

Summary of the Apparent Standard Partial Molal Gibbs Free Energies of Formation of Aqueous Species, Minerals, and Gases at Pressures 1 to 5000 Bars and Temperatures 25 to 1000 °C

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Summary of the Apparent Standard Partial Molal Gibbs Free Energies of Formation of Aqueous Species, Minerals, and Gases at Pressures 1 to 5000 Bars and Temperatures 25 to 1000 °C

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Accurate values of the apparent standard partial molal Gibbs free energies of formation ($\Delta\bar{G}^\circ$) of aqueous species, minerals, and gases at high temperatures and pressures are a requisite for characterizing a variety of industrial and natural processes including corrosion of metals, solvent extraction, crystal growth, metamorphism, and the formation of hydrothermal ore deposits. Revision of the HKF equations of state for aqueous species other than H₂O (Helgeson, Kirkham and Flowers, 1981) by Tanger and Helgeson (1988) and Shock *et al.* (1992) permits calculation of $\Delta\bar{G}^\circ$ for these species at temperatures to 1000 °C and pressures to 5000 bars. The revised equations of state were combined with parameters generated by Shock and Helgeson (1988, 1990), Shock *et al.* (1989), Sassani and Shock (1990), Shock and McKinnon (1993), Shock and Koretsky (1993), Schulte and Shock (1993), Pokrovskii and Helgeson (1995 a, b, and c), and Sverjensky *et al.* (1995) together with densities and electrostatic properties of H₂O computed from equations summarized by Johnson and Norton (1991) to calculate values of $\Delta\bar{G}^\circ$ for aqueous species as a function of temperature and pressure. The results of these calculations are tabulated for 348 such species, including both inorganic and organic aqueous ions, neutral species, and metal ligand complexes. Similar calculations using equations, parameters, and thermodynamic data taken from Kelley (1960), Helgeson *et al.* (1978), Wagman *et al.* (1982), Hill (1990), Shock (1993), and Pokrovskii and Helgeson (1995 a and b) were used to generate tables of $\Delta\bar{G}^\circ$ for H₂O, 22 minerals, and 18 gases. The tabulated values of $\Delta\bar{G}^\circ$, which were generated with the aid of SUPCRT92 (Johnson *et al.*, 1992), facilitate considerably assessment of the thermodynamic behavior of chemical processes at both high and low temperatures and pressures. ©1995 American Institute of Physics and American Chemical Society.

Key words: aqueous species; electrolytic solutions; gases; Gibbs free energies of formation; H₂O, and water/mineral interaction.

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1. Introduction

Because aqueous species play such a major role in a wide variety of chemical and geological processes, extensive efforts have been made over the past several decades to characterize the thermodynamic behavior of these species at both high and low temperatures and pressures (Helgeson and Kirkham, 1974a, b, 1976; Helgeson *et al.*, 1981, 1988a, b; Helgeson, 1982, 1985, 1992 a and b; Haar *et al.* 1984; Jackson and Helgeson, 1985; Sverjensky, 1987; Tanger and Helgeson, 1988; Shock and Helgeson, 1988, 1989, 1990; Oelkers and Helgeson, 1988, 1990, 1991, 1993a, 1993b; Shock *et al.* 1989, 1992; Sassani and Shock, 1990, 1992; Johnson and Norton, 1991; Shock, 1992, 1993, 1995; Schulte and Shock, 1993; Shock and Koretsky, 1993; Sverjensky *et al.* 1995; Pokrovskii and Helgeson, 1995 a, b, and c). As a consequence, it is now possible to compute with the aid of SUPCRT92 (Johnson *et al.*, 1992) the standard partial molal thermodynamic properties of 348 aqueous organic and inorganic ions and neutral species including H₂O and metal ligand complexes at temperatures to 1000 °C and pressures to 5000 bars.¹ SUPCRT92 can also be used to calculate the standard partial molal properties of minerals and gases at high pressures and temperatures using equations, parameters, and thermodynamic data taken from Kelley (1960), Helgeson *et al.* (1978), Wagman *et al.* (1982), Haar *et al.* (1984), Shock (1993), and Pokrovskii and Helgeson (1995 a and b).

Equilibrium constants for reactions among the aqueous species, minerals, and gases can be used to interpret phase relations and equilibrium constraints in a wide variety of

chemical, industrial, and geochemical systems. Such equilibrium constants can also be generated using SUPCRT92. Alternatively, computed values of the apparent standard partial molal Gibbs free energies of formation ($\Delta\bar{G}^\circ$) of aqueous species, minerals, and gases at high temperatures and pressures can be taken from tables to generate equilibrium constants (K) for reactions from

$$K = e^{-\Delta\bar{G}_r^\circ/RT} \quad (1)$$

where R refers to the gas constant (1.9872 cal mol⁻¹K⁻¹), T stands for temperature in K, and $\Delta\bar{G}_r^\circ$ denotes the standard partial molal Gibbs free energy of reaction computed from

$$\Delta\bar{G}_r^\circ = \sum_i n_{i,r} \Delta\bar{G}_i^\circ \quad (2)$$

where $n_{i,r}$ represents the stoichiometric reaction coefficient of the i th species in the r th reaction, which is positive for products and negative for reactants, and $\Delta\bar{G}_i^\circ$ designates the apparent standard partial molal Gibbs free energy of formation from the elements (see below) of the subscripted reactant or product. The purpose of the present communication is to facilitate calculations of this kind by providing in tabular form values of $\Delta\bar{G}_i^\circ$ for aqueous species, minerals, and gases which can be used together with Eqs. (1) and (2) to compute equilibrium constants for a wide variety of chemical reactions at temperatures from 25 to 1000 °C and pressures from 1 to 5000 bars.

2. Standard State Conventions

The standard state convention for aqueous species adopted in the present study is one of unit activity of the species in a hypothetical one molal solution referenced to infinite dilution at any pressure or temperature. The standard state for minerals and H₂O corresponds to unit activity of the pure solid or liquid at any pressure and temperature, but that for gases calls for unit fugacity of the hypothetical perfect gas at 1 bar and any temperature.

The standard partial molal Gibbs free energies given in the present communication are apparent standard partial molal Gibbs free energies of formation ($\Delta\bar{G}^\circ$) defined by (Benson, 1968; Helgeson *et al.*, 1978, 1981)

$$\Delta\bar{G}^\circ = \Delta\bar{G}_f^\circ + (\bar{G}_{P,T}^\circ - \bar{G}_{P_r,T_r}^\circ) \quad (3)$$

where $\Delta\bar{G}_f^\circ$ stands for the standard partial molal Gibbs free energy of formation of an aqueous species, mineral, or gas from the elements in their stable form at the reference pressure (P_r) and temperature (T_r) of 1 bar and 298.15 K, and $(\bar{G}_{P,T}^\circ - \bar{G}_{P_r,T_r}^\circ)$ denotes the difference in the standard partial molal Gibbs free energy of the aqueous species, mineral, or gas at the pressure (P) and temperature (T) of interest and that at P_r and T_r .

The apparent standard partial molal Gibbs free energies of formation of aqueous species tabulated below are conven-

ional properties. $\Delta\bar{G}^\circ$ of an aqueous species is related to the absolute apparent standard partial molal Gibbs free energy of formation of the species ($\Delta\bar{G}^{\circ\text{abs}}$) by

$$\Delta\bar{G}^\circ = \Delta\bar{G}^{\circ\text{abs}} - Z\Delta\bar{G}_{H^+}^{\circ\text{abs}} \quad (4)$$

where $\Delta\bar{G}_{H^+}^{\circ\text{abs}}$ refers to the absolute apparent standard partial molal Gibbs free energy of formation of the hydrogen ion and Z represents the formal charge on the aqueous species of interest. Hence, for neutral species, $\Delta\bar{G}^\circ = \Delta\bar{G}^{\circ\text{abs}}$. Note also that it follows from Eq. (4) that $\Delta\bar{G}_{H^+}^{\circ\text{abs}} = 0$, which permits calculation of $\Delta\bar{G}^\circ$ for individual ions from those of electrolytes using the additivity principle (Millero, 1972; Fortier *et al.*, 1974; Helgeson and Kirkham, 1976; Tanger and Helgeson, 1988).

3. Thermodynamic Relations

The parenthetical term in Eq. (3) for an aqueous species other than H_2O can be expressed as (Tanger and Helgeson, 1988; Shock *et al.*, 1989)

$$\begin{aligned} \bar{G}_{P,T}^\circ - \bar{G}_{P_r,T_r}^\circ &= -\bar{S}_{P_r,T_r}^\circ(T-T_r) - c_1(T\ln\left(\frac{T}{T_r}\right) - T + T_r) \\ &\quad + a_1(P - P_r) + a_2\ln\left(\frac{\Psi + P}{\Psi + P_r}\right) \\ &\quad - c_2\left(\left(\frac{1}{T-\Theta}\right) - \left(\frac{1}{T_r-\Theta}\right)\right)\left(\frac{\Theta-T}{\Theta}\right) - \left(\frac{T}{\Theta^2}\right)\ln\left(\frac{T_r(T-\Theta)}{T(T_r-\Theta)}\right) \\ &\quad + \left(\frac{1}{T-\Theta}\right)\left(a_3(P - P_r) + a_4\ln\left(\frac{\Psi + P}{\Psi + P_r}\right)\right) \\ &\quad + \omega\left(\frac{1}{\epsilon} - 1\right) - \omega_{P_r,T_r}\left(\frac{1}{\epsilon_{P_r,T_r}} - 1\right) + \omega_{P_r,T_r}Y_{P_r,T_r}(T - T_r) \end{aligned} \quad (5)$$

where \bar{S}_{P_r,T_r}° stands for the standard partial molal entropy of the species at the reference pressure and temperature, ϵ and ϵ_{P_r,T_r} designate the dielectric constant of H_2O at the temperature and pressure of interest and P_r , T_r , respectively, Y_{P_r,T_r} is given by

$$Y_{P_r,T_r} = \frac{1}{\epsilon_{P_r,T_r}} \left(\left(\frac{\partial \ln \epsilon}{\partial T} \right)_{P_r,T_r} \right) = \frac{1}{\epsilon_{P_r,T_r}^2} \left(\left(\frac{\partial \epsilon}{\partial T} \right)_{P_r,T_r} \right) \quad (6)$$

and a_1 , a_2 , a_3 , a_4 , c_1 , and c_2 refer to temperature/pressure independent equation of state parameters for the species. Ψ and Θ in Eq. (5) denote solvent constants equal to 2600 bars and 228 °K, respectively, ω represents the conventional Born coefficient of the species, which can be expressed as

$$\omega = \eta(Z^2(r_{e,P_r,T_r} + |Z|g)^{-1} - Z(3.082 + g)^{-1}) \quad (7)$$

where g designates a solvent function of temperature and density given by Shock *et al.* (1992), $\eta = 1.66027 \times 10^5 \text{ Å cal mol}^{-1}$, Z again stands for the formal charge on the species,

r_{e,P_r,T_r} refers to the effective electrostatic radius of the species at the reference pressure and temperature, which for monatomic ions is given by (Helgeson and Kirkham, 1976)

$$r_{e,P_r,T_r} = r_x + k_z|Z| \quad (8)$$

and for charged aqueous species by (Shock and Helgeson, 1988)

$$r_{e,P_r,T_r} = \frac{Z^2(\eta_{P_r,T_r-\kappa_z})}{\bar{S}_{P_r,T_r}^\circ - \alpha_Z} \quad (9)$$

where r_x denotes the crystallographic radius of the ion, k_z designates a constant equal to 0.94 Å for cations and 0.0 Å for anions, κ_z represents a correlation parameter equal to 100 Å cal mol⁻¹ K⁻¹, \bar{S}_{P_r,T_r}° stands for the standard partial molal entropy of the species at the subscripted pressure and temperature, and α_Z is defined by

$$\alpha_Z \equiv 71.5 |Z| \text{ cal mol}^{-1} \text{ K}^{-1}. \quad (10)$$

The conventional Born correlation parameters of neutral aqueous species are taken to be independent of pressure and temperature. Hence, for these species

$$\omega = (-1514.4 \text{ K}) \bar{S}_{P_r,T_r}^\circ + \beta_Z \quad (11)$$

where β_Z refers to a correlation parameter equal to 0.0 cal mol⁻¹ for noble or diatomic gases and 34,000 cal mol⁻¹ for polyatomic and neutral aqueous species (Shock and Helgeson, 1990).

The parenthetical term in Eq. (3) for the stable phase of H_2O at a given pressure and temperature can be computed from (Johnson and Norton, 1991)

$$\begin{aligned} (\bar{G}_{H_2O,P,T}^\circ - \bar{G}_{H_2O,P_r,T_r}^\circ) &= \bar{A}_{P,T}^\circ + \rho_{P,T} \left(\frac{\partial \bar{A}^\circ}{\partial \rho} \right)_T \\ &\quad - (\bar{G}_{H_2O,P_r,T_r}^\circ - \bar{G}_{H_2O,0}^\circ) \end{aligned} \quad (12)$$

where $\rho_{P,T}$ and $\bar{A}_{P,T}^\circ$ represent the density and standard partial molal Helmholtz free energy of H_2O , respectively, at the subscripted pressure and temperature, and $(\bar{G}_{H_2O,P_r,T_r}^\circ - \bar{G}_{H_2O,0}^\circ)$ stands for the difference between the standard partial molal Gibbs free energy of H_2O at P_r , T_r and its value at the triple point of H_2O (0.0061173 bars and 273.16 K); this difference is equal to $-398 \text{ cal mol}^{-1}$. The density of H_2O in Eq. (12) can be expressed as (Haar *et al.*, 1984; Johnson and Norton, 1991)

$$\rho_{P,T} = (PCM)^{1/2} \left(\frac{\partial \bar{A}^\circ}{\partial \rho} \right)_T^{-1/2} \quad (13)$$

where C stands for a conversion factor (0.02390054 cal bar⁻¹ cm⁻³), M signifies the molecular weight of H_2O (18.0152 g mol⁻¹) and P again represents the pressure of interest. Equations (3), (12) and (13) were used together with values of $\bar{A}_{P,T}^\circ$ and $(\partial \bar{A}^\circ / \partial \rho)_T$ computed from equations reported by Hill (1990) to calculate values of $\Delta\bar{G}_{H_2O}^\circ$. The Hill (1990) formulation of the Helmholtz function is based on a fit

of experimental data obtained at temperatures from 0 to 900 °C and pressures from 0 to 10 kbar. The formulation was demonstrated to permit regular extrapolations of thermodynamic properties to a maximum temperature of 2000 °C and a maximum pressure of 250 kbar.

The parenthetical term in Eq. (3) for minerals and gases can be computed from (Helgeson *et al.* 1978)

$$\begin{aligned} \bar{G}_{P,T}^{\circ} - \bar{G}_{P,T_r}^{\circ} = & -\bar{S}_{P,T_r}^{\circ}(T-T_r) + a \left(T - T_r - T \ln \left(\frac{T}{T_r} \right) \right) \\ & - \left(\frac{(c+bT_r^2)(T-T_r)^2}{2T_r^2 T} \right) + \bar{V}_{P,T_r}^{\circ}(P-P_r) \end{aligned} \quad (14)$$

where a, b, and c stand for temperature/pressure-independent coefficients characteristic of the mineral and \bar{V}_{P,T_r}° refers to the standard molal volume of the mineral at the subscripted temperature and pressure. Equation (14) is compatible with the Maier-Kelley power function (Kelley, 1960) for the standard partial molal heat capacities of minerals and gases. The last term in Eq. (14) for minerals is predicated on the observation that their standard partial molal expansibilities and compressibilities in the crust of the Earth are small and have an opposing effect on the standard partial molal volumes of the minerals with increasing temperature and pressure. Consequently, $\bar{V}_{P,T}^{\circ}$ for minerals can be taken to be equal to \bar{V}_{P,T_r}° , without introducing undue uncertainty in calculated values of $(\bar{G}_{P,T}^{\circ} - \bar{G}_{P,T_r}^{\circ})$ at pressures ≤ 10 kbar (Helgeson *et al.*, 1978).² As a consequence of the standard state for gases adopted in the present study, the standard partial molal volumes of gases, and therefore the last term on the right side of Eq. (14) for gases are equal to zero.

4. Calculations

Calculated values of $\Delta\bar{G}^{\circ}$ for 348 aqueous species other than H₂O are listed in Table 1 for temperatures and pressures ranging from 25 °C and 1 bar to 1000 °C and 5 kbar. The values of $\Delta\bar{G}^{\circ}$ shown in the table were calculated from Eqs. (3) and (5) using equations and parameters taken from the sources listed in Table 6. The species are arranged in alphabetical order in these tables.

Values of $\Delta\bar{G}^{\circ}$ for H₂O calculated from Eqs. (3), (12) and (13) using equations and parameters taken from Hill (1990) are listed in Table 2 for temperatures and pressures from 25 °C and 1 bar to 2000 °C and 200 kbar. The minimum temperatures for which $\Delta\bar{G}^{\circ}$ values are given in this table are limited at high pressures by the ice VII-H₂O melting curve (Lei *et al.*, 1993). Corresponding values of $\Delta\bar{G}^{\circ}$ for 22 minerals and 18 gases computed from Eqs. (3) and (14) using parameters reported by Kelley (1960), Helgeson *et al.* (1978), Wagman *et al.* (1982), Shock (1993), and Pokrovskii and Helgeson (1995a and b) are given in Tables 3 and 4 for temperatures from 25° to 1000 °C and pressures from 1 bar to 5

kbar.³ The values of $\Delta\bar{G}^{\circ}$ given in Table 3 are consistent with experimental solubility and phase equilibrium data, but not necessarily with metastable phase relations in nature. A list of chemical formulas of the organic aqueous species denoted by name in Table 1 appears in Table 5. Indexes of the aqueous species and minerals for which values of $\Delta\bar{G}^{\circ}$ are given in Tables 1 and 2, respectively, are shown in Tables 6 and 7.

5. Computational Uncertainties

Detailed analysis of the magnitudes and sources of uncertainties in values of $\Delta\bar{G}^{\circ}$ computed from Eqs. (3) to (11) can be found in Shock and Helgeson (1988, 1990), Shock *et al.* (1989), and Sverjensky *et al.* (1995). These uncertainties vary considerably depending on the species, pressure and temperature. Uncertainties associated the $\Delta\bar{G}^{\circ}$ values of aqueous species listed in Table 1 stem from uncertainties associated with both the standard partial molal Gibbs free energies of formation from the elements at 25 °C and 1 bar and the equations of state parameters ($a_1, a_2, a_3, a_4, c_1, c_2$, and ω). Typical uncertainties in values of $\Delta\bar{G}^{\circ}$ at 25 °C and 1 bar for aqueous species are of the order of ± 200 to ± 600 cal mol⁻¹ (Wagman *et al.* 1982). In accord with Shock and Helgeson (1988), in the unlikely event that all of the average uncertainties in estimated equations of state parameters lead to uncertainties in calculated values of $\Delta\bar{G}^{\circ}$ of the same sign, the combined effect of these uncertainties would be ± 0 at 25 °C and 1 bar, $\sim \pm 700$ cal/mol at 500 °C and 2 kbar, and $\sim \pm 1500$ cal/mol at 1000 °C and 5 kbar. However, it appears likely that uncertainties arising from the various equations of state parameters would tend to cancel out with increasing temperature and pressure. Under these circumstances, uncertainties associated with the $\Delta\bar{G}^{\circ}$ values listed in Table 1 would probably be less than $\sim \pm 1000$ cal mol⁻¹. The uncertainties in the values of $\Delta\bar{G}^{\circ}$ for H₂O given in Table 2 tend to be substantially lower than those for the aqueous species shown in Table 1.

Uncertainties in the calculated values of $\Delta\bar{G}^{\circ}$ for the minerals and gases listed in Tables 3 and 4 arise from uncertainties both in ΔG_f° in Eq. (3) and those associated with the thermodynamic parameters used to calculate $(\bar{G}_{P,T}^{\circ} - \bar{G}_{P,T_r}^{\circ})$ from Eq. (14). The values of ΔG_f° for most of the minerals shown in Table 3 were obtained by regression of experimental mineral solubilities and/or critical evaluation of phase relations at high temperatures and pressures, which generally lead to uncertainties in ΔG_f° of $\sim \pm 300$ cal mol (Pokrovskii and Helgeson, 1995a and b). The contribution of uncertainties in the thermodynamic parameters that appear in Eq. (14) to the overall uncertainty of the $\Delta\bar{G}^{\circ}$ values given in Tables 3 and 4 can be estimated by considering the individual contributions of uncertainties associated with standard molal entropies, heat capacities, and volumes. The standard molal entropies and heat capacities of minerals at 25 °C and 1 bar adopted by Pokrovskii and Helgeson (1995 a and b) are based on calorimetric measurements. These values are generally uncertain to

²The one exception to this approximation for minerals in the present study is the volume of quartz, which is taken to be a function of temperature and pressure in accord with expansibility and compressibility measurements (Helgeson *et al.* 1978).

³Corresponding values for more than 100 additional minerals will appear in a subsequent publication.

the extent of a few tenths of a cal mol⁻¹ (Helgeson *et al.*, 1978). Taking account of Eqs. (3) and (14), an uncertainty in $S_{P,T}^{\circ}$ for a given mineral of ± 0.2 cal mol⁻¹ would lead to an uncertainty in $\Delta\bar{G}^{\circ}$ of ± 95 cal mol⁻¹ at 500 °C and ± 195 cal mol⁻¹ at 1000 °C. Similarly, uncertainty in the standard molal heat capacities of ± 0.2 cal mol⁻¹K⁻¹ introduce uncertainties in $\Delta\bar{G}^{\circ}$ of $\sim \pm 50$ cal mol⁻¹ at 500 °C and $\sim \pm 175$ cal mol⁻¹ at 1000 °C. The molal volumes of minerals at 25° and 1 bar are generally accurate within ± 0.1 cm³ mol⁻¹, which introduces a corresponding uncertainty in $\Delta\bar{G}^{\circ}$ of 12 cal mol⁻¹ at 5 kbar. Uncertainties associated with the assumption that the volumes of the minerals are independent of temperature and pressure are probably no more than 100 cal mol⁻¹ over the temperature and pressure range considered in Table 3 (Helgeson *et al.*, 1978). It follows that the overall uncertainty in the values of $\Delta\bar{G}^{\circ}$ for minerals given in Table 3 is of the order of a kcal mol⁻¹ or less. The uncertainties in the values of $\Delta\bar{G}^{\circ}$ for gases in Table 4 are generally smaller than the minerals in Table 3.

It follows from the discussion in the preceding paragraphs that the overall uncertainty in the values of $\Delta\bar{G}^{\circ}$ for aqueous species, minerals, and gases computed above is of the order of a kcal mol⁻¹ or less at high temperatures and pressures. However, because uncertainties in $\Delta\bar{G}^{\circ}$ tend to cancel in reactions (Helgeson *et al.*, 1978), the relative uncertainties in $\Delta\bar{G}_r^{\circ}$ are much smaller. For example, the logarithms of equilibrium constants generated using values of $\Delta\bar{G}^{\circ}$ taken from Tables 1 to 4 are generally within 0.2 units of their experimental counterparts at all temperatures and pressures (see below).

The general validity of the thermodynamic data and equations of state used to generate the values of $\Delta\bar{G}^{\circ}$ given in Tables 1–4 can be assessed in Figures 1–4, where logarithms of equilibrium constants for various reactions generated using values of $\Delta\bar{G}^{\circ}$ taken from these tables represented by the curves can be compared with their experimental counterparts denoted by the symbols. It can be seen in these figures that the computed values are in close agreement with the log K values determined experimentally. Numerous other such comparisons can be found in Helgeson *et al.* (1978), Sverjensky (1987), Shock and Helgeson (1988, 1990), Shock *et al.* (1989), Shock (1993), Shock and Koretsky (1993), Sverjensky *et al.* (1995) and Pokrovskii and Helgeson (1995 a, b, and c).

6. Concluding Remarks

The values of $\Delta\bar{G}^{\circ}$ for aqueous species, minerals, and gases listed in Tables 1–4 can be used to calculate without a computer equilibrium constants from Eqs. (1) and (2) for a wide variety of chemical reactions. The equations summarized above, together with corresponding equations for the apparent standard partial molal enthalpies of formation and the standard partial molal entropies, volumes, and heat capacities of aqueous species, minerals, and gases have been incorporated into computer program SUPCRT92 (Johnson *et al.* 1992) which can be obtained at no cost from the Laboratory of Theoretical Geochemistry at the University of California, Berkeley.

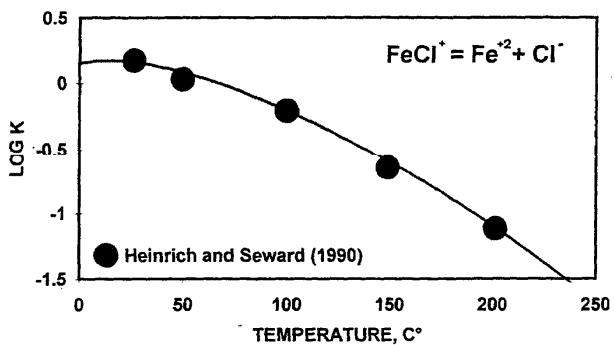
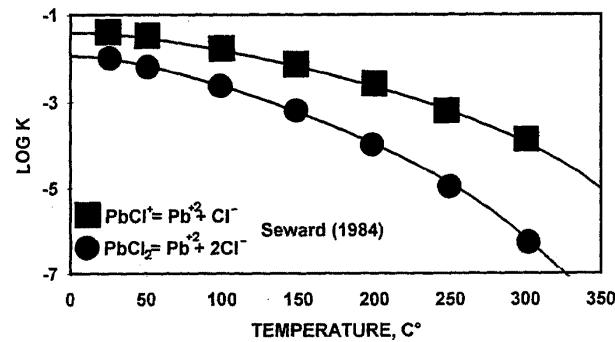
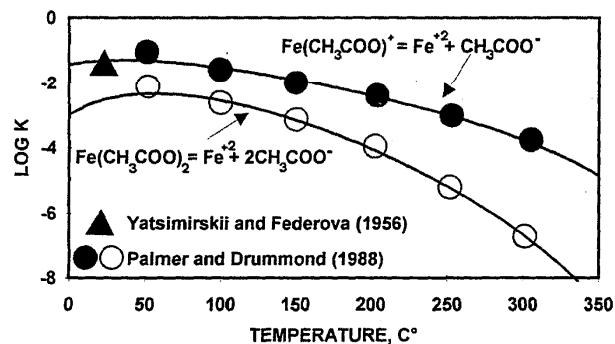
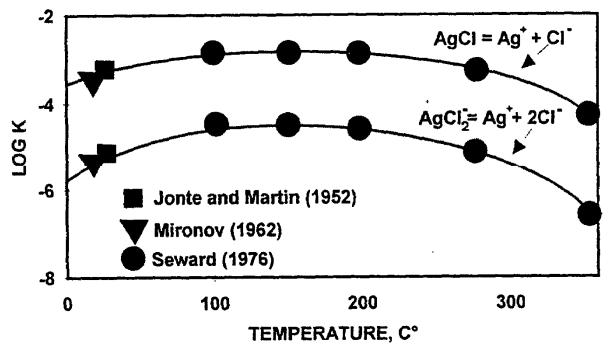


FIG. 1. Logarithms of equilibrium constants (Log k) for reactions among aqueous species as a function of temperature at pressure corresponding to liquid/vapor equilibrium for H_2O . The symbols represent experimentally derived equilibrium constants taken from the sources listed in the figure, but the curves were generated from Eqs. (1)–(3) using values of ΔG° taken from Table 1.

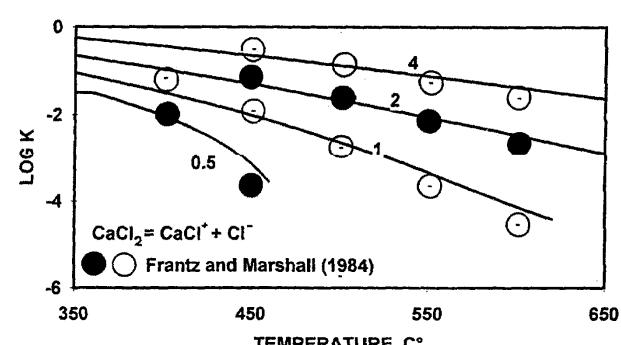
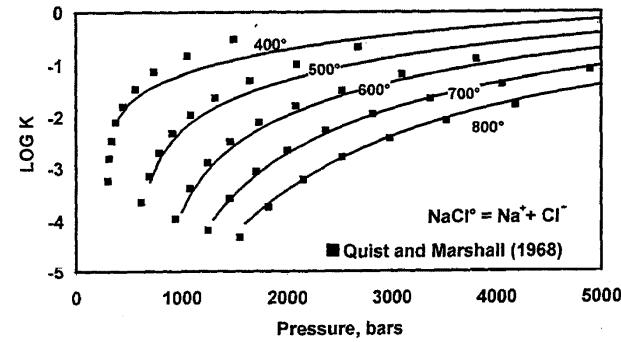
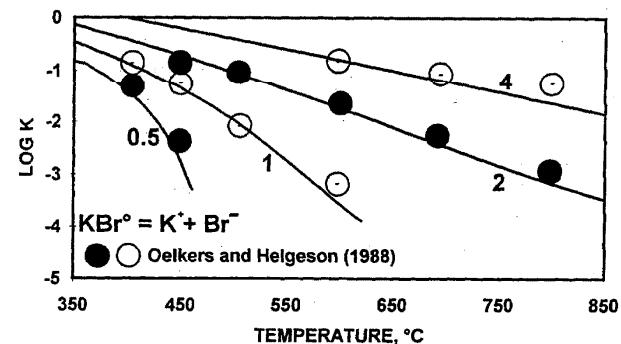
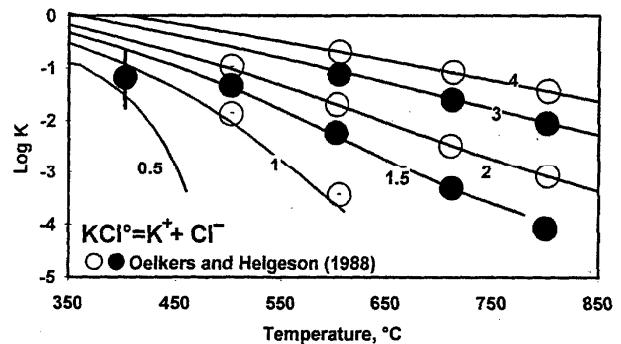


FIG. 2. Logarithms of equilibrium constants (Log k) for reactions among aqueous species as a function of temperature in °C and pressure (labeled in kilobars). The symbols represent experimentally derived equilibrium constants taken from the sources listed in the figure, but the curves were generated from Eqs. (1)–(3) together with values of ΔG° taken from Table 1.

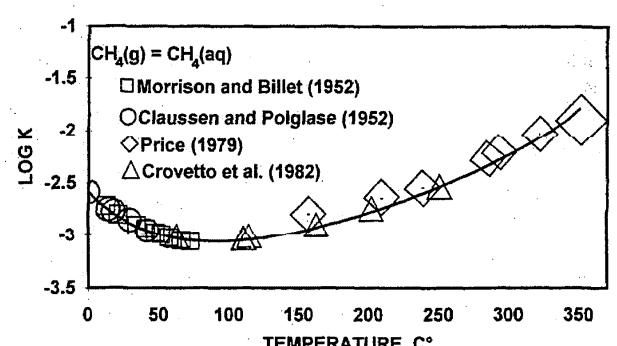
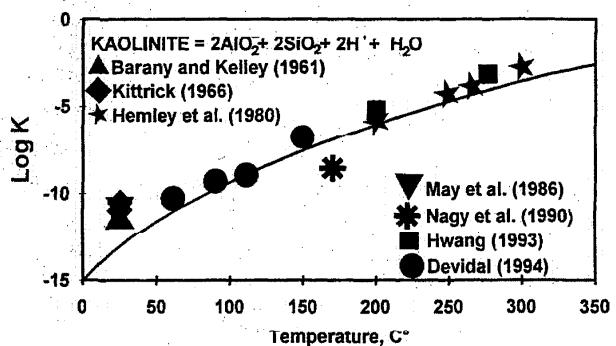
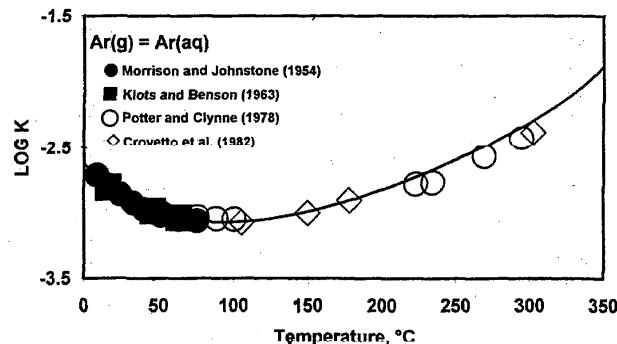
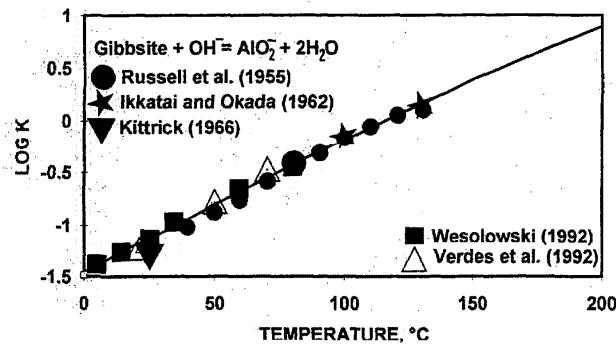
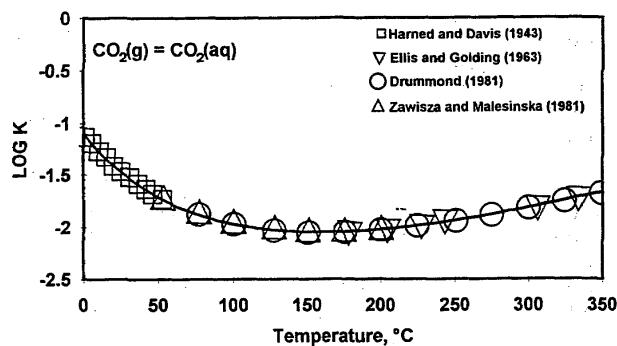
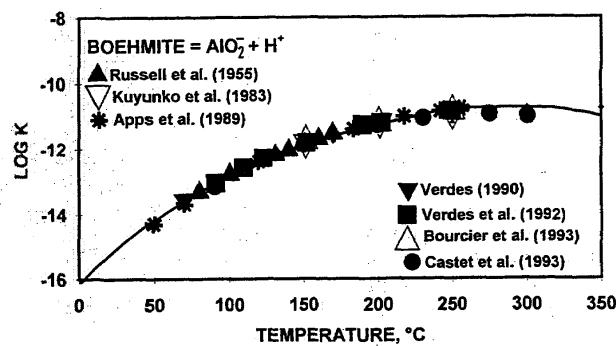
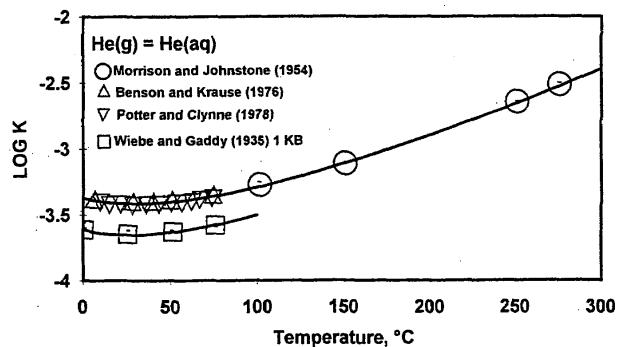
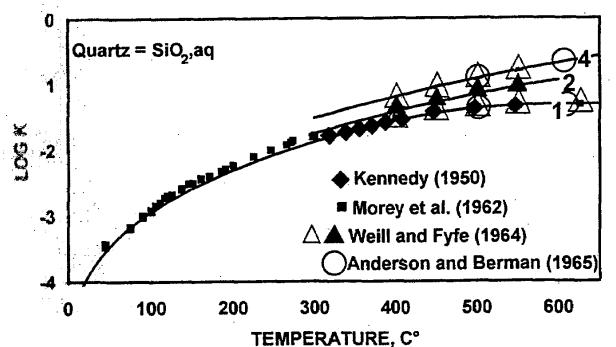


FIG. 3. Logarithms of equilibrium constants ($\log k$) for reactions among aqueous species and minerals as a function of temperature at various pressures (labeled in kilobars). Unlabeled curves designate pressures corresponding to liquid/vapor equilibrium for H_2O . The symbols represent experimentally derived equilibrium constants taken from the sources listed in the figure, but the curves were generated from Eqs. (1)–(3) together with values of ΔG° taken from Tables 1 and 3.

FIG. 4. Logarithms of equilibrium constants ($\log k$) for reactions among gases and aqueous species as a function of temperature at the pressures corresponding to liquid/vapor equilibrium for H_2O . The symbols in this figure represent experimentally derived equilibrium constants taken from the sources listed in the figure, but the curves were generated from Eqs. (1)–(3) using values of ΔG° taken from Tables 1 and 4.

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text).

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
1-Butanamide								
25	9.41	10.46	11.47	12.45	13.40	15.27	17.08	18.86
50	8.13	9.18	10.19	11.16	12.11	13.96	15.75	17.51
75	6.65	7.71	8.72	9.69	10.64	12.48	14.26	16.00
100	5.00	6.06	7.07	8.05	9.00	10.83	12.61	14.34
125	3.19	4.25	5.27	6.24	7.19	9.03	10.80	12.53
150	1.23	2.29	3.31	4.29	5.24	7.07	8.84	10.57
175	-0.89	0.18	1.20	2.19	3.14	4.98	6.75	8.48
200	-3.14	-2.07	-1.04	-0.05	0.91	2.75	4.53	6.25
225	-5.52	-4.46	-3.41	-2.42	-1.45	0.40	2.18	3.91
250	-8.04	-6.98	-5.91	-4.91	-3.93	-2.07	-0.29	1.44
300	-13.49	-12.41	-11.29	-10.24	-9.25	-7.36	-5.56	-3.82
350	-19.79	-18.41	-17.14	-16.04	-15.01	-13.08	-11.25	-9.49
400		-25.21	-23.49	-22.27	-21.18	-19.19	-17.33	-15.55
450		-33.90	-30.40	-28.94	-27.76	-25.67	-23.77	-21.96
500		-45.07	-37.94	-36.06	-34.73	-32.52	-30.55	-28.71
550		-55.66	-46.20	-43.63	-42.08	-39.70	-37.66	-35.78
600		-65.51	-55.06	-51.65	-49.80	-47.20	-45.08	-43.15
700		-84.30	-73.58	-68.78	-66.23	-63.09	-60.77	-58.73
800		-102.76	-92.43	-86.90	-83.76	-80.06	-77.50	-75.36
900		-121.34	-111.46	-105.62	-102.09	-97.92	-95.17	-92.95
1000		-140.24	-130.75	-124.79	-121.03	-116.55	-113.67	-111.42
1-Butanol								
25	-38.84	-37.83	-36.85	-35.90	-34.97	-33.15	-31.38	-29.63
50	-40.12	-39.11	-38.13	-37.19	-36.27	-34.48	-32.73	-31.02
75	-41.59	-40.58	-39.61	-38.67	-37.76	-35.98	-34.25	-32.56
100	-43.25	-42.24	-41.27	-40.33	-39.41	-37.64	-35.92	-34.24
125	-45.08	-44.06	-43.09	-42.15	-41.24	-39.47	-37.75	-36.08
150	-47.06	-46.04	-45.07	-44.13	-43.21	-41.44	-39.73	-38.07
175	-49.19	-48.18	-47.20	-46.25	-45.33	-43.56	-41.85	-40.19
200	-51.47	-50.46	-49.46	-48.51	-47.60	-45.82	-44.11	-42.44
225	-53.89	-52.87	-51.87	-50.91	-49.99	-48.21	-46.49	-44.82
250	-56.44	-55.42	-54.41	-53.44	-52.51	-50.72	-49.00	-47.33
300	-61.97	-60.93	-59.85	-58.85	-57.90	-56.09	-54.35	-52.67
350	-68.36	-67.02	-65.80	-64.74	-63.75	-61.89	-60.14	-58.44
400		-73.91	-72.25	-71.07	-70.03	-68.11	-66.32	-64.61
450		-82.69	-79.26	-77.86	-76.72	-74.71	-72.88	-71.14
500		-93.93	-86.93	-85.10	-83.81	-81.68	-79.79	-78.01
550		-104.61	-95.31	-92.80	-91.29	-88.99	-87.03	-85.21
600		-114.58	-104.28	-100.95	-99.15	-96.63	-94.59	-92.73
700		-133.63	-123.08	-118.37	-115.88	-112.84	-110.59	-108.62
800		-152.41	-142.24	-136.81	-133.74	-130.13	-127.66	-125.59
900		-171.34	-161.62	-155.88	-152.43	-148.36	-145.70	-143.55
1000		-190.63	-181.29	-175.43	-171.75	-167.38	-164.59	-162.41
1-Butene								
25	20.31	21.20	22.05	22.87	23.65	25.17	26.63	28.04
50	19.12	20.05	20.93	21.77	22.58	24.13	25.63	27.08
75	17.77	18.71	19.61	20.47	21.29	22.88	24.39	25.86
100	16.26	17.23	18.14	19.01	19.84	21.45	22.98	24.47
125	14.62	15.60	16.53	17.41	18.25	19.88	21.43	22.92
150	12.86	13.86	14.79	15.69	16.54	18.18	19.74	21.25
175	10.99	11.99	12.95	13.85	14.72	16.37	17.95	19.47
200	9.00	10.02	10.99	11.91	12.79	14.46	16.05	17.58
225	6.90	7.93	8.93	9.87	10.76	12.45	14.06	15.60
250	4.68	5.74	6.77	7.73	8.64	10.35	11.97	13.53
300	-0.17	1.01	2.15	3.17	4.12	5.89	7.55	9.13
350	-6.14	-4.30	-2.90	-1.76	-0.74	1.11	2.82	4.43
400		-10.60	-8.42	-7.07	-5.95	-3.98	-2.21	0.55
450		-19.85	-14.54	-12.79	-11.49	-9.36	-7.51	5.79

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
1-Butene — Continued								
500		-33.12	-21.44	-18.94	-17.38	-15.02	-13.06	-11.29
550		-45.04	-29.28	-25.57	-23.62	-20.96	-18.87	-17.02
600		-55.37	-37.86	-32.67	-30.20	-27.16	-24.92	-22.98
700		-73.58	-55.61	-47.97	-44.29	-40.30	-37.68	-35.56
800		-90.20	-72.90	-63.99	-59.27	-54.28	-51.27	-48.95
900		-106.10	-89.59	-80.13	-74.72	-68.92	-65.57	-63.10
1000		-121.71	-105.89	-96.22	-90.41	-84.05	-80.47	-77.95
1-Butyne								
25	50.03	50.97	51.86	52.71	53.53	55.11	56.64	58.12
50	48.85	49.82	50.74	51.62	52.47	54.10	55.66	57.17
75	47.52	48.51	49.45	50.35	51.21	52.87	54.45	55.99
100	46.05	47.06	48.01	48.92	49.80	51.48	53.08	54.63
125	44.46	45.49	46.45	47.37	48.26	49.95	51.57	53.14
150	42.76	43.80	44.78	45.71	46.61	48.32	49.95	51.53
175	40.95	42.00	43.00	43.94	44.85	46.58	48.22	49.81
200	39.04	40.10	41.12	42.08	43.00	44.74	46.40	48.00
225	37.02	38.10	39.14	40.12	41.05	42.82	44.49	46.10
250	34.89	36.00	37.07	38.07	39.02	40.81	42.50	44.12
300	30.24	31.46	32.65	33.71	34.70	36.55	38.28	39.93
350	24.51	26.38	27.83	29.00	30.06	31.99	33.77	35.45
400		20.33	22.55	23.94	25.10	27.15	28.99	30.72
450		11.34	16.70	18.49	19.83	22.04	23.96	25.75
500		-1.64	10.08	12.63	14.23	16.66	18.69	20.54
550		-13.25	2.55	6.30	8.29	11.03	13.19	15.11
600		-23.26	-5.70	-0.47	2.04	5.15	7.47	9.48
700		-40.77	-22.76	-15.08	-11.35	-7.29	-4.60	-2.40
800		-56.64	-39.30	-30.35	-25.58	-20.52	-17.43	-15.05
900		-71.73	-55.18	-45.68	-40.23	-34.35	-30.93	-28.39
1000		-86.49	-70.63	-60.92	-55.07	-48.63	-44.98	-42.39
1-Heptanamine								
25	16.91	18.51	20.04	21.51	22.94	25.71	28.39	31.00
50	15.07	16.68	18.21	19.68	21.11	23.86	26.52	29.11
75	12.93	14.54	16.08	17.55	18.97	21.72	24.37	26.95
100	10.51	12.13	13.67	15.14	16.57	19.32	21.96	24.54
125	7.84	9.46	11.00	12.48	13.91	16.66	19.31	21.88
150	4.92	6.55	8.10	9.59	11.02	13.78	16.42	18.99
175	1.77	3.40	4.97	6.46	7.90	10.67	13.32	15.89
200	-1.59	0.04	1.62	3.12	4.57	7.35	10.01	12.58
225	-5.17	-3.54	-1.94	-0.42	1.04	3.83	6.50	9.08
250	-8.97	-7.33	-5.69	-4.15	-2.68	0.13	2.81	5.40
300	-17.24	-15.53	-13.79	-12.19	-10.67	-7.81	-5.10	-2.49
350	-26.95	-24.66	-22.65	-20.94	-19.36	-16.43	-13.67	-11.03
400		-35.13	-32.32	-30.40	-28.71	-25.66	-22.84	-20.16
450		-48.91	-42.90	-40.56	-38.70	-35.49	-32.59	-29.86
500		-67.08	-54.56	-51.45	-49.32	-45.87	-42.87	-40.08
550		-84.12	-67.42	-63.07	-60.54	-56.79	-53.66	-50.79
600		-99.78	-81.28	-75.42	-72.36	-68.22	-64.93	-61.98
700		-129.25	-110.28	-101.91	-97.61	-92.50	-88.83	-85.69
800		-157.89	-139.62	-129.95	-124.58	-118.46	-114.39	-111.05
900		-186.55	-169.08	-158.85	-152.79	-145.83	-141.41	-137.92
1000		-215.58	-198.82	-188.37	-181.90	-174.37	-169.72	-166.18
1-Heptanol								
25	-32.00	-30.45	-28.97	-27.54	-26.15	-23.46	-20.86	-18.32
50	-33.98	-32.42	-30.94	-29.51	-28.12	-25.45	-22.87	-20.35
75	-36.28	-34.72	-33.23	-31.80	-30.42	-27.75	-25.17	-22.67
100	-38.88	-37.31	-35.82	-34.38	-33.00	-30.33	-27.76	-25.26

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
1-Heptanol — Continued								
125	-41.76	-40.18	-38.68	-37.24	-35.85	-33.18	-30.61	-28.11
150	-44.89	-43.31	-41.80	-40.35	-38.96	-36.28	-33.71	-31.21
175	-48.27	-46.68	-45.16	-43.70	-42.30	-39.61	-37.04	-34.54
200	-51.89	-50.29	-48.75	-47.28	-45.87	-43.17	-40.59	-38.08
225	-55.73	-54.13	-52.56	-51.08	-49.66	-46.94	-44.34	-41.83
250	-59.81	-58.19	-56.59	-55.09	-53.65	-50.91	-48.30	-45.78
300	-68.71	-67.00	-65.27	-63.70	-62.21	-59.42	-56.77	-54.23
350	-79.19	-76.80	-74.78	-73.08	-71.52	-68.64	-65.95	-63.37
400		-88.07	-85.16	-83.22	-81.54	-78.53	-75.77	-73.15
450		-103.01	-96.52	-94.12	-92.25	-89.05	-86.20	-83.52
500		-122.82	-109.05	-105.80	-103.62	-100.18	-97.20	-94.45
550		-141.36	-122.92	-118.28	-115.66	-111.87	-108.75	-105.92
600		-158.31	-137.87	-131.54	-128.34	-124.11	-120.81	-117.89
700		-190.11	-169.15	-160.02	-155.42	-150.11	-146.39	-143.25
800		-220.92	-200.72	-190.14	-184.35	-177.90	-173.74	-170.38
900		-251.66	-232.37	-221.16	-214.59	-207.21	-202.65	-199.13
1000		-282.75	-264.25	-252.80	-245.78	-237.76	-232.95	-229.37
1-Heptene								
25	26.45	27.88	29.24	30.52	31.76	34.13	36.38	38.56
50	24.70	26.19	27.58	28.91	30.19	32.62	34.95	37.19
75	22.68	24.20	25.62	26.98	28.28	30.76	33.12	35.40
100	20.43	21.97	23.42	24.79	26.11	28.63	31.02	33.33
125	17.97	19.53	21.00	22.39	23.73	26.27	28.69	31.02
150	15.31	16.90	18.39	19.80	21.15	23.72	26.16	28.51
175	12.48	14.08	15.60	17.03	18.39	20.99	23.45	25.82
200	9.48	11.10	12.64	14.09	15.48	18.10	20.58	22.96
225	6.30	7.94	9.52	11.00	12.40	15.05	17.56	19.96
250	2.95	4.62	6.25	7.76	9.18	11.87	14.40	16.82
300	-4.40	-2.56	-0.77	0.84	2.33	5.10	7.68	10.15
350	-13.38	-10.60	-8.42	-6.66	-5.07	-2.18	0.48	3.00
400		-20.12	-16.81	-14.73	-12.98	-9.93	-7.17	-4.59
450		-33.98	-26.09	-23.42	-21.42	-18.12	-15.25	-12.59
500		-53.74	-36.54	-32.77	-30.39	-26.76	-23.72	-20.97
550		-71.55	-48.37	-42.84	-39.88	-35.81	-32.59	-29.73
600		-87.05	-61.31	-53.61	-49.90	-45.27	-41.82	-38.83
700		-114.52	-88.11	-76.82	-71.33	-65.31	-61.32	-58.05
800		-139.72	-114.29	-101.15	-94.13	-86.65	-82.08	-78.53
900		-163.92	-139.65	-125.70	-117.69	-109.01	-103.94	-100.18
1000		-187.75	-164.49	-150.23	-141.63	-132.14	-126.73	-122.90
1-Heptyne								
25	56.73	58.21	59.60	60.93	62.20	64.63	66.95	69.20
50	54.98	56.52	57.95	59.32	60.63	63.14	65.53	67.84
75	52.98	54.55	56.01	57.41	58.75	61.30	63.73	66.08
100	50.76	52.35	53.84	55.26	56.61	59.20	61.66	64.04
125	48.34	49.95	51.46	52.90	54.27	56.89	59.38	61.77
150	45.74	47.37	48.91	50.36	51.75	54.39	56.90	59.32
175	42.97	44.62	46.18	47.65	49.06	51.72	54.26	56.69
200	40.04	41.71	43.29	44.78	46.21	48.90	51.46	53.91
225	36.94	38.63	40.25	41.77	43.21	45.94	48.51	50.98
250	33.67	35.39	37.06	38.61	40.08	42.84	45.44	47.93
300	26.52	28.40	30.24	31.88	33.41	36.26	38.91	41.45
350	17.76	20.57	22.79	24.60	26.23	29.20	31.93	34.51
400		11.28	14.65	16.76	18.55	21.69	24.52	27.16
450		-2.34	5.62	8.33	10.37	13.75	16.70	19.43
500		-21.86	-4.56	-0.75	1.68	5.39	8.50	11.32
550		-39.40	-16.11	-10.52	-7.52	-3.36	-0.06	2.87
600		-54.61	-28.74	-20.98	-17.22	-12.51	-8.98	5.93
700		-81.43	-54.89	-43.53	-37.99	-31.88	-27.81	24.47

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
1-Heptyne — Continued								
800		-105.91	-80.36	-67.13	-60.06	-52.49	-47.84	-44.22
900		-129.34	-104.95	-90.92	-82.84	-74.07	-68.91	-65.08
1000		-152.34	-128.96	-114.62	-105.95	-96.36	-90.88	-86.97
1-Hexanamine								
25	14.86	16.27	17.63	18.94	20.21	22.67	25.06	27.40
50	13.21	14.63	15.98	17.29	18.56	21.01	23.38	25.69
75	11.29	12.71	14.07	15.38	16.64	19.09	21.45	23.74
100	9.12	10.55	11.91	13.22	14.49	16.93	19.28	21.57
125	6.73	8.16	9.53	10.84	12.11	14.55	16.90	19.19
150	4.12	5.55	6.93	8.24	9.52	11.96	14.32	16.61
175	1.30	2.74	4.13	5.45	6.73	9.18	11.54	13.83
200	-1.71	-0.26	1.13	2.47	3.75	6.21	8.58	10.87
225	-4.90	-3.46	-2.05	-0.70	0.59	3.07	5.44	7.73
250	-8.29	-6.84	-5.40	-4.04	-2.73	-0.24	2.13	4.44
300	-15.66	-14.17	-12.63	-11.22	-9.88	-7.35	-4.94	-2.62
350	-24.28	-22.31	-20.54	-19.03	-17.64	-15.04	-12.60	-10.25
400		-31.60	-29.16	-27.47	-25.99	-23.29	-20.79	-18.42
450		-43.73	-38.57	-36.53	-34.90	-32.06	-29.50	-27.08
500		-59.61	-48.92	-46.23	-44.36	-41.33	-38.68	-36.21
550		-74.56	-60.31	-56.57	-54.37	-51.08	-48.31	-45.78
600		-88.34	-72.57	-67.54	-64.90	-61.28	-58.38	-55.77
700		-114.40	-98.23	-91.07	-87.37	-82.92	-79.71	-76.94
800		-139.82	-124.24	-115.98	-111.37	-106.06	-102.50	-99.57
900		-165.31	-150.42	-141.68	-136.48	-130.46	-126.60	-123.54
1000		-191.17	-176.88	-167.96	-162.40	-155.90	-151.85	-148.75
1-Hexanol								
25	-35.49	-34.11	-32.79	-31.51	-30.27	-27.86	-25.53	-23.25
50	-37.26	-35.87	-34.55	-33.27	-32.03	-29.64	-27.33	-25.07
75	-39.29	-37.90	-36.57	-35.30	-34.06	-31.67	-29.37	-27.13
100	-41.58	-40.18	-38.85	-37.57	-36.33	-33.95	-31.65	-29.41
125	-44.09	-42.69	-41.35	-40.07	-38.83	-36.44	-34.14	-31.91
150	-46.82	-45.41	-44.07	-42.78	-41.54	-39.14	-36.84	-34.61
175	-49.76	-48.34	-46.99	-45.69	-44.44	-42.04	-39.74	-37.50
200	-52.89	-51.47	-50.10	-48.80	-47.54	-45.13	-42.81	-40.57
225	-56.22	-54.79	-53.40	-52.08	-50.81	-48.39	-46.07	-43.82
250	-59.74	-58.30	-56.88	-55.54	-54.26	-51.82	-49.49	-47.23
300	-67.40	-65.89	-64.36	-62.97	-61.65	-59.16	-56.79	-54.52
350	-76.40	-74.32	-72.54	-71.04	-69.66	-67.09	-64.69	-62.38
400	-83.99	-81.45	-79.74	-78.26	-75.59	-73.12	-70.78	
450	-96.78	-91.19	-89.09	-87.44	-84.61	-82.07	-79.68	
500	-113.72	-101.92	-99.09	-97.18	-94.14	-91.49	-89.05	
550	-129.56	-113.78	-109.77	-107.48	-104.14	-101.38	-98.86	
600	-144.05	-126.56	-121.11	-118.32	-114.61	-111.69	-109.09	
700	-171.20	-153.26	-145.42	-141.45	-136.81	-133.54	-130.76	
800	-197.48	-180.20	-171.12	-166.13	-160.53	-156.87	-153.91	
900	-223.68	-207.18	-197.56	-191.90	-185.50	-181.52	-178.41	
1000	-250.17	-234.34	-224.51	-218.47	-211.53	-207.32	-204.16	
1-Hexene								
25	24.37	25.62	26.81	27.94	29.03	31.11	33.10	35.02
50	22.81	24.11	25.33	26.50	27.62	29.76	31.81	33.78
75	21.01	22.34	23.59	24.77	25.92	28.10	30.18	32.19
100	19.00	20.35	21.62	22.83	23.99	26.20	28.31	30.34
125	16.82	18.19	19.47	20.70	21.87	24.11	26.23	28.29
150	14.46	15.85	17.16	18.39	19.58	21.84	23.99	26.06
175	11.95	13.35	14.68	15.94	17.14	19.42	21.58	23.67
200	9.29	10.71	12.06	13.33	14.55	16.85	19.04	21.14

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
1-Hexene — Continued								
225	6.47	7.91	9.29	10.59	11.82	14.15	16.36	18.47
250	3.49	4.96	6.39	7.71	8.97	11.33	13.56	15.69
300	-3.02	-1.40	0.17	1.58	2.89	5.33	7.60	9.78
350	-11.00	-8.53	-6.61	-5.06	-3.66	-1.12	1.23	3.44
400		-16.98	-14.04	-12.21	-10.67	-7.98	-5.55	-3.28
450		-29.31	-22.27	-19.91	-18.15	-15.24	-12.70	-10.36
500		-46.90	-31.54	-28.20	-26.09	-22.88	-20.20	-17.78
550		-62.75	-42.04	-37.12	-34.50	-30.89	-28.05	-25.52
600		-76.53	-53.53	-46.66	-43.37	-39.27	-36.22	-33.58
700		-100.91	-77.31	-67.24	-62.35	-57.00	-53.47	-50.59
800		-123.25	-100.53	-88.80	-82.54	-75.89	-71.84	-68.71
900		-144.68	-123.00	-110.53	-103.40	-93.68	-91.18	-87.83
1000		-165.77	-144.99	-132.26	-124.59	-116.14	-111.35	-107.95
1-Hexyne								
25	54.42	55.72	56.94	58.11	59.23	61.38	63.44	65.43
50	52.87	54.21	55.48	56.68	57.84	60.05	62.17	64.21
75	51.09	52.46	53.76	54.98	56.16	58.42	60.57	62.64
100	49.12	50.52	51.83	53.08	54.28	56.56	58.74	60.83
125	46.98	48.40	49.73	50.99	52.21	54.51	56.71	58.83
150	44.69	46.12	47.47	48.75	49.97	52.31	54.52	56.66
175	42.24	43.69	45.06	46.36	47.60	49.95	52.19	54.34
200	39.65	41.12	42.51	43.83	45.08	47.46	49.72	51.89
225	36.92	38.40	39.83	41.17	42.44	44.85	47.12	49.31
250	34.03	35.55	37.02	38.38	39.68	42.11	44.41	46.61
300	27.72	29.38	31.00	32.45	33.80	36.31	38.66	40.90
350	19.98	22.48	24.44	26.04	27.47	30.09	32.51	34.79
400		14.28	17.26	19.13	20.71	23.48	25.98	28.32
450		2.22	9.30	11.70	13.51	16.49	19.10	21.51
500		-15.09	0.32	3.70	5.85	9.14	11.88	14.38
550		-30.63	-9.88	-4.91	2.25	1.43	4.35	6.94
600		-44.08	-21.04	-14.13	-10.80	-6.62	-3.50	-0.80
700		-67.77	-44.13	-34.02	-29.09	-23.66	-20.06	-17.11
800		-89.36	-66.59	-54.82	-48.52	-41.80	-37.68	-34.47
900		-109.99	-88.26	-75.77	-68.58	-60.78	-56.21	-52.81
1000		-130.23	-109.40	-96.63	-88.91	-80.39	-75.52	-72.06
1-Octanamine								
25	18.96	20.74	22.43	24.07	25.66	28.72	31.68	34.57
50	16.93	18.72	20.42	22.05	23.64	26.69	29.63	32.49
75	14.57	16.36	18.06	19.70	21.28	24.33	27.26	30.11
100	11.89	13.69	15.39	17.03	18.62	21.66	24.59	27.44
125	8.91	10.72	12.44	14.08	15.67	18.72	21.65	24.49
150	5.67	7.48	9.21	10.86	12.45	15.51	18.44	21.29
175	2.17	3.99	5.73	7.39	8.99	12.05	14.99	17.84
200	-1.58	0.24	2.00	3.67	5.28	8.36	11.31	14.16
225	-5.57	-3.74	-1.96	-0.27	1.35	4.45	7.41	10.27
250	-9.80	-7.96	-6.14	-4.43	-2.79	0.32	3.30	6.16
300	-19.03	-17.12	-15.17	-13.39	-11.70	-8.53	-5.52	-2.62
350	-29.00	-27.32	-25.07	-23.15	-21.39	-18.13	-15.07	-12.14
400		-39.04	-35.87	-33.71	-31.83	-28.43	-25.30	-22.33
450		-54.56	-47.70	-45.07	-42.99	-39.40	-36.18	-33.14
500		-75.12	-60.76	-57.25	-54.85	-51.00	-47.65	-44.55
550		-94.37	-75.20	-70.26	-67.41	-63.20	-59.70	-56.51
600		-112.00	-90.77	-84.09	-80.63	-75.98	-72.30	-69.01
700		-145.12	-123.35	-113.78	-108.89	-103.12	-99.01	-95.50
800		-177.25	-156.28	-145.21	-139.09	-132.15	-127.58	-123.85
900		-209.35	-189.31	-177.60	-170.68	-162.78	-157.80	-153.90
1000		-241.85	-222.63	-210.66	-203.27	-194.72	-189.48	-185.52

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
1-Octanol								
25	-30.25	-28.52	-26.86	-25.27	-23.72	-20.74	-17.85	-15.03
50	-32.26	-30.51	-28.86	-27.27	-25.72	-22.75	-19.88	-17.09
75	-34.62	-32.87	-31.21	-29.62	-28.08	-25.11	-22.25	-19.47
100	-37.32	-35.56	-33.90	-32.30	-30.76	-27.79	-24.93	-22.16
125	-40.32	-38.56	-36.89	-35.29	-33.74	-30.77	-27.91	-25.14
150	-43.61	-41.85	-40.16	-38.56	-37.00	-34.03	-31.17	-28.39
175	-47.18	-45.41	-43.71	-42.09	-40.53	-37.54	-34.68	-31.90
200	-51.00	-49.23	-47.51	-45.88	-44.31	-41.31	-38.44	-35.66
225	-55.08	-53.30	-51.56	-49.91	-48.33	-45.31	-42.43	-39.64
250	-59.40	-57.62	-55.85	-54.18	-52.58	-49.54	-46.64	-43.85
300	-68.87	-67.00	-65.10	-63.37	-61.73	-58.63	-55.70	-52.87
350	-79.98	-77.47	-75.27	-73.41	-71.69	-68.51	-65.53	-62.67
400		-89.47	-86.38	-84.28	-82.44	-79.13	-76.08	-73.18
450		-105.22	-98.54	-95.97	-93.94	-90.45	-87.30	-84.34
500		-125.93	-111.94	-108.51	-106.18	-102.43	-99.16	-96.14
550		-145.41	-126.73	-121.92	-119.14	-115.04	-111.63	-108.52
600		-163.36	-142.67	-136.15	-132.78	-128.25	-124.66	-121.46
700		-197.28	-176.06	-166.73	-161.97	-156.35	-152.31	-148.92
800		-230.37	-209.93	-199.15	-193.19	-186.42	-181.97	-178.33
900		-263.57	-244.04	-232.63	-225.88	-218.18	-213.33	-209.53
1000		-297.27	-278.53	-266.88	-259.67	-251.34	-246.23	-242.37
1-Octene								
25	28.72	30.34	31.85	33.30	34.69	37.33	39.86	42.29
50	26.78	28.46	30.02	31.52	32.95	35.68	38.27	40.78
75	24.54	26.25	27.85	29.37	30.83	33.61	36.26	38.81
100	22.04	23.77	25.40	26.94	28.43	31.24	33.92	36.50
125	19.30	21.06	22.71	24.28	25.77	28.62	31.33	33.94
150	16.35	18.13	19.81	21.39	22.91	25.79	28.52	31.15
175	13.21	15.01	16.71	18.31	19.84	22.75	25.51	28.15
200	9.86	11.68	13.41	15.04	16.60	19.53	22.31	24.98
225	6.33	8.17	9.94	11.60	13.17	16.15	18.95	21.64
250	2.59	4.47	6.30	7.99	9.59	12.60	15.43	18.14
300	-5.58	-3.52	-1.52	0.28	1.95	5.05	7.95	10.71
350	-15.57	-12.47	-10.04	-8.07	-6.29	-3.05	-0.07	2.74
400		-23.07	-19.38	-17.06	-15.11	-11.68	-8.60	-5.72
450		-38.47	-29.71	-26.74	-24.51	-20.82	-17.60	-14.63
500		-60.40	-41.35	-37.16	-34.50	-30.44	-27.05	-23.98
550		-80.17	-54.51	-48.37	-45.08	-40.54	-36.93	-33.74
600		-97.39	-68.90	-60.37	-56.24	-51.08	-47.23	-43.89
700		-127.95	-98.71	-86.22	-80.12	-73.42	-68.97	-65.33
800		-156.00	-127.86	-113.31	-105.53	-97.21	-92.12	-88.17
900		-182.98	-156.12	-140.67	-131.78	-122.15	-116.50	-112.31
1000		-209.54	-183.80	-168.01	-158.48	-147.94	-141.93	-137.66
1-Octyne								
25	58.86	60.52	62.08	63.56	64.98	67.70	70.29	72.79
50	56.93	58.65	60.26	61.79	63.26	66.06	68.72	71.29
75	54.71	56.47	58.11	59.67	61.17	64.02	66.74	69.35
100	52.25	54.03	55.70	57.28	58.80	61.69	64.44	67.09
125	49.56	51.36	53.06	54.66	56.20	59.12	61.90	64.57
150	46.67	48.50	50.21	51.84	53.39	56.34	59.15	61.84
175	43.59	45.43	47.18	48.82	50.39	53.38	56.20	58.92
200	40.32	42.18	43.96	45.63	47.22	50.23	53.08	55.82
225	36.87	38.76	40.57	42.27	43.88	46.93	49.80	52.56
250	33.22	35.15	37.02	38.75	40.39	43.47	46.37	49.15
300	25.26	27.35	29.40	31.24	32.95	36.13	39.09	41.92
350	15.50	18.62	21.10	23.12	24.94	28.25	31.30	34.18
400		8.28	12.01	14.37	16.37	19.86	23.02	25.97
450		-6.86	1.95	4.96	7.23	11.00	14.29	17.33

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
1-Octyne — Continued								
500		-28.49	-9.40	-5.17	-2.47	1.66	5.12	8.27
550		-47.96	-22.26	-16.07	-12.74	-8.12	-4.45	-1.19
600		-64.86	-36.33	-27.75	-23.58	-18.34	-14.42	-11.02
700		-94.72	-65.44	-52.90	-46.77	-39.99	-35.47	-31.76
800		-122.02	-93.84	-79.24	-71.42	-63.03	-57.87	-53.85
900		-148.19	-121.29	-105.80	-96.87	-87.16	-81.44	-77.19
1000		-173.91	-148.12	-132.29	-122.71	-112.10	-106.02	-101.67
1-Pentanamine								
25	12.80	14.03	15.21	16.36	17.47	19.64	21.74	23.79
50	11.34	12.57	13.76	14.90	16.01	18.15	20.23	22.27
75	9.64	10.88	12.07	13.21	14.32	16.46	18.53	20.55
100	7.74	8.98	10.17	11.31	12.42	14.56	16.62	18.63
125	5.64	6.88	8.08	9.22	10.33	12.47	14.53	16.54
150	3.35	4.60	5.80	6.94	8.06	10.20	12.26	14.27
175	0.89	2.14	3.34	4.50	5.61	7.76	9.82	11.83
200	-1.74	-0.49	0.73	1.89	3.01	5.16	7.23	9.24
225	-4.53	-3.28	-2.05	-0.88	0.25	2.41	4.49	6.50
250	-7.48	-6.23	-4.98	-3.79	-2.66	-0.48	1.60	3.62
300	-13.90	-12.61	-11.28	-10.06	-8.89	-6.68	-4.58	-2.55
350	-21.36	-19.69	-18.17	-16.86	-15.65	-13.39	-11.26	-9.21
400		-27.73	-25.66	-24.21	-22.92	-20.58	-18.40	-16.32
450		-38.14	-33.82	-32.08	-30.67	-28.22	-25.98	-23.87
500		-51.64	-42.78	-40.50	-38.90	-36.28	-33.98	-31.82
550		-64.39	-52.60	-49.46	-47.59	-44.76	-42.36	-40.15
600		-76.20	-63.16	-58.96	-56.72	-53.62	-51.11	-48.85
700		-98.62	-85.26	-79.31	-76.20	-72.42	-69.65	-67.25
800		-120.59	-107.71	-100.85	-96.99	-92.50	-89.45	-86.92
900		-142.65	-130.34	-123.08	-118.74	-113.66	-110.37	-107.73
1000		-165.06	-153.25	-145.84	-141.21	-135.74	-132.29	-129.61
1-Pentanol								
25	-38.47	-37.27	-36.12	-35.01	-33.92	-31.80	-29.74	-27.73
50	-39.93	-38.73	-37.58	-36.47	-35.39	-33.30	-31.27	-29.28
75	-41.63	-40.43	-39.28	-38.17	-37.09	-35.01	-32.99	-31.02
100	-43.54	-42.34	-41.19	-40.08	-39.00	-36.92	-34.91	-32.95
125	-45.65	-44.45	-43.29	-42.18	-41.11	-39.03	-37.02	-35.07
150	-47.95	-46.75	-45.59	-44.47	-43.39	-41.31	-39.31	-37.36
175	-50.43	-49.22	-48.06	-46.94	-45.86	-43.77	-41.76	-39.81
200	-53.08	-51.87	-50.69	-49.57	-48.48	-46.39	-44.38	-42.43
225	-55.90	-54.69	-53.49	-52.36	-51.26	-49.16	-47.15	-45.19
250	-58.87	-57.66	-56.45	-55.30	-54.19	-52.08	-50.06	-48.10
300	-65.35	-64.10	-62.81	-61.62	-60.48	-58.34	-56.30	-54.32
350	-72.87	-71.23	-69.76	-68.49	-67.31	-65.11	-63.04	-61.05
400		-79.35	-77.32	-75.90	-74.65	-72.37	-70.26	-68.24
450		-89.82	-85.56	-83.85	-82.48	-80.09	-77.92	-75.87
500		-103.39	-94.59	-92.35	-90.79	-88.24	-86.00	-83.90
550		-116.22	-104.51	-101.41	-99.57	-96.81	-94.47	-92.33
600		-128.11	-115.16	-111.00	-108.80	-105.77	-103.32	-101.12
700		-150.74	-137.45	-131.55	-128.48	-124.78	-122.07	-119.73
800		-172.92	-160.12	-153.31	-149.50	-145.09	-142.10	-139.63
900		-195.22	-182.99	-175.79	-171.49	-166.50	-163.27	-160.69
1000		-217.90	-206.16	-198.81	-194.23	-188.83	-185.45	-182.84
1-Pentene								
25	22.47	23.54	24.56	25.53	26.47	28.27	29.99	31.66
50	21.10	22.21	23.26	24.26	25.23	27.08	28.85	30.56
75	19.52	20.66	21.73	22.75	23.73	25.62	27.42	29.16
100	17.76	18.92	20.01	21.05	22.05	23.95	25.77	27.53

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
1-Pentene — Continued								
125	15.85	17.02	18.13	19.18	20.19	22.12	23.96	25.74
150	13.79	14.98	16.10	17.17	18.19	20.14	21.99	23.78
175	11.60	12.80	13.94	15.02	16.06	18.02	19.90	21.70
200	9.27	10.49	11.65	12.75	13.80	15.79	17.67	19.49
225	6.81	8.05	9.24	10.36	11.42	13.43	15.34	17.17
250	4.22	5.48	6.71	7.85	8.93	10.97	12.89	14.74
300	-1.47	-0.07	1.29	2.50	3.64	5.74	7.71	9.58
350	-8.44	-6.29	-4.63	-3.28	-2.07	0.13	2.15	4.07
400		-13.66	-11.10	-9.51	-8.18	-5.85	-3.75	-1.78
450		-24.45	-18.27	-16.22	-14.69	-12.17	-9.97	-7.94
500		-39.88	-26.36	-23.44	-21.60	-18.82	-16.50	-14.40
550		-53.77	-35.53	-31.21	-28.93	-25.80	-23.33	-21.14
600		-65.82	-45.56	-39.54	-36.66	-33.08	-30.44	-28.15
700		-87.12	-66.33	-57.48	-53.19	-48.52	-45.45	-42.94
800		-106.59	-86.58	-76.26	-70.77	-64.96	-61.43	-58.70
900		-125.26	-106.17	-95.21	-88.93	-82.17	-78.24	-75.35
1000		-143.61	-125.31	-114.11	-107.37	-99.96	-95.78	-92.82
1-Pentyne								
25	52.16	53.28	54.33	55.34	56.32	58.18	59.97	61.71
50	50.79	51.95	53.04	54.09	55.09	57.01	58.85	60.62
75	49.24	50.42	51.54	52.60	53.62	55.58	57.44	59.25
100	47.52	48.73	49.86	50.94	51.97	53.95	55.84	57.67
125	45.66	46.88	48.03	49.12	50.17	52.17	54.08	55.92
150	43.66	44.89	46.06	47.16	48.23	50.25	52.17	54.03
175	41.53	42.78	43.96	45.09	46.16	48.20	50.14	52.01
200	39.28	40.54	41.75	42.89	43.97	46.04	47.99	49.88
225	36.90	38.19	39.42	40.58	41.68	43.77	45.74	47.64
250	34.40	35.71	36.98	38.16	39.28	41.39	43.39	45.30
300	28.92	30.35	31.76	33.01	34.18	36.36	38.40	40.35
350	22.18	24.36	26.07	27.45	28.70	30.98	33.07	35.06
400		17.24	19.84	21.47	22.84	25.25	27.42	29.46
450		6.72	12.94	15.03	16.60	19.20	21.47	23.56
500		-8.43	5.13	8.10	9.98	12.83	15.22	17.40
550		-22.01	-3.73	0.63	2.96	6.16	8.71	10.96
600		-33.74	-13.43	-7.37	-4.45	-0.80	1.92	4.28
700		-54.34	-33.51	-24.61	-20.28	-15.54	-12.39	-9.82
800		-73.06	-53.01	-42.65	-37.12	-31.22	-27.62	-24.82
900		-90.93	-71.79	-60.79	-54.47	-47.63	-43.63	-40.67
1000		-108.42	-90.08	-78.84	-72.06	-64.57	-60.31	-57.29
1-Propanamine								
25	7.01	7.88	8.72	9.54	10.34	11.90	13.43	14.93
50	5.91	6.78	7.62	8.43	9.23	10.78	12.28	13.76
75	4.66	5.53	6.37	7.18	7.98	9.52	11.01	12.48
100	3.28	4.15	4.99	5.80	6.59	8.13	9.62	11.08
125	1.76	2.64	3.48	4.29	5.08	6.62	8.10	9.56
150	0.12	1.00	1.85	2.66	3.45	4.99	6.47	7.92
175	-1.62	-0.75	0.10	0.92	1.71	3.25	4.73	6.18
200	-3.48	-2.61	-1.75	-0.93	-0.13	1.40	2.89	4.34
225	-5.45	-4.58	-3.71	-2.88	-2.08	-0.54	0.95	2.40
250	-7.51	-6.65	-5.77	-4.93	-4.13	-2.58	-1.08	0.37
300	-11.97	-11.10	-10.17	-9.31	-8.49	-6.92	-5.42	-3.96
350	-17.07	-15.99	-14.96	-14.05	-13.20	-11.60	-10.08	-8.61
400		-21.49	-20.13	-19.14	-18.25	-16.60	-15.05	-13.57
450		-28.42	-25.73	-24.57	-23.60	-21.89	-20.31	-18.81
500		-37.20	-31.83	-30.35	-29.27	-27.46	-25.84	-24.31
550		-45.57	-38.46	-36.47	-35.23	-33.30	-31.62	-30.06
600		-53.40	-45.56	-42.94	-41.48	-39.39	-37.65	-36.06
700		-68.42	-60.39	-56.74	-54.77	-52.27	-50.38	-48.71

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
1-Propanamine — Continued								
800		-83.26	-75.51	-71.32	-68.91	-65.99	-63.94	-62.18
900		-98.22	-90.81	-86.39	-83.69	-80.43	-78.23	-76.42
1000		-113.47	-106.35	-101.84	-98.97	-95.47	-93.18	-91.34
1-Propanol								
25	-41.91	-41.08	-40.28	-39.50	-38.73	-37.22	-35.75	-34.31
50	-43.03	-42.20	-41.40	-40.62	-39.86	-38.38	-36.93	-35.51
75	-44.31	-43.48	-42.68	-41.91	-41.15	-39.67	-38.24	-36.83
100	-45.74	-44.91	-44.11	-43.33	-42.58	-41.11	-39.68	-38.28
125	-47.31	-46.47	-45.67	-44.90	-44.14	-42.67	-41.25	-39.86
150	-49.01	-48.17	-47.37	-46.59	-45.83	-44.36	-42.94	-41.55
175	-50.83	-49.99	-49.18	-48.40	-47.64	-46.17	-44.75	-43.36
200	-52.76	-51.93	-51.11	-50.33	-49.57	-48.09	-46.67	-45.28
225	-54.81	-53.98	-53.16	-52.36	-51.60	-50.12	-48.70	-47.31
250	-56.97	-56.14	-55.31	-54.51	-53.74	-52.25	-50.82	-49.43
300	-61.65	-60.80	-59.92	-59.09	-58.30	-56.80	-55.36	-53.96
350	-67.00	-65.93	-64.93	-64.06	-63.24	-61.71	-60.25	-58.84
400		-71.70	-70.36	-69.40	-68.54	-66.95	-65.47	-64.05
450		-78.94	-76.24	-75.10	-74.16	-72.51	-71.00	-69.55
500		-88.12	-82.64	-81.17	-80.12	-78.37	-76.81	-75.34
550		-96.87	-89.61	-87.61	-86.40	-84.52	-82.90	-81.40
600		-105.08	-97.05	-94.42	-92.97	-90.93	-89.25	-87.71
700		-120.87	-112.65	-108.94	-106.97	-104.51	-102.67	-101.05
800		-136.49	-128.56	-124.30	-121.88	-118.99	-116.97	-115.27
900		-152.28	-144.70	-140.20	-137.47	-134.23	-132.07	-130.31
1000		-168.38	-161.10	-156.51	-153.61	-150.12	-147.86	-146.08
1-Propene								
25	17.91	18.62	19.30	19.96	20.60	21.83	23.02	24.18
50	16.91	17.65	18.36	19.03	19.69	20.95	22.17	23.36
75	15.77	16.53	17.25	17.94	18.61	19.89	21.13	22.33
100	14.52	15.29	16.02	16.72	17.40	18.70	19.95	21.16
125	13.16	13.94	14.68	15.39	16.08	17.39	18.65	19.87
150	11.69	12.49	13.24	13.96	14.65	15.98	17.25	18.48
175	10.14	10.94	11.71	12.44	13.14	14.48	15.76	17.00
200	8.49	9.30	10.09	10.83	11.54	12.90	14.19	15.44
225	6.74	7.58	8.38	9.14	9.86	11.23	12.54	13.79
250	4.91	5.76	6.59	7.37	8.10	9.49	10.81	12.08
300	0.88	1.84	2.77	3.59	4.37	5.80	7.15	8.44
350	-4.08	-2.55	-1.41	-0.48	0.34	1.85	3.24	4.56
400		-7.78	-5.97	-4.87	-3.96	-2.35	-0.91	0.45
450		-15.50	-11.04	-9.60	-8.54	-6.79	-5.28	-3.88
500		-26.60	-16.77	-14.69	-13.40	-11.47	-9.86	-8.41
550		-36.56	-23.27	-20.17	-18.55	-16.37	-14.65	-13.14
600		-45.17	-30.40	-26.04	-23.99	-21.48	-19.64	-18.05
700		-60.29	-45.13	-38.71	-35.63	-32.31	-30.16	-28.41
800		-74.05	-59.46	-51.96	-48.00	-43.84	-41.35	-39.44
900		-87.18	-73.26	-65.30	-60.76	-55.91	-53.13	-51.10
1000		-100.05	-86.71	-78.57	-73.69	-68.37	-65.40	-63.32
1-Propyne								
25	47.88	48.64	49.36	50.05	50.73	52.03	53.28	54.50
50	46.89	47.68	48.42	49.14	49.83	51.16	52.45	53.70
75	45.78	46.58	47.34	48.07	48.78	50.13	51.44	52.70
100	44.56	45.38	46.15	46.89	47.61	48.98	50.30	51.58
125	43.24	44.07	44.86	45.61	46.33	47.72	49.05	50.34
150	41.84	42.68	43.48	44.24	44.97	46.37	47.71	49.01
175	40.35	41.20	42.01	42.78	43.52	44.94	46.29	47.59
200	38.77	39.64	40.46	41.25	42.00	43.43	44.79	46.10

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	Pressure, kbar					
			1.0	1.5	2.0	3.0	4.0	5.0
1-Propyne — Continued								
225	37.11	37.99	38.84	39.64	40.40	41.84	43.22	44.54
250	35.37	36.26	37.14	37.96	38.73	40.20	41.58	42.92
300	31.54	32.54	33.51	34.38	35.19	36.71	38.13	39.49
350	26.82	28.38	29.57	30.53	31.40	32.98	34.44	35.83
400		23.40	25.25	26.39	27.35	29.03	30.54	31.97
450		15.95	20.45	21.93	23.04	24.85	26.44	27.91
500		5.13	15.01	17.13	18.46	20.47	22.14	23.67
550		-4.52	8.81	11.96	13.61	15.88	17.66	19.25
600		-12.80	2.01	6.41	8.50	11.08	13.00	14.66
700		-27.23	-12.03	-5.57	-2.44	0.95	3.17	4.99
800		-40.24	-25.61	-18.07	-14.06	-9.83	-7.27	-5.29
900		-52.57	-38.60	-30.60	-26.02	-21.09	-18.24	-16.14
1000		-64.58	-51.20	-43.02	-38.10	-32.70	-29.66	-27.51
2-Butanone								
25	-36.73	-35.77	-34.84	-33.93	-33.05	-31.32	-29.65	-28.00
50	-38.07	-37.10	-36.17	-35.27	-34.39	-32.69	-31.03	-29.40
75	-39.56	-38.59	-37.66	-36.76	-35.89	-34.19	-32.54	-30.93
100	-41.20	-40.22	-39.29	-38.39	-37.51	-35.82	-34.18	-32.57
125	-42.97	-41.99	-41.05	-40.15	-39.27	-37.58	-35.94	-34.34
150	-44.86	-43.88	-42.94	-42.03	-41.15	-39.46	-37.82	-36.22
175	-46.87	-45.89	-44.94	-44.03	-43.15	-41.45	-39.81	-38.21
200	-49.00	-48.02	-47.06	-46.14	-45.25	-43.55	-41.90	-40.30
225	-51.25	-50.26	-49.28	-48.36	-47.46	-45.75	-44.10	-42.50
250	-53.60	-52.61	-51.62	-50.68	-49.78	-48.05	-46.39	-44.79
300	-58.69	-57.65	-56.59	-55.61	-54.68	-52.93	-51.25	-49.63
350	-64.60	-63.20	-61.97	-60.93	-59.96	-58.15	-56.45	-54.81
400	-69.53	-67.80	-66.62	-65.58	-63.71	-61.97	-60.31	
450	-77.87	-74.13	-72.70	-71.55	-69.57	-67.78	-66.09	
500	-88.91	-81.09	-79.17	-77.86	-75.74	-73.88	-72.15	
550	-99.19	-88.75	-86.06	-84.50	-82.18	-80.24	-78.47	
600	-108.55	-96.99	-93.35	-91.46	-88.90	-86.86	-85.03	
700	-125.99	-114.14	-108.93	-106.26	-103.09	-100.82	-98.87	
800	-142.76	-131.34	-125.32	-121.98	-118.17	-115.65	-113.58	
900	-159.39	-148.48	-142.10	-138.32	-134.00	-131.25	-129.09	
1000	-176.12	-165.65	-159.14	-155.10	-150.42	-147.54	-145.34	
2-Heptanone								
25	-30.43	-28.93	-27.48	-26.10	-24.74	-22.13	-19.60	-17.13
50	-32.33	-30.82	-29.38	-27.99	-26.64	-24.04	-21.53	-19.08
75	-34.50	-32.98	-31.53	-30.14	-28.80	-26.20	-23.70	-21.27
100	-36.91	-35.39	-33.94	-32.55	-31.20	-28.60	-26.11	-23.68
125	-39.56	-38.03	-36.57	-35.17	-33.82	-31.23	-28.73	-26.30
150	-42.42	-40.88	-39.42	-38.01	-36.66	-34.05	-31.55	-29.13
175	-45.49	-43.94	-42.46	-41.05	-39.69	-37.08	-34.57	-32.14
200	-48.75	-47.20	-45.71	-44.28	-42.91	-40.29	-37.78	-35.34
225	-52.21	-50.66	-49.14	-47.70	-46.32	-43.68	-41.15	-38.71
250	-55.87	-54.30	-52.75	-51.29	-49.89	-47.23	-44.70	-42.25
300	-63.83	-62.17	-60.50	-58.97	-57.53	-54.82	-52.25	-49.78
350	-73.22	-70.92	-68.96	-67.31	-65.80	-63.00	-60.39	-57.88
400	-80.98	-78.17	-76.30	-74.67	-71.75	-69.07	-66.52	
450	-94.50	-88.25	-85.94	-84.12	-81.03	-78.26	-75.65	
500	-112.63	-99.40	-96.26	-94.15	-90.81	-87.93	-85.26	
550	-129.46	-111.75	-107.28	-104.76	-101.08	-98.06	-95.31	
600	-144.73	-125.09	-119.00	-115.91	-111.82	-108.63	-105.79	
700	-173.05	-152.91	-144.14	-139.71	-134.58	-130.99	-127.94	
800	-200.22	-180.83	-170.65	-165.08	-158.86	-154.84	-151.59	
900	-227.15	-208.62	-197.85	-191.53	-184.41	-180.01	-176.60	
1000	-254.25	-236.48	-225.47	-218.71	-210.99	-206.34	-202.88	

