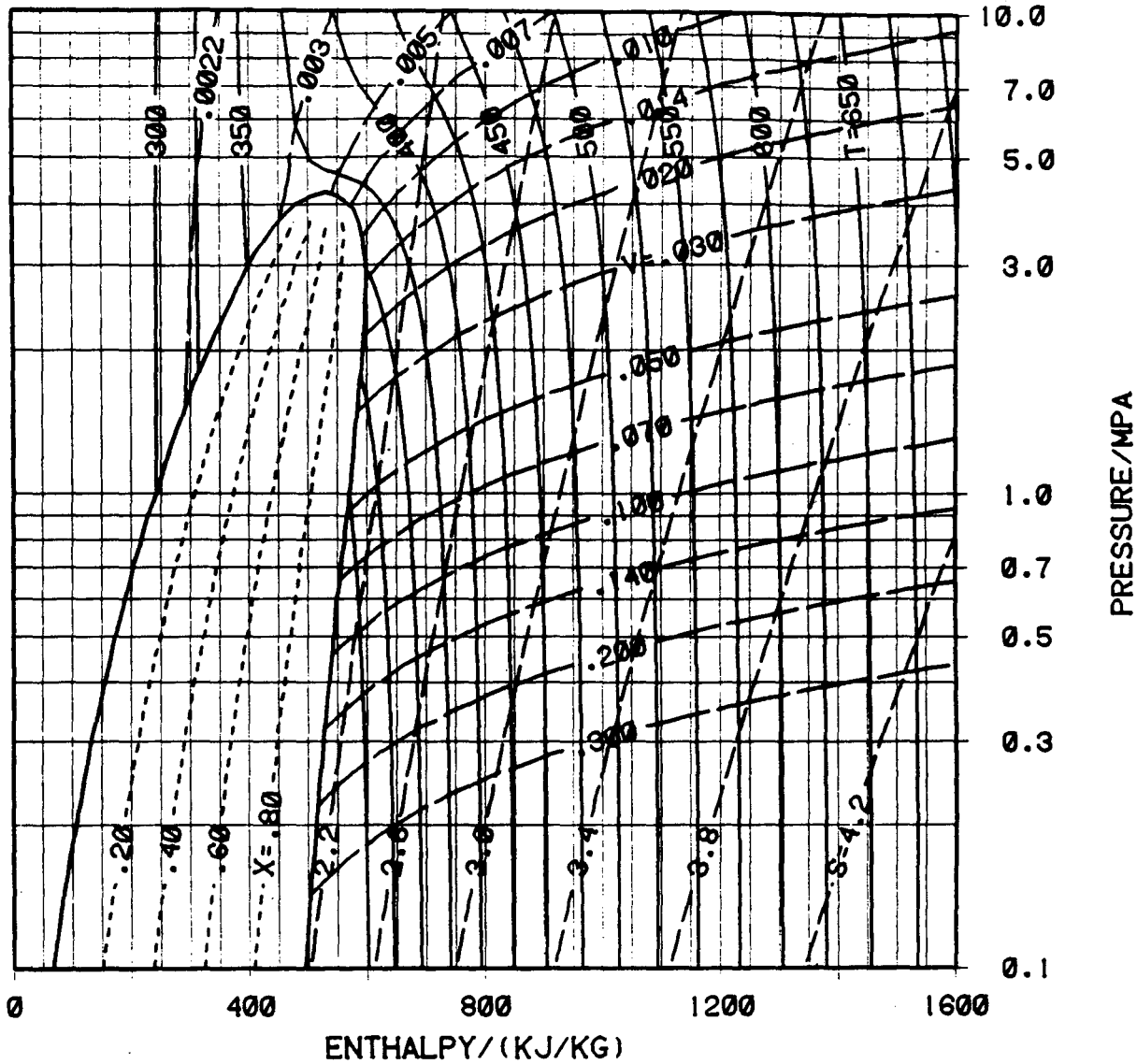
TEMPERATURES/(K)

| P/(MPA) | | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 | 750.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .02440 | .02609 | .02774 | .02936 | .03094 | .03250 | .03405 | .03557 | .03708 | .03858 | .04008 | .04156 |
| | H/(KJ/KG) | 1097.2 | 1165.2 | 1235.1 | 1306.9 | 1380.8 | 1456.6 | 1534.4 | 1614.1 | 1695.7 | 1779.1 | 1864.2 | 1951.0 |
| | S/(KJ/KG K) | 3.7911 | 3.9307 | 4.0670 | 4.2007 | 4.3319 | 4.4610 | 4.5880 | 4.7130 | 4.8362 | 4.9575 | 5.0770 | 5.1947 |
| | C/(M/SEC) | 368.0776 | 380.7812 | 392.6625 | 403.8788 | 414.5448 | 424.7469 | 434.5512 | 444.0099 | 453.1642 | 462.0473 | 470.6865 | 479.1037 |
| | KAPPA/(1/MPA) | .2145 | .2110 | .2083 | .2063 | .2046 | .2033 | .2022 | .2013 | .2006 | .2000 | .1995 | .1990 |
| | BETA/(1000/K) | 2.8 | 2.6 | 2.4 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 |
| 6.0000 | V/(M3/KG) | .02004 | .02151 | .02293 | .02432 | .02567 | .02700 | .02831 | .02961 | .03089 | .03216 | .03342 | .03467 |
| | H/(KJ/KG) | 1088.8 | 1157.9 | 1228.6 | 1301.1 | 1375.5 | 1451.9 | 1530.1 | 1610.2 | 1692.1 | 1775.8 | 1861.2 | 1948.3 |
| | S/(KJ/KG K) | 3.7270 | 3.8687 | 4.0067 | 4.1416 | 4.2739 | 4.4038 | 4.5315 | 4.6572 | 4.7808 | 4.9026 | 5.0225 | 5.1405 |
| | C/(M/SEC) | 365.9572 | 379.3191 | 391.7380 | 403.4005 | 414.4418 | 424.9630 | 435.0411 | 444.7364 | 454.0966 | 463.1599 | 471.9573 | 480.5141 |
| | KAPPA/(1/MPA) | .1807 | .1772 | .1745 | .1725 | .1709 | .1696 | .1685 | .1677 | .1670 | .1664 | .1659 | .1654 |
| | BETA/(1000/K) | 3.0 | 2.7 | 2.4 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.4 |
| 7.0000 | V/(M3/KG) | .01694 | .01825 | .01951 | .02073 | .02192 | .02308 | .02423 | .02536 | .02647 | .02758 | .02867 | .02976 |
| | H/(KJ/KG) | 1080.4 | 1150.6 | 1222.1 | 1295.4 | 1370.4 | 1447.2 | 1525.9 | 1606.3 | 1688.6 | 1772.6 | 1858.3 | 1945.6 |
| | S/(KJ/KG K) | 3.6705 | 3.8144 | 3.9541 | 4.0903 | 4.2237 | 4.3544 | 4.4829 | 4.6091 | 4.7333 | 4.8555 | 4.9758 | 5.0941 |
| | C/(M/SEC) | 364.4028 | 378.3350 | 391.2262 | 403.2845 | 414.6611 | 425.4688 | 435.7937 | 445.7029 | 455.2495 | 464.4761 | 473.4173 | 482.1010 |
| | KAPPA/(1/MPA) | .1564 | .1528 | .1502 | .1482 | .1466 | .1454 | .1443 | .1435 | .1428 | .1423 | .1418 | .1414 |
| | BETA/(1000/K) | 3.2 | 2.8 | 2.5 | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 |
| 8.0000 | V/(M3/KG) | .01463 | .01582 | .01695 | .01804 | .01911 | .02015 | .02117 | .02218 | .02317 | .02415 | .02512 | .02608 |
| | H/(KJ/KG) | 1072.0 | 1143.2 | 1215.7 | 1289.6 | 1365.2 | 1442.6 | 1521.7 | 1602.6 | 1685.2 | 1769.5 | 1855.4 | 1942.9 |
| | S/(KJ/KG K) | 3.6197 | 3.7658 | 3.9072 | 4.0448 | 4.1792 | 4.3108 | 4.4400 | 4.5668 | 4.6915 | 4.8142 | 4.9348 | 5.0535 |
| | C/(M/SEC) | 363.4982 | 377.8817 | 391.1609 | 403.5525 | 415.2162 | 426.2722 | 436.8129 | 446.9105 | 456.6222 | 465.9941 | 475.0632 | 483.8603 |
| | KAPPA/(1/MPA) | .1377 | .1343 | .1317 | .1298 | .1283 | .1271 | .1261 | .1253 | .1247 | .1241 | .1237 | .1233 |
| | BETA/(1000/K) | 3.3 | 2.9 | 2.6 | 2.4 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 |
| 9.0000 | V/(M3/KG) | .01285 | .01393 | .01497 | .01597 | .01694 | .01788 | .01880 | .01971 | .02060 | .02149 | .02236 | .02322 |
| | H/(KJ/KG) | 1063.6 | 1136.0 | 1209.3 | 1284.0 | 1360.2 | 1438.0 | 1517.6 | 1598.8 | 1681.8 | 1766.4 | 1852.6 | 1940.4 |
| | S/(KJ/KG K) | 3.5732 | 3.7216 | 3.8647 | 4.0036 | 4.1391 | 4.2716 | 4.4015 | 4.5290 | 4.6542 | 4.7772 | 4.8982 | 5.0173 |
| | C/(M/SEC) | 363.3198 | 378.0062 | 391.5716 | 404.2227 | 416.1180 | 427.3793 | 438.1016 | 448.3596 | 458.2133 | 467.7109 | 476.8917 | 485.7879 |
| | KAPPA/(1/MPA) | .1229 | .1196 | .1172 | .1153 | .1139 | .1127 | .1118 | .1111 | .1105 | .1100 | .1095 | .1092 |
| | BETA/(1000/K) | 3.5 | 3.0 | 2.7 | 2.5 | 2.3 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 |
| 10.0000 | V/(M3/KG) | .01143 | .01244 | .01340 | .01431 | .01520 | .01607 | .01691 | .01774 | .01856 | .01936 | .02016 | .02094 |
| | H/(KJ/KG) | 1055.3 | 1128.8 | 1203.0 | 1278.4 | 1355.2 | 1433.6 | 1513.5 | 1595.2 | 1678.4 | 1763.3 | 1849.8 | 1937.8 |
| | S/(KJ/KG K) | 3.5302 | 3.6809 | 3.8257 | 3.9660 | 4.1026 | 4.2359 | 4.3665 | 4.4946 | 4.6203 | 4.7438 | 4.8651 | 4.9845 |
| | C/(M/SEC) | 363.9301 | 378.7468 | 392.4817 | 405.3094 | 417.3747 | 428.7940 | 439.6605 | 450.0491 | 460.0203 | 469.6234 | 478.8987 | 487.8794 |
| | KAPPA/(1/MPA) | .1106 | .1076 | .1053 | .1036 | .1022 | .1012 | .1003 | .0996 | .0990 | .0986 | .0982 | .0978 |
| | BETA/(1000/K) | 3.6 | 3.1 | 2.8 | 2.5 | 2.3 | 2.1 | 2.0 | 1.9 | 1.7 | 1.7 | 1.6 | 1.5 |

THERMODYNAMIC PROPERTIES OF ETHANE

TEMPERATURES/(K)

| P/(MPA) | | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .04303 | .04450 | .04596 | .04741 | .04886 | .05031 | .05175 | .05319 |
| | H/(KJ/KG) | 2039.4 | 2129.4 | 2220.9 | 2313.9 | 2408.3 | 2504.1 | 2601.4 | 2700.2 |
| | S/(KJ/KG K) | 5.3107 | 5.4249 | 5.5375 | 5.6485 | 5.7580 | 5.8660 | 5.9726 | 6.0780 |
| | C/(M/SEC) | 487.3172 | 495.3419 | 503.1903 | 510.8722 | 518.3959 | 525.7680 | 532.9936 | 540.0768 |
| | KAPPA/(1/MPA) | .1987 | .1983 | .1981 | .1978 | .1976 | .1975 | .1973 | .1972 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| 6.0000 | V/(M3/KG) | .03591 | .03715 | .03838 | .03960 | .04082 | .04204 | .04325 | .04445 |
| | H/(KJ/KG) | 2036.9 | 2127.1 | 2218.8 | 2311.9 | 2406.5 | 2502.4 | 2599.9 | 2698.8 |
| | S/(KJ/KG K) | 5.2568 | 5.3713 | 5.4841 | 5.5953 | 5.7049 | 5.8131 | 5.9199 | 6.0254 |
| | C/(M/SEC) | 488.8513 | 496.9858 | 504.9318 | 512.7009 | 520.3023 | 527.7439 | 535.0315 | 542.1701 |
| | KAPPA/(1/MPA) | .1651 | .1648 | .1645 | .1643 | .1641 | .1640 | .1638 | .1637 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| 7.0000 | V/(M3/KG) | .03083 | .03190 | .03297 | .03403 | .03508 | .03613 | .03718 | .03822 |
| | H/(KJ/KG) | 2034.5 | 2124.8 | 2216.7 | 2310.0 | 2404.7 | 2500.8 | 2598.4 | 2697.5 |
| | S/(KJ/KG K) | 5.2107 | 5.3255 | 5.4385 | 5.5499 | 5.6597 | 5.7681 | 5.8750 | 5.9807 |
| | C/(M/SEC) | 490.5504 | 498.7847 | 506.8193 | 514.6673 | 522.3392 | 529.8435 | 537.1871 | 544.3755 |
| | KAPPA/(1/MPA) | .1411 | .1408 | .1405 | .1403 | .1401 | .1400 | .1399 | .1398 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| 8.0000 | V/(M3/KG) | .02703 | .02798 | .02892 | .02985 | .03078 | .03171 | .03263 | .03355 |
| | H/(KJ/KG) | 2032.0 | 2122.6 | 2214.6 | 2308.1 | 2403.0 | 2499.3 | 2597.0 | 2696.2 |
| | S/(KJ/KG K) | 5.1703 | 5.2854 | 5.3986 | 5.5102 | 5.6202 | 5.7287 | 5.8358 | 5.9416 |
| | C/(M/SEC) | 492.4102 | 500.7337 | 508.8478 | 516.7665 | 524.5013 | 532.0616 | 539.4551 | 546.6878 |
| | KAPPA/(1/MPA) | .1230 | .1227 | .1225 | .1223 | .1221 | .1220 | .1219 | .1218 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| 9.0000 | V/(M3/KG) | .02408 | .02493 | .02577 | .02661 | .02744 | .02827 | .02910 | .02992 |
| | H/(KJ/KG) | 2029.7 | 2120.4 | 2212.7 | 2306.3 | 2401.3 | 2497.7 | 2595.6 | 2694.9 |
| | S/(KJ/KG K) | 5.1344 | 5.2497 | 5.3632 | 5.4750 | 5.5851 | 5.6938 | 5.8010 | 5.9069 |
| | C/(M/SEC) | 494.4261 | 502.8281 | 511.0121 | 518.9930 | 526.7833 | 534.3929 | 541.8302 | 549.1017 |
| | KAPPA/(1/MPA) | .1089 | .1086 | .1084 | .1082 | .1081 | .1080 | .1079 | .1078 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| 10.0000 | V/(M3/KG) | .02172 | .02249 | .02326 | .02402 | .02477 | .02553 | .02627 | .02702 |
| | H/(KJ/KG) | 2027.3 | 2118.3 | 2210.7 | 2304.5 | 2399.7 | 2496.2 | 2594.2 | 2693.6 |
| | S/(KJ/KG K) | 5.1019 | 5.2174 | 5.3311 | 5.4431 | 5.5535 | 5.6623 | 5.7697 | 5.8757 |
| | C/(M/SEC) | 496.5933 | 505.0628 | 513.3072 | 521.3420 | 529.1802 | 536.8324 | 544.3074 | 551.6122 |
| | KAPPA/(1/MPA) | .0976 | .0973 | .0971 | .0970 | .0968 | .0967 | .0966 | .0965 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |


10.0
7.0
5.0
3.0
1.0
0.7
0.5
0.3
0.1
PRESSURE/MPA
0
400
800
1200
1600
ENTHALPY/(KJ/KG)
.0022
.003
.005
.007
.010
.020
.030
.050
.070
.100
.140
.200
.300
T=350
X=.80
.20
.40
.60
2.2
2.6
3.0
3.4
3.8
4.2
S=

PROPANE

## PROPERTIES OF SATURATED PROPANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 235.00000 | .12192 | .00176 | .34739 | 75.92856 | 422.59769 | 498.52624 | .34469 | 1.79829 | 2.14298 |
| 240.00000 | .15017 | .00178 | .28592 | 87.71345 | 416.69819 | 504.41164 | .39410 | 1.73624 | 2.13034 |
| 245.00000 | .18319 | .00180 | .23731 | 99.69602 | 410.55469 | 510.25071 | .44327 | 1.67573 | 2.11900 |
| 250.00000 | .22149 | .00182 | .19849 | 111.86880 | 404.16715 | 516.03595 | .49217 | 1.61667 | 2.10884 |
| 255.00000 | .26556 | .00184 | .16721 | 124.22338 | 397.53651 | 521.75989 | .54078 | 1.55897 | 2.09975 |
| 260.00000 | .31593 | .00186 | .14179 | 136.75115 | 390.66377 | 527.41493 | .58907 | 1.50255 | 2.09163 |
| 265.00000 | .37312 | .00189 | .12096 | 149.44369 | 383.54951 | 532.99320 | .63702 | 1.44736 | 2.08437 |
| 270.00000 | .43766 | .00191 | .10377 | 162.29319 | 376.19321 | 538.48640 | .68460 | 1.39331 | 2.07790 |
| 275.00000 | .51009 | .00193 | .08947 | 175.29301 | 368.59245 | 543.88546 | .73179 | 1.34034 | 2.07213 |
| 280.00000 | .59096 | .00196 | .07750 | 188.43821 | 360.74209 | 549.18030 | .77860 | 1.28836 | 2.06696 |
| 285.00000 | .68082 | .00199 | .06742 | 201.72342 | 352.63655 | 554.35997 | .82500 | 1.23732 | 2.06232 |
| 290.00000 | .78024 | .00201 | .05887 | 215.15140 | 344.25920 | 559.41059 | .87101 | 1.18710 | 2.05811 |
| 295.00000 | .88981 | .00204 | .05157 | 228.72378 | 335.59305 | 564.31683 | .91665 | 1.13760 | 2.05426 |
| 300.00000 | 1.01012 | .00207 | .04532 | 242.44814 | 326.61176 | 569.05989 | .96195 | 1.08871 | 2.05066 |
| 305.00000 | 1.14180 | .00211 | .03992 | 256.33758 | 317.27928 | 573.61686 | 1.00696 | 1.04026 | 2.04722 |
| 310.00000 | 1.28549 | .00214 | .03523 | 270.41224 | 307.54715 | 577.95939 | 1.05174 | .99209 | 2.04382 |
| 315.00000 | 1.44188 | .00218 | .03114 | 284.70124 | 297.35072 | 582.05196 | 1.09638 | .94397 | 2.04035 |
| 320.00000 | 1.61170 | .00222 | .02755 | 299.24493 | 286.60437 | 585.84930 | 1.14101 | .89564 | 2.03665 |
| 325.00000 | 1.79574 | .00227 | .02439 | 314.09857 | 275.19427 | 589.29284 | 1.18578 | .84675 | 2.03253 |
| 330.00000 | 1.99482 | .00232 | .02158 | 329.33913 | 262.96521 | 592.30434 | 1.23092 | .79686 | 2.02779 |
| 335.00000 | 2.20987 | .00238 | .01906 | 345.06912 | 249.70930 | 594.77841 | 1.27671 | .74540 | 2.02211 |
| 340.00000 | 2.44191 | .00244 | .01680 | 361.43366 | 235.13172 | 596.56538 | 1.32354 | .69156 | 2.01511 |
| 345.00000 | 2.69203 | .00252 | .01473 | 378.64094 | 218.80312 | 597.44406 | 1.37197 | .63421 | 2.00618 |
| 350.00000 | 2.96147 | .00261 | .01283 | 397.00195 | 200.06412 | 597.06607 | 1.42282 | .57161 | 1.99443 |
| 355.00000 | 3.25161 | .00273 | .01105 | 417.02816 | 177.79527 | 594.82343 | 1.47743 | .50083 | 1.97826 |
| 360.00000 | 3.56399 | .00289 | .00931 | 439.68250 | 149.79669 | 589.47918 | 1.53834 | .41610 | 1.95444 |
| 365.00000 | 3.90033 | .00316 | .00748 | 467.42337 | 110.18592 | 577.60929 | 1.61205 | .30188 | 1.91393 |
| 369.82000 | 4.26259 | .00455 | .00455 | 527.81507 | 0. | 527.81507 | 1.77259 | 0. | 1.77259 |

THERMODYNAMIC PROPERTIES OF PROPANE

| P/(MPA) | | TEMPERATURES/(K) 235.000 | 250.000 | 275.000 | 300.000 | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .42721 | .45757 | .50744 | .55662 | .60533 | .65370 | .70182 | .74975 | .79755 | .84524 |
| | H/(KJ/KG) | 499.7 | 521.7 | 560.4 | 601.6 | 645.4 | 691.9 | 741.2 | 793.2 | 848.0 | 905.6 |
| | S/(KJ/KG K) | 2.1837 | 2.2748 | 2.4222 | 2.5654 | 2.7056 | 2.8434 | 2.9793 | 3.1136 | 3.2465 | 3.3781 |
| | C/(M/SEC) | 220.2769 | 227.5465 | 238.8466 | 249.3519 | 259.2424 | 268.6416 | 277.6368 | 286.2920 | 294.6550 | 302.7627 |
| | KAPPA/(1/MPA) | 10.3864 | 10.3121 | 10.2250 | 10.1671 | 10.1271 | 10.0987 | 10.0778 | 10.0622 | 10.0503 | 10.0410 |
| | BETA/(1000/K) | 4.8 | 4.4 | 3.9 | 3.5 | 3.2 | 3.0 | 2.7 | 2.6 | 2.4 | 2.3 |
| .1013 | V/(M3/KG) | .42140 | .45140 | .50065 | .54922 | .59731 | .64507 | .69257 | .73989 | .78707 | .83414 |
| | H/(KJ/KG) | 499.6 | 521.7 | 560.4 | 601.6 | 645.4 | 691.9 | 741.1 | 793.2 | 848.0 | 905.6 |
| | S/(KJ/KG K) | 2.1810 | 2.2721 | 2.4195 | 2.5628 | 2.7030 | 2.8408 | 2.9767 | 3.1111 | 3.2440 | 3.3756 |
| | C/(M/SEC) | 220.1939 | 227.4766 | 238.7929 | 249.3096 | 259.2085 | 268.6140 | 277.6142 | 286.2732 | 294.6393 | 302.7495 |
| | KAPPA/(1/MPA) | 10.2562 | 10.1817 | 10.0944 | 10.0364 | 9.9964 | 9.9679 | 9.9471 | 9.9315 | 9.9196 | 9.9103 |
| | BETA/(1000/K) | 4.8 | 4.4 | 3.9 | 3.5 | 3.2 | 3.0 | 2.7 | 2.6 | 2.4 | 2.3 |
| .2000 | V/(M3/KG) | .00176 | .22145 | .24790 | .27360 | .29878 | .32360 | .34816 | .37253 | .39676 | .42088 |
| | H/(KJ/KG) | 76.0 | 517.1 | 556.7 | 598.5 | 642.8 | 689.7 | 739.3 | 791.6 | 846.6 | 904.4 |
| | S/(KJ/KG K) | .3444 | 2.1310 | 2.2819 | 2.4275 | 2.5693 | 2.7083 | 2.8450 | 2.9800 | 3.1134 | 3.2454 |
| | C/(M/SEC) | 1168.8581 | 222.0869 | 234.6956 | 246.1086 | 256.6551 | 266.5442 | 275.9151 | 284.8648 | 293.4631 | 301.7619 |
| | KAPPA/(1/MPA) | .0021 | 5.3408 | 5.2392 | 5.1747 | 5.1314 | 5.1012 | 5.0793 | 5.0632 | 5.0509 | 5.0414 |
| | BETA/(1000/K) | 2.2 | 4.9 | 4.2 | 3.7 | 3.3 | 3.1 | 2.8 | 2.6 | 2.4 | 2.3 |
| .3000 | V/(M3/KG) | .00176 | .00182 | .16123 | .17917 | .19654 | .21353 | .23026 | .24678 | .26316 | .27942 |
| | H/(KJ/KG) | 76.1 | 111.9 | 552.7 | 595.3 | 640.2 | 687.5 | 737.4 | 790.0 | 845.2 | 903.1 |
| | S/(KJ/KG K) | .3440 | .4918 | 2.1953 | 2.3435 | 2.4871 | 2.6274 | 2.7650 | 2.9006 | 3.0345 | 3.1669 |
| | C/(M/SEC) | 1169.9052 | 1043.5525 | 230.3263 | 242.7455 | 253.9987 | 264.4055 | 274.1682 | 283.4222 | 292.2620 | 300.7558 |
| | KAPPA/(1/MPA) | .0021 | .0027 | 3.5890 | 3.5164 | 3.4693 | 3.4371 | 3.4143 | 3.3975 | 3.3848 | 3.3751 |
| | BETA/(1000/K) | 2.2 | 2.3 | 4.5 | 3.9 | 3.5 | 3.2 | 2.9 | 2.7 | 2.5 | 2.3 |
| .4000 | V/(M3/KG) | .00176 | .00182 | .11776 | .13188 | .14538 | .15847 | .17129 | .18389 | .19635 | .20869 |
| | H/(KJ/KG) | 76.2 | 112.0 | 548.6 | 592.1 | 637.5 | 685.3 | 735.5 | 788.3 | 843.8 | 901.9 |
| | S/(KJ/KG K) | .3436 | .4914 | 2.1305 | 2.2815 | 2.4270 | 2.5685 | 2.7071 | 2.8435 | 2.9779 | 3.1107 |
| | C/(M/SEC) | 1170.9500 | 1044.7689 | 225.7048 | 239.2502 | 251.2682 | 262.2235 | 272.3954 | 281.9640 | 291.0515 | 299.7443 |
| | KAPPA/(1/MPA) | .0021 | .0026 | 2.7748 | 2.6924 | 2.6409 | 2.6066 | 2.5826 | 2.5651 | 2.5521 | 2.5422 |
| | BETA/(1000/K) | 2.2 | 2.3 | 4.9 | 4.2 | 3.7 | 3.3 | 3.0 | 2.7 | 2.5 | 2.4 |
| .5000 | V/(M3/KG) | .00176 | .00182 | .09155 | .10344 | .11465 | .12542 | .13589 | .14615 | .15626 | .16625 |
| | H/(KJ/KG) | 76.3 | 112.1 | 544.3 | 588.7 | 634.8 | 683.0 | 733.6 | 786.7 | 842.3 | 900.6 |
| | S/(KJ/KG K) | .3432 | .4910 | 2.0771 | 2.2314 | 2.3789 | 2.5218 | 2.6614 | 2.7984 | 2.9334 | 3.0665 |
| | C/(M/SEC) | 1171.9925 | 1045.9821 | 220.7878 | 235.6079 | 248.4580 | 259.9959 | 270.5956 | 280.4897 | 289.8316 | 298.7276 |
| | KAPPA/(1/MPA) | .0021 | .0026 | 2.2976 | 2.2029 | 2.1463 | 2.1096 | 2.0843 | 2.0662 | 2.0527 | 2.0426 |
| | BETA/(1000/K) | 2.2 | 2.3 | 5.4 | 4.4 | 3.8 | 3.4 | 3.0 | 2.8 | 2.6 | 2.4 |
| .6000 | V/(M3/KG) | .00176 | .00182 | .00193 | .08442 | .09412 | .10336 | .11228 | .12098 | .12953 | .13795 |
| | H/(KJ/KG) | 76.3 | 112.2 | 175.3 | 585.2 | 631.9 | 680.7 | 731.6 | 785.0 | 840.9 | 899.3 |
| | S/(KJ/KG K) | .3429 | .4906 | .7313 | 2.1885 | 2.3383 | 2.4827 | 2.6233 | 2.7610 | 2.8965 | 3.0301 |
| | C/(M/SEC) | 1173.0326 | 1047.1921 | 863.8895 | 231.8009 | 245.5616 | 257.7202 | 268.7681 | 278.9991 | 288.6022 | 297.7056 |
| | KAPPA/(1/MPA) | .0021 | .0026 | .0040 | 1.8815 | 1.8189 | 1.7794 | 1.7528 | 1.7339 | 1.7201 | 1.7096 |
| | BETA/(1000/K) | 2.2 | 2.3 | 2.6 | 4.7 | 4.0 | 3.5 | 3.1 | 2.8 | 2.6 | 2.4 |

## THERMODYNAMIC PROPERTIES OF PROPANE

| P/(MPA) | | TEMPERATURES/(K) 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .89285 | .94038 | .98787 | 1.03532 | 1.08273 | 1.13011 | 1.17747 | 1.22480 | 1.27212 | 1.31942 |
| | H/(KJ/KG) | 965.9 | 1028.8 | 1094.4 | 1162.4 | 1232.8 | 1305.4 | 1380.3 | 1457.2 | 1536.0 | 1616.7 |
| | S/(KJ/KG K) | 3.5085 | 3.6376 | 3.7655 | 3.8920 | 4.0171 | 4.1408 | 4.2630 | 4.3837 | 4.5027 | 4.6201 |
| | C/(M/SEC) | 310.6440 | 318.3221 | 325.8161 | 333.1416 | 340.3118 | 347.3380 | 354.2297 | 360.9951 | 367.6414 | 374.1748 |
| | KAPPA/(1/MPA) | 10.0337 | 10.0278 | 10.0231 | 10.0192 | 10.0159 | 10.0132 | 10.0109 | 10.0090 | 10.0073 | 10.0059 |
| | BETA/(1000/K) | 2.1 | 2.0 | 1.9 | 1.8 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 |
| .1013 | V/(M3/KG) | .88113 | .92805 | .97493 | 1.02176 | 1.06855 | 1.11531 | 1.16205 | 1.20877 | 1.25547 | 1.30216 |
| | H/(KJ/KG) | 965.9 | 1028.8 | 1094.4 | 1162.4 | 1232.7 | 1305.4 | 1380.3 | 1457.2 | 1536.0 | 1616.7 |
| | S/(KJ/KG K) | 3.5060 | 3.6351 | 3.7630 | 3.8895 | 4.0146 | 4.1383 | 4.2605 | 4.3812 | 4.5002 | 4.6176 |
| | C/(M/SEC) | 310.6328 | 318.3127 | 325.8081 | 333.1349 | 340.3062 | 347.3333 | 354.2258 | 360.9919 | 367.6389 | 374.1728 |
| | KAPPA/(1/MPA) | 9.9029 | 9.8971 | 9.8923 | 9.8884 | 9.8851 | 9.8824 | 9.8801 | 9.8782 | 9.8765 | 9.8751 |
| | BETA/(1000/K) | 2.1 | 2.0 | 1.9 | 1.8 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 |
| .2000 | V/(M3/KG) | .44492 | .46888 | .49280 | .51667 | .54050 | .56431 | .58809 | .61185 | .63560 | .65932 |
| | H/(KJ/KG) | 964.8 | 1027.9 | 1093.5 | 1161.6 | 1232.0 | 1304.8 | 1379.7 | 1456.6 | 1535.5 | 1616.2 |
| | S/(KJ/KG K) | 3.3761 | 3.5054 | 3.6335 | 3.7601 | 3.8854 | 4.0092 | 4.1315 | 4.2522 | 4.3713 | 4.4888 |
| | C/(M/SEC) | 309.8006 | 317.6101 | 325.2148 | 332.6346 | 339.8858 | 346.9821 | 353.9349 | 360.7541 | 367.4478 | 374.0232 |
| | KAPPA/(1/MPA) | 5.0339 | 5.0280 | 5.0231 | 5.0192 | 5.0159 | 5.0132 | 5.0109 | 5.0089 | 5.0073 | 5.0058 |
| | BETA/(1000/K) | 2.2 | 2.0 | 1.9 | 1.8 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 |
| .3000 | V/(M3/KG) | .29560 | .31171 | .32777 | .34378 | .35976 | .37571 | .39163 | .40754 | .42342 | .43929 |
| | H/(KJ/KG) | 963.7 | 1026.9 | 1092.6 | 1160.8 | 1231.3 | 1304.1 | 1379.0 | 1456.0 | 1535.0 | 1615.8 |
| | S/(KJ/KG K) | 3.2979 | 3.4275 | 3.5557 | 3.6826 | 3.8080 | 3.9319 | 4.0543 | 4.1751 | 4.2942 | 4.4117 |
| | C/(M/SEC) | 308.9545 | 316.8969 | 324.6135 | 332.1283 | 339.4611 | 346.6278 | 353.6421 | 360.5150 | 367.2562 | 373.8737 |
| | KAPPA/(1/MPA) | 3.3675 | 3.3614 | 3.3566 | 3.3526 | 3.3493 | 3.3465 | 3.3442 | 3.3423 | 3.3406 | 3.3391 |
| | BETA/(1000/K) | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 |
| .4000 | V/(M3/KG) | .22094 | .23313 | .24526 | .25734 | .26939 | .28141 | .29341 | .30538 | .31734 | .32928 |
| | H/(KJ/KG) | 962.6 | 1025.9 | 1091.7 | 1159.9 | 1230.5 | 1303.4 | 1378.4 | 1455.5 | 1534.5 | 1615.3 |
| | S/(KJ/KG K) | 3.2419 | 3.3718 | 3.5002 | 3.6272 | 3.7527 | 3.8767 | 3.9992 | 4.1201 | 4.2393 | 4.3569 |
| | C/(M/SEC) | 308.1056 | 316.1828 | 324.0123 | 331.6230 | 339.0377 | 346.2753 | 353.3511 | 360.2780 | 367.0667 | 373.7263 |
| | KAPPA/(1/MPA) | 2.5344 | 2.5282 | 2.5233 | 2.5193 | 2.5159 | 2.5132 | 2.5109 | 2.5089 | 2.5072 | 2.5058 |
| | BETA/(1000/K) | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 |
| .5000 | V/(M3/KG) | .17615 | .18597 | .19575 | .20548 | .21517 | .22483 | .23447 | .24409 | .25369 | .26327 |
| | H/(KJ/KG) | 961.5 | 1024.9 | 1090.8 | 1159.1 | 1229.8 | 1302.7 | 1377.8 | 1454.9 | 1533.9 | 1614.8 |
| | S/(KJ/KG K) | 3.1981 | 3.3282 | 3.4568 | 3.5840 | 3.7097 | 3.8338 | 3.9563 | 4.0773 | 4.1966 | 4.3142 |
| | C/(M/SEC) | 307.2541 | 315.4677 | 323.4113 | 331.1186 | 338.6158 | 345.9246 | 353.0621 | 360.0431 | 366.8793 | 373.5811 |
| | KAPPA/(1/MPA) | 2.0346 | 2.0284 | 2.0234 | 2.0193 | 2.0160 | 2.0132 | 2.0108 | 2.0089 | 2.0072 | 2.0058 |
| | BETA/(1000/K) | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.5 |
| .6000 | V/(M3/KG) | .14628 | .15454 | .16274 | .17090 | .17902 | .18711 | .19518 | .20323 | .21125 | .21927 |
| | H/(KJ/KG) | 960.3 | 1023.9 | 1089.9 | 1158.3 | 1229.1 | 1302.1 | 1377.2 | 1454.3 | 1533.4 | 1614.3 |
| | S/(KJ/KG K) | 3.1620 | 3.2924 | 3.4212 | 3.5485 | 3.6743 | 3.7985 | 3.9212 | 4.0422 | 4.1616 | 4.2792 |
| | C/(M/SEC) | 306.4000 | 314.7517 | 322.8107 | 330.6152 | 338.1955 | 345.5756 | 352.7752 | 359.8103 | 366.6942 | 373.4381 |
| | KAPPA/(1/MPA) | 1.7016 | 1.6952 | 1.6901 | 1.6860 | 1.6826 | 1.6798 | 1.6775 | 1.6755 | 1.6738 | 1.6724 |
| | BETA/(1000/K) | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 |

## THERMODYNAMIC PROPERTIES OF PROPANE

| P/(MPA) | | TEMPERATURES/(K) 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | 1.36671 | 1.41400 | 1.46126 | 1.50852 | 1.55578 | 1.60302 | 1.65026 | 1.69750 | 1.74473 | 1.79195 |
| | H/(KJ/KG) | 1699.2 | 1783.2 | 1868.9 | 1956.0 | 2044.6 | 2134.5 | 2225.8 | 2318.5 | 2412.6 | 2508.1 |
| | S/(KJ/KG K) | 4.7358 | 4.8498 | 4.9621 | 5.0727 | 5.1817 | 5.2891 | 5.3950 | 5.4995 | 5.6026 | 5.7045 |
| | C/(M/SEC) | 380.6005 | 386.9232 | 393.1467 | 399.2742 | 405.3085 | 411.2516 | 417.1052 | 422.8705 | 428.5483 | 434.1391 |
| | KAPPA/(1/MPA) | 10.0046 | 10.0036 | 10.0026 | 10.0018 | 10.0011 | 10.0005 | 9.9999 | 9.9994 | 9.9990 | 9.9986 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | 1.34883 | 1.39550 | 1.44215 | 1.48879 | 1.53543 | 1.58206 | 1.62868 | 1.67530 | 1.72191 | 1.76852 |
| | H/(KJ/KG) | 1699.2 | 1783.2 | 1868.9 | 1956.0 | 2044.6 | 2134.5 | 2225.8 | 2318.5 | 2412.6 | 2508.1 |
| | S/(KJ/KG K) | 4.7333 | 4.8473 | 4.9596 | 5.0703 | 5.1793 | 5.2867 | 5.3925 | 5.4970 | 5.6001 | 5.7020 |
| | C/(M/SEC) | 380.5990 | 386.9221 | 393.1460 | 399.2739 | 405.3085 | 411.2519 | 417.1058 | 422.8714 | 428.5494 | 434.1403 |
| | KAPPA/(1/MPA) | 9.8739 | 9.8728 | 9.8719 | 9.8711 | 9.8703 | 9.8697 | 9.8692 | 9.8686 | 9.8682 | 9.8678 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | .68304 | .70674 | .73044 | .75412 | .77780 | .80147 | .82514 | .84880 | .87245 | .89610 |
| | H/(KJ/KG) | 1698.7 | 1782.8 | 1868.5 | 1955.6 | 2044.2 | 2134.2 | 2225.5 | 2318.2 | 2412.3 | 2507.9 |
| | S/(KJ/KG K) | 4.6045 | 4.7186 | 4.8309 | 4.9416 | 5.0506 | 5.1580 | 5.2639 | 5.3684 | 5.4715 | 5.5735 |
| | C/(M/SEC) | 380.4864 | 386.8426 | 393.0963 | 399.2511 | 405.3100 | 411.2754 | 417.1494 | 422.9333 | 428.6280 | 434.2343 |
| | KAPPA/(1/MPA) | 5.0046 | 5.0035 | 5.0026 | 5.0018 | 5.0011 | 5.0004 | 4.9999 | 4.9994 | 4.9989 | 4.9986 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .3000 | V/(M3/KG) | .45515 | .47100 | .48683 | .50266 | .51848 | .53429 | .55010 | .56590 | .58170 | .59749 |
| | H/(KJ/KG) | 1698.3 | 1782.4 | 1868.1 | 1955.3 | 2043.9 | 2133.9 | 2225.2 | 2317.9 | 2412.1 | 2507.6 |
| | S/(KJ/KG K) | 4.5275 | 4.6416 | 4.7540 | 4.8647 | 4.9737 | 5.0812 | 5.1871 | 5.2916 | 5.3948 | 5.4967 |
| | C/(M/SEC) | 380.3744 | 386.7642 | 393.0480 | 399.2299 | 405.3134 | 411.3012 | 417.1954 | 422.9978 | 428.7094 | 434.3311 |
| | KAPPA/(1/MPA) | 3.3379 | 3.3368 | 3.3359 | 3.3351 | 3.3344 | 3.3337 | 3.3332 | 3.3327 | 3.3323 | 3.3319 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .4000 | V/(M3/KG) | .34121 | .35312 | .36503 | .37693 | .38882 | .40070 | .41258 | .42445 | .43632 | .44818 |
| | H/(KJ/KG) | 1697.8 | 1782.0 | 1867.7 | 1954.9 | 2043.5 | 2133.5 | 2224.9 | 2317.7 | 2411.8 | 2507.4 |
| | S/(KJ/KG K) | 4.4727 | 4.5868 | 4.6993 | 4.8100 | 4.9191 | 5.0266 | 5.1325 | 5.2370 | 5.3402 | 5.4422 |
| | C/(M/SEC) | 380.2645 | 386.6878 | 393.0017 | 399.2108 | 405.3188 | 411.3288 | 417.2432 | 423.0640 | 428.7925 | 434.4295 |
| | KAPPA/(1/MPA) | 2.5046 | 2.5035 | 2.5026 | 2.5017 | 2.5010 | 2.5004 | 2.4998 | 2.4993 | 2.4989 | 2.4985 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .5000 | V/(M3/KG) | .27284 | .28240 | .29195 | .30149 | .31102 | .32055 | .33007 | .33958 | .34909 | .35860 |
| | H/(KJ/KG) | 1697.3 | 1781.6 | 1867.3 | 1954.5 | 2043.2 | 2133.2 | 2224.6 | 2317.4 | 2411.5 | 2507.1 |
| | S/(KJ/KG K) | 4.4301 | 4.5443 | 4.6567 | 4.7675 | 4.8766 | 4.9841 | 5.0901 | 5.1946 | 5.2978 | 5.3998 |
| | C/(M/SEC) | 380.1567 | 386.6135 | 392.9575 | 399.1936 | 405.3261 | 411.3583 | 417.2929 | 423.1320 | 428.8772 | 434.5296 |
| | KAPPA/(1/MPA) | 2.0045 | 2.0034 | 2.0025 | 2.0017 | 2.0010 | 2.0004 | 1.9998 | 1.9993 | 1.9989 | 1.9985 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .6000 | V/(M3/KG) | .22727 | .23525 | .24323 | .25120 | .25916 | .26712 | .27506 | .28301 | .29094 | .29888 |
| | H/(KJ/KG) | 1696.9 | 1781.1 | 1866.9 | 1954.2 | 2042.8 | 2132.9 | 2224.3 | 2317.1 | 2411.3 | 2506.9 |
| | S/(KJ/KG K) | 4.3952 | 4.5094 | 4.6219 | 4.7327 | 4.8418 | 4.9494 | 5.0554 | 5.1599 | 5.2631 | 5.3651 |
| | C/(M/SEC) | 380.0512 | 386.5414 | 392.9154 | 399.1785 | 405.3354 | 411.3897 | 417.3444 | 423.2018 | 428.9636 | 434.6312 |
| | KAPPA/(1/MPA) | 1.6712 | 1.6701 | 1.6692 | 1.6683 | 1.6676 | 1.6670 | 1.6664 | 1.6660 | 1.6655 | 1.6651 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |

## THERMODYNAMIC PROPERTIES OF PROPANE

| P/(MPA) | | TEMPERATURES/(K) 235.000 | 250.000 | 275.000 | 300.000 | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00176 | .00182 | .00193 | .07077 | .07943 | .08759 | .09541 | .10300 | .11043 | .11773 |
| | H/(KJ/KG) | 76.4 | 112.2 | 175.4 | 581.5 | 629.1 | 678.3 | 729.6 | 783.3 | 839.4 | 898.0 |
| | S/(KJ/KG K) | .3425 | .4902 | .7308 | 2.1506 | 2.3028 | 2.4487 | 2.5904 | 2.7289 | 2.8650 | 2.9990 |
| | C/(M/SEC) | 1174.0704 | 1048.3989 | 865.4654 | 227.8077 | 242.5719 | 255.3937 | 266.9116 | 277.4917 | 287.3631 | 296.6783 |
| | KAPPA/(1/MPA) | .0021 | .0026 | .0040 | 1.6569 | 1.5872 | 1.5447 | 1.5165 | 1.4969 | 1.4826 | 1.4719 |
| | BETA/(1000/K) | 2.2 | 2.3 | 2.6 | 5.1 | 4.2 | 3.6 | 3.2 | 2.9 | 2.7 | 2.5 |
| .8000 | V/(M3/KG) | .00176 | .00182 | .00193 | .06048 | .06839 | .07574 | .08274 | .08951 | .09610 | .10257 |
| | H/(KJ/KG) | 76.5 | 112.3 | 175.4 | 577.7 | 626.1 | 675.9 | 727.6 | 781.6 | 837.9 | 896.8 |
| | S/(KJ/KG K) | .3421 | .4898 | .7303 | 2.1161 | 2.2710 | 2.4186 | 2.5613 | 2.7006 | 2.8373 | 2.9717 |
| | C/(M/SEC) | 1175.1059 | 1049.6026 | 867.0354 | 223.6022 | 239.4805 | 253.0135 | 265.0252 | 275.9673 | 286.1144 | 295.6458 |
| | KAPPA/(1/MPA) | .0021 | .0026 | .0040 | 1.4940 | 1.4157 | 1.3697 | 1.3399 | 1.3195 | 1.3047 | 1.2938 |
| | BETA/(1000/K) | 2.2 | 2.3 | 2.6 | 5.5 | 4.4 | 3.8 | 3.3 | 3.0 | 2.7 | 2.5 |
| .9000 | V/(M3/KG) | .00176 | .00182 | .00193 | .05242 | .05977 | .06651 | .07288 | .07901 | .08495 | .09077 |
| | H/(KJ/KG) | 76.6 | 112.4 | 175.5 | 573.7 | 623.0 | 673.4 | 725.6 | 779.9 | 836.5 | 895.5 |
| | S/(KJ/KG K) | .3417 | .4894 | .7298 | 2.0840 | 2.2419 | 2.3913 | 2.5352 | 2.6753 | 2.8125 | 2.9474 |
| | C/(M/SEC) | 1176.1391 | 1050.8031 | 868.5998 | 219.1513 | 236.2779 | 250.5764 | 263.1077 | 274.4254 | 284.8560 | 294.6082 |
| | KAPPA/(1/MPA) | .0021 | .0026 | .0040 | 1.3735 | 1.2846 | 1.2346 | 1.2031 | 1.1818 | 1.1665 | 1.1553 |
| | BETA/(1000/K) | 2.2 | 2.3 | 2.6 | 5.9 | 4.7 | 3.9 | 3.4 | 3.1 | 2.8 | 2.5 |
| 1.0000 | V/(M3/KG) | .00176 | .00182 | .00193 | .04591 | .05284 | .05911 | .06499 | .07060 | .07603 | .08133 |
| | H/(KJ/KG) | 76.7 | 112.5 | 175.6 | 569.5 | 619.8 | 670.9 | 723.5 | 778.1 | 835.0 | 894.2 |
| | S/(KJ/KG K) | .3414 | .4889 | .7293 | 2.0537 | 2.2149 | 2.3662 | 2.5113 | 2.6523 | 2.7901 | 2.9254 |
| | C/(M/SEC) | 1177.1699 | 1052.0005 | 870.1585 | 214.4128 | 232.9531 | 248.0787 | 261.1578 | 272.8657 | 283.5879 | 293.5656 |
| | KAPPA/(1/MPA) | .0021 | .0026 | .0039 | 1.2843 | 1.1821 | 1.1276 | 1.0942 | 1.0719 | 1.0561 | 1.0446 |
| | BETA/(1000/K) | 2.1 | 2.3 | 2.6 | 6.5 | 5.0 | 4.1 | 3.5 | 3.1 | 2.8 | 2.6 |
| 2.0000 | V/(M3/KG) | .00175 | .00181 | .00192 | .00206 | .00226 | .02528 | .02918 | .03262 | .03580 | .03881 |
| | H/(KJ/KG) | 77.6 | 113.3 | 176.1 | 242.5 | 313.9 | 641.7 | 700.6 | 759.4 | 819.2 | 880.6 |
| | S/(KJ/KG K) | .3376 | .4849 | .7244 | .9554 | 1.1836 | 2.1727 | 2.3354 | 2.4871 | 2.6321 | 2.7725 |
| | C/(M/SEC) | 1187.3545 | 1063.8055 | 885.4141 | 719.5929 | 540.8659 | 218.6233 | 239.5595 | 256.2057 | 270.3641 | 282.8816 |
| | KAPPA/(1/MPA) | .0020 | .0025 | .0038 | .0062 | .0130 | .6961 | .6240 | .5868 | .5642 | .5491 |
| | BETA/(1000/K) | 2.1 | 2.2 | 2.5 | 3.1 | 4.6 | 6.7 | 5.0 | 4.0 | 3.4 | 3.0 |
| 3.0000 | V/(M3/KG) | .00175 | .00181 | .00191 | .00205 | .00224 | .00261 | .01674 | .01973 | .02227 | .02457 |
| | H/(KJ/KG) | 78.4 | 114.1 | 176.7 | 242.7 | 312.9 | 396.7 | 671.7 | 737.6 | 801.7 | 866.0 |
| | S/(KJ/KG K) | .3339 | .4809 | .7195 | .9491 | 1.1737 | 1.4218 | 2.1991 | 2.3694 | 2.5247 | 2.6717 |
| | C/(M/SEC) | 1197.3199 | 1075.2909 | 900.1378 | 739.2987 | 570.5822 | 349.5846 | 212.6047 | 237.3652 | 256.2090 | 271.8531 |
| | KAPPA/(1/MPA) | .0020 | .0025 | .0036 | .0058 | .0112 | .0439 | .5189 | .4429 | .4079 | .3876 |
| | BETA/(1000/K) | 2.1 | 2.2 | 2.5 | 3.0 | 4.2 | 10.2 | 8.1 | 5.5 | 4.3 | 3.6 |
| 4.0000 | V/(M3/KG) | .00175 | .00180 | .00191 | .00204 | .00221 | .00252 | .00962 | .01304 | .01541 | .01740 |
| | H/(KJ/KG) | 79.3 | 114.9 | 177.3 | 242.9 | 312.2 | 391.7 | 627.0 | 711.2 | 782.0 | 850.1 |
| | S/(KJ/KG K) | .3303 | .4769 | .7149 | .9431 | 1.1647 | 1.4000 | 2.0454 | 2.2631 | 2.4348 | 2.5907 |
| | C/(M/SEC) | 1207.0756 | 1086.5176 | 914.3717 | 758.0067 | 597.5039 | 402.4934 | 176.2138 | 216.3191 | 241.4775 | 260.8261 |
| | KAPPA/(1/MPA) | .0020 | .0024 | .0035 | .0054 | .0099 | .0283 | .6588 | .3973 | .3377 | .3098 |
| | BETA/(1000/K) | 2.1 | 2.2 | 2.4 | 2.9 | 3.9 | 7.3 | 20.3 | 8.2 | 5.6 | 4.3 |

## THERMODYNAMIC PROPERTIES OF PROPANE

### TEMPERATURES/(K)

| P/(MPA) | | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .12494 | .13208 | .13917 | .14620 | .15320 | .16017 | .16712 | .17404 | .18095 | .18784 |
| | H/(KJ/KG) | 959.2 | 1022.9 | 1089.0 | 1157.5 | 1228.3 | 1301.4 | 1376.6 | 1453.8 | 1532.9 | 1613.8 |
| | S/(KJ/KG K) | 3.1312 | 3.2618 | 3.3908 | 3.5183 | 3.6442 | 3.7686 | 3.8913 | 4.0124 | 4.1318 | 4.2496 |
| | C/(M/SEC) | 305.5434 | 314.0350 | 322.2104 | 330.1130 | 337.7768 | 345.2286 | 352.4904 | 359.5797 | 366.5113 | 373.2973 |
| | KAPPA/(1/MPA) | 1.4637 | 1.4572 | 1.4521 | 1.4480 | 1.4446 | 1.4417 | 1.4394 | 1.4374 | 1.4357 | 1.4343 |
| | BETA/(1000/K) | 2.3 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 |
| .8000 | V/(M3/KG) | .10894 | .11524 | .12148 | .12768 | .13384 | .13997 | .14607 | .15215 | .15821 | .16426 |
| | H/(KJ/KG) | 958.1 | 1021.8 | 1088.1 | 1156.7 | 1227.6 | 1300.7 | 1375.9 | 1453.2 | 1532.3 | 1613.3 |
| | S/(KJ/KG K) | 3.1043 | 3.2351 | 3.3643 | 3.4920 | 3.6180 | 3.7425 | 3.8653 | 3.9865 | 4.1060 | 4.2238 |
| | C/(M/SEC) | 304.6844 | 313.3177 | 321.6106 | 329.6120 | 337.3597 | 344.8836 | 352.2077 | 359.3514 | 366.3307 | 373.1588 |
| | KAPPA/(1/MPA) | 1.2854 | 1.2788 | 1.2736 | 1.2694 | 1.2660 | 1.2632 | 1.2608 | 1.2588 | 1.2571 | 1.2557 |
| | BETA/(1000/K) | 2.3 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 |
| .9000 | V/(M3/KG) | .09649 | .10214 | .10773 | .11327 | .11878 | .12425 | .12970 | .13513 | .14054 | .14593 |
| | H/(KJ/KG) | 956.9 | 1020.8 | 1087.2 | 1155.9 | 1226.8 | 1300.0 | 1375.3 | 1452.6 | 1531.8 | 1612.8 |
| | S/(KJ/KG K) | 3.0803 | 3.2114 | 3.3408 | 3.4686 | 3.5948 | 3.7194 | 3.8423 | 3.9636 | 4.0831 | 4.2010 |
| | C/(M/SEC) | 303.8230 | 312.5999 | 321.0114 | 329.1123 | 336.9444 | 344.5407 | 351.9272 | 359.1254 | 366.1524 | 373.0227 |
| | KAPPA/(1/MPA) | 1.1467 | 1.1401 | 1.1348 | 1.1306 | 1.1271 | 1.1243 | 1.1219 | 1.1199 | 1.1182 | 1.1167 |
| | BETA/(1000/K) | 2.4 | 2.2 | 2.1 | 2.0 | 1.8 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 |
| 1.0000 | V/(M3/KG) | .08653 | .09166 | .09673 | .10175 | .10673 | .11168 | .11660 | .12151 | .12639 | .13126 |
| | H/(KJ/KG) | 955.8 | 1019.8 | 1086.2 | 1155.0 | 1226.1 | 1299.3 | 1374.7 | 1452.0 | 1531.3 | 1612.3 |
| | S/(KJ/KG K) | 3.0586 | 3.1900 | 3.3196 | 3.4476 | 3.5740 | 3.6986 | 3.8217 | 3.9430 | 4.0626 | 4.1805 |
| | C/(M/SEC) | 302.9595 | 311.8815 | 320.4129 | 328.6140 | 336.5310 | 344.1998 | 351.6490 | 358.9017 | 365.9765 | 372.8888 |
| | KAPPA/(1/MPA) | 1.0359 | 1.0291 | 1.0238 | 1.0195 | 1.0160 | 1.0131 | 1.0107 | 1.0087 | 1.0070 | 1.0056 |
| | BETA/(1000/K) | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 |
| 2.0000 | V/(M3/KG) | .04169 | .04448 | .04721 | .04988 | .05252 | .05511 | .05769 | .06023 | .06276 | .06528 |
| | H/(KJ/KG) | 943.9 | 1009.4 | 1077.0 | 1146.7 | 1218.5 | 1292.5 | 1368.4 | 1446.3 | 1526.0 | 1607.4 |
| | S/(KJ/KG K) | 2.9095 | 3.0437 | 3.1756 | 3.3053 | 3.4331 | 3.5589 | 3.6829 | 3.8051 | 3.9254 | 4.0439 |
| | C/(M/SEC) | 294.2304 | 304.7025 | 314.4909 | 323.7298 | 332.5165 | 340.9232 | 349.0049 | 356.8047 | 364.3566 | 371.6877 |
| | KAPPA/(1/MPA) | .5384 | .5305 | .5245 | .5198 | .5160 | .5130 | .5105 | .5084 | .5067 | .5052 |
| | BETA/(1000/K) | 2.7 | 2.5 | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 |
| 3.0000 | V/(M3/KG) | .02671 | .02875 | .03070 | .03260 | .03446 | .03627 | .03806 | .03983 | .04157 | .04330 |
| | H/(KJ/KG) | 931.4 | 998.5 | 1067.4 | 1138.1 | 1210.9 | 1285.5 | 1362.1 | 1440.5 | 1520.7 | 1602.6 |
| | S/(KJ/KG K) | 2.8133 | 2.9508 | 3.0852 | 3.2169 | 3.3462 | 3.4733 | 3.5983 | 3.7213 | 3.8424 | 3.9615 |
| | C/(M/SEC) | 285.4594 | 297.6449 | 308.7802 | 319.1056 | 328.7864 | 337.9409 | 346.6563 | 354.9990 | 363.0204 | 370.7609 |
| | KAPPA/(1/MPA) | .3744 | .3651 | .3584 | .3532 | .3492 | .3460 | .3435 | .3414 | .3396 | .3381 |
| | BETA/(1000/K) | 3.1 | 2.8 | 2.5 | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 |
| 4.0000 | V/(M3/KG) | .01920 | .02087 | .02245 | .02397 | .02544 | .02687 | .02827 | .02964 | .03099 | .03233 |
| | H/(KJ/KG) | 918.2 | 987.2 | 1057.5 | 1129.4 | 1203.1 | 1278.5 | 1355.8 | 1434.7 | 1515.4 | 1597.7 |
| | S/(KJ/KG K) | 2.7379 | 2.8793 | 3.0165 | 3.1504 | 3.2813 | 3.4098 | 3.5359 | 3.6598 | 3.7815 | 3.9012 |
| | C/(M/SEC) | 276.9291 | 290.9310 | 303.4542 | 314.8769 | 325.4474 | 335.3373 | 344.6704 | 353.5384 | 362.0114 | 370.1436 |
| | KAPPA/(1/MPA) | .2935 | .2828 | .2753 | .2698 | .2656 | .2623 | .2596 | .2575 | .2558 | .2543 |
| | BETA/(1000/K) | 3.6 | 3.1 | 2.8 | 2.5 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 | 1.6 |

## THERMODYNAMIC PROPERTIES OF PROPANE

| P/(MPA) | | TEMPERATURES/(K) 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .19471 | .20158 | .20843 | .21528 | .22212 | .22895 | .23577 | .24259 | .24941 | .25622 |
| | H/(KJ/KG) | 1696.4 | 1780.7 | 1866.5 | 1953.8 | 2042.5 | 2132.6 | 2224.0 | 2316.8 | 2411.0 | 2506.6 |
| | S/(KJ/KG K) | 4.3655 | 4.4798 | 4.5924 | 4.7032 | 4.8124 | 4.9199 | 5.0259 | 5.1305 | 5.2337 | 5.3358 |
| | C/(M/SEC) | 379.9479 | 386.4715 | 392.8754 | 399.1655 | 405.3467 | 411.4230 | 417.3977 | 423.2733 | 429.0518 | 434.7345 |
| | KAPPA/(1/MPA) | 1.4330 | 1.4320 | 1.4310 | 1.4302 | 1.4295 | 1.4289 | 1.4283 | 1.4278 | 1.4274 | 1.4270 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .8000 | V/(M3/KG) | .17030 | .17632 | .18233 | .18834 | .19434 | .20032 | .20631 | .21229 | .21826 | .22423 |
| | H/(KJ/KG) | 1696.0 | 1780.3 | 1866.1 | 1953.4 | 2042.1 | 2132.2 | 2223.7 | 2316.5 | 2410.7 | 2506.4 |
| | S/(KJ/KG K) | 4.3398 | 4.4541 | 4.5667 | 4.6776 | 4.7868 | 4.8944 | 5.0004 | 5.1050 | 5.2082 | 5.3103 |
| | C/(M/SEC) | 379.8468 | 386.4038 | 392.8376 | 399.1546 | 405.3600 | 411.4583 | 417.4529 | 423.3466 | 429.1416 | 434.8395 |
| | KAPPA/(1/MPA) | 1.2544 | 1.2533 | 1.2524 | 1.2516 | 1.2509 | 1.2503 | 1.2497 | 1.2492 | 1.2488 | 1.2484 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .9000 | V/(M3/KG) | .15131 | .15668 | .16204 | .16739 | .17273 | .17806 | .18339 | .18871 | .19403 | .19934 |
| | H/(KJ/KG) | 1695.5 | 1779.9 | 1865.7 | 1953.1 | 2041.8 | 2131.9 | 2223.4 | 2316.2 | 2410.5 | 2506.1 |
| | S/(KJ/KG K) | 4.3171 | 4.4314 | 4.5440 | 4.6549 | 4.7642 | 4.8718 | 4.9778 | 5.0824 | 5.1857 | 5.2878 |
| | C/(M/SEC) | 379.7480 | 386.3383 | 392.8020 | 399.1457 | 405.3754 | 411.4955 | 417.5100 | 423.4218 | 429.2332 | 434.9461 |
| | KAPPA/(1/MPA) | 1.1155 | 1.1144 | 1.1135 | 1.1127 | 1.1120 | 1.1114 | 1.1108 | 1.1103 | 1.1099 | 1.1095 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| 1.0000 | V/(M3/KG) | .13612 | .14096 | .14580 | .15062 | .15544 | .16025 | .16506 | .16986 | .17465 | .17944 |
| | H/(KJ/KG) | 1695.1 | 1779.4 | 1865.3 | 1952.7 | 2041.5 | 2131.6 | 2223.1 | 2316.0 | 2410.2 | 2505.9 |
| | S/(KJ/KG K) | 4.2967 | 4.4111 | 4.5237 | 4.6346 | 4.7439 | 4.8515 | 4.9576 | 5.0623 | 5.1655 | 5.2676 |
| | C/(M/SEC) | 379.6515 | 386.2751 | 392.7685 | 399.1390 | 405.3928 | 411.5347 | 417.5690 | 423.4987 | 429.3265 | 435.0544 |
| | KAPPA/(1/MPA) | 1.0044 | 1.0033 | 1.0024 | 1.0015 | 1.0008 | 1.0002 | .9997 | .9992 | .9988 | .9984 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| 2.0000 | V/(M3/KG) | .06778 | .07026 | .07274 | .07521 | .07767 | .08012 | .08257 | .08501 | .08745 | .08988 |
| | H/(KJ/KG) | 1690.6 | 1775.2 | 1861.4 | 1949.0 | 2038.1 | 2128.4 | 2220.1 | 2313.2 | 2407.6 | 2503.4 |
| | S/(KJ/KG K) | 4.1605 | 4.2753 | 4.3884 | 4.4997 | 4.6092 | 4.7171 | 4.8234 | 4.9283 | 5.0318 | 5.1340 |
| | C/(M/SEC) | 378.8203 | 385.7724 | 392.5589 | 399.1921 | 405.6821 | 412.0373 | 418.2645 | 424.3694 | 430.3565 | 436.2295 |
| | KAPPA/(1/MPA) | .5040 | .5029 | .5020 | .5012 | .5005 | .4999 | .4994 | .4989 | .4985 | .4981 |
| | BETA/(1000/K) | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| 3.0000 | V/(M3/KG) | .04501 | .04671 | .04841 | .05009 | .05176 | .05343 | .05509 | .05674 | .05839 | .06004 |
| | H/(KJ/KG) | 1686.0 | 1771.1 | 1857.5 | 1945.4 | 2034.7 | 2125.3 | 2217.2 | 2310.4 | 2405.0 | 2501.0 |
| | S/(KJ/KG K) | 4.0786 | 4.1939 | 4.3073 | 4.4189 | 4.5288 | 4.6370 | 4.7435 | 4.8486 | 4.9522 | 5.0547 |
| | C/(M/SEC) | 378.2529 | 385.5225 | 392.5911 | 399.4759 | 406.1915 | 412.7495 | 419.1597 | 425.4302 | 431.5675 | 437.5770 |
| | KAPPA/(1/MPA) | .3369 | .3358 | .3349 | .3342 | .3335 | .3329 | .3324 | .3319 | .3316 | .3312 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| 4.0000 | V/(M3/KG) | .03365 | .03496 | .03625 | .03754 | .03882 | .04009 | .04136 | .04262 | .04388 | .04513 |
| | H/(KJ/KG) | 1681.6 | 1766.9 | 1853.7 | 1941.9 | 2031.4 | 2122.2 | 2214.3 | 2307.7 | 2402.5 | 2498.7 |
| | S/(KJ/KG K) | 4.0189 | 4.1347 | 4.2485 | 4.3605 | 4.4706 | 4.5791 | 4.6859 | 4.7911 | 4.8950 | 4.9976 |
| | C/(M/SEC) | 377.9780 | 385.5489 | 392.8840 | 400.0061 | 406.9336 | 413.6817 | 420.2631 | 426.6880 | 432.9650 | 439.1012 |
| | KAPPA/(1/MPA) | .2531 | .2521 | .2512 | .2504 | .2498 | .2492 | .2487 | .2483 | .2479 | .2476 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |

THERMODYNAMIC PROPERTIES OF PROPANE

TEMPERATURES/(K)

| P/(MPA) | | 235.000 | 250.000 | 275.000 | 300.000 | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00174 | .00180 | .00190 | .00203 | .00219 | .00246 | .00344 | .00874 | .01121 | .01308 |
| | H/(KJ/KG) | 80.2 | 115.7 | 178.0 | 243.2 | 311.7 | 388.4 | 500.2 | 676.6 | 759.5 | 833.0 |
| | S/(KJ/KG K) | .3267 | .4731 | .7103 | .9373 | 1.1565 | 1.3837 | 1.6909 | 2.1497 | 2.3508 | 2.5190 |
| | C/(M/SEC) | 1216.6308 | 1097.4768 | 928.1555 | 775.8419 | 622.2498 | 444.0421 | 211.3010 | 195.5203 | 227.3465 | 250.4998 |
| | KAPPA/(1/MPA) | .0019 | .0023 | .0033 | .0051 | .0089 | .0213 | .3527 | .4105 | .3028 | .2650 |
| | BETA/(1000/K) | 2.0 | 2.1 | 2.4 | 2.8 | 3.6 | 5.9 | 44.0 | 14.0 | 7.4 | 5.3 |
| 6.0000 | V/(M3/KG) | .00174 | .00179 | .00190 | .00202 | .00217 | .00241 | .00294 | .00576 | .00837 | .01020 |
| | H/(KJ/KG) | 81.2 | 116.6 | 178.7 | 243.6 | 311.4 | 386.2 | 476.2 | 630.8 | 733.8 | 814.5 |
| | S/(KJ/KG K) | .3232 | .4693 | .7059 | .9318 | 1.1489 | 1.3703 | 1.6186 | 2.0175 | 2.2676 | 2.4523 |
| | C/(M/SEC) | 1225.9842 | 1108.1860 | 941.5248 | 792.9129 | 645.2407 | 479.2057 | 295.6777 | 189.3770 | 216.8231 | 242.1130 |
| | KAPPA/(1/MPA) | .0019 | .0023 | .0032 | .0049 | .0081 | .0172 | .0802 | .3988 | .2801 | .2346 |
| | BETA/(1000/K) | 2.0 | 2.1 | 2.3 | 2.7 | 3.4 | 5.1 | 13.9 | 23.4 | 10.0 | 6.4 |
| 7.0000 | V/(M3/KG) | .00174 | .00179 | .00189 | .00201 | .00216 | .00237 | .00277 | .00418 | .00642 | .00817 |
| | H/(KJ/KG) | 82.1 | 117.4 | 179.4 | 244.0 | 311.3 | 384.5 | 467.2 | 589.5 | 706.2 | 795.1 |
| | S/(KJ/KG K) | .3197 | .4655 | .7016 | .9265 | 1.1417 | 1.3588 | 1.5870 | 1.9020 | 2.1854 | 2.3888 |
| | C/(M/SEC) | 1235.1678 | 1118.6590 | 954.5078 | 809.2835 | 666.7765 | 510.1382 | 350.6460 | 213.5541 | 214.9846 | 237.4401 |
| | KAPPA/(1/MPA) | .0018 | .0022 | .0031 | .0046 | .0075 | .0145 | .0451 | .2381 | .2462 | .2086 |
| | BETA/(1000/K) | 2.0 | 2.1 | 2.3 | 2.6 | 3.2 | 4.6 | 9.1 | 22.0 | 12.4 | 7.6 |
| 8.0000 | V/(M3/KG) | .00173 | .00179 | .00188 | .00200 | .00214 | .00234 | .00267 | .00351 | .00515 | .00672 |
| | H/(KJ/KG) | 83.0 | 118.3 | 180.1 | 244.5 | 311.2 | 383.3 | 461.8 | 564.9 | 680.3 | 775.6 |
| | S/(KJ/KG K) | .3163 | .4619 | .6973 | .9214 | 1.1350 | 1.3485 | 1.5653 | 1.8308 | 2.1109 | 2.3292 |
| | C/(M/SEC) | 1244.1780 | 1128.9084 | 967.1329 | 825.0333 | 687.0902 | 537.9990 | 393.9824 | 253.3298 | 224.4435 | 238.1313 |
| | KAPPA/(1/MPA) | .0018 | .0022 | .0030 | .0044 | .0069 | .0126 | .0315 | .1249 | .1932 | .1809 |
| | BETA/(1000/K) | 2.0 | 2.0 | 2.2 | 2.5 | 3.1 | 4.1 | 7.0 | 15.5 | 13.2 | 8.5 |
| 9.0000 | V/(M3/KG) | .00173 | .00178 | .00188 | .00199 | .00213 | .00231 | .00260 | .00319 | .00436 | .00569 |
| | H/(KJ/KG) | 83.9 | 119.2 | 180.8 | 245.0 | 311.3 | 382.4 | 458.1 | 550.7 | 659.1 | 757.4 |
| | S/(KJ/KG K) | .3129 | .4582 | .6932 | .9164 | 1.1286 | 1.3393 | 1.5484 | 1.7872 | 2.0500 | 2.2749 |
| | C/(M/SEC) | 1253.0135 | 1138.9538 | 979.4240 | 840.2208 | 706.3405 | 563.5147 | 430.6542 | 295.4591 | 242.2580 | 244.5504 |
| | KAPPA/(1/MPA) | .0018 | .0021 | .0029 | .0042 | .0065 | .0112 | .0243 | .0737 | .1415 | .1512 |
| | BETA/(1000/K) | 1.9 | 2.0 | 2.2 | 2.5 | 2.9 | 3.8 | 5.9 | 11.0 | 12.4 | 9.0 |
| 10.0000 | V/(M3/KG) | .00173 | .00178 | .00187 | .00198 | .00211 | .00229 | .00254 | .00300 | .00387 | .00497 |
| | H/(KJ/KG) | 84.9 | 120.1 | 181.6 | 245.5 | 311.4 | 381.7 | 455.4 | 541.9 | 642.9 | 741.3 |
| | S/(KJ/KG K) | .3095 | .4547 | .6891 | .9116 | 1.1225 | 1.3308 | 1.5344 | 1.7574 | 2.0023 | 2.2274 |
| | C/(M/SEC) | 1261.7046 | 1148.7684 | 991.3987 | 854.8909 | 724.6735 | 587.1318 | 462.8859 | 334.4660 | 265.1883 | 255.6364 |
| | KAPPA/(1/MPA) | .0017 | .0021 | .0028 | .0040 | .0060 | .0100 | .0198 | .0496 | .1022 | .1231 |
| | BETA/(1000/K) | 1.9 | 2.0 | 2.1 | 2.4 | 2.8 | 3.6 | 5.1 | 8.5 | 10.9 | 8.9 |

THERMODYNAMIC PROPERTIES OF PROPANE

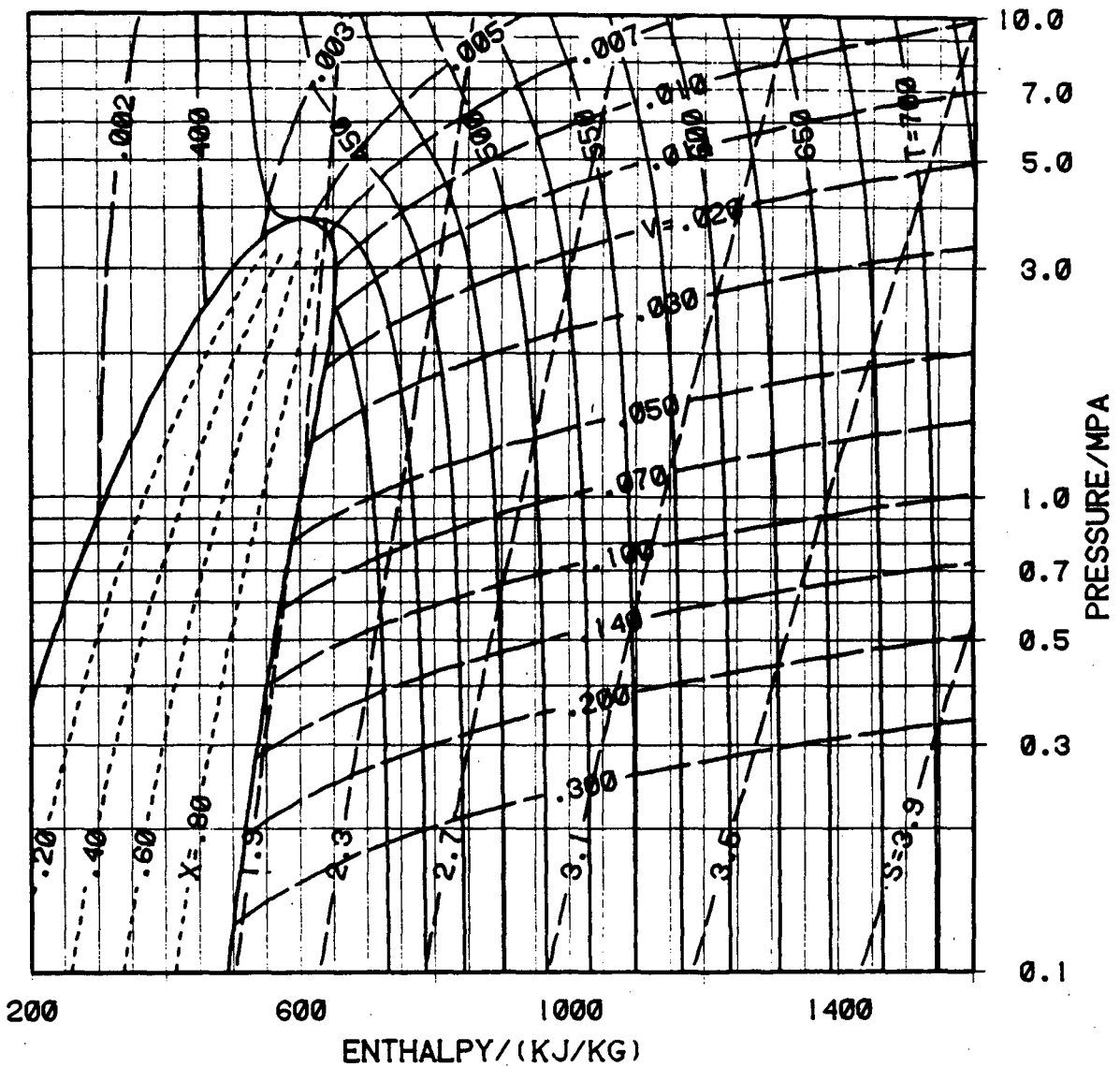
TEMPERATURES/(K)

| P/(MPA) | | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .01469 | .01616 | .01752 | .01881 | .02004 | .02124 | .02240 | .02354 | .02466 | .02576 |
| | H/(KJ/KG) | 904.3 | 975.4 | 1047.4 | 1120.5 | 1195.2 | 1271.5 | 1349.4 | 1429.0 | 1510.1 | 1592.9 |
| | S/(KJ/KG K) | 2.6732 | 2.8191 | 2.9595 | 3.0957 | 3.2285 | 3.3583 | 3.4855 | 3.6103 | 3.7329 | 3.8532 |
| | C/(M/SEC) | 269.0922 | 284.8702 | 298.7325 | 311.2039 | 322.6188 | 333.2032 | 343.1170 | 352.4772 | 361.3721 | 369.8693 |
| | KAPPA/(1/MPA) | .2453 | .2333 | .2251 | .2193 | .2150 | .2117 | .2090 | .2069 | .2052 | .2038 |
| | BETA/(1000/K) | 4.2 | 3.5 | 3.0 | 2.7 | 2.4 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 |
| 6.0000 | V/(M3/KG) | .01170 | .01302 | .01424 | .01538 | .01646 | .01750 | .01851 | .01949 | .02045 | .02139 |
| | H/(KJ/KG) | 889.7 | 963.3 | 1037.0 | 1111.6 | 1187.3 | 1264.4 | 1343.1 | 1423.2 | 1504.9 | 1588.1 |
| | S/(KJ/KG K) | 2.6148 | 2.7660 | 2.9098 | 3.0485 | 3.1832 | 3.3145 | 3.4428 | 3.5686 | 3.6919 | 3.8129 |
| | C/(M/SEC) | 262.6072 | 279.8601 | 294.8742 | 308.2642 | 320.4268 | 331.6304 | 342.0643 | 351.8668 | 361.1415 | 369.9679 |
| | KAPPA/(1/MPA) | .2125 | .1996 | .1911 | .1852 | .1808 | .1775 | .1750 | .1729 | .1712 | .1699 |
| | BETA/(1000/K) | 4.8 | 3.9 | 3.3 | 2.9 | 2.6 | 2.3 | 2.1 | 2.0 | 1.9 | 1.7 |
| 7.0000 | V/(M3/KG) | .00958 | .01081 | .01192 | .01295 | .01392 | .01484 | .01574 | .01661 | .01745 | .01828 |
| | H/(KJ/KG) | 874.6 | 951.0 | 1026.6 | 1102.6 | 1179.4 | 1257.4 | 1336.8 | 1417.5 | 1499.7 | 1583.4 |
| | S/(KJ/KG K) | 2.5609 | 2.7176 | 2.8652 | 3.0065 | 3.1431 | 3.2759 | 3.4055 | 3.5322 | 3.6563 | 3.7779 |
| | C/(M/SEC) | 258.3018 | 276.3569 | 292.1574 | 306.2391 | 318.9950 | 330.7057 | 341.5748 | 351.7528 | 361.3536 | 370.4648 |
| | KAPPA/(1/MPA) | .1871 | .1743 | .1660 | .1602 | .1559 | .1527 | .1503 | .1483 | .1467 | .1454 |
| | BETA/(1000/K) | 5.4 | 4.3 | 3.6 | 3.1 | 2.7 | 2.5 | 2.2 | 2.1 | 1.9 | 1.8 |
| 8.0000 | V/(M3/KG) | .00804 | .00918 | .01020 | .01114 | .01203 | .01287 | .01368 | .01446 | .01522 | .01596 |
| | H/(KJ/KG) | 859.5 | 938.7 | 1016.2 | 1093.6 | 1171.6 | 1250.5 | 1330.6 | 1411.9 | 1494.7 | 1578.7 |
| | S/(KJ/KG K) | 2.5105 | 2.6730 | 2.8244 | 2.9684 | 3.1070 | 3.2413 | 3.3721 | 3.4997 | 3.6246 | 3.7469 |
| | C/(M/SEC) | 256.9871 | 274.8002 | 290.8428 | 305.2934 | 318.4324 | 330.5040 | 341.7009 | 352.1726 | 362.0350 | 371.3790 |
| | KAPPA/(1/MPA) | .1648 | .1537 | .1460 | .1407 | .1367 | .1337 | .1314 | .1296 | .1281 | .1269 |
| | BETA/(1000/K) | 6.0 | 4.7 | 3.8 | 3.3 | 2.9 | 2.6 | 2.3 | 2.1 | 2.0 | 1.8 |
| 9.0000 | V/(M3/KG) | .00689 | .00794 | .00889 | .00976 | .01057 | .01135 | .01209 | .01280 | .01349 | .01417 |
| | H/(KJ/KG) | 844.7 | 926.5 | 1006.0 | 1084.8 | 1163.8 | 1243.6 | 1324.4 | 1406.4 | 1489.7 | 1574.2 |
| | S/(KJ/KG K) | 2.4639 | 2.6317 | 2.7868 | 2.9334 | 3.0740 | 3.2098 | 3.3417 | 3.4704 | 3.5960 | 3.7190 |
| | C/(M/SEC) | 259.1409 | 275.5024 | 291.1264 | 305.5527 | 318.8219 | 331.0809 | 342.4807 | 353.1523 | 363.2036 | 372.7227 |
| | KAPPA/(1/MPA) | .1437 | .1356 | .1294 | .1247 | .1212 | .1185 | .1164 | .1147 | .1134 | .1123 |
| | BETA/(1000/K) | 6.5 | 5.0 | 4.1 | 3.4 | 3.0 | 2.7 | 2.4 | 2.2 | 2.0 | 1.9 |
| 10.0000 | V/(M3/KG) | .00603 | .00699 | .00787 | .00867 | .00943 | .01014 | .01083 | .01148 | .01212 | .01274 |
| | H/(KJ/KG) | 830.9 | 914.9 | 996.1 | 1076.2 | 1156.3 | 1237.0 | 1318.5 | 1401.0 | 1484.8 | 1569.7 |
| | S/(KJ/KG K) | 2.4212 | 2.5935 | 2.7519 | 2.9011 | 3.0435 | 3.1808 | 3.3139 | 3.4434 | 3.5699 | 3.6934 |
| | C/(M/SEC) | 264.6850 | 278.5531 | 293.0977 | 307.0837 | 320.2099 | 332.4680 | 343.9351 | 354.7054 | 364.8680 | 374.5007 |
| | KAPPA/(1/MPA) | .1236 | .1193 | .1149 | .1112 | .1083 | .1060 | .1041 | .1026 | .1014 | .1004 |
| | BETA/(1000/K) | 6.7 | 5.2 | 4.3 | 3.6 | 3.1 | 2.7 | 2.5 | 2.2 | 2.1 | 1.9 |

THERMODYNAMIC PROPERTIES OF PROPANE

TEMPERATURES/(K)

| P/(MPA) | | 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .02684 | .02791 | .02897 | .03003 | .03107 | .03211 | .03314 | .03416 | .03518 | .03619 |
| | H/(KJ/KG) | 1677.1 | 1762.8 | 1849.9 | 1938.3 | 2028.1 | 2119.1 | 2211.4 | 2305.1 | 2400.0 | 2496.3 |
| | S/(KJ/KG K) | 3.9714 | 4.0876 | 4.2019 | 4.3142 | 4.4246 | 4.5333 | 4.6404 | 4.7459 | 4.8499 | 4.9527 |
| | C/(M/SEC) | 378.0220 | 385.8724 | 393.4546 | 400.7959 | 407.9190 | 414.8424 | 421.5811 | 428.1479 | 434.5530 | 440.8051 |
| | KAPPA/(1/MPA) | .2026 | .2016 | .2008 | .2000 | .1994 | .1989 | .1984 | .1980 | .1977 | .1974 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 |
| 6.0000 | V/(M3/KG) | .02232 | .02323 | .02413 | .02503 | .02591 | .02679 | .02766 | .02853 | .02939 | .03025 |
| | H/(KJ/KG) | 1672.7 | 1758.8 | 1846.2 | 1934.9 | 2024.9 | 2116.1 | 2208.7 | 2302.5 | 2397.6 | 2494.1 |
| | S/(KJ/KG K) | 3.9317 | 4.0483 | 4.1630 | 4.2756 | 4.3864 | 4.4954 | 4.6027 | 4.7084 | 4.8126 | 4.9155 |
| | C/(M/SEC) | 378.4080 | 386.5111 | 394.3164 | 401.8560 | 409.1559 | 416.2375 | 423.1184 | 429.8132 | 436.3338 | 442.6903 |
| | KAPPA/(1/MPA) | .1687 | .1678 | .1670 | .1663 | .1657 | .1652 | .1648 | .1644 | .1641 | .1638 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| 7.0000 | V/(M3/KG) | .01909 | .01989 | .02068 | .02146 | .02224 | .02300 | .02376 | .02451 | .02526 | .02600 |
| | H/(KJ/KG) | 1668.4 | 1754.8 | 1842.5 | 1931.5 | 2021.7 | 2113.2 | 2205.9 | 2299.9 | 2395.2 | 2491.9 |
| | S/(KJ/KG K) | 3.8973 | 4.0144 | 4.1294 | 4.2424 | 4.3535 | 4.4628 | 4.5703 | 4.6762 | 4.7806 | 4.8837 |
| | C/(M/SEC) | 379.1550 | 387.4789 | 395.4800 | 403.1940 | 410.6497 | 417.8710 | 424.8775 | 431.6853 | 438.3080 | 444.7567 |
| | KAPPA/(1/MPA) | .1443 | .1434 | .1427 | .1420 | .1415 | .1410 | .1406 | .1403 | .1400 | .1397 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| 8.0000 | V/(M3/KG) | .01669 | .01740 | .01811 | .01880 | .01949 | .02017 | .02084 | .02151 | .02217 | .02283 |
| | H/(KJ/KG) | 1664.1 | 1750.9 | 1838.9 | 1928.1 | 2018.6 | 2110.4 | 2203.3 | 2297.5 | 2392.9 | 2489.7 |
| | S/(KJ/KG K) | 3.8668 | 3.9844 | 4.0998 | 4.2132 | 4.3246 | 4.4341 | 4.5418 | 4.6480 | 4.7526 | 4.8559 |
| | C/(M/SEC) | 380.2766 | 388.7855 | 396.9520 | 404.8142 | 412.4031 | 419.7441 | 426.8585 | 433.7638 | 440.4745 | 447.0029 |
| | KAPPA/(1/MPA) | .1259 | .1250 | .1243 | .1237 | .1232 | .1228 | .1224 | .1221 | .1218 | .1216 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| 9.0000 | V/(M3/KG) | .01482 | .01547 | .01611 | .01674 | .01736 | .01797 | .01857 | .01918 | .01977 | .02036 |
| | H/(KJ/KG) | 1660.0 | 1747.1 | 1835.4 | 1924.9 | 2015.6 | 2107.6 | 2200.7 | 2295.1 | 2390.7 | 2487.7 |
| | S/(KJ/KG K) | 3.8394 | 3.9575 | 4.0733 | 4.1870 | 4.2987 | 4.4084 | 4.5164 | 4.6227 | 4.7275 | 4.8310 |
| | C/(M/SEC) | 381.7807 | 390.4358 | 398.7351 | 406.7178 | 414.4158 | 421.8558 | 429.0599 | 436.0465 | 442.8308 | 449.4259 |
| | KAPPA/(1/MPA) | .1114 | .1106 | .1100 | .1094 | .1090 | .1086 | .1082 | .1079 | .1077 | .1075 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.2 |
| 10.0000 | V/(M3/KG) | .01334 | .01394 | .01452 | .01509 | .01566 | .01622 | .01677 | .01732 | .01786 | .01840 |
| | H/(KJ/KG) | 1655.9 | 1743.3 | 1831.9 | 1921.7 | 2012.7 | 2104.9 | 2198.2 | 2292.7 | 2388.5 | 2485.7 |
| | S/(KJ/KG K) | 3.8144 | 3.9329 | 4.0491 | 4.1632 | 4.2751 | 4.3852 | 4.4934 | 4.5999 | 4.7049 | 4.8085 |
| | C/(M/SEC) | 383.6696 | 392.4301 | 400.8282 | 408.9025 | 416.6851 | 424.2028 | 431.4780 | 438.5295 | 445.3731 | 452.0220 |
| | KAPPA/(1/MPA) | .0996 | .0989 | .0983 | .0979 | .0974 | .0971 | .0968 | .0965 | .0963 | .0961 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 |


10.0
7.0
5.0
3.0
1.0
0.7
0.5
0.3
0.1
PRESSURE/MPA
200
600
1000
1400
ENTHALPY/(KJ/KG)
.002
.003
.005
.007
.010
.020
.030
.050
.070
.100
.140
.200
.300
400
450
500
550
600
650
700
V=.020
X=.80
.20
.40
.60
1.9
2.3
2.7
3.1
3.5
3.9

BUTANE

PROPERTIES OF SATURATED BUTANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 275.00000 | .11210 | .00170 | .33465 | 109.82799 | 385.46085 | 495.28885 | .45576 | 1.40168 | 1.85743 |
| 280.00000 | .13474 | .00171 | .28160 | 121.80466 | 380.44113 | 502.24579 | .49878 | 1.35872 | 1.85749 |
| 285.00000 | .16075 | .00173 | .23851 | 133.95070 | 375.25556 | 509.20626 | .54161 | 1.31669 | 1.85830 |
| 290.00000 | .19045 | .00175 | .20323 | 146.26113 | 369.90515 | 516.16629 | .58425 | 1.27554 | 1.85979 |
| 295.00000 | .22416 | .00176 | .17415 | 158.73143 | 364.39039 | 523.12183 | .62668 | 1.23522 | 1.86191 |
| 300.00000 | .26221 | .00178 | .15002 | 171.35683 | 358.71177 | 530.06860 | .66890 | 1.19571 | 1.86460 |
| 305.00000 | .30494 | .00180 | .12986 | 184.13252 | 352.86953 | 537.00205 | .71088 | 1.15695 | 1.86783 |
| 310.00000 | .35267 | .00182 | .11293 | 197.05388 | 346.86337 | 543.91725 | .75262 | 1.11891 | 1.87153 |
| 315.00000 | .40576 | .00184 | .09861 | 210.11714 | 340.69159 | 550.80873 | .79411 | 1.08156 | 1.87567 |
| 320.00000 | .46455 | .00186 | .08645 | 223.31676 | 334.35406 | 557.67082 | .83534 | 1.04486 | 1.88020 |
| 325.00000 | .52941 | .00188 | .07605 | 236.65289 | 327.84336 | 564.49625 | .87631 | 1.00875 | 1.88506 |
| 330.00000 | .60069 | .00191 | .06712 | 250.12266 | 321.15491 | 571.27758 | .91703 | .97320 | 1.89023 |
| 335.00000 | .67876 | .00193 | .05942 | 263.72620 | 314.27967 | 578.00588 | .95749 | .93815 | 1.89564 |
| 340.00000 | .76400 | .00196 | .05274 | 277.46560 | 307.20517 | 584.67077 | .99771 | .90354 | 1.90126 |
| 345.00000 | .85681 | .00198 | .04693 | 291.34532 | 299.91469 | 591.26001 | 1.03770 | .86932 | 1.90702 |
| 350.00000 | .95757 | .00201 | .04184 | 305.37285 | 292.38621 | 597.75906 | 1.07749 | .83539 | 1.91288 |
| 355.00000 | 1.06672 | .00204 | .03736 | 319.55933 | 284.59109 | 604.15041 | 1.11711 | .80167 | 1.91877 |
| 360.00000 | 1.18468 | .00207 | .03341 | 333.92044 | 276.49243 | 610.41286 | 1.15660 | .76803 | 1.92464 |
| 365.00000 | 1.31192 | .00211 | .02991 | 348.47754 | 268.04283 | 616.52037 | 1.19603 | .73436 | 1.93039 |
| 370.00000 | 1.44893 | .00214 | .02680 | 363.25925 | 259.18127 | 622.44052 | 1.23546 | .70049 | 1.93595 |
| 375.00000 | 1.59623 | .00218 | .02401 | 378.30268 | 249.83001 | 628.13269 | 1.27499 | .66621 | 1.94120 |
| 380.00000 | 1.75437 | .00223 | .02150 | 393.65825 | 239.88583 | 633.54408 | 1.31474 | .63128 | 1.94602 |
| 385.00000 | 1.92396 | .00227 | .01923 | 409.39067 | 229.21547 | 638.60614 | 1.35487 | .59536 | 1.95024 |
| 390.00000 | 2.10565 | .00233 | .01717 | 425.58785 | 217.63793 | 643.22579 | 1.39559 | .55805 | 1.95364 |
| 395.00000 | 2.30016 | .00239 | .01528 | 442.36973 | 204.90298 | 647.27271 | 1.43718 | .51874 | 1.95592 |
| 400.00000 | 2.50826 | .00246 | .01354 | 459.90479 | 190.65105 | 650.55584 | 1.48002 | .47663 | 1.95665 |
| 405.00000 | 2.73082 | .00255 | .01190 | 478.44352 | 174.33219 | 652.77571 | 1.52469 | .43045 | 1.95514 |
| 410.00000 | 2.96879 | .00266 | .01034 | 498.39033 | 155.02447 | 653.41480 | 1.57212 | .37811 | 1.95023 |
| 415.00000 | 3.22321 | .00280 | .00880 | 520.49585 | 130.93594 | 651.43178 | 1.62402 | .31551 | 1.93953 |
| 420.00000 | 3.49526 | .00305 | .00717 | 546.61010 | 97.41184 | 644.02194 | 1.68466 | .23193 | 1.91659 |
| 425.18000 | 3.78623 | .00438 | .00438 | 602.35542 | 0. | 602.35542 | 1.81404 | 0. | 1.81404 |

THERMODYNAMIC PROPERTIES OF BUTANE

| P/(MPA) | | TEMPERATURES/(K) 275.000 | 300.000 | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .37720 | .41617 | .45431 | .49187 | .52903 | .56591 | .60258 | .63908 | .67547 | .71176 |
| | H/(KJ/KG) | 496.0 | 537.9 | 582.2 | 629.2 | 678.8 | 731.1 | 786.1 | 843.6 | 903.7 | 966.3 |
| | S/(KJ/KG K) | 1.8756 | 2.0213 | 2.1632 | 2.3024 | 2.4393 | 2.5743 | 2.7075 | 2.8391 | 2.9691 | 3.0974 |
| | C/(M/SEC) | 201.0858 | 211.1999 | 220.5057 | 229.2158 | 237.4636 | 245.3380 | 252.9009 | 260.1974 | 267.2612 | 274.1184 |
| | KAPPA/(1/MPA) | 10.4474 | 10.3222 | 10.2401 | 10.1837 | 10.1436 | 10.1142 | 10.0921 | 10.0751 | 10.0619 | 10.0513 |
| | BETA/(1000/K) | 4.2 | 3.7 | 3.3 | 3.0 | 2.8 | 2.6 | 2.4 | 2.3 | 2.2 | 2.0 |
| .1013 | V/(M3/KG) | .37204 | .41056 | .44822 | .48532 | .52202 | .55843 | .59462 | .63066 | .66658 | .70240 |
| | H/(KJ/KG) | 495.9 | 537.8 | 582.2 | 629.1 | 678.8 | 731.1 | 786.0 | 843.6 | 903.7 | 966.3 |
| | S/(KJ/KG K) | 1.8735 | 2.0193 | 2.1612 | 2.3004 | 2.4373 | 2.5724 | 2.7056 | 2.8372 | 2.9672 | 3.0955 |
| | C/(M/SEC) | 200.9894 | 211.1262 | 220.4477 | 229.1692 | 237.4255 | 245.3065 | 252.8747 | 260.1752 | 267.2424 | 274.1024 |
| | KAPPA/(1/MPA) | 10.3174 | 10.1918 | 10.1095 | 10.0531 | 10.0129 | 9.9835 | 9.9614 | 9.9444 | 9.9311 | 9.9206 |
| | BETA/(1000/K) | 4.2 | 3.7 | 3.3 | 3.0 | 2.8 | 2.6 | 2.4 | 2.3 | 2.2 | 2.0 |
| .2000 | V/(M3/KG) | .00169 | .20119 | .22159 | .24135 | .26067 | .27970 | .29849 | .31713 | .33563 | .35404 |
| | H/(KJ/KG) | 109.9 | 533.2 | 578.4 | 626.0 | 676.2 | 728.9 | 784.1 | 841.9 | 902.2 | 965.0 |
| | S/(KJ/KG K) | .4555 | 1.9108 | 2.0557 | 2.1968 | 2.3351 | 2.4711 | 2.6051 | 2.7373 | 2.8676 | 2.9963 |
| | C/(M/SEC) | 1011.9704 | 205.4273 | 216.0116 | 225.6301 | 234.5496 | 242.9359 | 250.8985 | 258.5134 | 265.8353 | 272.9049 |
| | KAPPA/(1/MPA) | .0024 | 5.3529 | 5.2564 | 5.1930 | 5.1491 | 5.1176 | 5.0943 | 5.0765 | 5.0628 | 5.0520 |
| | BETA/(1000/K) | 1.9 | 4.1 | 3.6 | 3.2 | 2.9 | 2.7 | 2.5 | 2.3 | 2.2 | 2.1 |
| .3000 | V/(M3/KG) | .00169 | .00178 | .14385 | .15774 | .17116 | .18425 | .19711 | .20979 | .22235 | .23480 |
| | H/(KJ/KG) | 110.0 | 171.4 | 574.4 | 622.8 | 673.5 | 726.6 | 782.2 | 840.2 | 900.7 | 963.6 |
| | S/(KJ/KG K) | .4551 | .6688 | 1.9888 | 2.1321 | 2.2719 | 2.4090 | 2.5438 | 2.6765 | 2.8073 | 2.9364 |
| | C/(M/SEC) | 1013.0681 | 865.8893 | 211.2546 | 221.8922 | 231.5430 | 240.4756 | 248.8587 | 256.8052 | 264.3937 | 271.6812 |
| | KAPPA/(1/MPA) | .0024 | .0033 | 3.6087 | 3.5366 | 3.4884 | 3.4546 | 3.4299 | 3.4113 | 3.3971 | 3.3859 |
| | BETA/(1000/K) | 1.9 | 2.1 | 3.9 | 3.5 | 3.1 | 2.8 | 2.6 | 2.4 | 2.2 | 2.1 |
| .4000 | V/(M3/KG) | .00169 | .00178 | .10485 | .11586 | .12635 | .13650 | .14639 | .15611 | .16569 | .17517 |
| | H/(KJ/KG) | 110.1 | 171.4 | 570.3 | 619.4 | 670.7 | 724.2 | 780.2 | 838.5 | 899.2 | 962.3 |
| | S/(KJ/KG K) | .4548 | .6684 | 1.9383 | 2.0840 | 2.2254 | 2.3636 | 2.4992 | 2.6326 | 2.7639 | 2.8932 |
| | C/(M/SEC) | 1014.1633 | 867.2497 | 206.1900 | 217.9841 | 228.4362 | 237.9536 | 246.7800 | 255.0720 | 262.9361 | 270.4474 |
| | KAPPA/(1/MPA) | .0024 | .0033 | 2.7979 | 2.7150 | 2.6616 | 2.6251 | 2.5989 | 2.5795 | 2.5647 | 2.5532 |
| | BETA/(1000/K) | 1.9 | 2.1 | 4.3 | 3.7 | 3.3 | 2.9 | 2.7 | 2.5 | 2.3 | 2.2 |
| .5000 | V/(M3/KG) | .00169 | .00178 | .08131 | .09066 | .09943 | .10782 | .11595 | .12389 | .13169 | .13939 |
| | H/(KJ/KG) | 110.1 | 171.5 | 565.8 | 615.9 | 667.8 | 721.9 | 778.1 | 836.7 | 897.7 | 960.9 |
| | S/(KJ/KG K) | .4545 | .6680 | 1.8963 | 2.0448 | 2.1880 | 2.3274 | 2.4638 | 2.5978 | 2.7296 | 2.8593 |
| | C/(M/SEC) | 1015.2558 | 868.6060 | 200.7593 | 213.8842 | 225.2201 | 235.3661 | 244.6606 | 253.3132 | 261.4622 | 269.2034 |
| | KAPPA/(1/MPA) | .0024 | .0033 | 2.3250 | 2.2282 | 2.1688 | 2.1292 | 2.1014 | 2.0811 | 2.0657 | 2.0539 |
| | BETA/(1000/K) | 1.9 | 2.1 | 4.8 | 4.0 | 3.4 | 3.1 | 2.8 | 2.5 | 2.4 | 2.2 |
| .6000 | V/(M3/KG) | .00169 | .00178 | .00188 | .07379 | .08144 | .08867 | .09563 | .10240 | .10902 | .11553 |
| | H/(KJ/KG) | 110.2 | 171.6 | 236.7 | 612.3 | 664.9 | 719.4 | 776.1 | 835.0 | 896.1 | 959.5 |
| | S/(KJ/KG K) | .4542 | .6676 | .8760 | 2.0111 | 2.1562 | 2.2969 | 2.4342 | 2.5689 | 2.7011 | 2.8312 |
| | C/(M/SEC) | 1016.3459 | 869.9580 | 732.9620 | 209.5659 | 221.8845 | 232.7088 | 242.4988 | 251.5279 | 259.9717 | 267.9493 |
| | KAPPA/(1/MPA) | .0024 | .0033 | .0049 | 1.9101 | 1.8434 | 1.8004 | 1.7707 | 1.7494 | 1.7334 | 1.7212 |
| | BETA/(1000/K) | 1.9 | 2.1 | 2.4 | 4.3 | 3.6 | 3.2 | 2.9 | 2.6 | 2.4 | 2.2 |