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
2-Hexanone								
25	-32.48	-31.16	-29.89	-28.66	-27.47	-25.15	-22.91	-20.72
50	-34.19	-32.86	-31.59	-30.37	-29.18	-26.88	-24.65	-22.49
75	-36.13	-34.80	-33.52	-32.30	-31.11	-28.82	-26.60	-24.45
100	-38.28	-36.94	-35.67	-34.44	-33.25	-30.96	-28.75	-26.60
125	-40.63	-39.29	-38.01	-36.78	-35.59	-33.29	-31.08	-28.93
150	-43.17	-41.82	-40.53	-39.29	-38.10	-35.80	-33.59	-31.44
175	-45.88	-44.53	-43.23	-41.99	-40.79	-38.48	-36.26	-34.11
200	-48.77	-47.41	-46.09	-44.84	-43.63	-41.32	-39.10	-36.94
225	-51.82	-50.46	-49.12	-47.85	-46.64	-44.31	-42.08	-39.92
250	-55.04	-53.67	-52.30	-51.02	-49.79	-47.44	-45.20	-43.03
300	-62.03	-60.59	-59.12	-57.78	-56.51	-54.12	-51.85	-49.67
350	-70.26	-68.26	-66.55	-65.11	-63.78	-61.31	-59.00	-56.79
400	-77.07	-74.63	-72.99	-71.56	-69.99	-68.99	-66.62	-64.37
450	-88.85	-83.45	-81.43	-79.85	-77.13	-74.68	-72.39	-70.00
500	-104.59	-93.19	-90.47	-88.63	-85.70	-83.16	-80.81	-78.50
550	-119.22	-103.97	-100.11	-97.90	-94.69	-92.03	-89.61	-87.20
600	-132.51	-115.60	-110.34	-107.65	-104.08	-101.28	-98.78	-96.37
700	-157.18	-139.85	-132.27	-128.44	-123.97	-120.82	-118.15	-115.50
800	-180.87	-164.17	-155.40	-150.58	-145.18	-141.66	-138.81	-136.00
900	-204.34	-188.40	-179.11	-173.64	-167.47	-163.63	-160.64	-157.77
1000	-227.98	-212.68	-203.19	-197.35	-190.65	-186.60	-183.56	-180.50
2-Octanone								
25	-28.38	-26.69	-25.08	-23.53	-22.02	-19.11	-16.29	-13.55
50	-30.47	-28.77	-27.16	-25.61	-24.10	-21.20	-18.41	-15.68
75	-32.86	-31.16	-29.54	-27.99	-26.49	-23.59	-20.80	-18.09
100	-35.54	-33.83	-32.21	-30.65	-29.14	-26.25	-23.46	-20.76
125	-38.48	-36.76	-35.13	-33.57	-32.06	-29.16	-26.37	-23.67
150	-41.67	-39.94	-38.30	-36.73	-35.22	-32.31	-29.52	-26.81
175	-45.09	-43.36	-41.70	-40.12	-38.60	-35.68	-32.88	-30.17
200	-48.74	-47.00	-45.32	-43.73	-42.20	-39.26	-36.46	-33.74
225	-52.61	-50.86	-49.16	-47.54	-46.00	-43.05	-40.23	-37.51
250	-56.70	-54.94	-53.20	-51.56	-50.00	-47.02	-44.19	-41.46
300	-65.62	-63.76	-61.88	-60.17	-58.55	-55.52	-52.65	-49.89
350	-76.18	-73.57	-71.37	-69.52	-67.82	-64.69	-61.77	-58.97
400	-84.89	-81.71	-79.60	-77.78	-74.51	-71.51	-68.66	-65.75
450	-100.15	-93.05	-90.44	-88.40	-84.93	-81.83	-78.92	-75.80
500	-120.66	-105.60	-102.05	-99.68	-95.93	-92.70	-89.71	-86.50
550	-139.70	-119.53	-114.46	-111.61	-107.48	-104.09	-101.01	-97.75
600	-156.95	-134.58	-127.66	-124.16	-119.56	-115.97	-112.80	-109.50
700	-188.93	-165.98	-156.00	-150.98	-145.19	-141.15	-137.73	-134.30
800	-219.58	-197.48	-185.91	-179.59	-172.55	-168.02	-164.37	-160.75
900	-249.95	-228.85	-216.59	-209.41	-201.35	-196.39	-192.56	-188.75
1000	-280.52	-260.28	-247.76	-240.08	-231.32	-226.08	-222.19	-218.37
2-Pentanone								
25	-34.39	-33.25	-32.15	-31.09	-30.05	-28.03	-26.07	-24.15
50	-35.90	-34.75	-33.66	-32.59	-31.56	-29.56	-27.62	-25.73
75	-37.60	-36.45	-35.35	-34.29	-33.26	-31.27	-29.34	-27.46
100	-39.48	-38.33	-37.23	-36.16	-35.13	-33.14	-31.22	-29.34
125	-41.53	-40.37	-39.26	-38.20	-37.16	-35.17	-33.25	-31.38
150	-43.73	-42.57	-41.45	-40.38	-39.35	-37.35	-35.43	-33.56
175	-46.08	-44.91	-43.79	-42.72	-41.68	-39.67	-37.75	-35.88
200	-48.57	-47.40	-46.27	-45.18	-44.14	-42.13	-40.20	-38.32
225	-51.21	-50.03	-48.88	-47.78	-46.73	-44.71	-42.77	-40.90
250	-53.98	-52.80	-51.62	-50.51	-49.45	-47.42	-45.47	-43.59
300	-59.98	-58.75	-57.49	-56.33	-55.24	-53.17	-51.20	-49.30
350	-67.01	-65.33	-63.87	-62.62	-61.48	-59.35	-57.35	-55.43
400	-72.85	-70.78	-69.38	-68.15	-65.94	-63.89	-61.94	-59.97
450	-82.84	-78.33	-76.61	-75.25	-72.91	-70.80	-68.81	-66.84

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
2-Pentanone — Continued								
500		-96.10	-86.63	-84.33	-82.76	-80.25	-78.06	-76.02
550		-108.45	-95.80	-92.55	-90.69	-87.94	-85.65	-83.56
600		-119.69	-105.67	-101.28	-99.01	-95.96	-93.55	-91.40
700		-140.63	-126.25	-119.94	-116.73	-112.94	-110.25	-107.95
800		-160.76	-146.91	-139.61	-135.58	-131.02	-128.02	-125.57
900		-180.73	-167.50	-159.77	-155.21	-150.02	-146.75	-144.19
1000		-200.84	-188.15	-180.26	-175.39	-169.76	-166.32	-163.72
A-Aminobutyric Acid								
25	-87.12	-86.23	-85.36	-84.52	-83.69	-82.09	-80.52	-78.97
50	-88.34	-87.44	-86.58	-85.74	-84.92	-83.33	-81.78	-80.26
75	-89.67	-88.77	-87.90	-87.07	-86.25	-84.67	-83.13	-81.62
100	-91.09	-90.19	-89.32	-88.48	-87.67	-86.09	-84.56	-83.06
125	-92.61	-91.70	-90.83	-89.99	-89.18	-87.60	-86.07	-84.57
150	-94.21	-93.30	-92.43	-91.59	-90.77	-89.19	-87.66	-86.17
175	-95.90	-94.99	-94.11	-93.26	-92.44	-90.85	-89.32	-87.83
200	-97.66	-96.75	-95.86	-95.01	-94.19	-92.60	-91.06	-89.57
225	-99.51	-98.60	-97.70	-96.84	-96.01	-94.41	-92.87	-91.38
250	-101.44	-100.52	-99.60	-98.73	-97.90	-96.29	-94.75	-93.25
300	-105.57	-104.62	-103.64	-102.74	-101.88	-100.25	-98.69	-97.18
350	-110.36	-109.10	-107.98	-107.01	-106.12	-104.45	-102.86	-101.34
400		-114.20	-112.64	-111.56	-110.61	-108.88	-107.26	-105.72
450		-121.01	-117.70	-116.40	-115.35	-113.53	-111.87	-110.30
500		-130.11	-123.26	-121.53	-120.34	-118.39	-116.67	-115.07
550		-138.52	-129.38	-126.98	-125.57	-123.45	-121.67	-120.02
600		-146.08	-135.96	-132.74	-131.04	-128.71	-126.84	-125.15
700		-159.98	-149.60	-145.01	-142.63	-139.78	-137.70	-135.91
800		-173.14	-163.15	-157.85	-154.89	-151.48	-149.18	-147.28
900		-186.06	-176.51	-170.90	-167.56	-163.69	-161.21	-159.23
1000		-198.96	-189.79	-184.06	-180.50	-176.32	-173.71	-171.70
Acetate								
25	-88.27	-87.80	-87.32	-86.86	-86.39	-85.47	-84.55	-83.64
50	-88.79	-88.32	-87.85	-87.38	-86.93	-86.01	-85.11	-84.22
75	-89.33	-88.86	-88.40	-87.94	-87.49	-86.59	-85.70	-84.82
100	-89.89	-89.43	-88.97	-88.52	-88.07	-87.19	-86.31	-85.44
125	-90.45	-90.00	-89.56	-89.12	-88.68	-87.82	-86.95	-86.10
150	-91.01	-90.59	-90.17	-89.74	-89.32	-88.47	-87.62	-86.77
175	-91.57	-91.19	-90.78	-90.38	-89.96	-89.14	-88.31	-87.48
200	-92.11	-91.78	-91.41	-91.02	-90.63	-89.83	-89.02	-88.20
225	-92.62	-92.36	-92.03	-91.67	-91.30	-90.53	-89.75	-88.95
250	-93.08	-92.93	-92.65	-92.33	-91.98	-91.25	-90.49	-89.72
300	-93.71	-93.94	-93.85	-93.63	-93.36	-92.73	-92.04	-91.31
350	-93.26	-94.63	-94.96	-94.90	-94.73	-94.24	-93.63	-92.97
400		-94.87	-95.89	-96.09	-96.08	-95.76	-95.27	-94.69
450		-92.38	-96.48	-97.15	-97.36	-97.29	-96.94	-96.45
500			-96.53	-98.02	-98.55	-98.80	-98.61	-98.24
550				-95.86	-98.63	-99.62	-100.27	-100.04
600				-94.64	-99.00	-100.56	-101.70	-101.85
700					-99.31	-102.10	-104.41	-105.23
800						-103.51	-106.96	-108.38
900						-105.15	-109.49	-111.46
1000							-112.19	-114.58
Acetic Acid								
25	-94.76	-94.15	-93.56	-92.99	-92.43	-91.34	-90.28	-89.23
50	-95.87	-95.25	-94.65	-94.06	-93.50	-92.39	-91.32	-90.27
75	-97.06	-96.43	-95.82	-95.23	-94.66	-93.55	-92.47	-91.41
100	-98.33	-97.69	-97.07	-96.48	-95.90	-94.78	-93.70	-92.64

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Acetic Acid — Continued								
125	-99.67	-99.02	-98.40	-97.80	-97.22	-96.10	-95.01	-93.95
150	-101.08	-100.43	-99.80	-99.20	-98.61	-97.48	-96.39	-95.33
175	-102.55	-101.90	-101.26	-100.66	-100.07	-98.94	-97.84	-96.78
200	-104.09	-103.43	-102.79	-102.18	-101.59	-100.45	-99.35	-98.28
225	-105.68	-105.03	-104.38	-103.76	-103.17	-102.02	-100.92	-99.84
250	-107.34	-106.69	-106.03	-105.40	-104.80	-103.64	-102.54	-101.46
300	-110.86	-110.19	-109.49	-108.84	-108.23	-107.05	-105.93	-104.85
350	-114.84	-113.98	-113.19	-112.50	-111.86	-110.65	-109.52	-108.42
400		-118.20	-117.13	-116.36	-115.68	-114.44	-113.28	-112.17
450		-123.53	-121.35	-120.44	-119.70	-118.40	-117.21	-116.08
500		-130.36	-125.91	-124.74	-123.90	-122.52	-121.29	-120.14
550		-136.77	-130.87	-129.26	-128.29	-126.80	-125.53	-124.35
600		-142.67	-136.14	-134.01	-132.86	-131.23	-129.90	-128.69
700		-153.75	-147.07	-144.06	-142.47	-140.51	-139.05	-137.78
800		-164.46	-158.02	-154.56	-152.60	-150.29	-148.69	-147.34
900		-175.10	-168.93	-165.28	-163.08	-160.47	-158.75	-157.35
1000		-185.79	-179.87	-176.14	-173.80	-170.99	-169.19	-167.77
Acetone								
25	-38.50	-37.72	-36.95	-36.21	-35.48	-34.06	-32.66	-31.29
50	-39.67	-38.88	-38.12	-37.38	-36.66	-35.25	-33.87	-32.52
75	-40.95	-40.16	-39.40	-38.66	-37.94	-36.54	-35.18	-33.84
100	-42.34	-41.55	-40.78	-40.05	-39.33	-37.93	-36.57	-35.24
125	-43.82	-43.03	-42.26	-41.52	-40.80	-39.41	-38.05	-36.73
150	-45.40	-44.60	-43.84	-43.09	-42.37	-40.98	-39.62	-38.30
175	-47.07	-46.27	-45.50	-44.75	-44.03	-42.63	-41.27	-39.95
200	-48.82	-48.02	-47.24	-46.49	-45.76	-44.36	-43.00	-41.68
225	-50.66	-49.86	-49.07	-48.31	-47.58	-46.17	-44.81	-43.48
250	-52.58	-51.78	-50.97	-50.20	-49.47	-48.05	-46.68	-45.35
300	-56.71	-55.87	-55.01	-54.22	-53.46	-52.01	-50.64	-49.30
350	-61.48	-60.36	-59.37	-58.51	-57.72	-56.24	-54.84	-53.49
400		-65.44	-64.05	-63.10	-62.25	-60.72	-59.29	-57.92
450		-72.10	-69.13	-67.97	-67.04	-65.42	-63.95	-62.56
500		-80.87	-74.68	-73.15	-72.08	-70.35	-68.83	-67.41
550		-89.04	-80.79	-78.64	-77.38	-75.50	-73.91	-72.45
600		-96.47	-87.33	-84.44	-82.92	-80.85	-79.18	-77.68
700		-110.30	-100.93	-96.79	-94.66	-92.11	-90.26	-88.67
800		-123.56	-114.53	-109.75	-107.10	-104.04	-102.00	-100.31
900		-136.68	-128.05	-123.00	-119.99	-116.53	-114.31	-112.55
1000		-149.85	-141.58	-136.42	-133.21	-129.47	-127.13	-125.35
Acetyl Chloride								
25	-54.10	-53.39	-52.70	-52.02	-51.35	-50.05	-48.77	-47.51
50	-55.35	-54.64	-53.95	-53.28	-52.62	-51.33	-50.07	-48.83
75	-56.69	-55.98	-55.28	-54.61	-53.95	-52.67	-51.42	-50.20
100	-58.11	-57.39	-56.70	-56.02	-55.37	-54.09	-52.84	-51.63
125	-59.60	-58.88	-58.18	-57.51	-56.85	-55.57	-54.33	-53.12
150	-61.17	-60.44	-59.74	-59.06	-58.40	-57.13	-55.89	-54.67
175	-62.81	-62.08	-61.37	-60.69	-60.02	-58.74	-57.50	-56.29
200	-64.51	-63.78	-63.06	-62.37	-61.70	-60.42	-59.17	-57.96
225	-66.29	-65.55	-64.82	-64.12	-63.45	-62.15	-60.90	-59.69
250	-68.14	-67.38	-66.64	-65.93	-65.25	-63.94	-62.69	-61.47
300	-72.09	-71.28	-70.47	-69.72	-69.02	-67.68	-66.41	-65.18
350	-76.71	-75.53	-74.56	-73.75	-73.01	-71.63	-70.33	-69.08
400		-80.38	-78.95	-78.02	-77.21	-75.77	-74.43	-73.16
450		-87.02	-83.71	-82.54	-81.63	-80.09	-78.71	-77.41
500		-96.06	-88.96	-87.33	-86.27	-84.60	-83.15	-81.82
550		-104.32	-94.77	-92.43	-91.13	-89.28	-87.76	-86.38
600		-111.63	-101.04	-97.81	-96.21	-94.13	-92.52	-91.09
700		-124.83	-113.96	-109.27	-106.94	-104.29	-102.47	-100.93

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar							
		0.5	1.0	1.5	2.0	3.0	4.0	5.0	
Acetyl Chloride — Continued									
800		-137.11	-126.65	-121.20	-118.25	-115.01	-112.95	-111.29	
900		-149.01	-139.02	-133.24	-129.88	-126.15	-123.89	-122.15	
1000		-160.76	-151.18	-145.28	-141.68	-137.62	-135.22	-133.45	
Alanine									
25	-88.80	-88.09	-87.40	-86.72	-86.06	-84.75	-83.47	-82.21	
50	-89.84	-89.12	-88.43	-87.76	-87.10	-85.82	-84.56	-83.32	
75	-90.94	-90.23	-89.54	-88.87	-88.21	-86.93	-85.69	-84.46	
100	-92.11	-91.39	-90.70	-90.03	-89.38	-88.11	-86.86	-85.65	
125	-93.34	-92.62	-91.93	-91.26	-90.61	-89.34	-88.10	-86.89	
150	-94.63	-93.91	-93.22	-92.55	-91.89	-90.62	-89.38	-88.18	
175	-95.98	-95.26	-94.56	-93.89	-93.23	-91.96	-90.72	-89.51	
200	-97.39	-96.67	-95.96	-95.28	-94.62	-93.35	-92.11	-90.90	
225	-98.84	-98.12	-97.41	-96.73	-96.06	-94.78	-93.54	-92.33	
250	-100.36	-99.64	-98.91	-98.22	-97.55	-96.26	-95.02	-93.81	
300	-103.58	-102.84	-102.07	-101.35	-100.67	-99.36	-98.11	-96.89	
350	-107.26	-106.31	-105.44	-104.68	-103.97	-102.63	-101.36	-100.14	
400	-110.22	-109.03	-108.19	-107.44	-106.06	-104.77	-103.52		
450	-115.36	-112.91	-111.90	-111.08	-109.64	-108.31	-107.05		
500	-122.16	-117.13	-115.82	-114.90	-113.36	-112.00	-110.71		
550	-128.45	-121.77	-119.97	-118.89	-117.23	-115.82	-114.50		
600	-134.12	-126.73	-124.33	-123.04	-121.24	-119.76	-118.41		
700	-144.55	-136.98	-133.59	-131.81	-129.62	-128.00	-126.58		
800	-154.44	-147.14	-143.24	-141.04	-138.45	-136.67	-135.17		
900	-164.13	-157.16	-153.04	-150.56	-147.64	-145.71	-144.16		
1000	-173.79	-167.09	-162.89	-160.25	-157.10	-155.09	-153.52		
Asparagine									
25	-128.65	-127.75	-126.87	-126.03	-125.20	-123.58	-122.00	-120.44	
50	-130.06	-129.16	-128.28	-127.44	-126.61	-125.01	-123.45	-121.92	
75	-131.54	-130.63	-129.75	-128.91	-128.08	-126.49	-124.94	-123.42	
100	-133.07	-132.15	-131.28	-130.43	-129.61	-128.01	-126.47	-124.96	
125	-134.66	-133.74	-132.86	-132.01	-131.19	-129.59	-128.05	-126.54	
150	-136.31	-135.39	-134.50	-133.65	-132.82	-131.22	-129.68	-128.17	
175	-138.01	-137.08	-136.19	-135.33	-134.50	-132.90	-131.35	-129.84	
200	-139.77	-138.84	-137.93	-137.06	-136.23	-134.62	-133.07	-131.56	
225	-141.59	-140.65	-139.73	-138.85	-138.00	-136.38	-134.82	-133.31	
250	-143.47	-142.52	-141.57	-140.68	-139.82	-138.19	-136.62	-135.11	
300	-147.48	-146.45	-145.42	-144.48	-143.60	-141.93	-140.34	-138.81	
350	-152.23	-150.73	-149.51	-148.49	-147.56	-145.83	-144.21	-142.65	
400	-155.69	-153.88	-152.70	-151.69	-149.88	-148.22	-146.63		
450	-162.81	-158.64	-157.16	-156.02	-154.09	-152.36	-150.74		
500	-172.90	-163.93	-161.88	-160.54	-158.44	-156.64	-154.98		
550	-181.91	-169.86	-166.91	-165.28	-162.95	-161.05	-159.33		
600	-189.68	-176.30	-172.23	-170.21	-167.60	-165.59	-163.80		
700	-203.21	-189.49	-183.57	-180.63	-177.30	-175.02	-173.09		
800	-215.35	-202.15	-195.27	-191.55	-187.47	-184.88	-182.82		
900	-226.80	-214.19	-206.90	-202.66	-197.97	-195.13	-192.95		
1000	-237.88	-225.79	-218.34	-213.80	-208.69	-205.68	-203.46		
Aspartic Acid									
25	-172.40	-171.56	-170.75	-169.95	-169.18	-167.66	-166.18	-164.72	
50	-173.80	-172.96	-172.15	-171.36	-170.58	-169.08	-167.62	-166.19	
75	-175.27	-174.42	-173.61	-172.82	-172.05	-170.55	-169.10	-167.68	
100	-176.79	-175.94	-175.12	-174.33	-173.57	-172.07	-170.63	-169.21	
125	-178.38	-177.52	-176.70	-175.91	-175.14	-173.64	-172.20	-170.79	
150	-180.02	-179.16	-178.33	-177.53	-176.76	-175.27	-173.82	-172.41	
175	-181.72	-180.85	-180.02	-179.21	-178.44	-176.94	-175.49	-174.08	
200	-183.47	-182.60	-181.75	-180.94	-180.16	-178.65	-177.20	-175.79	

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Aspartic Acid — Continued								
225	-185.29	-184.41	-183.54	-182.72	-181.93	-180.41	-178.95	-177.54
250	-187.16	-186.27	-185.38	-184.55	-183.75	-182.22	-180.75	-179.33
300	-191.17	-190.19	-189.23	-188.35	-187.52	-185.95	-184.46	-183.02
350	-195.91	-194.47	-193.31	-192.35	-191.47	-189.84	-188.32	-186.87
400	-199.41	-197.67	-196.56	-195.60	-193.90	-192.33	-190.84	
450	-206.50	-202.40	-201.01	-199.93	-198.10	-196.48	-194.95	
500	-216.51	-207.70	-205.73	-204.45	-202.46	-200.75	-199.19	
550	-225.48	-213.62	-210.74	-209.18	-206.96	-205.17	-203.54	
600	-233.20	-220.04	-216.06	-214.11	-211.61	-209.70	-208.02	
700	-246.69	-233.19	-227.39	-224.53	-221.32	-219.14	-217.32	
800	-258.82	-245.82	-239.07	-235.44	-231.50	-229.02	-227.06	
900	-270.27	-257.86	-250.70	-246.56	-242.01	-239.28	-237.21	
1000	-281.36	-269.46	-262.15	-257.71	-252.75	-249.85	-247.74	
Ag ⁺								
25	18.43	18.43	18.45	18.49	18.54	18.66	18.81	18.98
50	17.98	17.99	18.01	18.04	18.09	18.21	18.34	18.50
75	17.52	17.52	17.54	17.58	17.62	17.73	17.86	18.01
100	17.03	17.04	17.06	17.09	17.14	17.24	17.37	17.50
125	16.54	16.54	16.56	16.59	16.63	16.73	16.85	16.99
150	16.03	16.03	16.05	16.08	16.11	16.21	16.32	16.45
175	15.51	15.50	15.52	15.54	15.58	15.67	15.78	15.91
200	14.98	14.97	14.97	15.00	15.03	15.12	15.22	15.34
225	14.44	14.42	14.42	14.44	14.47	14.55	14.65	14.77
250	13.89	13.86	13.86	13.87	13.89	13.97	14.06	14.18
300	12.81	12.73	12.70	12.70	12.71	12.77	12.85	12.96
350	11.77	11.60	11.51	11.49	11.49	11.53	11.60	11.69
400		10.36	10.30	10.26	10.24	10.25	10.31	10.38
450		9.13	9.06	8.99	8.96	8.94	8.98	9.04
500			7.80	7.71	7.65	7.60	7.61	7.66
550				6.53	6.40	6.32	6.23	6.25
600				5.24	5.08	4.97	4.84	4.81
700					2.33	2.22	2.01	1.87
800						-0.62	-0.87	-1.14
900						-3.54	-3.82	-4.21
1000							-6.86	-7.17
Ag ⁺²								
25	64.30	64.09	63.92	63.77	63.65	63.45	63.30	63.19
50	64.83	64.61	64.43	64.27	64.14	63.92	63.74	63.60
75	65.36	65.14	64.94	64.78	64.64	64.40	64.20	64.04
100	65.90	65.66	65.46	65.28	65.13	64.87	64.66	64.49
125	66.45	66.19	65.98	65.79	65.63	65.35	65.12	64.93
150	67.02	66.73	66.50	66.30	66.12	65.82	65.58	65.37
175	67.60	67.29	67.03	66.81	66.61	66.29	66.03	65.80
200	68.20	67.85	67.56	67.32	67.11	66.76	66.48	66.23
225	68.83	68.44	68.11	67.84	67.61	67.23	66.92	66.66
250	69.51	69.05	68.67	68.37	68.12	67.69	67.36	67.07
300	71.02	70.34	69.83	69.46	69.15	68.63	68.23	67.89
350	72.59	71.82	71.02	70.58	70.20	69.58	69.09	68.70
400		72.25	72.17	71.71	71.27	70.54	69.96	69.49
450		70.87	73.22	72.84	72.36	71.51	70.83	70.28
500			74.01	73.94	73.46	72.50	71.71	71.07
550			74.37	74.98	74.57	73.51	72.61	71.87
600			74.24	75.91	75.69	74.57	73.54	72.70
700				77.21	77.94	76.87	75.56	74.48
800					80.21	79.47	77.84	76.50
900						82.66	82.34	80.37
1000							85.34	83.04

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Ag(CH₃COO)⁰								
25	-70.84	-70.27	-69.73	-69.20	-68.68	-67.67	-66.69	-65.72
50	-71.88	-71.30	-70.73	-70.19	-69.66	-68.63	-67.62	-66.65
75	-73.04	-72.45	-71.87	-71.32	-70.78	-69.74	-68.73	-67.74
100	-74.31	-73.70	-73.12	-72.56	-72.02	-70.97	-69.95	-68.96
125	-75.66	-75.05	-74.47	-73.90	-73.36	-72.30	-71.28	-70.28
150	-77.10	-76.49	-75.90	-75.33	-74.78	-73.72	-72.69	-71.69
175	-78.61	-78.00	-77.41	-76.84	-76.29	-75.22	-74.19	-73.19
200	-80.19	-79.59	-78.99	-78.42	-77.86	-76.79	-75.76	-74.76
225	-81.83	-81.24	-80.64	-80.07	-79.51	-78.44	-77.40	-76.39
250	-83.54	-82.96	-82.36	-81.78	-81.22	-80.15	-79.11	-78.10
300	-87.11	-86.57	-85.96	-85.38	-84.82	-83.74	-82.70	-81.69
350	-90.89	-90.42	-89.80	-89.21	-88.64	-87.56	-86.51	-85.50
400		-94.50	-93.84	-93.24	-92.67	-91.58	-90.53	-89.51
450		-98.88	-98.08	-97.46	-96.88	-95.78	-94.73	-93.70
500		-103.61	-102.51	-101.86	-101.27	-100.16	-99.10	-98.07
550		-108.42	-107.14	-106.43	-105.82	-104.69	-103.63	-102.60
600		-113.30	-111.94	-111.17	-110.53	-109.39	-108.31	-107.28
700		-123.34	-121.96	-121.07	-120.38	-119.19	-118.10	-117.05
800		-133.78	-132.42	-131.48	-130.74	-129.50	-128.39	-127.34
900		-144.61	-143.29	-142.32	-141.55	-140.27	-139.14	-138.09
1000		-155.81	-154.53	-153.54	-152.75	-151.45	-150.32	-149.26
Ag(CH₃COO)⁻								
25	-158.99	-157.80	-156.67	-155.59	-154.54	-152.53	-150.60	-148.73
50	-160.40	-159.17	-158.00	-156.89	-155.82	-153.76	-151.78	-149.87
75	-162.06	-160.82	-159.64	-158.51	-157.43	-155.34	-153.34	-151.40
100	-163.95	-162.70	-161.52	-160.38	-159.29	-157.19	-155.18	-153.22
125	-166.03	-164.78	-163.60	-162.46	-161.36	-159.26	-157.24	-155.28
150	-168.27	-167.03	-165.85	-164.72	-163.63	-161.52	-159.50	-157.54
175	-170.65	-169.44	-168.27	-167.15	-166.06	-163.96	-161.94	-159.98
200	-173.16	-171.99	-170.84	-169.72	-168.64	-166.55	-164.54	-162.58
225	-175.76	-174.67	-173.54	-172.44	-171.37	-169.29	-167.29	-165.34
250	-178.45	-177.45	-176.36	-175.28	-174.22	-172.17	-170.18	-168.24
300	-183.91	-183.28	-182.31	-181.30	-180.29	-178.30	-176.35	-174.43
350	-188.88	-189.28	-188.61	-187.71	-186.77	-184.87	-182.97	-181.10
400		-195.16	-195.13	-194.45	-193.62	-191.84	-190.02	-188.19
450		-199.00	-201.73	-201.42	-200.77	-199.16	-197.43	-195.66
500			-208.18	-208.56	-208.16	-206.80	-205.19	-203.49
550			-214.30	-215.80	-215.77	-214.71	-213.25	-211.64
600			-220.24	-223.10	-223.56	-222.88	-221.58	-220.07
700				-238.10	-239.65	-239.91	-239.01	-237.73
800					-256.60	-257.80	-257.34	-256.29
900					-274.61	-276.57	-276.51	-275.64
1000						-296.30	-296.52	-295.72
Ag(CO₃)⁻								
25	-111.43	-111.42	-111.38	-111.33	-111.26	-111.09	-110.90	-110.69
50	-111.50	-111.48	-111.45	-111.40	-111.34	-111.19	-111.01	-110.82
75	-111.55	-111.55	-111.52	-111.48	-111.42	-111.29	-111.12	-110.94
100	-111.59	-111.60	-111.58	-111.55	-111.51	-111.39	-111.24	-111.07
125	-111.62	-111.64	-111.64	-111.62	-111.59	-111.49	-111.36	-111.20
150	-111.62	-111.67	-111.70	-111.69	-111.67	-111.59	-111.48	-111.34
175	-111.59	-111.69	-111.73	-111.75	-111.75	-111.69	-111.60	-111.48
200	-111.53	-111.67	-111.76	-111.80	-111.82	-111.80	-111.73	-111.62
225	-111.41	-111.63	-111.76	-111.84	-111.88	-111.90	-111.86	-111.77
250	-111.22	-111.54	-111.74	-111.86	-111.93	-112.00	-111.99	-111.93
300	-110.48	-111.20	-111.60	-111.84	-112.00	-112.18	-112.25	-112.25
350	-108.63	-110.42	-111.31	-111.71	-111.99	-112.33	-112.50	-112.58
400		-109.38	-110.78	-111.46	-111.89	-112.43	-112.74	-112.91
450		-105.98	-109.90	-111.02	-111.68	-112.48	-112.95	-113.23

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Ag(CO₃)⁻ — Continued								
500		-108.49	-110.34	-111.33	-112.47	-113.12	-113.53	
550		-106.42	-109.39	-110.81	-112.37	-113.24	-113.80	
600		-103.87	-108.17	-110.11	-112.17	-113.31	-114.02	
700			-105.33	-108.27	-111.47	-113.21	-114.30	
800				-106.15	-110.40	-112.81	-114.28	
900					-104.09	-109.12	-112.15	-113.94
1000						-107.86	-111.37	-113.30
Ag(CO₃)₂³⁻								
25	-236.89	-236.87	-236.82	-236.74	-236.65	-236.42	-236.14	-235.84
50	-236.39	-236.38	-236.34	-236.28	-236.20	-236.00	-235.76	-235.49
75	-235.84	-235.86	-235.85	-235.81	-235.75	-235.59	-235.38	-235.13
100	-235.24	-235.31	-235.33	-235.32	-235.29	-235.17	-235.00	-234.79
125	-234.58	-234.71	-234.78	-234.81	-234.82	-234.75	-234.62	-234.45
150	-233.83	-234.05	-234.19	-234.28	-234.32	-234.32	-234.25	-234.12
175	-232.97	-233.32	-233.55	-233.70	-233.80	-233.88	-233.87	-233.79
200	-231.98	-232.49	-232.84	-233.07	-233.24	-233.42	-233.48	-233.46
225	-230.82	-231.55	-232.05	-232.39	-232.64	-232.95	-233.10	-233.14
250	-229.40	-230.47	-231.17	-231.65	-232.00	-232.45	-232.70	-232.82
300	-225.41	-227.72	-229.09	-229.93	-230.54	-231.37	-231.87	-232.18
350	-218.18	-223.61	-226.49	-227.85	-228.82	-230.14	-230.97	-231.53
400		-219.13	-223.19	-225.32	-226.78	-228.73	-229.98	-230.82
450		-208.61	-218.87	-222.23	-224.37	-227.12	-228.86	-230.05
500			-213.08	-218.43	-221.50	-225.27	-227.60	-229.19
550			-205.55	-213.82	-218.10	-223.12	-226.14	-228.19
600			-196.84	-208.46	-214.15	-220.63	-224.46	-227.01
700				-196.73	-204.89	-214.60	-220.29	-224.01
800					-194.67	-207.26	-214.99	-219.94
900						-184.43	-199.09	-208.74
1000						-190.83	-201.99	-208.42
AgCl⁰								
25	-17.45	-17.15	-16.85	-16.56	-16.26	-15.67	-15.08	-14.50
50	-18.31	-18.00	-17.69	-17.39	-17.08	-16.49	-15.90	-15.31
75	-19.19	-18.87	-18.55	-18.24	-17.94	-17.34	-16.74	-16.16
100	-20.08	-19.75	-19.44	-19.12	-18.82	-18.21	-17.62	-17.03
125	-20.98	-20.66	-20.34	-20.02	-19.71	-19.11	-18.51	-17.92
150	-21.91	-21.58	-21.25	-20.94	-20.63	-20.02	-19.42	-18.83
175	-22.84	-22.51	-22.19	-21.87	-21.56	-20.95	-20.35	-19.76
200	-23.79	-23.46	-23.14	-22.82	-22.50	-21.89	-21.29	-20.70
225	-24.75	-24.43	-24.10	-23.78	-23.46	-22.85	-22.25	-21.66
250	-25.72	-25.40	-25.07	-24.75	-24.44	-23.82	-23.22	-22.63
300	-27.69	-27.40	-27.06	-26.74	-26.42	-25.80	-25.20	-24.60
350	-29.73	-29.45	-29.10	-28.77	-28.45	-27.82	-27.22	-26.62
400		-31.57	-31.19	-30.84	-30.52	-29.89	-29.28	-28.68
450		-33.86	-33.33	-32.97	-32.63	-32.00	-31.38	-30.78
500		-36.35	-35.53	-35.13	-34.79	-34.14	-33.52	-32.92
550		-38.80	-37.79	-37.34	-36.98	-36.32	-35.69	-35.09
600		-41.20	-40.11	-39.60	-39.21	-38.53	-37.90	-37.29
700		-45.95	-44.84	-44.21	-43.77	-43.05	-42.40	-41.78
800		-50.70	-49.62	-48.93	-48.44	-47.67	-47.01	-46.38
900		-55.48	-54.44	-53.72	-53.20	-52.39	-51.71	-51.08
1000		-60.31	-59.30	-58.57	-58.03	-57.20	-56.51	-55.87
AgCl₂⁻								
25	-51.56	-50.92	-50.31	-49.71	-49.13	-47.99	-46.88	-45.80
50	-52.74	-52.09	-51.46	-50.84	-50.25	-49.09	-47.96	-46.86
75	-53.94	-53.28	-52.64	-52.02	-51.42	-50.26	-49.12	-48.01
100	-55.15	-54.49	-53.85	-53.23	-52.63	-51.46	-50.33	-49.22

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
AgCl₂⁻ — Continued								
125	-56.37	-55.72	-55.08	-54.47	-53.87	-52.70	-51.57	-50.46
150	-57.60	-56.95	-56.33	-55.72	-55.12	-53.96	-52.84	-51.73
175	-58.81	-58.20	-57.58	-56.99	-56.40	-55.25	-54.13	-53.03
200	-60.02	-59.44	-58.85	-58.26	-57.68	-56.55	-55.44	-54.35
225	-61.20	-60.68	-60.11	-59.55	-58.98	-57.87	-56.77	-55.69
250	-62.34	-61.91	-61.38	-60.83	-60.29	-59.20	-58.12	-57.05
300	-64.39	-64.28	-63.88	-63.41	-62.91	-61.89	-60.85	-59.81
350	-65.53	-66.39	-66.31	-65.96	-65.54	-64.61	-63.63	-62.64
400		-67.99	-68.58	-68.44	-68.14	-67.34	-66.45	-65.50
450		-67.11	-70.55	-70.81	-70.69	-70.08	-69.28	-68.40
500			-72.04	-73.02	-73.17	-72.80	-72.13	-71.33
550				-72.88	-75.01	-75.54	-75.50	-74.98
600				-73.22	-76.77	-77.81	-78.17	-77.22
700					-79.90	-82.06	-83.39	-83.48
800						-86.21	-88.52	-89.06
900						-90.56	-93.66	-94.62
1000						-98.96	-100.21	-100.35
AgCl₃⁻²								
25	-82.71	-81.69	-80.71	-79.77	-78.85	-77.08	-75.37	-73.70
50	-83.81	-82.76	-81.76	-80.80	-79.87	-78.06	-76.32	-74.62
75	-84.93	-83.88	-82.88	-81.91	-80.97	-79.16	-77.40	-75.69
100	-86.07	-85.03	-84.03	-83.07	-82.13	-80.32	-78.57	-76.86
125	-87.21	-86.19	-85.21	-84.26	-83.34	-81.54	-79.80	-78.10
150	-88.33	-87.36	-86.41	-85.48	-84.57	-82.80	-81.07	-79.38
175	-89.43	-88.53	-87.61	-86.71	-85.83	-84.09	-82.39	-80.72
200	-90.48	-89.67	-88.82	-87.96	-87.10	-85.41	-83.74	-82.09
225	-91.45	-90.78	-90.00	-89.20	-88.38	-86.74	-85.11	-83.49
250	-92.30	-91.84	-91.17	-90.43	-89.66	-88.10	-86.51	-84.93
300	-93.38	-93.71	-93.39	-92.85	-92.22	-90.83	-89.38	-87.88
350	-92.26	-94.85	-95.37	-95.14	-94.71	-93.59	-92.29	-90.91
400		-95.03	-96.94	-97.23	-97.10	-96.32	-95.24	-94.01
450		-89.64	-97.79	-99.01	-99.32	-99.02	-98.20	-97.15
500			-97.50	-100.35	-101.31	-101.63	-101.15	-100.31
550				-95.72	-101.16	-103.02	-104.15	-104.06
600				-92.79	-101.42	-104.43	-106.53	-106.90
700					-100.99	-106.48	-110.89	-112.36
800						-108.13	-114.82	-117.47
900						-110.12	-118.59	-122.33
1000						-122.61	-127.14	-128.85
AgCl₄⁻³								
25	-112.28	-110.82	-109.43	-108.09	-106.80	-104.31	-101.91	-99.57
50	-113.07	-111.57	-110.15	-108.79	-107.47	-104.93	-102.48	-100.10
75	-114.01	-112.52	-111.10	-109.73	-108.41	-105.86	-103.39	-101.00
100	-115.08	-113.61	-112.20	-110.85	-109.53	-106.99	-104.54	-102.14
125	-116.23	-114.81	-113.44	-112.11	-110.81	-108.30	-105.86	-103.48
150	-117.44	-116.10	-114.77	-113.48	-112.21	-109.74	-107.33	-104.97
175	-118.67	-117.44	-116.19	-114.95	-113.72	-111.31	-108.94	-106.62
200	-119.89	-118.82	-117.66	-116.49	-115.31	-112.98	-110.67	-108.38
225	-121.04	-120.20	-119.17	-118.09	-116.98	-114.75	-112.51	-110.27
250	-122.05	-121.55	-120.70	-119.73	-118.71	-116.60	-114.44	-112.26
300	-123.21	-123.99	-123.74	-123.09	-122.30	-120.50	-118.55	-116.53
350	-121.23	-125.47	-126.60	-126.45	-125.98	-124.62	-122.96	-121.14
400		-126.07	-129.02	-129.67	-129.68	-128.89	-127.59	-126.02
450		-119.08	-130.56	-132.59	-133.29	-133.26	-132.39	-131.13
500			-130.62	-135.01	-136.69	-137.65	-137.33	-136.42
550				-128.73	-136.78	-139.80	-142.02	-142.34
600				-125.41	-137.91	-142.59	-146.31	-147.38
700					-139.29	-147.38	-154.58	-157.41

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	1.5	2.0	3.0	4.0	5.0
AgCl₄⁻³ — Continued								
800				-151.98	-162.50	-167.26	-169.35	
900				-157.43	-170.51	-177.04	-180.04	
1000					-179.20	-187.07	-190.45	
AgNO₃⁰								
25	-7.81	-7.39	-6.98	-6.58	-6.19	-5.41	-4.65	-3.90
50	-9.08	-8.65	-8.23	-7.82	-7.41	-6.62	-5.85	-5.09
75	-10.40	-9.95	-9.52	-9.11	-8.70	-7.90	-7.12	-6.36
100	-11.75	-11.30	-10.86	-10.44	-10.03	-9.23	-8.44	-7.68
125	-13.13	-12.68	-12.24	-11.81	-11.40	-10.59	-9.81	-9.04
150	-14.54	-14.09	-13.65	-13.22	-12.80	-11.99	-11.21	-10.43
175	-15.99	-15.53	-15.09	-14.66	-14.24	-13.43	-12.64	-11.87
200	-17.45	-17.00	-16.56	-16.13	-15.71	-14.89	-14.10	-13.33
225	-18.95	-18.50	-18.05	-17.62	-17.20	-16.38	-15.59	-14.81
250	-20.46	-20.03	-19.58	-19.14	-18.72	-17.90	-17.11	-16.33
300	-23.55	-23.15	-22.69	-22.25	-21.83	-21.01	-20.21	-19.43
350	-26.74	-26.37	-25.90	-25.46	-25.03	-24.20	-23.40	-22.62
400	-29.71	-29.20	-28.74	-28.31	-27.47	-26.67	-25.89	
450	-33.23	-32.58	-32.11	-31.67	-30.82	-30.01	-29.23	
500	-37.00	-36.06	-35.55	-35.10	-34.24	-33.43	-32.64	
550	-40.76	-39.63	-39.07	-38.60	-37.73	-36.91	-36.11	
600	-44.50	-43.29	-42.66	-42.16	-41.28	-40.45	-39.65	
700	-52.00	-50.77	-50.03	-49.47	-48.54	-47.70	-46.89	
800	-59.60	-58.40	-57.60	-56.99	-56.02	-55.15	-54.34	
900	-67.32	-66.15	-65.32	-64.69	-63.68	-62.80	-61.97	
1000	-75.16	-74.02	-73.19	-72.53	-71.50	-70.61	-69.78	
Al⁺³								
25	-116.54	-117.04	-117.48	-117.86	-118.21	-118.82	-119.34	-119.81
50	-114.49	-115.02	-115.48	-115.90	-116.27	-116.94	-117.52	-118.04
75	-112.39	-112.94	-113.43	-113.87	-114.27	-114.98	-115.61	-116.17
100	-110.23	-110.82	-111.34	-111.80	-112.22	-112.97	-113.64	-114.24
125	-108.02	-108.65	-109.20	-109.69	-110.14	-110.93	-111.63	-112.26
150	-105.75	-106.43	-107.02	-107.54	-108.02	-108.86	-109.60	-110.26
175	-103.41	-104.15	-104.79	-105.35	-105.86	-106.76	-107.53	-108.24
200	-100.99	-101.80	-102.51	-103.12	-103.67	-104.63	-105.45	-106.19
225	-98.48	-99.39	-100.17	-100.85	-101.44	-102.47	-103.35	-104.13
250	-95.86	-96.90	-97.78	-98.52	-99.17	-100.28	-101.22	-102.05
300	-90.28	-91.73	-92.87	-93.75	-94.52	-95.82	-96.91	-97.85
350	-85.14	-86.20	-87.89	-88.84	-89.73	-91.25	-92.51	-93.58
400	-83.79	-83.03	-83.90	-84.85	-86.57	-88.02	-89.25	
450	-88.55	-78.63	-78.98	-79.91	-81.81	-83.45	-84.85	
500		-75.28	-74.21	-74.94	-76.95	-78.79	-80.36	
550		-73.66	-69.71	-69.95	-71.98	-74.02	-75.78	
600		-74.01	-65.68	-64.98	-66.87	-69.12	-71.08	
700			-59.51	-55.14	-56.12	-58.79	-61.23	
800				-45.22	-44.48	-47.65	-50.62	
900				-34.55	-31.93	-35.71	-39.19	
1000					-18.77	-23.25	-27.02	
Al(CH₃COO)²⁺								
25	-208.56	-208.57	-208.54	-208.51	-208.45	-208.31	-208.15	-207.96
50	-207.81	-207.82	-207.80	-207.77	-207.72	-207.60	-207.45	-207.27
75	-207.18	-207.19	-207.18	-207.16	-207.12	-207.01	-206.87	-206.72
100	-206.65	-206.67	-206.67	-206.65	-206.62	-206.53	-206.41	-206.27
125	-206.19	-206.23	-206.25	-206.24	-206.22	-206.15	-206.04	-205.92
150	-205.80	-205.87	-205.90	-205.91	-205.91	-205.86	-205.77	-205.65
175	-205.46	-205.56	-205.62	-205.66	-205.67	-205.64	-205.57	-205.47
200	-205.16	-205.31	-205.40	-205.46	-205.49	-205.50	-205.45	-205.37

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Al(CH₃COO)⁺² — Continued								
225	-204.88	-205.09	-205.23	-205.32	-205.37	-205.42	-205.40	-205.34
250	-204.62	-204.91	-205.10	-205.23	-205.31	-205.40	-205.41	-205.38
300	-204.07	-204.63	-204.98	-205.18	-205.33	-205.53	-205.62	-205.64
350	-203.79	-204.38	-205.05	-205.31	-205.53	-205.85	-206.03	-206.13
400		-205.75	-205.37	-205.63	-205.91	-206.35	-206.64	-206.82
450		-210.12	-206.06	-206.15	-206.45	-207.01	-207.41	-207.69
500			-207.33	-206.90	-207.16	-207.81	-208.34	-208.71
550				-209.44	-207.91	-208.01	-208.74	-209.39
600				-212.48	-209.25	-209.01	-209.76	-210.54
700					-213.17	-211.47	-211.98	-213.05
800						-214.41	-214.32	-215.72
900						-217.53	-216.73	-218.51
1000							-219.36	-221.52
								-223.14
Al(CH₃COO)₂								
25	-299.36	-298.80	-298.25	-297.72	-297.21	-296.20	-295.21	-294.24
50	-299.73	-299.15	-298.59	-298.05	-297.52	-296.49	-295.49	-294.51
75	-300.38	-299.79	-299.22	-298.67	-298.14	-297.10	-296.09	-295.10
100	-301.25	-300.66	-300.09	-299.54	-299.00	-297.96	-296.94	-295.95
125	-302.33	-301.73	-301.16	-300.61	-300.07	-299.03	-298.01	-297.02
150	-303.58	-302.99	-302.42	-301.87	-301.33	-300.29	-299.27	-298.28
175	-304.98	-304.41	-303.84	-303.30	-302.76	-301.72	-300.71	-299.72
200	-306.53	-305.98	-305.42	-304.88	-304.35	-303.31	-302.30	-301.32
225	-308.22	-307.69	-307.14	-306.61	-306.08	-305.05	-304.05	-303.07
250	-310.01	-309.53	-308.99	-308.47	-307.95	-306.93	-305.94	-304.96
300	-313.90	-313.56	-313.07	-312.56	-312.06	-311.07	-310.10	-309.13
350	-318.12	-317.98	-317.60	-317.12	-316.64	-315.68	-314.73	-313.78
400		-323.06	-322.54	-322.09	-321.63	-320.72	-319.79	-318.87
450		-328.74	-327.88	-327.44	-327.01	-326.14	-325.25	-324.35
500			-333.61	-333.15	-332.75	-331.92	-331.07	-330.20
550				-339.72	-339.20	-338.81	-338.04	-337.23
600				-346.20	-345.57	-345.18	-344.46	-343.69
700					-359.29	-358.77	-358.12	-357.47
800						-373.41	-372.77	-372.24
900						-389.00	-388.33	-387.92
1000							-404.76	-404.46
								-403.95
AlHO₂⁰								
25	-207.50	-207.34	-207.17	-206.99	-206.80	-206.43	-206.04	-205.64
50	-207.38	-207.21	-207.03	-206.85	-206.67	-206.29	-205.90	-205.51
75	-207.33	-207.16	-206.98	-206.80	-206.61	-206.24	-205.86	-205.47
100	-207.35	-207.18	-207.00	-206.82	-206.64	-206.26	-205.88	-205.50
125	-207.43	-207.26	-207.09	-206.91	-206.72	-206.35	-205.98	-205.60
150	-207.57	-207.40	-207.23	-207.05	-206.87	-206.50	-206.13	-205.75
175	-207.75	-207.59	-207.42	-207.25	-207.07	-206.71	-206.34	-205.97
200	-207.98	-207.83	-207.67	-207.50	-207.32	-206.97	-206.60	-206.24
225	-208.24	-208.11	-207.95	-207.79	-207.62	-207.27	-206.92	-206.55
250	-208.52	-208.42	-208.28	-208.13	-207.97	-207.63	-207.27	-206.91
300	-209.13	-209.14	-209.05	-208.92	-208.77	-208.46	-208.12	-207.77
350	-209.48	-209.89	-209.91	-209.84	-209.72	-209.44	-209.13	-208.79
400		-210.46	-210.84	-210.86	-210.79	-210.56	-210.27	-209.96
450		-209.93	-211.74	-211.94	-211.95	-211.80	-211.55	-211.26
500		-207.81	-212.52	-213.06	-213.19	-213.14	-212.94	-212.68
550		-206.52	-213.09	-214.19	-214.49	-214.58	-214.44	-214.21
600		-206.16	-213.53	-215.30	-215.84	-216.10	-216.03	-215.84
700		-207.12	-214.71	-217.59	-218.69	-219.38	-219.48	-219.37
800		-209.51	-216.79	-220.25	-221.82	-222.97	-223.24	-223.23
900		-212.85	-219.77	-223.48	-225.37	-226.88	-227.31	-227.37
1000		-216.90	-223.50	-227.31	-229.38	-231.15	-231.69	-231.76

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar					
				1.5	2.0	3.0	4.0	5.0	
Al(OH)⁺²									
25	-166.47	-166.68	-166.84	-166.97	-167.08	-167.24	-167.34	-167.40	
50	-165.31	-165.53	-165.71	-165.85	-165.97	-166.15	-166.29	-166.38	
75	-164.19	-164.42	-164.61	-164.77	-164.90	-165.11	-165.26	-165.38	
100	-163.10	-163.35	-163.55	-163.72	-163.86	-164.09	-164.27	-164.40	
125	-162.03	-162.30	-162.52	-162.70	-162.86	-163.11	-163.31	-163.47	
150	-160.97	-161.27	-161.51	-161.72	-161.89	-162.17	-162.39	-162.56	
175	-159.91	-160.25	-160.53	-160.75	-160.95	-161.26	-161.50	-161.70	
200	-158.85	-159.24	-159.55	-159.81	-160.03	-160.38	-160.65	-160.86	
225	-157.78	-158.23	-158.59	-158.88	-159.13	-159.52	-159.82	-160.06	
250	-156.68	-157.21	-157.63	-157.96	-158.24	-158.68	-159.02	-159.29	
300	-154.35	-155.15	-155.74	-156.15	-156.51	-157.07	-157.50	-157.84	
350	-152.32	-152.99	-153.93	-154.41	-154.83	-155.53	-156.07	-156.49	
400		-152.74	-152.30	-152.74	-153.22	-154.05	-154.70	-155.22	
450		-156.49	-151.02	-151.20	-151.69	-152.63	-153.41	-154.03	
500			-150.42	-149.83	-150.22	-151.26	152.16	-152.89	
550			-150.84	-148.70	-148.84	-149.92	-150.95	-151.80	
600			-152.41	-147.91	-147.55	-148.58	-149.75	-150.74	
700				-147.61	-145.25	-145.85	-147.31	-148.58	
800					143.19	142.89	144.68	-146.29	
900					-140.99	-139.67	-141.87	-143.80	
1000						-136.38	-139.01	-141.11	
Al(OH)₂⁺									
25	-215.47	-215.38	-215.28	-215.16	-215.03	-214.75	-214.43	-214.10	
50	-215.08	-214.99	-214.89	-214.77	-214.65	-214.37	-214.07	-213.75	
75	-214.76	-214.68	-214.58	-214.46	-214.34	-214.07	-213.77	-213.47	
100	-214.51	-214.43	-214.34	-214.23	-214.11	-213.84	-213.56	-213.26	
125	-214.32	-214.25	-214.16	-214.05	-213.94	-213.69	-213.41	-213.12	
150	-214.17	-214.12	-214.04	-213.94	-213.83	-213.59	-213.33	-213.04	
175	-214.07	-214.04	-213.97	-213.89	-213.79	-213.56	-213.30	-213.03	
200	-214.01	-214.00	-213.95	-213.88	-213.79	-213.58	-213.33	-213.07	
225	-213.98	-214.00	-213.97	-213.92	-213.84	-213.65	-213.42	-213.16	
250	-213.97	-214.03	-214.03	-214.00	-213.94	-213.77	-213.55	-213.31	
300	-213.99	-214.20	-214.27	-214.27	-214.25	214.13	-213.96	-213.75	
350	-214.21	-214.43	-214.67	-214.71	-214.71	-214.66	-214.54	-214.37	
400		-215.58	-215.26	-215.29	-215.32	-215.33	-215.27	-215.14	
450		-218.45	-216.10	-216.03	-216.07	-216.14	-216.13	-216.05	
500			-217.30	-216.94	-216.96	-217.07	-217.12	-217.10	
550			-219.01	-218.04	-217.96	-218.11	-218.23	-218.25	
600			-221.27	-219.36	-219.09	-219.24	-219.42	-219.51	
700				-222.77	-221.70	-221.71	-222.04	-222.26	
800					-224.72	-224.38	-224.87	-225.26	
900					-227.95	-227.22	-227.90	-228.43	
1000						-230.28	-231.16	-231.77	
AlO₂⁻									
25	-198.70	-198.58	-198.46	-198.32	-198.18	-197.89	-197.59	-197.28	
50	-198.52	-198.38	-198.25	-198.10	-197.95	-197.65	-197.33	-197.01	
75	-198.32	-198.19	-198.05	-197.90	-197.75	-197.44	-197.12	196.80	
100	-198.12	-197.99	-197.86	-197.72	-197.57	-197.27	-196.95	-196.63	
125	-197.90	-197.79	-197.67	-197.54	-197.40	-197.10	-196.80	-196.48	
150	-197.66	-197.58	-197.47	-197.36	-197.23	-196.95	-196.66	-196.35	
175	-197.39	-197.35	-197.27	-197.18	-197.06	-196.81	-196.54	-196.24	
200	-197.07	-197.09	-197.06	-196.99	-196.90	-196.68	-196.42	-196.15	
225	-196.71	-196.81	-196.82	-196.79	-196.73	-196.55	-196.32	-196.06	
250	-196.27	-196.48	-196.56	-196.57	-196.55	-196.41	-196.22	-195.99	
300	-195.01	-195.65	-195.96	-196.09	-196.15	-196.14	-196.04	-195.87	
350	-192.70	-194.40	-195.21	-195.52	-195.70	-195.85	-195.86	-195.77	
400		-193.13	-194.27	-194.82	-195.16	-195.53	-195.67	-195.68	
450		-190.10	-193.02	-193.96	-194.53	-195.16	-195.47	-195.60	

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
AlO₂⁻ — Continued								
500		-191.34	-192.90	-193.76	-194.73	-195.24	-195.51	
550		-189.15	-191.60	-192.84	-194.23	-194.97	-195.39	
600		-186.66	-190.08	-191.77	-193.63	-194.64	-195.23	
700			-186.82	-189.22	-192.12	-193.75	-194.74	
800				-186.42	-190.22	-192.54	-193.94	
900					-183.66	-188.09	-191.05	-192.81
1000						-185.96	-189.44	-191.35
Ar°								
25	3.90	4.27	4.64	5.00	5.36	6.06	6.75	7.44
50	3.49	3.88	4.26	4.63	5.00	5.71	6.41	7.11
75	2.99	3.39	3.78	4.16	4.53	5.25	5.96	6.66
100	2.41	2.82	3.21	3.60	3.97	4.70	5.42	6.12
125	1.76	2.17	2.57	2.96	3.34	4.08	4.80	5.50
150	1.04	1.46	1.87	2.26	2.65	3.39	4.11	4.82
175	0.25	0.68	1.10	1.50	1.89	2.64	3.36	4.07
200	-0.59	-0.16	0.27	0.67	1.07	1.83	2.56	3.27
225	-1.50	-1.05	-0.62	-0.21	0.19	0.96	1.70	2.42
250	-2.47	-2.01	-1.56	-1.14	-0.73	0.04	0.79	1.51
300	-4.63	-4.12	-3.61	-3.16	-2.73	-1.93	-1.17	-0.43
350	-7.35	-6.51	-5.89	-5.38	-4.93	-4.09	-3.30	-2.55
400		-9.41	-8.42	-7.81	-7.31	-6.41	-5.60	-4.83
450		-13.70	-11.25	-10.46	-9.87	-8.90	-8.05	-7.25
500		-19.90	-14.47	-13.33	-12.62	-11.54	-10.64	-9.82
550		-25.49	-18.15	-16.45	-15.55	-14.34	-13.37	-12.52
600		-30.36	-22.20	-19.80	-18.67	-17.27	-16.24	-15.34
700		-39.01	-30.64	-27.09	-25.39	-23.55	-22.34	-21.36
800		-46.98	-38.92	-34.78	-32.59	-30.29	-28.90	-27.82
900		-54.68	-46.99	-42.60	-40.09	-37.40	-35.85	-34.71
1000		-62.30	-54.94	-50.44	-47.74	-44.80	-43.14	-41.98
Au⁺								
25	39.00	39.14	39.29	39.44	39.61	39.94	40.29	40.65
50	38.39	38.53	38.68	38.84	39.01	39.34	39.69	40.04
75	37.77	37.91	38.07	38.23	38.39	38.73	39.07	39.42
100	37.14	37.29	37.44	37.60	37.77	38.10	38.44	38.78
125	36.50	36.65	36.81	36.97	37.13	37.46	37.80	38.14
150	35.86	36.01	36.17	36.32	36.48	36.81	37.15	37.49
175	35.22	35.36	35.51	35.67	35.83	36.16	36.49	36.82
200	34.57	34.71	34.86	35.01	35.17	35.49	35.82	36.15
225	33.92	34.05	34.19	34.34	34.50	34.81	35.14	35.47
250	33.27	33.38	33.52	33.67	33.82	34.13	34.45	34.78
300	31.99	32.05	32.17	32.30	32.45	32.74	33.06	33.38
350	30.77	30.73	30.80	30.92	31.05	31.33	31.63	31.94
400		29.34	29.42	29.52	29.64	29.90	30.19	30.49
450		27.98	28.03	28.11	28.21	28.45	28.72	29.01
500			26.64	26.69	26.77	26.98	27.23	27.51
550			25.25	25.26	25.32	25.50	25.73	25.99
600			23.86	23.83	23.87	24.01	24.21	24.46
700				20.91	20.93	21.00	21.15	21.36
800					17.95	17.97	18.06	18.23
900					14.93	14.92	14.95	15.07
1000						11.81	11.79	11.90
Au⁺³								
25	103.60	103.14	102.73	102.37	102.04	101.46	100.96	100.51
50	105.08	104.60	104.17	103.79	103.44	102.82	102.27	101.78
75	106.62	106.11	105.67	105.27	104.90	104.25	103.67	103.14
100	108.21	107.68	107.21	106.79	106.40	105.72	105.11	104.55

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar	1.5	2.0	3.0	4.0	5.0
Au ³⁺ — Continued									
125	109.85	109.28	108.79	108.35	107.22	106.58	106.00		
150	111.55	110.94	110.41	109.94	108.51	108.08	107.48		
175	113.31	112.65	112.08	111.57	111.12	110.31	109.61	108.97	
200	115.15	114.42	113.79	113.25	112.76	111.90	111.16	110.49	
225	117.06	116.25	115.56	114.96	114.43	113.51	112.72	112.02	
250	119.08	118.15	117.37	116.72	116.14	115.15	114.31	113.57	
300	123.44	122.15	121.13	120.35	119.67	118.51	117.55	116.71	
350	127.69	126.51	124.99	124.12	123.33	121.98	120.87	119.91	
400	128.59	128.81	127.96	127.08	125.55	124.27	123.18		
450	125.89	123.36	131.81	130.92	129.20	127.75	126.52		
500		135.26	135.63	134.82	132.95	131.32	129.93		
550		137.03	139.30	138.77	136.82	134.98	133.43		
600		137.53	142.69	142.76	140.81	138.77	137.03		
700			148.22	150.78	149.28	146.81	144.65		
800				158.97	158.54	155.57	152.93		
900				167.75	168.54	164.99	161.91		
1000					179.02	174.86	171.54		
Au(CH ₃ COO) ³⁻									
25	-49.87	-49.15	-48.47	-47.80	-47.16	-45.91	-44.70	-43.52	
50	-51.13	-50.38	-49.67	-48.99	-48.33	-47.05	-45.82	-44.62	
75	-52.47	-51.72	-50.99	-50.30	-49.63	-48.34	-47.09	-45.87	
100	-53.90	-53.13	-52.41	-51.71	-51.03	-49.72	-48.46	-47.24	
125	-55.40	-54.63	-53.89	-53.19	-52.51	-51.19	-49.93	-48.70	
150	-56.97	-56.19	-55.45	-54.74	-54.06	-52.73	-51.46	-50.23	
175	-58.59	-57.82	-57.07	-56.36	-55.67	-54.34	-53.07	-51.83	
200	-60.26	-59.50	-58.75	-58.04	-57.34	-56.01	-54.74	-53.49	
225	-61.99	-61.24	-60.49	-59.77	-59.07	-57.74	-56.46	-55.22	
250	-63.76	-63.03	-62.27	-61.55	-60.86	-59.52	-58.23	-56.99	
300	-67.42	-66.75	-65.99	-65.27	-64.57	-63.22	-61.93	-60.68	
350	-71.25	-70.66	-69.89	-69.16	-68.45	-67.10	-65.81	-64.55	
400		-74.77	-73.96	-73.21	-72.50	-71.14	-69.85	-68.59	
450		-79.14	-78.19	-77.42	-76.70	-75.34	-74.03	-72.77	
500		-83.83	-82.58	-81.78	-81.05	-79.67	-78.36	-77.10	
550		-88.57	-87.13	-86.28	-85.53	-84.13	-82.82	-81.55	
600		-93.34	-91.83	-90.90	-90.13	-88.72	-87.39	-86.12	
700		-103.09	-101.55	-100.52	-99.68	-98.23	-96.89	-95.60	
800		-113.13	-111.63	-110.53	-109.65	-108.15	-106.79	-105.49	
900		-123.48	-122.01	-120.89	-119.98	-118.44	-117.06	-115.76	
1000		-134.13	-132.69	-131.56	-130.62	-129.06	-127.67	-126.36	
Au(CH ₃ COO) ₂ ²⁻									
25	-138.24	-136.88	-135.59	-134.36	-133.18	-130.91	-128.73	-126.62	
50	-139.90	-138.50	-137.17	-135.91	-134.69	-132.36	-130.12	-127.96	
75	-141.77	-140.35	-139.01	-137.72	-136.49	-134.12	-131.86	-129.67	
100	-143.82	-142.39	-141.04	-139.75	-138.50	-136.12	-133.84	-131.63	
125	-146.03	-144.59	-143.24	-141.94	-140.69	-138.30	-136.01	-133.79	
150	-148.56	-146.24	-145.89	-144.59	-143.04	-140.64	-138.35	-136.12	
175	-150.81	-149.42	-148.07	-146.77	-145.52	-143.13	-140.83	-138.61	
200	-153.36	-152.00	-150.67	-149.38	-148.14	-145.75	-143.45	-141.23	
225	-155.99	-154.69	-153.37	-152.10	-150.87	-148.49	-146.20	-143.98	
250	-158.68	-157.48	-156.18	-154.93	-153.70	-151.34	-149.06	-146.84	
300	-164.12	-163.25	-162.06	-160.85	-159.67	-157.35	-155.10	-152.90	
350	-169.14	-169.14	-168.22	-167.10	-165.97	-163.72	-161.51	-159.35	
400		-175.00	-174.56	-173.62	-172.57	-170.42	-168.27	-166.14	
450		-179.17	-180.97	-180.33	-179.43	-177.42	-175.34	-173.26	
500			-187.26	-187.18	-186.48	-184.66	-182.68	-180.66	
550			-193.30	-194.11	-193.71	-192.14	-190.27	-188.32	
600			-199.18	-201.10	-201.09	-199.83	-198.10	-196.22	
700				-215.41	-216.28	-215.77	-214.36	-212.66	

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar 1.5	2.0	3.0	4.0	5.0
Au(CH₃COO)₂ — Continued								
800				-232.17	-232.41	-231.36	-229.85	
900				-248.93	-249.79	-249.05	-247.68	
1000				-267.94	-267.43	-266.11		
Benzene								
25	32.00	32.97	33.92	34.83	35.73	37.47	39.17	40.84
50	31.02	32.00	32.94	33.85	34.74	36.47	38.15	39.79
75	29.88	30.86	31.80	32.71	33.60	35.32	36.98	38.62
100	28.59	29.58	30.52	31.42	32.31	34.02	35.68	37.30
125	27.16	28.15	29.09	30.00	30.88	32.59	34.25	35.86
150	25.60	26.58	27.53	28.44	29.32	31.03	32.68	34.30
175	23.92	24.90	25.84	26.75	27.64	29.35	31.00	32.61
200	22.12	23.09	24.04	24.95	25.84	27.55	29.20	30.82
225	20.21	21.17	22.13	23.04	23.93	25.65	27.30	28.91
250	18.19	19.14	20.10	21.03	21.92	23.64	25.29	26.91
300	13.83	14.75	15.75	16.69	17.59	19.33	20.99	22.60
350	8.92	9.92	11.00	11.97	12.90	14.65	16.32	17.95
400		4.55	5.86	6.89	7.85	9.63	11.32	12.96
450		-1.95	0.30	1.46	2.46	4.30	6.01	7.66
500		-9.87	-5.70	-4.32	-3.24	-1.34	0.41	2.07
550		-17.58	-12.19	-10.44	-9.24	-7.25	-5.47	-3.79
600		-25.00	-19.09	-16.90	-15.54	-13.44	-11.61	-9.90
700		-39.64	-33.59	-30.66	-28.94	-26.55	-24.62	-22.85
800		-54.44	-48.59	-45.28	-43.25	-40.56	-38.51	-36.69
900		-69.61	-63.99	-60.52	-58.28	-55.35	-53.20	-51.33
1000		-85.22	-79.81	-76.27	-73.92	-70.82	-68.60	-66.72
Butanoate								
25	-84.61	-83.80	-83.02	-82.27	-81.54	-80.13	-78.76	-77.42
50	-85.45	-84.61	-83.82	-83.05	-82.30	-80.86	-79.46	-78.10
75	-86.36	-85.52	-84.71	-83.93	-83.18	-81.72	-80.32	-78.94
100	-87.33	-86.49	-85.68	-84.90	-84.15	-82.69	-81.28	-79.90
125	-88.35	-87.52	-86.71	-85.94	-85.19	-83.73	-82.32	-80.94
150	-89.41	-88.59	-87.80	-87.03	-86.29	-84.84	-83.43	-82.06
175	-90.49	-89.71	-88.93	-88.18	-87.44	-86.00	-84.60	-83.24
200	-91.59	-90.85	-90.10	-89.36	-88.64	-87.22	-85.83	-84.48
225	-92.68	-92.01	-91.30	-90.58	-89.87	-88.48	-87.11	-85.77
250	-93.75	-93.19	-92.52	-91.83	-91.15	-89.78	-88.43	-87.10
300	-95.68	-95.51	-95.00	-94.40	-93.78	-92.50	-91.20	-89.91
350	-96.64	-97.61	-97.49	-97.03	-96.50	-95.33	-94.11	-92.87
400		-99.28	-99.87	-99.67	-99.27	-98.27	-97.14	-95.97
450		-98.27	-102.00	-102.25	-102.06	-101.28	-100.28	-99.18
500			-103.66	-104.71	-104.84	-104.34	-103.49	-102.49
550			-104.65	-106.99	-107.56	-107.44	-106.77	-105.89
600			-105.16	-109.08	-110.21	-110.56	-110.11	-109.35
700				-112.99	-115.37	-116.83	-116.89	-116.41
800					-120.60	-123.17	-123.78	-123.60
900					-126.24	-129.70	-130.80	-130.87
1000						-136.57	-138.03	-138.19
Butanoic Acid								
25	-91.19	-90.20	-89.25	-88.32	-87.42	-85.66	-83.94	-82.26
50	-92.68	-91.68	-90.73	-89.81	-88.91	-87.16	-85.47	-83.81
75	-94.31	-93.32	-92.36	-91.44	-90.54	-88.80	-87.12	-85.47
100	-96.09	-95.09	-94.14	-93.21	-92.32	-90.58	-88.90	-87.26
125	-98.01	-97.00	-96.04	-95.12	-94.22	-92.48	-90.80	-89.17
150	-100.05	-99.04	-98.07	-97.14	-96.24	-94.50	-92.82	-91.19
175	-102.22	-101.20	-100.22	-99.29	-98.38	-96.64	-94.95	-93.32
200	-104.50	-103.48	-102.49	-101.54	-100.63	-98.88	-97.19	-95.55

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Butanoic Acid — Continued								
225	-106.89	-105.87	-104.86	-103.91	-102.99	-101.22	-99.53	-97.89
250	-109.41	-108.37	-107.34	-106.37	-105.44	-103.67	-101.97	-100.32
300	-114.84	-113.74	-112.63	-111.61	-110.65	-108.83	-107.11	-105.44
350	-121.23	-119.65	-118.33	-117.23	-116.22	-114.35	-112.59	-110.90
400		-126.43	-124.51	-123.5	-122.16	-120.20	-118.39	-116.68
450		-135.59	-131.24	-129.67	-128.45	-126.36	-124.50	-122.74
500		-147.95	-138.67	-136.52	-135.09	-132.83	-130.88	-129.08
550		-159.34	-146.90	-143.81	-142.08	-139.59	-137.54	-135.69
600		-169.58	-155.78	-151.54	-149.41	-146.63	-144.46	-142.54
700		-188.36	-174.21	-168.07	-165.00	-161.48	-159.03	-156.97
800		-206.16	-192.53	-185.41	-181.53	-177.25	-174.50	-172.28
900		-223.04	-210.63	-203.08	-198.67	-193.76	-190.74	-188.42
1000		-241.11	-228.63	-220.92	-216.21	-210.86	-207.67	-205.30
BF_4^-								
25	-355.40	-354.90	-354.41	-353.94	-353.47	-352.54	-351.64	-350.75
50	-356.47	-355.96	-355.46	-354.97	-354.49	-353.56	-352.64	-351.74
75	-357.54	-357.02	-356.51	-356.02	-355.54	-354.60	-353.68	-352.78
100	-358.60	-358.08	-357.58	-357.09	-356.61	-355.67	-354.75	-353.85
125	-359.65	-359.14	-358.64	-358.16	-357.68	-356.75	-355.83	-354.94
150	-360.69	-360.20	-359.71	-359.23	-358.76	-357.84	-356.93	-356.04
175	-361.71	-361.25	-360.78	-360.31	-359.85	-358.93	-358.04	-357.15
200	-362.71	-362.29	-361.83	-361.38	-360.93	-360.04	-359.15	-358.28
225	-363.68	-363.31	-362.88	-362.45	-362.02	-361.14	-360.27	-359.41
250	-364.59	-364.30	-363.92	-363.51	-363.10	-362.25	-361.40	-360.55
300	-366.14	-366.17	-365.94	-365.61	-365.24	-364.47	-363.67	-362.85
350	-366.71	-367.74	-367.83	-367.63	-367.35	-366.68	-365.94	-365.17
400		-368.75	-369.53	-369.56	-369.40	-368.87	-368.22	-367.50
450		-367.13	-370.89	-371.33	-371.37	-371.03	-370.48	-369.84
500			-371.71	-372.90	-373.22	-373.15	-372.73	-372.17
550			-371.83	-374.22	-374.94	-375.21	-374.96	-374.49
600			-371.41	-375.28	-376.52	-377.21	-377.15	-376.79
700				-376.91	-379.32	-381.03	-381.41	-381.31
800					-381.92	-384.65	-385.52	-385.68
900					-384.66	-388.21	-389.52	-389.88
1000					-391.87	-393.49	-393.93	
B(OH)_3^+								
25	-231.54	-231.08	-230.63	-230.19	-229.76	-228.91	-228.07	-227.25
50	-232.48	-232.00	-231.54	-231.09	-230.65	-229.79	-228.95	-228.12
75	-233.44	-232.95	-232.49	-232.03	-231.59	-230.72	-229.87	-229.04
100	-234.43	-233.93	-233.46	-233.00	-232.55	-231.68	-230.83	-229.99
125	-235.43	-234.94	-234.46	-233.99	-233.54	-232.66	-231.81	-230.97
150	-236.46	-235.96	-235.48	-235.01	-234.55	-233.67	-232.82	-231.98
175	-237.51	-237.01	-236.52	-236.05	-235.59	-234.70	-233.84	-233.00
200	-238.59	-238.08	-237.58	-237.11	-236.65	-235.75	-234.89	-234.05
225	-239.68	-239.17	-238.67	-238.19	-237.72	-236.82	-235.96	-235.11
250	-240.80	-240.29	-239.77	-239.29	-238.81	-237.91	-237.04	-236.19
300	-243.12	-242.60	-242.05	-241.54	-241.06	-240.13	-239.25	-238.39
350	-245.74	-245.04	-244.42	-243.87	-243.37	-242.42	-241.52	-240.66
400		-247.76	-246.90	-246.29	-245.75	-244.77	-243.86	-242.98
450		-251.35	-249.53	-248.80	-248.22	-247.18	-246.24	-245.35
500		-256.14	-252.38	-251.42	-250.75	-249.65	-248.68	-247.77
550		-260.49	-255.49	-254.16	-253.38	-252.18	-251.17	-250.23
600		-264.33	-258.80	-257.02	-256.08	-254.77	-253.71	-252.75
700		-271.21	-265.54	-263.02	-261.70	-260.10	-258.93	-257.91
800		-277.52	-272.06	-269.15	-267.52	-265.62	-264.32	-263.25
900		-283.55	-278.33	-275.25	-273.41	-271.26	-269.86	-268.74
1000		-289.43	-284.41	-281.27	-279.31	-276.99	-275.52	-274.39

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
BO₂⁻								
25	-162.24	-162.62	-162.97	-163.30	-163.60	-164.16	-164.68	-165.18
50	-161.98	-162.34	-162.67	-162.98	-163.27	-163.80	-164.29	-164.75
75	-161.66	-162.01	-162.34	-162.64	-162.92	-163.44	-163.92	-164.37
100	-161.28	-161.64	-161.97	-162.27	-162.55	-163.07	-163.55	-164.00
125	-160.85	-161.23	-161.56	-161.87	-162.16	-162.69	-163.17	-163.62
150	-160.36	-160.76	-161.12	-161.44	-161.74	-162.28	-162.78	-163.23
175	-159.81	-160.25	-160.64	-160.98	-161.29	-161.86	-162.36	-162.83
200	-159.20	-159.69	-160.11	-160.48	-160.81	-161.40	-161.93	-162.41
225	-158.51	-159.06	-159.53	-159.94	-160.30	-160.93	-161.48	-161.98
250	-157.71	-158.37	-158.91	-159.36	-159.75	-160.43	-161.01	-161.54
300	-155.69	-156.73	-157.50	-158.06	-158.54	-159.34	-160.01	-160.60
350	-152.56	-154.57	-155.85	-156.58	-157.18	-158.15	-158.93	-159.59
400		-152.32	-153.91	-154.90	-155.66	-156.84	-157.75	-158.52
450		-148.22	-151.60	-152.98	-153.96	-155.41	-156.49	-157.36
500			-148.79	-150.78	-152.06	-153.84	-155.12	-156.13
550			-145.40	-148.27	-149.94	-152.13	-153.64	-154.81
600			-141.64	-145.49	-147.59	-150.26	-152.04	-153.38
700				-139.52	-142.33	-146.04	-148.44	-150.17
800					-136.61	-141.21	-144.30	-146.45
900					-130.73	-135.96	-139.69	-142.20
1000					-130.54	-134.79	-137.44	
Ba²⁺								
25	-134.03	-134.16	-134.25	-134.31	-134.35	-134.37	-134.34	-134.28
50	-134.08	-134.19	-134.27	-134.33	-134.36	-134.37	-134.33	-134.26
75	-134.10	-134.22	-134.30	-134.35	-134.37	-134.38	-134.34	-134.27
100	-134.11	-134.23	-134.31	-134.36	-134.39	-134.40	-134.36	-134.29
125	-134.10	-134.23	-134.31	-134.37	-134.40	-134.42	-134.39	-134.32
150	-134.07	-134.21	-134.30	-134.37	-134.41	-134.43	-134.41	-134.35
175	-134.01	-134.17	-134.28	-134.36	-134.40	-134.44	-134.43	-134.37
200	-133.92	-134.11	-134.24	-134.33	-134.39	-134.45	-134.44	-134.40
225	-133.80	-134.02	-134.18	-134.29	-134.36	-134.44	-134.45	-134.42
250	-133.63	-133.91	-134.10	-134.23	-134.33	-134.43	-134.46	-134.44
300	-133.13	-133.59	-133.89	-134.07	-134.21	-134.38	-134.46	-134.47
350	-132.43	-133.08	-133.61	-133.85	-134.04	-134.29	-134.43	-134.49
400		-133.13	-133.29	-133.58	-133.82	-134.17	-134.37	-134.48
450		-133.90	-132.97	-133.27	-133.56	-134.00	-134.28	-134.45
500			-132.71	-132.91	-133.25	-133.79	-134.16	-134.40
550				-132.58	-132.53	-132.88	-133.53	-134.00
600				-132.63	-132.17	-132.46	-133.22	-134.18
700					-131.63	-131.51	-132.38	-133.19
800						-130.43	-131.24	-132.32
900						-129.18	-129.85	-131.21
1000						-128.32	-129.94	-131.01
BaCO₃²⁻								
25	-263.83	-263.94	-264.02	-264.08	-264.13	-264.19	-264.21	-264.21
50	-264.20	-264.31	-264.40	-264.46	-264.51	-264.58	-264.62	-264.64
75	-264.53	-264.64	-264.72	-264.79	-264.84	-264.92	-264.97	-265.00
100	-264.82	-264.93	-265.01	-265.08	-265.14	-265.22	-265.28	-265.31
125	-265.08	-265.19	-265.28	-265.35	-265.40	-265.49	-265.55	-265.59
150	-265.32	-265.43	-265.51	-265.58	-265.64	-265.73	-265.79	-265.84
175	-265.54	-265.64	-265.73	-265.80	-265.86	-265.95	-266.02	-266.06
200	-265.74	-265.84	-265.93	-266.00	-266.06	-266.15	-266.21	-266.26
225	-265.92	-266.02	-266.10	-266.17	-266.23	-266.33	-266.39	-266.44
250	-266.09	-266.18	-266.27	-266.34	-266.39	-266.49	-266.56	-266.61
300	-266.39	-266.46	-266.54	-266.61	-266.67	-266.76	-266.83	-266.88
350	-266.68	-266.70	-266.77	-266.83	-266.89	-266.98	-267.04	-267.10
400		-266.92	-266.95	-267.00	-267.05	-267.14	-267.20	-267.26
450		-267.21	-267.10	-267.13	-267.18	-267.25	-267.32	-267.37

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
BaCO₃ — Continued								
500	-267.63	-267.23	-267.23	-267.26	-267.33	-267.39	-267.44	
550	-267.93	-267.35	-267.29	-267.31	-267.36	-267.42	-267.46	
600	-268.12	-267.45	-267.33	-267.32	-267.36	-267.41	-267.45	
700	-268.24	-267.56	-267.32	-267.26	-267.26	-267.29	-267.32	
800	-268.13	-267.48	-267.19	-267.07	-267.03	-267.04	-267.07	
900	-267.85	-267.22	-266.91	-266.77	-266.68	-266.68	-266.70	
1000	-267.41	-266.82	-266.50	-266.33	-266.22	-266.22	-266.24	
BaCl⁺								
25	-164.73	-164.59	-164.44	-164.28	-164.12	-163.78	-163.42	-163.06
50	-165.30	-165.15	-165.00	-164.84	-164.67	-164.33	-163.98	-163.63
75	-165.88	-165.73	-165.58	-165.41	-165.25	-164.91	-164.56	-164.21
100	-166.48	-166.33	-166.17	-166.01	-165.85	-165.51	-165.17	-164.82
125	-167.09	-166.94	-166.78	-166.62	-166.46	-166.13	-165.79	-165.44
150	-167.71	-167.57	-167.41	-167.25	-167.09	-166.76	-166.42	-166.08
175	-168.34	-168.20	-168.05	-167.89	-167.73	-167.41	-167.07	-166.73
200	-168.98	-168.85	-168.70	-168.55	-168.39	-168.07	-167.73	-167.40
225	-169.63	-169.50	-169.36	-169.21	-169.06	-168.74	-168.41	-168.08
250	-170.27	-170.17	-170.03	-169.89	-169.74	-169.42	-169.10	-168.77
300	-171.55	-171.50	-171.39	-171.26	-171.12	-170.83	-170.51	-170.19
350	-172.78	-172.84	-172.79	-172.67	-172.54	-172.27	-171.97	-171.66
400		-174.28	-174.20	-174.11	-174.00	-173.74	-173.46	-173.16
450		-175.70	-175.64	-175.57	-175.47	-175.25	-174.98	-174.70
500			-177.08	-177.04	-176.97	-176.78	-176.54	-176.27
550			-178.54	-178.54	-178.49	-178.33	-178.12	-177.87
600			-180.02	-180.05	-180.02	-179.91	-179.72	-179.49
700				-183.15	-183.14	-183.10	-182.97	-182.79
800					-186.32	-186.33	-186.28	-186.14
900					-189.58	-189.62	-189.64	-189.54
1000					-192.99	-193.06	-192.99	
BaF⁺								
25	-201.12	-201.14	-201.13	-201.11	-201.08	-200.98	-200.86	-200.71
50	-201.27	-201.28	-201.28	-201.26	-201.23	-201.15	-201.04	-200.91
75	-201.44	-201.45	-201.45	-201.44	-201.41	-201.33	-201.23	-201.11
100	-201.62	-201.64	-201.64	-201.63	-201.61	-201.54	-201.44	-201.33
125	-201.82	-201.85	-201.85	-201.85	-201.83	-201.76	-201.68	-201.57
150	-202.04	-202.07	-202.08	-202.08	-202.06	-202.01	-201.93	-201.83
175	-202.26	-202.30	-202.32	-202.33	-202.32	-202.27	-202.20	-202.11
200	-202.49	-202.55	-202.58	-202.59	-202.58	-202.55	-202.48	-202.40
225	-202.72	-202.80	-202.84	-202.86	-202.86	-202.84	-202.79	-202.71
250	-202.95	-203.05	-203.11	-203.14	-203.16	-203.15	-203.10	-203.04
300	-203.38	-203.57	-203.68	-203.74	-203.77	-203.80	-203.78	-203.73
350	-203.76	-204.06	-204.28	-204.37	-204.43	-204.49	-204.50	-204.48
400		-204.86	-204.92	-205.03	-205.12	-205.22	-205.27	-205.27
450		-206.01	-205.60	-205.72	-205.83	-205.99	-206.07	-206.11
500			-206.35	-206.44	-206.58	-206.79	-206.91	-206.98
550			-207.21	-207.19	-207.34	-207.61	-207.78	-207.88
600			-208.18	-207.99	-208.12	-208.44	-208.67	-208.81
700				-209.80	-209.75	-210.13	-210.48	-210.71
800					-211.46	-211.83	-212.31	-212.63
900					-213.23	-213.55	-214.15	-214.57
1000					-215.32	-216.05	-216.52	
Be⁺²								
25	-83.50	-83.78	-84.02	-84.23	-84.40	84.70	-84.94	-85.14
50	-82.11	-82.40	-82.65	-82.87	-83.06	83.39	-83.67	-83.90
75	-80.71	-81.02	-81.29	-81.52	-81.72	82.08	-82.38	-82.64
100	-79.32	-79.65	-79.93	-80.17	-80.39	80.77	-81.09	-81.37

GIBBS FREE ENERGIES OF FORMATION OF AQUEOUS SPECIES

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TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Be⁺² — Continued								
125	-77.91	-78.27	-78.57	-78.83	-79.06	-79.47	-79.81	-80.11
150	-76.49	-76.88	-77.20	-77.49	-77.74	-78.18	-78.54	-78.86
175	-75.05	-75.48	-75.84	-76.15	-76.42	-76.89	-77.28	-77.63
200	-73.58	-74.05	-74.46	-74.80	-75.10	-75.61	-76.03	-76.40
225	-72.07	-72.61	-73.06	-73.44	-73.77	-74.33	-74.79	-75.18
250	-70.51	-71.14	-71.65	-72.08	-72.44	-73.05	-73.55	-73.98
300	-67.21	-68.11	-68.80	-69.31	-69.76	-70.50	-71.09	-71.59
350	-64.26	-64.92	-65.97	-66.54	-67.06	-67.94	-68.65	-69.24
400		-63.85	-63.29	-63.80	-64.37	-65.38	-66.21	-66.90
450		-67.52	-60.97	-61.14	-61.69	-62.82	-63.78	-64.58
500			-59.38	-58.62	-59.05	-60.25	-61.34	-62.26
550			-58.98	-56.34	-56.44	-57.66	-58.89	-59.93
600			-59.92	-54.41	-53.90	-55.03	-56.39	-57.57
700				-51.92	-49.00	-49.54	-51.19	-52.68
800					-44.21	-43.63	-45.61	-47.45
900					-39.08	-37.27	-39.65	-41.84
1000						-30.64	-33.49	-35.86
BeO₂⁻²								
25	-153.00	-153.28	-153.51	-153.70	-153.86	-154.12	-154.32	-154.47
50	-151.96	-152.25	-152.50	-152.71	-152.89	-153.19	-153.43	-153.62
75	-150.75	-151.07	-151.34	-151.57	-151.78	-152.11	-152.39	-152.61
100	-149.40	-149.76	-150.06	-150.32	-150.54	-150.92	-151.23	-151.48
125	-147.91	-148.32	-148.66	-148.95	-149.20	-149.62	-149.97	-150.26
150	-146.28	-146.76	-147.15	-147.48	-147.76	-148.24	-148.63	-148.95
175	-144.50	-145.06	-145.52	-145.90	-146.23	-146.77	-147.20	-147.57
200	-142.55	-143.23	-143.78	-144.22	-144.60	-145.22	-145.71	-146.12
225	-140.41	-141.25	-141.91	-142.44	-142.88	-143.59	-144.15	-144.61
250	-138.04	-139.11	-139.92	-140.54	-141.06	-141.88	-142.51	-143.03
300	-132.35	-134.26	-135.54	-136.42	-137.13	-138.22	-139.05	-139.71
350	-124.51	-128.28	-130.63	-131.85	-132.80	-134.25	-135.33	-136.17
400		-122.51	-125.11	-126.81	-128.09	-129.98	-131.35	-132.40
450		-114.21	-118.88	-121.25	-122.96	-125.38	-127.10	-128.41
500			-111.78	-115.12	-117.37	-120.46	-122.60	-124.19
550			-103.78	-108.39	-111.31	-115.19	-117.80	-119.73
600			-95.33	-101.14	-104.76	-109.55	-112.71	-115.00
700				-86.04	-90.47	-97.12	-101.54	-104.65
800					-75.11	-83.22	-89.03	-93.03
900					-59.18	-68.22	-75.36	-80.11
1000						-52.66	-60.89	-65.98
Br⁻								
25	-24.87	-24.58	-24.29	-23.99	-23.70	-23.11	-22.51	-21.92
50	-25.34	-25.04	-24.74	-24.45	-24.15	-23.56	-22.98	-22.39
75	-25.75	-25.46	-25.16	-24.87	-24.58	-24.00	-23.42	-22.84
100	-26.12	-25.84	-25.55	-25.27	-24.98	-24.41	-23.84	-23.27
125	-26.45	-26.18	-25.91	-25.63	-25.35	-24.79	-24.23	-23.68
150	-26.73	-26.48	-26.23	-25.96	-25.69	-25.15	-24.61	-24.06
175	-26.95	-26.74	-26.51	-26.26	-26.01	-25.49	-24.96	-24.43
200	-27.12	-26.96	-26.75	-26.53	-26.29	-25.80	-25.29	-24.78
225	-27.21	-27.12	-26.96	-26.76	-26.55	-26.09	-25.61	-25.11
250	-27.21	-27.22	-27.12	-26.96	-26.78	-26.36	-25.90	-25.42
300	-26.80	-27.20	-27.29	-27.24	-27.13	-26.81	-26.42	-25.99
350	-25.19	-26.70	-27.23	-27.34	-27.34	-27.16	-26.87	-26.50
400		-25.69	-26.87	-27.25	-27.40	-27.41	-27.23	-26.95
450		-21.88	-26.06	-26.90	-27.28	-27.54	-27.50	-27.31
500			-24.60	-26.25	-26.96	-27.54	-27.68	-27.61
550			-22.34	-25.25	-26.41	-27.41	-27.76	-27.82
600			-19.46	-23.92	-25.64	-27.14	-27.73	-27.94
700				-20.59	-23.51	-26.17	-27.33	-27.88

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Br⁻ — Continued								
800					-20.92	-24.71	-26.50	-27.39
900					-18.26	-22.93	-25.29	-26.47
1000					-21.05	-23.84	-25.14	
BrF₃⁻								
25	-25.59	-24.99	-24.41	-23.85	-23.30	-22.23	-21.18	-20.16
50	-26.88	-26.27	-25.68	-25.10	-24.54	-23.45	-22.38	-21.34
75	-28.19	-27.57	-26.97	-26.39	-25.82	-24.72	-23.65	-22.60
100	-29.51	-28.88	-28.28	-27.70	-27.14	-26.03	-24.96	-23.91
125	-30.83	-30.21	-29.62	-29.04	-28.47	-27.37	-26.30	-25.26
150	-32.15	-31.55	-30.96	-30.39	-29.83	-28.73	-27.67	-26.63
175	-33.47	-32.89	-32.32	-31.75	-31.20	-30.12	-29.06	-28.02
200	-34.78	-34.24	-33.68	-33.13	-32.58	-31.51	-30.46	-29.43
225	-36.06	-35.57	-35.04	-34.51	-33.97	-32.92	-31.89	-30.86
250	-37.31	-36.90	-36.40	-35.89	-35.37	-34.34	-33.32	-32.31
300	-39.58	-39.47	-39.09	-38.65	-38.18	-37.21	-36.23	-35.25
350	-41.00	-41.79	-41.71	-41.38	-40.98	-40.11	-39.18	-38.24
400		-43.64	-44.18	-44.05	-43.77	-43.01	-42.16	-41.27
450		-43.13	-46.37	-46.62	-46.50	-45.92	-45.16	-44.32
500			-48.10	-49.02	-49.16	-48.81	-48.16	-47.40
550			-49.22	-51.22	-51.72	-51.67	-51.17	-50.50
600			-49.87	-53.21	-54.18	-54.51	-54.17	-53.59
700				-56.80	-58.83	-60.07	-60.13	-59.77
800					-63.38	-65.54	-66.03	-65.89
900					-68.12	-71.02	-71.89	-71.94
1000					-76.64	-77.79	-77.91	
BrO⁻								
25	-8.00	-7.88	-7.74	-7.59	-7.43	-7.10	-6.75	-6.38
50	-8.20	-8.08	-7.94	-7.80	-7.64	-7.32	-6.97	-6.62
75	-8.33	-8.21	-8.08	-7.94	-7.79	-7.47	-7.14	-6.80
100	-8.40	-8.29	-8.17	-8.03	-7.89	-7.59	-7.27	-6.93
125	-8.40	-8.31	-8.20	-8.08	-7.94	-7.66	-7.35	-7.03
150	-8.34	-8.28	-8.19	-8.08	-7.96	-7.69	-7.40	-7.09
175	-8.22	-8.19	-8.12	-8.03	-7.93	-7.68	-7.41	-7.12
200	-8.03	-8.04	-8.01	-7.95	-7.86	-7.65	-7.40	-7.12
225	-7.75	-7.84	-7.85	-7.81	-7.75	-7.57	-7.35	-7.09
250	-7.37	-7.56	-7.63	-7.64	-7.60	-7.47	-7.27	-7.04
300	-6.17	-6.75	-7.02	-7.14	-7.18	-7.16	-7.04	-6.86
350	-3.74	-5.41	-6.15	-6.43	-6.59	-6.71	-6.69	-6.58
400		-3.61	-4.95	-5.50	-5.82	-6.13	-6.23	-6.21
450		0.87	-3.29	-4.29	-4.84	-5.41	-5.66	-5.74
500			-0.97	-2.76	-3.64	-4.54	-4.97	-5.17
550				2.13	-0.87	-2.19	-3.51	-4.16
600				5.85	1.38	-0.50	-2.32	-3.22
700					6.53	3.54	0.55	-0.94
800						8.10	4.01	1.87
900						12.80	7.86	5.13
1000						11.87	8.69	7.04
BrO₃⁻								
25	4.45	4.86	5.27	5.67	6.07	6.35	7.63	8.40
50	3.50	3.93	4.34	4.75	5.16	5.95	6.73	7.51
75	2.58	3.01	3.43	3.84	4.25	5.04	5.82	6.60
100	1.69	2.11	2.53	2.94	3.34	4.13	4.91	5.69
125	0.82	1.24	1.65	2.05	2.45	3.23	4.01	4.77
150	-0.02	0.38	0.78	1.17	1.56	2.31	3.10	3.86
175	-0.83	-0.46	-0.08	0.31	0.69	1.48	2.20	2.95
200	-1.60	-1.27	-0.91	-0.54	0.17	0.95	1.31	2.05

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
BrO₃ — Continued								
225	-2.32	-2.05	-1.72	-1.37	-1.02	-0.30	0.42	1.15
250	-2.97	-2.79	-2.50	-2.19	-1.85	-1.17	-0.46	0.25
300	-3.96	-4.11	-3.98	-3.74	-3.47	-2.86	-2.20	-1.53
350	-3.90	-5.06	-5.29	-5.19	-5.00	-4.50	-3.91	-3.29
400		-5.43	-6.35	-6.49	-6.43	-6.08	-5.59	-5.02
450		-3.04	-7.03	-7.61	-7.75	-7.60	-7.22	-6.73
500			-7.12	-8.47	-8.91	-9.04	-8.80	-8.40
550			-6.46	-9.05	-9.91	-10.40	-10.33	-10.03
600			-5.20	-9.33	-10.73	-11.66	-11.79	-11.61
700				-9.31	-11.92	-13.91	-14.51	-14.60
800					-12.81	-15.86	-16.98	-17.34
900					-13.75	-17.65	-19.23	-19.81
1000						-19.47	-21.38	-22.04
BrO₄⁻								
25	28.20	28.75	29.29	29.81	30.33	31.33	32.32	33.29
50	27.00	27.58	28.13	28.66	29.19	30.21	31.21	32.19
75	25.81	26.38	26.94	27.48	28.01	29.04	30.04	31.02
100	24.60	25.18	25.74	26.28	26.81	27.84	28.84	29.82
125	23.40	23.97	24.52	25.06	25.59	26.61	27.61	28.59
150	22.21	22.76	23.30	23.83	24.35	25.37	26.37	27.34
175	21.02	21.55	22.08	22.60	23.11	24.12	25.10	26.07
200	19.85	20.34	20.85	21.36	21.86	22.85	23.83	24.79
225	18.71	19.15	19.63	20.12	20.61	21.58	22.54	23.49
250	17.61	17.97	18.41	18.88	19.35	20.30	21.24	22.18
300	15.67	15.71	16.02	16.42	16.84	17.72	18.62	19.53
350	14.63	13.73	13.73	14.00	14.34	15.13	15.97	16.84
400		12.26	11.60	11.66	11.89	12.54	13.31	14.12
450		13.28	9.79	9.45	9.50	9.97	10.64	11.39
500			8.47	7.42	7.20	7.43	7.97	8.64
550				7.80	5.62	4.92	5.31	5.89
600				7.65	4.05	2.95	2.46	3.15
700					1.35	-0.87	-2.32	-2.53
800						-4.54	-6.97	-7.62
900						-8.38	-11.59	-12.66
1000							-16.33	-17.69
CN⁻								
25	41.20	41.49	41.77	42.06	42.35	42.94	43.53	44.12
50	40.67	40.96	41.25	41.55	41.84	42.43	43.02	43.61
75	40.18	40.48	40.77	41.06	41.35	41.93	42.52	43.10
100	39.74	40.03	40.31	40.60	40.89	41.46	42.04	42.62
125	39.34	39.61	39.89	40.17	40.45	41.01	41.58	42.15
150	38.98	39.23	39.49	39.76	40.03	40.58	41.13	41.69
175	38.67	38.89	39.13	39.38	39.64	40.17	40.71	41.25
200	38.42	38.59	38.80	39.03	39.27	39.77	40.30	40.83
225	38.23	38.33	38.50	38.70	38.92	39.40	39.90	40.42
250	38.12	38.13	38.24	38.41	38.61	39.05	39.52	40.02
300	38.29	37.93	37.86	37.93	38.06	38.40	38.81	39.26
350	39.64	38.18	37.69	37.61	37.63	37.84	38.17	38.55
400		38.99	37.82	37.47	37.34	37.37	37.59	37.90
450		42.66	38.37	37.56	37.21	37.01	37.09	37.31
500			39.58	37.94	37.27	36.75	36.66	36.78
550			41.59	38.66	37.53	36.61	36.33	36.32
600			44.23	39.71	38.02	36.60	36.08	35.94
700				42.47	39.53	36.96	35.89	35.43
800					41.46	37.75	36.09	35.29
900					43.42	38.81	36.60	35.54
1000						39.93	37.31	36.14

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar					
				1.5	2.0	3.0	4.0	5.0	
CO°									
25	-28.68	-28.29	-27.90	-27.52	-27.14	-26.41	-25.69	-24.97	
50	-29.36	-28.94	-28.54	-28.15	-27.77	-27.02	-26.28	-25.56	
75	-30.14	-29.71	-29.31	-28.91	-28.52	-27.76	-27.02	-26.29	
100	-31.01	-30.58	-30.16	-29.76	-29.36	-28.60	-27.85	-27.12	
125	-31.97	-31.53	-31.11	-30.70	-30.30	-29.52	-28.77	-28.03	
150	-33.01	-32.56	-32.13	-31.71	-31.31	-30.53	-29.77	-29.03	
175	-34.12	-33.66	-33.22	-32.80	-32.39	-31.60	-30.84	-30.09	
200	-35.30	-34.84	-34.38	-33.95	-33.54	-32.74	-31.97	-31.22	
225	-36.55	-36.08	-35.61	-35.17	-34.75	-33.94	-33.16	-32.41	
250	-37.88	-37.39	-36.90	-36.45	-36.02	-35.20	-34.41	-33.65	
300	-40.80	-40.22	-39.68	-39.19	-38.74	-37.88	-37.08	-36.30	
350	-44.37	-43.41	-42.71	-42.16	-41.67	-40.77	-39.94	-39.15	
400		-47.17	-46.04	-45.37	-44.82	-43.86	-42.99	-42.17	
450		-52.63	-49.72	-48.83	-48.18	-47.12	-46.21	-45.36	
500		-60.37	-53.87	-52.55	-51.75	-50.57	-49.60	-48.71	
550		-67.37	-58.56	-56.56	-55.54	-54.19	-53.14	-52.22	
600		-73.49	-63.69	-60.85	-59.54	-57.97	-56.84	-55.87	
700		-84.39	-74.33	-70.10	-68.10	-66.00	-64.66	-63.58	
800		-94.44	-84.76	-79.82	-77.23	-74.56	-73.00	-71.81	
900		-104.13	-94.90	-89.65	-86.68	-83.55	-81.79	-80.52	
1000		-113.71	-104.87	-99.50	-96.30	-92.85	-90.97	-89.67	
CO₂°									
25	-92.25	-91.86	-91.49	-91.11	-90.74	-90.02	-89.30	-88.59	
50	-93.01	-92.61	-92.22	-91.83	-91.46	-90.72	-89.99	-89.28	
75	-93.86	-93.45	-93.06	-92.67	-92.29	-91.54	-90.81	-90.09	
100	-94.80	-94.39	-93.98	-93.59	-93.21	-92.46	-91.73	-91.01	
125	-95.82	-95.40	-94.99	-94.60	-94.21	-93.46	-92.72	-92.00	
150	-96.90	-96.48	-96.07	-95.67	-95.28	-94.53	-93.79	-93.07	
175	-98.04	-97.62	-97.21	-96.81	-96.42	-95.66	-94.92	-94.20	
200	-99.24	-98.82	-98.41	-98.01	-97.62	-96.86	-96.12	-95.39	
225	-100.49	-100.08	-99.67	-99.26	-98.87	-98.11	-97.37	-96.64	
250	-101.79	-101.39	-100.97	-100.57	-100.18	-99.41	-98.67	-97.94	
300	-104.53	-104.16	-103.74	-103.33	-102.94	-102.17	-101.43	-100.70	
350	-107.44	-107.12	-106.69	-106.28	-105.88	-105.11	-104.36	-103.63	
400		-110.27	-109.81	-109.39	-108.99	-108.22	-107.47	-106.74	
450		-113.65	-113.09	-112.66	-112.26	-111.47	-110.72	-109.99	
500		-117.28	-116.53	-116.08	-115.66	-114.88	-114.12	-113.38	
550		-121.00	-120.13	-119.64	-119.21	-118.41	-117.65	-116.91	
600		-124.78	-123.86	-123.32	-122.88	-122.07	-121.30	-120.56	
700		-132.60	-131.66	-131.05	-130.57	-129.73	-128.96	-128.21	
800		-140.77	-139.85	-139.20	-138.69	-137.82	-137.03	-136.28	
900		-149.27	-148.38	-147.71	-147.18	-146.28	-145.48	-144.72	
1000		-158.09	-157.22	-156.54	-156.00	-155.08	-154.28	-153.52	
CO₃²⁻									
25	-126.19	-126.24	-126.26	-126.24	-126.21	-126.10	-125.93	-125.74	
50	-125.83	-125.89	-125.91	-125.91	-125.89	-125.80	-125.66	-125.50	
75	-125.35	-125.43	-125.48	-125.49	-125.48	-125.42	-125.31	-125.17	
100	-124.78	-124.89	-124.96	-124.99	-125.00	-124.97	-124.89	-124.77	
125	-124.10	-124.26	-124.36	-124.42	-124.46	-124.46	-124.41	-124.32	
150	-123.32	-123.54	-123.68	-123.78	-123.84	-123.90	-123.88	-123.82	
175	-122.43	-122.72	-122.92	-123.07	-123.17	-123.28	-123.30	-123.27	
200	-121.40	-121.80	-122.08	-122.28	-122.43	-122.60	-122.68	-122.69	
225	-120.21	-120.76	-121.15	-121.42	-121.62	-121.88	-122.01	-122.07	
250	-118.82	-119.59	-120.11	-120.47	-120.74	-121.10	-121.30	-121.41	
300	-115.17	-116.76	-117.73	-118.33	-118.77	-119.38	-119.75	-119.99	
350	-109.24	-112.90	-114.87	-115.82	-116.50	-117.43	-118.03	-118.42	

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
CO₃²⁻ — Continued								
400		-108.66	-111.43	-112.89	-113.90	-115.26	-116.12	-116.71
450		-100.26	-107.20	-109.49	-110.95	-112.84	-114.03	-114.85
500			-101.88	-105.50	-107.58	-110.15	-111.74	-112.83
550			-95.31	-100.89	-103.78	-107.18	-109.23	-110.62
600			-87.86	-95.68	-99.52	-103.90	-106.49	-108.22
700				-84.35	-89.85	-96.39	-100.22	-102.72
800					-79.26	-87.72	-92.91	-96.23
900					-68.38	-78.23	-84.70	-88.71
1000						-68.45	-75.92	-80.23
Ca²⁺								
25	-132.12	-132.32	-132.48	-132.62	-132.74	-132.94	-133.09	-133.22
50	-131.78	-131.97	-132.14	-132.28	-132.41	-132.61	-132.78	-132.91
75	-131.42	-131.62	-131.79	-131.94	-132.07	-132.28	-132.46	-132.60
100	-131.05	-131.26	-131.44	-131.59	-131.73	-131.95	-132.14	-132.30
125	-130.66	-130.89	-131.08	-131.24	-131.38	-131.63	-131.82	-131.99
150	-130.26	-130.50	-130.71	-130.88	-131.04	-131.29	-131.51	-131.68
175	-129.83	-130.10	-130.33	-130.52	-130.68	-130.96	-131.19	-131.38
200	-129.37	-129.67	-129.93	-130.14	-130.32	-130.62	-130.87	-131.07
225	-128.88	-129.22	-129.51	-129.75	-129.95	-130.28	-130.55	-130.77
250	-128.34	-128.75	-129.08	-129.34	-129.57	-129.93	-130.23	-130.47
300	-127.07	-127.70	-128.15	-128.49	-128.77	-129.22	-129.57	-129.86
350	-125.70	-126.45	-127.19	-127.58	-127.92	-128.47	-128.90	-129.25
400		-126.10	-126.21	-126.64	-127.04	-127.70	-128.21	-128.63
450		-127.23	-125.30	-125.68	-126.12	-126.89	-127.50	-127.99
500			-124.58	-124.71	-125.17	-126.05	-126.76	-127.33
550			-124.20	-123.76	-124.18	-125.16	-125.99	-126.65
600			-124.20	-122.90	-123.16	-124.22	-125.16	-125.93
700				-121.59	-121.06	-122.12	-123.33	-124.32
800					-118.87	-119.68	-121.20	-122.44
900					-116.47	-116.94	-118.79	-120.26
1000						-114.05	-116.22	-117.81
Ca(CH₃COO)²⁻								
25	-221.66	-221.31	-220.97	-220.63	-220.30	-219.63	-218.97	-218.31
50	-222.05	-221.69	-221.34	-221.00	-220.65	-219.98	-219.31	-218.65
75	-222.58	-222.22	-221.86	-221.51	-221.16	-220.48	-219.81	-219.15
100	-223.22	-222.86	-222.50	-222.15	-221.80	-221.12	-220.45	-219.79
125	-223.97	-223.60	-223.24	-222.89	-222.55	-221.87	-221.20	-220.54
150	-224.80	-224.44	-224.08	-223.73	-223.39	-222.71	-222.05	-221.39
175	-225.71	-225.36	-225.01	-224.66	-224.32	-223.65	-222.98	-222.33
200	-226.69	-226.35	-226.01	-225.67	-225.33	-224.66	-224.01	-223.35
225	-227.73	-227.42	-227.08	-226.75	-226.42	-225.76	-225.10	-224.46
250	-228.83	-228.54	-228.22	-227.90	-227.57	-226.92	-226.27	-225.63
300	-231.14	-230.97	-230.69	-230.38	-230.07	-229.45	-228.82	-228.19
350	-233.57	-233.37	-233.38	-233.10	-232.81	-232.21	-231.61	-230.99
400		-236.56	-236.28	-236.02	-235.76	-235.20	-234.62	-234.02
450		-239.86	-239.38	-239.14	-238.90	-238.38	-237.83	-237.26
500			-242.67	-242.44	-242.22	-241.75	-241.23	-240.68
550			-246.15	-245.89	-245.70	-245.28	-244.80	-244.28
600			-249.82	-249.52	-249.33	-248.96	-248.52	-248.04
700				-257.28	-257.02	-256.73	-256.39	-255.98
800					-265.23	-264.98	-264.75	-264.41
900					-273.93	-273.67	-273.55	-273.28
1000						-282.80	-282.78	-282.55

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H_2O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
$\text{Ca}(\text{CH}_3\text{COO})_2^\circ$								
25	-311.57	-310.62	-309.72	-308.85	-308.02	-306.40	-304.85	-303.34
50	-312.56	-311.57	-310.64	-309.75	-308.89	-307.24	-305.65	-304.10
75	-313.85	-312.85	-311.90	-310.99	-310.12	-308.44	-306.83	-305.26
100	-315.39	-314.38	-313.42	-312.50	-311.62	-309.92	-308.30	-306.72
125	-317.15	-316.13	-315.17	-314.24	-313.36	-311.65	-310.01	-308.43
150	-319.11	-318.09	-317.12	-316.20	-315.30	-313.58	-311.94	-310.35
175	-321.26	-320.24	-319.27	-318.34	-317.44	-315.71	-314.06	-312.47
200	-323.57	-322.57	-321.59	-320.65	-319.75	-318.02	-316.37	-314.76
225	-326.04	-325.05	-324.07	-323.13	-322.22	-320.49	-318.83	-317.23
250	-328.66	-327.69	-326.70	-325.76	-324.85	-323.12	-321.45	-319.84
300	-334.28	-333.40	-332.40	-331.45	-330.54	-328.80	-327.13	-325.51
350	-340.39	-339.64	-338.63	-337.67	-336.76	-335.00	-333.33	-331.71
400	-346.39	-345.34	-344.38	-343.45	-341.69	-340.01	-338.39	
450		-353.70	-352.51	-351.52	-350.59	-348.82	-347.13	-345.50
500		-361.60	-360.11	-359.09	-358.14	-356.36	-354.67	-353.03
550		-369.80	-368.13	-367.05	-366.08	-364.28	-362.58	-360.95
600		-378.27	-376.52	-375.37	-374.38	-372.57	-370.86	-369.21
700		-396.07	-394.30	-393.04	-391.99	-390.13	-388.40	-386.75
800		-414.97	-413.23	-411.91	-410.81	-408.90	-407.16	-405.49
900		-434.90	-433.19	-431.84	-430.72	-428.77	-427.00	-425.33
1000		-455.78	-454.10	-452.75	-451.60	-449.62	-447.85	-446.18
CaCO_3°								
25	-262.85	-263.00	-263.13	-263.23	-263.31	-263.44	-263.53	-263.59
50	-262.89	-263.04	-263.17	-263.28	-263.37	-263.51	-263.62	-263.70
75	-262.89	-263.04	-263.17	-263.28	-263.38	-263.53	-263.65	-263.74
100	-262.86	-263.02	-263.15	-263.26	-263.35	-263.51	-263.64	-263.74
125	-262.81	-262.97	-263.10	-263.21	-263.31	-263.47	-263.60	-263.71
150	-262.74	-262.90	-263.03	-263.14	-263.24	-263.40	-263.54	-263.65
175	-262.66	-262.81	-262.94	-263.05	-263.15	-263.32	-263.43	-263.57
200	-262.56	-262.70	-262.84	-262.95	-263.05	-263.22	-263.35	-263.47
225	-262.44	-262.59	-262.72	-262.83	-262.93	-263.10	-263.24	-263.36
250	-262.32	-262.46	-262.59	-262.70	-262.80	-262.97	-263.11	-263.23
300	-262.05	-262.16	-262.29	-262.40	-262.50	-262.67	-262.81	-262.93
350	-261.79	-261.84	-261.95	-262.06	-262.15	-262.32	-262.46	-262.58
400		-261.50	-261.58	-261.68	-261.77	-261.93	-262.07	-262.20
450		-261.26	-261.19	-261.27	-261.35	-261.51	-261.65	-261.77
500		-261.14	-260.79	-260.83	-260.91	-261.05	-261.19	-261.31
550		-260.93	-260.39	-260.38	-260.43	-260.57	-260.70	-260.81
600		-260.60	-259.98	-259.90	-259.93	-260.05	-260.17	-260.29
700		-259.73	-259.08	-258.89	-258.87	-258.95	-259.05	-259.16
800		-258.64	-258.03	-257.79	-257.72	-257.75	-257.84	-257.93
900		-257.41	-256.83	-256.56	-256.46	-256.46	-256.53	-256.62
1000		-256.05	-255.51	-255.23	-255.11	-255.08	-255.14	-255.23
CaCl°								
25	-162.55	-162.48	-162.39	-162.30	-162.19	-161.95	-161.70	-161.43
50	-162.53	-162.46	-162.37	-162.28	-162.17	-161.94	-161.69	-161.44
75	-162.55	-162.48	-162.39	-162.30	-162.20	-161.97	-161.73	-161.48
100	-162.61	-162.54	-162.45	-162.36	-162.26	-162.04	-161.81	-161.57
125	-162.68	-162.62	-162.54	-162.45	-162.36	-162.15	-161.92	-161.69
150	-162.79	-162.73	-162.66	-162.58	-162.49	-162.29	-162.07	-161.84
175	-162.91	-162.86	-162.80	-162.73	-162.64	-162.45	-162.24	-162.02
200	-163.04	-163.01	-162.96	-162.90	-162.82	-162.64	-162.44	-162.22
225	-163.18	-163.18	-163.15	-163.09	-163.02	-162.86	-162.67	-162.46
250	-163.32	-163.36	-163.34	-163.30	-163.24	-163.09	-162.92	-162.72
300	-163.58	-163.73	-163.78	-163.77	-163.74	-163.63	-163.48	-163.31
350	-163.85	-164.10	-164.28	-164.30	-164.30	-164.24	-164.12	-163.98
400		-164.94	-164.85	-164.89	-164.92	-164.91	-164.84	-164.72
450		-166.45	-165.52	-165.55	-165.60	-165.64	-165.61	-165.53

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

<i>T</i> , °C	Sat.	0.5	1.0	1.5	2.0	3.0	4.0	5.0
CaCl⁺ — Continued								
500		-166.33	-166.26	-166.32	-166.42	-166.44	-166.40	
550		-167.33	-167.04	-167.09	-167.24	-167.32	-167.32	
600		-168.55	-167.91	-167.90	-168.10	-168.23	-168.28	
700			-169.98	-169.65	-169.87	-170.14	-170.29	
800				-171.56	-171.69	-172.10	-172.38	
900					-173.55	-173.55	-174.12	-174.51
1000						-175.51	-176.23	-176.67
CaCl₂⁰								
25	-194.00	-193.62	-193.26	-192.89	-192.53	-191.82	-191.12	-190.43
50	-194.19	-193.79	-193.41	-193.04	-192.67	-191.95	-191.24	-190.54
75	-194.43	-194.03	-193.64	-193.26	-192.89	-192.16	-191.45	-190.75
100	-194.73	-194.32	-193.93	-193.55	-193.17	-192.44	-191.73	-191.02
125	-195.08	-194.67	-194.27	-193.89	-193.51	-192.77	-192.05	-191.35
150	-195.47	-195.06	-194.66	-194.27	-193.89	-193.15	-192.43	-191.73
175	-195.90	-195.49	-195.09	-194.70	-194.32	-193.58	-192.86	-192.15
200	-196.37	-195.96	-195.56	-195.17	-194.79	-194.04	-193.32	-192.61
225	-196.87	-196.47	-196.07	-195.67	-195.29	-194.55	-193.82	-193.11
250	-197.41	-197.02	-196.61	-196.22	-195.83	-195.08	-194.36	-193.65
300	-198.58	-198.21	-197.80	-197.40	-197.01	-196.26	-195.53	-194.82
350	-199.87	-199.53	-199.11	-198.70	-198.31	-197.56	-196.82	-196.11
400		-201.00	-200.54	-200.12	-199.73	-198.96	-198.23	-197.51
450		-202.69	-202.08	-201.65	-201.25	-200.48	-199.74	-199.02
500		-204.65	-203.75	-203.28	-202.86	-202.08	-201.34	-200.62
550		-206.62	-205.54	-205.01	-204.58	-203.78	-203.03	-202.31
600		-208.59	-207.43	-206.84	-206.38	-205.57	-204.81	-204.08
700		-212.63	-211.44	-210.74	-210.22	-209.37	-208.59	-207.85
800		-216.84	-215.68	-214.92	-214.36	-213.46	-212.66	-211.91
900		-221.24	-220.12	-219.33	-218.74	-217.80	-216.99	-216.23
1000		-225.83	-224.74	-223.94	-223.33	-222.36	-221.54	-220.79
CaHCO₃⁰								
25	-273.83	-273.71	-273.58	-273.43	-273.28	-272.97	-272.64	-272.30
50	-274.28	-274.16	-274.02	-273.88	-273.73	-273.42	-273.09	-272.76
75	-274.83	-274.70	-274.57	-274.42	-274.27	-273.97	-273.65	-273.32
100	-275.46	-275.33	-275.20	-275.05	-274.91	-274.60	-274.29	-273.97
125	-276.17	-276.04	-275.90	-275.76	-275.61	-275.31	-275.00	-274.69
150	-276.93	-276.81	-276.67	-276.53	-276.39	-276.09	-275.79	-275.48
175	-277.75	-277.63	-277.50	-277.37	-277.23	-276.94	-276.64	-276.33
200	-278.62	-278.51	-278.39	-278.26	-278.12	-277.84	-277.54	-277.24
225	-279.53	-279.44	-279.33	-279.20	-279.07	-278.79	-278.50	-278.20
250	-280.48	-280.41	-280.31	-280.19	-280.07	-279.80	-279.52	-279.22
300	-282.47	-282.48	-282.41	-282.31	-282.20	-281.95	-281.68	-281.40
350	-284.52	-284.65	-284.67	-284.59	-284.50	-284.28	-284.03	-283.76
400		-287.11	-287.07	-287.02	-286.94	-286.75	-286.53	-286.28
450		-289.75	-289.60	-289.57	-289.53	-289.37	-289.18	-288.95
500			-292.26	-292.25	-292.23	-292.12	-291.95	-291.75
550			-295.05	-295.05	-295.05	-294.99	-294.85	-294.67
600			-297.97	-297.95	-297.97	-297.96	-297.86	-297.71
700				-304.13	-304.11	-304.18	-304.17	-304.08
800					-310.62	-310.74	-310.83	-310.81
900					-317.48	-317.61	-317.80	-317.83
1000						-324.80	-325.07	-325.13
CaF⁺								
25	-200.39	-200.46	-200.51	-200.54	-200.55	-200.54	-200.50	-200.43
50	-200.19	-200.27	-200.32	-200.35	-200.37	-200.37	-200.35	-200.30
75	-200.05	-200.13	-200.18	-200.22	-200.24	-200.26	-200.24	-200.21
100	-199.95	-200.03	-200.09	-200.14	-200.16	-200.19	-200.19	-200.16

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
CaF* — Continued								
125	-199.89	-199.98	-200.05	-200.09	-200.13	-200.16	-200.17	-200.15
150	-199.85	-199.96	-200.03	-200.09	-200.13	-200.18	-200.19	-200.18
175	-199.84	-199.96	-200.05	-200.12	-200.17	-200.23	-200.25	-200.25
200	-199.86	-200.00	-200.10	-200.18	-200.23	-200.31	-200.35	-200.36
225	-199.88	-200.05	-200.17	-200.26	-200.33	-200.42	-200.47	-200.50
250	-199.92	-200.12	-200.26	-200.37	-200.45	-200.57	-200.63	-200.66
300	-199.98	-200.29	-200.51	-200.66	-200.77	-200.93	-201.03	-201.09
350	-200.13	-200.48	-200.85	-201.02	-201.17	-201.39	-201.53	-201.63
400		-201.33	-201.29	-201.48	-201.66	-201.93	-202.12	-202.26
450		-203.29	-201.89	-202.02	-202.22	-202.55	-202.80	-202.97
500			-202.71	-202.66	-202.85	-203.24	-203.54	-203.76
550				-203.41	-203.55	-203.99	-204.35	-204.62
600				-204.29	-204.32	-204.78	-205.21	-205.53
700					-206.55	-206.05	-206.46	-207.03
800						-208.00	-208.22	-208.94
900							-210.06	-210.93
1000								-211.96
								-213.04
CaSO₄								
25	-312.93	-312.83	-312.72	-312.60	-312.48	-312.20	-311.92	-311.62
50	-313.03	-312.93	-312.81	-312.69	-312.57	-312.30	-312.02	-311.73
75	-313.10	-312.99	-312.88	-312.75	-312.63	-312.36	-312.08	-311.80
100	-313.14	-313.03	-312.91	-312.79	-312.66	-312.40	-312.12	-311.84
125	-313.16	-313.05	-312.93	-312.81	-312.68	-312.42	-312.14	-311.87
150	-313.17	-313.06	-312.94	-312.81	-312.68	-312.42	-312.15	-311.87
175	-313.15	-313.04	-312.92	-312.80	-312.67	-312.41	-312.13	-311.86
200	-313.13	-313.02	-312.89	-312.77	-312.64	-312.38	-312.11	-311.83
225	-313.09	-312.98	-312.85	-312.73	-312.60	-312.34	-312.07	-311.79
250	-313.03	-312.92	-312.80	-312.68	-312.55	-312.29	-312.02	-311.74
300	-312.89	-312.79	-312.67	-312.54	-312.41	-312.15	-311.88	-311.61
350	-312.69	-312.61	-312.49	-312.36	-312.23	-311.97	-311.70	-311.43
400		-312.40	-312.28	-312.15	-312.02	-311.76	-311.49	-311.22
450			-312.16	-312.03	-311.91	-311.78	-311.51	-310.98
500				-311.90	-311.76	-311.63	-311.50	-310.97
550					-311.60	-311.46	-311.33	-310.94
600						-311.28	-311.00	-310.87
700							-310.14	-309.87
800								-309.60
900								-308.78
1000								-307.88
								-306.91
Cd⁺²								
25	-18.56	-18.72	-18.85	-18.94	-19.00	-19.08	-19.10	-19.08
50	-18.12	-18.31	-18.45	-18.57	-18.66	-18.79	-18.86	-18.90
75	-17.68	-17.89	-18.05	-18.18	-18.29	-18.45	-18.56	-18.64
100	-17.24	-17.46	-17.64	-17.79	-17.91	-18.10	-18.24	-18.34
125	-16.79	-17.03	-17.23	-17.39	-17.53	-17.74	-17.91	-18.03
150	-16.33	-16.60	-16.81	-16.99	-17.14	-17.39	-17.57	-17.72
175	-15.86	-16.15	-16.39	-16.59	-16.76	-17.03	-17.24	-17.40
200	-15.36	-15.69	-15.96	-16.19	-16.37	-16.67	-16.90	-17.09
225	-14.84	-15.22	-15.52	-15.77	-15.98	-16.32	-16.57	-16.78
250	-14.28	-14.72	-15.07	-15.35	-15.59	-15.96	-16.25	-16.48
300	-13.00	-13.65	-14.14	-14.49	-14.78	-15.25	-15.60	-15.88
350	-11.65	-12.42	-13.19	-13.60	-13.96	-14.53	-14.96	-15.31
400		-12.13	-12.25	-12.70	-13.12	-13.80	-14.33	-14.74
450		-13.40	-11.41	-11.81	-12.27	-13.06	-13.69	-14.18
500			-10.80	-10.93	-11.40	-12.31	-13.04	-13.62
550				-10.55	-10.10	-10.52	-11.54	-12.38
600				-10.72	-9.37	-9.63	-10.72	-11.69
700					-8.41	-7.85	-8.93	-10.17

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Cd⁺² — Continued								
800					-6.04	-6.86	-8.41	-9.68
900					-4.09	-4.55	-6.44	-7.93
1000						-2.13	-4.34	-5.96
Ce⁺³								
25	-161.60	-162.05	-162.44	-162.79	-163.10	-163.65	-164.13	-164.56
50	-160.34	-160.80	-161.21	-161.58	-161.91	-162.51	-163.03	-163.50
75	-159.02	-159.50	-159.93	-160.31	-160.67	-161.29	-161.85	-162.35
100	-157.64	-158.15	-158.60	-159.00	-159.37	-160.03	-160.61	-161.14
125	-156.22	-156.75	-157.23	-157.65	-158.04	-158.73	-159.33	-159.89
150	-154.73	-155.31	-155.81	-156.26	-156.67	-157.39	-158.03	-158.61
175	-153.18	-153.81	-154.35	-154.83	-155.26	-156.03	-156.70	-157.30
200	-151.57	-152.25	-152.84	-153.36	-153.82	-154.64	-155.34	-155.97
225	-149.87	-150.63	-151.29	-151.85	-152.35	-153.22	-153.96	-154.63
250	-148.08	-148.94	-149.68	-150.29	-150.84	-151.77	-152.56	-153.26
300	-144.16	-145.37	-146.33	-147.06	-147.70	-148.79	-149.70	-150.48
350	-140.21	-141.44	-142.87	-143.69	-144.43	-145.70	-146.74	-147.63
400		-139.36	-139.39	-140.23	-141.06	-142.50	-143.70	-144.71
450		-140.95	-136.08	-136.72	-137.59	-139.21	-140.57	-141.72
500			-133.25	-133.20	-134.04	-135.82	-137.35	-138.65
550				-131.25	-129.77	-130.41	-132.32	-134.03
600				-130.21	-126.52	-126.72	-128.68	-130.59
700					-120.95	-119.22	-120.93	-123.27
800						-111.50	-112.44	-115.28
900						-103.25	-103.27	-106.66
1000							-93.67	-97.62
Cl⁻								
25	-31.38	-31.17	-30.95	-30.74	-30.52	-30.06	-29.61	-29.15
50	-31.69	-31.48	-31.26	-31.05	-30.83	-30.39	-29.94	-29.49
75	-31.95	-31.74	-31.54	-31.32	-31.11	-30.68	-30.24	-29.81
100	-32.17	-31.97	-31.77	-31.57	-31.36	-30.94	-30.52	-30.09
125	-32.33	-32.16	-31.97	-31.78	-31.58	-31.18	-30.77	-30.35
150	-32.45	-32.30	-32.13	-31.95	-31.77	-31.38	-30.99	-30.59
175	-32.51	-32.40	-32.25	-32.09	-31.92	-31.57	-31.19	-30.80
200	-32.51	-32.45	-32.34	-32.20	-32.05	-31.72	-31.37	-31.00
225	-32.44	-32.44	-32.38	-32.27	-32.15	-31.85	-31.52	-31.17
250	-32.27	-32.38	-32.37	-32.31	-32.21	-31.96	-31.66	-31.33
300	-31.51	-32.01	-32.21	-32.25	-32.23	-32.08	-31.86	-31.58
350	-29.54	-31.15	-31.80	-32.01	-32.10	-32.10	-31.97	-31.77
400		-29.82	-31.09	-31.56	-31.81	-32.01	-32.00	-31.88
450		-25.80	-29.93	-30.87	-31.34	-31.79	-31.93	-31.91
500			-28.13	-29.86	-30.67	-31.45	-31.77	-31.87
550				-25.55	-28.51	-29.76	-30.96	-31.49
600				-22.37	-26.81	-28.62	-30.32	-31.11
700					-22.79	-25.75	-28.61	-29.98
800						-22.39	-26.37	-28.38
900						-18.95	-23.78	-26.39
1000							-21.08	-24.13
ClO⁻								
25	-8.80	-8.68	-8.54	-8.39	-8.23	-7.90	-7.55	-7.18
50	-9.00	-8.88	-8.74	-8.60	-8.44	-8.12	-7.77	-7.42
75	-9.13	-9.01	-8.88	-8.74	-8.59	-8.27	-7.94	-7.60
100	-9.20	-9.09	-8.97	-8.83	-8.69	-8.39	-8.07	-7.73
125	-9.20	-9.11	-9.00	-8.88	-8.74	-8.46	-8.15	-7.83
150	-9.14	-9.08	-8.99	-8.88	-8.76	-8.49	-8.20	-7.89
175	-9.02	-8.99	-8.92	-8.83	-8.73	-8.48	-8.21	-7.92
200	-8.83	-8.84	-8.81	-8.75	-8.66	-8.45	-8.20	-7.92

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
ClO⁻ — Continued								
225	-8.55	-8.64	-8.65	-8.61	-8.55	-8.37	-8.15	-7.89
250	-8.17	-8.36	-8.43	-8.44	-8.40	-8.27	-8.07	-7.84
300	-6.97	-7.55	-7.82	-7.94	-7.98	-7.96	-7.84	-7.66
350	-4.54	-6.21	-6.95	-7.23	-7.39	-7.51	-7.49	-7.38
400		-4.41	-5.75	-6.30	-6.62	-6.93	-7.03	-7.01
450		0.07	-4.09	-5.09	-5.64	-6.21	-6.46	-6.54
500			-1.77	-3.56	-4.44	-5.34	-5.77	-5.97
550			1.33	-1.67	-2.99	-4.31	-4.96	-5.30
600			5.05	0.58	-1.30	-3.12	-4.02	-4.52
700				5.73	2.74	-0.25	-1.74	-2.59
800					7.30	3.21	1.07	-0.14
900						7.06	4.33	2.81
1000						11.07	7.89	6.24
ClO₂⁻								
25	4.10	4.39	4.67	4.96	5.25	5.84	6.43	7.02
50	3.52	3.82	4.11	4.40	4.70	5.28	5.87	6.46
75	2.99	3.28	3.58	3.87	4.16	4.74	5.33	5.91
100	2.50	2.78	3.07	3.36	3.64	4.22	4.80	5.38
125	2.04	2.31	2.59	2.87	3.15	3.72	4.28	4.85
150	1.63	1.88	2.14	2.41	2.68	3.23	3.79	4.34
175	1.26	1.48	1.72	1.97	2.23	2.76	3.30	3.85
200	0.94	1.11	1.33	1.56	1.80	2.31	2.83	3.37
225	0.69	0.79	0.97	1.17	1.40	1.87	2.38	2.89
250	0.51	0.53	0.65	0.82	1.02	1.46	1.94	2.43
300	0.54	0.19	0.13	0.20	0.33	0.68	1.10	1.55
350	1.74	0.29	-0.18	-0.26	-0.23	-0.01	0.32	0.71
400		0.96	-0.20	-0.55	-0.67	-0.62	-0.40	-0.08
450		4.50	0.20	-0.61	-0.95	-1.14	-1.05	-0.82
500			1.25	-0.38	-1.04	-1.55	-1.62	-1.50
550			3.10	0.18	-0.94	-1.84	-2.11	-2.11
600			5.58	1.06	-0.62	-2.01	-2.51	-2.65
700				3.48	0.55	-2.00	-3.04	-3.49
800					2.11	-1.56	-3.20	-3.97
900					3.69	-0.88	-3.05	-4.09
1000						-0.16	-2.73	-3.87
ClO₃⁻								
25	-1.90	-1.47	-1.05	-0.63	-0.22	0.59	1.40	2.19
50	-2.86	-2.42	-1.98	-1.56	-1.14	-0.32	0.49	1.29
75	-3.80	-3.36	-2.92	-2.49	-2.08	-1.25	-0.44	0.36
100	-4.73	-4.29	-3.86	-3.43	-3.01	-2.19	-1.39	-0.59
125	-5.65	-5.21	-4.79	-4.37	-3.95	-3.14	-2.34	-1.55
150	-6.54	-6.12	-5.71	-5.30	-4.89	-4.09	-3.30	-2.51
175	-7.41	-7.02	-6.62	-6.22	-5.83	-5.04	-4.26	-3.48
200	-8.25	-7.90	-7.52	-7.14	-6.76	-5.99	-5.22	-4.45
225	-9.04	-8.75	-8.41	-8.05	-7.68	-6.93	-6.18	-5.43
250	-9.78	-9.58	-9.28	-8.94	-8.60	-7.88	-7.14	-6.41
300	-10.95	-11.08	-10.93	-10.68	-10.39	-9.75	-9.07	-8.37
350	-11.09	-12.24	-12.45	-12.33	-12.13	-11.59	-10.98	-10.33
400		-12.83	-13.74	-13.86	-13.78	-13.40	-12.88	-12.29
450		-10.69	-14.66	-15.21	-15.34	-15.16	-14.75	-14.23
500			-15.01	-16.34	-16.76	-16.86	-16.59	-16.16
550			-14.62	-17.20	-18.04	-18.49	-18.39	-18.07
600			-13.66	-17.77	-19.15	-20.05	-20.15	-19.94
700				-18.37	-20.96	-22.92	-23.49	-23.55
800					-22.52	-25.54	-26.63	-26.96
900					-24.18	-28.06	-29.60	-30.15
1000						-30.63	-32.51	-33.14

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
ClO₄⁻								
25	-2.04	-1.53	-1.05	-0.60	-0.15	0.70	1.51	2.31
50	-3.13	-2.58	-2.06	-1.57	-1.09	-0.17	0.71	1.56
75	-4.22	-3.65	-3.11	-2.60	-2.10	-1.15	-0.24	0.65
100	-5.31	-4.74	-4.19	-3.67	-3.16	-2.19	-1.26	-0.36
125	-6.42	-5.84	-5.30	-4.77	-4.26	-3.28	-2.34	-1.43
150	-7.52	-6.96	-6.42	-5.90	-5.39	-4.41	-3.46	-2.54
175	-8.63	-8.09	-7.55	-7.04	-6.53	-5.56	-4.61	-3.69
200	-9.72	-9.21	-8.70	-8.19	-7.70	-6.73	-5.80	-4.88
225	-10.79	-10.34	-9.85	-9.36	-8.88	-7.93	-7.00	-6.09
250	-11.81	-11.45	-11.00	-10.53	-10.07	-9.14	-8.23	-7.33
300	-13.63	-13.59	-13.28	-12.89	-12.47	-11.61	-10.73	-9.86
350	-14.51	-15.47	-15.49	-15.22	-14.88	-14.12	-13.30	-12.47
400		-16.84	-17.54	-17.50	-17.28	-16.65	-15.91	-15.13
450		-15.63	-19.29	-19.66	-19.63	-19.19	-18.56	-17.85
500			-20.55	-21.66	-21.91	-21.73	-21.23	-20.59
550			-21.14	-23.44	-24.09	-24.25	-23.91	-23.36
600			-21.22	-25.00	-26.17	-26.74	-26.58	-26.15
700				-27.71	-30.05	31.63	31.91	31.73
800					-33.83	-36.43	-37.20	-37.27
900					-37.86	-41.27	-42.47	-42.74
1000						-46.30	-47.80	-48.15
Co⁺²								
25	-13.00	-13.27	-13.48	-13.66	-13.82	-14.05	-14.23	-14.37
50	-12.32	-12.61	-12.85	-13.05	-13.23	-13.53	-13.76	-13.95
75	-11.63	-11.94	-12.20	-12.42	-12.62	-12.95	-13.22	-13.44
100	-10.93	-11.25	-11.53	-11.77	-11.99	-12.35	-12.65	-12.90
125	-10.21	-10.56	-10.86	-11.12	-11.35	-11.74	-12.06	-12.34
150	-9.48	-9.86	-10.18	-10.46	-10.70	-11.12	-11.47	-11.77
175	-8.73	-9.14	-9.49	-9.79	-10.05	-10.50	-10.88	-11.20
200	-7.95	-8.40	-8.79	-9.11	-9.40	-9.88	-10.28	-10.63
225	-7.13	-7.64	-8.06	-8.42	-8.73	-9.26	-9.69	-10.06
250	-6.27	-6.85	-7.33	-7.72	-8.06	-8.63	-9.09	-9.49
300	-4.37	-5.18	-5.80	-6.28	-6.68	-7.36	-7.90	-8.36
350	-2.50	-3.32	-4.26	-4.80	-5.27	-6.07	-6.71	-7.24
400		-2.74	-2.76	-3.31	-3.84	-4.76	-5.50	-6.11
450		-4.62	-1.41	-1.83	-2.39	-3.43	-4.28	4.98
500			-0.42	-0.39	-0.93	-2.08	-3.04	-3.85
550			-0.02	0.96	0.54	-0.69	-1.78	-2.69
600			-0.29	2.15	2.01	0.75	-0.48	-1.50
700				3.80	4.94	3.84	2.32	1.04
800					7.89	7.28	5.44	3.86
900					11.07	11.07	8.86	7.01
1000						15.03	12.45	10.45
Co⁺³								
25	32.00	31.50	31.07	30.68	30.33	29.71	29.17	28.68
50	33.86	33.34	32.88	32.47	32.10	31.43	30.84	30.31
75	35.76	35.22	34.74	34.32	33.92	33.22	32.59	32.03
100	37.71	37.15	36.64	36.19	35.78	35.04	34.38	33.79
125	39.72	39.11	38.58	38.11	37.67	36.89	36.21	35.58
150	41.78	41.13	40.56	40.05	39.59	38.77	38.05	37.39
175	43.90	43.19	42.57	42.03	41.54	40.67	39.91	39.23
200	46.10	45.32	44.64	44.05	43.52	42.59	41.79	41.07
225	48.38	47.50	46.75	46.11	45.53	44.54	43.69	42.93
250	50.75	49.76	48.91	48.21	47.58	46.51	45.60	44.80
300	55.85	54.46	53.36	52.52	51.79	50.53	49.48	48.57
350	60.62	59.51	57.88	56.96	56.11	54.65	53.44	52.40
400		61.76	62.30	61.44	60.51	58.85	57.46	56.28
450		57.79	66.33	65.89	64.97	63.14	61.56	60.22

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Co⁺³ — Continued								
500		69.45	70.24	69.47	67.51	65.74	64.23	
550		71.08	74.35	73.99	71.98	70.02	68.32	
600		71.01	78.06	78.51	76.58	74.41	72.52	
700			83.84	87.48	86.28	83.67	81.33	
800				96.54	96.80	93.69	90.84	
900					106.26	108.14	104.43	101.09
1000						120.00	115.64	112.02
CrO₄⁻²								
25	-173.94	-173.70	-173.45	-173.20	-172.94	-172.40	-171.84	-171.28
50	-174.18	-173.95	-173.70	-173.45	-173.19	-172.66	-172.11	-171.56
75	-174.33	-174.11	-173.87	-173.63	-173.38	-172.87	-172.34	-171.80
100	-174.40	-174.20	-173.98	-173.75	-173.51	-173.02	-172.52	-171.99
125	-174.37	-174.21	-174.02	-173.81	-173.60	-173.14	-172.65	-172.15
150	-174.26	-174.15	-174.00	-173.82	-173.63	-173.20	-172.75	-172.27
175	-174.04	-174.00	-173.90	-173.77	-173.60	-173.23	-172.81	-172.36
200	-173.70	-173.77	-173.74	-173.65	-173.53	-173.21	-172.84	-172.42
225	-173.22	-173.43	-173.49	-173.47	-173.39	-173.15	-172.83	-172.43
250	-172.55	-172.97	-173.16	-173.21	-173.20	-173.04	-172.78	-172.45
300	-170.39	-171.60	-172.20	-172.48	-172.63	-172.70	-172.58	-172.37
350	-165.86	-169.26	-170.80	-171.41	-171.79	-172.15	-172.24	-172.17
400		-166.12	-168.80	-169.95	-170.65	-171.41	-171.74	-171.84
450		-157.84	-165.96	-168.01	-169.16	-170.44	-171.08	-171.39
500			-161.89	-165.49	-167.29	-169.24	-170.25	-170.80
550			-156.33	-162.29	-164.98	-167.77	-169.22	-170.06
600			-149.65	-158.46	-162.23	-166.02	-167.98	-169.13
700				-149.64	-155.58	-161.68	-164.83	-166.70
800					-148.05	-156.32	-160.78	-163.40
900						-140.37	-150.30	-155.97
1000							-144.09	-150.68
Cr₂O₇⁻²								
25	-311.00	-310.16	-309.35	-308.57	-307.81	-306.34	-304.90	-303.50
50	-312.55	-311.69	-310.86	-310.07	-309.29	-307.79	-306.33	-304.91
75	-314.06	-313.20	-312.37	-311.57	-310.80	-309.29	-307.82	-306.39
100	-315.55	-314.69	-313.87	-313.08	-312.31	-310.80	-309.34	-307.91
125	-317.00	-316.17	-315.36	-314.58	-313.81	-312.32	-310.87	-309.45
150	-318.40	-317.61	-316.83	-316.07	-315.32	-313.85	-312.41	-311.00
175	-319.75	-319.02	-318.28	-317.54	-316.81	-315.37	-313.96	-312.57
200	-321.03	-320.38	-319.69	-318.99	-318.29	-316.89	-315.50	-314.13
225	-322.21	-321.69	-321.06	-320.41	-319.74	-318.40	-317.05	-315.70
250	-323.26	-322.92	-322.39	-321.80	-321.18	-319.89	-318.59	-317.27
300	-324.72	-325.09	-324.88	-324.46	-323.97	-322.85	-321.65	-320.42
350	-324.01	-326.50	-327.06	-326.93	-326.61	-325.73	-324.68	-323.55
400		-326.77	-328.75	-329.12	-329.08	-328.52	-327.66	-326.66
450		-321.41	-329.67	-330.94	-331.32	-331.19	-330.58	-329.74
500			-329.39	-332.27	-333.27	-333.72	-333.41	-332.76
550			-327.58	-333.01	-334.89	-336.10	-336.15	-335.72
600			-324.56	-333.17	-336.16	-338.30	-338.77	-338.60
700				-332.33	-337.82	-342.17	-343.65	-344.04
800					-338.89	-345.45	-348.03	-349.01
900					-340.13	-348.46	-352.03	-353.48
1000						-351.55	-355.83	-357.48
Cs⁺								
25	-69.71	-69.45	-69.17	-68.89	-68.60	-68.01	-67.41	-66.79
50	-70.50	-70.23	-69.95	-69.66	-69.37	-68.77	-68.17	-67.55
75	-71.29	-71.01	-70.72	-70.43	-70.14	-69.54	-68.94	-68.32
100	-72.08	-71.79	-71.51	-71.22	-70.92	-70.32	-69.72	-69.11

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Cs⁺ — Continued								
125	-72.87	-72.59	-72.30	-72.01	-71.71	-71.11	-70.51	-69.90
150	-73.66	-73.38	-73.09	-72.80	-72.51	-71.91	-71.30	-70.69
175	-74.46	-74.18	-73.90	-73.60	-73.31	-72.71	-72.11	-71.50
200	-75.26	-74.99	-74.70	-74.41	-74.12	-73.52	-72.92	-72.31
225	-76.06	-75.80	-75.51	-75.22	-74.93	-74.34	-73.74	-73.13
250	-76.86	-76.61	-76.33	-76.04	-75.75	-75.16	-74.56	-73.96
300	-78.45	-78.25	-77.98	-77.70	-77.41	-76.82	-76.23	-75.63
350	-79.99	-79.88	-79.64	-79.36	-79.08	-78.51	-77.92	-77.32
400		-81.55	-81.31	-81.05	-80.77	-80.21	-79.63	-79.04
450		-83.18	-82.99	-82.74	-82.48	-81.93	-81.35	-80.77
500			-84.67	-84.45	-84.20	-83.66	-83.10	-82.52
550			-86.35	-86.16	-85.92	-85.40	-84.86	-84.29
600			-88.03	-87.88	-87.66	-87.16	-86.63	-86.07
700				-91.35	-91.15	-90.70	-90.20	-89.66
800					-94.69	-94.27	-93.80	-93.29
900					-98.27	-97.88	-97.44	-96.94
1000						-101.52	-101.11	-100.63
CsBr°								
25	-94.21	-93.52	-92.87	-92.23	-91.62	-90.42	-89.26	-88.12
50	-95.66	-94.95	-94.27	-93.62	-92.98	-91.76	-90.57	-89.42
75	-97.07	-96.34	-95.65	-94.99	-94.35	-93.11	-91.91	-90.74
100	-98.45	-97.71	-97.02	-96.35	-95.70	-94.45	-93.24	-92.06
125	-99.80	-99.07	-98.36	-97.69	-97.04	-95.78	-94.56	-93.38
150	-101.14	-100.40	-99.69	-99.02	-98.36	-97.09	-95.88	-94.69
175	-102.45	-101.72	-101.01	-100.33	-99.67	-98.40	-97.18	-95.99
200	-103.75	-103.02	-102.31	-101.63	-100.97	-99.69	-98.47	-97.28
225	-105.03	-104.31	-103.60	-102.91	-102.25	-100.97	-99.75	-98.55
250	-106.28	-105.59	-104.87	-104.19	-103.52	-102.24	-101.02	-99.82
300	-108.74	-108.11	-107.39	-106.70	-106.03	-104.75	-103.52	-102.32
350	-111.09	-110.59	-109.86	-109.17	-108.50	-107.22	-105.98	-104.78
400		-113.02	-112.30	-111.61	-110.94	-109.65	-108.41	-107.21
450		-115.43	-114.70	-114.00	-113.33	-112.04	-110.80	-109.60
500		-117.81	-117.06	-116.37	-115.70	-114.40	-113.16	-111.96
550		-120.15	-119.40	-118.70	-118.03	-116.74	-115.50	-114.29
600		-122.46	-121.71	-121.01	-120.33	-119.04	-117.80	-116.59
700		-127.00	-126.25	-125.54	-124.86	-123.57	-122.32	-121.12
800		-131.44	-130.68	-129.97	-129.30	-128.00	-126.75	-125.54
900		-135.78	-135.03	-134.32	-133.64	-132.34	-131.09	-129.88
1000		-140.05	-139.30	-138.58	-137.90	-136.60	-135.35	-134.14
CsCl°								
25	-100.90	-100.32	-99.76	-99.21	-98.68	-97.64	-96.64	-95.65
50	-102.19	-101.59	-101.01	-100.45	-99.91	-98.85	-97.82	-96.82
75	-103.45	-102.84	-102.25	-101.68	-101.13	-100.05	-99.02	-98.00
100	-104.69	-104.06	-103.47	-102.89	-102.33	-101.25	-100.21	-99.19
125	-105.90	-105.27	-104.67	-104.09	-103.53	-102.44	-101.39	-100.37
150	-107.09	-106.46	-105.86	-105.28	-104.71	-103.62	-102.57	-101.54
175	-108.27	-107.64	-107.03	-106.45	-105.88	-104.79	-103.73	-102.70
200	-109.42	-108.80	-108.20	-107.61	-107.04	-105.94	-104.89	-103.86
225	-110.57	-109.96	-109.35	-108.76	-108.19	-107.09	-106.03	-105.00
250	-111.69	-111.10	-110.49	-109.90	-109.33	-108.23	-107.16	-106.13
300	-113.88	-113.35	-112.74	-112.14	-111.57	-110.47	-109.40	-108.37
350	-116.00	-115.56	-114.95	-114.35	-113.78	-112.67	-111.61	-110.57
400		-117.74	-117.13	-116.53	-115.96	-114.85	-113.78	-112.74
450		-119.90	-119.27	-118.68	-118.10	-116.99	-115.92	-114.88
500		-122.03	-121.39	-120.79	-120.22	-119.11	-118.04	-117.00
550		-124.13	-123.48	-122.88	-122.31	-121.19	-120.12	-119.08
600		-126.20	-125.55	-124.95	-124.37	-123.26	-122.19	-121.14
700		-130.27	-129.62	-129.01	-128.43	-127.31	-126.24	-125.20

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
CsCl° — Continued								
800		-134.25	-133.60	-132.99	-132.41	-131.29	-130.21	-129.17
900		-138.15	-137.50	-136.89	-136.30	-135.18	-134.11	-133.06
1000		-141.98	-141.33	-140.72	-140.13	-139.01	-137.93	-136.89
CsI°								
25	-82.48	-81.65	-80.85	-80.09	-79.35	-77.91	-76.53	-75.19
50	-83.99	-83.13	-82.31	-81.52	-80.76	-79.29	-77.88	-76.51
75	-85.47	-84.59	-83.76	-82.96	-82.18	-80.70	-79.26	-77.87
100	-86.92	-86.03	-85.19	-84.38	-83.60	-82.10	-80.65	-79.25
125	-88.35	-87.46	-86.61	-85.79	-85.01	-83.49	-82.04	-80.63
150	-89.76	-88.86	-88.01	-87.19	-86.40	-84.88	-83.43	-82.01
175	-91.15	-90.26	-89.40	-88.58	-87.79	-86.26	-84.80	-83.38
200	-92.53	-91.64	-90.78	-89.96	-89.16	-87.63	-86.17	-84.74
225	-93.88	-93.01	-92.15	-91.32	-90.52	-88.99	-87.52	-86.10
250	-95.22	-94.37	-93.51	-92.68	-91.88	-90.34	-88.87	-87.44
300	-97.82	-97.06	-96.19	-95.36	-94.56	-93.02	-91.54	-90.11
350	-100.33	-99.71	-98.84	-98.01	-97.20	-95.66	-94.18	-92.75
400		-102.33	-101.46	-100.62	-99.81	-98.27	-96.79	-95.35
450		-104.92	-104.04	-103.20	-102.40	-100.85	-99.36	-97.93
500		-107.49	-106.60	-105.76	-104.95	-103.40	-101.91	-100.48
550		-110.03	-109.13	-108.29	-107.48	-105.92	-104.44	-103.00
600		-112.54	-111.64	-110.79	-109.98	-108.43	-106.94	-105.50
700		-117.49	-116.58	-115.73	-114.92	-113.36	-111.87	-110.43
800		-122.35	-121.44	-120.59	-119.77	-118.21	-116.72	-115.27
900		-127.13	-126.22	-125.37	-124.55	-122.99	-121.49	-120.05
1000		-131.84	-130.93	-130.08	-129.26	-127.69	-126.20	-124.75
Cu⁺								
25	11.95	11.87	11.82	11.78	11.76	11.76	11.79	11.84
50	11.69	11.61	11.56	11.52	11.49	11.48	11.49	11.52
75	11.41	11.33	11.27	11.23	11.20	11.17	11.18	11.20
100	11.10	11.02	10.96	10.91	10.88	10.85	10.84	10.86
125	10.78	10.69	10.62	10.58	10.54	10.50	10.49	10.49
150	10.43	10.34	10.27	10.22	10.18	10.13	10.11	10.11
175	10.07	9.97	9.89	9.84	9.79	9.74	9.71	9.71
200	9.70	9.59	9.50	9.44	9.39	9.33	9.30	9.29
225	9.31	9.19	9.10	9.03	8.97	8.90	8.86	8.85
250	8.92	8.78	8.68	8.60	8.54	8.46	8.41	8.39
300	8.15	7.95	7.81	7.71	7.63	7.52	7.46	7.42
350	7.41	7.12	6.89	6.77	6.67	6.53	6.44	6.39
400		6.09	5.93	5.78	5.66	5.49	5.38	5.30
450		4.94	4.93	4.76	4.62	4.41	4.26	4.16
500			3.89	3.71	3.54	3.28	3.11	2.98
550			2.80	2.63	2.43	2.12	1.91	1.76
600			1.65	1.51	1.30	0.94	0.69	0.51
700				-0.89	-1.05	-1.49	-1.84	-2.09
800					-3.50	-3.99	-4.44	-4.76
900					-6.06	-6.55	-7.10	-7.49
1000						-9.21	-9.85	-10.27
Cu²⁺								
25	15.68	15.40	15.17	14.98	14.80	14.51	14.28	14.08
50	16.26	15.97	15.73	15.52	15.34	15.02	14.75	14.53
75	16.84	16.54	16.29	16.07	15.87	15.53	15.24	15.00
100	17.42	17.11	16.84	16.61	16.40	16.04	15.73	15.47
125	18.00	17.67	17.39	17.14	16.92	16.54	16.22	15.93
150	18.59	18.24	17.94	17.68	17.44	17.04	16.69	16.39
175	19.20	18.82	18.49	18.21	17.95	17.52	17.15	16.83
200	19.83	19.41	19.05	18.74	18.46	18.00	17.61	17.27

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Cu⁺² — Continued								
225	20.49	20.01	19.61	19.27	18.97	18.47	18.05	17.69
250	21.19	20.64	20.19	19.81	19.49	18.94	18.49	18.11
300	22.74	21.96	21.36	20.91	20.52	19.87	19.35	18.90
350	24.25	23.45	22.54	22.02	21.57	20.80	20.19	19.67
400		23.64	23.65	23.13	22.61	21.73	21.01	20.41
450		21.35	24.59	24.20	23.65	22.65	21.82	21.14
500			25.15	25.21	24.69	23.58	22.63	21.85
550			25.10	26.11	25.71	24.52	23.46	22.57
600			24.38	26.84	26.73	25.50	24.31	23.31
700				27.53	28.70	27.63	26.15	24.89
800					30.63	30.06	28.25	26.70
900					32.75	32.79	30.61	28.79
1000						35.65	33.10	31.13
Cu(CH₃COO)⁰								
25	-76.77	-76.30	-75.83	-75.38	-74.94	-74.08	-73.23	-72.40
50	-77.57	-77.08	-76.60	-76.14	-75.69	-74.81	-73.95	-73.10
75	-78.51	-78.01	-77.52	-77.05	-76.59	-75.70	-74.84	-73.99
100	-79.57	-79.06	-78.57	-78.10	-77.63	-76.73	-75.86	-75.01
125	-80.73	-80.22	-79.73	-79.25	-78.78	-77.88	-77.00	-76.15
150	-81.99	-81.48	-80.98	-80.50	-80.03	-79.13	-78.25	-77.39
175	-83.34	-82.83	-82.33	-81.85	-81.38	-80.47	-79.58	-78.72
200	-84.77	-84.26	-83.76	-83.27	-82.80	-81.89	-81.01	-80.14
225	-86.28	-85.77	-85.27	-84.78	-84.31	-83.39	-82.51	-81.64
250	-87.85	-87.36	-86.85	-86.36	-85.89	-84.97	-84.08	-83.22
300	-91.19	-90.74	-90.23	-89.73	-89.25	-88.33	-87.44	-86.57
350	-94.74	-94.39	-93.86	-93.36	-92.88	-91.95	-91.05	-90.18
400		-98.29	-97.73	-97.22	-96.73	-95.80	-94.90	-94.03
450		-102.54	-101.83	-101.30	-100.80	-99.86	-98.96	-98.08
500		-107.15	-106.15	-105.59	-105.08	-104.13	-103.22	-102.34
550		-111.88	-110.69	-110.07	-109.54	-108.58	-107.66	-106.78
600		-116.69	-115.42	-114.74	-114.19	-113.20	-112.28	-111.39
700		-126.66	-125.37	-124.57	-123.97	-122.94	-122.00	-121.10
800		-137.11	-135.85	-135.00	-134.34	-133.26	-132.31	-131.40
900		-148.03	-146.80	-145.92	-145.23	-144.12	-143.15	-142.23
1000		-159.38	-158.19	-157.30	-156.59	-155.45	-154.47	-153.55
Cu(CH₃COO)₂⁻								
25	-165.00	-163.91	-162.88	-161.88	-160.92	-159.07	-157.29	-155.56
50	-166.11	-164.98	-163.92	-162.90	-161.92	-160.02	-158.20	-156.43
75	-167.52	-166.38	-165.30	-164.27	-163.28	-161.36	-159.52	-157.73
100	-169.18	-168.04	-166.96	-165.92	-164.92	-162.99	-161.14	-159.34
125	-171.06	-169.92	-168.85	-167.81	-166.81	-164.88	-163.02	-161.22
150	-173.12	-172.01	-170.94	-169.91	-168.91	-166.98	-165.13	-163.33
175	-175.35	-174.27	-173.21	-172.19	-171.20	-169.28	-167.44	-165.64
200	-177.72	-176.69	-175.65	-174.65	-173.67	-171.76	-169.93	-168.14
225	-180.21	-179.25	-178.24	-177.26	-176.29	-174.41	-172.59	-170.81
250	-182.79	-181.94	-180.97	-180.01	-179.07	-177.22	-175.41	-173.64
300	-188.05	-187.60	-186.79	-185.91	-185.02	-183.25	-181.49	-179.75
350	-192.75	-193.45	-193.00	-192.26	-191.46	-189.79	-188.09	-186.41
400		-199.21	-199.47	-198.97	-198.30	-196.78	-195.17	-193.55
450		-202.67	-206.02	-205.95	-205.48	-204.17	-202.68	-201.13
500			-212.40	-213.12	-212.95	-211.92	-210.57	-209.11
550			-218.43	-220.41	-220.66	-219.99	-218.82	-217.45
600			-224.24	-227.77	-228.57	-228.34	-227.37	-226.13
700				-242.96	-244.98	-245.83	-245.34	-244.37
800					-262.36	-264.29	-264.32	-263.63
900					-280.96	-283.75	-284.25	-283.78
1000						-304.29	-305.13	-304.75

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Cu(CH₃COO)⁺								
25	-75.64	-75.38	-75.11	-74.85	-74.58	-74.04	-73.50	-72.95
50	-75.69	-75.42	-75.15	-74.88	-74.61	-74.06	-73.52	-72.98
75	-75.88	-75.61	-75.34	-75.06	-74.79	-74.25	-73.71	-73.17
100	-76.20	-75.92	-75.65	-75.38	-75.11	-74.57	-74.03	-73.49
125	-76.61	-76.34	-76.07	-75.80	-75.54	-75.00	-74.47	-73.93
150	-77.12	-76.86	-76.59	-76.33	-76.06	-75.54	-75.01	-74.48
175	-77.70	-77.46	-77.20	-76.94	-76.68	-76.16	-75.64	-75.12
200	-78.36	-78.13	-77.89	-77.64	-77.39	-76.88	-76.36	-75.84
225	-79.08	-78.88	-78.65	-78.41	-78.17	-77.67	-77.16	-76.65
250	-79.84	-79.69	-79.48	-79.25	-79.02	-78.53	-78.04	-77.54
300	-81.49	-81.47	-81.32	-81.12	-80.91	-80.47	-80.00	-79.52
350	-83.31	-83.42	-83.40	-83.23	-83.05	-82.65	-82.22	-81.77
400		-85.99	-85.71	-85.57	-85.41	-85.06	-84.67	-84.25
450		-89.36	-88.26	-88.10	-87.97	-87.68	-87.33	-86.94
500			-91.09	-90.84	-90.72	-90.48	-90.18	-89.83
550			-94.23	-93.77	-93.64	-93.45	-93.21	-92.90
600			-97.70	-96.90	-96.72	-96.58	-96.39	-96.13
700				-103.83	-103.34	-103.22	-103.16	-103.01
800					-110.52	-110.32	-110.41	-110.37
900					-118.15	-117.83	-118.07	-118.14
1000						-125.77	-126.16	-126.28
Cu(CH₃COO)⁰								
25	-165.82	-164.96	-164.15	-163.36	-162.60	-161.14	-159.72	-158.34
50	-166.36	-165.48	-164.63	-163.83	-163.05	-161.54	-160.09	-158.69
75	-167.22	-166.31	-165.46	-164.64	-163.84	-162.32	-160.85	-159.43
100	-168.34	-167.42	-166.56	-165.73	-164.93	-163.39	-161.91	-160.47
125	-169.69	-168.77	-167.90	-167.06	-166.25	-164.70	-163.22	-161.77
150	-171.25	-170.33	-169.45	-168.61	-167.80	-166.24	-164.75	-163.30
175	-173.00	-172.08	-171.20	-170.35	-169.54	-167.97	-166.48	-165.02
200	-174.93	-174.02	-173.13	-172.28	-171.46	-169.89	-168.39	-166.93
225	-177.01	-176.12	-175.23	-174.38	-173.56	-171.98	-170.47	-169.01
250	-179.25	-178.38	-177.49	-176.63	-175.81	-174.23	-172.72	-171.26
300	-184.15	-183.35	-182.45	-181.59	-180.76	-179.18	-177.66	-176.19
350	-189.56	-188.88	-187.96	-187.10	-186.26	-184.67	-183.15	-181.68
400		-194.94	-193.98	-193.10	-192.26	-190.67	-189.14	-187.66
450		-201.57	-200.47	-199.57	-198.73	-197.12	-195.58	-194.10
500		-208.80	-207.41	-206.48	-205.62	-204.00	-202.46	-200.97
550		-216.36	-214.78	-213.79	-212.91	-211.28	-209.73	-208.24
600		-224.20	-222.54	-221.49	-220.58	-218.93	-217.37	-215.88
700		-240.78	-239.10	-237.93	-236.97	-235.27	-233.69	-232.19
800		-258.51	-256.85	-255.63	-254.62	-252.87	-251.28	-249.76
900		-277.30	-275.69	-274.43	-273.39	-271.60	-270.00	-268.47
1000		-297.09	-295.51	-294.24	-293.18	-291.37	-289.75	-288.23
Cu(CH₃COO)⁻								
25	-255.81	-254.30	-252.87	-251.50	-250.18	-247.66	-245.24	-242.89
50	-256.59	-255.03	-253.56	-252.16	-250.80	-248.21	-245.73	-243.33
75	-257.88	-256.30	-254.81	-253.39	-252.02	-249.40	-246.88	-244.45
100	-259.58	-258.00	-256.51	-255.08	-253.70	-251.06	-248.53	-246.08
125	-261.65	-260.08	-258.58	-257.16	-255.78	-253.13	-250.60	-248.14
150	-264.04	-262.49	-261.00	-259.58	-258.20	-255.56	-253.03	-250.57
175	-266.71	-265.20	-263.73	-262.31	-260.95	-258.32	-255.79	-253.33
200	-269.62	-268.17	-266.73	-265.33	-263.98	-261.37	-258.85	-256.40
225	-272.75	-271.39	-269.99	-268.62	-267.28	-264.69	-262.19	-259.75
250	-276.05	-274.83	-273.48	-272.14	-270.83	-268.27	-265.79	-263.37
300	-282.97	-282.25	-281.08	-279.84	-278.60	-276.13	-273.71	-271.33
350	-289.54	-290.15	-289.41	-288.32	-287.18	-284.85	-282.51	-280.18
400		-298.36	-298.29	-297.47	-296.47	-294.32	-292.09	-289.84
450		-304.53	-307.52	-307.16	-306.39	-304.47	-302.38	-300.22

GIBBS FREE ENERGIES OF FORMATION OF AQUEOUS SPECIES

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TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Cu(CH₃COO)₅ — Continued								
300		-316.83	-317.29	-316.84	-315.24	-313.32	-311.27	
350		-326.02	-327.76	-327.77	-326.57	-324.85	-322.92	
400		-335.22	-338.53	-339.11	-338.41	-336.92	-335.14	
450			-361.20	-362.99	-363.45	-362.52	-361.06	
500				-388.60	-390.19	-389.87	-388.75	
550					-416.12	-418.60	-418.83	-417.99
600						-448.72	-449.37	-448.63
Dichloroacetate								
25	-97.53	-96.81	-96.12	-95.45	-94.78	-93.49	-92.22	-90.97
50	-98.80	-98.08	-97.38	-96.70	-96.03	-94.73	-93.47	-92.22
75	-100.10	-99.37	-98.67	-97.99	-97.33	-96.03	-94.77	-93.53
100	-101.42	-100.70	-100.00	-99.32	-98.66	-97.37	-96.11	-94.88
125	-102.76	-102.05	-101.36	-100.69	-100.03	-98.75	-97.50	-96.27
150	-104.12	-103.42	-102.74	-102.07	-101.42	-100.15	-98.91	-97.69
175	-105.48	-104.81	-104.14	-103.49	-102.84	-101.58	-100.35	-99.14
200	-106.84	-106.21	-105.56	-104.92	-104.29	-103.04	-101.83	-100.62
225	-108.19	-107.61	-106.99	-106.37	-105.75	-104.53	-103.32	-102.13
250	-109.50	-109.01	-108.43	-107.83	-107.23	-106.03	-104.84	-103.67
300	-111.94	-111.76	-111.30	-110.77	-110.22	-109.09	-107.95	-106.80
350	-113.53	-114.29	-114.14	-113.73	-113.25	-112.21	-111.12	-110.02
400		-116.37	-116.85	-116.65	-116.28	-115.37	-114.36	-113.31
450		-116.08	-119.31	-119.49	-119.29	-118.56	-117.65	-116.66
500			-121.33	-122.20	-122.26	-121.76	-120.97	-120.06
550				-122.76	-124.72	-125.16	-124.97	-123.50
600				-123.72	-127.06	-127.97	-128.16	-126.96
700					-131.40	-133.39	-134.52	-134.44
800						-138.79	-140.85	-141.22
900							-148.04	-147.95
1000							-153.92	-154.96
Dichloroacetic Acid								
25	-98.86	-98.01	-97.19	-96.41	-95.64	-94.15	-92.71	-91.30
50	-100.45	-99.58	-98.75	-97.95	-97.17	-95.67	-94.22	-92.80
75	-102.13	-101.24	-100.40	-99.60	-98.81	-97.30	-95.84	-94.42
100	-103.89	-103.00	-102.15	-101.34	-100.55	-99.03	-97.57	-96.14
125	-105.75	-104.85	-103.99	-103.17	-102.38	-100.85	-99.38	-97.95
150	-107.68	-106.78	-105.91	-105.08	-104.28	-102.74	-101.27	-99.83
175	-109.70	-108.78	-107.91	-107.07	-106.26	-104.71	-103.23	-101.79
200	-111.79	-110.87	-109.98	-109.13	-108.31	-106.75	-105.26	-103.81
225	-113.96	-113.03	-112.12	-111.26	-110.43	-108.86	-107.36	-105.91
250	-116.22	-115.27	-114.33	-113.46	-112.62	-111.03	-109.52	-108.06
300	-121.04	-120.00	-118.98	-118.06	-117.19	-115.56	-114.01	-112.53
350	-126.69	-125.16	-123.94	-122.92	-122.00	-120.31	-118.73	-117.22
400		-131.08	-129.25	-128.07	-127.06	-125.28	-123.65	-122.12
450		-139.31	-135.01	-133.51	-132.38	-130.46	-128.77	-127.19
500		-150.68	-141.37	-139.29	-137.94	-135.85	-134.08	-132.45
550		-160.97	-148.46	-145.42	-143.77	-141.44	-139.57	-137.88
600		-170.00	-156.11	-151.91	-149.85	-147.23	-145.23	-143.48
700		-186.10	-171.84	-165.72	-162.70	-159.33	-157.05	-155.15
800		-200.89	-187.17	-180.05	-176.21	-172.06	-169.46	-167.42
900		-215.09	-201.99	-194.43	-190.06	-185.27	-182.40	-180.24
1000		-229.02	-216.46	-208.74	-204.05	-198.82	-195.78	-193.57
Dichloroacetyl Chloride								
25	-56.14	-55.19	-54.27	-53.37	-52.50	-50.80	-49.14	-47.51
50	-57.87	-56.91	-55.99	-55.10	-54.23	-52.55	-50.91	-49.30
75	-59.70	-58.74	-57.81	-56.92	-56.05	-54.37	-52.74	-51.15
100	-61.62	-60.65	-59.73	-58.83	-57.96	-56.28	-54.66	-53.07