THERMODYNAMIC PROPERTIES OF BUTANE

| P/(MPA) | | TEMPERATURES/(K) 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .74797 | .78413 | .82023 | .85630 | .89233 | .92834 | .96432 | 1.00028 | 1.03622 |
| | H/(KJ/KG) | 1031.2 | 1098.5 | 1167.9 | 1239.5 | 1313.2 | 1388.8 | 1466.3 | 1545.7 | 1626.9 |
| | S/(KJ/KG K) | 3.2241 | 3.3492 | 3.4727 | 3.5946 | 3.7148 | 3.8335 | 3.9505 | 4.0660 | 4.1799 |
| | C/(M/SEC) | 280.7901 | 287.2932 | 293.6419 | 299.8480 | 305.9219 | 311.8723 | 317.7072 | 323.4334 | 329.0571 |
| | KAPPA/(1/MPA) | 10.0429 | 10.0360 | 10.0303 | 10.0255 | 10.0215 | 10.0181 | 10.0153 | 10.0128 | 10.0107 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 |
| .1013 | V/(M3/KG) | .73815 | .77384 | .80947 | .84507 | .88064 | .91617 | .95169 | .98718 | 1.02266 |
| | H/(KJ/KG) | 1031.2 | 1098.5 | 1167.9 | 1239.5 | 1313.2 | 1388.8 | 1466.3 | 1545.7 | 1626.9 |
| | S/(KJ/KG K) | 3.2222 | 3.3473 | 3.4708 | 3.5927 | 3.7129 | 3.8316 | 3.9486 | 4.0641 | 4.1780 |
| | C/(M/SEC) | 280.7764 | 287.2815 | 293.6318 | 299.8394 | 305.9145 | 311.8660 | 317.7019 | 323.4289 | 329.0533 |
| | KAPPA/(1/MPA) | 9.9121 | 9.9052 | 9.8995 | 9.8947 | 9.8908 | 9.8874 | 9.8845 | 9.8820 | 9.8799 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 |
| .2000 | V/(M3/KG) | .37238 | .39065 | .40887 | .42706 | .44520 | .46333 | .48142 | .49950 | .51756 |
| | H/(KJ/KG) | 1030.0 | 1097.4 | 1167.0 | 1238.6 | 1312.4 | 1388.1 | 1465.6 | 1545.1 | 1626.3 |
| | S/(KJ/KG K) | 3.1233 | 3.2486 | 3.3723 | 3.4943 | 3.6147 | 3.7334 | 3.8505 | 3.9661 | 4.0800 |
| | C/(M/SEC) | 279.7535 | 286.4056 | 292.8811 | 299.1961 | 305.3642 | 311.3969 | 317.3039 | 323.0937 | 328.7740 |
| | KAPPA/(1/MPA) | 5.0433 | 5.0362 | 5.0304 | 5.0256 | 5.0216 | 5.0182 | 5.0153 | 5.0128 | 5.0107 |
| | BETA/(1000/K) | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 |
| .3000 | V/(M3/KG) | .24718 | .25949 | .27175 | .28397 | .29616 | .30832 | .32046 | .33257 | .34467 |
| | H/(KJ/KG) | 1028.8 | 1096.3 | 1166.0 | 1237.7 | 1311.5 | 1387.3 | 1465.0 | 1544.4 | 1625.7 |
| | S/(KJ/KG K) | 3.0636 | 3.1892 | 3.3130 | 3.4352 | 3.5557 | 3.6745 | 3.7917 | 3.9073 | 4.0213 |
| | C/(M/SEC) | 278.7105 | 285.5143 | 292.1185 | 298.5437 | 304.8070 | 310.9225 | 316.9021 | 322.7560 | 328.4929 |
| | KAPPA/(1/MPA) | 3.3770 | 3.3698 | 3.3639 | 3.3591 | 3.3550 | 3.3515 | 3.3486 | 3.3461 | 3.3440 |
| | BETA/(1000/K) | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.5 | 1.4 |
| .4000 | V/(M3/KG) | .18457 | .19391 | .20319 | .21243 | .22164 | .23082 | .23998 | .24911 | .25823 |
| | H/(KJ/KG) | 1027.6 | 1095.2 | 1165.0 | 1236.9 | 1310.7 | 1386.6 | 1464.3 | 1543.8 | 1625.1 |
| | S/(KJ/KG K) | 3.0208 | 3.1466 | 3.2706 | 3.3929 | 3.5135 | 3.6324 | 3.7497 | 3.8654 | 3.9795 |
| | C/(M/SEC) | 277.6614 | 284.6195 | 291.3542 | 297.8910 | 304.2504 | 310.4493 | 316.5020 | 322.4202 | 328.2141 |
| | KAPPA/(1/MPA) | 2.5441 | 2.5368 | 2.5308 | 2.5258 | 2.5217 | 2.5182 | 2.5153 | 2.5128 | 2.5106 |
| | BETA/(1000/K) | 2.0 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 |
| .5000 | V/(M3/KG) | .14700 | .15455 | .16205 | .16951 | .17693 | .18432 | .19169 | .19904 | .20637 |
| | H/(KJ/KG) | 1026.4 | 1094.2 | 1164.0 | 1236.0 | 1309.9 | 1385.8 | 1463.6 | 1543.1 | 1624.5 |
| | S/(KJ/KG K) | 2.9872 | 3.1132 | 3.2374 | 3.3598 | 3.4806 | 3.5996 | 3.7170 | 3.8328 | 3.9469 |
| | C/(M/SEC) | 276.6061 | 283.7213 | 290.5885 | 297.2380 | 303.6944 | 309.9775 | 316.1036 | 322.0864 | 327.9375 |
| | KAPPA/(1/MPA) | 2.0445 | 2.0370 | 2.0309 | 2.0259 | 2.0217 | 2.0182 | 2.0153 | 2.0128 | 2.0106 |
| | BETA/(1000/K) | 2.1 | 1.9 | 1.8 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 |
| .6000 | V/(M3/KG) | .12196 | .12832 | .13462 | .14089 | .14712 | .15332 | .15950 | .16565 | .17179 |
| | H/(KJ/KG) | 1025.2 | 1093.1 | 1163.0 | 1235.1 | 1309.1 | 1385.0 | 1462.9 | 1542.5 | 1623.9 |
| | S/(KJ/KG K) | 2.9594 | 3.0856 | 3.2100 | 3.3326 | 3.4535 | 3.5726 | 3.6901 | 3.8059 | 3.9202 |
| | C/(M/SEC) | 275.5447 | 282.8199 | 289.8213 | 296.5850 | 303.1393 | 309.5072 | 315.7071 | 321.7548 | 327.6632 |
| | KAPPA/(1/MPA) | 1.7116 | 1.7040 | 1.6978 | 1.6927 | 1.6885 | 1.6849 | 1.6819 | 1.6794 | 1.6772 |
| | BETA/(1000/K) | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 |

THERMODYNAMIC PROPERTIES OF BUTANE

| P/(MPA) | | TEMPERATURES/(K) 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | 1.07215 | 1.10807 | 1.14397 | 1.17987 | 1.21576 | 1.25164 | 1.28751 | 1.32337 | 1.35923 |
| | H/(KJ/KG) | 1709.7 | 1794.2 | 1880.3 | 1968.0 | 2057.1 | 2147.7 | 2239.6 | 2332.9 | 2427.5 |
| | S/(KJ/KG K) | 4.2922 | 4.4031 | 4.5124 | 4.6203 | 4.7267 | 4.8317 | 4.9353 | 5.0376 | 5.1385 |
| | C/(M/SEC) | 334.5839 | 340.0188 | 345.3664 | 350.6310 | 355.8164 | 360.9263 | 365.9641 | 370.9328 | 375.8354 |
| | KAPPA/(1/MPA) | 10.0088 | 10.0072 | 10.0058 | 10.0046 | 10.0035 | 10.0025 | 10.0016 | 10.0009 | 10.0002 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | 1.05812 | 1.09357 | 1.12901 | 1.16443 | 1.19985 | 1.23526 | 1.27067 | 1.30607 | 1.34146 |
| | H/(KJ/KG) | 1709.7 | 1794.2 | 1880.3 | 1968.0 | 2057.1 | 2147.7 | 2239.6 | 2332.9 | 2427.5 |
| | S/(KJ/KG K) | 4.2903 | 4.4012 | 4.5105 | 4.6184 | 4.7248 | 4.8298 | 4.9334 | 5.0357 | 5.1366 |
| | C/(M/SEC) | 334.5808 | 340.0163 | 345.3644 | 350.6295 | 355.8154 | 360.9257 | 365.9638 | 370.9328 | 375.8357 |
| | KAPPA/(1/MPA) | 9.8781 | 9.8764 | 9.8750 | 9.8738 | 9.8727 | 9.8717 | 9.8708 | 9.8701 | 9.8694 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | .53560 | .55363 | .57166 | .58967 | .60767 | .62566 | .64365 | .66163 | .67961 |
| | H/(KJ/KG) | 1709.2 | 1793.7 | 1879.8 | 1967.5 | 2056.7 | 2147.3 | 2239.2 | 2332.6 | 2427.2 |
| | S/(KJ/KG K) | 4.1924 | 4.3033 | 4.4127 | 4.5206 | 4.6271 | 4.7321 | 4.8357 | 4.9380 | 5.0390 |
| | C/(M/SEC) | 334.3512 | 339.8313 | 345.2196 | 350.5209 | 355.7396 | 360.8798 | 365.9451 | 370.9390 | 375.8648 |
| | KAPPA/(1/MPA) | 5.0088 | 5.0072 | 5.0058 | 5.0045 | 5.0034 | 5.0025 | 5.0016 | 5.0008 | 5.0001 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .3000 | V/(M3/KG) | .35676 | .36883 | .38089 | .39294 | .40497 | .41701 | .42903 | .44105 | .45306 |
| | H/(KJ/KG) | 1708.6 | 1793.2 | 1879.4 | 1967.1 | 2056.2 | 2146.9 | 2238.9 | 2332.2 | 2426.8 |
| | S/(KJ/KG K) | 4.1338 | 4.2447 | 4.3542 | 4.4621 | 4.5686 | 4.6737 | 4.7773 | 4.8796 | 4.9806 |
| | C/(M/SEC) | 334.1207 | 339.6461 | 345.0750 | 350.4131 | 355.6651 | 360.8355 | 365.9284 | 370.9475 | 375.8963 |
| | KAPPA/(1/MPA) | 3.3421 | 3.3405 | 3.3391 | 3.3378 | 3.3367 | 3.3357 | 3.3349 | 3.3341 | 3.3334 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .4000 | V/(M3/KG) | .26733 | .27642 | .28550 | .29457 | .30363 | .31268 | .32173 | .33076 | .33980 |
| | H/(KJ/KG) | 1708.1 | 1792.7 | 1878.9 | 1966.6 | 2055.8 | 2146.5 | 2238.5 | 2331.9 | 2426.5 |
| | S/(KJ/KG K) | 4.0920 | 4.2030 | 4.3125 | 4.4205 | 4.5270 | 4.6321 | 4.7358 | 4.8381 | 4.9391 |
| | C/(M/SEC) | 333.8925 | 339.4632 | 344.9329 | 350.3077 | 355.5929 | 360.7935 | 365.9139 | 370.9582 | 375.9301 |
| | KAPPA/(1/MPA) | 2.5087 | 2.5071 | 2.5057 | 2.5044 | 2.5033 | 2.5024 | 2.5015 | 2.5007 | 2.5001 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .5000 | V/(M3/KG) | .21368 | .22098 | .22827 | .23555 | .24282 | .25009 | .25734 | .26459 | .27183 |
| | H/(KJ/KG) | 1707.5 | 1792.2 | 1878.4 | 1966.1 | 2055.4 | 2146.1 | 2238.1 | 2331.5 | 2426.2 |
| | S/(KJ/KG K) | 4.0595 | 4.1705 | 4.2800 | 4.3880 | 4.4946 | 4.5997 | 4.7035 | 4.8058 | 4.9068 |
| | C/(M/SEC) | 333.6667 | 339.2828 | 344.7933 | 350.2048 | 355.5232 | 360.7539 | 365.9018 | 370.9711 | 375.9659 |
| | KAPPA/(1/MPA) | 2.0087 | 2.0071 | 2.0056 | 2.0044 | 2.0033 | 2.0023 | 2.0015 | 2.0007 | 2.0000 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .6000 | V/(M3/KG) | .17791 | .18402 | .19012 | .19621 | .20229 | .20836 | .21442 | .22048 | .22653 |
| | H/(KJ/KG) | 1706.9 | 1791.6 | 1877.9 | 1965.7 | 2055.0 | 2145.7 | 2237.7 | 2331.1 | 2425.8 |
| | S/(KJ/KG K) | 4.0328 | 4.1439 | 4.2534 | 4.3615 | 4.4681 | 4.5732 | 4.6770 | 4.7793 | 4.8804 |
| | C/(M/SEC) | 333.4433 | 339.1049 | 344.6561 | 350.1043 | 355.4559 | 360.7167 | 365.8920 | 370.9863 | 376.0040 |
| | KAPPA/(1/MPA) | 1.6753 | 1.6737 | 1.6723 | 1.6710 | 1.6699 | 1.6690 | 1.6681 | 1.6673 | 1.6667 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |

THERMODYNAMIC PROPERTIES OF BUTANE

| P/(MPA) | | TEMPERATURES/(K) 275.000 | 300.000 | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00169 | .00178 | .00188 | .06167 | .06855 | .07498 | .08111 | .08704 | .09282 | .09848 |
| | H/(KJ/KG) | 110.3 | 171.6 | 236.7 | 608.5 | 661.9 | 716.9 | 774.0 | 833.1 | 894.5 | 958.2 |
| | S/(KJ/KG K) | .4538 | .6672 | .8755 | 1.9810 | 2.1282 | 2.2703 | 2.4086 | 2.5439 | 2.6766 | 2.8072 |
| | C/(M/SEC) | 1017.4333 | 871.3059 | 734.6754 | 204.9962 | 218.4176 | 229.9769 | 240.2925 | 249.7155 | 258.4646 | 266.6849 |
| | KAPPA/(1/MPA) | .0024 | .0033 | .0049 | 1.6898 | 1.6141 | 1.5671 | 1.5355 | 1.5130 | 1.4964 | 1.4838 |
| | BETA/(1000/K) | 1.9 | 2.1 | 2.4 | 4.7 | 3.9 | 3.3 | 3.0 | 2.7 | 2.5 | 2.3 |
| .8000 | V/(M3/KG) | .00169 | .00178 | .00188 | .05252 | .05885 | .06469 | .07021 | .07551 | .08066 | .08569 |
| | H/(KJ/KG) | 110.4 | 171.7 | 236.8 | 604.5 | 658.8 | 714.4 | 771.8 | 831.3 | 893.0 | 956.8 |
| | S/(KJ/KG K) | .4535 | .6669 | .8751 | 1.9533 | 2.1030 | 2.2465 | 2.3858 | 2.5218 | 2.6551 | 2.7860 |
| | C/(M/SEC) | 1018.5183 | 872.6497 | 736.3815 | 200.1331 | 214.8051 | 227.1651 | 238.0397 | 247.8751 | 256.9404 | 265.4103 |
| | KAPPA/(1/MPA) | .0023 | .0033 | .0048 | 1.5322 | 1.4453 | 1.3937 | 1.3598 | 1.3362 | 1.3189 | 1.3059 |
| | BETA/(1000/K) | 1.9 | 2.1 | 2.4 | 5.1 | 4.1 | 3.5 | 3.1 | 2.8 | 2.5 | 2.3 |
| .9000 | V/(M3/KG) | .00169 | .00178 | .00188 | .04533 | .05127 | .05666 | .06172 | .06654 | .07120 | .07575 |
| | H/(KJ/KG) | 110.5 | 171.8 | 236.8 | 600.3 | 655.5 | 711.8 | 769.6 | 829.5 | 891.4 | 955.4 |
| | S/(KJ/KG K) | .4532 | .6665 | .8746 | 1.9273 | 2.0797 | 2.2248 | 2.3652 | 2.5019 | 2.6358 | 2.7671 |
| | C/(M/SEC) | 1019.6007 | 873.9893 | 738.0805 | 194.9219 | 211.0305 | 224.2675 | 235.7381 | 246.0059 | 255.3990 | 264.1256 |
| | KAPPA/(1/MPA) | .0023 | .0033 | .0048 | 1.4187 | 1.3175 | 1.2605 | 1.2241 | 1.1992 | 1.1812 | 1.1677 |
| | BETA/(1000/K) | 1.9 | 2.1 | 2.4 | 5.6 | 4.4 | 3.7 | 3.2 | 2.8 | 2.6 | 2.4 |
| 1.0000 | V/(M3/KG) | .00169 | .00178 | .00188 | .00201 | .04518 | .05023 | .05491 | .05936 | .06363 | .06778 |
| | H/(KJ/KG) | 110.5 | 171.8 | 236.8 | 305.4 | 652.2 | 709.1 | 767.4 | 827.6 | 889.7 | 953.9 |
| | S/(KJ/KG K) | .4529 | .6661 | .8742 | 1.0772 | 2.0579 | 2.2048 | 2.3463 | 2.4838 | 2.6182 | 2.7499 |
| | C/(M/SEC) | 1011.9060 | 869.9163 | 739.7722 | 603.0296 | 207.0739 | 221.2773 | 233.3852 | 244.1070 | 253.8401 | 262.8307 |
| | KAPPA/(1/MPA) | .0023 | .0032 | .0048 | .0078 | 1.2190 | 1.1555 | 1.1163 | 1.0900 | 1.0712 | 1.0573 |
| | BETA/(1000/K) | 1.9 | 2.1 | 2.4 | 3.0 | 4.7 | 3.9 | 3.3 | 2.9 | 2.6 | 2.4 |
| 2.0000 | V/(M3/KG) | .00169 | .00177 | .00187 | .00200 | .00217 | .02049 | .02391 | .02681 | .02943 | .03188 |
| | H/(KJ/KG) | 111.3 | 172.5 | 237.3 | 305.3 | 377.8 | 676.4 | 742.2 | 807.0 | 872.4 | 939.0 |
| | S/(KJ/KG K) | .4497 | .6624 | .8697 | 1.0714 | 1.2714 | 2.0427 | 2.2023 | 2.3504 | 2.4918 | 2.6285 |
| | C/(M/SEC) | 1031.3441 | 888.4404 | 756.2603 | 624.9129 | 481.2170 | 183.7791 | 206.3130 | 223.2710 | 237.2498 | 249.3442 |
| | KAPPA/(1/MPA) | .0023 | .0031 | .0045 | .0071 | .0137 | .7768 | .6669 | .6154 | .5852 | .5654 |
| | BETA/(1000/K) | 1.9 | 2.1 | 2.3 | 2.9 | 4.0 | 7.5 | 5.2 | 4.1 | 3.4 | 3.0 |
| 3.0000 | V/(M3/KG) | .00168 | .00177 | .00186 | .00198 | .00214 | .00242 | .01273 | .01561 | .01785 | .01981 |
| | H/(KJ/KG) | 112.2 | 173.2 | 237.7 | 305.4 | 376.9 | 457.6 | 706.5 | 781.7 | 852.4 | 922.5 |
| | S/(KJ/KG K) | .4465 | .6589 | .8654 | 1.0658 | 1.2631 | 1.4711 | 2.0767 | 2.2487 | 2.4016 | 2.5453 |
| | C/(M/SEC) | 1041.7459 | 901.1800 | 772.0806 | 645.4208 | 510.5578 | 345.5395 | 168.3849 | 198.2814 | 218.8164 | 235.0534 |
| | KAPPA/(1/MPA) | .0022 | .0030 | .0043 | .0066 | .0118 | .0326 | .6498 | .4944 | .4383 | .4085 |
| | BETA/(1000/K) | 1.9 | 2.0 | 2.3 | 2.7 | 3.6 | 6.8 | 11.0 | 6.3 | 4.7 | 3.8 |
| 4.0000 | V/(M3/KG) | .00168 | .00176 | .00186 | .00197 | .00212 | .00235 | .00312 | .00955 | .01190 | .01371 |
| | H/(KJ/KG) | 113.0 | 173.9 | 238.2 | 305.5 | 376.2 | 454.2 | 558.1 | 747.1 | 828.7 | 904.0 |
| | S/(KJ/KG K) | .4434 | .6553 | .8613 | 1.0606 | 1.2557 | 1.4568 | 1.7082 | 2.1444 | 2.3210 | 2.4754 |
| | C/(M/SEC) | 1051.9434 | 913.5603 | 787.2957 | 664.7811 | 537.0259 | 389.5946 | 302.9872 | 168.7297 | 199.1891 | 220.6120 |
| | KAPPA/(1/MPA) | .0022 | .0029 | .0041 | .0061 | .0104 | .0235 | .3314 | .5112 | .3827 | .3361 |
| | BETA/(1000/K) | 1.8 | 2.0 | 2.2 | 2.6 | 3.4 | 5.4 | 37.2 | 12.1 | 6.7 | 4.9 |

## THERMODYNAMIC PROPERTIES OF BUTANE

### TEMPERATURES/(K)

| P/(MPA) | | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .10406 | .10957 | .11503 | .12045 | .12583 | .13118 | .13650 | .14181 | .14709 |
| | H/(KJ/KG) | 1024.0 | 1092.0 | 1162.0 | 1234.2 | 1308.3 | 1384.3 | 1462.2 | 1541.9 | 1623.3 |
| | S/(KJ/KG K) | 2.9356 | 3.0620 | 3.1866 | 3.3094 | 3.4304 | 3.5497 | 3.6672 | 3.7831 | 3.8974 |
| | C/(M/SEC) | 274.4774 | 281.9153 | 289.0530 | 295.9321 | 302.5852 | 309.0383 | 315.3126 | 321.4254 | 327.3913 |
| | KAPPA/(1/MPA) | 1.4740 | 1.4662 | 1.4599 | 1.4547 | 1.4504 | 1.4469 | 1.4439 | 1.4413 | 1.4391 |
| | BETA/(1000/K) | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 |
| .8000 | V/(M3/KG) | .09064 | .09552 | .10034 | .10512 | .10986 | .11457 | .11926 | .12392 | .12857 |
| | H/(KJ/KG) | 1022.7 | 1090.8 | 1161.0 | 1233.2 | 1307.4 | 1383.5 | 1461.5 | 1541.2 | 1622.7 |
| | S/(KJ/KG K) | 2.9147 | 3.0414 | 3.1662 | 3.2892 | 3.4103 | 3.5297 | 3.6473 | 3.7633 | 3.8777 |
| | C/(M/SEC) | 273.4043 | 281.0078 | 288.2836 | 295.2794 | 302.0321 | 308.5712 | 314.9202 | 321.0984 | 327.1218 |
| | KAPPA/(1/MPA) | 1.2958 | 1.2879 | 1.2814 | 1.2762 | 1.2719 | 1.2683 | 1.2653 | 1.2627 | 1.2605 |
| | BETA/(1000/K) | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 |
| .9000 | V/(M3/KG) | .08020 | .08458 | .08891 | .09319 | .09744 | .10165 | .10584 | .11001 | .11417 |
| | H/(KJ/KG) | 1021.5 | 1089.7 | 1160.0 | 1232.3 | 1306.6 | 1382.8 | 1460.8 | 1540.6 | 1622.1 |
| | S/(KJ/KG K) | 2.8961 | 3.0231 | 3.1481 | 3.2711 | 3.3924 | 3.5119 | 3.6296 | 3.7457 | 3.8601 |
| | C/(M/SEC) | 272.3255 | 280.0974 | 287.5133 | 294.6270 | 301.4803 | 308.1059 | 314.5299 | 320.7737 | 326.8550 |
| | KAPPA/(1/MPA) | 1.1574 | 1.1492 | 1.1427 | 1.1374 | 1.1331 | 1.1294 | 1.1264 | 1.1238 | 1.1216 |
| | BETA/(1000/K) | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 |
| 1.0000 | V/(M3/KG) | .07184 | .07583 | .07976 | .08365 | .08750 | .09132 | .09511 | .09889 | .10264 |
| | H/(KJ/KG) | 1020.2 | 1088.6 | 1159.0 | 1231.4 | 1305.8 | 1382.0 | 1460.1 | 1539.9 | 1621.5 |
| | S/(KJ/KG K) | 2.8793 | 3.0065 | 3.1317 | 3.2549 | 3.3763 | 3.4959 | 3.6137 | 3.7299 | 3.8444 |
| | C/(M/SEC) | 271.2411 | 279.1844 | 286.7422 | 293.9752 | 300.9299 | 307.6425 | 314.1419 | 320.4516 | 326.5907 |
| | KAPPA/(1/MPA) | 1.0467 | 1.0384 | 1.0318 | 1.0264 | 1.0220 | 1.0183 | 1.0153 | 1.0127 | 1.0104 |
| | BETA/(1000/K) | 2.2 | 2.1 | 2.0 | 1.8 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 |
| 2.0000 | V/(M3/KG) | .03420 | .03644 | .03860 | .04072 | .04279 | .04483 | .04684 | .04883 | .05080 |
| | H/(KJ/KG) | 1007.2 | 1077.0 | 1148.7 | 1222.1 | 1297.3 | 1374.3 | 1453.0 | 1533.4 | 1615.5 |
| | S/(KJ/KG K) | 2.7615 | 2.8915 | 3.0189 | 3.1439 | 3.2667 | 3.3874 | 3.5062 | 3.6232 | 3.7384 |
| | C/(M/SEC) | 260.1308 | 269.9531 | 279.0335 | 287.5242 | 295.5337 | 303.1424 | 310.4114 | 317.3881 | 324.1100 |
| | KAPPA/(1/MPA) | .5515 | .5412 | .5334 | .5272 | .5223 | .5184 | .5151 | .5123 | .5100 |
| | BETA/(1000/K) | 2.7 | 2.4 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 |
| 3.0000 | V/(M3/KG) | .02160 | .02328 | .02487 | .02641 | .02790 | .02935 | .03077 | .03216 | .03354 |
| | H/(KJ/KG) | 993.1 | 1064.8 | 1137.8 | 1212.4 | 1288.6 | 1366.4 | 1445.8 | 1526.8 | 1609.4 |
| | S/(KJ/KG K) | 2.6831 | 2.8165 | 2.9465 | 3.0734 | 3.1978 | 3.3199 | 3.4397 | 3.5576 | 3.6735 |
| | C/(M/SEC) | 248.7446 | 260.7339 | 271.4991 | 281.3394 | 290.4548 | 298.9858 | 307.0350 | 314.6798 | 321.9794 |
| | KAPPA/(1/MPA) | .3899 | .3772 | .3680 | .3611 | .3557 | .3515 | .3480 | .3452 | .3428 |
| | BETA/(1000/K) | 3.2 | 2.8 | 2.5 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 | 1.6 |
| 4.0000 | V/(M3/KG) | .01527 | .01669 | .01801 | .01926 | .02046 | .02162 | .02274 | .02384 | .02492 |
| | H/(KJ/KG) | 977.8 | 1051.8 | 1126.6 | 1202.5 | 1279.7 | 1358.4 | 1438.6 | 1520.2 | 1603.3 |
| | S/(KJ/KG K) | 2.6196 | 2.7572 | 2.8902 | 3.0194 | 3.1455 | 3.2689 | 3.3899 | 3.5087 | 3.6253 |
| | C/(M/SEC) | 237.6157 | 251.9436 | 264.4631 | 275.6738 | 285.8917 | 295.3295 | 304.1376 | 312.4265 | 320.2792 |
| | KAPPA/(1/MPA) | .3114 | .2959 | .2854 | .2778 | .2720 | .2676 | .2640 | .2612 | .2588 |
| | BETA/(1000/K) | 3.9 | 3.3 | 2.8 | 2.5 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 |

THERMODYNAMIC PROPERTIES OF BUTANE

| P/(MPA) | | TEMPERATURES/(K) 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .15236 | .15762 | .16287 | .16810 | .17333 | .17855 | .18376 | .18897 | .19417 |
| | H/(KJ/KG) | 1706.4 | 1791.1 | 1877.4 | 1965.2 | 2054.5 | 2145.3 | 2237.4 | 2330.8 | 2425.5 |
| | S/(KJ/KG K) | 4.0101 | 4.1212 | 4.2308 | 4.3389 | 4.4456 | 4.5507 | 4.6545 | 4.7569 | 4.8580 |
| | C/(M/SEC) | 333.2224 | 338.9295 | 344.5214 | 350.0063 | 355.3911 | 360.6820 | 365.8845 | 371.0038 | 376.0442 |
| | KAPPA/(1/MPA) | 1.4372 | 1.4356 | 1.4341 | 1.4329 | 1.4318 | 1.4308 | 1.4300 | 1.4292 | 1.4285 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .8000 | V/(M3/KG) | .13320 | .13782 | .14243 | .14703 | .15162 | .15620 | .16077 | .16534 | .16990 |
| | H/(KJ/KG) | 1705.8 | 1790.6 | 1876.9 | 1964.8 | 2054.1 | 2144.9 | 2237.0 | 2330.4 | 2425.2 |
| | S/(KJ/KG K) | 3.9904 | 4.1016 | 4.2112 | 4.3193 | 4.4260 | 4.5312 | 4.6350 | 4.7374 | 4.8385 |
| | C/(M/SEC) | 333.0041 | 338.7566 | 344.3894 | 349.9109 | 355.3288 | 360.6496 | 365.8794 | 371.0235 | 376.0867 |
| | KAPPA/(1/MPA) | 1.2586 | 1.2570 | 1.2555 | 1.2543 | 1.2532 | 1.2522 | 1.2514 | 1.2506 | 1.2499 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .9000 | V/(M3/KG) | .11830 | .12242 | .12654 | .13064 | .13473 | .13881 | .14289 | .14696 | .15102 |
| | H/(KJ/KG) | 1705.3 | 1790.1 | 1876.4 | 1964.3 | 2053.7 | 2144.5 | 2236.6 | 2330.1 | 2424.9 |
| | S/(KJ/KG K) | 3.9729 | 4.0841 | 4.1938 | 4.3020 | 4.4087 | 4.5139 | 4.6178 | 4.7202 | 4.8213 |
| | C/(M/SEC) | 332.7884 | 338.5865 | 344.2599 | 349.8181 | 355.2690 | 360.6197 | 365.8767 | 371.0456 | 376.1314 |
| | KAPPA/(1/MPA) | 1.1197 | 1.1180 | 1.1166 | 1.1153 | 1.1142 | 1.1133 | 1.1124 | 1.1117 | 1.1110 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| 1.0000 | V/(M3/KG) | .10638 | .11011 | .11382 | .11752 | .12122 | .12490 | .12858 | .13225 | .13592 |
| | H/(KJ/KG) | 1704.7 | 1789.6 | 1876.0 | 1963.9 | 2053.3 | 2144.1 | 2236.2 | 2329.7 | 2424.5 |
| | S/(KJ/KG K) | 3.9572 | 4.0685 | 4.1782 | 4.2864 | 4.3932 | 4.4984 | 4.6023 | 4.7048 | 4.8059 |
| | C/(M/SEC) | 332.5753 | 338.4190 | 344.1332 | 349.7279 | 355.2118 | 360.5924 | 365.8764 | 371.0700 | 376.1784 |
| | KAPPA/(1/MPA) | 1.0085 | 1.0069 | 1.0054 | 1.0042 | 1.0031 | 1.0021 | 1.0013 | 1.0005 | .9998 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| 2.0000 | V/(M3/KG) | .05275 | .05469 | .05661 | .05853 | .06044 | .06233 | .06422 | .06611 | .06798 |
| | H/(KJ/KG) | 1699.1 | 1784.4 | 1871.1 | 1959.4 | 2049.0 | 2140.1 | 2232.5 | 2326.2 | 2421.2 |
| | S/(KJ/KG K) | 3.8518 | 3.9636 | 4.0738 | 4.1824 | 4.2895 | 4.3951 | 4.4992 | 4.6019 | 4.7032 |
| | C/(M/SEC) | 330.6073 | 336.9049 | 343.0232 | 348.9795 | 354.7883 | 360.4621 | 366.0118 | 371.4467 | 376.7752 |
| | KAPPA/(1/MPA) | .5081 | .5064 | .5050 | .5037 | .5026 | .5017 | .5008 | .5001 | .4995 |
| | BETA/(1000/K) | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| 3.0000 | V/(M3/KG) | .03489 | .03624 | .03757 | .03888 | .04019 | .04150 | .04279 | .04408 | .04536 |
| | H/(KJ/KG) | 1693.5 | 1779.2 | 1866.3 | 1954.9 | 2044.8 | 2136.2 | 2228.8 | 2322.8 | 2418.0 |
| | S/(KJ/KG K) | 3.7875 | 3.8999 | 4.0105 | 4.1195 | 4.2269 | 4.3328 | 4.4373 | 4.5402 | 4.6418 |
| | C/(M/SEC) | 328.9807 | 335.7211 | 342.2312 | 348.5360 | 354.6565 | 360.6103 | 366.4126 | 372.0763 | 377.6126 |
| | KAPPA/(1/MPA) | .3409 | .3392 | .3377 | .3365 | .3354 | .3345 | .3337 | .3330 | .3324 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| 4.0000 | V/(M3/KG) | .02598 | .02703 | .02806 | .02908 | .03009 | .03109 | .03209 | .03308 | .03406 |
| | H/(KJ/KG) | 1687.9 | 1774.0 | 1861.5 | 1950.4 | 2040.7 | 2132.3 | 2225.2 | 2319.4 | 2414.8 |
| | S/(KJ/KG K) | 3.7401 | 3.8530 | 3.9641 | 4.0735 | 4.1813 | 4.2875 | 4.3922 | 4.4954 | 4.5972 |
| | C/(M/SEC) | 327.7601 | 334.9199 | 341.7993 | 348.4315 | 354.8437 | 361.0589 | 367.0963 | 372.9724 | 378.7013 |
| | KAPPA/(1/MPA) | .2568 | .2552 | .2538 | .2526 | .2516 | .2507 | .2499 | .2492 | .2486 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 |

THERMODYNAMIC PROPERTIES OF BUTANE

TEMPERATURES/(K)

| P/(MPA) | | 275.000 | 300.000 | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00168 | .00176 | .00185 | .00196 | .00210 | .00230 | .00272 | .00543 | .00820 | .01001 |
| | H/(KJ/KG) | 113.8 | 174.6 | 238.8 | 305.7 | 375.8 | 451.9 | 538.9 | 692.3 | 799.8 | 883.3 |
| | S/(KJ/KG K) | .4404 | .6519 | .8572 | 1.0556 | 1.2488 | 1.4453 | 1.6563 | 2.0062 | 2.2393 | 2.4106 |
| | C/(M/SEC) | 1061.9241 | 925.6082 | 801.9634 | 683.1282 | 561.2817 | 425.8953 | 403.5994 | 150.6531 | 181.8971 | 207.6921 |
| | KAPPA/(1/MPA) | .0021 | .0028 | .0039 | .0058 | .0093 | .0185 | .0703 | .5791 | .3626 | .2954 |
| | BETA/(1000/K) | 1.8 | 1.9 | 2.1 | 2.5 | 3.1 | 4.6 | 10.8 | 28.3 | 10.2 | 6.4 |
| 6.0000 | V/(M3/KG) | .00167 | .00175 | .00184 | .00195 | .00208 | .00226 | .00258 | .00360 | .00581 | .00758 |
| | H/(KJ/KG) | 114.7 | 175.4 | 239.4 | 306.0 | 375.5 | 450.3 | 531.7 | 643.2 | 766.7 | 860.7 |
| | S/(KJ/KG K) | .4374 | .6485 | .8533 | 1.0508 | 1.2425 | 1.4356 | 1.6332 | 1.8875 | 2.1549 | 2.3480 |
| | C/(M/SEC) | 1071.7073 | 937.3463 | 816.1352 | 700.6044 | 583.7674 | 457.3473 | 464.5800 | 184.9276 | 176.8301 | 199.5550 |
| | KAPPA/(1/MPA) | .0021 | .0028 | .0038 | .0054 | .0084 | .0154 | .0406 | .2440 | .3165 | .2618 |
| | BETA/(1000/K) | 1.8 | 1.9 | 2.1 | 2.4 | 2.9 | 4.0 | 7.2 | 21.7 | 14.1 | 8.1 |
| 7.0000 | V/(M3/KG) | .00167 | .00175 | .00183 | .00194 | .00206 | .00223 | .00250 | .00307 | .00444 | .00595 |
| | H/(KJ/KG) | 115.6 | 176.1 | 240.0 | 306.3 | 375.3 | 449.1 | 527.4 | 622.3 | 736.8 | 837.9 |
| | S/(KJ/KG K) | .4345 | .6452 | .8495 | 1.0462 | 1.2366 | 1.4270 | 1.6171 | 1.8337 | 2.0815 | 2.2890 |
| | C/(M/SEC) | 1081.2903 | 948.7932 | 829.8478 | 717.3085 | 604.7963 | 485.4091 | 512.5098 | 237.3999 | 189.9249 | 199.7873 |
| | KAPPA/(1/MPA) | .0020 | .0027 | .0036 | .0051 | .0077 | .0132 | .0289 | .1014 | .2208 | .2194 |
| | BETA/(1000/K) | 1.8 | 1.9 | 2.0 | 2.3 | 2.8 | 3.6 | 5.7 | 12.1 | 14.3 | 9.4 |
| 8.0000 | V/(M3/KG) | .00167 | .00174 | .00183 | .00193 | .00205 | .00220 | .00243 | .00285 | .00371 | .00489 |
| | H/(KJ/KG) | 116.4 | 176.9 | 240.6 | 306.7 | 375.3 | 448.3 | 524.5 | 612.0 | 715.4 | 817.4 |
| | S/(KJ/KG K) | .4315 | .6420 | .8458 | 1.0418 | 1.2311 | 1.4193 | 1.6044 | 1.8043 | 2.0278 | 2.2373 |
| | C/(M/SEC) | 1090.6891 | 959.9672 | 843.1412 | 733.3293 | 624.6032 | 510.9163 | 553.1891 | 283.9355 | 214.7403 | 208.6865 |
| | KAPPA/(1/MPA) | .0020 | .0026 | .0035 | .0049 | .0072 | .0116 | .0225 | .0583 | .1402 | .1712 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.0 | 2.2 | 2.6 | 3.3 | 4.8 | 8.3 | 12.0 | 9.6 |
| 9.0000 | V/(M3/KG) | .00166 | .00174 | .00182 | .00192 | .00203 | .00218 | .00238 | .00271 | .00332 | .00422 |
| | H/(KJ/KG) | 117.3 | 177.7 | 241.2 | 307.2 | 375.4 | 447.6 | 522.3 | 605.7 | 701.1 | 800.6 |
| | S/(KJ/KG K) | .4287 | .6388 | .8422 | 1.0376 | 1.2258 | 1.4123 | 1.5936 | 1.7842 | 1.9903 | 2.1946 |
| | C/(M/SEC) | 1099.9009 | 970.8845 | 856.0473 | 748.7370 | 643.3538 | 534.4359 | 589.0869 | 323.5601 | 245.6667 | 223.7606 |
| | KAPPA/(1/MPA) | .0019 | .0025 | .0034 | .0046 | .0067 | .0104 | .0185 | .0400 | .0903 | .1290 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.0 | 2.2 | 2.5 | 3.1 | 4.2 | 6.4 | 9.5 | 9.1 |
| 10.0000 | V/(M3/KG) | .00166 | .00173 | .00182 | .00191 | .00202 | .00216 | .00234 | .00262 | .00308 | .00377 |
| | H/(KJ/KG) | 118.2 | 178.5 | 241.9 | 307.6 | 375.5 | 447.2 | 520.7 | 601.4 | 691.4 | 787.4 |
| | S/(KJ/KG K) | .4258 | .6357 | .8387 | 1.0334 | 1.2208 | 1.4057 | 1.5843 | 1.7687 | 1.9633 | 2.1602 |
| | C/(M/SEC) | 1108.9694 | 981.5559 | 868.5901 | 763.5847 | 661.1970 | 556.3279 | 621.5329 | 358.0666 | 278.1248 | 243.0323 |
| | KAPPA/(1/MPA) | .0019 | .0025 | .0032 | .0044 | .0062 | .0094 | .0157 | .0302 | .0619 | .0966 |
| | BETA/(1000/K) | 1.7 | 1.8 | 1.9 | 2.1 | 2.4 | 2.9 | 3.8 | 5.3 | 7.6 | 8.2 |

THERMODYNAMIC PROPERTIES OF BUTANE

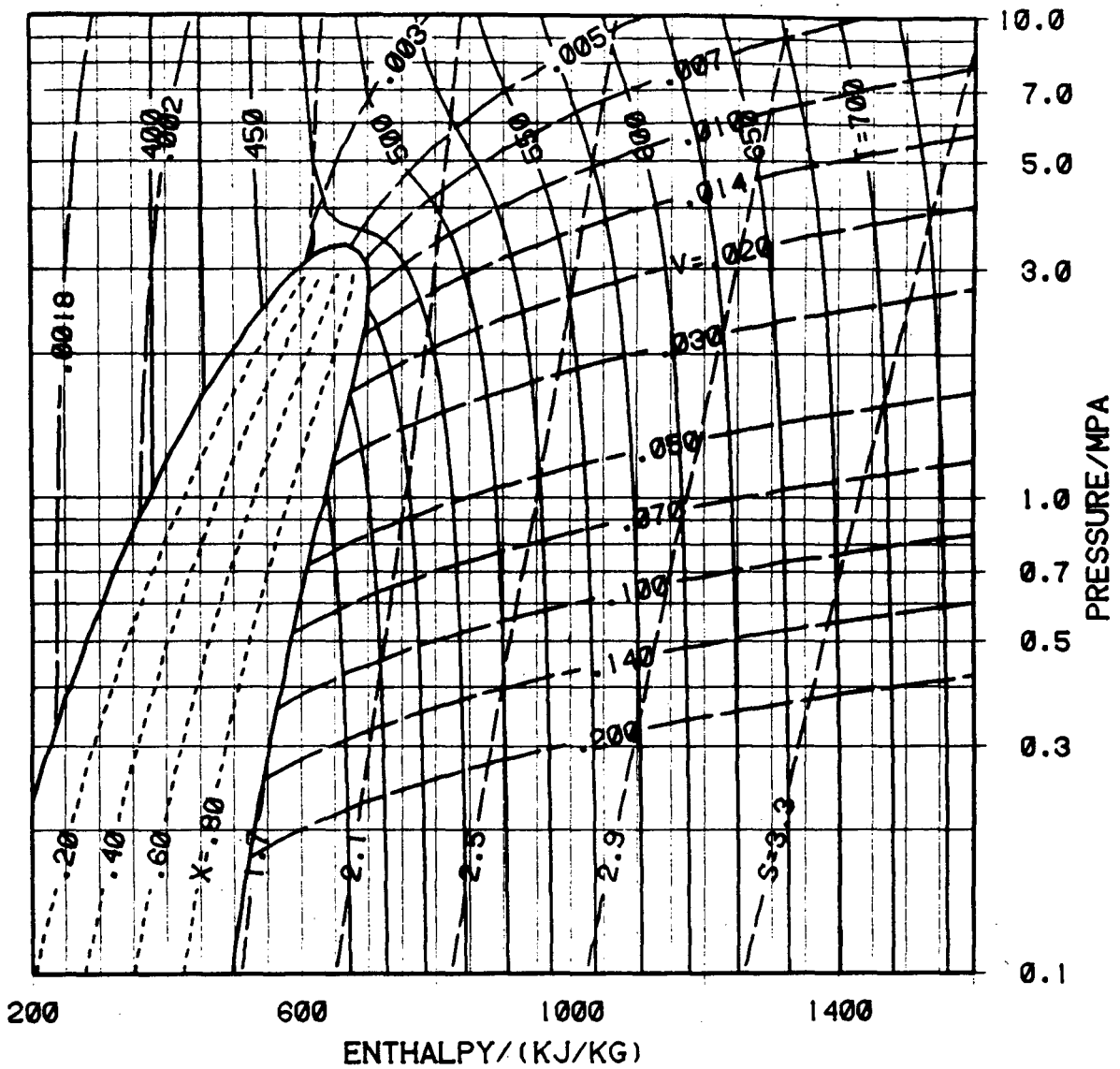
TEMPERATURES/(K)

| P/(MPA) | | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .01147 | .01275 | .01391 | .01499 | .01602 | .01700 | .01795 | .01887 | .01977 |
| | H/(KJ/KG) | 961.5 | 1038.2 | 1114.9 | 1192.3 | 1270.7 | 1350.4 | 1431.3 | 1513.6 | 1597.3 |
| | S/(KJ/KG K) | 2.5632 | 2.7060 | 2.8424 | 2.9742 | 3.1022 | 3.2271 | 3.3492 | 3.4690 | 3.5864 |
| | C/(M/SEC) | 227.7231 | 244.2151 | 258.3589 | 270.8363 | 282.0708 | 292.3429 | 301.8479 | 310.7272 | 319.0862 |
| | KAPPA/(1/MPA) | .2646 | .2468 | .2352 | .2271 | .2212 | .2167 | .2131 | .2103 | .2079 |
| | BETA/(1000/K) | 4.7 | 3.8 | 3.2 | 2.8 | 2.5 | 2.3 | 2.1 | 1.9 | 1.8 |
| 6.0000 | V/(M3/KG) | .00896 | .01014 | .01120 | .01217 | .01308 | .01394 | .01477 | .01557 | .01635 |
| | H/(KJ/KG) | 944.2 | 1024.1 | 1103.0 | 1182.0 | 1261.7 | 1342.3 | 1424.0 | 1507.0 | 1591.3 |
| | S/(KJ/KG K) | 2.5109 | 2.6597 | 2.8000 | 2.9345 | 3.0645 | 3.1910 | 3.3144 | 3.4351 | 3.5534 |
| | C/(M/SEC) | 220.5790 | 238.3888 | 253.7056 | 267.1693 | 279.2283 | 290.1942 | 300.2885 | 309.6727 | 318.4682 |
| | KAPPA/(1/MPA) | .2304 | .2121 | .2004 | .1923 | .1864 | .1820 | .1786 | .1758 | .1736 |
| | BETA/(1000/K) | 5.6 | 4.4 | 3.6 | 3.1 | 2.7 | 2.4 | 2.2 | 2.0 | 1.9 |
| 7.0000 | V/(M3/KG) | .00723 | .00832 | .00929 | .01018 | .01100 | .01178 | .01252 | .01324 | .01393 |
| | H/(KJ/KG) | 926.6 | 1009.8 | 1091.0 | 1171.7 | 1252.6 | 1334.3 | 1416.8 | 1500.5 | 1585.4 |
| | S/(KJ/KG K) | 2.4621 | 2.6171 | 2.7615 | 2.8988 | 3.0309 | 3.1590 | 3.2836 | 3.4053 | 3.5244 |
| | C/(M/SEC) | 217.8742 | 235.3578 | 251.0252 | 265.0010 | 277.5817 | 289.0329 | 299.5644 | 309.3384 | 318.4801 |
| | KAPPA/(1/MPA) | .1992 | .1840 | .1735 | .1661 | .1606 | .1565 | .1533 | .1507 | .1487 |
| | BETA/(1000/K) | 6.5 | 4.9 | 4.0 | 3.3 | 2.9 | 2.6 | 2.3 | 2.1 | 2.0 |
| 8.0000 | V/(M3/KG) | .00602 | .00701 | .00790 | .00871 | .00947 | .01018 | .01085 | .01150 | .01212 |
| | H/(KJ/KG) | 909.7 | 995.9 | 1079.3 | 1161.6 | 1243.8 | 1326.4 | 1409.8 | 1494.1 | 1579.6 |
| | S/(KJ/KG K) | 2.4174 | 2.5778 | 2.7261 | 2.8662 | 3.0004 | 3.1300 | 3.2559 | 3.3786 | 3.4985 |
| | C/(M/SEC) | 220.5142 | 235.7425 | 250.7082 | 264.5814 | 277.2954 | 288.9696 | 299.7520 | 309.7771 | 319.1585 |
| | KAPPA/(1/MPA) | .1678 | .1589 | .1510 | .1449 | .1402 | .1366 | .1337 | .1314 | .1296 |
| | BETA/(1000/K) | 7.0 | 5.3 | 4.3 | 3.6 | 3.1 | 2.7 | 2.4 | 2.2 | 2.0 |
| 9.0000 | V/(M3/KG) | .00517 | .00605 | .00686 | .00761 | .00830 | .00895 | .00957 | .01016 | .01074 |
| | H/(KJ/KG) | 894.4 | 982.8 | 1068.0 | 1151.8 | 1235.1 | 1318.7 | 1402.9 | 1487.9 | 1573.9 |
| | S/(KJ/KG K) | 2.3777 | 2.5421 | 2.6937 | 2.8363 | 2.9724 | 3.1036 | 3.2306 | 3.3543 | 3.4750 |
| | C/(M/SEC) | 228.0202 | 239.6037 | 252.8875 | 266.0226 | 278.4513 | 290.0618 | 300.8902 | 311.0150 | 320.5204 |
| | KAPPA/(1/MPA) | .1378 | .1357 | .1312 | .1269 | .1233 | .1203 | .1179 | .1160 | .1143 |
| | BETA/(1000/K) | 7.2 | 5.6 | 4.5 | 3.8 | 3.2 | 2.8 | 2.5 | 2.3 | 2.1 |
| 10.0000 | V/(M3/KG) | .00456 | .00534 | .00607 | .00675 | .00739 | .00799 | .00856 | .00911 | .00964 |
| | H/(KJ/KG) | 881.2 | 970.8 | 1057.4 | 1142.4 | 1226.9 | 1311.3 | 1396.3 | 1481.9 | 1568.5 |
| | S/(KJ/KG K) | 2.3433 | 2.5100 | 2.6640 | 2.8088 | 2.9467 | 3.0792 | 3.2074 | 3.3320 | 3.4535 |
| | C/(M/SEC) | 239.2195 | 246.4906 | 257.4146 | 269.2803 | 281.0382 | 292.3074 | 302.9783 | 313.0499 | 322.5620 |
| | KAPPA/(1/MPA) | .1116 | .1148 | .1137 | .1113 | .1089 | .1067 | .1048 | .1032 | .1019 |
| | BETA/(1000/K) | 7.0 | 5.7 | 4.6 | 3.9 | 3.3 | 2.9 | 2.6 | 2.4 | 2.1 |

THERMODYNAMIC PROPERTIES OF BUTANE

TEMPERATURES/(K)

| P/(MPA) | | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .02065 | .02152 | .02237 | .02321 | .02404 | .02486 | .02568 | .02649 | .02729 |
| | H/(KJ/KG) | 1682.4 | 1768.9 | 1856.8 | 1946.0 | 2036.6 | 2128.5 | 2221.6 | 2316.1 | 2411.7 |
| | S/(KJ/KG K) | 3.7018 | 3.8153 | 3.9269 | 4.0367 | 4.1449 | 4.2514 | 4.3564 | 4.4599 | 4.5619 |
| | C/(M/SEC) | 327.0054 | 334.5480 | 341.7642 | 348.6945 | 355.3723 | 361.8251 | 368.0762 | 374.1451 | 380.0487 |
| | KAPPA/(1/MPA) | .2060 | .2044 | .2031 | .2019 | .2010 | .2001 | .1994 | .1987 | .1982 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 |
| 6.0000 | V/(M3/KG) | .01711 | .01786 | .01859 | .01931 | .02002 | .02072 | .02142 | .02211 | .02279 |
| | H/(KJ/KG) | 1676.9 | 1763.8 | 1852.1 | 1941.7 | 2032.6 | 2124.7 | 2218.1 | 2312.8 | 2408.6 |
| | S/(KJ/KG K) | 3.6695 | 3.7835 | 3.8956 | 4.0059 | 4.1144 | 4.2212 | 4.3265 | 4.4302 | 4.5325 |
| | C/(M/SEC) | 326.7679 | 334.6443 | 342.1553 | 349.3474 | 356.2589 | 362.9212 | 369.3609 | 375.6003 | 381.6585 |
| | KAPPA/(1/MPA) | .1718 | .1703 | .1690 | .1679 | .1670 | .1662 | .1655 | .1649 | .1644 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 |
| 7.0000 | V/(M3/KG) | .01460 | .01526 | .01590 | .01654 | .01716 | .01778 | .01838 | .01899 | .01958 |
| | H/(KJ/KG) | 1671.5 | 1758.9 | 1847.5 | 1937.4 | 2028.6 | 2121.1 | 2214.7 | 2309.6 | 2405.7 |
| | S/(KJ/KG K) | 3.6412 | 3.7558 | 3.8684 | 3.9791 | 4.0880 | 4.1951 | 4.3007 | 4.4047 | 4.5071 |
| | C/(M/SEC) | 327.0874 | 335.2378 | 342.9936 | 350.4050 | 357.5137 | 364.3539 | 370.9545 | 377.3399 | 383.5310 |
| | KAPPA/(1/MPA) | .1470 | .1456 | .1444 | .1434 | .1425 | .1418 | .1412 | .1406 | .1402 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 |
| 8.0000 | V/(M3/KG) | .01273 | .01332 | .01390 | .01447 | .01503 | .01558 | .01612 | .01665 | .01718 |
| | H/(KJ/KG) | 1666.2 | 1754.0 | 1843.0 | 1933.3 | 2024.8 | 2117.5 | 2211.4 | 2306.5 | 2402.8 |
| | S/(KJ/KG K) | 3.6160 | 3.7311 | 3.8442 | 3.9553 | 4.0646 | 4.1721 | 4.2779 | 4.3821 | 4.4848 |
| | C/(M/SEC) | 327.9894 | 336.3459 | 344.2904 | 351.8744 | 359.1405 | 366.1245 | 372.8565 | 379.3621 | 385.6633 |
| | KAPPA/(1/MPA) | .1280 | .1268 | .1257 | .1248 | .1240 | .1234 | .1228 | .1223 | .1219 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.6 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 |
| 9.0000 | V/(M3/KG) | .01129 | .01183 | .01235 | .01287 | .01337 | .01387 | .01436 | .01485 | .01532 |
| | H/(KJ/KG) | 1661.0 | 1749.3 | 1838.7 | 1929.3 | 2021.1 | 2114.0 | 2208.2 | 2303.5 | 2400.0 |
| | S/(KJ/KG K) | 3.5931 | 3.7089 | 3.8224 | 3.9339 | 4.0435 | 4.1513 | 4.2574 | 4.3619 | 4.4648 |
| | C/(M/SEC) | 329.4840 | 337.9738 | 346.0477 | 353.7548 | 361.1368 | 368.2291 | 375.0620 | 381.6613 | 388.0494 |
| | KAPPA/(1/MPA) | .1130 | .1119 | .1109 | .1101 | .1095 | .1089 | .1084 | .1079 | .1076 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 |
| 10.0000 | V/(M3/KG) | .01015 | .01064 | .01112 | .01160 | .01206 | .01252 | .01296 | .01341 | .01384 |
| | H/(KJ/KG) | 1656.0 | 1744.7 | 1834.4 | 1925.4 | 2017.4 | 2110.7 | 2205.1 | 2300.6 | 2397.2 |
| | S/(KJ/KG K) | 3.5722 | 3.6885 | 3.8025 | 3.9144 | 4.0243 | 4.1324 | 4.2388 | 4.3435 | 4.4466 |
| | C/(M/SEC) | 331.5662 | 340.1153 | 348.2582 | 356.0384 | 363.4944 | 370.6595 | 377.5627 | 384.2291 | 390.6810 |
| | KAPPA/(1/MPA) | .1007 | .0998 | .0990 | .0983 | .0977 | .0972 | .0967 | .0964 | .0960 |
| | BETA/(1000/K) | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 |


10.0
7.0
5.0
3.0
1.0
0.7
0.5
0.3
0.1
PRESSURE/MPA
200
600
1000
1400
ENTHALPY/(KJ/KG)
.003
.005
.007
.010
.014
.020
.030
.050
.070
.100
.140
.200
.0018
.002
.20
.40
.60
X=.80
1.7
2.1
2.5
2.9
S=3.3
T=700
650
600
550
500
450
400

PENTANE

## PROPERTIES OF SATURATED PENTANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 310.00000 | .10346 | .00167 | .32918 | 135.31149 | 361.54358 | 496.85508 | .48862 | 1.16627 | 1.65489 |
| 315.00000 | .12250 | .00169 | .28074 | 147.70171 | 356.96488 | 504.66658 | .52817 | 1.13322 | 1.66139 |
| 320.00000 | .14415 | .00170 | .24073 | 160.25025 | 352.25522 | 512.50547 | .56758 | 1.10080 | 1.66837 |
| 325.00000 | .16863 | .00172 | .20746 | 172.95321 | 347.41470 | 520.36790 | .60684 | 1.06897 | 1.67580 |
| 330.00000 | .19618 | .00173 | .17964 | 185.80641 | 342.44355 | 528.24997 | .64594 | 1.03771 | 1.68364 |
| 335.00000 | .22704 | .00175 | .15625 | 198.80552 | 337.34206 | 536.14758 | .68487 | 1.00699 | 1.69186 |
| 340.00000 | .26144 | .00177 | .13646 | 211.94615 | 332.11035 | 544.05650 | .72363 | .97680 | 1.70042 |
| 345.00000 | .29964 | .00179 | .11965 | 225.22414 | 326.74807 | 551.97221 | .76220 | .94710 | 1.70929 |
| 350.00000 | .34188 | .00180 | .10528 | 238.63561 | 321.25429 | 559.88990 | .80057 | .91787 | 1.71844 |
| 355.00000 | .38843 | .00182 | .09296 | 252.17510 | 315.62961 | 567.80471 | .83874 | .88910 | 1.72784 |
| 360.00000 | .43953 | .00184 | .08233 | 265.84237 | 309.86815 | 575.71053 | .87671 | .86074 | 1.73746 |
| 365.00000 | .49546 | .00186 | .07313 | 279.63376 | 303.96758 | 583.60135 | .91447 | .83279 | 1.74726 |
| 370.00000 | .55649 | .00189 | .06512 | 293.54798 | 297.92221 | 591.47020 | .95202 | .80520 | 1.75722 |
| 375.00000 | .62289 | .00191 | .05813 | 307.58497 | 291.72424 | 599.30921 | .98937 | .77793 | 1.76730 |
| 380.00000 | .69495 | .00193 | .05201 | 321.74615 | 285.36323 | 607.10938 | 1.02651 | .75096 | 1.77747 |
| 385.00000 | .77296 | .00196 | .04661 | 336.03481 | 278.82555 | 614.86035 | 1.06347 | .72422 | 1.78769 |
| 390.00000 | .85722 | .00198 | .04185 | 350.45644 | 272.09359 | 622.55003 | 1.10026 | .69768 | 1.79794 |
| 395.00000 | .94806 | .00201 | .03763 | 365.01927 | 265.14490 | 630.16417 | 1.13690 | .67125 | 1.80815 |
| 400.00000 | 1.04580 | .00204 | .03387 | 379.73481 | 257.95102 | 637.68583 | 1.17342 | .64488 | 1.81830 |
| 405.00000 | 1.15079 | .00207 | .03051 | 394.61867 | 250.47597 | 645.09463 | 1.20987 | .61846 | 1.82832 |
| 410.00000 | 1.26340 | .00210 | .02750 | 409.69162 | 242.67406 | 652.36568 | 1.24628 | .59189 | 1.83817 |
| 415.00000 | 1.38401 | .00214 | .02479 | 424.97987 | 234.48865 | 659.46852 | 1.28272 | .56503 | 1.84775 |
| 420.00000 | 1.51304 | .00218 | .02234 | 440.51979 | 225.84439 | 666.36419 | 1.31927 | .53772 | 1.85700 |
| 425.00000 | 1.65094 | .00222 | .02011 | 456.35583 | 216.64779 | 673.00362 | 1.35604 | .50976 | 1.86580 |
| 430.00000 | 1.79820 | .00227 | .01808 | 472.54808 | 206.77393 | 679.32200 | 1.39314 | .48087 | 1.87401 |
| 435.00000 | 1.95533 | .00232 | .01621 | 489.17621 | 196.05551 | 685.23173 | 1.43075 | .45070 | 1.88145 |
| 440.00000 | 2.12289 | .00238 | .01449 | 506.34860 | 184.26128 | 690.60988 | 1.46910 | .41878 | 1.88788 |
| 445.00000 | 2.30152 | .00245 | .01288 | 524.21751 | 171.05783 | 695.27534 | 1.50850 | .38440 | 1.89290 |
| 450.00000 | 2.49189 | .00254 | .01136 | 543.01166 | 155.92924 | 698.94090 | 1.54944 | .34651 | 1.89595 |
| 455.00000 | 2.69473 | .00265 | .00989 | 563.10292 | 138.00086 | 701.10378 | 1.59267 | .30330 | 1.89597 |
| 460.00000 | 2.91088 | .00280 | .00843 | 585.19805 | 115.52695 | 700.72500 | 1.63968 | .25115 | 1.89082 |
| 465.00000 | 3.14123 | .00305 | .00683 | 611.12751 | 83.71465 | 694.84215 | 1.69428 | .18003 | 1.87431 |
| 469.65000 | 3.38679 | .00431 | .00431 | 659.91299 | 0. | 659.91299 | 1.79672 | 0. | 1.79672 |

## THERMODYNAMIC PROPERTIES OF PENTANE

| P/(MPA) | | TEMPERATURES/(K) 310.000 | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .34116 | .36028 | .39156 | .42228 | .45261 | .48264 | .51244 | .54208 | .57158 |
| | H/(KJ/KG) | 497.1 | 523.9 | 570.8 | 620.3 | 672.5 | 727.2 | 784.5 | 844.3 | 906.5 |
| | S/(KJ/KG K) | 1.6593 | 1.7440 | 1.8829 | 2.0195 | 2.1540 | 2.2867 | 2.4177 | 2.5470 | 2.6747 |
| | C/(M/SEC) | 188.1051 | 193.5199 | 201.9625 | 209.8362 | 217.2663 | 224.3388 | 231.1143 | 237.6375 | 243.9423 |
| | KAPPA/(1/MPA) | 10.4935 | 10.4116 | 10.3112 | 10.2409 | 10.1899 | 10.1521 | 10.1235 | 10.1013 | 10.0838 |
| | BETA/(1000/K) | 3.8 | 3.5 | 3.2 | 2.9 | 2.7 | 2.5 | 2.3 | 2.2 | 2.1 |
| .1013 | V/(M3/KG) | .33648 | .35537 | .38628 | .41663 | .44658 | .47623 | .50566 | .53492 | .56405 |
| | H/(KJ/KG) | 497.0 | 523.9 | 570.8 | 620.3 | 672.4 | 727.2 | 784.5 | 844.3 | 906.5 |
| | S/(KJ/KG K) | 1.6576 | 1.7423 | 1.8812 | 2.0179 | 2.1524 | 2.2852 | 2.4162 | 2.5455 | 2.6731 |
| | C/(M/SEC) | 187.9988 | 193.4284 | 201.8901 | 209.7777 | 217.2184 | 224.2990 | 231.0809 | 237.6093 | 243.9183 |
| | KAPPA/(1/MPA) | 10.3636 | 10.2815 | 10.1808 | 10.1103 | 10.0593 | 10.0215 | 9.9927 | 9.9705 | 9.9531 |
| | BETA/(1000/K) | 3.8 | 3.5 | 3.2 | 2.9 | 2.7 | 2.5 | 2.3 | 2.2 | 2.1 |
| .2000 | V/(M3/KG) | .00167 | .00172 | .18952 | .20595 | .22194 | .23760 | .25303 | .26828 | .28338 |
| | H/(KJ/KG) | 135.4 | 173.0 | 566.5 | 616.7 | 669.4 | 724.6 | 782.3 | 842.3 | 904.8 |
| | S/(KJ/KG K) | .4883 | .6067 | 1.7941 | 1.9326 | 2.0686 | 2.2024 | 2.3342 | 2.4641 | 2.5922 |
| | C/(M/SEC) | 917.3477 | 844.3623 | 196.2966 | 205.3028 | 213.5732 | 221.2873 | 228.5646 | 235.4879 | 242.1169 |
| | KAPPA/(1/MPA) | .0027 | .0032 | 5.3395 | 5.2571 | 5.1997 | 5.1582 | 5.1273 | 5.1038 | 5.0855 |
| | BETA/(1000/K) | 1.8 | 1.9 | 3.5 | 3.1 | 2.8 | 2.6 | 2.4 | 2.3 | 2.1 |
| .3000 | V/(M3/KG) | .00167 | .00172 | .12192 | .13369 | .14496 | .15587 | .16652 | .17698 | .18730 |
| | H/(KJ/KG) | 135.5 | 173.0 | 561.9 | 613.0 | 666.3 | 721.9 | 779.9 | 840.3 | 903.0 |
| | S/(KJ/KG K) | .4880 | .6064 | 1.7378 | 1.8786 | 2.0162 | 2.1511 | 2.2837 | 2.4143 | 2.5429 |
| | C/(M/SEC) | 918.5162 | 845.6712 | 190.1694 | 200.5037 | 209.7193 | 218.1353 | 225.9504 | 233.2962 | 240.2640 |
| | KAPPA/(1/MPA) | .0027 | .0032 | 3.7077 | 3.6093 | 3.5439 | 3.4981 | 3.4648 | 3.4398 | 3.4206 |
| | BETA/(1000/K) | 1.8 | 1.9 | 4.0 | 3.4 | 3.1 | 2.8 | 2.5 | 2.3 | 2.2 |
| .4000 | V/(M3/KG) | .00167 | .00172 | .00180 | .09744 | .10639 | .11495 | .12323 | .13131 | .13924 |
| | H/(KJ/KG) | 135.5 | 173.1 | 238.7 | 609.0 | 663.0 | 719.2 | 777.6 | 838.3 | 901.2 |
| | S/(KJ/KG K) | .4877 | .6061 | .8003 | 1.8377 | 1.9770 | 2.1132 | 2.2468 | 2.3780 | 2.5071 |
| | C/(M/SEC) | 919.6816 | 846.9760 | 730.0426 | 195.3940 | 205.6852 | 214.8737 | 223.2675 | 231.0607 | 238.3829 |
| | KAPPA/(1/MPA) | .0026 | .0032 | .0044 | 2.7983 | 2.7230 | 2.6721 | 2.6359 | 2.6093 | 2.5890 |
| | BETA/(1000/K) | 1.8 | 1.9 | 2.1 | 3.8 | 3.3 | 2.9 | 2.7 | 2.4 | 2.3 |
| .5000 | V/(M3/KG) | .00167 | .00172 | .00180 | .07556 | .08318 | .09035 | .09723 | .10389 | .11040 |
| | H/(KJ/KG) | 135.6 | 173.2 | 238.7 | 604.8 | 659.6 | 716.3 | 775.2 | 836.2 | 899.4 |
| | S/(KJ/KG K) | .4874 | .6058 | .8000 | 1.8037 | 1.9451 | 2.0826 | 2.2171 | 2.3491 | 2.4787 |
| | C/(M/SEC) | 920.8439 | 848.2768 | 731.6408 | 189.9151 | 201.4474 | 211.4923 | 220.5113 | 228.7792 | 236.4726 |
| | KAPPA/(1/MPA) | .0026 | .0032 | .0044 | 2.3252 | 2.2371 | 2.1801 | 2.1407 | 2.1122 | 2.0909 |
| | BETA/(1000/K) | 1.8 | 1.9 | 2.1 | 4.2 | 3.5 | 3.1 | 2.8 | 2.5 | 2.3 |
| .6000 | V/(M3/KG) | .00167 | .00172 | .00180 | .06085 | .06764 | .07392 | .07987 | .08560 | .09115 |
| | H/(KJ/KG) | 135.7 | 173.2 | 238.8 | 600.4 | 656.0 | 713.4 | 772.7 | 834.1 | 897.5 |
| | S/(KJ/KG K) | .4871 | .6054 | .7996 | 1.7738 | 1.9175 | 2.0565 | 2.1921 | 2.3248 | 2.4550 |
| | C/(M/SEC) | 922.0030 | 849.5737 | 733.2325 | 183.9884 | 196.9770 | 207.9794 | 217.6766 | 226.4494 | 234.5320 |
| | KAPPA/(1/MPA) | .0026 | .0032 | .0044 | 2.0250 | 1.9200 | 1.8556 | 1.8125 | 1.7820 | 1.7596 |
| | BETA/(1000/K) | 1.8 | 1.9 | 2.1 | 4.7 | 3.8 | 3.3 | 2.9 | 2.6 | 2.4 |

THERMODYNAMIC PROPERTIES OF PENTANE

| P/(MPA) | | TEMPERATURES/(K) 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .60099 | .63030 | .65955 | .68875 | .71790 | .74701 | .77610 | .80515 | .83418 |
| | H/(KJ/KG) | 971.1 | 1037.9 | 1106.9 | 1178.0 | 1251.1 | 1326.1 | 1403.0 | 1481.8 | 1562.2 |
| | S/(KJ/KG K) | 2.8006 | 2.9250 | 3.0476 | 3.1686 | 3.2880 | 3.4057 | 3.5218 | 3.6363 | 3.7492 |
| | C/(M/SEC) | 250.0547 | 255.9955 | 261.7816 | 267.4268 | 272.9427 | 278.3392 | 283.6248 | 288.8068 | 293.8917 |
| | KAPPA/(1/MPA) | 10.0699 | 10.0586 | 10.0494 | 10.0418 | 10.0354 | 10.0300 | 10.0255 | 10.0216 | 10.0182 |
| | BETA/(1000/K) | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 |
| .1013 | V/(M3/KG) | .59307 | .62201 | .65088 | .67970 | .70848 | .73721 | .76592 | .79460 | .82326 |
| | H/(KJ/KG) | 971.1 | 1037.9 | 1106.9 | 1178.0 | 1251.1 | 1326.1 | 1403.0 | 1481.7 | 1562.2 |
| | S/(KJ/KG K) | 2.7991 | 2.9234 | 3.0461 | 3.1671 | 3.2864 | 3.4042 | 3.5203 | 3.6348 | 3.7477 |
| | C/(M/SEC) | 250.0342 | 255.9779 | 261.7664 | 267.4137 | 272.9314 | 278.3295 | 283.6164 | 288.7996 | 293.8856 |
| | KAPPA/(1/MPA) | 9.9391 | 9.9279 | 9.9186 | 9.9110 | 9.9046 | 9.8993 | 9.8947 | 9.8908 | 9.8875 |
| | BETA/(1000/K) | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 |
| .2000 | V/(M3/KG) | .29838 | .31330 | .32814 | .34293 | .35768 | .37238 | .38706 | .40171 | .41633 |
| | H/(KJ/KG) | 969.5 | 1036.5 | 1105.6 | 1176.8 | 1250.0 | 1325.2 | 1402.2 | 1480.9 | 1561.4 |
| | S/(KJ/KG K) | 2.7186 | 2.8432 | 2.9661 | 3.0873 | 3.2068 | 3.3247 | 3.4409 | 3.5555 | 3.6685 |
| | C/(M/SEC) | 248.4960 | 254.6590 | 260.6322 | 266.4366 | 272.0893 | 277.6042 | 282.9931 | 288.2659 | 293.4311 |
| | KAPPA/(1/MPA) | 5.0710 | 5.0594 | 5.0499 | 5.0421 | 5.0356 | 5.0302 | 5.0256 | 5.0216 | 5.0183 |
| | BETA/(1000/K) | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.5 | 1.4 |
| .3000 | V/(M3/KG) | .19750 | .20762 | .21767 | .22766 | .23760 | .24751 | .25738 | .26722 | .27705 |
| | H/(KJ/KG) | 968.0 | 1035.1 | 1104.4 | 1175.7 | 1249.0 | 1324.2 | 1401.3 | 1480.1 | 1560.7 |
| | S/(KJ/KG K) | 2.6696 | 2.7946 | 2.9177 | 3.0391 | 3.1588 | 3.2768 | 3.3931 | 3.5078 | 3.6209 |
| | C/(M/SEC) | 246.9194 | 253.3110 | 259.4757 | 265.4425 | 271.2341 | 276.8689 | 282.3621 | 287.7264 | 292.9723 |
| | KAPPA/(1/MPA) | 3.4055 | 3.3935 | 3.3837 | 3.3758 | 3.3692 | 3.3636 | 3.3590 | 3.3550 | 3.3516 |
| | BETA/(1000/K) | 2.1 | 1.9 | 1.8 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 |
| .4000 | V/(M3/KG) | .14705 | .15478 | .16243 | .17002 | .17756 | .18507 | .19254 | .19998 | .20741 |
| | H/(KJ/KG) | 966.4 | 1033.7 | 1103.1 | 1174.5 | 1248.0 | 1323.3 | 1400.4 | 1479.3 | 1559.9 |
| | S/(KJ/KG K) | 2.6343 | 2.7595 | 2.8829 | 3.0045 | 3.1244 | 3.2425 | 3.3590 | 3.4738 | 3.5869 |
| | C/(M/SEC) | 245.3247 | 251.9515 | 258.3123 | 264.4445 | 270.3771 | 276.1333 | 281.7319 | 287.1884 | 292.5155 |
| | KAPPA/(1/MPA) | 2.5733 | 2.5609 | 2.5509 | 2.5428 | 2.5361 | 2.5304 | 2.5257 | 2.5217 | 2.5183 |
| | BETA/(1000/K) | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 |
| .5000 | V/(M3/KG) | .11678 | .12306 | .12928 | .13543 | .14154 | .14760 | .15364 | .15964 | .16562 |
| | H/(KJ/KG) | 964.8 | 1032.3 | 1101.8 | 1173.4 | 1246.9 | 1322.3 | 1399.5 | 1478.5 | 1559.2 |
| | S/(KJ/KG K) | 2.6063 | 2.7319 | 2.8555 | 2.9774 | 3.0974 | 3.2157 | 3.3322 | 3.4471 | 3.5604 |
| | C/(M/SEC) | 243.7114 | 250.5805 | 257.1421 | 263.4428 | 269.5185 | 275.3976 | 281.1026 | 286.6519 | 292.0607 |
| | KAPPA/(1/MPA) | 2.0746 | 2.0617 | 2.0515 | 2.0431 | 2.0363 | 2.0306 | 2.0258 | 2.0217 | 2.0183 |
| | BETA/(1000/K) | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 |
| .6000 | V/(M3/KG) | .09658 | .10192 | .10718 | .11237 | .11752 | .12263 | .12770 | .13275 | .13777 |
| | H/(KJ/KG) | 963.1 | 1030.8 | 1100.5 | 1172.2 | 1245.8 | 1321.3 | 1398.6 | 1477.7 | 1558.4 |
| | S/(KJ/KG K) | 2.5830 | 2.7089 | 2.8328 | 2.9549 | 3.0751 | 3.1935 | 3.3102 | 3.4252 | 3.5385 |
| | C/(M/SEC) | 242.0792 | 249.1979 | 255.9650 | 262.4375 | 268.6586 | 274.6620 | 280.4744 | 286.1173 | 291.6081 |
| | KAPPA/(1/MPA) | 1.7425 | 1.7292 | 1.7186 | 1.7101 | 1.7031 | 1.6974 | 1.6925 | 1.6884 | 1.6849 |
| | BETA/(1000/K) | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 |

## THERMODYNAMIC PROPERTIES OF PENTANE

### TEMPERATURES/(K)

| P/(MPA) | | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .86320 | .89220 | .92118 | .95015 | .97911 | 1.00806 | 1.03701 | 1.06594 | 1.09487 |
| | H/(KJ/KG) | 1644.3 | 1728.0 | 1813.3 | 1900.1 | 1988.4 | 2078.0 | 2169.0 | 2261.4 | 2354.9 |
| | S/(KJ/KG K) | 3.8606 | 3.9704 | 4.0787 | 4.1855 | 4.2909 | 4.3948 | 4.4974 | 4.5985 | 4.6984 |
| | C/(M/SEC) | 298.8854 | 303.7929 | 308.6190 | 313.3678 | 318.0431 | 322.6486 | 327.1874 | 331.6626 | 336.0769 |
| | KAPPA/(1/MPA) | 10.0154 | 10.0128 | 10.0106 | 10.0087 | 10.0069 | 10.0054 | 10.0041 | 10.0029 | 10.0018 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | .85189 | .88051 | .90912 | .93772 | .96630 | .99487 | 1.02344 | 1.05200 | 1.08055 |
| | H/(KJ/KG) | 1644.3 | 1728.0 | 1813.3 | 1900.1 | 1988.4 | 2078.0 | 2169.0 | 2261.3 | 2354.9 |
| | S/(KJ/KG K) | 3.8590 | 3.9688 | 4.0772 | 4.1840 | 4.2894 | 4.3933 | 4.4958 | 4.5970 | 4.6968 |
| | C/(M/SEC) | 298.8802 | 303.7886 | 308.6154 | 313.3649 | 318.0408 | 322.6468 | 327.1862 | 331.6618 | 336.0767 |
| | KAPPA/(1/MPA) | 9.8846 | 9.8820 | 9.8798 | 9.8779 | 9.8762 | 9.8747 | 9.8733 | 9.8721 | 9.8710 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | .43094 | .44553 | .46010 | .47467 | .48922 | .50376 | .51829 | .53282 | .54734 |
| | H/(KJ/KG) | 1643.6 | 1727.4 | 1812.7 | 1899.6 | 1987.8 | 2077.5 | 2168.6 | 2260.9 | 2354.5 |
| | S/(KJ/KG K) | 3.7799 | 3.8898 | 3.9981 | 4.1050 | 4.2104 | 4.3144 | 4.4170 | 4.5182 | 4.6180 |
| | C/(M/SEC) | 298.4961 | 303.4674 | 308.3507 | 313.1511 | 317.8732 | 322.5211 | 327.0987 | 331.6093 | 336.0563 |
| | KAPPA/(1/MPA) | 5.0153 | 5.0128 | 5.0106 | 5.0086 | 5.0069 | 5.0054 | 5.0040 | 5.0028 | 5.0018 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .3000 | V/(M3/KG) | .28685 | .29664 | .30641 | .31617 | .32592 | .33566 | .34539 | .35511 | .36483 |
| | H/(KJ/KG) | 1642.9 | 1726.7 | 1812.1 | 1899.0 | 1987.3 | 2077.0 | 2168.1 | 2260.5 | 2354.1 |
| | S/(KJ/KG K) | 3.7324 | 3.8424 | 3.9508 | 4.0577 | 4.1631 | 4.2672 | 4.3698 | 4.4710 | 4.5709 |
| | C/(M/SEC) | 298.1090 | 303.1442 | 308.0848 | 312.9369 | 317.7057 | 322.3961 | 327.0124 | 331.5584 | 336.0378 |
| | KAPPA/(1/MPA) | 3.3486 | 3.3461 | 3.3439 | 3.3419 | 3.3402 | 3.3387 | 3.3373 | 3.3361 | 3.3351 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .4000 | V/(M3/KG) | .21481 | .22220 | .22957 | .23693 | .24427 | .25161 | .25894 | .26626 | .27357 |
| | H/(KJ/KG) | 1642.2 | 1726.1 | 1811.5 | 1898.4 | 1986.8 | 2076.5 | 2167.6 | 2260.0 | 2353.7 |
| | S/(KJ/KG K) | 3.6985 | 3.8085 | 3.9170 | 4.0239 | 4.1294 | 4.2335 | 4.3361 | 4.4374 | 4.5373 |
| | C/(M/SEC) | 297.7240 | 302.8234 | 307.8215 | 312.7252 | 317.5408 | 322.2736 | 326.9285 | 331.5098 | 336.0215 |
| | KAPPA/(1/MPA) | 2.5153 | 2.5127 | 2.5105 | 2.5085 | 2.5068 | 2.5053 | 2.5040 | 2.5027 | 2.5017 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .5000 | V/(M3/KG) | .17159 | .17753 | .18346 | .18938 | .19529 | .20118 | .20707 | .21295 | .21882 |
| | H/(KJ/KG) | 1641.5 | 1725.4 | 1810.9 | 1897.8 | 1986.2 | 2076.0 | 2167.1 | 2259.6 | 2353.2 |
| | S/(KJ/KG K) | 3.6720 | 3.7821 | 3.8906 | 3.9976 | 4.1032 | 4.2072 | 4.3099 | 4.4112 | 4.5112 |
| | C/(M/SEC) | 297.3415 | 302.5051 | 307.5607 | 312.5162 | 317.3785 | 322.1537 | 326.8471 | 331.4636 | 336.0076 |
| | KAPPA/(1/MPA) | 2.0153 | 2.0127 | 2.0105 | 2.0085 | 2.0068 | 2.0053 | 2.0039 | 2.0027 | 2.0016 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .6000 | V/(M3/KG) | .14277 | .14775 | .15272 | .15768 | .16263 | .16756 | .17249 | .17741 | .18232 |
| | H/(KJ/KG) | 1640.8 | 1724.8 | 1810.3 | 1897.3 | 1985.7 | 2075.5 | 2166.7 | 2259.1 | 2352.8 |
| | S/(KJ/KG K) | 3.6502 | 3.7604 | 3.8689 | 3.9760 | 4.0816 | 4.1857 | 4.2884 | 4.3898 | 4.4897 |
| | C/(M/SEC) | 296.9614 | 302.1895 | 307.3027 | 312.3099 | 317.2189 | 322.0363 | 326.7682 | 331.4198 | 335.9960 |
| | KAPPA/(1/MPA) | 1.6819 | 1.6793 | 1.6771 | 1.6751 | 1.6734 | 1.6719 | 1.6705 | 1.6693 | 1.6683 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |

THERMODYNAMIC PROPERTIES OF PENTANE

| P/(MPA) | | TEMPERATURES/(K) 310.000 | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00167 | .00171 | .00180 | .00191 | .05647 | .06214 | .06745 | .07252 | .07740 |
| | H/(KJ/KG) | 135.8 | 173.3 | 238.8 | 307.6 | 652.3 | 710.4 | 770.2 | 831.9 | 895.7 |
| | S/(KJ/KG K) | .4868 | .6051 | .7992 | .9890 | 1.8927 | 2.0334 | 2.1701 | 2.3036 | 2.4345 |
| | C/(M/SEC) | 923.1591 | 850.8665 | 734.8178 | 619.1926 | 192.2378 | 204.3209 | 214.7578 | 224.0688 | 232.5603 |
| | KAPPA/(1/MPA) | .0026 | .0031 | .0044 | .0066 | 1.7009 | 1.6274 | 1.5800 | 1.5473 | 1.5236 |
| | BETA/(1000/K) | 1.8 | 1.9 | 2.1 | 2.5 | 4.2 | 3.5 | 3.1 | 2.7 | 2.5 |
| .8000 | V/(M3/KG) | .00167 | .00171 | .00180 | .00191 | .04803 | .05328 | .05812 | .06269 | .06708 |
| | H/(KJ/KG) | 135.8 | 173.4 | 238.8 | 307.6 | 648.4 | 707.2 | 767.6 | 829.7 | 893.8 |
| | S/(KJ/KG K) | .4865 | .6048 | .7988 | .9885 | 1.8699 | 2.0125 | 2.1505 | 2.2848 | 2.4163 |
| | C/(M/SEC) | 918.3624 | 847.4411 | 736.3967 | 621.2048 | 187.1832 | 200.5005 | 211.7482 | 221.6349 | 230.5564 |
| | KAPPA/(1/MPA) | .0026 | .0031 | .0044 | .0065 | 1.5450 | 1.4600 | 1.4075 | 1.3723 | 1.3471 |
| | BETA/(1000/K) | 1.8 | 1.9 | 2.1 | 2.5 | 4.6 | 3.8 | 3.2 | 2.9 | 2.6 |
| .9000 | V/(M3/KG) | .00167 | .00171 | .00180 | .00191 | .04140 | .04634 | .05084 | .05504 | .05904 |
| | H/(KJ/KG) | 135.9 | 173.4 | 238.9 | 307.6 | 644.3 | 704.0 | 764.9 | 827.4 | 891.8 |
| | S/(KJ/KG K) | .4862 | .6045 | .7984 | .9880 | 1.8484 | 1.9932 | 2.1325 | 2.2677 | 2.3998 |
| | C/(M/SEC) | 921.3099 | 850.4773 | 735.1639 | 623.2058 | 181.7521 | 196.4983 | 208.6405 | 219.1447 | 228.5192 |
| | KAPPA/(1/MPA) | .0026 | .0031 | .0043 | .0065 | 1.4335 | 1.3337 | 1.2753 | 1.2372 | 1.2105 |
| | BETA/(1000/K) | 1.8 | 1.9 | 2.1 | 2.5 | 5.1 | 4.0 | 3.4 | 3.0 | 2.7 |
| 1.0000 | V/(M3/KG) | .00167 | .00171 | .00180 | .00190 | .03602 | .04076 | .04499 | .04890 | .05261 |
| | H/(KJ/KG) | 136.0 | 173.5 | 238.9 | 307.6 | 639.8 | 700.6 | 762.1 | 825.2 | 889.9 |
| | S/(KJ/KG K) | .4860 | .6041 | .7981 | .9876 | 1.8277 | 1.9750 | 2.1157 | 2.2520 | 2.3847 |
| | C/(M/SEC) | 924.3078 | 853.5663 | 738.5238 | 625.1804 | 175.8614 | 192.2905 | 205.4265 | 216.5952 | 226.4476 |
| | KAPPA/(1/MPA) | .0026 | .0031 | .0043 | .0064 | 1.3565 | 1.2371 | 1.1715 | 1.1301 | 1.1018 |
| | BETA/(1000/K) | 1.8 | 1.9 | 2.1 | 2.5 | 5.7 | 4.4 | 3.6 | 3.1 | 2.8 |
| 2.0000 | V/(M3/KG) | .00166 | .00171 | .00179 | .00189 | .00202 | .00221 | .01785 | .02089 | .02341 |
| | H/(KJ/KG) | 136.7 | 174.2 | 239.4 | 307.8 | 379.3 | 455.6 | 727.9 | 798.7 | 868.2 |
| | S/(KJ/KG K) | .4830 | .6010 | .7944 | .9830 | 1.1675 | 1.3526 | 1.9761 | 2.1292 | 2.2719 |
| | C/(M/SEC) | 937.9160 | 867.3016 | 754.8199 | 644.4092 | 529.5663 | 398.6632 | 164.1544 | 186.8918 | 203.5583 |
| | KAPPA/(1/MPA) | .0025 | .0030 | .0041 | .0060 | .0096 | .0195 | .8285 | .6945 | .6340 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.0 | 2.4 | 2.9 | 4.4 | 7.8 | 5.2 | 4.0 |
| 3.0000 | V/(M3/KG) | .00166 | .00170 | .00178 | .00188 | .00200 | .00217 | .00247 | .01055 | .01328 |
| | H/(KJ/KG) | 137.5 | 174.9 | 240.0 | 308.1 | 379.0 | 454.1 | 539.2 | 758.5 | 840.7 |
| | S/(KJ/KG K) | .4802 | .5979 | .7908 | .9787 | 1.1618 | 1.3437 | 1.5383 | 2.0126 | 2.1815 |
| | C/(M/SEC) | 948.9146 | 879.5250 | 769.5258 | 662.5958 | 553.2732 | 433.3424 | 282.2449 | 143.5020 | 175.7662 |
| | KAPPA/(1/MPA) | .0025 | .0029 | .0039 | .0056 | .0086 | .0158 | .0479 | .7593 | .5293 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.0 | 2.3 | 2.8 | 3.8 | 7.7 | 13.4 | 6.8 |
| 4.0000 | V/(M3/KG) | .00165 | .00170 | .00178 | .00187 | .00199 | .00214 | .00238 | .00314 | .00771 |
| | H/(KJ/KG) | 138.3 | 175.6 | 240.5 | 308.4 | 378.9 | 452.9 | 534.7 | 637.1 | 800.9 |
| | S/(KJ/KG K) | .4773 | .5949 | .7873 | .9745 | 1.1565 | 1.3360 | 1.5227 | 1.7439 | 2.0813 |
| | C/(M/SEC) | 959.6628 | 891.4040 | 783.7000 | 679.8833 | 575.2298 | 463.5306 | 333.5684 | 159.7360 | 144.7411 |
| | KAPPA/(1/MPA) | .0024 | .0028 | .0038 | .0053 | .0079 | .0133 | .0305 | .3268 | .5818 |
| | BETA/(1000/K) | 1.7 | 1.8 | 1.9 | 2.2 | 2.6 | 3.4 | 5.5 | 29.8 | 15.0 |

THERMODYNAMIC PROPERTIES OF PENTANE

| P/(MPA) | | TEMPERATURES/(K) 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .08216 | .08681 | .09139 | .09590 | .10036 | .10478 | .10917 | .11353 | .11787 |
| | H/(KJ/KG) | 961.5 | 1029.4 | 1099.2 | 1171.0 | 1244.8 | 1320.4 | 1397.7 | 1476.9 | 1557.7 |
| | S/(KJ/KG K) | 2.5629 | 2.6892 | 2.8134 | 2.9356 | 3.0560 | 3.1746 | 3.2914 | 3.4065 | 3.5199 |
| | C/(M/SEC) | 240.4279 | 247.8037 | 254.7813 | 261.4288 | 267.7974 | 273.9267 | 279.8475 | 285.5845 | 291.1578 |
| | KAPPA/(1/MPA) | 1.5057 | 1.4920 | 1.4811 | 1.4724 | 1.4653 | 1.4594 | 1.4545 | 1.4504 | 1.4468 |
| | BETA/(1000/K) | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 |
| .8000 | V/(M3/KG) | .07133 | .07548 | .07954 | .08354 | .08749 | .09140 | .09528 | .09913 | .10295 |
| | H/(KJ/KG) | 959.8 | 1027.9 | 1097.9 | 1169.9 | 1243.7 | 1319.4 | 1396.8 | 1476.0 | 1556.9 |
| | S/(KJ/KG K) | 2.5452 | 2.6718 | 2.7963 | 2.9188 | 3.0393 | 3.1580 | 3.2750 | 3.3902 | 3.5037 |
| | C/(M/SEC) | 238.7570 | 246.3979 | 253.5910 | 260.4168 | 266.9352 | 273.1918 | 279.2219 | 285.0538 | 290.7100 |
| | KAPPA/(1/MPA) | 1.3285 | 1.3142 | 1.3031 | 1.2941 | 1.2869 | 1.2809 | 1.2760 | 1.2718 | 1.2683 |
| | BETA/(1000/K) | 2.4 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 |
| .9000 | V/(M3/KG) | .06290 | .06666 | .07033 | .07393 | .07749 | .08100 | .08447 | .08792 | .09134 |
| | H/(KJ/KG) | 958.1 | 1026.4 | 1096.6 | 1168.7 | 1242.6 | 1318.4 | 1396.0 | 1475.2 | 1556.2 |
| | S/(KJ/KG K) | 2.5292 | 2.6562 | 2.7810 | 2.9037 | 3.0244 | 3.1433 | 3.2604 | 3.3757 | 3.4893 |
| | C/(M/SEC) | 237.0663 | 244.9805 | 252.3943 | 259.4018 | 266.0722 | 272.4575 | 278.5980 | 284.5253 | 290.2649 |
| | KAPPA/(1/MPA) | 1.1910 | 1.1762 | 1.1647 | 1.1556 | 1.1482 | 1.1422 | 1.1372 | 1.1329 | 1.1294 |
| | BETA/(1000/K) | 2.4 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 |
| 1.0000 | V/(M3/KG) | .05616 | .05960 | .06295 | .06624 | .06948 | .07267 | .07583 | .07896 | .08206 |
| | H/(KJ/KG) | 956.4 | 1024.9 | 1095.2 | 1167.5 | 1241.5 | 1317.4 | 1395.1 | 1474.4 | 1555.4 |
| | S/(KJ/KG K) | 2.5146 | 2.6420 | 2.7671 | 2.8900 | 3.0110 | 3.1300 | 3.2472 | 3.3626 | 3.4763 |
| | C/(M/SEC) | 235.3553 | 243.5514 | 251.1913 | 258.3840 | 265.2086 | 271.7241 | 277.9758 | 283.9992 | 289.8224 |
| | KAPPA/(1/MPA) | 1.0813 | 1.0660 | 1.0542 | 1.0448 | 1.0373 | 1.0312 | 1.0261 | 1.0218 | 1.0182 |
| | BETA/(1000/K) | 2.5 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 |
| 2.0000 | V/(M3/KG) | .02567 | .02776 | .02973 | .03161 | .03343 | .03520 | .03693 | .03862 | .04029 |
| | H/(KJ/KG) | 938.1 | 1009.0 | 1081.3 | 1155.1 | 1230.4 | 1307.4 | 1385.9 | 1466.0 | 1547.7 |
| | S/(KJ/KG K) | 2.4083 | 2.5403 | 2.6688 | 2.7944 | 2.9174 | 3.0381 | 3.1567 | 3.2732 | 3.3879 |
| | C/(M/SEC) | 217.0819 | 228.6482 | 238.8696 | 248.1072 | 256.5929 | 264.4845 | 271.8946 | 278.9059 | 285.5809 |
| | KAPPA/(1/MPA) | .5991 | .5762 | .5602 | .5484 | .5393 | .5322 | .5265 | .5218 | .5180 |
| | BETA/(1000/K) | 3.4 | 2.9 | 2.6 | 2.3 | 2.1 | 2.0 | 1.9 | 1.7 | 1.6 |
| 3.0000 | V/(M3/KG) | .01531 | .01704 | .01860 | .02005 | .02141 | .02272 | .02397 | .02520 | .02639 |
| | H/(KJ/KG) | 916.6 | 991.3 | 1066.2 | 1141.9 | 1218.8 | 1297.0 | 1376.6 | 1457.5 | 1539.9 |
| | S/(KJ/KG K) | 2.3296 | 2.4686 | 2.6018 | 2.7307 | 2.8563 | 2.9789 | 3.0990 | 3.2168 | 3.3324 |
| | C/(M/SEC) | 196.7284 | 212.8971 | 226.3135 | 237.9230 | 248.2490 | 257.6144 | 266.2332 | 274.2544 | 281.7863 |
| | KAPPA/(1/MPA) | .4582 | .4220 | .3999 | .3849 | .3742 | .3661 | .3598 | .3548 | .3507 |
| | BETA/(1000/K) | 4.8 | 3.8 | 3.2 | 2.8 | 2.5 | 2.3 | 2.1 | 1.9 | 1.8 |
| 4.0000 | V/(M3/KG) | .00997 | .01162 | .01302 | .01426 | .01541 | .01649 | .01752 | .01850 | .01946 |
| | H/(KJ/KG) | 890.5 | 971.2 | 1049.7 | 1128.0 | 1206.7 | 1286.3 | 1367.0 | 1448.9 | 1532.1 |
| | S/(KJ/KG K) | 2.2563 | 2.4065 | 2.5461 | 2.6793 | 2.8079 | 2.9327 | 3.0546 | 3.1737 | 3.2905 |
| | C/(M/SEC) | 175.7614 | 197.4148 | 214.3523 | 228.4512 | 240.6468 | 251.4754 | 261.2739 | 270.2682 | 278.6170 |
| | KAPPA/(1/MPA) | .4098 | .3518 | .3220 | .3037 | .2914 | .2825 | .2758 | .2706 | .2664 |
| | BETA/(1000/K) | 7.4 | 5.2 | 4.0 | 3.3 | 2.9 | 2.5 | 2.3 | 2.1 | 1.9 |

THERMODYNAMIC PROPERTIES OF PENTANE

| P/(MPA) | | TEMPERATURES/(K) 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .12219 | .12649 | .13077 | .13504 | .13930 | .14355 | .14779 | .15203 | .15625 |
| | H/(KJ/KG) | 1640.1 | 1724.1 | 1809.7 | 1896.7 | 1985.2 | 2075.0 | 2166.2 | 2258.7 | 2352.4 |
| | S/(KJ/KG K) | 3.6317 | 3.7419 | 3.8505 | 3.9576 | 4.0633 | 4.1674 | 4.2702 | 4.3715 | 4.4715 |
| | C/(M/SEC) | 296.5839 | 301.8766 | 307.0475 | 312.1065 | 317.0620 | 321.9217 | 326.6920 | 331.3786 | 335.9867 |
| | KAPPA/(1/MPA) | 1.4438 | 1.4412 | 1.4390 | 1.4370 | 1.4353 | 1.4337 | 1.4324 | 1.4312 | 1.4301 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .8000 | V/(M3/KG) | .10675 | .11054 | .11431 | .11806 | .12181 | .12554 | .12927 | .13299 | .13670 |
| | H/(KJ/KG) | 1639.4 | 1723.5 | 1809.1 | 1896.1 | 1984.6 | 2074.5 | 2165.7 | 2258.2 | 2352.0 |
| | S/(KJ/KG K) | 3.6155 | 3.7258 | 3.8345 | 3.9417 | 4.0473 | 4.1515 | 4.2543 | 4.3557 | 4.4557 |
| | C/(M/SEC) | 296.2092 | 301.5666 | 306.7952 | 311.9058 | 316.9080 | 321.8098 | 326.6184 | 331.3399 | 335.9799 |
| | KAPPA/(1/MPA) | 1.2652 | 1.2626 | 1.2603 | 1.2584 | 1.2566 | 1.2551 | 1.2538 | 1.2526 | 1.2515 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| .9000 | V/(M3/KG) | .09475 | .09813 | .10150 | .10486 | .10820 | .11154 | .11486 | .11818 | .12149 |
| | H/(KJ/KG) | 1638.7 | 1722.8 | 1808.5 | 1895.6 | 1984.1 | 2074.0 | 2165.2 | 2257.8 | 2351.6 |
| | S/(KJ/KG K) | 3.6012 | 3.7115 | 3.8203 | 3.9275 | 4.0332 | 4.1374 | 4.2402 | 4.3417 | 4.4417 |
| | C/(M/SEC) | 295.8372 | 301.2595 | 306.5458 | 311.7082 | 316.7569 | 321.7008 | 326.5475 | 331.3037 | 335.9756 |
| | KAPPA/(1/MPA) | 1.1263 | 1.1237 | 1.1214 | 1.1194 | 1.1177 | 1.1162 | 1.1148 | 1.1136 | 1.1126 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| 1.0000 | V/(M3/KG) | .08514 | .08821 | .09126 | .09429 | .09732 | .10033 | .10334 | .10634 | .10933 |
| | H/(KJ/KG) | 1638.0 | 1722.2 | 1807.8 | 1895.0 | 1983.6 | 2073.5 | 2164.8 | 2257.3 | 2351.1 |
| | S/(KJ/KG K) | 3.5883 | 3.6987 | 3.8075 | 3.9147 | 4.0205 | 4.1248 | 4.2276 | 4.3291 | 4.4291 |
| | C/(M/SEC) | 295.4682 | 300.9554 | 306.2995 | 311.5136 | 316.6087 | 321.5946 | 326.4793 | 331.2702 | 335.9737 |
| | KAPPA/(1/MPA) | 1.0152 | 1.0125 | 1.0103 | 1.0083 | 1.0065 | 1.0050 | 1.0037 | 1.0025 | 1.0014 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| 2.0000 | V/(M3/KG) | .04194 | .04356 | .04517 | .04677 | .04836 | .04993 | .05149 | .05305 | .05460 |
| | H/(KJ/KG) | 1630.9 | 1715.6 | 1801.7 | 1889.3 | 1978.2 | 2068.5 | 2160.1 | 2252.9 | 2347.0 |
| | S/(KJ/KG K) | 3.5007 | 3.6117 | 3.7211 | 3.8289 | 3.9351 | 4.0397 | 4.1429 | 4.2447 | 4.3450 |
| | C/(M/SEC) | 291.9684 | 298.1066 | 304.0263 | 309.7526 | 315.3062 | 320.7045 | 325.9620 | 331.0912 | 336.1030 |
| | KAPPA/(1/MPA) | .5148 | .5120 | .5097 | .5077 | .5060 | .5044 | .5031 | .5019 | .5009 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| 3.0000 | V/(M3/KG) | .02756 | .02871 | .02984 | .03095 | .03206 | .03315 | .03423 | .03531 | .03638 |
| | H/(KJ/KG) | 1623.7 | 1709.0 | 1795.6 | 1883.6 | 1972.9 | 2063.5 | 2155.4 | 2248.5 | 2342.8 |
| | S/(KJ/KG K) | 3.4461 | 3.5579 | 3.6679 | 3.7762 | 3.8828 | 3.9879 | 4.0914 | 4.1935 | 4.2941 |
| | C/(M/SEC) | 288.9096 | 295.6866 | 302.1658 | 308.3860 | 314.3786 | 320.1693 | 325.7797 | 331.2278 | 336.5287 |
| | KAPPA/(1/MPA) | .3474 | .3446 | .3423 | .3403 | .3386 | .3371 | .3358 | .3347 | .3337 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 |
| 4.0000 | V/(M3/KG) | .02039 | .02130 | .02219 | .02306 | .02393 | .02478 | .02562 | .02646 | .02728 |
| | H/(KJ/KG) | 1616.6 | 1702.4 | 1789.5 | 1877.9 | 1967.6 | 2058.6 | 2150.8 | 2244.2 | 2338.8 |
| | S/(KJ/KG K) | 3.4050 | 3.5176 | 3.6282 | 3.7370 | 3.8442 | 3.9496 | 4.0535 | 4.1559 | 4.2568 |
| | C/(M/SEC) | 286.4363 | 293.8134 | 300.8151 | 307.4944 | 313.8934 | 320.0462 | 325.9811 | 331.7215 | 337.2871 |
| | KAPPA/(1/MPA) | .2631 | .2603 | .2580 | .2561 | .2544 | .2530 | .2517 | .2507 | .2497 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 |