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Dichloroacetyl Chloride — Continued								
125	-63.63	-62.66	-61.72	-60.82	-59.95	-58.27	-56.64	-55.06
150	-65.73	-64.74	-63.80	-62.90	-62.02	-60.33	-58.71	-57.12
175	-67.91	-66.92	-65.96	-65.05	-64.17	-62.47	-60.84	-59.25
200	-70.17	-69.17	-68.20	-67.27	-66.39	-64.68	-63.04	-61.45
225	-72.53	-71.50	-70.51	-69.57	-68.67	-66.95	-65.30	-63.70
250	-74.97	-73.93	-72.90	-71.94	-71.03	-69.29	-67.63	-66.02
300	-80.22	-79.05	-77.92	-76.90	-75.94	-74.15	-72.46	-70.83
350	-86.53	-84.68	-83.27	-82.14	-81.12	-79.25	-77.51	-75.85
400		-91.24	-89.04	-87.69	-86.56	-84.58	-82.78	-81.08
450		-100.78	-95.35	-93.59	-92.28	-90.13	-88.25	-86.50
500		-114.39	-102.40	-99.87	-98.29	-95.91	-93.92	-92.11
550		-126.55	-110.35	-106.57	-104.59	-101.90	-99.78	-97.90
600		-137.01	-119.00	-113.70	-111.19	-108.11	-105.83	-103.86
700		-155.23	-136.76	-128.93	-125.16	-121.11	-118.45	-116.29
800		-171.62	-153.84	-144.70	-139.86	-134.78	-131.72	-129.36
900		-187.08	-170.12	-160.41	-154.87	-148.95	-145.54	-143.03
1000		-202.08	-185.83	-175.91	-169.96	-163.46	-159.82	-157.26
Dy⁺³								
25	-158.70	-159.16	-159.56	-159.91	-160.24	-160.80	-161.30	-161.74
50	-157.29	-157.77	-158.19	-158.56	-158.91	-159.52	-160.05	-160.54
75	-155.83	-156.33	-156.77	-157.16	-157.52	-158.17	-158.74	-159.25
100	-154.33	-154.85	-155.31	-155.72	-156.10	-156.78	-157.38	-157.92
125	-152.78	-153.33	-153.82	-154.25	-154.65	-155.36	-155.99	-156.56
150	-151.17	-151.77	-152.29	-152.75	-153.17	-153.92	-154.58	-155.17
175	-149.51	-150.16	-150.72	-151.22	-151.67	-152.45	-153.15	-153.77
200	-147.79	-148.50	-149.11	-149.65	-150.13	-150.97	-151.70	-152.35
225	-145.98	-146.77	-147.46	-148.04	-148.56	-149.46	-150.23	-150.92
250	-144.09	-144.99	-145.75	-146.39	-146.96	-147.93	-148.75	-149.48
300	-139.97	-141.23	-142.23	-142.99	-143.66	-144.79	-145.74	-146.55
350	-135.92	-137.13	-138.62	-139.47	-140.24	-141.56	-142.65	-143.58
400		-135.17	-135.03	-135.88	-136.74	-138.24	-139.49	-140.55
450		-137.62	-131.70	-132.27	-133.16	-134.85	-136.27	-137.47
500			-128.97	-128.71	-129.53	-131.36	-132.96	-134.32
550			-127.27	-125.27	-125.84	-127.78	-129.57	-131.09
600			-126.74	-122.09	-122.11	-124.07	-126.06	-127.76
700				-116.89	-114.62	-116.19	-118.62	-120.73
800					-106.98	-107.59	-110.52	-113.09
900					-98.79	-98.28	-101.78	-104.79
1000						-88.54	-92.63	-95.88
Ethanamine								
25	6.30	6.99	7.66	8.32	8.96	10.23	11.48	12.71
50	5.40	6.09	6.76	7.41	8.05	9.31	10.53	11.74
75	4.39	5.08	5.75	6.40	7.04	8.28	9.50	10.69
100	3.28	3.97	4.64	5.29	5.93	7.17	8.37	9.56
125	2.07	2.77	3.44	4.09	4.72	5.96	7.16	8.34
150	0.78	1.47	2.14	2.79	3.42	4.66	5.86	7.03
175	-0.61	0.08	0.76	1.41	2.04	3.28	4.48	5.65
200	-2.07	-1.38	-0.71	-0.05	0.58	1.82	3.02	4.19
225	-3.61	-2.93	-2.25	-1.59	-0.95	0.29	1.49	2.66
250	-5.23	-4.55	-3.86	-3.20	-2.56	-1.32	-0.12	1.05
300	-8.69	-8.03	-7.31	-6.63	-5.98	-4.73	-3.53	-2.35
350	-12.59	-11.82	-11.04	-10.33	-9.67	-8.40	-7.18	-6.00
400		-16.03	-15.05	-14.29	-13.60	-12.30	-11.07	-9.88
450		-21.15	-19.36	-18.50	-17.76	-16.42	-15.17	-13.97
500		-27.43	-24.01	-22.95	-22.15	-20.75	-19.48	-18.26
550		-33.49	-29.02	-27.66	-26.76	-25.29	-23.98	-22.74
600		-39.27	-34.35	-32.61	-31.57	-30.00	-28.66	-27.40
700		-50.53	-45.49	-43.12	-41.77	-39.96	-38.52	-37.22

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Ethanamine — Continued								
800		-61.79	-56.93	-54.23	-52.61	-50.55	-49.01	-47.66
900		-73.23	-68.58	-65.74	-63.95	-61.67	-60.05	-58.66
1000		-84.95	-80.46	-77.57	-75.68	-73.26	-71.58	-70.18
Ethane								
25	-3.89	-3.29	-2.72	-2.16	-1.62	-0.57	0.46	1.46
50	-4.64	-4.02	-3.43	-2.86	-2.30	-1.22	-0.18	0.84
75	-5.54	-4.91	-4.30	-3.72	-3.15	-2.06	-1.00	0.03
100	-6.57	-5.92	-5.31	-4.71	-4.14	-3.03	-1.97	-0.93
125	-7.70	-7.05	-6.42	-5.82	-5.25	-4.13	-3.05	-2.01
150	-8.94	-8.28	-7.65	-7.04	-6.45	-5.33	-4.25	-3.19
175	-10.28	-9.61	-8.96	-8.35	-7.76	-6.62	-5.53	-4.47
200	-11.71	-11.03	-10.37	-9.75	-9.15	-8.00	-6.91	-5.84
225	-13.23	-12.54	-11.87	-11.23	-10.63	-9.47	-8.36	-7.29
250	-14.84	-14.14	-13.45	-12.80	-12.18	-11.01	-9.89	-8.82
300	-18.39	-17.61	-16.85	-16.16	-15.52	-14.31	-13.17	-12.08
350	-22.68	-21.51	-20.59	-19.83	-19.14	-17.89	-16.72	-15.60
400		-26.08	-24.68	-23.80	-23.04	-21.71	-20.50	-19.36
450		-32.55	-29.21	-28.07	-27.21	-25.78	-24.52	-23.35
500		-41.54	-34.28	-32.68	-31.65	-30.08	-28.76	-27.54
550		-49.76	-39.97	-37.62	-36.36	-34.61	-33.20	-31.94
600		-57.05	-46.17	-42.91	-41.33	-39.34	-37.84	-36.53
700		-70.24	-59.09	-54.31	-51.98	-49.40	-47.67	-46.24
800		-82.62	-71.88	-66.32	-63.34	-60.15	-58.17	-56.63
900		-94.70	-84.45	-78.55	-75.15	-71.45	-69.27	-67.63
1000		-106.75	-96.92	-90.89	-87.24	-83.20	-80.87	-79.20
Ethanol								
25	-43.33	-42.68	-42.05	-41.42	-40.81	-39.60	-38.41	-37.23
50	-44.29	-43.64	-43.01	-42.40	-41.79	-40.60	-39.44	-38.29
75	-45.37	-44.72	-44.10	-43.48	-42.88	-41.70	-40.55	-39.42
100	-46.57	-45.92	-45.29	-44.68	-44.08	-42.91	-41.76	-40.64
125	-47.86	-47.21	-46.59	-45.97	-45.38	-44.21	-43.07	-41.95
150	-49.26	-48.61	-47.98	-47.37	-46.77	-45.60	-44.47	-43.35
175	-50.75	-50.10	-49.47	-48.85	-48.25	-47.09	-45.95	-44.84
200	-52.33	-51.68	-51.04	-50.42	-49.82	-48.66	-47.52	-46.41
225	-53.99	-53.35	-52.70	-52.08	-51.48	-50.31	-49.17	-48.06
250	-55.74	-55.10	-54.44	-53.82	-53.21	-52.04	-50.90	-49.79
300	-59.49	-58.85	-58.16	-57.52	-56.90	-55.71	-54.57	-53.45
350	-63.74	-62.95	-62.18	61.51	60.87	-59.66	-58.50	-57.38
400		-67.52	-66.52	-65.78	-65.11	-63.86	-62.69	-61.56
450		-73.16	-71.19	-70.32	-69.60	-68.31	-67.11	-65.97
500		-80.19	-76.24	-75.14	-74.34	-72.98	-71.75	-70.59
550		-86.93	-81.72	-80.24	-79.32	-77.87	-76.60	-75.42
600		-93.30	-87.54	-85.61	-84.53	-82.96	-81.65	-80.44
700		-105.63	-99.73	-97.04	-95.58	-93.72	-92.30	-91.03
800		-117.88	-112.19	-109.11	-107.33	-105.16	-103.61	-102.29
900		-130.29	-124.85	-121.60	-119.60	-117.18	-115.53	-114.16
1000		-142.96	-137.73	-134.41	-132.30	-129.71	-127.99	-126.60
Ethylbenzene								
25	32.44	33.76	35.03	36.26	37.46	39.78	42.03	44.23
50	31.07	32.40	33.67	34.90	36.09	38.39	40.62	42.79
75	29.48	30.81	32.08	33.31	34.50	36.79	39.01	41.17
100	27.68	29.01	30.29	31.51	32.70	34.99	37.21	39.36
125	25.68	27.02	28.30	29.53	30.72	33.01	35.22	37.37
150	23.51	24.85	26.13	27.36	28.55	30.85	33.06	35.21
175	21.17	22.51	23.80	25.03	26.22	28.52	30.73	32.88
200	18.66	20.00	21.30	22.54	23.74	26.04	28.25	30.40

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Ethylbenzene — Continued								
225	16.00	17.33	18.64	19.89	21.10	23.41	25.63	27.78
250	13.18	14.50	15.84	17.10	18.31	20.64	22.86	25.02
300	7.06	8.39	9.80	11.10	12.33	14.69	16.93	19.10
350	0.00	1.63	3.19	4.56	5.84	8.24	10.51	12.69
400		-6.05	-3.99	-2.49	-1.15	1.32	3.63	5.84
450		-15.84	-11.81	-10.06	-8.60	-6.03	-3.68	-1.44
500		-28.40	-20.36	-18.13	-16.52	-13.81	-11.38	-9.11
550		-40.33	-29.72	-26.74	-24.87	-21.97	-19.47	-17.15
600		-51.47	-39.76	-35.84	-33.66	-30.52	-27.92	-25.55
700		-72.80	-60.80	-55.34	-52.39	-48.65	-45.83	-43.33
800		-93.84	-82.27	-76.00	-72.39	-68.03	-64.96	-62.35
900		-115.07	-104.00	-97.39	-93.35	-88.48	-85.19	-82.49
1000		-136.72	-126.08	-119.33	-115.04	-109.82	-106.39	-103.66
Ethylene								
25	19.45	19.98	20.49	20.98	21.46	22.39	23.29	24.17
50	18.67	19.23	19.76	20.27	20.77	21.73	22.66	23.57
75	17.79	18.36	18.91	19.44	19.95	20.93	21.88	22.80
100	16.82	17.40	17.96	18.50	19.02	20.02	20.98	21.91
125	15.76	16.36	16.93	17.47	18.00	19.01	19.98	20.92
150	14.63	15.24	15.82	16.37	16.90	17.92	18.90	19.86
175	13.43	14.04	14.63	15.19	15.73	16.77	17.76	18.72
200	12.15	12.78	13.38	13.95	14.50	15.54	16.54	17.51
225	10.81	11.44	12.06	12.64	13.20	14.26	15.27	16.24
250	9.39	10.04	10.68	11.27	11.84	12.91	13.93	14.92
300	6.29	7.02	7.73	8.36	8.95	10.06	11.11	12.11
350	2.52	3.64	4.51	5.21	5.85	7.01	8.08	9.10
400		-0.34	1.00	1.83	2.53	3.76	4.87	5.92
450		-6.13	-2.88	-1.81	-1.00	0.33	1.49	2.57
500		-14.37	-7.25	-5.72	-4.75	-3.28	-2.05	-0.93
550		-21.80	-12.19	-9.92	-8.72	-7.06	-5.75	-4.59
600		-28.26	-17.59	-14.41	-12.90	-11.01	-9.61	-8.39
700		-39.70	-28.75	-24.09	-21.83	-19.36	-17.74	-16.40
800		-50.19	-39.65	-34.21	-31.32	-28.25	-26.38	-24.93
900		-60.26	-50.20	-44.43	-41.12	-37.55	-35.48	-33.94
1000		-70.17	-60.53	-54.63	-51.07	-47.17	-44.95	-43.38
Ethyne								
25	51.89	52.47	53.02	53.56	54.08	55.10	56.09	57.05
50	51.09	51.69	52.26	52.81	53.35	54.39	55.40	56.39
75	50.20	50.81	51.40	51.96	52.51	53.56	54.58	55.58
100	49.23	49.85	50.45	51.02	51.57	52.64	53.67	54.68
125	48.19	48.82	49.42	50.00	50.57	51.65	52.69	53.70
150	47.08	47.72	48.34	48.92	49.49	50.58	51.63	52.65
175	45.91	46.56	47.18	47.78	48.35	49.45	50.51	51.54
200	44.67	45.33	45.97	46.58	47.16	48.27	49.34	50.37
225	43.37	44.05	44.70	45.32	45.91	47.03	48.11	49.15
250	42.00	42.69	43.37	44.00	44.61	45.75	46.83	47.88
300	39.01	39.79	40.54	41.22	41.85	43.03	44.14	45.21
350	35.29	36.53	37.47	38.22	38.90	40.13	41.28	42.37
400		32.63	34.10	35.00	35.75	37.06	38.25	39.37
450		26.72	30.36	31.53	32.40	33.83	35.08	36.23
500		18.07	26.10	27.80	28.85	30.44	31.75	32.95
550		10.38	21.24	23.77	25.09	26.88	28.29	29.54
600		3.82	15.89	19.44	21.12	23.18	24.69	26.00
700		-7.53	4.86	10.11	12.63	15.34	17.11	18.55
800		-17.67	-5.75	0.37	3.61	7.02	9.06	10.63
900		-27.23	-15.86	-9.35	-5.64	-1.67	0.61	2.28
1000		-36.51	-25.61	-18.96	-14.97	-10.62	-8.18	-6.47

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Er⁺³								
25	-159.90	-160.38	-160.81	-161.19	-161.53	-162.14	-162.67	-163.15
50	-158.41	-158.91	-159.36	-159.76	-160.12	-160.78	-161.35	-161.88
75	-156.87	-157.39	-157.86	-158.28	-158.66	-159.35	-159.96	-160.51
100	-155.28	-155.83	-156.31	-156.75	-157.15	-157.87	-158.51	-159.10
125	-153.63	-154.22	-154.73	-155.19	-155.61	-156.37	-157.04	-157.65
150	-151.94	-152.56	-153.11	-153.60	-154.04	-154.84	-155.54	-156.17
175	-150.18	-150.86	-151.45	-151.97	-152.44	-153.28	-154.01	-154.68
200	-148.35	-149.09	-149.74	-150.30	-150.81	-151.69	-152.47	-153.16
225	-146.45	-147.27	-147.98	-148.59	-149.14	-150.09	-150.90	-151.63
250	-144.45	-145.38	-146.18	-146.85	-147.44	-148.45	-149.32	-150.09
300	-140.12	-141.41	-142.44	-143.23	-143.93	-145.11	-146.10	-146.97
350	-135.87	-137.09	-138.61	-139.49	-140.30	-141.67	-142.80	-143.78
400		-134.96	-134.81	-135.68	-136.57	-138.13	-139.43	-140.54
450		-137.39	-131.26	-131.85	-132.77	-134.50	-135.98	-137.23
500			-128.35	-128.06	-128.90	-130.79	-132.44	-133.85
550			-126.49	-124.41	-124.98	-126.97	-128.81	-130.39
600			-125.86	-121.02	-121.02	-123.02	-125.06	-126.82
700				-115.43	-113.06	-114.64	-117.13	-119.30
800					-104.93	-105.51	-108.49	-111.13
900					-96.24	-95.65	-99.21	-102.29
1000						-85.34	-89.50	-92.82
Eu⁺²								
25	-129.10	-129.12	-129.11	-129.08	-129.04	-128.93	-128.79	-128.63
50	-129.05	-129.06	-129.06	-129.04	-129.00	-128.91	-128.78	-128.64
75	-129.01	-129.03	-129.03	-129.01	-128.98	-128.90	-128.79	-128.66
100	-128.98	-129.01	-129.01	-129.00	-128.98	-128.91	-128.81	-128.69
125	-128.95	-128.99	-129.01	-129.01	-129.00	-128.94	-128.85	-128.75
150	-128.93	-128.99	-129.02	-129.03	-129.03	-128.99	-128.91	-128.82
175	-128.90	-128.98	-129.04	-129.06	-129.07	-129.05	-128.99	-128.90
200	-128.86	-128.98	-129.05	-129.10	-129.12	-129.12	-129.08	-129.01
225	-128.81	-128.97	-129.07	-129.14	-129.18	-129.20	-129.18	-129.13
250	-128.72	-128.94	-129.09	-129.18	-129.24	-129.30	-129.30	-129.26
300	-128.42	-128.85	-129.11	-129.27	-129.38	-129.51	-129.57	-129.57
350	-128.01	-128.63	-129.14	-129.35	-129.52	-129.75	-129.87	-129.93
400		-129.15	-129.20	-129.45	-129.68	-130.00	-130.20	-130.32
450		-130.75	-129.33	-129.57	-129.81	-130.27	-130.56	-130.71
500			-129.61	-129.70	-130.01	-130.55	-130.93	-131.19
550			-130.16	-129.88	-130.17	-130.82	-131.31	-131.65
600			-131.00	-130.13	-130.34	-131.08	-131.68	-132.11
700				-131.04	-130.68	-131.50	-132.35	-132.99
800					-131.06	-131.74	-132.89	-133.75
900					-131.38	-131.84	-133.29	-134.36
1000						-131.92	-133.65	-134.82
Eu⁺³								
25	-137.30	-137.76	-138.17	-138.53	-138.86	-139.44	-139.95	-140.40
50	-135.94	-136.42	-136.85	-137.23	-137.58	-138.20	-138.75	-139.25
75	-134.52	-135.03	-135.47	-135.87	-136.24	-136.90	-137.48	-138.00
100	-133.06	-133.59	-134.05	-134.47	-134.85	-135.54	-136.15	-136.70
125	-131.54	-132.10	-132.59	-133.03	-133.43	-134.15	-134.79	-135.37
150	-129.96	-130.56	-131.09	-131.55	-131.98	-132.73	-133.40	-134.01
175	-128.32	-128.97	-129.54	-130.04	-130.49	-131.29	-131.99	-132.62
200	-126.62	-127.33	-127.95	-128.49	-128.97	-129.82	-130.55	-131.22
225	-124.83	-125.62	-126.30	-126.89	-127.41	-128.32	-129.10	-129.79
250	-122.95	-123.85	-124.61	-125.25	-125.82	-126.79	-127.62	-128.36
300	-118.86	-120.11	-121.10	-121.86	-122.53	-123.66	-124.61	-125.43
350	-114.78	-116.01	-117.48	-118.34	-119.11	-120.42	-121.51	-122.44
400		-113.93	-113.87	-114.73	-115.58	-117.08	-118.33	-119.39
450		-115.94	-110.47	-111.08	-111.98	-113.65	-115.07	-116.27

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) ... Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Eu⁺³ — Continued								
500		-107.62	-107.46	-108.29	-110.13	-111.72	-113.07	
550		-105.71	-103.94	-104.55	-106.49	-108.27	-109.78	
600		-104.87	-100.64	-100.75	-102.72	-104.71	-106.39	
700			-95.10	-93.07	-94.71	-97.13	-99.22	
800				-85.19	-85.96	-88.87	-91.41	
900					-76.76	-76.50	-79.97	-82.94
1000						-66.60	-70.65	-73.84
Formaldehyde								
25	-26.13	-25.81	-25.49	-25.18	-24.87	-24.26	-23.65	-23.05
50	-26.86	-26.53	-26.20	-25.88	-25.56	-24.93	-24.32	-23.71
75	-27.63	-27.28	-26.95	-26.62	-26.29	-25.66	-25.04	-24.43
100	-28.43	-28.08	-27.73	-27.40	-27.07	-26.43	-25.81	-25.19
125	-29.27	-28.91	-28.56	-28.22	-27.89	-27.24	-26.61	-25.99
150	-30.15	-29.78	-29.43	-29.08	-28.75	-28.09	-27.46	-26.83
175	-31.07	-30.69	-30.33	-29.98	-29.63	-28.97	-28.33	-27.70
200	-32.03	-31.64	-31.26	-30.90	-30.56	-29.88	-29.24	-28.60
225	-33.03	-32.63	-32.24	-31.87	-31.51	-30.83	-30.17	-29.54
250	-34.08	-33.65	-33.24	-32.86	-32.50	-31.80	-31.14	-30.49
300	-36.37	-35.85	-35.37	-34.95	-34.56	-33.83	-33.15	-32.49
350	-39.26	-38.30	-37.67	-37.18	-36.75	-35.97	-35.26	-34.58
400		-41.28	-40.17	-39.56	-39.06	-38.22	-37.47	-36.76
450		-45.98	-42.97	-42.11	-41.51	-40.57	-39.77	-39.04
500		-53.04	-46.18	-44.87	-44.11	-43.03	-42.17	-41.39
550		-59.23	-49.90	-47.85	-46.85	-45.59	-44.65	-43.83
600		-64.40	-54.00	-51.06	-49.75	-48.26	-47.22	-46.35
700		-73.09	-62.41	-57.99	-55.94	-53.87	-52.62	-51.63
800		-80.62	-70.36	-65.16	-62.48	-59.81	-58.31	-57.22
900		-87.55	-77.76	-72.23	-69.14	-65.97	-64.27	-63.08
1000		-94.14	-84.77	-79.11	-75.78	-72.27	-70.43	-69.21
Formate								
25	-83.86	-83.55	-83.25	-82.94	-82.63	-82.00	-81.38	-80.75
50	-84.39	-84.07	-83.76	-83.44	-83.13	-82.51	-81.88	-81.26
75	-84.90	-84.58	-84.27	-83.95	-83.64	-83.02	-82.40	-81.78
100	-85.39	-85.08	-84.77	-84.46	-84.16	-83.54	-82.93	-82.32
125	-85.87	-85.57	-85.28	-84.98	-84.68	-84.07	-83.47	-82.87
150	-86.33	-86.06	-85.78	-85.49	-85.20	-84.61	-84.02	-83.43
175	-86.77	-86.54	-86.27	-86.00	-85.72	-85.16	-84.58	-84.00
200	-87.19	-86.99	-86.76	-86.51	-86.25	-85.71	-85.15	-84.58
225	-87.55	-87.43	-87.24	-87.01	-86.77	-86.26	-85.72	-85.17
250	-87.86	-87.83	-87.69	-87.51	-87.29	-86.82	-86.30	-85.77
300	-88.15	-88.50	-88.54	-88.45	-88.31	-87.93	-87.48	-87.00
350	-87.33	-88.79	-89.25	-89.32	-89.28	-89.03	-88.67	-88.25
400		-88.59	-89.74	-90.07	-90.18	-90.11	-89.86	-89.52
450		-85.61	-89.87	-90.66	-90.99	-91.16	-91.05	-90.79
500			-89.40	-91.02	-91.68	-92.16	-92.21	-92.07
550			-88.19	-91.10	-92.21	-93.10	-93.35	-93.33
600			-86.41	-90.90	-92.58	-93.97	-94.45	-94.57
700				-90.01	-92.93	-95.47	-96.51	-96.94
800					-93.04	-96.72	-98.36	-99.13
900					-93.29	-97.87	-100.05	-101.09
1000						-99.11	-101.70	-102.86
Formic Acid								
25	-88.98	-88.57	-88.16	-87.75	-87.34	-86.53	-85.72	-84.91
50	-89.98	-89.56	-89.15	-88.75	-88.34	-87.55	-86.76	-85.98
75	-91.01	-90.59	-90.19	-89.78	-89.38	-88.60	-87.82	-87.05
100	-92.09	-91.67	-91.26	-90.86	-90.46	-89.67	-88.90	-88.14

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Formic Acid — Continued								
125	-93.21	-92.79	-92.38	-91.97	-91.57	-90.79	-90.02	-89.26
150	-94.37	-93.95	-93.53	-93.12	-92.72	-91.94	-91.17	-90.41
175	-95.58	-95.15	-94.72	-94.31	-93.91	-93.12	-92.35	-91.60
200	-96.82	-96.38	-95.95	-95.54	-95.13	-94.34	-93.57	-92.81
225	-98.11	-97.66	-97.22	-96.80	-96.39	-95.59	-94.82	-94.06
250	-99.45	-98.99	-98.53	-98.09	-97.68	-96.87	-96.09	-95.33
300	-102.31	-101.77	-101.26	-100.79	-100.35	-99.52	-98.73	-97.96
350	-105.70	-104.80	-104.16	-103.63	-103.16	-102.29	-101.48	-100.69
400		-108.32	-107.26	-106.63	-106.10	-105.18	-104.33	-103.52
450		-113.33	-110.64	-109.80	-109.18	-108.17	-107.28	-106.45
500		-120.42	-114.39	-113.16	-112.41	-111.28	-110.34	-109.47
550		-126.76	-118.60	-116.73	-115.78	-114.49	-113.48	-112.58
600		-132.24	-123.16	-120.52	-119.29	-117.81	-116.72	-115.78
700		-141.83	-132.51	-128.59	-126.72	-124.75	-123.47	-122.43
800		-150.48	-141.51	-136.92	-134.52	-132.02	-130.53	-129.40
900		-158.65	-150.10	-145.23	-142.46	-139.54	-137.87	-136.66
1000		-166.59	-158.40	-153.41	-150.44	-147.22	-145.44	-144.20
F⁻								
25	-67.34	-67.35	-67.35	-67.34	-67.31	-67.25	-67.16	-67.06
50	-67.24	-67.25	-67.26	-67.25	-67.23	-67.19	-67.12	-67.04
75	-67.09	-67.12	-67.13	-67.13	-67.12	-67.09	-67.04	-66.98
100	-66.90	-66.94	-66.97	-66.98	-66.99	-66.97	-66.94	-66.90
125	-66.68	-66.74	-66.78	-66.81	-66.83	-66.84	-66.82	-66.79
150	-66.40	-66.50	-66.56	-66.61	-66.64	-66.68	-66.68	-66.67
175	-66.08	-66.22	-66.31	-66.38	-66.43	-66.50	-66.53	-66.54
200	-65.69	-65.89	-66.03	-66.13	-66.20	-66.30	-66.36	-66.39
225	-65.24	-65.51	-65.70	-65.84	-65.94	-66.09	-66.18	-66.23
250	-64.68	-65.07	-65.33	-65.51	-65.65	-65.85	-65.98	-66.06
300	-63.15	-63.96	-64.45	-64.76	-64.99	-65.32	-65.53	-65.68
350	-60.54	-62.35	-63.36	-63.84	-64.19	-64.69	-65.03	-65.26
400		-60.71	-62.01	-62.74	-63.26	-63.97	-64.45	-64.79
450		-57.37	-60.31	-61.43	-62.17	-63.15	-63.79	-64.25
500			-58.15	-59.86	-60.89	-62.21	-63.06	-63.66
550			-55.47	-58.01	-59.42	-61.15	-62.23	-62.99
600			-52.46	-55.91	-57.74	-59.95	-61.30	-62.23
700				-51.39	-53.87	-57.10	-59.08	-60.41
800					-49.61	-53.70	-56.37	-58.13
900					-45.22	-49.92	-53.24	-55.36
1000						-46.01	-49.86	-52.13
Fe⁺²								
25	-21.87	-22.11	-22.32	-22.49	-22.64	-22.89	-23.08	-23.24
50	-21.23	-21.48	-21.70	-21.88	-22.05	-22.32	-22.54	-22.73
75	-20.58	-20.85	-21.07	-21.27	-21.44	-21.74	-21.98	-22.19
100	-19.92	-20.20	-20.44	-20.65	-20.83	-21.15	-21.41	-21.64
125	-19.25	-19.55	-19.80	-20.02	-20.22	-20.56	-20.84	-21.08
150	-18.56	-18.89	-19.16	-19.40	-19.61	-19.97	-20.27	-20.53
175	-17.85	-18.21	-18.51	-18.76	-18.99	-19.38	-19.70	-19.97
200	-17.11	-17.51	-17.84	-18.12	-18.37	-18.78	-19.13	-19.43
225	-16.34	-16.79	-17.16	-17.47	-17.74	-18.19	-18.57	-18.88
250	-15.52	-16.04	-16.46	-16.81	-17.10	-17.60	-18.00	-18.34
300	-13.70	-14.45	-15.02	-15.44	-15.80	-16.40	-16.88	-17.28
350	-11.89	-12.68	-13.56	-14.04	-14.47	-15.18	-15.75	-16.22
400		-12.15	-12.13	-12.63	-13.12	-13.95	-14.62	-15.16
450		-14.00	-10.86	-11.23	-11.75	-12.70	-13.47	-14.11
500			-9.93	-9.86	-10.36	-11.42	-12.31	-13.04
550			-9.56	-8.59	-8.97	-10.11	-11.12	-11.96
600			-9.84	-7.46	-7.57	-8.75	-9.89	-10.84
700				-5.91	-4.79	-5.82	-7.25	-8.46

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Fe⁺² — Continued								
800					-1.98	-2.54	-4.30	-5.79
900					1.05	1.07	-1.05	-2.81
1000						4.86	2.37	0.47
Fe⁺³								
25	-4.12	-4.60	-5.03	-5.40	-5.74	-6.34	-6.87	-7.34
50	-2.43	-2.93	-3.38	-3.78	-4.14	-4.79	-5.35	-5.87
75	-0.69	-1.21	-1.68	-2.10	-2.48	-3.16	-3.77	-4.31
100	1.10	0.55	0.06	-0.38	-0.78	-1.50	-2.13	-2.71
125	2.95	2.36	1.84	1.38	0.95	0.20	-0.47	-1.08
150	4.85	4.22	3.66	3.16	2.72	1.92	1.22	0.58
175	6.82	6.13	5.52	4.99	4.51	3.67	2.93	2.26
200	8.86	8.10	7.43	6.85	6.34	5.44	4.65	3.95
225	10.99	10.13	9.39	8.76	8.20	7.23	6.40	5.66
250	13.22	12.23	11.41	10.71	10.10	9.05	8.16	7.38
300	18.01	16.64	15.55	14.73	14.01	12.77	11.75	10.86
350	22.51	21.39	19.78	18.87	18.03	16.60	15.41	14.40
400		23.38	23.92	23.06	22.15	20.52	19.15	17.99
450		19.22	27.67	27.24	26.33	24.52	22.97	21.65
500			30.53	31.31	30.55	28.61	26.87	25.38
550			31.92	35.15	34.80	32.81	30.87	29.20
600			31.64	38.61	39.05	37.14	34.99	33.12
700				43.90	47.49	46.29	43.71	41.40
800					56.04	56.28	53.20	50.38
900					65.26	67.10	63.41	60.10
1000						78.44	74.10	70.52
Fe(CH₃COO)⁺								
25	-111.90	-111.61	-111.31	-111.02	-110.73	-110.14	-109.55	-108.96
50	-111.94	-111.64	-111.34	-111.04	-110.74	-110.15	-109.56	-108.97
75	-112.11	-111.81	-111.50	-111.20	-110.90	-110.31	-109.72	-109.14
100	-112.40	-112.09	-111.79	-111.49	-111.19	-110.60	-110.01	-109.43
125	-112.78	-112.48	-112.18	-111.88	-111.58	-111.00	-110.41	-109.84
150	-113.24	-112.95	-112.66	-112.36	-112.07	-111.49	-110.91	-110.34
175	-113.78	-113.50	-113.22	-112.93	-112.64	-112.07	-111.50	-110.93
200	-114.38	-114.13	-113.85	-113.57	-113.29	-112.73	-112.17	-111.60
225	-115.04	-114.81	-114.55	-114.29	-114.02	-113.47	-112.91	-112.36
250	-115.75	-115.56	-115.32	-115.07	-114.80	-114.27	-113.73	-113.18
300	-117.26	-117.21	-117.03	-116.80	-116.57	-116.07	-115.56	-115.03
350	-118.91	-119.00	-118.95	-118.76	-118.55	-118.10	-117.62	-117.12
400		-121.41	-121.10	-120.93	-120.75	-120.35	-119.91	-119.44
450		-124.63	-123.47	-123.28	-123.13	-122.78	-122.39	-121.95
500			-126.11	-125.83	-125.68	-125.39	-125.05	-124.65
550				-129.06	-128.56	-128.40	-128.16	-127.87
600				-132.34	-131.48	-131.27	-131.07	-130.84
700					-137.97	-137.43	-137.26	-137.15
800						-144.12	-143.86	-143.90
900						-151.23	-150.83	-151.03
1000							-158.21	-158.56
Fe(CH₃COO)₂⁰								
25	-201.80	-200.91	-200.06	-199.25	-198.46	-196.94	-195.47	-194.05
50	-202.26	-201.34	-200.47	-199.63	-198.82	-197.26	-195.76	-194.30
75	-203.02	-202.08	-201.19	-200.34	-199.52	-197.94	-196.42	-194.94
100	-204.03	-203.08	-202.18	-201.32	-200.49	-198.89	-197.36	-195.87
125	-205.26	-204.30	-203.40	-202.53	-201.69	-200.08	-198.54	-197.04
150	-206.68	-205.72	-204.81	-203.94	-203.10	-201.48	-199.93	-198.43
175	-208.28	-207.33	-206.41	-205.53	-204.69	-203.07	-201.51	-200.00
200	-210.05	-209.10	-208.18	-207.30	-206.45	-204.83	-203.27	-201.75

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Fe(CH₃COO)₂ — Continued								
225	-211.97	-211.04	-210.11	-209.23	-208.38	-206.75	-205.18	-203.67
250	-214.03	-213.12	-212.20	-211.31	-210.46	-208.82	-207.25	-205.74
300	-218.54	-217.72	-216.78	-215.89	-215.03	-213.39	-211.81	-210.29
350	-223.54	-222.84	-221.89	-220.99	-220.12	-218.47	-216.89	-215.37
400		-228.46	-227.47	-226.56	-225.69	-224.03	-222.44	-220.91
450		-234.63	-233.50	-232.57	-231.69	-230.02	-228.43	-226.89
500		-241.38	-239.95	-238.98	-238.09	-236.41	-234.82	-233.28
550		-248.42	-246.81	-245.79	-244.88	-243.18	-241.58	-240.03
600		-255.74	-254.05	-252.96	-252.02	-250.31	-248.69	-247.14
700		-271.20	-269.49	-268.28	-267.29	-265.53	-263.90	-262.34
800		-287.74	-286.06	-284.79	-283.75	-281.95	-280.30	-278.73
900		-305.29	-303.64	-302.35	-301.28	-299.43	-297.77	-296.19
1000		-323.78	-322.16	-320.86	-319.77	-317.89	-316.22	-314.64
FeCl⁺								
25	-53.03	-53.01	-52.98	-52.92	-52.86	-52.71	-52.53	-52.33
50	-52.80	-52.78	-52.74	-52.69	-52.63	-52.49	-52.32	-52.14
75	-52.60	-52.59	-52.55	-52.51	-52.45	-52.32	-52.16	-51.99
100	-52.44	-52.43	-52.40	-52.36	-52.31	-52.18	-52.03	-51.87
125	-52.30	-52.30	-52.28	-52.24	-52.19	-52.08	-51.94	-51.78
150	-52.19	-52.19	-52.18	-52.15	-52.11	-52.00	-51.87	-51.72
175	-52.08	-52.11	-52.11	-52.09	-52.05	-51.96	-51.84	-51.70
200	-51.99	-52.04	-52.05	-52.04	-52.02	-51.94	-51.83	-51.70
225	-51.91	-51.98	-52.01	-52.02	-52.01	-51.94	-51.85	-51.73
250	-51.83	-51.93	-51.99	-52.01	-52.01	-51.97	-51.89	-51.78
300	-51.62	-51.86	-51.99	-52.04	-52.08	-52.08	-52.03	-51.95
350	-51.48	-51.77	-52.05	-52.14	-52.20	-52.26	-52.26	-52.21
400		-52.33	-52.19	-52.29	-52.39	-52.51	-52.55	-52.54
450		-54.02	-52.47	-52.52	-52.63	-52.81	-52.90	-52.94
500			-52.96	-52.82	-52.92	-53.16	-53.31	-53.39
550			-53.76	-53.21	-53.27	-53.55	-53.76	-53.89
600			-54.90	-53.73	-53.66	-53.97	-54.24	-54.43
700				-55.22	-54.60	-54.85	-55.27	-55.58
800					-55.70	-55.75	-56.33	-56.78
900					-56.86	-56.65	-57.41	-57.99
1000						-57.62	-58.56	-59.21
FeCl₂⁰								
25	-81.28	-80.96	-80.65	-80.34	-80.03	-79.41	-78.80	-78.19
50	-81.21	-80.88	-80.55	-80.23	-79.92	-79.29	-78.67	-78.06
75	-81.19	-80.85	-80.52	-80.20	-79.88	-79.25	-78.63	-78.02
100	-81.22	-80.88	-80.55	-80.22	-79.90	-79.26	-78.64	-78.03
125	-81.30	-80.96	-80.62	-80.29	-79.97	-79.33	-78.71	-78.09
150	-81.42	-81.08	-80.74	-80.41	-80.08	-79.44	-78.82	-78.20
175	-81.58	-81.24	-80.89	-80.56	-80.23	-79.59	-78.97	-78.35
200	-81.78	-81.43	-81.09	-80.75	-80.43	-79.78	-79.16	-78.54
225	-82.01	-81.67	-81.32	-80.98	-80.65	-80.01	-79.38	-78.76
250	-82.26	-81.93	-81.58	-81.24	-80.91	-80.27	-79.64	-79.02
300	-82.87	-82.56	-82.20	-81.86	-81.53	-80.88	-80.25	-79.63
350	-83.60	-83.31	-82.94	-82.60	-82.26	-81.61	-80.97	-80.35
400		-84.20	-83.80	-83.44	-83.10	-82.44	-81.80	-81.18
450		-85.31	-84.76	-84.38	-84.03	-83.37	-82.72	-82.10
500		-86.67	-85.84	-85.42	-85.06	-84.38	-83.74	-83.11
550		-88.05	-87.03	-86.56	-86.18	-85.49	-84.84	-84.20
600		-89.43	-88.32	-87.79	-87.38	-86.67	-86.01	-85.38
700		-92.25	-91.13	-90.48	-90.02	-89.27	-88.59	-87.95
800		-95.24	-94.14	-93.43	-92.93	-92.13	-91.43	-90.78
900		-98.39	-97.33	-96.60	-96.07	-95.23	-94.52	-93.86
1000		-101.73	-100.70	-99.96	-99.40	-98.54	-97.82	-97.16

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Glutamic Acid								
25	-173.00	-171.96	-170.95	-169.98	-169.03	-167.18	-165.38	-163.62
50	-174.81	-173.76	-172.75	-171.78	-170.84	-169.00	-167.22	-165.48
75	-176.70	-175.64	-174.64	-173.66	-172.72	-170.89	-169.12	-167.39
100	-178.67	-177.61	-176.60	-175.62	-174.68	-172.85	-171.08	-169.36
125	-180.72	-179.65	-178.64	-177.66	-176.71	-174.87	-173.11	-171.39
150	-182.85	-181.77	-180.75	-179.76	-178.80	-176.97	-175.20	-173.48
175	-185.05	-183.97	-182.93	-181.93	-180.97	-179.12	-177.35	-175.62
200	-187.33	-186.23	-185.18	-184.17	-183.20	-181.34	-179.56	-177.83
225	-189.69	-188.58	-187.49	-186.47	-185.49	-183.62	-181.82	-180.09
250	-192.14	-191.00	-189.88	-188.84	-187.84	-185.95	-184.14	-182.40
300	-197.39	-196.12	-194.88	-193.77	-192.73	-190.78	-188.94	-187.17
350	-203.73	-201.72	-200.20	-198.96	-197.85	-195.82	-193.93	-192.13
400		-208.30	-205.92	-204.45	-203.23	-201.07	-199.11	-197.27
450		-218.03	-212.18	-210.27	-208.86	-206.52	-204.48	-202.58
500		-232.10	-219.21	-216.47	-214.76	-212.18	-210.02	-208.05
550		-244.58	-227.17	-223.09	-220.95	-218.04	-215.74	-213.69
600		-255.20	-235.85	-230.14	-227.43	-224.09	-221.62	-219.49
700		-273.47	-253.62	-245.19	-241.14	-236.76	-233.88	-231.54
800		-289.66	-270.56	-260.73	-255.52	-250.04	-246.73	-244.18
900		-304.78	-286.55	-276.11	-270.15	-263.77	-260.08	-257.37
1000		-319.31	-301.85	-291.18	-284.77	-277.77	-273.84	-271.07
Glutamine								
25	-126.60	-125.50	-124.44	-123.41	-122.41	-120.47	-118.58	-116.72
50	-128.20	-127.09	-126.03	-125.01	-124.01	-122.08	-120.21	-118.38
75	-129.88	-128.77	-127.71	-126.68	-125.69	-123.76	-121.90	-120.08
100	-131.65	-130.53	-129.46	-128.44	-127.44	-125.52	-123.66	-121.85
125	-133.49	-132.37	-131.30	-130.27	-129.28	-127.35	-125.49	-123.69
150	-135.42	-134.29	-133.21	-132.18	-131.18	-129.25	-127.39	-125.58
175	-137.42	-136.29	-135.20	-134.16	-133.15	-131.22	-129.35	-127.54
200	-139.50	-138.36	-137.26	-136.21	-135.19	-133.25	-131.38	-129.57
225	-141.65	-140.51	-139.38	-138.32	-137.30	-135.34	-133.46	-131.64
250	-143.89	-142.73	-141.58	-140.50	-139.46	-137.49	-135.60	-133.78
300	-148.69	-147.44	-146.19	-145.05	-143.98	-141.96	-140.05	-138.21
350	-154.40	-152.59	-151.11	-149.87	-148.74	-146.65	-144.70	-142.83
400		-158.58	-156.39	-154.97	-153.74	-151.55	-149.55	-147.64
450		-167.20	-162.16	-160.37	-159.00	-156.66	-154.58	-152.63
500		-179.42	-168.60	-166.13	-164.51	-161.97	-159.80	-157.79
550		-190.36	-175.83	-172.26	-170.29	-167.48	-165.19	-163.12
600		-199.80	-183.68	-178.77	-176.33	-173.18	-170.75	-168.60
700		-216.35	-199.81	-192.67	-189.13	-185.11	-182.35	-180.03
800		-231.28	-215.36	-207.07	-202.58	-197.66	-194.54	-192.05
900		-245.43	-230.23	-221.43	-216.32	-210.66	-207.24	-204.62
1000		-259.18	-244.61	-235.62	-230.15	-223.99	-220.35	-217.69
Glycine								
25	-88.62	-88.11	-87.60	-87.10	-86.61	-85.63	-84.67	-83.71
50	-89.58	-89.06	-88.56	-88.07	-87.58	-86.62	-85.67	-84.74
75	-90.56	-90.04	-89.54	-89.05	-88.57	-87.61	-86.68	-85.76
100	-91.56	-91.05	-90.55	-90.05	-89.57	-88.63	-87.70	-86.78
125	-92.60	-92.08	-91.58	-91.08	-90.60	-89.66	-88.73	-87.82
150	-93.65	-93.14	-92.63	-92.14	-91.65	-90.71	-89.79	-88.88
175	-94.74	-94.22	-93.71	-93.21	-92.73	-91.78	-90.86	-89.96
200	-95.85	-95.33	-94.81	-94.31	-93.83	-92.88	-91.96	-91.05
225	-96.98	-96.46	-95.94	-95.43	-94.94	-93.99	-93.07	-92.17
250	-98.15	-97.62	-97.09	-96.58	-96.08	-95.13	-94.20	-93.30
300	-100.59	-100.04	-99.46	-98.93	-98.43	-97.46	-96.52	-95.61
350	-103.38	-102.62	-101.95	-101.38	-100.85	-99.86	-98.91	-97.99
400		-105.51	-104.58	-103.93	-103.37	-102.33	-101.36	-100.43
450		-109.43	-107.38	-106.60	-105.97	-104.88	-103.88	-102.93

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Glycine — Continued								
500		-114.74	-110.44	-109.39	-108.67	-107.50	-106.46	-105.49
550		-119.55	-113.80	-112.32	-111.46	-110.19	-109.11	-108.11
600		-123.77	-117.40	-115.40	-114.36	-112.95	-111.81	-110.79
700		-131.27	-124.74	-121.87	-120.40	-118.65	-117.39	-116.30
800		-138.13	-131.84	-128.52	-126.68	-124.58	-123.18	-122.03
900		-144.66	-138.65	-135.14	-133.05	-130.67	-129.15	-127.94
1000		-151.02	-145.26	-141.67	-139.45	-136.86	-135.26	-134.04
Ga ⁺³								
25	-38.00	-38.51	-38.95	-39.35	-39.71	-40.35	-40.91	-41.41
50	-36.00	-36.52	-36.99	-37.41	-37.79	-38.48	-39.09	-39.64
75	-33.94	-34.50	-34.98	-35.42	-35.83	-36.55	-37.19	-37.78
100	-31.85	-32.43	-32.94	-33.40	-33.82	-34.58	-35.26	-35.87
125	-29.70	-30.32	-30.86	-31.35	-31.79	-32.59	-33.30	-33.94
150	-27.50	-28.16	-28.74	-29.26	-29.73	-30.57	-31.31	-31.99
175	-25.23	-25.96	-26.59	-27.14	-27.65	-28.53	-29.31	-30.02
200	-22.90	-23.69	-24.39	-24.99	-25.53	-26.47	-27.29	-28.03
225	-20.49	-21.37	-22.13	-22.79	-23.38	-24.39	-25.26	-26.04
250	-17.97	-18.98	-19.84	-20.56	-21.19	-22.28	-23.21	-24.03
300	-12.61	-14.01	-15.12	-15.97	-16.72	-18.00	-19.07	-19.99
350	-7.57	-8.69	-10.34	-11.27	-12.13	-13.62	-14.85	-15.90
400		-6.21	-5.66	-6.53	-7.47	-9.15	-10.56	-11.76
450		-10.02	-1.39	-1.82	-2.75	-4.61	-6.21	-7.57
500			1.97	2.77	2.00	0.02	-1.78	-3.31
550			3.81	7.13	6.77	4.74	2.75	1.04
600			3.93	11.07	11.53	9.59	7.39	5.48
700				17.29	20.98	19.77	17.14	14.78
800					30.50	30.78	27.64	24.77
900					40.68	42.59	38.86	35.49
1000						54.94	50.54	46.90
Gd ⁺³								
25	-158.60	-159.05	-159.45	-159.81	-160.13	-160.69	-161.18	-161.61
50	-157.34	-157.81	-158.23	-158.60	-158.94	-159.54	-160.08	-160.56
75	-156.02	-156.51	-156.95	-157.34	-157.69	-158.33	-158.90	-159.41
100	-154.65	-155.17	-155.62	-156.03	-156.41	-157.08	-157.67	-158.21
125	-153.23	-153.78	-154.26	-154.69	-155.08	-155.79	-156.41	-156.97
150	-151.75	-152.34	-152.85	-153.31	-153.73	-154.47	-155.12	-155.71
175	-150.21	-150.85	-151.41	-151.90	-152.34	-153.12	-153.80	-154.42
200	-148.60	-149.31	-149.91	-150.41	-150.92	-151.75	-152.47	-153.12
225	-146.92	-147.70	-148.37	-148.95	-149.46	-150.35	-151.12	-151.80
250	-145.14	-146.03	-146.78	-147.42	-147.97	-148.93	-149.74	-150.46
300	-141.25	-142.49	-143.48	-144.23	-144.88	-146.00	-146.93	-147.74
350	-137.38	-138.59	-140.06	-140.91	-141.67	-142.97	-144.04	-144.96
400		-136.74	-136.66	-137.51	-138.35	-139.84	-141.07	-142.12
450		-139.03	-133.47	-134.07	-134.96	-136.62	-138.02	-139.20
500			-130.85	-130.66	-131.49	-133.31	-134.88	-136.22
550			-129.18	-127.36	-127.95	-129.88	-131.65	-133.15
600			-128.60	-124.28	-124.37	-126.33	-128.30	-129.97
700				-119.21	-117.13	-118.75	-121.15	-123.23
800					-109.70	-110.43	-113.33	-115.86
900					-101.72	-101.40	-104.86	-107.82
1000						-91.93	-95.97	-99.16
Heptanoate								
25	-78.39	-77.03	-75.74	-74.51	-73.32	-71.04	-68.85	-66.73
50	-79.80	-78.39	-77.07	-75.80	-74.58	-72.24	-70.00	-67.83
75	-81.39	-79.96	-78.62	-77.33	-76.09	-73.72	-71.45	-69.25
100	-83.12	-81.69	-80.34	-79.04	-77.80	-75.41	-73.12	-70.91

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar					
				1.5	2.0	3.0	4.0	5.0	
Heptanoate — Continued									
125	-84.99	-83.56	-82.20	-80.91	-79.66	-77.26	-74.96	-72.74	
150	-86.96	-85.55	-84.19	-82.90	-81.65	-79.25	-76.95	-74.72	
175	-89.03	-87.64	-86.30	-85.01	-83.76	-81.37	-79.07	-76.84	
200	-91.18	-89.83	-88.50	-87.22	-85.98	-83.60	-81.30	-79.08	
225	-93.38	-92.10	-90.80	-89.53	-88.30	-85.93	-83.64	-81.42	
250	-95.62	-94.44	-93.17	-91.93	-90.71	-88.36	-86.08	-83.87	
300	-100.08	-99.28	-98.13	-96.94	-95.77	-93.48	-91.24	-89.05	
350	-103.92	-104.15	-103.29	-102.22	-101.12	-98.90	-96.72	-94.56	
400		-108.81	-108.56	-107.69	-106.70	-104.60	-102.49	-100.38	
450		-111.36	-113.80	-113.30	-112.47	-110.54	-108.51	-106.46	
500			-118.79	-118.96	-118.38	-116.69	-114.77	-112.79	
550			-123.39	-124.63	-124.41	-123.01	-121.24	-119.34	
600			-127.71	-130.28	-130.52	-129.50	-127.89	-126.08	
700				-141.73	-143.03	-142.90	-141.68	-140.09	
800					-156.07	-156.86	-156.06	-154.70	
900					-169.90	-171.42	-171.00	-169.81	
1000						-186.66	-186.51	-185.39	
Heptanoic Acid									
25	-85.15	-83.61	-82.14	-80.72	-79.35	-76.68	-74.10	-71.58	
50	-87.20	-85.66	-84.19	-82.77	-81.40	-78.74	-76.18	-73.69	
75	-89.53	-87.98	-86.50	-85.08	-83.71	-81.06	-78.51	-76.03	
100	-92.11	-90.55	-89.07	-87.65	-86.27	-83.62	-81.07	-78.60	
125	-94.92	-93.36	-91.87	-90.44	-89.06	-86.41	-83.86	-81.38	
150	-97.96	-96.38	-94.88	-93.45	-92.06	-89.40	-86.85	-84.37	
175	-101.20	-99.62	-98.11	-96.66	-95.27	-92.60	-90.04	-87.56	
200	-104.65	-103.06	-101.53	-100.07	-98.67	-95.98	-93.41	-90.93	
225	-108.30	-106.70	-105.14	-103.66	-102.25	-99.54	-96.96	-94.47	
250	-112.15	-110.53	-108.93	-107.43	-106.00	-103.28	-100.68	-98.18	
300	-120.54	-118.81	-117.07	-115.50	-114.02	-111.23	-108.60	-106.07	
350	-130.49	-128.00	-125.94	-124.23	-122.67	-119.79	-117.10	-114.54	
400		-138.62	-135.60	-133.64	-131.94	-128.93	-126.16	-123.55	
450		-153.08	-146.19	-143.72	-141.82	-138.61	-135.74	-133.07	
500		-172.70	-157.93	-154.53	-152.30	-148.81	-145.82	-143.06	
550		-190.80	-170.97	-166.08	-163.37	-159.51	-156.36	-153.52	
600		-207.09	-185.09	-178.37	-175.02	-170.68	-167.35	-164.40	
700		-237.05	-214.49	-204.73	-199.88	-194.37	-190.58	-187.40	
800		-265.56	-243.83	-232.50	-226.36	-219.62	-215.34	-211.93	
900		-293.65	-272.91	-260.90	-253.91	-246.16	-241.46	-237.87	
1000		-321.81	-301.92	-289.65	-282.17	-273.73	-268.75	-265.10	
Hexanoate									
25	-80.45	-79.27	-78.16	-77.09	-76.06	-74.07	-72.16	-70.31	
50	-81.68	-80.47	-79.32	-78.22	-77.16	-75.13	-73.17	-71.28	
75	-83.07	-81.84	-80.68	-79.57	-78.49	-76.43	-74.45	-72.54	
100	-84.59	-83.36	-82.19	-81.07	-79.99	-77.92	-75.93	-74.00	
125	-86.23	-85.00	-83.83	-82.71	-81.63	-79.55	-77.56	-75.62	
150	-87.96	-86.75	-85.58	-84.47	-83.39	-81.31	79.32	77.38	
175	-89.77	-88.59	-87.44	-86.33	-85.25	-83.18	-81.19	-79.26	
200	-91.65	-90.51	-89.38	-88.28	-87.22	-85.16	-83.17	-81.24	
225	-93.57	-92.50	-91.40	-90.32	-89.26	-87.22	-85.25	-83.33	
250	-95.52	-94.55	-93.49	-92.43	-91.39	-89.38	-87.42	-85.50	
300	-99.36	-98.77	-97.84	-96.85	-95.87	-93.91	-92.00	-90.11	
350	-102.47	-102.96	-102.35	-101.49	-100.58	-98.72	-96.87	-95.02	
400		-106.87	-106.93	-106.29	-105.50	-103.77	-101.99	-100.20	
450		-108.44	-111.41	-111.17	-110.37	-109.03	-107.35	-105.62	
500			-115.58	-116.08	-115.75	-114.46	-112.91	-111.26	
550			-119.27	-120.94	-121.00	-120.05	-118.65	-117.09	
600			-122.62	-125.74	-126.31	-125.76	-124.55	-123.10	
700				-135.38	-137.10	-137.54	-136.76	-135.55	

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	1.5	2.0	3.0	4.0	5.0
Hexanoate — Continued								
800				-148.34		-149.78	-149.47	-148.51
900				-160.30		-162.54	-162.65	-161.89
1000						-175.92	-176.34	-175.65
Hexanoic Acid								
25	-87.08	-85.72	-84.42	-83.17	-81.95	-79.58	-77.29	-75.04
50	-88.95	-87.58	-86.28	-85.03	-83.81	-81.46	-79.18	-76.96
75	-91.05	-89.68	-88.37	-87.12	-85.90	-83.55	-81.29	-79.08
100	-93.36	-91.99	-90.68	-89.42	-88.20	-85.86	-83.59	-81.39
125	-95.88	-94.50	-93.18	-91.92	-90.70	-88.35	-86.09	-83.89
150	-98.59	-97.20	-95.88	-94.61	-93.38	-91.03	-88.76	-86.56
175	-101.48	-100.09	-98.75	-97.47	-96.24	-93.88	-91.61	-89.40
200	-104.55	-103.14	-101.79	-100.50	-99.26	-96.89	-94.61	-92.40
225	-107.79	-106.38	-105.00	-103.69	-102.44	-100.05	-97.76	-95.55
250	-111.20	-109.78	-108.37	-107.04	-105.77	-103.36	-101.06	-98.84
300	-118.63	-117.10	-115.57	-114.18	-112.87	-110.41	-108.07	-105.83
350	-127.41	-125.22	-123.41	-121.90	-120.53	-117.98	-115.60	-113.32
400	-134.59	-131.94	-130.20	-128.71	-126.04	-123.60	-121.28	
450	-147.32	-141.27	-139.10	-137.42	-134.58	-132.05	-129.68	
500	-164.54	-151.60	-148.62	-146.65	-143.57	-140.92	-138.49	
550	-180.44	-163.07	-158.78	-156.40	-152.99	-150.20	-147.69	
600	-194.75	-175.48	-169.58	-166.64	-162.82	-159.87	-157.27	
700	-221.06	-201.30	-192.75	-188.49	-183.64	-180.29	-177.49	
800	-246.08	-227.05	-217.13	-211.74	-205.81	-202.04	-199.03	
900	-270.73	-252.56	-242.03	-235.91	-229.10	-224.96	-221.78	
1000	-295.42	-278.00	-267.24	-260.68	-253.27	-248.89	-245.66	
H ⁺								
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
450	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
550	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H ₂								
25	4.24	4.54	4.83	5.13	5.43	6.01	6.60	7.18
50	3.85	4.17	4.47	4.78	5.08	5.67	6.26	6.85
75	3.40	3.72	4.04	4.35	4.65	5.25	5.84	6.43
100	2.89	3.21	3.53	3.85	4.16	4.76	5.36	5.95
125	2.32	2.65	2.98	3.29	3.61	4.22	4.81	5.40
150	1.70	2.04	2.37	2.69	3.00	3.62	4.22	4.81
175	1.03	1.37	1.71	2.03	2.35	2.97	3.57	4.17
200	0.32	0.67	1.01	1.34	1.66	2.28	2.89	3.48

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
H₂ — Continued								
225	-0.44	-0.09	0.26	0.59	0.92	1.55	2.16	2.76
250	-1.25	-0.89	-0.53	-0.19	0.14	0.78	1.39	2.00
300	-3.02	-2.63	-2.23	-1.87	-1.53	-0.87	-0.25	0.36
350	-5.18	-4.58	-4.10	-3.71	-3.34	-2.66	-2.02	-1.40
400		-6.89	-6.16	-5.70	-5.30	-4.58	-3.92	-3.29
450		-10.16	-8.43	-7.84	-7.39	-6.62	-5.93	-5.28
500		-14.73	-10.99	-10.16	-9.62	-8.78	-8.06	-7.39
550		-18.91	-13.86	-12.65	-11.99	-11.05	-10.29	-9.60
600		-22.60	-17.00	-15.31	-14.49	-13.43	-12.62	-11.90
700		-29.28	-23.53	-21.06	-19.85	-18.49	-17.56	-16.78
800		-35.52	-29.99	-27.12	-25.58	-23.90	-22.85	-22.01
900		-41.62	-36.34	-33.30	-31.53	-29.60	-28.44	-27.55
1000		-47.69	-42.63	-39.52	-37.63	-35.52	-34.29	-33.38
AsO₄²⁻								
25	-170.79	-170.64	-170.47	-170.29	-170.09	-169.68	-169.25	-168.81
50	-170.73	-170.58	-170.42	-170.24	-170.05	-169.66	-169.24	-168.81
75	-170.59	-170.46	-170.30	-170.14	-169.96	-169.59	-169.19	-168.78
100	-170.37	-170.27	-170.14	-169.99	-169.83	-169.48	-169.11	-168.71
125	-170.08	-170.01	-169.91	-169.79	-169.65	-169.33	-168.99	-168.62
150	-169.70	-169.69	-169.63	-169.54	-169.42	-169.15	-168.84	-168.49
175	-169.22	-169.28	-169.28	-169.23	-169.15	-168.93	-168.65	-168.34
200	-168.62	-168.79	-168.86	-168.87	-168.83	-168.67	-168.44	-168.17
225	-167.89	-168.21	-168.37	-168.45	-168.46	-168.38	-168.21	-167.97
250	-166.97	-167.50	-167.80	-167.96	-168.04	-168.05	-167.94	-167.75
300	-164.30	-165.65	-166.38	-166.77	-167.02	-167.26	-167.32	-167.25
350	-159.33	-162.83	-164.53	-165.26	-165.74	-166.30	-166.57	-166.65
400		-159.44	-162.12	-163.38	-164.19	-165.16	-165.68	-165.95
450		-151.39	-158.92	-161.05	-162.31	-163.81	-164.65	-165.14
500			-154.58	-158.15	-160.06	-162.23	-163.45	-164.20
550			-148.88	-154.63	-157.39	-160.40	-162.08	-163.12
600			-142.20	-150.52	-154.29	-158.31	-160.51	-161.87
700				-141.31	-147.02	-153.27	-156.69	-158.81
800					-138.91	-147.23	-151.98	-154.89
900					-130.66	-140.51	-146.52	-150.08
1000						-133.62	-140.59	-144.43
H₂AsO₃⁻								
25	-140.33	-140.02	-139.71	-139.40	-139.08	-138.46	-137.83	-137.20
50	-140.99	-140.67	-140.35	-140.04	-139.72	-139.09	-138.47	-137.84
75	-141.65	-141.33	-141.01	-140.69	-140.38	-139.75	-139.13	-138.51
100	-142.30	-141.99	-141.68	-141.36	-141.05	-140.44	-139.82	-139.20
125	-142.95	-142.65	-142.35	-142.04	-141.74	-141.13	-140.52	-139.91
150	-143.58	-143.31	-143.02	-142.73	-142.43	-141.84	-141.24	-140.64
175	-144.20	-143.96	-143.69	-143.41	-143.13	-142.55	-141.97	-141.38
200	-144.79	-144.59	-144.35	-144.09	-143.83	-143.27	-142.71	-142.13
225	-145.34	-145.21	-145.00	-144.77	-144.52	-144.00	-143.45	-142.90
250	-145.84	-145.79	-145.64	-145.44	-145.22	-144.73	-144.21	-143.67
300	-146.51	-146.83	-146.85	-146.75	-146.59	-146.19	-145.73	-145.24
350	-146.10	-147.50	-147.93	-147.98	-147.92	-147.65	-147.27	-146.84
400		-147.66	-148.79	-149.10	-149.19	-149.09	-148.81	-148.45
450		-145.01	-149.29	-150.06	-150.36	-150.49	-150.35	-150.07
500			-149.20	-150.78	-151.41	-151.85	-151.87	-151.69
550			-148.36	-151.24	-152.31	-153.15	-153.36	-153.30
600			-146.93	-151.41	-153.06	-154.37	-154.81	-154.89
700				-151.25	-154.15	-156.61	-157.58	-157.96
800					-155.01	-158.60	-160.15	-160.85
900					-156.02	-160.51	-162.58	-163.54
1000						-162.51	-164.97	-166.03

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
H₂AsO₄⁻								
25	-180.01	-179.60	-179.20	-178.80	-178.40	-177.62	-176.85	-176.08
50	-180.71	-180.29	-179.88	-179.47	-179.07	-178.28	-177.50	-176.73
75	-181.41	-180.99	-180.58	-180.17	-179.77	-178.98	-178.20	-177.43
100	-182.12	-181.70	-181.29	-180.88	-180.49	-179.70	-178.93	-178.16
125	-182.81	-182.41	-182.01	-181.61	-181.22	-180.44	-179.67	-178.91
150	-183.50	-183.12	-182.73	-182.34	-181.96	-181.20	-180.44	-179.69
175	-184.18	-183.82	-183.46	-183.08	-182.71	-181.96	-181.22	-180.48
200	-184.83	-184.52	-184.18	-183.82	-183.46	-182.74	-182.01	-181.28
225	-185.44	-185.19	-184.89	-184.56	-184.22	-183.52	-182.81	-182.10
250	-185.99	-185.84	-185.59	-185.29	-184.98	-184.31	-183.63	-182.93
300	-186.79	-187.01	-186.93	-186.72	-186.47	-185.90	-185.27	-184.62
350	-186.51	-187.83	-188.14	-188.09	-187.93	-187.48	-186.94	-186.34
400		-188.12	-189.14	-189.35	-189.34	-189.06	-188.61	-188.09
450		-185.61	-189.79	-190.45	-190.66	-190.60	-190.29	-189.85
500			-189.86	-191.33	-191.86	-192.11	-191.95	-191.61
550				-189.17	-191.95	-192.92	-193.56	-193.36
600					-192.28	-193.82	-194.94	-195.20
700						-195.25	-197.50	-198.28
800							-196.47	-199.85
900								-201.20
1000								-203.99
								-204.76
								-207.62
HBr°								
25	-13.14	-12.29	-11.48	-10.70	-9.95	-8.50	-7.10	-5.75
50	-14.23	-13.35	-12.52	-11.72	-10.95	-9.46	-8.03	-6.64
75	-15.34	-14.44	-13.59	-12.77	-11.99	-10.48	-9.03	-7.62
100	-16.46	-15.54	-14.68	-13.85	-13.06	-11.53	-10.06	-8.64
125	-17.58	-16.66	-15.78	-14.95	-14.14	-12.60	-11.12	-9.69
150	-18.72	-17.78	-16.90	-16.06	-15.24	-13.69	-12.20	-10.76
175	-19.86	-18.92	-18.03	-17.17	-16.35	-14.79	-13.29	-11.84
200	-21.02	-20.08	-19.17	-18.30	-17.48	-15.90	-14.39	-12.93
225	-22.19	-21.24	-20.32	-19.44	-18.61	-17.01	-15.50	-14.03
250	-23.39	-22.43	-21.48	-20.60	-19.75	-18.14	-16.61	-15.14
300	-25.88	-24.88	-23.87	-22.94	-22.07	-20.42	-18.87	-17.37
350	-28.87	-27.52	-26.34	-25.34	-24.43	-22.73	-21.15	-19.63
400		-30.62	-28.96	-27.83	-26.85	-25.08	-23.45	-21.91
450			-35.40	-31.80	-30.43	-29.34	-27.47	-24.21
500				-42.52	-35.00	-33.16	-31.91	-28.15
550					-48.69	-38.65	-36.07	-30.55
600						-53.77	-42.65	-28.89
700							-62.09	-50.68
800								-45.67
900								-58.55
1000								-54.92
								-60.62
								-56.14
								-53.39
								-51.32
HCN°								
25	28.60	29.14	29.65	30.16	30.65	31.61	32.55	33.47
50	27.81	28.37	28.91	29.42	29.93	30.91	31.86	32.80
75	26.96	27.53	28.07	28.60	29.11	30.11	31.07	32.01
100	26.05	26.62	27.17	27.71	28.22	29.22	30.19	31.14
125	25.08	25.66	26.21	26.75	27.27	28.28	29.26	30.21
150	24.06	24.64	25.20	25.74	26.27	27.28	28.26	29.22
175	22.99	23.57	24.14	24.69	25.21	26.23	27.22	28.17
200	21.88	22.46	23.03	23.58	24.11	25.14	26.12	27.08
225	20.73	21.31	21.88	22.44	22.97	24.00	24.99	25.95
250	19.54	20.11	20.69	21.25	21.79	22.82	23.81	24.78
300	17.04	17.59	18.19	18.76	19.31	20.35	21.35	22.33
350	14.29	14.89	15.54	16.13	16.68	17.74	18.76	19.73
400		11.95	12.73	13.35	13.93	15.01	16.03	17.02
450			8.43	9.75	10.44	11.04	12.15	14.19

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
HCN° — Continued								
500		4.17	6.56	7.39	8.04	9.19	10.24	11.25
550		0.08	3.17	4.19	4.91	6.11	7.19	8.21
600		-3.79	-0.41	0.86	1.67	2.93	4.04	5.07
700		-11.29	-7.83	-6.14	-5.13	-3.70	-2.54	-1.47
800		-18.71	-15.37	-13.46	-12.27	-10.68	-9.44	-8.34
900		-26.18	-22.97	-20.97	-19.67	-17.93	-16.64	-15.51
1000		-33.77	-30.67	-28.63	-27.26	-25.43	-24.10	-22.96
HCO ₃ ⁻								
25	-140.28	-139.99	-139.67	-139.35	-139.02	-138.35	-137.65	-136.95
50	-140.86	-140.56	-140.24	-139.91	-139.57	-138.89	-138.19	-137.48
75	-141.43	-141.13	-140.81	-140.48	-140.14	-139.46	-138.76	-138.05
100	-141.99	-141.69	-141.38	-141.05	-140.72	-140.04	-139.35	-138.64
125	-142.54	-142.25	-141.95	-141.63	-141.30	-140.63	-139.95	-139.25
150	-143.07	-142.80	-142.51	-142.21	-141.89	-141.23	-140.56	-139.86
175	-143.58	-143.34	-143.07	-142.78	-142.47	-141.84	-141.17	-140.49
200	-144.05	-143.86	-143.62	-143.35	-143.06	-142.44	-141.79	-141.13
225	-144.48	-144.35	-144.15	-143.90	-143.63	-143.05	-142.42	-141.77
250	-144.84	-144.81	-144.66	-144.45	-144.21	-143.65	-143.05	-142.42
300	-145.24	-145.58	-145.60	-145.49	-145.32	-144.86	-144.32	-143.73
350	-144.52	-145.96	-146.40	-146.44	-146.37	-146.04	-145.59	-145.06
400		-145.83	-146.96	-147.27	-147.34	-147.19	-146.84	-146.39
450		-142.88	-147.15	-147.91	-148.21	-148.29	-148.08	-147.71
500			-146.73	-148.32	-148.94	-149.34	-149.28	-149.03
550				-145.56	-148.44	-149.51	-150.31	-150.45
600				-143.79	-148.27	-149.91	-151.19	-151.57
700					-147.39	-150.28	-152.72	-153.64
800						-150.38	-153.95	-156.11
900						-150.59	-155.06	-157.12
1000							-156.24	-158.69
HCl°								
25	-22.87	-22.16	-21.49	-20.83	-20.20	-18.97	-17.78	-16.62
50	-23.78	-23.05	-22.35	-21.67	-21.02	-19.76	-18.55	-17.36
75	-24.72	-23.97	-23.26	-22.57	-21.90	-20.63	-19.39	-18.20
100	-25.68	-24.92	-24.19	-23.50	-22.82	-21.53	-20.28	-19.08
125	-26.66	-25.89	-25.15	-24.45	-23.77	-22.46	-21.21	-19.99
150	-27.66	-26.88	-26.13	-25.42	-24.73	-23.42	-22.15	-20.93
175	-28.68	-27.89	-27.13	-26.41	-25.72	-24.39	-23.11	-21.88
200	-29.71	-28.92	-28.15	-27.42	-26.72	-25.38	-24.09	-22.86
225	-30.78	-29.97	-29.18	-28.44	-27.73	-26.38	-25.09	-23.84
250	-31.86	-31.05	-30.24	-29.48	-28.76	-27.39	-26.09	-24.84
300	-34.17	-33.29	-32.41	-31.62	-30.87	-29.46	-28.14	-26.87
350	-37.02	-35.75	-34.70	-33.83	-33.04	-31.58	-30.23	-28.93
400		-38.69	-37.15	-36.15	-35.29	-33.76	-32.36	-31.04
450		-43.39	-39.85	-38.59	-37.62	-35.99	-34.53	-33.18
500		-50.51	-42.93	-41.19	-40.05	-38.27	-36.75	-35.35
550		-56.67	-46.48	-43.97	-42.59	-40.62	-39.01	-37.57
600		-61.70	-50.40	-46.95	-45.24	-43.02	-41.32	-39.82
700		-69.92	-58.32	-53.31	-50.82	-48.00	-46.07	-44.45
800		-76.75	-65.59	-59.77	-56.61	-53.16	-50.97	-49.23
900		-82.80	-72.14	-65.97	-62.38	-58.41	-56.00	-54.16
1000		-88.36	-78.14	-71.83	-67.99	-63.66	-61.11	-59.24
HCrO ₄ ⁻								
25	-182.80	-182.29	-181.79	-181.30	-180.82	-179.89	-178.96	-178.06
50	-183.92	-183.39	-182.88	-182.38	-181.90	-180.94	-180.01	-179.09
75	-185.08	-184.54	-184.03	-183.53	-183.04	-182.08	-181.14	-180.22
100	-186.26	-185.73	-185.22	-184.72	-184.23	-183.27	-182.33	-181.41

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
HCrO₄⁻ — Continued								
125	-187.47	-186.95	-186.44	-185.94	-185.46	-184.50	-183.57	-182.65
150	-188.69	-188.19	-187.69	-187.20	-186.72	-185.77	-184.85	-183.94
175	-189.92	-189.44	-188.96	-188.48	-188.01	-187.08	-186.16	-185.26
200	-191.15	-190.71	-190.25	-189.78	-189.32	-188.41	-187.50	-186.61
225	-192.37	-191.98	-191.55	-191.10	-190.66	-189.76	-188.87	-187.99
250	-193.55	-193.25	-192.86	-192.44	-192.01	-191.14	-190.27	-189.40
300	-195.70	-195.72	-195.47	-195.13	-194.75	-193.95	-193.13	-192.29
350	-196.96	-197.96	-198.04	-197.82	-197.53	-196.83	-196.07	-195.28
400		-199.71	-200.47	-200.48	-200.30	-199.75	-199.07	-198.33
450		-198.92	-202.62	-203.04	-203.06	-202.69	-202.12	-201.45
500			-204.30	-205.46	-205.75	-205.65	-205.21	-204.62
550			-205.33	-207.68	-208.37	-208.60	-208.32	-207.83
600			-205.87	-209.68	-210.89	-211.54	-211.45	-211.07
700				-213.34	-215.72	-217.37	-217.72	-217.58
800					-220.50	-223.16	-223.99	-224.11
900					-225.56	-229.04	-230.30	-230.62
1000						-235.14	-236.70	-237.11
HF^o								
25	-71.66	-71.51	-71.34	-71.17	-71.00	-70.64	-70.27	-69.89
50	-72.24	-72.08	-71.91	-71.73	-71.56	-71.20	-70.83	-70.45
75	-72.84	-72.68	-72.50	-72.33	-72.15	-71.79	-71.42	-71.05
100	-73.47	-73.30	-73.13	-72.95	-72.77	-72.41	-72.05	-71.68
125	-74.13	-73.95	-73.78	-73.60	-73.42	-73.06	-72.70	-72.33
150	-74.80	-74.63	-74.45	-74.27	-74.09	-73.73	-73.37	-73.00
175	-75.50	-75.32	-75.15	-74.97	-74.79	-74.43	-74.06	-73.70
200	-76.21	-76.04	-75.86	-75.68	-75.50	-75.14	-74.78	-74.42
225	-76.95	-76.78	-76.60	-76.42	-76.24	-75.88	-75.51	-75.15
250	-77.70	-77.53	-77.35	-77.17	-76.99	-76.63	-76.27	-75.90
300	-79.24	-79.09	-78.91	-78.73	-78.55	-78.19	-77.82	-77.46
350	-80.83	-80.71	-80.53	-80.35	-80.17	-79.81	-79.45	-79.08
400		-82.39	-82.21	-82.03	-81.85	-81.49	-81.12	-80.76
450		-84.13	-83.94	-83.76	-83.58	-83.22	-82.86	-82.50
500		-85.92	-85.73	-85.54	-85.36	-85.00	-84.64	-84.28
550		-87.75	-87.56	-87.37	-87.19	-86.83	-86.47	-86.11
600		-89.63	-89.43	-89.25	-89.06	-88.70	-88.34	-87.98
700		-93.50	-93.30	-93.12	-92.93	-92.57	-92.21	-91.85
800		-97.52	-97.32	-97.13	-96.95	-96.58	-96.22	-95.86
900		-101.67	-101.47	-101.28	-101.10	-100.73	-100.37	-100.01
1000		-105.95	-105.75	-105.56	-105.37	-105.00	-104.64	-104.28
HF⁻								
25	-138.16	-137.90	-137.63	-137.36	-137.09	-136.54	-135.99	-135.43
50	-138.68	-138.41	-138.14	-137.87	-137.60	-137.05	-136.50	-135.94
75	-139.15	-138.89	-138.62	-138.35	-138.08	-137.53	-136.99	-136.44
100	-139.58	-139.33	-139.06	-138.80	-138.53	-138.00	-137.46	-136.92
125	-139.97	-139.73	-139.48	-139.22	-138.96	-138.44	-137.91	-137.38
150	-140.32	-140.10	-139.86	-139.61	-139.37	-138.86	-138.34	-137.82
175	-140.61	-140.42	-140.21	-139.98	-139.75	-139.26	-138.76	-138.24
200	-140.86	-140.71	-140.53	-140.32	-140.10	-139.64	-139.15	-138.66
225	-141.03	-140.96	-140.81	-140.63	-140.43	-140.00	-139.53	-139.06
250	-141.13	-141.14	-141.05	-140.91	-140.73	-140.34	-139.90	-139.44
300	-140.92	-141.31	-141.40	-141.36	-141.25	-140.95	-140.58	-140.17
350	-139.55	-141.03	-141.54	-141.65	-141.65	-141.48	-141.20	-140.84
400		-140.18	-141.38	-141.76	-141.91	-141.92	-141.74	-141.46
450		-136.48	-140.79	-141.63	-142.00	-142.25	-142.21	-142.02
500			-139.55	-141.21	-141.91	-142.47	-142.60	-142.52
550			-137.51	-140.45	-141.60	-142.57	-142.90	-142.94
600			-134.82	-139.36	-141.09	-142.54	-143.10	-143.29
700				-136.53	-139.49	-142.11	-143.22	-143.72

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
HF₂⁻ — Continued								
800					-137.48	-141.23	-142.94	-143.78
900					-135.44	-140.09	-142.34	-143.45
1000					-138.89	-141.54	-142.76	
HO₂⁻								
25	-16.10	-16.03	-15.93	-15.83	-15.71	-15.46	-15.17	-14.88
50	-16.22	-16.14	-16.05	-15.95	-15.84	-15.59	-15.32	-15.04
75	-16.28	-16.22	-16.13	-16.04	-15.93	-15.70	-15.44	-15.17
100	-16.31	-16.26	-16.18	-16.10	-16.00	-15.78	-15.54	-15.28
125	-16.30	-16.27	-16.21	-16.13	-16.04	-15.84	-15.61	-15.37
150	-16.25	-16.24	-16.20	-16.14	-16.07	-15.88	-15.67	-15.44
175	-16.15	-16.18	-16.16	-16.12	-16.06	-15.91	-15.72	-15.50
200	-15.99	-16.07	-16.09	-16.08	-16.04	-15.91	-15.75	-15.55
225	-15.77	-15.92	-15.99	-16.00	-15.99	-15.90	-15.76	-15.59
250	-15.45	-15.71	-15.84	-15.90	-15.92	-15.87	-15.76	-15.61
300	-14.42	-15.07	-15.41	-15.58	-15.68	-15.75	-15.72	-15.62
350	-12.22	-13.95	-14.76	-15.11	-15.32	-15.54	-15.61	-15.59
400		-12.48	-13.84	-14.45	-14.82	-15.25	-15.44	-15.51
450		-8.51	-12.50	-13.56	-14.16	-14.85	-15.20	-15.38
500			-10.58	-12.39	-13.32	-14.34	-14.88	-15.18
550			-7.93	-10.90	-12.27	-13.71	-14.47	-14.92
600			-4.75	-9.10	-11.01	-12.95	-13.97	-14.57
700				-4.98	-7.93	-11.02	-12.64	-13.61
800					-4.44	-8.60	-10.88	-12.23
900					-0.91	-5.88	-8.77	-10.43
1000						-3.08	-6.44	-8.24
HPO₄²⁻								
25	-260.31	-260.24	-260.16	-260.05	-259.93	-259.65	-259.35	-259.02
50	-260.06	-260.00	-259.91	-259.82	-259.70	-259.45	-259.17	-258.86
75	-259.71	-259.67	-259.60	-259.51	-259.42	-259.19	-258.92	-258.64
100	-259.28	-259.26	-259.22	-259.15	-259.07	-258.87	-258.63	-258.37
125	-258.76	-258.78	-258.77	-258.73	-258.67	-258.51	-258.30	-258.06
150	-258.14	-258.23	-258.26	-258.26	-258.22	-258.10	-257.93	-257.72
175	-257.42	-257.59	-257.68	-257.72	-257.72	-257.65	-257.52	-257.35
200	-256.58	-256.86	-257.02	-257.12	-257.16	-257.16	-257.08	-256.94
225	-255.59	-256.02	-256.28	-256.45	-256.55	-256.63	-256.60	-256.51
250	-254.41	-255.06	-255.46	-255.71	-255.88	-256.05	-256.09	-256.05
300	-251.20	-252.67	-253.51	-254.00	-254.34	-254.76	-254.97	-255.05
350	-245.71	-249.28	-251.12	-251.95	-252.53	-253.27	-253.70	-253.93
400		-245.47	-248.16	-249.52	-250.42	-251.58	-252.27	-252.71
450		-237.33	-244.42	-246.62	-247.98	-249.67	-250.69	-251.35
500			-239.60	-243.17	-245.15	-247.52	-248.93	-249.85
550			-233.49	-239.09	-241.90	-245.10	-246.97	-248.20
600			-226.47	-234.43	-238.21	-242.40	-244.80	-246.36
700				-224.20	-229.74	-236.12	-239.75	-242.07
800					-220.40	-228.75	-233.74	-236.87
900					-210.85	-220.64	-226.90	-230.71
1000						-212.31	-219.56	-223.65
H₂PO₄⁻								
25	-270.14	-269.77	-269.41	-269.05	-268.69	-267.98	-267.26	-266.56
50	-270.68	-270.30	-269.93	-269.56	-269.20	-268.48	-267.76	-267.05
75	-271.20	-270.82	-270.45	-270.09	-269.72	-269.01	-268.29	-267.59
100	-271.72	-271.35	-270.98	-270.62	-270.26	-269.55	-268.84	-268.14
125	-272.22	-271.87	-271.51	-271.16	-270.81	-270.10	-269.41	-268.71
150	-272.71	-272.38	-272.04	-271.70	-271.35	-270.67	-269.98	-269.30
175	-273.18	-272.88	-272.56	-272.23	-271.90	-271.23	-270.56	-269.89
200	-273.61	-273.36	-273.07	-272.76	-272.45	-271.80	-271.15	-270.49

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
H₂PO₄⁻ — Continued								
225	-274.00	-273.82	-273.56	-273.29	-272.99	-272.38	-271.74	-271.10
250	-274.32	-274.24	-274.04	-273.80	-273.53	-272.95	-272.34	-271.72
300	-274.63	-274.93	-274.92	-274.77	-274.57	-274.09	-273.55	-272.97
350	-273.83	-275.24	-275.65	-275.66	-275.56	-275.21	-274.76	-274.24
400		-275.05	-276.15	-276.42	-276.47	-276.30	-275.96	-275.52
450		-272.07	-276.27	-277.01	-277.28	-277.35	-277.14	-276.79
500			-275.80	-277.36	-277.96	-278.34	-278.30	-278.06
550				-274.57	-277.42	-278.47	-279.26	-279.42
600				-272.76	-277.19	-278.82	-280.10	-280.49
700					-276.23	-279.09	-281.53	-282.47
800						-279.10	-282.67	-284.21
900						-279.22	-283.69	-285.78
1000							-284.78	-287.28
								-288.33
H₂P₂O₇⁻²								
25	-480.40	-479.80	-479.21	-478.63	-478.07	-476.96	-475.87	-474.79
50	-481.36	-480.74	-480.14	-479.56	-478.99	-477.86	-476.76	-475.68
75	-482.28	-481.67	-481.07	-480.49	-479.92	-478.80	-477.70	-476.62
100	-483.17	-482.58	-482.00	-481.42	-480.86	-479.75	-478.67	-477.59
125	-484.03	-483.46	-482.90	-482.34	-481.80	-480.71	-479.64	-478.58
150	-484.84	-484.32	-483.78	-483.25	-482.72	-481.66	-480.61	-479.57
175	-485.58	-485.13	-484.64	-484.14	-483.63	-482.62	-481.59	-480.57
200	-486.25	-485.89	-485.46	-485.00	-484.53	-483.56	-482.57	-481.58
225	-486.82	-486.59	-486.24	-485.84	-485.41	-484.50	-483.55	-482.59
250	-487.24	-487.21	-486.97	-486.64	-486.26	-485.42	-484.53	-483.60
300	-487.38	-488.11	-488.24	-488.10	-487.87	-487.22	-486.46	-485.63
350	-485.26	-488.19	-489.17	-489.35	-489.32	-488.94	-488.35	-487.64
400		-487.26	-489.60	-490.31	-490.58	-490.57	-490.19	-489.64
450		-480.71	-489.24	-490.88	-491.60	-492.06	-491.96	-491.59
500			-487.67	-490.94	-492.31	-493.41	-493.65	-493.49
550				-484.55	-490.40	-492.67	-494.58	-495.22
600				-480.23	-489.25	-492.67	-495.56	-496.67
700					-485.84	-491.72	-496.93	-499.15
800						-490.14	-497.63	-501.06
900						-488.71	-497.98	-502.51
1000							-498.40	-503.74
								-506.19
H₃PO₄⁰								
25	-273.10	-272.54	-272.00	-271.47	-270.96	-269.96	-268.99	-268.04
50	-274.07	-273.49	-272.93	-272.39	-271.87	-270.84	-269.85	-268.89
75	-275.09	-274.49	-273.92	-273.37	-272.84	-271.81	-270.80	-269.83
100	-276.15	-275.54	-274.96	-274.41	-273.87	-272.82	-271.81	-270.83
125	-277.24	-276.62	-276.04	-275.48	-274.93	-273.88	-272.86	-271.87
150	-278.36	-277.74	-277.15	-276.59	-276.04	-274.98	-273.95	-272.96
175	-279.52	-278.90	-278.30	-277.73	-277.17	-276.11	-275.08	-274.08
200	-280.71	-280.08	-279.48	-278.90	-278.34	-277.27	-276.24	-275.23
225	-281.93	-281.30	-280.69	-280.10	-279.54	-278.46	-277.42	-276.41
250	-283.18	-282.55	-281.93	-281.34	-280.77	-279.68	-278.63	-277.62
300	-285.80	-285.16	-284.50	-283.88	-283.30	-282.19	-281.13	-280.11
350	-288.76	-287.95	-287.20	-286.54	-285.94	-284.80	-283.72	-282.69
400		-291.06	-290.04	-289.32	-288.67	-287.50	-286.40	-285.35
450		-295.14	-293.08	-292.22	-291.52	-290.29	-289.16	-288.09
500		-300.56	-296.37	-295.26	-294.47	-293.16	-292.00	-290.91
550		-305.52	-299.96	-298.45	-297.53	-296.12	-294.91	-293.80
600		-309.94	-303.80	-301.78	-300.69	-299.15	-297.90	-296.75
700		-317.94	-311.64	-308.81	-307.30	-305.45	-304.07	-302.86
800		-325.37	-319.30	-316.04	-314.19	-312.00	-310.49	-309.22
900		-332.54	-326.73	-323.29	-321.21	-318.75	-317.12	-315.80
1000		-339.59	-334.01	-330.50	-328.28	-325.63	-323.93	-322.59