## THERMODYNAMIC PROPERTIES OF PENTANE

### TEMPERATURES/(K)

| P/(MPA) | | 310.000 | 325.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00165 | .00169 | .00177 | .00186 | .00197 | .00211 | .00231 | .00272 | .00438 |
| | H/(KJ/KG) | 139.1 | 176.3 | 241.1 | 308.8 | 378.9 | 452.1 | 531.8 | 618.5 | 745.7 |
| | S/(KJ/KG K) | .4746 | .5919 | .7839 | .9705 | 1.1515 | 1.3291 | 1.5111 | 1.6986 | 1.9593 |
| | C/(M/SEC) | 970.1536 | 902.9647 | 797.3899 | 696.3818 | 595.7484 | 490.5341 | 373.6032 | 243.0297 | 144.0130 |
| | KAPPA/(1/MPA) | .0023 | .0027 | .0036 | .0050 | .0072 | .0116 | .0228 | .0763 | .4462 |
| | BETA/(1000/K) | 1.7 | 1.7 | 1.9 | 2.1 | 2.5 | 3.1 | 4.5 | 9.7 | 24.1 |
| 6.0000 | V/(M3/KG) | .00165 | .00169 | .00177 | .00185 | .00196 | .00209 | .00227 | .00257 | .00329 |
| | H/(KJ/KG) | 139.9 | 177.1 | 241.8 | 309.2 | 378.9 | 451.6 | 529.8 | 611.3 | 712.7 |
| | S/(KJ/KG K) | .4718 | .5890 | .7806 | .9666 | 1.1467 | 1.3228 | 1.5015 | 1.6780 | 1.8858 |
| | C/(M/SEC) | 980.4052 | 914.2280 | 810.6376 | 712.1880 | 615.0572 | 515.1318 | 407.3358 | 296.0439 | 187.5849 |
| | KAPPA/(1/MPA) | .0023 | .0027 | .0035 | .0047 | .0067 | .0103 | .0183 | .0436 | .1689 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.8 | 2.0 | 2.4 | 2.9 | 3.9 | 6.5 | 14.5 |
| 7.0000 | V/(M3/KG) | .00164 | .00168 | .00176 | .00184 | .00194 | .00207 | .00223 | .00247 | .00293 |
| | H/(KJ/KG) | 140.7 | 177.8 | 242.4 | 309.6 | 379.1 | 451.2 | 528.3 | 607.0 | 698.3 |
| | S/(KJ/KG K) | .4692 | .5862 | .7774 | .9629 | 1.1422 | 1.3171 | 1.4933 | 1.6636 | 1.8508 |
| | C/(M/SEC) | 990.4304 | 925.2116 | 823.4747 | 727.3562 | 633.3362 | 537.8277 | 436.9148 | 337.4698 | 237.2965 |
| | KAPPA/(1/MPA) | .0022 | .0026 | .0034 | .0045 | .0063 | .0093 | .0154 | .0307 | .0816 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.8 | 2.0 | 2.3 | 2.7 | 3.5 | 5.1 | 8.9 |
| 8.0000 | V/(M3/KG) | .00164 | .00168 | .00175 | .00184 | .00193 | .00205 | .00220 | .00241 | .00275 |
| | H/(KJ/KG) | 141.5 | 178.6 | 243.0 | 310.1 | 379.3 | 451.0 | 527.3 | 604.0 | 690.4 |
| | S/(KJ/KG K) | .4665 | .5833 | .7743 | .9593 | 1.1380 | 1.3117 | 1.4860 | 1.6523 | 1.8293 |
| | C/(M/SEC) | 1000.2412 | 935.9326 | 835.9343 | 741.9589 | 650.7060 | 558.9717 | 463.4953 | 372.3373 | 280.3101 |
| | KAPPA/(1/MPA) | .0022 | .0025 | .0032 | .0043 | .0059 | .0085 | .0133 | .0238 | .0509 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.8 | 1.9 | 2.2 | 2.5 | 3.1 | 4.3 | 6.5 |
| 9.0000 | V/(M3/KG) | .00164 | .00168 | .00175 | .00183 | .00192 | .00203 | .00217 | .00236 | .00263 |
| | H/(KJ/KG) | 142.4 | 179.4 | 243.7 | 310.6 | 379.6 | 450.9 | 526.5 | 601.9 | 685.3 |
| | S/(KJ/KG K) | .4639 | .5806 | .7712 | .9558 | 1.1338 | 1.3066 | 1.4794 | 1.6427 | 1.8137 |
| | C/(M/SEC) | 1009.8563 | 946.4062 | 848.0438 | 756.0486 | 667.2892 | 578.8277 | 487.7894 | 402.8755 | 317.2801 |
| | KAPPA/(1/MPA) | .0021 | .0024 | .0031 | .0041 | .0055 | .0078 | .0117 | .0195 | .0364 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.7 | 1.9 | 2.1 | 2.4 | 2.9 | 3.7 | 5.2 |
| 10.0000 | V/(M3/KG) | .00163 | .00167 | .00174 | .00182 | .00191 | .00202 | .00215 | .00232 | .00255 |
| | H/(KJ/KG) | 143.2 | 180.2 | 244.4 | 311.2 | 379.9 | 450.9 | 525.9 | 600.3 | 681.7 |
| | S/(KJ/KG K) | .4613 | .5779 | .7682 | .9524 | 1.1299 | 1.3019 | 1.4733 | 1.6344 | 1.8013 |
| | C/(M/SEC) | 1019.2630 | 956.6360 | 859.8231 | 769.6649 | 683.1742 | 597.5815 | 510.2580 | 430.2780 | 349.7657 |
| | KAPPA/(1/MPA) | .0021 | .0024 | .0030 | .0039 | .0052 | .0072 | .0105 | .0165 | .0282 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.7 | 1.8 | 2.0 | 2.3 | 2.7 | 3.4 | 4.4 |

THERMODYNAMIC PROPERTIES OF PENTANE

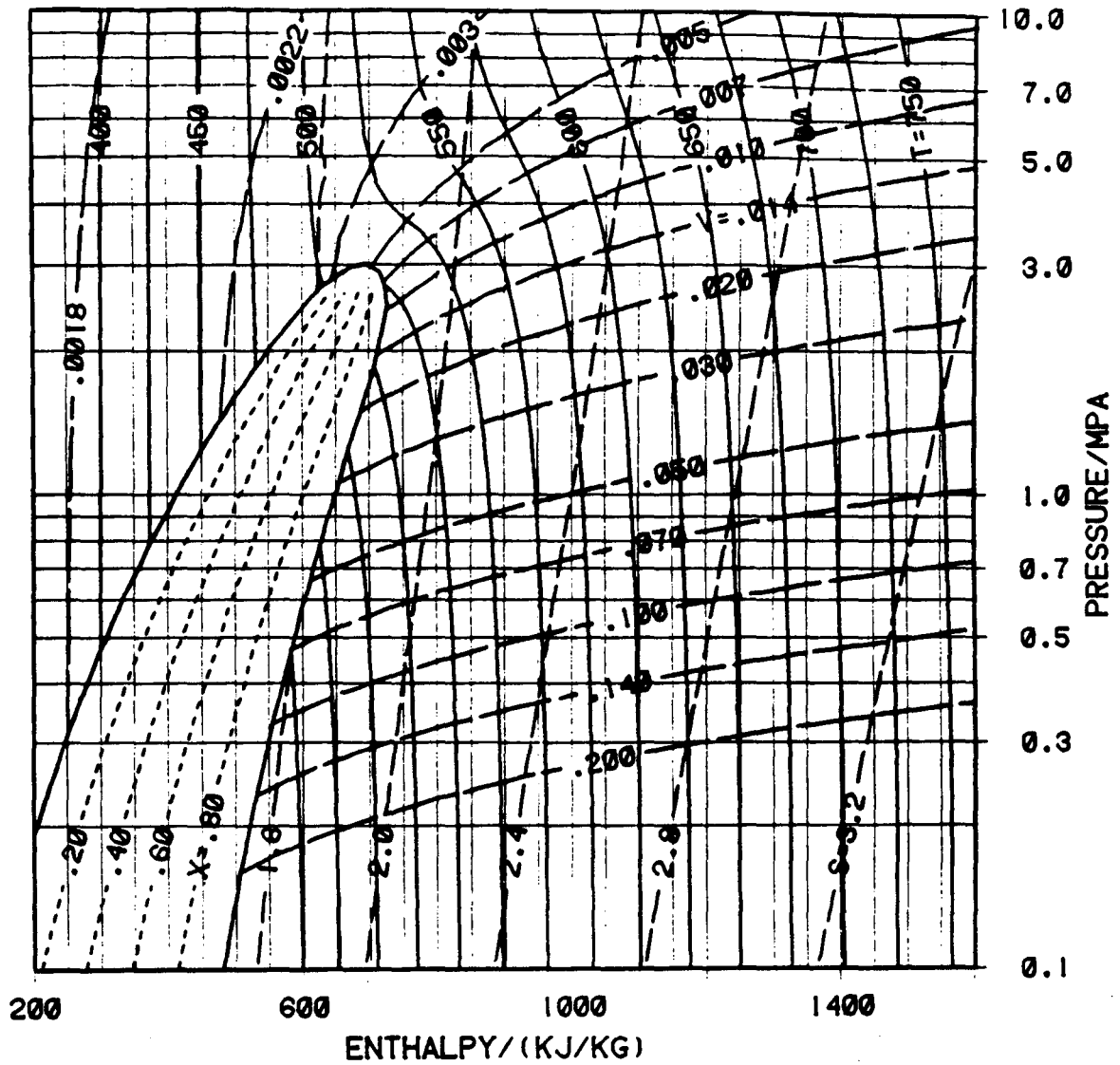
TEMPERATURES/(K)

| P/(MPA) | | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00671 | .00836 | .00968 | .01081 | .01183 | .01278 | .01367 | .01451 | .01532 |
| | H/(KJ/KG) | 858.8 | 948.7 | 1032.1 | 1113.3 | 1194.2 | 1275.4 | 1357.3 | 1440.2 | 1524.2 |
| | S/(KJ/KG K) | 2.1802 | 2.3477 | 2.4959 | 2.6343 | 2.7663 | 2.8936 | 3.0173 | 3.1380 | 3.2559 |
| | C/(M/SEC) | 161.4704 | 185.1728 | 204.5825 | 220.6727 | 234.4381 | 246.5233 | 257.3474 | 267.1937 | 276.2611 |
| | KAPPA/(1/MPA) | .3766 | .3082 | .2737 | .2535 | .2403 | .2311 | .2243 | .2191 | .2150 |
| | BETA/(1000/K) | 11.4 | 6.9 | 5.0 | 4.0 | 3.3 | 2.9 | 2.5 | 2.3 | 2.1 |
| 6.0000 | V/(M3/KG) | .00481 | .00629 | .00751 | .00855 | .00949 | .01034 | .01113 | .01188 | .01259 |
| | H/(KJ/KG) | 826.7 | 925.1 | 1013.7 | 1098.4 | 1181.5 | 1264.4 | 1347.7 | 1431.6 | 1516.5 |
| | S/(KJ/KG K) | 2.1084 | 2.2916 | 2.4492 | 2.5933 | 2.7291 | 2.8591 | 2.9848 | 3.1069 | 3.2260 |
| | C/(M/SEC) | 166.2734 | 181.1109 | 199.3050 | 215.8425 | 230.3839 | 243.2542 | 254.7940 | 265.2733 | 274.8961 |
| | KAPPA/(1/MPA) | .2790 | .2598 | .2339 | .2159 | .2036 | .1950 | .1886 | .1837 | .1798 |
| | BETA/(1000/K) | 13.3 | 8.5 | 6.0 | 4.6 | 3.7 | 3.2 | 2.8 | 2.5 | 2.2 |
| 7.0000 | V/(M3/KG) | .00385 | .00499 | .00606 | .00701 | .00786 | .00863 | .00935 | .01002 | .01066 |
| | H/(KJ/KG) | 802.6 | 903.4 | 995.9 | 1083.6 | 1169.0 | 1253.6 | 1338.1 | 1423.1 | 1508.8 |
| | S/(KJ/KG K) | 2.0543 | 2.2420 | 2.4065 | 2.5558 | 2.6952 | 2.8279 | 2.9556 | 3.0792 | 3.1995 |
| | C/(M/SEC) | 187.6869 | 187.7185 | 200.3427 | 215.0519 | 229.1533 | 242.0983 | 253.9023 | 264.7075 | 274.6653 |
| | KAPPA/(1/MPA) | .1737 | .2001 | .1939 | .1832 | .1740 | .1669 | .1614 | .1571 | .1538 |
| | BETA/(1000/K) | 11.6 | 9.1 | 6.6 | 5.1 | 4.1 | 3.4 | 3.0 | 2.6 | 2.4 |
| 8.0000 | V/(M3/KG) | .00335 | .00420 | .00509 | .00593 | .00669 | .00739 | .00804 | .00866 | .00924 |
| | H/(KJ/KG) | 786.7 | 885.7 | 979.9 | 1069.8 | 1157.0 | 1243.1 | 1328.9 | 1414.9 | 1501.4 |
| | S/(KJ/KG K) | 2.0173 | 2.2015 | 2.3690 | 2.5220 | 2.6645 | 2.7996 | 2.9291 | 3.0542 | 3.1756 |
| | C/(M/SEC) | 217.9964 | 202.4790 | 207.5655 | 218.6311 | 231.0637 | 243.2946 | 254.8437 | 265.6184 | 275.6559 |
| | KAPPA/(1/MPA) | .1070 | .1460 | .1553 | .1531 | .1483 | .1436 | .1395 | .1361 | .1333 |
| | BETA/(1000/K) | 9.1 | 8.5 | 6.8 | 5.4 | 4.4 | 3.7 | 3.1 | 2.8 | 2.5 |
| 9.0000 | V/(M3/KG) | .00307 | .00371 | .00444 | .00515 | .00583 | .00647 | .00706 | .00762 | .00816 |
| | H/(KJ/KG) | 776.4 | 872.1 | 966.3 | 1057.3 | 1145.9 | 1233.3 | 1320.1 | 1407.0 | 1494.3 |
| | S/(KJ/KG K) | 1.9915 | 2.1696 | 2.3371 | 2.4920 | 2.6368 | 2.7738 | 2.9049 | 3.0313 | 3.1539 |
| | C/(M/SEC) | 251.1977 | 222.5480 | 219.4796 | 226.0498 | 235.9698 | 246.8239 | 257.6345 | 268.0282 | 277.8873 |
| | KAPPA/(1/MPA) | .0704 | .1056 | .1221 | .1264 | .1258 | .1236 | .1211 | .1187 | .1166 |
| | BETA/(1000/K) | 7.1 | 7.6 | 6.6 | 5.4 | 4.5 | 3.8 | 3.3 | 2.9 | 2.6 |
| 10.0000 | V/(M3/KG) | .00290 | .00339 | .00398 | .00460 | .00520 | .00577 | .00631 | .00682 | .00731 |
| | H/(KJ/KG) | 769.3 | 861.9 | 955.1 | 1046.4 | 1135.9 | 1224.2 | 1311.9 | 1399.6 | 1487.6 |
| | S/(KJ/KG K) | 1.9724 | 2.1446 | 2.3103 | 2.4658 | 2.6119 | 2.7504 | 2.8829 | 3.0104 | 3.1339 |
| | C/(M/SEC) | 283.5843 | 245.9639 | 234.7335 | 236.4431 | 243.4115 | 252.4502 | 262.1487 | 271.8643 | 281.3135 |
| | KAPPA/(1/MPA) | .0501 | .0775 | .0957 | .1038 | .1063 | .1064 | .1054 | .1040 | .1027 |
| | BETA/(1000/K) | 5.8 | 6.6 | 6.2 | 5.3 | 4.5 | 3.9 | 3.3 | 2.9 | 2.6 |

THERMODYNAMIC PROPERTIES OF PENTANE

TEMPERATURES/(K)

| P/(MPA) | | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .01611 | .01687 | .01762 | .01835 | .01907 | .01977 | .02047 | .02116 | .02184 |
| | H/(KJ/KG) | 1609.4 | 1695.8 | 1783.5 | 1872.4 | 1962.5 | 2053.8 | 2146.3 | 2240.0 | 2334.9 |
| | S/(KJ/KG K) | 3.3714 | 3.4847 | 3.5960 | 3.7054 | 3.8130 | 3.9189 | 4.0231 | 4.1258 | 4.2270 |
| | C/(M/SEC) | 284.6944 | 292.6017 | 300.0660 | 307.1519 | 313.9109 | 320.3847 | 326.6073 | 332.6070 | 338.4072 |
| | KAPPA/(1/MPA) | .2118 | .2091 | .2069 | .2050 | .2034 | .2021 | .2009 | .1999 | .1991 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 |
| 6.0000 | V/(M3/KG) | .01328 | .01394 | .01459 | .01522 | .01584 | .01645 | .01705 | .01764 | .01822 |
| | H/(KJ/KG) | 1602.4 | 1689.4 | 1777.6 | 1866.9 | 1957.4 | 2049.1 | 2141.9 | 2235.9 | 2331.0 |
| | S/(KJ/KG K) | 3.3425 | 3.4566 | 3.5686 | 3.6785 | 3.7866 | 3.8929 | 3.9975 | 4.1005 | 4.2020 |
| | C/(M/SEC) | 283.8168 | 292.1532 | 299.9969 | 307.4201 | 314.4803 | 321.2243 | 327.6903 | 333.9103 | 339.9106 |
| | KAPPA/(1/MPA) | .1768 | .1743 | .1722 | .1705 | .1691 | .1678 | .1668 | .1658 | .1650 |
| | BETA/(1000/K) | 2.0 | 1.9 | 1.8 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 |
| 7.0000 | V/(M3/KG) | .01128 | .01187 | .01245 | .01301 | .01355 | .01409 | .01462 | .01514 | .01565 |
| | H/(KJ/KG) | 1595.5 | 1683.1 | 1771.8 | 1861.5 | 1952.5 | 2044.5 | 2137.6 | 2231.9 | 2327.3 |
| | S/(KJ/KG K) | 3.3170 | 3.4319 | 3.5445 | 3.6550 | 3.7636 | 3.8703 | 3.9752 | 4.0786 | 4.1803 |
| | C/(M/SEC) | 283.9081 | 292.5455 | 300.6666 | 308.3436 | 315.6357 | 322.5914 | 329.2508 | 335.6477 | 341.8102 |
| | KAPPA/(1/MPA) | .1510 | .1488 | .1470 | .1454 | .1441 | .1430 | .1420 | .1412 | .1405 |
| | BETA/(1000/K) | 2.1 | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 |
| 8.0000 | V/(M3/KG) | .00980 | .01033 | .01085 | .01136 | .01185 | .01233 | .01281 | .01327 | .01373 |
| | H/(KJ/KG) | 1588.7 | 1677.0 | 1766.1 | 1856.4 | 1947.7 | 2040.0 | 2133.5 | 2228.0 | 2323.6 |
| | S/(KJ/KG K) | 3.2940 | 3.4097 | 3.5230 | 3.6340 | 3.7430 | 3.8501 | 3.9554 | 4.0591 | 4.1610 |
| | C/(M/SEC) | 285.0313 | 293.8242 | 302.1080 | 309.9466 | 317.3948 | 324.4988 | 331.2980 | 337.8257 | 344.1105 |
| | KAPPA/(1/MPA) | .1310 | .1291 | .1275 | .1262 | .1251 | .1241 | .1233 | .1225 | .1219 |
| | BETA/(1000/K) | 2.2 | 2.0 | 1.9 | 1.8 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 |
| 9.0000 | V/(M3/KG) | .00867 | .00916 | .00963 | .01009 | .01054 | .01098 | .01141 | .01183 | .01225 |
| | H/(KJ/KG) | 1582.3 | 1671.0 | 1760.7 | 1851.4 | 1943.0 | 2035.7 | 2129.5 | 2224.3 | 2320.2 |
| | S/(KJ/KG K) | 3.2731 | 3.3895 | 3.5034 | 3.6150 | 3.7244 | 3.8319 | 3.9376 | 4.0415 | 4.1437 |
| | C/(M/SEC) | 287.2008 | 295.9990 | 304.3271 | 312.2319 | 319.7579 | 326.9452 | 333.8293 | 340.4411 | 346.8077 |
| | KAPPA/(1/MPA) | .1149 | .1133 | .1120 | .1109 | .1100 | .1092 | .1085 | .1078 | .1073 |
| | BETA/(1000/K) | 2.3 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 |
| 10.0000 | V/(M3/KG) | .00778 | .00823 | .00867 | .00909 | .00950 | .00991 | .01030 | .01069 | .01107 |
| | H/(KJ/KG) | 1576.1 | 1665.4 | 1755.5 | 1846.6 | 1938.6 | 2031.6 | 2125.6 | 2220.7 | 2316.8 |
| | S/(KJ/KG K) | 3.2540 | 3.3711 | 3.4855 | 3.5976 | 3.7074 | 3.8153 | 3.9213 | 4.0255 | 4.1279 |
| | C/(M/SEC) | 290.3842 | 299.0455 | 307.3038 | 315.1822 | 322.7099 | 329.9169 | 336.8320 | 343.4820 | 349.8909 |
| | KAPPA/(1/MPA) | .1014 | .1003 | .0993 | .0984 | .0977 | .0970 | .0964 | .0959 | .0955 |
| | BETA/(1000/K) | 2.4 | 2.2 | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 |


10.0
7.0
5.0
3.0
1.0
0.7
0.5
0.3
0.1
PRESSURE/MPA
200
600
1000
1400
ENTHALPY/(KJ/KG)
.0018
.0022
.003
.005
.007
.010
.014
.020
.030
.050
.070
.100
.140
.200
V=.014
T=450
.20
.40
.60
X=.80
1.6
2.0
2.4
2.8
3.2

HEXANE

PROPERTIES OF SATURATED HEXANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 345.00000 | .11233 | .00168 | .28032 | 151.71980 | 334.72569 | 486.44549 | .49915 | .97022 | 1.46937 |
| 350.00000 | .13082 | .00170 | .24263 | 164.56588 | 330.45656 | 495.02245 | .53603 | .94416 | 1.48019 |
| 355.00000 | .15158 | .00171 | .21093 | 177.55701 | 326.08264 | 503.63965 | .57279 | .91854 | 1.49133 |
| 360.00000 | .17478 | .00173 | .18413 | 190.68982 | 321.60390 | 512.29372 | .60941 | .89334 | 1.50275 |
| 365.00000 | .20062 | .00174 | .16136 | 203.96093 | 317.02017 | 520.98110 | .64590 | .86855 | 1.51444 |
| 370.00000 | .22926 | .00176 | .14193 | 217.36692 | 312.33118 | 529.69810 | .68224 | .84414 | 1.52638 |
| 375.00000 | .26090 | .00178 | .12526 | 230.90483 | 307.53590 | 538.44073 | .71843 | .82010 | 1.53853 |
| 380.00000 | .29574 | .00179 | .11091 | 244.56960 | 302.63550 | 547.20511 | .75446 | .79641 | 1.55087 |
| 385.00000 | .33396 | .00181 | .09849 | 258.36096 | 297.62536 | 555.98632 | .79034 | .77305 | 1.56339 |
| 390.00000 | .37576 | .00183 | .08771 | 272.27499 | 292.50474 | 564.77973 | .82605 | .75001 | 1.57606 |
| 395.00000 | .42136 | .00185 | .07831 | 286.30963 | 287.27038 | 573.58001 | .86159 | .72727 | 1.58886 |
| 400.00000 | .47095 | .00187 | .07008 | 300.46346 | 281.91785 | 582.38131 | .89697 | .70479 | 1.60176 |
| 405.00000 | .52475 | .00189 | .06286 | 314.73586 | 276.44126 | 591.17712 | .93218 | .68257 | 1.61475 |
| 410.00000 | .58298 | .00191 | .05649 | 329.12720 | 270.83292 | 599.96012 | .96722 | .66057 | 1.62779 |
| 415.00000 | .64586 | .00194 | .05086 | 343.63907 | 265.08297 | 608.72204 | 1.00211 | .63875 | 1.64086 |
| 420.00000 | .71362 | .00196 | .04586 | 358.27450 | 259.17892 | 617.45342 | 1.03685 | .61709 | 1.65394 |
| 425.00000 | .78651 | .00198 | .04141 | 373.03829 | 253.10507 | 626.14335 | 1.07145 | .59554 | 1.66699 |
| 430.00000 | .86477 | .00201 | .03743 | 387.93737 | 246.84181 | 634.77918 | 1.10594 | .57405 | 1.67999 |
| 435.00000 | .94866 | .00204 | .03387 | 402.98126 | 240.36474 | 643.34600 | 1.14033 | .55256 | 1.69289 |
| 440.00000 | 1.03847 | .00207 | .03066 | 418.18260 | 233.64353 | 651.82613 | 1.17465 | .53101 | 1.70566 |
| 445.00000 | 1.13448 | .00210 | .02777 | 433.55826 | 226.63997 | 660.19823 | 1.20895 | .50930 | 1.71825 |
| 450.00000 | 1.23699 | .00213 | .02515 | 449.12841 | 219.30839 | 668.43680 | 1.24326 | .48735 | 1.73061 |
| 455.00000 | 1.34635 | .00217 | .02277 | 464.92200 | 211.58733 | 676.50933 | 1.27764 | .46503 | 1.74267 |
| 460.00000 | 1.46289 | .00221 | .02060 | 480.97357 | 203.40224 | 684.37581 | 1.31217 | .44218 | 1.75435 |
| 465.00000 | 1.58699 | .00226 | .01861 | 497.32872 | 194.65557 | 691.98429 | 1.34693 | .41861 | 1.76554 |
| 470.00000 | 1.71907 | .00231 | .01677 | 514.04766 | 185.21833 | 699.26599 | 1.38205 | .39408 | 1.77613 |
| 475.00000 | 1.85955 | .00236 | .01507 | 531.21053 | 174.91630 | 706.12683 | 1.41768 | .36824 | 1.78592 |
| 480.00000 | 2.00892 | .00243 | .01349 | 548.92744 | 163.50497 | 712.43241 | 1.45403 | .34064 | 1.79467 |
| 485.00000 | 2.16770 | .00250 | .01199 | 567.35722 | 150.62148 | 717.97871 | 1.49142 | .31056 | 1.80198 |
| 490.00000 | 2.33644 | .00259 | .01055 | 586.74559 | 135.68389 | 722.42948 | 1.53030 | .27691 | 1.80721 |
| 495.00000 | 2.51578 | .00272 | .00914 | 607.51680 | 117.63932 | 725.15611 | 1.57151 | .23766 | 1.80917 |
| 500.00000 | 2.70640 | .00290 | .00769 | 630.56867 | 94.12942 | 724.69809 | 1.61677 | .18826 | 1.80503 |
| 505.00000 | 2.90902 | .00325 | .00592 | 658.98817 | 56.39844 | 715.38661 | 1.67208 | .11168 | 1.78376 |
| 507.43000 | 3.12449 | .00429 | .00429 | 691.23756 | 0. | 691.23756 | 1.73407 | 0. | 1.73407 |

THERMODYNAMIC PROPERTIES OF HEXANE

| P/(MPA) | | TEMPERATURES/(K) 345.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 | 525.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .31696 | .32240 | .34914 | .37528 | .40099 | .42638 | .45155 | .47654 | .50139 |
| | H/(KJ/KG) | 487.2 | 496.8 | 546.4 | 598.6 | 653.3 | 710.5 | 770.1 | 832.2 | 896.5 |
| | S/(KJ/KG K) | 1.4822 | 1.5099 | 1.6468 | 1.7814 | 1.9140 | 2.0447 | 2.1737 | 2.3010 | 2.4265 |
| | C/(M/SEC) | 179.4021 | 181.0523 | 188.8729 | 196.1178 | 202.9237 | 209.3812 | 215.5535 | 221.4861 | 227.2127 |
| | KAPPA/(1/MPA) | 10.5259 | 10.4957 | 10.3759 | 10.2923 | 10.2320 | 10.1871 | 10.1529 | 10.1263 | 10.1052 |
| | BETA/(1000/K) | 3.4 | 3.4 | 3.0 | 2.8 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 |
| .1013 | V/(M3/KG) | .31260 | .31798 | .34441 | .37023 | .39562 | .42070 | .44555 | .47022 | .49476 |
| | H/(KJ/KG) | 487.1 | 496.7 | 546.4 | 598.5 | 653.2 | 710.4 | 770.1 | 832.1 | 896.5 |
| | S/(KJ/KG K) | 1.4807 | 1.5084 | 1.6454 | 1.7800 | 1.9126 | 2.0434 | 2.1724 | 2.2996 | 2.4252 |
| | C/(M/SEC) | 179.2901 | 180.9458 | 188.7884 | 196.0494 | 202.8673 | 209.3343 | 215.5140 | 221.4524 | 227.1840 |
| | KAPPA/(1/MPA) | 10.3962 | 10.3658 | 10.2456 | 10.1619 | 10.1014 | 10.0564 | 10.0222 | 9.9955 | 9.9745 |
| | BETA/(1000/K) | 3.5 | 3.4 | 3.0 | 2.8 | 2.6 | 2.4 | 2.2 | 2.1 | 2.0 |
| .2000 | V/(M3/KG) | .00168 | .00170 | .16779 | .18202 | .19575 | .20914 | .22228 | .23523 | .24804 |
| | H/(KJ/KG) | 151.8 | 164.6 | 541.6 | 594.6 | 649.9 | 707.6 | 767.6 | 830.0 | 894.6 |
| | S/(KJ/KG K) | .4989 | .5358 | 1.5704 | 1.7072 | 1.8413 | 1.9732 | 2.1030 | 2.2309 | 2.3569 |
| | C/(M/SEC) | 833.0765 | 812.2344 | 182.2024 | 190.7785 | 198.5638 | 205.7665 | 212.5208 | 218.9177 | 225.0215 |
| | KAPPA/(1/MPA) | .0031 | .0033 | 5.4187 | 5.3170 | 5.2469 | 5.1964 | 5.1589 | 5.1302 | 5.1079 |
| | BETA/(1000/K) | 1.7 | 1.8 | 3.5 | 3.1 | 2.8 | 2.5 | 2.3 | 2.2 | 2.1 |
| .3000 | V/(M3/KG) | .00168 | .00170 | .00178 | .11739 | .12721 | .13665 | .14581 | .15476 | .16356 |
| | H/(KJ/KG) | 151.8 | 164.7 | 230.9 | 590.3 | 646.4 | 704.6 | 765.0 | 827.7 | 892.6 |
| | S/(KJ/KG K) | .4986 | .5355 | .7183 | 1.6602 | 1.7961 | 1.9292 | 2.0599 | 2.1885 | 2.3150 |
| | C/(M/SEC) | 834.3375 | 813.5409 | 710.9897 | 185.0344 | 193.9596 | 201.9987 | 209.3897 | 216.2852 | 222.7883 |
| | KAPPA/(1/MPA) | .0031 | .0033 | .0045 | 3.6802 | 3.5974 | 3.5402 | 3.4988 | 3.4678 | 3.4440 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.0 | 3.4 | 3.0 | 2.7 | 2.5 | 2.3 | 2.1 |
| .4000 | V/(M3/KG) | .00168 | .00170 | .00178 | .08489 | .09283 | .10033 | .10752 | .11449 | .12130 |
| | H/(KJ/KG) | 151.9 | 164.7 | 231.0 | 585.8 | 642.7 | 701.5 | 762.4 | 825.4 | 890.6 |
| | S/(KJ/KG K) | .4983 | .5352 | .7179 | 1.6240 | 1.7619 | 1.8964 | 2.0281 | 2.1573 | 2.2845 |
| | C/(M/SEC) | 835.5947 | 814.8432 | 712.5619 | 178.7952 | 189.0726 | 198.0602 | 206.1520 | 213.5847 | 220.5112 |
| | KAPPA/(1/MPA) | .0031 | .0033 | .0044 | 2.8839 | 2.7842 | 2.7185 | 2.6726 | 2.6390 | 2.6136 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.0 | 3.9 | 3.3 | 2.9 | 2.6 | 2.4 | 2.2 |
| .5000 | V/(M3/KG) | .00168 | .00169 | .00177 | .00187 | .07210 | .07848 | .08451 | .09031 | .09593 |
| | H/(KJ/KG) | 152.0 | 164.8 | 231.0 | 300.5 | 638.8 | 698.3 | 759.7 | 823.1 | 888.5 |
| | S/(KJ/KG K) | .4980 | .5349 | .7176 | .8968 | 1.7335 | 1.8695 | 2.0023 | 2.1324 | 2.2601 |
| | C/(M/SEC) | 836.8481 | 816.1413 | 714.1276 | 611.9149 | 183.8532 | 193.9298 | 202.7979 | 210.8115 | 218.1882 |
| | KAPPA/(1/MPA) | .0031 | .0032 | .0044 | .0063 | 2.3081 | 2.2319 | 2.1805 | 2.1438 | 2.1167 |
| | BETA/(1000/K) | 1.7 | 1.8 | 1.9 | 2.2 | 3.7 | 3.2 | 2.8 | 2.5 | 2.3 |
| .6000 | V/(M3/KG) | .00168 | .00169 | .00177 | .00187 | .05818 | .06385 | .06914 | .07416 | .07900 |
| | H/(KJ/KG) | 152.1 | 164.9 | 231.1 | 300.5 | 634.7 | 694.9 | 756.9 | 820.7 | 886.4 |
| | S/(KJ/KG K) | .4977 | .5346 | .7173 | .8964 | 1.7085 | 1.8463 | 1.9803 | 2.1112 | 2.2395 |
| | C/(M/SEC) | 838.0977 | 817.4354 | 715.6870 | 613.8546 | 178.2362 | 189.5815 | 199.3162 | 207.9606 | 215.8170 |
| | KAPPA/(1/MPA) | .0031 | .0032 | .0044 | .0063 | 2.0038 | 1.9138 | 1.8559 | 1.8158 | 1.7866 |
| | BETA/(1000/K) | 1.7 | 1.7 | 1.9 | 2.2 | 4.1 | 3.4 | 3.0 | 2.7 | 2.4 |

## THERMODYNAMIC PROPERTIES OF HEXANE

### TEMPERATURES/(K)

| P/(MPA) | | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 | 750.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .52613 | .55079 | .57537 | .59991 | .62439 | .64884 | .67325 | .69763 | .72200 |
| | H/(KJ/KG) | 963.1 | 1031.8 | 1102.5 | 1175.3 | 1249.9 | 1326.4 | 1404.7 | 1484.7 | 1566.3 |
| | S/(KJ/KG K) | 2.5503 | 2.6725 | 2.7930 | 2.9117 | 3.0289 | 3.1443 | 3.2582 | 3.3704 | 3.4811 |
| | C/(M/SEC) | 232.7595 | 238.1468 | 243.3910 | 248.5055 | 253.5013 | 258.3880 | 263.1735 | 267.8647 | 272.4679 |
| | KAPPA/(1/MPA) | 10.0883 | 10.0746 | 10.0632 | 10.0538 | 10.0459 | 10.0392 | 10.0334 | 10.0285 | 10.0243 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 |
| .1013 | V/(M3/KG) | .51919 | .54353 | .56780 | .59202 | .61619 | .64032 | .66442 | .68849 | .71253 |
| | H/(KJ/KG) | 963.0 | 1031.7 | 1102.5 | 1175.3 | 1249.9 | 1326.4 | 1404.7 | 1484.7 | 1566.3 |
| | S/(KJ/KG K) | 2.5490 | 2.6712 | 2.7917 | 2.9105 | 3.0276 | 3.1430 | 3.2569 | 3.3691 | 3.4798 |
| | C/(M/SEC) | 232.7348 | 238.1254 | 243.3725 | 248.4894 | 253.4874 | 258.3759 | 263.1630 | 267.8557 | 272.4601 |
| | KAPPA/(1/MPA) | 9.9576 | 9.9438 | 9.9325 | 9.9230 | 9.9151 | 9.9084 | 9.9027 | 9.8978 | 9.8935 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 |
| .2000 | V/(M3/KG) | .26073 | .27333 | .28586 | .29834 | .31076 | .32315 | .33550 | .34782 | .36012 |
| | H/(KJ/KG) | 961.3 | 1030.2 | 1101.1 | 1174.0 | 1248.8 | 1325.4 | 1403.7 | 1483.8 | 1565.4 |
| | S/(KJ/KG K) | 2.4812 | 2.6036 | 2.7243 | 2.8433 | 2.9606 | 3.0762 | 3.1902 | 3.3025 | 3.4133 |
| | C/(M/SEC) | 230.8793 | 236.5265 | 241.9903 | 247.2922 | 252.4497 | 257.4767 | 262.3849 | 267.1843 | 271.8833 |
| | KAPPA/(1/MPA) | 5.0901 | 5.0757 | 5.0640 | 5.0543 | 5.0462 | 5.0394 | 5.0336 | 5.0286 | 5.0243 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 |
| .3000 | V/(M3/KG) | .17224 | .18083 | .18935 | .19781 | .20621 | .21458 | .22291 | .23122 | .23950 |
| | H/(KJ/KG) | 959.6 | 1028.6 | 1099.7 | 1172.7 | 1247.6 | 1324.3 | 1402.7 | 1482.8 | 1564.6 |
| | S/(KJ/KG K) | 2.4397 | 2.5625 | 2.6834 | 2.8026 | 2.9201 | 3.0359 | 3.1500 | 3.2624 | 3.3733 |
| | C/(M/SEC) | 228.9718 | 234.8887 | 240.5788 | 246.0730 | 251.3952 | 256.5648 | 261.5975 | 266.5061 | 271.3016 |
| | KAPPA/(1/MPA) | 3.4253 | 3.4103 | 3.3982 | 3.3882 | 3.3799 | 3.3729 | 3.3670 | 3.3620 | 3.3576 |
| | BETA/(1000/K) | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 |
| .4000 | V/(M3/KG) | .12799 | .13458 | .14109 | .14754 | .15394 | .16030 | .16662 | .17292 | .17919 |
| | H/(KJ/KG) | 957.8 | 1027.0 | 1098.3 | 1171.4 | 1246.4 | 1323.2 | 1401.7 | 1481.9 | 1563.7 |
| | S/(KJ/KG K) | 2.4095 | 2.5327 | 2.6539 | 2.7733 | 2.8910 | 3.0069 | 3.1211 | 3.2337 | 3.3446 |
| | C/(M/SEC) | 227.0360 | 233.2330 | 239.1567 | 244.8478 | 250.3382 | 255.6527 | 260.8112 | 265.8301 | 270.7229 |
| | KAPPA/(1/MPA) | 2.5939 | 2.5782 | 2.5657 | 2.5554 | 2.5469 | 2.5398 | 2.5338 | 2.5287 | 2.5243 |
| | BETA/(1000/K) | 2.1 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 |
| .5000 | V/(M3/KG) | .10142 | .10682 | .11213 | .11738 | .12257 | .12773 | .13285 | .13794 | .14300 |
| | H/(KJ/KG) | 956.0 | 1025.4 | 1096.8 | 1170.1 | 1245.2 | 1322.1 | 1400.7 | 1481.0 | 1562.9 |
| | S/(KJ/KG K) | 2.3856 | 2.5090 | 2.6306 | 2.7502 | 2.8680 | 2.9841 | 3.0984 | 3.2111 | 3.3221 |
| | C/(M/SEC) | 225.0712 | 231.5594 | 237.7237 | 243.6168 | 249.2787 | 254.7403 | 260.0264 | 265.1566 | 270.1473 |
| | KAPPA/(1/MPA) | 2.0959 | 2.0796 | 2.0665 | 2.0560 | 2.0473 | 2.0400 | 2.0339 | 2.0287 | 2.0243 |
| | BETA/(1000/K) | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 |
| .6000 | V/(M3/KG) | .08371 | .08830 | .09282 | .09727 | .10166 | .10601 | .11033 | .11462 | .11888 |
| | H/(KJ/KG) | 954.2 | 1023.8 | 1095.4 | 1168.8 | 1244.0 | 1321.0 | 1399.7 | 1480.1 | 1562.0 |
| | S/(KJ/KG K) | 2.3655 | 2.4893 | 2.6111 | 2.7310 | 2.8490 | 2.9653 | 3.0797 | 3.1925 | 3.3036 |
| | C/(M/SEC) | 223.0764 | 229.8673 | 236.2800 | 242.3801 | 248.2169 | 253.8280 | 259.2431 | 264.4857 | 269.5750 |
| | KAPPA/(1/MPA) | 1.7646 | 1.7476 | 1.7341 | 1.7232 | 1.7143 | 1.7069 | 1.7007 | 1.6954 | 1.6910 |
| | BETA/(1000/K) | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 |

THERMODYNAMIC PROPERTIES OF HEXANE

TEMPERATURES/(K)

| P/(MPA) | | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .74634 | .77066 | .79497 | .81926 | .84355 | .86782 | .89208 | .91633 |
| | H/(KJ/KG) | 1649.5 | 1734.2 | 1820.4 | 1908.1 | 1997.1 | 2087.5 | 2179.2 | 2272.1 |
| | S/(KJ/KG K) | 3.5902 | 3.6978 | 3.8039 | 3.9086 | 4.0118 | 4.1136 | 4.2141 | 4.3132 |
| | C/(M/SEC) | 276.9883 | 281.4307 | 285.7995 | 290.0986 | 294.3315 | 298.5016 | 302.6117 | 306.6647 |
| | KAPPA/(1/MPA) | 10.0206 | 10.0173 | 10.0145 | 10.0120 | 10.0098 | 10.0078 | 10.0061 | 10.0045 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | .73656 | .76056 | .78456 | .80854 | .83250 | .85646 | .88041 | .90435 |
| | H/(KJ/KG) | 1649.5 | 1734.2 | 1820.4 | 1908.1 | 1997.1 | 2087.5 | 2179.2 | 2272.1 |
| | S/(KJ/KG K) | 3.5889 | 3.6965 | 3.8026 | 3.9073 | 4.0105 | 4.1124 | 4.2128 | 4.3119 |
| | C/(M/SEC) | 276.9816 | 281.4251 | 285.7948 | 290.0947 | 294.3284 | 298.4991 | 302.6098 | 306.6634 |
| | KAPPA/(1/MPA) | 9.8898 | 9.8866 | 9.8837 | 9.8812 | 9.8790 | 9.8770 | 9.8753 | 9.8737 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | .37240 | .38466 | .39691 | .40914 | .42136 | .43357 | .44577 | .45796 |
| | H/(KJ/KG) | 1648.7 | 1733.5 | 1819.7 | 1907.4 | 1996.5 | 2086.9 | 2178.6 | 2271.6 |
| | S/(KJ/KG K) | 3.5225 | 3.6302 | 3.7363 | 3.8410 | 3.9443 | 4.0462 | 4.1467 | 4.2458 |
| | C/(M/SEC) | 276.4891 | 281.0080 | 285.4456 | 289.8068 | 294.0960 | 298.3173 | 302.4742 | 306.5700 |
| | KAPPA/(1/MPA) | 5.0205 | 5.0173 | 5.0145 | 5.0119 | 5.0097 | 5.0078 | 5.0060 | 5.0045 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .3000 | V/(M3/KG) | .24776 | .25600 | .26422 | .27244 | .28064 | .28882 | .29700 | .30517 |
| | H/(KJ/KG) | 1647.9 | 1732.7 | 1819.0 | 1906.8 | 1995.9 | 2086.3 | 2178.1 | 2271.0 |
| | S/(KJ/KG K) | 3.4825 | 3.5903 | 3.6965 | 3.8013 | 3.9046 | 4.0065 | 4.1070 | 4.2062 |
| | C/(M/SEC) | 275.9932 | 280.5889 | 285.0953 | 289.5187 | 293.8642 | 298.1366 | 302.3402 | 306.4787 |
| | KAPPA/(1/MPA) | 3.3539 | 3.3506 | 3.3477 | 3.3452 | 3.3430 | 3.3410 | 3.3393 | 3.3377 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .4000 | V/(M3/KG) | .18544 | .19167 | .19788 | .20408 | .21027 | .21645 | .22262 | .22878 |
| | H/(KJ/KG) | 1647.1 | 1732.0 | 1818.4 | 1906.1 | 1995.3 | 2085.8 | 2177.5 | 2270.5 |
| | S/(KJ/KG K) | 3.4539 | 3.5617 | 3.6680 | 3.7728 | 3.8762 | 3.9782 | 4.0787 | 4.1779 |
| | C/(M/SEC) | 275.5008 | 280.1734 | 284.7489 | 289.2344 | 293.6361 | 297.9596 | 302.2097 | 306.3907 |
| | KAPPA/(1/MPA) | 2.5205 | 2.5172 | 2.5143 | 2.5118 | 2.5096 | 2.5076 | 2.5059 | 2.5043 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .5000 | V/(M3/KG) | .14805 | .15307 | .15808 | .16308 | .16806 | .17303 | .17799 | .18295 |
| | H/(KJ/KG) | 1646.3 | 1731.2 | 1817.7 | 1905.5 | 1994.7 | 2085.2 | 2177.0 | 2270.0 |
| | S/(KJ/KG K) | 3.4316 | 3.5394 | 3.6458 | 3.7507 | 3.8541 | 3.9561 | 4.0567 | 4.1559 |
| | C/(M/SEC) | 275.0119 | 279.7617 | 284.4063 | 288.9540 | 293.4119 | 297.7863 | 302.0828 | 306.3062 |
| | KAPPA/(1/MPA) | 2.0205 | 2.0172 | 2.0143 | 2.0118 | 2.0095 | 2.0075 | 2.0058 | 2.0042 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .6000 | V/(M3/KG) | .12312 | .12734 | .13155 | .13574 | .13992 | .14408 | .14824 | .15239 |
| | H/(KJ/KG) | 1645.5 | 1730.5 | 1817.0 | 1904.8 | 1994.1 | 2084.6 | 2176.4 | 2269.5 |
| | S/(KJ/KG K) | 3.4131 | 3.5211 | 3.6275 | 3.7324 | 3.8359 | 3.9379 | 4.0385 | 4.1378 |
| | C/(M/SEC) | 274.5267 | 279.3539 | 284.0677 | 288.6775 | 293.1915 | 297.6168 | 301.9594 | 306.2250 |
| | KAPPA/(1/MPA) | 1.6871 | 1.6838 | 1.6809 | 1.6784 | 1.6761 | 1.6741 | 1.6724 | 1.6708 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |

THERMODYNAMIC PROPERTIES OF HEXANE

TEMPERATURES/(K)

| P/(MPA) | | 345.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 | 525.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00168 | .00169 | .00177 | .00187 | .04813 | .05335 | .05812 | .06261 | .06690 |
| | H/(KJ/KG) | 152.1 | 164.9 | 231.1 | 300.5 | 630.2 | 691.4 | 754.0 | 818.2 | 884.3 |
| | S/(KJ/KG K) | .4975 | .5343 | .7169 | .8960 | 1.6857 | 1.8256 | 1.9609 | 2.0927 | 2.2216 |
| | C/(M/SEC) | 835.6702 | 815.2804 | 714.1200 | 615.7838 | 172.1323 | 184.9831 | 195.6940 | 205.0267 | 213.3952 |
| | KAPPA/(1/MPA) | .0031 | .0032 | .0044 | .0062 | 1.8019 | 1.6934 | 1.6275 | 1.5834 | 1.5520 |
| | BETA/(1000/K) | 1.7 | 1.7 | 1.9 | 2.2 | 4.6 | 3.7 | 3.2 | 2.8 | 2.5 |
| .8000 | V/(M3/KG) | .00168 | .00169 | .00177 | .00187 | .00198 | .04541 | .04983 | .05393 | .05781 |
| | H/(KJ/KG) | 152.2 | 165.0 | 231.2 | 300.5 | 373.0 | 687.7 | 751.0 | 815.7 | 882.1 |
| | S/(KJ/KG K) | .4972 | .5340 | .7166 | .8956 | 1.0714 | 1.8064 | 1.9432 | 2.0760 | 2.2057 |
| | C/(M/SEC) | 838.3362 | 817.9830 | 717.0692 | 617.7025 | 511.6921 | 180.0942 | 191.9160 | 202.0033 | 210.9203 |
| | KAPPA/(1/MPA) | .0030 | .0032 | .0043 | .0062 | .0097 | 1.5358 | 1.4598 | 1.4110 | 1.3771 |
| | BETA/(1000/K) | 1.7 | 1.7 | 1.9 | 2.2 | 2.7 | 4.1 | 3.4 | 2.9 | 2.6 |
| .9000 | V/(M3/KG) | .00168 | .00169 | .00177 | .00186 | .00198 | .03918 | .04335 | .04715 | .05073 |
| | H/(KJ/KG) | 152.3 | 165.1 | 231.2 | 300.6 | 373.0 | 683.8 | 747.8 | 813.1 | 879.9 |
| | S/(KJ/KG K) | .4969 | .5337 | .7162 | .8952 | 1.0708 | 1.7884 | 1.9268 | 2.0607 | 2.1911 |
| | C/(M/SEC) | 841.0412 | 820.7254 | 720.0630 | 618.1110 | 514.1914 | 174.8620 | 187.9639 | 198.8836 | 208.3896 |
| | KAPPA/(1/MPA) | .0030 | .0032 | .0043 | .0061 | .0096 | 1.4219 | 1.3333 | 1.2789 | 1.2422 |
| | BETA/(1000/K) | 1.7 | 1.7 | 1.9 | 2.2 | 2.7 | 4.5 | 3.7 | 3.1 | 2.7 |
| 1.0000 | V/(M3/KG) | .00168 | .00169 | .00177 | .00186 | .00198 | .03413 | .03813 | .04172 | .04505 |
| | H/(KJ/KG) | 152.3 | 165.1 | 231.3 | 300.6 | 373.0 | 679.7 | 744.6 | 810.4 | 877.7 |
| | S/(KJ/KG K) | .4966 | .5335 | .7159 | .8948 | 1.0703 | 1.7710 | 1.9114 | 2.0465 | 2.1777 |
| | C/(M/SEC) | 843.0586 | 822.5709 | 721.8438 | 621.4925 | 516.6591 | 169.2163 | 183.8159 | 195.6596 | 205.8000 |
| | KAPPA/(1/MPA) | .0030 | .0032 | .0043 | .0061 | .0095 | 1.3415 | 1.2362 | 1.1752 | 1.1353 |
| | BETA/(1000/K) | 1.7 | 1.7 | 1.9 | 2.2 | 2.7 | 5.0 | 3.9 | 3.3 | 2.9 |
| 2.0000 | V/(M3/KG) | .00167 | .00169 | .00176 | .00185 | .00196 | .00211 | .00235 | .01649 | .01912 |
| | H/(KJ/KG) | 153.0 | 165.8 | 231.8 | 300.8 | 372.8 | 448.2 | 530.6 | 777.0 | 851.5 |
| | S/(KJ/KG K) | .4938 | .5306 | .7126 | .8908 | 1.0652 | 1.2376 | 1.4157 | 1.9269 | 2.0722 |
| | C/(M/SEC) | 855.1854 | 835.1135 | 736.8279 | 639.8404 | 540.2538 | 431.8444 | 298.9680 | 154.6911 | 175.8132 |
| | KAPPA/(1/MPA) | .0029 | .0031 | .0041 | .0057 | .0085 | .0147 | .0371 | .8309 | .7020 |
| | BETA/(1000/K) | 1.7 | 1.7 | 1.9 | 2.1 | 2.5 | 3.3 | 5.9 | 7.2 | 4.9 |
| 3.0000 | V/(M3/KG) | .00167 | .00168 | .00176 | .00184 | .00195 | .00208 | .00228 | .00273 | .00960 |
| | H/(KJ/KG) | 153.7 | 166.5 | 232.3 | 301.1 | 372.7 | 447.3 | 527.3 | 623.5 | 811.9 |
| | S/(KJ/KG K) | .4910 | .5277 | .7093 | .8869 | 1.0604 | 1.2310 | 1.4039 | 1.6010 | 1.9704 |
| | C/(M/SEC) | 866.9762 | 847.2857 | 751.2277 | 657.2340 | 562.0678 | 461.1927 | 346.0743 | 187.4674 | 134.1430 |
| | KAPPA/(1/MPA) | .0028 | .0030 | .0039 | .0054 | .0078 | .0125 | .0255 | .1361 | .7515 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.8 | 2.0 | 2.4 | 3.0 | 4.5 | 14.3 | 12.7 |
| 4.0000 | V/(M3/KG) | .00166 | .00168 | .00175 | .00183 | .00193 | .00206 | .00223 | .00252 | .00381 |
| | H/(KJ/KG) | 154.5 | 167.2 | 232.9 | 301.5 | 372.7 | 446.7 | 525.1 | 613.7 | 728.5 |
| | S/(KJ/KG K) | .4883 | .5250 | .7062 | .8833 | 1.0559 | 1.2250 | 1.3946 | 1.5762 | 1.7995 |
| | C/(M/SEC) | 878.4386 | 859.1075 | 765.1044 | 673.7945 | 582.4121 | 487.4767 | 383.6896 | 261.4772 | 122.9073 |
| | KAPPA/(1/MPA) | .0027 | .0029 | .0038 | .0051 | .0071 | .0110 | .0197 | .0524 | .6346 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 2.0 | 2.3 | 2.8 | 3.8 | 6.9 | 35.8 |

## THERMODYNAMIC PROPERTIES OF HEXANE

### TEMPERATURES/(K)

| P/(MPA) | | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 | 750.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .07104 | .07507 | .07902 | .08290 | .08672 | .09050 | .09425 | .09796 | .10165 |
| | H/(KJ/KG) | 952.3 | 1022.2 | 1093.9 | 1167.5 | 1242.8 | 1319.9 | 1398.7 | 1479.1 | 1561.1 |
| | S/(KJ/KG K) | 2.3481 | 2.4723 | 2.5944 | 2.7145 | 2.8328 | 2.9491 | 3.0637 | 3.1766 | 3.2878 |
| | C/(M/SEC) | 221.0506 | 228.1566 | 234.8256 | 241.1379 | 247.1530 | 252.9160 | 258.4616 | 263.8176 | 269.0061 |
| | KAPPA/(1/MPA) | 1.5287 | 1.5109 | 1.4969 | 1.4857 | 1.4765 | 1.4690 | 1.4627 | 1.4574 | 1.4529 |
| | BETA/(1000/K) | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 |
| .8000 | V/(M3/KG) | .06153 | .06514 | .06867 | .07212 | .07552 | .07887 | .08219 | .08547 | .08873 |
| | H/(KJ/KG) | 950.4 | 1020.5 | 1092.4 | 1166.1 | 1241.6 | 1318.8 | 1397.7 | 1478.2 | 1560.3 |
| | S/(KJ/KG K) | 2.3327 | 2.4573 | 2.5797 | 2.7000 | 2.8184 | 2.9350 | 3.0497 | 3.1627 | 3.2740 |
| | C/(M/SEC) | 218.9929 | 226.4270 | 233.3604 | 239.8903 | 246.0873 | 252.0043 | 257.6820 | 263.1524 | 268.4407 |
| | KAPPA/(1/MPA) | 1.3524 | 1.3338 | 1.3192 | 1.3077 | 1.2983 | 1.2906 | 1.2842 | 1.2789 | 1.2743 |
| | BETA/(1000/K) | 2.4 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 |
| .9000 | V/(M3/KG) | .05413 | .05742 | .06061 | .06374 | .06680 | .06982 | .07280 | .07575 | .07868 |
| | H/(KJ/KG) | 948.5 | 1018.8 | 1090.9 | 1164.8 | 1240.4 | 1317.7 | 1396.7 | 1477.2 | 1559.4 |
| | S/(KJ/KG K) | 2.3187 | 2.4437 | 2.5664 | 2.6870 | 2.8056 | 2.9223 | 3.0372 | 3.1503 | 3.2617 |
| | C/(M/SEC) | 216.9024 | 224.6781 | 231.8846 | 238.6375 | 245.0199 | 251.0934 | 256.9047 | 262.4903 | 267.8791 |
| | KAPPA/(1/MPA) | 1.2160 | 1.1964 | 1.1813 | 1.1694 | 1.1598 | 1.1520 | 1.1455 | 1.1400 | 1.1354 |
| | BETA/(1000/K) | 2.5 | 2.3 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 |
| 1.0000 | V/(M3/KG) | .04821 | .05123 | .05417 | .05703 | .05983 | .06258 | .06530 | .06798 | .07064 |
| | H/(KJ/KG) | 946.5 | 1017.1 | 1089.4 | 1163.4 | 1239.1 | 1316.6 | 1395.6 | 1476.3 | 1558.5 |
| | S/(KJ/KG K) | 2.3058 | 2.4313 | 2.5543 | 2.6752 | 2.7940 | 2.9109 | 3.0259 | 3.1391 | 3.2506 |
| | C/(M/SEC) | 214.7778 | 222.9099 | 230.3983 | 237.3798 | 243.9512 | 250.1833 | 256.1298 | 261.8316 | 267.3214 |
| | KAPPA/(1/MPA) | 1.1074 | 1.0868 | 1.0711 | 1.0589 | 1.0490 | 1.0410 | 1.0344 | 1.0289 | 1.0243 |
| | BETA/(1000/K) | 2.6 | 2.3 | 2.1 | 2.0 | 1.9 | 1.7 | 1.7 | 1.6 | 1.5 |
| 2.0000 | V/(M3/KG) | .02132 | .02328 | .02509 | .02680 | .02843 | .03000 | .03153 | .03302 | .03448 |
| | H/(KJ/KG) | 924.8 | 998.6 | 1073.3 | 1149.2 | 1226.4 | 1305.1 | 1385.2 | 1466.8 | 1549.8 |
| | S/(KJ/KG K) | 2.2087 | 2.3398 | 2.4669 | 2.5908 | 2.7120 | 2.8308 | 2.9473 | 3.0618 | 3.1743 |
| | C/(M/SEC) | 191.4371 | 204.1433 | 215.0105 | 224.6045 | 233.2621 | 241.2010 | 248.5704 | 255.4769 | 261.9993 |
| | KAPPA/(1/MPA) | .6414 | .6056 | .5819 | .5651 | .5525 | .5429 | .5352 | .5290 | .5239 |
| | BETA/(1000/K) | 3.9 | 3.2 | 2.8 | 2.5 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 |
| 3.0000 | V/(M3/KG) | .01200 | .01379 | .01532 | .01669 | .01796 | .01915 | .02029 | .02139 | .02245 |
| | H/(KJ/KG) | 897.3 | 976.8 | 1055.2 | 1133.7 | 1212.8 | 1293.0 | 1374.4 | 1457.0 | 1540.8 |
| | S/(KJ/KG K) | 2.1294 | 2.2708 | 2.4042 | 2.5323 | 2.6566 | 2.7776 | 2.8960 | 3.0119 | 3.1256 |
| | C/(M/SEC) | 163.8940 | 183.7364 | 199.1178 | 211.8870 | 222.9237 | 232.7222 | 241.5897 | 249.7314 | 257.2907 |
| | KAPPA/(1/MPA) | .5369 | .4651 | .4277 | .4045 | .3887 | .3773 | .3686 | .3619 | .3565 |
| | BETA/(1000/K) | 6.7 | 4.7 | 3.8 | 3.1 | 2.7 | 2.4 | 2.2 | 2.0 | 1.9 |
| 4.0000 | V/(M3/KG) | .00700 | .00893 | .01039 | .01163 | .01273 | .01375 | .01470 | .01560 | .01646 |
| | H/(KJ/KG) | 858.9 | 950.7 | 1034.9 | 1116.9 | 1198.5 | 1280.5 | 1363.3 | 1447.0 | 1531.8 |
| | S/(KJ/KG K) | 2.0427 | 2.2060 | 2.3493 | 2.4832 | 2.6113 | 2.7351 | 2.8555 | 2.9730 | 3.0880 |
| | C/(M/SEC) | 137.6755 | 164.3935 | 184.4122 | 200.3720 | 213.7437 | 225.3331 | 235.6224 | 244.9227 | 253.4456 |
| | KAPPA/(1/MPA) | .5442 | .4096 | .3548 | .3251 | .3064 | .2936 | .2842 | .2772 | .2717 |
| | BETA/(1000/K) | 13.5 | 7.3 | 5.1 | 4.0 | 3.3 | 2.8 | 2.5 | 2.3 | 2.1 |

THERMODYNAMIC PROPERTIES OF HEXANE

TEMPERATURES/(K)

| P/(MPA) | | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .10532 | .10896 | .11259 | .11621 | .11981 | .12341 | .12699 | .13057 |
| | H/(KJ/KG) | 1644.7 | 1729.8 | 1816.3 | 1904.2 | 1993.4 | 2084.0 | 2175.9 | 2269.0 |
| | S/(KJ/KG K) | 3.3974 | 3.5054 | 3.6119 | 3.7169 | 3.8204 | 3.9225 | 4.0231 | 4.1224 |
| | C/(M/SEC) | 274.0452 | 278.9501 | 283.7332 | 288.4051 | 292.9751 | 297.4510 | 301.8398 | 306.1473 |
| | KAPPA/(1/MPA) | 1.4490 | 1.4456 | 1.4427 | 1.4402 | 1.4379 | 1.4360 | 1.4342 | 1.4327 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| .8000 | V/(M3/KG) | .09196 | .09518 | .09838 | .10157 | .10474 | .10790 | .11106 | .11420 |
| | H/(KJ/KG) | 1643.9 | 1729.0 | 1815.6 | 1903.5 | 1992.8 | 2083.5 | 2175.4 | 2268.5 |
| | S/(KJ/KG K) | 3.3837 | 3.4918 | 3.5983 | 3.7033 | 3.8069 | 3.9090 | 4.0097 | 4.1091 |
| | C/(M/SEC) | 273.5677 | 278.5504 | 283.4028 | 288.1369 | 292.7628 | 297.2892 | 301.7238 | 306.0732 |
| | KAPPA/(1/MPA) | 1.2704 | 1.2670 | 1.2641 | 1.2615 | 1.2593 | 1.2573 | 1.2556 | 1.2540 |
| | BETA/(1000/K) | 1.4 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .9000 | V/(M3/KG) | .08158 | .08446 | .08733 | .09018 | .09302 | .09584 | .09866 | .10147 |
| | H/(KJ/KG) | 1643.1 | 1728.3 | 1814.9 | 1902.9 | 1992.2 | 2082.9 | 2174.8 | 2268.0 |
| | S/(KJ/KG K) | 3.3715 | 3.4796 | 3.5862 | 3.6913 | 3.7949 | 3.8971 | 3.9978 | 4.0972 |
| | C/(M/SEC) | 273.0943 | 278.1549 | 283.0767 | 287.8728 | 292.5545 | 297.1313 | 301.6116 | 306.0026 |
| | KAPPA/(1/MPA) | 1.1315 | 1.1281 | 1.1251 | 1.1226 | 1.1203 | 1.1184 | 1.1166 | 1.1151 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| 1.0000 | V/(M3/KG) | .07327 | .07589 | .07848 | .08107 | .08364 | .08620 | .08875 | .09129 |
| | H/(KJ/KG) | 1642.3 | 1727.5 | 1814.2 | 1902.2 | 1991.6 | 2082.3 | 2174.3 | 2267.5 |
| | S/(KJ/KG K) | 3.3605 | 3.4687 | 3.5754 | 3.6805 | 3.7841 | 3.8863 | 3.9871 | 4.0865 |
| | C/(M/SEC) | 272.6251 | 277.7638 | 282.7549 | 287.6130 | 292.3503 | 296.9774 | 301.5031 | 305.9355 |
| | KAPPA/(1/MPA) | 1.0203 | 1.0169 | 1.0140 | 1.0114 | 1.0091 | 1.0072 | 1.0054 | 1.0039 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| 2.0000 | V/(M3/KG) | .03591 | .03732 | .03871 | .04009 | .04146 | .04281 | .04415 | .04548 |
| | H/(KJ/KG) | 1634.2 | 1720.0 | 1807.2 | 1895.7 | 1985.5 | 2076.6 | 2168.9 | 2262.4 |
| | S/(KJ/KG K) | 3.2851 | 3.3940 | 3.5013 | 3.6070 | 3.7112 | 3.8138 | 3.9150 | 4.0147 |
| | C/(M/SEC) | 268.1977 | 274.1187 | 279.7992 | 285.2691 | 290.5527 | 295.6702 | 300.6384 | 305.4716 |
| | KAPPA/(1/MPA) | .5197 | .5161 | .5131 | .5105 | .5083 | .5063 | .5046 | .5031 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 |
| 3.0000 | V/(M3/KG) | .02348 | .02449 | .02549 | .02646 | .02742 | .02837 | .02931 | .03024 |
| | H/(KJ/KG) | 1626.0 | 1712.4 | 1800.2 | 1889.2 | 1979.4 | 2070.9 | 2163.6 | 2257.4 |
| | S/(KJ/KG K) | 3.2373 | 3.3471 | 3.4550 | 3.5613 | 3.6660 | 3.7691 | 3.8706 | 3.9707 |
| | C/(M/SEC) | 264.3723 | 271.0547 | 277.3984 | 283.4509 | 289.2502 | 294.8271 | 300.2072 | 305.4116 |
| | KAPPA/(1/MPA) | .3521 | .3484 | .3454 | .3428 | .3406 | .3387 | .3370 | .3356 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 |
| 4.0000 | V/(M3/KG) | .01730 | .01811 | .01890 | .01967 | .02043 | .02118 | .02191 | .02264 |
| | H/(KJ/KG) | 1617.8 | 1704.9 | 1793.3 | 1882.8 | 1973.5 | 2065.4 | 2158.4 | 2252.6 |
| | S/(KJ/KG K) | 3.2008 | 3.3114 | 3.4201 | 3.5270 | 3.6322 | 3.7357 | 3.8377 | 3.9381 |
| | C/(M/SEC) | 261.3418 | 268.7220 | 275.6702 | 282.2514 | 288.5169 | 294.5078 | 300.2579 | 305.7947 |
| | KAPPA/(1/MPA) | .2672 | .2636 | .2607 | .2582 | .2561 | .2543 | .2527 | .2513 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 |

THERMODYNAMIC PROPERTIES OF HEXANE

TEMPERATURES/(K)

| P/(MPA) | | 345.000 | 350.000 | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 | 525.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00166 | .00167 | .00174 | .00182 | .00192 | .00203 | .00219 | .00242 | .00291 |
| | H/(KJ/KG) | 155.2 | 167.9 | 233.5 | 301.9 | 372.8 | 446.3 | 523.6 | 609.0 | 697.8 |
| | S/(KJ/KG K) | .4856 | .5222 | .7031 | .8797 | 1.0516 | 1.2195 | 1.3868 | 1.5618 | 1.7349 |
| | C/(M/SEC) | 889.5979 | 870.6038 | 778.5045 | 689.6200 | 601.5270 | 511.4320 | 415.7224 | 310.3541 | 198.6005 |
| | KAPPA/(1/MPA) | .0027 | .0028 | .0036 | .0048 | .0066 | .0098 | .0162 | .0335 | .1183 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.7 | 1.9 | 2.2 | 2.6 | 3.3 | 5.0 | 11.1 |
| 6.0000 | V/(M3/KG) | .00165 | .00167 | .00174 | .00182 | .00191 | .00202 | .00216 | .00235 | .00268 |
| | H/(KJ/KG) | 156.0 | 168.7 | 234.1 | 302.4 | 373.0 | 446.0 | 522.6 | 606.0 | 688.1 |
| | S/(KJ/KG K) | .4830 | .5196 | .7001 | .8763 | 1.0476 | 1.2145 | 1.3800 | 1.5510 | 1.7112 |
| | C/(M/SEC) | 900.4733 | 881.7963 | 791.4692 | 704.7969 | 619.5879 | 533.5431 | 443.9777 | 349.0777 | 254.6537 |
| | KAPPA/(1/MPA) | .0026 | .0027 | .0035 | .0046 | .0062 | .0089 | .0138 | .0249 | .0586 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.7 | 1.9 | 2.1 | 2.4 | 3.0 | 4.1 | 6.7 |
| 7.0000 | V/(M3/KG) | .00165 | .00166 | .00173 | .00181 | .00190 | .00200 | .00213 | .00230 | .00256 |
| | H/(KJ/KG) | 156.7 | 169.4 | 234.8 | 302.9 | 373.3 | 445.9 | 521.8 | 603.9 | 682.8 |
| | S/(KJ/KG K) | .4805 | .5170 | .6972 | .8730 | 1.0437 | 1.2098 | 1.3738 | 1.5422 | 1.6960 |
| | C/(M/SEC) | 911.0815 | 892.7033 | 804.0296 | 719.3754 | 636.7514 | 554.1470 | 469.4599 | 381.9120 | 298.0730 |
| | KAPPA/(1/MPA) | .0025 | .0026 | .0033 | .0043 | .0058 | .0081 | .0121 | .0200 | .0386 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.3 | 2.7 | 3.5 | 5.1 |
| 8.0000 | V/(M3/KG) | .00165 | .00166 | .00173 | .00180 | .00188 | .00198 | .00210 | .00226 | .00247 |
| | H/(KJ/KG) | 157.5 | 170.2 | 235.4 | 303.4 | 373.6 | 445.9 | 521.3 | 602.3 | 679.2 |
| | S/(KJ/KG K) | .4779 | .5144 | .6944 | .8698 | 1.0400 | 1.2053 | 1.3682 | 1.5346 | 1.6845 |
| | C/(M/SEC) | 921.4385 | 903.3428 | 816.2181 | 733.4208 | 653.1061 | 573.4958 | 492.8102 | 410.7933 | 334.2446 |
| | KAPPA/(1/MPA) | .0025 | .0026 | .0032 | .0041 | .0055 | .0075 | .0108 | .0167 | .0288 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.6 | 1.8 | 1.9 | 2.2 | 2.6 | 3.2 | 4.2 |
| 9.0000 | V/(M3/KG) | .00164 | .00165 | .00172 | .00179 | .00187 | .00197 | .00208 | .00222 | .00241 |
| | H/(KJ/KG) | 158.3 | 171.0 | 236.1 | 303.9 | 373.9 | 446.0 | 520.9 | 601.2 | 676.7 |
| | S/(KJ/KG K) | .4755 | .5119 | .6916 | .8667 | 1.0364 | 1.2011 | 1.3631 | 1.5278 | 1.6750 |
| | C/(M/SEC) | 931.5597 | 913.7303 | 828.0615 | 746.9811 | 668.7562 | 591.7614 | 514.4452 | 436.7923 | 365.6651 |
| | KAPPA/(1/MPA) | .0024 | .0025 | .0031 | .0040 | .0052 | .0069 | .0097 | .0144 | .0230 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 | 2.4 | 2.9 | 3.6 |
| 10.0000 | V/(M3/KG) | .00164 | .00165 | .00171 | .00179 | .00187 | .00196 | .00206 | .00219 | .00236 |
| | H/(KJ/KG) | 159.1 | 171.7 | 236.8 | 304.5 | 374.3 | 446.1 | 520.7 | 600.4 | 674.8 |
| | S/(KJ/KG K) | .4730 | .5094 | .6889 | .8636 | 1.0330 | 1.1971 | 1.3582 | 1.5217 | 1.6669 |
| | C/(M/SEC) | 941.4539 | 923.8803 | 839.5794 | 760.0924 | 683.7692 | 609.1038 | 534.6708 | 460.5721 | 393.6870 |
| | KAPPA/(1/MPA) | .0023 | .0024 | .0030 | .0038 | .0049 | .0065 | .0089 | .0127 | .0191 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.3 | 2.7 | 3.2 |

THERMODYNAMIC PROPERTIES OF HEXANE

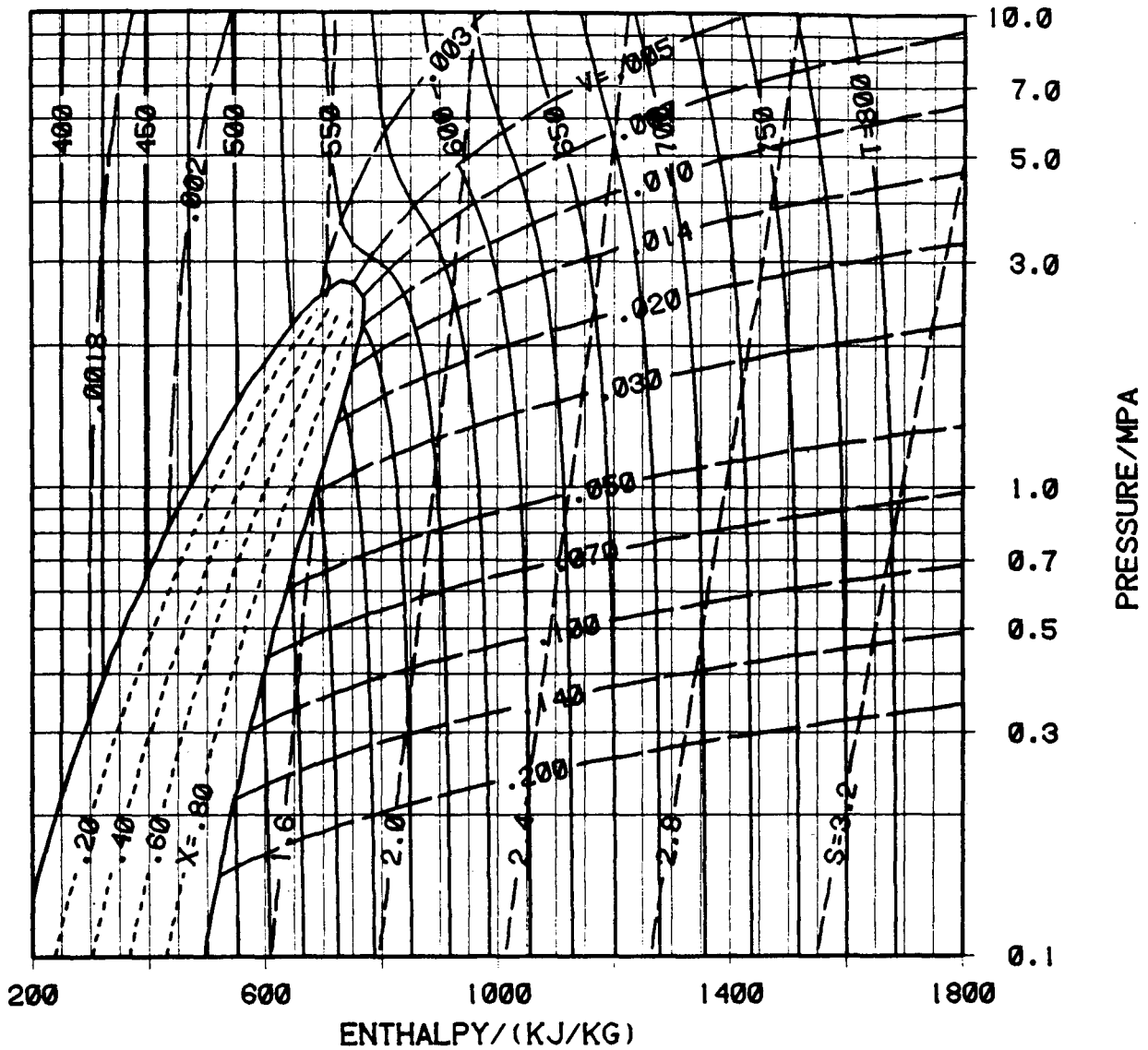
TEMPERATURES/(K)

| P/(MPA) | | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 | 750.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00435 | .00609 | .00749 | .00864 | .00964 | .01054 | .01137 | .01216 | .01290 |
| | H/(KJ/KG) | 815.1 | 920.9 | 1012.7 | 1099.1 | 1183.7 | 1267.8 | 1352.1 | 1437.1 | 1522.9 |
| | S/(KJ/KG K) | 1.9531 | 2.1413 | 2.2976 | 2.4388 | 2.5715 | 2.6984 | 2.8211 | 2.9403 | 3.0567 |
| | C/(M/SEC) | 142.6046 | 155.2914 | 174.7836 | 192.1116 | 206.9494 | 219.8266 | 231.2077 | 241.4311 | 250.7394 |
| | KAPPA/(1/MPA) | .3632 | .3480 | .3019 | .2725 | .2537 | .2409 | .2317 | .2248 | .2195 |
| | BETA/(1000/K) | 17.1 | 10.3 | 6.7 | 4.9 | 3.9 | 3.3 | 2.8 | 2.5 | 2.3 |
| 6.0000 | V/(M3/KG) | .00338 | .00453 | .00570 | .00673 | .00764 | .00845 | .00920 | .00990 | .01056 |
| | H/(KJ/KG) | 788.5 | 893.8 | 990.8 | 1081.4 | 1168.8 | 1255.1 | 1341.0 | 1427.2 | 1514.0 |
| | S/(KJ/KG K) | 1.8978 | 2.0851 | 2.2502 | 2.3982 | 2.5354 | 2.6656 | 2.7906 | 2.9116 | 3.0294 |
| | C/(M/SEC) | 178.5442 | 164.5460 | 174.8503 | 189.5402 | 203.9235 | 217.0489 | 228.8939 | 239.6274 | 249.4313 |
| | KAPPA/(1/MPA) | .1658 | .2413 | .2414 | .2262 | .2125 | .2020 | .1940 | .1879 | .1832 |
| | BETA/(1000/K) | 11.7 | 10.7 | 7.7 | 5.7 | 4.5 | 3.7 | 3.1 | 2.7 | 2.4 |
| 7.0000 | V/(M3/KG) | .00300 | .00373 | .00462 | .00549 | .00629 | .00702 | .00770 | .00833 | .00892 |
| | H/(KJ/KG) | 774.9 | 874.3 | 971.9 | 1064.9 | 1154.7 | 1242.8 | 1330.2 | 1417.7 | 1505.5 |
| | S/(KJ/KG K) | 1.8674 | 2.0440 | 2.2102 | 2.3621 | 2.5030 | 2.6360 | 2.7632 | 2.8859 | 3.0050 |
| | C/(M/SEC) | 222.2646 | 186.8753 | 184.8599 | 193.7316 | 205.5245 | 217.5914 | 229.0819 | 239.7869 | 249.7135 |
| | KAPPA/(1/MPA) | .0867 | .1520 | .1789 | .1813 | .1761 | .1698 | .1642 | .1596 | .1557 |
| | BETA/(1000/K) | 7.8 | 9.2 | 7.7 | 6.1 | 4.9 | 4.0 | 3.4 | 2.9 | 2.6 |
| 8.0000 | V/(M3/KG) | .00280 | .00330 | .00397 | .00468 | .00536 | .00601 | .00661 | .00718 | .00772 |
| | H/(KJ/KG) | 767.1 | 861.2 | 957.1 | 1050.7 | 1141.9 | 1231.4 | 1320.1 | 1408.6 | 1497.3 |
| | S/(KJ/KG K) | 1.8480 | 2.0153 | 2.1784 | 2.3314 | 2.4744 | 2.6095 | 2.7385 | 2.8628 | 2.9830 |
| | C/(M/SEC) | 262.4215 | 216.1605 | 201.7649 | 203.6789 | 211.5878 | 221.5287 | 231.8886 | 242.0147 | 251.6688 |
| | KAPPA/(1/MPA) | .0549 | .0971 | .1288 | .1414 | .1438 | .1422 | .1394 | .1365 | .1338 |
| | BETA/(1000/K) | 5.8 | 7.3 | 7.1 | 6.0 | 5.0 | 4.2 | 3.5 | 3.1 | 2.7 |
| 9.0000 | V/(M3/KG) | .00267 | .00305 | .00356 | .00413 | .00471 | .00528 | .00582 | .00633 | .00682 |
| | H/(KJ/KG) | 762.0 | 852.5 | 945.9 | 1039.0 | 1130.7 | 1221.1 | 1310.7 | 1400.1 | 1489.6 |
| | S/(KJ/KG K) | 1.8337 | 1.9945 | 2.1535 | 2.3057 | 2.4495 | 2.5860 | 2.7163 | 2.8418 | 2.9631 |
| | C/(M/SEC) | 297.8282 | 247.4730 | 223.1315 | 217.7808 | 221.2621 | 228.4645 | 237.1359 | 246.2300 | 255.2592 |
| | KAPPA/(1/MPA) | .0393 | .0661 | .0933 | .1094 | .1164 | .1185 | .1183 | .1171 | .1157 |
| | BETA/(1000/K) | 4.7 | 5.9 | 6.2 | 5.7 | 4.9 | 4.2 | 3.6 | 3.2 | 2.8 |
| 10.0000 | V/(M3/KG) | .00258 | .00288 | .00328 | .00375 | .00424 | .00474 | .00522 | .00568 | .00612 |
| | H/(KJ/KG) | 758.4 | 846.3 | 937.5 | 1029.6 | 1121.2 | 1212.1 | 1302.3 | 1392.3 | 1482.4 |
| | S/(KJ/KG K) | 1.8224 | 1.9787 | 2.1338 | 2.2843 | 2.4281 | 2.5652 | 2.6964 | 2.8228 | 2.9450 |
| | C/(M/SEC) | 329.3005 | 277.9568 | 246.9957 | 234.8264 | 233.6579 | 237.8178 | 244.4697 | 252.2179 | 260.3500 |
| | KAPPA/(1/MPA) | .0304 | .0483 | .0691 | .0851 | .0943 | .0987 | .1005 | .1008 | .1004 |
| | BETA/(1000/K) | 4.0 | 4.9 | 5.4 | 5.2 | 4.7 | 4.1 | 3.6 | 3.2 | 2.8 |

## THERMODYNAMIC PROPERTIES OF HEXANE

### TEMPERATURES/(K)

| P/(MPA) | | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .01361 | .01430 | .01497 | .01562 | .01626 | .01688 | .01749 | .01810 |
| | H/(KJ/KG) | 1609.7 | 1697.5 | 1786.4 | 1876.5 | 1967.6 | 2059.9 | 2153.3 | 2247.8 |
| | S/(KJ/KG K) | 3.1705 | 3.2821 | 3.3915 | 3.4990 | 3.6047 | 3.7087 | 3.8111 | 3.9119 |
| | C/(M/SEC) | 259.3096 | 267.2734 | 274.7310 | 281.7602 | 288.4223 | 294.7667 | 300.8334 | 306.6553 |
| | KAPPA/(1/MPA) | .2152 | .2118 | .2090 | .2067 | .2047 | .2030 | .2016 | .2004 |
| | BETA/(1000/K) | 2.1 | 1.9 | 1.8 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 |
| 6.0000 | V/(M3/KG) | .01119 | .01179 | .01237 | .01294 | .01349 | .01403 | .01456 | .01508 |
| | H/(KJ/KG) | 1601.7 | 1690.2 | 1779.8 | 1870.3 | 1962.0 | 2054.7 | 2148.4 | 2243.2 |
| | S/(KJ/KG K) | 3.1443 | 3.2567 | 3.3669 | 3.4751 | 3.5813 | 3.6858 | 3.7886 | 3.8897 |
| | C/(M/SEC) | 258.4616 | 266.8446 | 274.6814 | 282.0527 | 289.0238 | 295.6475 | 301.9675 | 308.0197 |
| | KAPPA/(1/MPA) | .1794 | .1763 | .1738 | .1717 | .1699 | .1684 | .1671 | .1660 |
| | BETA/(1000/K) | 2.2 | 2.0 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 |
| 7.0000 | V/(M3/KG) | .00948 | .01002 | .01054 | .01105 | .01154 | .01202 | .01248 | .01294 |
| | H/(KJ/KG) | 1593.9 | 1683.2 | 1773.3 | 1864.4 | 1956.4 | 2049.5 | 2143.7 | 2238.8 |
| | S/(KJ/KG K) | 3.1210 | 3.2343 | 3.3453 | 3.4540 | 3.5608 | 3.6657 | 3.7688 | 3.8703 |
| | C/(M/SEC) | 258.9340 | 267.5336 | 275.5926 | 283.1813 | 290.3599 | 297.1790 | 303.6816 | 309.9038 |
| | KAPPA/(1/MPA) | .1526 | .1500 | .1479 | .1461 | .1445 | .1432 | .1421 | .1411 |
| | BETA/(1000/K) | 2.3 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 |
| 8.0000 | V/(M3/KG) | .00823 | .00872 | .00919 | .00964 | .01009 | .01052 | .01094 | .01135 |
| | H/(KJ/KG) | 1586.5 | 1676.4 | 1767.1 | 1858.6 | 1951.2 | 2044.6 | 2139.1 | 2234.5 |
| | S/(KJ/KG K) | 3.1000 | 3.2142 | 3.3258 | 3.4352 | 3.5424 | 3.6478 | 3.7513 | 3.8531 |
| | C/(M/SEC) | 260.7891 | 269.3861 | 277.4975 | 285.1693 | 292.4468 | 299.3722 | 305.9829 | 312.3121 |
| | KAPPA/(1/MPA) | .1315 | .1295 | .1278 | .1263 | .1250 | .1240 | .1230 | .1222 |
| | BETA/(1000/K) | 2.4 | 2.2 | 2.0 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 |
| 9.0000 | V/(M3/KG) | .00728 | .00773 | .00815 | .00857 | .00897 | .00937 | .00975 | .01012 |
| | H/(KJ/KG) | 1579.5 | 1669.9 | 1761.1 | 1853.2 | 1946.1 | 2039.9 | 2134.7 | 2230.4 |
| | S/(KJ/KG K) | 3.0810 | 3.1959 | 3.3082 | 3.4181 | 3.5258 | 3.6315 | 3.7354 | 3.8375 |
| | C/(M/SEC) | 264.0073 | 272.3903 | 280.3876 | 288.0092 | 295.2775 | 302.2200 | 308.8645 | 315.2378 |
| | KAPPA/(1/MPA) | .1142 | .1128 | .1116 | .1105 | .1095 | .1087 | .1079 | .1073 |
| | BETA/(1000/K) | 2.5 | 2.3 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 |
| 10.0000 | V/(M3/KG) | .00654 | .00695 | .00734 | .00773 | .00809 | .00846 | .00881 | .00915 |
| | H/(KJ/KG) | 1572.9 | 1663.9 | 1755.5 | 1848.0 | 1941.3 | 2035.5 | 2130.5 | 2226.5 |
| | S/(KJ/KG K) | 3.0636 | 3.1792 | 3.2920 | 3.4024 | 3.5106 | 3.6167 | 3.7209 | 3.8233 |
| | C/(M/SEC) | 268.4999 | 276.4844 | 284.2176 | 291.6662 | 298.8240 | 305.6993 | 312.3068 | 318.6640 |
| | KAPPA/(1/MPA) | .0998 | .0990 | .0982 | .0975 | .0968 | .0962 | .0956 | .0951 |
| | BETA/(1000/K) | 2.5 | 2.3 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 |


10.0
7.0
5.0
3.0
1.0
0.7
0.5
0.3
0.1
PRESSURE/MPA
200
600
1000
1400
1800
ENTHALPY/(KJ/KG)
T=300
.003
.005
.010
.014
.020
.030
.050
.070
.100
.140
.200
.002
.001
X=.80
.60
.40
.20
S=3.2
2.8
2.4
2.0
1.6

HEPTANE

PROPERTIES OF SATURATED HEPTANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 375.00000 | .11136 | .00167 | .26395 | 182.30135 | 318.69269 | 500.99403 | .47123 | .84985 | 1.32108 |
| 380.00000 | .12850 | .00168 | .23032 | 195.65032 | 314.63396 | 510.28428 | .50652 | .82798 | 1.33450 |
| 385.00000 | .14762 | .00170 | .20173 | 209.13571 | 310.48256 | 519.61827 | .54169 | .80645 | 1.34814 |
| 390.00000 | .16887 | .00171 | .17734 | 222.75417 | 306.23829 | 528.99246 | .57674 | .78523 | 1.36197 |
| 395.00000 | .19238 | .00173 | .15642 | 236.50227 | 301.90094 | 538.40320 | .61166 | .76431 | 1.37597 |
| 400.00000 | .21833 | .00175 | .13842 | 250.37687 | 297.46981 | 547.84668 | .64645 | .74367 | 1.39013 |
| 405.00000 | .24685 | .00176 | .12285 | 264.37442 | 292.94457 | 557.31898 | .68111 | .72332 | 1.40443 |
| 410.00000 | .27812 | .00178 | .10934 | 278.49034 | 288.32584 | 566.81618 | .71561 | .70323 | 1.41884 |
| 415.00000 | .31228 | .00180 | .09758 | 292.72432 | 283.60917 | 576.33349 | .74997 | .68340 | 1.43337 |
| 420.00000 | .34952 | .00181 | .08729 | 307.07254 | 278.79388 | 585.86642 | .78418 | .66379 | 1.44797 |
| 425.00000 | .39000 | .00183 | .07827 | 321.53291 | 273.87700 | 595.40991 | .81823 | .64442 | 1.46264 |
| 430.00000 | .43389 | .00185 | .07032 | 336.10393 | 268.85452 | 604.95845 | .85212 | .62524 | 1.47737 |
| 435.00000 | .48137 | .00187 | .06331 | 350.78481 | 263.72119 | 614.50599 | .88586 | .60626 | 1.49212 |
| 440.00000 | .53263 | .00189 | .05709 | 365.57561 | 258.47025 | 624.04586 | .91945 | .58743 | 1.50688 |
| 445.00000 | .58785 | .00191 | .05157 | 380.47745 | 253.09309 | 633.57054 | .95289 | .56875 | 1.52164 |
| 450.00000 | .64724 | .00194 | .04664 | 395.49267 | 247.57892 | 643.07159 | .98619 | .55018 | 1.53636 |
| 455.00000 | .71099 | .00196 | .04224 | 410.62511 | 241.91425 | 652.53936 | 1.01935 | .53168 | 1.55103 |
| 460.00000 | .77931 | .00199 | .03829 | 425.88039 | 236.08235 | 661.96275 | 1.05240 | .51322 | 1.56563 |
| 465.00000 | .85243 | .00201 | .03474 | 441.26626 | 230.06259 | 671.32885 | 1.08535 | .49476 | 1.58011 |
| 470.00000 | .93057 | .00204 | .03153 | 456.79303 | 223.82946 | 680.62249 | 1.11823 | .47623 | 1.59446 |
| 475.00000 | 1.01399 | .00207 | .02863 | 472.47439 | 217.35118 | 689.82557 | 1.15105 | .45758 | 1.60863 |
| 480.00000 | 1.10295 | .00210 | .02600 | 488.32678 | 210.58982 | 698.91660 | 1.18386 | .43873 | 1.62259 |
| 485.00000 | 1.19771 | .00214 | .02360 | 504.37374 | 203.49483 | 707.86857 | 1.21670 | .41958 | 1.63628 |
| 490.00000 | 1.29857 | .00218 | .02141 | 520.64271 | 196.00595 | 716.64866 | 1.24963 | .40001 | 1.64964 |
| 495.00000 | 1.40585 | .00222 | .01939 | 537.17020 | 188.04465 | 725.21485 | 1.28271 | .37989 | 1.66260 |
| 500.00000 | 1.51989 | .00226 | .01754 | 554.00325 | 179.50920 | 733.51245 | 1.31603 | .35902 | 1.67505 |
| 505.00000 | 1.64104 | .00231 | .01582 | 571.20408 | 170.26405 | 741.46813 | 1.34971 | .33716 | 1.68687 |
| 510.00000 | 1.76970 | .00237 | .01422 | 588.85633 | 160.12348 | 748.97980 | 1.38390 | .31397 | 1.69786 |
| 515.00000 | 1.90631 | .00244 | .01271 | 607.07660 | 148.82155 | 755.89815 | 1.41881 | .28897 | 1.70778 |
| 520.00000 | 2.05131 | .00252 | .01127 | 626.03916 | 135.94905 | 761.98821 | 1.45475 | .26144 | 1.71619 |
| 525.00000 | 2.20523 | .00262 | .00988 | 646.02273 | 120.82103 | 766.84376 | 1.49224 | .23014 | 1.72238 |
| 530.00000 | 2.36860 | .00276 | .00848 | 667.54727 | 102.09206 | 769.63933 | 1.53221 | .19263 | 1.72484 |
| 535.00000 | 2.54204 | .00298 | .00696 | 691.89250 | 76.21401 | 768.10651 | 1.57699 | .14246 | 1.71945 |
| 540.00000 | 2.72620 | .00373 | .00438 | 725.18820 | 15.89108 | 741.07928 | 1.63782 | .02943 | 1.66724 |
| 540.26000 | 2.92181 | .00425 | .00425 | 739.63118 | 0. | 739.63118 | 1.66302 | 0. | 1.66302 |

## THERMODYNAMIC PROPERTIES OF HEPTANE

### TEMPERATURES/(K)

| P/(MPA) | | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .29578 | .31892 | .34159 | .36390 | .38593 | .40774 | .42939 | .45090 | .47230 | .49362 | .51486 | .53604 |
| | H/(KJ/KG) | 501.6 | 553.7 | 608.3 | 665.4 | 725.0 | 786.9 | 851.1 | 917.4 | 985.9 | 1056.5 | 1129.0 | 1203.4 |
| | S/(KJ/KG K) | 1.3312 | 1.4656 | 1.5980 | 1.7286 | 1.8573 | 1.9843 | 2.1096 | 2.2331 | 2.3549 | 2.4750 | 2.5933 | 2.7101 |
| | C/(M/SEC) | 171.9998 | 179.1997 | 185.8899 | 192.1792 | 198.1441 | 203.8405 | 209.3100 | 214.5843 | 219.6884 | 224.6419 | 229.4608 | 234.1580 |
| | KAPPA/(1/MPA) | 10.5462 | 10.4238 | 10.3352 | 10.2692 | 10.2191 | 10.1802 | 10.1496 | 10.1252 | 10.1054 | 10.0892 | 10.0758 | 10.0647 |
| | BETA/(1000/K) | 3.2 | 2.9 | 2.6 | 2.4 | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 |
| .1013 | V/(M3/KG) | .29170 | .31458 | .33697 | .35901 | .38077 | .40232 | .42369 | .44493 | .46606 | .48710 | .50808 | .52899 |
| | H/(KJ/KG) | 501.6 | 553.6 | 608.3 | 665.4 | 724.9 | 786.8 | 851.0 | 917.4 | 985.9 | 1056.5 | 1129.0 | 1203.4 |
| | S/(KJ/KG K) | 1.3300 | 1.4644 | 1.5968 | 1.7274 | 1.8562 | 1.9832 | 2.1084 | 2.2319 | 2.3537 | 2.4738 | 2.5922 | 2.7089 |
| | C/(M/SEC) | 171.8841 | 179.1066 | 185.8137 | 192.1159 | 198.0910 | 203.7956 | 209.2717 | 214.5515 | 219.6601 | 224.6175 | 229.4396 | 234.1396 |
| | KAPPA/(1/MPA) | 10.4165 | 10.2937 | 10.2048 | 10.1387 | 10.0884 | 10.0495 | 10.0189 | 9.9944 | 9.9746 | 9.9585 | 9.9451 | 9.9339 |
| | BETA/(1000/K) | 3.2 | 2.9 | 2.6 | 2.4 | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 |
| .2000 | V/(M3/KG) | .00167 | .15245 | .16491 | .17694 | .18867 | .20015 | .21145 | .22261 | .23365 | .24460 | .25547 | .26628 |
| | H/(KJ/KG) | 182.4 | 548.8 | 604.1 | 661.8 | 721.9 | 784.2 | 848.7 | 915.3 | 984.0 | 1054.8 | 1127.5 | 1202.0 |
| | S/(KJ/KG K) | .4710 | 1.3991 | 1.5334 | 1.6653 | 1.7950 | 1.9228 | 2.0487 | 2.1727 | 2.2949 | 2.4153 | 2.5340 | 2.6509 |
| | C/(M/SEC) | 788.3030 | 171.7998 | 179.9074 | 187.2607 | 194.0469 | 200.3916 | 206.3822 | 212.0819 | 217.5380 | 222.7862 | 227.8543 | 232.7645 |
| | KAPPA/(1/MPA) | .0034 | 5.4786 | 5.3676 | 5.2892 | 5.2318 | 5.1885 | 5.1551 | 5.1288 | 5.1078 | 5.0909 | 5.0769 | 5.0654 |
| | BETA/(1000/K) | 1.7 | 3.3 | 3.0 | 2.7 | 2.5 | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 |
| .3000 | V/(M3/KG) | .00167 | .00174 | .10576 | .11447 | .12281 | .13088 | .13876 | .14648 | .15407 | .16158 | .16900 | .17636 |
| | H/(KJ/KG) | 182.4 | 250.4 | 599.7 | 658.1 | 718.6 | 781.4 | 846.2 | 913.1 | 982.1 | 1053.1 | 1125.9 | 1200.6 |
| | S/(KJ/KG K) | .4707 | .6462 | 1.4920 | 1.6255 | 1.7564 | 1.8850 | 2.0116 | 2.1361 | 2.2587 | 2.3795 | 2.4984 | 2.6156 |
| | C/(M/SEC) | 789.5837 | 696.2774 | 173.3952 | 182.0195 | 189.7467 | 196.8121 | 203.3693 | 209.5241 | 215.3517 | 220.9077 | 226.2342 | 231.3635 |
| | KAPPA/(1/MPA) | .0033 | .0045 | 3.7414 | 3.6462 | 3.5796 | 3.5309 | 3.4943 | 3.4660 | 3.4438 | 3.4259 | 3.4114 | 3.3995 |
| | BETA/(1000/K) | 1.7 | 1.9 | 3.4 | 3.0 | 2.7 | 2.4 | 2.2 | 2.1 | 2.0 | 1.8 | 1.7 | 1.7 |
| .4000 | V/(M3/KG) | .00167 | .00174 | .00183 | .08309 | .08979 | .09619 | .10237 | .10839 | .11427 | .12005 | .12576 | .13139 |
| | H/(KJ/KG) | 182.5 | 250.5 | 321.5 | 654.1 | 715.3 | 778.5 | 843.7 | 910.9 | 980.1 | 1051.3 | 1124.3 | 1199.1 |
| | S/(KJ/KG K) | .4704 | .6459 | .8182 | 1.5950 | 1.7273 | 1.8569 | 1.9842 | 2.1093 | 2.2323 | 2.3534 | 2.4726 | 2.5900 |
| | C/(M/SEC) | 790.8602 | 697.8041 | 603.7980 | 176.3938 | 185.2146 | 193.0881 | 200.2647 | 206.9074 | 213.1279 | 219.0059 | 224.6003 | 229.9552 |
| | KAPPA/(1/MPA) | .0033 | .0044 | .0062 | 2.8414 | 2.7629 | 2.7078 | 2.6674 | 2.6369 | 2.6132 | 2.5944 | 2.5793 | 2.5669 |
| | BETA/(1000/K) | 1.7 | 1.9 | 2.1 | 3.3 | 2.9 | 2.6 | 2.4 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 |
| .5000 | V/(M3/KG) | .00167 | .00174 | .00183 | .06413 | .06991 | .07533 | .08051 | .08551 | .09038 | .09513 | .09980 | .10441 |
| | H/(KJ/KG) | 182.5 | 250.5 | 321.6 | 649.9 | 711.8 | 775.5 | 841.1 | 908.7 | 978.2 | 1049.5 | 1122.7 | 1197.7 |
| | S/(KJ/KG K) | .4701 | .6455 | .8178 | 1.5694 | 1.7032 | 1.8339 | 1.9620 | 2.0877 | 2.2112 | 2.3327 | 2.4522 | 2.5698 |
| | C/(M/SEC) | 792.1324 | 699.3244 | 605.6706 | 170.3001 | 180.4151 | 189.2034 | 197.0606 | 204.2283 | 210.8650 | 217.0801 | 222.9523 | 228.5396 |
| | KAPPA/(1/MPA) | .0033 | .0044 | .0062 | 2.3766 | 2.2823 | 2.2192 | 2.1744 | 2.1413 | 2.1160 | 2.0962 | 2.0805 | 2.0677 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.1 | 3.7 | 3.2 | 2.8 | 2.5 | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 |
| .6000 | V/(M3/KG) | .00167 | .00174 | .00183 | .05136 | .05657 | .06138 | .06591 | .07024 | .07443 | .07851 | .08250 | .08642 |
| | H/(KJ/KG) | 182.6 | 250.5 | 321.6 | 645.4 | 708.1 | 772.4 | 838.4 | 906.4 | 976.1 | 1047.7 | 1121.1 | 1196.2 |
| | S/(KJ/KG K) | .4699 | .6452 | .8174 | 1.5466 | 1.6822 | 1.8141 | 1.9430 | 2.0694 | 2.1934 | 2.3153 | 2.4351 | 2.5530 |
| | C/(M/SEC) | 790.1098 | 700.8384 | 607.5331 | 163.6210 | 175.3023 | 185.1385 | 193.7484 | 201.4829 | 208.5613 | 215.1297 | 221.2901 | 227.1167 |
| | KAPPA/(1/MPA) | .0033 | .0044 | .0061 | 2.0881 | 1.9720 | 1.8989 | 1.8488 | 1.8128 | 1.7857 | 1.7649 | 1.7484 | 1.7351 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.1 | 4.3 | 3.5 | 3.0 | 2.7 | 2.4 | 2.2 | 2.1 | 1.9 | 1.8 |

THERMODYNAMIC PROPERTIES OF HEPTANE

TEMPERATURES/(K)

| P/(MPA) | | 675.000 | 700.000 | 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .55718 | .57827 | .59932 | .62035 | .64135 | .66233 | .68329 | .70423 | .72516 | .74608 | .76698 | .78788 |
| | H/(KJ/KG) | 1279.6 | 1357.6 | 1437.2 | 1518.5 | 1601.4 | 1685.7 | 1771.6 | 1858.8 | 1947.4 | 2037.3 | 2128.5 | 2221.0 |
| | S/(KJ/KG K) | 2.8251 | 2.9385 | 3.0503 | 3.1605 | 3.2692 | 3.3763 | 3.4820 | 3.5861 | 3.6889 | 3.7902 | 3.8902 | 3.9888 |
| | C/(M/SEC) | 238.7446 | 243.2295 | 247.6207 | 251.9249 | 256.1480 | 260.2950 | 264.3707 | 268.3790 | 272.3236 | 276.2080 | 280.0350 | 283.8076 |
| | KAPPA/(1/MPA) | 10.0553 | 10.0473 | 10.0405 | 10.0347 | 10.0296 | 10.0252 | 10.0213 | 10.0179 | 10.0150 | 10.0123 | 10.0100 | 10.0079 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | .54985 | .57067 | .59145 | .61221 | .63294 | .65365 | .67433 | .69501 | .71566 | .73631 | .75694 | .77757 |
| | H/(KJ/KG) | 1279.6 | 1357.6 | 1437.2 | 1518.5 | 1601.4 | 1685.7 | 1771.6 | 1858.8 | 1947.4 | 2037.3 | 2128.5 | 2221.0 |
| | S/(KJ/KG K) | 2.8240 | 2.9374 | 3.0492 | 3.1594 | 3.2681 | 3.3752 | 3.4809 | 3.5850 | 3.6878 | 3.7891 | 3.8891 | 3.9876 |
| | C/(M/SEC) | 238.7285 | 243.2156 | 247.6087 | 251.9145 | 256.1389 | 260.2873 | 264.3641 | 268.3734 | 272.3190 | 276.2041 | 280.0320 | 283.8052 |
| | KAPPA/(1/MPA) | 9.9245 | 9.9166 | 9.9097 | 9.9039 | 9.8988 | 9.8944 | 9.8906 | 9.8872 | 9.8842 | 9.8815 | 9.8792 | 9.8771 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | .27705 | .28776 | .29845 | .30910 | .31973 | .33033 | .34092 | .35149 | .36204 | .37258 | .38311 | .39363 |
| | H/(KJ/KG) | 1278.3 | 1356.4 | 1436.2 | 1517.5 | 1600.4 | 1684.9 | 1770.8 | 1858.0 | 1946.7 | 2036.7 | 2127.9 | 2220.4 |
| | S/(KJ/KG K) | 2.7661 | 2.8797 | 2.9916 | 3.1019 | 3.2107 | 3.3179 | 3.4236 | 3.5279 | 3.6307 | 3.7320 | 3.8320 | 3.9307 |
| | C/(M/SEC) | 237.5344 | 242.1786 | 246.7090 | 251.1357 | 255.4672 | 259.7108 | 263.8729 | 267.9589 | 271.9737 | 275.9216 | 279.8066 | 283.6320 |
| | KAPPA/(1/MPA) | 5.0557 | 5.0476 | 5.0407 | 5.0347 | 5.0296 | 5.0251 | 5.0213 | 5.0178 | 5.0149 | 5.0122 | 5.0098 | 5.0077 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .3000 | V/(M3/KG) | .18367 | .19093 | .19816 | .20535 | .21252 | .21967 | .22680 | .23391 | .24100 | .24809 | .25516 | .26222 |
| | H/(KJ/KG) | 1277.0 | 1355.2 | 1435.1 | 1516.5 | 1599.5 | 1684.0 | 1769.9 | 1857.3 | 1946.0 | 2036.0 | 2127.3 | 2219.8 |
| | S/(KJ/KG K) | 2.7310 | 2.8447 | 2.9568 | 3.0672 | 3.1761 | 3.2834 | 3.3892 | 3.4935 | 3.5963 | 3.6977 | 3.7978 | 3.8964 |
| | C/(M/SEC) | 236.3212 | 241.1276 | 245.7994 | 250.3500 | 254.7910 | 259.1318 | 263.3806 | 267.5445 | 271.6295 | 275.6410 | 279.5838 | 283.4620 |
| | KAPPA/(1/MPA) | 3.3896 | 3.3812 | 3.3741 | 3.3681 | 3.3629 | 3.3584 | 3.3545 | 3.3511 | 3.3481 | 3.3454 | 3.3431 | 3.3410 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .4000 | V/(M3/KG) | .13697 | .14251 | .14801 | .15348 | .15892 | .16434 | .16974 | .17512 | .18049 | .18584 | .19118 | .19652 |
| | H/(KJ/KG) | 1275.7 | 1354.0 | 1434.0 | 1515.5 | 1598.6 | 1683.1 | 1769.1 | 1856.5 | 1945.3 | 2035.3 | 2126.7 | 2219.2 |
| | S/(KJ/KG K) | 2.7057 | 2.8195 | 2.9317 | 3.0423 | 3.1512 | 3.2586 | 3.3645 | 3.4688 | 3.5717 | 3.6732 | 3.7733 | 3.8720 |
| | C/(M/SEC) | 235.1051 | 240.0768 | 244.8920 | 249.5680 | 254.1193 | 258.5579 | 262.8939 | 267.1359 | 271.2912 | 275.3663 | 279.3667 | 283.2975 |
| | KAPPA/(1/MPA) | 2.5567 | 2.5482 | 2.5410 | 2.5348 | 2.5296 | 2.5250 | 2.5211 | 2.5176 | 2.5146 | 2.5120 | 2.5096 | 2.5075 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| .5000 | V/(M3/KG) | .10896 | .11346 | .11792 | .12236 | .12676 | .13114 | .13551 | .13985 | .14418 | .14850 | .15280 | .15710 |
| | H/(KJ/KG) | 1274.4 | 1352.8 | 1432.9 | 1514.5 | 1597.6 | 1682.3 | 1768.3 | 1855.8 | 1944.6 | 2034.7 | 2126.0 | 2218.6 |
| | S/(KJ/KG K) | 2.6856 | 2.7997 | 2.9120 | 3.0227 | 3.1317 | 3.2392 | 3.3451 | 3.4496 | 3.5525 | 3.6541 | 3.7542 | 3.8529 |
| | C/(M/SEC) | 233.8862 | 239.0263 | 243.9870 | 248.7898 | 253.4524 | 257.9894 | 262.4129 | 266.7331 | 270.9587 | 275.0973 | 279.1553 | 283.1385 |
| | KAPPA/(1/MPA) | 2.0572 | 2.0484 | 2.0411 | 2.0349 | 2.0296 | 2.0250 | 2.0210 | 2.0175 | 2.0145 | 2.0118 | 2.0095 | 2.0074 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| .6000 | V/(M3/KG) | .09028 | .09409 | .09787 | .10161 | .10532 | .10901 | .11268 | .11634 | .11998 | .12360 | .12721 | .13082 |
| | H/(KJ/KG) | 1273.1 | 1351.6 | 1431.8 | 1513.5 | 1596.7 | 1681.4 | 1767.5 | 1855.0 | 1943.9 | 2034.0 | 2125.4 | 2218.0 |
| | S/(KJ/KG K) | 2.6690 | 2.7832 | 2.8957 | 3.0065 | 3.1156 | 3.2232 | 3.3292 | 3.4337 | 3.5367 | 3.6383 | 3.7384 | 3.8372 |
| | C/(M/SEC) | 232.6647 | 237.9763 | 243.0846 | 248.0156 | 252.7905 | 257.4264 | 261.9377 | 266.3362 | 270.6322 | 274.8342 | 278.9496 | 282.9851 |
| | KAPPA/(1/MPA) | 1.7243 | 1.7154 | 1.7079 | 1.7016 | 1.6962 | 1.6916 | 1.6876 | 1.6841 | 1.6811 | 1.6784 | 1.6760 | 1.6739 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |

## THERMODYNAMIC PROPERTIES OF HEPTANE

### TEMPERATURES/(K)

| P/(MPA) | | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00167 | .00174 | .00183 | .00194 | .04697 | .05136 | .05545 | .05932 | .06303 | .06663 | .07013 | .07356 |
| | H/(KJ/KG) | 182.7 | 250.6 | 321.6 | 395.5 | 704.1 | 769.1 | 835.7 | 904.0 | 974.0 | 1045.9 | 1119.5 | 1194.8 |
| | S/(KJ/KG K) | .4696 | .6449 | .8170 | .9859 | 1.6631 | 1.7964 | 1.9263 | 2.0534 | 2.1779 | 2.3002 | 2.4203 | 2.5385 |
| | C/(M/SEC) | 792.5786 | 700.5761 | 609.3853 | 512.2335 | 169.8165 | 180.8697 | 190.3180 | 198.6668 | 206.2150 | 213.1539 | 219.6136 | 225.6867 |
| | KAPPA/(1/MPA) | .0033 | .0044 | .0061 | .0092 | 1.7617 | 1.6756 | 1.6193 | 1.5798 | 1.5508 | 1.5288 | 1.5116 | 1.4979 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.1 | 2.5 | 3.9 | 3.3 | 2.9 | 2.6 | 2.3 | 2.1 | 2.0 | 1.8 |
| .8000 | V/(M3/KG) | .00167 | .00174 | .00183 | .00193 | .03968 | .04381 | .04758 | .05111 | .05448 | .05771 | .06086 | .06392 |
| | H/(KJ/KG) | 182.7 | 250.6 | 321.6 | 395.5 | 700.0 | 765.8 | 832.9 | 901.6 | 971.9 | 1044.0 | 1117.8 | 1193.3 |
| | S/(KJ/KG K) | .4693 | .6446 | .8166 | .9854 | 1.6452 | 1.7802 | 1.9111 | 2.0390 | 2.1641 | 2.2868 | 2.4072 | 2.5256 |
| | C/(M/SEC) | 795.0790 | 703.3213 | 609.9577 | 514.6053 | 163.8769 | 176.3681 | 186.7578 | 195.7754 | 203.8242 | 211.1522 | 217.9228 | 224.2497 |
| | KAPPA/(1/MPA) | .0033 | .0044 | .0061 | .0091 | 1.6175 | 1.5142 | 1.4502 | 1.4068 | 1.3756 | 1.3523 | 1.3343 | 1.3201 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.1 | 2.5 | 4.4 | 3.6 | 3.1 | 2.7 | 2.4 | 2.2 | 2.0 | 1.9 |
| .9000 | V/(M3/KG) | .00167 | .00174 | .00183 | .00193 | .03393 | .03789 | .04143 | .04471 | .04781 | .05077 | .05364 | .05642 |
| | H/(KJ/KG) | 182.8 | 250.7 | 321.6 | 395.4 | 695.5 | 762.2 | 829.9 | 899.1 | 969.8 | 1042.1 | 1116.1 | 1191.8 |
| | S/(KJ/KG K) | .4690 | .6443 | .8163 | .9850 | 1.6280 | 1.7649 | 1.8971 | 2.0257 | 2.1514 | 2.2746 | 2.3954 | 2.5141 |
| | C/(M/SEC) | 797.1794 | 705.3256 | 613.0447 | 516.9467 | 157.3700 | 171.5973 | 183.0545 | 192.8033 | 201.3869 | 209.1239 | 216.2175 | 222.8058 |
| | KAPPA/(1/MPA) | .0033 | .0043 | .0060 | .0090 | 1.5224 | 1.3954 | 1.3219 | 1.2739 | 1.2404 | 1.2156 | 1.1968 | 1.1821 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.1 | 2.5 | 5.0 | 3.9 | 3.3 | 2.8 | 2.5 | 2.3 | 2.1 | 1.9 |
| 1.0000 | V/(M3/KG) | .00167 | .00174 | .00183 | .00193 | .02923 | .03311 | .03649 | .03958 | .04247 | .04522 | .04786 | .05042 |
| | H/(KJ/KG) | 182.9 | 250.7 | 321.7 | 395.4 | 690.6 | 758.5 | 826.9 | 896.5 | 967.6 | 1040.2 | 1114.4 | 1190.3 |
| | S/(KJ/KG K) | .4688 | .6439 | .8159 | .9845 | 1.6110 | 1.7503 | 1.8839 | 2.0134 | 2.1398 | 2.2634 | 2.3846 | 2.5036 |
| | C/(M/SEC) | 798.4308 | 706.8147 | 614.8625 | 518.6082 | 150.1272 | 166.5105 | 179.1922 | 189.7447 | 198.9011 | 207.0684 | 214.4978 | 221.3554 |
| | KAPPA/(1/MPA) | .0033 | .0043 | .0060 | .0089 | 1.4696 | 1.3082 | 1.2227 | 1.1694 | 1.1331 | 1.1068 | 1.0871 | 1.0718 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.1 | 2.5 | 5.8 | 4.3 | 3.5 | 3.0 | 2.6 | 2.4 | 2.2 | 2.0 |
| 2.0000 | V/(M3/KG) | .00166 | .00173 | .00182 | .00191 | .00204 | .00223 | .01292 | .01590 | .01813 | .02004 | .02176 | .02335 |
| | H/(KJ/KG) | 183.5 | 251.2 | 321.9 | 395.3 | 471.5 | 552.6 | 784.4 | 865.4 | 942.5 | 1019.1 | 1096.2 | 1174.3 |
| | S/(KJ/KG K) | .4660 | .6408 | .8122 | .9799 | 1.1448 | 1.3110 | 1.7603 | 1.9111 | 2.0481 | 2.1786 | 2.3045 | 2.4269 |
| | C/(M/SEC) | 810.7035 | 721.3474 | 632.4771 | 541.5147 | 444.2931 | 331.8397 | 123.7474 | 152.4505 | 170.8362 | 184.9209 | 196.5513 | 206.5755 |
| | KAPPA/(1/MPA) | .0031 | .0041 | .0056 | .0081 | .0130 | .0267 | 1.1125 | .7933 | .6901 | .6367 | .6036 | .5811 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.3 | 2.9 | 4.4 | 11.7 | 6.2 | 4.5 | 3.6 | 3.0 | 2.6 |
| 3.0000 | V/(M3/KG) | .00165 | .00173 | .00181 | .00190 | .00202 | .00218 | .00246 | .00572 | .00944 | .01140 | .01295 | .01429 |
| | H/(KJ/KG) | 184.2 | 251.7 | 322.2 | 395.2 | 470.8 | 550.4 | 638.6 | 794.7 | 907.2 | 993.0 | 1075.2 | 1156.6 |
| | S/(KJ/KG K) | .4634 | .6378 | .8087 | .9756 | 1.1391 | 1.3022 | 1.4742 | 1.7631 | 1.9636 | 2.1098 | 2.2440 | 2.3717 |
| | C/(M/SEC) | 822.5965 | 735.3018 | 649.1787 | 562.1469 | 471.1792 | 371.0881 | 249.1623 | 91.7117 | 135.8430 | 160.3325 | 177.9093 | 191.8993 |
| | KAPPA/(1/MPA) | .0030 | .0039 | .0053 | .0074 | .0113 | .0202 | .0550 | 1.9339 | .6593 | .5167 | .4572 | .4238 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 2.7 | 3.6 | 6.8 | 55.9 | 9.9 | 6.0 | 4.4 | 3.5 |
| 4.0000 | V/(M3/KG) | .00165 | .00172 | .00180 | .00189 | .00200 | .00214 | .00236 | .00282 | .00476 | .00695 | .00851 | .00976 |
| | H/(KJ/KG) | 184.8 | 252.3 | 322.6 | 395.3 | 470.4 | 548.8 | 633.8 | 724.2 | 852.2 | 959.8 | 1050.9 | 1137.1 |
| | S/(KJ/KG K) | .4607 | .6349 | .8053 | .9715 | 1.1339 | 1.2948 | 1.4606 | 1.6287 | 1.8562 | 2.0396 | 2.1883 | 2.3236 |
| | C/(M/SEC) | 834.1320 | 748.7372 | 665.0809 | 581.4344 | 495.4981 | 403.9678 | 301.2514 | 182.9722 | 118.8664 | 140.1438 | 161.8750 | 179.2815 |
| | KAPPA/(1/MPA) | .0029 | .0038 | .0050 | .0068 | .0101 | .0165 | .0338 | .1339 | .5960 | .4704 | .3876 | .3451 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.1 | 2.5 | 3.2 | 4.8 | 11.7 | 21.7 | 10.4 | 6.4 | 4.7 |

## THERMODYNAMIC PROPERTIES OF HEPTANE

TEMPERATURES/(K)

| P/(MPA) | | 675.000 | 700.000 | 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .07693 | .08026 | .08354 | .08679 | .09001 | .09321 | .09639 | .09955 | .10269 | .10582 | .10894 | .11205 |
| | H/(KJ/KG) | 1271.8 | 1350.4 | 1430.6 | 1512.4 | 1595.7 | 1680.5 | 1766.7 | 1854.2 | 1943.1 | 2033.3 | 2124.8 | 2217.4 |
| | S/(KJ/KG K) | 2.6547 | 2.7691 | 2.8817 | 2.9926 | 3.1019 | 3.2095 | 3.3156 | 3.4201 | 3.5232 | 3.6248 | 3.7251 | 3.8239 |
| | C/(M/SEC) | 231.4408 | 236.9271 | 242.1850 | 247.2456 | 252.1335 | 256.8689 | 261.4683 | 265.9453 | 270.3116 | 274.5769 | 278.7497 | 282.8372 |
| | KAPPA/(1/MPA) | 1.4867 | 1.4776 | 1.4700 | 1.4635 | 1.4581 | 1.4534 | 1.4494 | 1.4459 | 1.4429 | 1.4402 | 1.4378 | 1.4357 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .8000 | V/(M3/KG) | .06693 | .06988 | .07279 | .07567 | .07853 | .08135 | .08416 | .08695 | .08973 | .09249 | .09523 | .09797 |
| | H/(KJ/KG) | 1270.4 | 1349.2 | 1429.5 | 1511.4 | 1594.8 | 1679.6 | 1765.9 | 1853.5 | 1942.4 | 2032.7 | 2124.1 | 2216.8 |
| | S/(KJ/KG K) | 2.6421 | 2.7566 | 2.8694 | 2.9804 | 3.0898 | 3.1975 | 3.3037 | 3.4083 | 3.5114 | 3.6131 | 3.7134 | 3.8122 |
| | C/(M/SEC) | 230.2147 | 235.8788 | 241.2885 | 246.4799 | 251.4818 | 256.3172 | 261.0049 | 265.5605 | 269.9971 | 274.3256 | 278.5555 | 282.6948 |
| | KAPPA/(1/MPA) | 1.3087 | 1.2993 | 1.2915 | 1.2850 | 1.2795 | 1.2748 | 1.2707 | 1.2672 | 1.2642 | 1.2615 | 1.2591 | 1.2570 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 |
| .9000 | V/(M3/KG) | .05914 | .06181 | .06444 | .06703 | .06960 | .07214 | .07466 | .07716 | .07964 | .08212 | .08458 | .08703 |
| | H/(KJ/KG) | 1269.1 | 1348.0 | 1428.4 | 1510.4 | 1593.8 | 1678.7 | 1765.1 | 1852.7 | 1941.7 | 2032.0 | 2123.5 | 2216.2 |
| | S/(KJ/KG K) | 2.6308 | 2.7455 | 2.8584 | 2.9696 | 3.0790 | 3.1869 | 3.2931 | 3.3978 | 3.5010 | 3.6027 | 3.7030 | 3.8019 |
| | C/(M/SEC) | 228.9866 | 234.8318 | 240.3953 | 245.7189 | 250.8355 | 255.7713 | 260.5476 | 265.1818 | 269.6887 | 274.0803 | 278.3671 | 282.5580 |
| | KAPPA/(1/MPA) | 1.1703 | 1.1607 | 1.1528 | 1.1462 | 1.1406 | 1.1358 | 1.1318 | 1.1282 | 1.1252 | 1.1225 | 1.1201 | 1.1180 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 |
| 1.0000 | V/(M3/KG) | .05291 | .05535 | .05775 | .06012 | .06245 | .06476 | .06705 | .06932 | .07158 | .07382 | .07605 | .07827 |
| | H/(KJ/KG) | 1267.7 | 1346.7 | 1427.3 | 1509.3 | 1592.9 | 1677.9 | 1764.2 | 1852.0 | 1941.0 | 2031.3 | 2122.9 | 2215.7 |
| | S/(KJ/KG K) | 2.6205 | 2.7354 | 2.8485 | 2.9597 | 3.0693 | 3.1772 | 3.2835 | 3.3883 | 3.4915 | 3.5933 | 3.6937 | 3.7926 |
| | C/(M/SEC) | 227.7570 | 233.7862 | 239.5055 | 244.9626 | 250.1947 | 255.2313 | 260.0964 | 264.8094 | 269.3864 | 273.8409 | 278.1845 | 282.4269 |
| | KAPPA/(1/MPA) | 1.0597 | 1.0499 | 1.0418 | 1.0351 | 1.0295 | 1.0247 | 1.0205 | 1.0170 | 1.0139 | 1.0112 | 1.0089 | 1.0068 |
| | BETA/(1000/K) | 1.9 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| 2.0000 | V/(M3/KG) | .02486 | .02630 | .02768 | .02902 | .03033 | .03161 | .03286 | .03410 | .03532 | .03652 | .03771 | .03890 |
| | H/(KJ/KG) | 1253.5 | 1334.0 | 1415.7 | 1498.8 | 1583.2 | 1669.0 | 1756.0 | 1844.3 | 1933.9 | 2024.7 | 2116.7 | 2209.8 |
| | S/(KJ/KG K) | 2.5465 | 2.6636 | 2.7783 | 2.8910 | 3.0017 | 3.1106 | 3.2177 | 3.3232 | 3.4271 | 3.5294 | 3.6302 | 3.7295 |
| | C/(M/SEC) | 215.4612 | 223.4965 | 230.8718 | 237.7200 | 244.1374 | 250.1960 | 255.9512 | 261.4463 | 266.7157 | 271.7874 | 276.6842 | 281.4252 |
| | KAPPA/(1/MPA) | .5648 | .5524 | .5428 | .5351 | .5289 | .5237 | .5194 | .5157 | .5126 | .5099 | .5076 | .5055 |
| | BETA/(1000/K) | 2.4 | 2.1 | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 |
| 3.0000 | V/(M3/KG) | .01550 | .01662 | .01768 | .01868 | .01965 | .02059 | .02150 | .02239 | .02327 | .02413 | .02497 | .02580 |
| | H/(KJ/KG) | 1238.2 | 1320.5 | 1403.7 | 1488.0 | 1573.4 | 1660.0 | 1747.8 | 1836.7 | 1926.8 | 2018.1 | 2110.5 | 2204.1 |
| | S/(KJ/KG K) | 2.4949 | 2.6146 | 2.7314 | 2.8457 | 2.9578 | 3.0677 | 3.1757 | 3.2819 | 3.3864 | 3.4893 | 3.5906 | 3.6903 |
| | C/(M/SEC) | 203.6616 | 213.8971 | 223.0185 | 231.2904 | 238.8931 | 245.9552 | 252.5715 | 258.8138 | 264.7379 | 270.3880 | 275.7997 | 281.0017 |
| | KAPPA/(1/MPA) | .4023 | .3873 | .3762 | .3677 | .3610 | .3556 | .3512 | .3475 | .3444 | .3418 | .3395 | .3375 |
| | BETA/(1000/K) | 3.0 | 2.6 | 2.3 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 |
| 4.0000 | V/(M3/KG) | .01084 | .01181 | .01271 | .01355 | .01435 | .01512 | .01586 | .01657 | .01727 | .01796 | .01863 | .01929 |
| | H/(KJ/KG) | 1221.9 | 1306.4 | 1391.4 | 1477.0 | 1563.5 | 1651.0 | 1739.6 | 1829.2 | 1919.9 | 2011.7 | 2104.5 | 2198.5 |
| | S/(KJ/KG K) | 2.4516 | 2.5746 | 2.6938 | 2.8099 | 2.9234 | 3.0345 | 3.1435 | 3.2505 | 3.3556 | 3.4591 | 3.5608 | 3.6610 |
| | C/(M/SEC) | 193.6229 | 205.8476 | 216.5475 | 226.1035 | 234.7722 | 242.7340 | 250.1203 | 257.0293 | 263.5364 | 269.7007 | 275.5691 | 281.1798 |
| | KAPPA/(1/MPA) | .3198 | .3030 | .2912 | .2823 | .2756 | .2702 | .2658 | .2623 | .2593 | .2568 | .2547 | .2528 |
| | BETA/(1000/K) | 3.8 | 3.2 | 2.7 | 2.4 | 2.2 | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 |

## THERMODYNAMIC PROPERTIES OF HEPTANE

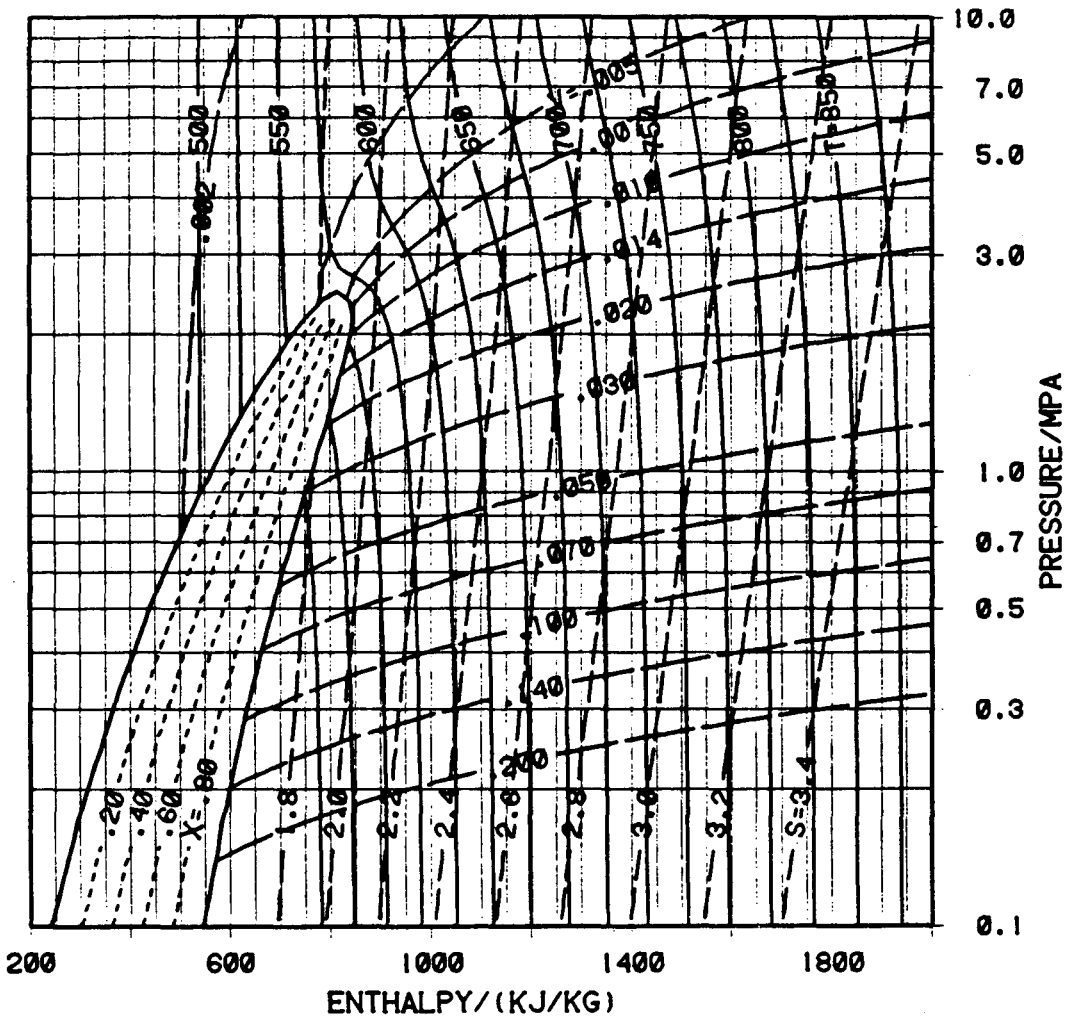
### TEMPERATURES/(K)

| P/(MPA) | | 375.000 | 400.000 | 425.000 | 450.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00165 | .00171 | .00179 | .00187 | .00198 | .00211 | .00229 | .00259 | .00328 | .00463 | .00598 | .00712 |
| | H/(KJ/KG) | 185.5 | 252.9 | 323.0 | 395.4 | 470.1 | 547.8 | 630.9 | 714.4 | 815.6 | 925.5 | 1024.9 | 1116.7 |
| | S/(KJ/KG K) | .4582 | .6320 | .8020 | .9676 | 1.1291 | 1.2884 | 1.4507 | 1.6059 | 1.7858 | 1.9730 | 2.1353 | 2.2793 |
| | C/(M/SEC) | 845.3351 | 761.6997 | 680.2760 | 599.5886 | 517.8147 | 432.6819 | 341.2646 | 246.4522 | 159.8212 | 143.5482 | 156.2067 | 172.3956 |
| | KAPPA/(1/MPA) | .0029 | .0036 | .0047 | .0064 | .0091 | .0140 | .0248 | .0585 | .2024 | .3258 | .3137 | .2850 |
| | BETA/(1000/K) | 1.5 | 1.7 | 1.8 | 2.0 | 2.3 | 2.9 | 3.9 | 6.4 | 13.1 | 12.4 | 8.3 | 5.9 |
| 6.0000 | V/(M3/KG) | .00164 | .00171 | .00178 | .00186 | .00196 | .00208 | .00224 | .00247 | .00288 | .00361 | .00458 | .00552 |
| | H/(KJ/KG) | 186.2 | 253.4 | 323.4 | 395.6 | 470.0 | 547.0 | 628.9 | 709.3 | 801.1 | 901.9 | 1002.1 | 1097.3 |
| | S/(KJ/KG K) | .4557 | .6292 | .7988 | .9639 | 1.1247 | 1.2827 | 1.4425 | 1.5921 | 1.7554 | 1.9268 | 2.0906 | 2.2399 |
| | C/(M/SEC) | 856.2285 | 774.2302 | 694.8455 | 616.7625 | 538.5153 | 458.4062 | 374.7004 | 292.3167 | 212.3651 | 168.8368 | 165.1853 | 174.4345 |
| | KAPPA/(1/MPA) | .0028 | .0035 | .0045 | .0060 | .0083 | .0122 | .0198 | .0377 | .0886 | .1796 | .2212 | .2233 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.8 | 1.9 | 2.2 | 2.6 | 3.3 | 4.7 | 7.6 | 10.0 | 8.6 | 6.6 |
| 7.0000 | V/(M3/KG) | .00164 | .00170 | .00177 | .00185 | .00195 | .00206 | .00220 | .00240 | .00269 | .00315 | .00381 | .00455 |
| | H/(KJ/KG) | 186.9 | 254.1 | 323.9 | 395.9 | 469.9 | 546.5 | 627.5 | 706.0 | 793.7 | 887.9 | 985.2 | 1080.9 |
| | S/(KJ/KG K) | .4532 | .6265 | .7958 | .9604 | 1.1205 | 1.2775 | 1.4356 | 1.5817 | 1.7376 | 1.8979 | 2.0569 | 2.2070 |
| | C/(M/SEC) | 866.8311 | 786.3595 | 708.8378 | 633.1025 | 557.8764 | 481.8442 | 403.8582 | 329.5279 | 256.8407 | 204.0209 | 184.4507 | 184.7548 |
| | KAPPA/(1/MPA) | .0027 | .0034 | .0043 | .0056 | .0076 | .0108 | .0165 | .0279 | .0533 | .1019 | .1470 | .1663 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 | 2.4 | 3.0 | 3.9 | 5.4 | 7.3 | 7.5 | 6.5 |
| 8.0000 | V/(M3/KG) | .00163 | .00169 | .00176 | .00184 | .00193 | .00204 | .00217 | .00234 | .00257 | .00291 | .00338 | .00394 |
| | H/(KJ/KG) | 187.7 | 254.7 | 324.4 | 396.2 | 470.0 | 546.1 | 626.4 | 703.7 | 789.0 | 879.3 | 973.3 | 1068.0 |
| | S/(KJ/KG K) | .4508 | .6238 | .7928 | .9570 | 1.1165 | 1.2726 | 1.4294 | 1.5733 | 1.7249 | 1.8786 | 2.0321 | 2.1806 |
| | C/(M/SEC) | 877.1612 | 798.1198 | 722.3146 | 648.6832 | 576.1085 | 503.4791 | 429.9444 | 361.4112 | 294.3231 | 240.1505 | 209.7911 | 200.8698 |
| | KAPPA/(1/MPA) | .0026 | .0033 | .0041 | .0053 | .0071 | .0097 | .0142 | .0222 | .0375 | .0651 | .0987 | .1218 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.3 | 2.7 | 3.3 | 4.3 | 5.6 | 6.3 | 5.9 |
| 9.0000 | V/(M3/KG) | .00163 | .00169 | .00176 | .00183 | .00192 | .00202 | .00214 | .00229 | .00249 | .00275 | .00311 | .00355 |
| | H/(KJ/KG) | 188.4 | 255.3 | 324.9 | 396.6 | 470.1 | 545.9 | 625.7 | 702.0 | 785.8 | 873.6 | 965.0 | 1058.1 |
| | S/(KJ/KG K) | .4484 | .6212 | .7899 | .9537 | 1.1127 | 1.2681 | 1.4238 | 1.5660 | 1.7149 | 1.8644 | 2.0136 | 2.1596 |
| | C/(M/SEC) | 887.2351 | 809.5376 | 735.3214 | 663.6004 | 593.3602 | 523.6352 | 453.7085 | 389.6105 | 326.8450 | 273.7183 | 237.7252 | 220.8676 |
| | KAPPA/(1/MPA) | .0026 | .0032 | .0039 | .0050 | .0066 | .0089 | .0125 | .0185 | .0288 | .0461 | .0692 | .0900 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.6 | 1.8 | 1.9 | 2.2 | 2.5 | 3.0 | 3.7 | 4.5 | 5.2 | 5.3 |
| 10.0000 | V/(M3/KG) | .00162 | .00168 | .00175 | .00182 | .00191 | .00200 | .00211 | .00225 | .00242 | .00264 | .00293 | .00328 |
| | H/(KJ/KG) | 189.2 | 256.0 | 325.5 | 397.0 | 470.3 | 545.8 | 625.1 | 700.8 | 783.4 | 869.6 | 959.0 | 1050.6 |
| | S/(KJ/KG K) | .4461 | .6187 | .7871 | .9506 | 1.1091 | 1.2639 | 1.4187 | 1.5596 | 1.7065 | 1.8532 | 1.9992 | 2.1428 |
| | C/(M/SEC) | 897.0639 | 820.6325 | 747.8930 | 677.9174 | 609.7678 | 542.5403 | 475.6221 | 415.0705 | 355.7458 | 304.2700 | 265.7592 | 243.1480 |
| | KAPPA/(1/MPA) | .0025 | .0031 | .0038 | .0048 | .0062 | .0082 | .0112 | .0159 | .0234 | .0352 | .0512 | .0679 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 | 2.3 | 2.7 | 3.2 | 3.8 | 4.4 | 4.6 |

THERMODYNAMIC PROPERTIES OF HEPTANE

TEMPERATURES/(K)

| P/(MPA) | | 675.000 | 700.000 | 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00811 | .00898 | .00978 | .01051 | .01121 | .01187 | .01250 | .01311 | .01370 | .01428 | .01484 | .01540 |
| | H/(KJ/KG) | 1205.1 | 1292.1 | 1379.0 | 1466.0 | 1553.7 | 1642.2 | 1731.5 | 1821.8 | 1913.1 | 2005.4 | 2098.7 | 2193.0 |
| | S/(KJ/KG K) | 2.4128 | 2.5394 | 2.6613 | 2.7794 | 2.8944 | 3.0067 | 3.1167 | 3.2245 | 3.3303 | 3.4343 | 3.5366 | 3.6372 |
| | C/(M/SEC) | 187.3517 | 200.5534 | 212.2295 | 222.6725 | 232.1258 | 240.7769 | 248.7693 | 256.2133 | 263.1951 | 269.7827 | 276.0304 | 281.9827 |
| | KAPPA/(1/MPA) | .2633 | .2480 | .2370 | .2287 | .2224 | .2174 | .2133 | .2101 | .2073 | .2050 | .2031 | .2014 |
| | BETA/(1000/K) | 4.5 | 3.7 | 3.1 | 2.7 | 2.4 | 2.2 | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 |
| 6.0000 | V/(M3/KG) | .00639 | .00717 | .00788 | .00854 | .00915 | .00974 | .01029 | .01083 | .01135 | .01185 | .01234 | .01282 |
| | H/(KJ/KG) | 1188.7 | 1278.2 | 1366.8 | 1455.3 | 1544.1 | 1633.5 | 1723.6 | 1814.6 | 1906.4 | 1999.2 | 2093.0 | 2187.7 |
| | S/(KJ/KG K) | 2.3779 | 2.5080 | 2.6324 | 2.7524 | 2.8689 | 2.9825 | 3.0934 | 3.2020 | 3.3085 | 3.4131 | 3.5158 | 3.6169 |
| | C/(M/SEC) | 186.7768 | 199.1844 | 210.8002 | 221.4766 | 231.2741 | 240.3017 | 248.6682 | 256.4689 | 263.7843 | 270.6809 | 277.2136 | 283.4281 |
| | KAPPA/(1/MPA) | .2145 | .2048 | .1966 | .1901 | .1848 | .1805 | .1771 | .1742 | .1718 | .1698 | .1681 | .1666 |
| | BETA/(1000/K) | 5.1 | 4.1 | 3.5 | 3.0 | 2.6 | 2.3 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 |
| 7.0000 | V/(M3/KG) | .00527 | .00595 | .00658 | .00717 | .00772 | .00825 | .00875 | .00923 | .00969 | .01014 | .01057 | .01100 |
| | H/(KJ/KG) | 1174.0 | 1265.1 | 1355.2 | 1445.0 | 1534.9 | 1625.2 | 1716.1 | 1807.7 | 1900.1 | 1993.4 | 2087.5 | 2182.6 |
| | S/(KJ/KG K) | 2.3475 | 2.4801 | 2.6066 | 2.7283 | 2.8462 | 2.9609 | 3.0727 | 3.1821 | 3.2893 | 3.3944 | 3.4976 | 3.5990 |
| | C/(M/SEC) | 192.2982 | 202.2393 | 212.6585 | 222.8046 | 232.4204 | 241.4497 | 249.9142 | 257.8621 | 265.3478 | 272.4230 | 279.1347 | 285.5240 |
| | KAPPA/(1/MPA) | .1700 | .1677 | .1637 | .1596 | .1559 | .1527 | .1499 | .1476 | .1457 | .1440 | .1425 | .1413 |
| | BETA/(1000/K) | 5.3 | 4.4 | 3.7 | 3.2 | 2.8 | 2.5 | 2.2 | 2.0 | 1.9 | 1.7 | 1.6 | 1.5 |
| 8.0000 | V/(M3/KG) | .00453 | .00511 | .00567 | .00619 | .00669 | .00716 | .00761 | .00805 | .00846 | .00887 | .00926 | .00965 |
| | H/(KJ/KG) | 1161.4 | 1253.5 | 1344.7 | 1435.5 | 1526.3 | 1617.3 | 1708.9 | 1801.1 | 1894.0 | 1987.7 | 2082.3 | 2177.8 |
| | S/(KJ/KG K) | 2.3217 | 2.4557 | 2.5837 | 2.7068 | 2.8258 | 2.9414 | 3.0541 | 3.1642 | 3.2720 | 3.3776 | 3.4813 | 3.5831 |
| | C/(M/SEC) | 202.7993 | 209.3315 | 217.7099 | 226.6618 | 235.5963 | 244.2535 | 252.5330 | 260.4103 | 267.8954 | 275.0131 | 281.7931 | 288.2658 |
| | KAPPA/(1/MPA) | .1325 | .1360 | .1359 | .1344 | .1325 | .1305 | .1286 | .1269 | .1254 | .1241 | .1230 | .1220 |
| | BETA/(1000/K) | 5.2 | 4.4 | 3.8 | 3.3 | 2.9 | 2.6 | 2.3 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 |
| 9.0000 | V/(M3/KG) | .00403 | .00452 | .00501 | .00547 | .00592 | .00634 | .00675 | .00715 | .00753 | .00790 | .00826 | .00861 |
| | H/(KJ/KG) | 1151.2 | 1243.6 | 1335.4 | 1426.8 | 1518.3 | 1610.0 | 1702.1 | 1794.8 | 1888.2 | 1982.4 | 2077.4 | 2173.1 |
| | S/(KJ/KG K) | 2.3001 | 2.4346 | 2.5634 | 2.6875 | 2.8074 | 2.9239 | 3.0373 | 3.1480 | 3.2563 | 3.3624 | 3.4664 | 3.5686 |
| | C/(M/SEC) | 216.9533 | 219.6528 | 225.5116 | 232.8124 | 240.6737 | 248.6393 | 256.4788 | 264.0817 | 271.4030 | 278.4307 | 285.1706 | 291.6369 |
| | KAPPA/(1/MPA) | .1031 | .1098 | .1127 | .1134 | .1131 | .1122 | .1112 | .1102 | .1092 | .1083 | .1074 | .1067 |
| | BETA/(1000/K) | 4.9 | 4.3 | 3.8 | 3.3 | 2.9 | 2.6 | 2.4 | 2.2 | 2.0 | 1.8 | 1.7 | 1.6 |
| 10.0000 | V/(M3/KG) | .00368 | .00410 | .00452 | .00493 | .00533 | .00572 | .00609 | .00645 | .00680 | .00714 | .00746 | .00779 |
| | H/(KJ/KG) | 1142.9 | 1235.2 | 1327.2 | 1419.1 | 1511.1 | 1603.3 | 1695.9 | 1789.0 | 1882.8 | 1977.4 | 2072.7 | 2168.8 |
| | S/(KJ/KG K) | 2.2822 | 2.4164 | 2.5456 | 2.6702 | 2.7909 | 2.9079 | 3.0219 | 3.1332 | 3.2419 | 3.3484 | 3.4529 | 3.5554 |
| | C/(M/SEC) | 233.7432 | 232.4510 | 235.5382 | 240.9104 | 247.4288 | 254.4606 | 261.6515 | 268.8060 | 275.8181 | 282.6352 | 289.2344 | 295.6097 |
| | KAPPA/(1/MPA) | .0808 | .0890 | .0936 | .0959 | .0968 | .0970 | .0968 | .0963 | .0958 | .0952 | .0947 | .0942 |
| | BETA/(1000/K) | 4.5 | 4.1 | 3.7 | 3.3 | 3.0 | 2.7 | 2.4 | 2.2 | 2.0 | 1.9 | 1.7 | 1.6 |


10.0
7.0
5.0
3.0
1.0
0.7
0.5
0.3
0.1
PRESSURE/MPA
200
600
1000
1400
1800
ENTHALPY/(KJ/KG)
T=500
550
600
650
700
750
800
850
S=3.4
X=.90
.80
.60
.40
.20

OCTANE

## PROPERTIES OF SATURATED OCTANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 400.00000 | .10553 | .00167 | .26021 | 246.04203 | 303.18116 | 549.22319 | .70569 | .75795 | 1.46364 |
| 405.00000 | .12100 | .00169 | .22835 | 259.71615 | 299.38152 | 559.09767 | .73960 | .73921 | 1.47881 |
| 410.00000 | .13819 | .00170 | .20108 | 273.51996 | 295.50051 | 569.02046 | .77340 | .72073 | 1.49413 |
| 415.00000 | .15719 | .00172 | .17765 | 287.45004 | 291.53786 | 578.98790 | .80709 | .70250 | 1.50959 |
| 420.00000 | .17816 | .00173 | .15743 | 301.50370 | 287.49280 | 588.99650 | .84067 | .68451 | 1.52517 |
| 425.00000 | .20120 | .00175 | .13991 | 315.67784 | 283.36465 | 599.04249 | .87412 | .66674 | 1.54086 |
| 430.00000 | .22646 | .00176 | .12469 | 329.96791 | 279.15423 | 609.12214 | .90744 | .64920 | 1.55664 |
| 435.00000 | .25406 | .00178 | .11140 | 344.37372 | 274.85735 | 619.23108 | .94064 | .63186 | 1.57250 |
| 440.00000 | .28414 | .00180 | .09978 | 358.89140 | 270.47385 | 629.36525 | .97370 | .61471 | 1.58841 |
| 445.00000 | .31685 | .00181 | .08956 | 373.51876 | 266.00131 | 639.52007 | 1.00662 | .59776 | 1.60438 |
| 450.00000 | .35231 | .00183 | .08056 | 388.25345 | 261.43701 | 649.69046 | 1.03941 | .58097 | 1.62038 |
| 455.00000 | .39069 | .00185 | .07260 | 403.09451 | 256.77679 | 659.87130 | 1.07205 | .56434 | 1.63639 |
| 460.00000 | .43213 | .00187 | .06554 | 418.04076 | 252.01607 | 670.05682 | 1.10455 | .54786 | 1.65241 |
| 465.00000 | .47679 | .00189 | .05927 | 433.09246 | 247.14818 | 680.24064 | 1.13691 | .53150 | 1.66841 |
| 470.00000 | .52482 | .00191 | .05367 | 448.25015 | 242.16563 | 690.41577 | 1.16914 | .51525 | 1.68438 |
| 475.00000 | .57639 | .00193 | .04867 | 463.51599 | 237.05834 | 700.57433 | 1.20124 | .49907 | 1.70031 |
| 480.00000 | .63167 | .00196 | .04417 | 478.89304 | 231.81446 | 710.70749 | 1.23322 | .48295 | 1.71616 |
| 485.00000 | .69084 | .00198 | .04013 | 494.38619 | 226.41928 | 720.80547 | 1.26508 | .46684 | 1.73193 |
| 490.00000 | .75409 | .00201 | .03649 | 510.00156 | 220.85474 | 730.85630 | 1.29686 | .45072 | 1.74758 |
| 495.00000 | .82162 | .00203 | .03319 | 525.74816 | 215.09872 | 740.84688 | 1.32855 | .43454 | 1.76310 |
| 500.00000 | .89362 | .00206 | .03020 | 541.63714 | 209.12376 | 750.76090 | 1.36019 | .41825 | 1.77844 |
| 505.00000 | .97031 | .00209 | .02748 | 557.68230 | 202.89764 | 760.57994 | 1.39181 | .40178 | 1.79359 |
| 510.00000 | 1.05194 | .00213 | .02500 | 573.90303 | 196.37766 | 770.28069 | 1.42343 | .38505 | 1.80848 |
| 515.00000 | 1.13873 | .00216 | .02273 | 590.32142 | 189.51379 | 779.83521 | 1.45510 | .36799 | 1.82309 |
| 520.00000 | 1.23095 | .00220 | .02064 | 606.96700 | 182.24096 | 789.20796 | 1.48688 | .35046 | 1.83734 |
| 525.00000 | 1.32889 | .00224 | .01871 | 623.87656 | 174.47730 | 798.35386 | 1.51883 | .33234 | 1.85116 |
| 530.00000 | 1.43283 | .00229 | .01693 | 641.09794 | 166.11513 | 807.21307 | 1.55103 | .31342 | 1.86445 |
| 535.00000 | 1.54311 | .00234 | .01526 | 658.69355 | 157.01092 | 815.70446 | 1.58359 | .29348 | 1.87707 |
| 540.00000 | 1.66008 | .00240 | .01370 | 676.74710 | 146.96574 | 823.71284 | 1.61666 | .27216 | 1.88882 |
| 545.00000 | 1.78411 | .00247 | .01222 | 695.37618 | 135.68856 | 831.06474 | 1.65044 | .24897 | 1.89941 |
| 550.00000 | 1.91561 | .00256 | .01080 | 714.75446 | 122.72430 | 837.47876 | 1.68523 | .22314 | 1.90837 |
| 555.00000 | 2.05503 | .00266 | .00940 | 735.16530 | 107.27601 | 842.44131 | 1.72152 | .19329 | 1.91481 |
| 560.00000 | 2.20285 | .00282 | .00796 | 757.15099 | 87.66234 | 844.81333 | 1.76022 | .15654 | 1.91676 |
| 565.00000 | 2.35961 | .00308 | .00629 | 782.16804 | 58.54580 | 840.71384 | 1.80388 | .10362 | 1.90750 |
| 568.83000 | 2.52588 | .00425 | .00425 | 817.43800 | 0. | 817.43800 | 1.86498 | 0. | 1.86498 |

## THERMODYNAMIC PROPERTIES OF OCTANE

| P/(MPA) | | TEMPERATURES/(K) 400.000 | 425.000 | 450.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .27552 | .29610 | .31619 | .33594 | .35542 | .37470 | .39382 | .41280 | .43168 | .45047 | .46919 | .48785 |
| | H/(KJ/KG) | 549.5 | 604.3 | 661.4 | 720.9 | 782.7 | 846.8 | 913.0 | 981.4 | 1051.8 | 1124.2 | 1198.4 | 1274.4 |
| | S/(KJ/KG K) | 1.4682 | 1.6008 | 1.7313 | 1.8600 | 1.9868 | 2.1119 | 2.2352 | 2.3567 | 2.4766 | 2.5947 | 2.7111 | 2.8259 |
| | C/(M/SEC) | 164.9645 | 171.7079 | 177.9552 | 183.8192 | 189.3759 | 194.6791 | 199.7683 | 204.6734 | 209.4175 | 214.0192 | 218.4934 | 222.8524 |
| | KAPPA/(1/MPA) | 10.5975 | 10.4663 | 10.3713 | 10.3003 | 10.2458 | 10.2031 | 10.1692 | 10.1418 | 10.1195 | 10.1011 | 10.0858 | 10.0730 |
| | BETA/(1000/K) | 3.0 | 2.7 | 2.5 | 2.3 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 |
| .1013 | V/(M3/KG) | .27170 | .29204 | .31190 | .33141 | .35066 | .36970 | .38858 | .40733 | .42597 | .44452 | .46301 | .48143 |
| | H/(KJ/KG) | 549.5 | 604.2 | 661.3 | 720.8 | 782.6 | 846.7 | 913.0 | 981.4 | 1051.8 | 1124.1 | 1198.4 | 1274.4 |
| | S/(KJ/KG K) | 1.4671 | 1.5997 | 1.7303 | 1.8590 | 1.9858 | 2.1109 | 2.2342 | 2.3557 | 2.4756 | 2.5937 | 2.7101 | 2.8249 |
| | C/(M/SEC) | 164.8407 | 171.6078 | 177.8729 | 183.7506 | 189.3181 | 194.6301 | 199.7265 | 204.6375 | 209.3867 | 213.9926 | 218.4703 | 222.8324 |
| | KAPPA/(1/MPA) | 10.4681 | 10.3363 | 10.2410 | 10.1698 | 10.1152 | 10.0725 | 10.0385 | 10.0111 | 9.9888 | 9.9704 | 9.9551 | 9.9423 |
| | BETA/(1000/K) | 3.0 | 2.7 | 2.5 | 2.3 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 |
| .2000 | V/(M3/KG) | .00167 | .14085 | .15204 | .16280 | .17326 | .18348 | .19353 | .20344 | .21324 | .22295 | .23257 | .24214 |
| | H/(KJ/KG) | 246.1 | 599.1 | 657.0 | 717.1 | 779.4 | 843.9 | 910.5 | 979.1 | 1049.8 | 1122.3 | 1196.7 | 1272.9 |
| | S/(KJ/KG K) | .7054 | 1.5414 | 1.6738 | 1.8037 | 1.9316 | 2.0574 | 2.1813 | 2.3033 | 2.4235 | 2.5420 | 2.6587 | 2.7737 |
| | C/(M/SEC) | 760.5024 | 163.6982 | 171.4616 | 178.4627 | 184.9008 | 190.9041 | 196.5601 | 201.9311 | 207.0630 | 211.9909 | 216.7417 | 221.3372 |
| | KAPPA/(1/MPA) | .0036 | 5.5349 | 5.4122 | 5.3257 | 5.2621 | 5.2139 | 5.1764 | 5.1467 | 5.1229 | 5.1035 | 5.0875 | 5.0742 |
| | BETA/(1000/K) | 1.6 | 3.3 | 2.9 | 2.6 | 2.4 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 |
| .3000 | V/(M3/KG) | .00167 | .00175 | .09702 | .10490 | .11241 | .11966 | .12672 | .13362 | .14040 | .14708 | .15369 | .16022 |
| | H/(KJ/KG) | 246.2 | 315.7 | 652.3 | 713.1 | 776.0 | 840.9 | 907.9 | 976.8 | 1047.7 | 1120.4 | 1195.0 | 1271.3 |
| | S/(KJ/KG K) | .7052 | .8738 | 1.6365 | 1.7680 | 1.8970 | 2.0236 | 2.1482 | 2.2708 | 2.3914 | 2.5102 | 2.6272 | 2.7424 |
| | C/(M/SEC) | 761.7476 | 674.6712 | 164.2957 | 172.6958 | 180.1651 | 186.9589 | 193.2384 | 199.1121 | 204.6563 | 209.9268 | 214.9657 | 219.8057 |
| | KAPPA/(1/MPA) | .0035 | .0047 | 3.7982 | 3.6898 | 3.6144 | 3.5593 | 3.5177 | 3.4854 | 3.4598 | 3.4393 | 3.4225 | 3.4087 |
| | BETA/(1000/K) | 1.6 | 1.8 | 3.3 | 2.9 | 2.6 | 2.4 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 |
| .4000 | V/(M3/KG) | .00167 | .00175 | .00183 | .07578 | .08188 | .08768 | .09326 | .09867 | .10396 | .10914 | .11423 | .11926 |
| | H/(KJ/KG) | 246.2 | 315.8 | 388.3 | 708.9 | 772.4 | 837.8 | 905.2 | 974.4 | 1045.5 | 1118.5 | 1193.3 | 1269.8 |
| | S/(KJ/KG K) | .7049 | .8735 | 1.0392 | 1.7404 | 1.8707 | 1.9983 | 2.1236 | 2.2467 | 2.3678 | 2.4869 | 2.6042 | 2.7197 |
| | C/(M/SEC) | 762.9919 | 676.1788 | 587.6240 | 166.4256 | 175.1259 | 182.8229 | 189.7933 | 196.2116 | 202.1950 | 207.8261 | 213.1653 | 218.2581 |
| | KAPPA/(1/MPA) | .0035 | .0047 | .0065 | 2.8948 | 2.8034 | 2.7397 | 2.6931 | 2.6578 | 2.6303 | 2.6085 | 2.5909 | 2.5766 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.1 | 3.3 | 2.9 | 2.6 | 2.4 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 |
| .5000 | V/(M3/KG) | .00167 | .00174 | .00183 | .05814 | .06347 | .06843 | .07315 | .07768 | .08207 | .08635 | .09055 | .09467 |
| | H/(KJ/KG) | 246.3 | 315.8 | 388.3 | 704.3 | 768.6 | 834.6 | 902.4 | 972.0 | 1043.4 | 1116.6 | 1191.5 | 1268.2 |
| | S/(KJ/KG K) | .7046 | .8732 | 1.0388 | 1.7168 | 1.8487 | 1.9774 | 2.1035 | 2.2272 | 2.3488 | 2.4683 | 2.5859 | 2.7016 |
| | C/(M/SEC) | 764.2311 | 677.6810 | 589.4801 | 159.5199 | 169.7278 | 178.4711 | 186.2130 | 193.2241 | 199.6768 | 205.6880 | 211.3402 | 216.6946 |
| | KAPPA/(1/MPA) | .0035 | .0046 | .0064 | 2.6441 | 2.3302 | 2.2554 | 2.2028 | 2.1640 | 2.1344 | 2.1112 | 2.0928 | 2.0778 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 3.8 | 3.2 | 2.8 | 2.5 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 |
| .6000 | V/(M3/KG) | .00167 | .00174 | .00183 | .00193 | .05109 | .05554 | .05970 | .06366 | .06747 | .07116 | .07475 | .07828 |
| | H/(KJ/KG) | 246.3 | 315.8 | 388.3 | 463.5 | 764.6 | 831.2 | 899.5 | 969.4 | 1041.2 | 1114.6 | 1189.8 | 1266.6 |
| | S/(KJ/KG K) | .7043 | .8729 | 1.0385 | 1.2011 | 1.8292 | 1.9593 | 2.0862 | 2.2106 | 2.3327 | 2.4526 | 2.5706 | 2.6866 |
| | C/(M/SEC) | 763.2081 | 677.1614 | 591.3256 | 499.2993 | 163.8965 | 173.8725 | 182.4840 | 190.1437 | 197.0994 | 203.5115 | 209.4905 | 215.1155 |
| | KAPPA/(1/MPA) | .0035 | .0046 | .0064 | .0095 | 2.0297 | 1.9403 | 1.8802 | 1.8373 | 1.8053 | 1.7807 | 1.7613 | 1.7457 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.4 | 3.6 | 3.1 | 2.7 | 2.4 | 2.2 | 2.0 | 1.9 | 1.8 |

## THERMODYNAMIC PROPERTIES OF OCTANE

| P/(MPA) | | TEMPERATURES/(K) 700.000 | 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .50646 | .52502 | .54354 | .56203 | .58049 | .59892 | .61733 | .63572 | .65409 | .67245 | .69079 |
| | H/(KJ/KG) | 1352.2 | 1431.6 | 1512.6 | 1595.2 | 1679.3 | 1764.8 | 1851.8 | 1940.1 | 2029.7 | 2120.6 | 2212.7 |
| | S/(KJ/KG K) | 2.9390 | 3.0504 | 3.1603 | 3.2686 | 3.3754 | 3.4807 | 3.5845 | 3.6869 | 3.7879 | 3.8875 | 3.9857 |
| | C/(M/SEC) | 227.1065 | 231.2644 | 235.3337 | 239.3207 | 243.2312 | 247.0701 | 250.8419 | 254.5506 | 258.1996 | 261.7923 | 265.3315 |
| | KAPPA/(1/MPA) | 10.0623 | 10.0531 | 10.0454 | 10.0387 | 10.0330 | 10.0281 | 10.0238 | 10.0201 | 10.0170 | 10.0141 | 10.0117 |
| | BETA/(1000/K) | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | .49979 | .51812 | .53640 | .55465 | .57287 | .59106 | .60924 | .62739 | .64552 | .66364 | .68174 |
| | H/(KJ/KG) | 1352.1 | 1431.6 | 1512.6 | 1595.2 | 1679.3 | 1764.8 | 1851.8 | 1940.1 | 2029.7 | 2120.5 | 2212.6 |
| | S/(KJ/KG K) | 2.9380 | 3.0495 | 3.1594 | 3.2677 | 3.3745 | 3.4797 | 3.5836 | 3.6859 | 3.7869 | 3.8865 | 3.9847 |
| | C/(M/SEC) | 227.0892 | 231.2494 | 235.3207 | 239.3095 | 243.2215 | 247.0618 | 250.8348 | 254.5445 | 258.1944 | 261.7879 | 265.3279 |
| | KAPPA/(1/MPA) | 9.9315 | 9.9224 | 9.9146 | 9.9079 | 9.9022 | 9.8973 | 9.8931 | 9.8894 | 9.8862 | 9.8834 | 9.8809 |
| | BETA/(1000/K) | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | .25165 | .26111 | .27054 | .27992 | .28928 | .29862 | .30793 | .31722 | .32649 | .33575 | .34499 |
| | H/(KJ/KG) | 1350.8 | 1430.3 | 1511.5 | 1594.1 | 1678.3 | 1763.9 | 1850.9 | 1939.3 | 2029.0 | 2119.9 | 2212.1 |
| | S/(KJ/KG K) | 2.8870 | 2.9986 | 3.1086 | 3.2171 | 3.3240 | 3.4294 | 3.5333 | 3.6357 | 3.7368 | 3.8364 | 3.9347 |
| | C/(M/SEC) | 225.7947 | 230.1286 | 234.3508 | 238.4713 | 242.4988 | 246.4406 | 250.3032 | 254.0921 | 257.8122 | 261.4681 | 265.0636 |
| | KAPPA/(1/MPA) | 5.0631 | 5.0537 | 5.0457 | 5.0389 | 5.0331 | 5.0281 | 5.0238 | 5.0201 | 5.0169 | 5.0140 | 5.0116 |
| | BETA/(1000/K) | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .3000 | V/(M3/KG) | .16670 | .17314 | .17953 | .18589 | .19222 | .19852 | .20480 | .21106 | .21730 | .22352 | .22973 |
| | H/(KJ/KG) | 1349.4 | 1429.0 | 1510.3 | 1593.1 | 1677.3 | 1763.0 | 1850.1 | 1938.5 | 2028.3 | 2119.3 | 2211.5 |
| | S/(KJ/KG K) | 2.8559 | 2.9677 | 3.0779 | 3.1865 | 3.2935 | 3.3990 | 3.5029 | 3.6055 | 3.7066 | 3.8063 | 3.9046 |
| | C/(M/SEC) | 224.4723 | 228.9863 | 233.3644 | 237.6208 | 241.7670 | 245.8130 | 249.7673 | 253.6373 | 257.4293 | 261.1489 | 264.8012 |
| | KAPPA/(1/MPA) | 3.3972 | 3.3876 | 3.3794 | 3.3725 | 3.3666 | 3.3615 | 3.3572 | 3.3534 | 3.3501 | 3.3473 | 3.3448 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .4000 | V/(M3/KG) | .12423 | .12915 | .13403 | .13887 | .14368 | .14847 | .15323 | .15797 | .16270 | .16741 | .17210 |
| | H/(KJ/KG) | 1348.0 | 1427.7 | 1509.1 | 1592.0 | 1676.3 | 1762.1 | 1849.3 | 1937.8 | 2027.6 | 2118.6 | 2210.9 |
| | S/(KJ/KG K) | 2.8334 | 2.9454 | 3.0557 | 3.1644 | 3.2715 | 3.3771 | 3.4812 | 3.5838 | 3.6850 | 3.7848 | 3.8832 |
| | C/(M/SEC) | 223.1397 | 227.8379 | 232.3751 | 236.7694 | 241.0360 | 245.1875 | 249.2346 | 253.1864 | 257.0509 | 260.8348 | 264.5443 |
| | KAPPA/(1/MPA) | 2.5647 | 2.5548 | 2.5466 | 2.5394 | 2.5334 | 2.5283 | 2.5238 | 2.5200 | 2.5167 | 2.5139 | 2.5114 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| .5000 | V/(M3/KG) | .09874 | .10275 | .10672 | .11066 | .11456 | .11844 | .12229 | .12613 | .12994 | .13374 | .13752 |
| | H/(KJ/KG) | 1346.5 | 1426.5 | 1507.9 | 1590.9 | 1675.4 | 1761.2 | 1848.5 | 1937.0 | 2026.9 | 2118.0 | 2210.3 |
| | S/(KJ/KG K) | 2.8156 | 2.9277 | 3.0382 | 3.1471 | 3.2543 | 3.3600 | 3.4641 | 3.5668 | 3.6681 | 3.7679 | 3.8664 |
| | C/(M/SEC) | 221.7972 | 226.6839 | 231.3832 | 235.9177 | 240.3063 | 244.5646 | 248.7054 | 252.7398 | 256.6773 | 260.5261 | 264.2932 |
| | KAPPA/(1/MPA) | 2.0655 | 2.0553 | 2.0468 | 2.0396 | 2.0335 | 2.0283 | 2.0238 | 2.0200 | 2.0167 | 2.0138 | 2.0113 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .6000 | V/(M3/KG) | .08174 | .08515 | .08852 | .09185 | .09515 | .09842 | .10167 | .10490 | .10810 | .11130 | .11447 |
| | H/(KJ/KG) | 1345.1 | 1425.1 | 1506.7 | 1589.8 | 1674.4 | 1760.3 | 1847.6 | 1936.2 | 2026.2 | 2117.3 | 2209.7 |
| | S/(KJ/KG K) | 2.8007 | 2.9131 | 3.0237 | 3.1327 | 3.2400 | 3.3458 | 3.4501 | 3.5528 | 3.6541 | 3.7540 | 3.8525 |
| | C/(M/SEC) | 220.4454 | 225.5249 | 230.3892 | 235.0661 | 239.5784 | 243.9445 | 248.1800 | 252.2977 | 256.3089 | 260.2229 | 264.0479 |
| | KAPPA/(1/MPA) | 1.7330 | 1.7225 | 1.7138 | 1.7065 | 1.7003 | 1.6950 | 1.6905 | 1.6866 | 1.6832 | 1.6803 | 1.6778 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |

## THERMODYNAMIC PROPERTIES OF OCTANE

| P/(MPA) | | TEMPERATURES/(K) 400.000 | 425.000 | 450.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00167 | .00174 | .00183 | .00193 | .04215 | .04627 | .05006 | .05362 | .05702 | .06029 | .06347 | .06656 |
| | H/(KJ/KG) | 246.4 | 315.9 | 388.3 | 463.5 | 760.3 | 827.7 | 896.5 | 966.9 | 1038.9 | 1112.6 | 1188.0 | 1265.0 |
| | S/(KJ/KG K) | .7041 | .8726 | 1.0381 | 1.2007 | 1.8113 | 1.9429 | 2.0709 | 2.1960 | 2.3186 | 2.4390 | 2.5572 | 2.6735 |
| | C/(M/SEC) | 765.5515 | 679.7699 | 591.7096 | 501.6513 | 157.5287 | 168.9886 | 178.5903 | 186.9636 | 194.4598 | 201.2959 | 207.6161 | 213.5213 |
| | KAPPA/(1/MPA) | .0035 | .0046 | .0063 | .0094 | 1.8329 | 1.7235 | 1.6543 | 1.6066 | 1.5718 | 1.5456 | 1.5251 | 1.5089 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.4 | 4.1 | 3.4 | 2.9 | 2.6 | 2.3 | 2.1 | 2.0 | 1.8 |
| .8000 | V/(M3/KG) | .00167 | .00174 | .00183 | .00193 | .03533 | .03926 | .04280 | .04607 | .04917 | .05213 | .05499 | .05777 |
| | H/(KJ/KG) | 246.4 | 315.9 | 388.3 | 463.5 | 755.6 | 824.0 | 893.4 | 964.2 | 1036.6 | 1110.6 | 1186.2 | 1263.4 |
| | S/(KJ/KG K) | .7038 | .8722 | 1.0377 | 1.2002 | 1.7942 | 1.9276 | 2.0568 | 2.1827 | 2.3059 | 2.4267 | 2.5454 | 2.6619 |
| | C/(M/SEC) | 767.9263 | 682.1563 | 594.7031 | 503.9764 | 150.4744 | 163.7689 | 174.5130 | 183.6764 | 191.7553 | 199.0402 | 205.7171 | 211.9122 |
| | KAPPA/(1/MPA) | .0035 | .0046 | .0063 | .0093 | 1.7085 | 1.5705 | 1.4895 | 1.4360 | 1.3982 | 1.3701 | 1.3486 | 1.3316 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.4 | 4.8 | 3.8 | 3.2 | 2.8 | 2.5 | 2.2 | 2.0 | 1.9 |
| .9000 | V/(M3/KG) | .00167 | .00174 | .00183 | .00193 | .00206 | .03375 | .03711 | .04018 | .04305 | .04578 | .04840 | .05093 |
| | H/(KJ/KG) | 246.5 | 316.0 | 388.3 | 463.4 | 541.6 | 820.0 | 890.1 | 961.5 | 1034.2 | 1108.5 | 1184.3 | 1261.7 |
| | S/(KJ/KG K) | .7035 | .8719 | 1.0374 | 1.1997 | 1.3602 | 1.9131 | 2.0437 | 2.1705 | 2.2943 | 2.4156 | 2.5346 | 2.6514 |
| | C/(M/SEC) | 769.1549 | 683.6215 | 596.7968 | 505.6387 | 407.4489 | 158.1474 | 170.2292 | 180.2736 | 188.9829 | 196.7439 | 203.7936 | 210.2889 |
| | KAPPA/(1/MPA) | .0035 | .0046 | .0063 | .0092 | .0155 | 1.4628 | 1.3663 | 1.3060 | 1.2646 | 1.2345 | 1.2118 | 1.1941 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.4 | 3.1 | 4.2 | 3.4 | 2.9 | 2.6 | 2.3 | 2.1 | 2.0 |
| 1.0000 | V/(M3/KG) | .00167 | .00174 | .00182 | .00193 | .00206 | .02927 | .03253 | .03545 | .03815 | .04069 | .04312 | .04546 |
| | H/(KJ/KG) | 246.6 | 316.0 | 388.4 | 463.4 | 541.5 | 815.7 | 886.7 | 958.6 | 1031.8 | 1106.4 | 1182.5 | 1260.1 |
| | S/(KJ/KG K) | .7033 | .8716 | 1.0370 | 1.1993 | 1.3595 | 1.8990 | 2.0312 | 2.1590 | 2.2835 | 2.4053 | 2.5247 | 2.6419 |
| | C/(M/SEC) | 770.3790 | 685.0981 | 598.6043 | 508.5854 | 410.5881 | 152.0328 | 165.7109 | 176.7454 | 186.1394 | 194.4059 | 201.8458 | 208.6517 |
| | KAPPA/(1/MPA) | .0035 | .0045 | .0062 | .0091 | .0152 | 1.3907 | 1.2735 | 1.2046 | 1.1591 | 1.1268 | 1.1028 | 1.0843 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.4 | 3.1 | 4.8 | 3.8 | 3.2 | 2.7 | 2.4 | 2.2 | 2.0 |
| 2.0000 | V/(M3/KG) | .00166 | .00173 | .00181 | .00191 | .00203 | .00220 | .00254 | .01328 | .01564 | .01755 | .01922 | .02074 |
| | H/(KJ/KG) | 247.2 | 316.5 | 388.6 | 463.2 | 540.6 | 622.1 | 713.8 | 921.8 | 1003.2 | 1082.6 | 1162.2 | 1242.4 |
| | S/(KJ/KG K) | .7006 | .8686 | 1.0334 | 1.1949 | 1.3536 | 1.5125 | 1.6832 | 2.0566 | 2.1951 | 2.3249 | 2.4496 | 2.5707 |
| | C/(M/SEC) | 782.4330 | 699.5710 | 616.1962 | 530.6292 | 439.9515 | 337.9697 | 203.1631 | 130.9459 | 152.9907 | 168.6797 | 181.1855 | 191.7301 |
| | KAPPA/(1/MPA) | .0033 | .0043 | .0058 | .0083 | .0129 | .0245 | .0903 | .9327 | .7510 | .6729 | .6281 | .5989 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 2.8 | 3.9 | 9.3 | 8.3 | 5.3 | 4.0 | 3.3 | 2.8 |
| 3.0000 | V/(M3/KG) | .00166 | .00173 | .00180 | .00189 | .00201 | .00215 | .00239 | .00310 | .00729 | .00951 | .01111 | .01244 |
| | H/(KJ/KG) | 247.8 | 316.9 | 388.8 | 463.2 | 540.0 | 620.2 | 707.1 | 804.1 | 957.6 | 1051.8 | 1138.1 | 1222.4 |
| | S/(KJ/KG K) | .6980 | .8656 | 1.0300 | 1.1908 | 1.3483 | 1.5048 | 1.6664 | 1.8388 | 2.1008 | 2.2548 | 2.3901 | 2.5173 |
| | C/(M/SEC) | 794.2061 | 713.5709 | 633.0025 | 551.2590 | 466.3344 | 374.7112 | 268.8175 | 124.7062 | 112.8290 | 140.6565 | 160.0678 | 175.1446 |
| | KAPPA/(1/MPA) | .0032 | .0041 | .0055 | .0076 | .0113 | .0190 | .0431 | .4093 | .8307 | .5774 | .4904 | .4454 |
| | BETA/(1000/K) | 1.5 | 1.7 | 1.9 | 2.1 | 2.5 | 3.3 | 5.3 | 26.5 | 15.7 | 7.6 | 5.2 | 4.0 |
| 4.0000 | V/(M3/KG) | .00165 | .00172 | .00179 | .00188 | .00199 | .00212 | .00231 | .00264 | .00366 | .00554 | .00708 | .00833 |
| | H/(KJ/KG) | 248.4 | 317.4 | 389.2 | 463.2 | 539.5 | 618.8 | 703.5 | 786.4 | 898.9 | 1013.3 | 1110.3 | 1200.4 |
| | S/(KJ/KG K) | .6955 | .8628 | 1.0267 | 1.1869 | 1.3434 | 1.4982 | 1.6556 | 1.8031 | 1.9945 | 2.1814 | 2.3336 | 2.4698 |
| | C/(M/SEC) | 805.7114 | 727.1466 | 649.1156 | 570.6924 | 490.4608 | 406.2686 | 314.7536 | 213.0574 | 124.3652 | 127.4953 | 145.8244 | 162.8678 |
| | KAPPA/(1/MPA) | .0031 | .0039 | .0051 | .0070 | .0100 | .0157 | .0291 | .0794 | .4022 | .4736 | .4075 | .3614 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.8 | 2.0 | 2.3 | 2.9 | 4.0 | 7.5 | 19.4 | 12.6 | 7.7 | 5.5 |

## THERMODYNAMIC PROPERTIES OF OCTANE

| P/(MPA) | | TEMPERATURES/(K) 700.000 | 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .06960 | .07258 | .07551 | .07841 | .08128 | .08412 | .08694 | .08973 | .09251 | .09527 | .09801 |
| | H/(KJ/KG) | 1343.6 | 1423.8 | 1505.5 | 1588.7 | 1673.4 | 1759.4 | 1846.8 | 1935.5 | 2025.4 | 2116.7 | 2209.1 |
| | S/(KJ/KG K) | 2.7879 | 2.9004 | 3.0112 | 3.1203 | 3.2278 | 3.3337 | 3.4380 | 3.5409 | 3.6422 | 3.7422 | 3.8408 |
| | C/(M/SEC) | 219.0846 | 224.3613 | 229.3937 | 234.2152 | 238.8526 | 243.3278 | 247.6587 | 251.8604 | 255.9457 | 259.9254 | 263.8088 |
| | KAPPA/(1/MPA) | 1.4958 | 1.4850 | 1.4761 | 1.4686 | 1.4623 | 1.4569 | 1.4524 | 1.4484 | 1.4451 | 1.4421 | 1.4396 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 |
| .8000 | V/(M3/KG) | .06049 | .06315 | .06576 | .06834 | .07088 | .07340 | .07589 | .07836 | .08081 | .08325 | .08567 |
| | H/(KJ/KG) | 1342.2 | 1422.5 | 1504.3 | 1587.6 | 1672.4 | 1758.5 | 1845.9 | 1934.7 | 2024.7 | 2116.0 | 2208.5 |
| | S/(KJ/KG K) | 2.7765 | 2.8893 | 3.0002 | 3.1095 | 3.2171 | 3.3230 | 3.4275 | 3.5304 | 3.6318 | 3.7319 | 3.8305 |
| | C/(M/SEC) | 217.7156 | 223.1937 | 228.3972 | 233.3653 | 238.1294 | 242.7147 | 247.1419 | 251.4282 | 255.5881 | 259.6338 | 263.5758 |
| | KAPPA/(1/MPA) | 1.3180 | 1.3070 | 1.2978 | 1.2902 | 1.2838 | 1.2784 | 1.2738 | 1.2698 | 1.2664 | 1.2634 | 1.2609 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| .9000 | V/(M3/KG) | .05340 | .05581 | .05817 | .06050 | .06279 | .06506 | .06730 | .06952 | .07172 | .07390 | .07607 |
| | H/(KJ/KG) | 1340.7 | 1421.2 | 1503.1 | 1586.5 | 1671.4 | 1757.5 | 1845.1 | 1933.9 | 2024.0 | 2115.3 | 2207.8 |
| | S/(KJ/KG K) | 2.7663 | 2.8792 | 2.9904 | 3.0997 | 3.2075 | 3.3136 | 3.4181 | 3.5211 | 3.6226 | 3.7227 | 3.8214 |
| | C/(M/SEC) | 216.3388 | 222.0227 | 227.4002 | 232.5170 | 237.4092 | 242.1056 | 246.6298 | 251.0013 | 255.2362 | 259.3483 | 263.3492 |
| | KAPPA/(1/MPA) | 1.1800 | 1.1686 | 1.1593 | 1.1515 | 1.1450 | 1.1395 | 1.1348 | 1.1308 | 1.1276 | 1.1244 | 1.1219 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| 1.0000 | V/(M3/KG) | .04773 | .04994 | .05210 | .05423 | .05632 | .05839 | .06042 | .06244 | .06444 | .06642 | .06839 |
| | H/(KJ/KG) | 1339.2 | 1419.8 | 1501.9 | 1585.4 | 1670.3 | 1756.6 | 1844.2 | 1933.1 | 2023.3 | 2114.7 | 2207.2 |
| | S/(KJ/KG K) | 2.7569 | 2.8701 | 2.9814 | 3.0909 | 3.1988 | 3.3050 | 3.4096 | 3.5127 | 3.6143 | 3.7144 | 3.8131 |
| | C/(M/SEC) | 214.9549 | 220.8491 | 226.4034 | 231.6709 | 236.6925 | 241.5010 | 246.1229 | 250.5800 | 254.8904 | 259.0691 | 263.1292 |
| | KAPPA/(1/MPA) | 1.0698 | 1.0580 | 1.0485 | 1.0406 | 1.0340 | 1.0284 | 1.0237 | 1.0197 | 1.0162 | 1.0132 | 1.0106 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.6 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| 2.0000 | V/(M3/KG) | .02216 | .02350 | .02478 | .02602 | .02722 | .02838 | .02952 | .03063 | .03172 | .03280 | .03386 |
| | H/(KJ/KG) | 1323.5 | 1405.8 | 1489.3 | 1574.0 | 1660.0 | 1747.2 | 1835.6 | 1925.3 | 2016.1 | 2108.0 | 2201.1 |
| | S/(KJ/KG K) | 2.6888 | 2.8043 | 2.9175 | 3.0286 | 3.1378 | 3.2451 | 3.3507 | 3.4546 | 3.5569 | 3.6577 | 3.7570 |
| | C/(M/SEC) | 200.9299 | 209.1440 | 216.6018 | 223.4595 | 229.8288 | 235.7922 | 241.4130 | 246.7405 | 251.8140 | 256.6654 | 261.3210 |
| | KAPPA/(1/MPA) | .5782 | .5629 | .5510 | .5417 | .5341 | .5279 | .5228 | .5185 | .5148 | .5117 | .5091 |
| | BETA/(1000/K) | 2.5 | 2.2 | 2.0 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 |
| 3.0000 | V/(M3/KG) | .01362 | .01469 | .01569 | .01664 | .01754 | .01841 | .01925 | .02006 | .02086 | .02163 | .02239 |
| | H/(KJ/KG) | 1306.4 | 1390.9 | 1476.1 | 1562.2 | 1649.4 | 1737.6 | 1826.9 | 1917.3 | 2008.7 | 2101.3 | 2195.0 |
| | S/(KJ/KG K) | 2.6396 | 2.7582 | 2.8737 | 2.9867 | 3.0973 | 3.2059 | 3.3125 | 3.4173 | 3.5204 | 3.6219 | 3.7218 |
| | C/(M/SEC) | 187.6050 | 198.3055 | 207.7356 | 216.2028 | 223.9132 | 231.0127 | 237.6079 | 243.7798 | 249.5911 | 255.0915 | 260.3214 |
| | KAPPA/(1/MPA) | .4176 | .3986 | .3848 | .3743 | .3662 | .3597 | .3543 | .3499 | .3463 | .3432 | .3405 |
| | BETA/(1000/K) | 3.3 | 2.8 | 2.5 | 2.2 | 2.0 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 |
| 4.0000 | V/(M3/KG) | .00939 | .01033 | .01119 | .01200 | .01275 | .01347 | .01416 | .01482 | .01546 | .01608 | .01669 |
| | H/(KJ/KG) | 1288.2 | 1375.3 | 1462.5 | 1550.2 | 1638.6 | 1727.9 | 1818.1 | 1909.3 | 2001.4 | 2094.6 | 2188.8 |
| | S/(KJ/KG K) | 2.5975 | 2.7197 | 2.8379 | 2.9529 | 3.0652 | 3.1751 | 3.2828 | 3.3885 | 3.4924 | 3.5945 | 3.6950 |
| | C/(M/SEC) | 177.4316 | 189.9667 | 200.9482 | 210.7284 | 219.5593 | 227.6239 | 235.0579 | 241.9644 | 248.4236 | 254.4986 | 260.2405 |
| | KAPPA/(1/MPA) | .3321 | .3123 | .2983 | .2878 | .2798 | .2734 | .2682 | .2640 | .2605 | .2576 | .2551 |
| | BETA/(1000/K) | 4.2 | 3.5 | 3.0 | 2.6 | 2.3 | 2.1 | 1.9 | 1.8 | 1.6 | 1.5 | 1.4 |

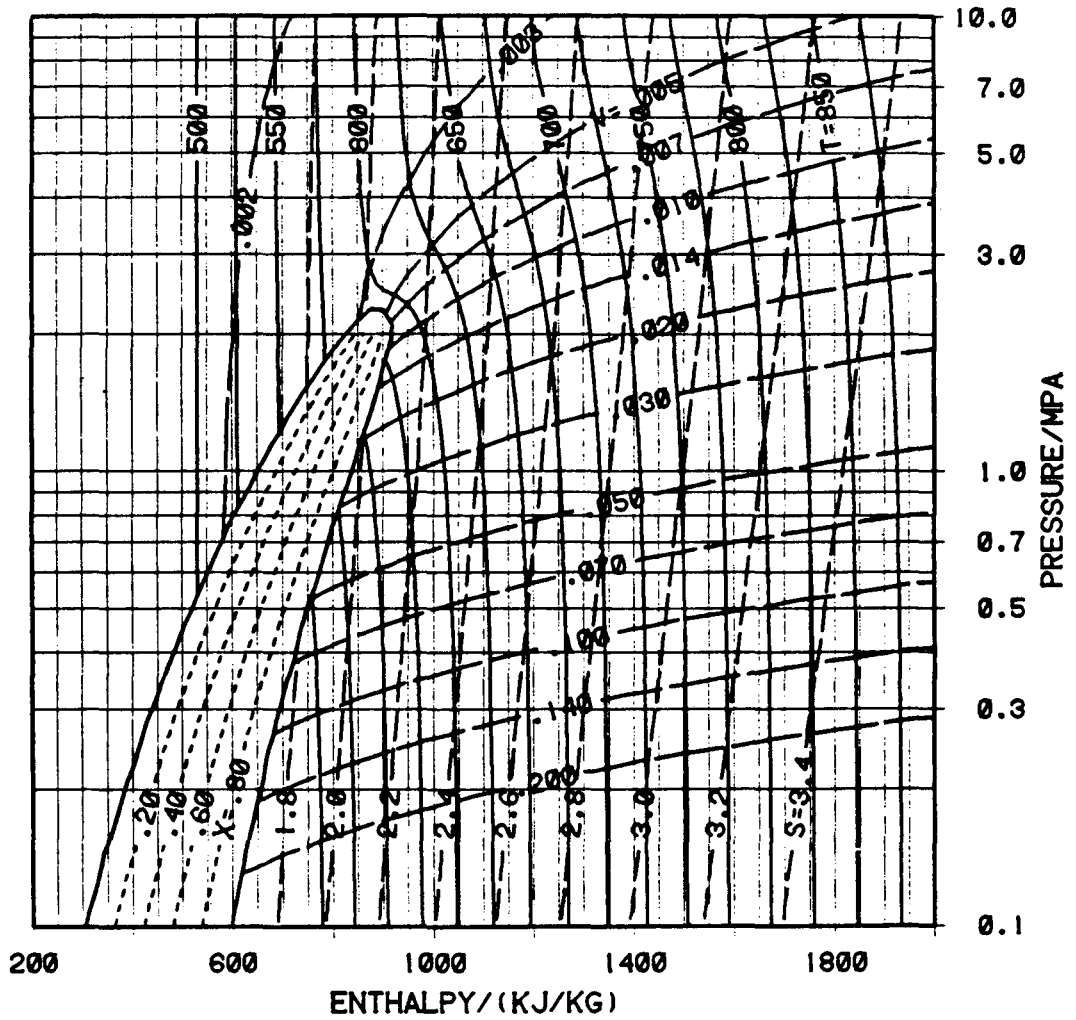
## THERMODYNAMIC PROPERTIES OF OCTANE

| P/(MPA) | | TEMPERATURES/(K) 400.000 | 425.000 | 450.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00165 | .00171 | .00178 | .00187 | .00197 | .00209 | .00225 | .00249 | .00293 | .00385 | .00498 | .00603 |
| | H/(KJ/KG) | 249.1 | 318.0 | 389.5 | 463.3 | 539.3 | 617.9 | 701.2 | 780.1 | 876.4 | 981.9 | 1083.5 | 1178.6 |
| | S/(KJ/KG K) | .6930 | .8600 | 1.0236 | 1.1832 | 1.3390 | 1.4924 | 1.6473 | 1.7878 | 1.9517 | 2.1239 | 2.2834 | 2.4269 |
| | C/(M/SEC) | 816.9678 | 740.3307 | 664.6130 | 589.1136 | 512.8030 | 434.2887 | 351.9187 | 266.8596 | 183.8399 | 144.7930 | 148.1251 | 160.1962 |
| | KAPPA/(1/MPA) | .0030 | .0038 | .0049 | .0065 | .0090 | .0134 | .0222 | .0444 | .1205 | .2596 | .2926 | .2824 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.7 | 1.9 | 2.2 | 2.6 | 3.4 | 4.9 | 8.8 | 11.6 | 8.9 | 6.6 |
| 6.0000 | V/(M3/KG) | .00164 | .00171 | .00178 | .00186 | .00195 | .00206 | .00220 | .00240 | .00269 | .00320 | .00393 | .00473 |
| | H/(KJ/KG) | 249.8 | 318.5 | 389.9 | 463.5 | 539.1 | 617.3 | 699.5 | 776.5 | 867.5 | 964.1 | 1063.3 | 1159.8 |
| | S/(KJ/KG K) | .6905 | .8573 | 1.0205 | 1.1797 | 1.3348 | 1.4872 | 1.6403 | 1.7772 | 1.9321 | 2.0899 | 2.2455 | 2.3912 |
| | C/(M/SEC) | 827.9896 | 753.1588 | 679.5643 | 606.6527 | 533.6915 | 459.7096 | 383.8309 | 308.4926 | 235.6589 | 181.7018 | 164.8850 | 167.9974 |
| | KAPPA/(1/MPA) | .0029 | .0036 | .0046 | .0061 | .0082 | .0117 | .0180 | .0310 | .0622 | .1289 | .1870 | .2056 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.7 | 1.8 | 2.1 | 2.4 | 2.9 | 3.9 | 5.6 | 8.0 | 8.1 | 6.7 |
| 7.0000 | V/(M3/KG) | .00164 | .00170 | .00177 | .00185 | .00193 | .00204 | .00217 | .00233 | .00256 | .00290 | .00339 | .00398 |
| | H/(KJ/KG) | 250.4 | 319.1 | 390.4 | 463.8 | 539.1 | 616.8 | 698.4 | 774.0 | 862.6 | 954.4 | 1049.6 | 1145.2 |
| | S/(KJ/KG K) | .6881 | .8547 | 1.0176 | 1.1763 | 1.3309 | 1.4824 | 1.6342 | 1.7688 | 1.9193 | 2.0696 | 2.2189 | 2.3631 |
| | C/(M/SEC) | 838.7898 | 765.6537 | 694.0065 | 623.4386 | 553.3643 | 483.0989 | 412.1605 | 343.4206 | 277.7599 | 222.8840 | 191.7788 | 183.7667 |
| | KAPPA/(1/MPA) | .0028 | .0035 | .0044 | .0057 | .0076 | .0104 | .0152 | .0239 | .0410 | .0739 | .1166 | .1447 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.6 | 1.8 | 2.0 | 2.3 | 2.7 | 3.3 | 4.3 | 5.7 | 6.5 | 6.2 |
| 8.0000 | V/(M3/KG) | .00163 | .00169 | .00176 | .00184 | .00192 | .00202 | .00214 | .00228 | .00247 | .00273 | .00308 | .00352 |
| | H/(KJ/KG) | 251.1 | 319.7 | 390.9 | 464.1 | 539.2 | 616.5 | 697.5 | 772.2 | 859.1 | 948.5 | 1040.6 | 1134.3 |
| | S/(KJ/KG K) | .6858 | .8521 | 1.0147 | 1.1731 | 1.3271 | 1.4780 | 1.6287 | 1.7617 | 1.9095 | 2.0555 | 2.2001 | 2.3415 |
| | C/(M/SEC) | 849.3815 | 777.8396 | 707.9951 | 639.5352 | 572.0092 | 504.8730 | 437.8486 | 373.9776 | 313.5016 | 260.7370 | 223.4555 | 205.5808 |
| | KAPPA/(1/MPA) | .0028 | .0034 | .0042 | .0054 | .0070 | .0094 | .0132 | .0195 | .0305 | .0493 | .0762 | .1015 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 | 2.4 | 2.9 | 3.5 | 4.4 | 5.2 | 5.4 |
| 9.0000 | V/(M3/KG) | .00163 | .00169 | .00175 | .00183 | .00191 | .00200 | .00211 | .00224 | .00241 | .00262 | .00289 | .00323 |
| | H/(KJ/KG) | 251.8 | 320.4 | 391.4 | 464.4 | 539.3 | 616.3 | 696.9 | 770.9 | 856.7 | 944.5 | 1034.5 | 1126.4 |
| | S/(KJ/KG K) | .6835 | .8496 | 1.0120 | 1.1700 | 1.3236 | 1.4739 | 1.6237 | 1.7555 | 1.9015 | 2.0448 | 2.1861 | 2.3248 |
| | C/(M/SEC) | 859.7774 | 789.7384 | 721.5695 | 655.0293 | 589.7542 | 525.3039 | 461.4752 | 401.4041 | 344.8716 | 294.5669 | 255.3255 | 231.0220 |
| | KAPPA/(1/MPA) | .0027 | .0033 | .0040 | .0051 | .0065 | .0086 | .0117 | .0165 | .0242 | .0363 | .0537 | .0728 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.3 | 2.6 | 3.1 | 3.7 | 4.3 | 4.6 |
| 10.0000 | V/(M3/KG) | .00162 | .00168 | .00175 | .00182 | .00190 | .00198 | .00209 | .00221 | .00235 | .00253 | .00276 | .00303 |
| | H/(KJ/KG) | 252.6 | 321.0 | 391.9 | 464.8 | 539.5 | 616.3 | 696.5 | 770.0 | 854.9 | 941.6 | 1030.2 | 1120.6 |
| | S/(KJ/KG K) | .6812 | .8471 | 1.0093 | 1.1670 | 1.3202 | 1.4699 | 1.6191 | 1.7500 | 1.8946 | 2.0361 | 2.1751 | 2.3116 |
| | C/(M/SEC) | 869.9847 | 801.3684 | 734.7558 | 669.9746 | 606.7229 | 544.5922 | 483.4603 | 426.4499 | 373.0372 | 325.0016 | 285.5427 | 257.6644 |
| | KAPPA/(1/MPA) | .0026 | .0032 | .0039 | .0048 | .0061 | .0079 | .0105 | .0143 | .0200 | .0285 | .0404 | .0544 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.5 | 1.6 | 1.8 | 1.9 | 2.1 | 2.4 | 2.7 | 3.2 | 3.6 | 3.9 |

## THERMODYNAMIC PROPERTIES OF OCTANE

### TEMPERATURES/(K)

| P/(MPA) | | 700.000 | 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00697 | .00780 | .00856 | .00927 | .00992 | .01055 | .01114 | .01171 | .01225 | .01278 | .01330 |
| | H/(KJ/KG) | 1270.0 | 1359.7 | 1448.9 | 1538.2 | 1627.9 | 1718.3 | 1809.4 | 1901.4 | 1994.2 | 2088.1 | 2182.8 |
| | S/(KJ/KG K) | 2.5599 | 2.6859 | 2.8068 | 2.9239 | 3.0378 | 3.1490 | 3.2579 | 3.3645 | 3.4692 | 3.5720 | 3.6730 |
| | C/(M/SEC) | 173.4390 | 185.9816 | 197.4406 | 207.8484 | 217.3331 | 226.0287 | 234.0528 | 241.5033 | 248.4604 | 254.9901 | 261.1468 |
| | KAPPA/(1/MPA) | .2661 | .2519 | .2406 | .2317 | .2247 | .2191 | .2146 | .2108 | .2076 | .2050 | .2027 |
| | BETA/(1000/K) | 5.1 | 4.1 | 3.4 | 2.9 | 2.6 | 2.3 | 2.1 | 1.9 | 1.8 | 1.6 | 1.5 |
| 6.0000 | V/(M3/KG) | .00550 | .00622 | .00689 | .00751 | .00809 | .00864 | .00917 | .00967 | .01015 | .01062 | .01107 |
| | H/(KJ/KG) | 1253.3 | 1345.1 | 1436.0 | 1526.7 | 1617.6 | 1709.0 | 1801.0 | 1893.7 | 1987.3 | 2081.6 | 2176.9 |
| | S/(KJ/KG K) | 2.5273 | 2.6561 | 2.7794 | 2.8984 | 3.0138 | 3.1262 | 3.2361 | 3.3436 | 3.4490 | 3.5525 | 3.6541 |
| | C/(M/SEC) | 176.8999 | 187.3776 | 197.9530 | 208.0826 | 217.5982 | 226.4812 | 234.7691 | 242.5165 | 249.7804 | 256.6136 | 263.0636 |
| | KAPPA/(1/MPA) | .2066 | .2017 | .1957 | .1899 | .1848 | .1805 | .1769 | .1738 | .1711 | .1689 | .1670 |
| | BETA/(1000/K) | 5.4 | 4.5 | 3.7 | 3.2 | 2.8 | 2.5 | 2.2 | 2.0 | 1.9 | 1.7 | 1.6 |
| 7.0000 | V/(M3/KG) | .00459 | .00520 | .00577 | .00632 | .00684 | .00733 | .00780 | .00825 | .00868 | .00909 | .00949 |
| | H/(KJ/KG) | 1239.3 | 1332.2 | 1424.3 | 1516.1 | 1608.0 | 1700.2 | 1793.0 | 1886.4 | 1980.5 | 2075.5 | 2171.2 |
| | S/(KJ/KG K) | 2.5001 | 2.6304 | 2.7553 | 2.8757 | 2.9924 | 3.1060 | 3.2167 | 3.3250 | 3.4311 | 3.5352 | 3.6373 |
| | C/(M/SEC) | 186.7272 | 193.8303 | 202.4565 | 211.4909 | 220.4268 | 229.0410 | 237.2475 | 245.0269 | 252.3903 | 259.3627 | 265.9737 |
| | KAPPA/(1/MPA) | .1564 | .1595 | .1587 | .1564 | .1536 | .1509 | .1483 | .1461 | .1440 | .1423 | .1407 |
| | BETA/(1000/K) | 5.4 | 4.6 | 3.9 | 3.4 | 2.9 | 2.6 | 2.3 | 2.1 | 1.9 | 1.8 | 1.7 |
| 8.0000 | V/(M3/KG) | .00401 | .00451 | .00501 | .00548 | .00594 | .00638 | .00680 | .00721 | .00759 | .00797 | .00833 |
| | H/(KJ/KG) | 1228.0 | 1321.2 | 1413.9 | 1506.5 | 1599.1 | 1692.1 | 1785.5 | 1879.5 | 1974.2 | 2069.6 | 2165.8 |
| | S/(KJ/KG K) | 2.4779 | 2.6087 | 2.7344 | 2.8558 | 2.9734 | 3.0878 | 3.1994 | 3.3084 | 3.4151 | 3.5197 | 3.6223 |
| | C/(M/SEC) | 201.5758 | 204.4514 | 210.4334 | 217.7826 | 225.6511 | 233.6030 | 241.4147 | 248.9762 | 256.2393 | 263.1893 | 269.8297 |
| | KAPPA/(1/MPA) | .1174 | .1252 | .1284 | .1290 | .1284 | .1272 | .1258 | .1243 | .1230 | .1217 | .1205 |
| | BETA/(1000/K) | 5.0 | 4.4 | 3.9 | 3.4 | 3.0 | 2.7 | 2.4 | 2.2 | 2.0 | 1.9 | 1.7 |
| 9.0000 | V/(M3/KG) | .00362 | .00404 | .00446 | .00488 | .00528 | .00567 | .00605 | .00642 | .00678 | .00712 | .00745 |
| | H/(KJ/KG) | 1219.2 | 1312.2 | 1405.1 | 1498.0 | 1591.2 | 1684.6 | 1778.6 | 1873.1 | 1968.2 | 2064.1 | 2160.7 |
| | S/(KJ/KG K) | 2.4598 | 2.5903 | 2.7163 | 2.8382 | 2.9565 | 3.0715 | 3.1837 | 3.2932 | 3.4005 | 3.5055 | 3.6086 |
| | C/(M/SEC) | 220.3656 | 218.4911 | 221.3241 | 226.5623 | 232.9974 | 239.9755 | 247.1309 | 254.2576 | 261.2405 | 268.0197 | 274.5662 |
| | KAPPA/(1/MPA) | .0884 | .0983 | .1038 | .1066 | .1077 | .1078 | .1074 | .1068 | .1060 | .1052 | .1044 |
| | BETA/(1000/K) | 4.5 | 4.2 | 3.8 | 3.4 | 3.0 | 2.7 | 2.5 | 2.2 | 2.1 | 1.9 | 1.8 |
| 10.0000 | V/(M3/KG) | .00335 | .00370 | .00406 | .00442 | .00478 | .00514 | .00548 | .00581 | .00614 | .00645 | .00676 |
| | H/(KJ/KG) | 1212.3 | 1304.8 | 1397.6 | 1490.7 | 1584.1 | 1677.9 | 1772.2 | 1867.1 | 1962.7 | 2058.9 | 2155.9 |
| | S/(KJ/KG K) | 2.4450 | 2.5748 | 2.7006 | 2.8227 | 2.9413 | 3.0568 | 3.1694 | 3.2795 | 3.3871 | 3.4926 | 3.5961 |
| | C/(M/SEC) | 241.7858 | 235.2564 | 234.6549 | 237.4687 | 242.1908 | 247.9501 | 254.2367 | 260.7461 | 267.2939 | 273.7706 | 280.1117 |
| | KAPPA/(1/MPA) | .0675 | .0776 | .0843 | .0884 | .0907 | .0918 | .0923 | .0923 | .0921 | .0918 | .0913 |
| | BETA/(1000/K) | 4.0 | 3.9 | 3.6 | 3.3 | 3.0 | 2.7 | 2.5 | 2.3 | 2.1 | 1.9 | 1.8 |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7.0
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PRESSURE/MPA
200
600
1000
1400
1800
ENTHALPY/(KJ/KG)
T=850
X=.80
S=3.4

NONANE

## PROPERTIES OF SATURATED NONANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 425.00000 | .10461 | .00167 | .24759 | 309.47682 | 290.52797 | 600.00479 | .91487 | .68360 | 1.59847 |
| 430.00000 | .11925 | .00168 | .21838 | 323.53274 | 286.86748 | 610.40022 | .94770 | .66713 | 1.61483 |
| 435.00000 | .13543 | .00169 | .19321 | 337.70921 | 283.13452 | 620.84373 | .98041 | .65088 | 1.63130 |
| 440.00000 | .15327 | .00171 | .17144 | 352.00343 | 279.32863 | 631.33206 | 1.01301 | .63484 | 1.64785 |
| 445.00000 | .17287 | .00172 | .15256 | 366.41261 | 275.44914 | 641.86175 | 1.04550 | .61899 | 1.66449 |
| 450.00000 | .19435 | .00174 | .13611 | 380.93240 | 271.49711 | 652.42951 | 1.07786 | .60333 | 1.68119 |
| 455.00000 | .21781 | .00175 | .12174 | 395.56234 | 267.46887 | 663.03121 | 1.11011 | .58784 | 1.69795 |
| 460.00000 | .24338 | .00177 | .10913 | 410.29875 | 263.36456 | 673.66331 | 1.14222 | .57253 | 1.71475 |
| 465.00000 | .27118 | .00179 | .09805 | 425.13917 | 259.18246 | 684.32163 | 1.17420 | .55738 | 1.73158 |
| 470.00000 | .30133 | .00181 | .08827 | 440.08165 | 254.92032 | 695.00197 | 1.20605 | .54238 | 1.74843 |
| 475.00000 | .33395 | .00182 | .07962 | 455.12448 | 250.57525 | 705.69973 | 1.23776 | .52753 | 1.76528 |
| 480.00000 | .36918 | .00184 | .07194 | 470.26658 | 246.14342 | 716.41001 | 1.26933 | .51280 | 1.78213 |
| 485.00000 | .40715 | .00186 | .06511 | 485.50725 | 241.62012 | 727.12737 | 1.30077 | .49819 | 1.79896 |
| 490.00000 | .44800 | .00188 | .05901 | 500.84682 | 236.99929 | 737.84611 | 1.33208 | .48367 | 1.81576 |
| 495.00000 | .49187 | .00190 | .05355 | 516.28613 | 232.27358 | 748.55971 | 1.36326 | .46924 | 1.83250 |
| 500.00000 | .53890 | .00192 | .04865 | 531.82740 | 227.43357 | 759.26097 | 1.39432 | .45487 | 1.84919 |
| 505.00000 | .58926 | .00195 | .04425 | 547.47355 | 222.46825 | 769.94180 | 1.42526 | .44053 | 1.86580 |
| 510.00000 | .64310 | .00197 | .04027 | 563.22939 | 217.36363 | 780.59302 | 1.45610 | .42620 | 1.88231 |
| 515.00000 | .70059 | .00199 | .03668 | 579.10104 | 212.10307 | 791.20411 | 1.48685 | .41185 | 1.89870 |
| 520.00000 | .76190 | .00202 | .03342 | 595.09685 | 206.66593 | 801.76278 | 1.51752 | .39743 | 1.91496 |
| 525.00000 | .82722 | .00205 | .03046 | 611.22750 | 201.02707 | 812.25458 | 1.54814 | .38291 | 1.93105 |
| 530.00000 | .89674 | .00208 | .02776 | 627.50563 | 195.15698 | 822.66261 | 1.57873 | .36822 | 1.94695 |
| 535.00000 | .97067 | .00211 | .02529 | 643.94962 | 189.01628 | 832.96590 | 1.60932 | .35330 | 1.96262 |
| 540.00000 | 1.04923 | .00215 | .02303 | 660.57988 | 182.55933 | 843.13921 | 1.63995 | .33807 | 1.97802 |
| 545.00000 | 1.13265 | .00218 | .02094 | 677.42334 | 175.72773 | 853.15106 | 1.67066 | .32244 | 1.99310 |
| 550.00000 | 1.22119 | .00222 | .01902 | 694.51404 | 168.44697 | 862.96101 | 1.70152 | .30627 | 2.00779 |
| 555.00000 | 1.31510 | .00227 | .01723 | 711.89601 | 160.62003 | 872.51604 | 1.73260 | .28941 | 2.02200 |
| 560.00000 | 1.41469 | .00232 | .01557 | 729.62605 | 152.11854 | 881.74458 | 1.76399 | .27164 | 2.03563 |
| 565.00000 | 1.52026 | .00238 | .01400 | 747.78036 | 142.76557 | 890.54593 | 1.79582 | .25268 | 2.04851 |
| 570.00000 | 1.63214 | .00245 | .01252 | 766.46540 | 132.30443 | 898.76983 | 1.82827 | .23211 | 2.06039 |
| 575.00000 | 1.75070 | .00253 | .01110 | 785.83705 | 120.33918 | 906.17622 | 1.86159 | .20929 | 2.07088 |
| 580.00000 | 1.87634 | .00263 | .00971 | 806.14791 | 106.18746 | 912.33537 | 1.89620 | .18308 | 2.07928 |
| 585.00000 | 2.00947 | .00277 | .00828 | 827.86795 | 88.46141 | 916.32936 | 1.93287 | .15122 | 2.08409 |
| 590.00000 | 2.15057 | .00299 | .00668 | 852.18111 | 63.14043 | 915.32154 | 1.97356 | .10702 | 2.08058 |
| 594.64000 | 2.30015 | .00423 | .00423 | 891.17544 | 0. | 891.17544 | 2.03849 | 0. | 2.03849 |