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
H₃P₂O₇⁻								
25	-483.60	-483.01	-482.44	-481.88	-481.33	-480.27	-479.23	-478.21
50	-484.90	-484.29	-483.71	-483.14	-482.58	-481.50	-480.44	-479.41
75	-486.26	-485.64	-485.05	-484.47	-483.91	-482.82	-481.76	-480.72
100	-487.66	-487.04	-486.44	-485.87	-485.31	-484.21	-483.15	-482.11
125	-489.08	-488.47	-487.88	-487.31	-486.75	-485.66	-484.60	-483.56
150	-490.54	-489.95	-489.36	-488.79	-488.24	-487.16	-486.10	-485.06
175	-492.01	-491.44	-490.87	-490.31	-489.76	-488.69	-487.64	-486.61
200	-493.50	-492.96	-492.41	-491.86	-491.32	-490.26	-489.22	-488.20
225	-494.98	-494.49	-493.97	-493.44	-492.91	-491.87	-490.84	-489.83
250	-496.44	-496.03	-495.54	-495.03	-494.52	-493.50	-492.49	-491.49
300	-499.18	-499.08	-498.71	-498.27	-497.81	-496.85	-495.88	-494.91
350	-501.13	-501.94	-501.87	-501.55	-501.16	-500.29	-499.38	-498.44
400		-504.38	-504.94	-504.82	-504.54	-503.80	-502.96	-502.07
450		-504.50	-507.78	-508.03	-507.92	-507.36	-506.61	-505.79
500			-510.20	-511.14	-511.28	-510.95	-510.32	-509.57
550				-512.05	-514.08	-514.59	-514.56	-514.08
600					-513.47	-516.85	-517.84	-517.87
700						-522.13	-524.18	-525.45
800							-530.56	-532.76
900								-537.27
1000								-547.94
HS⁻								
25	2.86	3.10	3.35	3.60	3.86	4.38	4.90	5.43
50	2.47	2.72	2.98	3.23	3.49	4.01	4.53	5.06
75	2.12	2.37	2.62	2.88	3.13	3.64	4.16	4.68
100	1.80	2.04	2.29	2.54	2.78	3.29	3.80	4.31
125	1.52	1.74	1.98	2.21	2.45	2.95	3.44	3.95
150	1.27	1.47	1.69	1.91	2.14	2.62	3.10	3.59
175	1.07	1.23	1.42	1.63	1.85	2.30	2.77	3.24
200	0.92	1.03	1.19	1.37	1.57	2.00	2.44	2.91
225	0.83	0.87	0.99	1.14	1.32	1.71	2.13	2.58
250	0.83	0.77	0.83	0.94	1.09	1.44	1.83	2.25
300	1.22	0.76	0.62	0.63	0.70	0.94	1.26	1.63
350	2.79	1.21	0.62	0.46	0.42	0.52	0.75	1.05
400		2.11	0.90	0.47	0.27	0.18	0.29	0.51
450		5.70	1.59	0.70	0.28	-0.07	-0.11	0.01
500			2.89	1.21	0.46	-0.21	-0.43	-0.43
550				4.97	2.05	0.85	-0.25	-0.68
600					7.62	3.20	1.44	-0.83
700						6.08	3.16	-0.86
800							5.27	-1.49
900							7.40	0.18
1000							3.98	-1.11
HSO₃⁻								
25	-126.13	-125.74	-125.36	-124.98	-124.60	-123.85	-123.11	-122.37
50	-126.97	-126.56	-126.17	-125.78	-125.40	-124.65	-123.90	-123.16
75	-127.80	-127.40	-127.00	-126.62	-126.23	-125.48	-124.73	-123.99
100	-128.64	-128.24	-127.85	-127.46	-127.08	-126.33	-125.59	-124.85
125	-129.47	-129.08	-128.70	-128.32	-127.94	-127.20	-126.47	-125.74
150	-130.29	-129.92	-129.55	-129.18	-128.82	-128.08	-127.36	-126.64
175	-131.10	-130.76	-130.41	-130.05	-129.69	-128.98	-128.26	-127.55
200	-131.88	-131.59	-131.26	-130.92	-130.58	-129.88	-129.18	-128.48
225	-132.63	-132.40	-132.10	-131.79	-131.46	-130.79	-130.11	-129.42
250	-133.32	-133.18	-132.93	-132.65	-132.34	-131.71	-131.05	-130.38
300	-134.42	-134.62	-134.54	-134.34	-134.10	-133.54	-132.94	-132.31
350	-134.47	-135.73	-136.02	-135.97	-135.82	-135.38	-134.85	-134.27
400		-136.30	-137.30	-137.49	-137.48	-137.20	-136.77	-136.26
450		-134.08	-138.22	-138.87	-139.06	-139.00	-138.69	-138.26

1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
HSO₃⁻ — Continued								
500			-138.58	-140.02	-140.53	-140.76	-140.60	-140.26
550			-138.20	-140.92	-141.86	-142.46	-142.48	-142.25
600			-137.24	-141.54	-143.04	-144.10	-144.33	-144.23
700				-142.28	-145.02	-147.19	-147.92	-148.11
800					-146.81	-150.08	-151.35	-151.83
900					-148.75	-152.90	-154.67	-155.38
1000						-155.84	-157.96	-158.76
HSO₄⁻								
25	-180.63	-180.22	-179.81	-179.42	-179.02	-178.24	-177.46	-176.69
50	-181.39	-180.96	-180.55	-180.14	-179.74	-178.95	-178.17	-177.40
75	-182.15	-181.73	-181.31	-180.91	-180.50	-179.71	-178.93	-178.16
100	-182.93	-182.51	-182.10	-181.69	-181.29	-180.51	-179.73	-178.96
125	-183.71	-183.30	-182.90	-182.50	-182.10	-181.33	-180.56	-179.79
150	-184.49	-184.10	-183.71	-183.32	-182.93	-182.17	-181.41	-180.65
175	-185.25	-184.90	-184.52	-184.15	-183.77	-183.02	-182.28	-181.53
200	-186.00	-185.69	-185.34	-184.99	-184.62	-183.90	-183.16	-182.43
225	-186.72	-186.47	-186.16	-185.82	-185.48	-184.78	-184.07	-183.35
250	-187.38	-187.22	-186.96	-186.66	-186.34	-185.67	-184.98	-184.28
300	-188.42	-188.63	-188.53	-188.32	-188.07	-187.49	-186.85	-186.19
350	-188.41	-189.70	-189.99	-189.93	189.77	189.31	188.76	188.15
400		-190.25	-191.26	-191.46	-191.44	-191.14	-190.69	-190.15
450		-188.03	-192.19	-192.83	-193.03	-192.96	-192.63	-192.18
500			-192.55	-194.01	-194.52	-194.74	-194.57	-194.22
550			-192.18	-194.92	-195.88	-196.49	-196.50	-196.26
600			-191.23	-195.58	-197.10	-198.18	-198.41	-198.30
700				-196.42	-199.19	-201.40	-202.15	-202.33
800					-201.11	-204.44	-205.75	-206.24
900					-203.22	-207.44	-209.26	-210.00
1000						-210.59	-212.78	-213.61
HSO₅⁻								
25	-152.37	-151.78	-151.21	-150.66	-150.12	-149.06	-148.02	-147.01
50	-153.67	-153.06	-152.48	-151.91	-151.36	-150.28	-149.23	-148.20
75	-155.01	-154.40	-153.81	-153.24	-152.68	-151.59	-150.54	-149.50
100	-156.40	-155.79	-155.20	-154.62	-154.06	-152.98	151.92	150.88
125	-157.82	-157.21	-156.63	-156.06	-155.50	-154.42	-153.36	-152.33
150	-159.27	-158.67	-158.09	-157.53	-156.98	-155.90	-154.85	-153.82
175	-160.73	-160.16	-159.59	-159.04	-158.49	-157.43	-156.38	-155.36
200	-162.20	-161.67	-161.12	-160.58	-160.04	-158.99	-157.95	-156.94
225	-163.67	-163.19	-162.67	-162.14	-161.62	-160.58	-159.56	-158.55
250	-165.12	-164.71	-164.23	-163.73	-163.22	-162.21	-161.20	-160.21
300	-167.84	-167.74	-167.38	-166.94	-166.48	-165.53	-164.57	-163.60
350	-167.76	-170.57	-170.51	-170.19	-169.81	-168.95	-168.04	-167.11
400		-172.98	-173.55	-173.44	-173.16	-172.43	-171.59	-170.72
450		-173.06	-176.36	-176.62	-176.52	-175.96	-175.22	-174.40
500			-178.75	-179.70	-179.85	-179.52	-178.90	-178.16
550			-180.57	-182.61	-183.13	-183.11	-182.63	-181.98
600			-181.95	-185.35	-186.34	-186.70	-186.40	-185.84
700				-190.55	-192.62	-193.91	-194.00	-193.66
800					-198.93	-201.15	-201.68	-201.57
900					-205.57	-208.54	-209.46	-209.53
1000						-216.19	-217.38	-217.53
H₂S°								
25	-6.67	-6.26	-5.85	-5.45	-5.05	-4.27	-3.49	-2.72
50	-7.47	-7.04	-6.63	-6.22	-5.82	-5.04	-4.26	-3.49
75	-8.33	-7.90	-7.49	-7.08	-6.68	-5.89	-5.11	-4.35
100	-9.26	-8.83	-8.41	-8.00	-7.60	-6.81	-6.04	-5.28

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
H₂S° — Continued								
125	-10.26	-9.82	-9.40	-8.99	-8.58	-7.79	-7.02	-6.26
150	-11.30	-10.87	-10.44	-10.03	-9.62	-8.83	-8.06	-7.30
175	-12.40	-11.97	-11.54	-11.12	-10.72	-9.92	-9.15	-8.39
200	-13.55	-13.11	-12.68	-12.27	-11.86	-11.06	-10.29	-9.53
225	-14.74	-14.31	-13.88	-13.45	-13.04	-12.25	-11.47	-10.71
250	-15.98	-15.55	-15.11	-14.69	-14.28	-13.47	-12.70	-11.93
300	-18.59	-18.17	-17.71	-17.28	-16.86	-16.05	-15.27	-14.50
350	-21.45	-20.98	-20.48	-20.03	-19.60	-18.78	-17.99	-17.22
400		-24.03	-23.41	-22.93	-22.48	-21.64	-20.84	-20.07
450		-27.61	-26.52	-25.97	-25.50	-24.64	-23.83	-23.05
500		-31.88	-29.82	-29.17	-28.65	-27.76	-26.93	-26.14
550		-36.03	-33.35	-32.50	-31.93	-30.99	-30.15	-29.34
600		-40.00	-37.05	-35.99	-35.34	-34.34	-33.47	-32.65
700		-47.77	-44.75	-43.31	-42.47	-41.33	-40.41	-39.56
800		-55.53	-52.61	-50.98	-49.98	-48.69	-47.70	-46.83
900		-63.39	-60.60	-58.88	-57.78	-56.36	-55.33	-54.43
1000		-71.41	-68.72	-66.97	-65.81	-64.31	-63.24	-62.33
HSe⁻								
25	10.50	10.73	10.96	11.20	11.44	11.93	12.44	12.95
50	10.04	10.27	10.50	10.74	10.99	11.48	11.98	12.48
75	9.59	9.82	10.05	10.29	10.53	11.01	11.51	12.00
100	9.16	9.38	9.61	9.84	10.07	10.55	11.03	11.52
125	8.74	8.95	9.17	9.39	9.61	10.08	10.55	11.03
150	8.35	8.54	8.74	8.95	9.16	9.61	10.07	10.53
175	7.99	8.14	8.32	8.51	8.71	9.14	9.58	10.04
200	7.67	7.77	7.92	8.09	8.27	8.67	9.10	9.54
225	7.39	7.43	7.54	7.68	7.84	8.21	8.61	9.03
250	7.19	7.13	7.18	7.28	7.42	7.75	8.13	8.53
300	7.13	6.69	6.55	6.56	6.62	6.85	7.16	7.51
350	8.20	6.66	6.09	5.94	5.90	5.99	6.21	6.50
400		7.12	5.87	5.45	5.26	5.17	5.28	5.49
450		10.35	6.05	5.16	4.74	4.41	4.38	4.49
500			6.82	5.12	4.37	3.72	3.51	3.52
550			8.36	5.37	4.17	3.11	2.70	2.58
600			10.48	5.93	4.16	2.60	1.95	1.68
700				7.56	4.58	1.85	0.64	0.05
800					5.30	1.44	-0.39	-1.32
900					5.93	1.19	-1.20	-2.41
1000						0.89	-1.91	-3.23
HSeO₃⁻								
25	-98.34	-97.96	-97.59	-97.22	-96.85	-96.12	-95.39	-94.67
50	-99.15	-98.76	-98.38	-98.01	-97.63	-96.89	-96.17	-95.44
75	-99.98	-99.59	-99.20	-98.83	-98.45	-97.72	-96.99	-96.27
100	-100.81	-100.42	-100.04	-99.67	-99.30	-98.57	-97.84	-97.13
125	-101.64	-101.27	-100.90	-100.53	-100.17	-99.44	-98.73	-98.01
150	-102.48	-102.12	-101.76	101.41	101.05	-100.34	-99.63	-98.93
175	-103.30	-102.98	-102.64	-102.29	-101.94	-101.25	-100.56	-99.86
200	-104.11	-103.82	-103.51	-103.18	-102.85	-102.18	-101.50	-100.81
225	-104.88	-104.66	-104.38	-104.08	-103.76	-103.11	-102.45	-101.78
250	-105.60	-105.47	-105.24	-104.97	-104.68	-104.06	-103.42	-102.77
300	-106.77	-106.99	-106.92	-106.74	-106.51	-105.98	-105.39	-104.78
350	-106.90	-108.18	-108.50	-108.46	-108.32	-107.91	-107.40	-106.85
400		-108.85	-109.88	-110.09	-110.09	-109.84	-109.43	-108.94
450		-106.75	-110.92	-111.58	-111.79	-111.76	-111.48	-111.07
500			-111.40	-112.87	-113.39	-113.65	-113.52	-113.21
550			-111.15	-113.90	-114.86	-115.50	-115.55	-115.35
600			-110.34	-114.67	-116.20	-117.30	-117.56	-117.49
700				-115.75	-118.52	-120.74	-121.50	-121.72

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
HSeO₃⁻ — Continued								
800				-120.67	-124.00	-125.32	-125.83	
900				-123.02	-127.23	-129.05	-129.79	
1000					-130.61	-132.78	-133.62	
HSeO₄⁻								
25	-108.10	-107.74	-107.38	-107.02	-106.66	-105.96	-105.25	-104.55
50	-108.95	-108.58	-108.21	-107.85	-107.49	-106.78	-106.07	-105.37
75	-109.75	-109.37	-109.00	-108.64	-108.28	-107.56	-106.86	-106.16
100	-110.48	-110.11	-109.75	-109.38	-109.03	-108.32	-107.62	-106.92
125	-111.17	-110.81	-110.45	-110.10	-109.74	-109.05	-108.35	-107.66
150	-111.81	-111.47	-111.12	-110.77	-110.43	-109.74	-109.06	-108.38
175	-112.39	-112.08	-111.75	-111.42	-111.08	-110.41	-109.74	-109.07
200	-112.92	-112.65	-112.34	-112.03	-111.71	-111.05	-110.40	-109.74
225	-113.38	-113.16	-112.89	-112.60	-112.30	-111.67	-111.03	-110.38
250	-113.75	-113.63	-113.40	-113.14	-112.85	-112.26	-111.64	-111.01
300	-114.13	-114.34	-114.27	-114.10	-113.87	-113.36	-112.79	-112.20
350	-113.38	-114.62	-114.92	-114.89	-114.75	-114.35	-113.86	-113.32
400		-114.26	-115.27	-115.48	-115.48	-115.23	-114.83	-114.36
450		-111.06	-115.18	-115.83	-116.03	-116.00	-115.72	-115.32
500			-114.44	-115.88	-116.39	-116.65	-116.51	-116.20
550				-112.90	-115.60	-116.54	-117.16	-117.20
600				-110.71	-114.98	-116.47	-117.54	-117.79
700					-113.04	-115.76	-117.92	-118.66
800						-114.61	-117.86	-119.12
900						-113.39	-117.51	-119.26
1000							-117.08	-119.17
HSiO₃⁻								
25	-242.30	-242.18	-242.04	-241.89	-241.73	-241.40	-241.05	-240.68
50	-242.52	-242.40	-242.26	-242.11	-241.96	-241.63	-241.29	-240.93
75	-242.69	-242.57	-242.44	-242.30	-242.15	-241.83	-241.50	-241.16
100	-242.82	-242.71	-242.58	-242.45	-242.31	-242.01	-241.69	-241.35
125	-242.90	-242.81	-242.70	-242.58	-242.44	-242.16	-241.85	-241.53
150	-242.94	-242.87	-242.78	-242.67	-242.55	-242.29	-241.99	-241.69
175	-242.93	-242.90	-242.83	-242.74	-242.64	-242.39	-242.12	-241.83
200	-242.86	-242.88	-242.85	-242.78	-242.70	-242.48	-242.23	-241.96
225	-242.72	-242.81	-242.83	-242.79	-242.73	-242.55	-242.33	-242.07
250	-242.50	-242.69	-242.76	-242.77	-242.73	-242.60	-242.40	-242.17
300	-241.64	-242.22	-242.49	-242.61	-242.65	-242.63	-242.51	-242.33
350	-239.59	-241.27	-242.01	-242.29	-242.45	-242.57	-242.54	-242.44
400		-239.89	-241.23	-241.78	-242.09	-242.41	-242.51	-242.49
450		-235.87	-240.02	-241.03	-241.57	-242.14	-242.39	-242.48
500			-238.20	-239.99	-240.86	-241.77	-242.20	-242.40
550				-235.62	-238.62	-239.94	-241.26	-241.91
600				-232.45	-236.92	-238.80	-240.62	-241.52
700					-232.95	-235.95	-238.93	-240.42
800						-232.67	-236.76	-238.90
900						-229.34	-234.28	-237.01
1000							-231.72	-234.90
HVO₄²⁻								
25	-233.00	-232.80	-232.58	-232.35	-232.12	-231.63	-231.13	-230.61
50	-233.06	-232.85	-232.64	-232.42	-232.19	-231.71	-231.22	-230.72
75	-233.03	-232.85	-232.64	-232.43	-232.21	-231.76	-231.28	-230.79
100	-232.94	-232.78	-232.60	-232.40	-232.20	-231.76	-231.31	-230.84
125	-232.77	-232.65	-232.50	-232.33	-232.14	-231.74	-231.31	-230.87
150	-232.52	-232.46	-232.34	-232.20	-232.04	-231.68	-231.29	-230.87
175	-232.18	-232.19	-232.13	-232.03	-231.91	-231.60	-231.24	-230.84
200	-231.73	-231.84	-231.85	-231.81	-231.72	-231.47	-231.16	-230.80

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
HVO₄⁻² — Continued								
225	-231.14	-231.40	-231.51	-231.53	-231.49	-231.32	-231.06	-230.74
250	-230.37	-230.84	-231.08	-231.18	-231.21	-231.13	-230.93	-230.66
300	-228.01	-229.30	-229.96	-230.29	-230.48	-230.63	-230.59	-230.44
350	-233.34	-226.79	-228.41	-229.08	-229.51	-229.97	-230.13	-230.13
400		-223.65	-226.32	-227.52	-228.27	-229.13	-229.55	-229.73
450		-215.68	-223.42	-225.50	-226.71	-228.10	-228.83	-229.23
500			-219.37	-222.93	-224.78	-226.84	-227.96	-228.60
550			-213.91	-219.73	-222.45	-225.35	-226.91	-227.85
600			-207.43	-215.93	-219.69	-223.59	-225.67	-226.93
700				-207.31	-213.10	-219.27	-222.56	-224.56
800					-205.69	-213.97	-218.59	-221.36
900					-198.18	-208.04	-213.90	-217.31
1000						-201.97	-208.77	-212.46
H₂VO₄⁻								
25	-244.00	-243.66	-243.32	-242.98	-242.65	-241.97	-241.30	-240.63
50	-244.73	-244.38	-244.03	-243.69	-243.35	-242.67	-242.00	-241.33
75	-245.46	-245.11	-244.76	-244.42	-244.08	-243.40	-242.73	-242.07
100	-246.19	-245.85	-245.50	-245.16	-244.83	-244.16	-243.50	-242.83
125	-246.92	-246.59	-246.26	-245.92	-245.59	-244.93	-244.28	-243.62
150	-247.64	-247.33	-247.01	-246.69	-246.37	-245.72	-245.08	-244.43
175	-248.35	-248.07	-247.77	-247.47	-247.15	-246.53	-245.89	-245.26
200	-249.04	-248.80	-248.53	-248.24	-247.94	-247.34	-246.72	-246.10
225	-249.69	-249.51	-249.28	-249.01	-248.74	-248.16	-247.56	-246.96
250	-250.28	-250.20	-250.01	-249.78	-249.53	-248.99	-248.41	-247.82
300	-251.18	-251.45	-251.43	-251.29	-251.11	-250.65	-250.14	-249.59
350	-251.01	-252.35	-252.73	-252.74	-252.65	-252.32	-251.88	-251.39
400		-252.74	-253.83	-254.09	-254.14	-253.98	-253.64	-253.22
450		-250.32	-254.56	-255.28	-255.55	-255.61	-255.40	-255.07
500			-254.72	-256.26	-256.84	-257.20	-257.15	-256.92
550				-254.14	-256.97	-258.00	-258.75	-258.76
600				-252.98	-257.41	-259.00	-260.23	-260.60
700					-257.79	-260.64	-262.99	-264.18
800						-262.07	-265.55	-267.00
900						-263.67	-268.05	-270.01
1000							-270.66	-272.99
He°								
25	4.66	4.82	4.99	5.16	5.34	5.71	6.08	6.47
50	4.27	4.44	4.62	4.79	4.98	5.34	5.72	6.10
75	3.82	4.00	4.17	4.36	4.54	4.91	5.28	5.66
100	3.31	3.49	3.68	3.86	4.04	4.42	4.79	5.17
125	2.75	2.94	3.12	3.31	3.50	3.87	4.25	4.62
150	2.14	2.33	2.52	2.71	2.90	3.28	3.65	4.03
175	1.48	1.68	1.87	2.07	2.26	2.64	3.02	3.40
200	0.78	0.98	1.19	1.38	1.58	1.96	2.34	2.72
225	0.04	0.25	0.45	0.66	0.86	1.25	1.63	2.01
250	-0.76	-0.54	-0.32	-0.11	0.10	0.49	0.88	1.26
300	-2.51	-2.23	-1.98	-1.75	-1.53	-1.12	-0.72	-0.33
350	-4.56	-4.14	-3.80	-3.53	-3.30	-2.86	-2.45	-2.04
400		-6.39	-5.80	-5.47	-5.20	-4.72	-4.29	-3.88
450		-9.62	-8.02	-7.56	-7.23	-6.70	-6.24	-5.81
500		-14.17	-10.51	-9.81	-9.39	-8.79	-8.30	-7.85
550		-18.30	-13.32	-12.23	-11.69	-10.99	-10.46	-9.99
600		-21.94	-16.40	-14.82	-14.12	-13.30	-12.71	-12.22
700		-28.47	-22.78	-20.42	-19.32	-18.19	-17.49	-16.93
800		-34.55	-29.08	-26.31	-24.87	-23.43	-22.60	-21.98
900		-40.46	-35.25	-32.29	-30.64	-28.93	-27.99	-27.32
1000		-46.33	-41.34	-38.32	-36.53	-34.64	-33.63	-32.95

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Hg⁺²								
25	39.36	39.15	38.97	38.82	38.69	38.49	38.34	38.21
50	39.57	39.35	39.17	39.01	38.87	38.64	38.46	38.32
75	39.78	39.55	39.36	39.19	39.04	38.80	38.60	38.43
100	39.98	39.74	39.54	39.36	39.21	38.94	38.73	38.54
125	40.18	39.93	39.71	39.52	39.36	39.08	38.85	38.65
150	40.39	40.11	39.88	39.68	39.50	39.21	38.96	38.75
175	40.60	40.30	40.05	39.83	39.64	39.32	39.06	38.83
200	40.83	40.49	40.22	39.98	39.77	39.43	39.15	38.90
225	41.07	40.70	40.39	40.13	39.90	39.53	39.22	38.97
250	41.35	40.92	40.57	40.28	40.03	39.62	39.29	39.02
300	42.04	41.41	40.94	40.59	40.29	39.80	39.41	39.09
350	42.82	42.06	41.32	40.90	40.55	39.96	39.50	39.12
400		41.88	41.67	41.22	40.80	40.11	39.57	39.13
450		40.47	41.95	41.52	41.06	40.26	39.63	39.11
500			42.05	41.81	41.32	40.41	39.68	39.09
550			41.85	42.06	41.59	40.57	39.73	39.05
500			41.31	42.22	41.86	40.76	39.80	39.03
700				42.10	42.40	41.25	40.03	39.04
800					42.94	41.96	40.44	39.22
900					43.56	42.85	41.02	39.58
1000						43.80	41.66	40.11
Hg₂²⁺								
25	36.71	36.88	37.07	37.26	37.46	37.86	38.28	38.70
50	37.08	37.26	37.45	37.64	37.84	38.24	38.65	39.07
75	37.43	37.61	37.79	37.99	38.18	38.58	38.98	39.40
100	37.75	37.92	38.10	38.29	38.48	38.88	39.28	39.68
125	38.04	38.21	38.39	38.57	38.76	39.14	39.53	39.93
150	38.33	38.48	38.65	38.82	39.00	39.37	39.76	40.15
175	38.60	38.73	38.89	39.05	39.22	39.58	39.96	40.34
200	38.87	38.97	39.11	39.26	39.42	39.77	40.13	40.50
225	39.14	39.21	39.32	39.46	39.61	39.93	40.28	40.64
250	39.42	39.44	39.53	39.64	39.77	40.08	40.41	40.76
300	40.08	39.91	39.91	39.97	40.07	40.31	40.60	40.92
350	40.87	40.46	40.25	40.27	40.32	40.50	40.73	41.01
400		40.53	40.56	40.53	40.53	40.63	40.81	41.04
450		40.17	40.83	40.76	40.71	40.71	40.83	41.01
500			41.01	40.96	40.86	40.77	40.80	40.93
550			41.08	41.13	41.00	40.80	40.75	40.81
600			40.99	41.26	41.12	40.82	40.67	40.66
700				41.22	41.31	40.85	40.50	40.33
800					41.41	40.93	40.33	39.99
900					41.45	41.01	40.17	39.67
1000						41.03	39.96	39.39
Hg(CH₃COO)⁺								
25	-54.76	-54.43	-54.11	-53.79	-53.47	-52.83	-52.20	-51.57
50	-55.32	-54.98	-54.65	-54.32	-54.00	-53.35	-52.72	-52.08
75	-56.06	-55.71	-55.37	-55.04	-54.71	-54.07	-53.43	-52.80
100	-56.93	-56.59	-56.25	-55.91	-55.58	-54.93	-54.30	-53.66
125	-57.94	-57.59	-57.25	-56.92	-56.59	-55.94	-55.30	-54.67
150	-59.05	-58.71	-58.37	-58.04	-57.71	-57.06	-56.43	-55.80
175	-60.27	-59.93	-59.60	-59.27	-58.94	-58.30	-57.66	-57.04
200	-61.58	-61.25	-60.92	-60.60	-60.27	-59.63	-59.00	-58.38
225	-62.97	-62.66	-62.34	-62.02	-61.70	-61.06	-60.43	-59.81
250	-64.43	-64.15	-63.84	-63.52	-63.21	-62.58	-61.96	-61.34
300	-67.55	-67.36	-67.07	-66.77	-66.47	-65.86	-65.25	-64.64
350	-70.85	-70.81	-70.60	-70.32	-70.03	-69.44	-68.85	-68.25
400		-74.64	-74.38	-74.12	-73.85	-73.29	-72.72	-72.14
450		-78.71	-78.40	-78.17	-77.92	-77.40	-76.85	-76.28

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Hg(CH₃COO)⁺ — Continued								
500		-82.65	-82.44	-82.21	-81.73	-81.20	-80.66	
550		-87.10	-86.91	-86.71	-86.27	-85.77	-85.25	
600		-91.76	-91.58	-91.40	-91.00	-90.54	-90.05	
700			-101.50	-101.32	-101.00	-100.62	-100.18	
800				-111.90	-111.63	-111.34	-110.96	
900				-123.09	-122.85	-122.64	-122.31	
1000					-134.63	-134.50	-134.19	
Hg(CH₃COO)⁰								
25	-146.58	-145.65	-144.77	-143.92	-143.11	-141.53	-140.01	-138.53
50	-147.80	-146.84	-145.93	-145.06	-144.22	-142.60	-141.04	-139.53
75	-149.39	-148.42	-147.49	-146.61	-145.75	-144.11	-142.53	-141.00
100	-151.29	-150.31	-149.37	-148.47	-147.61	-145.95	-144.36	-142.82
125	-153.47	-152.47	-151.53	-150.63	-149.76	-148.09	-146.48	-144.93
150	-155.88	-154.89	-153.94	-153.03	-152.15	-150.48	-148.87	-147.31
175	-158.52	-157.53	-156.57	-155.66	-154.78	-153.10	-151.48	-149.92
200	-161.37	-160.38	-159.42	-158.51	-157.63	-155.93	-154.32	-152.75
225	-164.40	-163.43	-162.47	-161.55	-160.67	-158.97	-157.35	-155.78
250	-167.61	-166.67	-165.70	-164.78	-163.89	-162.19	-160.57	-158.99
300	-174.52	-173.67	-172.69	-171.76	-170.87	-169.16	-167.53	-165.95
350	-182.04	-181.31	-180.32	-179.38	-178.49	-176.77	-175.13	-173.55
400		-189.56	-188.54	-187.59	-186.69	-184.96	-183.32	-181.73
450		-198.47	-197.30	-196.34	-195.42	-193.69	-192.04	-190.45
500		-208.05	-206.59	-205.59	-204.66	-202.92	-201.26	-199.66
550		-218.02	-216.37	-215.31	-214.37	-212.61	-210.94	-209.34
600		-228.34	-226.61	-225.48	-224.51	-222.74	-221.06	-219.45
700		-250.04	-248.29	-247.05	-246.03	-244.20	-242.51	-240.89
800		-273.10	-271.38	-270.08	-269.01	-267.14	-265.43	-263.80
900		-297.43	-295.74	-294.42	-293.31	-291.40	-289.67	-288.03
1000		-322.92	-321.26	-319.93	-318.80	-316.87	-315.13	-313.49
Hg(CH₃COO)⁻								
25	-239.02	-237.43	-235.92	-234.49	-233.11	-230.46	-227.93	-225.49
50	-240.67	-239.02	-237.47	-236.00	-234.58	-231.86	-229.27	-226.76
75	-242.91	-241.24	-239.67	-238.18	-236.74	-233.98	-231.35	-228.81
100	-245.66	-243.98	-242.40	-240.89	-239.44	-236.67	-234.01	-231.45
125	-248.84	-247.16	-245.58	-244.06	-242.61	-239.82	-237.16	-234.58
150	-252.40	-250.74	-249.16	-247.64	-246.19	-243.40	-240.73	-238.14
175	-256.31	-254.68	-253.10	-251.59	-250.14	-247.35	-244.68	-242.09
200	-260.53	-258.94	-257.38	-255.88	-254.43	-251.65	-248.98	-246.40
225	-265.02	-263.50	-261.96	-260.48	-259.04	-256.27	-253.61	-251.03
250	-269.75	-268.34	-266.84	-265.37	-263.95	-261.20	-258.55	-255.98
300	-279.75	-278.75	-277.36	-275.96	-274.58	-271.88	-269.27	-266.72
350	-289.81	-289.89	-288.80	-287.51	-286.19	-283.58	-281.02	-278.50
400		-301.45	-300.98	-299.89	-298.69	-296.19	-293.70	-291.23
450		-311.48	-313.71	-312.99	-311.96	-309.63	-307.23	-304.82
500			-326.75	-326.71	-325.92	-323.83	-321.54	-319.20
550			-339.89	-340.93	-340.51	-338.72	-336.57	-334.31
600			-353.23	-355.61	-355.66	-354.24	-352.26	-350.09
700				-386.45	-387.56	-387.06	-385.46	-383.52
800					-421.62	-422.04	-420.87	-419.15
900					-457.93	-459.09	-458.31	-456.76
1000						-498.15	-497.64	-496.17
Ho⁺³								
25	-161.40	-161.87	-162.28	-162.64	-162.97	-163.56	-164.07	-164.52
50	-160.01	-160.50	-160.93	-161.31	-161.67	-162.29	-162.84	-163.34
75	-158.57	-159.08	-159.53	-159.93	-160.30	-160.96	-161.55	-162.08
100	-157.08	-157.62	-158.09	-158.51	-158.90	-159.59	-160.21	-160.76

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
H⁺³ — Continued								
125	-155.55	-156.11	-156.61	-157.06	-157.46	-158.19	-158.83	-159.42
150	-153.96	-154.56	-155.10	-155.57	-156.00	-156.76	-157.44	-158.05
175	-152.31	-152.97	-153.54	-154.04	-154.50	-155.31	-156.02	-156.66
200	-150.59	-151.31	-151.94	-152.49	-152.97	-153.83	-154.58	-155.25
225	-148.79	-149.60	-150.29	-150.89	-151.42	-152.33	-153.12	-153.83
250	-146.91	-147.82	-148.60	-149.25	-149.82	-150.81	-151.65	-152.39
300	-142.80	-144.07	-145.08	-145.85	-146.53	-147.69	-148.65	-149.48
350	-138.77	-139.97	-141.47	-142.34	-143.12	-144.46	-145.57	-146.52
400		-138.04	-137.90	-138.76	-139.62	-141.15	-142.42	-143.50
450		-140.56	-134.57	-135.15	-136.05	-137.75	-139.19	-140.41
500			-131.85	-131.58	-132.41	-134.26	-135.89	-137.26
550				-130.17	-128.15	-128.72	-130.67	-132.49
600					-124.97	-124.99	-126.96	-128.97
700						-119.78	-117.48	-119.05
800							-109.81	-110.41
900								-113.36
1000								-115.96
								-104.57
								-107.61
								-95.36
								-98.64
Isoleucine								
25	-82.20	-80.97	-79.79	-78.65	-77.54	-75.38	-73.28	-71.23
50	-83.61	-82.38	-81.20	-80.06	-78.96	-76.81	-74.74	-72.71
75	-85.20	-83.96	-82.78	-81.65	-80.54	-78.40	-76.34	-74.32
100	-86.95	-85.71	-84.52	-83.39	-82.28	-80.15	-78.09	-76.08
125	-88.85	-87.60	-86.41	-85.27	-84.17	-82.03	-79.98	-77.97
150	-90.88	-89.64	-88.44	-87.30	-86.19	-84.05	-82.00	-80.00
175	-93.06	-91.81	-90.61	-89.46	-88.35	-86.20	-84.14	-82.14
200	-95.36	-94.11	-92.90	-91.74	-90.62	-88.48	-86.41	-84.41
225	-97.79	-96.54	-95.31	-94.14	-93.02	-90.86	-88.79	-86.78
250	-100.34	-99.09	-97.84	-96.66	-95.53	-93.36	-91.28	-89.27
300	-105.85	-104.58	-103.25	-102.03	-100.87	-98.66	-96.57	-94.54
350	-112.28	-110.63	-109.12	-107.82	-106.62	-104.36	-102.24	-100.19
400		-117.54	-115.49	-114.04	-112.76	-110.43	-108.26	-106.19
450		-126.65	-122.41	-120.69	-119.29	-116.85	-114.62	-112.52
500		-138.71	-130.03	-127.78	-126.20	-123.60	-121.30	-119.15
550		-149.96	-138.42	-135.33	-133.47	-130.66	-128.28	-126.08
600		-160.22	-147.45	-143.32	-141.11	-138.03	-135.54	-133.29
700		-179.35	-166.27	-160.42	-157.36	-153.62	-150.88	-148.49
800		-197.78	-185.16	-178.44	-174.64	-170.21	-167.19	-164.67
900		-216.07	-204.02	-196.90	-192.63	-187.63	-184.37	-181.75
1000		-234.51	-222.93	-215.67	-211.12	-205.73	-202.32	-199.66
I⁻								
25	-12.41	-11.98	-11.56	-11.14	-10.73	-9.89	-9.07	-8.25
50	-13.02	-12.58	-12.15	-11.72	-11.30	-10.46	-9.63	-8.80
75	-13.58	-13.14	-12.71	-12.28	-11.86	-11.02	-10.18	-9.35
100	-14.10	-13.67	-13.24	-12.81	-12.39	-11.55	-10.72	-9.90
125	-14.57	-14.15	-13.73	-13.31	-12.90	-12.07	-11.25	-10.43
150	-14.99	-14.59	-14.19	-13.78	-13.37	-12.56	-11.75	-10.94
175	-15.36	-14.99	-14.61	-14.22	-13.82	-13.03	-12.23	-11.43
200	-15.67	-15.35	-14.99	-14.62	-14.24	-13.47	-12.69	-11.90
225	-15.90	-15.65	-15.33	-14.99	-14.63	-13.89	-13.13	-12.36
250	-16.04	-15.90	-15.63	-15.32	-14.99	-14.28	-13.55	-12.80
300	-15.92	-16.16	-16.08	-15.87	-15.60	-14.99	-14.32	-13.61
350	-14.59	-15.95	-16.29	-16.24	-16.07	-15.59	-15.01	-14.36
400		-15.17	-16.19	-16.40	-16.39	-16.09	-15.61	-15.04
450		-11.50	-15.64	-16.31	-16.52	-16.46	-16.12	-15.64
500			-14.43	-15.92	-16.45	-16.71	-16.53	-16.16
550			-12.39	-15.17	-16.16	-16.81	-16.84	-16.59
600			-9.71	-14.08	-15.64	-16.78	-17.04	-16.93
700				-11.20	-13.99	-16.30	-17.10	-17.31

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar					
		0.5	1.0	1.5	2.0	3.0	4.0
I⁻ — Continued							
800				-11.88	-15.32	-16.73	-17.27
900				-9.70	-14.03	-15.98	-16.79
1000					-12.65	-15.00	-15.92
I₃⁻							
25	-12.30	-11.64	-11.00	-10.38	-9.78	-8.60	-7.46
50	-13.74	-13.06	-12.40	-11.77	-11.15	-9.96	-8.79
75	-15.21	-14.52	-13.86	-13.22	-12.59	-11.38	-10.21
100	-16.70	-16.01	-15.34	-14.70	-14.07	-12.86	-11.69
125	-18.20	-17.52	-16.85	-16.21	-15.59	-14.37	-13.20
150	-19.72	-19.04	-18.38	-17.75	-17.13	-15.92	-14.75
175	-21.23	-20.58	-19.93	-19.30	-18.69	-17.49	-16.32
200	-22.75	-22.13	-21.50	-20.88	-20.27	-19.08	-17.92
225	-24.25	-23.68	-23.07	-22.46	-21.87	-20.70	-19.55
250	-25.72	-25.22	-24.64	-24.06	-23.48	-22.33	-21.19
300	-28.47	-28.26	-27.79	-27.27	-26.73	-25.63	-24.53
350	-30.47	-31.10	-30.90	-30.48	-30.00	-28.98	-27.94
400		-33.52	-33.89	-33.65	-33.27	-32.37	-31.39
450		-33.84	-36.65	-36.75	-36.52	-35.77	-34.87
500			-39.01	-39.72	-39.73	-39.18	-38.39
550				-40.84	-42.53	-42.86	-42.59
600					-42.25	-45.16	-45.98
700						-50.11	-51.83
800							-57.70
900							-63.80
1000							-73.15
IO⁻							
25	-9.20	-9.21	-9.19	-9.15	-9.10	-8.97	-8.81
50	-9.11	-9.12	-9.10	-9.07	-9.03	-8.91	-8.77
75	-8.92	-8.93	-8.93	-8.91	-8.87	-8.77	-8.64
100	-8.64	-8.67	-8.68	-8.66	-8.64	-8.55	-8.44
125	-8.28	-8.34	-8.36	-8.36	-8.34	-8.28	-8.18
150	-7.85	-7.93	-7.97	-7.99	-7.99	-7.95	-7.87
175	-7.33	-7.45	-7.53	-7.57	-7.58	-7.57	-7.51
200	-6.73	-6.90	-7.01	-7.08	-7.12	-7.14	-7.10
225	-6.03	-6.28	-6.44	-6.54	-6.60	-6.66	-6.66
250	-5.21	-5.56	-5.79	-5.94	-6.03	-6.14	-6.17
300	-3.09	-3.84	-4.29	-4.55	-4.74	-4.96	-5.08
350	0.26	-1.55	-2.48	-2.92	-3.22	-3.61	-3.83
400		1.07	-0.33	-1.02	-1.49	-2.08	-2.44
450		5.98	2.30	1.17	0.48	-0.38	-0.90
500			5.54	3.71	2.70	1.50	0.79
550				9.49	6.62	5.20	3.57
600					13.98	9.88	5.84
700						17.03	14.19
800							21.04
900							28.15
1000							29.81
IO₃⁻							
25	-30.60	-30.30	-29.99	-29.68	-29.38	-28.76	-28.14
50	-31.29	-30.98	-30.67	-30.36	-30.05	-29.43	-28.81
75	-31.96	-31.65	-31.34	-31.03	-30.72	-30.10	-29.49
100	-32.61	-32.31	-32.00	-31.70	-31.39	-30.78	-30.17
125	-33.24	-32.95	-32.65	-32.35	-32.05	-31.46	-30.86
150	-33.85	-33.58	-33.29	-33.00	-32.71	-32.13	-31.54
175	-34.42	-34.18	-33.92	-33.64	-33.36	-32.80	-32.22
200	-34.96	-34.76	-34.52	-34.27	-34.01	-33.46	-32.90

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
IO₃⁻ — Continued								
225	-35.45	-35.31	-35.11	-34.88	-34.64	-34.12	-33.58	-33.03
250	-35.86	-35.82	-35.67	-35.47	-35.25	-34.77	-34.26	-33.72
300	-36.37	-36.68	-36.70	-36.60	-36.44	-36.05	-35.59	-35.10
350	-35.76	-37.15	-37.56	-37.61	-37.55	-37.28	-36.91	-36.48
400		-37.05	-38.18	-38.49	-38.57	-38.47	-38.20	-37.84
450		-34.12	-38.40	-39.17	-39.47	-39.59	-39.45	-39.17
500			-38.02	-39.59	-40.21	-40.64	-40.66	-40.48
550			-36.85	-39.72	-40.79	-41.61	-41.81	-41.75
600			-35.08	-39.55	-41.18	-42.48	-42.91	-42.98
700				-38.63	-41.51	-43.94	-44.89	-45.27
800					-41.54	-45.10	-46.62	-47.30
900					-41.64	-46.09	-48.13	-49.06
1000						-47.12	-49.53	-50.57
IO₄⁻								
25	-14.00	-13.39	-12.79	-12.22	-11.65	-10.55	-9.48	-8.43
50	-15.33	-14.70	-14.09	-13.50	-12.92	-11.80	-10.71	-9.65
75	-16.68	-16.04	-15.42	-14.83	-14.25	-13.12	-12.02	-10.95
100	-18.04	-17.40	-16.79	-16.19	-15.61	-14.47	-13.38	-12.30
125	-19.41	-18.78	-18.17	-17.57	-16.99	-15.86	-14.76	-13.69
150	-20.79	-20.17	-19.56	-18.97	-18.39	-17.27	-16.18	-15.11
175	-22.16	-21.56	-20.97	-20.39	-19.81	-18.70	-17.61	-16.55
200	-23.52	-22.96	-22.38	-21.81	-21.25	-20.15	-19.07	-18.01
225	-24.86	-24.35	-23.80	-23.24	-22.70	-21.61	-20.55	-19.50
250	-26.17	-25.73	-25.21	-24.68	-24.15	-23.09	-22.04	-21.00
300	-28.57	-28.43	-28.03	-27.56	-27.08	-26.07	-25.06	-24.05
350	-30.14	-30.89	-30.78	-30.42	-30.00	-29.09	-28.13	-27.16
400		-32.88	-33.38	-33.23	-32.92	-32.12	-31.23	-30.31
450		-32.58	-35.73	-35.93	-35.78	-35.16	-34.36	-33.50
500			-37.62	-38.49	-38.59	-38.19	-37.50	-36.71
550				-38.92	-40.85	-41.30	-41.19	-39.94
600				-39.77	-43.00	-43.91	-44.18	-43.18
700					-46.95	-48.90	-50.05	-49.65
800						-53.80	-55.85	-56.08
900						-58.89	-61.67	-62.45
1000							-67.64	-68.76
In⁺³								
25	-23.40	-23.88	-24.29	-24.66	-25.00	-25.59	-26.11	-26.57
50	-21.79	-22.29	-22.72	-23.12	-23.47	-24.11	-24.67	-25.18
75	-20.13	-20.65	-21.10	-21.51	-21.89	-22.56	-23.16	-23.70
100	-18.42	-18.96	-19.44	-19.87	-20.27	-20.97	-21.60	-22.16
125	-16.66	-17.23	-17.74	-18.19	-18.61	-19.35	-20.00	-20.60
150	-14.83	-15.46	-16.00	-16.48	-16.92	-17.70	-18.38	-19.01
175	-12.95	-13.62	-14.21	-14.73	-15.20	-16.02	-16.74	-17.39
200	-11.00	-11.74	-12.38	-12.94	-13.44	-14.32	-15.08	-15.76
225	-8.96	-9.79	-10.50	-11.11	-11.65	-12.59	-13.40	-14.12
250	-6.83	-7.77	-8.57	-9.24	-9.83	-10.84	-11.70	-12.46
300	-2.23	-3.54	-4.58	-5.37	-6.07	-7.25	-8.24	-9.10
350	2.23	1.05	-0.50	-1.38	-2.19	-3.56	-4.70	-5.68
400		3.27	3.54	2.68	1.79	0.22	-1.08	-2.20
450		0.47	7.28	6.75	5.84	4.10	2.61	1.35
500			10.32	10.76	9.95	8.06	6.39	4.97
550			12.19	14.61	14.11	12.13	10.27	8.68
600			12.70	18.16	18.29	16.33	14.27	12.49
700				23.95	26.68	25.22	22.72	20.52
800					35.22	34.89	31.89	29.21
900					44.37	45.32	41.74	38.60
1000						56.24	52.03	48.65

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
K⁺								
25	-67.51	-67.39	-67.26	-67.12	-66.97	-66.64	-66.30	-65.95
50	-68.12	-67.99	-67.86	-67.71	-67.56	-67.24	-66.90	-66.56
75	-68.73	-68.60	-68.46	-68.32	-68.17	-67.85	-67.51	-67.17
100	-69.35	-69.22	-69.08	-68.94	-68.79	-68.47	-68.14	-67.80
125	-69.98	-69.85	-69.71	-69.57	-69.41	-69.10	-68.77	-68.44
150	-70.61	-70.48	-70.35	-70.20	-70.05	-69.74	-69.42	-69.08
175	-71.24	-71.12	-70.99	-70.85	-70.70	-70.39	-70.07	-69.74
200	-71.88	-71.77	-71.64	-71.50	-71.35	-71.05	-70.73	-70.40
225	-72.52	-72.41	-72.29	-72.15	-72.01	-71.71	-71.40	-71.07
250	-73.15	-73.06	-72.95	-72.82	-72.68	-72.38	-72.07	-71.75
300	-74.40	-74.37	-74.27	-74.15	-74.02	-73.74	-73.44	-73.13
350	-75.59	-75.65	-75.61	-75.50	-75.39	-75.12	-74.83	-74.53
400		-77.01	-76.95	-76.87	-76.76	-76.52	-76.25	-75.96
450		-78.33	-78.30	-78.24	-78.15	-77.94	-77.68	-77.40
500			-79.65	-79.62	-79.55	-79.36	-79.13	-78.86
550			-80.99	-80.99	-80.95	-80.80	-80.59	-80.34
600			-82.34	-82.38	-82.36	-82.25	-82.06	-81.83
700				-85.19	-85.19	-85.15	-85.02	-84.83
800					-88.05	-88.06	-88.00	-87.85
900					-90.95	-90.99	-90.99	-90.89
1000						-93.96	-94.02	-93.93
KAlO₂								
25	-264.38	-264.01	-263.65	-263.30	-262.95	-262.25	-261.56	-260.88
50	-265.28	-264.90	-264.52	-264.16	-263.80	-263.09	-262.40	-261.71
75	-266.18	-265.79	-265.41	-265.04	-264.67	-263.96	-263.26	-262.57
100	-267.09	-266.69	-266.31	-265.93	-265.57	-264.85	-264.14	-263.45
125	-268.00	-267.60	-267.21	-266.83	-266.46	-265.74	-265.04	-264.34
150	-268.91	-268.51	-268.12	-267.74	-267.37	-266.64	-265.94	-265.24
175	-269.83	-269.43	-269.04	-268.65	-268.28	-267.55	-266.84	-266.15
200	-270.75	-270.35	-269.95	-269.57	-269.20	-268.47	-267.76	-267.06
225	-271.67	-271.28	-270.88	-270.49	-270.12	-269.38	-268.67	-267.97
250	-272.60	-272.21	-271.80	-271.42	-271.04	-270.30	-269.59	-268.89
300	-274.45	-274.08	-273.67	-273.28	-272.89	-272.15	-271.44	-270.74
350	-276.35	-275.99	-275.55	-275.15	-274.76	-274.02	-273.29	-272.59
400		-277.96	-277.46	-277.04	-276.65	-275.89	-275.16	-274.46
450			-279.40	-278.95	-278.54	-277.77	-277.04	-276.33
500			-282.61	-281.39	-280.88	-280.45	-279.67	-278.93
550			-284.97	-283.44	-282.84	-282.38	-281.57	-280.82
600			-287.20	-285.54	-284.83	-284.33	-283.49	-282.72
700			-291.45	-289.75	-288.85	-288.26	-287.35	-286.55
800			-293.54	-293.89	-292.90	-292.22	-291.23	-289.65
900			-299.55	-297.96	-296.92	-296.20	-295.14	-293.53
1000			-303.50	-301.97	-300.91	-300.16	-299.06	-297.42
KBr°								
25	-90.01	-89.50	-89.00	-88.51	-88.04	-87.11	-86.21	-85.31
50	-91.19	-90.66	-90.15	-89.65	-89.16	-88.21	-87.29	-86.39
75	-92.37	-91.82	-91.30	-90.79	-90.30	-89.34	-88.41	-87.50
100	-93.54	-92.98	-92.46	-91.94	-91.45	-90.48	-89.55	-88.63
125	-94.70	-94.15	-93.62	-93.10	-92.60	-91.63	-90.69	-89.77
150	-95.87	-95.31	-94.78	-94.26	-93.76	-92.78	-91.84	-90.92
175	-97.03	-96.48	-95.94	-95.42	-94.92	-93.94	-93.00	-92.07
200	-98.20	-97.65	-97.11	-96.59	-96.08	-95.10	-94.15	-93.23
225	-99.36	-98.82	-98.27	-97.75	-97.24	-96.26	-95.31	-94.39
250	-100.51	-99.99	-99.44	-98.92	-98.41	-97.43	-96.48	-95.55
300	-102.81	-102.33	-101.79	-101.26	-100.75	-99.77	-98.81	-97.89
350	-105.08	-104.69	-104.14	-103.61	-103.10	-102.11	-101.16	-100.23
400		-107.05	-106.50	-105.97	-105.45	-104.46	-103.51	-102.58
450		-109.44	-108.86	-108.33	-107.81	-106.82	-105.86	-104.93

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
KBr° — Continued								
500		-111.87	-111.24	-110.70	-110.18	-109.18	-108.22	-107.29
550		-114.28	-113.62	-113.07	-112.55	-111.55	-110.59	-109.66
600		-116.69	-116.01	-115.45	-114.93	-113.92	-112.96	-112.03
700		-121.49	-120.81	-120.23	-119.70	-118.69	-117.72	-116.78
800		-126.30	-125.62	-125.03	-124.48	-123.46	-122.49	-121.55
900		-131.10	-130.43	-129.83	-129.28	-128.26	-127.28	-126.34
1000		-135.91	-135.24	-134.64	-134.09	-133.06	-132.09	-131.14
K(CH₃COO)[°]								
25	-155.42	-154.73	-154.07	-153.43	-152.80	-151.60	-150.43	-149.28
50	-156.67	-155.95	-155.27	-154.61	-153.97	-152.74	-151.54	-150.38
75	-158.01	-157.28	-156.59	-155.92	-155.27	-154.02	-152.81	-151.63
100	-159.44	-158.70	-158.00	-157.33	-156.67	-155.41	-154.19	-153.01
125	-160.95	-160.21	-159.50	-158.81	-158.16	-156.88	-155.66	-154.47
150	-162.52	-161.78	-161.06	-160.38	-159.71	-158.44	-157.21	-156.01
175	-164.16	-163.41	-162.70	-162.01	-161.34	-160.06	-158.83	-157.63
200	-165.85	-165.11	-164.39	-163.70	-163.03	-161.74	-160.51	-159.31
225	-167.59	-166.87	-166.14	-165.45	-164.78	-163.49	-162.25	-161.05
250	-169.38	-168.67	-167.95	-167.25	-166.58	-165.29	-164.04	-162.84
300	-173.09	-172.45	-171.71	-171.01	-170.33	-169.03	-167.79	-166.58
350	-176.97	-176.41	-175.66	-174.95	-174.27	-172.97	-171.72	-170.50
400		-180.58	-179.79	-179.07	-178.38	-177.07	-175.82	-174.60
450		-185.02	-184.09	-183.35	-182.65	-181.33	-180.07	-178.85
500		-189.78	-188.56	-187.78	-187.07	-185.74	-184.47	-183.25
550		-194.60	-193.19	-192.36	-191.63	-190.28	-189.01	-187.78
600		-199.46	-197.97	-197.07	-196.32	-194.95	-193.67	-192.44
700		-209.39	-207.88	-206.87	-206.06	-204.65	-203.35	-202.11
800		-219.64	-218.16	-217.09	-216.24	-214.78	-213.46	-212.21
900		-230.21	-228.77	-227.67	-226.79	-225.29	-223.96	-222.70
1000		-241.10	-239.68	-238.58	-237.67	-236.15	-234.80	-233.54
K(CH₃COO)₂[°]								
25	-242.99	-241.66	-240.40	-239.20	-238.03	-235.81	-233.67	-231.60
50	-244.64	-243.27	-241.97	-240.73	-239.54	-237.25	-235.06	-232.94
75	-246.51	-245.12	-243.81	-242.55	-241.34	-239.02	-236.80	-234.66
100	-248.57	-247.17	-245.85	-244.58	-243.36	-241.03	-238.79	-236.63
125	-250.79	-249.39	-248.06	-246.79	-245.57	-243.23	-240.98	-238.81
150	-253.15	-251.76	-250.43	-249.16	-247.94	-245.59	-243.34	-241.16
175	-255.63	-254.26	-252.94	-251.67	-250.45	-248.11	-245.86	-243.68
200	-258.21	-256.88	-255.57	-254.31	-253.10	-250.76	-248.51	-246.33
225	-260.87	-259.61	-258.32	-257.07	-255.86	-253.54	-251.30	-249.12
250	-263.61	-262.43	-261.17	-259.94	-258.74	-256.43	-254.20	-252.03
300	-269.14	-268.30	-267.14	-265.97	-264.80	-262.54	-260.34	-258.19
350	-274.26	-274.33	-273.41	-272.33	-271.22	-269.03	-266.87	-264.75
400		-280.27	-279.88	-278.97	-277.95	-275.86	-273.76	-271.67
450		-284.55	-286.42	-285.82	-284.94	-282.99	-280.96	-278.93
500			-292.85	-292.81	-292.15	-290.39	-288.46	-286.48
550			-299.03	-299.90	-299.54	-298.03	-296.22	-294.31
600			-305.06	-307.06	-307.09	-305.89	-304.22	-302.39
700				-321.72	-322.64	-322.21	-320.86	-319.22
800					-338.93	-339.27	-338.28	-336.82
900					-356.13	-357.09	-356.42	-355.11
1000						-375.71	-375.27	-374.02
KCl°								
25	-96.50	-96.03	-95.57	-95.13	-94.69	-93.84	-93.00	-92.17
50	-97.49	-97.00	-96.53	-96.07	-95.62	-94.75	-93.90	-93.06
75	-98.48	-97.99	-97.51	-97.04	-96.59	-95.71	-94.85	-94.00
100	-99.49	-98.98	-98.50	-98.03	-97.57	-96.68	-95.82	-94.97

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
KCl° — Continued								
125	-100.49	-99.99	-99.50	-99.02	-98.56	-97.67	-96.80	-95.95
150	-101.50	-100.99	-100.50	-100.02	-99.56	-98.66	-97.79	-96.94
175	-102.50	-102.00	-101.50	-101.02	-100.56	-99.66	-98.78	-97.93
200	-103.51	-103.00	-102.51	-102.03	-101.56	-100.66	-99.78	-98.93
225	-104.51	-104.01	-103.51	-103.03	-102.56	-101.66	-100.78	-99.92
250	-105.51	-105.02	-104.52	-104.04	-103.57	-102.66	-101.78	-100.92
300	-107.49	-107.04	-106.53	-106.05	-105.57	-104.66	-103.78	-102.92
350	-109.48	-109.08	-108.55	-108.06	-107.58	-106.66	-105.78	-104.92
400		-111.14	-110.58	-110.07	-109.59	-108.67	-107.78	-106.91
450		-113.32	-112.62	-112.09	-111.60	-110.67	-109.78	-108.91
500		-115.67	-114.68	-114.12	-113.62	-112.67	-111.77	-110.90
550		-117.95	-116.77	-116.15	-115.63	-114.67	-113.77	-112.89
600		-120.14	-118.88	-118.20	-117.65	-116.68	-115.76	-114.88
700		-124.38	-123.10	-122.30	-121.70	-120.68	-119.75	-118.86
800		-128.50	-127.25	-126.40	-125.75	-124.68	-123.73	-122.83
900		-132.55	-131.34	-130.46	-129.78	-128.67	-127.71	-126.80
1000		-136.56	-135.37	-134.48	-133.78	-132.65	-131.68	-130.77
KHSO₄°								
25	-246.55	-245.93	-245.33	-244.76	-244.19	-243.10	-242.03	-240.99
50	-248.00	-247.35	-246.74	-246.14	-245.57	-244.45	-243.36	-242.30
75	-249.51	-248.85	-248.22	-247.62	-247.03	-245.90	-244.80	-243.73
100	-251.07	-250.41	-249.78	-249.17	-248.57	-247.43	-246.33	-245.25
125	-252.69	-252.02	-251.38	-250.77	-250.17	-249.02	-247.91	-246.83
150	-254.35	-253.68	-253.04	-252.42	-251.83	-250.67	-249.56	-248.47
175	-256.06	-255.39	-254.75	-254.13	-253.52	-252.37	-251.25	-250.16
200	-257.80	-257.14	-256.49	-255.87	-255.27	-254.11	-252.99	-251.90
225	-259.57	-258.93	-258.28	-257.65	-257.05	-255.89	-254.76	-253.67
250	-261.38	-260.75	-260.10	-259.47	-258.87	-257.70	-256.58	-255.49
300	-265.07	-264.50	-263.85	-263.22	-262.61	-261.45	-260.32	-259.22
350	-268.84	-268.38	-267.73	-267.10	-266.49	-265.32	-264.19	-263.09
400		-272.38	-271.72	-271.09	-270.48	-269.31	-268.18	-267.08
450		-276.48	-275.82	-275.19	-274.58	-273.40	-272.27	-271.17
500		-280.70	-280.02	-279.39	-278.78	-277.60	-276.47	-275.37
550		-285.00	-284.32	-283.68	-283.07	-281.89	-280.76	-279.65
600		-289.39	-288.70	-288.06	-287.45	-286.27	-285.13	-284.03
700		-298.40	-297.71	-297.07	-296.45	-295.27	-294.13	-293.03
800		-307.70	-307.01	-306.36	-305.74	-304.56	-303.42	-302.32
900		-317.26	-316.58	-315.93	-315.31	-314.12	-312.98	-311.88
1000		-327.07	-326.38	-325.73	-325.11	-323.92	-322.78	-321.68
KI°								
25	-77.74	-77.09	-76.46	-75.86	-75.27	-74.13	-73.02	-71.93
50	-78.98	-78.30	-77.66	-77.04	-76.43	-75.26	-74.13	-73.03
75	-80.21	-79.53	-78.87	-78.24	-77.62	-76.44	-75.30	-74.18
100	-81.45	-80.75	-80.09	-79.45	-78.83	-77.63	-76.48	-75.36
125	-82.68	-81.98	-81.31	-80.67	-80.04	-78.84	-77.68	-76.56
150	-83.91	-83.21	-82.54	-81.89	-81.27	-80.06	-78.90	-77.76
175	-85.15	-84.45	-83.77	-83.12	-82.49	-81.28	-80.12	-78.98
200	-86.38	-85.69	-85.01	-84.36	-83.73	-82.51	-81.34	-80.21
225	-87.61	-86.93	-86.25	-85.60	-84.96	-83.75	-82.57	-81.44
250	-88.84	-88.18	-87.49	-86.84	-86.21	-84.99	-83.81	-82.67
300	-91.27	-90.68	-89.99	-89.33	-88.70	-87.48	-86.30	-85.15
350	-93.68	-93.19	-92.50	-91.84	-91.21	-89.98	-88.80	-87.65
400		-95.72	-95.03	-94.36	-93.72	-92.49	-91.31	-90.17
450		-98.29	-97.56	-96.90	-96.25	-95.02	-93.84	-92.69
500		-100.89	-100.11	-99.44	-98.80	-97.56	-96.37	-95.22
550		-103.48	-102.68	-101.99	-101.35	-100.11	-98.92	-97.77
600		-106.07	-105.25	-104.56	-103.91	-102.66	-101.48	-100.32
700		-111.25	-110.43	-109.72	-109.05	-107.80	-106.61	-105.45

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

<i>T</i> , °C	Sat.	0.5	1.0	1.5	2.0	3.0	4.0	5.0
KI° — Continued								
800		-116.45	-115.63	-114.90	-114.23	-112.97	-111.77	-110.62
900		-121.65	-120.84	-120.11	-119.43	-118.17	-116.97	-115.81
1000		-126.88	-126.07	-125.34	-124.66	-123.38	-122.18	-121.02
KOH°								
25	-103.88	-103.70	-103.52	-103.34	-103.15	-102.76	-102.36	-101.96
50	-104.58	-104.40	-104.21	-104.02	-103.83	-103.44	-103.04	-102.64
75	-105.28	-105.09	-104.90	-104.71	-104.52	-104.12	-103.73	-103.33
100	-105.98	-105.79	-105.60	-105.41	-105.21	-104.82	-104.42	-104.03
125	-106.69	-106.49	-106.30	-106.10	-105.91	-105.51	-105.12	-104.72
150	-107.39	-107.20	-107.00	-106.80	-106.61	-106.21	-105.82	-105.42
175	-108.10	-107.90	-107.70	-107.50	-107.31	-106.91	-106.52	-106.12
200	-108.80	-108.61	-108.41	-108.21	-108.01	-107.61	-107.22	-106.82
225	-109.51	-109.31	-109.11	-108.91	-108.71	-108.31	-107.92	-107.52
250	-110.22	-110.02	-109.82	-109.61	-109.41	-109.01	-108.62	-108.22
300	-111.64	-111.45	-111.23	-111.02	-110.82	-110.42	-110.02	-109.62
350	-113.12	-112.89	-112.66	-112.44	-112.23	-111.82	-111.42	-111.02
400		-114.39	-114.10	-113.87	-113.65	-113.23	-112.82	-112.42
450		-116.10	-115.57	-115.30	-115.07	-114.64	-114.23	-113.82
500		-118.09	-117.08	-116.75	-116.50	-116.06	-115.64	-115.23
550		-119.97	-118.64	-118.23	-117.94	-117.47	-117.04	-116.63
600		-121.71	-120.24	-119.72	-119.40	-118.90	-118.46	-118.04
700		-124.95	-123.45	-122.74	-122.33	-121.76	-121.29	-120.85
800		-128.02	-126.58	-125.77	-125.27	-124.63	-124.13	-123.68
900		-130.99	-129.60	-128.75	-128.21	-127.50	-126.97	-126.51
1000		-133.89	-132.56	-131.69	-131.12	-130.36	-129.82	-129.36
KSO₄°								
25	-246.64	-246.30	-245.97	-245.63	-245.30	-244.63	-243.96	-243.30
50	-247.51	-247.16	-246.81	-246.47	-246.13	-245.46	-244.79	-244.13
75	-248.36	-248.01	-247.66	-247.32	-246.98	-246.31	-245.65	-244.99
100	-249.20	-248.85	-248.51	-248.17	-247.84	-247.17	-246.51	-245.86
125	-250.02	-249.69	-249.35	-249.02	-248.69	-248.04	-247.38	-246.73
150	-250.83	-250.51	-250.19	-249.87	-249.55	-248.90	-248.26	-247.62
175	-251.61	-251.32	-251.02	-250.71	-250.40	-249.77	-249.14	-248.51
200	-252.36	-252.11	-251.84	-251.55	-251.25	-250.64	-250.02	-249.40
225	-253.07	-252.88	-252.64	-252.37	-252.09	-251.51	-250.91	-250.30
250	-253.72	-253.62	-253.42	-253.18	-252.92	-252.37	-251.79	-251.20
300	-254.71	-254.94	-254.91	-254.75	-254.55	-254.09	-253.56	-253.01
350	-254.65	-255.92	-256.25	-256.24	-256.13	-255.78	-255.33	-254.83
400		-256.32	-257.36	-257.60	-257.63	-257.43	-257.07	-256.64
450		-253.94	-258.11	-258.79	-259.02	-259.04	-258.80	-258.44
500			-258.27	-259.74	-260.28	-260.58	-260.49	-260.23
550			-257.67	-260.41	-261.38	-262.06	-262.15	-261.99
600			-256.49	-260.80	-262.33	-263.46	-263.75	-263.72
700				-261.04	-263.80	-266.02	-266.81	-267.05
800					-265.01	-268.32	-269.65	-270.18
900					-266.32	-270.51	-272.32	-273.09
1000						-272.77	-274.93	-275.78
Kr°								
25	3.55	3.95	4.33	4.71	5.09	5.82	6.55	7.26
50	3.12	3.53	3.93	4.32	4.70	5.45	6.19	6.91
75	2.59	3.01	3.42	3.82	4.21	4.97	5.71	6.43
100	1.98	2.41	2.82	3.22	3.62	4.38	5.13	5.86
125	1.29	1.73	2.15	2.55	2.95	3.72	4.47	5.20
150	0.54	0.98	1.40	1.81	2.21	2.99	3.74	4.48
175	-0.29	0.16	0.59	1.00	1.41	2.19	2.95	3.69
200	-1.17	-0.72	-0.28	0.14	0.54	1.33	2.09	2.84

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Kr° — Continued								
225	-2.12	-1.66	-1.22	-0.79	-0.38	0.42	1.18	1.93
250	-3.12	-2.66	-2.20	-1.77	-1.35	-0.55	0.22	0.97
300	-5.34	-4.84	-4.35	-3.89	-3.46	-2.63	-1.85	-1.09
350	-8.00	-7.29	-6.70	-6.21	-5.75	-4.90	-4.10	-3.33
400		-10.16	-9.30	-8.73	-8.23	-7.34	-6.52	-5.73
450		-14.10	-12.16	-11.45	-10.90	-9.95	-9.10	-8.29
500		-19.50	-15.35	-14.38	-13.73	-12.71	-11.82	-10.99
550		-24.49	-18.92	-17.53	-16.75	-15.62	-14.68	-13.83
600		-28.97	-22.79	-20.89	-19.93	-18.67	-17.68	-16.80
700		-37.23	-30.89	-28.14	-26.76	-25.16	-24.05	-23.10
800		-45.10	-39.00	-35.80	-34.06	-32.12	-30.87	-29.86
900		-52.88	-47.05	-43.67	-41.68	-39.46	-38.09	-37.03
1000		-60.70	-55.11	-51.65	-49.53	-47.11	-45.66	-44.58
Leucine								
25	-82.00	-80.75	-79.55	-78.38	-77.25	-75.05	-72.91	-70.82
50	-83.39	-82.13	-80.93	-79.77	-78.64	-76.45	-74.34	-72.27
75	-84.95	-83.69	-82.48	-81.33	-80.20	-78.02	-75.92	-73.87
100	-86.68	-85.42	-84.21	-83.05	-81.92	-79.75	-77.65	-75.61
125	-88.57	-87.30	-86.09	-84.92	-83.80	-81.62	-79.53	-77.49
150	-90.60	-89.33	-88.11	-86.94	-85.82	-83.64	-81.54	-79.50
175	-92.77	-91.50	-90.27	-89.10	-87.97	-85.79	-83.69	-81.65
200	-95.07	-93.80	-92.56	-91.39	-90.25	-88.06	-85.96	-83.92
225	-97.50	-96.23	-94.98	-93.79	-92.65	-90.45	-88.35	-86.30
250	-100.05	-98.79	-97.52	-96.32	-95.17	-92.96	-90.85	-88.80
300	-105.59	-104.30	-102.96	-101.72	-100.54	-98.30	-96.17	-94.11
350	-112.01	-110.38	-108.87	-107.55	-106.33	-104.04	-101.88	-99.80
400		-117.31	-115.27	-113.82	-112.53	-110.17	-107.96	-105.86
450		-126.38	-122.25	-120.52	-119.12	-116.65	-114.39	-112.26
500		-138.29	-129.90	-127.67	-126.09	-123.47	-121.15	-118.97
550		-149.44	-138.32	-135.29	-133.44	-130.62	-128.21	-125.99
600		-159.66	-147.37	-143.35	-141.16	-138.09	-135.57	-133.30
700		-178.84	-166.25	-160.59	-157.59	-153.88	-151.12	-148.72
800		-197.42	-185.28	-178.77	-175.07	-170.70	-167.68	-165.15
900		-215.94	-204.32	-197.44	-193.29	-188.37	-185.13	-182.50
1000		-234.64	-223.49	-216.47	-212.05	-206.76	-203.36	-200.70
La⁺³								
25	-164.00	-164.43	-164.81	-165.15	-165.45	-165.99	-166.46	-166.87
50	-162.66	-163.12	-163.51	-163.87	-164.19	-164.76	-165.27	-165.72
75	-161.27	-161.74	-162.15	-162.52	-162.86	-163.47	-164.00	-164.49
100	-159.83	-160.32	-160.75	-161.14	-161.50	-162.13	-162.69	-163.20
125	-158.34	-158.85	-159.31	-159.72	-160.09	-160.75	-161.34	-161.87
150	-156.78	-157.34	-157.83	-158.26	-158.65	-159.35	-159.96	-160.52
175	-155.17	-155.78	-156.30	-156.76	-157.18	-157.92	-158.56	-159.14
200	-153.50	-154.16	-154.73	-155.23	-155.68	-156.46	-157.14	-157.75
225	-151.74	-152.48	-153.11	-153.65	-154.14	-154.97	-155.69	-156.33
250	-149.90	-150.73	-151.44	-152.04	-152.56	-153.46	-154.22	-154.90
300	-145.88	-147.05	-147.98	-148.69	-149.31	-150.35	-151.23	-151.99
350	-141.79	-143.01	-144.40	-145.20	-145.92	-147.14	-148.15	-149.01
400		-140.72	-140.80	-141.63	-142.43	-143.83	-144.98	-145.96
450		-141.80	-137.35	-138.00	-138.85	-140.42	-141.74	-142.85
500			-134.33	-134.35	-135.19	-136.92	-138.41	-139.66
550			-132.07	-130.78	-131.44	-133.31	-134.98	-136.38
600			-130.68	-127.37	-127.64	-129.57	-131.43	-133.00
700				-121.40	-119.89	-121.62	-123.91	-125.87
800					-111.92	-112.97	-115.75	-118.13
900					-103.45	-103.66	-106.98	-109.76
1000						-93.94	-97.81	-100.80

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Li⁺								
25	-69.93	-69.94	-69.93	-69.91	-69.89	-69.82	-69.73	-69.64
50	-70.02	-70.02	-70.02	-70.02	-70.00	-69.96	-69.90	-69.84
75	-70.12	-70.14	-70.15	-70.14	-70.14	-70.11	-70.08	-70.03
100	-70.26	-70.28	-70.29	-70.30	-70.29	-70.28	-70.26	-70.23
125	-70.41	-70.44	-70.46	-70.47	-70.47	-70.47	-70.46	-70.44
150	-70.58	-70.62	-70.64	-70.66	-70.67	-70.69	-70.68	-70.67
175	-70.77	-70.81	-70.85	-70.88	-70.89	-70.92	-70.92	-70.92
200	-70.96	-71.02	-71.07	-71.11	-71.13	-71.17	-71.19	-71.19
225	-71.16	-71.24	-71.31	-71.35	-71.39	-71.43	-71.46	-71.48
250	-71.36	-71.47	-71.55	-71.61	-71.65	-71.72	-71.76	-71.79
300	-71.74	-71.94	-72.08	-72.16	-72.23	-72.33	-72.40	-72.45
350	-72.09	-72.40	-72.65	-72.76	-72.86	-73.00	-73.10	-73.18
400		-73.19	-73.27	-73.41	-73.53	-73.72	-73.86	-73.96
450		-74.40	-73.95	-74.09	-74.24	-74.48	-74.66	-74.80
500			-74.71	-74.82	-74.99	-75.28	-75.51	-75.68
550			-75.60	-75.58	-75.76	-76.12	-76.39	-76.59
600			-76.62	-76.41	-76.57	-76.97	-77.30	-77.54
700				-78.30	-78.26	-78.72	-79.17	-79.51
800					-80.07	-80.51	-81.09	-81.53
900						-81.95	-82.32	-83.05
1000						-84.22	-85.07	-85.66
Li(CH₃COO)⁰								
25	-158.61	-158.04	-157.50	-156.97	-156.45	-155.45	-154.46	-153.50
50	-159.18	-158.59	-158.03	-157.49	-156.96	-155.93	-154.93	-153.95
75	-159.89	-159.30	-158.72	-158.17	-157.63	-156.59	-155.58	-154.59
100	-160.73	-160.12	-159.54	-158.98	-158.44	-157.39	-156.37	-155.38
125	-161.67	-161.06	-160.47	-159.91	-159.36	-158.31	-157.29	-156.29
150	-162.70	-162.09	-161.51	-160.94	-160.39	-159.33	-158.30	-157.30
175	-163.83	-163.22	-162.63	-162.06	-161.51	-160.44	-159.41	-158.41
200	-165.04	-164.43	-163.84	-163.27	-162.71	-161.64	-160.61	-159.61
225	-166.32	-165.72	-165.13	-164.55	-164.00	-162.92	-161.89	-160.89
250	-167.67	-167.09	-166.49	-165.91	-165.36	-164.28	-163.25	-162.24
300	-170.57	-170.03	-169.43	-168.85	-168.29	-167.21	-166.17	-165.16
350	-173.72	-173.24	-172.62	-172.04	-171.47	-170.39	-169.34	-168.33
400		-176.72	-176.06	-175.47	-174.90	-173.80	-172.76	-171.74
450		-180.54	-179.74	-179.12	-178.54	-177.44	-176.39	-175.37
500		-184.72	-183.63	-182.98	-182.39	-181.28	-180.22	-179.20
550		-189.03	-187.75	-187.04	-186.43	-185.30	-184.24	-183.21
600		-193.42	-192.06	-191.28	-190.65	-189.51	-188.43	-187.40
700		-202.55	-201.17	-200.28	-199.59	-198.40	-197.31	-196.27
800		-212.17	-210.82	-209.87	-209.13	-207.90	-206.79	-205.74
900		-222.26	-220.95	-219.97	-219.20	-217.93	-216.81	-215.75
1000		-232.80	-231.51	-230.53	-229.74	-228.44	-227.31	-226.25
Li(CH₃COO)⁻								
25	-246.81	-245.62	-244.49	-243.41	-242.36	-240.35	-238.42	-236.54
50	-247.63	-246.41	-245.25	-244.14	-243.06	-241.00	-239.02	-237.10
75	-248.76	-247.52	-246.35	-245.22	-244.14	-242.05	-240.05	-238.11
100	-250.14	-248.90	-247.72	-246.59	-245.50	-243.41	-241.39	-239.44
125	-251.74	-250.51	-249.33	-248.20	-247.11	-245.02	-243.00	-241.04
150	-253.53	-252.31	-251.15	-250.03	-248.94	-246.85	-244.84	-242.88
175	-255.47	-254.30	-253.15	-252.04	-250.96	-248.88	-246.88	-244.92
200	-257.56	-256.44	-255.32	-254.22	-253.16	-251.10	-249.10	-247.16
225	-259.76	-258.72	-257.63	-256.57	-255.52	-253.48	-251.50	-249.57
250	-262.05	-261.13	-260.09	-259.05	-258.03	-256.02	-254.06	-252.15
300	-266.69	-266.22	-265.36	-264.41	-263.45	-261.53	-259.63	-257.75
350	-270.69	-271.47	-271.01	-270.21	-269.35	-267.55	-265.73	-263.90
400		-276.67	-276.91	-276.37	-275.66	-274.03	-272.31	-270.55
450		-279.50	-282.88	-282.80	-282.30	-280.91	-279.31	-277.64

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Li(CH₃COO)₂ — Continued								
500			-288.67	-289.41	-289.23	-288.14	-286.71	-285.14
550			-294.08	-296.12	-296.38	-295.69	-294.45	-293.00
600			-299.26	-302.89	-303.73	-303.52	-302.50	-301.19
700				-316.92	-319.00	-319.93	-319.45	-318.44
800					-335.23	-337.30	-337.40	-336.70
900					-352.68	-355.64	-356.27	-355.84
1000						-375.06	-376.08	-375.75
LiCl°								
25	-99.25	-98.92	-98.59	-98.27	-97.94	-97.31	-96.67	-96.05
50	-99.60	-99.25	-98.91	-98.58	-98.25	-97.60	-96.97	-96.33
75	-99.99	-99.63	-99.29	-98.95	-98.61	-97.96	-97.32	-96.68
100	-100.41	-100.05	-99.69	-99.35	-99.02	-98.36	-97.71	-97.07
125	-100.86	-100.49	-100.14	-99.79	-99.45	-98.79	-98.14	-97.50
150	-101.34	-100.97	-100.61	-100.26	-99.92	-99.25	-98.60	-97.96
175	-101.85	-101.48	-101.12	-100.76	-100.42	-99.75	-99.10	-98.45
200	-102.39	-102.02	-101.65	-101.29	-100.95	-100.27	-99.61	-98.97
225	-102.96	-102.58	-102.21	-101.85	-101.50	-100.82	-100.16	-99.51
250	-103.55	-103.18	-102.79	-102.43	-102.07	-101.39	-100.72	-100.08
300	-104.84	-104.45	-104.04	-103.66	-103.30	-102.60	-101.93	-101.27
350	-106.38	-105.86	-105.39	-104.99	-104.61	-103.89	-103.21	-102.55
400		-107.51	-106.87	-106.41	-106.01	-105.26	-104.57	-103.90
450		-109.85	-108.48	-107.94	-107.49	-106.71	-106.00	-105.31
500		-113.11	-110.29	-109.57	-109.07	-108.24	-107.50	-106.80
550		-116.07	-112.32	-111.32	-110.73	-109.83	-109.06	-108.35
600		-118.67	-114.52	-113.19	-112.48	-111.49	-110.69	-109.95
700		-123.34	-119.09	-117.20	-116.21	-115.01	-114.12	-113.34
800		-127.68	-123.58	-121.40	-120.17	-118.74	-117.76	-116.94
900		-131.87	-127.95	-125.65	-124.26	-122.64	-121.59	-120.73
1000		-136.02	-132.26	-129.91	-128.43	-126.69	-125.58	-124.71
Lu⁺³								
25	-159.40	-159.91	-160.35	-160.75	-161.12	-161.76	-162.32	-162.83
50	-157.79	-158.32	-158.79	-159.21	-159.59	-160.28	-160.89	-161.45
75	-156.13	-156.68	-157.17	-157.61	-158.01	-158.74	-159.38	-159.97
100	-154.43	-155.00	-155.51	-155.97	-156.39	-157.15	-157.83	-158.45
125	-152.67	-153.28	-153.82	-154.30	-154.74	-155.54	-156.24	-156.89
150	-150.86	-151.52	-152.09	-152.60	-153.06	-153.90	-154.63	-155.31
175	-148.99	-149.70	-150.31	-150.86	-151.35	-152.23	-153.00	-153.70
200	-147.06	-147.83	-148.50	-149.08	-149.61	-150.54	-151.35	-152.09
225	-145.04	-145.89	-146.63	-147.27	-147.84	-148.83	-149.69	-150.45
250	-142.93	-143.90	-144.72	-145.42	-146.03	-147.09	-148.00	-148.81
300	-138.38	-139.71	-140.77	-141.59	-142.31	-143.54	-144.58	-145.48
350	-133.96	-135.18	-136.74	-137.65	-138.48	-139.90	-141.08	-142.10
400		-132.93	-132.75	-133.64	-134.55	-136.16	-137.51	-138.66
450		-135.46	-129.03	-129.62	-130.55	-132.34	-133.86	-135.16
500			-125.98	-125.65	-126.50	-128.43	-130.14	-131.60
550			-124.05	-121.83	-122.39	-124.42	-126.32	-127.95
600			-123.41	-118.30	-118.26	-120.29	-122.39	-124.20
700				-112.49	-109.97	-111.54	-114.08	-116.31
800					-101.53	-102.04	-105.08	-107.78
900					-92.52	-91.80	-95.42	-98.57
1000						-81.11	-85.33	-88.73
Methanamine								
25	5.04	5.54	6.03	6.51	6.99	7.94	8.89	9.82
50	4.24	4.74	5.22	5.70	6.18	7.11	8.03	8.95
75	3.36	3.86	4.35	4.82	5.29	6.22	7.13	8.03
100	2.42	2.92	3.40	3.88	4.34	5.26	6.17	7.06