## THERMODYNAMIC PROPERTIES OF NONANE

| P/(MPA) | | TEMPERATURES/(K) 425.000 | 450.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .25978 | .27831 | .29639 | .31415 | .33165 | .34895 | .36609 | .38310 | .40000 | .41681 | .43355 |
| | H/(KJ/KG) | 600.3 | 657.4 | 716.9 | 778.7 | 842.8 | 909.0 | 977.2 | 1047.5 | 1119.7 | 1193.8 | 1269.6 |
| | S/(KJ/KG K) | 1.6019 | 1.7325 | 1.8612 | 1.9880 | 2.1129 | 2.2361 | 2.3575 | 2.4771 | 2.5950 | 2.7112 | 2.8257 |
| | C/(M/SEC) | 159.3846 | 165.7296 | 171.6072 | 177.1196 | 182.3378 | 187.3126 | 192.0820 | 196.6748 | 201.1136 | 205.4165 | 209.5982 |
| | KAPPA/(1/MPA) | 10.6392 | 10.5032 | 10.4033 | 10.3278 | 10.2693 | 10.2233 | 10.1865 | 10.1567 | 10.1323 | 10.1122 | 10.0954 |
| | BETA/(1000/K) | 2.9 | 2.6 | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 |
| .1013 | V/(M3/KG) | .25617 | .27449 | .29236 | .30990 | .32719 | .34428 | .36121 | .37801 | .39470 | .41130 | .42783 |
| | H/(KJ/KG) | 600.2 | 657.4 | 716.9 | 778.7 | 842.7 | 908.9 | 977.2 | 1047.5 | 1119.7 | 1193.8 | 1269.6 |
| | S/(KJ/KG K) | 1.6009 | 1.7316 | 1.8603 | 1.9871 | 2.1120 | 2.2352 | 2.3566 | 2.4762 | 2.5941 | 2.7103 | 2.8248 |
| | C/(M/SEC) | 159.2548 | 165.6240 | 171.5200 | 177.0467 | 182.2763 | 187.2604 | 192.0373 | 196.6364 | 201.0805 | 205.3879 | 209.5734 |
| | KAPPA/(1/MPA) | 10.5099 | 10.3736 | 10.2732 | 10.1974 | 10.1388 | 10.0927 | 10.0558 | 10.0260 | 10.0016 | 9.9815 | 9.9647 |
| | BETA/(1000/K) | 2.9 | 2.6 | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 |
| .2000 | V/(M3/KG) | .00167 | .00174 | .14201 | .15179 | .16126 | .17051 | .17958 | .18852 | .19733 | .20605 | .21470 |
| | H/(KJ/KG) | 309.5 | 380.9 | 712.4 | 774.8 | 839.3 | 905.9 | 974.5 | 1045.1 | 1117.6 | 1191.8 | 1267.9 |
| | S/(KJ/KG K) | .9146 | 1.0778 | 1.8092 | 1.9372 | 2.0631 | 2.1870 | 2.3090 | 2.4291 | 2.5474 | 2.6639 | 2.7787 |
| | C/(M/SEC) | 745.1162 | 660.8516 | 164.7062 | 171.4130 | 177.5611 | 183.2770 | 188.6477 | 193.7356 | 198.5869 | 203.2371 | 207.7134 |
| | KAPPA/(1/MPA) | .0037 | .0049 | 5.4511 | 5.3577 | 5.2887 | 5.2361 | 5.1951 | 5.1626 | 5.1364 | 5.1150 | 5.0974 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.8 | 2.5 | 2.3 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 |
| .3000 | V/(M3/KG) | .00167 | .00174 | .09023 | .09746 | .10433 | .11094 | .11735 | .12361 | .12974 | .13578 | .14173 |
| | H/(KJ/KG) | 309.6 | 381.0 | 707.5 | 770.6 | 835.7 | 902.8 | 971.8 | 1042.6 | 1115.4 | 1189.9 | 1266.1 |
| | S/(KJ/KG K) | .9143 | 1.0775 | 1.7751 | 1.9047 | 2.0317 | 2.1565 | 2.2791 | 2.3997 | 2.5185 | 2.6353 | 2.7504 |
| | C/(M/SEC) | 746.2843 | 662.2885 | 157.0343 | 165.2342 | 172.4841 | 179.0452 | 185.0828 | 190.7083 | 196.0006 | 201.0172 | 205.8016 |
| | KAPPA/(1/MPA) | .0037 | .0048 | 3.8474 | 3.7280 | 3.6448 | 3.5840 | 3.5380 | 3.5024 | 3.4741 | 3.4513 | 3.4328 |
| | BETA/(1000/K) | 1.6 | 1.8 | 3.3 | 2.9 | 2.6 | 2.3 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 |
| .4000 | V/(M3/KG) | .00167 | .00174 | .00182 | .07011 | .07575 | .08108 | .08619 | .09112 | .09593 | .10062 | .10523 |
| | H/(KJ/KG) | 309.6 | 381.0 | 455.1 | 766.2 | 831.9 | 899.5 | 968.9 | 1040.1 | 1113.1 | 1187.8 | 1264.3 |
| | S/(KJ/KG K) | .9141 | 1.0772 | 1.2375 | 1.8792 | 2.0076 | 2.1333 | 2.2567 | 2.3779 | 2.4971 | 2.6143 | 2.7297 |
| | C/(M/SEC) | 747.4500 | 664.7208 | 577.7346 | 158.4643 | 167.0517 | 174.5905 | 181.3740 | 187.5865 | 193.3514 | 198.7556 | 203.8625 |
| | KAPPA/(1/MPA) | .0036 | .0048 | .0066 | 2.9417 | 2.8388 | 2.7674 | 2.7154 | 2.6760 | 2.6454 | 2.6211 | 2.6016 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 3.3 | 2.9 | 2.6 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 |
| .5000 | V/(M3/KG) | .00166 | .00174 | .00182 | .05351 | .05849 | .06309 | .06744 | .07160 | .07561 | .07952 | .08333 |
| | H/(KJ/KG) | 309.7 | 381.0 | 455.1 | 761.3 | 827.9 | 896.1 | 965.9 | 1037.5 | 1110.8 | 1185.8 | 1262.4 |
| | S/(KJ/KG K) | .9138 | 1.0769 | 1.2371 | 1.8572 | 1.9872 | 2.1141 | 2.2383 | 2.3601 | 2.4798 | 2.5974 | 2.7131 |
| | C/(M/SEC) | 745.6857 | 665.1475 | 579.5178 | 150.9274 | 161.1905 | 169.8797 | 177.5058 | 184.3628 | 190.6362 | 196.4510 | 201.8956 |
| | KAPPA/(1/MPA) | .0036 | .0048 | .0066 | 2.5039 | 2.3722 | 2.2869 | 2.2273 | 2.1836 | 2.1503 | 2.1244 | 2.1038 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 3.9 | 3.3 | 2.8 | 2.5 | 2.3 | 2.1 | 1.9 | 1.8 |
| .6000 | V/(M3/KG) | .00166 | .00174 | .00182 | .00192 | .04686 | .05103 | .05490 | .05856 | .06206 | .06543 | .06872 |
| | H/(KJ/KG) | 309.7 | 381.1 | 455.1 | 531.8 | 823.6 | 892.5 | 962.9 | 1034.9 | 1108.5 | 1183.7 | 1260.6 |
| | S/(KJ/KG K) | .9135 | 1.0766 | 1.2368 | 1.3940 | 1.9690 | 2.0972 | 2.2224 | 2.3449 | 2.4651 | 2.5831 | 2.6991 |
| | C/(M/SEC) | 747.8990 | 664.9125 | 581.2918 | 491.8476 | 154.7988 | 164.8713 | 173.4600 | 181.0290 | 187.8513 | 194.1021 | 199.9007 |
| | KAPPA/(1/MPA) | .0036 | .0048 | .0065 | .0097 | 2.0810 | 1.9765 | 1.9075 | 1.8586 | 1.8223 | 1.7945 | 1.7727 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.4 | 3.7 | 3.1 | 2.7 | 2.4 | 2.2 | 2.0 | 1.9 |

## THERMODYNAMIC PROPERTIES OF NONANE

| P/(MPA) | | TEMPERATURES/(K) 700.000 | 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .45023 | .46685 | .48343 | .49997 | .51647 | .53294 | .54939 | .56581 | .58222 | .59860 | .61497 |
| | H/(KJ/KG) | 1347.2 | 1426.4 | 1507.3 | 1589.6 | 1673.5 | 1758.8 | 1845.5 | 1933.5 | 2022.9 | 2113.4 | 2205.2 |
| | S/(KJ/KG K) | 2.9385 | 3.0497 | 3.1593 | 3.2673 | 3.3738 | 3.4788 | 3.5823 | 3.6844 | 3.7851 | 3.8843 | 3.9822 |
| | C/(M/SEC) | 213.6706 | 217.6439 | 221.5266 | 225.3259 | 229.0482 | 232.6988 | 236.2826 | 239.8039 | 243.2663 | 246.6734 | 250.0283 |
| | KAPPA/(1/MPA) | 10.0814 | 10.0695 | 10.0595 | 10.0509 | 10.0436 | 10.0373 | 10.0318 | 10.0271 | 10.0230 | 10.0194 | 10.0163 |
| | BETA/(1000/K) | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | .44430 | .46071 | .47707 | .49340 | .50969 | .52595 | .54218 | .55839 | .57458 | .59076 | .60691 |
| | H/(KJ/KG) | 1347.2 | 1426.4 | 1507.3 | 1589.6 | 1673.5 | 1758.8 | 1845.5 | 1933.5 | 2022.8 | 2113.4 | 2205.2 |
| | S/(KJ/KG K) | 2.9376 | 3.0488 | 3.1584 | 3.2665 | 3.3730 | 3.4780 | 3.5815 | 3.6835 | 3.7842 | 3.8835 | 3.9814 |
| | C/(M/SEC) | 213.6491 | 217.6252 | 221.5104 | 225.3118 | 229.0359 | 232.6882 | 236.2735 | 239.7960 | 243.2596 | 246.6677 | 250.0234 |
| | KAPPA/(1/MPA) | 9.9506 | 9.9388 | 9.9287 | 9.9201 | 9.9128 | 9.9065 | 9.9011 | 9.8963 | 9.8922 | 9.8887 | 9.8856 |
| | BETA/(1000/K) | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | .22328 | .23180 | .24027 | .24871 | .25711 | .26548 | .27382 | .28214 | .29044 | .29872 | .30699 |
| | H/(KJ/KG) | 1345.6 | 1425.0 | 1505.9 | 1588.4 | 1672.4 | 1757.8 | 1844.6 | 1932.7 | 2022.1 | 2112.7 | 2204.5 |
| | S/(KJ/KG K) | 2.8918 | 3.0032 | 3.1130 | 3.2212 | 3.3278 | 3.4329 | 3.5365 | 3.6386 | 3.7394 | 3.8387 | 3.9367 |
| | C/(M/SEC) | 212.0379 | 216.2280 | 220.2983 | 224.2608 | 228.1255 | 231.9011 | 235.5948 | 239.2131 | 242.7614 | 246.2448 | 249.6673 |
| | KAPPA/(1/MPA) | 5.0828 | 5.0705 | 5.0601 | 5.0513 | 5.0438 | 5.0374 | 5.0318 | 5.0271 | 5.0229 | 5.0193 | 5.0162 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .3000 | V/(M3/KG) | .14761 | .15344 | .15922 | .16495 | .17066 | .17633 | .18197 | .18759 | .19318 | .19876 | .20433 |
| | H/(KJ/KG) | 1344.0 | 1423.5 | 1504.6 | 1587.2 | 1671.3 | 1756.8 | 1843.6 | 1931.8 | 2021.3 | 2112.0 | 2203.9 |
| | S/(KJ/KG K) | 2.8637 | 2.9753 | 3.0853 | 3.1936 | 3.3004 | 3.4056 | 3.5093 | 3.6115 | 3.7124 | 3.8118 | 3.9098 |
| | C/(M/SEC) | 210.3875 | 214.8013 | 219.0641 | 223.1934 | 227.2034 | 231.1060 | 234.9113 | 238.6280 | 242.2633 | 245.8237 | 249.3148 |
| | KAPPA/(1/MPA) | 3.4175 | 3.4048 | 3.3941 | 3.3850 | 3.3774 | 3.3708 | 3.3652 | 3.3603 | 3.3561 | 3.3525 | 3.3493 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| .4000 | V/(M3/KG) | .10977 | .11426 | .11869 | .12308 | .12743 | .13175 | .13604 | .14031 | .14456 | .14879 | .15300 |
| | H/(KJ/KG) | 1342.4 | 1422.0 | 1503.3 | 1586.0 | 1670.1 | 1755.7 | 1842.7 | 1930.9 | 2020.5 | 2111.2 | 2203.2 |
| | S/(KJ/KG K) | 2.8433 | 2.9551 | 3.0652 | 3.1737 | 3.2806 | 3.3859 | 3.4897 | 3.5921 | 3.6930 | 3.7924 | 3.8905 |
| | C/(M/SEC) | 208.7197 | 213.3640 | 217.8245 | 222.1243 | 226.2823 | 230.3141 | 234.2326 | 238.0488 | 241.7721 | 245.4104 | 248.9708 |
| | KAPPA/(1/MPA) | 2.5856 | 2.5724 | 2.5614 | 2.5521 | 2.5443 | 2.5376 | 2.5319 | 2.5269 | 2.5227 | 2.5190 | 2.5158 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .5000 | V/(M3/KG) | .08706 | .09074 | .09437 | .09795 | .10149 | .10500 | .10849 | .11195 | .11539 | .11881 | .12221 |
| | H/(KJ/KG) | 1340.7 | 1420.5 | 1501.9 | 1584.7 | 1669.0 | 1754.7 | 1841.7 | 1930.0 | 2019.6 | 2110.5 | 2202.5 |
| | S/(KJ/KG K) | 2.8269 | 2.9390 | 3.0493 | 3.1580 | 3.2650 | 3.3704 | 3.4743 | 3.5768 | 3.6777 | 3.7773 | 3.8754 |
| | C/(M/SEC) | 207.0345 | 211.9167 | 216.5799 | 221.0539 | 225.3626 | 229.5256 | 233.5588 | 237.4759 | 241.2881 | 245.0052 | 248.6354 |
| | KAPPA/(1/MPA) | 2.0871 | 2.0734 | 2.0620 | 2.0525 | 2.0445 | 2.0377 | 2.0319 | 2.0269 | 2.0226 | 2.0188 | 2.0156 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .6000 | V/(M3/KG) | .07192 | .07506 | .07815 | .08119 | .08420 | .08717 | .09012 | .09304 | .09594 | .09882 | .10168 |
| | H/(KJ/KG) | 1339.0 | 1419.0 | 1500.5 | 1583.5 | 1667.9 | 1753.6 | 1840.8 | 1929.2 | 2018.8 | 2109.7 | 2201.8 |
| | S/(KJ/KG K) | 2.8133 | 2.9255 | 3.0360 | 3.1449 | 3.2520 | 3.3576 | 3.4616 | 3.5641 | 3.6652 | 3.7648 | 3.8630 |
| | C/(M/SEC) | 205.3323 | 210.4598 | 215.3309 | 219.9828 | 224.4449 | 228.7409 | 232.8905 | 236.9095 | 240.8116 | 244.6081 | 248.3088 |
| | KAPPA/(1/MPA) | 1.7552 | 1.7410 | 1.7293 | 1.7195 | 1.7113 | 1.7044 | 1.6985 | 1.6935 | 1.6891 | 1.6853 | 1.6821 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |

## THERMODYNAMIC PROPERTIES OF NONANE

### TEMPERATURES/(K)

| P/(MPA) | | 425.000 | 450.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00164 | .00170 | .00177 | .00186 | .00195 | .00207 | .00222 | .00243 | .00278 | .00345 | .00437 |
| | H/(KJ/KG) | 312.2 | 383.0 | 456.1 | 531.4 | 608.6 | 688.3 | 772.3 | 851.9 | 946.1 | 1047.2 | 1148.6 |
| | S/(KJ/KG K) | .9024 | 1.0640 | 1.2222 | 1.3766 | 1.5273 | 1.6756 | 1.8249 | 1.9606 | 2.1144 | 2.2730 | 2.4261 |
| | C/(M/SEC) | 797.8198 | 724.3410 | 651.3028 | 578.4164 | 505.0633 | 430.3381 | 353.1669 | 275.1452 | 199.5395 | 152.1474 | 145.9964 |
| | KAPPA/(1/MPA) | .0031 | .0039 | .0050 | .0066 | .0091 | .0134 | .0214 | .0395 | .0910 | .2010 | .2619 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 | 2.5 | 3.1 | 4.3 | 6.9 | 9.8 | 8.7 |
| 6.0000 | V/(M3/KG) | .00163 | .00170 | .00177 | .00184 | .00193 | .00204 | .00217 | .00235 | .00260 | .00299 | .00356 |
| | H/(KJ/KG) | 312.9 | 383.5 | 456.5 | 531.5 | 608.4 | 687.7 | 770.8 | 848.8 | 939.3 | 1033.8 | 1131.2 |
| | S/(KJ/KG K) | .9000 | 1.0613 | 1.2192 | 1.3731 | 1.5232 | 1.6707 | 1.8184 | 1.9514 | 2.0992 | 2.2474 | 2.3945 |
| | C/(M/SEC) | 808.0395 | 736.3860 | 665.4950 | 595.2069 | 525.1622 | 454.7992 | 383.6268 | 314.0409 | 247.6341 | 194.4676 | 169.5481 |
| | KAPPA/(1/MPA) | .0030 | .0038 | .0048 | .0062 | .0083 | .0117 | .0175 | .0286 | .0523 | .1002 | .1559 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.7 | 1.8 | 2.0 | 2.3 | 2.8 | 3.5 | 4.7 | 6.5 | 7.2 |
| 7.0000 | V/(M3/KG) | .00163 | .00169 | .00176 | .00183 | .00192 | .00202 | .00214 | .00229 | .00249 | .00277 | .00315 |
| | H/(KJ/KG) | 313.5 | 384.0 | 456.9 | 531.7 | 608.4 | 687.2 | 769.7 | 846.6 | 935.2 | 1026.4 | 1120.2 |
| | S/(KJ/KG K) | .8976 | 1.0588 | 1.2163 | 1.3699 | 1.5195 | 1.6662 | 1.8128 | 1.9439 | 2.0885 | 2.2316 | 2.3732 |
| | C/(M/SEC) | 818.0336 | 748.0944 | 679.1774 | 611.2421 | 544.0561 | 477.2839 | 410.7168 | 346.9872 | 286.8797 | 235.3018 | 201.0387 |
| | KAPPA/(1/MPA) | .0029 | .0036 | .0045 | .0058 | .0077 | .0105 | .0149 | .0225 | .0363 | .0609 | .0954 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.6 | 1.7 | 1.9 | 2.2 | 2.5 | 3.0 | 3.7 | 4.7 | 5.6 |
| 8.0000 | V/(M3/KG) | .00163 | .00168 | .00175 | .00182 | .00190 | .00200 | .00211 | .00224 | .00241 | .00263 | .00291 |
| | H/(KJ/KG) | 314.2 | 384.5 | 457.3 | 532.0 | 608.4 | 686.9 | 768.9 | 845.0 | 932.4 | 1021.7 | 1113.1 |
| | S/(KJ/KG K) | .8953 | 1.0562 | 1.2135 | 1.3667 | 1.5159 | 1.6620 | 1.8077 | 1.9375 | 2.0802 | 2.2202 | 2.3582 |
| | C/(M/SEC) | 827.8153 | 759.4918 | 692.4039 | 626.5905 | 561.9299 | 498.1894 | 435.2911 | 375.9572 | 320.4317 | 271.4906 | 236.1906 |
| | KAPPA/(1/MPA) | .0029 | .0035 | .0043 | .0055 | .0071 | .0095 | .0130 | .0186 | .0277 | .0425 | .0636 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.3 | 2.7 | 3.2 | 3.8 | 4.4 |
| 9.0000 | V/(M3/KG) | .00162 | .00168 | .00174 | .00181 | .00189 | .00198 | .00208 | .00220 | .00235 | .00253 | .00276 |
| | H/(KJ/KG) | 314.8 | 385.1 | 457.8 | 532.3 | 608.5 | 686.7 | 768.3 | 843.9 | 930.4 | 1018.4 | 1108.2 |
| | S/(KJ/KG K) | .8931 | 1.0538 | 1.2108 | 1.3637 | 1.5125 | 1.6580 | 1.8031 | 1.9319 | 2.0731 | 2.2112 | 2.3468 |
| | C/(M/SEC) | 837.3969 | 770.6009 | 705.2139 | 641.3367 | 578.9121 | 517.7854 | 457.9146 | 402.0295 | 350.0297 | 303.5828 | 265.8174 |
| | KAPPA/(1/MPA) | .0028 | .0034 | .0042 | .0052 | .0066 | .0087 | .0116 | .0159 | .0224 | .0323 | .0460 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.5 | 1.6 | 1.8 | 1.9 | 2.1 | 2.4 | 2.8 | 3.2 | 3.7 |
| 10.0000 | V/(M3/KG) | .00162 | .00167 | .00174 | .00180 | .00188 | .00196 | .00206 | .00217 | .00230 | .00246 | .00265 |
| | H/(KJ/KG) | 315.5 | 385.7 | 458.2 | 532.6 | 608.7 | 686.7 | 767.9 | 843.0 | 928.9 | 1016.1 | 1104.8 |
| | S/(KJ/KG K) | .8909 | 1.0514 | 1.2082 | 1.3608 | 1.5092 | 1.6543 | 1.7988 | 1.9268 | 2.0670 | 2.2037 | 2.3376 |
| | C/(M/SEC) | 846.7860 | 781.4363 | 717.6377 | 655.5362 | 595.1282 | 536.2616 | 478.9589 | 425.8780 | 376.6991 | 332.4316 | 295.1428 |
| | KAPPA/(1/MPA) | .0027 | .0033 | .0040 | .0050 | .0062 | .0080 | .0104 | .0139 | .0188 | .0259 | .0354 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.2 | 2.5 | 2.8 | 3.1 |

## THERMODYNAMIC PROPERTIES OF NONANE

| P/(MPA) | | TEMPERATURES/(K) 700.000 | 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00531 | .00618 | .00697 | .00769 | .00836 | .00899 | .00958 | .01013 | .01067 | .01118 | .01168 |
| | H/(KJ/KG) | 1245.6 | 1339.3 | 1431.2 | 1522.4 | 1613.4 | 1704.7 | 1796.5 | 1888.9 | 1982.2 | 2076.2 | 2171.1 |
| | S/(KJ/KG K) | 2.5671 | 2.6987 | 2.8233 | 2.9429 | 3.0585 | 3.1708 | 3.2805 | 3.3877 | 3.4927 | 3.5957 | 3.6969 |
| | C/(M/SEC) | 153.6327 | 164.7210 | 176.2695 | 187.2706 | 197.4622 | 206.8398 | 215.4767 | 223.4618 | 230.8792 | 237.8023 | 244.2940 |
| | KAPPA/(1/MPA) | .2708 | .2627 | .2512 | .2407 | .2320 | .2248 | .2189 | .2140 | .2100 | .2066 | .2037 |
| | BETA/(1000/K) | 6.9 | 5.4 | 4.3 | 3.6 | 3.1 | 2.7 | 2.4 | 2.2 | 2.0 | 1.8 | 1.7 |
| 6.0000 | V/(M3/KG) | .00423 | .00492 | .00558 | .00620 | .00679 | .00734 | .00786 | .00835 | .00882 | .00927 | .00971 |
| | H/(KJ/KG) | 1228.0 | 1323.0 | 1416.5 | 1509.2 | 1601.5 | 1694.0 | 1786.9 | 1880.2 | 1974.2 | 2068.9 | 2164.4 |
| | S/(KJ/KG K) | 2.5353 | 2.6685 | 2.7954 | 2.9169 | 3.0343 | 3.1481 | 3.2589 | 3.3672 | 3.4731 | 3.5769 | 3.6787 |
| | C/(M/SEC) | 166.4510 | 171.8031 | 180.1953 | 189.5640 | 198.9975 | 208.1054 | 216.7424 | 224.8753 | 232.5192 | 239.7083 | 246.4823 |
| | KAPPA/(1/MPA) | .1856 | .1953 | .1957 | .1922 | .1877 | .1832 | .1791 | .1755 | .1724 | .1696 | .1673 |
| | BETA/(1000/K) | 6.5 | 5.5 | 4.6 | 3.9 | 3.3 | 2.9 | 2.6 | 2.3 | 2.1 | 1.9 | 1.8 |
| 7.0000 | V/(M3/KG) | .00363 | .00416 | .00470 | .00522 | .00573 | .00621 | .00667 | .00711 | .00753 | .00794 | .00833 |
| | H/(KJ/KG) | 1215.2 | 1309.9 | 1404.0 | 1497.5 | 1590.8 | 1684.2 | 1777.8 | 1871.9 | 1966.6 | 2061.9 | 2158.0 |
| | S/(KJ/KG K) | 2.5114 | 2.6444 | 2.7719 | 2.8946 | 3.0131 | 3.1280 | 3.2398 | 3.3489 | 3.4556 | 3.5601 | 3.6625 |
| | C/(M/SEC) | 186.8395 | 185.2338 | 189.4070 | 196.1479 | 203.9741 | 212.1375 | 220.2548 | 228.1371 | 235.7006 | 242.9162 | 249.7835 |
| | KAPPA/(1/MPA) | .1256 | .1426 | .1503 | .1527 | .1523 | .1507 | .1485 | .1463 | .1442 | .1422 | .1405 |
| | BETA/(1000/K) | 5.7 | 5.2 | 4.5 | 4.0 | 3.5 | 3.0 | 2.7 | 2.4 | 2.2 | 2.0 | 1.8 |
| 8.0000 | V/(M3/KG) | .00327 | .00368 | .00412 | .00456 | .00499 | .00542 | .00582 | .00622 | .00660 | .00696 | .00732 |
| | H/(KJ/KG) | 1206.1 | 1299.9 | 1393.8 | 1487.6 | 1581.4 | 1675.4 | 1769.6 | 1864.3 | 1959.5 | 2055.4 | 2151.9 |
| | S/(KJ/KG K) | 2.4935 | 2.6252 | 2.7525 | 2.8755 | 2.9946 | 3.1103 | 3.2228 | 3.3326 | 3.4399 | 3.5450 | 3.6479 |
| | C/(M/SEC) | 212.2101 | 203.4547 | 202.7480 | 206.2594 | 211.9253 | 218.6519 | 225.8312 | 233.1193 | 240.3239 | 247.3415 | 254.1206 |
| | KAPPA/(1/MPA) | .0864 | .1042 | .1152 | .1211 | .1238 | .1245 | .1242 | .1233 | .1221 | .1209 | .1198 |
| | BETA/(1000/K) | 4.7 | 4.6 | 4.3 | 3.9 | 3.4 | 3.1 | 2.8 | 2.5 | 2.3 | 2.1 | 1.9 |
| 9.0000 | V/(M3/KG) | .00304 | .00336 | .00372 | .00409 | .00446 | .00483 | .00520 | .00555 | .00589 | .00622 | .00655 |
| | H/(KJ/KG) | 1199.7 | 1292.3 | 1385.6 | 1479.3 | 1573.3 | 1667.6 | 1762.2 | 1857.4 | 1953.0 | 2049.3 | 2146.2 |
| | S/(KJ/KG K) | 2.4798 | 2.6099 | 2.7364 | 2.8593 | 2.9786 | 3.0946 | 3.2077 | 3.3180 | 3.4258 | 3.5313 | 3.6347 |
| | C/(M/SEC) | 239.5747 | 225.0171 | 219.3556 | 219.2616 | 222.3838 | 227.3181 | 233.2400 | 239.6553 | 246.2644 | 252.8851 | 259.4105 |
| | KAPPA/(1/MPA) | .0622 | .0773 | .0888 | .0964 | .1009 | .1033 | .1044 | .1046 | .1044 | .1039 | .1033 |
| | BETA/(1000/K) | 4.0 | 4.1 | 3.9 | 3.7 | 3.3 | 3.0 | 2.8 | 2.5 | 2.3 | 2.1 | 1.9 |
| 10.0000 | V/(M3/KG) | .00288 | .00314 | .00344 | .00375 | .00407 | .00440 | .00472 | .00504 | .00535 | .00565 | .00594 |
| | H/(KJ/KG) | 1195.0 | 1286.6 | 1379.2 | 1472.5 | 1566.4 | 1660.8 | 1755.7 | 1851.1 | 1947.1 | 2043.7 | 2140.9 |
| | S/(KJ/KG K) | 2.4689 | 2.5975 | 2.7230 | 2.8454 | 2.9647 | 3.0808 | 3.1941 | 3.3047 | 3.4129 | 3.5188 | 3.6225 |
| | C/(M/SEC) | 266.8432 | 248.3014 | 238.3246 | 234.6016 | 234.9584 | 237.8455 | 242.2652 | 247.5845 | 253.3993 | 259.4516 | 265.5760 |
| | KAPPA/(1/MPA) | .0470 | .0589 | .0693 | .0772 | .0826 | .0861 | .0882 | .0893 | .0898 | .0900 | .0898 |
| | BETA/(1000/K) | 3.4 | 3.6 | 3.5 | 3.4 | 3.2 | 2.9 | 2.7 | 2.5 | 2.3 | 2.1 | 2.0 |

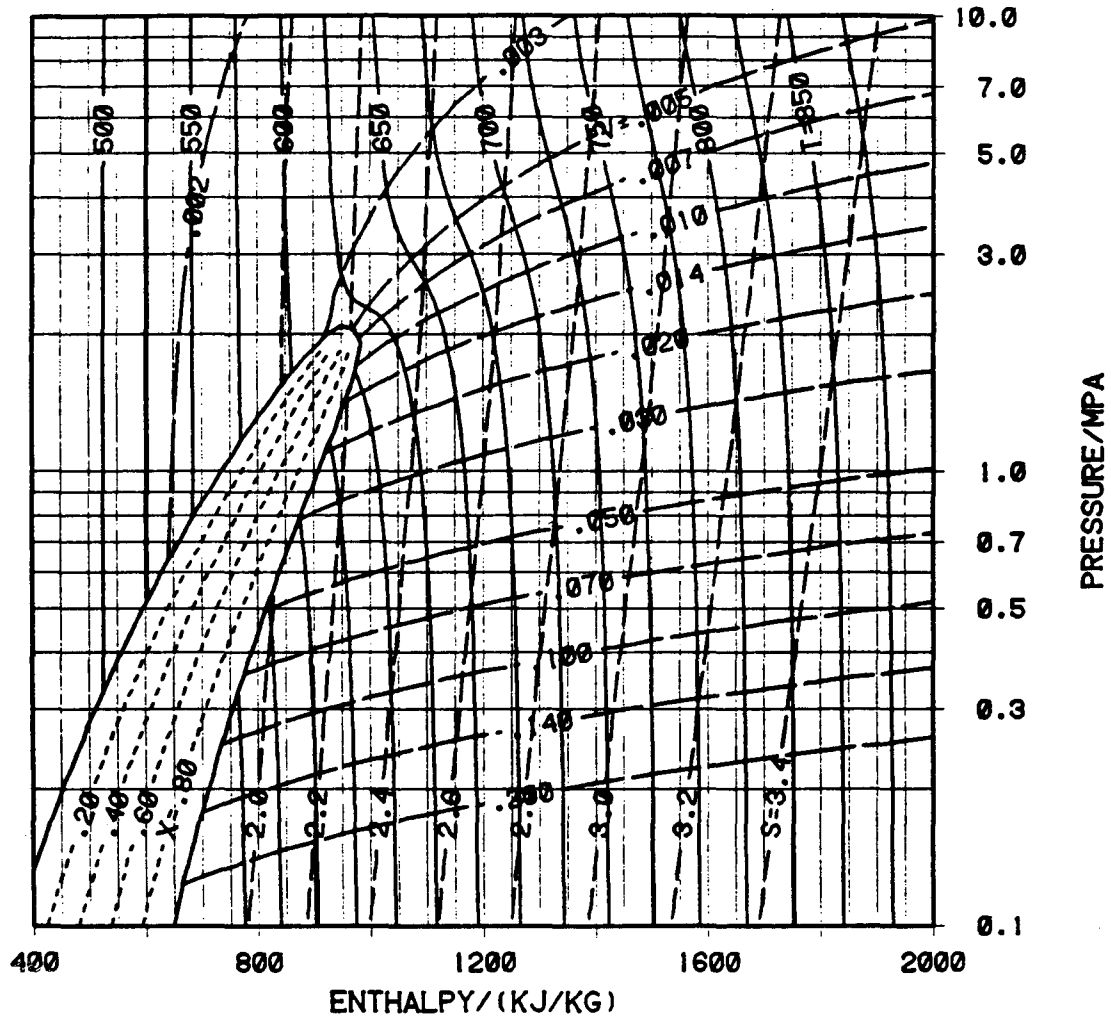
## THERMODYNAMIC PROPERTIES OF NONANE

| P/(MPA) | | TEMPERATURES/(K) 425.000 | 450.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00166 | .00174 | .00182 | .00192 | .03844 | .04235 | .04590 | .04922 | .05235 | .05536 | .05827 |
| | H/(KJ/KG) | 309.8 | 381.1 | 455.2 | 531.8 | 818.9 | 888.7 | 959.7 | 1032.1 | 1106.1 | 1181.6 | 1258.7 |
| | S/(KJ/KG K) | .9133 | 1.0763 | 1.2364 | 1.3936 | 1.9520 | 2.0819 | 2.2081 | 2.3314 | 2.4521 | 2.5706 | 2.6870 |
| | C/(M/SEC) | 750.1407 | 667.4297 | 582.0191 | 494.1292 | 147.7287 | 159.5106 | 169.2144 | 177.5758 | 184.9930 | 191.7075 | 197.8777 |
| | KAPPA/(1/MPA) | .0036 | .0047 | .0065 | .0096 | 1.8977 | 1.7660 | 1.6848 | 1.6297 | 1.5900 | 1.5601 | 1.5370 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.4 | 4.3 | 3.5 | 3.0 | 2.6 | 2.3 | 2.1 | 2.0 |
| .8000 | V/(M3/KG) | .00166 | .00173 | .00182 | .00192 | .03198 | .03577 | .03912 | .04219 | .04506 | .04780 | .05043 |
| | H/(KJ/KG) | 309.8 | 381.1 | 455.2 | 531.7 | 813.8 | 884.6 | 956.3 | 1029.3 | 1103.6 | 1179.4 | 1256.8 |
| | S/(KJ/KG K) | .9130 | 1.0760 | 1.2360 | 1.3931 | 1.9355 | 2.0674 | 2.1949 | 2.3190 | 2.4404 | 2.5594 | 2.6761 |
| | C/(M/SEC) | 752.0795 | 669.3967 | 584.8007 | 495.1261 | 139.7512 | 153.7253 | 164.7422 | 173.9927 | 182.0571 | 189.2658 | 195.8264 |
| | KAPPA/(1/MPA) | .0036 | .0047 | .0065 | .0095 | 1.7946 | 1.6213 | 1.5240 | 1.4613 | 1.4175 | 1.3854 | 1.3609 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.4 | 5.1 | 3.9 | 3.3 | 2.8 | 2.5 | 2.2 | 2.1 |
| .9000 | V/(M3/KG) | .00166 | .00173 | .00182 | .00192 | .00205 | .03057 | .03380 | .03669 | .03938 | .04191 | .04433 |
| | H/(KJ/KG) | 309.9 | 381.2 | 455.2 | 531.7 | 611.1 | 880.3 | 952.8 | 1026.3 | 1101.1 | 1177.2 | 1254.8 |
| | S/(KJ/KG K) | .9127 | 1.0757 | 1.2357 | 1.3927 | 1.5477 | 2.0535 | 2.1825 | 2.3076 | 2.4296 | 2.5491 | 2.6662 |
| | C/(M/SEC) | 753.2293 | 670.7880 | 586.5459 | 498.6239 | 403.0693 | 147.4146 | 160.0098 | 170.2673 | 179.0393 | 186.7759 | 193.7468 |
| | KAPPA/(1/MPA) | .0036 | .0047 | .0064 | .0094 | .0156 | 1.5252 | 1.4059 | 1.3338 | 1.2853 | 1.2506 | 1.2246 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.3 | 3.0 | 4.5 | 3.6 | 3.0 | 2.6 | 2.4 | 2.1 |
| 1.0000 | V/(M3/KG) | .00166 | .00173 | .00181 | .00191 | .00204 | .02633 | .02950 | .03228 | .03482 | .03719 | .03944 |
| | H/(KJ/KG) | 309.9 | 381.2 | 455.2 | 531.7 | 611.0 | 875.6 | 949.1 | 1023.3 | 1098.5 | 1175.0 | 1252.8 |
| | S/(KJ/KG K) | .9125 | 1.0754 | 1.2353 | 1.3922 | 1.5471 | 2.0397 | 2.1705 | 2.2967 | 2.4195 | 2.5395 | 2.6571 |
| | C/(M/SEC) | 754.3756 | 672.1893 | 588.2796 | 500.8463 | 406.1218 | 140.4314 | 154.9751 | 166.3855 | 175.9348 | 184.2365 | 191.6389 |
| | KAPPA/(1/MPA) | .0036 | .0047 | .0064 | .0093 | .0153 | 1.4704 | 1.3195 | 1.2355 | 1.1815 | 1.1438 | 1.1161 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.3 | 3.0 | 5.2 | 4.0 | 3.3 | 2.8 | 2.5 | 2.2 |
| 2.0000 | V/(M3/KG) | .00166 | .00172 | .00180 | .00190 | .00202 | .00218 | .00247 | .01124 | .01376 | .01567 | .01729 |
| | H/(KJ/KG) | 310.5 | 381.6 | 455.3 | 531.4 | 610.0 | 692.4 | 783.4 | 980.8 | 1066.9 | 1149.2 | 1231.0 |
| | S/(KJ/KG K) | .9099 | 1.0724 | 1.2318 | 1.3879 | 1.5414 | 1.6946 | 1.8563 | 2.1932 | 2.3337 | 2.4629 | 2.5864 |
| | C/(M/SEC) | 765.6552 | 685.8998 | 605.1371 | 522.1629 | 434.6490 | 337.5287 | 214.8089 | 112.8543 | 138.8765 | 155.9893 | 169.1883 |
| | KAPPA/(1/MPA) | .0034 | .0044 | .0060 | .0084 | .0130 | .0239 | .0742 | 1.1184 | .8113 | .7050 | .6486 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 2.7 | 3.7 | 7.6 | 11.3 | 6.1 | 4.4 | 3.5 |
| 3.0000 | V/(M3/KG) | .00165 | .00172 | .00179 | .00188 | .00199 | .00213 | .00235 | .00284 | .00572 | .00812 | .00975 |
| | H/(KJ/KG) | 311.1 | 382.0 | 455.5 | 531.3 | 609.4 | 690.6 | 777.7 | 868.4 | 1010.8 | 1114.2 | 1204.5 |
| | S/(KJ/KG K) | .9073 | 1.0695 | 1.2285 | 1.3839 | 1.5362 | 1.6873 | 1.8421 | 1.9967 | 2.2292 | 2.3916 | 2.5278 |
| | C/(M/SEC) | 776.6443 | 699.1326 | 621.1987 | 542.0549 | 460.2076 | 372.9330 | 274.5917 | 151.8813 | 99.6087 | 126.3234 | 146.8236 |
| | KAPPA/(1/MPA) | .0033 | .0042 | .0056 | .0077 | .0114 | .0188 | .0395 | .1933 | .9372 | .6302 | .5174 |
| | BETA/(1000/K) | 1.5 | 1.7 | 1.8 | 2.1 | 2.4 | 3.1 | 4.8 | 13.9 | 22.1 | 9.3 | 5.9 |
| 4.0000 | V/(M3/KG) | .00164 | .00171 | .00178 | .00187 | .00197 | .00210 | .00227 | .00255 | .00323 | .00467 | .00610 |
| | H/(KJ/KG) | 311.6 | 382.5 | 455.8 | 531.3 | 608.9 | 689.3 | 774.4 | 857.0 | 961.1 | 1073.5 | 1174.4 |
| | S/(KJ/KG K) | .9048 | 1.0667 | 1.2253 | 1.3801 | 1.5316 | 1.6811 | 1.8325 | 1.9732 | 2.1431 | 2.3195 | 2.4718 |
| | C/(M/SEC) | 787.3604 | 711.9343 | 636.5608 | 560.7439 | 483.5217 | 403.3476 | 317.8361 | 225.9761 | 138.5011 | 123.3080 | 136.1659 |
| | KAPPA/(1/MPA) | .0032 | .0041 | .0053 | .0071 | .0101 | .0156 | .0275 | .0649 | .2546 | .4295 | .4090 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.8 | 2.0 | 2.3 | 2.8 | 3.7 | 6.1 | 13.9 | 13.1 | 8.6 |

THERMODYNAMIC PROPERTIES OF NONANE

TEMPERATURES/(K)

| P/(MPA) | | 700.000 | 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .06110 | .06386 | .06656 | .06923 | .07185 | .07444 | .07700 | .07954 | .08205 | .08455 | .08702 |
| | H/(KJ/KG) | 1337.3 | 1417.5 | 1499.1 | 1582.2 | 1666.7 | 1752.6 | 1839.8 | 1928.3 | 2018.0 | 2109.0 | 2201.1 |
| | S/(KJ/KG K) | 2.8014 | 2.9139 | 3.0246 | 3.1336 | 3.2409 | 3.3466 | 3.4507 | 3.5533 | 3.6544 | 3.7541 | 3.8524 |
| | C/(M/SEC) | 203.6134 | 208.9937 | 214.0780 | 218.9114 | 223.5295 | 227.9606 | 232.2278 | 236.3499 | 240.3427 | 244.2194 | 247.9912 |
| | KAPPA/(1/MPA) | 1.5187 | 1.5039 | 1.4918 | 1.4818 | 1.4734 | 1.4664 | 1.4604 | 1.4553 | 1.4509 | 1.4471 | 1.4438 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| .8000 | V/(M3/KG) | .05298 | .05545 | .05788 | .06025 | .06259 | .06489 | .06716 | .06941 | .07163 | .07384 | .07603 |
| | H/(KJ/KG) | 1335.6 | 1415.9 | 1497.7 | 1581.0 | 1665.6 | 1751.5 | 1838.8 | 1927.4 | 2017.2 | 2108.2 | 2200.4 |
| | S/(KJ/KG K) | 2.7908 | 2.9035 | 3.0145 | 3.1236 | 3.2310 | 3.3369 | 3.4411 | 3.5438 | 3.6450 | 3.7448 | 3.8431 |
| | C/(M/SEC) | 201.8780 | 207.5192 | 212.8218 | 217.8404 | 222.6171 | 227.1851 | 231.5713 | 235.7976 | 239.8818 | 243.8392 | 247.6825 |
| | KAPPA/(1/MPA) | 1.3417 | 1.3264 | 1.3139 | 1.3036 | 1.2951 | 1.2879 | 1.2818 | 1.2766 | 1.2722 | 1.2683 | 1.2650 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| .9000 | V/(M3/KG) | .04666 | .04891 | .05112 | .05327 | .05538 | .05746 | .05951 | .06153 | .06353 | .06552 | .06748 |
| | H/(KJ/KG) | 1333.9 | 1414.4 | 1496.3 | 1579.7 | 1664.4 | 1750.5 | 1837.9 | 1926.5 | 2016.4 | 2107.5 | 2199.7 |
| | S/(KJ/KG K) | 2.7812 | 2.8942 | 3.0053 | 3.1146 | 3.2222 | 3.3282 | 3.4325 | 3.5353 | 3.6366 | 3.7364 | 3.8348 |
| | C/(M/SEC) | 200.1268 | 206.0367 | 211.5630 | 216.7704 | 221.7081 | 226.4149 | 230.9214 | 235.2526 | 239.4291 | 243.4678 | 247.3831 |
| | KAPPA/(1/MPA) | 1.2044 | 1.1885 | 1.1756 | 1.1651 | 1.1564 | 1.1490 | 1.1429 | 1.1376 | 1.1331 | 1.1293 | 1.1259 |
| | BETA/(1000/K) | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 |
| 1.0000 | V/(M3/KG) | .04160 | .04368 | .04571 | .04768 | .04962 | .05152 | .05339 | .05523 | .05706 | .05886 | .06064 |
| | H/(KJ/KG) | 1332.1 | 1412.8 | 1494.9 | 1578.4 | 1663.2 | 1749.4 | 1836.9 | 1925.6 | 2015.6 | 2106.7 | 2199.1 |
| | S/(KJ/KG K) | 2.7724 | 2.8857 | 2.9970 | 3.1065 | 3.2142 | 3.3203 | 3.4247 | 3.5276 | 3.6290 | 3.7289 | 3.8274 |
| | C/(M/SEC) | 198.3603 | 204.5471 | 210.3024 | 215.7020 | 220.8033 | 225.6503 | 230.2783 | 234.7155 | 238.9848 | 243.1053 | 247.0930 |
| | KAPPA/(1/MPA) | 1.0950 | 1.0784 | 1.0651 | 1.0543 | 1.0454 | 1.0380 | 1.0317 | 1.0264 | 1.0219 | 1.0180 | 1.0146 |
| | BETA/(1000/K) | 2.0 | 1.9 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 |
| 2.0000 | V/(M3/KG) | .01875 | .02009 | .02135 | .02255 | .02369 | .02480 | .02587 | .02692 | .02794 | .02893 | .02992 |
| | H/(KJ/KG) | 1313.2 | 1396.1 | 1480.1 | 1565.1 | 1651.2 | 1738.5 | 1827.0 | 1916.6 | 2007.3 | 2099.1 | 2192.1 |
| | S/(KJ/KG K) | 2.7059 | 2.8224 | 2.9362 | 3.0477 | 3.1571 | 3.2645 | 3.3701 | 3.4740 | 3.5763 | 3.6769 | 3.7760 |
| | C/(M/SEC) | 180.1038 | 189.5013 | 197.8083 | 205.2909 | 212.1266 | 218.4404 | 224.3239 | 229.8464 | 235.0615 | 240.0118 | 244.7316 |
| | KAPPA/(1/MPA) | .6131 | .5886 | .5707 | .5570 | .5463 | .5377 | .5306 | .5248 | .5200 | .5158 | .5123 |
| | BETA/(1000/K) | 3.0 | 2.6 | 2.3 | 2.1 | 1.9 | 1.8 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 |
| 3.0000 | V/(M3/KG) | .01107 | .01221 | .01324 | .01420 | .01509 | .01594 | .01675 | .01753 | .01828 | .01901 | .01972 |
| | H/(KJ/KG) | 1291.5 | 1377.7 | 1464.1 | 1551.0 | 1638.7 | 1727.3 | 1816.8 | 1907.3 | 1998.9 | 2091.4 | 2185.0 |
| | S/(KJ/KG K) | 2.6544 | 2.7755 | 2.8926 | 3.0066 | 3.1179 | 3.2269 | 3.3338 | 3.4388 | 3.5419 | 3.6434 | 3.7432 |
| | C/(M/SEC) | 162.6309 | 175.5490 | 186.5354 | 196.1399 | 204.7055 | 212.4606 | 219.5654 | 226.1365 | 232.2615 | 238.0083 | 243.4301 |
| | KAPPA/(1/MPA) | .4617 | .4284 | .4061 | .3902 | .3782 | .3689 | .3616 | .3556 | .3506 | .3465 | .3430 |
| | BETA/(1000/K) | 4.4 | 3.5 | 3.0 | 2.6 | 2.3 | 2.1 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 |
| 4.0000 | V/(M3/KG) | .00731 | .00834 | .00925 | .01008 | .01084 | .01156 | .01223 | .01288 | .01350 | .01409 | .01467 |
| | H/(KJ/KG) | 1267.8 | 1358.2 | 1447.5 | 1536.6 | 1625.9 | 1715.9 | 1806.5 | 1898.0 | 1990.4 | 2083.7 | 2178.0 |
| | S/(KJ/KG K) | 2.6078 | 2.7347 | 2.8557 | 2.9725 | 3.0860 | 3.1967 | 3.3050 | 3.4111 | 3.5152 | 3.6174 | 3.7180 |
| | C/(M/SEC) | 151.7815 | 166.0656 | 178.6116 | 189.6652 | 199.5144 | 208.3942 | 216.4844 | 223.9224 | 230.8140 | 237.2420 | 243.2721 |
| | KAPPA/(1/MPA) | .3687 | .3385 | .3172 | .3018 | .2902 | .2813 | .2743 | .2686 | .2639 | .2601 | .2568 |
| | BETA/(1000/K) | 6.1 | 4.6 | 3.7 | 3.1 | 2.7 | 2.4 | 2.2 | 2.0 | 1.8 | 1.7 | 1.6 |


10.0
7.0
5.0
3.0
1.0
0.7
0.5
0.3
0.1
PRESSURE/MPA
400
800
1200
1600
2000
ENTHALPY/(KJ/KG)
500
550
600
650
700
750
800
850
.002
.003
.005
.007
.010
.014
.020
.030
.050
.070
.100
.140
.200
.300
.400
.600
.80
x=.90
.20
.40
2.0
2.2
2.4
2.6
2.8
3.0
3.2
S=3.4

DECANE

## PROPERTIES OF SATURATED DECANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 450.00000 | .10834 | .00169 | .22726 | 376.40420 | 277.95911 | 654.36331 | 1.11252 | .61769 | 1.73020 |
| 455.00000 | .12273 | .00170 | .20151 | 390.88386 | 274.38478 | 665.26864 | 1.14446 | .60304 | 1.74751 |
| 460.00000 | .13855 | .00171 | .17918 | 405.47795 | 270.74017 | 676.21811 | 1.17630 | .58857 | 1.76487 |
| 465.00000 | .15592 | .00173 | .15974 | 420.18363 | 267.02451 | 687.20814 | 1.20803 | .57425 | 1.78228 |
| 470.00000 | .17493 | .00174 | .14276 | 434.99751 | 263.23769 | 698.23520 | 1.23965 | .56008 | 1.79973 |
| 475.00000 | .19567 | .00176 | .12789 | 449.91549 | 259.38009 | 709.29558 | 1.27115 | .54606 | 1.81721 |
| 480.00000 | .21826 | .00177 | .11482 | 464.93709 | 255.44812 | 720.38521 | 1.30252 | .53218 | 1.83471 |
| 485.00000 | .24279 | .00179 | .10329 | 480.05841 | 251.44176 | 731.50017 | 1.33377 | .51844 | 1.85221 |
| 490.00000 | .26937 | .00181 | .09311 | 495.27703 | 247.35918 | 742.63621 | 1.36489 | .50481 | 1.86971 |
| 495.00000 | .29812 | .00183 | .08407 | 510.59094 | 243.19800 | 753.78894 | 1.39588 | .49131 | 1.88719 |
| 500.00000 | .32914 | .00184 | .07604 | 525.99822 | 238.95531 | 764.95353 | 1.42673 | .47791 | 1.90464 |
| 505.00000 | .36257 | .00186 | .06888 | 541.49775 | 234.62727 | 776.12501 | 1.45746 | .46461 | 1.92206 |
| 510.00000 | .39851 | .00188 | .06249 | 557.08885 | 230.20903 | 787.29788 | 1.48804 | .45139 | 1.93943 |
| 515.00000 | .43709 | .00190 | .05675 | 572.77149 | 225.69465 | 798.46615 | 1.51850 | .43824 | 1.95674 |
| 520.00000 | .47845 | .00192 | .05160 | 588.54654 | 221.07674 | 809.62328 | 1.54883 | .42515 | 1.97398 |
| 525.00000 | .52272 | .00195 | .04697 | 604.41592 | 216.34607 | 820.76199 | 1.57904 | .41209 | 1.99113 |
| 530.00000 | .57003 | .00197 | .04278 | 620.38241 | 211.49177 | 831.87419 | 1.60913 | .39904 | 2.00818 |
| 535.00000 | .62055 | .00199 | .03899 | 636.45044 | 206.50020 | 842.95065 | 1.63912 | .38598 | 2.02510 |
| 540.00000 | .67441 | .00202 | .03556 | 652.62592 | 201.35493 | 853.98085 | 1.66901 | .37288 | 2.04189 |
| 545.00000 | .73179 | .00205 | .03243 | 668.91666 | 196.03581 | 864.95247 | 1.69883 | .35970 | 2.05853 |
| 550.00000 | .79285 | .00207 | .02958 | 685.33303 | 190.51813 | 875.85116 | 1.72858 | .34640 | 2.07498 |
| 555.00000 | .85777 | .00211 | .02698 | 701.88698 | 184.77315 | 886.66012 | 1.75830 | .33292 | 2.09122 |
| 560.00000 | .92675 | .00214 | .02460 | 718.59626 | 178.76219 | 897.35846 | 1.78801 | .31922 | 2.10723 |
| 565.00000 | .99999 | .00217 | .02240 | 735.48100 | 172.44001 | 907.92101 | 1.81774 | .30520 | 2.12295 |
| 570.00000 | 1.07771 | .00221 | .02038 | 752.56771 | 165.74849 | 918.31621 | 1.84755 | .29079 | 2.13834 |
| 575.00000 | 1.16013 | .00226 | .01851 | 769.89022 | 158.61321 | 928.50343 | 1.87749 | .27585 | 2.15334 |
| 580.00000 | 1.24752 | .00230 | .01677 | 787.49263 | 150.93641 | 938.42904 | 1.90762 | .26024 | 2.16786 |
| 585.00000 | 1.34013 | .00236 | .01514 | 805.43354 | 142.58629 | 948.01984 | 1.93805 | .24374 | 2.18179 |
| 590.00000 | 1.43826 | .00242 | .01361 | 823.79300 | 133.37824 | 957.17123 | 1.96890 | .22606 | 2.19497 |
| 595.00000 | 1.54222 | .00249 | .01215 | 842.68647 | 123.03766 | 965.72414 | 2.00036 | .20679 | 2.20715 |
| 600.00000 | 1.65235 | .00258 | .01075 | 862.29206 | 111.12348 | 973.41554 | 2.03271 | .18521 | 2.21791 |
| 605.00000 | 1.76901 | .00269 | .00935 | 882.91691 | 96.83312 | 979.75003 | 2.06643 | .16005 | 2.22648 |
| 610.00000 | 1.89259 | .00285 | .00790 | 905.20766 | 78.35099 | 983.55865 | 2.10256 | .12844 | 2.23100 |
| 615.00000 | 2.02354 | .00316 | .00610 | 931.31636 | 48.72879 | 980.04516 | 2.14454 | .07923 | 2.22377 |
| 617.65000 | 2.16232 | .00425 | .00425 | 959.68772 | 0. | 959.68772 | 2.18968 | 0. | 2.18968 |

## THERMODYNAMIC PROPERTIES OF DECANE

| P/(MPA) | | TEMPERATURES/(K) 450.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .24757 | .26420 | .28052 | .29659 | .31245 | .32815 | .34370 | .35913 | .37445 | .38969 | .40485 |
| | H/(KJ/KG) | 654.8 | 714.2 | 775.8 | 839.8 | 905.9 | 974.1 | 1044.3 | 1116.4 | 1190.3 | 1266.1 | 1343.5 |
| | S/(KJ/KG K) | 1.7356 | 1.8639 | 1.9905 | 2.1152 | 2.2382 | 2.3594 | 2.4789 | 2.5967 | 2.7127 | 2.8270 | 2.9397 |
| | C/(M/SEC) | 155.0151 | 160.8859 | 166.3758 | 171.5527 | 176.4678 | 181.1603 | 185.6610 | 189.9944 | 194.1806 | 198.2359 | 202.1740 |
| | KAPPA/(1/MPA) | 10.6557 | 10.5288 | 10.4313 | 10.3550 | 10.2944 | 10.2457 | 10.2062 | 10.1739 | 10.1473 | 10.1251 | 10.1067 |
| | BETA/(1000/K) | 2.7 | 2.5 | 2.3 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 |
| .1013 | V/(M3/KG) | .24412 | .26056 | .27669 | .29257 | .30825 | .32375 | .33911 | .35435 | .36948 | .38453 | .39950 |
| | H/(KJ/KG) | 654.8 | 714.1 | 775.8 | 839.7 | 905.8 | 974.0 | 1044.2 | 1116.3 | 1190.3 | 1266.1 | 1343.5 |
| | S/(KJ/KG K) | 1.7347 | 1.8631 | 1.9896 | 2.1144 | 2.2374 | 2.3586 | 2.4781 | 2.5958 | 2.7119 | 2.8262 | 2.9389 |
| | C/(M/SEC) | 154.8833 | 160.7766 | 166.2842 | 171.4754 | 176.4021 | 181.1042 | 185.6129 | 189.9530 | 194.1448 | 198.2050 | 202.1472 |
| | KAPPA/(1/MPA) | 10.5264 | 10.3990 | 10.3012 | 10.2246 | 10.1639 | 10.1152 | 10.0756 | 10.0432 | 10.0166 | 9.9944 | 9.9760 |
| | BETA/(1000/K) | 2.7 | 2.5 | 2.3 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 |
| .2000 | V/(M3/KG) | .00168 | .00176 | .13400 | .14289 | .15153 | .15998 | .16826 | .17641 | .18445 | .19239 | .20025 |
| | H/(KJ/KG) | 376.4 | 449.9 | 771.4 | 835.8 | 902.3 | 970.9 | 1041.4 | 1113.8 | 1188.0 | 1264.0 | 1341.7 |
| | S/(KJ/KG K) | 1.1123 | 1.2711 | 1.9433 | 2.0691 | 2.1929 | 2.3148 | 2.4348 | 2.5530 | 2.6695 | 2.7842 | 2.8971 |
| | C/(M/SEC) | 735.2252 | 651.4691 | 159.1215 | 165.4957 | 171.3648 | 176.8305 | 181.9662 | 186.8267 | 191.4542 | 195.8815 | 200.1352 |
| | KAPPA/(1/MPA) | .0038 | .0051 | 5.4844 | 5.3890 | 5.3167 | 5.2605 | 5.2162 | 5.1806 | 5.1518 | 5.1282 | 5.1087 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.7 | 2.5 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 | 1.6 | 1.6 |
| .3000 | V/(M3/KG) | .00168 | .00176 | .08482 | .09144 | .09775 | .10382 | .10971 | .11546 | .12108 | .12661 | .13205 |
| | H/(KJ/KG) | 376.5 | 449.9 | 766.5 | 831.6 | 898.6 | 967.6 | 1038.5 | 1111.2 | 1185.7 | 1261.9 | 1339.8 |
| | S/(KJ/KG K) | 1.1120 | 1.2708 | 1.9124 | 2.0394 | 2.1641 | 2.2868 | 2.4074 | 2.5262 | 2.6430 | 2.7581 | 2.8713 |
| | C/(M/SEC) | 736.1702 | 652.7159 | 151.0301 | 158.9196 | 165.9315 | 172.2871 | 178.1324 | 183.5687 | 188.6701 | 193.4917 | 198.0763 |
| | KAPPA/(1/MPA) | .0038 | .0050 | 3.8887 | 3.7649 | 3.6765 | 3.6109 | 3.5606 | 3.5213 | 3.4900 | 3.4648 | 3.4442 |
| | BETA/(1000/K) | 1.6 | 1.8 | 3.2 | 2.8 | 2.5 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 | 1.6 |
| .4000 | V/(M3/KG) | .00168 | .00176 | .00184 | .06551 | .07073 | .07566 | .08039 | .08495 | .08938 | .09370 | .09793 |
| | H/(KJ/KG) | 376.5 | 450.0 | 526.0 | 827.0 | 894.7 | 964.2 | 1035.4 | 1108.5 | 1183.3 | 1259.7 | 1337.8 |
| | S/(KJ/KG K) | 1.1117 | 1.2705 | 1.4265 | 2.0159 | 2.1419 | 2.2654 | 2.3868 | 2.5061 | 2.6234 | 2.7388 | 2.8524 |
| | C/(M/SEC) | 737.1116 | 653.9596 | 568.3852 | 151.6829 | 160.1016 | 167.4980 | 174.1435 | 180.2126 | 185.8245 | 191.0646 | 195.9965 |
| | KAPPA/(1/MPA) | .0038 | .0050 | .0069 | 2.9867 | 2.8754 | 2.7973 | 2.7397 | 2.6960 | 2.6619 | 2.6348 | 2.6130 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 3.3 | 2.9 | 2.5 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 |
| .5000 | V/(M3/KG) | .00168 | .00176 | .00184 | .04974 | .05439 | .05869 | .06274 | .06661 | .07033 | .07394 | .07746 |
| | H/(KJ/KG) | 376.6 | 450.0 | 526.0 | 822.0 | 890.5 | 960.5 | 1032.3 | 1105.7 | 1180.8 | 1257.6 | 1335.9 |
| | S/(KJ/KG K) | 1.1114 | 1.2702 | 1.4261 | 1.9955 | 2.1230 | 2.2476 | 2.3697 | 2.4896 | 2.6074 | 2.7232 | 2.8372 |
| | C/(M/SEC) | 735.2651 | 655.1978 | 570.0206 | 143.5695 | 153.7843 | 162.4222 | 169.9807 | 176.7494 | 182.9133 | 188.5985 | 193.8953 |
| | KAPPA/(1/MPA) | .0038 | .0050 | .0069 | 2.5613 | 2.4156 | 2.3205 | 2.2538 | 2.2048 | 2.1675 | 2.1384 | 2.1153 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 3.9 | 3.3 | 2.8 | 2.5 | 2.3 | 2.1 | 1.9 | 1.8 |
| .6000 | V/(M3/KG) | .00168 | .00175 | .00184 | .00194 | .04337 | .04730 | .05094 | .05436 | .05762 | .06076 | .06380 |
| | H/(KJ/KG) | 376.6 | 450.0 | 526.0 | 604.4 | 885.9 | 956.7 | 1029.0 | 1102.9 | 1178.3 | 1255.3 | 1333.9 |
| | S/(KJ/KG K) | 1.1112 | 1.2699 | 1.4257 | 1.5787 | 2.1059 | 2.2318 | 2.3548 | 2.4754 | 2.5938 | 2.7100 | 2.8243 |
| | C/(M/SEC) | 737.2939 | 654.9398 | 571.6471 | 482.5636 | 146.8501 | 157.0070 | 165.6208 | 173.1687 | 179.9319 | 186.0915 | 191.7719 |
| | KAPPA/(1/MPA) | .0038 | .0050 | .0068 | .0102 | 2.1340 | 2.0151 | 1.9367 | 1.8813 | 1.8403 | 1.8089 | 1.7844 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.4 | 3.8 | 3.2 | 2.8 | 2.5 | 2.2 | 2.0 | 1.9 |

## THERMODYNAMIC PROPERTIES OF DECANE

| P/(MPA) | | TEMPERATURES/(K) 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .41994 | .43497 | .44996 | .46490 | .47980 | .49467 | .50951 | .52432 | .53911 | .55388 |
| | H/(KJ/KG) | 1422.7 | 1503.4 | 1585.6 | 1669.3 | 1754.4 | 1840.9 | 1928.8 | 2017.9 | 2108.3 | 2199.9 |
| | S/(KJ/KG K) | 3.0507 | 3.1602 | 3.2680 | 3.3743 | 3.4791 | 3.5824 | 3.6843 | 3.7847 | 3.8838 | 3.9814 |
| | C/(M/SEC) | 206.0064 | 209.7427 | 213.3912 | 216.9592 | 220.4528 | 223.8775 | 227.2382 | 230.5391 | 233.7839 | 236.9761 |
| | KAPPA/(1/MPA) | 10.0913 | 10.0783 | 10.0673 | 10.0580 | 10.0501 | 10.0434 | 10.0377 | 10.0328 | 10.0286 | 10.0250 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | .41440 | .42924 | .44403 | .45878 | .47350 | .48817 | .50282 | .51744 | .53204 | .54661 |
| | H/(KJ/KG) | 1422.6 | 1503.3 | 1585.6 | 1669.3 | 1754.4 | 1840.9 | 1928.8 | 2017.9 | 2108.3 | 2199.9 |
| | S/(KJ/KG K) | 3.0499 | 3.1594 | 3.2672 | 3.3735 | 3.4783 | 3.5816 | 3.6835 | 3.7839 | 3.8830 | 3.9807 |
| | C/(M/SEC) | 205.9830 | 209.7223 | 213.3734 | 216.9436 | 220.4391 | 223.8656 | 227.2277 | 230.5298 | 233.7757 | 236.9688 |
| | KAPPA/(1/MPA) | 9.9605 | 9.9475 | 9.9365 | 9.9272 | 9.9193 | 9.9126 | 9.9069 | 9.9020 | 9.8978 | 9.8942 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | .20805 | .21578 | .22347 | .23110 | .23870 | .24627 | .25380 | .26131 | .26879 | .27625 |
| | H/(KJ/KG) | 1421.0 | 1501.8 | 1584.2 | 1668.0 | 1753.3 | 1839.9 | 1927.9 | 2017.1 | 2107.5 | 2199.2 |
| | S/(KJ/KG K) | 3.0084 | 3.1181 | 3.2261 | 3.3326 | 3.4375 | 3.5409 | 3.6429 | 3.7434 | 3.8426 | 3.9403 |
| | C/(M/SEC) | 204.2365 | 208.2029 | 212.0491 | 215.7873 | 219.4278 | 222.9796 | 226.4502 | 229.8464 | 233.1738 | 236.4377 |
| | KAPPA/(1/MPA) | 5.0926 | 5.0791 | 5.0677 | 5.0582 | 5.0501 | 5.0432 | 5.0374 | 5.0324 | 5.0281 | 5.0245 |
| | BETA/(1000/K) | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .3000 | V/(M3/KG) | .13741 | .14272 | .14797 | .15317 | .15834 | .16347 | .16857 | .17365 | .17869 | .18372 |
| | H/(KJ/KG) | 1419.2 | 1500.3 | 1582.8 | 1666.8 | 1752.1 | 1838.9 | 1926.9 | 2016.2 | 2106.8 | 2198.5 |
| | S/(KJ/KG K) | 2.9829 | 3.0927 | 3.2010 | 3.3076 | 3.4127 | 3.5163 | 3.6183 | 3.7190 | 3.8182 | 3.9160 |
| | C/(M/SEC) | 202.4573 | 206.6616 | 210.7111 | 214.6237 | 218.4143 | 222.0956 | 225.6782 | 229.1713 | 232.5828 | 235.9195 |
| | KAPPA/(1/MPA) | 3.4272 | 3.4132 | 3.4015 | 3.3916 | 3.3834 | 3.3763 | 3.3704 | 3.3653 | 3.3610 | 3.3574 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .4000 | V/(M3/KG) | .10209 | .10618 | .11022 | .11421 | .11816 | .12208 | .12596 | .12982 | .13365 | .13746 |
| | H/(KJ/KG) | 1417.5 | 1498.7 | 1581.4 | 1665.5 | 1751.0 | 1837.8 | 1926.0 | 2015.4 | 2106.0 | 2197.8 |
| | S/(KJ/KG K) | 2.9642 | 3.0743 | 3.1827 | 3.2895 | 3.3948 | 3.4985 | 3.6007 | 3.7014 | 3.8007 | 3.8986 |
| | C/(M/SEC) | 200.6686 | 205.1188 | 209.3772 | 213.4684 | 217.4123 | 221.2255 | 224.9221 | 228.5137 | 232.0105 | 235.4212 |
| | KAPPA/(1/MPA) | 2.5953 | 2.5807 | 2.5686 | 2.5585 | 2.5500 | 2.5428 | 2.5368 | 2.5316 | 2.5273 | 2.5235 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .5000 | V/(M3/KG) | .08089 | .08426 | .08757 | .09084 | .09406 | .09725 | .10040 | .10353 | .10663 | .10972 |
| | H/(KJ/KG) | 1415.7 | 1497.1 | 1579.9 | 1664.2 | 1749.8 | 1836.8 | 1925.0 | 2014.5 | 2105.2 | 2197.1 |
| | S/(KJ/KG K) | 2.9493 | 3.0596 | 3.1682 | 3.2752 | 3.3806 | 3.4844 | 3.5868 | 3.6876 | 3.7870 | 3.8850 |
| | C/(M/SEC) | 198.8702 | 203.5745 | 208.0477 | 212.3217 | 216.4219 | 220.3695 | 224.1818 | 227.8735 | 231.4569 | 234.9427 |
| | KAPPA/(1/MPA) | 2.0967 | 2.0815 | 2.0690 | 2.0586 | 2.0499 | 2.0426 | 2.0365 | 2.0312 | 2.0268 | 2.0230 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| .6000 | V/(M3/KG) | .06676 | .06964 | .07247 | .07525 | .07799 | .08070 | .08337 | .08601 | .08863 | .09122 |
| | H/(KJ/KG) | 1414.0 | 1495.5 | 1578.5 | 1662.9 | 1748.6 | 1835.7 | 1924.1 | 2013.7 | 2104.4 | 2196.4 |
| | S/(KJ/KG K) | 2.9367 | 3.0473 | 3.1561 | 3.2633 | 3.3688 | 3.4728 | 3.5752 | 3.6762 | 3.7757 | 3.8737 |
| | C/(M/SEC) | 197.0621 | 202.0288 | 206.7227 | 211.1835 | 215.4432 | 219.5274 | 223.4573 | 227.2505 | 230.9217 | 234.4836 |
| | KAPPA/(1/MPA) | 1.7649 | 1.7490 | 1.7361 | 1.7254 | 1.7165 | 1.7091 | 1.7028 | 1.6975 | 1.6930 | 1.6892 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |

## THERMODYNAMIC PROPERTIES OF DECANE

| P/(MPA) | | TEMPERATURES/(K) 450.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00168 | .00175 | .00184 | .00194 | .03536 | .03909 | .04246 | .04558 | .04852 | .05133 | .05404 |
| | H/(KJ/KG) | 376.7 | 450.0 | 526.0 | 604.3 | 881.0 | 952.7 | 1025.6 | 1099.9 | 1175.7 | 1253.0 | 1331.9 |
| | S/(KJ/KG K) | 1.1109 | 1.2696 | 1.4253 | 1.5782 | 2.0897 | 2.2172 | 2.3414 | 2.4627 | 2.5816 | 2.6984 | 2.8130 |
| | C/(M/SEC) | 739.3497 | 657.3107 | 572.4657 | 484.7403 | 139.1029 | 151.1818 | 161.0357 | 169.4588 | 176.8753 | 183.5416 | 189.6257 |
| | KAPPA/(1/MPA) | .0038 | .0049 | .0068 | .0101 | 1.9657 | 1.8112 | 1.7173 | 1.6541 | 1.6088 | 1.5749 | 1.5488 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.4 | 4.5 | 3.6 | 3.0 | 2.7 | 2.4 | 2.1 | 2.0 |
| .8000 | V/(M3/KG) | .00168 | .00175 | .00184 | .00194 | .00207 | .03285 | .03605 | .03897 | .04169 | .04426 | .04671 |
| | H/(KJ/KG) | 376.7 | 450.1 | 526.0 | 604.3 | 685.3 | 948.3 | 1022.0 | 1096.9 | 1173.1 | 1250.7 | 1329.8 |
| | S/(KJ/KG K) | 1.1106 | 1.2692 | 1.4250 | 1.5777 | 1.7285 | 2.2035 | 2.3289 | 2.4511 | 2.5707 | 2.6879 | 2.8029 |
| | C/(M/SEC) | 740.8447 | 658.8800 | 574.8602 | 486.0220 | 390.9126 | 144.8493 | 156.1900 | 165.6058 | 173.7382 | 180.9469 | 187.4562 |
| | KAPPA/(1/MPA) | .0037 | .0049 | .0068 | .0100 | .0168 | 1.6758 | 1.5607 | 1.4877 | 1.4374 | 1.4006 | 1.3729 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.4 | 3.1 | 4.1 | 3.4 | 2.9 | 2.5 | 2.3 | 2.1 |
| .9000 | V/(M3/KG) | .00168 | .00175 | .00184 | .00194 | .00207 | .02791 | .03103 | .03380 | .03635 | .03874 | .04101 |
| | H/(KJ/KG) | 376.8 | 450.1 | 526.0 | 604.2 | 685.2 | 943.6 | 1018.2 | 1093.7 | 1170.4 | 1248.4 | 1327.7 |
| | S/(KJ/KG K) | 1.1104 | 1.2689 | 1.4246 | 1.5773 | 1.7279 | 2.1900 | 2.3170 | 2.4402 | 2.5605 | 2.6782 | 2.7937 |
| | C/(M/SEC) | 741.7704 | 660.0849 | 576.4556 | 489.0507 | 393.9965 | 137.8682 | 151.0392 | 161.5938 | 170.5146 | 178.3053 | 185.2630 |
| | KAPPA/(1/MPA) | .0037 | .0049 | .0067 | .0099 | .0165 | 1.5934 | 1.4480 | 1.3627 | 1.3063 | 1.2664 | 1.2367 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.4 | 3.0 | 4.8 | 3.8 | 3.1 | 2.7 | 2.4 | 2.2 |
| 1.0000 | V/(M3/KG) | .00168 | .00175 | .00184 | .00194 | .00207 | .02385 | .02696 | .02964 | .03207 | .03432 | .03644 |
| | H/(KJ/KG) | 376.8 | 450.1 | 526.0 | 604.2 | 685.0 | 938.4 | 1014.2 | 1090.4 | 1167.5 | 1245.9 | 1325.6 |
| | S/(KJ/KG K) | 1.1101 | 1.2686 | 1.4242 | 1.5768 | 1.7273 | 2.1764 | 2.3054 | 2.4298 | 2.5509 | 2.6692 | 2.7851 |
| | C/(M/SEC) | 742.6922 | 661.2967 | 578.0406 | 491.1748 | 396.2115 | 130.0204 | 145.5246 | 157.4038 | 167.1980 | 175.6148 | 183.0456 |
| | KAPPA/(1/MPA) | .0037 | .0049 | .0067 | .0098 | .0162 | 1.5601 | 1.3688 | 1.2674 | 1.2038 | 1.1602 | 1.1285 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.3 | 3.0 | 5.8 | 4.2 | 3.4 | 2.9 | 2.5 | 2.3 |
| 2.0000 | V/(M3/KG) | .00167 | .00174 | .00182 | .00192 | .00204 | .00220 | .00249 | .00945 | .01223 | .01415 | .01575 |
| | H/(KJ/KG) | 377.3 | 450.4 | 526.0 | 603.8 | 683.9 | 767.4 | 858.7 | 1040.9 | 1132.6 | 1217.9 | 1302.0 |
| | S/(KJ/KG K) | 1.1074 | 1.2656 | 1.4207 | 1.5725 | 1.7215 | 1.8699 | 2.0252 | 2.3224 | 2.4663 | 2.5950 | 2.7175 |
| | C/(M/SEC) | 751.7313 | 673.1154 | 593.3884 | 511.4541 | 425.1674 | 329.9420 | 211.5700 | 96.3860 | 127.1431 | 145.7336 | 159.6369 |
| | KAPPA/(1/MPA) | .0036 | .0047 | .0062 | .0089 | .0137 | .0252 | .0758 | 1.4057 | .8738 | .7339 | .6651 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 2.7 | 3.7 | 7.3 | 16.4 | 7.2 | 4.9 | 3.8 |
| 3.0000 | V/(M3/KG) | .00167 | .00174 | .00181 | .00190 | .00201 | .00215 | .00236 | .00280 | .00471 | .00706 | .00871 |
| | H/(KJ/KG) | 377.8 | 450.8 | 526.2 | 603.6 | 683.1 | 765.4 | 852.8 | 943.0 | 1069.2 | 1178.8 | 1273.1 |
| | S/(KJ/KG K) | 1.1049 | 1.2627 | 1.4173 | 1.5684 | 1.7163 | 1.8626 | 2.0115 | 2.1587 | 2.3565 | 2.5222 | 2.6594 |
| | C/(M/SEC) | 760.4772 | 684.4475 | 607.9102 | 530.1984 | 450.0720 | 365.2872 | 271.4199 | 161.0198 | 96.7283 | 116.2138 | 136.9853 |
| | KAPPA/(1/MPA) | .0035 | .0045 | .0059 | .0081 | .0120 | .0196 | .0402 | .1558 | .8284 | .6668 | .5377 |
| | BETA/(1000/K) | 1.5 | 1.7 | 1.8 | 2.1 | 2.4 | 3.1 | 4.6 | 10.9 | 23.1 | 10.9 | 6.6 |
| 4.0000 | V/(M3/KG) | .00166 | .00173 | .00180 | .00189 | .00199 | .00212 | .00229 | .00255 | .00308 | .00415 | .00541 |
| | H/(KJ/KG) | 378.3 | 451.2 | 526.4 | 603.5 | 682.5 | 764.0 | 849.6 | 933.3 | 1032.5 | 1139.2 | 1241.5 |
| | S/(KJ/KG K) | 1.1023 | 1.2599 | 1.4141 | 1.5646 | 1.7116 | 1.8564 | 2.0021 | 2.1389 | 2.2944 | 2.4556 | 2.6044 |
| | C/(M/SEC) | 768.9432 | 695.3388 | 621.7076 | 547.6837 | 472.5659 | 395.2452 | 314.1514 | 229.9271 | 151.5986 | 124.7420 | 130.7628 |
| | KAPPA/(1/MPA) | .0034 | .0043 | .0056 | .0075 | .0106 | .0162 | .0281 | .0608 | .1847 | .3628 | .3959 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.8 | 2.0 | 2.3 | 2.7 | 3.6 | 5.5 | 10.3 | 12.0 | 9.1 |

## THERMODYNAMIC PROPERTIES OF DECANE

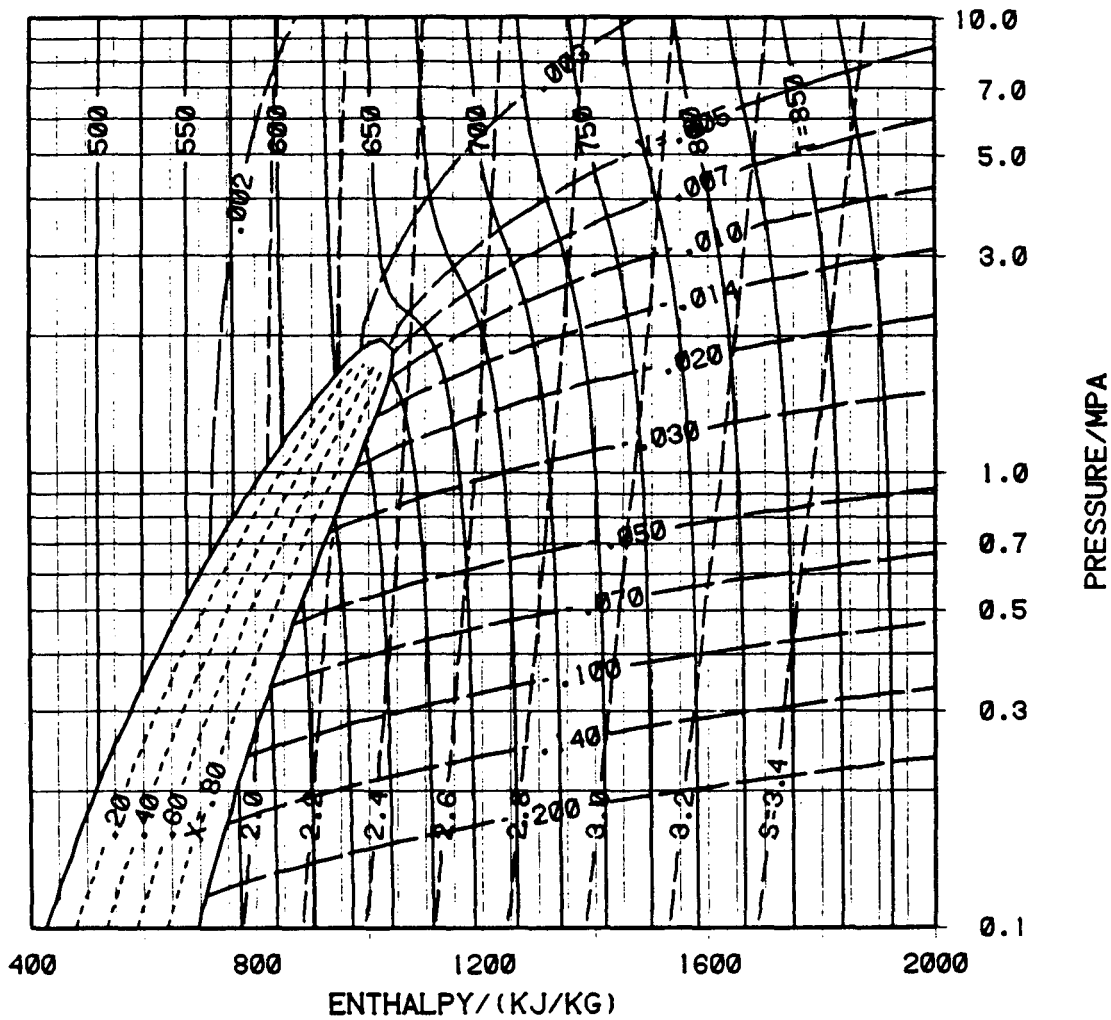
| P/(MPA) | | TEMPERATURES/(K) 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .05666 | .05920 | .06169 | .06413 | .06652 | .06888 | .07120 | .07350 | .07577 | .07802 |
| | H/(KJ/KG) | 1412.2 | 1493.9 | 1577.1 | 1661.6 | 1747.5 | 1834.7 | 1923.1 | 2012.8 | 2103.7 | 2195.7 |
| | S/(KJ/KG K) | 2.9257 | 3.0365 | 3.1456 | 3.2530 | 3.3587 | 3.4628 | 3.5653 | 3.6664 | 3.7660 | 3.8641 |
| | C/(M/SEC) | 195.2442 | 200.4819 | 205.4023 | 210.0542 | 214.4762 | 218.6993 | 222.7485 | 226.6445 | 230.4047 | 234.0437 |
| | KAPPA/(1/MPA) | 1.5283 | 1.5118 | 1.4984 | 1.4875 | 1.4784 | 1.4708 | 1.4644 | 1.4590 | 1.4545 | 1.4506 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 |
| .8000 | V/(M3/KG) | .04908 | .05137 | .05360 | .05578 | .05792 | .06001 | .06208 | .06411 | .06613 | .06811 |
| | H/(KJ/KG) | 1410.3 | 1492.3 | 1575.6 | 1660.3 | 1746.3 | 1833.6 | 1922.1 | 2011.9 | 2102.9 | 2195.0 |
| | S/(KJ/KG K) | 2.9159 | 3.0270 | 3.1363 | 3.2438 | 3.3497 | 3.4539 | 3.5566 | 3.6578 | 3.7575 | 3.8557 |
| | C/(M/SEC) | 193.4165 | 198.9341 | 204.0868 | 208.9339 | 213.5212 | 217.8852 | 222.0553 | 226.0555 | 229.9058 | 233.6227 |
| | KAPPA/(1/MPA) | 1.3513 | 1.3341 | 1.3203 | 1.3090 | 1.2997 | 1.2920 | 1.2855 | 1.2801 | 1.2755 | 1.2716 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 |
| .9000 | V/(M3/KG) | .04318 | .04528 | .04731 | .04929 | .05122 | .05312 | .05499 | .05682 | .05863 | .06042 |
| | H/(KJ/KG) | 1408.5 | 1490.6 | 1574.1 | 1658.9 | 1745.1 | 1832.5 | 1921.2 | 2011.0 | 2102.1 | 2194.3 |
| | S/(KJ/KG K) | 2.9070 | 3.0184 | 3.1279 | 3.2356 | 3.3417 | 3.4460 | 3.5488 | 3.6501 | 3.7499 | 3.8482 |
| | C/(M/SEC) | 191.5792 | 197.3856 | 202.7766 | 207.8228 | 212.5782 | 217.0852 | 221.3778 | 225.4834 | 229.4246 | 233.2204 |
| | KAPPA/(1/MPA) | 1.2140 | 1.1961 | 1.1819 | 1.1703 | 1.1608 | 1.1529 | 1.1463 | 1.1408 | 1.1362 | 1.1322 |
| | BETA/(1000/K) | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 |
| 1.0000 | V/(M3/KG) | .03846 | .04040 | .04228 | .04410 | .04587 | .04761 | .04931 | .05099 | .05264 | .05426 |
| | H/(KJ/KG) | 1406.6 | 1488.9 | 1572.6 | 1657.6 | 1743.9 | 1831.4 | 1920.2 | 2010.2 | 2101.3 | 2193.5 |
| | S/(KJ/KG K) | 2.8988 | 3.0105 | 3.1202 | 3.2281 | 3.3343 | 3.4389 | 3.5418 | 3.6432 | 3.7430 | 3.8414 |
| | C/(M/SEC) | 189.7325 | 195.8368 | 201.4719 | 206.7212 | 211.6474 | 216.2994 | 220.7158 | 224.9279 | 228.9610 | 232.8364 |
| | KAPPA/(1/MPA) | 1.1046 | 1.0860 | 1.0712 | 1.0593 | 1.0496 | 1.0416 | 1.0349 | 1.0293 | 1.0246 | 1.0206 |
| | BETA/(1000/K) | 2.1 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 |
| 2.0000 | V/(M3/KG) | .01716 | .01845 | .01964 | .02077 | .02184 | .02286 | .02385 | .02481 | .02573 | .02664 |
| | H/(KJ/KG) | 1386.3 | 1471.3 | 1557.0 | 1643.8 | 1731.5 | 1820.4 | 1910.2 | 2001.2 | 2093.2 | 2186.3 |
| | S/(KJ/KG K) | 2.8358 | 2.9510 | 3.0635 | 3.1736 | 3.2816 | 3.3877 | 3.4919 | 3.5944 | 3.6953 | 3.7945 |
| | C/(M/SEC) | 170.9203 | 180.4976 | 188.8636 | 196.3204 | 203.0673 | 209.2438 | 214.9517 | 220.2677 | 225.2510 | 229.9488 |
| | KAPPA/(1/MPA) | .6235 | .5954 | .5752 | .5601 | .5483 | .5390 | .5315 | .5253 | .5202 | .5160 |
| | BETA/(1000/K) | 3.1 | 2.7 | 2.4 | 2.1 | 1.9 | 1.8 | 1.6 | 1.5 | 1.4 | 1.3 |
| 3.0000 | V/(M3/KG) | .01002 | .01114 | .01214 | .01305 | .01389 | .01468 | .01544 | .01616 | .01685 | .01752 |
| | H/(KJ/KG) | 1363.1 | 1451.7 | 1540.2 | 1629.1 | 1718.6 | 1808.9 | 1900.0 | 1992.1 | 2085.0 | 2178.9 |
| | S/(KJ/KG K) | 2.7856 | 2.9059 | 3.0220 | 3.1348 | 3.2450 | 3.3528 | 3.4585 | 3.5622 | 3.6640 | 3.7642 |
| | C/(M/SEC) | 153.3497 | 166.6477 | 177.8519 | 187.5518 | 196.1207 | 203.8086 | 210.7902 | 217.1933 | 223.1139 | 228.6260 |
| | KAPPA/(1/MPA) | .4728 | .4346 | .4096 | .3919 | .3788 | .3687 | .3608 | .3545 | .3493 | .3450 |
| | BETA/(1000/K) | 4.8 | 3.8 | 3.1 | 2.7 | 2.4 | 2.1 | 1.9 | 1.7 | 1.6 | 1.5 |
| 4.0000 | V/(M3/KG) | .00657 | .00757 | .00846 | .00925 | .00998 | .01066 | .01129 | .01189 | .01246 | .01301 |
| | H/(KJ/KG) | 1337.9 | 1431.1 | 1522.8 | 1614.1 | 1705.5 | 1797.3 | 1889.7 | 1982.8 | 2076.8 | 2171.5 |
| | S/(KJ/KG K) | 2.7398 | 2.8661 | 2.9864 | 3.1023 | 3.2148 | 3.3245 | 3.4316 | 3.5366 | 3.6395 | 3.7405 |
| | C/(M/SEC) | 144.1753 | 157.9963 | 170.5273 | 181.6402 | 191.5223 | 200.3841 | 208.4040 | 215.7241 | 222.4561 | 228.6885 |
| | KAPPA/(1/MPA) | .3702 | .3411 | .3188 | .3022 | .2898 | .2802 | .2727 | .2666 | .2617 | .2576 |
| | BETA/(1000/K) | 6.5 | 5.0 | 3.9 | 3.3 | 2.8 | 2.5 | 2.2 | 2.0 | 1.8 | 1.7 |

## THERMODYNAMIC PROPERTIES OF DECANE

| P/(MPA) | | TEMPERATURES/(K) 450.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00166 | .00172 | .00179 | .00187 | .00197 | .00208 | .00223 | .00243 | .00274 | .00325 | .00399 |
| | H/(KJ/KG) | 378.9 | 451.6 | 526.6 | 603.5 | 682.1 | 762.9 | 847.4 | 928.6 | 1021.1 | 1118.4 | 1217.8 |
| | S/(KJ/KG K) | 1.0999 | 1.2571 | 1.4110 | 1.5610 | 1.7073 | 1.8510 | 1.9948 | 2.1274 | 2.2726 | 2.4194 | 2.5640 |
| | C/(M/SEC) | 777.1472 | 705.8264 | 634.8615 | 564.0996 | 493.1746 | 421.5634 | 348.7555 | 276.9611 | 209.5465 | 162.7987 | 148.3294 |
| | KAPPA/(1/MPA) | .0033 | .0041 | .0053 | .0070 | .0096 | .0139 | .0218 | .0383 | .0779 | .1571 | .2266 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 | 2.5 | 3.0 | 4.0 | 5.8 | 7.9 | 8.0 |
| 6.0000 | V/(M3/KG) | .00165 | .00171 | .00178 | .00186 | .00195 | .00206 | .00219 | .00235 | .00258 | .00290 | .00336 |
| | H/(KJ/KG) | 379.5 | 452.1 | 526.9 | 603.6 | 681.9 | 762.2 | 845.9 | 925.6 | 1015.4 | 1108.1 | 1203.6 |
| | S/(KJ/KG K) | 1.0975 | 1.2545 | 1.4080 | 1.5576 | 1.7033 | 1.8461 | 1.9886 | 2.1189 | 2.2597 | 2.3996 | 2.5382 |
| | C/(M/SEC) | 785.1036 | 715.9414 | 647.4443 | 579.5912 | 512.2581 | 445.2170 | 378.3834 | 314.3285 | 254.6816 | 206.3215 | 178.2644 |
| | KAPPA/(1/MPA) | .0032 | .0040 | .0051 | .0066 | .0088 | .0122 | .0179 | .0282 | .0477 | .0830 | .1286 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.6 | 1.8 | 2.0 | 2.3 | 2.6 | 3.2 | 4.2 | 5.3 | 6.1 |
| 7.0000 | V/(M3/KG) | .00165 | .00171 | .00177 | .00185 | .00193 | .00203 | .00215 | .00229 | .00248 | .00272 | .00303 |
| | H/(KJ/KG) | 380.1 | 452.5 | 527.2 | 603.7 | 681.8 | 761.7 | 844.8 | 923.6 | 1011.8 | 1102.1 | 1194.6 |
| | S/(KJ/KG K) | 1.0951 | 1.2519 | 1.4051 | 1.5543 | 1.6996 | 1.8417 | 1.9831 | 2.1119 | 2.2503 | 2.3866 | 2.5211 |
| | C/(M/SEC) | 792.8265 | 725.7096 | 659.4994 | 594.2911 | 530.0745 | 466.8063 | 404.5772 | 345.9763 | 291.7596 | 245.4867 | 212.2530 |
| | KAPPA/(1/MPA) | .0031 | .0039 | .0048 | .0062 | .0081 | .0109 | .0153 | .0224 | .0342 | .0534 | .0799 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 | 2.4 | 2.8 | 3.4 | 4.1 | 4.7 |
| 8.0000 | V/(M3/KG) | .00164 | .00170 | .00177 | .00184 | .00192 | .00201 | .00212 | .00225 | .00240 | .00260 | .00284 |
| | H/(KJ/KG) | 380.7 | 453.0 | 527.6 | 603.9 | 681.7 | 761.4 | 844.0 | 922.1 | 1009.3 | 1098.2 | 1188.9 |
| | S/(KJ/KG K) | 1.0928 | 1.2493 | 1.4023 | 1.5512 | 1.6960 | 1.8376 | 1.9782 | 2.1059 | 2.2427 | 2.3768 | 2.5088 |
| | C/(M/SEC) | 800.3283 | 735.1576 | 671.0818 | 608.2741 | 546.8212 | 486.7505 | 428.2200 | 373.7486 | 323.5749 | 279.7577 | 245.2635 |
| | KAPPA/(1/MPA) | .0031 | .0037 | .0046 | .0058 | .0075 | .0099 | .0134 | .0186 | .0266 | .0386 | .0550 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.2 | 2.5 | 2.9 | 3.3 | 3.8 |
| 9.0000 | V/(M3/KG) | .00164 | .00169 | .00176 | .00183 | .00191 | .00199 | .00209 | .00221 | .00235 | .00251 | .00271 |
| | H/(KJ/KG) | 381.3 | 453.6 | 528.0 | 604.2 | 681.8 | 761.1 | 843.4 | 921.0 | 1007.5 | 1095.4 | 1184.9 |
| | S/(KJ/KG K) | 1.0906 | 1.2469 | 1.3996 | 1.5482 | 1.6927 | 1.8337 | 1.9738 | 2.1006 | 2.2363 | 2.3690 | 2.4992 |
| | C/(M/SEC) | 807.6194 | 744.3052 | 682.2319 | 621.6290 | 562.6370 | 505.3356 | 449.8645 | 398.6908 | 351.6756 | 310.1001 | 275.7963 |
| | KAPPA/(1/MPA) | .0030 | .0036 | .0044 | .0055 | .0070 | .0090 | .0119 | .0160 | .0218 | .0300 | .0409 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.5 | 1.6 | 1.7 | 1.9 | 2.0 | 2.3 | 2.5 | 2.9 | 3.2 |
| 10.0000 | V/(M3/KG) | .00163 | .00169 | .00175 | .00182 | .00189 | .00198 | .00207 | .00218 | .00230 | .00244 | .00261 |
| | H/(KJ/KG) | 381.9 | 454.1 | 528.5 | 604.5 | 681.9 | 761.1 | 843.0 | 920.2 | 1006.2 | 1093.4 | 1182.1 |
| | S/(KJ/KG K) | 1.0883 | 1.2445 | 1.3970 | 1.5453 | 1.6894 | 1.8301 | 1.9696 | 2.0958 | 2.2307 | 2.3623 | 2.4913 |
| | C/(M/SEC) | 814.7156 | 753.1697 | 692.9808 | 634.4149 | 577.6458 | 522.7638 | 469.9030 | 421.6424 | 376.9915 | 337.3736 | 303.7723 |
| | KAPPA/(1/MPA) | .0029 | .0035 | .0043 | .0053 | .0066 | .0084 | .0107 | .0140 | .0185 | .0245 | .0322 |
| | BETA/(1000/K) | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.1 | 2.3 | 2.5 | 2.8 |

## THERMODYNAMIC PROPERTIES OF DECANE

| P/(MPA) | | TEMPERATURES/(K) 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00481 | .00562 | .00637 | .00707 | .00771 | .00830 | .00886 | .00938 | .00988 | .01035 |
| | H/(KJ/KG) | 1315.7 | 1411.6 | 1505.9 | 1599.4 | 1692.6 | 1785.9 | 1879.5 | 1973.8 | 2068.6 | 2164.1 |
| | S/(KJ/KG K) | 2.7015 | 2.8315 | 2.9552 | 3.0739 | 3.1886 | 3.3000 | 3.4086 | 3.5148 | 3.6187 | 3.7206 |
| | C/(M/SEC) | 150.5955 | 159.0656 | 169.5291 | 180.1250 | 190.1698 | 199.4795 | 208.0550 | 215.9571 | 223.2602 | 230.0363 |
| | KAPPA/(1/MPA) | .2546 | .2567 | .2489 | .2393 | .2305 | .2230 | .2168 | .2116 | .2074 | .2038 |
| | BETA/(1000/K) | 6.9 | 5.6 | 4.5 | 3.8 | 3.2 | 2.8 | 2.4 | 2.2 | 2.0 | 1.8 |
| 6.0000 | V/(M3/KG) | .00391 | .00452 | .00512 | .00571 | .00627 | .00679 | .00728 | .00775 | .00819 | .00861 |
| | H/(KJ/KG) | 1299.7 | 1395.7 | 1491.1 | 1585.9 | 1680.5 | 1775.0 | 1869.8 | 1965.0 | 2060.7 | 2157.0 |
| | S/(KJ/KG K) | 2.6734 | 2.8036 | 2.9287 | 3.0491 | 3.1655 | 3.2784 | 3.3883 | 3.4956 | 3.6004 | 3.7032 |
| | C/(M/SEC) | 169.0019 | 169.9816 | 175.8531 | 183.9130 | 192.7078 | 201.5069 | 209.9815 | 218.0059 | 225.5501 | 232.6271 |
| | KAPPA/(1/MPA) | .1638 | .1823 | .1886 | .1882 | .1849 | .1808 | .1767 | .1730 | .1697 | .1668 |
| | BETA/(1000/K) | 6.0 | 5.4 | 4.7 | 4.0 | 3.4 | 3.0 | 2.6 | 2.3 | 2.1 | 1.9 |
| 7.0000 | V/(M3/KG) | .00343 | .00388 | .00435 | .00484 | .00531 | .00576 | .00620 | .00662 | .00701 | .00739 |
| | H/(KJ/KG) | 1288.8 | 1383.8 | 1479.1 | 1574.4 | 1669.7 | 1765.1 | 1860.7 | 1956.7 | 2053.1 | 2150.1 |
| | S/(KJ/KG K) | 2.6533 | 2.7821 | 2.9071 | 3.0281 | 3.1455 | 3.2594 | 3.3703 | 3.4784 | 3.5841 | 3.6876 |
| | C/(M/SEC) | 194.1537 | 187.7229 | 188.2716 | 192.7020 | 199.1753 | 206.5846 | 214.2876 | 221.9342 | 229.3470 | 236.4452 |
| | KAPPA/(1/MPA) | .1071 | .1278 | .1403 | .1462 | .1479 | .1474 | .1457 | .1436 | .1415 | .1394 |
| | BETA/(1000/K) | 5.0 | 4.8 | 4.4 | 4.0 | 3.5 | 3.1 | 2.7 | 2.5 | 2.2 | 2.0 |
| 8.0000 | V/(M3/KG) | .00313 | .00348 | .00386 | .00425 | .00465 | .00505 | .00543 | .00580 | .00616 | .00650 |
| | H/(KJ/KG) | 1281.3 | 1375.1 | 1469.7 | 1564.9 | 1660.4 | 1756.3 | 1852.5 | 1949.1 | 2046.1 | 2143.7 |
| | S/(KJ/KG K) | 2.6385 | 2.7656 | 2.8897 | 3.0106 | 3.1282 | 3.2427 | 3.3542 | 3.4630 | 3.5694 | 3.6735 |
| | C/(M/SEC) | 222.1401 | 209.6606 | 205.0402 | 205.5106 | 209.1052 | 214.5210 | 220.9057 | 227.7208 | 234.6401 | 241.4745 |
| | KAPPA/(1/MPA) | .0738 | .0912 | .1045 | .1132 | .1181 | .1203 | .1208 | .1203 | .1194 | .1182 |
| | BETA/(1000/K) | 4.1 | 4.2 | 4.0 | 3.8 | 3.4 | 3.1 | 2.8 | 2.5 | 2.3 | 2.1 |
| 9.0000 | V/(M3/KG) | .00294 | .00322 | .00352 | .00385 | .00418 | .00452 | .00486 | .00519 | .00551 | .00583 |
| | H/(KJ/KG) | 1276.1 | 1368.7 | 1462.5 | 1557.2 | 1652.6 | 1748.6 | 1845.1 | 1942.1 | 2039.6 | 2137.6 |
| | S/(KJ/KG K) | 2.6271 | 2.7527 | 2.8757 | 2.9960 | 3.1134 | 3.2281 | 3.3400 | 3.4493 | 3.5561 | 3.6606 |
| | C/(M/SEC) | 250.2653 | 233.6317 | 224.6324 | 221.2910 | 221.8390 | 224.9392 | 229.6353 | 235.2628 | 241.3757 | 247.6833 |
| | KAPPA/(1/MPA) | .0539 | .0673 | .0791 | .0882 | .0946 | .0985 | .1006 | .1014 | .1015 | .1012 |
| | BETA/(1000/K) | 3.5 | 3.6 | 3.6 | 3.5 | 3.3 | 3.0 | 2.8 | 2.5 | 2.3 | 2.1 |
| 10.0000 | V/(M3/KG) | .00281 | .00303 | .00328 | .00356 | .00384 | .00414 | .00443 | .00473 | .00502 | .00530 |
| | H/(KJ/KG) | 1272.2 | 1363.9 | 1456.9 | 1551.1 | 1646.2 | 1742.1 | 1838.7 | 1935.9 | 2033.7 | 2132.1 |
| | S/(KJ/KG K) | 2.6178 | 2.7421 | 2.8641 | 2.9837 | 3.1008 | 3.2153 | 3.3273 | 3.4369 | 3.5440 | 3.6489 |
| | C/(M/SEC) | 277.2080 | 258.0447 | 245.7353 | 239.0760 | 236.6983 | 237.3917 | 240.1988 | 244.3968 | 249.4598 | 255.0183 |
| | KAPPA/(1/MPA) | .0416 | .0516 | .0613 | .0697 | .0763 | .0810 | .0840 | .0859 | .0869 | .0872 |
| | BETA/(1000/K) | 3.0 | 3.1 | 3.2 | 3.2 | 3.0 | 2.9 | 2.7 | 2.5 | 2.3 | 2.1 |


10.0
7.0
5.0
3.0
1.0
0.7
0.5
0.3
0.1
PRESSURE/MPA
400
800
1200
1600
2000
ENTHALPY/(KJ/KG)
500
550
600
650
700
750
800
850
.002
.003
.005
.007
.010
.014
.020
.030
.050
.070
.100
.40
.60
.80
x=.20
2.0
2.4
2.4
2.6
2.8
3.0
3.2
S=3.4

UNDECANE

PROPERTIES OF SATURATED UNDECANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 470.00000 | .10452 | .00166 | .22416 | 430.76146 | 269.24345 | 700.00492 | 1.26644 | .57286 | 1.83930 |
| 475.00000 | .11803 | .00168 | .19930 | 445.53806 | 265.80625 | 711.34431 | 1.29767 | .55959 | 1.85726 |
| 480.00000 | .13287 | .00169 | .17766 | 460.42539 | 262.30060 | 722.72599 | 1.32879 | .54646 | 1.87525 |
| 485.00000 | .14912 | .00171 | .15876 | 475.42030 | 258.72598 | 734.14629 | 1.35981 | .53346 | 1.89327 |
| 490.00000 | .16686 | .00172 | .14219 | 490.51825 | 255.08324 | 745.60149 | 1.39072 | .52058 | 1.91130 |
| 495.00000 | .18621 | .00174 | .12763 | 505.71848 | 251.36897 | 757.08745 | 1.42152 | .50782 | 1.92933 |
| 500.00000 | .20723 | .00175 | .11480 | 521.01675 | 247.58347 | 768.60022 | 1.45219 | .49517 | 1.94736 |
| 505.00000 | .23004 | .00177 | .10345 | 536.41020 | 243.72543 | 780.13563 | 1.48275 | .48262 | 1.96537 |
| 510.00000 | .25473 | .00178 | .09340 | 551.89613 | 239.79319 | 791.68933 | 1.51318 | .47018 | 1.98336 |
| 515.00000 | .28140 | .00180 | .08446 | 567.47218 | 235.78458 | 803.25676 | 1.54347 | .45783 | 2.00131 |
| 520.00000 | .31015 | .00182 | .07649 | 583.13627 | 231.69683 | 814.83310 | 1.57364 | .44557 | 2.01921 |
| 525.00000 | .34110 | .00184 | .06938 | 598.88685 | 227.52644 | 826.41329 | 1.60368 | .43338 | 2.03706 |
| 530.00000 | .37436 | .00186 | .06301 | 614.72289 | 223.26901 | 837.99190 | 1.63358 | .42126 | 2.05485 |
| 535.00000 | .41003 | .00188 | .05728 | 630.64392 | 218.91908 | 849.56300 | 1.66336 | .40919 | 2.07255 |
| 540.00000 | .44825 | .00190 | .05214 | 646.65033 | 214.46991 | 861.12025 | 1.69300 | .39717 | 2.09017 |
| 545.00000 | .48913 | .00192 | .04749 | 662.74339 | 209.91323 | 872.65662 | 1.72252 | .38516 | 2.10769 |
| 550.00000 | .53280 | .00194 | .04330 | 678.92540 | 205.23888 | 884.16428 | 1.75193 | .37316 | 2.12509 |
| 555.00000 | .57940 | .00196 | .03949 | 695.19998 | 200.43450 | 895.63449 | 1.78122 | .36114 | 2.14236 |
| 560.00000 | .62908 | .00199 | .03604 | 711.57223 | 195.48506 | 907.05729 | 1.81041 | .34908 | 2.15949 |
| 565.00000 | .68198 | .00202 | .03289 | 728.04883 | 190.37241 | 918.42124 | 1.83951 | .33694 | 2.17645 |
| 570.00000 | .73825 | .00204 | .03002 | 744.63910 | 185.07384 | 929.71294 | 1.86855 | .32469 | 2.19324 |
| 575.00000 | .79808 | .00207 | .02740 | 761.35362 | 179.56325 | 940.91688 | 1.89753 | .31228 | 2.20981 |
| 580.00000 | .86162 | .00211 | .02499 | 778.20840 | 173.80536 | 952.01376 | 1.92648 | .29966 | 2.22615 |
| 585.00000 | .92907 | .00214 | .02278 | 795.22135 | 167.75932 | 962.98067 | 1.95544 | .28677 | 2.24221 |
| 590.00000 | 1.00063 | .00218 | .02074 | 812.41623 | 161.37257 | 973.78880 | 1.98445 | .27351 | 2.25796 |
| 595.00000 | 1.07652 | .00222 | .01885 | 829.82341 | 154.57790 | 984.40131 | 2.01355 | .25979 | 2.27334 |
| 600.00000 | 1.15695 | .00226 | .01709 | 847.48243 | 147.28752 | 994.76995 | 2.04280 | .24548 | 2.28828 |
| 605.00000 | 1.24218 | .00231 | .01545 | 865.44508 | 139.38410 | 1004.82918 | 2.07229 | .23039 | 2.30268 |
| 610.00000 | 1.33247 | .00237 | .01390 | 883.78206 | 130.70412 | 1014.48618 | 2.10212 | .21427 | 2.31639 |
| 615.00000 | 1.42811 | .00244 | .01243 | 902.59385 | 121.00750 | 1023.60135 | 2.13246 | .19676 | 2.32922 |
| 620.00000 | 1.52940 | .00252 | .01102 | 922.03202 | 109.91596 | 1031.94798 | 2.16353 | .17728 | 2.34082 |
| 625.00000 | 1.63668 | .00262 | .00963 | 942.35134 | 96.75865 | 1039.10999 | 2.19573 | .15481 | 2.35055 |
| 630.00000 | 1.75030 | .00276 | .00820 | 964.05667 | 80.09889 | 1044.15556 | 2.22983 | .12714 | 2.35697 |
| 635.00000 | 1.87066 | .00301 | .00652 | 988.59482 | 55.21156 | 1043.80638 | 2.26808 | .08695 | 2.35502 |
| 638.73000 | 1.99818 | .00420 | .00420 | 1021.68670 | 0. | 1021.68670 | 2.31929 | 0. | 2.31929 |

## THERMODYNAMIC PROPERTIES OF UNDECANE

| P/(MPA) | | TEMPERATURES/(K) 470.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .23502 | .23804 | .25304 | .26784 | .28248 | .29697 | .31131 | .32554 | .33965 | .35367 | .36760 |
| | H/(KJ/KG) | 700.2 | 712.2 | 773.7 | 837.4 | 903.4 | 971.4 | 1041.5 | 1113.5 | 1187.4 | 1263.0 | 1340.4 |
| | S/(KJ/KG K) | 1.8420 | 1.8674 | 1.9934 | 2.1178 | 2.2405 | 2.3615 | 2.4808 | 2.5984 | 2.7143 | 2.8284 | 2.9410 |
| | C/(M/SEC) | 150.5789 | 151.6995 | 157.1047 | 162.2138 | 167.0661 | 171.6940 | 176.1245 | 180.3802 | 184.4801 | 188.4407 | 192.2759 |
| | KAPPA/(1/MPA) | 10.6717 | 10.6457 | 10.5321 | 10.4409 | 10.3670 | 10.3068 | 10.2573 | 10.2165 | 10.1827 | 10.1546 | 10.1312 |
| | BETA/(1000/K) | 2.6 | 2.5 | 2.4 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 |
| .1013 | V/(M3/KG) | .23174 | .23473 | .24955 | .26419 | .27865 | .29296 | .30714 | .32119 | .33513 | .34898 | .36273 |
| | H/(KJ/KG) | 700.2 | 712.2 | 773.6 | 837.4 | 903.3 | 971.4 | 1041.5 | 1113.5 | 1187.3 | 1263.0 | 1340.4 |
| | S/(KJ/KG K) | 1.8412 | 1.8666 | 1.9926 | 2.1170 | 2.2398 | 2.3608 | 2.4800 | 2.5976 | 2.7135 | 2.8277 | 2.9402 |
| | C/(M/SEC) | 150.4458 | 151.5709 | 156.9960 | 162.1216 | 166.9876 | 171.6270 | 176.0671 | 180.3309 | 184.4377 | 188.4042 | 192.2443 |
| | KAPPA/(1/MPA) | 10.5425 | 10.5164 | 10.4023 | 10.3107 | 10.2367 | 10.1763 | 10.1267 | 10.0859 | 10.0520 | 10.0239 | 10.0005 |
| | BETA/(1000/K) | 2.6 | 2.5 | 2.4 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 |
| .2000 | V/(M3/KG) | .00166 | .00168 | .11948 | .12781 | .13592 | .14383 | .15158 | .15920 | .16669 | .17408 | .18138 |
| | H/(KJ/KG) | 430.8 | 445.6 | 769.0 | 833.1 | 899.5 | 967.9 | 1038.3 | 1110.6 | 1184.7 | 1260.6 | 1338.2 |
| | S/(KJ/KG K) | 1.2662 | 1.2974 | 1.9498 | 2.0750 | 2.1984 | 2.3201 | 2.4399 | 2.5580 | 2.6743 | 2.7888 | 2.9017 |
| | C/(M/SEC) | 748.4528 | 731.4765 | 148.3805 | 154.9158 | 160.9171 | 166.4842 | 171.6908 | 176.5931 | 181.2353 | 185.6525 | 189.8736 |
| | KAPPA/(1/MPA) | .0037 | .0039 | 5.6167 | 5.4954 | 5.4028 | 5.3305 | 5.2732 | 5.2272 | 5.1900 | 5.1595 | 5.1345 |
| | BETA/(1000/K) | 1.6 | 1.6 | 2.8 | 2.6 | 2.4 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 |
| .3000 | V/(M3/KG) | .00166 | .00168 | .00175 | .08081 | .08685 | .09264 | .09824 | .10369 | .10899 | .11419 | .11928 |
| | H/(KJ/KG) | 430.8 | 445.6 | 521.0 | 828.5 | 895.3 | 964.2 | 1034.9 | 1107.6 | 1182.0 | 1258.2 | 1336.0 |
| | S/(KJ/KG K) | 1.2659 | 1.2972 | 1.4519 | 2.0468 | 2.1712 | 2.2936 | 2.4141 | 2.5327 | 2.6495 | 2.7645 | 2.8777 |
| | C/(M/SEC) | 749.0696 | 732.1538 | 646.5720 | 146.7745 | 154.2362 | 160.9327 | 167.0352 | 172.6615 | 177.8967 | 182.8047 | 187.4348 |
| | KAPPA/(1/MPA) | .0037 | .0039 | .0051 | 3.9018 | 3.7810 | 3.6922 | 3.6249 | 3.5726 | 3.5313 | 3.4981 | 3.4713 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 3.1 | 2.7 | 2.5 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 |
| .4000 | V/(M3/KG) | .00166 | .00168 | .00175 | .00184 | .06211 | .06692 | .07149 | .07588 | .08011 | .08422 | .08822 |
| | H/(KJ/KG) | 430.9 | 445.6 | 521.0 | 598.9 | 890.8 | 960.2 | 1031.4 | 1104.5 | 1179.3 | 1255.7 | 1333.8 |
| | S/(KJ/KG K) | 1.2656 | 1.2969 | 1.4516 | 1.6035 | 2.1497 | 2.2731 | 2.3943 | 2.5136 | 2.6309 | 2.7463 | 2.8599 |
| | C/(M/SEC) | 749.6841 | 732.8289 | 647.5854 | 559.8664 | 146.8733 | 154.9680 | 162.1227 | 168.5680 | 174.4559 | 179.8931 | 184.9578 |
| | KAPPA/(1/MPA) | .0036 | .0038 | .0051 | .0072 | 3.0062 | 2.8937 | 2.8130 | 2.7529 | 2.7067 | 2.6705 | 2.6417 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 2.1 | 3.2 | 2.8 | 2.5 | 2.3 | 2.1 | 1.9 | 1.8 |
| .5000 | V/(M3/KG) | .00166 | .00167 | .00175 | .00183 | .04706 | .05136 | .05536 | .05914 | .06275 | .06621 | .06957 |
| | H/(KJ/KG) | 430.9 | 445.7 | 521.1 | 598.9 | 885.9 | 956.0 | 1027.8 | 1101.2 | 1176.4 | 1253.2 | 1331.5 |
| | S/(KJ/KG K) | 1.2654 | 1.2966 | 1.4513 | 1.6031 | 2.1309 | 2.2556 | 2.3777 | 2.4977 | 2.6156 | 2.7315 | 2.8455 |
| | C/(M/SEC) | 747.1293 | 730.4458 | 648.5942 | 561.3088 | 138.5954 | 148.4914 | 156.9087 | 164.2917 | 170.9029 | 176.9132 | 182.4405 |
| | KAPPA/(1/MPA) | .0036 | .0038 | .0051 | .0071 | 2.5863 | 2.4373 | 2.3385 | 2.2683 | 2.2163 | 2.1766 | 2.1456 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 2.1 | 3.8 | 3.2 | 2.8 | 2.5 | 2.3 | 2.1 | 1.9 |
| .6000 | V/(M3/KG) | .00166 | .00167 | .00175 | .00183 | .00194 | .04086 | .04453 | .04794 | .05114 | .05420 | .05712 |
| | H/(KJ/KG) | 431.0 | 445.7 | 521.1 | 598.8 | 678.9 | 951.4 | 1023.9 | 1097.9 | 1173.4 | 1250.6 | 1329.2 |
| | S/(KJ/KG K) | 1.2651 | 1.2963 | 1.4509 | 1.6027 | 1.7516 | 2.2397 | 2.3630 | 2.4838 | 2.6023 | 2.7188 | 2.8332 |
| | C/(M/SEC) | 748.9018 | 732.2788 | 647.9286 | 562.7435 | 471.6461 | 141.3592 | 151.3348 | 159.8073 | 167.2267 | 173.8600 | 179.8809 |
| | KAPPA/(1/MPA) | .0036 | .0038 | .0051 | .0071 | .0107 | 2.1609 | 2.0359 | 1.9528 | 1.8938 | 1.8500 | 1.8164 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 2.1 | 2.5 | 3.8 | 3.2 | 2.7 | 2.4 | 2.2 | 2.0 |

## THERMODYNAMIC PROPERTIES OF UNDECANE

| P/(MPA) | | TEMPERATURES/(K) 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .38146 | .39524 | .40896 | .42262 | .43624 | .44981 | .46334 | .47684 | .49030 | .50374 |
| | H/(KJ/KG) | 1419.4 | 1500.0 | 1582.1 | 1665.7 | 1750.7 | 1837.0 | 1924.7 | 2013.7 | 2103.9 | 2195.4 |
| | S/(KJ/KG K) | 3.0519 | 3.1611 | 3.2688 | 3.3750 | 3.4796 | 3.5827 | 3.6844 | 3.7847 | 3.8835 | 3.9811 |
| | C/(M/SEC) | 195.9977 | 199.6165 | 203.1413 | 206.5800 | 209.9397 | 213.2263 | 216.4454 | 219.6017 | 222.6996 | 225.7429 |
| | KAPPA/(1/MPA) | 10.1117 | 10.0954 | 10.0817 | 10.0703 | 10.0608 | 10.0529 | 10.0463 | 10.0409 | 10.0363 | 10.0327 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | .37641 | .39002 | .40357 | .41706 | .43050 | .44390 | .45726 | .47058 | .48387 | .49713 |
| | H/(KJ/KG) | 1419.4 | 1500.0 | 1582.1 | 1665.6 | 1750.7 | 1837.0 | 1924.7 | 2013.7 | 2103.9 | 2195.4 |
| | S/(KJ/KG K) | 3.0511 | 3.1604 | 3.2681 | 3.3742 | 3.4789 | 3.5820 | 3.6837 | 3.7840 | 3.8828 | 3.9804 |
| | C/(M/SEC) | 195.9703 | 199.5927 | 203.1206 | 206.5619 | 209.9238 | 213.2123 | 216.4329 | 219.5905 | 222.6895 | 225.7336 |
| | KAPPA/(1/MPA) | 9.9810 | 9.9646 | 9.9510 | 9.9396 | 9.9301 | 9.9221 | 9.9155 | 9.9101 | 9.9056 | 9.9019 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | .18859 | .19573 | .20281 | .20983 | .21680 | .22372 | .23060 | .23745 | .24427 | .25105 |
| | H/(KJ/KG) | 1417.5 | 1498.2 | 1580.5 | 1664.3 | 1749.4 | 1836.0 | 1923.8 | 2012.9 | 2103.2 | 2194.7 |
| | S/(KJ/KG K) | 3.0129 | 3.1224 | 3.2304 | 3.3367 | 3.4415 | 3.5448 | 3.6467 | 3.7471 | 3.8461 | 3.9437 |
| | C/(M/SEC) | 193.9221 | 197.8179 | 201.5775 | 205.2153 | 208.7632 | 212.1717 | 215.5100 | 218.7658 | 221.9461 | 225.0569 |
| | KAPPA/(1/MPA) | 5.1139 | 5.0968 | 5.0826 | 5.0708 | 5.0609 | 5.0528 | 5.0460 | 5.0404 | 5.0358 | 5.0320 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| .3000 | V/(M3/KG) | .12429 | .12922 | .13409 | .13890 | .14365 | .14836 | .15303 | .15767 | .16227 | .16684 |
| | H/(KJ/KG) | 1415.5 | 1496.5 | 1579.0 | 1662.9 | 1748.2 | 1834.8 | 1922.8 | 2012.0 | 2102.5 | 2194.1 |
| | S/(KJ/KG K) | 2.9892 | 3.0990 | 3.2072 | 3.3138 | 3.4188 | 3.5222 | 3.6242 | 3.7248 | 3.8239 | 3.9216 |
| | C/(M/SEC) | 191.8263 | 196.0105 | 200.0135 | 203.8565 | 207.5576 | 211.1321 | 214.5929 | 217.9512 | 221.2166 | 224.3976 |
| | KAPPA/(1/MPA) | 3.4494 | 3.4315 | 3.4167 | 3.4045 | 3.3944 | 3.3860 | 3.3790 | 3.3733 | 3.3686 | 3.3647 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .4000 | V/(M3/KG) | .09213 | .09596 | .09973 | .10343 | .10708 | .11069 | .11425 | .11778 | .12128 | .12474 |
| | H/(KJ/KG) | 1413.5 | 1494.7 | 1577.4 | 1661.5 | 1746.9 | 1833.7 | 1921.8 | 2011.2 | 2101.7 | 2193.5 |
| | S/(KJ/KG K) | 2.9717 | 3.0818 | 3.1903 | 3.2971 | 3.4023 | 3.5059 | 3.6081 | 3.7087 | 3.8080 | 3.9058 |
| | C/(M/SEC) | 189.7094 | 194.1942 | 198.4490 | 202.5037 | 206.3830 | 210.1074 | 213.6941 | 217.1578 | 220.5110 | 223.7646 |
| | KAPPA/(1/MPA) | 2.6185 | 2.5996 | 2.5842 | 2.5716 | 2.5611 | 2.5525 | 2.5454 | 2.5395 | 2.5347 | 2.5307 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .5000 | V/(M3/KG) | .07283 | .07600 | .07911 | .08215 | .08514 | .08809 | .09099 | .09386 | .09669 | .09949 |
| | H/(KJ/KG) | 1411.5 | 1492.9 | 1575.8 | 1660.0 | 1745.7 | 1832.6 | 1920.8 | 2010.3 | 2101.0 | 2192.8 |
| | S/(KJ/KG K) | 2.9577 | 3.0681 | 3.1768 | 3.2838 | 3.3892 | 3.4930 | 3.5953 | 3.6961 | 3.7955 | 3.8934 |
| | C/(M/SEC) | 187.5708 | 192.3686 | 196.8841 | 201.1570 | 205.2194 | 209.0976 | 212.8135 | 216.3854 | 219.8290 | 223.1575 |
| | KAPPA/(1/MPA) | 2.1210 | 2.1012 | 2.0851 | 2.0720 | 2.0612 | 2.0524 | 2.0451 | 2.0390 | 2.0341 | 2.0300 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| .6000 | V/(M3/KG) | .05995 | .06269 | .06536 | .06797 | .07052 | .07302 | .07549 | .07791 | .08030 | .08266 |
| | H/(KJ/KG) | 1409.4 | 1491.1 | 1574.1 | 1658.6 | 1744.4 | 1831.5 | 1919.8 | 2009.4 | 2100.2 | 2192.1 |
| | S/(KJ/KG K) | 2.9457 | 3.0564 | 3.1654 | 3.2726 | 3.3782 | 3.4822 | 3.5847 | 3.6857 | 3.7851 | 3.8832 |
| | C/(M/SEC) | 185.4096 | 190.5337 | 195.3190 | 199.8165 | 204.0669 | 208.1027 | 211.9509 | 215.6339 | 219.1703 | 222.5760 |
| | KAPPA/(1/MPA) | 1.7902 | 1.7694 | 1.7527 | 1.7391 | 1.7280 | 1.7189 | 1.7114 | 1.7053 | 1.7002 | 1.6960 |
| | BETA/(1000/K) | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 |

THERMODYNAMIC PROPERTIES OF UNDECANE

| P/(MPA) | | TEMPERATURES/(K) 470.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00166 | .00167 | .00175 | .00183 | .00194 | .03321 | .03672 | .03989 | .04283 | .04559 | .04822 |
| | H/(KJ/KG) | 431.0 | 445.8 | 521.1 | 598.8 | 678.8 | 946.4 | 1019.7 | 1094.3 | 1170.4 | 1247.9 | 1326.9 |
| | S/(KJ/KG K) | 1.2648 | 1.2961 | 1.4506 | 1.6023 | 1.7511 | 2.2246 | 2.3494 | 2.4712 | 2.5904 | 2.7074 | 2.8223 |
| | C/(M/SEC) | 750.7025 | 734.1408 | 650.1401 | 563.2587 | 473.6874 | 133.3501 | 145.3220 | 155.0836 | 163.4141 | 170.7281 | 177.2767 |
| | KAPPA/(1/MPA) | .0036 | .0038 | .0050 | .0070 | .0106 | 2.0007 | 1.8359 | 1.7355 | 1.6677 | 1.6191 | 1.5828 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 2.0 | 2.4 | 4.5 | 3.6 | 3.0 | 2.7 | 2.4 | 2.1 |
| .8000 | V/(M3/KG) | .00166 | .00167 | .00175 | .00183 | .00193 | .00207 | .03078 | .03381 | .03656 | .03913 | .04154 |
| | H/(KJ/KG) | 431.0 | 445.8 | 521.1 | 598.8 | 678.7 | 761.4 | 1015.3 | 1090.6 | 1167.2 | 1245.1 | 1324.5 |
| | S/(KJ/KG K) | 1.2646 | 1.2958 | 1.4503 | 1.6019 | 1.7507 | 1.8975 | 2.3363 | 2.4594 | 2.5795 | 2.6971 | 2.8125 |
| | C/(M/SEC) | 752.1210 | 735.5053 | 651.5960 | 565.5789 | 474.7444 | 377.8184 | 138.7593 | 150.0813 | 159.4501 | 167.5118 | 174.6260 |
| | KAPPA/(1/MPA) | .0036 | .0038 | .0050 | .0070 | .0105 | .0181 | 1.7061 | 1.5815 | 1.5027 | 1.4484 | 1.4089 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 2.0 | 2.4 | 3.2 | 4.2 | 3.4 | 2.9 | 2.5 | 2.3 |
| .9000 | V/(M3/KG) | .00166 | .00167 | .00174 | .00183 | .00193 | .00207 | .02606 | .02903 | .03167 | .03408 | .03633 |
| | H/(KJ/KG) | 431.1 | 445.8 | 521.1 | 598.8 | 678.7 | 761.2 | 1010.4 | 1086.7 | 1163.9 | 1242.3 | 1322.0 |
| | S/(KJ/KG K) | 1.2643 | 1.2955 | 1.4500 | 1.6016 | 1.7502 | 1.8969 | 2.3235 | 2.4481 | 2.5692 | 2.6875 | 2.8034 |
| | C/(M/SEC) | 752.7252 | 736.1685 | 652.5884 | 566.9884 | 477.7020 | 380.8351 | 131.4821 | 144.7496 | 155.3170 | 164.2045 | 171.9266 |
| | KAPPA/(1/MPA) | .0036 | .0038 | .0050 | .0069 | .0104 | .0178 | 1.6322 | 1.4722 | 1.3793 | 1.3182 | 1.2751 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 2.0 | 2.4 | 3.1 | 4.9 | 3.8 | 3.2 | 2.7 | 2.4 |
| 1.0000 | V/(M3/KG) | .00166 | .00167 | .00174 | .00183 | .00193 | .00207 | .02216 | .02516 | .02772 | .03003 | .03216 |
| | H/(KJ/KG) | 431.1 | 445.9 | 521.2 | 598.8 | 678.6 | 761.0 | 1005.0 | 1082.5 | 1160.5 | 1239.4 | 1319.5 |
| | S/(KJ/KG K) | 1.2641 | 1.2953 | 1.4497 | 1.6012 | 1.7497 | 1.8962 | 2.3105 | 2.4371 | 2.5593 | 2.6784 | 2.7949 |
| | C/(M/SEC) | 753.3269 | 736.8296 | 653.5667 | 568.3876 | 479.6847 | 383.0103 | 123.2274 | 139.0217 | 150.9937 | 160.7993 | 169.1762 |
| | KAPPA/(1/MPA) | .0036 | .0038 | .0050 | .0069 | .0103 | .0174 | 1.6130 | 1.3976 | 1.2859 | 1.2167 | 1.1694 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 2.0 | 2.4 | 3.1 | 6.0 | 4.4 | 3.5 | 2.9 | 2.6 |
| 2.0000 | V/(M3/KG) | .00165 | .00167 | .00174 | .00182 | .00191 | .00203 | .00220 | .00251 | .00835 | .01120 | .01309 |
| | H/(KJ/KG) | 431.6 | 446.3 | 521.4 | 598.7 | 678.1 | 759.6 | 844.5 | 937.6 | 1107.1 | 1202.7 | 1290.2 |
| | S/(KJ/KG K) | 1.2615 | 1.2926 | 1.4466 | 1.5976 | 1.7453 | 1.8903 | 2.0348 | 2.1866 | 2.4520 | 2.5964 | 2.7238 |
| | C/(M/SEC) | 759.2246 | 743.3048 | 663.2166 | 581.9504 | 498.6198 | 411.2422 | 315.2697 | 196.2217 | 87.3855 | 119.6572 | 138.6688 |
| | KAPPA/(1/MPA) | .0035 | .0037 | .0048 | .0065 | .0093 | .0147 | .0276 | .0899 | 1.5963 | .9097 | .7510 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.7 | 1.9 | 2.2 | 2.7 | 3.8 | 8.0 | 20.2 | 7.8 | 5.1 |
| 3.0000 | V/(M3/KG) | .00165 | .00166 | .00173 | .00180 | .00190 | .00201 | .00215 | .00236 | .00281 | .00440 | .00644 |
| | H/(KJ/KG) | 432.0 | 446.7 | 521.6 | 598.8 | 677.7 | 758.6 | 842.2 | 930.9 | 1020.7 | 1141.2 | 1250.1 |
| | S/(KJ/KG K) | 1.2589 | 1.2900 | 1.4437 | 1.5942 | 1.7412 | 1.8850 | 2.0273 | 2.1721 | 2.3129 | 2.4947 | 2.6532 |
| | C/(M/SEC) | 764.9299 | 749.5647 | 672.4712 | 594.7990 | 516.1253 | 435.4527 | 350.7766 | 258.3062 | 152.8269 | 98.0608 | 111.7105 |
| | KAPPA/(1/MPA) | .0034 | .0036 | .0046 | .0061 | .0085 | .0127 | .0212 | .0442 | .1693 | .6994 | .6568 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.7 | 1.8 | 2.1 | 2.5 | 3.1 | 4.7 | 10.8 | 19.7 | 11.2 |
| 4.0000 | V/(M3/KG) | .00164 | .00165 | .00172 | .00179 | .00188 | .00198 | .00211 | .00228 | .00254 | .00304 | .00394 |
| | H/(KJ/KG) | 432.5 | 447.2 | 521.9 | 598.8 | 677.5 | 757.9 | 840.6 | 927.4 | 1010.7 | 1110.2 | 1214.3 |
| | S/(KJ/KG K) | 1.2565 | 1.2875 | 1.4409 | 1.5909 | 1.7373 | 1.8803 | 2.0210 | 2.1627 | 2.2934 | 2.4436 | 2.5950 |
| | C/(M/SEC) | 770.4403 | 755.6100 | 681.3705 | 607.0152 | 532.4548 | 457.2689 | 380.6343 | 301.5813 | 221.0826 | 151.0364 | 125.6547 |
| | KAPPA/(1/MPA) | .0033 | .0035 | .0045 | .0058 | .0079 | .0113 | .0174 | .0301 | .0643 | .1752 | .3249 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.6 | 1.8 | 2.0 | 2.3 | 2.7 | 3.6 | 5.4 | 9.2 | 10.6 |

THERMODYNAMIC PROPERTIES OF UNDECANE

| P/(MPA) | | TEMPERATURES/(K) 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .05075 | .05318 | .05554 | .05784 | .06008 | .06227 | .06441 | .06652 | .06860 | .07065 |
| | H/(KJ/KG) | 1407.3 | 1489.2 | 1572.5 | 1657.1 | 1743.1 | 1830.3 | 1918.8 | 2008.6 | 2099.5 | 2191.5 |
| | S/(KJ/KG K) | 2.9352 | 3.0463 | 3.1555 | 3.2630 | 3.3688 | 3.4730 | 3.5756 | 3.6767 | 3.7763 | 3.8745 |
| | C/(M/SEC) | 183.2252 | 188.6893 | 193.7536 | 198.4823 | 202.9255 | 207.1227 | 211.1064 | 214.9030 | 218.5346 | 222.0198 |
| | KAPPA/(1/MPA) | 1.5548 | 1.5329 | 1.5155 | 1.5014 | 1.4900 | 1.4806 | 1.4730 | 1.4667 | 1.4615 | 1.4573 |
| | BETA/(1000/K) | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 |
| .8000 | V/(M3/KG) | .04384 | .04605 | .04818 | .05024 | .05224 | .05420 | .05611 | .05799 | .05983 | .06164 |
| | H/(KJ/KG) | 1405.2 | 1487.3 | 1570.8 | 1655.6 | 1741.8 | 1829.2 | 1917.8 | 2007.7 | 2098.7 | 2190.8 |
| | S/(KJ/KG K) | 2.9258 | 3.0372 | 3.1467 | 3.2544 | 3.3604 | 3.4648 | 3.5676 | 3.6688 | 3.7685 | 3.8668 |
| | C/(M/SEC) | 181.0170 | 186.8354 | 192.1882 | 197.1547 | 201.7953 | 206.1577 | 210.2798 | 214.1926 | 217.9217 | 221.4885 |
| | KAPPA/(1/MPA) | 1.3791 | 1.3560 | 1.3378 | 1.3233 | 1.3115 | 1.3019 | 1.2941 | 1.2877 | 1.2824 | 1.2781 |
| | BETA/(1000/K) | 2.1 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 |
| .9000 | V/(M3/KG) | .03847 | .04050 | .04245 | .04433 | .04615 | .04793 | .04966 | .05135 | .05301 | .05464 |
| | H/(KJ/KG) | 1403.0 | 1485.4 | 1569.1 | 1654.2 | 1740.5 | 1828.0 | 1916.8 | 2006.8 | 2097.9 | 2190.1 |
| | S/(KJ/KG K) | 2.9172 | 3.0289 | 3.1387 | 3.2467 | 3.3529 | 3.4574 | 3.5604 | 3.6618 | 3.7616 | 3.8600 |
| | C/(M/SEC) | 178.7845 | 184.9721 | 190.6230 | 195.8337 | 200.6766 | 205.2076 | 209.4710 | 213.5025 | 217.3312 | 220.9816 |
| | KAPPA/(1/MPA) | 1.2432 | 1.2189 | 1.1999 | 1.1848 | 1.1727 | 1.1629 | 1.1549 | 1.1483 | 1.1429 | 1.1385 |
| | BETA/(1000/K) | 2.2 | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.2 |
| 1.0000 | V/(M3/KG) | .03416 | .03605 | .03786 | .03960 | .04128 | .04291 | .04450 | .04605 | .04756 | .04904 |
| | H/(KJ/KG) | 1400.8 | 1483.5 | 1567.4 | 1652.7 | 1739.1 | 1826.9 | 1915.8 | 2005.9 | 2097.1 | 2189.5 |
| | S/(KJ/KG K) | 2.9091 | 3.0212 | 3.1313 | 3.2395 | 3.3460 | 3.4507 | 3.5538 | 3.6554 | 3.7553 | 3.8538 |
| | C/(M/SEC) | 176.5272 | 183.0996 | 189.0585 | 194.5199 | 199.5696 | 204.2726 | 208.6800 | 212.8325 | 216.7630 | 220.4989 |
| | KAPPA/(1/MPA) | 1.1352 | 1.1096 | 1.0897 | 1.0741 | 1.0617 | 1.0516 | 1.0434 | 1.0367 | 1.0313 | 1.0268 |
| | BETA/(1000/K) | 2.3 | 2.1 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 |
| 2.0000 | V/(M3/KG) | .01464 | .01600 | .01722 | .01835 | .01940 | .02040 | .02134 | .02225 | .02311 | .02395 |
| | H/(KJ/KG) | 1376.4 | 1462.6 | 1549.3 | 1636.9 | 1725.3 | 1814.7 | 1905.1 | 1996.5 | 2089.0 | 2182.4 |
| | S/(KJ/KG K) | 2.8448 | 2.9617 | 3.0755 | 3.1866 | 3.2955 | 3.4022 | 3.5071 | 3.6101 | 3.7114 | 3.8110 |
| | C/(M/SEC) | 152.7387 | 164.0703 | 173.6192 | 181.8984 | 189.2195 | 195.7880 | 201.7478 | 207.2044 | 212.2375 | 216.9092 |
| | KAPPA/(1/MPA) | .6752 | .6299 | .5997 | .5780 | .5619 | .5495 | .5397 | .5319 | .5256 | .5205 |
| | BETA/(1000/K) | 3.9 | 3.2 | 2.7 | 2.4 | 2.1 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 |
| 3.0000 | V/(M3/KG) | .00802 | .00928 | .01036 | .01131 | .01217 | .01296 | .01370 | .01440 | .01506 | .01569 |
| | H/(KJ/KG) | 1346.5 | 1438.6 | 1529.3 | 1619.8 | 1710.6 | 1801.9 | 1893.9 | 1986.7 | 2080.4 | 2174.9 |
| | S/(KJ/KG K) | 2.7886 | 2.9135 | 3.0324 | 3.1473 | 3.2591 | 3.3681 | 3.4748 | 3.5794 | 3.6820 | 3.7829 |
| | C/(M/SEC) | 130.7949 | 146.7715 | 159.9481 | 171.0784 | 180.6928 | 189.1461 | 196.6822 | 203.4750 | 209.6530 | 215.3137 |
| | KAPPA/(1/MPA) | .5435 | .4780 | .4382 | .4117 | .3930 | .3791 | .3685 | .3601 | .3535 | .3480 |
| | BETA/(1000/K) | 6.9 | 5.0 | 3.9 | 3.2 | 2.7 | 2.4 | 2.1 | 1.9 | 1.7 | 1.6 |
| 4.0000 | V/(M3/KG) | .00503 | .00608 | .00703 | .00787 | .00863 | .00932 | .00995 | .01054 | .01110 | .01163 |
| | H/(KJ/KG) | 1315.8 | 1413.4 | 1508.4 | 1602.1 | 1695.4 | 1788.7 | 1882.4 | 1976.7 | 2071.6 | 2167.2 |
| | S/(KJ/KG K) | 2.7374 | 2.8698 | 2.9944 | 3.1135 | 3.2283 | 3.3397 | 3.4484 | 3.5546 | 3.6586 | 3.7605 |
| | C/(M/SEC) | 128.5847 | 139.6172 | 152.3372 | 164.4057 | 175.3064 | 185.0619 | 193.8146 | 201.7132 | 208.8867 | 215.4414 |
| | KAPPA/(1/MPA) | .3738 | .3637 | .3400 | .3187 | .3020 | .2891 | .2790 | .2710 | .2646 | .2594 |
| | BETA/(1000/K) | 8.7 | 6.6 | 5.1 | 4.0 | 3.3 | 2.8 | 2.5 | 2.2 | 1.9 | 1.8 |

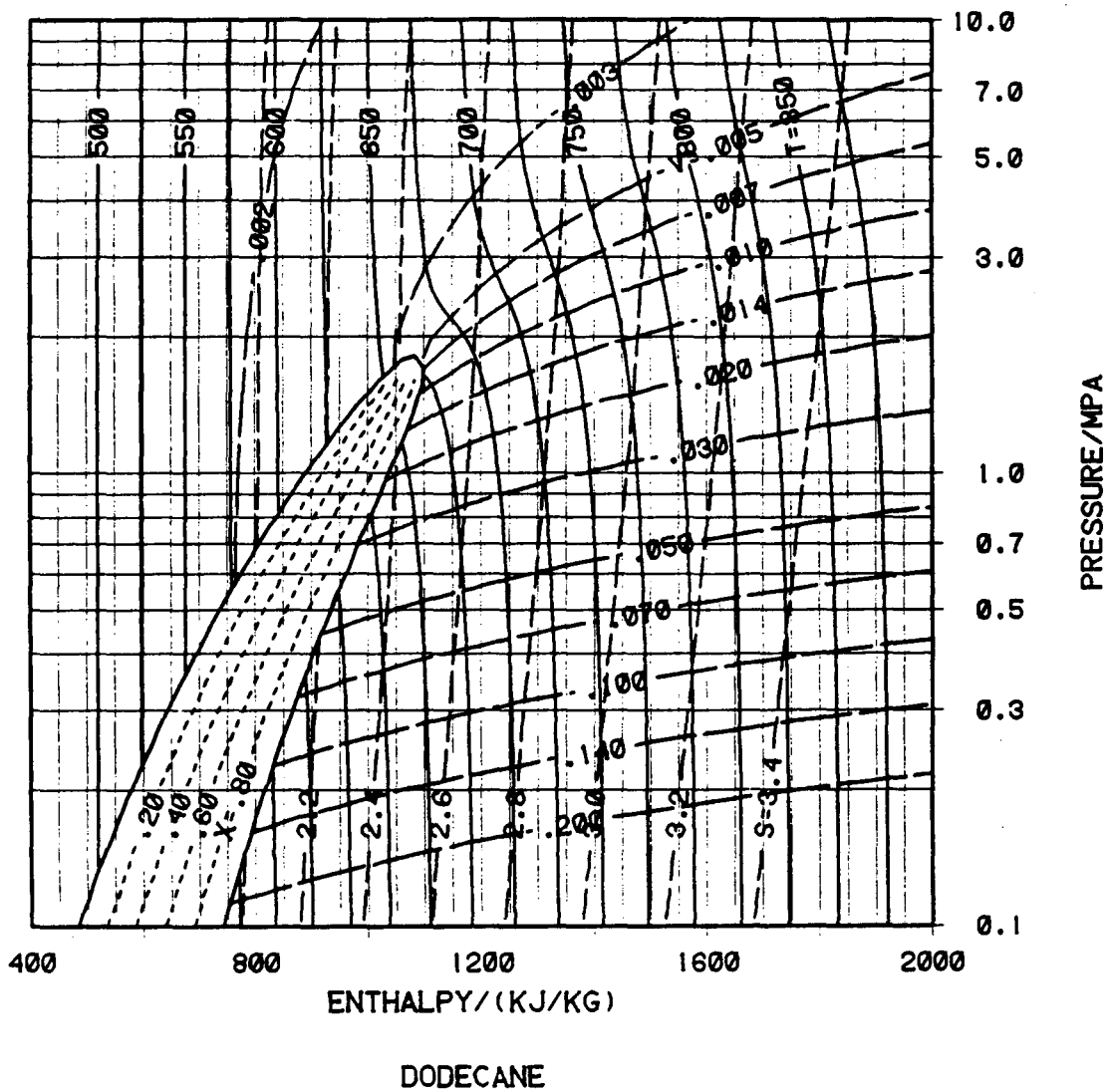
## THERMODYNAMIC PROPERTIES OF UNDECANE

| P/(MPA) | | TEMPERATURES/(K) 470.000 | 475.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00164 | .00165 | .00171 | .00178 | .00187 | .00196 | .00208 | .00222 | .00242 | .00271 | .00316 |
| | H/(KJ/KG) | 433.0 | 447.6 | 522.3 | 599.0 | 677.4 | 757.4 | 839.4 | 925.0 | 1005.9 | 1099.8 | 1196.4 |
| | S/(KJ/KG K) | 1.2540 | 1.2850 | 1.4381 | 1.5878 | 1.7337 | 1.8760 | 2.0156 | 2.1553 | 2.2822 | 2.4239 | 2.5645 |
| | C/(M/SEC) | 775.7644 | 761.4520 | 689.9381 | 618.6661 | 547.7822 | 477.2207 | 406.7394 | 336.3234 | 267.9101 | 206.6330 | 164.4342 |
| | KAPPA/(1/MPA) | .0033 | .0034 | .0043 | .0055 | .0074 | .0102 | .0148 | .0231 | .0400 | .0770 | .1442 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 | 2.5 | 3.0 | 3.9 | 5.3 | 6.9 |
| 6.0000 | V/(M3/KG) | .00163 | .00164 | .00170 | .00177 | .00185 | .00194 | .00205 | .00217 | .00234 | .00255 | .00284 |
| | H/(KJ/KG) | 433.5 | 448.1 | 522.6 | 599.2 | 677.4 | 757.1 | 838.6 | 923.4 | 1002.9 | 1094.4 | 1187.3 |
| | S/(KJ/KG K) | 1.2517 | 1.2826 | 1.4354 | 1.5848 | 1.7303 | 1.8720 | 2.0108 | 2.1492 | 2.2740 | 2.4120 | 2.5473 |
| | C/(M/SEC) | 780.9101 | 767.0997 | 698.1968 | 629.8107 | 562.2424 | 495.6685 | 430.1235 | 365.9397 | 305.1048 | 250.7318 | 207.2081 |
| | KAPPA/(1/MPA) | .0032 | .0033 | .0042 | .0053 | .0069 | .0093 | .0129 | .0189 | .0292 | .0477 | .0785 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.5 | 1.7 | 1.8 | 2.0 | 2.2 | 2.6 | 3.1 | 3.9 | 4.8 |
| 7.0000 | V/(M3/KG) | .00162 | .00164 | .00170 | .00176 | .00184 | .00192 | .00202 | .00214 | .00228 | .00245 | .00267 |
| | H/(KJ/KG) | 434.1 | 448.7 | 523.0 | 599.5 | 677.4 | 756.8 | 838.0 | 922.2 | 1000.9 | 1091.0 | 1182.0 |
| | S/(KJ/KG K) | 1.2494 | 1.2802 | 1.4329 | 1.5819 | 1.7271 | 1.8682 | 2.0064 | 2.1439 | 2.2673 | 2.4033 | 2.5357 |
| | C/(M/SEC) | 785.8828 | 772.5601 | 706.1649 | 640.4868 | 575.9565 | 512.8692 | 451.4191 | 392.0391 | 336.5845 | 287.2124 | 245.5823 |
| | KAPPA/(1/MPA) | .0032 | .0033 | .0040 | .0051 | .0065 | .0085 | .0115 | .0160 | .0231 | .0343 | .0513 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 | 2.4 | 2.7 | 3.2 | 3.7 |
| 8.0000 | V/(M3/KG) | .00162 | .00163 | .00169 | .00176 | .00183 | .00191 | .00200 | .00211 | .00223 | .00238 | .00255 |
| | H/(KJ/KG) | 434.6 | 449.2 | 523.5 | 599.8 | 677.6 | 756.7 | 837.6 | 921.4 | 999.4 | 1088.6 | 1178.4 |
| | S/(KJ/KG K) | 1.2471 | 1.2779 | 1.4303 | 1.5792 | 1.7240 | 1.8647 | 2.0023 | 2.1391 | 2.2615 | 2.3962 | 2.5269 |
| | C/(M/SEC) | 790.6884 | 777.8400 | 713.8610 | 650.7393 | 588.9952 | 529.0191 | 471.0548 | 415.5418 | 364.1941 | 318.6243 | 279.2495 |
| | KAPPA/(1/MPA) | .0031 | .0032 | .0039 | .0049 | .0062 | .0079 | .0104 | .0140 | .0192 | .0267 | .0375 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.2 | 2.4 | 2.7 | 3.1 |
| 9.0000 | V/(M3/KG) | .00161 | .00163 | .00168 | .00175 | .00182 | .00189 | .00198 | .00208 | .00219 | .00232 | .00247 |
| | H/(KJ/KG) | 435.2 | 449.8 | 523.9 | 600.1 | 677.7 | 756.7 | 837.3 | 920.7 | 998.3 | 1086.9 | 1175.9 |
| | S/(KJ/KG K) | 1.2449 | 1.2757 | 1.4279 | 1.5765 | 1.7210 | 1.8614 | 1.9985 | 2.1348 | 2.2565 | 2.3902 | 2.5197 |
| | C/(M/SEC) | 795.3339 | 782.9473 | 721.3004 | 660.6023 | 601.4400 | 544.2547 | 489.3246 | 437.0394 | 388.9757 | 346.4194 | 309.1338 |
| | KAPPA/(1/MPA) | .0030 | .0032 | .0038 | .0047 | .0058 | .0074 | .0095 | .0124 | .0164 | .0219 | .0293 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.2 | 2.4 | 2.7 |
| 10.0000 | V/(M3/KG) | .00161 | .00162 | .00168 | .00174 | .00181 | .00188 | .00196 | .00205 | .00216 | .00227 | .00241 |
| | H/(KJ/KG) | 435.8 | 450.3 | 524.4 | 600.5 | 678.0 | 756.8 | 837.1 | 920.3 | 997.5 | 1085.6 | 1174.1 |
| | S/(KJ/KG K) | 1.2427 | 1.2735 | 1.4255 | 1.5739 | 1.7181 | 1.8582 | 1.9950 | 2.1308 | 2.2519 | 2.3849 | 2.5135 |
| | C/(M/SEC) | 799.8180 | 787.8829 | 728.4954 | 670.1027 | 613.3459 | 558.6994 | 506.4347 | 456.9196 | 411.5722 | 371.4963 | 336.0521 |
| | KAPPA/(1/MPA) | .0030 | .0031 | .0037 | .0045 | .0056 | .0069 | .0088 | .0112 | .0144 | .0186 | .0240 |
| | BETA/(1000/K) | 1.3 | 1.4 | 1.4 | 1.5 | 1.6 | 1.6 | 1.8 | 1.9 | 2.0 | 2.2 | 2.4 |

## THERMODYNAMIC PROPERTIES OF UNDECANE

TEMPERATURES/(K)

| P/(MPA) | | 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00379 | .00450 | .00524 | .00594 | .00660 | .00720 | .00776 | .00829 | .00878 | .00924 |
| | H/(KJ/KG) | 1294.6 | 1392.4 | 1489.3 | 1585.3 | 1680.6 | 1775.8 | 1871.0 | 1966.6 | 2062.7 | 2159.4 |
| | S/(KJ/KG K) | 2.7023 | 2.8349 | 2.9620 | 3.0839 | 3.2012 | 3.3149 | 3.4253 | 3.5331 | 3.6383 | 3.7414 |
| | C/(M/SEC) | 149.0371 | 148.9319 | 155.4572 | 164.7488 | 174.7436 | 184.4958 | 193.6562 | 202.1378 | 209.9566 | 217.1646 |
| | KAPPA/(1/MPA) | .2072 | .2402 | .2489 | .2450 | .2369 | .2284 | .2209 | .2144 | .2090 | .2044 |
| | BETA/(1000/K) | 7.3 | 6.5 | 5.5 | 4.6 | 3.8 | 3.2 | 2.8 | 2.4 | 2.2 | 1.9 |
| 6.0000 | V/(M3/KG) | .00324 | .00372 | .00425 | .00480 | .00535 | .00587 | .00637 | .00683 | .00727 | .00768 |
| | H/(KJ/KG) | 1282.1 | 1377.9 | 1474.3 | 1570.9 | 1667.3 | 1763.7 | 1860.2 | 1957.0 | 2054.1 | 2151.7 |
| | S/(KJ/KG K) | 2.6802 | 2.8102 | 2.9366 | 3.0592 | 3.1779 | 3.2931 | 3.4049 | 3.5140 | 3.6204 | 3.7245 |
| | C/(M/SEC) | 180.5886 | 169.7846 | 168.7056 | 172.9404 | 179.9470 | 188.1548 | 196.6588 | 204.9958 | 212.9564 | 220.4621 |
| | KAPPA/(1/MPA) | .1176 | .1511 | .1722 | .1818 | .1836 | .1814 | .1777 | .1736 | .1697 | .1662 |
| | BETA/(1000/K) | 5.5 | 5.5 | 5.2 | 4.6 | 4.0 | 3.5 | 3.0 | 2.6 | 2.3 | 2.1 |
| 7.0000 | V/(M3/KG) | .00295 | .00329 | .00368 | .00411 | .00455 | .00500 | .00543 | .00584 | .00623 | .00660 |
| | H/(KJ/KG) | 1274.4 | 1368.3 | 1463.5 | 1559.5 | 1656.1 | 1753.1 | 1850.3 | 1947.9 | 2045.9 | 2144.3 |
| | S/(KJ/KG K) | 2.6654 | 2.7927 | 2.9175 | 3.0395 | 3.1584 | 3.2742 | 3.3869 | 3.4969 | 3.6043 | 3.7092 |
| | C/(M/SEC) | 215.0602 | 196.8547 | 188.7713 | 187.5147 | 190.5401 | 196.0961 | 202.9825 | 210.4258 | 217.9670 | 225.3545 |
| | KAPPA/(1/MPA) | .0739 | .0981 | .1185 | .1325 | .1402 | .1433 | .1435 | .1421 | .1400 | .1377 |
| | BETA/(1000/K) | 4.2 | 4.5 | 4.5 | 4.3 | 3.9 | 3.5 | 3.1 | 2.8 | 2.5 | 2.2 |
| 8.0000 | V/(M3/KG) | .00277 | .00303 | .00333 | .00367 | .00403 | .00440 | .00477 | .00513 | .00548 | .00582 |
| | H/(KJ/KG) | 1269.4 | 1361.8 | 1455.7 | 1550.8 | 1647.0 | 1744.0 | 1841.6 | 1939.7 | 2038.3 | 2137.3 |
| | S/(KJ/KG K) | 2.6545 | 2.7798 | 2.9029 | 3.0238 | 3.1422 | 3.2580 | 3.3712 | 3.4817 | 3.5897 | 3.6953 |
| | C/(M/SEC) | 247.9789 | 225.9497 | 212.6936 | 206.4926 | 205.4046 | 207.8067 | 212.4428 | 218.3860 | 224.9931 | 231.8484 |
| | KAPPA/(1/MPA) | .0516 | .0678 | .0838 | .0972 | .1069 | .1128 | .1158 | .1167 | .1164 | .1155 |
| | BETA/(1000/K) | 3.4 | 3.7 | 3.8 | 3.8 | 3.6 | 3.4 | 3.1 | 2.8 | 2.5 | 2.3 |
| 9.0000 | V/(M3/KG) | .00265 | .00286 | .00310 | .00337 | .00367 | .00398 | .00430 | .00462 | .00493 | .00523 |
| | H/(KJ/KG) | 1265.9 | 1357.2 | 1450.0 | 1544.2 | 1639.8 | 1736.5 | 1834.1 | 1932.4 | 2031.3 | 2130.8 |
| | S/(KJ/KG K) | 2.6460 | 2.7698 | 2.8915 | 3.0112 | 3.1288 | 3.2443 | 3.3574 | 3.4682 | 3.5766 | 3.6827 |
| | C/(M/SEC) | 278.2462 | 254.5425 | 238.0563 | 228.0283 | 223.2579 | 222.4901 | 224.6020 | 228.6599 | 233.9362 | 239.9016 |
| | KAPPA/(1/MPA) | .0388 | .0500 | .0618 | .0729 | .0822 | .0891 | .0937 | .0962 | .0973 | .0975 |
| | BETA/(1000/K) | 2.9 | 3.2 | 3.3 | 3.4 | 3.3 | 3.2 | 3.0 | 2.7 | 2.5 | 2.3 |
| 10.0000 | V/(M3/KG) | .00256 | .00274 | .00294 | .00316 | .00341 | .00367 | .00395 | .00423 | .00451 | .00478 |
| | H/(KJ/KG) | 1263.3 | 1353.8 | 1445.8 | 1539.2 | 1634.2 | 1730.4 | 1827.8 | 1926.1 | 2025.2 | 2124.9 |
| | S/(KJ/KG K) | 2.6388 | 2.7615 | 2.8821 | 3.0008 | 3.1177 | 3.2326 | 3.3455 | 3.4563 | 3.5649 | 3.6713 |
| | C/(M/SEC) | 305.9422 | 281.6564 | 263.3238 | 250.6258 | 242.8927 | 239.2728 | 238.8850 | 240.8999 | 244.6008 | 249.4083 |
| | KAPPA/(1/MPA) | .0308 | .0388 | .0475 | .0564 | .0644 | .0711 | .0762 | .0797 | .0818 | .0828 |
| | BETA/(1000/K) | 2.6 | 2.8 | 2.9 | 3.0 | 3.0 | 2.9 | 2.8 | 2.7 | 2.5 | 2.3 |


10.0
7.0
5.0
3.0
1.0
0.7
0.5
0.3
0.1
PRESSURE/MPA
400
800
1200
1600
2000
ENTHALPY/(KJ/KG)
500
550
600
650
700
750
800
T=850
.002
.003
.005
.007
.010
.014
.020
.030
.050
.070
.100
.140
.200
X=.80
.60
.40
.20
2.2
2.4
2.6
2.8
3.0
3.2
S=3.4

DODECANE

## PROPERTIES OF SATURATED DODECANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 490.00000 | .10532 | .00169 | .21274 | 489.57915 | 257.81419 | 747.39334 | 1.41827 | .52615 | 1.94442 |
| 495.00000 | .11838 | .00170 | .18993 | 504.61535 | 254.51150 | 759.12685 | 1.44876 | .51416 | 1.96292 |
| 500.00000 | .13266 | .00172 | .16996 | 519.75869 | 251.13966 | 770.89835 | 1.47915 | .50228 | 1.98143 |
| 505.00000 | .14826 | .00173 | .15242 | 535.00563 | 247.69832 | 782.70395 | 1.50944 | .49049 | 1.99993 |
| 510.00000 | .16524 | .00174 | .13698 | 550.35175 | 244.18795 | 794.53969 | 1.53962 | .47880 | 2.01842 |
| 515.00000 | .18369 | .00176 | .12335 | 565.79597 | 240.60519 | 806.40116 | 1.56969 | .46719 | 2.03688 |
| 520.00000 | .20369 | .00178 | .11128 | 581.33397 | 236.95023 | 818.28420 | 1.59965 | .45567 | 2.05532 |
| 525.00000 | .22533 | .00179 | .10056 | 596.96269 | 233.22173 | 830.18442 | 1.62948 | .44423 | 2.07372 |
| 530.00000 | .24870 | .00181 | .09102 | 612.67924 | 229.41799 | 842.09723 | 1.65920 | .43286 | 2.09206 |
| 535.00000 | .27388 | .00183 | .08251 | 628.48098 | 225.53686 | 854.01784 | 1.68879 | .42156 | 2.11035 |
| 540.00000 | .30098 | .00184 | .07490 | 644.36565 | 221.57560 | 865.94125 | 1.71825 | .41033 | 2.12857 |
| 545.00000 | .33009 | .00186 | .06807 | 660.33141 | 217.53078 | 877.86218 | 1.74758 | .39914 | 2.14672 |
| 550.00000 | .36130 | .00188 | .06194 | 676.37689 | 213.39811 | 889.77500 | 1.77678 | .38800 | 2.16477 |
| 555.00000 | .39473 | .00190 | .05641 | 692.50137 | 209.17230 | 901.67367 | 1.80585 | .37689 | 2.18274 |
| 560.00000 | .43048 | .00192 | .05142 | 708.70488 | 204.84678 | 913.55165 | 1.83479 | .36580 | 2.20059 |
| 565.00000 | .46867 | .00194 | .04691 | 724.98823 | 200.41357 | 925.40180 | 1.86361 | .35471 | 2.21832 |
| 570.00000 | .50940 | .00197 | .04282 | 741.35333 | 195.86288 | 937.21621 | 1.89230 | .34362 | 2.23592 |
| 575.00000 | .55281 | .00199 | .03911 | 757.80325 | 191.18277 | 948.98603 | 1.92089 | .33249 | 2.25338 |
| 580.00000 | .59903 | .00202 | .03573 | 774.34246 | 186.35882 | 960.70128 | 1.94937 | .32131 | 2.27067 |
| 585.00000 | .64818 | .00204 | .03264 | 790.97713 | 181.37336 | 972.35048 | 1.97775 | .31004 | 2.28779 |
| 590.00000 | .70041 | .00207 | .02981 | 807.71585 | 176.20436 | 983.92021 | 2.00606 | .29865 | 2.30471 |
| 595.00000 | .75588 | .00210 | .02723 | 824.56796 | 170.82710 | 995.39506 | 2.03431 | .28710 | 2.32141 |
| 600.00000 | .81474 | .00213 | .02485 | 841.54857 | 165.20715 | 1006.75573 | 2.06252 | .27535 | 2.33786 |
| 605.00000 | .87717 | .00217 | .02266 | 858.67436 | 159.30497 | 1017.97933 | 2.09072 | .26331 | 2.35403 |
| 610.00000 | .94334 | .00221 | .02063 | 875.96749 | 153.06950 | 1029.03699 | 2.11895 | .25093 | 2.36988 |
| 615.00000 | 1.01344 | .00225 | .01875 | 893.45648 | 146.43529 | 1039.89177 | 2.14725 | .23811 | 2.38535 |
| 620.00000 | 1.08770 | .00229 | .01700 | 911.17830 | 139.31666 | 1050.49496 | 2.17567 | .22470 | 2.40038 |
| 625.00000 | 1.16632 | .00235 | .01536 | 929.18170 | 131.59828 | 1060.77998 | 2.20430 | .21056 | 2.41486 |
| 630.00000 | 1.24954 | .00240 | .01382 | 947.53314 | 123.11865 | 1070.65179 | 2.23323 | .19543 | 2.42866 |
| 635.00000 | 1.33763 | .00247 | .01235 | 966.32766 | 113.63788 | 1079.96553 | 2.26261 | .17896 | 2.44156 |
| 640.00000 | 1.43086 | .00255 | .01093 | 985.70897 | 102.77297 | 1088.48194 | 2.29264 | .16058 | 2.45322 |
| 645.00000 | 1.52954 | .00266 | .00952 | 1005.91966 | 89.83094 | 1095.75059 | 2.32370 | .13927 | 2.46297 |
| 650.00000 | 1.63397 | .00281 | .00805 | 1027.44818 | 73.26293 | 1100.71111 | 2.35650 | .11271 | 2.46921 |
| 655.00000 | 1.74453 | .00308 | .00624 | 1051.76048 | 47.17662 | 1098.93710 | 2.39326 | .07203 | 2.46529 |
| 658.26000 | 1.86158 | .00425 | .00425 | 1079.98204 | 0. | 1079.98204 | 2.43556 | 0. | 2.43556 |

THERMODYNAMIC PROPERTIES OF DODECANE

| P/(MPA) | | TEMPERATURES/(K) 490.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .22487 | .23027 | .24379 | .25726 | .27066 | .28398 | .29720 | .31032 | .32335 | .33629 |
| | H/(KJ/KG) | 747.6 | 772.2 | 835.5 | 901.0 | 968.8 | 1038.6 | 1110.4 | 1184.1 | 1259.6 | 1336.8 |
| | S/(KJ/KG K) | 1.9472 | 1.9970 | 2.1204 | 2.2423 | 2.3628 | 2.4816 | 2.5988 | 2.7144 | 2.8284 | 2.9407 |
| | C/(M/SEC) | 146.9765 | 148.9993 | 153.9279 | 158.6667 | 163.2173 | 167.5880 | 171.7899 | 175.8357 | 179.7377 | 183.5079 |
| | KAPPA/(1/MPA) | 10.6699 | 10.6280 | 10.5328 | 10.4506 | 10.3806 | 10.3212 | 10.2710 | 10.2288 | 10.1932 | 10.1634 |
| | BETA/(1000/K) | 2.4 | 2.3 | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 |
| .1013 | V/(M3/KG) | .22173 | .22707 | .24043 | .25374 | .26699 | .28014 | .29320 | .30617 | .31904 | .33182 |
| | H/(KJ/KG) | 747.6 | 772.2 | 835.4 | 901.0 | 968.7 | 1038.5 | 1110.3 | 1184.0 | 1259.5 | 1336.8 |
| | S/(KJ/KG K) | 1.9465 | 1.9963 | 2.1197 | 2.2416 | 2.3621 | 2.4809 | 2.5981 | 2.7137 | 2.8277 | 2.9401 |
| | C/(M/SEC) | 146.8447 | 148.8747 | 153.8201 | 158.5737 | 163.1372 | 167.5190 | 171.7306 | 175.7847 | 179.6939 | 183.4701 |
| | KAPPA/(1/MPA) | 10.5406 | 10.4986 | 10.4029 | 10.3205 | 10.2502 | 10.1907 | 10.1405 | 10.0981 | 10.0626 | 10.0328 |
| | BETA/(1000/K) | 2.4 | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 |
| .2000 | V/(M3/KG) | .00169 | .00172 | .11512 | .12263 | .13004 | .13733 | .14450 | .15156 | .15852 | .16537 |
| | H/(KJ/KG) | 489.6 | 519.8 | 831.3 | 897.0 | 965.0 | 1035.0 | 1107.1 | 1181.0 | 1256.8 | 1334.3 |
| | S/(KJ/KG K) | 1.4180 | 1.4790 | 2.0810 | 2.2033 | 2.3241 | 2.4434 | 2.5610 | 2.6770 | 2.7914 | 2.9041 |
| | C/(M/SEC) | 743.2026 | 708.9717 | 145.2791 | 151.3001 | 156.9367 | 162.2275 | 167.2097 | 171.9176 | 176.3818 | 180.6291 |
| | KAPPA/(1/MPA) | .0038 | .0042 | 5.6161 | 5.5066 | 5.4183 | 5.3467 | 5.2883 | 5.2405 | 5.2012 | 5.1688 |
| | BETA/(1000/K) | 1.6 | 1.7 | 2.6 | 2.4 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 | 1.6 |
| .3000 | V/(M3/KG) | .00169 | .00171 | .00179 | .07744 | .08295 | .08830 | .09351 | .09858 | .10353 | .10837 |
| | H/(KJ/KG) | 489.6 | 519.8 | 597.0 | 892.7 | 960.9 | 1031.3 | 1103.7 | 1177.9 | 1254.0 | 1331.7 |
| | S/(KJ/KG K) | 1.4177 | 1.4787 | 1.6292 | 2.1778 | 2.2991 | 2.4189 | 2.5371 | 2.6535 | 2.7683 | 2.8814 |
| | C/(M/SEC) | 743.6460 | 709.5493 | 623.0170 | 143.0772 | 150.1040 | 156.5082 | 162.3956 | 167.8473 | 172.9276 | 177.6881 |
| | KAPPA/(1/MPA) | .0038 | .0042 | .0057 | 3.9154 | 3.7995 | 3.7108 | 3.6418 | 3.5871 | 3.5433 | 3.5079 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.9 | 2.6 | 2.4 | 2.2 | 2.0 | 1.9 | 1.8 |
| .4000 | V/(M3/KG) | .00169 | .00171 | .00179 | .00188 | .05920 | .06366 | .06792 | .07203 | .07600 | .07985 |
| | H/(KJ/KG) | 489.7 | 519.8 | 597.0 | 676.4 | 956.6 | 1027.4 | 1100.1 | 1174.7 | 1251.1 | 1329.1 |
| | S/(KJ/KG K) | 1.4175 | 1.4784 | 1.6289 | 1.7766 | 2.2794 | 2.3999 | 2.5186 | 2.6357 | 2.7509 | 2.8645 |
| | C/(M/SEC) | 744.0878 | 710.1249 | 623.9707 | 535.3355 | 142.5571 | 150.3522 | 157.3094 | 163.6060 | 169.3660 | 174.6806 |
| | KAPPA/(1/MPA) | .0038 | .0042 | .0056 | .0080 | 3.0289 | 2.9155 | 2.8320 | 2.7687 | 2.7196 | 2.6809 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.1 | 3.1 | 2.7 | 2.5 | 2.2 | 2.1 | 1.9 |
| .5000 | V/(M3/KG) | .00169 | .00171 | .00179 | .00188 | .04474 | .04874 | .05249 | .05605 | .05945 | .06271 |
| | H/(KJ/KG) | 489.7 | 519.9 | 597.0 | 676.3 | 951.8 | 1023.1 | 1096.3 | 1171.3 | 1248.1 | 1326.4 |
| | S/(KJ/KG K) | 1.4172 | 1.4781 | 1.6286 | 1.7762 | 2.2620 | 2.3835 | 2.5031 | 2.6207 | 2.7365 | 2.8505 |
| | C/(M/SEC) | 741.5252 | 707.9075 | 624.9205 | 536.7707 | 134.0408 | 143.6498 | 151.9018 | 159.1710 | 165.6865 | 171.6018 |
| | KAPPA/(1/MPA) | .0037 | .0042 | .0056 | .0080 | 2.6161 | 2.4637 | 2.3603 | 2.2859 | 2.2303 | 2.1876 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.8 | 2.1 | 3.7 | 3.2 | 2.8 | 2.5 | 2.2 | 2.0 |
| .6000 | V/(M3/KG) | .00168 | .00171 | .00179 | .00188 | .00199 | .03866 | .04212 | .04535 | .04838 | .05127 |
| | H/(KJ/KG) | 489.8 | 519.9 | 597.0 | 676.3 | 757.8 | 1018.5 | 1092.4 | 1167.8 | 1245.0 | 1323.7 |
| | S/(KJ/KG K) | 1.4169 | 1.4778 | 1.6282 | 1.7758 | 1.9206 | 2.3686 | 2.4892 | 2.6076 | 2.7240 | 2.8385 |
| | C/(M/SEC) | 743.1655 | 709.6805 | 624.4216 | 538.1978 | 446.2644 | 136.2391 | 146.1076 | 154.5145 | 161.8771 | 168.4466 |
| | KAPPA/(1/MPA) | .0037 | .0042 | .0056 | .0079 | .0123 | 2.1940 | 2.0614 | 1.9725 | 1.9090 | 1.8617 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.8 | 2.1 | 2.6 | 3.7 | 3.2 | 2.8 | 2.4 | 2.2 |

THERMODYNAMIC PROPERTIES OF DODECANE

| P/(MPA) | | TEMPERATURES/(K) 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .34914 | .36191 | .37461 | .38724 | .39981 | .41233 | .42479 | .43720 | .44958 | .46191 |
| | H/(KJ/KG) | 1415.7 | 1496.2 | 1578.2 | 1661.7 | 1746.6 | 1832.9 | 1920.4 | 2009.3 | 2099.3 | 2190.6 |
| | S/(KJ/KG K) | 3.0515 | 3.1606 | 3.2682 | 3.3742 | 3.4787 | 3.5817 | 3.6833 | 3.7834 | 3.8821 | 3.9794 |
| | C/(M/SEC) | 187.1572 | 190.6959 | 194.1332 | 197.4774 | 200.7359 | 203.9156 | 207.0224 | 210.0618 | 213.0386 | 215.9573 |
| | KAPPA/(1/MPA) | 10.1385 | 10.1176 | 10.1002 | 10.0858 | 10.0738 | 10.0640 | 10.0560 | 10.0495 | 10.0443 | 10.0403 |
| | BETA/(1000/K) | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | .34451 | .35712 | .36966 | .38213 | .39454 | .40690 | .41920 | .43146 | .44367 | .45585 |
| | H/(KJ/KG) | 1415.7 | 1496.2 | 1578.2 | 1661.7 | 1746.6 | 1832.9 | 1920.4 | 2009.3 | 2099.3 | 2190.5 |
| | S/(KJ/KG K) | 3.0508 | 3.1600 | 3.2675 | 3.3736 | 3.4781 | 3.5811 | 3.6826 | 3.7827 | 3.8814 | 3.9787 |
| | C/(M/SEC) | 187.1247 | 190.6678 | 194.1088 | 197.4562 | 200.7174 | 203.8992 | 207.0079 | 210.0487 | 213.0267 | 215.9462 |
| | KAPPA/(1/MPA) | 10.0078 | 9.9869 | 9.9694 | 9.9550 | 9.9430 | 9.9332 | 9.9252 | 9.9187 | 9.9135 | 9.9095 |
| | BETA/(1000/K) | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | .17214 | .17882 | .18542 | .19196 | .19843 | .20485 | .21121 | .21753 | .22380 | .23004 |
| | H/(KJ/KG) | 1413.4 | 1494.2 | 1576.4 | 1660.1 | 1745.2 | 1831.6 | 1919.4 | 2008.4 | 2098.6 | 2189.9 |
| | S/(KJ/KG K) | 3.0152 | 3.1246 | 3.2325 | 3.3388 | 3.4435 | 3.5468 | 3.6485 | 3.7488 | 3.8476 | 3.9451 |
| | C/(M/SEC) | 184.6830 | 188.5641 | 192.2904 | 195.8774 | 199.3389 | 202.6869 | 205.9319 | 209.0833 | 212.1493 | 215.1372 |
| | KAPPA/(1/MPA) | 5.1421 | 5.1200 | 5.1017 | 5.0866 | 5.0742 | 5.0641 | 5.0558 | 5.0491 | 5.0438 | 5.0396 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| .3000 | V/(M3/KG) | .11312 | .11778 | .12236 | .12686 | .13131 | .13569 | .14002 | .14431 | .14855 | .15276 |
| | H/(KJ/KG) | 1411.1 | 1492.1 | 1574.6 | 1658.5 | 1743.8 | 1830.4 | 1918.3 | 2007.5 | 2097.8 | 2189.3 |
| | S/(KJ/KG K) | 2.9929 | 3.1027 | 3.2108 | 3.3174 | 3.4224 | 3.5258 | 3.6277 | 3.7282 | 3.8272 | 3.9248 |
| | C/(M/SEC) | 182.1711 | 186.4115 | 190.4386 | 194.2772 | 197.9483 | 201.4701 | 204.8581 | 208.1257 | 211.2848 | 214.3456 |
| | KAPPA/(1/MPA) | 3.4792 | 3.4558 | 3.4366 | 3.4209 | 3.4080 | 3.3975 | 3.3890 | 3.3821 | 3.3766 | 3.3722 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .4000 | V/(M3/KG) | .08359 | .08725 | .09082 | .09431 | .09775 | .10112 | .10444 | .10771 | .11094 | .11413 |
| | H/(KJ/KG) | 1408.8 | 1490.0 | 1572.7 | 1656.8 | 1742.3 | 1829.1 | 1917.2 | 2006.5 | 2097.0 | 2188.7 |
| | S/(KJ/KG K) | 2.9763 | 3.0864 | 3.1949 | 3.3017 | 3.4069 | 3.5106 | 3.6127 | 3.7134 | 3.8126 | 3.9103 |
| | C/(M/SEC) | 179.6194 | 184.2371 | 188.5776 | 192.6768 | 196.5644 | 200.2653 | 203.8008 | 207.1888 | 210.4448 | 213.5822 |
| | KAPPA/(1/MPA) | 2.6499 | 2.6250 | 2.6049 | 2.5885 | 2.5751 | 2.5643 | 2.5555 | 2.5484 | 2.5427 | 2.5382 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| .5000 | V/(M3/KG) | .06587 | .06892 | .07189 | .07478 | .07761 | .08038 | .08309 | .08575 | .08837 | .09096 |
| | H/(KJ/KG) | 1406.4 | 1487.9 | 1570.8 | 1655.2 | 1740.9 | 1827.9 | 1916.1 | 2005.6 | 2096.3 | 2188.0 |
| | S/(KJ/KG K) | 2.9628 | 3.0733 | 3.1820 | 3.2892 | 3.3946 | 3.4985 | 3.6009 | 3.7017 | 3.8010 | 3.8989 |
| | C/(M/SEC) | 177.0260 | 182.0402 | 186.7071 | 191.0761 | 195.1870 | 199.0726 | 202.7601 | 206.2724 | 209.6291 | 212.8467 |
| | KAPPA/(1/MPA) | 2.1542 | 2.1277 | 2.1065 | 2.0894 | 2.0756 | 2.0644 | 2.0553 | 2.0480 | 2.0421 | 2.0375 |
| | BETA/(1000/K) | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 |
| .6000 | V/(M3/KG) | .05404 | .05670 | .05927 | .06176 | .06419 | .06655 | .06886 | .07112 | .07334 | .07552 |
| | H/(KJ/KG) | 1404.0 | 1485.7 | 1568.9 | 1653.5 | 1739.4 | 1826.6 | 1915.0 | 2004.7 | 2095.5 | 2187.4 |
| | S/(KJ/KG K) | 2.9512 | 3.0621 | 3.1712 | 3.2786 | 3.3843 | 3.4884 | 3.5910 | 3.6920 | 3.7915 | 3.8895 |
| | C/(M/SEC) | 174.3887 | 179.8202 | 184.8270 | 189.4752 | 193.8163 | 197.8918 | 201.7359 | 205.3765 | 208.8375 | 212.1388 |
| | KAPPA/(1/MPA) | 1.8255 | 1.7972 | 1.7749 | 1.7570 | 1.7427 | 1.7311 | 1.7218 | 1.7142 | 1.7082 | 1.7034 |
| | BETA/(1000/K) | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.1 |

## THERMODYNAMIC PROPERTIES OF DODECANE

| P/(MPA) | | TEMPERATURES/(K) 490.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00168 | .00171 | .00179 | .00188 | .00199 | .03130 | .03464 | .03765 | .04045 | .04308 |
| | H/(KJ/KG) | 489.8 | 519.9 | 597.0 | 676.3 | 757.7 | 1013.5 | 1088.1 | 1164.2 | 1241.8 | 1320.9 |
| | S/(KJ/KG K) | 1.4167 | 1.4775 | 1.6279 | 1.7754 | 1.9201 | 2.3544 | 2.4763 | 2.5956 | 2.7127 | 2.8278 |
| | C/(M/SEC) | 744.8349 | 711.4844 | 626.6127 | 538.8897 | 448.3704 | 127.8636 | 139.8371 | 149.6020 | 157.9238 | 165.2092 |
| | KAPPA/(1/MPA) | .0037 | .0041 | .0056 | .0079 | .0121 | 2.0449 | 1.8666 | 1.7578 | 1.6843 | 1.6316 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 2.1 | 2.5 | 4.5 | 3.6 | 3.1 | 2.7 | 2.4 |
| .8000 | V/(M3/KG) | .00168 | .00171 | .00179 | .00188 | .00199 | .02559 | .02893 | .03184 | .03447 | .03692 |
| | H/(KJ/KG) | 489.8 | 520.0 | 597.0 | 676.2 | 757.6 | 1007.7 | 1083.5 | 1160.3 | 1238.4 | 1318.0 |
| | S/(KJ/KG K) | 1.4164 | 1.4772 | 1.6276 | 1.7750 | 1.9196 | 2.3400 | 2.4638 | 2.5843 | 2.7023 | 2.8180 |
| | C/(M/SEC) | 745.8388 | 712.4070 | 627.7466 | 541.0195 | 449.6454 | 118.0727 | 132.9622 | 144.3897 | 153.8105 | 161.8839 |
| | KAPPA/(1/MPA) | .0037 | .0041 | .0055 | .0078 | .0120 | 2.0021 | 1.7442 | 1.6071 | 1.5210 | 1.4618 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 2.1 | 2.5 | 5.7 | 4.3 | 3.5 | 2.9 | 2.6 |
| .9000 | V/(M3/KG) | .00168 | .00171 | .00179 | .00187 | .00198 | .00213 | .02439 | .02726 | .02980 | .03212 |
| | H/(KJ/KG) | 489.9 | 520.0 | 597.0 | 676.2 | 757.5 | 841.4 | 1078.4 | 1156.2 | 1235.0 | 1315.0 |
| | S/(KJ/KG K) | 1.4161 | 1.4770 | 1.6273 | 1.7746 | 1.9191 | 2.0619 | 2.4515 | 2.5735 | 2.6924 | 2.8088 |
| | C/(M/SEC) | 746.2726 | 712.9725 | 628.6725 | 542.4192 | 452.5330 | 354.7457 | 125.2875 | 138.8208 | 149.5183 | 158.4641 |
| | KAPPA/(1/MPA) | .0037 | .0041 | .0055 | .0078 | .0118 | .0211 | 1.6818 | 1.5022 | 1.3995 | 1.3326 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 2.1 | 2.5 | 3.3 | 5.1 | 3.9 | 3.2 | 2.8 |
| 1.0000 | V/(M3/KG) | .00168 | .00171 | .00178 | .00187 | .00198 | .00213 | .02062 | .02355 | .02603 | .02826 |
| | H/(KJ/KG) | 489.9 | 520.0 | 597.0 | 676.2 | 757.4 | 841.2 | 1072.7 | 1151.8 | 1231.4 | 1311.9 |
| | S/(KJ/KG K) | 1.4159 | 1.4767 | 1.6269 | 1.7743 | 1.9186 | 2.0612 | 2.4388 | 2.5628 | 2.6829 | 2.8001 |
| | C/(M/SEC) | 746.7048 | 713.5360 | 629.6029 | 543.8104 | 454.5825 | 357.2947 | 116.4890 | 132.8189 | 145.0248 | 154.9430 |
| | KAPPA/(1/MPA) | .0037 | .0041 | .0055 | .0077 | .0117 | .0206 | 1.6829 | 1.4334 | 1.3085 | 1.2321 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 2.1 | 2.5 | 3.3 | 6.3 | 4.5 | 3.6 | 3.0 |
| 2.0000 | V/(M3/KG) | .00168 | .00170 | .00177 | .00186 | .00196 | .00209 | .00227 | .00262 | .00738 | .01029 |
| | H/(KJ/KG) | 490.3 | 520.3 | 597.1 | 676.0 | 756.7 | 839.4 | 925.5 | 1020.1 | 1173.3 | 1273.0 |
| | S/(KJ/KG K) | 1.4132 | 1.4739 | 1.6238 | 1.7705 | 1.9140 | 2.0548 | 2.1954 | 2.3436 | 2.5746 | 2.7197 |
| | C/(M/SEC) | 750.9405 | 719.0555 | 638.6875 | 557.2866 | 474.0984 | 387.1629 | 291.8326 | 173.3625 | 81.1522 | 113.0502 |
| | KAPPA/(1/MPA) | .0036 | .0040 | .0053 | .0072 | .0105 | .0169 | .0331 | .1238 | 1.7214 | .9439 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.7 | 2.0 | 2.3 | 2.8 | 4.0 | 9.4 | 23.8 | 8.4 |
| 3.0000 | V/(M3/KG) | .00167 | .00170 | .00177 | .00185 | .00194 | .00205 | .00221 | .00243 | .00290 | .00425 |
| | H/(KJ/KG) | 490.7 | 520.7 | 597.3 | 675.9 | 756.2 | 838.2 | 922.7 | 1012.0 | 1100.8 | 1215.7 |
| | S/(KJ/KG K) | 1.4107 | 1.4713 | 1.6207 | 1.7670 | 1.9097 | 2.0493 | 2.1874 | 2.3273 | 2.4612 | 2.6283 |
| | C/(M/SEC) | 755.0151 | 724.3865 | 647.4075 | 570.0420 | 492.0738 | 412.6414 | 330.0053 | 241.6990 | 144.2668 | 100.6148 |
| | KAPPA/(1/MPA) | .0036 | .0039 | .0051 | .0068 | .0096 | .0144 | .0244 | .0517 | .1900 | .5950 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 | 2.5 | 3.2 | 4.8 | 10.6 | 16.3 |
| 4.0000 | V/(M3/KG) | .00166 | .00169 | .00176 | .00183 | .00192 | .00203 | .00216 | .00233 | .00259 | .00305 |
| | H/(KJ/KG) | 491.2 | 521.1 | 597.5 | 675.9 | 755.8 | 837.3 | 920.9 | 1008.0 | 1090.4 | 1189.5 |
| | S/(KJ/KG K) | 1.4082 | 1.4687 | 1.6178 | 1.7636 | 1.9057 | 2.0444 | 2.1809 | 2.3176 | 2.4417 | 2.5859 |
| | C/(M/SEC) | 758.9420 | 729.5289 | 655.7927 | 582.1623 | 508.7896 | 435.4295 | 361.5627 | 287.3748 | 212.6515 | 151.8565 |
| | KAPPA/(1/MPA) | .0035 | .0038 | .0049 | .0064 | .0088 | .0126 | .0195 | .0337 | .0693 | .1666 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.6 | 1.8 | 2.0 | 2.3 | 2.8 | 3.6 | 5.2 | 8.0 |

THERMODYNAMIC PROPERTIES OF DODECANE

| P/(MPA) | | TEMPERATURES/(K) 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .04558 | .04796 | .05025 | .05246 | .05460 | .05668 | .05870 | .06067 | .06260 | .06449 |
| | H/(KJ/KG) | 1401.5 | 1483.5 | 1567.0 | 1651.8 | 1737.9 | 1825.3 | 1913.9 | 2003.7 | 2094.7 | 2186.7 |
| | S/(KJ/KG K) | 2.9409 | 3.0522 | 3.1616 | 3.2693 | 3.3753 | 3.4797 | 3.5824 | 3.6836 | 3.7833 | 3.8815 |
| | C/(M/SEC) | 171.7055 | 177.5762 | 182.9373 | 187.8742 | 192.4524 | 196.7232 | 200.7281 | 204.5009 | 208.0697 | 211.4582 |
| | KAPPA/(1/MPA) | 1.5923 | 1.5621 | 1.5386 | 1.5199 | 1.5051 | 1.4931 | 1.4835 | 1.4758 | 1.4696 | 1.4647 |
| | BETA/(1000/K) | 2.1 | 1.9 | 1.8 | 1.7 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 |
| .8000 | V/(M3/KG) | .03922 | .04140 | .04348 | .04548 | .04741 | .04927 | .05108 | .05284 | .05455 | .05623 |
| | H/(KJ/KG) | 1398.9 | 1481.3 | 1565.0 | 1650.1 | 1736.4 | 1824.0 | 1912.8 | 2002.8 | 2093.8 | 2186.0 |
| | S/(KJ/KG K) | 2.9316 | 3.0433 | 3.1531 | 3.2611 | 3.3674 | 3.4719 | 3.5749 | 3.6763 | 3.7761 | 3.8744 |
| | C/(M/SEC) | 168.9742 | 175.3080 | 181.0381 | 186.2735 | 191.0956 | 195.5668 | 199.7368 | 203.6455 | 207.3256 | 210.8045 |
| | KAPPA/(1/MPA) | 1.4189 | 1.3867 | 1.3618 | 1.3424 | 1.3269 | 1.3146 | 1.3047 | 1.2968 | 1.2904 | 1.2854 |
| | BETA/(1000/K) | 2.3 | 2.1 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.2 |
| .9000 | V/(M3/KG) | .03427 | .03630 | .03822 | .04005 | .04182 | .04352 | .04516 | .04675 | .04830 | .04981 |
| | H/(KJ/KG) | 1396.4 | 1479.0 | 1563.0 | 1648.3 | 1734.9 | 1822.7 | 1911.7 | 2001.8 | 2093.0 | 2185.4 |
| | S/(KJ/KG K) | 2.9230 | 3.0351 | 3.1453 | 3.2536 | 3.3601 | 3.4649 | 3.5681 | 3.6697 | 3.7697 | 3.8682 |
| | C/(M/SEC) | 166.1931 | 173.0151 | 179.1295 | 184.6733 | 189.7460 | 194.4229 | 198.7621 | 202.8102 | 206.6050 | 210.1774 |
| | KAPPA/(1/MPA) | 1.2856 | 1.2511 | 1.2248 | 1.2045 | 1.1885 | 1.1758 | 1.1656 | 1.1575 | 1.1510 | 1.1458 |
| | BETA/(1000/K) | 2.4 | 2.2 | 2.0 | 1.8 | 1.7 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 |
| 1.0000 | V/(M3/KG) | .03030 | .03221 | .03400 | .03571 | .03734 | .03891 | .04042 | .04188 | .04330 | .04467 |
| | H/(KJ/KG) | 1393.7 | 1476.7 | 1561.0 | 1646.6 | 1733.4 | 1821.4 | 1910.5 | 2000.8 | 2092.2 | 2184.7 |
| | S/(KJ/KG K) | 2.9149 | 3.0275 | 3.1380 | 3.2467 | 3.3535 | 3.4585 | 3.5619 | 3.6637 | 3.7638 | 3.8625 |
| | C/(M/SEC) | 163.3601 | 170.6974 | 177.2119 | 183.0739 | 188.4042 | 193.2916 | 197.8040 | 201.9950 | 205.9075 | 209.5766 |
| | KAPPA/(1/MPA) | 1.1805 | 1.1434 | 1.1157 | 1.0945 | 1.0779 | 1.0648 | 1.0543 | 1.0460 | 1.0393 | 1.0340 |
| | BETA/(1000/K) | 2.6 | 2.3 | 2.1 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 |
| 2.0000 | V/(M3/KG) | .01216 | .01367 | .01498 | .01616 | .01724 | .01823 | .01916 | .02004 | .02087 | .02167 |
| | H/(KJ/KG) | 1362.9 | 1451.1 | 1539.3 | 1627.9 | 1717.2 | 1807.4 | 1898.5 | 1990.5 | 2083.5 | 2177.3 |
| | S/(KJ/KG K) | 2.8459 | 2.9655 | 3.0811 | 3.1937 | 3.3036 | 3.4113 | 3.5169 | 3.6206 | 3.7225 | 3.8226 |
| | C/(M/SEC) | 132.2645 | 146.4500 | 157.8233 | 167.3538 | 175.5631 | 182.7683 | 189.1793 | 194.9435 | 200.1692 | 204.9386 |
| | KAPPA/(1/MPA) | .7685 | .6861 | .6374 | .6050 | .5820 | .5649 | .5518 | .5416 | .5335 | .5270 |
| | BETA/(1000/K) | 5.4 | 4.1 | 3.3 | 2.8 | 2.4 | 2.1 | 1.9 | 1.7 | 1.6 | 1.4 |
| 3.0000 | V/(M3/KG) | .00597 | .00743 | .00864 | .00967 | .01058 | .01140 | .01216 | .01285 | .01350 | .01411 |
| | H/(KJ/KG) | 1322.4 | 1420.4 | 1514.6 | 1607.3 | 1699.8 | 1792.5 | 1885.7 | 1979.5 | 2074.0 | 2169.3 |
| | S/(KJ/KG K) | 2.7782 | 2.9111 | 3.0345 | 3.1524 | 3.2662 | 3.3769 | 3.4849 | 3.5906 | 3.6942 | 3.7958 |
| | C/(M/SEC) | 109.6865 | 126.0368 | 141.0888 | 153.9024 | 164.8448 | 174.3206 | 182.6375 | 190.0204 | 196.6350 | 202.6067 |
| | KAPPA/(1/MPA) | .6217 | .5415 | .4812 | .4416 | .4145 | .3950 | .3805 | .3693 | .3605 | .3535 |
| | BETA/(1000/K) | 10.8 | 7.1 | 5.1 | 4.0 | 3.3 | 2.8 | 2.4 | 2.1 | 1.9 | 1.7 |
| 4.0000 | V/(M3/KG) | .00382 | .00475 | .00569 | .00656 | .00736 | .00808 | .00873 | .00933 | .00989 | .01041 |
| | H/(KJ/KG) | 1291.1 | 1391.5 | 1489.7 | 1586.3 | 1681.9 | 1777.2 | 1872.5 | 1968.1 | 2064.2 | 2160.8 |
| | S/(KJ/KG K) | 2.7286 | 2.8646 | 2.9935 | 3.1162 | 3.2339 | 3.3476 | 3.4581 | 3.5658 | 3.6711 | 3.7742 |
| | C/(M/SEC) | 127.9952 | 128.3681 | 136.7963 | 147.9021 | 159.1367 | 169.6035 | 179.1088 | 187.6890 | 195.4418 | 202.4705 |
| | KAPPA/(1/MPA) | .2909 | .3459 | .3510 | .3355 | .3173 | .3015 | .2886 | .2783 | .2700 | .2633 |
| | BETA/(1000/K) | 9.2 | 8.0 | 6.4 | 5.1 | 4.1 | 3.4 | 2.9 | 2.5 | 2.2 | 1.9 |

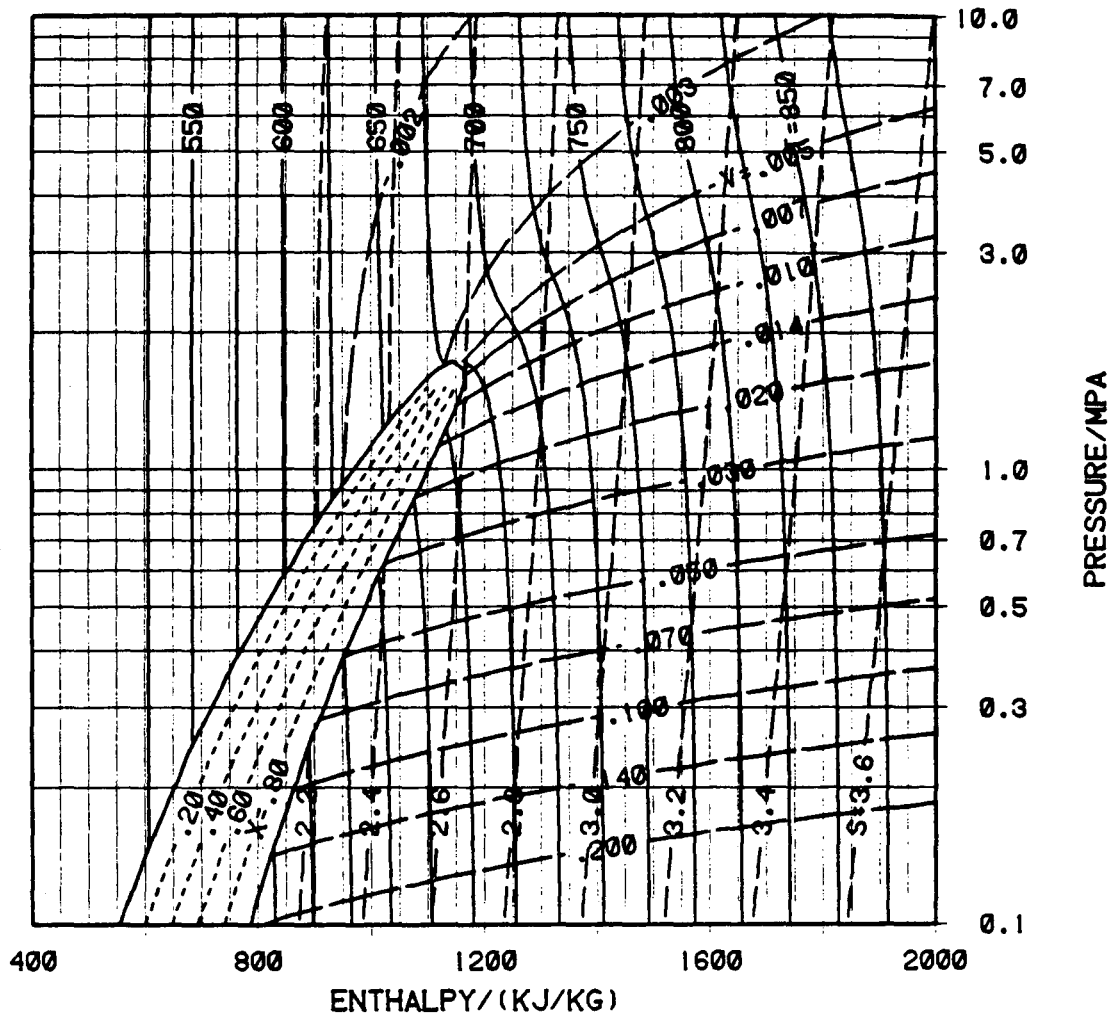
THERMODYNAMIC PROPERTIES OF DODECANE

TEMPERATURES/(K)

| P/(MPA) | | 490.000 | 500.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00166 | .00168 | .00175 | .00182 | .00191 | .00200 | .00212 | .00227 | .00246 | .00273 |
| | H/(KJ/KG) | 491.6 | 521.5 | 597.8 | 676.0 | 755.6 | 836.6 | 919.6 | 1005.5 | 1085.6 | 1180.0 |
| | S/(KJ/KG K) | 1.4058 | 1.4661 | 1.6150 | 1.7604 | 1.9020 | 2.0400 | 2.1754 | 2.3102 | 2.4309 | 2.5682 |
| | C/(M/SEC) | 762.7183 | 734.4907 | 663.8664 | 593.7172 | 524.4471 | 456.1687 | 388.9043 | 323.6000 | 260.2146 | 206.0817 |
| | KAPPA/(1/MPA) | .0034 | .0037 | .0047 | .0061 | .0081 | .0113 | .0163 | .0253 | .0423 | .0760 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 | 2.4 | 2.9 | 3.7 | 4.8 |
| 6.0000 | V/(M3/KG) | .00165 | .00168 | .00174 | .00181 | .00189 | .00198 | .00209 | .00221 | .00237 | .00257 |
| | H/(KJ/KG) | 492.1 | 522.0 | 598.1 | 676.1 | 755.5 | 836.2 | 918.6 | 1003.8 | 1082.6 | 1175.0 |
| | S/(KJ/KG K) | 1.4034 | 1.4637 | 1.6123 | 1.7574 | 1.8985 | 2.0359 | 2.1705 | 2.3041 | 2.4229 | 2.5573 |
| | C/(M/SEC) | 766.3469 | 739.2775 | 671.6494 | 604.7686 | 539.2000 | 475.2821 | 413.2650 | 354.3015 | 298.0843 | 249.8808 |
| | KAPPA/(1/MPA) | .0034 | .0037 | .0046 | .0058 | .0076 | .0102 | .0141 | .0204 | .0306 | .0475 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.5 | 1.7 | 1.8 | 2.0 | 2.2 | 2.5 | 3.0 | 3.6 |
| 7.0000 | V/(M3/KG) | .00165 | .00167 | .00173 | .00180 | .00188 | .00196 | .00206 | .00217 | .00231 | .00247 |
| | H/(KJ/KG) | 492.7 | 522.4 | 598.5 | 676.3 | 755.5 | 835.9 | 917.9 | 1002.6 | 1080.6 | 1171.8 |
| | S/(KJ/KG K) | 1.4011 | 1.4613 | 1.6096 | 1.7544 | 1.8952 | 2.0321 | 2.1661 | 2.2988 | 2.4164 | 2.5491 |
| | C/(M/SEC) | 769.8298 | 743.8942 | 679.1583 | 615.3523 | 553.1723 | 493.0621 | 435.3825 | 381.2815 | 330.1734 | 286.4311 |
| | KAPPA/(1/MPA) | .0033 | .0036 | .0044 | .0056 | .0071 | .0093 | .0125 | .0171 | .0240 | .0342 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.5 | 1.6 | 1.7 | 1.9 | 2.0 | 2.3 | 2.6 | 2.9 |
| 8.0000 | V/(M3/KG) | .00164 | .00166 | .00173 | .00179 | .00186 | .00195 | .00204 | .00214 | .00226 | .00240 |
| | H/(KJ/KG) | 493.2 | 522.9 | 598.8 | 676.5 | 755.5 | 835.7 | 917.5 | 1001.7 | 1079.1 | 1169.6 |
| | S/(KJ/KG K) | 1.3988 | 1.4589 | 1.6071 | 1.7516 | 1.8921 | 2.0286 | 2.1620 | 2.2942 | 2.4109 | 2.5425 |
| | C/(M/SEC) | 773.1691 | 748.3454 | 686.4097 | 625.5159 | 566.4482 | 509.7226 | 455.7211 | 405.5489 | 358.3464 | 318.0574 |
| | KAPPA/(1/MPA) | .0033 | .0035 | .0043 | .0053 | .0067 | .0086 | .0112 | .0148 | .0198 | .0267 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.5 | 1.5 | 1.6 | 1.8 | 1.9 | 2.1 | 2.3 | 2.5 |
| 9.0000 | V/(M3/KG) | .00164 | .00166 | .00172 | .00178 | .00185 | .00193 | .00201 | .00211 | .00222 | .00234 |
| | H/(KJ/KG) | 493.7 | 523.5 | 599.3 | 676.8 | 755.7 | 835.7 | 917.2 | 1001.1 | 1078.1 | 1168.0 |
| | S/(KJ/KG K) | 1.3966 | 1.4566 | 1.6046 | 1.7489 | 1.8891 | 2.0253 | 2.1583 | 2.2899 | 2.4060 | 2.5369 |
| | C/(M/SEC) | 776.3681 | 752.6358 | 693.4178 | 635.2940 | 579.1147 | 525.4385 | 474.6274 | 427.7218 | 383.6587 | 346.1515 |
| | KAPPA/(1/MPA) | .0032 | .0034 | .0042 | .0051 | .0064 | .0080 | .0102 | .0131 | .0169 | .0219 |
| | BETA/(1000/K) | 1.3 | 1.4 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.1 | 2.3 |
| 10.0000 | V/(M3/KG) | .00163 | .00165 | .00171 | .00177 | .00184 | .00191 | .00199 | .00208 | .00218 | .00230 |
| | H/(KJ/KG) | 494.3 | 524.0 | 599.7 | 677.1 | 755.9 | 835.7 | 917.0 | 1000.6 | 1077.3 | 1166.8 |
| | S/(KJ/KG K) | 1.3944 | 1.4544 | 1.6021 | 1.7462 | 1.8862 | 2.0221 | 2.1548 | 2.2860 | 2.4016 | 2.5318 |
| | C/(M/SEC) | 779.4221 | 756.7666 | 700.1920 | 644.7137 | 591.2304 | 540.3216 | 492.3275 | 448.2255 | 406.7631 | 371.5634 |
| | KAPPA/(1/MPA) | .0032 | .0034 | .0041 | .0049 | .0060 | .0075 | .0093 | .0117 | .0147 | .0185 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.4 | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.1 |

THERMODYNAMIC PROPERTIES OF DODECANE

| P/(MPA) | | TEMPERATURES/(K) 725.000 | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00313 | .00366 | .00428 | .00494 | .00558 | .00619 | .00676 | .00729 | .00779 | .00824 |
| | H/(KJ/KG) | 1275.9 | 1373.0 | 1470.5 | 1568.1 | 1665.4 | 1762.5 | 1859.6 | 1956.8 | 2054.3 | 2152.2 |
| | S/(KJ/KG K) | 2.7028 | 2.8344 | 2.9624 | 3.0863 | 3.2061 | 3.3221 | 3.4346 | 3.5441 | 3.6510 | 3.7554 |
| | C/(M/SEC) | 168.3813 | 152.0850 | 149.6147 | 153.9532 | 161.6435 | 170.6424 | 179.8178 | 188.6455 | 196.9251 | 204.6068 |
| | KAPPA/(1/MPA) | .1316 | .1871 | .2221 | .2367 | .2378 | .2325 | .2253 | .2181 | .2117 | .2061 |
| | BETA/(1000/K) | 6.0 | 6.4 | 6.0 | 5.3 | 4.5 | 3.8 | 3.3 | 2.8 | 2.4 | 2.2 |
| 6.0000 | V/(M3/KG) | .00284 | .00318 | .00359 | .00406 | .00455 | .00505 | .00554 | .00600 | .00644 | .00685 |
| | H/(KJ/KG) | 1268.0 | 1362.2 | 1457.8 | 1554.4 | 1651.8 | 1749.6 | 1847.7 | 1946.1 | 2044.7 | 2143.7 |
| | S/(KJ/KG K) | 2.6878 | 2.8156 | 2.9409 | 3.0636 | 3.1835 | 3.3003 | 3.4141 | 3.5249 | 3.6330 | 3.7386 |
| | C/(M/SEC) | 211.3663 | 186.2207 | 173.9399 | 170.6480 | 172.8923 | 178.3932 | 185.5895 | 193.4639 | 201.4256 | 209.1661 |
| | KAPPA/(1/MPA) | .0735 | .1060 | .1364 | .1585 | .1710 | .1756 | .1754 | .1728 | .1692 | .1655 |
| | BETA/(1000/K) | 4.2 | 4.8 | 4.9 | 4.8 | 4.4 | 3.9 | 3.4 | 3.0 | 2.6 | 2.3 |
| 7.0000 | V/(M3/KG) | .00267 | .00292 | .00322 | .00356 | .00394 | .00434 | .00475 | .00515 | .00553 | .00590 |
| | H/(KJ/KG) | 1263.2 | 1355.7 | 1449.5 | 1544.8 | 1641.4 | 1739.0 | 1837.5 | 1936.4 | 2035.8 | 2135.6 |
| | S/(KJ/KG K) | 2.6775 | 2.8028 | 2.9258 | 3.0468 | 3.1657 | 3.2824 | 3.3965 | 3.5080 | 3.6169 | 3.7234 |
| | C/(M/SEC) | 249.7044 | 221.9478 | 203.8353 | 194.1918 | 190.9489 | 192.1815 | 196.3499 | 202.2654 | 209.0769 | 216.2300 |
| | KAPPA/(1/MPA) | .0488 | .0675 | .0880 | .1068 | .1213 | .1306 | .1353 | .1367 | .1362 | .1346 |
| | BETA/(1000/K) | 3.3 | 3.7 | 4.0 | 4.1 | 4.0 | 3.7 | 3.4 | 3.1 | 2.7 | 2.4 |
| 8.0000 | V/(M3/KG) | .00257 | .00276 | .00299 | .00326 | .00355 | .00388 | .00421 | .00456 | .00489 | .00522 |
| | H/(KJ/KG) | 1260.1 | 1351.3 | 1443.8 | 1537.9 | 1633.6 | 1730.7 | 1828.9 | 1928.0 | 2027.8 | 2128.2 |
| | S/(KJ/KG K) | 2.6695 | 2.7932 | 2.9145 | 3.0340 | 3.1518 | 3.2677 | 3.3816 | 3.4933 | 3.6027 | 3.7098 |
| | C/(M/SEC) | 283.4021 | 255.4170 | 234.6643 | 220.9106 | 213.2302 | 210.4128 | 211.2503 | 214.6517 | 219.7062 | 225.7171 |
| | KAPPA/(1/MPA) | .0360 | .0477 | .0612 | .0750 | .0875 | .0974 | .1042 | .1081 | .1099 | .1101 |
| | BETA/(1000/K) | 2.8 | 3.1 | 3.3 | 3.5 | 3.5 | 3.4 | 3.2 | 3.0 | 2.7 | 2.5 |
| 9.0000 | V/(M3/KG) | .00248 | .00265 | .00284 | .00305 | .00330 | .00356 | .00384 | .00414 | .00443 | .00473 |
| | H/(KJ/KG) | 1257.8 | 1348.2 | 1439.8 | 1532.9 | 1627.7 | 1724.1 | 1821.9 | 1920.9 | 2020.8 | 2121.5 |
| | S/(KJ/KG K) | 2.6629 | 2.7855 | 2.9056 | 3.0239 | 3.1405 | 3.2556 | 3.3691 | 3.4806 | 3.5901 | 3.6975 |
| | C/(M/SEC) | 313.4069 | 285.9926 | 264.2557 | 248.1899 | 237.4251 | 231.3188 | 229.0805 | 229.8678 | 232.8672 | 237.3669 |
| | KAPPA/(1/MPA) | .0283 | .0363 | .0455 | .0554 | .0652 | .0740 | .0810 | .0859 | .0890 | .0907 |
| | BETA/(1000/K) | 2.5 | 2.7 | 2.9 | 3.0 | 3.1 | 3.1 | 3.0 | 2.9 | 2.7 | 2.5 |
| 10.0000 | V/(M3/KG) | .00242 | .00256 | .00273 | .00291 | .00311 | .00334 | .00358 | .00383 | .00409 | .00435 |
| | H/(KJ/KG) | 1256.1 | 1345.9 | 1436.8 | 1529.2 | 1623.2 | 1719.0 | 1816.3 | 1914.9 | 2014.8 | 2115.5 |
| | S/(KJ/KG K) | 2.6572 | 2.7789 | 2.8982 | 3.0155 | 3.1312 | 3.2455 | 3.3583 | 3.4695 | 3.5789 | 3.6864 |
| | C/(M/SEC) | 340.5177 | 313.9293 | 291.9864 | 274.7150 | 261.9693 | 253.4346 | 248.6488 | 247.0380 | 247.9626 | 250.7877 |
| | KAPPA/(1/MPA) | .0233 | .0290 | .0356 | .0429 | .0505 | .0577 | .0640 | .0690 | .0727 | .0751 |
| | BETA/(1000/K) | 2.2 | 2.4 | 2.5 | 2.7 | 2.7 | 2.8 | 2.8 | 2.7 | 2.6 | 2.4 |