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Methanamine — Continued								
125	1.41	1.90	2.39	2.86	3.33	4.25	5.14	6.03
150	0.33	0.83	1.32	1.79	2.26	3.17	4.07	4.95
175	-0.80	-0.31	0.18	0.66	1.13	2.04	2.93	3.81
200	-1.99	-1.50	-1.01	-0.53	-0.06	0.85	1.74	2.62
225	-3.24	-2.75	-2.25	-1.77	-1.30	-0.39	0.50	1.38
250	-4.53	-4.05	-3.55	-3.07	-2.59	-1.68	-0.79	0.09
300	-7.29	-6.81	-6.29	-5.80	-5.32	-4.40	-3.50	-2.63
350	-10.35	-9.80	-9.23	-8.72	-8.23	-7.30	-6.39	-5.51
400	-13.08	-12.37	-11.82	-11.31	-10.36	-9.45	-8.56	
450	-17.02	-15.72	-15.10	-14.56	-13.57	-12.65	-11.75	
500	-21.79	-19.31	-18.55	-17.96	-16.94	-15.99	-15.09	
550	-26.40	-23.17	-22.18	-21.52	-20.44	-19.47	-18.56	
600	-30.79	-27.24	-25.98	-25.22	-24.07	-23.08	-22.15	
700	-39.37	-35.73	-34.01	-33.04	-31.71	-30.65	-29.68	
800	-47.93	-44.42	-42.47	-41.29	-39.79	-38.65	-37.65	
900	-56.62	-53.25	-51.20	-49.90	-48.24	-47.04	-46.02	
1000	-65.48	-62.25	-60.15	-58.78	-57.02	-55.78	-54.75	
Methane								
25	-8.23	-7.80	-7.37	-6.95	-6.54	-5.74	-4.95	-4.18
50	-8.82	-8.37	-7.93	-7.50	-7.08	-6.26	-5.46	-4.67
75	-9.52	-9.05	-8.60	-8.17	-7.74	-6.91	-6.10	-5.31
100	-10.32	-9.84	-9.38	-8.94	-8.51	-7.67	-6.85	-6.06
125	-11.20	-10.71	-10.25	-9.80	-9.36	-8.52	-7.70	-6.90
150	-12.16	-11.67	-11.20	-10.74	-10.30	-9.45	-8.62	-7.82
175	-13.19	-12.70	-12.22	-11.76	-11.31	-10.45	-9.62	-8.81
200	-14.30	-13.80	-13.31	-12.84	-12.39	-11.52	-10.68	-9.87
225	-15.48	-14.96	-14.46	-13.99	-13.53	-12.65	-11.81	-10.99
250	-16.73	-16.20	-15.69	-15.20	-14.74	-13.85	-13.00	-12.17
300	-19.47	-18.89	-18.32	-17.81	-17.32	-16.40	-15.54	-14.70
350	-22.81	-21.91	-21.22	-20.64	-20.13	-19.17	-18.28	-17.43
400	-25.46	-24.39	-23.72	-23.15	-22.14	-21.21	-20.34	
450	-30.49	-27.90	-27.03	-26.38	-25.29	-24.33	-23.43	
500	-37.50	-31.83	-30.60	-29.82	-28.62	-27.61	-26.68	
550	-43.90	-36.25	-34.44	-33.47	-32.13	-31.05	-30.09	
600	-49.56	-41.07	-38.54	-37.32	-35.79	-34.64	-33.64	
700	-59.82	-51.10	-47.39	-45.58	-43.59	-42.26	-41.17	
800	-69.42	-61.04	-56.71	-54.40	-51.93	-50.41	-49.22	
900	-78.80	-70.80	-66.20	-63.56	-60.69	-59.01	-57.75	
1000	-88.14	-80.47	-75.77	-72.94	-69.80	-68.01	-66.72	
Methanol								
25	-42.05	-41.60	-41.15	-40.70	-40.25	-39.37	-38.49	-37.61
50	-42.89	-42.44	-42.00	-41.55	-41.12	-40.25	-39.39	-38.54
75	-43.81	-43.36	-42.92	-42.48	-42.05	-41.19	-40.35	-39.51
100	-44.81	-44.35	-43.91	-43.47	-43.04	-42.19	-41.36	-40.53
125	-45.87	-45.41	-44.97	-44.53	-44.10	-43.26	-42.43	-41.61
150	-46.99	-46.54	-46.09	-45.65	-45.23	-44.38	-43.56	-42.74
175	-48.17	-47.72	-47.27	-46.84	-46.41	-45.57	-44.74	-43.93
200	-49.42	-48.97	-48.51	-48.08	-47.65	-46.80	-45.98	-45.17
225	-50.72	-50.27	-49.81	-49.37	-48.94	-48.10	-47.27	-46.46
250	-52.07	-51.62	-51.16	-50.72	-50.28	-49.44	-48.61	-47.80
300	-54.96	-54.50	-54.02	-53.56	-53.12	-52.26	-51.43	-50.62
350	-58.19	-57.62	-57.08	-56.60	-56.14	-55.27	-54.43	-53.61
400	-61.06	-60.35	-59.82	-59.34	-58.44	-57.60	-56.77	
450	-65.26	-63.84	-63.22	-62.71	-61.78	-60.91	-60.08	
500	-70.45	-67.60	-66.82	-66.24	-65.26	-64.37	-63.53	
550	-75.42	-71.66	-70.60	-69.94	-68.89	-67.97	-67.11	
600	-80.11	-75.95	-74.56	-73.79	-72.66	-71.71	-70.83	
700	-89.15	-84.89	-82.95	-81.90	-80.56	-79.53	-78.61	

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Methanol — Continued								
800		-98.10	-93.99	-91.77	-90.49	-88.92	-87.80	-86.84
900		-107.13	-103.20	-100.85	-99.41	-97.67	-96.47	-95.48
1000		-116.31	-112.53	-110.14	-108.61	-106.74	-105.50	-104.49
Methionine								
25	-120.20	-118.97	-117.80	-116.66	-115.55	-113.39	-111.30	-109.26
50	-121.92	-120.68	-119.50	-118.37	-117.26	-115.12	-113.05	-111.03
75	-123.76	-122.53	-121.35	-120.21	-119.10	-116.97	-114.91	-112.90
100	-125.74	-124.50	-123.31	-122.17	-121.07	-118.93	-116.88	-114.87
125	-127.83	-126.58	-125.39	-124.25	-123.14	-121.01	-118.95	-116.95
150	-130.04	-128.79	-127.59	-126.44	-125.33	-123.19	-121.13	-119.13
175	-132.36	-131.10	-129.89	-128.73	-127.61	-125.46	-123.40	-121.40
200	-134.78	-133.52	-132.29	-131.12	-130.00	-127.84	-125.77	-123.76
225	-137.32	-136.04	-134.79	-133.61	-132.47	-130.30	-128.22	-126.21
250	-139.96	-138.67	-137.39	-136.19	-135.04	-132.85	-130.76	-128.74
300	-145.66	-144.28	-142.89	-141.63	-140.44	-138.20	-136.08	-134.04
350	-152.45	-150.45	-148.81	-147.43	-146.18	-143.87	-141.70	-139.63
400		-157.61	-155.19	-153.62	-152.26	-149.83	-147.61	-145.50
450		-167.72	-162.18	-160.20	-158.68	-156.09	-153.79	-151.63
500		-181.83	-169.95	-167.23	-165.44	-162.63	-160.22	-158.00
550		-194.60	-178.65	-174.72	-172.55	-169.44	-166.91	-164.62
600		-205.79	-188.09	-182.69	-180.00	-176.52	-173.83	-171.46
700		-225.72	-207.57	-199.73	-195.83	-191.40	-188.35	-185.79
800		-244.08	-226.60	-217.49	-212.56	-207.14	-203.69	-200.95
900		-261.73	-245.05	-235.39	-229.77	-223.54	-219.76	-216.86
1000		-279.10	-263.10	-253.23	-247.22	-240.43	-236.43	-233.48
Monochloroacetate								
25	-92.86	22.26	21.69	21.11	20.55	19.44	18.24	17.26
50	-93.75	-93.15	-92.57	-92.00	-91.43	-90.33	-89.25	-88.18
75	-94.67	-94.07	-93.49	-92.92	-92.36	-91.26	-90.19	-89.13
100	-95.60	-95.01	-94.43	-93.87	-93.32	-92.23	-91.16	-90.11
125	-96.55	-95.97	-95.40	-94.85	-94.30	-93.23	-92.17	-91.13
150	-97.51	-96.95	-96.40	-95.85	-95.31	-94.25	-93.21	-92.17
175	-98.46	-97.94	-97.40	-96.87	-96.34	-95.30	-94.27	-93.25
200	-99.41	-98.93	-98.42	-97.90	-97.39	-96.37	-95.35	-94.35
225	-100.33	-99.92	-99.44	-98.95	-98.45	-97.46	-96.46	-95.47
250	-101.22	-100.89	-100.46	-100.00	-99.53	-98.57	-97.59	-96.62
300	-102.73	-102.77	-102.49	-102.12	-101.71	-100.83	-99.91	-98.98
350	-103.25	-104.35	-104.45	-104.22	-103.90	-103.13	-102.29	-101.41
400		-105.44	-106.25	-106.26	-106.08	-105.47	-104.72	-103.90
450		-103.81	-107.74	-108.19	-108.21	-107.82	-107.19	-106.45
500			-108.70	-109.95	-110.27	-110.16	-109.68	-109.04
550				108.96	111.47	112.23	112.49	112.19
600				-108.68	-112.76	-114.07	-114.79	-114.69
700					-114.94	-117.48	-119.29	-119.68
800						-120.80	-123.70	-124.63
900						-124.38	-128.15	-129.56
1000							-132.81	-134.57
Monochloroacetic Acid								
25	-55.12	-54.29	-53.48	-52.70	-51.93	-50.42	-48.95	-47.51
50	-56.61	-55.78	-54.97	-54.19	-53.42	-51.94	-50.49	-49.07
75	-58.20	-57.36	-56.55	-55.77	-55.00	-53.52	-52.08	-50.67
100	-59.87	-59.02	-58.21	-57.43	-56.66	-55.19	-53.75	-52.35
125	-61.62	-60.77	-59.95	-59.17	-58.40	-56.92	-55.49	-54.09
150	-63.45	-62.59	-61.77	-60.98	-60.21	-58.73	-57.30	-55.90
175	-65.36	-64.50	-63.66	-62.87	-62.10	-60.61	-59.17	57.77
200	-67.34	-66.47	-65.63	-64.82	-64.04	-62.55	-61.11	-59.70

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Monochloroacetic Acid — Continued								
225	-69.41	-68.53	-67.66	-66.85	-66.06	-64.55	-63.10	-61.70
250	-71.55	-70.66	-69.77	-68.94	-68.14	-66.62	-65.16	-63.74
300	-76.16	-75.17	-74.19	-73.31	-72.48	-70.92	-69.43	-68.00
350	-81.62	-80.10	-78.92	-77.95	-77.06	-75.44	-73.92	-72.47
400		-85.81	-83.99	-82.85	-81.89	-80.17	-78.61	-77.12
450		-93.90	-89.53	-88.06	-86.96	-85.11	-83.48	-81.96
500		-105.23	-95.68	-93.60	-92.28	-90.25	-88.54	-86.96
550		-115.43	-102.56	-99.50	-97.86	-95.59	-93.77	-92.14
600		-124.32	-110.02	-105.75	-103.70	-101.12	-99.17	-97.47
700		-140.03	-125.36	-119.10	-116.05	-112.70	-110.46	-108.61
800		-154.36	-140.24	-132.95	-129.05	-124.89	-122.33	-120.33
900		-168.04	-154.57	-146.82	-142.37	-137.55	-134.71	-132.59
1000		-181.42	-168.50	-160.59	-155.82	-150.54	-147.52	-145.35
Monochloroacetyl Chloride								
25	-96.77	-96.04	-95.34	-94.66	-94.00	-92.71	-91.46	-90.23
50	-98.12	-97.37	-96.66	-95.96	-95.29	-93.99	-92.73	-91.50
75	-99.55	-98.79	-98.07	-97.37	-96.69	-95.38	-94.11	-92.88
100	-101.07	-100.30	-99.57	-98.87	-98.18	-96.86	-95.59	-94.35
125	-102.66	-101.89	-101.15	-100.44	-99.75	-98.43	-97.15	-95.91
150	-104.34	-103.56	-102.81	-102.09	-101.40	-100.07	-98.78	-97.54
175	-106.08	-105.29	-104.54	-103.82	-103.12	-101.78	-100.49	-99.24
200	-107.89	-107.10	-106.34	-105.61	-104.90	-103.55	-102.26	-101.00
225	-109.78	-108.98	-108.20	-107.46	-106.75	-105.39	-104.09	-102.83
250	-111.73	-110.93	-110.13	-109.38	-108.66	-107.29	-105.98	-104.71
300	-115.90	-115.05	-114.19	-113.40	-112.66	-111.25	-109.92	-108.64
350	-120.71	-119.52	-118.51	-117.66	-116.88	-115.43	-114.07	-112.77
400		-124.58	-123.13	-122.16	-121.32	-119.80	-118.41	-117.09
450		-131.36	-128.12	-126.92	-125.98	-124.37	-122.93	-121.58
500		-140.44	-133.58	-131.95	-130.86	-129.13	-127.63	-126.24
550		-148.79	-139.60	-137.28	-135.97	-134.06	-132.49	-131.06
600		-156.25	-146.06	-142.90	-141.29	-139.17	-137.50	-136.03
700		-169.83	-159.38	-154.82	-152.52	-149.86	-147.99	-146.40
800		-182.58	-172.51	-167.23	-164.34	-161.10	-159.01	-157.31
900		-194.99	-185.37	-179.77	-176.49	-172.80	-170.51	-168.73
1000		-207.29	-198.07	-192.35	-188.84	-184.83	-182.41	-180.60
Mg²⁺								
25	-108.50	-108.74	-108.94	-109.12	-109.27	-109.51	-109.71	-109.88
50	-107.68	-107.92	-108.13	-108.31	-108.47	-108.74	-108.97	-109.16
75	-106.84	-107.10	-107.32	-107.51	-107.68	-107.97	-108.22	-108.43
100	-106.01	-106.28	-106.51	-106.72	-106.90	-107.21	-107.47	-107.69
125	-105.17	-105.46	-105.71	-105.92	-106.12	-106.45	-106.73	-106.97
150	-104.32	-104.64	-104.90	-105.14	-105.34	-105.70	-105.99	-106.25
175	-103.45	-103.80	-104.10	-104.35	-104.57	-104.95	-105.27	-105.55
200	-102.56	-102.95	-103.28	-103.56	-103.81	-104.22	-104.56	-104.86
225	-101.64	-102.09	-102.46	-102.77	-103.04	-103.49	-103.86	-104.18
250	-100.68	-101.20	-101.62	-101.97	-102.27	-102.76	-103.17	-103.51
300	-98.59	-99.35	-99.93	-100.35	-100.72	-101.32	-101.80	-102.20
350	-96.58	-97.34	-98.23	-98.72	-99.16	-99.88	-100.45	-100.93
400		-96.73	-96.61	-97.10	-97.59	-98.44	-99.12	-99.67
450		-98.87	-95.19	-95.52	-96.04	-97.00	-97.79	-98.44
500			-94.19	-94.01	-94.49	-95.56	-96.46	-97.21
550			-93.86	-92.62	-92.95	-94.09	-95.13	-95.99
600			-94.29	-91.43	-91.43	-92.60	-93.76	-94.74
700				-89.89	-88.48	-89.43	-90.88	-92.12
800					-85.56	-85.94	-87.72	-89.27
900					-82.44	-82.13	-84.29	-86.12
1000						-78.18	-80.73	-82.71

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Mg(CH₃COO)⁺								
25	-198.52	-198.22	-197.92	-197.62	-197.32	-196.71	-196.11	-195.51
50	-198.28	-197.97	-197.66	-197.35	-197.05	-196.44	-195.84	-195.23
75	-198.18	-197.86	-197.55	-197.25	-196.94	-196.33	-195.73	-195.13
100	-198.20	-197.89	-197.58	-197.27	-196.97	-196.36	-195.76	-195.17
125	-198.32	-198.01	-197.71	-197.41	-197.11	-196.51	-195.92	-195.32
150	-198.53	-198.24	-197.94	-197.64	-197.35	-196.76	-196.17	-195.59
175	-198.82	-198.54	-198.26	-197.97	-197.68	-197.10	-196.52	-195.94
200	-199.17	-198.92	-198.65	-198.38	-198.10	-197.53	-196.96	-196.39
225	-199.59	-199.37	-199.12	-198.86	-198.59	-198.04	-197.49	-196.92
250	-200.05	-199.88	-199.66	-199.41	-199.16	-198.63	-198.08	-197.53
300	-201.07	-201.06	-200.91	-200.70	-200.48	-200.00	-199.49	-198.97
350	-202.33	-202.41	-202.41	-202.23	-202.04	-201.62	-201.16	-200.67
400		-204.64	-204.17	-203.99	-203.83	-203.47	-203.06	-202.61
450		-208.37	-206.22	-205.98	-205.83	-205.52	-205.17	-204.76
500			-208.66	-208.18	-208.02	-207.77	-207.47	-207.11
550				-211.60	-210.62	-210.39	-210.18	-209.94
600					-215.05	-213.32	-212.74	-212.57
700						-219.58	-218.54	-218.22
800							-224.71	-224.29
900								-230.75
1000								-237.61
Mg(CH₃COO)₂								
25	-287.83	-286.93	-286.07	-285.25	-284.46	-282.92	-281.44	-280.00
50	-287.99	-287.06	-286.17	-285.33	-284.51	-282.94	-281.42	-279.95
75	-288.46	-287.52	-286.62	-285.76	-284.93	-283.33	-281.79	-280.31
100	-289.21	-288.25	-287.34	-286.47	-285.63	-284.02	-282.47	-280.97
125	-290.18	-289.21	-288.30	-287.42	-286.58	-284.95	-283.40	-281.89
150	-291.36	-290.40	-289.47	-288.59	-287.74	-286.11	-284.55	-283.03
175	-292.74	-291.78	-290.85	-289.96	-289.11	-287.47	-285.90	-284.38
200	-294.29	-293.34	-292.41	-291.52	-290.66	-289.02	-287.44	-285.92
225	-296.01	-295.07	-294.13	-293.24	-292.38	-290.73	289.16	-287.63
250	-297.88	-296.96	-296.02	-295.13	-294.27	-292.61	-291.03	-289.50
300	-302.03	-301.20	-300.25	-299.35	-298.48	-296.82	-295.23	-293.70
350	-306.70	-305.99	-305.03	-304.12	-303.25	-301.58	-299.99	-298.45
400		-311.32	-310.32	-309.40	-308.52	-306.84	305.25	-303.70
450		-317.23	-316.08	-315.14	-314.26	-312.57	-310.97	-309.42
500		-323.74	-322.30	-321.33	-320.43	-318.73	-317.12	-315.56
550		-330.57	-328.95	-327.92	-327.00	-325.29	-323.67	-322.11
600		-337.70	-336.00	-334.90	-333.95	-332.22	-330.60	-329.03
700		-352.85	-351.13	-349.92	-348.92	-347.14	-345.49	-343.92
800		-369.16	-367.47	-366.20	-365.15	-363.32	-361.66	-360.08
900		-386.55	-384.89	-383.60	-382.52	-380.65	-378.97	-377.38
1000		-404.95	-403.32	-402.01	-400.91	-399.02	-397.33	-395.74
MgCO₃								
25	-238.76	-238.94	-239.09	-239.22	-239.33	-239.50	-239.63	-239.73
50	-238.14	-238.32	-238.48	-238.61	-238.72	-238.91	-239.06	-239.19
75	-237.48	-237.67	-237.82	-237.96	-238.08	-238.28	-238.44	-238.58
100	-236.80	-236.99	-237.14	-237.28	-237.40	-237.61	-237.78	-237.92
125	-236.10	-236.28	-236.44	-236.58	-236.70	-236.91	-237.09	237.24
150	-235.38	-235.56	-235.72	-235.86	-235.99	-236.20	-236.38	-236.54
175	-234.65	-234.83	-234.99	-235.13	-235.25	-235.47	-235.65	-235.81
200	-233.90	-234.08	-234.24	-234.38	-234.50	-234.72	-234.91	-235.07
225	-233.15	-233.32	-233.48	-233.62	-233.74	-233.96	-234.15	-234.31
250	-232.38	-232.55	-232.71	-232.85	-232.97	-233.19	-233.38	-233.54
300	-230.84	-230.98	-231.13	-231.27	-231.39	-231.61	-231.80	-231.97
350	-229.31	-229.38	-229.52	-229.65	-229.77	-229.99	-230.18	-230.35
400		-227.77	-227.88	-228.01	-228.12	-228.34	-228.52	-228.69
450		-226.26	-226.23	-226.33	-226.44	-226.65	-226.83	-227.00

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar							
		0.5	1.0	1.5	2.0	3.0	4.0	5.0	
MgCO₃ — Continued									
500		-224.89	-224.57	-224.64	-224.74	-224.93	-225.12	-225.28	
550		-223.42	-222.91	-222.93	-223.01	-223.19	-223.37	-223.53	
600		-221.85	-221.25	-221.20	-221.26	-221.43	-221.60	-221.76	
700		-218.48	-217.87	-217.71	-217.71	-217.83	-217.99	-218.14	
800		-214.92	-214.34	-214.12	-214.08	-214.16	-214.29	-214.44	
900		-211.22	-210.68	-210.43	-210.36	-210.40	-210.52	-210.66	
1000		-207.41	-206.90	-206.64	-206.55	-206.57	-206.68	-206.82	
MgCl⁺									
25	-139.70	-139.68	-139.63	-139.57	-139.50	-139.33	-139.14	-138.93	
50	-139.23	-139.20	-139.16	-139.10	-139.04	-138.88	-138.70	-138.50	
75	-138.83	-138.81	-138.77	-138.71	-138.65	-138.50	-138.33	-138.14	
100	-138.49	-138.47	-138.44	-138.39	-138.33	-138.19	-138.03	-137.85	
125	-138.20	-138.19	-138.16	-138.12	-138.07	-137.94	-137.79	-137.62	
150	-137.95	-137.95	-137.94	-137.91	-137.86	-137.74	-137.60	-137.44	
175	-137.73	-137.76	-137.76	-137.74	-137.70	-137.60	-137.47	-137.32	
200	-137.54	-137.60	-137.61	-137.60	-137.58	-137.50	-137.38	-137.24	
225	-137.38	-137.46	-137.50	-137.51	-137.50	-137.44	-137.34	-137.21	
250	-137.22	-137.35	-137.42	-137.45	-137.45	-137.41	-137.33	-137.22	
300	-136.92	-137.20	-137.35	-137.42	-137.46	-137.48	-137.44	-137.36	
350	-136.83	-137.08	-137.40	-137.50	-137.58	-137.66	-137.68	-137.64	
400		-137.95	-137.63	-137.71	-137.82	-137.97	-138.04	-138.04	
450		-140.75	-138.09	-138.06	-138.17	-138.38	-138.50	-138.56	
500			-138.94	-138.56	-138.63	-138.88	-139.07	-139.18	
550				-140.33	-139.23	-139.19	-139.47	-139.72	-139.89
600				-142.31	-140.13	-139.85	-140.12	-140.44	-140.68
700					-142.69	-141.49	-141.57	-142.03	-142.41
800						-143.45	-143.12	-143.75	-144.30
900						-145.54	-144.74	-145.58	-146.27
1000							-146.51	-147.55	-148.33
MgF⁺									
25	-177.69	-177.80	-177.88	-177.94	-177.98	-178.02	-178.03	-178.00	
50	-177.03	-177.14	-177.23	-177.29	-177.34	-177.40	-177.42	-177.42	
75	-176.43	-176.55	-176.64	-176.71	-176.77	-176.84	-176.88	-176.89	
100	-175.88	-176.01	-176.11	-176.19	-176.25	-176.34	-176.39	-176.42	
125	-175.38	-175.52	-175.63	-175.72	-175.79	-175.89	-175.96	-175.99	
150	-174.92	-175.08	-175.20	-175.30	-175.38	-175.49	-175.57	-175.62	
175	-174.49	-174.66	-174.80	-174.92	-175.01	-175.14	-175.23	-175.29	
200	-174.08	-174.28	-174.44	-174.57	-174.67	-174.83	-174.94	-175.01	
225	-173.69	-173.92	-174.11	-174.26	-174.37	-174.55	-174.68	-174.77	
250	-173.30	-173.58	-173.80	-173.97	-174.11	-174.31	-174.46	-174.57	
300	-172.54	-172.96	-173.27	-173.48	-173.66	-173.93	-174.13	-174.27	
350	-172.08	-172.37	-172.86	-173.10	-173.32	-173.66	-173.92	-174.11	
400		-173.00	-172.64	-172.85	-173.09	-173.50	-173.82	-174.06	
450		-176.22	-172.71	-172.74	-172.97	-173.44	-173.82	-174.12	
500			-173.27	-172.80	-172.96	-173.46	-173.91	-174.27	
550				-174.53	-173.07	-173.06	-173.57	-174.08	-174.50
600				-176.58	-173.61	-173.27	-173.73	-174.31	-174.80
700					-175.63	-174.02	-174.16	-174.89	-175.53
800						-175.10	-174.64	-175.54	-176.36
900						-176.26	-175.14	-176.24	-177.24
1000							-175.73	-177.06	-178.16
MgHCO₃²⁻									
25	-250.20	-250.13	-250.04	-249.94	-249.83	-249.58	-249.32	-249.05	
50	-250.19	-250.11	-250.02	-249.92	-249.81	-249.57	-249.32	-249.06	
75	-250.28	-250.20	-250.11	-250.01	-249.91	-249.68	-249.43	-249.18	
100	-250.46	-250.38	-250.30	-250.20	-250.10	-249.88	-249.64	-249.39	

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
MgHCO₃ — Continued								
125	-250.71	-250.65	-250.56	-250.47	-250.37	-250.16	-249.93	-249.69
150	-251.03	-250.98	-250.90	-250.82	-250.72	-250.52	-250.29	-250.06
175	-251.41	-251.37	-251.31	-251.23	-251.14	-250.94	-250.73	-250.50
200	-251.84	-251.82	-251.77	-251.70	-251.62	-251.44	-251.23	-251.01
225	-252.32	-252.32	-252.28	-252.23	-252.15	-251.99	-251.79	-251.58
250	-252.82	-252.86	-252.84	-252.80	-252.74	-252.59	-252.41	-252.21
300	-253.91	-254.06	-254.11	-254.10	-254.07	-253.95	-253.80	-253.62
350	-255.11	-255.36	-255.55	-255.57	-255.56	-255.50	-255.39	-255.24
400		-257.27	-257.16	-257.20	-257.23	-257.22	-257.14	-257.03
450		-260.02	-258.97	-258.99	-259.04	-259.09	-259.06	-258.98
500			-261.02	-260.93	-260.99	-261.09	-261.12	-261.08
550			-263.37	-263.03	-263.07	-263.22	-263.30	-263.31
600			-266.03	-265.29	-265.27	-265.46	-265.60	-265.66
700				-270.40	-270.01	-270.22	-270.49	-270.65
800					-275.17	-275.27	-275.70	-275.98
900					-280.66	-280.60	-281.19	-281.58
1000						-286.24	-286.98	-287.43
Mn⁺²								
25	-54.50	-54.69	-54.84	-54.96	-55.06	-55.22	-55.32	-55.40
50	-54.06	-54.25	-54.41	-54.54	-54.65	-54.83	-54.97	-55.07
75	-53.61	-53.81	-53.98	-54.12	-54.25	-54.44	-54.60	-54.72
100	-53.16	-53.38	-53.56	-53.71	-53.84	-54.06	-54.23	-54.37
125	-52.70	-52.93	-53.13	-53.29	-53.44	-53.67	-53.86	-54.01
150	-52.23	-52.49	-52.70	-52.88	-53.04	-53.29	-53.50	-53.67
175	-51.74	-52.03	-52.27	-52.47	-52.64	-52.92	-53.14	-53.33
200	-51.22	-51.55	-51.82	-52.05	-52.24	-52.55	-52.80	-53.00
225	-50.68	-51.06	-51.37	-51.62	-51.83	-52.18	-52.45	-52.68
250	-50.09	-50.54	-50.90	-51.18	-51.42	-51.81	-52.11	-52.36
300	-48.75	-49.43	-49.93	-50.28	-50.59	-51.07	-51.45	-51.75
350	-47.39	-48.14	-48.94	-49.36	-49.73	-50.32	-50.79	-51.15
400		-48.01	-47.99	-48.43	-48.86	-49.57	-50.13	-50.57
450		-50.02	-47.18	-47.52	-47.98	-48.81	-49.47	-50.00
500			-46.68	-46.64	-47.09	-48.03	-48.80	-49.43
550			-46.70	-45.84	-46.19	-47.22	-48.12	-48.84
600			-47.29	-45.18	-45.30	-46.38	-47.40	-48.23
700				-44.52	-43.53	-44.50	-45.81	-46.89
800					-41.75	-42.31	-43.94	-45.30
900					-39.78	-39.82	-41.81	-43.43
1000						-37.20	-39.54	-41.30
MnCl⁺								
25	-86.29	-86.21	-86.11	-86.00	-85.89	-85.63	-85.36	-85.08
50	-86.62	-86.53	-86.43	-86.33	-86.21	-85.96	-85.70	-85.43
75	-87.01	-86.92	-86.82	-86.71	-86.60	-86.35	-86.10	-85.83
100	-87.44	-87.35	-87.25	-87.15	-87.03	-86.79	-86.54	-86.28
125	-87.91	-87.83	-87.73	-87.63	-87.52	-87.28	-87.04	-86.78
150	-88.42	-88.34	-88.25	-88.15	-88.04	-87.81	-87.57	-87.32
175	-88.96	-88.89	-88.80	-88.71	-88.60	-88.38	-88.15	-87.90
200	-89.53	-89.47	-89.39	-89.30	-89.20	-88.99	-88.76	-88.51
225	-90.11	-90.07	-90.00	-89.92	-89.83	-89.62	-89.40	-89.17
250	-90.72	-90.70	-90.65	-90.57	-90.49	-90.29	-90.08	-89.85
300	-91.95	-92.02	-92.00	-91.95	-91.88	-91.71	-91.52	-91.30
350	-93.18	-93.37	-93.45	-93.42	-93.38	-93.24	-93.07	-92.87
400		-94.99	-94.98	-94.98	-94.96	-94.86	-94.71	-94.54
450		-96.82	-96.59	-96.61	-96.62	-96.56	-96.44	-96.29
500			-98.29	-98.32	-98.34	-98.33	-98.25	-98.13
550			-100.09	-100.08	-100.14	-100.18	-100.14	-100.04
600			-101.99	-101.93	-101.98	-102.08	-102.08	-102.02
700				-105.87	-105.85	-106.02	-106.13	-106.14

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
MnCl⁺ — Continued								
800				-109.93	-110.13	-110.35	-110.44	
900				-114.20	-114.40	-114.73	-114.89	
1000					-118.85	-119.28	-119.47	
MnO₄⁻								
25	-106.90	-106.41	-105.93	-105.47	-105.01	-104.10	-103.22	-102.34
50	-108.04	-107.54	-107.05	-106.57	-106.10	-105.19	-104.29	-103.41
75	-109.18	-108.68	-108.18	-107.70	-107.23	-106.31	-105.41	-104.52
100	-110.33	-109.82	-109.33	-108.85	-108.38	-107.46	-106.56	-105.67
125	-111.47	-110.97	-110.48	-110.01	-109.54	-108.62	-107.73	-106.85
150	-112.60	-112.12	-111.64	-111.17	-110.71	-109.80	-108.91	-108.04
175	-113.72	-113.26	-112.80	-112.34	-111.89	-110.99	-110.11	-109.24
200	-114.82	-114.40	-113.96	-113.51	-113.07	-112.19	-111.32	-110.46
225	-115.89	-115.52	-115.11	-114.68	-114.25	-113.40	-112.54	-111.69
250	-116.91	-116.62	-116.25	-115.85	-115.44	-114.61	-113.77	-112.94
300	-118.69	-118.72	-118.49	-118.16	-117.80	-117.04	-116.25	-115.45
350	-119.55	-120.53	-120.62	-120.42	-120.14	-119.47	-118.74	-117.98
400		-121.81	-122.57	-122.59	-122.43	-121.90	-121.25	-120.54
450		-120.54	-124.19	-124.62	-124.64	-124.30	-123.76	-123.12
500			-125.31	-126.46	-126.76	-126.67	-126.25	-125.70
550			-125.74	-128.06	-128.75	-129.00	-128.74	-128.27
600			-125.66	-129.42	-130.62	-131.27	-131.19	-130.83
700				-131.68	-134.02	-135.66	-136.01	-135.90
800					-137.26	-139.89	-140.71	-140.84
900					-140.64	-144.08	-145.32	-145.65
1000					-148.38	-149.92	-150.33	
MnO₄⁻²								
25	-119.70	-119.38	-119.06	-118.73	-118.41	-117.74	-117.07	-116.39
50	-120.00	-119.67	-119.35	-119.03	-118.70	-118.04	-117.37	-116.70
75	-120.20	-119.89	-119.57	-119.26	-118.94	-118.29	-117.64	-116.98
100	-120.31	-120.02	-119.73	-119.43	-119.12	-118.49	-117.86	-117.22
125	-120.34	-120.09	-119.82	-119.54	-119.25	-118.66	-118.04	-117.42
150	-120.28	-120.08	-119.85	-119.60	-119.33	-118.77	-118.19	-117.59
175	-120.11	-119.99	-119.81	-119.60	-119.36	-118.85	-118.30	-117.73
200	-119.83	-119.81	-119.70	-119.53	-119.34	-118.88	-118.38	-117.84
225	-119.41	-119.53	-119.51	-119.41	-119.26	-118.87	-118.42	-117.92
250	-118.80	-119.13	-119.23	-119.21	-119.12	-118.82	-118.43	-117.97
300	-116.75	-117.88	-118.39	-118.59	-118.66	-118.58	-118.34	-117.99
350	-112.33	-115.66	-117.10	-117.64	-117.93	-118.15	-118.10	-117.90
400		-112.62	-115.22	-116.29	-116.91	-117.52	-117.72	-117.69
450		-104.37	-112.49	-114.47	-115.54	-116.67	-117.17	-117.35
500			-108.54	-112.06	-113.79	-115.58	-116.45	-116.87
550			-103.07	-108.99	-111.60	-114.24	-115.54	-116.24
600			-96.47	-105.27	-108.97	-112.61	-114.42	-115.43
700				-96.66	-102.57	-108.51	-111.52	-113.24
800					-95.28	-103.42	-107.72	-110.18
900					-87.86	-97.67	-103.17	-106.25
1000						-91.74	-98.15	-101.50
MnSO₄⁰								
25	-235.64	-235.57	-235.49	-235.39	-235.29	-235.06	-234.82	-234.56
50	-235.75	-235.67	-235.58	-235.49	-235.39	-235.16	-234.93	-234.68
75	-235.82	-235.74	-235.66	-235.56	-235.46	-235.24	-235.01	-234.77
100	-235.88	-235.80	-235.71	-235.61	-235.51	-235.29	-235.06	-234.82
125	-235.92	-235.84	-235.74	-235.65	-235.54	-235.33	-235.10	-234.87
150	-235.94	-235.86	-235.77	-235.67	-235.57	-235.35	-235.12	-234.89
175	-235.96	-235.87	-235.78	-235.68	-235.58	-235.36	-235.14	-234.90
200	-235.96	-235.87	-235.78	-235.68	-235.58	-235.36	-235.14	-234.91

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
MnSO₄ — Continued								
225	-235.95	-235.87	-235.77	-235.67	-235.57	-235.35	-235.13	-234.90
250	-235.94	-235.85	-235.75	-235.65	-235.55	-235.33	-235.11	-234.88
300	-235.89	-235.80	-235.70	-235.59	-235.49	-235.27	-235.04	-234.81
350	-235.84	-235.73	-235.61	-235.51	-235.40	-235.17	-234.95	-234.72
400		-235.66	-235.51	-235.39	-235.28	-235.05	-234.83	-234.59
450		-235.70	-235.40	-235.27	-235.14	-234.91	-234.68	-234.45
500		-235.88	-235.29	-235.12	-234.99	-234.75	-234.51	-234.27
550		-235.97	-235.20	-234.97	-234.82	-234.56	-234.32	-234.08
600		-235.95	-235.10	-234.81	-234.63	-234.36	-234.11	-233.87
700		-235.73	-234.86	-234.46	-234.23	-233.91	-233.64	-233.39
800		-235.34	-234.50	-234.04	-233.76	-233.40	-233.11	-232.85
900		-234.83	-234.02	-233.53	-233.22	-232.82	-232.52	-232.26
1000		-234.22	-233.44	-232.94	-232.62	-232.19	-231.88	-231.62
MoO₄²⁻								
25	-199.90	-199.55	-199.19	-198.84	-198.48	-197.76	-197.03	-196.31
50	-200.02	-199.66	-199.31	-198.95	-198.59	-197.88	-197.16	-196.43
75	-200.06	-199.72	-199.37	-199.02	-198.67	-197.97	-197.26	-196.55
100	-200.03	-199.71	-199.39	-199.05	-198.72	-198.03	-197.34	-196.65
125	-199.93	-199.65	-199.35	-199.04	-198.72	-198.07	-197.40	-196.73
150	-199.75	-199.52	-199.26	-198.98	-198.69	-198.07	-197.44	-196.79
175	-199.48	-199.33	-199.12	-198.88	-198.61	-198.05	-197.45	-196.82
200	-199.09	-199.05	-198.91	-198.72	-198.50	-197.99	-197.43	-196.84
225	-198.57	-198.67	-198.63	-198.50	-198.33	-197.90	-197.39	-196.84
250	-197.87	-198.19	-198.27	-198.23	-198.12	-197.77	-197.33	-196.83
300	-195.65	-196.79	-197.29	-197.48	-197.53	-197.41	-197.13	-196.74
350	-191.11	-194.44	-195.90	-196.42	-196.70	-196.89	-196.81	-196.56
400		-191.42	-193.95	-195.00	-195.61	-196.20	-196.36	-196.30
450		-183.46	-191.19	-193.13	-194.20	-195.31	-195.79	-195.94
500			-187.26	-190.71	-192.42	-194.20	-195.06	-195.46
550				-181.92	-187.65	-190.23	-192.86	-194.16
600				-175.52	-183.99	-187.63	-191.26	-193.07
700					-175.63	-181.34	-187.25	-190.27
800						-174.24	-182.28	-186.62
900						-167.05	-176.69	-182.26
1000							-170.97	-177.48
N-Butane								
25	0.04	0.99	1.90	2.77	3.62	5.23	6.79	8.30
50	-1.09	-0.10	0.84	1.74	2.60	4.27	5.86	7.41
75	-2.44	-1.42	-0.47	0.45	1.33	3.02	4.64	6.21
100	-3.97	-2.94	-1.97	-1.04	-0.14	1.57	3.21	4.79
125	-5.67	-4.62	-3.63	-2.69	-1.79	-0.06	1.60	3.19
150	-7.52	-6.46	-5.46	-4.50	-3.59	-1.84	-0.18	1.43
175	-9.51	-8.44	-7.42	-6.46	-5.53	-3.77	-2.09	-0.47
200	-11.63	-10.55	-9.52	-8.54	-7.60	-5.82	-4.13	-2.50
225	-13.89	-12.80	-11.74	-10.75	-9.80	-8.00	-6.29	-4.65
250	-16.29	-15.18	-14.09	-13.07	-12.11	-10.29	-8.57	-6.91
300	-21.55	-20.34	-19.14	-18.07	-17.07	-15.19	-13.44	-11.75
350	-27.91	-26.12	-24.69	-23.51	-22.44	-20.49	-18.69	-16.98
400		-32.91	-30.76	-29.39	-28.22	-26.17	-24.30	-22.55
450		-42.51	-37.47	-35.73	-34.40	-32.20	-30.26	-28.45
500		-55.89	-44.99	-42.55	-40.98	-38.56	-36.52	-34.66
550		-68.11	-53.43	-49.88	-47.95	-45.26	-43.10	-41.17
600		-78.92	-62.63	-57.71	-55.31	-52.26	-49.96	-47.95
700		-98.48	-81.76	-74.59	-71.06	-67.14	-64.49	-62.31
800		-116.79	-100.70	-92.35	-87.86	-83.02	-80.01	-77.65
900		-134.66	-119.29	-110.44	-105.32	-99.72	-96.40	-93.90
1000		-152.44	-137.71	-128.66	-123.18	-117.07	-113.53	-110.99

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
N-Butylbenzene								
25	36.11	37.80	39.41	40.96	42.47	45.39	48.21	50.97
50	34.37	36.07	37.68	39.23	40.74	43.64	46.44	49.17
75	32.32	34.03	35.64	37.20	38.70	41.60	44.39	47.10
100	30.00	31.70	33.32	34.88	36.38	39.28	42.07	44.77
125	27.40	29.12	30.74	32.30	33.81	36.71	39.49	42.20
150	24.57	26.28	27.92	29.48	30.99	33.89	36.68	39.39
175	21.50	23.21	24.86	26.43	27.95	30.86	33.65	36.36
200	18.21	19.92	21.58	23.17	24.69	27.61	30.41	33.12
225	14.70	16.42	18.10	19.69	21.23	24.16	26.96	29.68
250	10.99	12.70	14.41	16.02	17.57	20.51	23.33	26.05
300	2.88	4.63	6.44	8.11	9.69	12.69	15.53	18.27
350	-6.58	-4.35	-2.30	-0.53	1.11	4.18	7.06	9.83
400		-14.61	-11.84	-9.87	-8.13	-4.96	-2.02	0.78
450		-27.94	-22.25	-19.92	-18.02	-14.70	-11.69	-8.84
500		-45.30	-33.71	-30.67	-28.53	-25.00	-21.89	-18.99
550		-61.70	-46.31	-42.15	-39.65	-35.85	-32.62	-29.64
600		-76.89	-59.87	-54.34	-51.36	-47.20	-43.83	-40.78
700		-105.74	-88.29	-80.49	-76.37	-71.34	-67.62	-64.40
800		-134.01	-117.19	-108.21	-103.12	-97.16	-93.09	-89.69
900		-162.44	-146.36	-136.86	-131.15	-124.43	-120.04	-116.50
1000		-191.36	-175.92	-166.22	-160.14	-152.90	-148.30	-144.72
N-Heptane								
25	6.47	7.97	9.38	10.73	12.02	14.49	16.84	19.12
50	4.78	6.33	7.79	9.18	10.51	13.05	15.48	17.82
75	2.78	4.36	5.85	7.27	8.62	11.21	13.68	16.06
100	0.50	2.12	3.63	5.06	6.44	9.06	11.56	13.97
125	-2.01	-0.38	1.16	2.61	4.00	6.65	9.18	11.61
150	-4.74	-3.09	-1.53	-0.06	1.34	4.02	6.57	9.01
175	-7.67	-6.01	-4.43	-2.94	-1.52	1.19	3.75	6.22
200	-10.80	-9.12	-7.52	-6.01	-4.57	-1.84	0.75	3.23
225	-14.13	-12.43	-10.79	-9.25	-7.79	-5.03	-2.43	0.07
250	-17.64	-15.92	-14.24	-12.67	-11.19	-8.40	-5.77	-3.25
300	-25.36	-23.49	-21.65	-20.00	-18.46	-15.58	-12.90	-10.34
350	-34.71	-31.98	-29.78	-27.97	-26.33	-23.34	-20.59	-17.98
400		-41.95	-38.67	-36.57	-34.79	-31.64	-28.80	-26.12
450		-56.12	-48.50	-45.85	-43.82	-40.45	-37.49	-34.74
500		-75.93	-59.52	-55.83	-53.44	-49.75	-46.64	-43.80
550		-93.97	-71.92	-66.55	-63.62	-59.51	-56.22	-53.29
600		-109.90	-85.42	-78.01	-74.37	-69.73	-66.23	-63.17
700		-138.60	-113.49	-102.69	-97.36	-91.42	-87.40	-84.08
800		-165.39	-141.21	-128.65	-121.89	-114.56	-110.00	-106.41
900		-191.45	-168.37	-155.04	-147.33	-138.88	-133.84	-130.05
1000		-217.34	-195.21	-181.59	-173.33	-164.10	-158.75	-154.89
N-Heptylbenzene								
25	42.64	44.87	47.00	49.04	51.02	54.84	58.52	62.11
50	40.33	42.58	44.71	46.75	48.73	52.54	56.20	59.76
75	37.61	39.86	41.99	44.04	46.02	49.82	53.47	57.02
100	34.49	36.75	38.89	40.94	42.92	46.73	50.38	53.92
125	31.01	33.28	35.43	37.49	39.48	43.28	46.93	50.47
150	27.20	29.48	31.64	33.71	35.70	39.51	43.17	46.71
175	23.07	25.35	27.53	29.61	31.61	35.44	39.10	42.65
200	18.64	20.92	23.12	25.21	27.23	31.07	34.74	38.30
225	13.91	16.19	18.42	20.54	22.56	26.43	30.11	33.67
250	8.88	11.17	13.45	15.59	17.63	21.52	25.22	28.80
300	-2.11	0.26	2.68	4.91	7.01	10.97	14.71	18.32
350	-15.07	-11.93	-9.15	-6.77	-4.58	-0.51	3.30	6.94
400		-25.95	-22.08	-19.42	-17.08	-12.86	-8.97	-5.27
450		-44.50	-36.27	-33.04	-30.47	-26.02	-22.02	-18.25

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
N-Heptylbenzene — Continued								
500		-69.03	-51.94	-47.67	-44.72	-39.97	-35.82	-31.97
550		-92.04	-69.26	-63.31	-59.83	-54.65	-50.32	-46.37
600		-113.17	-87.95	-79.94	-75.74	-70.04	-65.50	-61.43
700		-152.97	-127.12	-115.69	-109.80	-102.78	-97.73	-93.40
800		-191.69	-166.78	-153.59	-146.25	-137.84	-132.24	-127.65
900		-230.47	-206.66	-192.70	-184.41	-174.87	-168.79	-164.00
1000		-269.79	-246.94	-232.69	-223.84	-213.53	-207.14	-202.27
N-Hexane								
25	4.42	5.74	6.98	8.17	9.31	11.50	13.59	15.61
50	2.93	4.30	5.58	6.81	7.98	10.23	12.38	14.45
75	1.16	2.55	3.86	5.11	6.31	8.60	10.79	12.89
100	-0.86	0.56	1.89	3.16	4.38	6.70	8.91	11.04
125	-3.08	-1.65	-0.30	0.99	2.22	4.56	6.79	8.94
150	-5.51	-4.05	-2.69	-1.39	-0.14	2.22	4.47	6.64
175	-8.11	-6.65	-5.26	-3.94	-2.69	-0.30	1.97	4.16
200	-10.89	-9.41	-8.00	-6.67	-5.40	-2.98	-0.70	1.50
225	-13.85	-12.35	-10.91	-9.55	-8.27	-5.83	-3.52	-1.31
250	-16.98	-15.46	-13.97	-12.59	-11.28	-8.82	-6.49	-4.26
300	-23.84	-22.19	-20.57	-19.11	-17.75	-15.21	-12.84	-10.57
350	-32.15	-29.74	-27.80	-26.21	-24.76	-22.12	-19.69	-17.38
400		-38.61	-35.72	-33.87	-32.30	-29.52	-27.00	-24.63
450		-51.19	-44.47	-42.13	-40.34	-37.36	-34.74	-32.31
500		-68.74	-54.28	-51.02	-48.91	-45.65	-42.90	-40.39
550		-84.74	-65.30	-60.57	-57.98	-54.36	-51.45	-48.85
600		-98.89	-77.31	-70.77	-67.56	-63.47	-60.37	-57.67
700		-124.42	-102.28	-92.75	-88.06	-82.81	-79.26	-76.32
800		-148.27	-126.96	-115.88	-109.92	-103.45	-99.42	-96.25
900		-171.51	-151.15	-139.41	-132.61	-125.15	-120.70	-117.35
1000		-194.61	-175.09	-163.09	-155.80	-147.66	-142.94	-139.53
N-Hexylbenzene								
25	40.39	42.44	44.40	46.28	48.10	51.62	55.01	58.32
50	38.27	40.34	42.29	44.17	45.99	49.50	52.87	56.15
75	35.77	37.84	39.80	41.69	43.51	47.01	50.37	53.64
100	32.92	35.00	36.96	38.85	40.67	44.17	47.53	50.80
125	29.74	31.82	33.80	35.69	37.51	41.02	44.38	47.64
150	26.25	28.34	30.33	32.22	34.06	37.57	40.93	44.20
175	22.47	24.57	26.57	28.48	30.32	33.84	37.21	40.48
200	18.42	20.51	22.54	24.46	26.31	29.84	33.22	36.50
225	14.10	16.19	18.24	20.18	22.04	25.60	28.99	32.27
250	9.51	11.61	13.69	15.66	17.54	21.11	24.52	27.81
300	-0.52	1.64	3.86	5.90	7.83	11.47	14.91	18.23
350	-12.32	-9.48	-6.94	-4.76	-2.75	0.98	4.48	7.83
400		-22.25	-18.74	-16.31	-14.17	-10.30	-6.72	-3.32
450		-39.05	-31.67	-28.74	-26.39	-22.32	-18.65	-15.19
500		-61.19	-45.94	-42.08	-39.40	-35.05	-31.25	-27.71
550		-82.00	-61.68	-56.33	-53.17	-48.46	-44.49	-40.87
600		-101.15	-78.67	-71.48	-67.69	-62.50	-58.35	-54.62
700		-137.30	-114.25	-104.03	-98.73	-92.37	-87.77	-83.81
800		-172.54	-150.33	-138.54	-131.95	-124.36	-119.27	-115.07
900		-207.87	-186.64	-174.16	-166.73	-158.13	-152.62	-148.24
1000		-243.72	-223.34	-210.61	-202.68	-193.39	-187.60	183.16
N-Octane								
25	8.58	10.26	11.84	13.34	14.78	17.54	20.16	22.69
50	6.78	8.52	10.15	11.70	13.18	16.02	18.72	21.32
75	4.62	6.40	8.06	9.64	11.16	14.05	16.80	19.44
100	2.17	3.98	5.67	7.27	8.81	11.73	14.52	17.20

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
N-Octane — Continued								
125	-0.54	1.29	3.00	4.62	6.18	9.14	11.95	14.65
150	-3.49	-1.65	0.09	1.73	3.30	6.29	9.12	11.85
175	-6.67	-4.81	-3.05	-1.39	0.20	3.22	6.07	8.82
200	-10.06	-8.19	-6.40	-4.71	-3.11	-0.06	2.82	5.59
225	-13.67	-11.77	-9.95	-8.24	-6.61	-3.53	-0.63	2.16
250	-17.49	-15.57	-13.69	-11.95	-10.30	-7.19	-4.26	-1.45
300	-25.85	-23.80	-21.75	-19.91	-18.20	-15.00	-12.01	-9.16
350	-35.98	-33.01	-30.59	-28.58	-26.77	-23.45	-20.39	-17.48
400		-43.84	-40.27	-37.95	-35.98	-32.49	-29.33	-26.36
450		-59.13	-50.95	-48.05	-45.82	-42.09	-38.80	-35.75
500		-80.45	-62.92	-58.91	-56.29	-52.22	-48.78	-45.64
550		-99.90	-76.37	-70.58	-67.39	-62.88	-59.24	-55.99
600		-117.12	-91.01	-83.04	-79.09	-74.02	-70.16	-66.78
700		-148.25	-121.46	-109.89	-104.15	-97.68	-93.28	-89.62
800		-177.38	-151.59	-138.15	-130.88	-122.94	-117.95	-114.01
900		-205.79	-181.16	-166.91	-158.63	-149.49	-144.00	-139.84
1000		-234.06	-210.44	-195.88	-187.01	-177.06	-171.23	-167.00
N-Octylbenzene								
25	44.69	47.11	49.40	51.61	53.75	57.87	61.83	65.69
50	42.19	44.62	46.93	49.13	51.27	55.37	59.32	63.16
75	39.24	41.68	43.99	46.20	48.33	52.43	56.37	60.20
100	35.86	38.31	40.62	42.84	44.98	49.08	53.02	56.84
125	32.09	34.55	36.87	39.10	41.24	45.35	49.29	53.11
150	27.95	30.42	32.76	34.99	37.14	41.26	45.21	49.03
175	23.47	25.94	28.30	30.54	32.70	36.84	40.79	44.62
200	18.65	21.12	23.51	25.77	27.94	32.10	36.06	39.89
225	13.51	15.99	18.41	20.69	22.88	27.06	31.04	34.88
250	8.05	10.54	13.00	15.32	17.53	21.73	25.73	29.58
300	-3.91	-1.33	1.31	3.71	5.99	10.27	14.32	18.21
350	-18.03	-14.59	-11.55	-8.97	-6.60	-2.20	1.91	5.85
400		-29.86	-25.63	-22.73	-20.19	-15.62	-11.41	-7.41
450		-50.15	-41.07	-37.55	-34.75	-29.93	-25.59	-21.52
500		-77.06	-58.14	-53.46	-50.25	-45.08	-40.59	-36.42
550		-102.28	-77.04	-70.48	-66.68	-61.05	-56.35	-52.07
600		-125.39	-97.44	-88.60	-84.00	-77.78	-72.85	-68.44
700		-168.84	-140.18	-127.56	-121.07	-113.38	-107.89	-103.19
800		-211.05	-183.44	-168.85	-160.75	-151.53	-145.42	-140.43
900		-253.27	-226.89	-211.44	-202.29	-191.81	-185.17	-179.96
1000		-296.06	-270.75	-254.97	-245.20	-233.86	-226.88	-221.59
N-Pentane								
25	2.13	3.27	4.35	5.37	6.37	8.27	10.09	11.85
50	0.80	1.98	3.09	4.15	5.17	7.13	9.00	10.81
75	-0.79	0.42	1.55	2.64	3.68	5.67	7.57	9.41
100	-2.58	-1.35	-0.20	0.90	1.95	3.97	5.89	7.75
125	-4.56	-3.32	-2.15	-1.04	0.03	2.07	4.01	5.89
150	-6.71	-5.46	-4.27	-3.14	-2.07	-0.01	1.95	3.84
175	-9.03	-7.76	-6.55	-5.41	-4.32	-2.25	-0.27	1.63
200	-11.50	-10.21	-8.99	-7.83	-6.73	-4.63	-2.64	-0.72
225	-14.12	-12.82	-11.57	-10.39	-9.27	-7.15	-5.14	-3.21
250	-16.89	-15.57	-14.28	-13.09	-11.95	-9.80	-7.78	-5.83
300	-22.98	-21.55	-20.13	-18.86	-17.68	-15.47	-13.40	-11.43
350	-30.37	-28.24	-26.54	-25.15	-23.89	-21.59	-19.47	-17.45
400		-36.11	-33.56	-31.94	-30.56	-28.14	-25.94	-23.88
450		-47.30	-41.32	-39.25	-37.69	-35.08	-32.80	-30.68
500		-62.96	-50.01	-47.13	-45.27	-42.42	-40.01	-37.82
550		-77.21	-59.80	-55.59	-53.31	-50.12	-47.58	-45.30
600		-89.79	-70.46	-64.63	-61.79	-58.18	-55.47	-53.10
700		-112.46	-92.63	-84.11	-79.94	-75.29	-72.17	-69.60

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, C°	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
N-Pentane — Continued								
800		-133.61	-114.51	-104.61	-99.29	-93.56	-90.00	-87.22
900		-154.17	-135.95	-125.44	-119.37	-112.75	-108.82	-105.87
1000		-174.61	-157.13	-146.40	-139.89	-132.65	-128.48	-125.48
N-Pentylbenzene								
25	38.21	40.08	41.86	43.58	45.25	48.47	51.57	54.60
50	36.28	38.16	39.95	41.66	43.33	46.53	49.62	52.62
75	34.01	35.89	37.68	39.40	41.06	44.26	47.34	50.33
100	31.42	33.31	35.10	36.82	38.49	41.68	44.76	47.75
125	28.53	30.43	32.23	33.95	35.62	38.82	41.90	44.88
150	25.37	27.27	29.08	30.81	32.48	35.69	38.77	41.75
175	21.95	23.85	25.67	27.41	29.09	32.31	35.39	38.38
200	18.27	20.18	22.02	23.77	25.46	28.69	31.77	34.77
225	14.36	16.26	18.13	19.90	21.59	24.84	27.94	30.93
250	10.21	12.11	14.01	15.80	17.51	20.77	23.88	26.89
300	1.14	3.09	5.11	6.96	8.72	12.04	15.18	18.21
350	-9.49	-6.95	-4.66	-2.69	-0.86	2.54	5.73	8.79
400		-18.47	-15.33	-13.13	-11.19	-7.67	-4.41	-1.31
450		-33.54	-27.00	-24.37	-22.25	-18.55	-15.21	-12.05
500		-53.29	-39.86	-36.41	-34.00	-30.07	-26.61	-23.39
550		-71.89	-54.04	-49.28	-46.45	-42.19	-38.60	-35.30
600		-89.06	-69.31	-62.95	-59.56	-54.89	-51.13	-47.14
700		-121.56	-101.31	-92.30	-87.59	-81.89	-77.74	-74.14
800		-153.32	-133.80	-123.41	-117.58	-110.80	-106.22	-102.42
900		-185.20	-166.54	-155.55	-148.98	-141.32	-136.37	-132.41
1000		-217.58	-199.67	-188.46	-181.45	-173.19	-167.99	-163.98
N-Propylbenzene								
25	34.17	35.68	37.12	38.51	39.86	42.48	45.02	47.49
50	32.62	34.13	35.57	36.96	38.31	40.91	43.43	45.88
75	30.80	32.32	33.76	35.15	36.50	39.09	41.60	44.04
100	28.73	30.26	31.70	33.09	34.44	37.03	39.53	41.96
125	26.44	27.96	29.41	30.81	32.15	34.75	37.25	39.68
150	23.93	25.45	26.91	28.31	29.66	32.26	34.76	37.18
175	21.21	22.74	24.21	25.61	26.96	29.57	32.07	34.50
200	18.30	19.83	21.31	22.72	24.08	26.69	29.20	31.63
225	15.21	16.73	18.22	19.65	21.02	23.64	26.15	28.58
250	11.93	13.44	14.96	16.40	17.78	20.42	22.94	25.38
300	4.79	6.32	7.93	9.41	10.82	13.50	16.04	18.49
350	-3.51	-1.59	0.22	1.79	3.25	5.98	8.56	11.03
400		-10.59	-8.18	-6.45	-4.91	-2.09	0.53	3.04
450		-22.18	-17.34	-15.30	-13.63	-10.69	-8.00	-5.46
500		-37.16	-27.40	-24.77	-22.89	-19.78	-17.01	-14.42
550		-51.36	-38.43	-34.87	-32.69	-29.34	-26.48	-23.83
600		-64.57	-50.28	-45.57	-42.99	-39.35	-36.37	-33.66
700		-89.76	-75.12	-68.51	-64.99	-60.62	-57.35	-54.50
800		-114.55	-100.43	-92.84	-88.51	-83.37	-79.80	-76.80
900		-139.54	-126.03	-118.01	-113.16	-107.38	-103.55	-100.43
1000		-164.98	-152.01	-143.83	-138.67	-132.46	-128.45	-125.30
N ₂								
25	4.35	4.74	5.12	5.50	5.87	6.60	7.32	8.03
50	3.72	4.13	4.53	4.91	5.30	6.04	6.77	7.49
75	3.00	3.42	3.83	4.22	4.61	5.36	6.10	6.82
100	2.20	2.62	3.04	3.44	3.83	4.59	5.34	6.06
125	1.32	1.75	2.18	2.58	2.98	3.75	4.49	5.22
150	0.37	0.82	1.24	1.65	2.06	2.83	3.58	4.32
175	-0.64	-0.19	0.25	0.66	1.07	1.85	2.61	3.35
200	-1.72	-1.26	-0.81	-0.39	0.02	0.82	1.58	2.32

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, C°	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
N₂ — Continued								
225	-2.86	-2.39	-1.93	-1.50	-1.08	-0.28	0.49	1.24
250	-4.07	-3.58	-3.10	-2.66	-2.23	-1.42	-0.64	0.11
300	-6.72	-6.16	-5.62	-5.15	-4.70	-3.86	-3.06	-2.29
350	-9.97	-9.05	-8.38	-7.84	-7.36	-6.47	-5.65	-4.87
400		-12.48	-11.40	-10.75	-10.21	-9.27	-8.41	-7.60
450		-17.48	-14.75	-13.89	-13.26	-12.23	-11.33	-10.49
500		-24.61	-18.52	-17.26	-16.49	-15.35	-14.39	-13.52
550		-31.05	-22.80	-20.90	-19.93	-18.62	-17.60	-16.69
600		-36.65	-27.47	-24.80	-23.55	-22.04	-20.94	-19.99
700		-46.58	-37.17	-33.20	-31.31	-29.30	-28.00	-26.95
800		-55.71	-46.66	-42.02	-39.58	-37.04	-35.54	-34.38
900		-64.50	-55.86	-50.93	-48.13	-45.16	-43.47	-42.24
1000		-73.15	-64.87	-59.83	-56.82	-53.56	-51.76	-50.50
NH₃								
25	-6.38	-6.09	-5.79	-5.49	-5.19	-4.58	-3.97	-3.36
50	-7.05	-6.75	-6.45	-6.15	-5.86	-5.26	-4.66	-4.06
75	-7.75	-7.45	-7.15	-6.85	-6.56	-5.97	-5.38	-4.79
100	-8.48	-8.18	-7.89	-7.59	-7.29	-6.71	-6.12	-5.54
125	-9.26	-8.95	-8.66	-8.36	-8.06	-7.48	-6.90	-6.32
150	-10.06	-9.76	-9.46	-9.16	-8.87	-8.28	-7.71	-7.13
175	-10.89	-10.59	-10.29	-9.99	-9.70	-9.12	-8.54	-7.97
200	-11.75	-11.45	-11.15	-10.85	-10.56	-9.98	-9.40	-8.83
225	-12.64	-12.34	-12.04	-11.74	-11.45	-10.87	-10.29	-9.72
250	-13.55	-13.26	-12.96	-12.66	-12.36	-11.78	-11.21	-10.64
300	-15.46	-15.18	-14.87	-14.56	-14.27	-13.68	-13.11	-12.54
350	-17.50	-17.21	-16.88	-16.57	-16.26	-15.67	-15.10	-14.53
400		-19.38	-18.99	-18.66	-18.35	-17.75	-17.17	-16.60
450		-21.83	-21.20	-20.84	-20.51	-19.91	-19.32	-18.75
500		-24.64	-23.52	-23.11	-22.76	-22.14	-21.54	-20.97
550		-27.39	-25.97	-25.46	-25.09	-24.44	-23.84	-23.25
600		-30.07	-28.52	-27.90	-27.48	-26.81	-26.19	-25.61
700		-35.38	-33.79	-32.98	-32.48	-31.73	-31.09	-30.49
800		-40.73	-39.19	-38.29	-37.70	-36.88	-36.21	-35.60
900		-46.17	-44.69	-43.75	-43.11	-42.23	-41.53	-40.90
1000		-51.72	-50.29	-49.33	-48.67	-47.74	-47.03	-46.40
NH₄								
25	-18.99	-18.77	-18.55	-18.32	-18.09	-17.62	-17.14	-16.66
50	-19.67	-19.45	-19.23	-19.00	-18.77	-18.31	-17.85	-17.39
75	-20.38	-20.16	-19.94	-19.71	-19.49	-19.04	-18.58	-18.13
100	-21.12	-20.90	-20.68	-20.46	-20.23	-19.79	-19.34	-18.89
125	-21.89	-21.67	-21.45	-21.22	-21.00	-20.56	-20.12	-19.68
150	-22.67	-22.46	-22.24	-22.02	-21.80	-21.36	-20.93	-20.49
175	-23.48	-23.27	-23.05	-22.84	-22.62	-22.19	-21.76	-21.32
200	-24.31	-24.10	-23.89	-23.68	-23.46	-23.03	-22.61	-22.18
225	-25.15	-24.95	-24.75	-24.54	-24.32	-23.90	-23.48	-23.05
250	-26.00	-25.82	-25.62	-25.41	-25.21	-24.79	-24.37	-23.95
300	-27.73	-27.60	-27.42	-27.22	-27.02	-26.61	-26.20	-25.79
350	-29.44	-29.42	-29.28	-29.09	-28.90	-28.51	-28.11	-27.71
400		-31.33	-31.18	-31.02	-30.84	-30.47	-30.08	-29.68
450		-33.24	-33.14	-32.99	-32.83	-32.48	-32.10	-31.72
500			-35.13	-35.01	-34.87	-34.54	-34.18	-33.81
550			-37.15	-37.07	-36.94	-36.64	-36.31	-35.95
600			-39.20	-39.16	-39.06	-38.79	-38.47	-38.13
700				-43.48	-43.40	-43.19	-42.92	-42.61
800					-47.88	-47.73	-47.51	-47.23
900						-52.51	-52.38	-52.22
1000						-57.17	-57.05	-56.81

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, C°	Sat.	0.5	1.0	1.5	2.0	3.0	4.0	5.0
NO ₂ ⁻								
25	-7.70	-7.41	-7.11	-6.81	-6.51	-5.91	-5.31	-4.71
50	-8.41	-8.11	-7.81	-7.51	-7.21	-6.60	-6.00	-5.40
75	-9.09	-8.79	-8.49	-8.19	-7.89	-7.29	-6.69	-6.09
100	-9.75	-9.45	-9.15	-8.86	-8.56	-7.97	-7.38	-6.78
125	-10.37	-10.08	-9.80	-9.51	-9.22	-8.63	-8.05	-7.47
150	-10.96	-10.69	-10.42	-10.14	-9.86	-9.29	-8.72	-8.15
175	-11.51	-11.28	-11.02	-10.76	-10.49	-9.94	-9.38	-8.82
200	-12.02	-11.83	-11.60	-11.36	-11.10	-10.57	-10.03	-9.48
225	-12.47	-12.35	-12.15	-11.93	-11.70	-11.20	-10.67	-10.14
250	-12.86	-12.82	-12.68	-12.49	-12.28	-11.81	-11.31	-10.79
300	-13.27	-13.59	-13.61	-13.52	-13.37	-12.99	-12.55	-12.08
350	-12.57	-13.95	-14.37	-14.42	-14.37	-14.11	-13.75	-13.33
400		-13.73	-14.86	-15.17	-15.26	-15.17	-14.91	-14.56
450		-10.65	-14.94	-15.71	-16.01	-16.15	-16.01	-15.75
500			-14.40	-15.98	-16.60	-17.04	-17.06	-16.90
550			-13.07	-15.94	-17.00	-17.83	-18.04	-17.99
600			-11.12	-15.59	-17.22	-18.52	-18.95	-19.03
700				-14.27	-17.15	-19.58	-20.53	-20.91
800					-16.74	-20.29	-21.81	-22.49
900					-16.36	-20.81	-22.83	-23.77
1000					-21.32	-23.72	-24.75	
NO ₃ ⁻								
25	-26.51	-26.17	-25.83	-25.49	-25.15	-24.47	-23.79	-23.12
50	-27.37	-27.01	-26.64	-26.29	-25.93	-25.22	-24.51	-23.81
75	-28.21	-27.84	-27.47	-27.10	-26.74	-26.01	-25.29	-24.57
100	-29.04	-28.66	-28.29	-27.92	-27.55	-26.82	-26.09	-25.37
125	-29.84	-29.48	-29.11	-28.74	-28.37	-27.64	-26.92	-26.19
150	-30.62	-30.27	-29.91	-29.55	-29.19	-28.47	-27.75	-27.02
175	-31.38	-31.05	-30.71	-30.36	-30.01	-29.30	-28.58	-27.86
200	-32.10	-31.81	-31.49	-31.16	-30.82	-30.12	-29.42	-28.71
225	-32.77	-32.55	-32.26	-31.95	-31.62	-30.95	-30.26	-29.56
250	-33.38	-33.24	-33.00	-32.72	-32.41	-31.77	-31.10	-30.41
300	-34.29	-34.49	-34.40	-34.20	-33.96	-33.39	-32.77	-32.12
350	-34.13	-35.37	-35.65	-35.59	-35.43	-34.98	-34.43	-33.83
400		-35.67	-36.66	-36.85	-36.83	-36.53	-36.07	-35.53
450		-33.19	-37.30	-37.92	-38.11	-38.02	-37.68	-37.22
500			-37.34	-38.76	-39.25	-39.44	-39.25	-38.88
550			-36.62	-39.31	-40.23	-40.79	-40.78	-40.51
600			-35.31	-39.57	-41.04	-42.06	-42.25	-42.11
700				-39.53	-42.23	-44.34	-45.02	-45.15
800					-43.14	-46.34	-47.55	-47.97
900					-44.14	-48.21	-49.91	-50.56
1000					-50.13	-52.17	-52.91	
Na ⁺								
25	-62.59	-62.59	-62.58	-62.55	-62.51	-62.42	-62.30	-62.16
50	-62.95	-62.94	-62.92	-62.89	-62.85	-62.74	-62.62	-62.48
75	-63.33	-63.32	-63.29	-63.26	-63.21	-63.11	-62.98	-62.85
100	-63.74	-63.72	-63.70	-63.66	-63.61	-63.51	-63.38	-63.25
125	-64.16	-64.15	-64.12	-64.08	-64.04	-63.94	-63.81	-63.68
150	-64.60	-64.59	-64.57	-64.53	-64.49	-64.39	-64.27	-64.14
175	-65.06	-65.05	-65.04	-65.01	-64.97	-64.87	-64.75	-64.62
200	-65.53	-65.53	-65.52	-65.49	-65.46	-65.37	-65.25	-65.13
225	-66.01	-66.03	-66.02	-66.00	-65.97	-65.89	-65.78	-65.66
250	-66.49	-66.53	-66.54	-66.53	-66.50	-66.42	-66.32	-66.21
300	-67.45	-67.56	-67.61	-67.61	-67.60	-67.55	-67.46	-67.36
350	-68.38	-68.60	-68.72	-68.75	-68.76	-68.74	-68.67	-68.58
400		-69.83	-69.89	-69.94	-69.97	-69.98	-69.91	-69.87
450		-71.18	-71.09	-71.17	-71.22	-71.27	71.25	-71.20

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Na⁺ — Continued								
500		-72.34	-72.43	-72.51	-72.60	-72.62	-72.59	
550		-73.64	-73.72	-73.83	-73.97	-74.02	-74.02	
600		-75.00	-75.06	-75.18	-75.36	-75.46	-75.49	
700			-77.89	-77.96	-78.23	-78.42	-78.51	
800				-80.86	-81.18	-81.46	-81.63	
900				-83.88	-84.20	-84.59	-84.82	
1000					-87.32	-87.80	-88.06	
NaAlO₂								
25	-260.28	-260.06	-259.83	-259.58	-259.32	-258.79	-258.24	-257.67
50	-260.60	-260.37	-260.13	-259.88	-259.63	-259.11	-258.57	-258.03
75	-260.99	-260.75	-260.51	-260.27	-260.01	-259.50	-258.97	-258.44
100	-261.44	-261.21	-260.96	-260.72	-260.46	-259.95	-259.43	-258.90
125	-261.96	-261.72	-261.47	-261.23	-260.97	-260.46	-259.95	-259.43
150	-262.53	-262.29	-262.04	-261.79	-261.54	-261.03	-260.52	-260.00
175	-263.15	-262.91	-262.66	-262.41	-262.16	-261.65	-261.13	-260.62
200	-263.82	-263.58	-263.33	-263.07	-262.82	-262.31	-261.80	-261.28
225	-264.54	-264.30	-264.04	-263.79	-263.53	-263.02	-262.51	-261.99
250	-265.31	-265.06	-264.80	-264.54	-264.28	-263.77	-263.26	-262.75
300	-266.98	-266.72	-266.44	-266.18	-265.91	-265.39	-264.88	-264.37
350	-268.92	-268.57	-268.26	-267.97	-267.70	-267.17	-266.65	-266.13
400		-270.67	-270.23	-269.92	-269.63	-269.08	-268.55	-268.03
450		-273.30	-272.38	-272.01	-271.69	-271.12	-270.58	-270.05
500		-276.62	-274.74	-274.25	-273.89	-273.29	-272.73	-272.20
550		-279.81	-277.31	-276.63	-276.22	-275.57	-274.99	-274.45
600		-282.83	-280.06	-279.16	-278.67	-277.96	-277.36	-276.81
700		-288.69	-285.85	-284.58	-283.90	-283.05	-282.40	-281.81
800		-294.54	-291.81	-290.34	-289.50	-288.50	-287.79	-287.18
900		-300.50	-297.89	-296.34	-295.40	-294.27	-293.51	-292.88
1000		-306.62	-304.10	-302.52	-301.52	-300.31	-299.52	-298.88
NaBr°								
25	-85.61	-85.23	-84.86	-84.50	-84.14	-83.43	-82.72	-82.03
50	-86.47	-86.08	-85.70	-85.32	-84.95	-84.23	-83.52	-82.82
75	-87.35	-86.95	-86.56	-86.18	-85.80	-85.07	-84.36	-83.65
100	-88.25	-87.84	-87.44	-87.06	-86.68	-85.94	-85.22	-84.52
125	-89.16	-88.75	-88.35	-87.96	-87.58	-86.84	-86.12	-85.41
150	-90.09	-89.68	-89.27	-88.88	-88.50	-87.75	-87.03	-86.32
175	-91.04	-90.62	-90.21	-89.82	-89.43	-88.68	-87.96	-87.24
200	-92.01	-91.59	-91.17	-90.77	-90.39	-89.63	-88.90	-88.19
225	-92.99	-92.57	-92.15	-91.74	-91.35	-90.60	-89.86	-89.15
250	-93.98	-93.56	-93.14	-92.73	-92.34	-91.57	-90.84	-90.12
300	-96.04	-95.62	-95.17	-94.75	-94.35	-93.57	-92.83	-92.10
350	-98.29	-97.77	-97.27	-96.83	-96.41	-95.62	-94.87	-94.14
400		-100.12	-99.46	-98.97	-98.54	-97.72	-96.95	-96.21
450		-103.03	-101.75	-101.19	-100.72	-99.87	-99.09	-98.33
500		-106.73	-104.19	-103.48	-102.95	-102.06	-101.26	-100.50
550		-110.15	-106.81	-105.86	-105.25	-104.30	-103.47	-102.69
600		-113.25	-109.56	-108.32	-107.61	-106.59	-105.73	-104.93
700		-118.95	-115.17	-113.44	-112.49	-111.28	-110.34	-109.51
800		-124.30	-120.66	-118.67	-117.52	-116.11	-115.10	-114.23
900		-129.49	-126.00	-123.91	-122.62	-121.05	-119.96	-119.07
1000		-134.60	-131.24	-129.11	-127.74	-126.06	-124.93	-124.02
Na(CH₃COO)[°]								
25	-150.72	-150.16	-149.62	-149.09	-148.57	-147.57	-146.59	-145.64
50	-151.65	-151.06	-150.51	-149.96	-149.44	-148.41	-147.42	-146.44
75	-152.70	-152.10	-151.53	-150.98	-150.45	-149.41	-148.41	-147.43
100	-153.86	-153.25	-152.68	-152.12	-151.58	-150.54	-149.52	-148.54

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Na(CH₃COO)⁰ — Continued								
125	-155.11	-154.50	-153.92	-153.36	-152.81	-151.76	-150.75	-149.75
150	-156.44	-155.83	-155.25	-154.68	-154.14	-153.08	-152.06	-151.07
175	-157.85	-157.25	-156.66	-156.09	-155.54	-154.48	-153.46	-152.46
200	-159.34	-158.73	-158.14	-157.57	-157.02	-155.96	-154.93	-153.93
225	-160.88	-160.29	-159.70	-159.13	-158.57	-157.51	-156.48	-155.48
250	-162.49	-161.92	-161.32	-160.75	-160.19	-159.12	-158.09	-157.09
300	-165.88	-165.35	-164.75	-164.17	-163.61	-162.54	-161.51	-160.50
350	-169.50	-169.03	-168.41	-167.82	-167.26	-166.18	-165.14	-164.14
400		-172.94	-172.28	-171.69	-171.12	-170.03	-168.99	-167.98
450		-177.16	-176.36	-175.75	-175.17	-174.08	-173.03	-172.01
500		-181.73	-180.64	-179.99	-179.40	-178.30	-177.24	-176.23
550		-186.39	-185.12	-184.41	-183.81	-182.69	-181.63	-180.60
600		-191.13	-189.77	-189.00	-188.37	-187.23	-186.16	-185.14
700		-200.89	-199.51	-198.62	-197.94	-196.75	-195.67	-194.63
800		-211.06	-209.71	-208.77	-208.03	-206.80	-205.70	-204.65
900		-221.64	-220.33	-219.36	-218.59	-217.32	-216.20	-215.15
1000		-232.61	-231.33	-230.35	-229.56	-228.27	-227.14	-226.09
Na(Cl₃COO)₂⁻								
25	-238.47	-237.28	-236.16	-235.08	-234.04	-232.03	-230.11	-228.24
50	-239.73	-238.51	-237.35	-236.24	-235.18	-233.12	-231.15	-229.24
75	-241.27	-240.03	-238.85	-237.73	-236.65	-234.57	-232.58	-230.64
100	-243.03	-241.78	-240.60	-239.47	-238.39	-236.29	-234.29	-232.34
125	-244.98	-243.74	-242.56	-241.43	-240.34	-238.24	-236.23	-234.28
150	-247.10	-245.88	-244.70	-243.58	-242.49	-240.39	-238.38	-236.43
175	-249.36	-248.17	-247.01	-245.89	-244.81	-242.72	-240.71	-238.76
200	-251.76	-250.61	-249.47	-248.36	-247.29	-245.21	-243.21	-241.26
225	-254.25	-253.17	-252.06	-250.97	-249.91	-247.85	-245.86	-243.92
250	-256.83	-255.85	-254.77	-253.71	-252.67	-250.63	-248.66	-246.73
300	-262.05	-261.47	-260.53	-259.54	-258.54	-256.58	-254.64	-252.74
350	-266.73	-267.24	-266.63	-265.76	-264.85	-262.98	-261.11	-259.25
400		-272.89	-272.95	-272.31	-271.52	-269.79	-267.99	-266.19
450		-276.32	-279.34	-279.11	-278.50	-276.96	-275.27	-273.53
500			-285.55	-286.06	-285.73	-284.44	-282.88	-281.23
550			-291.40	-293.09	-293.17	-292.22	-290.81	-289.25
600			-297.02	-300.19	-300.78	-300.25	-299.03	-297.58
700				-314.78	-316.53	-317.00	-316.22	-315.01
800					-333.14	-334.63	-334.33	-333.38
900					-350.86	-353.16	-353.30	-352.54
1000						-372.67	-373.11	-372.43
NaCl⁰								
25	-92.91	-92.62	-92.34	-92.06	-91.77	-91.21	-90.65	-90.09
50	-93.62	-93.32	-93.03	-92.73	-92.44	-91.87	-91.30	-90.74
75	-94.35	-94.04	-93.74	-93.44	-93.15	-92.57	-92.00	-91.44
100	-95.09	-94.78	-94.48	-94.18	-93.88	-93.30	-92.73	-92.16
125	-95.86	-95.54	-95.23	-94.93	-94.63	-94.05	-93.47	-92.91
150	-96.64	-96.32	-96.01	-95.70	-95.41	-94.82	-94.24	-93.67
175	-97.43	-97.12	-96.80	-96.50	-96.20	-95.61	-95.03	-94.46
200	-98.24	-97.93	-97.61	-97.30	-97.00	-96.41	-95.83	-95.26
225	-99.07	-98.75	-98.44	-98.13	-97.82	-97.23	-96.65	-96.08
250	-99.90	-99.60	-99.28	-98.97	-98.66	-98.07	-97.48	-96.91
300	-101.62	-101.33	-101.00	-100.68	-100.38	-99.78	-99.19	-98.62
350	-103.41	-103.12	-102.78	-102.45	-102.14	-101.54	-100.95	-100.37
400		-105.00	-104.61	-104.28	-103.96	-103.35	-102.75	-102.18
450		-107.08	-106.51	-106.15	-105.82	-105.20	-104.60	-104.02
500		-109.41	-108.47	-108.07	-107.73	-107.09	-106.49	-105.90
550		-111.69	-110.52	-110.04	-109.68	-109.02	-108.41	-107.83
600		-113.90	-112.63	-112.07	-111.67	-111.00	-110.38	-109.78
700		-118.24	-116.94	-116.24	-115.77	-115.04	-114.40	-113.79

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
NaCl° — Continued								
800		-122.57	-121.30	-120.52	-120.00	-119.21	-118.54	-117.93
900		-126.91	-125.69	-124.88	-124.32	-123.48	-122.80	-122.17
1000		-131.30	-130.12	-129.30	-128.71	-127.84	-127.15	-126.52
NaF°								
25	-128.57	-128.48	-128.37	-128.25	-128.13	-127.86	-127.58	-127.28
50	-128.88	-128.78	-128.67	-128.55	-128.42	-128.16	-127.89	-127.60
75	-129.22	-129.11	-129.00	-128.88	-128.75	-128.49	-128.22	-127.94
100	-129.57	-129.46	-129.35	-129.23	-129.10	-128.84	-128.57	-128.29
125	-129.95	-129.84	-129.72	-129.60	-129.48	-129.21	-128.95	-128.67
150	-130.35	-130.24	-130.12	-129.99	-129.87	-129.61	-129.34	-129.07
175	-130.76	-130.65	-130.53	-130.41	-130.28	-130.02	-129.75	-129.48
200	-131.20	-131.08	-130.96	-130.84	-130.71	-130.45	-130.18	-129.91
225	-131.65	-131.53	-131.41	-131.29	-131.16	-130.90	-130.63	-130.36
250	-132.11	-132.00	-131.88	-131.75	-131.62	-131.36	-131.10	-130.82
300	-133.10	-132.99	-132.86	-132.73	-132.60	-132.33	-132.07	-131.80
350	-134.17	-134.04	-133.90	-133.76	-133.63	-133.36	-133.09	-132.82
400		-135.17	-135.00	-134.85	-134.71	-134.44	-134.17	-133.90
450		-136.48	-136.16	-136.00	-135.85	-135.57	-135.30	-135.02
500		-138.00	-137.39	-137.19	-137.04	-136.75	-136.47	-136.19
550		-139.49	-138.70	-138.44	-138.27	-137.97	-137.68	-137.40
600		-140.94	-140.06	-139.74	-139.54	-139.23	-138.93	-138.65
700		-143.81	-142.91	-142.48	-142.22	-141.86	-141.55	-141.26
800		-146.70	-145.83	-145.34	-145.04	-144.63	-144.30	-144.01
900		-149.65	-148.81	-148.30	-147.97	-147.52	-147.18	-146.87
1000		-152.66	-151.86	-151.34	-150.99	-150.52	-150.17	-149.86
NaHSiO°								
25	-307.14	-306.93	-306.71	-306.49	-306.26	-305.81	-305.35	-304.89
50	-307.65	-307.42	-307.20	-306.97	-306.74	-306.28	-305.83	-305.37
75	-308.16	-307.93	-307.70	-307.47	-307.24	-306.79	-306.33	-305.87
100	-308.70	-308.46	-308.23	-308.00	-307.77	-307.30	-306.85	-306.39
125	-309.24	-309.00	-308.77	-308.53	-308.30	-307.84	-307.38	-306.92
150	-309.80	-309.56	-309.32	-309.09	-308.85	-308.39	-307.93	-307.48
175	-310.37	-310.13	-309.89	-309.65	-309.42	-308.96	-308.50	-308.04
200	-310.95	-310.71	-310.47	-310.23	-310.00	-309.53	-309.07	-308.62
225	-311.54	-311.30	-311.06	-310.82	-310.59	-310.12	-309.66	-309.20
250	-312.14	-311.91	-311.66	-311.42	-311.19	-310.72	-310.26	-309.80
300	-313.37	-313.15	-312.90	-312.66	-312.42	-311.95	-311.49	-311.03
350	-314.67	-314.45	-314.19	-313.94	-313.70	-313.23	-312.76	-312.30
400		-315.82	-315.52	-315.26	-315.01	-314.53	-314.07	-313.61
450		-317.34	-316.90	-316.62	-316.36	-315.88	-315.41	-314.94
500		-319.06	-318.33	-318.02	-317.75	-317.25	-316.78	-316.31
550		-320.74	-319.82	-319.46	-319.17	-318.66	-318.18	-317.71
600		-322.37	-321.37	-320.94	-320.63	-320.10	-319.61	-319.14
700		-325.56	-324.54	-323.99	-323.63	-323.05	-322.55	-322.07
800		-328.73	-327.74	-327.14	-326.73	-326.11	-325.59	-325.10
900		-331.93	-330.98	-330.35	-329.90	-329.25	-328.71	-328.21
1000		-335.16	-334.24	-333.60	-333.14	-332.46	-331.91	-331.41
NaI°								
25	-72.90	-72.40	-71.91	-71.44	-70.97	-70.06	-69.17	-68.30
50	-73.87	-73.35	-72.84	-72.36	-71.88	-70.95	-70.05	-69.16
75	-74.86	-74.33	-73.81	-73.32	-72.84	-71.90	-70.99	-70.09
100	-75.87	-75.33	-74.81	-74.31	-73.82	-72.88	-71.96	-71.06
125	-76.90	-76.35	-75.83	-75.33	-74.84	-73.89	-72.97	-72.07
150	-77.94	-77.40	-76.87	-76.37	-75.87	-74.92	-74.00	-73.09
175	-79.00	-78.46	-77.93	-77.43	-76.93	-75.97	-75.05	-74.14
200	-80.08	-79.54	-79.01	-78.50	-78.01	-77.05	-76.12	-75.21