10.0
7.0
5.0
3.0
1.0
0.7
0.5
0.3
0.1
PRESSURE/MPA
400
800
1200
1600
2000
ENTHALPY/(KJ/KG)
550
600
650
700
750
800
850
.001
.010
.020
.050
.079
.100
.40
.60
.80
2.2
2.4
2.6
2.8
3.0
3.2
3.4
S=3.6

TRIDECANE

THERMODYNAMIC PROPERTIES OF TRIDECANE

| | | TEMPERATURES/(K) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P/(MPA) | | 510.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
| .1000 | V/(M3/KG) | .19723 | .20482 | .21704 | .22889 | .24049 | .25191 | .26321 | .27440 | .28550 | .29653 |
| | H/(KJ/KG) | 792.1 | 831.0 | 897.3 | 965.4 | 1035.4 | 1107.2 | 1180.8 | 1256.2 | 1333.3 | 1412.0 |
| | S/(KJ/KG K) | 2.0476 | 2.1228 | 2.2461 | 2.3672 | 2.4864 | 2.6036 | 2.7191 | 2.8329 | 2.9450 | 3.0554 |
| | C/(M/SEC) | 136.8005 | 139.9673 | 144.8303 | 149.3154 | 153.5239 | 157.5179 | 161.3376 | 165.0101 | 168.5544 | 171.9850 |
| | KAPPA/(1/MPA) | 10.8047 | 10.6985 | 10.5646 | 10.4658 | 10.3896 | 10.3288 | 10.2792 | 10.2379 | 10.2033 | 10.1739 |
| | BETA/(1000/K) | 2.6 | 2.4 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 |
| .1013 | V/(M3/KG) | .19444 | .20195 | .21404 | .22576 | .23722 | .24851 | .25967 | .27072 | .28169 | .29259 |
| | H/(KJ/KG) | 792.0 | 830.9 | 897.2 | 965.3 | 1035.3 | 1107.2 | 1180.8 | 1256.2 | 1333.2 | 1411.9 |
| | S/(KJ/KG K) | 2.0469 | 2.1221 | 2.2455 | 2.3666 | 2.4858 | 2.6030 | 2.7185 | 2.8323 | 2.9444 | 3.0549 |
| | C/(M/SEC) | 136.6553 | 139.8389 | 144.7235 | 149.2250 | 153.4465 | 157.4513 | 161.2799 | 164.9599 | 168.5108 | 171.9471 |
| | KAPPA/(1/MPA) | 10.6762 | 10.5693 | 10.4349 | 10.3357 | 10.2593 | 10.1983 | 10.1486 | 10.1073 | 10.0726 | 10.0432 |
| | BETA/(1000/K) | 2.6 | 2.4 | 2.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 |
| .2000 | V/(M3/KG) | .00152 | .00156 | .10212 | .10894 | .11545 | .12174 | .12788 | .13390 | .13983 | .14568 |
| | H/(KJ/KG) | 561.3 | 606.7 | 892.3 | 961.2 | 1031.7 | 1104.0 | 1177.9 | 1253.5 | 1330.8 | 1409.7 |
| | S/(KJ/KG K) | 1.5926 | 1.6805 | 2.2104 | 2.3329 | 2.4530 | 2.5709 | 2.6869 | 2.8010 | 2.9135 | 3.0242 |
| | C/(M/SEC) | 791.2110 | 729.9650 | 136.2710 | 142.1848 | 147.6890 | 152.3590 | 156.8996 | 161.1774 | 165.2369 | 169.1098 |
| | KAPPA/(1/MPA) | .0031 | .0037 | 5.6554 | 5.5223 | 5.4260 | 5.3528 | 5.2951 | 5.2485 | 5.2102 | 5.1783 |
| | BETA/(1000/K) | 1.6 | 1.7 | 2.8 | 2.4 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 |
| .3000 | V/(M3/KG) | .00152 | .00156 | .00163 | .06868 | .07359 | .07824 | .08270 | .08703 | .09125 | .09538 |
| | H/(KJ/KG) | 561.3 | 606.7 | 684.5 | 956.6 | 1027.8 | 1100.5 | 1174.8 | 1250.7 | 1328.3 | 1407.4 |
| | S/(KJ/KG K) | 1.5924 | 1.6802 | 1.8249 | 2.3099 | 2.4311 | 2.5499 | 2.6664 | 2.7810 | 2.8938 | 3.0048 |
| | C/(M/SEC) | 790.5711 | 729.6177 | 628.8358 | 134.2799 | 140.9830 | 146.9087 | 152.2826 | 157.2384 | 161.8611 | 166.2085 |
| | KAPPA/(1/MPA) | .0031 | .0037 | .0052 | 3.9318 | 3.8053 | 3.7149 | 3.6468 | 3.5937 | 3.5511 | 3.5164 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 3.0 | 2.6 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 |
| .4000 | V/(M3/KG) | .00152 | .00156 | .00163 | .00172 | .05250 | .05639 | .06005 | .06355 | .06693 | .07022 |
| | H/(KJ/KG) | 561.3 | 606.8 | 684.5 | 764.6 | 1023.6 | 1096.9 | 1171.6 | 1247.9 | 1325.7 | 1405.0 |
| | S/(KJ/KG K) | 1.5921 | 1.6799 | 1.8246 | 1.9670 | 2.4137 | 2.5334 | 2.6507 | 2.7658 | 2.8790 | 2.9903 |
| | C/(M/SEC) | 789.9272 | 729.2656 | 629.0028 | 528.9439 | 133.8635 | 141.0998 | 147.4537 | 153.1768 | 158.4192 | 163.2772 |
| | KAPPA/(1/MPA) | .0031 | .0037 | .0052 | .0077 | 3.0320 | 2.9169 | 2.8351 | 2.7737 | 2.7261 | 2.6882 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 3.1 | 2.7 | 2.4 | 2.2 | 2.0 | 1.8 |
| .5000 | V/(M3/KG) | .00152 | .00156 | .00163 | .00172 | .03967 | .04317 | .04640 | .04943 | .05233 | .05511 |
| | H/(KJ/KG) | 561.3 | 606.8 | 684.5 | 764.6 | 1018.9 | 1093.0 | 1168.2 | 1244.9 | 1323.0 | 1402.6 |
| | S/(KJ/KG K) | 1.5919 | 1.6797 | 1.8243 | 1.9666 | 2.3984 | 2.5193 | 2.6374 | 2.7531 | 2.8667 | 2.9784 |
| | C/(M/SEC) | 789.2793 | 728.9095 | 629.1646 | 529.7284 | 125.9075 | 134.8382 | 142.3704 | 148.9729 | 154.9016 | 160.3115 |
| | KAPPA/(1/MPA) | .0031 | .0037 | .0052 | .0076 | 2.6147 | 2.4614 | 2.3608 | 2.2891 | 2.2354 | 2.1937 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 3.7 | 3.1 | 2.7 | 2.4 | 2.2 | 2.0 |
| .6000 | V/(M3/KG) | .00152 | .00156 | .00163 | .00172 | .00182 | .03426 | .03724 | .03998 | .04257 | .04503 |
| | H/(KJ/KG) | 561.4 | 606.8 | 684.5 | 764.5 | 846.9 | 1088.8 | 1164.7 | 1241.8 | 1320.3 | 1400.2 |
| | S/(KJ/KG K) | 1.5916 | 1.6794 | 1.8240 | 1.9662 | 2.1065 | 2.5064 | 2.6255 | 2.7419 | 2.8560 | 2.9682 |
| | C/(M/SEC) | 784.4078 | 725.1289 | 629.3213 | 530.5039 | 429.5615 | 127.9861 | 136.9765 | 144.6020 | 151.2973 | 157.3062 |
| | KAPPA/(1/MPA) | .0031 | .0037 | .0052 | .0076 | .0123 | 2.1865 | 2.0587 | 1.9735 | 1.9124 | 1.8664 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 2.7 | 3.7 | 3.1 | 2.7 | 2.4 | 2.1 |

THERMODYNAMIC PROPERTIES OF TRIDECANE

| P/(MPA) | | TEMPERATURES/(K) 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .30750 | .31841 | .32927 | .34007 | .35084 | .36156 | .37224 | .38288 | .39349 |
| | H/(KJ/KG) | 1492.2 | 1574.0 | 1657.3 | 1741.9 | 1828.0 | 1915.3 | 2004.0 | 2093.8 | 2184.9 |
| | S/(KJ/KG K) | 3.1643 | 3.2715 | 3.3773 | 3.4815 | 3.5842 | 3.6855 | 3.7854 | 3.8839 | 3.9810 |
| | C/(M/SEC) | 175.3131 | 178.5475 | 181.6959 | 184.7647 | 187.7597 | 190.6859 | 193.5478 | 196.3496 | 199.0950 |
| | KAPPA/(1/MPA) | 10.1490 | 10.1277 | 10.1095 | 10.0939 | 10.0807 | 10.0695 | 10.0599 | 10.0519 | 10.0452 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | .30342 | .31419 | .32491 | .33558 | .34621 | .35680 | .36734 | .37785 | .38832 |
| | H/(KJ/KG) | 1492.2 | 1574.0 | 1657.2 | 1741.9 | 1828.0 | 1915.3 | 2004.0 | 2093.8 | 2184.9 |
| | S/(KJ/KG K) | 3.1637 | 3.2710 | 3.3767 | 3.4809 | 3.5836 | 3.6849 | 3.7848 | 3.8833 | 3.9804 |
| | C/(M/SEC) | 175.2800 | 178.5188 | 181.6709 | 184.7430 | 187.7408 | 190.6694 | 193.5333 | 196.3369 | 199.0837 |
| | KAPPA/(1/MPA) | 10.0183 | 9.9969 | 9.9787 | 9.9632 | 9.9499 | 9.9387 | 9.9291 | 9.9211 | 9.9145 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | .15146 | .15717 | .16284 | .16845 | .17401 | .17953 | .18501 | .19046 | .19587 |
| | H/(KJ/KG) | 1490.1 | 1572.1 | 1655.5 | 1740.3 | 1826.5 | 1914.0 | 2002.8 | 2092.8 | 2184.0 |
| | S/(KJ/KG K) | 3.1333 | 3.2408 | 3.3467 | 3.4511 | 3.5540 | 3.6555 | 3.7555 | 3.8541 | 3.9514 |
| | C/(M/SEC) | 172.8196 | 176.3844 | 179.8189 | 183.1353 | 186.3439 | 189.4536 | 192.4723 | 195.4071 | 198.2641 |
| | KAPPA/(1/MPA) | 5.1516 | 5.1291 | 5.1101 | 5.0940 | 5.0804 | 5.0689 | 5.0592 | 5.0511 | 5.0443 |
| | BETA/(1000/K) | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .3000 | V/(M3/KG) | .09944 | .10343 | .10736 | .11125 | .11508 | .11887 | .12262 | .12633 | .13001 |
| | H/(KJ/KG) | 1488.0 | 1570.2 | 1653.8 | 1738.7 | 1825.1 | 1912.7 | 2001.6 | 2091.8 | 2183.1 |
| | S/(KJ/KG K) | 3.1142 | 3.2219 | 3.3281 | 3.4327 | 3.5358 | 3.6374 | 3.7376 | 3.8364 | 3.9337 |
| | C/(M/SEC) | 170.3216 | 174.2312 | 177.9613 | 181.5314 | 184.9574 | 188.2529 | 191.4296 | 194.4979 | 197.4667 |
| | KAPPA/(1/MPA) | 3.4878 | 3.4640 | 3.4441 | 3.4274 | 3.4134 | 3.4016 | 3.3917 | 3.3835 | 3.3767 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| .4000 | V/(M3/KG) | .07342 | .07656 | .07963 | .08265 | .08562 | .08855 | .09143 | .09428 | .09709 |
| | H/(KJ/KG) | 1485.9 | 1568.2 | 1652.0 | 1737.1 | 1823.6 | 1911.4 | 2000.5 | 2090.7 | 2182.2 |
| | S/(KJ/KG K) | 3.1000 | 3.2080 | 3.3143 | 3.4191 | 3.5224 | 3.6242 | 3.7246 | 3.8235 | 3.9210 |
| | C/(M/SEC) | 167.8172 | 172.0869 | 176.1224 | 179.9523 | 183.5995 | 187.0830 | 190.4190 | 193.6214 | 196.7021 |
| | KAPPA/(1/MPA) | 2.6574 | 2.6322 | 2.6114 | 2.5941 | 2.5797 | 2.5677 | 2.5576 | 2.5493 | 2.5425 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 |
| .5000 | V/(M3/KG) | .05781 | .06044 | .06300 | .06550 | .06796 | .07036 | .07273 | .07505 | .07734 |
| | H/(KJ/KG) | 1483.7 | 1566.2 | 1650.2 | 1735.5 | 1822.2 | 1910.1 | 1999.3 | 2089.7 | 2181.3 |
| | S/(KJ/KG K) | 3.0884 | 3.1966 | 3.3032 | 3.4083 | 3.5117 | 3.6137 | 3.7142 | 3.8133 | 3.9110 |
| | C/(M/SEC) | 165.3041 | 169.9502 | 174.3015 | 178.3975 | 182.2697 | 185.9434 | 189.4397 | 192.7765 | 195.9693 |
| | KAPPA/(1/MPA) | 2.1606 | 2.1339 | 2.1121 | 2.0942 | 2.0793 | 2.0671 | 2.0569 | 2.0485 | 2.0415 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 |
| .6000 | V/(M3/KG) | .04740 | .04969 | .05191 | .05407 | .05618 | .05825 | .06027 | .06225 | .06419 |
| | H/(KJ/KG) | 1481.5 | 1564.2 | 1648.4 | 1733.9 | 1820.7 | 1908.8 | 1998.1 | 2088.7 | 2180.4 |
| | S/(KJ/KG K) | 3.0785 | 3.1870 | 3.2938 | 3.3991 | 3.5028 | 3.6049 | 3.7056 | 3.8048 | 3.9026 |
| | C/(M/SEC) | 162.7800 | 167.8199 | 172.4976 | 176.8662 | 180.9672 | 184.8331 | 188.4908 | 191.9626 | 195.2675 |
| | KAPPA/(1/MPA) | 1.8307 | 1.8023 | 1.7795 | 1.7609 | 1.7457 | 1.7331 | 1.7228 | 1.7143 | 1.7073 |
| | BETA/(1000/K) | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 |

THERMODYNAMIC PROPERTIES OF TRIDECANE

| P/(MPA) | | TEMPERATURES/(K) 510.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00152 | .00156 | .00163 | .00171 | .00182 | .02777 | .03063 | .03320 | .03558 | .03782 |
| | H/(KJ/KG) | 561.4 | 606.8 | 684.5 | 764.5 | 846.8 | 1084.1 | 1160.9 | 1238.5 | 1317.4 | 1397.6 |
| | S/(KJ/KG K) | 1.5914 | 1.6791 | 1.8236 | 1.9658 | 2.1060 | 2.4941 | 2.6144 | 2.7317 | 2.8464 | 2.9590 |
| | C/(M/SEC) | 785.2071 | 726.1846 | 628.0795 | 529.6110 | 431.1901 | 120.3281 | 131.1950 | 140.0336 | 147.5934 | 154.2558 |
| | KAPPA/(1/MPA) | .0031 | .0037 | .0051 | .0075 | .0122 | 2.0289 | 1.8595 | 1.7562 | 1.6859 | 1.6349 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 2.7 | 4.4 | 3.5 | 3.0 | 2.6 | 2.3 |
| .8000 | V/(M3/KG) | .00152 | .00156 | .00163 | .00171 | .00182 | .02276 | .02561 | .02808 | .03032 | .03241 |
| | H/(KJ/KG) | 561.4 | 606.8 | 684.5 | 764.4 | 846.7 | 1078.9 | 1156.8 | 1235.1 | 1314.5 | 1395.0 |
| | S/(KJ/KG K) | 1.5911 | 1.6789 | 1.8233 | 1.9655 | 2.1055 | 2.4817 | 2.6038 | 2.7221 | 2.8375 | 2.9506 |
| | C/(M/SEC) | 786.0280 | 727.2651 | 629.6191 | 531.7656 | 432.7926 | 111.4951 | 124.9169 | 135.2286 | 143.7747 | 151.1536 |
| | KAPPA/(1/MPA) | .0031 | .0037 | .0051 | .0075 | .0121 | 1.9704 | 1.7310 | 1.6024 | 1.5206 | 1.4636 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 2.7 | 5.5 | 4.1 | 3.3 | 2.8 | 2.5 |
| .9000 | V/(M3/KG) | .00152 | .00156 | .00163 | .00171 | .00182 | .00196 | .02163 | .02406 | .02622 | .02819 |
| | H/(KJ/KG) | 561.4 | 606.8 | 684.5 | 764.4 | 846.6 | 931.8 | 1152.3 | 1231.5 | 1311.4 | 1392.4 |
| | S/(KJ/KG K) | 1.5909 | 1.6786 | 1.8230 | 1.9651 | 2.1050 | 2.2441 | 2.5933 | 2.7129 | 2.8291 | 2.9428 |
| | C/(M/SEC) | 786.6470 | 727.4442 | 629.7603 | 532.7719 | 434.2370 | 328.9666 | 117.9784 | 130.1363 | 139.8227 | 147.9929 |
| | KAPPA/(1/MPA) | .0031 | .0037 | .0051 | .0075 | .0119 | .0229 | 1.6595 | 1.4936 | 1.3968 | 1.3327 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 2.7 | 3.7 | 4.9 | 3.8 | 3.1 | 2.7 |
| 1.0000 | V/(M3/KG) | .00152 | .00156 | .00163 | .00171 | .00182 | .00196 | .01834 | .02081 | .02291 | .02480 |
| | H/(KJ/KG) | 561.5 | 606.9 | 684.5 | 764.3 | 846.5 | 931.5 | 1147.3 | 1227.7 | 1308.2 | 1389.6 |
| | S/(KJ/KG K) | 1.5906 | 1.6784 | 1.8227 | 1.9647 | 2.1045 | 2.2434 | 2.5826 | 2.7039 | 2.8211 | 2.9353 |
| | C/(M/SEC) | 785.9785 | 727.0675 | 629.8962 | 533.5118 | 435.9378 | 331.9680 | 110.1158 | 124.6893 | 135.7161 | 144.7657 |
| | KAPPA/(1/MPA) | .0031 | .0037 | .0051 | .0074 | .0118 | .0223 | 1.6450 | 1.4198 | 1.3032 | 1.2304 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 2.6 | 3.6 | 6.0 | 4.3 | 3.5 | 2.9 |
| 2.0000 | V/(M3/KG) | .00151 | .00155 | .00162 | .00170 | .00180 | .00192 | .00210 | .00252 | .00679 | .00916 |
| | H/(KJ/KG) | 561.8 | 607.1 | 684.4 | 764.0 | 845.6 | 929.5 | 1017.1 | 1114.3 | 1259.1 | 1355.5 |
| | S/(KJ/KG K) | 1.5882 | 1.6758 | 1.8197 | 1.9611 | 2.1000 | 2.2370 | 2.3745 | 2.5211 | 2.7318 | 2.8672 |
| | C/(M/SEC) | 779.0497 | 723.0621 | 630.9675 | 540.4185 | 450.4905 | 358.7182 | 259.2610 | 166.5866 | 78.0176 | 107.0467 |
| | KAPPA/(1/MPA) | .0031 | .0037 | .0050 | .0071 | .0107 | .0182 | .0391 | .2187 | 1.5532 | .9146 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 2.0 | 2.4 | 3.0 | 4.5 | 13.8 | 20.0 | 8.0 |
| 3.0000 | V/(M3/KG) | .00151 | .00154 | .00161 | .00169 | .00178 | .00189 | .00204 | .00227 | .00275 | .00390 |
| | H/(KJ/KG) | 562.1 | 607.3 | 684.5 | 763.7 | 844.9 | 928.0 | 1013.9 | 1103.9 | 1199.2 | 1305.9 |
| | S/(KJ/KG K) | 1.5859 | 1.6732 | 1.8169 | 1.9578 | 2.0959 | 2.2316 | 2.3663 | 2.5022 | 2.6407 | 2.7905 |
| | C/(M/SEC) | 771.6399 | 718.5943 | 631.5071 | 546.4947 | 463.3378 | 380.9963 | 297.5035 | 242.6069 | 125.0523 | 95.6816 |
| | KAPPA/(1/MPA) | .0031 | .0037 | .0049 | .0068 | .0099 | .0155 | .0276 | .0627 | .2336 | .5674 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.8 | 1.9 | 2.2 | 2.7 | 3.5 | 5.3 | 11.2 | 14.6 |
| 4.0000 | V/(M3/KG) | .00150 | .00154 | .00160 | .00168 | .00176 | .00186 | .00199 | .00216 | .00241 | .00283 |
| | H/(KJ/KG) | 562.4 | 607.5 | 684.6 | 763.6 | 844.3 | 926.9 | 1011.7 | 1099.5 | 1188.4 | 1283.7 |
| | S/(KJ/KG K) | 1.5836 | 1.6708 | 1.8141 | 1.9546 | 2.0921 | 2.2268 | 2.3599 | 2.4925 | 2.6216 | 2.7554 |
| | C/(M/SEC) | 763.6878 | 713.6184 | 631.4968 | 551.7857 | 474.7542 | 400.1235 | 327.3270 | 287.8350 | 191.1299 | 142.7175 |
| | KAPPA/(1/MPA) | .0032 | .0037 | .0048 | .0065 | .0092 | .0136 | .0217 | .0385 | .0786 | .1688 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 | 2.4 | 2.9 | 3.8 | 5.3 | 7.5 |

## THERMODYNAMIC PROPERTIES OF TRIDECANE

| P/(MPA) | | TEMPERATURES/(K) 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .03996 | .04201 | .04400 | .04591 | .04778 | .04960 | .05137 | .05310 | .05480 |
| | H/(KJ/KG) | 1479.2 | 1562.2 | 1646.6 | 1732.2 | 1819.2 | 1907.5 | 1997.0 | 2087.6 | 2179.5 |
| | S/(KJ/KG K) | 3.0696 | 3.1785 | 3.2856 | 3.3911 | 3.4949 | 3.5973 | 3.6981 | 3.7975 | 3.8954 |
| | C/(M/SEC) | 160.2423 | 165.6946 | 170.7098 | 175.3577 | 179.6912 | 183.7514 | 187.5715 | 191.1787 | 194.5957 |
| | KAPPA/(1/MPA) | 1.5962 | 1.5661 | 1.5422 | 1.5229 | 1.5072 | 1.4944 | 1.4839 | 1.4753 | 1.4683 |
| | BETA/(1000/K) | 2.1 | 1.9 | 1.8 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 |
| .8000 | V/(M3/KG) | .03438 | .03626 | .03806 | .03980 | .04148 | .04311 | .04470 | .04625 | .04776 |
| | H/(KJ/KG) | 1476.9 | 1560.1 | 1644.7 | 1730.6 | 1817.7 | 1906.2 | 1995.8 | 2086.6 | 2178.6 |
| | S/(KJ/KG K) | 3.0616 | 3.1708 | 3.2782 | 3.3839 | 3.4879 | 3.5905 | 3.6915 | 3.7910 | 3.8891 |
| | C/(M/SEC) | 157.6879 | 163.5729 | 168.9372 | 173.8711 | 178.4409 | 182.6974 | 186.6809 | 190.4238 | 193.9530 |
| | KAPPA/(1/MPA) | 1.4216 | 1.3895 | 1.3644 | 1.3444 | 1.3283 | 1.3153 | 1.3046 | 1.2959 | 1.2888 |
| | BETA/(1000/K) | 2.2 | 2.0 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 |
| .9000 | V/(M3/KG) | .03003 | .03178 | .03344 | .03504 | .03658 | .03807 | .03952 | .04092 | .04229 |
| | H/(KJ/KG) | 1474.6 | 1558.1 | 1642.8 | 1728.9 | 1816.3 | 1904.8 | 1994.6 | 2085.6 | 2177.7 |
| | S/(KJ/KG K) | 3.0542 | 3.1637 | 3.2714 | 3.3773 | 3.4816 | 3.5843 | 3.6855 | 3.7852 | 3.8834 |
| | C/(M/SEC) | 155.1142 | 161.4534 | 167.1790 | 172.4056 | 177.2155 | 181.6703 | 185.8181 | 189.6970 | 193.3384 |
| | KAPPA/(1/MPA) | 1.2869 | 1.2527 | 1.2264 | 1.2057 | 1.1891 | 1.1758 | 1.1650 | 1.1562 | 1.1491 |
| | BETA/(1000/K) | 2.4 | 2.1 | 2.0 | 1.8 | 1.7 | 1.5 | 1.4 | 1.4 | 1.3 |
| 1.0000 | V/(M3/KG) | .02655 | .02820 | .02975 | .03124 | .03267 | .03405 | .03538 | .03667 | .03792 |
| | H/(KJ/KG) | 1472.2 | 1555.9 | 1641.0 | 1727.2 | 1814.8 | 1903.5 | 1993.5 | 2084.5 | 2176.8 |
| | S/(KJ/KG K) | 3.0473 | 3.1571 | 3.2651 | 3.3713 | 3.4758 | 3.5787 | 3.6800 | 3.7799 | 3.8782 |
| | C/(M/SEC) | 152.5178 | 159.3344 | 165.4341 | 170.9605 | 176.0142 | 180.6693 | 184.9821 | 188.9974 | 192.7510 |
| | KAPPA/(1/MPA) | 1.1804 | 1.1439 | 1.1162 | 1.0947 | 1.0777 | 1.0641 | 1.0532 | 1.0443 | 1.0371 |
| | BETA/(1000/K) | 2.5 | 2.3 | 2.0 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 |
| 2.0000 | V/(M3/KG) | .01074 | .01204 | .01317 | .01419 | .01513 | .01601 | .01683 | .01761 | .01834 |
| | H/(KJ/KG) | 1444.7 | 1532.8 | 1621.0 | 1709.8 | 1799.4 | 1890.0 | 1981.6 | 2074.2 | 2167.8 |
| | S/(KJ/KG K) | 2.9882 | 3.1037 | 3.2156 | 3.3250 | 3.4320 | 3.5371 | 3.6403 | 3.7417 | 3.8415 |
| | C/(M/SEC) | 124.8314 | 138.0117 | 148.6060 | 157.5023 | 165.1762 | 171.9163 | 177.9123 | 183.2973 | 188.1685 |
| | KAPPA/(1/MPA) | .7522 | .6744 | .6280 | .5971 | .5751 | .5589 | .5465 | .5369 | .5294 |
| | BETA/(1000/K) | 5.2 | 4.0 | 3.3 | 2.8 | 2.4 | 2.1 | 1.9 | 1.7 | 1.6 |
| 3.0000 | V/(M3/KG) | .00536 | .00664 | .00769 | .00858 | .00937 | .01009 | .01074 | .01135 | .01191 |
| | H/(KJ/KG) | 1408.8 | 1505.4 | 1598.8 | 1691.2 | 1783.5 | 1876.3 | 1969.7 | 2063.9 | 2158.9 |
| | S/(KJ/KG K) | 2.9301 | 3.0567 | 3.1753 | 3.2890 | 3.3993 | 3.5069 | 3.6122 | 3.7154 | 3.8167 |
| | C/(M/SEC) | 103.6414 | 119.6806 | 134.1629 | 146.2666 | 156.4682 | 165.2121 | 172.8167 | 179.5068 | 185.4447 |
| | KAPPA/(1/MPA) | .6114 | .5285 | .4685 | .4304 | .4049 | .3870 | .3738 | .3639 | .3564 |
| | BETA/(1000/K) | 10.5 | 6.9 | 5.0 | 3.9 | 3.2 | 2.7 | 2.3 | 2.1 | 1.8 |
| 4.0000 | V/(M3/KG) | .00347 | .00427 | .00511 | .00588 | .00658 | .00720 | .00776 | .00828 | .00876 |
| | H/(KJ/KG) | 1381.0 | 1479.0 | 1576.3 | 1672.2 | 1767.5 | 1862.6 | 1957.9 | 2053.7 | 2150.2 |
| | S/(KJ/KG K) | 2.8873 | 3.0159 | 3.1394 | 3.2575 | 3.3713 | 3.4815 | 3.5889 | 3.6940 | 3.7968 |
| | C/(M/SEC) | 123.0607 | 121.9956 | 129.9006 | 140.7366 | 151.4653 | 161.2128 | 169.8716 | 177.5356 | 184.3331 |
| | KAPPA/(1/MPA) | .2775 | .3395 | .3455 | .3285 | .3101 | .2949 | .2832 | .2741 | .2671 |
| | BETA/(1000/K) | 8.5 | 7.9 | 6.4 | 5.0 | 4.0 | 3.3 | 2.8 | 2.4 | 2.1 |

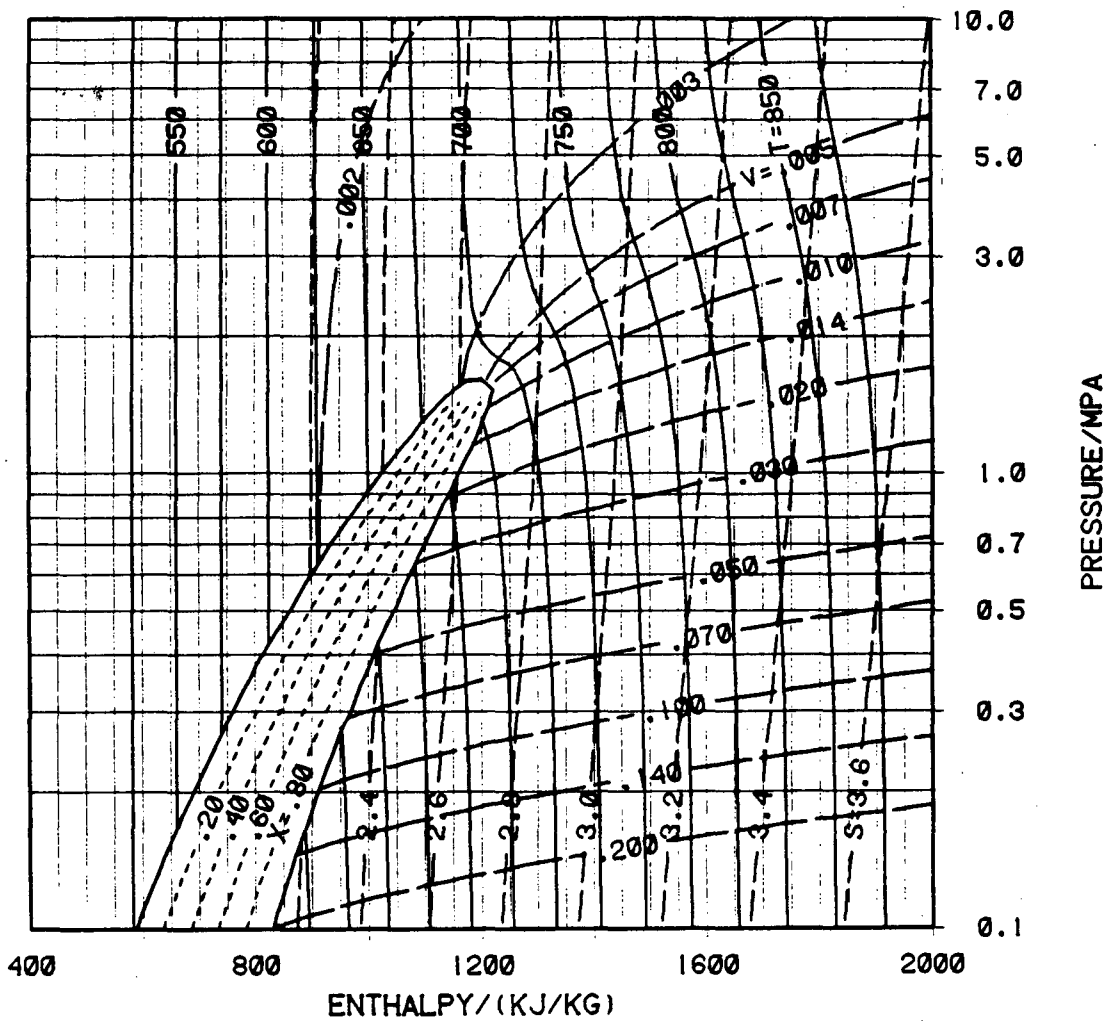
## THERMODYNAMIC PROPERTIES OF TRIDECANE

### TEMPERATURES/(K)

| P/(MPA) | | 510.000 | 525.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00150 | .00153 | .00160 | .00166 | .00174 | .00184 | .00195 | .00209 | .00227 | .00252 |
| | H/(KJ/KG) | 562.8 | 607.8 | 684.7 | 763.5 | 844.0 | 926.1 | 1010.2 | 1096.8 | 1183.5 | 1275.1 |
| | S/(KJ/KG K) | 1.5814 | 1.6684 | 1.8114 | 1.9515 | 2.0885 | 2.2226 | 2.3546 | 2.4853 | 2.6113 | 2.7398 |
| | C/(M/SEC) | 755.1214 | 708.0803 | 630.9127 | 556.3221 | 484.9243 | 416.8602 | 352.0879 | 322.1492 | 236.5798 | 191.8589 |
| | KAPPA/(1/MPA) | .0032 | .0037 | .0048 | .0063 | .0087 | .0122 | .0181 | .0283 | .0467 | .0795 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.6 | 1.8 | 2.0 | 2.2 | 2.5 | 3.0 | 3.7 | 4.7 |
| 6.0000 | V/(M3/KG) | .00149 | .00153 | .00159 | .00165 | .00173 | .00182 | .00192 | .00204 | .00218 | .00237 |
| | H/(KJ/KG) | 563.2 | 608.1 | 684.9 | 763.5 | 843.7 | 925.5 | 1009.1 | 1095.0 | 1180.5 | 1270.4 |
| | S/(KJ/KG K) | 1.5792 | 1.6661 | 1.8089 | 1.9486 | 2.0852 | 2.2187 | 2.3499 | 2.4795 | 2.6038 | 2.7300 |
| | C/(M/SEC) | 745.8616 | 701.9202 | 629.7238 | 560.1229 | 493.9825 | 431.6877 | 373.3645 | 350.3670 | 271.9650 | 231.9003 |
| | KAPPA/(1/MPA) | .0032 | .0037 | .0047 | .0061 | .0082 | .0112 | .0157 | .0226 | .0334 | .0500 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.6 | 1.7 | 1.9 | 2.0 | 2.3 | 2.6 | 3.0 | 3.5 |
| 7.0000 | V/(M3/KG) | .00149 | .00152 | .00158 | .00164 | .00172 | .00180 | .00189 | .00200 | .00212 | .00227 |
| | H/(KJ/KG) | 563.6 | 608.5 | 685.1 | 763.6 | 843.6 | 925.1 | 1008.3 | 1093.6 | 1178.5 | 1267.3 |
| | S/(KJ/KG K) | 1.5771 | 1.6638 | 1.8064 | 1.9459 | 2.0821 | 2.2151 | 2.3458 | 2.4746 | 2.5978 | 2.7226 |
| | C/(M/SEC) | 735.8014 | 695.0488 | 627.8907 | 563.1944 | 502.0367 | 444.9289 | 392.0468 | 374.5664 | 301.3607 | 265.1785 |
| | KAPPA/(1/MPA) | .0033 | .0037 | .0047 | .0060 | .0078 | .0103 | .0139 | .0189 | .0262 | .0363 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.5 | 1.6 | 1.8 | 1.9 | 2.1 | 2.3 | 2.6 | 2.9 |
| 8.0000 | V/(M3/KG) | .00148 | .00152 | .00157 | .00163 | .00170 | .00178 | .00186 | .00196 | .00207 | .00220 |
| | H/(KJ/KG) | 564.0 | 608.9 | 685.3 | 763.7 | 843.5 | 924.8 | 1007.8 | 1092.7 | 1177.0 | 1265.2 |
| | S/(KJ/KG K) | 1.5750 | 1.6617 | 1.8040 | 1.9432 | 2.0792 | 2.2118 | 2.3420 | 2.4702 | 2.5927 | 2.7165 |
| | C/(M/SEC) | 724.8312 | 687.3851 | 625.3629 | 565.5343 | 509.1504 | 456.8167 | 408.6818 | 395.8551 | 326.7057 | 293.7489 |
| | KAPPA/(1/MPA) | .0033 | .0037 | .0047 | .0059 | .0075 | .0096 | .0125 | .0164 | .0216 | .0284 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.1 | 2.3 | 2.5 |
| 9.0000 | V/(M3/KG) | .00148 | .00151 | .00157 | .00163 | .00169 | .00176 | .00184 | .00193 | .00203 | .00215 |
| | H/(KJ/KG) | 564.4 | 609.2 | 685.6 | 763.8 | 843.5 | 924.6 | 1007.3 | 1091.9 | 1175.9 | 1263.6 |
| | S/(KJ/KG K) | 1.5729 | 1.6595 | 1.8016 | 1.9407 | 2.0764 | 2.2087 | 2.3385 | 2.4663 | 2.5882 | 2.7113 |
| | C/(M/SEC) | 712.7611 | 678.8103 | 622.0820 | 567.1289 | 515.3807 | 467.5096 | 423.6512 | 414.9121 | 349.0960 | 318.8946 |
| | KAPPA/(1/MPA) | .0034 | .0038 | .0046 | .0057 | .0072 | .0090 | .0114 | .0145 | .0185 | .0234 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.1 | 2.3 |
| 10.0000 | V/(M3/KG) | .00147 | .00151 | .00156 | .00162 | .00168 | .00175 | .00182 | .00190 | .00200 | .00210 |
| | H/(KJ/KG) | 564.9 | 609.7 | 686.0 | 764.1 | 843.6 | 924.5 | 1007.1 | 1091.4 | 1175.0 | 1262.3 |
| | S/(KJ/KG K) | 1.5709 | 1.6574 | 1.7994 | 1.9383 | 2.0737 | 2.2058 | 2.3353 | 2.4626 | 2.5841 | 2.7067 |
| | C/(M/SEC) | 699.4083 | 669.1807 | 617.9668 | 567.9536 | 520.7604 | 477.1366 | 437.2077 | 432.1824 | 369.2056 | 341.4274 |
| | KAPPA/(1/MPA) | .0035 | .0039 | .0046 | .0057 | .0069 | .0086 | .0106 | .0131 | .0162 | .0199 |
| | BETA/(1000/K) | 1.3 | 1.4 | 1.4 | 1.5 | 1.6 | 1.6 | 1.7 | 1.8 | 2.0 | 2.1 |

## THERMODYNAMIC PROPERTIES OF TRIDECANE

| P/(MPA) | | TEMPERATURES/(K) 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00287 | .00332 | .00386 | .00444 | .00501 | .00555 | .00604 | .00649 | .00691 |
| | H/(KJ/KG) | 1367.8 | 1462.4 | 1558.6 | 1655.5 | 1752.6 | 1849.5 | 1946.6 | 2043.9 | 2141.7 |
| | S/(KJ/KG K) | 2.8656 | 2.9896 | 3.1118 | 3.2311 | 3.3470 | 3.4594 | 3.5687 | 3.6754 | 3.7797 |
| | C/(M/SEC) | 161.6138 | 146.6640 | 142.9102 | 146.3238 | 153.4579 | 161.8354 | 170.1922 | 178.0274 | 185.1904 |
| | KAPPA/(1/MPA) | .1278 | .1792 | .2169 | .2333 | .2343 | .2289 | .2222 | .2159 | .2104 |
| | BETA/(1000/K) | 5.6 | 6.0 | 5.9 | 5.2 | 4.4 | 3.7 | 3.1 | 2.7 | 2.3 |
| 6.0000 | V/(M3/KG) | .00261 | .00290 | .00326 | .00367 | .00410 | .00454 | .00496 | .00535 | .00572 |
| | H/(KJ/KG) | 1360.8 | 1452.9 | 1547.1 | 1643.0 | 1740.2 | 1838.0 | 1936.2 | 2034.7 | 2133.7 |
| | S/(KJ/KG K) | 2.8526 | 2.9734 | 3.0930 | 3.2111 | 3.3271 | 3.4405 | 3.5511 | 3.6591 | 3.7647 |
| | C/(M/SEC) | 200.7254 | 179.5583 | 167.6460 | 163.2512 | 164.3897 | 168.9685 | 175.2248 | 182.0216 | 188.7522 |
| | KAPPA/(1/MPA) | .0735 | .1023 | .1313 | .1545 | .1682 | .1735 | .1738 | .1717 | .1690 |
| | BETA/(1000/K) | 4.1 | 4.5 | 4.7 | 4.6 | 4.3 | 3.8 | 3.3 | 2.8 | 2.5 |
| 7.0000 | V/(M3/KG) | .00245 | .00267 | .00293 | .00323 | .00356 | .00391 | .00425 | .00459 | .00491 |
| | H/(KJ/KG) | 1356.5 | 1447.1 | 1539.7 | 1634.4 | 1730.8 | 1828.6 | 1927.2 | 2026.5 | 2126.3 |
| | S/(KJ/KG K) | 2.8435 | 2.9623 | 3.0799 | 3.1964 | 3.3116 | 3.4249 | 3.5361 | 3.6449 | 3.7514 |
| | C/(M/SEC) | 235.3719 | 212.5168 | 196.5396 | 186.8684 | 182.6363 | 182.6775 | 185.6368 | 190.2771 | 195.6957 |
| | KAPPA/(1/MPA) | .0497 | .0664 | .0850 | .1032 | .1181 | .1282 | .1336 | .1357 | .1359 |
| | BETA/(1000/K) | 3.3 | 3.6 | 3.8 | 3.9 | 3.8 | 3.6 | 3.2 | 2.9 | 2.5 |
| 8.0000 | V/(M3/KG) | .00235 | .00253 | .00273 | .00296 | .00322 | .00350 | .00378 | .00407 | .00435 |
| | H/(KJ/KG) | 1353.5 | 1443.1 | 1534.6 | 1628.3 | 1723.9 | 1821.2 | 1919.9 | 2019.5 | 2119.8 |
| | S/(KJ/KG K) | 2.8363 | 2.9538 | 3.0700 | 3.1853 | 3.2995 | 3.4123 | 3.5235 | 3.6326 | 3.7396 |
| | C/(M/SEC) | 265.7383 | 242.9297 | 225.3396 | 212.7698 | 204.8781 | 201.1211 | 200.7039 | 202.6864 | 206.1863 |
| | KAPPA/(1/MPA) | .0371 | .0477 | .0598 | .0726 | .0847 | .0947 | .1019 | .1064 | .1088 |
| | BETA/(1000/K) | 2.8 | 3.0 | 3.2 | 3.3 | 3.3 | 3.2 | 3.0 | 2.8 | 2.5 |
| 9.0000 | V/(M3/KG) | .00228 | .00242 | .00259 | .00278 | .00299 | .00322 | .00346 | .00370 | .00395 |
| | H/(KJ/KG) | 1351.3 | 1440.2 | 1531.0 | 1623.8 | 1718.7 | 1815.6 | 1914.0 | 2013.6 | 2114.2 |
| | S/(KJ/KG K) | 2.8303 | 2.9469 | 3.0621 | 3.1764 | 3.2898 | 3.4020 | 3.5129 | 3.6221 | 3.7294 |
| | C/(M/SEC) | 292.6699 | 270.5431 | 252.5206 | 238.5314 | 228.4443 | 222.0216 | 218.8462 | 218.3159 | 219.7414 |
| | KAPPA/(1/MPA) | .0295 | .0367 | .0450 | .0540 | .0631 | .0715 | .0784 | .0836 | .0872 |
| | BETA/(1000/K) | 2.4 | 2.6 | 2.8 | 2.9 | 2.9 | 2.9 | 2.8 | 2.6 | 2.4 |
| 10.0000 | V/(M3/KG) | .00222 | .00235 | .00249 | .00265 | .00283 | .00302 | .00323 | .00344 | .00365 |
| | H/(KJ/KG) | 1349.6 | 1438.0 | 1528.2 | 1620.4 | 1716.8 | 1811.2 | 1909.3 | 2008.8 | 2109.5 |
| | S/(KJ/KG K) | 2.8251 | 2.9410 | 3.0555 | 3.1690 | 3.2817 | 3.3934 | 3.5040 | 3.6130 | 3.7204 |
| | C/(M/SEC) | 316.8939 | 295.6727 | 277.7737 | 263.1810 | 251.8589 | 243.7104 | 238.5271 | 235.9482 | 235.4900 |
| | KAPPA/(1/MPA) | .0244 | .0296 | .0356 | .0422 | .0490 | .0556 | .0616 | .0665 | .0703 |
| | BETA/(1000/K) | 2.2 | 2.4 | 2.5 | 2.6 | 2.6 | 2.6 | 2.6 | 2.5 | 2.3 |




TETRADECANE

## PROPERTIES OF SATURATED TETRADECANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 530.00000 | .10822 | .00164 | .18662 | 597.84805 | 240.16061 | 838.00866 | 1.68072 | .45313 | 2.13386 |
| 535.00000 | .12103 | .00165 | .16738 | 613.31338 | 237.17757 | 850.49095 | 1.70973 | .44332 | 2.15305 |
| 540.00000 | .13500 | .00167 | .15044 | 628.89497 | 234.15072 | 863.04569 | 1.73867 | .43361 | 2.17228 |
| 545.00000 | .15020 | .00168 | .13549 | 644.59214 | 231.07741 | 875.66955 | 1.76756 | .42400 | 2.19156 |
| 550.00000 | .16671 | .00169 | .12226 | 660.40445 | 227.95428 | 888.35873 | 1.79639 | .41446 | 2.21085 |
| 555.00000 | .18460 | .00171 | .11052 | 676.33123 | 224.77782 | 901.10905 | 1.82516 | .40501 | 2.23017 |
| 560.00000 | .20396 | .00173 | .10007 | 692.37161 | 221.54432 | 913.91593 | 1.85387 | .39561 | 2.24949 |
| 565.00000 | .22486 | .00174 | .09075 | 708.52457 | 218.24984 | 926.77440 | 1.88253 | .38628 | 2.26881 |
| 570.00000 | .24739 | .00176 | .08241 | 724.78894 | 214.89012 | 939.67906 | 1.91112 | .37700 | 2.28812 |
| 575.00000 | .27163 | .00178 | .07494 | 741.16350 | 211.46057 | 952.62408 | 1.93964 | .36776 | 2.30740 |
| 580.00000 | .29768 | .00179 | .06823 | 757.64701 | 207.95616 | 965.60316 | 1.96811 | .35855 | 2.32665 |
| 585.00000 | .32564 | .00181 | .06218 | 774.23831 | 204.37123 | 978.60954 | 1.99650 | .34935 | 2.34585 |
| 590.00000 | .35559 | .00183 | .05673 | 790.93640 | 200.69950 | 991.63590 | 2.02483 | .34017 | 2.36500 |
| 595.00000 | .38764 | .00185 | .05180 | 807.74054 | 196.93382 | 1004.67435 | 2.05309 | .33098 | 2.38407 |
| 600.00000 | .42189 | .00187 | .04733 | 824.65037 | 193.06598 | 1017.71635 | 2.08129 | .32178 | 2.40306 |
| 605.00000 | .45847 | .00190 | .04327 | 841.66609 | 189.08649 | 1030.75259 | 2.10941 | .31254 | 2.42195 |
| 610.00000 | .49748 | .00192 | .03957 | 858.78860 | 184.98428 | 1043.77289 | 2.13748 | .30325 | 2.44073 |
| 615.00000 | .53905 | .00194 | .03621 | 876.01974 | 180.74630 | 1056.76603 | 2.16548 | .29390 | 2.45938 |
| 620.00000 | .58330 | .00197 | .03313 | 893.36254 | 176.35702 | 1069.71956 | 2.19342 | .28445 | 2.47787 |
| 625.00000 | .63038 | .00200 | .03031 | 910.82159 | 171.79784 | 1082.61943 | 2.22132 | .27488 | 2.49620 |
| 630.00000 | .68043 | .00203 | .02773 | 928.40381 | 167.04579 | 1095.44959 | 2.24918 | .26515 | 2.51433 |
| 635.00000 | .73360 | .00206 | .02535 | 946.11719 | 162.07468 | 1108.19187 | 2.27701 | .25524 | 2.53225 |
| 640.00000 | .79005 | .00209 | .02316 | 963.97569 | 156.84839 | 1120.82408 | 2.30484 | .24508 | 2.54992 |
| 645.00000 | .84997 | .00213 | .02114 | 981.99551 | 151.32471 | 1133.32023 | 2.33269 | .23461 | 2.56730 |
| 650.00000 | .91353 | .00217 | .01926 | 1000.19962 | 145.44831 | 1145.64793 | 2.36060 | .22377 | 2.58436 |
| 655.00000 | .98094 | .00221 | .01752 | 1018.61945 | 139.14650 | 1157.76596 | 2.38860 | .21244 | 2.60104 |
| 660.00000 | 1.05240 | .00226 | .01589 | 1037.29875 | 132.32104 | 1169.61978 | 2.41677 | .20049 | 2.61725 |
| 665.00000 | 1.12816 | .00232 | .01435 | 1056.29961 | 124.83435 | 1181.13396 | 2.44518 | .18772 | 2.63291 |
| 670.00000 | 1.20845 | .00238 | .01290 | 1075.71454 | 116.48313 | 1192.19767 | 2.47399 | .17386 | 2.64784 |
| 675.00000 | 1.29354 | .00246 | .01150 | 1095.69141 | 106.94234 | 1202.63375 | 2.50339 | .15843 | 2.66182 |
| 680.00000 | 1.38373 | .00256 | .01013 | 1116.49426 | 95.62866 | 1212.12292 | 2.53376 | .14063 | 2.67439 |
| 685.00000 | 1.47932 | .00270 | .00873 | 1138.70374 | 81.25411 | 1219.95785 | 2.56593 | .11862 | 2.68455 |
| 690.00000 | 1.58064 | .00298 | .00709 | 1164.49939 | 59.14631 | 1223.64570 | 2.60303 | .08572 | 2.68875 |
| 691.87000 | 1.68808 | .00412 | .00412 | 1192.84905 | 0. | 1192.84905 | 2.64344 | 0. | 2.64344 |

THERMODYNAMIC PROPERTIES OF TETRADECANE

| P/(MPA) | | TEMPERATURES/(K) 530.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .20361 | .21509 | .22815 | .24038 | .25214 | .26366 | .27502 | .28630 | .29753 |
| | H/(KJ/KG) | 839.0 | 894.3 | 964.1 | 1035.0 | 1107.3 | 1181.1 | 1256.5 | 1333.5 | 1412.2 |
| | S/(KJ/KG K) | 2.1387 | 2.2413 | 2.3653 | 2.4859 | 2.6040 | 2.7198 | 2.8336 | 2.9457 | 3.0560 |
| | C/(M/SEC) | 138.3866 | 143.2601 | 148.4151 | 152.9521 | 157.1173 | 161.0435 | 164.8030 | 168.4352 | 171.9611 |
| | KAPPA/(1/MPA) | 10.9787 | 10.7554 | 10.5840 | 10.4743 | 10.3973 | 10.3386 | 10.2909 | 10.2506 | 10.2155 |
| | BETA/(1000/K) | 3.0 | 2.5 | 2.2 | 2.0 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 |
| .1013 | V/(M3/KG) | .20069 | .21207 | .22499 | .23708 | .24871 | .26009 | .27132 | .28247 | .29355 |
| | H/(KJ/KG) | 838.8 | 894.2 | 964.0 | 1034.9 | 1107.2 | 1181.0 | 1256.5 | 1333.5 | 1412.1 |
| | S/(KJ/KG K) | 2.1379 | 2.2405 | 2.3646 | 2.4853 | 2.6033 | 2.7192 | 2.8330 | 2.9451 | 3.0555 |
| | C/(M/SEC) | 138.2134 | 143.1214 | 148.3036 | 152.8586 | 157.0369 | 160.9734 | 164.7417 | 168.3814 | 171.9141 |
| | KAPPA/(1/MPA) | 10.8514 | 10.6265 | 10.4542 | 10.3442 | 10.2669 | 10.2081 | 10.1604 | 10.1199 | 10.0848 |
| | BETA/(1000/K) | 3.0 | 2.6 | 2.2 | 2.0 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 |
| .2000 | V/(M3/KG) | .00164 | .00169 | .10715 | .11434 | .12097 | .12731 | .13348 | .13954 | .14555 |
| | H/(KJ/KG) | 597.9 | 660.4 | 957.7 | 1030.2 | 1103.3 | 1177.7 | 1253.4 | 1330.6 | 1409.4 |
| | S/(KJ/KG K) | 1.6805 | 1.7963 | 2.3274 | 2.4507 | 2.5702 | 2.6868 | 2.8011 | 2.9135 | 3.0241 |
| | C/(M/SEC) | 974.8980 | 859.9950 | 139.5380 | 145.6372 | 150.8953 | 155.6617 | 160.1146 | 164.3461 | 168.4035 |
| | KAPPA/(1/MPA) | .0025 | .0032 | 5.6744 | 5.5263 | 5.4298 | 5.3599 | 5.3052 | 5.2601 | 5.2217 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.8 | 2.4 | 2.1 | 2.0 | 1.8 | 1.7 | 1.6 |
| .3000 | V/(M3/KG) | .00164 | .00169 | .00178 | .07208 | .07710 | .08177 | .08624 | .09059 | .09487 |
| | H/(KJ/KG) | 597.9 | 660.4 | 741.2 | 1024.9 | 1099.2 | 1174.1 | 1250.2 | 1327.7 | 1406.6 |
| | S/(KJ/KG K) | 1.6802 | 1.7960 | 1.9395 | 2.4269 | 2.5481 | 2.6657 | 2.7806 | 2.8933 | 3.0041 |
| | C/(M/SEC) | 972.5065 | 858.2208 | 721.4708 | 137.6690 | 144.3001 | 150.0597 | 155.2986 | 160.1892 | 164.8178 |
| | KAPPA/(1/MPA) | .0025 | .0032 | .0047 | 3.9290 | 3.8036 | 3.7186 | 3.6549 | 3.6040 | 3.5617 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.0 | 2.9 | 2.5 | 2.2 | 2.0 | 1.9 | 1.8 |
| .4000 | V/(M3/KG) | .00164 | .00169 | .00178 | .05070 | .05503 | .05892 | .06258 | .06609 | .06952 |
| | H/(KJ/KG) | 597.9 | 660.4 | 741.1 | 1019.1 | 1094.7 | 1170.4 | 1246.9 | 1324.6 | 1403.8 |
| | S/(KJ/KG K) | 1.6799 | 1.7957 | 1.9392 | 2.4071 | 2.5306 | 2.6493 | 2.7648 | 2.8779 | 2.9890 |
| | C/(M/SEC) | 970.1083 | 856.4412 | 720.4514 | 128.7626 | 137.2107 | 144.1801 | 150.3263 | 155.9501 | 161.1969 |
| | KAPPA/(1/MPA) | .0025 | .0032 | .0047 | 3.1946 | 3.0226 | 2.9160 | 2.8406 | 2.7826 | 2.7358 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.0 | 3.7 | 3.0 | 2.5 | 2.3 | 2.1 | 2.0 |
| .5000 | V/(M3/KG) | .00164 | .00169 | .00177 | .00187 | .04165 | .04513 | .04833 | .05137 | .05430 |
| | H/(KJ/KG) | 597.9 | 660.4 | 741.1 | 824.6 | 1089.8 | 1166.4 | 1243.4 | 1321.5 | 1400.8 |
| | S/(KJ/KG K) | 1.6797 | 1.7954 | 1.9388 | 2.0809 | 2.5151 | 2.6353 | 2.7515 | 2.8651 | 2.9765 |
| | C/(M/SEC) | 967.7030 | 854.6562 | 719.4272 | 589.8243 | 129.4381 | 137.9413 | 145.1597 | 151.6105 | 157.5322 |
| | KAPPA/(1/MPA) | .0025 | .0032 | .0047 | .0072 | 2.5934 | 2.4544 | 2.3631 | 2.2962 | 2.2439 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.4 | 3.6 | 2.9 | 2.6 | 2.3 | 2.1 |
| .6000 | V/(M3/KG) | .00164 | .00169 | .00177 | .00187 | .03255 | .03586 | .03879 | .04152 | .04414 |
| | H/(KJ/KG) | 597.9 | 660.4 | 741.1 | 824.5 | 1084.4 | 1162.1 | 1239.8 | 1318.2 | 1397.8 |
| | S/(KJ/KG K) | 1.6794 | 1.7951 | 1.9385 | 2.0805 | 2.5006 | 2.6225 | 2.7397 | 2.8538 | 2.9656 |
| | C/(M/SEC) | 965.2904 | 852.8654 | 718.3979 | 589.6349 | 120.6614 | 131.2238 | 139.7475 | 147.1473 | 153.8132 |
| | KAPPA/(1/MPA) | .0025 | .0033 | .0047 | .0072 | 2.3631 | 2.1708 | 2.0570 | 1.9785 | 1.9197 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.3 | 4.4 | 3.4 | 2.9 | 2.6 | 2.3 |

THERMODYNAMIC PROPERTIES OF TETRADECANE

| P/(MPA) | | TEMPERATURES/(K) 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .30871 | .31984 | .33094 | .34199 | .35299 | .36394 | .37483 | .38567 | .39644 |
| | H/(KJ/KG) | 1492.4 | 1574.1 | 1657.4 | 1742.0 | 1828.1 | 1915.4 | 2004.1 | 2094.0 | 2185.2 |
| | S/(KJ/KG K) | 3.1648 | 3.2720 | 3.3777 | 3.4819 | 3.5846 | 3.6860 | 3.7859 | 3.8844 | 3.9816 |
| | C/(M/SEC) | 175.3918 | 178.7336 | 181.9900 | 185.1634 | 188.2561 | 191.2702 | 194.2080 | 197.0720 | 199.8650 |
| | KAPPA/(1/MPA) | 10.1846 | 10.1573 | 10.1332 | 10.1122 | 10.0939 | 10.0782 | 10.0650 | 10.0540 | 10.0452 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | .30459 | .31559 | .32655 | .33747 | .34833 | .35914 | .36990 | .38060 | .39123 |
| | H/(KJ/KG) | 1492.4 | 1574.1 | 1657.3 | 1742.0 | 1828.0 | 1915.4 | 2004.1 | 2094.0 | 2185.2 |
| | S/(KJ/KG K) | 3.1642 | 3.2714 | 3.3771 | 3.4813 | 3.5841 | 3.6854 | 3.7853 | 3.8839 | 3.9811 |
| | C/(M/SEC) | 175.3510 | 178.6983 | 181.9597 | 185.1376 | 188.2343 | 191.2518 | 194.1925 | 197.0589 | 199.8538 |
| | KAPPA/(1/MPA) | 10.0539 | 10.0266 | 10.0025 | 9.9814 | 9.9631 | 9.9474 | 9.9342 | 9.9232 | 9.9144 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | .15150 | .15741 | .16327 | .16908 | .17485 | .18055 | .18620 | .19180 | .19733 |
| | H/(KJ/KG) | 1489.8 | 1571.6 | 1655.0 | 1739.8 | 1826.0 | 1913.6 | 2002.5 | 2092.6 | 2184.0 |
| | S/(KJ/KG K) | 3.1330 | 3.2404 | 3.3462 | 3.4506 | 3.5536 | 3.6551 | 3.7553 | 3.8541 | 3.9515 |
| | C/(M/SEC) | 172.3109 | 176.0808 | 179.7200 | 183.2327 | 186.6227 | 189.8933 | 193.0484 | 196.0921 | 199.0288 |
| | KAPPA/(1/MPA) | 5.1884 | 5.1595 | 5.1344 | 5.1126 | 5.0939 | 5.0780 | 5.0647 | 5.0537 | 5.0449 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 |
| .3000 | V/(M3/KG) | .09910 | .10327 | .10739 | .11146 | .11548 | .11944 | .12334 | .12718 | .13096 |
| | H/(KJ/KG) | 1487.1 | 1569.1 | 1652.6 | 1737.6 | 1824.0 | 1911.8 | 2000.9 | 2091.2 | 2182.8 |
| | S/(KJ/KG K) | 3.1132 | 3.2208 | 3.3268 | 3.4314 | 3.5346 | 3.6364 | 3.7368 | 3.8358 | 3.9335 |
| | C/(M/SEC) | 169.2280 | 173.4425 | 177.4737 | 181.3298 | 185.0173 | 188.5422 | 191.9107 | 195.1292 | 198.2045 |
| | KAPPA/(1/MPA) | 3.5259 | 3.4952 | 3.4688 | 3.4463 | 3.4272 | 3.4110 | 3.3977 | 3.3868 | 3.3781 |
| | BETA/(1000/K) | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 1.1 |
| .4000 | V/(M3/KG) | .07289 | .07620 | .07945 | .08265 | .08580 | .08888 | .09191 | .09488 | .09779 |
| | H/(KJ/KG) | 1484.4 | 1566.6 | 1650.3 | 1735.4 | 1822.0 | 1910.0 | 1999.3 | 2089.9 | 2181.6 |
| | S/(KJ/KG K) | 3.0983 | 3.2061 | 3.3124 | 3.4172 | 3.5206 | 3.6226 | 3.7232 | 3.8225 | 3.9204 |
| | C/(M/SEC) | 166.1399 | 170.8171 | 175.2506 | 179.4544 | 183.4399 | 187.2169 | 190.7950 | 194.1837 | 197.3923 |
| | KAPPA/(1/MPA) | 2.6969 | 2.6643 | 2.6367 | 2.6134 | 2.5938 | 2.5774 | 2.5640 | 2.5531 | 2.5445 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.2 | 1.2 |
| .5000 | V/(M3/KG) | .05716 | .05996 | .06270 | .06538 | .06800 | .07056 | .07306 | .07550 | .07788 |
| | H/(KJ/KG) | 1481.7 | 1564.0 | 1647.9 | 1733.2 | 1820.0 | 1908.2 | 1997.7 | 2088.5 | 2180.5 |
| | S/(KJ/KG K) | 3.0861 | 3.1941 | 3.3006 | 3.4056 | 3.5092 | 3.6115 | 3.7123 | 3.8118 | 3.9100 |
| | C/(M/SEC) | 163.0424 | 168.2029 | 173.0496 | 177.6061 | 181.8902 | 185.9173 | 189.7013 | 193.2556 | 196.5928 |
| | KAPPA/(1/MPA) | 2.2017 | 2.1668 | 2.1379 | 2.1138 | 2.0937 | 2.0772 | 2.0636 | 2.0528 | 2.0442 |
| | BETA/(1000/K) | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 |
| .6000 | V/(M3/KG) | .04667 | .04913 | .05153 | .05386 | .05614 | .05835 | .06050 | .06259 | .06462 |
| | H/(KJ/KG) | 1478.9 | 1561.4 | 1645.5 | 1731.0 | 1818.0 | 1906.4 | 1996.1 | 2087.1 | 2179.4 |
| | S/(KJ/KG K) | 3.0755 | 3.1837 | 3.2905 | 3.3957 | 3.4996 | 3.6021 | 3.7032 | 3.8029 | 3.9013 |
| | C/(M/SEC) | 159.9310 | 165.5979 | 170.8701 | 175.7844 | 180.3680 | 184.6432 | 188.6297 | 192.3452 | 195.8063 |
| | KAPPA/(1/MPA) | 1.8735 | 1.8363 | 1.8058 | 1.7808 | 1.7603 | 1.7435 | 1.7299 | 1.7191 | 1.7106 |
| | BETA/(1000/K) | 2.1 | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 |

THERMODYNAMIC PROPERTIES OF TETRADECANE

| P/(MPA) | | TEMPERATURES/(K) 530.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00163 | .00169 | .00177 | .00187 | .00200 | .02913 | .03192 | .03447 | .03687 |
| | H/(KJ/KG) | 598.0 | 660.4 | 741.0 | 824.4 | 910.7 | 1157.5 | 1235.9 | 1314.8 | 1394.8 |
| | S/(KJ/KG K) | 1.6791 | 1.7948 | 1.9381 | 2.0801 | 2.2209 | 2.6105 | 2.7288 | 2.8436 | 2.9558 |
| | C/(M/SEC) | 950.8209 | 842.9268 | 711.9377 | 589.4383 | 463.7247 | 123.8429 | 134.0196 | 142.5313 | 150.0271 |
| | KAPPA/(1/MPA) | .0025 | .0033 | .0047 | .0072 | .0123 | 2.0003 | 1.8527 | 1.7588 | 1.6919 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.3 | 2.9 | 4.1 | 3.3 | 2.9 | 2.5 |
| .8000 | V/(M3/KG) | .00163 | .00169 | .00177 | .00187 | .00199 | .02396 | .02672 | .02915 | .03141 |
| | H/(KJ/KG) | 598.0 | 660.4 | 741.0 | 824.4 | 910.5 | 1152.4 | 1231.9 | 1311.3 | 1391.6 |
| | S/(KJ/KG K) | 1.6789 | 1.7945 | 1.9378 | 2.0796 | 2.2203 | 2.5985 | 2.7185 | 2.8340 | 2.9467 |
| | C/(M/SEC) | 951.4176 | 843.9093 | 713.4415 | 586.7109 | 464.6261 | 115.4901 | 127.8764 | 137.7244 | 146.1586 |
| | KAPPA/(1/MPA) | .0025 | .0033 | .0047 | .0072 | .0122 | 1.9198 | 1.7172 | 1.6021 | 1.5250 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.3 | 2.9 | 5.0 | 3.8 | 3.2 | 2.8 |
| .9000 | V/(M3/KG) | .00163 | .00169 | .00177 | .00187 | .00199 | .01978 | .02260 | .02498 | .02714 |
| | H/(KJ/KG) | 598.0 | 660.4 | 741.0 | 824.3 | 910.4 | 1146.5 | 1227.5 | 1307.6 | 1388.3 |
| | S/(KJ/KG K) | 1.6786 | 1.7942 | 1.9374 | 2.0792 | 2.2198 | 2.5861 | 2.7083 | 2.8249 | 2.9382 |
| | C/(M/SEC) | 952.0435 | 844.9423 | 715.0067 | 588.9581 | 463.6361 | 105.5860 | 121.1712 | 132.6782 | 142.1898 |
| | KAPPA/(1/MPA) | .0025 | .0033 | .0047 | .0071 | .0121 | 1.9401 | 1.6358 | 1.4897 | 1.3994 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.3 | 2.9 | 6.5 | 4.5 | 3.6 | 3.1 |
| 1.0000 | V/(M3/KG) | .00163 | .00169 | .00177 | .00187 | .00199 | .00216 | .01923 | .02161 | .02371 |
| | H/(KJ/KG) | 598.0 | 660.4 | 741.0 | 824.2 | 910.2 | 999.9 | 1222.6 | 1303.7 | 1384.9 |
| | S/(KJ/KG K) | 1.6783 | 1.7939 | 1.9371 | 2.0788 | 2.2192 | 2.3598 | 2.6980 | 2.8160 | 2.9300 |
| | C/(M/SEC) | 952.7263 | 845.6415 | 714.2275 | 588.8050 | 466.3719 | 339.1835 | 113.6741 | 127.3281 | 138.0992 |
| | KAPPA/(1/MPA) | .0025 | .0033 | .0047 | .0071 | .0120 | .0252 | 1.6055 | 1.4115 | 1.3038 |
| | BETA/(1000/K) | 1.6 | 1.8 | 2.0 | 2.3 | 2.8 | 4.1 | 5.4 | 4.1 | 3.4 |
| 2.0000 | V/(M3/KG) | .00163 | .00168 | .00176 | .00185 | .00197 | .00211 | .00235 | .00313 | .00729 |
| | H/(KJ/KG) | 598.3 | 660.5 | 740.8 | 823.6 | 908.9 | 996.9 | 1089.7 | 1196.4 | 1335.7 |
| | S/(KJ/KG K) | 1.6757 | 1.7910 | 1.9336 | 2.0746 | 2.2138 | 2.3519 | 2.4920 | 2.6471 | 2.8430 |
| | C/(M/SEC) | 930.7977 | 827.1377 | 703.3756 | 586.1962 | 474.0980 | 363.3690 | 245.6515 | 89.5463 | 84.8206 |
| | KAPPA/(1/MPA) | .0026 | .0033 | .0047 | .0069 | .0111 | .0203 | .0508 | .7727 | 1.3606 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 2.6 | 3.4 | 5.4 | 33.4 | 16.5 |
| 3.0000 | V/(M3/KG) | .00163 | .00168 | .00175 | .00184 | .00194 | .00208 | .00225 | .00254 | .00315 |
| | H/(KJ/KG) | 598.5 | 660.6 | 740.6 | 823.1 | 907.8 | 994.7 | 1085.0 | 1176.3 | 1279.1 |
| | S/(KJ/KG K) | 1.6731 | 1.7881 | 1.9304 | 2.0707 | 2.2090 | 2.3454 | 2.4817 | 2.6144 | 2.7588 |
| | C/(M/SEC) | 905.0163 | 807.7901 | 691.7810 | 582.7368 | 480.2438 | 382.6771 | 287.6133 | 192.9824 | 118.3303 |
| | KAPPA/(1/MPA) | .0027 | .0034 | .0047 | .0068 | .0104 | .0173 | .0333 | .0839 | .2986 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.8 | 2.1 | 2.4 | 2.9 | 3.8 | 6.1 | 11.6 |
| 4.0000 | V/(M3/KG) | .00162 | .00167 | .00175 | .00183 | .00193 | .00204 | .00219 | .00239 | .00268 |
| | H/(KJ/KG) | 598.8 | 660.8 | 740.6 | 822.7 | 907.0 | 993.2 | 1082.1 | 1170.5 | 1266.0 |
| | S/(KJ/KG K) | 1.6706 | 1.7853 | 1.9272 | 2.0671 | 2.2046 | 2.3398 | 2.4741 | 2.6026 | 2.7368 |
| | C/(M/SEC) | 877.9536 | 787.3608 | 679.2598 | 578.3029 | 484.8836 | 398.4790 | 318.4252 | 244.9182 | 185.3878 |
| | KAPPA/(1/MPA) | .0028 | .0035 | .0048 | .0067 | .0099 | .0153 | .0254 | .0463 | .0925 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.8 | 1.9 | 2.2 | 2.5 | 3.1 | 3.9 | 5.3 |

THERMODYNAMIC PROPERTIES OF TETRADECANE

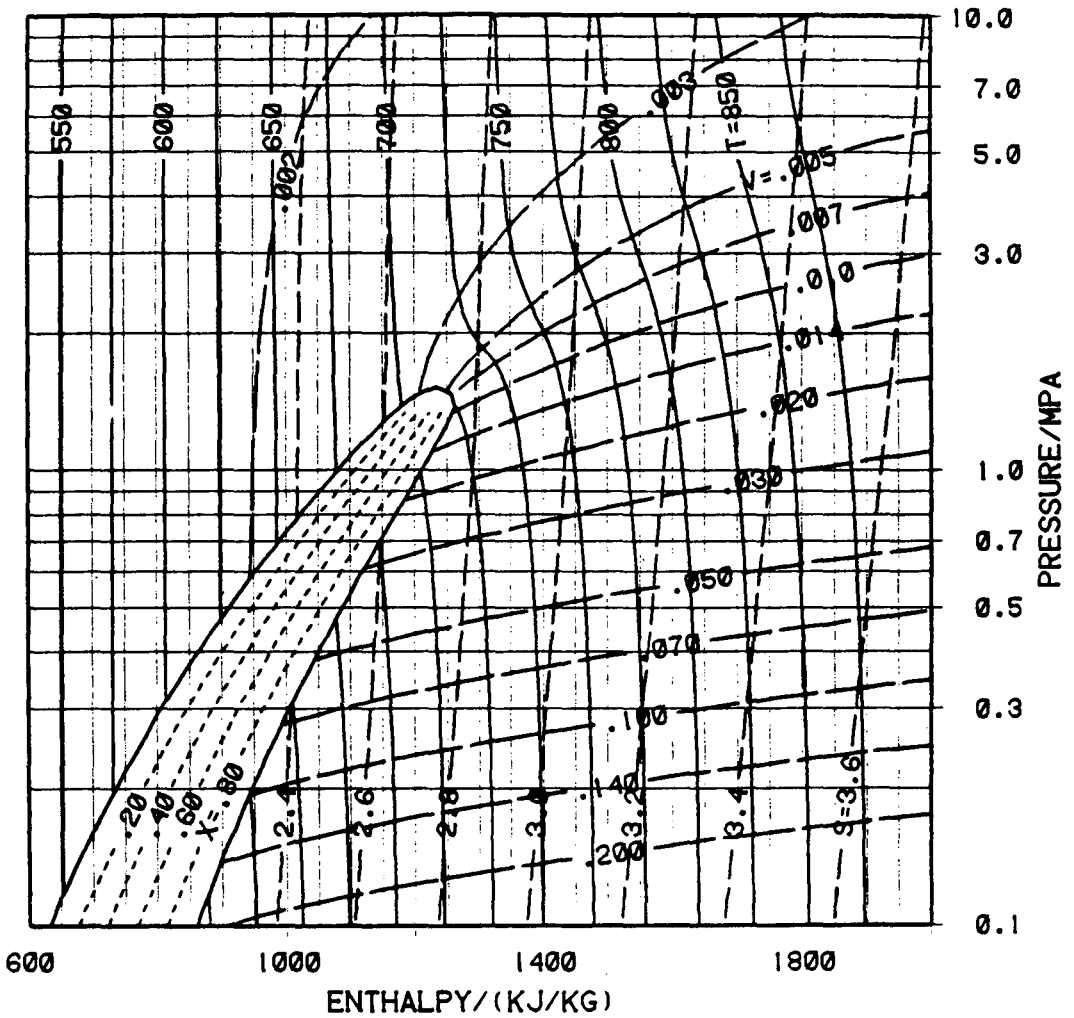
| P/(MPA) | | TEMPERATURES/(K) 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .03917 | .04140 | .04355 | .04564 | .04767 | .04963 | .05153 | .05337 | .05514 |
| | H/(KJ/KG) | 1476.0 | 1558.8 | 1643.0 | 1728.8 | 1816.0 | 1904.6 | 1994.5 | 2085.8 | 2178.2 |
| | S/(KJ/KG K) | 3.0660 | 3.1745 | 3.2815 | 3.3870 | 3.4912 | 3.5939 | 3.6952 | 3.7952 | 3.8939 |
| | C/(M/SEC) | 156.8000 | 162.9995 | 168.7108 | 173.9888 | 178.8729 | 183.3946 | 187.5802 | 191.4528 | 195.0333 |
| | KAPPA/(1/MPA) | 1.6411 | 1.6011 | 1.5691 | 1.5432 | 1.5221 | 1.5051 | 1.4914 | 1.4806 | 1.4722 |
| | BETA/(1000/K) | 2.3 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 |
| .8000 | V/(M3/KG) | .03355 | .03560 | .03757 | .03948 | .04132 | .04310 | .04481 | .04646 | .04804 |
| | H/(KJ/KG) | 1473.1 | 1556.1 | 1640.6 | 1726.5 | 1814.0 | 1902.8 | 1993.0 | 2084.4 | 2177.1 |
| | S/(KJ/KG K) | 3.0573 | 3.1661 | 3.2734 | 3.3792 | 3.4836 | 3.5866 | 3.6882 | 3.7884 | 3.8873 |
| | C/(M/SEC) | 153.6433 | 160.4053 | 166.5707 | 172.2188 | 177.4048 | 182.1714 | 186.5528 | 190.5786 | 194.2743 |
| | KAPPA/(1/MPA) | 1.4687 | 1.4257 | 1.3919 | 1.3650 | 1.3435 | 1.3262 | 1.3125 | 1.3017 | 1.2934 |
| | BETA/(1000/K) | 2.5 | 2.3 | 2.1 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 |
| .9000 | V/(M3/KG) | .02916 | .03109 | .03293 | .03469 | .03639 | .03802 | .03958 | .04108 | .04252 |
| | H/(KJ/KG) | 1470.2 | 1553.4 | 1638.1 | 1724.3 | 1811.9 | 1901.0 | 1991.4 | 2083.1 | 2176.0 |
| | S/(KJ/KG K) | 3.0492 | 3.1584 | 3.2659 | 3.3720 | 3.4766 | 3.5799 | 3.6818 | 3.7823 | 3.8814 |
| | C/(M/SEC) | 150.4539 | 157.8125 | 164.4487 | 170.4738 | 175.9634 | 180.9733 | 185.5477 | 189.7227 | 193.5295 |
| | KAPPA/(1/MPA) | 1.3367 | 1.2902 | 1.2545 | 1.2266 | 1.2045 | 1.1870 | 1.1731 | 1.1624 | 1.1541 |
| | BETA/(1000/K) | 2.7 | 2.4 | 2.2 | 2.0 | 1.8 | 1.7 | 1.5 | 1.4 | 1.3 |
| 1.0000 | V/(M3/KG) | .02565 | .02748 | .02921 | .03086 | .03245 | .03396 | .03540 | .03679 | .03810 |
| | H/(KJ/KG) | 1467.2 | 1550.7 | 1635.6 | 1722.1 | 1809.9 | 1899.2 | 1989.8 | 2081.8 | 2175.0 |
| | S/(KJ/KG K) | 3.0415 | 3.1511 | 3.2589 | 3.3653 | 3.4702 | 3.5737 | 3.6759 | 3.7766 | 3.8760 |
| | C/(M/SEC) | 147.2241 | 155.2183 | 162.3436 | 168.7535 | 174.5485 | 179.8005 | 184.5648 | 188.8855 | 192.7995 |
| | KAPPA/(1/MPA) | 1.2332 | 1.1827 | 1.1449 | 1.1159 | 1.0932 | 1.0755 | 1.0616 | 1.0508 | 1.0427 |
| | BETA/(1000/K) | 2.9 | 2.6 | 2.3 | 2.1 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 |
| 2.0000 | V/(M3/KG) | .00955 | .01117 | .01252 | .01371 | .01479 | .01578 | .01669 | .01752 | .01829 |
| | H/(KJ/KG) | 1430.7 | 1520.3 | 1609.3 | 1699.0 | 1789.7 | 1881.6 | 1974.8 | 2069.1 | 2164.7 |
| | S/(KJ/KG K) | 2.9718 | 3.0893 | 3.2024 | 3.3127 | 3.4211 | 3.5276 | 3.6326 | 3.7360 | 3.8379 |
| | C/(M/SEC) | 111.3753 | 128.8995 | 142.1682 | 152.8906 | 161.8456 | 169.4560 | 175.9795 | 181.5862 | 186.3951 |
| | KAPPA/(1/MPA) | .8847 | .7380 | .6649 | .6207 | .5914 | .5710 | .5563 | .5458 | .5383 |
| | BETA/(1000/K) | 7.6 | 5.2 | 4.0 | 3.3 | 2.8 | 2.4 | 2.1 | 1.8 | 1.6 |
| 3.0000 | V/(M3/KG) | .00433 | .00576 | .00703 | .00810 | .00902 | .00983 | .01055 | .01120 | .01177 |
| | H/(KJ/KG) | 1382.1 | 1483.1 | 1580.0 | 1674.8 | 1769.4 | 1864.5 | 1960.4 | 2057.4 | 2155.4 |
| | S/(KJ/KG K) | 2.8985 | 3.0309 | 3.1539 | 3.2707 | 3.3836 | 3.4939 | 3.6020 | 3.7082 | 3.8128 |
| | C/(M/SEC) | 102.1745 | 111.2195 | 126.6844 | 140.6506 | 152.2458 | 161.8311 | 169.7876 | 176.3963 | 181.8546 |
| | KAPPA/(1/MPA) | .5441 | .5703 | .5024 | .4514 | .4187 | .3971 | .3824 | .3724 | .3656 |
| | BETA/(1000/K) | 12.8 | 9.6 | 6.6 | 4.9 | 3.8 | 3.1 | 2.6 | 2.2 | 1.8 |
| 4.0000 | V/(M3/KG) | .00312 | .00378 | .00461 | .00547 | .00626 | .00696 | .00757 | .00811 | .00858 |
| | H/(KJ/KG) | 1359.1 | 1454.3 | 1552.4 | 1651.2 | 1749.6 | 1848.1 | 1946.9 | 2046.5 | 2146.9 |
| | S/(KJ/KG K) | 2.8630 | 2.9878 | 3.1124 | 3.2340 | 3.3516 | 3.4657 | 3.5770 | 3.6862 | 3.7933 |
| | C/(M/SEC) | 144.6139 | 128.1979 | 128.5298 | 137.2035 | 147.8956 | 157.8808 | 166.4840 | 173.6657 | 179.5323 |
| | KAPPA/(1/MPA) | .1803 | .2795 | .3325 | .3330 | .3166 | .3009 | .2889 | .2804 | .2746 |
| | BETA/(1000/K) | 7.0 | 8.1 | 7.5 | 6.1 | 4.7 | 3.8 | 3.0 | 2.5 | 2.0 |

THERMODYNAMIC PROPERTIES OF TETRADECANE

| | | TEMPERATURES/(K) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P/(MPA) | | 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
| 5.0000 | V/(M3/KG) | .00276 | .00312 | .00359 | .00416 | .00477 | .00534 | .00587 | .00633 | .00673 |
| | H/(KJ/KG) | 1349.9 | 1440.3 | 1534.4 | 1632.2 | 1732.2 | 1833.0 | 1934.4 | 2036.4 | 2139.2 |
| | S/(KJ/KG K) | 2.8468 | 2.9654 | 3.0848 | 3.2053 | 3.3246 | 3.4415 | 3.5558 | 3.6675 | 3.7772 |
| | C/(M/SEC) | 195.2232 | 167.8889 | 152.7946 | 148.9820 | 152.8170 | 159.8748 | 167.4179 | 174.3004 | 180.1424 |
| | KAPPA/(1/MPA) | .0839 | .1290 | .1797 | .2163 | .2295 | .2288 | .2239 | .2188 | .2149 |
| | BETA/(1000/K) | 4.4 | 5.3 | 5.9 | 5.8 | 5.0 | 4.1 | 3.4 | 2.7 | 2.2 |
| 6.0000 | V/(M3/KG) | .00259 | .00283 | .00314 | .00351 | .00394 | .00439 | .00482 | .00521 | .00556 |
| | H/(KJ/KG) | 1344.9 | 1433.0 | 1524.2 | 1619.7 | 1718.8 | 1820.4 | 1923.4 | 2027.3 | 2132.2 |
| | S/(KJ/KG K) | 2.8366 | 2.9521 | 3.0679 | 3.1854 | 3.3038 | 3.4216 | 3.5377 | 3.6516 | 3.7634 |
| | C/(M/SEC) | 237.6867 | 210.0673 | 189.1629 | 175.8561 | 170.4167 | 171.0869 | 175.0472 | 180.1119 | 185.0917 |
| | KAPPA/(1/MPA) | .0521 | .0733 | .1004 | .1296 | .1528 | .1653 | .1697 | .1699 | .1689 |
| | BETA/(1000/K) | 3.4 | 3.9 | 4.3 | 4.6 | 4.5 | 4.0 | 3.4 | 2.8 | 2.3 |
| 7.0000 | V/(M3/KG) | .00248 | .00267 | .00290 | .00317 | .00348 | .00382 | .00417 | .00449 | .00479 |
| | H/(KJ/KG) | 1341.6 | 1428.4 | 1517.9 | 1611.6 | 1709.5 | 1810.8 | 1914.4 | 2019.6 | 2126.0 |
| | S/(KJ/KG K) | 2.8288 | 2.9426 | 3.0563 | 3.1716 | 3.2885 | 3.4059 | 3.5227 | 3.6380 | 3.7515 |
| | C/(M/SEC) | 273.2091 | 247.6477 | 226.0557 | 209.0777 | 197.6554 | 192.0011 | 190.9823 | 192.7891 | 195.8692 |
| | KAPPA/(1/MPA) | .0375 | .0493 | .0643 | .0819 | .0998 | .1144 | .1237 | .1285 | .1304 |
| | BETA/(1000/K) | 2.8 | 3.1 | 3.5 | 3.7 | 3.8 | 3.6 | 3.2 | 2.8 | 2.3 |
| 8.0000 | V/(M3/KG) | .00240 | .00256 | .00274 | .00296 | .00321 | .00347 | .00375 | .00402 | .00427 |
| | H/(KJ/KG) | 1339.2 | 1425.1 | 1513.6 | 1606.1 | 1702.9 | 1803.6 | 1907.3 | 2013.2 | 2120.8 |
| | S/(KJ/KG K) | 2.8224 | 2.9350 | 3.0474 | 3.1612 | 3.2768 | 3.3936 | 3.5105 | 3.6265 | 3.7412 |
| | C/(M/SEC) | 303.8025 | 280.6675 | 259.9473 | 242.1523 | 228.1372 | 218.5951 | 213.4624 | 211.8460 | 212.5234 |
| | KAPPA/(1/MPA) | .0292 | .0367 | .0459 | .0568 | .0687 | .0801 | .0893 | .0955 | .0992 |
| | BETA/(1000/K) | 2.5 | 2.7 | 2.9 | 3.1 | 3.2 | 3.2 | 2.9 | 2.6 | 2.2 |
| 9.0000 | V/(M3/KG) | .00233 | .00248 | .00264 | .00282 | .00302 | .00324 | .00347 | .00370 | .00392 |
| | H/(KJ/KG) | 1337.4 | 1422.6 | 1510.3 | 1602.0 | 1698.1 | 1798.3 | 1901.9 | 2008.1 | 2116.4 |
| | S/(KJ/KG K) | 2.8167 | 2.9286 | 3.0400 | 3.1528 | 3.2675 | 3.3836 | 3.5004 | 3.6168 | 3.7324 |
| | C/(M/SEC) | 330.8043 | 310.0645 | 290.6506 | 273.1054 | 258.2206 | 246.7549 | 239.0510 | 234.8299 | 233.3510 |
| | KAPPA/(1/MPA) | .0240 | .0291 | .0352 | .0425 | .0505 | .0587 | .0660 | .0717 | .0757 |
| | BETA/(1000/K) | 2.3 | 2.4 | 2.6 | 2.7 | 2.8 | 2.8 | 2.7 | 2.4 | 2.1 |
| 10.0000 | V/(M3/KG) | .00228 | .00241 | .00255 | .00272 | .00289 | .00308 | .00328 | .00347 | .00366 |
| | H/(KJ/KG) | 1335.9 | 1420.6 | 1507.8 | 1598.8 | 1694.3 | 1794.1 | 1897.6 | 2004.0 | 2112.9 |
| | S/(KJ/KG K) | 2.8117 | 2.9228 | 3.0335 | 3.1456 | 3.2596 | 3.3753 | 3.4919 | 3.6085 | 3.7246 |
| | C/(M/SEC) | 355.0776 | 336.6276 | 318.6190 | 301.7120 | 286.7151 | 274.3999 | 265.2579 | 259.3342 | 256.2459 |
| | KAPPA/(1/MPA) | .0204 | .0240 | .0284 | .0335 | .0392 | .0451 | .0507 | .0554 | .0589 |
| | BETA/(1000/K) | 2.1 | 2.2 | 2.4 | 2.5 | 2.5 | 2.5 | 2.4 | 2.2 | 2.0 |

THERMODYNAMIC PROPERTIES OF TETRADECANE

| P/(MPA) | | TEMPERATURES/(K) 530.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00162 | .00167 | .00174 | .00182 | .00191 | .00201 | .00214 | .00230 | .00250 |
| | H/(KJ/KG) | 599.1 | 661.0 | 740.6 | 822.5 | 906.3 | 992.0 | 1080.1 | 1167.1 | 1260.5 |
| | S/(KJ/KG K) | 1.6681 | 1.7826 | 1.9242 | 2.0636 | 2.2005 | 2.3349 | 2.4679 | 2.5945 | 2.7255 |
| | C/(M/SEC) | 849.2190 | 765.5361 | 665.5611 | 572.7386 | 488.0402 | 411.5159 | 342.9296 | 282.2207 | 233.9902 |
| | KAPPA/(1/MPA) | .0029 | .0036 | .0048 | .0067 | .0095 | .0139 | .0210 | .0328 | .0524 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.7 | 1.9 | 2.0 | 2.3 | 2.6 | 3.1 | 3.7 |
| 6.0000 | V/(M3/KG) | .00161 | .00166 | .00173 | .00180 | .00189 | .00199 | .00210 | .00223 | .00239 |
| | H/(KJ/KG) | 599.4 | 661.2 | 740.6 | 822.3 | 905.9 | 991.2 | 1078.7 | 1164.9 | 1257.1 |
| | S/(KJ/KG K) | 1.6657 | 1.7800 | 1.9213 | 2.0603 | 2.1968 | 2.3306 | 2.4627 | 2.5881 | 2.7175 |
| | C/(M/SEC) | 818.2596 | 741.8946 | 650.3938 | 565.8430 | 489.6785 | 422.2183 | 363.1653 | 311.8563 | 271.6515 |
| | KAPPA/(1/MPA) | .0030 | .0037 | .0049 | .0067 | .0092 | .0128 | .0181 | .0257 | .0367 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.6 | 1.8 | 1.9 | 2.1 | 2.3 | 2.6 | 3.0 |
| 7.0000 | V/(M3/KG) | .00161 | .00165 | .00172 | .00179 | .00187 | .00196 | .00206 | .00218 | .00232 |
| | H/(KJ/KG) | 599.8 | 661.5 | 740.8 | 822.3 | 905.6 | 990.6 | 1077.7 | 1163.4 | 1254.8 |
| | S/(KJ/KG K) | 1.6633 | 1.7775 | 1.9185 | 2.0572 | 2.1933 | 2.3266 | 2.4581 | 2.5827 | 2.7111 |
| | C/(M/SEC) | 784.3647 | 715.8700 | 633.3417 | 557.3480 | 489.7076 | 430.8359 | 380.1995 | 336.5711 | 302.7153 |
| | KAPPA/(1/MPA) | .0032 | .0039 | .0051 | .0067 | .0089 | .0120 | .0160 | .0214 | .0284 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.1 | 2.3 | 2.5 |
| 8.0000 | V/(M3/KG) | .00160 | .00165 | .00171 | .00178 | .00186 | .00194 | .00203 | .00214 | .00226 |
| | H/(KJ/KG) | 600.2 | 661.8 | 740.9 | 822.3 | 905.4 | 990.1 | 1077.0 | 1162.2 | 1253.1 |
| | S/(KJ/KG K) | 1.6610 | 1.7750 | 1.9158 | 2.0543 | 2.1900 | 2.3229 | 2.4540 | 2.5780 | 2.7056 |
| | C/(M/SEC) | 746.3906 | 686.6176 | 613.8238 | 546.8804 | 487.9676 | 437.5009 | 394.6578 | 357.7632 | 329.3388 |
| | KAPPA/(1/MPA) | .0034 | .0041 | .0053 | .0068 | .0088 | .0113 | .0145 | .0184 | .0233 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.1 | 2.3 |
| 9.0000 | V/(M3/KG) | .00160 | .00164 | .00170 | .00177 | .00184 | .00192 | .00200 | .00210 | .00221 |
| | H/(KJ/KG) | 600.6 | 662.1 | 741.2 | 822.4 | 905.3 | 989.9 | 1076.4 | 1161.3 | 1251.8 |
| | S/(KJ/KG K) | 1.6588 | 1.7726 | 1.9132 | 2.0515 | 2.1869 | 2.3195 | 2.4502 | 2.5737 | 2.7007 |
| | C/(M/SEC) | 702.4835 | 652.8131 | 590.9684 | 533.9124 | 484.2057 | 442.2467 | 406.9300 | 376.2511 | 352.7282 |
| | KAPPA/(1/MPA) | .0038 | .0044 | .0055 | .0070 | .0087 | .0109 | .0134 | .0163 | .0198 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.1 |
| 10.0000 | V/(M3/KG) | .00159 | .00163 | .00169 | .00176 | .00182 | .00190 | .00198 | .00207 | .00217 |
| | H/(KJ/KG) | 601.0 | 662.5 | 741.4 | 822.5 | 905.4 | 989.7 | 1076.0 | 1160.6 | 1250.7 |
| | S/(KJ/KG K) | 1.6566 | 1.7703 | 1.9107 | 2.0488 | 2.1840 | 2.3163 | 2.4466 | 2.5697 | 2.6963 |
| | C/(M/SEC) | 649.1919 | 612.1445 | 563.3592 | 517.6103 | 478.0354 | 445.0250 | 417.2605 | 392.5569 | 373.6345 |
| | KAPPA/(1/MPA) | .0043 | .0049 | .0060 | .0073 | .0088 | .0105 | .0125 | .0147 | .0173 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.4 | 1.5 | 1.6 | 1.6 | 1.7 | 1.8 | 2.0 |




PENTADECANE

## PROPERTIES OF SATURATED PENTADECANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 545.00000 | .10543 | .00165 | .18081 | 637.42278 | 227.99943 | 865.42222 | 1.77033 | .41835 | 2.18868 |
| 550.00000 | .11763 | .00167 | .16265 | 652.76306 | 225.37182 | 878.13489 | 1.79831 | .40977 | 2.20808 |
| 555.00000 | .13091 | .00168 | .14662 | 668.23162 | 222.71500 | 890.94661 | 1.82627 | .40129 | 2.22756 |
| 560.00000 | .14534 | .00169 | .13242 | 683.82942 | 220.02421 | 903.85363 | 1.85421 | .39290 | 2.24711 |
| 565.00000 | .16098 | .00171 | .11983 | 699.55726 | 217.29428 | 916.85154 | 1.88212 | .38459 | 2.26671 |
| 570.00000 | .17792 | .00172 | .10862 | 715.41544 | 214.51995 | 929.93539 | 1.91001 | .37635 | 2.28636 |
| 575.00000 | .19622 | .00174 | .09862 | 731.40382 | 211.69584 | 943.09966 | 1.93788 | .36817 | 2.30605 |
| 580.00000 | .21595 | .00176 | .08967 | 747.52185 | 208.81644 | 956.33829 | 1.96573 | .36003 | 2.32576 |
| 585.00000 | .23719 | .00177 | .08165 | 763.76865 | 205.87605 | 969.64470 | 1.99356 | .35192 | 2.34549 |
| 590.00000 | .26003 | .00179 | .07444 | 780.14301 | 202.86874 | 983.01175 | 2.02136 | .34385 | 2.36521 |
| 595.00000 | .28455 | .00181 | .06795 | 796.64354 | 199.78826 | 996.43179 | 2.04914 | .33578 | 2.38492 |
| 600.00000 | .31084 | .00183 | .06208 | 813.26868 | 196.62794 | 1009.89663 | 2.07688 | .32771 | 2.40460 |
| 605.00000 | .33897 | .00185 | .05678 | 830.01691 | 193.38059 | 1023.39750 | 2.10459 | .31964 | 2.42423 |
| 610.00000 | .36906 | .00187 | .05196 | 846.88674 | 190.03833 | 1036.92507 | 2.13227 | .31154 | 2.44381 |
| 615.00000 | .40120 | .00189 | .04759 | 863.87699 | 186.59233 | 1050.46932 | 2.15991 | .30340 | 2.46331 |
| 620.00000 | .43548 | .00191 | .04361 | 880.98690 | 183.03266 | 1064.01957 | 2.18751 | .29521 | 2.48273 |
| 625.00000 | .47203 | .00194 | .03998 | 898.21632 | 179.34795 | 1077.56427 | 2.21508 | .28696 | 2.50204 |
| 630.00000 | .51095 | .00196 | .03666 | 915.56599 | 175.52497 | 1091.09096 | 2.24261 | .27861 | 2.52122 |
| 635.00000 | .55236 | .00199 | .03362 | 933.03781 | 171.54820 | 1104.58601 | 2.27010 | .27015 | 2.54026 |
| 640.00000 | .59640 | .00201 | .03083 | 950.63526 | 167.39914 | 1118.03440 | 2.29757 | .26156 | 2.55913 |
| 645.00000 | .64319 | .00204 | .02826 | 968.36384 | 163.05549 | 1131.41934 | 2.32501 | .25280 | 2.57781 |
| 650.00000 | .69287 | .00207 | .02589 | 986.23194 | 158.48979 | 1144.72173 | 2.35245 | .24383 | 2.59628 |
| 655.00000 | .74561 | .00211 | .02371 | 1004.25022 | 153.66962 | 1157.91984 | 2.37990 | .23461 | 2.61451 |
| 660.00000 | .80155 | .00214 | .02168 | 1022.43618 | 148.55112 | 1170.98730 | 2.40737 | .22508 | 2.63245 |
| 665.00000 | .86088 | .00218 | .01980 | 1040.81167 | 143.08108 | 1183.89275 | 2.43492 | .21516 | 2.65008 |
| 670.00000 | .92377 | .00223 | .01804 | 1059.40783 | 137.18885 | 1196.59668 | 2.46257 | .20476 | 2.66733 |
| 675.00000 | .99043 | .00228 | .01640 | 1078.26862 | 130.77905 | 1209.04768 | 2.49039 | .19375 | 2.68414 |
| 680.00000 | 1.06107 | .00233 | .01485 | 1097.45690 | 123.71870 | 1221.17560 | 2.51847 | .18194 | 2.70041 |
| 685.00000 | 1.13591 | .00240 | .01337 | 1117.06688 | 115.81199 | 1232.87887 | 2.54695 | .16907 | 2.71601 |
| 690.00000 | 1.21520 | .00247 | .01195 | 1137.24893 | 106.74878 | 1243.99771 | 2.57602 | .15471 | 2.73073 |
| 695.00000 | 1.29921 | .00257 | .01056 | 1158.27151 | 95.97760 | 1254.24911 | 2.60607 | .13810 | 2.74417 |
| 700.00000 | 1.38823 | .00271 | .00913 | 1180.72497 | 82.29485 | 1263.01983 | 2.63792 | .11756 | 2.75549 |
| 705.00000 | 1.48256 | .00299 | .00748 | 1206.80189 | 61.45243 | 1268.25432 | 2.67466 | .08717 | 2.76183 |
| 706.76000 | 1.58253 | .00416 | .00416 | 1236.74846 | 0. | 1236.74846 | 2.71651 | 0. | 2.71651 |