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, C°	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Nal° — Continued								
225	-81.16	-80.64	-80.11	-79.59	-79.10	-78.14	-77.21	-76.30
250	-82.26	-81.75	-81.22	-80.70	-80.21	-79.24	-78.31	-77.40
300	-84.48	-84.01	-83.48	-82.97	-82.47	-81.50	-80.57	-79.66
350	-86.71	-86.33	-85.80	-85.28	-84.78	-83.81	-82.88	-81.97
400		-88.70	-88.17	-87.65	-87.15	-86.18	-85.24	-84.33
450		-91.12	-90.58	-90.06	-89.56	-88.59	-87.65	-86.74
500		-93.59	-93.03	-92.51	-92.01	-91.04	-90.10	-89.19
550		-96.09	-95.53	-95.01	-94.50	-93.53	-92.59	-91.68
600		-98.63	-98.07	-97.54	-97.03	-96.06	-95.12	-94.21
700		-103.80	-103.24	-102.71	-102.20	-101.22	-100.28	-99.37
800		-109.10	-108.53	-108.00	-107.49	-106.51	-105.57	-104.65
900		-114.50	-113.94	-113.40	-112.89	-111.91	-110.97	-110.05
1000		-120.01	-119.44	-118.91	-118.40	-117.42	-116.47	-115.56
NaOH°								
25	-99.10	-99.09	-99.06	-99.02	-98.97	-98.85	-98.71	-98.55
50	-99.28	-99.26	-99.23	-99.19	-99.14	-99.03	-98.90	-98.75
75	-99.53	-99.50	-99.47	-99.43	-99.38	-99.26	-99.13	-98.99
100	-99.83	-99.80	-99.76	-99.72	-99.66	-99.54	-99.41	-99.27
125	-100.20	-100.16	-100.11	-100.06	-100.00	-99.87	-99.74	-99.60
150	-100.62	-100.56	-100.50	-100.44	-100.38	-100.25	-100.11	-99.96
175	-101.09	-101.02	-100.95	-100.88	-100.81	-100.66	-100.52	-100.37
200	-101.63	-101.53	-101.44	-101.36	-101.28	-101.12	-100.97	-100.81
225	-102.23	-102.09	-101.98	-101.88	-101.79	-101.62	-101.45	-101.29
250	-102.91	-102.72	-102.57	-102.45	-102.34	-102.15	-101.97	-101.80
300	-104.60	-104.18	-103.92	-103.73	-103.58	-103.33	-103.11	-102.92
350	-107.37	-106.06	-105.51	-105.21	-104.99	-104.65	-104.39	-104.16
400		-108.85	-107.44	-106.91	-106.57	-106.12	-105.79	-105.51
450		-114.69	-109.86	-108.88	-108.36	-107.73	-107.31	-106.98
500		-124.77	-112.98	-111.18	-110.37	-109.49	-108.96	-108.56
550		-133.23	-116.96	-113.84	-112.61	-111.40	-110.72	-110.25
600		-139.81	-121.62	-116.88	-115.08	-113.46	-112.61	-112.05
700		-149.89	-131.20	-123.78	-120.65	-117.98	-116.74	-115.97
800		-157.76	-139.81	-130.99	-126.72	-122.97	-121.29	-120.31
900		-164.41	-147.33	-137.91	-132.89	-128.25	-126.20	-125.06
1000		-170.35	-154.02	-144.38	-138.92	-133.67	-131.37	-130.17
Nd⁺³								
25	-160.60	-161.09	-161.52	-161.91	-162.26	-162.90	-163.47	-163.99
50	-159.32	-159.82	-160.27	-160.67	-161.04	-161.70	-162.30	-162.85
75	-157.98	-158.49	-158.95	-159.37	-159.75	-160.44	-161.06	-161.63
100	-156.57	-157.11	-157.59	-158.02	-158.42	-159.13	-159.78	-160.37
125	-155.11	-155.67	-156.17	-156.63	-157.04	-157.79	-158.46	-159.07
150	-153.58	-154.19	-154.72	-155.19	-155.63	-156.41	-157.10	-157.74
175	-151.99	-152.64	-153.21	-153.72	-154.18	-154.99	-155.72	-156.38
200	-150.32	-151.03	-151.65	-152.20	-152.68	-153.55	-154.31	-155.00
225	-148.57	-149.36	-150.04	-150.63	-151.16	-152.08	-152.88	-153.59
250	-146.72	-147.61	-148.37	-149.02	-149.59	-150.57	-151.42	-152.17
300	-142.68	-143.92	-144.90	-145.66	-146.32	-147.46	-148.43	-149.26
350	-138.60	-139.84	-141.30	-142.15	-142.92	-144.24	-145.33	-146.28
400		-137.67	-137.68	-138.54	-139.40	-140.90	-142.15	-143.22
450		-139.28	-134.23	-134.88	-135.78	-137.45	-138.86	-140.07
500			-131.28	-131.21	-132.06	-133.89	-135.48	-136.83
550			-129.18	-127.61	-128.26	-130.21	-131.99	-133.50
600			-128.06	-124.21	-124.40	-126.39	-128.37	-130.05
700				-118.34	-116.53	-118.25	-120.66	-122.73
800					-108.43	-109.34	-112.24	-114.76
900					-99.75	-99.71	-103.16	-106.09
1000						-89.62	-93.63	-96.79

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Ne°								
25	4.56	4.81	5.06	5.31	5.55	6.05	6.56	7.06
50	4.11	4.36	4.62	4.88	5.13	5.64	6.14	6.64
75	3.58	3.85	4.11	4.37	4.63	5.14	5.64	6.14
100	3.00	3.27	3.53	3.80	4.06	4.57	5.08	5.58
125	2.35	2.63	2.90	3.17	3.43	3.95	4.46	4.97
150	1.66	1.94	2.22	2.49	2.76	3.28	3.79	4.30
175	0.92	1.21	1.49	1.77	2.03	2.56	3.08	3.59
200	0.13	0.42	0.71	0.99	1.27	1.80	2.32	2.83
225	-0.71	-0.40	-0.11	0.18	0.46	1.00	1.52	2.04
250	-1.60	-1.28	-0.97	-0.67	-0.39	0.16	0.69	1.20
300	-3.55	-3.18	-2.82	-2.50	-2.20	-1.64	-1.09	-0.57
350	-5.95	-5.31	-4.85	-4.49	-4.17	-3.57	-3.01	-2.47
400		-7.83	-7.08	-6.64	-6.27	-5.63	-5.04	-4.49
450		-11.51	-9.55	-8.95	-8.52	-7.81	-7.20	-6.62
500		-16.75	-12.33	-11.45	-10.91	-10.12	-9.46	-8.86
550		-21.48	-15.49	-14.13	-13.45	-12.54	-11.83	-11.21
600		-25.60	-18.94	-17.01	-16.13	-15.07	-14.31	-13.65
700		-32.94	-26.09	-23.22	-21.87	-20.45	-19.54	-18.81
800		-39.69	-33.11	-29.75	-27.99	-26.19	-25.13	-24.32
900		-46.20	-39.92	-36.35	-34.33	-32.21	-31.02	-30.16
1000		-52.62	-46.61	-42.95	-40.78	-38.45	-37.17	-36.29
Ni ⁺²								
25	-10.90	-11.22	-11.50	-11.74	-11.95	-12.32	-12.63	-12.90
50	-10.12	-10.45	-10.74	-11.00	-11.23	-11.63	-11.97	-12.27
75	-9.32	-9.67	-9.97	-10.24	-10.48	-10.90	-11.27	-11.59
100	-8.51	-8.88	-9.19	-9.47	-9.72	-10.17	-10.55	-10.90
125	-7.68	-8.07	-8.40	-8.69	-8.96	-9.43	-9.83	-10.20
150	-6.83	-7.24	-7.60	-7.91	-8.19	-8.68	-9.11	-9.49
175	-5.96	-6.40	-6.78	-7.11	-7.41	-7.93	-8.38	-8.78
200	-5.05	-5.53	-5.95	-6.30	-6.62	-7.18	-7.65	-8.07
225	-4.10	-4.64	-5.09	-5.48	-5.83	-6.42	-6.92	-7.36
250	-3.11	-3.71	-4.22	-4.64	-5.02	-5.65	-6.19	-6.65
300	-0.93	-1.76	-2.42	-2.92	-3.36	-4.10	-4.71	-5.24
350	1.22	0.39	-0.59	-1.16	-1.66	-2.52	-3.23	-3.83
400		1.21	1.20	0.63	0.06	-0.92	-1.73	-2.41
450		-0.55	2.83	2.41	1.81	0.71	-0.20	-0.98
500			4.09	4.15	3.58	2.38	1.34	0.47
550			4.74	5.79	5.37	4.08	2.92	1.95
600			4.69	7.28	7.16	5.84	4.55	3.46
700				9.51	10.73	9.60	8.02	6.67
800					14.34	13.75	11.84	10.19
900					18.21	18.27	15.99	14.06
1000						22.99	20.33	18.25
Ni(CH ₃ COO) ⁻								
25	-101.12	-100.91	-100.70	-100.48	-100.26	-99.81	-99.35	-98.88
50	-100.90	-100.69	-100.47	-100.25	-100.02	-99.57	-99.11	-98.65
75	-100.80	-100.58	-100.36	-100.14	-99.92	-99.47	-99.02	-98.56
100	-100.80	-100.59	-100.37	-100.15	-99.93	-99.49	-99.04	-98.59
125	-100.88	-100.68	-100.47	-100.25	-100.04	-99.60	-99.16	-98.71
150	-101.04	-100.85	-100.65	-100.44	-100.23	-99.80	-99.37	-98.93
175	-101.27	-101.09	-100.90	-100.70	-100.50	-100.08	-99.66	-99.22
200	-101.55	-101.40	-101.22	-101.03	-100.84	-100.44	-100.02	-99.60
225	-101.88	-101.76	-101.60	-101.43	-101.25	-100.86	-100.45	-100.04
250	-102.24	-102.17	-102.04	-101.88	-101.71	-101.34	-100.95	-100.55
300	-103.05	-103.12	-103.06	-102.94	-102.80	-102.49	-102.13	-101.76
350	-104.52	-104.20	-104.30	-104.21	-104.10	-103.84	-103.53	-103.19
400		-106.10	-105.75	-105.66	-105.59	-105.38	-105.12	-104.82
450		-109.38	-107.46	-107.31	-107.25	-107.11	-106.90	-106.64

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Ni(CH₃COO)⁺ — Continued								
500		-109.51	-109.15	-109.08	-108.98	-108.83	-108.62	
550		-112.01	-111.19	-111.05	-111.01	-110.92	-110.75	
600		-114.97	-113.45	-113.18	-113.15	-113.13	-113.02	
700			-118.74	-117.85	-117.75	-117.87	-117.89	
800				-123.02	-122.68	-122.96	-123.12	
900				-128.53	-127.89	-128.36	-128.66	
1000					-133.44	-134.08	-134.46	
Ni(CH₃COO)₂⁰								
25	-190.61	-189.82	-189.06	-188.33	-187.62	-186.25	-184.93	-183.64
50	-190.79	-189.97	-189.19	-188.43	-187.71	-186.30	-184.95	-183.64
75	-191.24	-190.40	-189.61	-188.84	-188.11	-186.68	-185.32	-183.99
100	-191.92	-191.08	-190.27	-189.50	-188.75	-187.32	-185.94	-184.60
125	-192.81	-191.95	-191.14	-190.36	-189.61	-188.17	-186.78	-185.43
150	-193.87	-193.02	-192.20	-191.42	-190.66	-189.21	-187.82	-186.46
175	-195.10	-194.25	-193.43	-192.64	-191.88	-190.43	-189.03	-187.67
200	-196.48	-195.64	-194.81	-194.02	-193.26	-191.80	-190.40	-189.04
225	-198.01	-197.17	-196.35	-195.56	-194.79	-193.33	-191.92	-190.55
250	-199.66	-198.85	-198.02	-197.23	-196.46	-194.99	-193.58	-192.21
300	-203.33	-202.59	-201.76	-200.96	-200.19	-198.71	-197.29	-195.92
350	-207.46	-206.82	-205.97	-205.16	-204.39	-202.91	-201.49	-200.11
400		-211.52	-210.63	-209.81	-209.03	-207.54	-206.11	-204.73
450		-216.73	-215.70	-214.86	-214.07	-212.57	-211.14	-209.76
500		-222.49	-221.16	-220.29	-219.49	-217.98	-216.54	-215.15
550		-228.52	-227.01	-226.08	-225.26	-223.73	-222.29	-220.89
600		-234.79	-233.20	-232.20	-231.36	-229.81	-228.36	-226.96
700		-248.10	-246.48	-245.37	-244.47	-242.88	-241.41	-240.00
800		-262.39	-260.80	-259.63	-258.68	-257.04	-255.55	-254.14
900		-277.60	-276.05	-274.86	-273.87	-272.20	-270.69	-269.27
1000		-293.68	-292.16	-290.96	-289.96	-288.25	-286.74	-285.31
Ni(CH₃COO)₃⁰								
25	-279.69	-278.25	-276.88	-275.57	-274.31	-271.89	-269.57	-267.32
50	-280.00	-278.51	-277.11	-275.77	-274.48	-272.00	-269.62	-267.32
75	-280.75	-279.24	-277.83	-276.47	-275.16	-272.65	-270.25	-267.92
100	-281.86	-280.35	-278.93	-277.57	-276.25	-273.73	-271.31	-268.97
125	-283.27	-281.78	-280.36	-279.00	-277.69	-275.17	-272.74	-270.40
150	-284.96	-283.49	-282.08	-280.73	-279.43	-276.91	-274.49	-272.15
175	-286.88	-285.46	-284.07	-282.74	-281.44	-278.94	-276.53	-274.19
200	-289.00	-287.65	-286.29	-284.98	-283.70	-281.22	-278.83	-276.50
225	-291.29	-290.04	-288.73	-287.45	-286.19	-283.75	-281.37	-279.06
250	-293.72	-292.61	-291.37	-290.12	-288.89	-286.49	-284.14	-281.85
300	-298.75	-298.20	-297.16	-296.02	-294.87	-292.58	-290.30	-288.06
350	-303.34	-304.10	-303.54	-302.58	-301.54	-299.39	-297.22	-295.04
400		-310.45	-310.39	-309.68	-308.81	-306.86	-304.81	-302.72
450		-315.13	-317.51	-317.24	-316.59	-314.91	-313.01	-311.03
500			-324.70	-325.16	-324.83	-323.47	-321.77	-319.91
550			-331.80	-333.35	-333.44	-332.50	-331.02	-329.31
600			-338.94	-341.79	-342.39	-341.95	-340.73	-339.18
700				-359.70	-361.28	-361.96	-361.35	-360.16
800					-381.62	-383.34	-383.38	-382.59
900					-403.58	-406.06	-406.73	-406.26
1000						-430.24	-431.39	-431.06
NiCl⁺								
25	-40.92	-40.99	-41.03	-41.06	-41.07	-41.05	-41.00	-40.92
50	-40.50	-40.58	-40.62	-40.65	-40.67	-40.66	-40.63	-40.57
75	-40.10	-40.18	-40.23	-40.27	-40.29	-40.29	-40.27	-40.23
100	-39.72	-39.80	-39.86	-39.90	-39.92	-39.94	-39.93	-39.90

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	1.5	2.0	3.0	4.0	5.0
NiCl⁺ — Continued								
125	-39.34	-39.44	-39.50	-39.55	-39.58	-39.61	-39.61	-39.59
150	-38.97	-39.08	-39.16	-39.21	-39.25	-39.30	-39.31	-39.30
175	-38.61	-38.73	-38.82	-38.89	-38.94	-39.00	-39.02	-39.02
200	-38.24	-38.39	-38.49	-38.58	-38.64	-38.71	-38.75	-38.76
225	-37.87	-38.04	-38.17	-38.27	-38.34	-38.44	-38.49	-38.51
250	-37.48	-37.70	-37.85	-37.97	-38.06	-38.18	-38.25	-38.28
300	-36.65	-36.99	-37.23	-37.39	-37.51	-37.69	-37.80	-37.86
350	-35.91	-36.24	-36.65	-36.83	-36.99	-37.23	-37.39	-37.50
400		-36.30	-36.13	-36.32	-36.50	-36.80	-37.02	-37.17
450		-37.97	-35.77	-35.85	-36.05	-36.41	-36.68	-36.88
500			-35.67	-35.46	-35.63	-36.04	-36.37	-36.62
550			-35.99	-35.16	-35.24	-35.68	-36.08	-36.39
600			-36.77	-35.00	-34.88	-35.33	-35.79	-36.16
700				-35.22	-34.30	-34.60	-35.21	-35.71
800					-33.81	-33.77	-34.55	-35.21
900					-33.29	-32.84	-33.81	-34.63
1000						-31.90	-33.07	-33.96
Octanoate								
25	-76.34	-74.80	-73.34	-71.95	-70.61	-68.05	-65.59	-63.22
50	-77.94	-76.34	-74.84	-73.41	-72.04	-69.41	-66.89	-64.45
75	-79.75	-78.13	-76.61	-75.16	-73.76	-71.09	-68.54	-66.07
100	-81.73	-80.11	-78.57	-77.11	-75.70	-73.01	-70.44	-67.95
125	-83.87	-82.25	-80.71	-79.24	-77.83	-75.12	-72.54	-70.04
150	-86.14	-84.53	-82.99	-81.52	-80.11	-77.40	-74.81	-72.30
175	-88.53	-86.94	-85.41	-83.95	-82.53	-79.82	-77.23	-74.72
200	-91.01	-89.47	-87.95	-86.49	-85.08	-82.38	-79.79	-77.28
225	-93.58	-92.10	-90.60	-89.15	-87.75	-85.06	-82.47	-79.97
250	-96.19	-94.81	-93.34	-91.91	-90.53	-87.85	-85.27	-82.77
300	-101.48	-100.46	-99.09	-97.72	-96.37	-93.74	-91.19	-88.71
350	-106.28	-106.23	-105.12	-103.84	-102.55	-100.00	-97.49	-95.04
400	-111.89	-111.33	-110.23	-109.03	-106.58	-104.14	-101.72	
450	-115.78	-117.59	-116.81	-115.76	-113.46	-111.09	-108.73	
500		-123.70	-123.52	-122.69	-120.59	-118.32	-116.02	
550		-129.53	-130.30	-129.79	-127.94	-125.80	-123.57	
600		-135.18	-137.13	-137.02	-135.51	-133.51	-131.36	
700			-151.09	-151.92	-151.20	-149.54	-147.58	
800				-167.51	-167.60	-166.31	-164.55	
900				-183.98	-184.72	-183.77	-182.16	
1000					-202.63	-201.91	-200.36	
Octanoic Acid								
25	-83.40	-81.68	-80.04	-78.46	-76.92	-73.96	-71.09	-68.30
50	-85.64	-83.91	-82.27	-80.69	-79.16	-76.20	-73.36	-70.59
75	-88.20	-86.46	-84.81	-83.23	-81.70	-78.75	-75.91	-73.15
100	-91.04	-89.29	-87.64	-86.05	-84.52	-81.57	-78.73	-75.98
125	-94.15	-92.39	-90.73	-89.14	-87.60	-84.64	-81.80	-79.05
150	-97.51	-95.74	-94.07	-92.47	-90.92	-87.96	-85.12	-82.36
175	-101.10	-99.33	-97.64	-96.03	-94.47	-91.50	-88.65	-85.89
200	-104.93	-103.15	-101.44	-99.81	-98.25	-95.26	-92.40	-89.63
225	-108.99	-107.20	-105.46	-103.81	-102.23	-99.21	-96.34	-93.57
250	-113.28	-111.47	-109.68	-108.00	-106.41	-103.37	-100.48	-97.69
300	-122.63	-120.69	-118.75	-116.99	-115.34	-112.23	-109.30	-106.48
350	-133.75	-130.95	-128.65	-126.74	-125.00	-121.78	-118.79	-115.93
400	-142.83	-139.45	-137.24	-135.35	-131.99	-128.90	-125.99	
450	-159.03	-151.29	-148.53	-146.40	-142.81	-139.61	-136.63	
500	-181.03	-164.43	-160.62	-158.12	-154.22	-150.88	-147.82	
550	-201.34	-179.05	-173.56	-170.52	-166.20	-162.69	-159.52	
600	-219.60	-194.88	-187.33	-183.57	-178.72	-174.99	-171.71	
700	-253.22	-227.85	-216.89	-211.45	-205.28	-201.04	-197.50	

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Octanoic Acid — Continued								
800		-285.21	-260.79	-248.06	-241.16	-233.61	-228.82	-225.01
900		-316.75	-293.43	-279.93	-272.09	-263.40	-258.14	-254.13
1000		-348.38	-326.02	-312.23	-303.83	-294.36	-288.79	-284.71
O₂								
25	3.95	4.31	4.67	5.01	5.36	6.04	6.70	7.37
50	3.25	3.62	3.99	4.35	4.70	5.39	6.07	6.73
75	2.45	2.84	3.21	3.57	3.93	4.63	5.31	5.99
100	1.57	1.96	2.34	2.71	3.08	3.78	4.47	5.15
125	0.61	1.01	1.40	1.78	2.14	2.86	3.55	4.23
150	-0.42	-0.01	0.39	0.77	1.14	1.86	2.56	3.25
175	-1.51	-1.09	-0.69	-0.30	0.08	0.81	1.51	2.20
200	-2.67	-2.24	-1.82	-1.43	-1.04	-0.31	0.41	1.10
225	-3.89	-3.45	-3.02	-2.61	-2.22	-1.48	-0.76	-0.06
250	-5.19	-4.73	-4.28	-3.86	-3.46	-2.70	-1.97	-1.26
300	-8.03	-7.48	-6.96	-6.51	-6.08	-5.29	-4.54	-3.82
350	-11.54	-10.56	-9.89	-9.37	-8.90	-8.06	-7.29	-6.55
400		-14.24	-13.10	-12.45	-11.92	-11.01	-10.20	-9.43
450		-19.68	-16.66	-15.77	-15.14	-14.13	-13.27	-12.47
500		-27.52	-20.69	-19.35	-18.56	-17.41	-16.49	-15.66
550		-34.55	-25.27	-23.20	-22.18	-20.86	-19.85	-18.97
600		-40.62	-30.29	-27.33	-26.00	-24.45	-23.35	-22.43
700		-51.28	-40.67	-36.24	-34.18	-32.06	-30.75	-29.71
800		-60.96	-50.76	-45.57	-42.88	-40.17	-38.61	-37.46
900		-70.20	-60.47	-54.95	-51.86	-48.65	-46.89	-45.65
1000		-79.25	-69.93	-64.29	-60.95	-57.41	-55.52	-54.24
OH⁻								
25	-37.59	-37.64	-37.67	-37.68	-37.68	-37.66	-37.62	-37.56
50	-37.50	-37.54	-37.56	-37.57	-37.57	-37.55	-37.50	-37.44
75	-37.36	-37.40	-37.42	-37.44	-37.44	-37.42	-37.38	-37.33
100	-37.17	-37.23	-37.26	-37.28	-37.29	-37.28	-37.25	-37.20
125	-36.95	-37.02	-37.06	-37.09	-37.11	-37.12	-37.10	-37.06
150	-36.67	-36.77	-36.84	-36.89	-36.92	-36.94	-36.94	-36.92
175	-36.35	-36.49	-36.58	-36.65	-36.70	-36.75	-36.77	-36.76
200	-35.97	-36.16	-36.29	-36.39	-36.46	-36.54	-36.58	-36.59
225	-35.51	-35.78	-35.96	-36.09	-36.19	-36.31	-36.38	-36.41
250	-34.96	-35.33	-35.59	-35.76	-35.89	-36.07	-36.17	-36.22
300	-33.44	-34.23	-34.70	-35.00	-35.21	-35.51	-35.70	-35.82
350	-30.80	-32.62	-33.60	-34.07	-34.41	-34.87	-35.17	-35.37
400		-30.89	-32.24	-32.96	-33.46	-34.14	-34.57	-34.87
450		-27.21	-30.51	-31.64	-32.36	-33.30	-33.90	-34.32
500			-28.28	-30.05	-31.08	-32.35	-33.15	-33.70
550				-25.46	-28.16	-29.59	-31.28	-32.31
600				-22.24	-26.01	-27.89	-30.07	-31.37
700					-21.32	-23.98	-27.22	-29.14
800						-19.66	-23.83	-26.44
900						-15.25	-20.09	-23.33
1000							-16.23	-19.98
Pentanoate								
25	-82.60	-81.61	-80.66	-79.75	-78.87	-77.16	-75.52	-73.93
50	-83.63	-82.61	-81.64	-80.70	-79.80	-78.06	-76.38	-74.75
75	-84.80	-83.76	-82.77	-81.83	-80.91	-79.15	-77.46	-75.81
100	-86.06	-85.02	-84.03	-83.08	-82.17	-80.40	-78.70	-77.04
125	-87.41	-86.38	-85.40	-84.45	-83.53	-81.76	-80.06	-78.40
150	-88.84	-87.83	-86.85	-85.91	-84.99	-83.23	-81.53	-79.87
175	-90.33	-89.34	-88.38	-87.45	-86.54	-84.79	-83.09	-81.44
200	-91.86	-90.92	-89.98	-89.06	-88.17	-86.43	-84.74	-83.10

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, C°	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Pentanoate — Continued								
225	-93.42	-92.55	-91.64	-90.74	-89.86	-88.14	-86.47	-84.84
250	-94.98	-94.22	-93.35	-92.48	-91.62	-89.93	-88.27	-86.65
300	-97.98	-97.61	-96.89	-96.10	-95.29	-93.68	-92.07	-90.48
350	-100.15	-100.89	-100.53	-99.88	-99.15	-97.64	-96.10	-94.56
400		-103.83	-104.16	-103.75	-103.16	-101.79	-100.34	-98.86
450		-104.22	-107.64	-107.65	-107.26	-106.10	-104.76	-103.35
500			-110.72	-111.51	-111.42	-110.53	-109.33	-108.01
550			-113.23	-115.27	-115.60	-115.07	-114.04	-112.82
600			-115.33	-118.91	-119.78	-119.70	-118.87	-117.77
700				-126.11	-128.19	-129.17	-128.82	-127.98
800					-136.90	-138.95	-139.11	-138.54
900					-146.21	-149.11	-149.74	-149.40
1000						-159.80	-160.75	-160.50
Pentanoic Acid								
25	-89.21	-88.04	-86.91	-85.82	-84.76	-82.70	-80.70	-78.74
50	-90.89	-89.71	-88.58	-87.50	-86.44	-84.39	-82.41	-80.47
75	-92.76	-91.57	-90.45	-89.36	-88.30	-86.26	-84.29	-82.36
100	-94.81	-93.62	-92.49	-91.40	-90.34	-88.30	-86.33	-84.41
125	-97.03	-95.83	-94.70	-93.60	-92.54	-90.50	-88.53	-86.62
150	-99.41	-98.21	-97.06	-95.96	-94.90	-92.85	-90.88	-88.97
175	-101.94	-100.73	-99.58	-98.47	-97.40	-95.35	-93.38	-91.46
200	-104.62	-103.41	-102.23	-101.12	-100.04	-97.98	-96.00	-94.08
225	-107.44	-106.22	-105.03	-103.90	-102.82	-100.74	-98.75	-96.82
250	-110.41	-109.18	-107.96	-106.81	-105.72	-103.62	-101.62	-99.69
300	-116.85	-115.54	-114.22	-113.01	-111.88	-109.74	-107.71	-105.76
350	-124.50	-122.57	-121.01	-119.70	-118.51	-116.30	-114.23	-112.25
400		-130.66	-128.37	-126.87	-125.58	-123.27	-121.15	-119.13
450		-141.61	-136.42	-134.55	-133.10	-130.64	-128.44	-126.38
500		-156.42	-145.32	-142.75	-141.05	-138.38	-136.09	-133.97
550		-170.09	-155.19	-151.50	-149.44	-146.49	-144.08	-141.90
600		-182.38	-165.85	-160.78	-158.25	-154.95	-152.40	-150.13
700		-204.97	-188.02	-180.68	-177.01	-172.83	-169.94	-167.50
800		-226.43	-210.11	-201.59	-196.95	-191.85	-188.59	-185.98
900		-247.55	-231.96	-222.93	-217.66	-211.80	-208.22	-205.48
1000		-268.69	-253.74	-244.51	-238.87	-232.49	-228.71	-225.91
Phenol								
25	-12.59	-11.58	-10.61	-9.67	-8.75	-6.95	-5.21	-3.49
50	-13.81	-12.80	-11.83	-10.89	-9.98	-8.20	-6.47	-4.78
75	-15.17	-14.16	-13.19	-12.25	-11.34	-9.57	-7.86	-6.18
100	-16.67	-15.66	-14.69	-13.75	-12.84	-11.07	-9.36	-7.69
125	-18.30	-17.28	-16.31	-15.37	-14.45	-12.69	-10.98	-9.32
150	-20.04	-19.02	-18.04	-17.10	-16.19	-14.42	-12.72	-11.05
175	-21.89	-20.87	-19.89	-18.94	-18.03	-16.26	-14.55	-12.89
200	-23.85	-22.84	-21.84	-20.89	-19.97	-18.20	-16.49	-14.83
225	-25.92	-24.90	-23.90	-22.94	-22.01	-20.23	-18.52	-16.86
250	-28.09	-27.07	-26.05	-25.08	-24.15	-22.36	-20.64	-18.98
300	-32.76	-31.73	-30.65	-29.65	-28.69	-26.88	-25.15	-23.47
350	-38.15	-36.84	-35.62	-34.57	-33.58	-31.72	-29.97	-28.28
400		-42.64	-41.00	-39.83	-38.79	-36.88	-35.09	-33.38
450		-50.16	-46.84	-45.45	-44.32	-42.32	-40.49	-38.75
500		-59.97	-53.23	-51.44	-50.16	-48.04	-46.16	-44.39
550		-69.17	-60.23	-57.79	-56.31	-54.03	-52.07	-50.27
600		-77.63	-67.75	-64.51	-62.75	-60.26	-58.23	-56.38
700		-93.53	-83.40	-78.85	-76.43	-73.44	-71.21	-69.26
800		-108.95	-99.19	-93.95	-90.97	-87.45	-85.01	-82.95
900		-124.33	-114.99	-109.46	-106.12	-102.15	-99.53	-97.40
1000		-139.86	-130.90	-125.25	-121.69	-117.43	-114.68	-112.53

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Phenylalanine								
25	-49.50	-48.08	-46.72	-45.41	-44.14	-41.66	-39.27	-36.92
50	-50.92	-49.49	-48.14	-46.83	-45.56	-43.10	-40.72	-38.40
75	-52.51	-51.08	-49.72	-48.41	-47.14	-44.69	-42.33	-40.02
100	-54.26	-52.83	-51.46	-50.15	-48.88	-46.44	-44.08	-41.78
125	-56.16	-54.72	-53.36	-52.04	-50.77	-48.33	-45.97	-43.68
150	-58.20	-56.76	-55.39	-54.08	-52.80	-50.35	-47.99	-45.70
175	-60.38	-58.94	-57.56	-56.24	-54.96	-52.51	-50.15	-47.85
200	-62.68	-61.25	-59.85	-58.52	-57.24	-54.78	-52.42	-50.12
225	-65.11	-63.68	-62.27	-60.93	-59.64	-57.17	-54.80	-52.51
250	-67.66	-66.24	-64.81	-63.45	-62.16	-59.67	-57.30	-55.00
300	-73.17	-71.73	-70.23	-68.83	-67.51	-64.99	-62.59	-60.28
350	-79.57	-77.80	-76.11	-74.64	-73.27	-70.70	-68.27	-65.94
400		-84.72	-82.49	-80.87	-79.43	-76.78	-74.31	-71.95
450		-93.86	-89.43	-87.53	-85.97	-83.21	-80.68	-78.29
500		-105.95	-97.06	-94.63	-92.89	-89.97	-87.37	-84.94
550		-117.22	-105.47	-102.20	-100.18	-97.05	-94.36	-91.88
600		-127.50	-114.52	-110.21	-107.83	-104.44	-101.64	-99.10
700		-146.68	-133.38	-127.35	-124.11	-120.06	-117.01	-114.33
800		-165.15	152.32	-145.40	-141.43	-136.68	-133.35	-130.55
900		-183.48	-171.21	-163.90	-159.46	-154.13	-150.57	-147.66
1000		-201.95	-190.16	-182.71	-177.99	-172.27	-168.55	-165.61
Propane								
25	-1.96	-1.19	-0.44	0.27	0.96	2.30	3.59	4.84
50	-2.90	-2.10	-1.33	-0.60	0.12	1.49	2.81	4.09
75	-4.03	-3.20	-2.42	-1.67	-0.94	0.45	1.79	3.09
100	-5.30	-4.46	-3.67	-2.91	-2.17	-0.76	0.59	1.90
125	-6.71	-5.86	-5.06	-4.29	-3.54	-2.12	-0.76	0.56
150	-8.25	-7.39	-6.57	-5.80	-5.05	-3.61	-2.23	-0.90
175	-9.91	-9.04	-8.21	-7.42	-6.66	-5.21	-3.83	-2.49
200	-11.68	-10.80	-9.96	-9.16	-8.39	-6.93	-5.53	-4.18
225	-13.57	-12.68	-11.81	-11.00	-10.22	-8.74	-7.34	-5.98
250	-15.57	-14.66	-13.77	-12.94	-12.15	-10.65	-9.23	-7.87
300	-19.95	-18.96	-17.99	-17.11	-16.28	-14.74	-13.29	-11.91
350	-25.27	-23.79	-22.61	-21.64	-20.77	-19.17	-17.68	-16.26
400		-29.46	-27.68	-26.55	-25.59	-23.90	-22.36	-20.92
450		-37.47	-33.28	-31.84	-30.75	-28.93	-27.33	-25.84
500		-48.63	-39.55	-37.54	-36.24	-34.25	-32.57	-31.03
550		-58.82	-46.60	-43.66	-42.06	-39.84	-38.06	-36.46
600		-67.84	-54.28	-50.20	-48.21	-45.69	-43.79	-42.13
700		-84.17	-70.26	-64.29	-61.36	-58.11	-55.93	-54.12
800		-99.47	-86.07	-79.13	-75.40	-71.39	-68.90	-66.94
900		-114.40	-101.61	-94.24	-89.99	-85.34	-82.59	-80.52
1000		-129.26	-117.00	-109.47	-104.91	-99.84	-96.91	-94.80
Propanoate								
25	-86.77	-86.13	-85.52	-84.92	-84.34	-83.20	-82.09	-81.00
50	-87.47	-86.81	-86.18	-85.57	-84.98	-83.82	-82.69	-81.58
75	-88.23	-87.57	-86.94	-86.32	-85.72	-84.56	-83.42	-82.31
100	-89.06	-88.40	-87.77	-87.16	-86.56	-85.39	-84.26	-83.15
125	-89.94	-89.29	-88.67	-88.06	-87.46	-86.30	-85.18	-84.07
150	-90.87	-90.24	-89.63	-89.03	-88.44	-87.29	-86.17	-85.07
175	-91.83	-91.23	-90.64	-90.05	-89.48	-88.34	-87.23	-86.14
200	-92.81	-92.26	-91.70	-91.13	-90.57	-89.45	-88.36	-87.28
225	-93.80	-93.32	-92.79	-92.25	-91.70	-90.62	-89.54	-88.47
250	-94.77	-94.40	-93.92	-93.41	-92.89	-91.83	-90.78	-89.73
300	-96.51	-96.54	-96.23	-95.82	-95.36	-94.40	-93.40	-92.39
350	-97.32	-98.48	-98.58	-98.31	-97.95	-97.12	-96.20	-95.25
400		-100.05	-100.85	-100.84	-100.63	-99.96	-99.15	-98.27
450		-98.94	-102.89	-103.35	-102.91	-102.23	-101.43	

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, C°	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Propanoate — Continued								
500			-104.48	-105.75	-106.07	-105.94	-105.42	-104.73
550			-105.43	-108.00	-108.77	-109.03	-108.70	-108.12
600			-105.91	-110.07	-111.42	-112.16	-112.05	-111.61
700				-114.03	-116.62	-118.51	-118.93	-118.80
800					-121.98	-124.99	-126.00	-126.18
900					-127.82	-131.73	-133.26	-133.70
1000						-138.88	-140.79	-141.33
Propanoic Acid								
25	-93.43	-92.63	-91.86	-91.11	-90.37	-88.93	-87.51	-86.12
50	-94.73	-93.93	-93.16	-92.41	-91.67	-90.24	-88.85	-87.49
75	-96.13	-95.33	-94.56	-93.81	-93.08	-91.66	-90.28	-88.92
100	-97.64	-96.84	-96.06	-95.32	-94.59	-93.17	-91.79	-90.44
125	-99.25	-98.44	-97.67	-96.92	-96.19	-94.77	-93.40	-92.05
150	-100.96	-100.14	-99.36	-98.61	-97.88	-96.46	-95.09	-93.74
175	-102.75	-101.94	-101.15	-100.39	-99.65	-98.23	-96.86	-95.52
200	-104.63	-103.82	-103.02	-102.25	-101.51	-100.09	-98.71	-97.37
225	-106.60	-105.78	-104.97	-104.20	-103.45	-102.01	-100.63	-99.29
250	-108.66	-107.83	-107.00	-106.22	-105.46	-104.02	-102.63	-101.28
300	-113.08	-112.20	-111.30	-110.48	-109.70	-108.23	-106.82	-105.46
350	-118.23	-116.98	-115.93	-115.04	-114.22	-112.70	-111.27	-109.89
400		-122.43	-120.91	-119.89	-119.01	-117.43	-115.96	-114.56
450		-129.74	-126.31	-125.05	-124.07	-122.39	-120.87	-119.44
500		-139.55	-132.25	-130.54	-129.39	-127.57	-125.99	-124.53
550		-148.60	-138.81	-136.36	-134.98	-132.98	-131.32	-129.81
600		-156.72	-145.87	-142.52	-140.83	-138.59	-136.84	-135.28
700		-171.62	-160.49	-155.65	-153.22	-150.41	-148.44	-146.76
800		-185.72	-175.00	-169.39	-166.32	-162.91	-160.70	-158.91
900		-199.54	-189.30	-183.35	-179.87	-175.96	-173.54	-171.67
1000		-213.32	-203.50	-197.43	-193.70	-189.45	-186.90	-185.00
PO₄³⁻								
25	-243.50	-243.85	-244.14	-244.39	-244.60	-244.95	-245.22	-245.44
50	-242.07	-242.44	-242.76	-243.04	-243.27	-243.67	-243.99	-244.26
75	-240.45	-240.86	-241.21	-241.52	-241.78	-242.23	-242.60	-242.91
100	-238.66	-239.13	-239.52	-239.86	-240.16	-240.67	-241.08	-241.43
125	-236.70	-237.24	-237.69	-238.08	-238.42	-238.99	-239.46	-239.86
150	-234.56	-235.20	-235.73	-236.18	-236.56	-237.21	-237.74	-238.19
175	-232.22	-233.00	-233.62	-234.15	-234.60	-235.34	-235.94	-236.44
200	-229.67	-230.62	-231.37	-231.99	-232.51	-233.37	-234.05	-234.62
225	-226.86	-228.04	-228.96	-229.70	-230.32	-231.31	-232.09	-232.74
250	-223.72	-225.25	-226.39	-227.27	-228.00	-229.15	-230.05	-230.78
300	-216.09	-218.88	-220.73	-221.99	-223.00	-224.56	-225.74	-226.68
350	-205.27	-210.90	-214.34	-216.11	-217.50	-219.58	-221.13	-222.34
400		-203.17	-207.11	-209.61	-211.48	-214.22	-216.20	-217.73
450		-191.38	-198.84	-202.39	-204.90	-208.45	-210.96	-212.86
500			-189.27	-194.35	-197.70	-202.26	-205.38	-207.71
550			-178.34	-185.46	-189.84	-195.60	-199.43	-202.24
600			-166.69	-175.82	-181.31	-188.44	-193.09	-196.44
700				-155.69	-162.57	-172.55	-179.09	-183.68
800					-142.41	-154.69	-163.31	-169.21
900					-121.59	-135.35	-145.97	-152.98
1000						-115.36	-127.60	-135.12
Pb⁺²								
25	-5.71	-5.88	-6.01	-6.12	-6.21	-6.34	-6.43	-6.49
50	-5.80	-5.98	-6.12	-6.24	-6.33	-6.49	-6.60	-6.68
75	-5.88	-6.06	-6.21	-6.34	-6.44	-6.61	-6.74	-6.84
100	-5.94	-6.14	-6.29	-6.43	-6.54	-6.73	-6.87	-6.98

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Pb²⁺ — Continued								
125	-5.99	-6.20	-6.37	-6.51	-6.63	-6.83	-6.99	-7.12
150	-6.02	-6.24	-6.43	-6.58	-6.72	-6.94	-7.11	-7.25
175	-6.03	-6.28	-6.48	-6.65	-6.80	-7.03	-7.22	-7.38
200	-6.01	-6.29	-6.52	-6.71	-6.87	-7.13	-7.33	-7.50
225	-5.96	-6.28	-6.54	-6.75	-6.93	-7.22	-7.44	-7.63
250	-5.88	-6.25	-6.55	-6.78	-6.98	-7.30	-7.55	-7.75
300	-5.53	-6.10	-6.51	-6.81	-7.06	-7.45	-7.76	-8.00
350	-5.04	-5.76	-6.43	-6.79	-7.09	-7.58	-7.95	-8.25
400		-6.12	-6.33	-6.73	-7.09	-7.68	-8.13	-8.48
450		-7.46	-6.25	-6.64	-7.06	-7.75	-8.28	-8.71
500			-6.29	-6.54	-6.99	-7.79	-8.42	-8.92
550			-6.55	-6.44	-6.88	-7.79	-8.52	-9.10
600			-7.06	-6.38	-6.74	-7.74	-8.59	-9.26
700				-6.56	-6.37	-7.46	-8.56	-9.43
800					-5.93	-6.89	-8.28	-9.38
900					-5.32	-6.08	-7.77	-9.07
1000						-5.15	-7.12	-8.52
Pb(CH₃COO)⁺								
25	-97.25	-96.87	-96.50	-96.14	-95.77	-95.06	-94.36	-93.66
50	-98.22	-97.83	-97.44	-97.07	-96.70	-95.97	-95.26	-94.56
75	-99.31	-98.90	-98.51	-98.13	-97.76	-97.03	-96.31	-95.61
100	-100.49	-100.09	-99.69	-99.31	-98.93	-98.20	-97.48	-96.77
125	-101.77	-101.36	-100.96	-100.58	-100.20	-99.46	-98.74	-98.03
150	-103.13	-102.72	-102.32	-101.93	-101.55	-100.81	-100.09	-99.38
175	-104.56	-104.15	-103.75	-103.36	-102.98	-102.24	-101.51	-100.80
200	-106.06	-105.65	-105.25	-104.86	-104.48	-103.73	-103.01	-102.30
225	-107.62	-107.22	-106.82	-106.43	-106.05	-105.30	-104.57	-103.86
250	-109.24	-108.86	-108.45	-108.06	-107.68	-106.93	-106.20	-105.49
300	-112.64	-112.29	-111.89	-111.50	-111.11	-110.36	-109.64	-108.92
350	-116.22	-115.95	-115.54	-115.15	-114.76	-114.02	-113.29	-112.57
400		-119.79	-119.39	-119.00	-118.61	-117.86	-117.14	-116.42
450		-123.82	-123.42	-123.02	-122.64	-121.89	-121.16	-120.45
500			-127.61	-127.22	-126.84	-126.09	-125.36	-124.65
550			-131.96	-131.57	-131.19	-130.44	-129.72	-129.00
600			-136.46	-136.07	-135.69	-134.94	-134.22	-133.51
700				-145.48	-145.10	-144.35	-143.63	-142.92
800					-155.00	-154.26	-153.54	-152.83
900					-165.35	-164.61	-163.89	-163.18
1000						-175.38	-174.66	-173.95
Pb(CH₃COO)₂⁰								
25	-186.89	-185.91	-184.97	-184.08	-183.21	-181.54	-179.94	-178.38
50	-188.79	-187.77	-186.81	-185.89	-185.00	-183.29	-181.64	-180.05
75	-190.96	-189.92	-188.94	-188.01	-187.10	-185.36	-183.70	-182.08
100	-193.35	-192.30	-191.31	-190.37	-189.45	-187.70	-186.02	-184.39
125	-195.94	-194.89	-193.89	-192.93	-192.01	-190.24	-188.55	-186.91
150	-198.71	-197.65	-196.64	-195.68	-194.76	-192.98	-191.28	-189.63
175	-201.63	-200.58	-199.57	-198.60	-197.67	-195.89	-194.18	-192.53
200	-204.70	-203.66	-202.64	-201.67	-200.74	-198.95	-197.24	-195.58
225	-207.91	-206.89	-205.87	-204.89	-203.96	-202.16	-200.45	-198.79
250	-211.25	-210.25	-209.22	-208.25	-207.31	-205.51	-203.79	-202.13
300	-218.26	-217.35	-216.32	-215.34	-214.40	-212.59	-210.86	-209.19
350	-225.71	-224.93	-223.89	-222.90	-221.95	-220.13	-218.40	-216.73
400		-232.97	-231.88	-230.88	-229.93	-228.10	-226.37	-224.69
450		-241.51	-240.28	-239.26	-238.30	-236.47	-234.72	-233.04
500		-250.59	-249.07	-248.01	-247.04	-245.19	-243.44	-241.75
550		-259.94	-258.23	-257.12	-256.12	-254.26	-252.50	-250.81
600		-269.51	-267.72	-266.54	-265.52	-263.64	-261.88	-260.18
700		-289.40	287.59	-286.30	-285.22	-283.30	-281.51	-279.80

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, C°	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Pb(CH₃COO)₂ — Continued								
800		-310.26	-308.47	-307.12	-305.99	-304.02	-302.22	-300.50
900		-332.01	-330.26	-328.89	-327.73	-325.72	-323.89	-322.17
1000		-354.61	-352.89	-351.50	-350.32	-348.29	-346.45	-344.72
PbCl*								
25	-39.05	-38.95	-38.83	-38.71	-38.58	-38.30	-38.00	-37.69
50	-39.76	-39.65	-39.53	-39.40	-39.27	-38.99	-38.70	-38.41
75	-40.47	-40.36	-40.24	-40.12	-39.98	-39.71	-39.42	-39.13
100	-41.21	-41.09	-40.97	-40.85	-40.71	-40.44	-40.16	-39.87
125	-41.95	-41.84	-41.72	-41.59	-41.46	-41.19	-40.91	-40.62
150	-42.70	-42.59	-42.47	-42.35	-42.22	-41.95	-41.67	-41.39
175	-43.47	-43.36	-43.24	-43.12	-42.99	-42.72	-42.45	-42.17
200	-44.24	-44.14	-44.02	-43.90	-43.77	-43.51	-43.24	-42.96
225	-45.02	-44.93	-44.81	-44.69	-44.57	-44.31	-44.04	-43.76
250	-45.81	-45.72	-45.61	-45.50	-45.38	-45.12	-44.85	-44.58
300	-47.38	-47.33	-47.24	-47.13	-47.02	-46.77	-46.51	-46.24
350	-48.92	-48.95	-48.89	-48.80	-48.69	-48.45	-48.20	-47.94
400		-50.63	-50.58	-50.49	-50.39	-50.17	-49.93	-49.68
450		-52.28	-52.27	-52.21	-52.13	-51.92	-51.69	-51.45
500			-53.99	-53.95	-53.88	-53.70	-53.48	-53.25
550				-55.70	-55.65	-55.50	-55.30	-55.07
600				-57.44	-57.47	-57.45	-57.32	-56.92
700					-61.09	-61.08	-61.01	-60.68
800						-64.79	-64.76	-64.51
900						-68.58	-68.58	-68.40
1000						-72.47	-72.47	-72.33
PbCl₂⁰								
25	-71.20	-70.79	-70.39	-69.99	-69.60	-68.84	-68.09	-67.34
50	-72.38	-71.95	-71.54	-71.13	-70.73	-69.96	-69.19	-68.44
75	-73.57	-73.13	-72.71	-72.29	-71.89	-71.11	-70.34	-69.58
100	-74.76	-74.32	-73.89	-73.48	-73.07	-72.28	-71.51	-70.75
125	-75.97	-75.52	-75.09	-74.67	-74.26	-73.47	-72.69	-71.93
150	-77.18	-76.73	-76.30	-75.88	-75.47	-74.67	-73.89	-73.13
175	-78.41	-77.96	-77.52	-77.10	-76.69	-75.89	-75.11	-74.34
200	-79.64	-79.19	-78.75	-78.33	-77.92	-77.11	-76.33	-75.57
225	-80.88	-80.44	-80.00	-79.57	-79.16	-78.35	-77.57	-76.80
250	-82.12	-81.69	-81.25	-80.82	-80.41	-79.60	-78.81	-78.05
300	-84.63	-84.23	-83.78	-83.35	-82.93	-82.12	-81.33	-80.57
350	-87.18	-86.82	-86.35	-85.92	-85.49	-84.68	-83.89	-83.12
400		-89.46	-88.96	-88.52	-88.09	-87.26	-86.47	-85.70
450		-92.26	-91.62	-91.15	-90.71	-89.88	-89.08	-88.31
500		-95.25	-94.32	-93.82	-93.37	-92.53	-91.72	-90.94
550			-98.20	-97.08	-96.52	-96.05	-95.20	-94.39
600			-101.09	-99.88	-99.26	-98.77	-97.89	-96.29
700			-106.78	-105.56	-104.82	-104.27	-103.35	-102.52
800			-112.45	-111.25	-110.46	-109.86	-108.90	-108.05
900			-118.12	-116.96	-116.14	-115.51	-114.51	-113.64
1000			-123.82	-122.69	-121.86	-121.21	-120.18	-119.31
PbCl₃⁰								
25	-102.15	-101.39	-100.66	-99.95	-99.26	-97.93	-96.64	-95.38
50	-103.62	-102.83	-102.08	-101.35	-100.65	-99.29	-97.97	-96.69
75	-105.07	-104.27	-103.51	-102.77	-102.06	-100.69	-99.36	-98.07
100	-106.50	-105.70	-104.94	-104.20	-103.49	-102.11	-100.77	-99.47
125	-107.93	-107.13	-106.37	-105.63	-104.92	-103.54	-102.20	-100.90
150	-109.33	-108.55	-107.79	-107.06	-106.35	-104.97	-103.64	-102.34
175	-110.72	-109.96	-109.21	-108.48	-107.78	-106.41	-105.08	-103.78
200	-112.08	-111.35	-110.62	-109.90	-109.21	-107.84	-106.52	-105.23

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, C°	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
PbCl₃ — Continued								
225	-113.41	-112.73	-112.02	-111.32	-110.63	-109.28	-107.97	-106.68
250	-114.69	-114.09	-113.40	-112.72	-112.05	-110.72	-109.42	-108.14
300	-117.01	-116.70	-116.12	-115.49	-114.86	-113.58	-112.32	-111.06
350	-118.53	-119.05	-118.73	-118.20	-117.63	-116.43	-115.21	-113.99
400		-120.94	-121.17	-120.82	-120.34	-119.25	-118.09	-116.91
450		-120.75	-123.34	-123.31	-122.98	-122.03	-120.96	-119.83
500			-125.06	-125.63	-125.52	-124.77	-123.80	-122.73
550			-126.23	-127.74	-127.94	-127.46	-126.61	-125.62
600			-126.96	-129.64	-130.25	-130.10	-129.39	-128.48
700				-133.02	-134.56	-135.20	-134.83	-134.12
800					-138.68	-140.12	-140.13	-139.61
900					-142.89	-144.98	-145.32	-144.95
1000						-149.88	-150.46	-150.15
PbCl₄²⁻								
25	-133.26	-132.10	-130.99	-129.93	-128.90	-126.91	-124.99	-123.13
50	-134.76	-133.56	-132.43	-131.34	-130.29	-128.26	-126.30	-124.40
75	-136.27	-135.07	-133.93	-132.83	-131.77	-129.72	-127.75	-125.83
100	-137.79	-136.60	-135.46	-134.36	-133.30	-131.25	-129.28	-127.36
125	-139.30	-138.13	-137.01	-135.92	-134.87	-132.83	-130.87	-128.95
150	-140.81	-139.68	-138.57	-137.51	-136.47	-134.45	-132.49	-130.58
175	-142.28	-141.21	-140.14	-139.10	-138.08	-136.09	-134.16	-132.26
200	-143.70	-142.72	-141.71	-140.70	-139.71	-137.76	-135.85	-133.97
225	-145.05	-144.20	-143.26	-142.30	-141.34	-139.44	-137.56	-135.71
250	-146.28	-145.63	-144.78	-143.88	-142.97	-141.13	-139.30	-137.48
300	-148.15	-148.25	-147.72	-147.00	-146.22	-144.55	-142.82	-141.08
350	-147.87	-150.18	-150.43	-150.00	-149.40	-147.96	-146.39	-144.76
400		-151.04	-152.72	-152.79	-152.47	-151.36	-149.98	-148.48
450		-146.32	-154.29	-155.27	-155.37	-154.70	-153.57	-152.23
500			-154.73	-157.32	-158.05	-157.97	-157.14	-156.00
550			-153.67	-158.84	-160.44	-161.13	-160.67	-159.75
600			-151.47	-159.81	-162.54	-164.17	-164.14	-163.47
700				-160.77	-165.99	-169.85	-170.84	-170.75
800					-169.03	-175.12	-177.22	-177.73
900					-172.40	-180.26	-183.36	-184.36
1000						-185.63	-189.46	-190.65
Pd²⁺								
25	42.20	41.97	41.78	41.62	41.49	41.26	41.09	40.96
50	42.77	42.53	42.33	42.16	42.01	41.77	41.57	41.40
75	43.35	43.10	42.89	42.71	42.55	42.28	42.06	41.88
100	43.93	43.67	43.45	43.26	43.09	42.80	42.56	42.36
125	44.53	44.25	44.01	43.81	43.63	43.32	43.06	42.84
150	45.14	44.83	44.58	44.36	44.16	43.83	43.56	43.33
175	45.77	45.43	45.15	44.91	44.70	44.35	44.05	43.80
200	46.42	46.05	45.74	45.47	45.25	44.86	44.54	44.27
225	47.11	46.69	46.34	46.05	45.79	45.37	45.03	44.74
250	47.84	47.35	46.95	46.63	46.35	45.89	45.51	45.20
300	49.48	48.76	48.22	47.82	47.48	46.92	46.48	46.11
350	51.13	50.35	49.51	49.05	48.64	47.97	47.44	47.00
400		50.79	50.76	50.28	49.82	49.03	48.40	47.89
450		49.08	51.89	51.51	51.01	50.10	49.37	48.77
500			52.70	52.70	52.21	51.20	50.35	49.66
550			53.01	53.82	53.43	52.32	51.36	50.57
600			52.73	54.80	54.65	53.50	52.40	51.50
700				56.13	57.08	56.03	54.66	53.51
800					59.54	58.90	57.20	55.77
900						62.19	60.02	58.33
1000						65.39	62.98	61.16

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
PdCl⁺								
25	2.50	2.52	2.56	2.62	2.69	2.85	3.03	3.24
50	2.64	2.67	2.71	2.76	2.83	2.98	3.15	3.34
75	2.74	2.76	2.80	2.85	2.91	3.05	3.22	3.40
100	2.79	2.81	2.84	2.89	2.95	3.08	3.24	3.41
125	2.81	2.82	2.85	2.89	2.94	3.07	3.22	3.38
150	2.80	2.80	2.82	2.86	2.90	3.02	3.16	3.32
175	2.77	2.76	2.77	2.79	2.83	2.94	3.07	3.21
200	2.72	2.69	2.68	2.70	2.73	2.82	2.94	3.08
225	2.66	2.60	2.57	2.58	2.60	2.67	2.78	2.91
250	2.59	2.49	2.45	2.43	2.44	2.50	2.59	2.71
300	2.47	2.25	2.13	2.09	2.07	2.08	2.14	2.23
350	2.29	2.00	1.74	1.66	1.61	1.57	1.59	1.65
400		1.15	1.25	1.15	1.07	0.98	0.95	0.97
450		-0.67	0.62	0.57	0.47	0.31	0.23	0.22
500		-0.20	-0.10	-0.21	-0.42	-0.55	-0.61	
550		-1.30	-0.87	-0.94	-1.20	-1.39	-1.49	
600		-2.71	-1.76	-1.73	-2.03	-2.28	-2.43	
700			-3.99	-3.49	-3.76	-4.15	-4.43	
800				-5.46	-5.57	-6.12	-6.53	
900				-7.53	-7.43	-8.15	-8.68	
1000					-9.42	-10.30	-10.90	
PdCl⁰								
25	-35.20	-34.93	-34.66	-34.38	-34.11	-33.57	-33.03	-32.49
50	-35.27	-34.98	-34.70	-34.42	-34.15	-33.60	-33.05	-32.51
75	-35.44	-35.14	-34.86	-34.57	-34.29	-33.74	-33.19	-32.65
100	-35.69	-35.39	-35.10	-34.81	-34.53	-33.97	-33.42	-32.88
125	-36.03	-35.72	-35.43	-35.13	-34.85	-34.29	-33.73	-33.19
150	-36.43	-36.12	-35.82	-35.53	-35.24	-34.67	-34.12	-33.57
175	-36.90	-36.59	-36.29	-35.99	-35.69	-35.12	-34.57	-34.02
200	-37.44	-37.12	-36.81	-36.51	-36.21	-35.64	-35.08	-34.52
225	-38.04	-37.72	-37.40	-37.09	-36.79	-36.21	-35.64	-35.09
250	-38.71	-38.37	-38.04	-37.73	-37.42	-36.84	-36.27	-35.71
300	-40.24	-39.87	-39.50	-39.16	-38.85	-38.24	-37.66	-37.10
350	-42.21	-41.63	-41.18	-40.81	-40.47	-39.84	-39.24	-38.67
400		-43.78	-43.09	-42.65	-42.28	-41.61	-41.00	-40.41
450		-46.95	-45.26	-44.70	-44.27	-43.55	-42.91	-42.31
500		-51.46	-47.76	-46.95	-46.44	-45.65	-44.98	-44.36
550		-55.61	-50.61	-49.42	-48.79	-47.91	-47.19	-46.54
600		-59.31	-53.76	-52.10	-51.31	-50.30	-49.54	-48.86
700		-66.12	-60.42	-57.98	-56.80	-55.50	-54.61	-53.88
800		-72.62	-67.13	-64.30	-62.78	-61.16	-60.16	-59.36
900		-79.08	-73.84	-70.84	-69.11	-67.23	-66.11	-65.27
1000		-85.62	-80.60	-77.53	-75.67	-73.61	-72.43	-71.57
PdCl⁻								
25	-69.80	-69.28	-68.78	-68.29	-67.80	-66.84	-65.90	-64.97
50	-69.79	-69.26	-68.73	-68.25	-67.75	-66.78	-65.83	-64.90
75	-69.91	-69.38	-68.87	-68.36	-67.87	-66.90	-65.95	-65.01
100	-70.13	-69.61	-69.10	-68.60	-68.11	-67.15	-66.20	-65.27
125	-70.43	-69.93	-69.43	-68.94	-68.46	-67.51	-66.57	-65.65
150	-70.80	-70.32	-69.85	-69.37	-68.90	-67.97	-67.05	-66.13
175	-71.21	-70.78	-70.33	-69.88	-69.42	-68.51	-67.61	-66.71
200	-71.66	-71.29	-70.88	-70.45	-70.02	-69.14	-68.26	-67.37
225	-72.13	-71.84	-71.48	-71.08	-70.68	-69.84	-68.98	-68.12
250	-72.58	-72.42	-72.12	-71.77	-71.39	-70.60	-69.78	-68.94
300	-73.28	-73.57	-73.49	-73.26	-72.97	-72.30	-71.56	-70.78
350	-73.09	-74.52	-74.94	-74.88	-74.71	-74.19	-73.56	-72.86
400		-75.54	-76.38	-76.58	-76.57	-76.26	-75.76	-75.16
450		-74.68	-77.68	-78.30	-78.51	-78.47	-78.13	-77.64

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, C°	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
PdCl₃ — Continued								
500		-78.67	-79.96	-80.49	-80.79	-80.65	-80.28	
550		-79.24	-81.54	-82.48	-83.19	-83.28	-83.06	
600		-79.56	-83.03	-84.45	-85.65	-86.00	-85.96	
700			-86.11	-88.40	-90.69	-91.66	-92.00	
800				-92.60	-95.87	-97.51	-98.26	
900					-97.31	-101.29	-103.57	-104.65
1000						-107.16	-109.94	-111.17
PdCl₄⁻²								
25	-104.00	-103.24	-102.51	-101.79	-101.09	-99.72	-98.38	-97.06
50	-103.55	-102.77	-102.02	-101.30	-100.59	-99.20	-97.85	-96.51
75	-103.21	-102.45	-101.70	-100.98	-100.27	-98.89	-97.54	-96.21
100	-102.97	-102.23	-101.50	-100.80	-100.10	-98.73	-97.39	-96.07
125	-102.80	-102.10	-101.40	-100.72	-100.04	-98.70	-97.38	-96.08
150	-102.67	-102.03	-101.38	-100.72	-100.07	-98.77	-97.48	-96.20
175	-102.56	-102.01	-101.41	-100.80	-100.18	-98.94	-97.68	-96.44
200	-102.44	-102.01	-101.49	-100.94	-100.36	-99.18	-97.98	-96.76
225	-102.27	-102.01	-101.60	-101.12	-100.60	-99.50	-98.35	-97.18
250	-102.01	-102.00	-101.72	-101.33	-100.88	-99.88	-98.80	-97.68
300	-100.88	-101.79	-101.96	-101.81	-101.54	-100.79	-99.89	-98.90
350	-97.86	-100.93	-102.13	-102.32	-102.29	-101.88	-101.20	-100.37
400		-100.27	-102.09	-102.79	-103.08	-103.09	-102.69	-102.06
450		-96.33	-101.63	-103.11	-103.84	-104.39	-104.32	-103.93
500			-100.49	-103.17	-104.51	-105.73	-106.06	-105.94
550			-98.50	-102.92	-105.02	-107.06	-107.86	-108.05
600			-96.06	-102.39	-105.36	-108.35	-109.69	-110.23
700				-101.30	-105.65	-110.71	-113.29	-114.62
800					-105.93	-112.76	-116.72	-118.89
900					-106.70	-114.77	-120.03	-122.91
1000						-117.19	-123.49	-126.68
PdOH⁺								
25	-13.00	-13.09	-13.15	-13.19	-13.21	-13.22	-13.19	-13.14
50	-12.69	-12.78	-12.85	-12.89	-12.92	-12.94	-12.94	-12.91
75	-12.43	-12.52	-12.59	-12.64	-12.67	-12.71	-12.71	-12.70
100	-12.19	-12.29	-12.37	-12.42	-12.46	-12.51	-12.53	-12.52
125	-11.99	-12.10	-12.18	-12.24	-12.29	-12.34	-12.37	-12.37
150	-11.80	-11.92	-12.02	-12.09	-12.14	-12.21	-12.25	-12.26
175	-11.64	-11.77	-11.88	-11.96	-12.02	-12.10	-12.15	-12.17
200	-11.48	-11.64	-11.76	-11.85	-11.92	-12.03	-12.09	-12.12
225	-11.33	-11.52	-11.66	-11.77	-11.85	-11.97	-12.05	-12.09
250	-11.18	-11.41	-11.57	-11.70	-11.80	-11.94	-12.03	-12.09
300	-10.86	-11.20	-11.45	-11.61	-11.74	-11.94	-12.07	-12.15
350	-10.63	-10.99	-11.39	-11.59	-11.75	-12.01	-12.18	-12.31
400		-11.51	-11.43	-11.63	-11.83	-12.14	-12.37	-12.53
450		-13.37	-11.63	-11.76	-11.96	-12.34	-12.62	-12.83
500			-12.07	-11.96	-12.16	-12.59	-12.93	-13.19
550			-12.88	-12.28	-12.41	-12.88	-13.28	-13.59
600			-14.09	-12.74	-12.72	-13.20	-13.67	-14.04
700				-14.18	-13.50	-13.89	-14.51	-15.01
800					-14.46	-14.59	-15.37	-16.02
900					-15.48	-15.29	-16.26	-17.04
1000						-16.06	-17.21	-18.07
PdO⁰								
25	-11.50	-11.65	-11.77	-11.87	-11.95	-12.08	-12.17	-12.23
50	-11.25	-11.40	-11.53	-11.63	-11.72	-11.86	-11.96	-12.05
75	-11.00	-11.15	-11.28	-11.38	-11.47	-11.62	-11.74	-11.83
100	-10.76	-10.90	-11.03	-11.13	-11.23	-11.38	-11.50	-11.60
125	-10.52	-10.66	-10.79	-10.89	-10.98	-11.14	-11.26	-11.36

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
PdO° — Continued								
150	-10.29	-10.43	-10.55	-10.65	-10.74	-10.89	-11.02	-11.13
175	-10.07	-10.20	-10.32	-10.42	-10.51	-10.66	-10.78	-10.89
200	-9.86	-9.98	-10.09	-10.19	-10.27	-10.42	-10.55	-10.65
225	-9.67	-9.77	-9.88	-9.97	-10.05	-10.19	-10.32	-10.42
250	-9.50	-9.58	-9.67	-9.75	-9.83	-9.97	-10.09	-10.19
300	-9.26	-9.24	-9.29	-9.35	-9.41	-9.53	-9.64	-9.74
350	-9.39	-9.03	-8.97	-8.99	-9.03	-9.12	-9.21	-9.30
400		-9.11	-8.75	-8.69	-8.69	-8.74	-8.80	-8.88
450		-10.25	-8.68	-8.46	-8.39	-8.38	-8.42	-8.47
500		-12.88	-8.83	-8.32	-8.15	-8.05	-8.05	-8.08
550		-14.92	-9.27	-8.29	-7.97	-7.76	-7.70	-7.71
600		-16.26	-9.94	-8.38	-7.86	-7.50	-7.39	-7.36
700		-17.81	-11.31	-8.80	-7.80	-7.07	-6.82	-6.72
800		-18.51	-12.27	-9.27	-7.87	-6.75	-6.34	-6.17
900		-18.72	-12.79	-9.57	-7.91	-6.47	-5.93	-5.70
1000		-18.63	-12.97	-9.67	-7.84	-6.19	-5.57	-5.32
Pr⁺³								
25	-162.60	-163.08	-163.50	-163.88	-164.22	-164.84	-165.39	-165.90
50	-161.30	-161.79	-162.23	-162.62	-162.98	-163.63	-164.21	-164.74
75	-159.94	-160.44	-160.89	-161.29	-161.66	-162.34	-162.94	-163.49
100	-158.50	-159.03	-159.49	-159.91	-160.30	-161.00	-161.62	-162.20
125	-157.00	-157.56	-158.04	-158.48	-158.89	-159.62	-160.27	-160.86
150	-155.44	-156.03	-156.55	-157.01	-157.43	-158.19	-158.87	-159.49
175	-153.80	-154.44	-155.00	-155.49	-155.94	-156.74	-157.44	-158.08
200	-152.09	-152.78	-153.39	-153.92	-154.40	-155.24	-155.98	-156.65
225	-150.29	-151.06	-151.73	-152.30	-152.82	-153.72	-154.50	-155.20
250	-148.38	-149.26	-150.01	-150.64	-151.19	-152.16	-152.98	-153.72
300	-144.23	-145.45	-146.42	-147.16	-147.81	-148.93	-149.87	-150.69
350	-140.01	-141.24	-142.68	-143.52	-144.28	-145.57	-146.64	-147.57
400		-138.90	-138.92	-139.77	-140.61	-142.08	-143.31	-144.36
450		-140.24	-135.31	-135.95	-136.84	-138.48	-139.87	-141.05
500			-132.17	-132.11	-132.96	-134.77	-136.33	-137.65
550			-129.85	-128.34	-128.99	-130.92	-132.66	-134.15
600			-128.48	-124.73	-124.94	-126.92	-128.86	-130.52
700				-118.43	-116.68	-118.40	-120.77	-122.82
800					-108.15	-109.09	-111.95	-114.44
900						-99.03	-99.04	-102.45
1000						-88.51	-92.49	-95.60
Ra⁺²								
25	-134.20	-134.31	-134.39	-134.45	-134.49	-134.54	-134.54	-134.52
50	-134.51	-134.63	-134.71	-134.78	-134.83	-134.89	-134.91	-134.92
75	-134.81	-134.93	-135.02	-135.09	-135.14	-135.22	-135.26	-135.28
100	-135.08	-135.21	-135.31	-135.39	-135.45	-135.54	-135.59	-135.62
125	-135.34	-135.48	-135.59	-135.68	-135.75	-135.85	-135.92	-135.96
150	-135.59	-135.74	-135.86	-135.96	-136.04	-136.16	-136.23	-136.28
175	-135.81	-135.99	-136.12	-136.23	-136.32	-136.46	-136.55	-136.61
200	-136.01	-136.21	-136.37	-136.49	-136.60	-136.75	-136.86	-136.93
225	-136.18	-136.41	-136.60	-136.74	-136.86	-137.04	-137.16	-137.25
250	-136.31	-136.59	-136.81	-136.98	-137.12	-137.32	-137.46	-137.57
300	-136.41	-136.87	-137.20	-137.42	-137.59	-137.87	-138.06	-138.20
350	-136.33	-136.98	-137.52	-137.80	-138.03	-138.38	-138.63	-138.82
400		-137.60	-137.82	-138.15	-138.43	-138.87	-139.19	-139.43
450		-138.81	-138.11	-138.46	-138.79	-139.33	-139.72	-140.02
500			-138.45	-138.73	-139.12	-139.76	-140.24	-140.60
550			-138.91	-138.99	-139.39	-140.14	-140.72	-141.15
600			-139.51	-139.26	-139.63	-140.48	-141.16	-141.67
700				-139.98	-140.00	-140.98	-141.89	-142.58
800					-140.27	-141.23	-142.40	-143.29

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Ra⁺² — Continued								
900				-140.41	-141.26	-142.70	-143.77	
1000					-141.19	-142.88	-144.03	
Rb⁺								
25	-67.80	-67.62	-67.43	-67.23	-67.02	-66.59	-66.13	-65.67
50	-68.52	-68.34	-68.14	-67.94	-67.74	-67.31	-66.87	-66.42
75	-69.24	-69.05	-68.86	-68.66	-68.46	-68.04	-67.60	-67.16
100	-69.96	-69.77	-69.58	-69.38	-69.18	-68.76	-68.34	-67.90
125	-70.68	-70.50	-70.31	-70.11	-69.91	-69.50	-69.07	-68.64
150	-71.41	-71.23	-71.04	-70.84	-70.64	-70.24	-69.82	-69.39
175	-72.14	-71.96	-71.78	-71.58	-71.38	-70.98	-70.56	-70.14
200	-72.87	-72.70	-72.51	-72.32	-72.13	-71.73	-71.31	-70.89
225	-73.59	-73.44	-73.26	-73.07	-72.88	-72.48	-72.07	-71.65
250	-74.32	-74.17	-74.00	-73.82	-73.63	-73.23	-72.83	-72.42
300	-75.75	-75.65	-75.50	-75.32	-75.14	-74.76	-74.37	-73.96
350	-77.12	-77.12	-77.00	-76.84	-76.67	-76.30	-75.92	-75.52
400		-78.63	-78.51	-78.37	-78.21	-77.86	-77.48	-77.10
450		-80.10	-80.02	-79.90	-79.75	-79.42	-79.06	-78.69
500			-81.53	-81.43	-81.30	-81.00	-80.66	-80.29
550			-83.02	-82.96	-82.86	-82.58	-82.26	-81.91
600			-84.52	-84.50	-84.42	-84.17	-83.87	-83.53
700				-87.60	-87.54	-87.36	-87.10	-86.80
800					-90.68	-90.55	-90.35	-90.08
900					-93.86	-93.76	-93.61	-93.37
1000						-97.00	-96.89	-96.66
RbBr°								
25	-91.01	-90.44	-89.89	-89.35	-88.83	-87.81	-86.82	-85.85
50	-92.35	-91.76	-91.19	-90.64	-90.10	-89.06	-88.06	-87.07
75	-93.66	-93.06	-92.48	-91.92	-91.38	-90.33	-89.31	-88.31
100	-94.96	-94.34	-93.76	-93.20	-92.65	-91.59	-90.56	-89.56
125	-96.23	-95.62	-95.03	-94.46	-93.91	-92.84	-91.81	-90.81
150	-97.50	-96.88	-96.29	-95.72	-95.17	-94.09	-93.06	-92.05
175	-98.75	-98.14	-97.54	-96.97	-96.41	-95.34	-94.30	-93.29
200	-100.00	-99.39	-98.79	-98.21	-97.65	-96.58	-95.54	-94.52
225	-101.23	-100.63	-100.03	-99.45	-98.89	-97.81	-96.77	-95.75
250	-102.44	-101.86	-101.26	-100.68	-100.12	-99.04	-97.99	-96.98
300	-104.84	-104.31	-103.70	-103.12	-102.56	-101.47	-100.42	-99.40
350	-107.17	-106.73	-106.12	-105.54	-104.97	-103.88	-102.83	-101.81
400		-109.15	-108.53	-107.94	-107.37	-106.28	-105.22	-104.20
450		-111.59	-110.91	-110.32	-109.75	-108.65	-107.60	-106.57
500		-114.07	-113.29	-112.69	-112.11	-111.01	-109.95	-108.93
550		-116.50	-115.67	-115.04	-114.46	-113.35	-112.29	-111.26
600		-118.89	-118.03	-117.38	-116.79	-115.68	-114.62	-113.59
700		-123.59	-122.72	-122.03	-121.42	-120.29	-119.22	-118.19
800		-128.20	-127.34	-126.63	-126.00	-124.86	-123.78	-122.75
900		-132.74	-131.89	-131.17	-130.53	-129.37	-128.29	-127.25
1000		-137.22	-136.38	-135.66	-135.01	-133.85	-132.76	-131.72
RbCl°								
25	-97.87	-97.34	-96.83	-96.34	-95.85	-94.90	-93.97	-93.06
50	-99.07	-98.52	-97.99	-97.48	-96.99	-96.02	-95.07	-94.15
75	-100.24	-99.68	-99.15	-98.63	-98.12	-97.14	-96.19	-95.26
100	-101.39	-100.83	-100.29	-99.76	-99.25	-98.27	-97.31	-96.37
125	-102.53	-101.96	-101.42	-100.89	-100.38	-99.38	-98.42	-97.48
150	-103.66	-103.09	-102.54	-102.01	-101.49	-100.50	-99.53	-98.59
175	-104.77	-104.21	-103.65	-103.12	-102.60	-101.60	-100.63	-99.69
200	-105.88	-105.31	-104.76	-104.22	-103.71	-102.70	-101.73	-100.79
225	-106.97	-106.41	-105.86	-105.32	-104.80	-103.80	-102.82	-101.88

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
RbCl° — Continued								
250	-108.05	-107.51	-106.95	-106.41	-105.89	-104.88	-103.91	-102.96
300	-110.17	-109.68	-109.11	-108.57	-108.05	-107.04	-106.06	-105.11
350	-112.24	-111.83	-111.26	-110.72	-110.19	-109.18	-108.20	-107.25
400		-113.97	-113.39	-112.84	-112.31	-111.29	-110.31	-109.36
450		-116.13	-115.50	-114.94	-114.41	-113.39	-112.41	-111.45
500		-118.33	-117.60	-117.03	-116.50	-115.47	-114.49	-113.53
550		-120.49	-119.70	-119.11	-118.57	-117.54	-116.55	-115.60
600		-122.61	-121.79	-121.18	-120.63	-119.59	-118.60	-117.64
700		-126.75	-125.93	-125.28	-124.71	-123.66	-122.66	-121.70
800		-130.81	-129.99	-129.33	-128.74	-127.67	-126.67	-125.70
900		-134.80	-134.00	-133.32	-132.72	-131.64	-130.63	-129.66
1000		-138.73	-137.94	-137.26	-136.66	-135.57	-134.56	-133.59
RbF°								
25	-136.45	-136.22	-135.99	-135.75	-135.52	-135.04	-134.56	-134.07
50	-137.23	-136.99	-136.75	-136.51	-136.27	-135.78	-135.30	-134.82
75	-137.98	-137.74	-137.49	-137.25	-137.01	-136.52	-136.04	-135.56
100	-138.72	-138.47	-138.23	-137.98	-137.74	-137.25	-136.77	-136.29
125	-139.45	-139.20	-138.95	-138.71	-138.46	-137.98	-137.49	-137.01
150	-140.18	-139.92	-139.67	-139.43	-139.18	-138.69	-138.21	-137.73
175	-140.89	-140.64	-140.39	-140.14	-139.89	-139.40	-138.92	-138.44
200	-141.60	-141.35	-141.09	-140.84	-140.60	-140.11	-139.63	-139.15
225	-142.30	-142.05	-141.80	-141.55	-141.30	-140.81	-140.33	-139.85
250	-142.99	-142.75	-142.49	-142.24	-141.99	-141.51	-141.02	-140.54
300	-144.35	-144.13	-143.87	-143.62	-143.37	-142.88	-142.40	-141.92
350	-145.67	-145.50	-145.24	-144.99	-144.74	-144.25	-143.77	-143.29
400		-146.85	-146.59	-146.34	-146.09	-145.60	-145.12	-144.64
450		-148.20	-147.93	-147.68	-147.43	-146.94	-146.45	-145.97
500		-149.54	-149.26	-149.01	-148.76	-148.26	-147.78	-147.30
550		-150.86	-150.58	-150.32	-150.07	-149.58	-149.09	-148.62
600		-152.17	-151.89	-151.63	-151.38	-150.88	-150.40	-149.92
700		-154.77	-154.48	-154.22	-153.96	-153.47	-152.98	-152.50
800		-157.32	-157.04	-156.77	-156.51	-156.02	-155.53	-155.05
900		-159.84	-159.56	-159.29	-159.04	-158.54	-158.05	-157.57
1000		-162.34	-162.05	-161.79	-161.53	-161.03	-160.54	-160.06
RbI°								
25	-79.10	-78.39	-77.70	-77.04	-76.40	-75.15	-73.95	-72.77
50	-80.49	-79.75	-79.05	-78.37	-77.71	-76.43	-75.20	-74.01
75	-81.86	-81.11	-80.39	-79.70	-79.03	-77.74	-76.50	-75.28
100	-83.22	-82.46	-81.73	-81.03	-80.36	-79.05	-77.80	-76.58
125	-84.56	-83.79	-83.06	-82.36	-81.68	-80.37	-79.11	-77.88
150	-85.89	-85.12	-84.39	-83.68	-83.00	-81.68	-80.41	-79.18
175	-87.21	-86.44	-85.70	-85.00	-84.31	-82.99	-81.72	-80.48
200	-88.52	-87.76	-87.02	-86.31	-85.62	-84.29	-83.02	-81.78
225	-89.82	-89.07	-88.33	-87.61	-86.92	-85.59	-84.32	-83.08
250	-91.10	-90.38	-89.63	-88.91	-88.22	-86.89	-85.61	-84.37
300	-93.63	-92.97	-92.22	-91.50	-90.81	-89.47	-88.19	-86.95
350	-96.09	-95.55	-94.80	-94.08	-93.38	-92.04	-90.76	-89.51
400		-98.12	-97.36	-96.63	-95.93	-94.59	-93.31	-92.06
450		-100.69	-99.91	-99.18	-98.48	-97.13	-95.84	-94.59
500		-103.28	-102.45	-101.71	-101.01	-99.66	-98.37	-97.12
550		-105.85	-104.98	-104.23	-103.53	-102.18	-100.88	-99.63
600		-108.39	-107.50	-106.75	-106.03	-104.68	-103.38	-102.13
700		-113.41	-112.52	-111.74	-111.02	-109.66	-108.36	-107.10
800		-118.37	-117.49	-116.70	-115.97	-114.60	-113.29	-112.03
900		-123.29	-122.41	-121.62	-120.88	-119.50	-118.20	-116.93
1000		-128.17	-127.29	-126.50	-125.76	-124.37	-123.06	-121.80

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar					
				1.5	2.0	3.0	4.0	5.0	
ReO₄									
25	-166.00	-165.44	-164.90	-164.37	-163.85	-162.84	-161.85	-160.88	
50	-167.20	-166.63	-166.07	-165.53	-165.00	-163.97	-162.97	-161.99	
75	-168.41	-167.83	-167.27	-166.72	-166.19	-165.15	-164.15	-163.15	
100	-169.62	-169.04	-168.48	-167.93	-167.40	-166.36	-165.35	-164.36	
125	-170.83	-170.25	-169.70	-169.16	-168.63	-167.59	-166.59	-165.60	
150	-172.03	-171.47	-170.92	-170.39	-169.86	-168.84	-167.84	-166.85	
175	-173.22	-172.69	-172.15	-171.63	-171.11	-170.10	-169.10	-168.12	
200	-174.40	-173.90	-173.38	-172.87	-172.36	-171.36	-170.38	-169.41	
225	-175.54	-175.10	-174.61	-174.11	-173.62	-172.64	-171.67	-170.71	
250	-176.64	-176.28	-175.83	-175.36	-174.88	-173.92	-172.97	-172.02	
300	-178.59	-178.54	-178.22	-177.82	-177.40	-176.51	-175.60	-174.68	
350	-179.64	-180.53	-180.52	-180.24	-179.89	-179.10	-178.24	-177.37	
400	-182.00	-182.65	-182.58	-182.34	-181.68	-180.91	-180.08		
450	-180.99	-184.46	-184.79	-184.73	-184.25	-183.57	-182.82		
500		-185.78	-186.82	-187.03	-186.79	-186.24	-185.56		
550			-186.45	-188.62	-189.21	-189.29	-188.89	-188.30	
600				-186.62	-190.19	-191.27	-191.75	-191.52	-191.03
700					-192.89	-195.08	-196.51	-196.71	-196.45
800						-198.74	-201.14	-201.78	-201.77
900							-202.56	-205.74	-206.96
1000								-210.46	-211.80
Rn°									
25	2.79	3.42	4.02	4.61	5.18	6.29	7.36	8.41	
50	2.31	2.96	3.59	4.19	4.78	5.91	7.00	8.07	
75	1.69	2.36	3.00	3.61	4.21	5.35	6.46	7.54	
100	0.96	1.64	2.28	2.90	3.51	4.67	5.78	6.87	
125	0.12	0.81	1.46	2.09	2.69	3.86	4.99	6.09	
150	-0.81	-0.12	0.54	1.17	1.79	2.96	4.10	5.20	
175	-1.83	-1.14	-0.47	0.17	0.79	1.97	3.11	4.22	
200	-2.94	-2.24	-1.56	-0.92	-0.30	0.90	2.04	3.15	
225	-4.12	-3.42	-2.74	-2.09	-1.46	-0.26	0.89	2.01	
250	-5.39	-4.69	-3.99	-3.33	-2.70	-1.49	-0.33	0.79	
300	-8.16	-7.45	-6.71	-6.03	-5.38	-4.14	-2.97	-1.84	
350	-11.46	-10.56	-9.72	-9.00	-8.32	-7.06	-5.86	-4.72	
400	-14.16	-13.03	-12.23	-11.51	-10.20	-8.99	-7.83		
450	-18.96	-16.67	-15.72	-14.94	-13.57	-12.33	-11.14		
500	-25.34	-20.71	-19.48	-18.60	-17.15	-15.86	-14.66		
550	-31.32	-25.19	-23.51	-22.49	-20.93	-19.59	-18.36		
600	-36.81	-30.03	-27.81	-26.60	-24.89	-23.50	-22.24		
700	-47.14	-40.19	-37.06	-35.40	-33.35	-31.82	-30.48		
800	-57.19	-50.49	-46.89	-44.85	-42.42	-40.75	-39.34		
900	-67.26	-60.85	-57.05	-54.75	-52.02	-50.22	-48.76		
1000	-77.47	-71.31	-67.44	-64.99	-62.06	-60.17	-58.70		
Serine									
25	-122.10	-121.39	-120.70	-120.02	-119.35	-118.05	-116.76	-115.50	
50	-123.29	-122.58	-121.89	-121.21	-120.55	-119.26	-118.00	-116.76	
75	-124.54	-123.83	-123.13	-122.46	-121.80	-120.52	-119.27	-118.05	
100	-125.85	-125.13	-124.44	-123.76	-123.11	-121.83	-120.59	-119.37	
125	-127.21	-126.49	-125.79	-125.12	-124.46	-123.18	-121.94	-120.73	
150	-128.63	-127.90	-127.20	-126.52	-125.86	-124.59	-123.35	-122.13	
175	-130.09	-129.36	-128.66	-127.98	-127.31	-126.03	-124.79	-123.58	
200	-131.61	-130.88	-130.16	-129.48	-128.81	-127.52	-126.28	-125.07	
225	-133.18	-132.44	-131.72	-131.02	-130.35	-129.06	-127.81	-126.59	
250	-134.80	-134.06	-133.32	-132.61	-131.93	-130.63	-129.38	-128.16	
300	-138.26	-137.46	-136.66	-135.92	-135.22	-133.89	-132.62	-131.39	
350	-142.29	-141.16	-140.21	-139.41	-138.68	-137.30	-136.03	-134.77	
400	-145.38	-144.00	-143.08	-142.29	-140.86	-139.54	-138.27		
450	-151.21	-148.10	-146.96	-146.07	-144.56	-143.19	-141.89		