THERMODYNAMIC PROPERTIES OF PENTADECANE

| | | TEMPERATURES/(K) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P/(MPA) | | 545.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
| .1000 | V/(M3/KG) | .19191 | .19522 | .20978 | .22232 | .23383 | .24482 | .25554 | .26615 | .27672 |
| | H/(KJ/KG) | 866.4 | 881.0 | 953.1 | 1024.9 | 1097.3 | 1170.7 | 1245.4 | 1321.5 | 1399.2 |
| | S/(KJ/KG K) | 2.1923 | 2.2190 | 2.3473 | 2.4695 | 2.5876 | 2.7027 | 2.8155 | 2.9263 | 3.0353 |
| | C/(M/SEC) | 133.4458 | 134.9919 | 141.3974 | 146.4369 | 150.7585 | 154.6891 | 158.3979 | 161.9703 | 165.4463 |
| | KAPPA/(1/MPA) | 11.2221 | 11.1145 | 10.7641 | 10.5807 | 10.4720 | 10.3990 | 10.3440 | 10.2983 | 10.2582 |
| | BETA/(1000/K) | 3.5 | 3.3 | 2.5 | 2.1 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 |
| .1013 | V/(M3/KG) | .18910 | .19238 | .20683 | .21925 | .23063 | .24149 | .25208 | .26257 | .27301 |
| | H/(KJ/KG) | 866.2 | 880.8 | 953.0 | 1024.8 | 1097.2 | 1170.6 | 1245.3 | 1321.5 | 1399.2 |
| | S/(KJ/KG K) | 2.1914 | 2.2181 | 2.3466 | 2.4688 | 2.5870 | 2.7022 | 2.8150 | 2.9257 | 3.0348 |
| | C/(M/SEC) | 133.2426 | 134.8041 | 141.2608 | 146.3282 | 150.6670 | 154.6096 | 158.3278 | 161.9084 | 165.3919 |
| | KAPPA/(1/MPA) | 11.0967 | 10.9881 | 10.6351 | 10.4509 | 10.3417 | 10.2686 | 10.2135 | 10.1677 | 10.1275 |
| | BETA/(1000/K) | 3.6 | 3.3 | 2.6 | 2.2 | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 |
| .2000 | V/(M3/KG) | .00165 | .00167 | .00174 | .10450 | .11129 | .11746 | .12334 | .12908 | .13477 |
| | H/(KJ/KG) | 637.4 | 652.8 | 731.4 | 1018.2 | 1092.5 | 1166.9 | 1242.1 | 1318.5 | 1396.3 |
| | S/(KJ/KG K) | 1.7701 | 1.7981 | 1.9379 | 2.4333 | 2.5546 | 2.6714 | 2.7849 | 2.8959 | 3.0051 |
| | C/(M/SEC) | 1062.8620 | 1028.4016 | 864.6602 | 137.8846 | 143.6700 | 148.5807 | 153.0426 | 157.2582 | 161.3181 |
| | KAPPA/(1/MPA) | .0023 | .0024 | .0034 | 5.6597 | 5.5160 | 5.4268 | 5.3628 | 5.3114 | 5.2672 |
| | BETA/(1000/K) | 1.7 | 1.7 | 1.9 | 2.8 | 2.3 | 2.0 | 1.9 | 1.8 | 1.7 |
| .3000 | V/(M3/KG) | .00165 | .00166 | .00174 | .06487 | .07027 | .07491 | .07921 | .08336 | .08744 |
| | H/(KJ/KG) | 637.5 | 652.8 | 731.4 | 1010.8 | 1087.5 | 1163.0 | 1238.8 | 1315.4 | 1393.2 |
| | S/(KJ/KG K) | 1.7698 | 1.7978 | 1.9375 | 2.4072 | 2.5324 | 2.6510 | 2.7653 | 2.8768 | 2.9861 |
| | C/(M/SEC) | 1059.2584 | 1025.0074 | 862.2309 | 128.3828 | 136.1138 | 142.2102 | 147.5312 | 152.4540 | 157.1409 |
| | KAPPA/(1/MPA) | .0023 | .0024 | .0034 | 4.1080 | 3.9066 | 3.7942 | 3.7183 | 3.6597 | 3.6106 |
| | BETA/(1000/K) | 1.7 | 1.7 | 1.9 | 3.7 | 2.8 | 2.4 | 2.1 | 2.0 | 1.9 |
| .4000 | V/(M3/KG) | .00165 | .00166 | .00174 | .00183 | .04958 | .05354 | .05709 | .06046 | .06375 |
| | H/(KJ/KG) | 637.5 | 652.8 | 731.4 | 813.2 | 1081.9 | 1158.9 | 1235.3 | 1312.2 | 1390.2 |
| | S/(KJ/KG K) | 1.7695 | 1.7975 | 1.9372 | 2.0765 | 2.5142 | 2.6349 | 2.7502 | 2.8621 | 2.9716 |
| | C/(M/SEC) | 1055.6456 | 1021.6046 | 859.8069 | 710.0288 | 127.8818 | 135.4847 | 141.8158 | 147.5319 | 152.9009 |
| | KAPPA/(1/MPA) | .0023 | .0024 | .0034 | .0051 | 3.1521 | 3.0038 | 2.9115 | 2.8436 | 2.7886 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.1 | 3.5 | 2.8 | 2.4 | 2.2 | 2.1 |
| .5000 | V/(M3/KG) | .00165 | .00166 | .00174 | .00183 | .00194 | .04062 | .04376 | .04669 | .04952 |
| | H/(KJ/KG) | 637.5 | 652.8 | 731.4 | 813.2 | 898.2 | 1154.5 | 1231.6 | 1308.9 | 1387.0 |
| | S/(KJ/KG K) | 1.7693 | 1.7972 | 1.9369 | 2.0761 | 2.2149 | 2.6209 | 2.7374 | 2.8498 | 2.9595 |
| | C/(M/SEC) | 1052.0232 | 1018.1927 | 857.3768 | 708.5289 | 568.0567 | 128.2592 | 135.8279 | 142.4569 | 148.5801 |
| | KAPPA/(1/MPA) | .0023 | .0024 | .0034 | .0051 | .0082 | 2.5606 | 2.4443 | 2.3640 | 2.3014 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.1 | 2.5 | 3.3 | 2.7 | 2.5 | 2.3 |
| .6000 | V/(M3/KG) | .00165 | .00166 | .00174 | .00183 | .00193 | .03189 | .03481 | .03747 | .04001 |
| | H/(KJ/KG) | 637.5 | 652.8 | 731.4 | 813.1 | 898.1 | 1149.7 | 1227.8 | 1305.5 | 1383.8 |
| | S/(KJ/KG K) | 1.7690 | 1.7970 | 1.9366 | 2.0758 | 2.2145 | 2.6080 | 2.7259 | 2.8389 | 2.9489 |
| | C/(M/SEC) | 1048.4696 | 1014.8412 | 854.9402 | 707.0243 | 567.5703 | 120.2932 | 129.4665 | 137.1812 | 144.1556 |
| | KAPPA/(1/MPA) | .0023 | .0024 | .0034 | .0051 | .0082 | 2.3069 | 2.1528 | 2.0552 | 1.9829 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.8 | 2.1 | 2.5 | 4.0 | 3.2 | 2.8 | 2.5 |

THERMODYNAMIC PROPERTIES OF PENTADECANE

| P/(MPA) | | TEMPERATURES/(K) 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .28726 | .29780 | .30830 | .31877 | .32920 | .33956 | .34984 | .36005 | .37016 |
| | H/(KJ/KG) | 1478.4 | 1559.2 | 1641.4 | 1725.0 | 1810.1 | 1896.5 | 1984.2 | 2073.2 | 2163.4 |
| | S/(KJ/KG K) | 3.1427 | 3.2486 | 3.3530 | 3.4560 | 3.5576 | 3.6578 | 3.7566 | 3.8541 | 3.9503 |
| | C/(M/SEC) | 168.8418 | 172.1607 | 175.4013 | 178.5601 | 181.6338 | 184.6197 | 187.5163 | 190.3233 | 193.0412 |
| | KAPPA/(1/MPA) | 10.2218 | 10.1887 | 10.1588 | 10.1320 | 10.1085 | 10.0884 | 10.0717 | 10.0582 | 10.0480 |
| | BETA/(1000/K) | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | .28342 | .29383 | .30421 | .31455 | .32485 | .33508 | .34524 | .35531 | .36530 |
| | H/(KJ/KG) | 1478.4 | 1559.1 | 1641.3 | 1725.0 | 1810.1 | 1896.5 | 1984.2 | 2073.2 | 2163.4 |
| | S/(KJ/KG K) | 3.1422 | 3.2481 | 3.3525 | 3.4554 | 3.5570 | 3.6572 | 3.7561 | 3.8536 | 3.9498 |
| | C/(M/SEC) | 168.7944 | 172.1199 | 175.3665 | 178.5309 | 181.6095 | 184.5996 | 187.4998 | 190.3095 | 193.0296 |
| | KAPPA/(1/MPA) | 10.0911 | 10.0580 | 10.0280 | 10.0013 | 9.9778 | 9.9577 | 9.9409 | 9.9275 | 9.9172 |
| | BETA/(1000/K) | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | .14044 | .14609 | .15171 | .15729 | .16281 | .16828 | .17367 | .17897 | .18419 |
| | H/(KJ/KG) | 1475.5 | 1556.3 | 1638.6 | 1722.4 | 1807.7 | 1894.3 | 1982.3 | 2071.6 | 2162.2 |
| | S/(KJ/KG K) | 3.1126 | 3.2185 | 3.3231 | 3.4262 | 3.5280 | 3.6285 | 3.7277 | 3.8255 | 3.9221 |
| | C/(M/SEC) | 165.2564 | 169.0803 | 172.7851 | 176.3629 | 179.8060 | 183.1089 | 186.2680 | 189.2824 | 192.1528 |
| | KAPPA/(1/MPA) | 5.2279 | 5.1926 | 5.1612 | 5.1334 | 5.1094 | 5.0891 | 5.0723 | 5.0590 | 5.0489 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 |
| .3000 | V/(M3/KG) | .09149 | .09551 | .09951 | .10346 | .10736 | .11119 | .11494 | .11861 | .12219 |
| | H/(KJ/KG) | 1472.6 | 1553.4 | 1635.9 | 1719.8 | 1805.3 | 1892.2 | 1980.5 | 2070.1 | 2161.0 |
| | S/(KJ/KG K) | 3.0936 | 3.1997 | 3.3043 | 3.4077 | 3.5097 | 3.6105 | 3.7100 | 3.8082 | 3.9051 |
| | C/(M/SEC) | 161.6518 | 166.0000 | 170.1798 | 174.1803 | 177.9912 | 181.6054 | 185.0189 | 188.2312 | 191.2440 |
| | KAPPA/(1/MPA) | 3.5678 | 3.5301 | 3.4970 | 3.4682 | 3.4436 | 3.4230 | 3.4062 | 3.3930 | 3.3832 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 |
| .4000 | V/(M3/KG) | .06700 | .07022 | .07341 | .07655 | .07963 | .08264 | .08558 | .08842 | .09118 |
| | H/(KJ/KG) | 1469.6 | 1550.5 | 1633.1 | 1717.2 | 1802.9 | 1890.0 | 1978.6 | 2068.5 | 2159.8 |
| | S/(KJ/KG K) | 3.0792 | 3.1854 | 3.2902 | 3.3938 | 3.4961 | 3.5971 | 3.6969 | 3.7955 | 3.8928 |
| | C/(M/SEC) | 158.0209 | 162.9166 | 167.5844 | 172.0125 | 176.1902 | 180.1106 | 183.7710 | 187.1722 | 190.3181 |
| | KAPPA/(1/MPA) | 2.7417 | 2.7013 | 2.6663 | 2.6364 | 2.6111 | 2.5902 | 2.5734 | 2.5603 | 2.5506 |
| | BETA/(1000/K) | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 |
| .5000 | V/(M3/KG) | .05230 | .05505 | .05775 | .06041 | .06300 | .06552 | .06796 | .07031 | .07257 |
| | H/(KJ/KG) | 1466.5 | 1547.6 | 1630.3 | 1714.6 | 1800.5 | 1887.9 | 1976.8 | 2067.0 | 2158.6 |
| | S/(KJ/KG K) | 3.0673 | 3.1736 | 3.2786 | 3.3824 | 3.4849 | 3.5863 | 3.6864 | 3.7853 | 3.8830 |
| | C/(M/SEC) | 154.3550 | 159.8266 | 164.9978 | 169.8598 | 174.4041 | 178.6263 | 182.5264 | 186.1083 | 189.3784 |
| | KAPPA/(1/MPA) | 2.2497 | 2.2061 | 2.1690 | 2.1379 | 2.1119 | 2.0907 | 2.0739 | 2.0608 | 2.0514 |
| | BETA/(1000/K) | 2.1 | 2.0 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 |
| .6000 | V/(M3/KG) | .04249 | .04492 | .04731 | .04965 | .05191 | .05411 | .05622 | .05824 | .06017 |
| | H/(KJ/KG) | 1463.5 | 1544.6 | 1627.5 | 1712.0 | 1798.1 | 1885.8 | 1974.9 | 2065.5 | 2157.5 |
| | S/(KJ/KG K) | 3.0569 | 3.1634 | 3.2685 | 3.3725 | 3.4754 | 3.5770 | 3.6775 | 3.7768 | 3.8749 |
| | C/(M/SEC) | 150.6436 | 156.7254 | 162.4187 | 167.7224 | 172.6340 | 177.1540 | 181.2874 | 185.0420 | 188.4281 |
| | KAPPA/(1/MPA) | 1.9253 | 1.8779 | 1.8386 | 1.8061 | 1.7794 | 1.7579 | 1.7409 | 1.7280 | 1.7187 |
| | BETA/(1000/K) | 2.3 | 2.1 | 2.0 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 |

THERMODYNAMIC PROPERTIES OF PENTADECANE

| | | TEMPERATURES/(K) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P/(MPA) | | 545.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
| .7000 | V/(M3/KG) | .00165 | .00166 | .00174 | .00182 | .00193 | .00207 | .02835 | .03085 | .03320 |
| | H/(KJ/KG) | 637.5 | 652.8 | 731.3 | 813.1 | 898.0 | 986.2 | 1223.7 | 1301.9 | 1380.5 |
| | S/(KJ/KG K) | 1.7687 | 1.7967 | 1.9363 | 2.0754 | 2.2140 | 2.3524 | 2.7152 | 2.8290 | 2.9393 |
| | C/(M/SEC) | 1044.8266 | 1011.4101 | 852.4968 | 705.5147 | 567.0772 | 431.4035 | 122.5776 | 131.6396 | 139.5984 |
| | KAPPA/(1/MPA) | .0023 | .0025 | .0035 | .0051 | .0082 | .0151 | 1.9704 | 1.8473 | 1.7622 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.8 | 2.1 | 2.5 | 3.3 | 3.7 | 3.1 | 2.8 |
| .8000 | V/(M3/KG) | .00165 | .00166 | .00174 | .00182 | .00193 | .00207 | .02341 | .02584 | .02807 |
| | H/(KJ/KG) | 637.5 | 652.9 | 731.3 | 813.0 | 897.9 | 986.0 | 1219.2 | 1298.1 | 1377.1 |
| | S/(KJ/KG K) | 1.7684 | 1.7964 | 1.9359 | 2.0750 | 2.2135 | 2.3517 | 2.7048 | 2.8196 | 2.9304 |
| | C/(M/SEC) | 1025.1318 | 993.4610 | 842.8956 | 700.0660 | 566.5774 | 432.2866 | 114.9127 | 125.7401 | 134.8713 |
| | KAPPA/(1/MPA) | .0023 | .0025 | .0035 | .0051 | .0082 | .0150 | 1.8708 | 1.7072 | 1.6044 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.8 | 2.1 | 2.5 | 3.2 | 4.4 | 3.6 | 3.1 |
| .9000 | V/(M3/KG) | .00165 | .00166 | .00174 | .00182 | .00193 | .00207 | .01945 | .02189 | .02405 |
| | H/(KJ/KG) | 637.6 | 652.9 | 731.3 | 813.0 | 897.7 | 985.8 | 1214.3 | 1294.1 | 1373.5 |
| | S/(KJ/KG K) | 1.7682 | 1.7961 | 1.9356 | 2.0746 | 2.2130 | 2.3511 | 2.6943 | 2.8105 | 2.9219 |
| | C/(M/SEC) | 1025.6321 | 994.4523 | 843.9514 | 701.6674 | 565.3953 | 433.1471 | 106.0328 | 119.3500 | 129.9268 |
| | KAPPA/(1/MPA) | .0023 | .0025 | .0035 | .0051 | .0081 | .0148 | 1.8540 | 1.6191 | 1.4906 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.8 | 2.1 | 2.5 | 3.2 | 5.5 | 4.1 | 3.5 |
| 1.0000 | V/(M3/KG) | .00165 | .00166 | .00174 | .00182 | .00193 | .00206 | .00228 | .01866 | .02081 |
| | H/(KJ/KG) | 637.6 | 652.9 | 731.3 | 812.9 | 897.6 | 985.5 | 1078.2 | 1289.8 | 1369.8 |
| | S/(KJ/KG K) | 1.7679 | 1.7959 | 1.9353 | 2.0742 | 2.2125 | 2.3504 | 2.4903 | 2.8014 | 2.9136 |
| | C/(M/SEC) | 1026.1869 | 995.1006 | 845.0775 | 700.9530 | 565.5566 | 433.8553 | 294.8380 | 112.2682 | 124.7038 |
| | KAPPA/(1/MPA) | .0023 | .0025 | .0035 | .0051 | .0081 | .0147 | .0362 | 1.5785 | 1.4106 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.8 | 2.1 | 2.4 | 3.1 | 5.0 | 4.9 | 3.9 |
| 2.0000 | V/(M3/KG) | .00164 | .00166 | .00173 | .00181 | .00191 | .00204 | .00221 | .00250 | .00396 |
| | H/(KJ/KG) | 637.8 | 653.0 | 731.3 | 812.5 | 896.7 | 983.6 | 1073.9 | 1170.9 | 1290.0 |
| | S/(KJ/KG K) | 1.7652 | 1.7931 | 1.9322 | 2.0706 | 2.2080 | 2.3443 | 2.4806 | 2.6216 | 2.7886 |
| | C/(M/SEC) | 996.9387 | 966.2436 | 820.1402 | 685.3021 | 559.9780 | 441.3139 | 324.5420 | 199.3996 | 75.5625 |
| | KAPPA/(1/MPA) | .0024 | .0026 | .0036 | .0052 | .0079 | .0134 | .0267 | .0835 | 1.2229 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 2.0 | 2.3 | 2.8 | 3.8 | 7.0 | 31.1 |
| 3.0000 | V/(M3/KG) | .00164 | .00165 | .00172 | .00180 | .00190 | .00201 | .00215 | .00235 | .00268 |
| | H/(KJ/KG) | 638.0 | 653.2 | 731.2 | 812.2 | 896.0 | 982.2 | 1071.1 | 1164.4 | 1259.2 |
| | S/(KJ/KG K) | 1.7626 | 1.7905 | 1.9291 | 2.0670 | 2.2038 | 2.3390 | 2.4731 | 2.6088 | 2.7419 |
| | C/(M/SEC) | 958.7181 | 930.1526 | 794.0727 | 668.7584 | 553.4324 | 446.7558 | 346.9260 | 252.5612 | 167.0062 |
| | KAPPA/(1/MPA) | .0025 | .0027 | .0037 | .0052 | .0078 | .0124 | .0217 | .0443 | .1181 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.7 | 1.9 | 2.2 | 2.5 | 3.1 | 4.2 | 6.6 |
| 4.0000 | V/(M3/KG) | .00164 | .00165 | .00172 | .00179 | .00188 | .00199 | .00211 | .00227 | .00248 |
| | H/(KJ/KG) | 638.2 | 653.4 | 731.3 | 812.0 | 895.4 | 981.1 | 1069.1 | 1160.9 | 1252.5 |
| | S/(KJ/KG K) | 1.7601 | 1.7879 | 1.9262 | 2.0637 | 2.1998 | 2.3342 | 2.4671 | 2.6005 | 2.7291 |
| | C/(M/SEC) | 918.6722 | 892.2889 | 766.5041 | 650.9348 | 545.6513 | 450.3496 | 364.5557 | 288.4866 | 224.9813 |
| | KAPPA/(1/MPA) | .0026 | .0028 | .0038 | .0053 | .0077 | .0117 | .0187 | .0315 | .0563 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.3 | 2.6 | 3.2 | 3.9 |

## THERMODYNAMIC PROPERTIES OF PENTADECANE

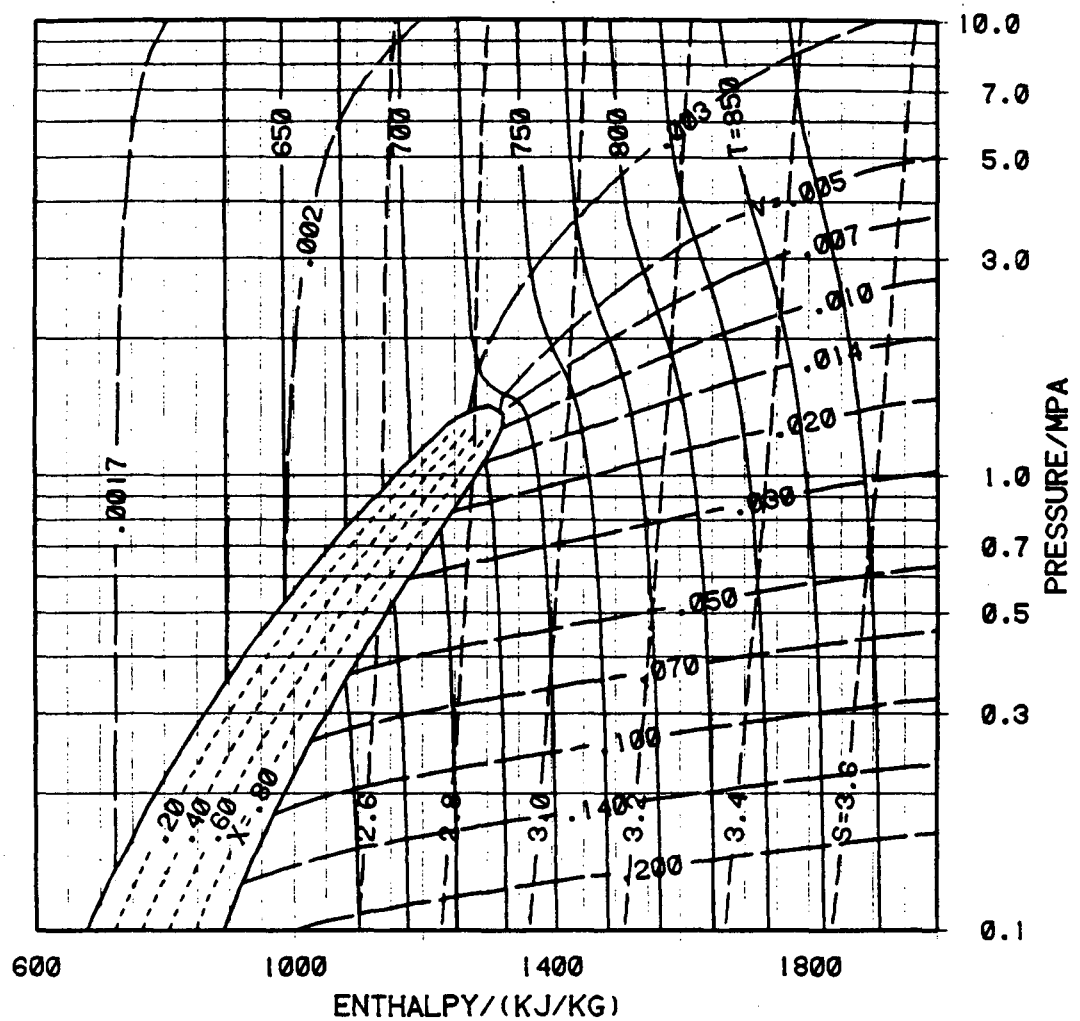
| P/(MPA) | | TEMPERATURES/(K) 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .03547 | .03769 | .03986 | .04196 | .04400 | .04595 | .04783 | .04961 | .05130 |
| | H/(KJ/KG) | 1460.3 | 1541.6 | 1624.6 | 1709.3 | 1795.7 | 1883.6 | 1973.1 | 2064.1 | 2156.3 |
| | S/(KJ/KG K) | 3.0475 | 3.1542 | 3.2596 | 3.3638 | 3.4669 | 3.5689 | 3.6698 | 3.7694 | 3.8679 |
| | C/(M/SEC) | 146.8742 | 153.6086 | 159.8461 | 165.6011 | 170.8813 | 175.6959 | 180.0564 | 183.9764 | 187.4704 |
| | KAPPA/(1/MPA) | 1.6973 | 1.6455 | 1.6036 | 1.5695 | 1.5421 | 1.5202 | 1.5031 | 1.4903 | 1.4812 |
| | BETA/(1000/K) | 2.5 | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 | 1.5 | 1.4 | 1.3 |
| .8000 | V/(M3/KG) | .03020 | .03226 | .03426 | .03620 | .03806 | .03984 | .04154 | .04314 | .04465 |
| | H/(KJ/KG) | 1457.1 | 1538.6 | 1621.8 | 1706.7 | 1793.3 | 1881.5 | 1971.3 | 2062.6 | 2155.2 |
| | S/(KJ/KG K) | 3.0389 | 3.1457 | 3.2514 | 3.3559 | 3.4593 | 3.5616 | 3.6628 | 3.7628 | 3.8617 |
| | C/(M/SEC) | 143.0322 | 150.4708 | 157.2790 | 163.4965 | 169.1477 | 174.2539 | 178.8359 | 182.9143 | 186.5087 |
| | KAPPA/(1/MPA) | 1.5301 | 1.4731 | 1.4282 | 1.3925 | 1.3642 | 1.3420 | 1.3248 | 1.3121 | 1.3031 |
| | BETA/(1000/K) | 2.8 | 2.5 | 2.3 | 2.1 | 1.9 | 1.7 | 1.6 | 1.4 | 1.3 |
| .9000 | V/(M3/KG) | .02608 | .02804 | .02991 | .03172 | .03345 | .03509 | .03665 | .03811 | .03948 |
| | H/(KJ/KG) | 1453.8 | 1535.5 | 1618.9 | 1704.0 | 1790.9 | 1879.4 | 1969.5 | 2061.2 | 2154.2 |
| | S/(KJ/KG K) | 3.0307 | 3.1379 | 3.2438 | 3.3486 | 3.4523 | 3.5550 | 3.6565 | 3.7569 | 3.8561 |
| | C/(M/SEC) | 139.1002 | 147.3070 | 154.7168 | 161.4097 | 167.4349 | 172.8302 | 177.6284 | 181.8585 | 185.5463 |
| | KAPPA/(1/MPA) | 1.4043 | 1.3411 | 1.2928 | 1.2552 | 1.2260 | 1.2034 | 1.1861 | 1.1734 | 1.1647 |
| | BETA/(1000/K) | 3.0 | 2.7 | 2.5 | 2.2 | 2.0 | 1.8 | 1.6 | 1.5 | 1.3 |
| 1.0000 | V/(M3/KG) | .02278 | .02465 | .02643 | .02814 | .02976 | .03129 | .03274 | .03409 | .03534 |
| | H/(KJ/KG) | 1450.4 | 1532.3 | 1616.0 | 1701.4 | 1788.5 | 1877.3 | 1967.8 | 2059.7 | 2153.1 |
| | S/(KJ/KG K) | 3.0229 | 3.1304 | 3.2366 | 3.3417 | 3.4458 | 3.5488 | 3.6507 | 3.7515 | 3.8511 |
| | C/(M/SEC) | 135.0588 | 144.1115 | 152.1590 | 159.3421 | 165.7450 | 171.4274 | 176.4366 | 180.8120 | 184.5863 |
| | KAPPA/(1/MPA) | 1.3083 | 1.2374 | 1.1852 | 1.1457 | 1.1155 | 1.0925 | 1.0751 | 1.0625 | 1.0539 |
| | BETA/(1000/K) | 3.4 | 3.0 | 2.6 | 2.4 | 2.1 | 1.9 | 1.7 | 1.5 | 1.4 |
| 2.0000 | V/(M3/KG) | .00713 | .00919 | .01075 | .01207 | .01324 | .01427 | .01520 | .01602 | .01674 |
| | H/(KJ/KG) | 1403.1 | 1495.2 | 1584.2 | 1673.7 | 1764.5 | 1856.9 | 1950.9 | 2046.4 | 2143.5 |
| | S/(KJ/KG K) | 2.9420 | 3.0629 | 3.1760 | 3.2861 | 3.3945 | 3.5016 | 3.6075 | 3.7122 | 3.8158 |
| | C/(M/SEC) | 87.0992 | 110.6425 | 127.4808 | 140.3879 | 150.7104 | 159.1107 | 165.9567 | 171.4692 | 175.7850 |
| | KAPPA/(1/MPA) | 1.2224 | .8639 | .7288 | .6588 | .6165 | .5892 | .5710 | .5593 | .5523 |
| | BETA/(1000/K) | 14.3 | 7.5 | 5.3 | 4.1 | 3.3 | 2.8 | 2.3 | 1.9 | 1.6 |
| 3.0000 | V/(M3/KG) | .00334 | .00443 | .00572 | .00690 | .00790 | .00876 | .00950 | .01012 | .01064 |
| | H/(KJ/KG) | 1354.6 | 1450.5 | 1548.0 | 1644.5 | 1740.5 | 1837.3 | 1935.3 | 2034.7 | 2135.6 |
| | S/(KJ/KG K) | 2.8713 | 2.9970 | 3.1209 | 3.2396 | 3.3543 | 3.4665 | 3.5769 | 3.6858 | 3.7935 |
| | C/(M/SEC) | 113.0300 | 105.7042 | 115.0956 | 128.9247 | 141.3428 | 151.4458 | 159.4207 | 165.5303 | 169.9622 |
| | KAPPA/(1/MPA) | .3369 | .5089 | .5240 | .4740 | .4339 | .4078 | .3913 | .3813 | .3760 |
| | BETA/(1000/K) | 10.7 | 11.3 | 8.9 | 6.3 | 4.7 | 3.6 | 2.9 | 2.3 | 1.8 |
| 4.0000 | V/(M3/KG) | .00277 | .00320 | .00384 | .00464 | .00545 | .00616 | .00678 | .00729 | .00770 |
| | H/(KJ/KG) | 1341.1 | 1428.3 | 1520.4 | 1618.1 | 1718.2 | 1819.1 | 1921.1 | 2024.3 | 2129.1 |
| | S/(KJ/KG K) | 2.8493 | 2.9636 | 3.0806 | 3.2008 | 3.3203 | 3.4374 | 3.5522 | 3.6654 | 3.7772 |
| | C/(M/SEC) | 175.6743 | 142.5057 | 128.9813 | 130.9925 | 139.6594 | 149.0493 | 157.0984 | 163.3410 | 167.7377 |
| | KAPPA/(1/MPA) | .1051 | .1883 | .2791 | .3194 | .3159 | .3023 | .2909 | .2834 | .2795 |
| | BETA/(1000/K) | 5.1 | 6.6 | 7.7 | 7.1 | 5.6 | 4.3 | 3.3 | 2.5 | 1.9 |

## THERMODYNAMIC PROPERTIES OF PENTADECANE

| P/(MPA) | | TEMPERATURES/(K) 545.000 | 550.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00163 | .00164 | .00171 | .00178 | .00187 | .00196 | .00207 | .00221 | .00237 |
| | H/(KJ/KG) | 638.5 | 653.7 | 731.4 | 811.9 | 895.0 | 980.3 | 1067.7 | 1158.6 | 1249.0 |
| | S/(KJ/KG K) | 1.7576 | 1.7853 | 1.9234 | 2.0605 | 2.1961 | 2.3299 | 2.4619 | 2.5941 | 2.7209 |
| | C/(M/SEC) | 875.9476 | 851.8381 | 736.8311 | 631.3605 | 536.2964 | 452.0403 | 378.6186 | 316.1228 | 265.9403 |
| | KAPPA/(1/MPA) | .0028 | .0030 | .0040 | .0055 | .0078 | .0112 | .0166 | .0249 | .0377 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.6 | 1.8 | 1.9 | 2.1 | 2.3 | 2.6 | 3.0 |
| 6.0000 | V/(M3/KG) | .00163 | .00164 | .00170 | .00177 | .00185 | .00194 | .00204 | .00216 | .00229 |
| | H/(KJ/KG) | 638.8 | 654.0 | 731.5 | 811.8 | 894.7 | 979.6 | 1066.7 | 1157.1 | 1246.7 |
| | S/(KJ/KG K) | 1.7552 | 1.7828 | 1.9206 | 2.0574 | 2.1927 | 2.3260 | 2.4573 | 2.5888 | 2.7146 |
| | C/(M/SEC) | 829.5035 | 807.8092 | 704.1556 | 609.3554 | 524.9075 | 451.6713 | 389.7296 | 338.5495 | 298.3544 |
| | KAPPA/(1/MPA) | .0030 | .0032 | .0042 | .0057 | .0078 | .0109 | .0152 | .0210 | .0286 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.1 | 2.3 | 2.5 |
| 7.0000 | V/(M3/KG) | .00162 | .00163 | .00170 | .00176 | .00184 | .00192 | .00201 | .00212 | .00223 |
| | H/(KJ/KG) | 639.2 | 654.3 | 731.7 | 811.9 | 894.5 | 979.2 | 1066.0 | 1156.0 | 1245.1 |
| | S/(KJ/KG K) | 1.7528 | 1.7804 | 1.9180 | 2.0545 | 2.1895 | 2.3224 | 2.4533 | 2.5842 | 2.7092 |
| | C/(M/SEC) | 777.4267 | 758.3709 | 667.1616 | 583.9557 | 510.8177 | 448.9587 | 398.2028 | 357.2386 | 325.4712 |
| | KAPPA/(1/MPA) | .0033 | .0035 | .0045 | .0060 | .0080 | .0107 | .0141 | .0183 | .0233 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.1 | 2.2 |
| 8.0000 | V/(M3/KG) | .00162 | .00163 | .00169 | .00175 | .00182 | .00190 | .00199 | .00208 | .00218 |
| | H/(KJ/KG) | 639.5 | 654.6 | 731.9 | 812.0 | 894.5 | 979.0 | 1065.5 | 1155.1 | 1243.9 |
| | S/(KJ/KG K) | 1.7505 | 1.7781 | 1.9154 | 2.0517 | 2.1864 | 2.3190 | 2.4496 | 2.5800 | 2.7045 |
| | C/(M/SEC) | 716.4582 | 700.4423 | 623.5157 | 553.4641 | 492.9814 | 443.4288 | 404.1494 | 373.0130 | 348.9136 |
| | KAPPA/(1/MPA) | .0037 | .0039 | .0050 | .0065 | .0084 | .0107 | .0134 | .0164 | .0198 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.1 |
| 9.0000 | V/(M3/KG) | .00161 | .00162 | .00168 | .00174 | .00181 | .00188 | .00196 | .00205 | .00214 |
| | H/(KJ/KG) | 639.9 | 655.0 | 732.2 | 812.1 | 894.5 | 978.8 | 1065.1 | 1154.5 | 1242.9 |
| | S/(KJ/KG K) | 1.7482 | 1.7758 | 1.9130 | 2.0491 | 2.1836 | 2.3159 | 2.4461 | 2.5762 | 2.7002 |
| | C/(M/SEC) | 639.5925 | 627.4587 | 568.5650 | 514.7678 | 469.5811 | 434.2895 | 407.5158 | 386.3635 | 369.6227 |
| | KAPPA/(1/MPA) | .0045 | .0047 | .0058 | .0073 | .0090 | .0109 | .0129 | .0150 | .0173 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.4 | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 |
| 10.0000 | V/(M3/KG) | .00160 | .00161 | .00167 | .00173 | .00179 | .00186 | .00193 | .00202 | .00211 |
| | H/(KJ/KG) | 640.3 | 655.4 | 732.5 | 812.3 | 894.6 | 978.8 | 1064.9 | 1154.0 | 1242.1 |
| | S/(KJ/KG K) | 1.7461 | 1.7736 | 1.9106 | 2.0466 | 2.1809 | 2.3130 | 2.4429 | 2.5726 | 2.6962 |
| | C/(M/SEC) | 525.5093 | 519.9173 | 490.0079 | 460.6328 | 436.9330 | 420.1310 | 408.0637 | 397.6018 | 388.2016 |
| | KAPPA/(1/MPA) | .0063 | .0065 | .0075 | .0088 | .0101 | .0114 | .0126 | .0139 | .0155 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.4 | 1.4 | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 |

THERMODYNAMIC PROPERTIES OF PENTADECANE

| P/(MPA) | | TEMPERATURES/(K) 750.000 | 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00256 | .00282 | .00316 | .00363 | .00418 | .00475 | .00525 | .00568 | .00602 |
| | H/(KJ/KG) | 1335.6 | 1419.2 | 1506.3 | 1600.1 | 1700.0 | 1803.3 | 1908.5 | 2015.2 | 2123.6 |
| | S/(KJ/KG K) | 2.8383 | 2.9480 | 3.0587 | 3.1741 | 3.2933 | 3.4131 | 3.5317 | 3.6486 | 3.7642 |
| | C/(M/SEC) | 226.4127 | 193.6871 | 168.1565 | 152.8383 | 149.3578 | 153.2664 | 159.3000 | 164.8761 | 169.0859 |
| | KAPPA/(1/MPA) | .0570 | .0864 | .1299 | .1805 | .2137 | .2229 | .2213 | .2179 | .2155 |
| | BETA/(1000/K) | 3.5 | 4.2 | 5.1 | 5.7 | 5.5 | 4.6 | 3.6 | 2.7 | 1.9 |
| 6.0000 | V/(M3/KG) | .00245 | .00264 | .00287 | .00317 | .00353 | .00394 | .00434 | .00469 | .00498 |
| | H/(KJ/KG) | 1332.2 | 1414.3 | 1499.0 | 1589.8 | 1687.5 | 1790.9 | 1897.9 | 2007.3 | 2118.9 |
| | S/(KJ/KG K) | 2.8306 | 2.9382 | 3.0458 | 3.1575 | 3.2742 | 3.3940 | 3.5146 | 3.6345 | 3.7535 |
| | C/(M/SEC) | 266.5817 | 238.3519 | 212.8514 | 191.2279 | 176.4407 | 170.1583 | 170.1640 | 172.8978 | 176.0414 |
| | KAPPA/(1/MPA) | .0388 | .0527 | .0723 | .0988 | .1282 | .1504 | .1611 | .1644 | .1648 |
| | BETA/(1000/K) | 2.8 | 3.2 | 3.7 | 4.2 | 4.4 | 4.2 | 3.5 | 2.7 | 2.0 |
| 7.0000 | V/(M3/KG) | .00237 | .00252 | .00271 | .00293 | .00319 | .00349 | .00380 | .00408 | .00432 |
| | H/(KJ/KG) | 1329.9 | 1411.0 | 1494.5 | 1583.6 | 1679.6 | 1782.2 | 1889.7 | 2000.9 | 2114.8 |
| | S/(KJ/KG K) | 2.8243 | 2.9307 | 3.0366 | 3.1463 | 3.2609 | 3.3798 | 3.5010 | 3.6228 | 3.7444 |
| | C/(M/SEC) | 300.1762 | 276.3347 | 253.1483 | 231.2651 | 212.6360 | 199.5600 | 192.7878 | 190.8684 | 191.6462 |
| | KAPPA/(1/MPA) | .0295 | .0374 | .0480 | .0620 | .0791 | .0965 | .1099 | .1177 | .1210 |
| | BETA/(1000/K) | 2.4 | 2.7 | 3.0 | 3.3 | 3.5 | 3.5 | 3.2 | 2.6 | 2.0 |
| 8.0000 | V/(M3/KG) | .00230 | .00244 | .00260 | .00278 | .00299 | .00322 | .00346 | .00370 | .00390 |
| | H/(KJ/KG) | 1328.2 | 1408.6 | 1491.2 | 1579.3 | 1674.3 | 1776.1 | 1883.7 | 1995.8 | 2111.5 |
| | S/(KJ/KG K) | 2.8189 | 2.9244 | 3.0292 | 3.1376 | 3.2510 | 3.3690 | 3.4903 | 3.6132 | 3.7366 |
| | C/(M/SEC) | 329.3744 | 309.4917 | 288.8000 | 268.0774 | 248.9304 | 233.3153 | 222.6327 | 216.9337 | 215.1708 |
| | KAPPA/(1/MPA) | .0239 | .0289 | .0354 | .0437 | .0540 | .0651 | .0753 | .0827 | .0869 |
| | BETA/(1000/K) | 2.2 | 2.4 | 2.6 | 2.8 | 3.0 | 3.0 | 2.8 | 2.4 | 1.9 |
| 9.0000 | V/(M3/KG) | .00225 | .00238 | .00252 | .00268 | .00286 | .00305 | .00325 | .00344 | .00362 |
| | H/(KJ/KG) | 1326.8 | 1406.7 | 1488.6 | 1576.0 | 1670.3 | 1771.6 | 1879.2 | 1991.9 | 2108.8 |
| | S/(KJ/KG K) | 2.8140 | 2.9188 | 3.0228 | 3.1303 | 3.2429 | 3.3604 | 3.4816 | 3.6051 | 3.7298 |
| | C/(M/SEC) | 355.4223 | 339.1494 | 320.7840 | 301.4435 | 282.7534 | 266.4880 | 254.1091 | 246.2564 | 242.6743 |
| | KAPPA/(1/MPA) | .0201 | .0235 | .0279 | .0334 | .0400 | .0473 | .0543 | .0600 | .0637 |
| | BETA/(1000/K) | 2.1 | 2.2 | 2.4 | 2.5 | 2.6 | 2.6 | 2.5 | 2.2 | 1.8 |
| 10.0000 | V/(M3/KG) | .00221 | .00233 | .00246 | .00260 | .00276 | .00293 | .00310 | .00327 | .00342 |
| | H/(KJ/KG) | 1325.7 | 1405.1 | 1486.6 | 1573.4 | 1667.2 | 1768.2 | 1875.7 | 1988.8 | 2106.6 |
| | S/(KJ/KG K) | 2.8095 | 2.9137 | 3.0171 | 3.1240 | 3.2359 | 3.3530 | 3.4742 | 3.5982 | 3.7238 |
| | C/(M/SEC) | 379.1053 | 366.1784 | 349.9326 | 331.9109 | 313.9130 | 297.6771 | 284.6513 | 275.6974 | 270.9862 |
| | KAPPA/(1/MPA) | .0174 | .0199 | .0229 | .0268 | .0314 | .0364 | .0414 | .0456 | .0485 |
| | BETA/(1000/K) | 2.0 | 2.1 | 2.2 | 2.3 | 2.4 | 2.4 | 2.2 | 2.0 | 1.7 |


10.0
7.0
5.0
3.0
1.0
0.7
0.5
0.3
0.1
PRESSURE/MPA
600
1000
1400
1800
ENTHALPY/(KJ/KG)
650
700
750
800
T=850
.002
.0017
.005
.007
.010
.014
.020
.030
.050
.070
.100
.140
.200
.20
.40
.60
X=.80
2.6
2.8
3.0
3.2
3.4
S=3.6

HEXADECANE

PROPERTIES OF SATURATED HEXADECANE

| TEMPERATURE | PRESSURE | VOLUME/(M3/KG) | | ENTHALPY/(KJ/KG) | | | ENTROPY/(KJ/KG K) | | |
|---|---|---|---|---|---|---|---|---|---|
| K | MPA | VF | VG | HF | HFG | HG | SF | SFG | SG |
| 560.00000 | .10297 | .00166 | .16927 | 682.58327 | 210.32465 | 892.90792 | 1.87351 | .37558 | 2.24909 |
| 565.00000 | .11467 | .00168 | .15302 | 697.85311 | 208.60326 | 906.45637 | 1.90062 | .36921 | 2.26983 |
| 570.00000 | .12739 | .00169 | .13864 | 713.31252 | 206.88045 | 920.19296 | 1.92783 | .36295 | 2.29077 |
| 575.00000 | .14119 | .00171 | .12586 | 728.96605 | 205.14289 | 934.10895 | 1.95513 | .35677 | 2.31190 |
| 580.00000 | .15615 | .00172 | .11447 | 744.81714 | 203.37729 | 948.19443 | 1.98253 | .35065 | 2.33318 |
| 585.00000 | .17231 | .00174 | .10429 | 760.86781 | 201.57064 | 962.43845 | 2.01004 | .34457 | 2.35460 |
| 590.00000 | .18977 | .00175 | .09517 | 777.11880 | 199.71031 | 976.82912 | 2.03765 | .33849 | 2.37614 |
| 595.00000 | .20857 | .00177 | .08697 | 793.56963 | 197.78410 | 991.35373 | 2.06536 | .33241 | 2.39777 |
| 600.00000 | .22881 | .00179 | .07958 | 810.21870 | 195.78018 | 1005.99887 | 2.09316 | .32630 | 2.41946 |
| 605.00000 | .25055 | .00180 | .07290 | 827.06346 | 193.68704 | 1020.75050 | 2.12105 | .32014 | 2.44120 |
| 610.00000 | .27387 | .00182 | .06685 | 844.10058 | 191.49343 | 1035.59401 | 2.14903 | .31392 | 2.46295 |
| 615.00000 | .29885 | .00184 | .06136 | 861.32606 | 189.18823 | 1050.51429 | 2.17708 | .30762 | 2.48470 |
| 620.00000 | .32559 | .00186 | .05635 | 878.73548 | 186.76025 | 1065.49573 | 2.20519 | .30123 | 2.50642 |
| 625.00000 | .35416 | .00188 | .05179 | 896.32418 | 184.19807 | 1080.52225 | 2.23336 | .29472 | 2.52808 |
| 630.00000 | .38467 | .00190 | .04762 | 914.08746 | 181.48977 | 1095.57723 | 2.26157 | .28808 | 2.54965 |
| 635.00000 | .41721 | .00193 | .04380 | 932.02087 | 178.62262 | 1110.64349 | 2.28983 | .28130 | 2.57112 |
| 640.00000 | .45188 | .00195 | .04029 | 950.12050 | 175.58270 | 1125.70320 | 2.31812 | .27435 | 2.59246 |
| 645.00000 | .48880 | .00198 | .03706 | 968.38323 | 172.35451 | 1140.73774 | 2.34643 | .26722 | 2.61364 |
| 650.00000 | .52808 | .00200 | .03409 | 986.80726 | 168.92024 | 1155.72750 | 2.37476 | .25988 | 2.63464 |
| 655.00000 | .56983 | .00203 | .03134 | 1005.39246 | 165.25918 | 1170.65164 | 2.40311 | .25230 | 2.65542 |
| 660.00000 | .61419 | .00206 | .02880 | 1024.14105 | 161.34669 | 1185.48775 | 2.43149 | .24446 | 2.67596 |
| 665.00000 | .66129 | .00209 | .02644 | 1043.05847 | 157.15276 | 1200.21123 | 2.45990 | .23632 | 2.69622 |
| 670.00000 | .71129 | .00212 | .02425 | 1062.15341 | 152.64151 | 1214.79492 | 2.48835 | .22782 | 2.71617 |
| 675.00000 | .76432 | .00216 | .02221 | 1081.44205 | 147.76520 | 1229.20724 | 2.51686 | .21891 | 2.73577 |
| 680.00000 | .82056 | .00220 | .02029 | 1100.94629 | 142.46531 | 1243.41160 | 2.54547 | .20951 | 2.75498 |
| 685.00000 | .88018 | .00225 | .01850 | 1120.69925 | 136.66393 | 1257.36318 | 2.57422 | .19951 | 2.77372 |
| 690.00000 | .94338 | .00230 | .01681 | 1140.74998 | 130.25489 | 1271.00487 | 2.60317 | .18878 | 2.79195 |
| 695.00000 | 1.01035 | .00235 | .01520 | 1161.17170 | 123.08808 | 1284.25979 | 2.63244 | .17711 | 2.80954 |
| 700.00000 | 1.08132 | .00242 | .01366 | 1182.07835 | 114.93854 | 1297.01689 | 2.66217 | .16420 | 2.82636 |
| 705.00000 | 1.15651 | .00250 | .01216 | 1203.65869 | 105.44109 | 1309.09978 | 2.69262 | .14956 | 2.84218 |
| 710.00000 | 1.23619 | .00261 | .01067 | 1226.26979 | 93.91475 | 1320.18454 | 2.72429 | .13227 | 2.85657 |
| 715.00000 | 1.32062 | .00276 | .00910 | 1250.76506 | 78.74768 | 1329.51274 | 2.75835 | .11014 | 2.86849 |
| 720.00000 | 1.41010 | .00319 | .00711 | 1274.18817 | 59.57451 | 1333.76268 | 2.79066 | .08275 | 2.87340 |
| 720.54000 | 1.50496 | .00419 | .00419 | 1302.61621 | 0. | 1302.61621 | 2.82957 | 0. | 2.82957 |

## THERMODYNAMIC PROPERTIES OF HEXADECANE

| P/(MPA) | | TEMPERATURES/(K) 560.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 | 750.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .17537 | .18859 | .20484 | .21747 | .22842 | .23862 | .24855 | .25845 | .26840 |
| | H/(KJ/KG) | 894.1 | 945.2 | 1024.9 | 1101.6 | 1177.5 | 1253.7 | 1330.7 | 1409.0 | 1488.8 |
| | S/(KJ/KG K) | 2.2521 | 2.3423 | 2.4780 | 2.6032 | 2.7223 | 2.8372 | 2.9493 | 3.0592 | 3.1674 |
| | C/(M/SEC) | 125.6454 | 132.2643 | 139.6757 | 144.8459 | 148.9702 | 152.6184 | 156.0697 | 159.4497 | 162.8004 |
| | KAPPA/(1/MPA) | 12.0423 | 11.3262 | 10.7945 | 10.5679 | 10.4569 | 10.3927 | 10.3461 | 10.3050 | 10.2650 |
| | BETA/(1000/K) | 5.8 | 4.1 | 2.7 | 2.1 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 |
| .1013 | V/(M3/KG) | .17261 | .18580 | .20195 | .21446 | .22529 | .23537 | .24519 | .25496 | .26479 |
| | H/(KJ/KG) | 893.6 | 944.9 | 1024.8 | 1101.6 | 1177.5 | 1253.6 | 1330.7 | 1409.0 | 1488.8 |
| | S/(KJ/KG K) | 2.2508 | 2.3413 | 2.4772 | 2.6026 | 2.7217 | 2.8367 | 2.9488 | 3.0587 | 3.1669 |
| | C/(M/SEC) | 125.3469 | 132.0563 | 139.5393 | 144.7420 | 148.8828 | 152.5408 | 155.9998 | 159.3871 | 162.7454 |
| | KAPPA/(1/MPA) | 11.9292 | 11.2021 | 10.6657 | 10.4379 | 10.3266 | 10.2622 | 10.2156 | 10.1744 | 10.1343 |
| | BETA/(1000/K) | 5.9 | 4.1 | 2.7 | 2.1 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 |
| .2000 | V/(M3/KG) | .00166 | .00171 | .09377 | .10240 | .10893 | .11459 | .11995 | .12526 | .13062 |
| | H/(KJ/KG) | 682.6 | 729.0 | 1010.7 | 1094.1 | 1173.0 | 1250.5 | 1327.9 | 1406.1 | 1485.7 |
| | S/(KJ/KG K) | 1.8732 | 1.9550 | 2.4314 | 2.5676 | 2.6915 | 2.8084 | 2.9210 | 3.0308 | 3.1387 |
| | C/(M/SEC) | 1263.2061 | 1121.2630 | 128.6235 | 136.7453 | 142.2588 | 146.7002 | 150.7466 | 154.6892 | 158.6217 |
| | KAPPA/(1/MPA) | .0019 | .0023 | 5.9872 | 5.6367 | 5.4914 | 5.4151 | 5.3630 | 5.3182 | 5.2749 |
| | BETA/(1000/K) | 1.7 | 1.8 | 4.5 | 2.8 | 2.2 | 1.9 | 1.8 | 1.7 | 1.7 |
| .3000 | V/(M3/KG) | .00166 | .00171 | .00179 | .06376 | .06899 | .07319 | .07704 | .08083 | .08468 |
| | H/(KJ/KG) | 682.6 | 729.0 | 810.2 | 1085.6 | 1168.3 | 1247.2 | 1325.0 | 1403.2 | 1482.5 |
| | S/(KJ/KG K) | 1.8730 | 1.9547 | 2.0929 | 2.5412 | 2.6709 | 2.7900 | 2.9032 | 3.0130 | 3.1206 |
| | C/(M/SEC) | 1257.0312 | 1116.1728 | 911.0582 | 127.9147 | 135.2518 | 140.6180 | 145.3062 | 149.8388 | 154.3782 |
| | KAPPA/(1/MPA) | .0019 | .0023 | .0034 | 4.0699 | 3.8688 | 3.7754 | 3.7160 | 3.6665 | 3.6194 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.0 | 3.9 | 2.6 | 2.2 | 2.0 | 1.9 | 1.8 |
| .4000 | V/(M3/KG) | .00166 | .00171 | .00179 | .00188 | .04891 | .05243 | .05555 | .05859 | .06168 |
| | H/(KJ/KG) | 682.6 | 729.0 | 810.2 | 896.3 | 1163.1 | 1243.7 | 1322.0 | 1400.2 | 1479.3 |
| | S/(KJ/KG K) | 1.8727 | 1.9544 | 2.0926 | 2.2332 | 2.6541 | 2.7758 | 2.8897 | 2.9994 | 3.1067 |
| | C/(M/SEC) | 1250.8531 | 1111.0774 | 907.4385 | 728.7575 | 127.7879 | 134.2990 | 139.7069 | 144.8726 | 150.0547 |
| | KAPPA/(1/MPA) | .0019 | .0023 | .0034 | .0053 | 3.0950 | 2.9755 | 2.9059 | 2.8504 | 2.7986 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.0 | 2.3 | 3.2 | 2.5 | 2.2 | 2.1 | 2.0 |
| .5000 | V/(M3/KG) | .00166 | .00170 | .00179 | .00188 | .03672 | .03992 | .04261 | .04521 | .04786 |
| | H/(KJ/KG) | 682.6 | 729.0 | 810.1 | 896.2 | 1157.4 | 1240.1 | 1319.0 | 1397.2 | 1476.1 |
| | S/(KJ/KG K) | 1.8724 | 1.9541 | 2.0922 | 2.2327 | 2.6388 | 2.7637 | 2.8785 | 2.9881 | 3.0952 |
| | C/(M/SEC) | 1244.8316 | 1105.9761 | 903.8146 | 726.3751 | 119.5760 | 127.6275 | 133.8882 | 139.7558 | 145.6322 |
| | KAPPA/(1/MPA) | .0019 | .0023 | .0034 | .0053 | 2.6818 | 2.5189 | 2.4344 | 2.3707 | 2.3129 |
| | BETA/(1000/K) | 1.7 | 1.8 | 2.0 | 2.3 | 4.1 | 2.8 | 2.4 | 2.3 | 2.2 |
| .6000 | V/(M3/KG) | .00166 | .00170 | .00178 | .00188 | .00200 | .03149 | .03394 | .03626 | .03862 |
| | H/(KJ/KG) | 682.6 | 729.0 | 810.1 | 896.1 | 986.7 | 1236.3 | 1315.9 | 1394.1 | 1472.8 |
| | S/(KJ/KG K) | 1.8721 | 1.9538 | 2.0919 | 2.2323 | 2.3744 | 2.7528 | 2.8686 | 2.9783 | 3.0851 |
| | C/(M/SEC) | 1238.6441 | 1100.9758 | 900.1857 | 723.9915 | 562.7745 | 120.4130 | 127.7606 | 134.4416 | 141.0876 |
| | KAPPA/(1/MPA) | .0019 | .0024 | .0034 | .0053 | .0090 | 2.2452 | 2.1370 | 2.0617 | 1.9961 |
| | BETA/(1000/K) | 1.7 | 1.7 | 1.9 | 2.2 | 2.8 | 3.3 | 2.8 | 2.6 | 2.5 |

## THERMODYNAMIC PROPERTIES OF HEXADECANE

| P/(MPA) | | TEMPERATURES/(K) 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|
| .1000 | V/(M3/KG) | .27841 | .28846 | .29851 | .30852 | .31842 | .32819 | .33778 | .34718 |
| | H/(KJ/KG) | 1570.1 | 1653.0 | 1737.4 | 1823.4 | 1910.8 | 1999.6 | 2089.8 | 2181.3 |
| | S/(KJ/KG K) | 3.2740 | 3.3792 | 3.4832 | 3.5858 | 3.6872 | 3.7873 | 3.8861 | 3.9837 |
| | C/(M/SEC) | 166.1219 | 169.3950 | 172.5951 | 175.6981 | 178.6836 | 181.5362 | 184.2445 | 186.8014 |
| | KAPPA/(1/MPA) | 10.2253 | 10.1871 | 10.1516 | 10.1202 | 10.0939 | 10.0735 | 10.0594 | 10.0519 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .1013 | V/(M3/KG) | .27469 | .28462 | .29455 | .30443 | .31422 | .32386 | .33334 | .34262 |
| | H/(KJ/KG) | 1570.0 | 1652.9 | 1737.4 | 1823.3 | 1910.8 | 1999.6 | 2089.8 | 2181.3 |
| | S/(KJ/KG K) | 3.2735 | 3.3787 | 3.4826 | 3.5853 | 3.6867 | 3.7868 | 3.8856 | 3.9833 |
| | C/(M/SEC) | 166.0746 | 169.3555 | 172.5628 | 175.6722 | 178.6631 | 181.5196 | 184.2305 | 186.7883 |
| | KAPPA/(1/MPA) | 10.0946 | 10.0564 | 10.0209 | 9.9895 | 9.9632 | 9.9428 | 9.9287 | 9.9212 |
| | BETA/(1000/K) | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |
| .2000 | V/(M3/KG) | .13605 | .14152 | .14699 | .15239 | .15770 | .16287 | .16787 | .17267 |
| | H/(KJ/KG) | 1566.8 | 1649.6 | 1734.1 | 1820.3 | 1908.2 | 1997.6 | 2088.5 | 2180.8 |
| | S/(KJ/KG K) | 3.2451 | 3.3503 | 3.4543 | 3.5572 | 3.6591 | 3.7598 | 3.8594 | 3.9579 |
| | C/(M/SEC) | 162.5403 | 166.4005 | 170.1480 | 173.7328 | 177.1142 | 180.2621 | 183.1555 | 185.7804 |
| | KAPPA/(1/MPA) | 5.2326 | 5.1921 | 5.1551 | 5.1228 | 5.0962 | 5.0758 | 5.0620 | 5.0548 |
| | BETA/(1000/K) | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 |
| .3000 | V/(M3/KG) | .08858 | .09253 | .09647 | .10034 | .10412 | .10775 | .11121 | .11447 |
| | H/(KJ/KG) | 1563.5 | 1646.2 | 1730.9 | 1817.3 | 1905.6 | 1995.6 | 2087.2 | 2180.2 |
| | S/(KJ/KG K) | 3.2267 | 3.3318 | 3.4360 | 3.5393 | 3.6416 | 3.7430 | 3.8433 | 3.9426 |
| | C/(M/SEC) | 158.9166 | 163.3800 | 167.6819 | 171.7464 | 175.5150 | 178.9459 | 182.0108 | 184.6910 |
| | KAPPA/(1/MPA) | 3.5738 | 3.5308 | 3.4921 | 3.4588 | 3.4317 | 3.4113 | 3.3977 | 3.3908 |
| | BETA/(1000/K) | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 |
| .4000 | V/(M3/KG) | .06483 | .06802 | .07120 | .07431 | .07732 | .08018 | .08286 | .08535 |
| | H/(KJ/KG) | 1560.1 | 1642.8 | 1727.6 | 1814.3 | 1903.0 | 1993.6 | 2085.8 | 2179.7 |
| | S/(KJ/KG K) | 3.2127 | 3.3177 | 3.4220 | 3.5256 | 3.6284 | 3.7305 | 3.8316 | 3.9317 |
| | C/(M/SEC) | 155.2433 | 160.3310 | 165.1974 | 169.7418 | 173.8907 | 177.5939 | 180.8182 | 183.5420 |
| | KAPPA/(1/MPA) | 2.7492 | 2.7033 | 2.6626 | 2.6281 | 2.6005 | 2.5800 | 2.5665 | 2.5600 |
| | BETA/(1000/K) | 2.0 | 1.9 | 1.8 | 1.7 | 1.5 | 1.4 | 1.2 | 1.1 |
| .5000 | V/(M3/KG) | .05056 | .05330 | .05603 | .05868 | .06123 | .06362 | .06584 | .06786 |
| | H/(KJ/KG) | 1556.7 | 1639.4 | 1724.3 | 1811.4 | 1900.5 | 1991.6 | 2084.6 | 2179.2 |
| | S/(KJ/KG K) | 3.2009 | 3.3059 | 3.4104 | 3.5143 | 3.6177 | 3.7203 | 3.8222 | 3.9232 |
| | C/(M/SEC) | 151.5117 | 157.2511 | 162.6958 | 167.7227 | 172.2466 | 176.2125 | 179.5855 | 182.3419 |
| | KAPPA/(1/MPA) | 2.2588 | 2.2094 | 2.1665 | 2.1307 | 2.1026 | 2.0819 | 2.0686 | 2.0624 |
| | BETA/(1000/K) | 2.2 | 2.1 | 1.9 | 1.8 | 1.6 | 1.5 | 1.3 | 1.1 |
| .6000 | V/(M3/KG) | .04104 | .04349 | .04591 | .04826 | .05050 | .05258 | .05449 | .05619 |
| | H/(KJ/KG) | 1553.3 | 1636.0 | 1721.0 | 1808.4 | 1898.0 | 1989.7 | 2083.3 | 2178.8 |
| | S/(KJ/KG K) | 3.1906 | 3.2956 | 3.4002 | 3.5045 | 3.6084 | 3.7118 | 3.8144 | 3.9162 |
| | C/(M/SEC) | 147.7124 | 154.1387 | 160.1793 | 165.6932 | 170.5884 | 174.8088 | 178.3205 | 181.0995 |
| | KAPPA/(1/MPA) | 1.9361 | 1.8827 | 1.8372 | 1.8000 | 1.7712 | 1.7503 | 1.7371 | 1.7312 |
| | BETA/(1000/K) | 2.4 | 2.2 | 2.1 | 1.9 | 1.7 | 1.5 | 1.3 | 1.1 |

THERMODYNAMIC PROPERTIES OF HEXADECANE

| P/(MPA) | | TEMPERATURES/(K) 560.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 | 750.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .00166 | .00170 | .00178 | .00188 | .00200 | .02537 | .02769 | .02984 | .03200 |
| | H/(KJ/KG) | 682.7 | 729.0 | 810.1 | 896.1 | 986.5 | 1232.2 | 1312.7 | 1390.9 | 1469.5 |
| | S/(KJ/KG K) | 1.8719 | 1.9535 | 2.0915 | 2.2319 | 2.3738 | 2.7424 | 2.8596 | 2.9694 | 3.0759 |
| | C/(M/SEC) | 1232.4835 | 1095.8761 | 896.6040 | 721.6061 | 561.6348 | 112.3249 | 121.1896 | 128.8666 | 136.3920 |
| | KAPPA/(1/MPA) | .0019 | .0024 | .0034 | .0053 | .0090 | 2.0955 | 1.9463 | 1.8536 | 1.7772 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 2.7 | 4.1 | 3.1 | 2.9 | 2.7 |
| .8000 | V/(M3/KG) | .00166 | .00170 | .00178 | .00188 | .00200 | .00216 | .02294 | .02497 | .02701 |
| | H/(KJ/KG) | 682.7 | 729.0 | 810.0 | 896.0 | 986.4 | 1081.3 | 1309.3 | 1387.6 | 1466.1 |
| | S/(KJ/KG K) | 1.8716 | 1.9532 | 2.0912 | 2.2315 | 2.3733 | 2.5166 | 2.8511 | 2.9611 | 3.0674 |
| | C/(M/SEC) | 1226.3547 | 1090.8013 | 879.2876 | 711.7175 | 560.4948 | 407.2977 | 113.9639 | 122.9428 | 131.5100 |
| | KAPPA/(1/MPA) | .0019 | .0024 | .0034 | .0053 | .0089 | .0182 | 1.8336 | 1.7129 | 1.6215 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 2.7 | 3.7 | 3.6 | 3.2 | 3.1 |
| .9000 | V/(M3/KG) | .00166 | .00170 | .00178 | .00188 | .00200 | .00216 | .01915 | .02115 | .02310 |
| | H/(KJ/KG) | 682.7 | 729.0 | 810.0 | 895.9 | 986.2 | 1081.0 | 1305.5 | 1384.2 | 1462.5 |
| | S/(KJ/KG K) | 1.8713 | 1.9529 | 2.0908 | 2.2311 | 2.3727 | 2.5158 | 2.8428 | 2.9532 | 3.0594 |
| | C/(M/SEC) | 1184.7523 | 1063.8884 | 880.4231 | 713.2633 | 556.6124 | 407.8199 | 105.7275 | 116.5465 | 126.3982 |
| | KAPPA/(1/MPA) | .0019 | .0024 | .0035 | .0053 | .0089 | .0180 | 1.7934 | 1.6238 | 1.5101 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 2.7 | 3.7 | 4.4 | 3.7 | 3.4 |
| 1.0000 | V/(M3/KG) | .00166 | .00170 | .00178 | .00188 | .00199 | .00215 | .01598 | .01802 | .01995 |
| | H/(KJ/KG) | 682.7 | 729.0 | 810.0 | 895.8 | 986.1 | 1080.7 | 1301.2 | 1380.5 | 1458.8 |
| | S/(KJ/KG K) | 1.8710 | 1.9526 | 2.0905 | 2.2306 | 2.3722 | 2.5150 | 2.8341 | 2.9454 | 3.0516 |
| | C/(M/SEC) | 1185.7154 | 1064.9087 | 881.6542 | 714.4334 | 558.2054 | 408.3308 | 95.8026 | 109.4958 | 121.0031 |
| | KAPPA/(1/MPA) | .0020 | .0024 | .0035 | .0053 | .0089 | .0178 | 1.8490 | 1.5809 | 1.4329 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.2 | 2.7 | 3.6 | 5.6 | 4.3 | 3.9 |
| 2.0000 | V/(M3/KG) | .00166 | .00170 | .00178 | .00187 | .00198 | .00212 | .00232 | .00275 | .00461 |
| | H/(KJ/KG) | 682.8 | 729.0 | 809.7 | 895.2 | 984.8 | 1078.0 | 1175.9 | 1277.2 | 1396.5 |
| | S/(KJ/KG K) | 1.8683 | 1.9496 | 2.0871 | 2.2266 | 2.3671 | 2.5079 | 2.6502 | 2.7925 | 2.9544 |
| | C/(M/SEC) | 1152.8756 | 1029.6589 | 849.1006 | 690.2688 | 546.5614 | 412.7050 | 282.2724 | 138.7953 | 80.9858 |
| | KAPPA/(1/MPA) | .0020 | .0025 | .0036 | .0054 | .0088 | .0160 | .0372 | .1966 | 1.0160 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.9 | 2.1 | 2.5 | 3.1 | 4.5 | 11.8 | 18.9 |
| 3.0000 | V/(M3/KG) | .00165 | .00169 | .00177 | .00186 | .00196 | .00208 | .00225 | .00248 | .00286 |
| | H/(KJ/KG) | 683.0 | 729.0 | 809.5 | 894.6 | 983.7 | 1076.0 | 1172.0 | 1266.7 | 1365.6 |
| | S/(KJ/KG K) | 1.8657 | 1.9468 | 2.0838 | 2.2228 | 2.3624 | 2.5018 | 2.6414 | 2.7744 | 2.9086 |
| | C/(M/SEC) | 1090.9921 | 977.7018 | 811.4241 | 665.1973 | 534.1660 | 415.5566 | 307.8931 | 210.6373 | 139.5919 |
| | KAPPA/(1/MPA) | .0022 | .0026 | .0037 | .0055 | .0087 | .0148 | .0282 | .0642 | .1788 |
| | BETA/(1000/K) | 1.6 | 1.7 | 1.8 | 2.0 | 2.3 | 2.7 | 3.4 | 4.6 | 7.2 |
| 4.0000 | V/(M3/KG) | .00165 | .00169 | .00176 | .00185 | .00194 | .00205 | .00219 | .00236 | .00257 |
| | H/(KJ/KG) | 683.2 | 729.1 | 809.4 | 894.2 | 982.8 | 1074.5 | 1169.5 | 1262.5 | 1358.0 |
| | S/(KJ/KG K) | 1.8631 | 1.9440 | 2.0807 | 2.2191 | 2.3581 | 2.4965 | 2.6347 | 2.7653 | 2.8949 |
| | C/(M/SEC) | 1027.2427 | 923.7057 | 771.8028 | 638.5218 | 520.4284 | 416.6090 | 327.6278 | 254.2345 | 204.3101 |
| | KAPPA/(1/MPA) | .0023 | .0028 | .0040 | .0058 | .0088 | .0140 | .0233 | .0403 | .0698 |
| | BETA/(1000/K) | 1.6 | 1.6 | 1.8 | 1.9 | 2.1 | 2.4 | 2.7 | 3.2 | 3.8 |

THERMODYNAMIC PROPERTIES OF HEXADECANE

| P/(MPA) | | TEMPERATURES/(K) 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|
| .7000 | V/(M3/KG) | .03422 | .03646 | .03868 | .04081 | .04283 | .04469 | .04637 | .04785 |
| | H/(KJ/KG) | 1549.8 | 1632.5 | 1717.7 | 1805.4 | 1895.4 | 1987.7 | 2082.1 | 2178.4 |
| | S/(KJ/KG K) | 3.1813 | 3.2862 | 3.3911 | 3.4958 | 3.6002 | 3.7042 | 3.8076 | 3.9103 |
| | C/(M/SEC) | 143.8351 | 150.9926 | 157.6511 | 163.6585 | 168.9221 | 173.3898 | 177.0311 | 179.8233 |
| | KAPPA/(1/MPA) | 1.7099 | 1.6517 | 1.6032 | 1.5644 | 1.5348 | 1.5138 | 1.5007 | 1.4951 |
| | BETA/(1000/K) | 2.6 | 2.5 | 2.3 | 2.0 | 1.8 | 1.6 | 1.4 | 1.1 |
| .8000 | V/(M3/KG) | .02909 | .03119 | .03325 | .03523 | .03708 | .03877 | .04028 | .04159 |
| | H/(KJ/KG) | 1546.3 | 1628.9 | 1714.3 | 1802.4 | 1892.9 | 1985.8 | 2080.9 | 2178.0 |
| | S/(KJ/KG K) | 3.1726 | 3.2776 | 3.3827 | 3.4878 | 3.5928 | 3.6975 | 3.8017 | 3.9052 |
| | C/(M/SEC) | 139.8687 | 147.8125 | 155.1152 | 161.6242 | 167.2545 | 171.9628 | 175.7253 | 178.5217 |
| | KAPPA/(1/MPA) | 1.5448 | 1.4807 | 1.4289 | 1.3883 | 1.3579 | 1.3366 | 1.3236 | 1.3183 |
| | BETA/(1000/K) | 2.9 | 2.7 | 2.4 | 2.2 | 1.9 | 1.7 | 1.4 | 1.2 |
| .9000 | V/(M3/KG) | .02509 | .02708 | .02903 | .03088 | .03260 | .03416 | .03554 | .03671 |
| | H/(KJ/KG) | 1542.6 | 1625.4 | 1710.9 | 1799.4 | 1890.4 | 1983.9 | 2079.7 | 2177.6 |
| | S/(KJ/KG K) | 3.1644 | 3.2695 | 3.3748 | 3.4804 | 3.5860 | 3.6913 | 3.7963 | 3.9007 |
| | C/(M/SEC) | 135.8020 | 144.5995 | 152.5768 | 159.5971 | 165.5927 | 170.5354 | 174.4111 | 177.2034 |
| | KAPPA/(1/MPA) | 1.4211 | 1.3500 | 1.2942 | 1.2517 | 1.2205 | 1.1989 | 1.1860 | 1.1809 |
| | BETA/(1000/K) | 3.2 | 2.9 | 2.6 | 2.3 | 2.0 | 1.7 | 1.4 | 1.2 |
| 1.0000 | V/(M3/KG) | .02187 | .02379 | .02564 | .02740 | .02902 | .03048 | .03175 | .03281 |
| | H/(KJ/KG) | 1538.9 | 1621.7 | 1707.5 | 1796.3 | 1887.9 | 1982.0 | 2078.5 | 2177.2 |
| | S/(KJ/KG K) | 3.1566 | 3.2618 | 3.3674 | 3.4734 | 3.5796 | 3.6856 | 3.7914 | 3.8967 |
| | C/(M/SEC) | 131.6243 | 141.3568 | 150.0430 | 157.5847 | 163.9443 | 169.1152 | 173.0966 | 175.8768 |
| | KAPPA/(1/MPA) | 1.3273 | 1.2476 | 1.1874 | 1.1428 | 1.1106 | 1.0888 | 1.0759 | 1.0712 |
| | BETA/(1000/K) | 3.5 | 3.2 | 2.8 | 2.5 | 2.1 | 1.8 | 1.5 | 1.2 |
| 2.0000 | V/(M3/KG) | .00689 | .00884 | .01044 | .01181 | .01298 | .01394 | .01470 | .01524 |
| | H/(KJ/KG) | 1490.2 | 1580.1 | 1671.3 | 1765.6 | 1863.2 | 1964.0 | 2068.0 | 2175.2 |
| | S/(KJ/KG K) | 3.0773 | 3.1914 | 3.3038 | 3.4163 | 3.5295 | 3.6431 | 3.7570 | 3.8714 |
| | C/(M/SEC) | 91.3508 | 111.4095 | 127.7862 | 140.4042 | 149.9825 | 156.9713 | 161.5985 | 163.9191 |
| | KAPPA/(1/MPA) | 1.0618 | .8351 | .7139 | .6470 | .6077 | .5847 | .5732 | .5715 |
| | BETA/(1000/K) | 12.7 | 7.9 | 5.7 | 4.3 | 3.3 | 2.5 | 1.8 | 1.1 |
| 3.0000 | V/(M3/KG) | .00355 | .00456 | .00578 | .00692 | .00787 | .00864 | .00920 | .00955 |
| | H/(KJ/KG) | 1449.6 | 1537.3 | 1633.9 | 1735.2 | 1839.8 | 1947.7 | 2059.4 | 2175.3 |
| | S/(KJ/KG K) | 3.0188 | 3.1302 | 3.2490 | 3.3700 | 3.4912 | 3.6129 | 3.7352 | 3.8588 |
| | C/(M/SEC) | 110.0394 | 111.0356 | 121.3476 | 133.6014 | 143.9064 | 151.4066 | 156.0344 | 157.7416 |
| | KAPPA/(1/MPA) | .3689 | .4725 | .4764 | .4405 | .4113 | .3936 | .3853 | .3854 |
| | BETA/(1000/K) | 9.6 | 10.2 | 8.4 | 6.1 | 4.4 | 3.1 | 2.0 | 1.0 |
| 4.0000 | V/(M3/KG) | .00286 | .00329 | .00395 | .00477 | .00554 | .00617 | .00662 | .00687 |
| | H/(KJ/KG) | 1435.9 | 1514.8 | 1605.8 | 1709.0 | 1819.0 | 1933.5 | 2052.4 | 2176.6 |
| | S/(KJ/KG K) | 2.9971 | 3.0973 | 3.2092 | 3.3324 | 3.4599 | 3.5889 | 3.7192 | 3.8518 |
| | C/(M/SEC) | 166.2802 | 139.3656 | 129.1018 | 133.8766 | 142.6013 | 149.9416 | 154.5701 | 156.1356 |
| | KAPPA/(1/MPA) | .1201 | .2028 | .2884 | .3111 | .3008 | .2891 | .2828 | .2825 |
| | BETA/(1000/K) | 4.8 | 6.5 | 7.9 | 6.9 | 5.1 | 3.5 | 2.1 | .8 |

THERMODYNAMIC PROPERTIES OF HEXADECANE

| P/(MPA) | | TEMPERATURES/(K) 560.000 | 575.000 | 600.000 | 625.000 | 650.000 | 675.000 | 700.000 | 725.000 | 750.000 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00165 | .00168 | .00176 | .00184 | .00192 | .00203 | .00214 | .00228 | .00243 |
| | H/(KJ/KG) | 683.4 | 729.3 | 809.3 | 893.9 | 982.2 | 1073.5 | 1167.9 | 1260.1 | 1354.5 |
| | S/(KJ/KG K) | 1.8606 | 1.9413 | 2.0776 | 2.2156 | 2.3541 | 2.4919 | 2.6292 | 2.7587 | 2.8869 |
| | C/(M/SEC) | 960.2968 | 866.3817 | 729.1238 | 609.2446 | 504.5916 | 415.5086 | 343.1657 | 287.0527 | 251.6334 |
| | KAPPA/(1/MPA) | .0025 | .0030 | .0042 | .0061 | .0089 | .0134 | .0203 | .0300 | .0429 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 | 2.1 | 2.3 | 2.5 | 2.8 |
| 6.0000 | V/(M3/KG) | .00164 | .00168 | .00175 | .00182 | .00191 | .00200 | .00210 | .00222 | .00235 |
| | H/(KJ/KG) | 683.7 | 729.4 | 809.3 | 893.7 | 981.7 | 1072.7 | 1166.7 | 1258.5 | 1352.3 |
| | S/(KJ/KG K) | 1.8581 | 1.9386 | 2.0747 | 2.2124 | 2.3505 | 2.4878 | 2.6246 | 2.7535 | 2.8807 |
| | C/(M/SEC) | 887.6491 | 803.4187 | 681.4152 | 575.8522 | 485.5536 | 411.7413 | 355.3035 | 313.7486 | 289.7798 |
| | KAPPA/(1/MPA) | .0028 | .0033 | .0046 | .0065 | .0093 | .0132 | .0183 | .0243 | .0311 |
| | BETA/(1000/K) | 1.5 | 1.6 | 1.6 | 1.7 | 1.8 | 1.9 | 2.1 | 2.2 | 2.4 |
| 7.0000 | V/(M3/KG) | .00164 | .00167 | .00174 | .00181 | .00189 | .00197 | .00207 | .00217 | .00228 |
| | H/(KJ/KG) | 684.0 | 729.6 | 809.4 | 893.6 | 981.4 | 1072.2 | 1166.0 | 1257.4 | 1350.6 |
| | S/(KJ/KG K) | 1.8556 | 1.9361 | 2.0719 | 2.2093 | 2.3471 | 2.4841 | 2.6205 | 2.7489 | 2.8755 |
| | C/(M/SEC) | 805.1708 | 730.8330 | 625.2571 | 535.6332 | 461.4838 | 404.4828 | 364.4072 | 336.3795 | 322.4476 |
| | KAPPA/(1/MPA) | .0032 | .0038 | .0052 | .0072 | .0099 | .0132 | .0169 | .0206 | .0245 |
| | BETA/(1000/K) | 1.5 | 1.5 | 1.6 | 1.7 | 1.7 | 1.8 | 1.9 | 2.0 | 2.2 |
| 8.0000 | V/(M3/KG) | .00163 | .00167 | .00173 | .00180 | .00187 | .00195 | .00203 | .00213 | .00223 |
| | H/(KJ/KG) | 684.3 | 729.9 | 809.5 | 893.6 | 981.3 | 1071.9 | 1165.4 | 1256.5 | 1349.3 |
| | S/(KJ/KG K) | 1.8533 | 1.9336 | 2.0692 | 2.2064 | 2.3440 | 2.4807 | 2.6168 | 2.7448 | 2.8707 |
| | C/(M/SEC) | 703.7515 | 639.6650 | 552.9321 | 482.7275 | 428.7712 | 392.2850 | 370.5769 | 356.0700 | 351.5096 |
| | KAPPA/(1/MPA) | .0039 | .0047 | .0064 | .0085 | .0110 | .0136 | .0159 | .0180 | .0203 |
| | BETA/(1000/K) | 1.4 | 1.5 | 1.5 | 1.6 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 |
| 9.0000 | V/(M3/KG) | .00162 | .00166 | .00172 | .00178 | .00185 | .00192 | .00200 | .00209 | .00219 |
| | H/(KJ/KG) | 684.7 | 730.2 | 809.7 | 893.7 | 981.2 | 1071.7 | 1165.0 | 1255.8 | 1348.2 |
| | S/(KJ/KG K) | 1.8511 | 1.9313 | 2.0666 | 2.2037 | 2.3411 | 2.4776 | 2.6133 | 2.7409 | 2.8663 |
| | C/(M/SEC) | 552.9438 | 498.5094 | 437.4821 | 398.3982 | 377.8172 | 372.2108 | 373.6711 | 373.5213 | 378.0498 |
| | KAPPA/(1/MPA) | .0059 | .0073 | .0096 | .0119 | .0137 | .0148 | .0154 | .0161 | .0173 |
| | BETA/(1000/K) | 1.3 | 1.4 | 1.4 | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 | 2.0 |
| 10.0000 | V/(M3/KG) | .00162 | .00165 | .00170 | .00176 | .00181 | .00189 | .00197 | .00206 | .00216 |
| | H/(KJ/KG) | 685.0 | 730.5 | 809.9 | 893.8 | 981.2 | 1071.5 | 1164.6 | 1255.2 | 1347.3 |
| | S/(KJ/KG K) | 1.8488 | 1.9289 | 2.0641 | 2.2010 | 2.3383 | 2.4745 | 2.6100 | 2.7371 | 2.8621 |
| | C/(M/SEC) | 402.1361 | 357.3538 | 322.0320 | 314.0689 | 250.2280 | 336.5575 | 373.2656 | 389.2149 | 402.7650 |
| | KAPPA/(1/MPA) | .0078 | .0098 | .0128 | .0153 | .0299 | .0176 | .0152 | .0147 | .0152 |
| | BETA/(1000/K) | 1.3 | 1.3 | 1.3 | 1.4 | 1.7 | 1.6 | 1.7 | 1.8 | 1.9 |

## THERMODYNAMIC PROPERTIES OF HEXADECANE

| P/(MPA) | | TEMPERATURES/(K) 775.000 | 800.000 | 825.000 | 850.000 | 875.000 | 900.000 | 925.000 | 950.000 |
|---|---|---|---|---|---|---|---|---|---|
| 5.0000 | V/(M3/KG) | .00263 | .00287 | .00322 | .00371 | .00427 | .00479 | .00516 | .00536 |
| | H/(KJ/KG) | 1430.4 | 1505.4 | 1590.3 | 1689.7 | 1801.6 | 1921.0 | 2046.4 | 2178.3 |
| | S/(KJ/KG K) | 2.9865 | 3.0817 | 3.1861 | 3.3049 | 3.4345 | 3.5691 | 3.7064 | 3.8472 |
| | C/(M/SEC) | 222.6442 | 194.2684 | 167.6764 | 150.5432 | 147.5914 | 151.3672 | 155.2828 | 157.1353 |
| | KAPPA/(1/MPA) | .0605 | .0881 | .1338 | .1894 | .2182 | .2214 | .2187 | .2175 |
| | BETA/(1000/K) | 3.3 | 4.0 | 5.1 | 5.9 | 5.2 | 3.8 | 2.3 | .7 |
| 6.0000 | V/(M3/KG) | .00250 | .00269 | .00293 | .00323 | .00359 | .00397 | .00427 | .00444 |
| | H/(KJ/KG) | 1427.1 | 1500.4 | 1582.5 | 1678.5 | 1789.0 | 1910.9 | 2041.2 | 2179.7 |
| | S/(KJ/KG K) | 2.9789 | 3.0719 | 3.1729 | 3.2876 | 3.4157 | 3.5530 | 3.6958 | 3.8435 |
| | C/(M/SEC) | 268.5774 | 244.6557 | 217.8445 | 192.1882 | 174.1628 | 166.6936 | 165.8928 | 167.5511 |
| | KAPPA/(1/MPA) | .0396 | .0518 | .0708 | .0991 | .1308 | .1516 | .1589 | .1586 |
| | BETA/(1000/K) | 2.7 | 3.1 | 3.7 | 4.2 | 4.3 | 3.5 | 2.3 | .8 |
| 7.0000 | V/(M3/KG) | .00242 | .00258 | .00276 | .00299 | .00325 | .00352 | .00375 | .00390 |
| | H/(KJ/KG) | 1424.8 | 1496.9 | 1577.6 | 1671.9 | 1781.2 | 1903.7 | 2037.1 | 2180.4 |
| | S/(KJ/KG K) | 2.9727 | 3.0644 | 3.1636 | 3.2762 | 3.4029 | 3.5409 | 3.6871 | 3.8399 |
| | C/(M/SEC) | 308.0852 | 288.1329 | 263.3234 | 237.3293 | 216.7862 | 199.7958 | 193.2895 | 193.7560 |
| | KAPPA/(1/MPA) | .0293 | .0359 | .0457 | .0598 | .0772 | .0935 | .1031 | .1043 |
| | BETA/(1000/K) | 2.4 | 2.7 | 3.0 | 3.3 | 3.3 | 2.9 | 2.1 | .9 |
| 8.0000 | V/(M3/KG) | .00236 | .00250 | .00266 | .00285 | .00305 | .00326 | .00345 | .00358 |
| | H/(KJ/KG) | 1422.9 | 1494.3 | 1574.1 | 1667.4 | 1776.0 | 1898.9 | 2034.1 | 2180.7 |
| | S/(KJ/KG K) | 2.9672 | 3.0579 | 3.1560 | 3.2675 | 3.3933 | 3.5318 | 3.6800 | 3.8362 |
| | C/(M/SEC) | 343.2220 | 326.5849 | 303.5602 | 278.4857 | 255.4789 | 238.2130 | 228.9457 | 228.2464 |
| | KAPPA/(1/MPA) | .0232 | .0274 | .0333 | .0413 | .0512 | .0611 | .0678 | .0693 |
| | BETA/(1000/K) | 2.2 | 2.4 | 2.6 | 2.8 | 2.8 | 2.5 | 1.9 | 1.0 |
| 9.0000 | V/(M3/KG) | .00231 | .00244 | .00258 | .00275 | .00292 | .00310 | .00326 | .00338 |
| | H/(KJ/KG) | 1421.3 | 1492.2 | 1571.2 | 1664.0 | 1772.2 | 1895.3 | 2031.9 | 2180.7 |
| | S/(KJ/KG K) | 2.9622 | 3.0522 | 3.1495 | 3.2601 | 3.3855 | 3.5243 | 3.6739 | 3.8326 |
| | C/(M/SEC) | 375.3083 | 361.4472 | 339.7583 | 315.5164 | 292.8535 | 275.1245 | 264.8123 | 263.3002 |
| | KAPPA/(1/MPA) | .0192 | .0220 | .0260 | .0312 | .0374 | .0436 | .0481 | .0493 |
| | BETA/(1000/K) | 2.1 | 2.3 | 2.4 | 2.5 | 2.5 | 2.2 | 1.7 | 1.1 |
| 10.0000 | V/(M3/KG) | .00227 | .00239 | .00252 | .00267 | .00283 | .00298 | .00312 | .00323 |
| | H/(KJ/KG) | 1419.9 | 1490.3 | 1568.9 | 1661.2 | 1769.1 | 1892.6 | 2030.1 | 2180.6 |
| | S/(KJ/KG K) | 2.9575 | 3.0469 | 3.1435 | 3.2537 | 3.3788 | 3.5178 | 3.6686 | 3.8291 |
| | C/(M/SEC) | 405.1785 | 393.6538 | 372.8930 | 349.2115 | 326.9266 | 309.1955 | 298.4544 | 296.3491 |
| | KAPPA/(1/MPA) | .0164 | .0184 | .0212 | .0249 | .0291 | .0333 | .0364 | .0374 |
| | BETA/(1000/K) | 2.0 | 2.2 | 2.3 | 2.3 | 2.2 | 2.0 | 1.6 | 1.1 |

## APPENDIX II: COEFFICIENTS FOR THE EQUATION OF STATE AND THE IDEAL GAS SPECIFIC HEATS

Two tables are presented in this appendix: a table containing the equation of state coefficients for methane through hexadecane and a table presenting the coefficients for the ideal gas specific heats. These coefficients are to be used in the equations listed in Appendix III and assume the SI Metric unit system.

## EQUATION OF STATE COEFFICIENTS

| | OCTANE | NONANE | DECANE | UNDECANE | DODECANE |
|---|---|---|---|---|---|
| $X_1$ | -.378373123965S2E-01 | -.155429135771678-01 | -.337636728476S7E+00 | -.10303504675122E+01 | -.170941477925386+01 |
| $X_2$ | -.486946868140416+06 | -.360296651894076+06 | -.737356278437766+06 | -.201009992756666+07 | -.333268915762816+07 |
| $X_3$ | .108310341062396+09 | .476093898594636+08 | .109921253227796+09 | .520031998479156+09 | .922135927714396+09 |
| $X_4$ | -.174520215168746+11 | -.865101120971026+10 | -.375521994501166+10 | -.454882842744276+11 | -.752546758954966+11 |
| $X_5$ | .399130818736166-02 | .434952322966476-02 | .660745182267546-02 | .119167448831016-01 | .171108122969256-01 |
| $X_6$ | .386187660940076+04 | .395952498960726+04 | .607557138907526+04 | .131856640475176+05 | .219676248798986+05 |
| $X_7$ | .238582389112076+09 | -.528381833722646+08 | -.888671507587376+08 | -.117760397850536+09 | -.663893428584916+08 |
| $X_8$ | -.807965485040966-05 | -.114643854066586-04 | -.168942128811616-04 | -.274512556538356-04 | -.339887470388766-04 |
| $X_9$ | -.396271475081826+01 | -.557953260713596+01 | -.692093799860976+01 | -.129383421742566+02 | -.179894706354296+02 |
| $X_{10}$ | .163146025093356-07 | .200192057260916-07 | .256229239263126-07 | .415791249057386-07 | .501888961659406-07 |
| $X_{11}$ | -.125466446012356-01 | -.158343192042616-01 | -.245403692056396-01 | -.136028749365106-01 | -.101886652576046-01 |
| $X_{12}$ | .204804902045316-02 | .413212821532176-02 | .663743744524356-04 | -.758401522628626-04 | -.490554274295296-02 |
| $X_{13}$ | -.240647718330076-11 | -.412372239588016-11 | -.805954890151956-11 | -.190536766450246-10 | -.232292687653826-10 |
| $X_{14}$ | .834967908277686-08 | .150232647604526-08 | -.259896110809156-07 | -.132351739657236-07 | -.844390059928786-08 |
| $X_{15}$ | -.380274426731206-05 | -.290570492186746-05 | .291213829590386-05 | -.602009895752256-07 | -.332154444157216-06 |
| $X_{16}$ | -.239077061422316+09 | .523990275514626+08 | .880745920861466+08 | .115484428187646+09 | .620692634392586+08 |
| $X_{17}$ | -.860181370415746+06 | -.646570561313166+06 | -.717821695193776+06 | -.312203700695456+06 | -.212217934600046+06 |
| $X_{18}$ | -.592853867019446+01 | .360089135122276+01 | .754164574933326+01 | .148263079723226+02 | .148616493132636+02 |
| $X_{19}$ | -.132800820652276-01 | -.165176833838996-01 | -.257206561410506-01 | -.145264252222216-01 | -.110724223719246-01 |
| $X_{20}$ | -.565894930091566-06 | -.316606769241986-06 | -.466820658823906-06 | -.137404157033856-05 | -.340787732359116-05 |
| $X_{21}$ | .300000000000006-07 | .500000000000006-07 | .700000000000006-07 | .900000000000006-07 | .100000000000006-06 |
| $Y_1$ | .392369194541846+03 | .288713200868756+03 | .900916014235416+03 | .248647945493066+04 | .411003034159256+04 |
| $Y_2$ | .860174297462546+06 | .646563042662466+06 | .717810487953426+06 | .312181657684716+06 | .212183929966946+06 |
| $Y_3$ | .125678062818766-01 | .166841828487806-01 | .205346533566876-01 | .365258302569746-01 | .482998843563446-01 |

| | TRIDECANE | TETRADECANE | PENTADECANE | HEXADECANE |
|---|---|---|---|---|
| $X_1$ | -.178559303492476+01 | -.713126340701856+01 | -.144096413432116+02 | -.410909855593256+02 |
| $X_2$ | -.568576408680706+07 | -.254087596548226+08 | -.521811425957716+08 | -.148480967065356+09 |
| $X_3$ | .251854860388786+10 | .124711921772626+11 | .261697355184206+11 | .753246143645466+11 |
| $X_4$ | -.430572983055856+12 | -.228691388575686+13 | -.488623500006186+13 | -.142209631016436+14 |
| $X_5$ | .426976407539446-02 | -.121496221454996-03 | -.170078218557556-02 | .212711244066346-01 |
| $X_6$ | .589295624605226+04 | .535985425558376+04 | .728313164839486+04 | .538254039131136+05 |
| $X_7$ | -.194638442965346+10 | -.189807973330236+10 | -.801072915195946+09 | -.263886003009786+09 |
| $X_8$ | -.594375824357026-05 | .142336438489106-04 | .280605126905376-04 | .146327113100466-04 |
| $X_9$ | -.609061050508136+01 | -.111853388929666+02 | -.193895854435416+02 | -.494279054573156+02 |
| $X_{10}$ | .348873826391396-07 | .853097995347706-07 | .106428038592266-06 | .133686741683796-06 |
| $X_{11}$ | .176760431255926-03 | .112993146219586-02 | .789917199147116-03 | .544596172441516-03 |
| $X_{12}$ | .678326645924596-01 | .302441552144396+00 | .496459007365966+00 | .648112784967866+00 |
| $X_{13}$ | -.211176249769246-10 | -.660584572786036-10 | -.775386153306596-10 | -.151030055639746-09 |
| $X_{14}$ | .767860233961396-07 | .458682809632446-06 | .788361403356056-06 | .134327577241546-05 |
| $X_{15}$ | -.756733230654426-04 | -.375441802499546-03 | -.633713406291576-03 | -.102010376037616-02 |
| $X_{16}$ | .194537292912606+10 | .189689100934676+10 | .799298815631646+09 | .250178059195056+09 |
| $X_{17}$ | .183457408952336+04 | .714019883982946+04 | .518610619392866+04 | .440955681263266+04 |
| $X_{18}$ | .572280104090766+03 | .895657950854936+03 | .472010689831676+03 | .131936872989846+03 |
| $X_{19}$ | .291451411319456-03 | .209915907741836-02 | .229365281843576-02 | .266857836700846-02 |
| $X_{20}$ | .112602761016756-03 | .362554250576656-03 | .404455315763356-03 | .459208294440936-03 |
| $X_{21}$ | .300000000000006-06 | .500000000000006-06 | .700000000000006-06 | .900000000000006-06 |
| $Y_1$ | .532075328266576+04 | .222976995977166+05 | .452538802501006+05 | -.184107250000006-01 |
| $Y_2$ | -.184322751980346+04 | -.714415636868776+04 | -.519029384805146+04 | -.184107250000006-01 |
| $Y_3$ | .935127321553216-02 | -.210890466336486-02 | -.265083218661056-02 | -.184107250000006-01 |

IDEAL GAS SPECIFIC HEAT COEFFICIENTS

| | $G_1$ | $G_2$ | $G_3$ | $G_4$ | $G_5$ | $G_6$ |
|---|---|---|---|---|---|---|
| METHANE | -.50267261E+05 | .27616157E+04 | -.98965846E+01 | .31820734E-01 | -.31887248E-04 | .11232069E-07 |
| ETHANE | -.17042487E+05 | .12492701E+04 | -.35080848E+01 | .21654751E-01 | -.25313280E-04 | .97516374E-08 |
| PROPANE | -.22775276E+05 | .10280282E+04 | -.23509709E+01 | .20633789E-01 | -.25922550E-04 | .10430319E-07 |
| BUTANE | .31561244E+06 | -.28972486E+04 | .15436637E+02 | -.16612299E-01 | .10118572E-04 | -.25991777E-08 |
| PENTANE | .31989095E+06 | -.29371374E+04 | .15726538E+02 | -.17239441E-01 | .10628979E-04 | -.27530627E-08 |
| HEXANE | .37392813E+06 | -.34365366E+04 | .17583711E+02 | -.20436882E-01 | .13178981E-04 | -.35278517E-08 |
| HEPTANE | .34310073E+06 | -.31573843E+04 | .16714839E+02 | -.19131896E-01 | .12210239E-04 | -.32515072E-08 |
| OCTANE | .41297767E+06 | -.36894900E+04 | .18329540E+02 | -.21465119E-01 | .13793273E-04 | -.36573120E-08 |
| NONANE | .33501556E+06 | -.30709397E+04 | .16479358E+02 | -.18784524E-01 | .11894707E-04 | -.31359241E-08 |
| DECANE | .34643298E+06 | -.31821804E+04 | .16932455E+02 | -.19631271E-01 | .12629019E-04 | -.33812182E-08 |
| UNDECANE | .32947990E+06 | -.30082568E+04 | .16285260E+02 | -.18452927E-01 | .11572827E-04 | -.30143887E-08 |
| DODECANE | .16960330E+06 | -.15127220E+04 | .11039980E+02 | -.97826600E-02 | .47680100E-05 | -.97624000E-09 |
| TRIDECANE | .34360241E+06 | -.31592615E+04 | .16947706E+02 | -.19768664E-01 | .12773312E-04 | -.34309225E-08 |
| TETRADECANE | .32359957E+06 | -.29577573E+04 | .16194629E+02 | -.18410725E-01 | .11586143E-04 | -.30305815E-08 |
| PENTADECANE | .33023038E+06 | -.30240217E+04 | .16397071E+02 | -.18889685E-01 | .12035883E-04 | -.31860617E-08 |
| HEXADECANE | .33479777E+06 | -.30659596E+04 | .16629878E+02 | -.19226435E-01 | .12301908E-04 | -.32731138E-08 |

## APPENDIX III: THERMODYNAMIC PROPERTY EQUATIONS

### Pressure

$$P = \rho RT + F_1\rho^2 + F_2\rho^3 + F_3\rho^4 + F_4\rho^5 + F_5\rho^6 + \left( F_6 + F_7\rho^2 + F_8\rho^4 \right) \rho^3(\exp(-\gamma\rho^2))$$

$$F_1 = X_1T + Y_1 + (X_2/T) + (X_3/T^2) + (X_4/T^3)$$

$$F_2 = X_5T + Y_2 + (X_6/T) + (X_7/T^2)$$

$$F_3 = X_8T + Y_3 + (X_9/T)$$

$$F_4 = X_{10}T + X_{11} + (x_{12}/T)$$

$$F_5 = X_{13}T + X_{14} + (X_{15}/T)$$

$$F_6 = (X_{16}/T^2) + X_{17}$$

$$F_7 = (X_{18}/T^2) + X_{19}$$

$$F_8 = (X_{20}/T^2)$$

Internal Energy

$$u = \int_{T_o}^{T} c^o \, dT + \int_{0}^{\rho} \frac{1}{\rho^2} \left[ P - T \left( \frac{\partial P}{\partial T} \right)_\rho \right] d\rho + u_o$$

$$\int_{T_o}^{T} c_v^o \, dT = G_i \ln \left( T/T_o \right) + \sum_{i=2}^{6} \left( \frac{1}{i-1} \right) G_i T^{i-1} \Bigg|_{T_o}^{T}$$

$$\int_{0}^{\rho} \frac{1}{\rho^2} \left[ P - T \left( \frac{\partial P}{\partial T} \right)_\rho \right] d\rho = \sum_{i=1}^{5} \left( F_i - TF_i' \right) \frac{\rho^i}{i}$$

$$+ \left( F_6 - TF_6' \right) \left( 1-\exp(-\gamma\rho^2) \right) \frac{1}{2\gamma}$$

$$+ \left( F_7 - TF_7' \right) \left[ \frac{-\rho^2}{2\gamma} \exp(-\gamma\rho^2) + \frac{1}{2\gamma^2} \left( 1-\exp(-\gamma\rho^2) \right) \right]$$

$$+ \left( F_8 - TF_8' \right) \left[ \frac{-\rho^4}{2\gamma} \exp(-\gamma\rho^2) + \frac{-\rho^2}{\gamma^2} \exp(-\gamma\rho^2) + \frac{1}{\gamma^3} \left( 1-\exp(-\gamma\rho^2) \right) \right]$$

Entropy

$$s = \int_{T_o}^{T} \frac{c_v^o \, dT}{T} - R \ln \rho + \int_0^{\rho} \frac{1}{\rho^2} \left[\rho R - \left(\frac{\partial P}{\partial T}\right)_\rho\right] d\rho$$

$$\int_{T_o}^{T} \frac{c_v^o}{T} dT = \frac{-2G_1}{T} \Bigg|_{T_o}^{T} + G_2 \ln (T/T_o) + \sum_{i=3}^{6} \frac{G_i T^{i-2}}{i-2} \Bigg|_{T_o}^{T}$$

$$\int_0^{\rho} \frac{1}{\rho^2} \left[\rho R - \left(\frac{\partial P}{\partial T}\right)_\rho\right] d\rho = \sum_{i=1}^{5} F_i' \frac{\rho^i}{i}$$

$$+ F_6' \left(1-\exp(-\gamma\rho^2)\right) \frac{1}{2\gamma}$$

$$+ F_7' \left[\frac{-\rho^2}{2\gamma} \exp(-\gamma\rho^2) + \frac{1}{2\gamma^2} \left(1-\exp(-\gamma\rho^2)\right)\right]$$

$$+ F_8' \left[\frac{-\rho^4}{2\gamma} \exp(-\gamma\rho^2) + \frac{-\rho^2}{\gamma^2} \exp(-\gamma\rho^2) + \frac{1}{\gamma^3}\left(1-\exp(-\gamma\rho^2)\right)\right]$$

Reference Temperatures, Internal Energies, and Entropies

| | $T_o$/(K) | $U_o$/(KJ/KG) | $S_o$/(Kj/Kg K) |
|---|---|---|---|
| METHANE | 90. | 497.160 | 5.27826 |
| ETHANE | 150. | 498.616 | 3.19345 |
| PROPANE | 200. | 420.272 | 2.16739 |
| BUTANE | 250. | 427.607 | 1.89165 |
| PENTANE | 250. | 378.305 | 1.47415 |
| HEXANE | 300. | 384.366 | 1.36697 |
| HEPTANE to HEXADECANE | 300. | 344.689 | 1.04947 |

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