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Serine — Continued								
500		-159.25	-152.61	-151.06	-150.03	-148.39	-146.96	-145.64
550		-166.53	-157.63	-155.41	-154.16	-152.35	-150.86	-149.49
600		-172.91	-163.04	-160.00	-158.46	-156.45	-154.86	-153.46
700		-184.26	-174.14	-169.74	-167.54	-164.99	-163.21	-161.70
800		-194.68	-184.93	-179.83	-177.05	-173.95	-171.95	-170.34
900		-204.65	-195.34	-189.94	-186.78	-183.23	-181.04	-179.35
1000		-214.42	-205.49	-199.97	-196.59	-192.73	-190.42	-188.70
S₂⁻²								
25	19.00	19.24	19.48	19.73	20.00	20.53	21.09	21.65
50	18.89	19.13	19.37	19.62	19.88	20.41	20.95	21.50
75	18.88	19.11	19.34	19.58	19.83	20.34	20.86	21.40
100	18.97	19.17	19.38	19.61	19.84	20.33	20.83	21.35
125	19.15	19.31	19.50	19.70	19.91	20.37	20.85	21.34
150	19.43	19.54	19.68	19.85	20.04	20.46	20.91	21.38
175	19.82	19.85	19.94	20.07	20.23	20.60	21.01	21.45
200	20.33	20.26	20.28	20.36	20.48	20.78	21.15	21.56
225	21.00	20.78	20.70	20.72	20.78	21.02	21.33	21.70
250	21.85	21.42	21.22	21.15	21.15	21.30	21.55	21.87
300	24.41	23.17	22.55	22.26	22.10	22.01	22.11	22.32
350	29.34	25.92	24.35	23.71	23.33	22.93	22.83	22.89
400		29.39	26.74	25.57	24.86	24.07	23.71	23.59
450		37.85	29.98	27.92	26.76	25.44	24.77	24.44
500			34.43	30.87	29.05	27.06	26.02	25.44
550			40.33	34.48	31.79	28.96	27.47	26.60
600			47.33	38.73	34.98	31.15	29.14	27.95
700				48.35	42.52	36.41	33.20	31.28
800					50.98	42.74	38.21	35.53
900					59.63	49.78	44.02	40.70
1000						57.04	50.35	46.76
SO₂								
25	-71.98	-71.53	-71.09	-70.66	-70.24	-69.41	-68.60	-67.81
50	-72.99	-72.52	-72.07	-71.63	-71.20	-70.35	-69.53	-68.73
75	-74.09	-73.60	-73.14	-72.69	-72.25	-71.40	-70.57	-69.76
100	75.25	74.76	74.29	73.83	73.39	72.53	71.69	70.87
125	-76.47	-75.97	-75.50	-75.04	-74.59	-73.72	-72.88	-72.06
150	-77.75	-77.25	-76.77	-76.30	-75.85	-74.98	-74.13	-73.31
175	-79.09	-78.58	-78.09	-77.62	-77.17	-76.29	-75.44	-74.61
200	-80.48	-79.97	-79.47	-79.00	-78.54	-77.65	-76.79	-75.96
225	-81.92	-81.41	-80.90	-80.42	-79.95	-79.06	-78.20	-77.36
250	-83.41	-82.89	-82.38	-81.88	-81.41	-80.51	-79.64	-78.80
300	-86.58	-86.03	-85.47	-84.95	-84.47	-83.54	-82.66	-81.81
350	-90.20	-89.42	-88.76	-88.20	-87.69	-86.73	-85.83	-84.97
400		-93.21	-92.26	-91.62	-91.07	-90.07	-89.14	-88.26
450		-98.13	-96.01	-95.22	-94.60	-93.54	-92.59	-91.69
500		-104.59	-100.08	-99.02	-98.30	-97.15	-96.16	-95.24
550		-110.57	-104.54	-103.01	-102.15	-100.89	-99.85	-98.90
600		-115.98	-109.29	-107.21	-106.16	-104.76	-103.65	-102.67
700		-125.95	-119.09	-116.09	-114.58	-112.82	-111.59	-110.53
800		-135.41	-128.80	-125.33	-123.42	-121.29	-119.91	-118.78
900		-144.67	-138.36	-134.68	-132.52	-130.09	-128.57	-127.39
1000		-153.90	-147.84	-144.09	-141.78	-139.13	-137.53	-136.33
SO₃⁻²								
25	-116.30	-116.23	-116.14	-116.02	-115.89	-115.60	-115.28	-114.93
50	-116.05	-115.99	-115.91	-115.81	-115.69	-115.43	-115.13	-114.81
75	-115.69	-115.65	-115.58	-115.50	-115.40	-115.16	-114.89	-114.59
100	-115.21	-115.20	-115.16	-115.09	-115.01	-114.81	-114.57	-114.30

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	1.5	2.0	3.0	4.0	5.0
SO₃⁻² — Continued								
125	-114.63	-114.66	-114.65	-114.61	-114.56	-114.39	-114.18	-113.94
150	-113.93	-114.02	-114.06	-114.06	-114.03	-113.91	-113.73	-113.52
175	-113.11	-113.29	-113.38	-113.42	-113.43	-113.36	-113.23	-113.05
200	-112.16	-112.44	-112.61	-112.71	-112.76	-112.76	-112.68	-112.54
225	-111.04	-111.47	-111.74	-111.91	-112.02	-112.10	-112.07	-111.98
250	-109.72	-110.37	-110.77	-111.03	-111.20	-111.38	-111.42	-111.38
300	-106.19	-107.66	-108.50	-109.00	-109.34	-109.76	-109.97	-110.05
350	-100.33	-103.90	-105.74	-106.58	-107.16	-107.91	-108.33	-108.57
400		-99.66	-102.37	-103.73	-104.64	-105.80	-106.50	-106.93
450		-91.01	-98.18	-100.38	-101.75	-103.44	-104.46	-105.12
500			-92.85	-96.44	-98.43	-100.80	-102.21	-103.13
550			-86.19	-91.83	-94.65	-97.86	-99.73	-100.95
600			-78.58	-86.61	-90.41	-94.61	-97.01	-98.56
700				-75.15	-80.73	-87.12	-90.75	-93.07
800					-70.07	-78.45	-83.44	-86.56
900						-68.95	-75.20	-79.00
1000						-59.12		-66.37
							-59.13	-70.46
SO₄⁻²								
25	-177.93	-177.76	-177.56	-177.33	-177.09	-176.56	-176.00	-175.41
50	-177.98	-177.80	-177.58	-177.34	-177.09	-176.54	-175.95	-175.34
75	-177.94	-177.76	-177.54	-177.30	-177.05	-176.50	-175.91	-175.28
100	-177.81	-177.64	-177.44	-177.21	-176.97	-176.43	-175.84	-175.23
125	-177.59	-177.46	-177.28	-177.07	-176.84	-176.32	-175.76	-175.15
150	-177.28	-177.20	-177.06	-176.88	-176.67	-176.18	-175.64	-175.05
175	-176.86	-176.86	-176.77	-176.63	-176.44	-176.00	-175.49	-174.93
200	-176.33	-176.42	-176.41	-176.31	-176.17	-175.79	-175.32	-174.79
225	-175.65	-175.89	-175.96	-175.94	-175.84	-175.53	-175.11	-174.62
250	-174.78	-175.24	-175.44	-175.49	-175.46	-175.23	-174.87	-174.42
300	-172.21	-173.48	-174.10	-174.38	-174.51	-174.51	-174.30	-173.96
350	-167.30	-170.73	-172.31	-172.93	-173.29	-173.60	-173.59	-173.40
400		-167.33	-169.95	-171.10	-171.78	-172.49	-172.74	-172.73
450		-159.05	-166.77	-168.80	-169.94	-171.17	-171.73	-171.93
500			-162.42	-165.93	-167.71	-169.62	-170.55	-171.00
550			-156.64	-162.41	-165.06	-167.80	-169.18	-169.92
600			-149.81	-158.27	-161.96	-165.71	-167.60	-168.66
700				-148.93	-154.65	-160.66	-163.77	-165.57
800					-146.48	-154.60	-159.03	-161.60
900					-138.15	-147.86	-153.52	-156.73
1000						-140.92	-147.53	-151.01
S₂O₃⁻²								
25	-124.90	-124.58	-124.26	-123.94	-123.63	-123.02	-122.41	-121.81
50	-125.25	-124.90	-124.56	-124.23	-123.90	-123.25	-122.61	-121.97
75	-125.50	-125.15	-124.81	-124.48	-124.14	-123.48	-122.83	-122.18
100	-125.68	-125.34	-125.01	-124.68	-124.35	-123.70	-123.05	-122.40
125	-125.77	-125.46	-125.15	-124.84	-124.52	-123.89	-123.25	-122.61
150	-125.77	-125.51	-125.23	-124.94	-124.65	-124.04	-123.43	-122.80
175	-125.67	-125.48	-125.25	-125.00	-124.73	-124.16	-123.57	-122.97
200	-125.45	-125.37	-125.20	-124.99	-124.76	-124.24	-123.69	-123.12
225	-125.09	-125.15	-125.07	-124.93	-124.74	-124.29	-123.78	-123.24
250	-124.56	-124.82	-124.86	-124.79	-124.66	-124.30	-123.85	-123.35
300	-122.66	-123.72	-124.16	-124.31	-124.33	-124.18	-123.87	-123.48
350	-118.38	-121.65	-123.02	-123.50	-123.75	-123.88	-123.77	-123.51
400		-118.74	-121.29	-121.31	-122.87	-123.39	-123.52	-123.43
450		-110.56	-118.72	-120.64	-121.66	-122.69	-123.12	-123.23
500			-114.91	-118.39	-120.06	-121.76	-122.55	-122.90
550			-109.58	-115.47	-118.04	-120.57	-121.79	-122.42
600			-103.10	-111.91	-115.57	-119.11	-120.84	-121.77
700				-103.62	-109.51	-115.37	-118.27	-119.91

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, C°	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
SO₃⁻² — Continued								
800				−102.59	−110.64	−114.83	−117.21	
900				−95.54	−105.28	−110.67	−113.65	
1000					−99.76	−106.05	−109.29	
S₂O₄⁻²								
25	−143.50	−143.09	−142.68	−142.28	−141.87	−141.07	−140.26	−139.46
50	−144.00	−143.59	−143.17	−142.77	−142.36	−141.55	−140.75	−139.94
75	−144.42	−144.01	−143.61	−143.21	−142.81	−142.01	−141.21	−140.42
100	−144.76	−144.37	−143.99	−143.60	−143.21	−142.43	−141.65	−140.87
125	−145.02	−144.67	−144.31	−143.94	−143.57	−142.81	−142.05	−141.29
150	−145.20	−144.90	−144.57	−144.23	−143.88	−143.16	−142.43	−141.69
175	−145.29	−145.06	−144.78	−144.47	−144.15	−143.48	−142.78	−142.06
200	−145.26	−145.13	−144.92	−144.66	−144.37	−143.75	−143.09	−142.41
225	−145.10	−145.11	−144.98	−144.79	−144.55	−144.00	−143.38	−142.73
250	−144.76	−144.98	−144.97	−144.85	−144.67	−144.20	−143.64	−143.04
300	−143.29	−144.29	−144.68	−144.77	−144.74	−144.48	−144.07	−143.57
350	−139.45	−142.66	−143.95	−144.38	−144.57	−144.60	−144.37	−144.01
400		−140.11	−142.65	−143.61	−144.12	−144.53	−144.54	−144.34
450		−132.15	−140.50	−142.38	−143.34	−144.26	−144.56	−144.56
500			−137.10	−140.57	−142.19	−143.76	−144.43	−144.66
550				−132.15	−138.10	−140.61	−143.02	−144.12
600					−126.02	−134.97	−142.02	−143.61
700						−127.54	−139.23	−141.98
800						−127.53	−135.50	−139.53
900							−121.49	−131.19
1000								−126.75
S₂O₅⁻²								
25	−189.00	−188.56	−188.12	−187.68	−187.25	−186.39	−185.53	−184.68
50	−189.58	−189.13	−188.68	−188.24	−187.81	−186.95	−186.09	−185.24
75	−190.08	−189.63	−189.20	−188.76	−188.33	−187.48	−186.63	−185.78
100	−190.50	−190.08	−189.66	−189.24	−188.82	−187.98	−187.14	−186.31
125	−190.85	−190.46	−190.07	−189.66	−189.26	−188.45	−187.63	−186.82
150	−191.12	−190.78	−190.42	−190.04	−189.66	−188.88	−188.10	−187.30
175	−191.30	−191.03	−190.72	−190.38	−190.02	−189.29	−188.53	−187.76
200	−191.37	−191.20	−190.95	−190.66	−190.34	−189.66	−188.94	−188.20
225	−191.31	−191.28	−191.11	−190.88	−190.61	−189.99	−189.32	−188.62
250	−191.07	−191.25	−191.20	−191.04	−190.82	−190.29	−189.67	−189.01
300	−189.81	−190.77	−191.11	−191.16	−191.10	−190.77	−190.30	−189.74
350	−186.19	−189.36	−190.60	−190.98	−191.13	−191.09	−190.80	−190.38
400		−187.00	−189.51	−190.43	−190.89	−191.23	−191.18	−190.92
450		−179.18	−187.58	−189.42	−190.34	−191.18	−191.41	−191.35
500			−184.39	−187.84	−189.41	−190.91	−191.50	−191.66
550				−179.65	−185.59	−188.07	−190.40	−191.41
600					−173.71	−182.70	−186.30	−189.63
700						−175.72	−181.67	−187.32
800							−176.21	−184.11
900								−170.69
1000								−176.45
S₂O₆⁻²								
25	−231.00	−230.50	−230.01	−229.53	−229.05	−228.10	−227.16	−226.23
50	−231.71	−231.20	−230.70	−230.21	−229.73	−228.77	−227.83	−226.90
75	−232.34	−231.84	−231.35	−230.86	−230.38	−229.43	−228.50	−227.57
100	−232.91	−232.42	−231.94	−231.47	−231.00	−230.07	−229.15	−228.23
125	−233.40	−232.95	−232.50	−232.04	−231.59	−230.68	−229.77	−228.87
150	−233.82	−233.42	−233.00	−232.57	−232.13	−231.26	−230.38	−229.50
175	−234.16	−233.82	−233.45	−233.05	−232.65	−231.81	−230.96	−230.10
200	−234.39	−234.15	−233.84	−233.49	−233.12	−232.33	−231.52	−230.69

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar					
				1.5	2.0	3.0	4.0	5.0	
S₂O₆²⁻ — Continued									
225	-234.49	-234.39	-234.16	-233.87	-233.54	-232.82	-232.06	-231.26	
250	-234.43	-234.53	-234.41	-234.20	-233.92	-233.28	-232.57	-231.81	
300	-233.52	-234.40	-234.67	-234.65	-234.53	-234.09	-233.52	-232.86	
350	-230.27	-233.36	-234.51	-234.82	-234.91	-234.75	-234.36	-233.83	
400		-231.33	-233.79	-234.63	-235.03	-235.24	-235.08	-234.71	
450		-223.74	-232.22	-234.00	-234.84	-235.55	-235.67	-235.50	
500			-229.40	-232.79	-234.30	-235.65	-236.12	-236.17	
550			-225.00	-230.93	-233.34	-235.52	-236.41	-236.72	
600			-219.39	-228.42	-231.97	-235.15	-236.52	-237.13	
700				-222.20	-228.15	-233.66	-236.17	-237.44	
800					-223.53	-231.30	-235.06	-237.03	
900					-218.89	-228.43	-233.32	-235.86	
1000						-225.47	-231.21	-233.99	
S₂O₈²⁻									
25	-266.50	-265.59	-264.72	-263.88	-263.07	-261.48	-259.94	-258.44	
50	-267.94	-267.01	-266.12	-265.26	-264.43	-262.81	-261.25	-259.72	
75	-269.34	-268.40	-267.51	-266.65	-265.81	-264.19	-262.61	-261.08	
100	-270.70	-269.77	-268.89	-268.03	-267.20	-265.58	-264.01	-262.47	
125	-272.02	-271.12	-270.25	-269.40	-268.58	-266.97	-265.41	-263.88	
150	-273.29	-272.43	-271.58	-270.76	-269.95	-268.36	-266.82	-265.30	
175	-274.50	-273.70	-272.89	-272.09	-271.30	-269.75	-268.23	-266.73	
200	-275.63	-274.92	-274.16	-273.40	-272.64	-271.12	-269.63	-268.15	
225	-276.66	-276.08	-275.39	-274.67	-273.95	-272.49	-271.03	-269.58	
250	-277.55	-277.16	-276.57	-275.92	-275.24	-273.84	-272.43	-271.01	
300	-278.66	-279.00	-278.74	-278.27	-277.71	-276.49	-275.19	-273.85	
350	-277.56	-280.06	-280.58	-280.40	-280.04	-279.05	-277.90	-276.68	
400		-279.98	-281.93	-282.25	-282.17	-281.51	-280.56	-279.46	
450		-274.24	-282.48	-283.72	-284.05	-283.84	-283.14	-282.21	
500			-281.82	-284.68	-285.64	-286.02	-285.63	-284.89	
550			-279.61	-285.04	-286.89	-288.03	-288.01	-287.50	
600			-276.18	-284.79	-287.77	-289.86	-290.26	-290.01	
700				-283.14	-288.61	-292.94	-294.37	-294.70	
800					-288.84	-295.40	-297.95	-298.88	
900					-289.20	-297.54	-301.10	-302.52	
1000						-299.74	-304.03	-305.65	
S₃²⁻									
25	17.60	17.94	18.28	18.62	18.97	19.67	20.37	21.07	
50	17.26	17.60	17.94	18.29	18.63	19.33	20.02	20.72	
75	17.01	17.34	17.67	18.01	18.35	19.03	19.71	20.40	
100	16.84	17.15	17.47	17.79	18.12	18.78	19.44	20.12	
125	16.76	17.03	17.32	17.63	17.93	18.56	19.21	19.86	
150	16.77	16.99	17.24	17.52	17.80	18.39	19.01	19.64	
175	16.88	17.03	17.23	17.46	17.72	18.27	18.85	19.45	
200	17.10	17.15	17.28	17.47	17.69	18.18	18.72	19.29	
225	17.47	17.37	17.42	17.54	17.71	18.13	18.62	19.16	
250	18.02	17.71	17.64	17.68	17.79	18.12	18.56	19.05	
300	19.94	18.84	18.35	18.18	18.13	18.25	18.53	18.91	
350	24.23	20.93	19.52	19.01	18.73	18.56	18.64	18.89	
400		23.86	21.27	20.22	19.63	19.06	18.91	18.98	
450		32.05	23.87	21.91	20.86	19.78	19.33	19.19	
500			27.70	24.19	22.48	20.74	19.92	19.54	
550			33.05	27.13	24.53	21.95	20.69	20.04	
600			39.56	30.72	27.03	23.44	21.67	20.71	
700				39.06	33.15	27.24	24.30	22.63	
800					40.14	32.04	27.80	25.38	
900					47.25	37.47	32.03	29.01	
1000						43.06	36.72	33.44	

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
$S_3O_6^{2-}$								
25	-229.00	-228.46	-227.94	-227.43	-226.92	-225.91	-224.92	-223.94
50	-229.79	-229.24	-228.71	-228.19	-227.67	-226.66	-225.66	-224.68
75	-230.50	-229.96	-229.43	-228.91	-228.40	-227.40	-226.41	-225.42
100	-231.15	-230.63	-230.11	-229.61	-229.10	-228.11	-227.13	-226.16
125	-231.73	-231.24	-230.75	-230.26	-229.77	-228.81	-227.85	-226.89
150	-232.25	-231.80	-231.34	-230.88	-230.41	-229.47	-228.54	-227.60
175	-232.67	-232.30	-231.88	-231.45	-231.01	-230.11	-229.21	-228.29
200	-233.00	-232.72	-232.37	-231.98	-231.57	-230.73	-229.86	-228.97
225	-233.20	-233.06	-232.79	-232.46	-232.10	-231.31	-230.48	-229.63
250	-233.24	-233.30	-233.14	-232.88	-232.57	-231.87	-231.09	-230.28
300	-232.55	-233.38	-233.60	-233.54	-233.38	-232.87	-232.23	-231.52
350	-229.52	-232.56	-233.65	-233.92	-233.97	-233.74	-233.28	-232.69
400		-230.73	-233.15	-233.95	-234.31	-234.44	-234.20	-233.77
450		-223.30	-231.81	-233.54	-234.34	-234.97	-235.01	-234.77
500			-229.20	-232.56	-234.02	-235.29	-235.68	-235.66
550			-225.02	-230.93	-233.30	-235.39	-236.19	-236.43
600			-219.62	-228.66	-232.17	-235.25	-236.53	-237.06
700				-222.91	-228.84	-234.25	-236.66	-237.85
800					-224.73	-232.41	-236.06	-237.93
900					-220.62	-230.07	-234.85	-237.29
1000						-227.67	-233.28	-235.95
$S_4O_6^{2-}$								
25	16.50	16.94	17.38	17.81	18.24	19.09	19.95	20.79
50	15.93	16.38	16.82	17.25	17.69	18.54	19.40	20.24
75	15.44	15.88	16.31	16.74	17.17	18.02	18.86	19.70
100	15.02	15.44	15.86	16.28	16.69	17.53	18.35	19.18
125	14.68	15.07	15.46	15.86	16.26	17.06	17.87	18.68
150	14.42	14.75	15.11	15.49	15.87	16.64	17.42	18.21
175	14.25	14.51	14.83	15.16	15.51	16.24	16.99	17.76
200	14.19	14.36	14.60	14.89	15.21	15.88	16.59	17.33
225	14.26	14.29	14.45	14.68	14.95	15.56	16.22	16.92
250	14.51	14.33	14.37	14.53	14.74	15.27	15.88	16.53
300	15.79	14.83	14.48	14.42	14.48	14.80	15.27	15.83
350	19.43	16.26	15.01	14.63	14.47	14.50	14.79	15.21
400		18.63	16.12	15.20	14.73	14.38	14.43	14.69
450		26.47	18.07	16.23	15.30	14.46	14.21	14.27
500			21.28	17.83	16.25	14.75	14.15	13.98
550			26.04	20.10	17.62	15.28	14.26	13.82
600			32.00	23.02	19.41	16.07	14.56	13.82
700				30.04	24.09	18.42	15.75	14.33
800					29.59	21.69	17.75	15.61
900					35.16	25.51	20.41	17.69
1000						29.45	23.48	20.52
$S_4O_6^{2-}$								
25	-248.70	-247.84	-247.01	-246.21	-245.44	-243.92	-242.46	-241.02
50	-250.22	-249.34	-248.49	-247.68	-246.88	-245.34	-243.85	-242.40
75	-251.71	-250.82	-249.97	-249.15	-248.35	-246.81	-245.31	-243.85
100	-253.16	-252.28	-251.44	-250.63	-249.83	-248.29	-246.80	-245.33
125	-254.57	-253.72	-252.90	-252.09	-251.31	-249.78	-248.30	-246.84
150	-255.94	-255.13	-254.33	-253.55	-252.78	-251.28	-249.81	-248.36
175	-257.26	-256.51	-255.74	-254.99	-254.24	-252.76	-251.32	-249.89
200	-258.50	-257.84	-257.12	-256.40	-255.68	-254.25	-252.83	-251.42
225	-259.65	-259.11	-258.46	-257.79	-257.10	-255.72	-254.34	-252.96
250	-260.66	-260.30	-259.76	-259.14	-258.50	-257.18	-255.84	-254.49
300	-262.03	-262.39	-262.17	-261.73	-261.21	-260.06	-258.83	-257.56
350	-261.23	-263.72	-264.26	-264.12	-263.78	-262.87	-261.79	-260.62
400		-263.90	-265.87	-266.22	-266.17	-265.58	-264.69	-263.66
450		-258.45	-266.70	-267.96	-268.32	-268.17	-267.52	-266.66

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
S₄O₆⁻² — Continued								
500		-266.34	-269.20	-270.19	-270.62	-270.28	-269.60	
550		-264.43	-269.86	-271.72	-272.91	-272.93	-272.48	
600		-261.32	-269.92	-272.90	-275.02	-275.47	-275.27	
700			-268.89	-274.37	-278.70	-280.17	-280.54	
800				-275.24	-281.80	-284.36	-285.32	
900					-276.28	-284.61	-288.16	-289.60
1000						-287.49	-291.76	-293.40
S₅⁻²								
25	15.70	16.24	16.77	17.29	17.81	18.82	19.82	20.81
50	14.90	15.45	15.99	16.52	17.04	18.06	19.07	20.06
75	14.17	14.72	15.25	15.77	16.29	17.31	18.31	19.30
100	13.50	14.03	14.55	15.07	15.57	16.58	17.57	18.55
125	12.90	13.40	13.90	14.39	14.89	15.87	16.84	17.81
150	12.37	12.82	13.29	13.76	14.23	15.18	16.13	17.08
175	11.92	12.31	12.73	13.17	13.61	14.52	15.44	16.37
200	11.58	11.86	12.23	12.62	13.03	13.89	14.77	15.67
225	11.36	11.51	11.79	12.12	12.49	13.29	14.13	14.99
250	11.30	11.25	11.41	11.68	11.99	12.71	13.50	14.33
300	11.94	11.12	10.91	10.98	11.15	11.67	12.32	13.05
350	14.93	11.90	10.81	10.55	10.52	10.76	11.24	11.84
400		13.69	11.27	10.48	10.14	10.02	10.26	10.71
450		21.09	12.57	10.85	10.06	9.45	9.42	9.67
500			15.13	11.78	10.33	9.08	8.70	8.74
550				19.27	13.36	11.00	8.93	8.15
600				24.62	15.59	12.09	9.02	7.76
700					21.24	15.32	9.92	7.53
800						19.32	11.66	8.03
900						23.32	13.89	9.14
1000							16.18	10.59
S₅O₆⁻²								
25	-229.00	-228.38	-227.79	-227.20	-226.63	-225.50	-224.39	-223.30
50	-229.97	-229.34	-228.73	-228.13	-227.55	-226.41	-225.29	-224.19
75	-230.87	-230.24	-229.64	-229.05	-228.46	-227.33	-226.21	-225.11
100	-231.72	-231.11	-230.51	-229.93	-229.36	-228.23	-227.13	-226.03
125	-232.51	-231.93	-231.35	-230.79	-230.23	-229.12	-228.03	-226.95
150	-233.23	-232.69	-232.15	-231.61	-231.07	-229.99	-228.92	-227.86
175	-233.87	-233.41	-232.91	-232.39	-231.88	-230.84	-229.80	-228.76
200	-234.42	-234.05	-233.61	-233.14	-232.66	-231.67	-230.66	-229.65
225	-234.86	-234.62	-234.26	-233.84	-233.40	-232.47	-231.50	-230.52
250	-235.13	-235.09	-234.84	-234.49	-234.10	-233.25	-232.33	-231.39
300	-234.95	-235.66	-235.78	-235.63	-235.38	-234.71	-233.93	-233.08
350	-232.45	-235.37	-236.33	-236.50	-236.45	-236.05	-235.44	-234.71
400		-234.01	-236.34	-237.04	-237.29	-237.25	-236.85	-236.28
450		-226.98	-235.52	-237.14	-237.84	-238.28	-238.16	-237.76
500			-233.44	-236.70	-238.06	-239.13	-239.34	-239.16
550				-229.78	-235.63	-237.88	-239.76	-240.38
600				-224.89	-233.91	-237.31	-240.17	-241.26
700					-229.27	-235.14	-240.32	-242.51
800						-232.23	-239.69	-243.08
900						-229.37	-238.61	-243.10
1000							-237.50	-242.80
Sc⁺³								
25	-140.20	-140.67	-141.09	-141.45	-141.79	-142.37	-142.89	-143.35
50	-138.64	-139.13	-139.57	-139.96	-140.31	-140.94	-141.50	-142.00
75	-137.03	-137.54	-137.99	-138.40	-138.77	-139.44	-140.03	-140.57
100	-135.37	-135.91	-136.38	-136.81	-137.20	-137.90	-138.52	-139.08

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar 1.5	2.0	3.0	4.0	5.0
Sc⁺³ — Continued								
125	-133.65	-134.22	-134.73	-135.18	-135.59	-136.32	-136.97	-137.56
150	-131.88	-132.49	-133.03	-133.51	-133.94	-134.72	-135.40	-136.02
175	-130.04	-130.71	-131.29	-131.81	-132.27	-133.09	-133.80	-134.45
200	-128.13	-128.87	-129.51	-130.06	-130.56	-131.43	-132.19	-132.87
225	-126.14	-126.96	-127.67	-128.28	-128.82	-129.75	-130.55	-131.27
250	-124.05	-124.99	-125.78	-126.45	-127.04	-128.04	-128.90	-129.65
300	-119.54	-120.85	-121.89	-122.67	-123.37	-124.55	-125.53	-126.38
350	-115.17	-116.35	-117.89	-118.77	-119.57	-120.94	-122.08	-123.05
400		-114.22	-113.95	-114.80	-115.68	-117.25	-118.55	-119.65
450		-117.10	-110.29	-110.82	-111.72	-113.46	-114.94	-116.19
500			-107.33	-106.89	-107.70	-109.58	-111.24	-112.66
550			-105.55	-103.12	-103.62	-105.59	-107.45	-109.03
600			-105.12	-99.65	-99.52	-101.48	-103.54	-105.31
700				-94.03	-91.29	-92.75	-95.25	-97.44
800					-82.91	-83.24	-86.24	-88.91
900					-73.93	-72.96	-76.55	-79.68
1000						-62.21	-66.40	-69.78
SeO₃⁻²								
25	-88.40	-88.21	-88.00	-87.79	-87.56	-87.09	-86.60	-86.10
50	-88.41	-88.22	-88.02	-87.81	-87.59	-87.13	-86.65	-86.17
75	-88.31	-88.14	-87.95	-87.75	-87.54	-87.10	-86.64	-86.17
100	-88.12	-87.97	-87.80	-87.62	-87.42	-87.01	-86.57	-86.12
125	-87.83	-87.72	-87.58	-87.42	-87.24	-86.86	-86.45	-86.02
150	-87.44	-87.38	-87.28	-87.15	-87.00	-86.66	-86.28	-85.88
175	-86.93	-86.95	-86.90	-86.82	-86.70	-86.41	-86.07	-85.70
200	-86.29	-86.42	-86.45	-86.41	-86.34	-86.11	-85.81	-85.48
225	-85.51	-85.78	-85.90	-85.93	-85.91	-85.76	-85.52	-85.22
250	-84.52	-85.01	-85.26	-85.38	-85.42	-85.35	-85.18	-84.93
300	-81.70	-83.00	-83.67	-84.02	-84.22	-84.39	-84.37	-84.24
350	-76.51	-79.97	-81.61	-82.29	-82.73	-83.21	-83.40	-83.42
400		-76.28	-78.95	-80.16	-80.92	-81.81	-82.25	-82.45
450		-67.74	-75.44	-77.54	-78.75	-80.17	-80.93	-81.34
500			-70.75	-74.32	-76.18	-78.26	-79.40	-80.07
550				-64.62	-70.43	-73.15	-76.08	-77.67
600				-57.44	-65.91	-69.67	-73.60	-75.71
700					-55.76	-61.53	-67.72	-71.05
800						-52.47	-60.75	-65.40
900						-43.18	-53.04	-58.93
1000							-45.07	-51.91
SeO₄⁻²								
25	-105.50	-105.26	-105.01	-104.75	-104.48	-103.94	-103.38	-102.81
50	-105.77	-105.53	-105.28	-105.02	-104.76	-104.22	-103.67	-103.11
75	-105.94	-105.71	-105.47	-105.22	-104.97	-104.45	-103.92	-103.37
100	-106.02	-105.82	-105.60	-105.36	-105.13	-104.63	-104.12	-103.59
125	-106.02	-105.85	-105.66	-105.45	-105.23	-104.76	-104.27	-103.77
150	-105.92	-105.81	-105.65	-105.48	-105.28	-104.85	-104.39	-103.91
175	-105.73	-105.69	-105.58	-105.44	-105.28	-104.90	-104.47	-104.02
200	-105.41	-105.47	-105.44	-105.35	-105.22	-104.90	-104.52	-104.10
225	-104.95	-105.15	-105.21	-105.18	-105.11	-104.86	-104.52	-104.14
250	-104.30	-104.71	-104.90	-104.95	-104.93	-104.77	-104.50	-104.16
300	-102.19	-103.39	-103.98	-104.26	-104.40	-104.46	-104.34	-104.11
350	-97.70	-101.08	-102.61	-103.23	-103.59	-103.95	-104.03	-103.95
400		-97.98	-100.66	-101.80	-102.49	-103.24	-103.57	-103.66
450		-89.70	-97.85	-99.90	-101.05	-102.32	-102.95	-103.25
500			-93.82	-97.41	-99.21	-101.15	-102.15	-102.69
550				-88.28	-94.25	-96.94	-99.71	-101.15
600				-81.62	-90.45	-94.22	-98.00	-99.95
700					-81.69	-87.64	-93.73	-96.87

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
SeO₄⁻² — Continued								
800					-80.18	-88.44	-92.88	-95.49
900					-72.57	-82.49	-88.14	-91.36
1000						-76.36	-82.92	-86.41
SiF₆⁻²								
25	-525.70	-525.21	-524.72	-524.25	-523.78	-522.84	-521.91	-520.99
50	-526.39	-525.89	-525.40	-524.91	-524.44	-523.50	-522.57	-521.64
75	-527.00	-526.50	-526.02	-525.54	-525.07	-524.14	-523.21	-522.29
100	-527.54	-527.07	-526.60	-526.13	-525.67	-524.75	-523.84	-522.93
125	-528.02	-527.57	-527.13	-526.68	-526.23	-525.34	-524.45	-523.56
150	-528.41	-528.02	-527.61	-527.18	-526.76	-525.89	-525.03	-524.16
175	-528.72	-528.40	-528.03	-527.64	-527.24	-526.42	-525.59	-524.74
200	-528.93	-528.70	-528.39	-528.05	-527.69	-526.92	-526.12	-525.31
225	-529.00	-528.91	-528.69	-528.41	-528.09	-527.39	-526.63	-525.85
250	-528.91	-529.03	-528.92	-528.71	-528.44	-527.82	-527.12	-526.38
300	-527.95	-528.84	-529.12	-529.12	-529.00	-528.58	-528.02	-527.38
350	-524.64	-527.74	-528.91	-529.23	-529.33	-529.18	-528.80	-528.29
400		-525.66	-528.13	-528.98	-529.39	-529.62	-529.47	-529.12
450		-518.03	-526.50	-528.29	-529.15	-529.87	-530.01	-529.85
500			-523.62	-527.02	-528.54	-529.91	-530.40	-530.47
550				-519.17	-525.10	-527.52	-529.73	-530.63
600					-513.51	-522.53	-526.09	-530.68
700						-516.19	-522.14	-531.50
800							-517.39	-530.96
900							-522.16	-529.66
1000							-519.06	-527.64
SiO₂⁰								
25	-199.19	-198.99	-198.79	-198.59	-198.38	-197.93	-197.51	-197.07
50	-199.58	-199.41	-199.23	-199.05	-198.86	-198.49	-198.11	-197.73
75	-199.91	-199.75	-199.59	-199.42	-199.25	-198.91	-198.57	-198.22
100	-200.23	-200.08	-199.92	-199.76	-199.60	-199.29	-198.97	-198.65
125	-200.55	-200.40	-200.25	-200.10	-199.95	-199.63	-199.35	-199.05
150	-200.88	-200.74	-200.60	-200.46	-200.31	-200.02	-199.73	-199.44
175	-201.23	-201.10	-200.96	-200.83	-200.69	-200.41	-200.13	-199.85
200	-201.60	-201.48	-201.35	-201.22	-201.09	-200.82	-200.55	-200.28
225	-202.00	-201.88	-201.76	-201.63	-201.50	-201.24	-200.98	-200.72
250	-202.40	-202.31	-202.19	-202.07	-201.95	-201.70	-201.44	-201.19
300	-203.25	-203.21	-203.12	-203.02	-202.90	-202.67	-202.43	-202.19
350	-204.03	-204.17	-204.13	-204.05	-203.95	-203.74	-203.51	-203.28
400		-205.08	-205.20	-205.16	-205.09	-204.90	-204.69	-204.47
450		-205.56	-206.29	-206.33	-206.29	-206.14	-205.95	-205.75
500		-205.39	-207.37	-207.56	-207.57	-207.47	-207.30	-207.11
550			-205.60	-208.39	-208.82	-208.91	-208.86	-208.72
600				-206.25	-209.38	-210.10	-210.29	-210.22
700				-208.37	-211.59	-212.79	-213.23	-213.45
800				-211.22	-214.31	-215.76	-216.40	-216.82
900				-214.59	-217.52	-219.08	-219.86	-220.44
1000				-218.36	-221.16	-222.76	-223.61	-224.31
Sm⁺²								
25	-123.00	-123.06	-123.09	-123.09	-123.09	-123.04	-122.96	-122.85
50	-122.85	-122.91	-122.94	-122.96	-122.96	-122.92	-122.86	-122.77
75	-122.71	-122.77	-122.81	-122.83	-122.84	-122.82	-122.77	-122.70
100	-122.57	-122.65	-122.70	-122.73	-122.74	-122.74	-122.70	-122.64
125	-122.44	-122.53	-122.59	-122.63	-122.65	-122.67	-122.65	-122.60
150	-122.30	-122.41	-122.49	-122.54	-122.58	-122.61	-122.60	-122.57
175	-122.16	-122.30	-122.40	-122.47	-122.51	-122.57	-122.58	-122.56
200	-122.00	-122.17	-122.30	-122.39	-122.45	-122.53	-122.56	-122.56

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Sm⁺² — Continued								
225	-121.82	-122.04	-122.20	-122.31	-122.40	-122.51	-122.56	-122.57
250	-121.60	-121.89	-122.09	-122.24	-122.35	-122.49	-122.57	-122.60
300	-121.03	-121.54	-121.87	-122.08	-122.24	-122.47	-122.61	-122.69
350	-120.38	-121.04	-121.64	-121.92	-122.14	-122.47	-122.68	-122.82
400		-121.46	-121.45	-121.76	-122.04	-122.48	-122.78	-122.99
450		-123.38	-121.37	-121.63	-121.95	-122.50	-122.89	-123.18
500			-121.50	-121.52	-121.86	-122.52	-123.02	-123.38
550			-122.00	-121.47	-121.77	-122.53	-123.14	-123.60
600			-122.91	-121.53	-121.68	-122.52	-123.25	-123.80
700				-122.16	-121.52	-122.37	-123.37	-124.15
800					-121.39	-122.00	-123.30	-124.33
900						-121.43	-123.06	-124.32
1000						-120.79	-122.75	-124.12
Sm³⁺								
25	-159.10	-159.57	-159.99	-160.36	-160.69	-161.28	-161.80	-162.26
50	-157.79	-158.28	-158.72	-159.11	-159.46	-160.10	-160.66	-161.17
75	-156.42	-156.93	-157.38	-157.79	-158.16	-158.83	-159.42	-159.96
100	-154.98	-155.52	-155.99	-156.42	-156.81	-157.51	-158.13	-158.70
125	-153.49	-154.05	-154.55	-155.00	-155.41	-156.14	-156.79	-157.39
150	-151.93	-152.54	-153.07	-153.54	-153.97	-154.74	-155.42	-156.04
175	-150.30	-150.96	-151.53	-152.04	-152.50	-153.31	-154.02	-154.66
200	-148.60	-149.32	-149.94	-150.49	-150.98	-151.84	-152.59	-153.26
225	-146.82	-147.61	-148.30	-148.89	-149.42	-150.34	-151.13	-151.84
250	-144.93	-145.84	-146.61	-147.25	-147.82	-148.81	-149.65	-150.39
300	-140.82	-142.07	-143.07	-143.83	-144.50	-145.65	-146.61	-147.44
350	-136.70	-137.93	-139.41	-140.27	-141.04	-142.36	-143.46	-144.41
400		-135.76	-135.73	-136.60	-137.46	-138.97	-140.22	-141.29
450		-137.56	-132.25	-132.88	-133.78	-135.46	-136.88	-138.09
500			-129.28	-129.15	-130.00	-131.85	-133.44	-134.80
550				-127.21	-125.52	-126.15	-128.11	-129.89
600				-126.19	-122.09	-122.23	-124.23	-126.21
700					-116.22	-114.28	-115.96	-118.38
800						-106.08	-106.91	-109.82
900						-97.30	-97.12	-100.60
1000							-86.87	-90.92
Sn⁺²								
25	-6.63	-6.80	-6.93	-7.04	-7.13	-7.25	-7.34	-7.39
50	-6.53	-6.70	-6.84	-6.96	-7.05	-7.20	-7.31	-7.39
75	-6.41	-6.59	-6.74	-6.86	-6.97	-7.14	-7.26	-7.36
100	-6.27	-6.47	-6.63	-6.76	-6.88	-7.06	-7.20	-7.31
125	-6.12	-6.34	-6.51	-6.66	-6.78	-6.98	-7.14	-7.27
150	-5.96	-6.19	-6.38	-6.54	-6.68	-6.90	-7.08	-7.22
175	-5.77	-6.03	-6.24	-6.42	-6.57	-6.82	-7.01	-7.17
200	-5.55	-5.85	-6.09	-6.29	-6.46	-6.73	-6.95	-7.12
225	-5.30	-5.64	-5.92	-6.15	-6.34	-6.64	-6.88	-7.07
250	-5.00	-5.41	-5.73	-5.99	-6.20	-6.55	-6.81	-7.02
300	-4.23	-4.85	-5.31	-5.64	-5.91	-6.34	-6.67	-6.93
350	-3.37	-4.11	-4.85	-5.24	-5.57	-6.11	-6.52	-6.85
400		-4.33	-4.40	-4.82	-5.21	-5.86	-6.36	-6.75
450		-6.23	-4.03	-4.38	-4.82	-5.58	-6.18	-6.65
500			-3.89	-3.95	-4.40	-5.27	-5.98	-6.53
550				-4.13	-3.57	-3.95	-4.92	-5.74
600				-4.82	-3.27	-3.48	-4.52	-5.47
700					-3.18	-2.50	-3.52	-4.74
800						-1.47	-2.19	-3.72
900						-0.23	-0.56	-2.42
1000							1.22	-0.97

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Sr⁺²								
25	-134.76	-134.95	-135.09	-135.21	-135.30	-135.43	-135.51	-135.56
50	-134.56	-134.75	-134.90	-135.02	-135.12	-135.27	-135.37	-135.43
75	-134.35	-134.55	-134.71	-134.83	-134.94	-135.10	-135.21	-135.29
100	-134.13	-134.34	-134.50	-134.64	-134.75	-134.93	-135.05	-135.14
125	-133.90	-134.12	-134.30	-134.44	-134.56	-134.75	-134.89	-134.99
150	-133.65	-133.89	-134.08	-134.24	-134.37	-134.58	-134.73	-134.84
175	-133.38	-133.64	-133.86	-134.03	-134.17	-134.40	-134.57	-134.69
200	-133.09	-133.38	-133.62	-133.81	-133.97	-134.22	-134.41	-134.55
225	-132.77	-133.10	-133.37	-133.58	-133.76	-134.04	-134.25	-134.40
250	-132.40	-132.79	-133.10	-133.35	-133.55	-133.86	-134.09	-134.26
300	-131.51	-132.10	-132.53	-132.84	-133.09	-133.48	-133.76	-133.98
350	-130.49	-131.23	-131.92	-132.29	-132.60	-133.08	-133.44	-133.71
400		-131.12	-131.30	-131.71	-132.08	-132.66	-133.10	-133.44
450		-132.19	-130.73	-131.11	-131.53	-132.22	-132.75	-133.16
500			-130.31	-130.51	-130.95	-131.76	-132.38	-132.87
550			-130.14	-129.92	-130.35	-131.26	-131.99	-132.56
600			-130.29	-129.39	-129.71	-130.71	-131.56	-132.22
700				-128.70	-128.38	-129.44	-130.55	-131.42
800					-126.99	-127.88	-129.28	-130.39
900						-125.44	-126.08	-127.79
1000							-124.16	-126.17
SrCO₃⁰								
25	-264.86	-265.01	-265.13	-265.22	-265.30	-265.42	-265.50	-265.56
50	-265.05	-265.20	-265.32	-265.42	-265.50	-265.64	-265.74	-265.81
75	-265.19	-265.34	-265.46	-265.57	-265.66	-265.80	-265.91	-266.00
100	-265.30	-265.45	-265.58	-265.68	-265.77	-265.92	-266.04	-266.14
125	-265.39	-265.54	-265.66	-265.77	-265.86	-266.02	-266.14	-266.24
150	-265.46	-265.60	-265.73	-265.84	-265.93	-266.09	-266.21	-266.32
175	-265.50	-265.65	-265.77	-265.88	-265.98	-266.13	-266.26	-266.37
200	-265.53	-265.68	-265.80	-265.91	-266.00	-266.16	-266.29	-266.40
225	-265.55	-265.69	-265.81	-265.92	-266.01	-266.17	-266.30	-266.41
250	-265.55	-265.68	-265.81	-265.91	-266.01	-266.17	-266.30	-266.41
300	-265.53	-265.64	-265.76	-265.86	-265.95	-266.11	-266.25	-266.36
350	-265.51	-265.55	-265.66	-265.76	-265.85	-266.01	-266.14	-266.25
400		-265.45	-265.52	-265.61	-265.70	-265.86	-265.99	-266.10
450		-265.43	-265.36	-265.43	-265.51	-265.66	-265.79	-265.90
500		-265.54	-265.18	-265.22	-265.29	-265.43	-265.55	-265.66
550		-265.55	-265.00	-264.98	-265.03	-265.16	-265.28	-265.39
600		-265.43	-264.81	-264.72	-264.75	-264.86	-264.97	-265.08
700		-264.97	-264.33	-264.13	-264.10	-264.17	-264.27	-264.37
800		-264.29	-263.68	-263.42	-263.35	-263.37	-263.45	-263.54
900		-263.44	-262.86	-262.59	-262.48	-262.46	-262.53	-262.61
1000		-262.46	-261.91	-261.63	-261.50	-261.46	-261.52	-261.60
SrCl⁺								
25	-165.80	-165.72	-165.63	-165.52	-165.41	-165.16	-164.90	-164.62
50	-166.09	-166.01	-165.91	-165.80	-165.69	-165.45	-165.19	-164.93
75	-166.40	-166.32	-166.22	-166.12	-166.01	-165.77	-165.52	-165.26
100	-166.74	-166.66	-166.56	-166.46	-166.35	-166.12	-165.87	-165.62
125	-167.09	-167.01	-166.92	-166.82	-166.72	-166.49	-166.25	-166.00
150	-167.47	-167.39	-167.31	-167.21	-167.11	-166.88	-166.65	-166.40
175	-167.85	-167.79	-167.71	-167.61	-167.52	-167.30	-167.07	-166.83
200	-168.25	-168.19	-168.12	-168.04	-167.94	-167.74	-167.51	-167.28
225	-168.65	-168.61	-168.55	-168.47	-168.39	-168.19	-167.97	-167.74
250	-169.05	-169.04	-168.99	-168.93	-168.85	-168.66	-168.45	-168.23
300	-169.84	-169.92	-169.91	-169.87	-169.80	-169.64	-169.46	-169.25
350	-170.58	-170.78	-170.87	-170.85	-170.81	-170.68	-170.52	-170.33
400		-171.88	-171.87	-171.88	-171.86	-171.77	-171.64	-171.47
450		-173.17	-172.91	-172.94	-172.94	-172.90	-172.80	-172.66

TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
SrCl⁺ — Continued								
500		-174.00	-174.03	-174.06	-174.07	-174.00	-173.89	
550		-175.16	-175.15	-175.21	-175.26	-175.24	-175.15	
600		-176.40	-176.32	-176.38	-176.49	-176.51	-176.45	
700			-178.82	-178.79	-178.98	-179.10	-179.13	
800				-181.31	-181.52	-181.76	-181.87	
900				-183.91	-184.12	-184.47	-184.65	
1000					-186.80	-187.26	-187.48	
SrF⁺								
25	-202.29	-202.36	-202.40	-202.42	-202.43	-202.41	-202.35	-202.28
50	-202.15	-202.22	-202.26	-202.29	-202.30	-202.30	-202.26	-202.20
75	-202.04	-202.12	-202.16	-202.19	-202.21	-202.22	-202.19	-202.15
100	-201.96	-202.04	-202.09	-202.13	-202.15	-202.16	-202.15	-202.11
125	-201.90	-201.99	-202.05	-202.09	-202.12	-202.14	-202.13	-202.11
150	-201.86	-201.96	-202.03	-202.07	-202.11	-202.14	-202.15	-202.13
175	-201.83	-201.94	-202.02	-202.08	-202.12	-202.17	-202.18	-202.17
200	-201.82	-201.94	-202.04	-202.11	-202.16	-202.22	-202.24	-202.24
225	-201.80	-201.95	-202.06	-202.15	-202.21	-202.28	-202.32	-202.33
250	-201.79	-201.97	-202.10	-202.20	-202.27	-202.37	-202.42	-202.44
300	-201.72	-202.02	-202.22	-202.35	-202.45	-202.59	-202.68	-202.73
350	-201.69	-202.04	-202.39	-202.55	-202.68	-202.88	-203.00	-203.08
400		-202.62	-202.62	-202.80	-202.96	-203.22	-203.39	-203.50
450		-204.12	-202.97	-203.11	-203.29	-203.60	-203.82	-203.98
500			-203.48	-203.48	-203.67	-204.03	-204.30	-204.50
550			-204.24	-203.92	-204.08	-204.49	-204.82	-205.07
600			-205.28	-204.46	-204.53	-204.97	-205.37	-205.66
700				-205.93	-205.54	-205.98	-206.51	-206.92
800					-206.70	-206.98	-207.67	-208.22
900					-207.91	-207.99	-208.85	-209.51
1000						-209.06	-210.08	-210.81
Threonine								
25	-120.00	-119.10	-118.23	-117.39	-116.56	-114.95	-113.37	-111.82
50	-121.38	-120.48	-119.61	-118.77	-117.95	-116.35	-114.79	-113.27
75	-122.86	-121.96	-121.09	-120.25	-119.43	-117.83	-116.29	-114.78
100	-124.44	-123.53	-122.65	-121.81	-120.99	-119.40	-117.86	-116.36
125	-126.10	-125.18	-124.31	-123.46	-122.64	-121.05	-119.52	-118.02
150	-127.85	-126.93	-126.05	-125.20	-124.37	-122.78	-121.24	-119.74
175	-129.67	-128.75	-127.86	-127.01	-126.18	-124.58	-123.04	-121.54
200	-131.58	-130.65	-129.75	-128.89	-128.06	-126.46	-124.91	-123.41
225	-133.57	-132.64	-131.72	-130.85	-130.01	-128.40	-126.85	-125.34
250	-135.64	-134.70	-133.76	-132.87	-132.02	-130.40	-128.84	-127.33
300	-140.08	-139.07	-138.06	-137.13	-136.26	-134.60	-133.02	-131.49
350	-145.30	-143.86	-142.67	-141.66	-140.74	-139.03	-137.42	-135.87
400		-149.37	-147.62	-146.47	-145.47	-143.68	-142.03	-140.46
450		-156.98	-153.01	-151.57	-150.46	-148.55	-146.85	-145.24
500		-167.44	-158.97	-157.00	-155.70	-153.64	-151.86	-150.21
550		-176.96	-165.60	-162.77	-161.19	-158.92	-157.05	-155.35
600		-185.36	-172.76	-168.89	-166.94	-164.40	-162.42	-160.66
700		-200.46	-187.53	-181.92	-179.12	-175.90	-173.67	-171.78
800		-214.46	-202.01	-195.50	-191.96	-188.04	-185.53	-183.51
900		-227.98	-216.09	-209.20	-205.17	-200.68	-197.92	-195.80
1000		-241.33	-229.93	-222.88	-218.58	-213.69	-210.77	-208.61
Trichloroacetate								
25	-102.14	-101.30	-100.50	-99.72	-98.96	-97.47	-96.03	-94.62
50	-103.78	-102.93	-102.12	-101.33	-100.56	-99.07	-97.62	-96.21
75	-105.46	-104.60	-103.78	-102.99	-102.22	-100.73	-99.28	-97.86
100	-107.16	-106.30	-105.49	-104.69	-103.92	-102.43	-100.98	-99.57

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Trichloroacetate — Continued								
125	-108.89	-108.04	-107.22	-106.43	-105.66	-104.18	-102.73	-101.32
150	-110.63	-109.80	-108.99	-108.20	-107.44	-105.96	-104.52	-103.11
175	-112.39	-111.58	-110.78	-110.00	-109.24	-107.77	-106.34	-104.93
200	-114.16	-113.38	-112.59	-111.82	-111.07	-109.61	-108.18	-106.79
225	-115.92	-115.19	-114.42	-113.66	-112.92	-111.47	-110.06	-108.67
250	-117.67	-117.00	-116.26	-115.53	-114.80	-113.36	-111.96	-110.59
300	-121.02	-120.62	-119.97	-119.29	-118.59	-117.21	-115.84	-114.49
350	-123.76	-124.11	-123.68	-123.08	-122.44	-121.13	-119.80	-118.48
400		-127.29	-127.33	-126.88	-126.32	-125.10	-123.83	-122.55
450		-128.75	-130.81	-130.65	-130.22	-129.13	-127.93	-126.69
500			-133.99	-134.33	-134.09	-133.18	-132.07	-130.88
550			-136.76	-137.91	-137.94	-137.25	-136.25	-135.13
600			-139.21	-141.36	-141.75	-141.34	-140.47	-139.42
700				-148.09	-149.27	-149.55	-148.97	-148.09
800					-156.83	-157.81	-157.55	-156.84
900						-164.66	-166.19	-166.23
1000							-174.79	-175.03
Trichloroacetic Acid								
25	-57.17	-56.10	-55.06	-54.06	-53.08	-51.18	-49.34	-47.53
50	-59.14	-58.06	-57.02	-56.02	-55.05	-53.16	-51.34	-49.55
75	-61.21	-60.13	-59.09	-58.09	-57.12	-55.23	-53.41	-51.64
100	-63.39	-62.29	-61.25	-60.25	-59.27	-57.39	-55.57	-53.80
125	-65.66	-64.55	-63.50	-62.49	-61.51	-59.63	-57.81	-56.04
150	-68.02	-66.90	-65.84	-64.83	-63.84	-61.95	-60.13	-58.36
175	-70.47	-69.34	-68.27	-67.24	-66.25	-64.35	-62.52	-60.74
200	-73.01	-71.87	-70.78	-69.74	-68.74	-66.82	-64.98	-63.20
225	-75.65	-74.49	-73.37	-72.31	-71.30	-69.36	-67.51	-65.72
250	-78.40	-77.21	-76.05	-74.96	-73.93	-71.97	-70.11	-68.31
300	-84.30	-82.95	-81.65	-80.50	-79.41	-77.39	-75.49	-73.67
350	-91.46	-89.26	-87.64	-86.35	-85.19	-83.07	-81.11	-79.25
400		-96.69	-94.10	-92.54	-91.25	-89.00	-86.96	-85.05
450		-107.68	-101.18	-99.12	-97.62	-95.16	-93.03	-91.06
500		-123.57	-109.14	-106.14	-104.31	-101.57	-99.31	-97.26
550		-137.67	-118.15	-113.65	-111.33	-108.22	-105.80	-103.66
600		-149.70	-127.99	-121.65	-118.69	-115.11	-112.49	-110.25
700		-170.44	-148.16	-138.76	-134.29	-129.52	-126.45	-123.98
800		-188.87	-167.44	-156.45	-150.68	-144.67	-141.11	-138.40
900		-206.13	-185.68	-174.01	-167.38	-160.36	-156.37	-153.48
1000		-222.75	-203.16	-191.23	-184.10	-176.39	-172.12	-169.17
Trichloroacetyl Chloride								
25	-100.90	-99.93	-99.00	-98.10	-97.23	-95.55	-93.92	-92.33
50	-102.72	-101.73	-100.79	-99.88	-99.00	-97.30	-95.66	-94.06
75	-104.65	-103.64	-102.69	-101.77	-100.88	-99.17	-97.52	-95.92
100	-106.67	-105.65	-104.69	-103.76	-102.87	-101.15	-99.49	-97.88
125	-108.78	-107.76	-106.78	-105.85	-104.95	-103.22	-101.55	-99.94
150	-110.98	-109.95	-108.96	-108.02	-107.11	-105.37	-103.70	-102.08
175	-113.27	-112.22	-111.22	-110.27	-109.35	-107.60	-105.92	-104.29
200	-115.64	-114.58	-113.57	-112.60	-111.67	-109.90	-108.21	-106.58
225	-118.10	-117.03	-115.99	-115.01	-114.07	-112.28	-110.58	-108.93
250	-120.66	-119.56	-118.49	-117.49	-116.53	-114.73	-113.01	-111.36
300	-126.12	-124.91	-123.73	-122.66	-121.67	-119.81	-118.06	-116.38
350	-132.62	-130.76	-129.31	-128.14	-127.08	-125.14	-123.34	-121.63
400		-137.54	-135.31	-133.93	-132.76	-130.71	-128.85	-127.09
450		-147.21	-141.85	-140.06	-138.72	-136.51	-134.56	-132.76
500		-160.86	-149.12	-146.58	-144.97	-142.53	-140.48	-138.62
550		-173.11	-157.27	-153.51	-151.52	-148.78	-146.60	-144.66
600		-183.71	-166.11	-160.87	-158.36	-155.24	-152.91	-150.88
700		-202.32	-184.26	-176.57	-172.84	-168.76	-166.06	-163.85

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Trichloroacetyl Chloride — Continued								
800		-219.17	-201.79	-192.82	-188.04	-182.97	-179.87	-177.47
900		-235.15	-218.56	-209.04	-203.58	-197.69	-194.25	-191.70
1000		-250.70	-234.80	-225.07	-219.21	-212.76	-209.10	-206.49
Toluene								
25	30.26	31.40	32.49	33.56	34.59	36.61	38.56	40.48
50	29.06	30.20	31.29	32.35	33.38	35.38	37.32	39.21
75	27.66	28.81	29.90	30.96	31.99	33.98	35.90	37.78
100	26.09	27.24	28.33	29.39	30.42	32.40	34.32	36.19
125	24.35	25.50	26.60	27.66	28.68	30.67	32.58	34.45
150	22.45	23.60	24.71	25.77	26.80	28.78	30.69	32.56
175	20.41	21.56	22.67	23.73	24.76	26.75	28.67	30.53
200	18.23	19.38	20.49	21.56	22.60	24.59	26.50	28.37
225	15.92	17.06	18.18	19.26	20.30	22.29	24.21	26.08
250	13.47	14.60	15.74	16.83	17.88	19.88	21.80	23.67
300	8.18	9.30	10.50	11.61	12.68	14.71	16.64	18.52
350	2.10	3.45	4.77	5.94	7.03	9.10	11.06	12.95
400		-3.15	-1.45	-0.18	0.97	3.09	5.08	6.99
450		-11.45	-8.19	-6.72	-5.49	-3.30	-1.27	0.66
500		-21.95	-15.55	-13.71	-12.35	-10.04	-7.96	-6.00
550		-31.98	-23.57	-21.13	-19.58	-17.12	-14.98	-12.99
600		-41.43	-32.15	-28.98	-27.17	-24.53	-22.31	-20.28
700		-59.64	-50.13	-45.75	-43.34	-40.23	-37.84	-35.71
800		-77.71	-68.54	-63.53	-60.61	-57.01	-54.42	-52.20
900		-96.02	-87.24	-81.96	-78.70	-74.70	-71.94	-69.65
1000		-114.73	-106.29	-100.91	-97.45	-93.17	-90.30	-87.99
Tryptophan								
25	-26.90	-25.23	-23.63	-22.09	-20.59	-17.69	-14.89	-12.15
50	-27.92	-26.24	-24.64	-23.11	-21.61	-18.73	-15.95	-13.24
75	-29.13	-27.44	-25.85	-24.31	-22.82	-19.95	-17.18	-14.48
100	-30.50	-28.82	-27.22	-25.69	-24.20	-21.33	-18.57	-15.88
125	-32.04	-30.36	-28.76	-27.23	-25.74	-22.87	-20.12	-17.44
150	-33.73	-32.06	-30.45	-28.92	-27.43	-24.56	-21.81	-19.13
175	-35.56	-33.89	-32.29	-30.75	-29.26	-26.39	-23.64	-20.96
200	-37.52	-35.87	-34.26	-32.71	-31.22	-28.35	-25.60	-22.93
225	-39.60	-37.97	-36.35	-34.80	-33.31	-30.44	-27.69	-25.01
250	-41.80	-40.20	-38.57	-37.02	-35.52	-32.65	-29.89	-27.22
300	-46.54	-45.04	-43.37	-41.80	-40.29	-37.40	-34.63	-31.95
350	-51.87	-50.37	-48.62	-47.01	-45.48	-42.57	-39.79	-37.10
400		-56.32	-54.32	-52.64	-51.08	-48.13	-45.33	-42.63
450		-63.50	-60.48	-58.67	-57.05	-54.05	-51.23	-48.52
500		-72.24	-67.15	-65.10	-63.39	-60.32	-57.46	-54.73
550		-80.78	-74.35	-71.91	-70.08	-66.91	-64.01	-61.26
600		-89.02	-82.02	-79.10	-77.10	-73.80	-70.86	-68.08
700		-105.32	-98.17	-94.45	-92.05	-88.45	-85.39	-82.55
800		-121.84	-114.92	-110.78	-108.04	-104.12	-100.93	-98.03
900		-138.82	-132.15	-127.83	-124.87	-120.68	-117.38	-114.43
1000		-156.31	-149.87	-145.48	-142.39	-138.02	-134.65	-131.68
Tyrosine								
25	-87.30	-85.87	-84.50	-83.18	-81.89	-79.39	-76.98	-74.61
50	-88.51	-87.08	-85.71	-84.39	-83.10	-80.63	-78.23	-75.89
75	-89.86	-88.42	-87.05	-85.73	-84.45	-81.98	-79.59	-77.27
100	-91.33	-89.89	-88.52	-87.20	-85.92	-83.45	-81.07	-78.76
125	-92.93	-91.48	-90.11	-88.79	-87.51	-85.04	-82.67	-80.35
150	-94.63	-93.19	-91.81	-90.49	-89.20	-86.74	-84.36	-82.05
175	-96.44	-95.00	-93.62	-92.29	-91.00	-88.53	-86.16	-83.85
200	-98.35	-96.92	-95.52	-94.19	-92.90	-90.43	-88.05	-85.74

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Tyrosine — Continued								
225	-100.36	-98.93	-97.53	-96.19	-94.89	-92.41	-90.03	-87.72
250	-102.46	-101.05	-99.63	-98.28	-96.98	-94.49	-92.10	-89.79
300	-106.97	-105.58	-104.10	-102.72	-101.40	-98.89	-96.49	-94.16
350	-112.15	-110.56	-108.95	-107.51	-106.15	-103.60	-101.17	-98.84
400		-116.21	-114.18	-112.63	-111.22	-108.60	-106.15	-103.79
450		-123.54	-119.85	-118.09	-116.59	-113.89	-111.39	-109.01
500		-133.13	-126.06	-123.89	-122.25	-119.44	-116.89	-114.47
550		-142.10	-132.87	-130.06	-128.22	-125.24	-122.62	-120.17
600		-150.34	-140.17	-136.58	-134.46	-131.29	-128.59	-126.09
700		-165.79	-155.38	-150.49	-147.73	-144.05	-141.16	-138.56
800		-180.75	-170.70	-165.13	-161.82	-157.61	-154.51	-151.82
900		-195.64	-186.01	-180.15	-176.47	-171.84	-168.55	-165.78
1000		-210.66	-201.40	-195.43	-191.54	-186.61	-183.21	-180.41
Tb⁺³								
25	-159.50	-159.95	-160.35	-160.70	-161.02	-161.57	-162.06	-162.49
50	-158.11	-158.58	-159.00	-159.37	-159.71	-160.31	-160.84	-161.31
75	-156.66	-157.15	-157.59	-157.97	-158.33	-158.96	-159.52	-160.03
100	-155.15	-155.67	-156.12	-156.53	-156.91	-157.57	-158.16	-158.69
125	-153.59	-154.14	-154.62	-155.05	-155.44	-156.14	-156.76	-157.32
150	-151.96	-152.55	-153.07	-153.52	-153.94	-154.67	-155.32	-155.91
175	-150.27	-150.91	-151.47	-151.96	-152.40	-153.18	-153.86	-154.47
200	-148.51	-149.21	-149.82	-150.35	-150.82	-151.65	-152.37	-153.02
225	-146.66	-147.44	-148.12	-148.69	-149.21	-150.10	-150.86	-151.54
250	-144.71	-145.60	-146.36	-147.00	-147.55	-148.51	-149.32	-150.04
300	-140.47	-141.72	-142.71	-143.47	-144.13	-145.25	-146.18	-146.99
350	-136.27	-137.47	-138.95	-139.80	-140.56	-141.87	-142.95	-143.87
400		-135.33	-135.20	-136.04	-136.89	-138.38	-139.62	-140.67
450		-137.52	-131.66	-132.24	-133.13	-134.79	-136.20	-137.39
500			-128.71	-128.46	-129.28	-131.10	-132.69	-134.04
550			-126.76	-124.80	-125.37	-127.29	-129.07	-130.58
600			-125.95	-121.37	-121.40	-123.35	-125.33	-127.01
700				-115.61	-113.38	-114.95	-117.36	-119.46
800					-105.14	-105.77	-108.68	-111.24
900					-96.32	-95.85	-99.33	-102.32
1000						-85.45	-89.52	-92.74
Tl⁺								
25	-7.74	-7.52	-7.30	-7.07	-6.84	-6.37	-5.90	-5.43
50	-8.49	-8.26	-8.03	-7.80	-7.56	-7.09	-6.62	-6.15
75	-9.23	-9.00	-8.76	-8.53	-8.30	-7.83	-7.36	-6.89
100	-9.98	-9.74	-9.51	-9.27	-9.04	-8.57	-8.10	-7.63
125	-10.73	-10.49	-10.25	-10.02	-9.78	-9.31	-8.85	-8.38
150	-11.48	-11.24	-11.00	-10.77	-10.53	-10.07	-9.60	-9.14
175	-12.22	-11.99	-11.76	-11.53	-11.29	-10.83	-10.36	-9.90
200	-12.97	-12.75	-12.52	-12.29	-12.05	-11.59	-11.13	-10.67
225	-13.72	-13.51	-13.28	-13.05	-12.82	-12.36	-11.90	-11.44
250	-14.46	-14.26	-14.04	-13.81	-13.59	-13.13	-12.68	-12.22
300	-15.92	-15.78	-15.57	-15.35	-15.13	-14.69	-14.24	-13.79
350	-17.31	-17.27	-17.11	-16.90	-16.69	-16.26	-15.82	-15.38
400		-18.81	-18.64	-18.45	-18.25	-17.84	-17.41	-16.98
450		-20.30	-20.18	-20.01	-19.83	-19.43	-19.01	-18.59
500			-21.71	-21.57	-21.40	-21.03	-20.63	-20.21
550			-23.22	-23.12	-22.97	-22.63	-22.25	-21.85
600			-24.73	-24.67	-24.55	-24.24	-23.88	-23.49
700				-27.80	-27.70	-27.45	-27.14	-26.78
800					-30.87	-30.67	-30.41	-30.09
900					-34.07	-33.90	-33.68	-33.39
1000						-37.15	-36.98	-36.70

GIBBS FREE ENERGIES OF FORMATION OF AQUEOUS SPECIES

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TABLE I. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Ti ⁺³								
25	51.30	50.86	50.47	50.13	49.82	49.28	48.81	48.39
50	52.49	52.03	51.62	51.26	50.93	50.35	49.83	49.37
75	53.73	53.25	52.83	52.45	52.11	51.49	50.94	50.45
100	55.04	54.53	54.09	53.69	53.33	52.68	52.10	51.59
125	56.40	55.86	55.39	54.97	54.59	53.90	53.30	52.76
150	57.81	57.24	56.73	56.29	55.88	55.16	54.53	53.96
175	59.30	58.67	58.12	57.64	57.21	56.45	55.79	55.19
200	60.85	60.16	59.56	59.04	58.58	57.77	57.07	56.44
225	62.49	61.72	61.06	60.49	59.99	59.12	58.37	57.71
250	64.22	63.34	62.60	61.98	61.43	60.49	59.70	59.00
300	68.04	66.79	65.82	65.08	64.43	63.33	62.42	61.63
350	71.82	70.62	69.15	68.32	67.56	66.28	65.22	64.32
400		72.36	72.48	71.65	70.81	69.34	68.12	67.09
450		69.88	75.59	75.01	74.14	72.49	71.11	69.94
500			78.13	78.36	77.55	75.75	74.19	72.86
550			79.70	81.60	81.03	79.12	77.37	75.88
600			80.15	84.61	84.56	82.63	80.68	79.01
700				89.55	91.72	90.14	87.75	85.68
800					99.07	98.42	95.53	93.00
900					107.01	107.43	103.97	101.02
1000						116.90	112.86	109.67
Tm ⁺								
25	-159.90	-160.38	-160.81	-161.19	-161.53	-162.14	-162.67	-163.15
50	-158.42	-158.92	-159.36	-159.76	-160.13	-160.78	-161.36	-161.88
75	-156.88	-157.40	-157.87	-158.29	-158.67	-159.36	-159.97	-160.52
100	-155.29	-155.84	-156.33	-156.77	-157.17	-157.89	-158.53	-159.11
125	-153.65	-154.24	-154.75	-155.21	-155.64	-156.39	-157.06	-157.67
150	-151.96	-152.59	-153.14	-153.63	-154.07	-154.86	-155.56	-156.20
175	-150.21	-150.89	-151.48	-152.00	-152.47	-153.31	-154.05	-154.71
200	-148.39	-149.13	-149.77	-150.34	-150.85	-151.73	-152.51	-153.20
225	-146.48	-147.31	-148.02	-148.64	-149.18	-150.13	-150.95	-151.68
250	-144.49	-145.42	-146.22	-146.89	-147.49	-148.51	-149.38	-150.15
300	-140.16	-141.46	-142.50	-143.29	-143.99	-145.17	-146.17	-147.03
350	-135.93	-137.14	-138.67	-139.56	-140.36	-141.74	-142.88	-143.86
400		-135.06	-134.89	-135.76	-136.65	-138.21	-139.52	-140.63
450		-137.66	-131.36	-131.94	-132.86	-134.60	-136.08	-137.34
500			-128.49	-128.17	-129.00	-130.89	-132.56	-133.97
550			-126.70	-124.54	-125.09	-127.08	-128.94	-130.52
600			-126.17	-121.18	-121.15	-123.14	-125.20	-126.97
700				-115.69	-113.23	-114.79	-117.28	-119.46
800					-105.15	-105.67	-108.67	-111.32
900					-96.49	-95.82	-99.39	-102.49
1000						-85.51	-89.69	-93.02
Valine								
25	-85.30	-84.24	-83.22	-82.23	-81.26	-79.38	-77.55	-75.75
50	-86.44	-85.38	-84.36	-83.37	-82.41	-80.54	-78.73	-76.96
75	-87.72	-86.65	-85.63	-84.65	-83.69	-81.83	-80.03	-78.27
100	-89.12	-88.05	-87.03	-86.05	-85.09	-83.24	-81.44	-79.69
125	-90.65	-89.58	-88.55	-87.57	-86.61	-84.76	-82.97	-81.22
150	-92.28	-91.22	-90.19	-89.20	-88.24	-86.39	-84.60	-82.86
175	-94.03	-92.96	-91.93	-90.94	-89.98	-88.12	-86.33	-84.59
200	-95.87	-94.81	-93.77	-92.77	-91.81	-89.95	-88.16	-86.42
225	-97.82	-96.76	-95.71	-94.71	-93.74	-91.88	-90.08	-88.34
250	-99.86	-98.81	-97.74	-96.73	-95.76	-93.89	-92.09	-90.34
300	-104.25	-103.20	-102.09	-101.05	-100.05	-98.16	-96.35	-94.60
350	-109.28	-108.02	-106.79	-105.70	-104.68	-102.75	-100.92	-99.16
400		-113.47	-111.87	-110.69	-109.62	-107.64	-105.78	-104.00
450		-120.42	-117.37	-116.00	-114.85	-112.80	-110.91	-109.10

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Valine — Continued								
500		-129.38	-123.38	-121.66	-120.38	-118.23	-116.29	-114.46
550		-137.83	-129.93	-127.65	-126.20	-123.91	-121.91	-120.05
600		-145.66	-136.96	-133.99	-132.30	-129.83	-127.76	-125.86
700		-160.52	-151.60	-147.50	-145.24	-142.34	-140.10	-138.11
800		-175.04	-166.44	-161.74	-159.01	-155.64	-153.22	-151.14
900		-189.59	-181.36	-176.41	-173.35	-169.61	-167.03	-164.89
1000		-204.34	-196.42	-191.38	-188.14	-184.13	-181.45	-179.29
VO⁺²								
25	-106.70	-107.03	-107.31	-107.55	-107.77	-108.15	-108.46	-108.73
50	-105.89	-106.23	-106.52	-106.78	-107.01	-107.42	-107.77	-108.08
75	-105.06	-105.41	-105.72	-105.99	-106.24	-106.67	-107.04	-107.37
100	-104.22	-104.59	-104.91	-105.19	-105.45	-105.90	-106.30	-106.65
125	-103.36	-103.75	-104.09	-104.39	-104.66	-105.13	-105.55	-105.92
150	-102.48	-102.89	-103.25	-103.57	-103.85	-104.36	-104.79	-105.18
175	-101.57	-102.02	-102.40	-102.74	-103.04	-103.57	-104.03	-104.44
200	-100.62	-101.11	-101.54	-101.90	-102.23	-102.79	-103.27	-103.70
225	-99.64	-100.18	-100.65	-101.05	-101.40	-102.00	-102.51	-102.96
250	-98.61	-99.22	-99.74	-100.18	-100.56	-101.20	-101.75	-102.22
300	-96.35	-97.20	-97.87	-98.39	-98.83	-99.59	-100.21	-100.75
350	-94.16	-94.98	-95.98	-96.55	-97.07	-97.95	-98.67	-99.28
400		-94.16	-94.12	-94.70	-95.27	-96.27	-97.10	-97.80
450		-96.11	-92.45	-92.86	-93.46	-94.58	-95.51	-96.30
500			-91.17	-91.06	-91.62	-92.85	-93.90	-94.79
550			-90.55	-89.37	-89.78	-91.07	-92.26	-93.25
600			-90.69	-87.85	-87.93	-89.24	-90.56	-91.67
700				-85.61	-84.24	-85.34	-86.95	-88.33
800					-80.53	-81.04	-82.97	-84.66
900						-76.54	-78.66	-80.63
1000						-71.45	-74.14	-76.27
VO₂⁺								
25	-140.30	-140.67	-141.00	-141.28	-141.55	-142.00	-142.40	-142.76
50	-140.08	-140.46	-140.80	-141.10	-141.37	-141.86	-142.29	-142.68
75	-139.91	-140.30	-140.64	-140.96	-141.24	-141.75	-142.20	-142.61
100	-139.79	-140.18	-140.54	-140.86	-141.15	-141.68	-142.14	-142.57
125	-139.70	-140.11	-140.47	-140.80	-141.10	-141.64	-142.12	-142.56
150	-139.65	-140.07	-140.44	-140.78	-141.09	-141.64	-142.14	-142.59
175	-139.62	-140.06	-140.44	-140.79	-141.11	-141.68	-142.19	-142.65
200	-139.62	-140.07	-140.47	-140.84	-141.16	-141.75	-142.27	-142.75
225	-139.63	-140.10	-140.53	-140.90	-141.25	-141.85	-142.39	-142.88
250	-139.66	-140.16	-140.61	-141.00	-141.35	-141.98	-142.54	-143.04
300	-139.72	-140.30	-140.82	-141.25	-141.64	-142.32	-142.91	-143.44
350	-139.89	-140.46	-141.13	-141.60	-142.02	-142.76	-143.39	-143.96
400		-141.29	-141.56	-142.03	-142.48	-143.28	-143.96	-144.57
450		-143.28	-142.13	-142.55	-143.02	-143.88	-144.62	-145.27
500			-142.94	-143.17	-143.64	-144.55	-145.34	-146.04
550			-144.08	-143.90	-144.32	-145.28	-146.13	-146.88
600			-145.58	-144.78	-145.07	-146.06	-146.98	-147.78
700				-147.04	-146.78	-147.71	-148.77	-149.70
800					-148.71	-149.44	-150.67	-151.74
900						-150.76	-152.64	-153.84
1000						-153.15	-154.73	-156.00
WO₄⁻²								
25	-219.15	-218.78	-218.40	-218.02	-217.64	-216.87	-216.09	-215.31
50	-219.35	-218.98	-218.60	-218.23	-217.85	-217.09	-216.33	-215.56
75	-219.48	-219.12	-218.76	-218.39	-218.03	-217.29	-216.54	-215.79
100	-219.55	-219.21	-218.87	-218.52	-218.17	-217.45	-216.73	-216.00

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	Pressure, kbar					
			1.0	1.5	2.0	3.0	4.0	5.0
WO₄⁻² — Continued								
125	-219.54	-219.25	-218.93	-218.60	-218.27	-217.59	-216.89	-216.18
150	-219.46	-219.22	-218.94	-218.65	-218.34	-217.69	-217.03	-216.34
175	-219.29	-219.12	-218.90	-218.64	-218.37	-217.77	-217.14	-216.49
200	-219.01	-218.95	-218.80	-218.59	-218.35	-217.82	-217.23	-216.61
225	-218.60	-218.68	-218.62	-218.48	-218.30	-217.84	-217.30	-216.72
250	-218.01	-218.31	-218.38	-218.32	-218.19	-217.82	-217.35	-216.81
300	-216.03	-217.15	-217.63	-217.79	-217.83	-217.68	-217.36	-216.94
350	-211.73	-215.04	-216.47	-216.97	-217.24	-217.39	-217.27	-217.00
400		-212.22	-214.76	-215.80	-216.38	-216.93	-217.07	-216.97
450		-204.36	-212.24	-214.18	-215.22	-216.29	-216.73	-216.85
500			-208.54	-212.00	-213.70	-215.44	-216.25	-216.61
550			-203.40	-209.20	-211.77	-214.35	-215.61	-216.25
600			-197.18	-205.78	-209.43	-213.02	-214.78	-215.75
700				-197.90	-203.67	-209.56	-212.53	-214.21
800					-197.13	-205.17	-209.45	-211.89
900						-200.20	-205.69	-208.76
1000						-195.11	-201.53	-204.87
Xe°								
25	3.22	3.72	4.21	4.68	5.14	6.04	6.92	7.78
50	2.80	3.31	3.81	4.30	4.77	5.69	6.58	7.46
75	2.26	2.79	3.30	3.79	4.27	5.20	6.11	6.99
100	1.63	2.17	2.69	3.18	3.67	4.61	5.52	6.41
125	0.92	1.46	1.99	2.49	2.98	3.93	4.84	5.74
150	0.13	0.68	1.21	1.72	2.21	3.16	4.08	4.98
175	-0.73	-0.18	0.36	0.87	1.37	2.33	3.26	4.16
200	-1.66	-1.10	-0.56	-0.04	0.46	1.43	2.36	3.26
225	-2.65	-2.09	-1.54	-1.02	-0.51	0.46	1.40	2.31
250	-3.71	-3.15	-2.59	-2.05	-1.54	-0.56	0.38	1.30
300	-6.04	-5.45	-4.85	-4.30	-3.77	-2.77	-1.82	-0.89
350	-8.82	-8.05	-7.36	-6.77	-6.22	-5.19	-4.21	-3.28
400		-11.06	-10.11	-9.45	-8.86	-7.79	-6.80	-5.85
450		-15.15	-13.15	-12.35	-11.70	-10.58	-9.56	-8.59
500		-20.67	-16.52	-15.47	-14.73	-13.53	-12.47	-11.49
550		-25.81	-20.28	-18.82	-17.95	-16.65	-15.55	-14.53
600		-30.47	-24.35	-22.39	-21.35	-19.92	-18.77	-17.72
700		-39.15	-32.88	-30.09	-28.64	-26.89	-25.61	-24.51
800		-47.52	-41.47	-38.26	-36.45	-34.37	-32.96	-31.79
900		-55.84	-50.06	-46.66	-44.63	-42.27	-40.74	-39.52
1000		-64.25	-58.70	-55.23	-53.06	-50.51	-48.91	-47.67
Y°³								
25	-163.80	-164.26	-164.66	-165.02	-165.34	-165.91	-166.41	-166.85
50	-162.27	-162.74	-163.16	-163.54	-163.89	-164.50	-165.04	-165.52
75	-160.68	-161.18	-161.62	-162.01	-162.37	-163.02	-163.59	-164.11
100	-159.04	-159.56	-160.02	-160.44	-160.82	-161.50	-162.10	-162.64
125	-157.35	-157.90	-158.39	-158.83	-159.23	-159.94	-160.57	-161.14
150	-155.60	-156.20	-156.72	-157.18	-157.60	-158.35	-159.01	-159.61
175	-153.79	-154.44	-155.00	-155.50	-155.95	-156.74	-157.43	-158.06
200	-151.91	-152.62	-153.24	-153.78	-154.26	-155.10	-155.83	-156.49
225	-149.96	-150.75	-151.43	-152.02	-152.54	-153.44	-154.21	-154.90
250	-147.90	-148.81	-149.57	-150.21	-150.78	-151.75	-152.57	-153.30
300	-143.46	-144.73	-145.72	-146.49	-147.15	-148.29	-149.24	-150.05
350	-139.08	-140.28	-141.77	-142.63	-143.40	-144.72	-145.81	-146.75
400		-137.98	-137.85	-138.70	-139.55	-141.06	-142.31	-143.38
450		-140.08	-134.16	-134.74	-135.63	-137.31	-138.73	-139.94
500			-131.07	-130.81	-131.63	-133.47	-135.07	-136.43
550			-129.00	-127.00	-127.57	-129.51	-131.31	-132.83
600			-128.10	-123.45	-123.47	-125.43	-127.42	-129.13
700				-117.48	-115.21	-116.78	-119.21	-121.32

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Y⁺³ — Continued								
800				-106.77	-107.38	-110.31	-112.88	
900				-97.76	-97.25	-100.75	-103.76	
1000					-86.68	-90.77	-94.01	
Yb⁺²								
25	-128.50	-128.61	-128.69	-128.74	-128.78	-128.81	-128.81	-128.78
50	-128.22	-128.33	-128.42	-128.48	-128.53	-128.58	-128.60	-128.59
75	-127.95	-128.07	-128.16	-128.23	-128.28	-128.35	-128.38	-128.39
100	-127.68	-127.81	-127.91	-127.99	-128.05	-128.13	-128.18	-128.20
125	-127.40	-127.55	-127.66	-127.75	-127.82	-127.92	-127.99	-128.02
150	-127.12	-127.29	-127.42	-127.52	-127.61	-127.72	-127.80	-127.85
175	-126.83	-127.03	-127.18	-127.30	-127.39	-127.54	-127.63	-127.69
200	-126.53	-126.76	-126.93	-127.07	-127.19	-127.35	-127.47	-127.55
225	-126.20	-126.47	-126.68	-126.85	-126.98	-127.18	-127.32	-127.41
250	-125.83	-126.17	-126.43	-126.62	-126.78	-127.01	-127.17	-127.29
300	-124.95	-125.50	-125.89	-126.15	-126.36	-126.68	-126.90	-127.07
350	-123.99	-124.68	-125.34	-125.67	-125.94	-126.36	-126.66	-126.88
400		-124.78	-124.82	-125.18	-125.51	-126.04	-126.43	-126.72
450		-126.37	-124.40	-124.71	-125.09	-125.73	-126.21	-126.57
500			-124.20	-124.26	-124.66	-125.41	-125.99	-126.44
550			-124.35	-123.87	-124.22	-125.07	-125.77	-126.31
600			-124.91	-123.57	-123.77	-124.71	-125.52	-126.16
700				-123.48	-122.90	-123.84	-124.93	-125.79
800					-122.03	-122.73	-124.12	-125.24
900					-121.04	-121.41	-123.13	-124.47
1000						-120.00	-122.04	-123.50
Yb⁺³								
25	-153.00	-153.50	-153.94	-154.34	-154.69	-155.33	-155.89	-156.39
50	-151.54	-152.07	-152.53	-152.94	-153.32	-154.00	-154.60	-155.15
75	-150.03	-150.57	-151.06	-151.49	-151.89	-152.60	-153.24	-153.82
100	-148.47	-149.04	-149.54	-149.99	-150.41	-151.16	-151.83	-152.44
125	-146.85	-147.45	-147.98	-148.46	-148.90	-149.68	-150.38	-151.01
150	-145.17	-145.82	-146.38	-146.89	-147.35	-148.17	-148.90	-149.56
175	-143.43	-144.13	-144.74	-145.28	-145.77	-146.64	-147.40	-148.09
200	-141.62	-142.39	-143.05	-143.63	-144.15	-145.07	-145.88	-146.60
225	-139.73	-140.58	-141.31	-141.94	-142.50	-143.48	-144.33	-145.09
250	-137.75	-138.70	-139.52	-140.21	-140.82	-141.87	-142.77	-143.56
300	-133.43	-134.75	-135.81	-136.62	-137.33	-138.55	-139.58	-140.47
350	-129.23	-130.44	-132.00	-132.90	-133.72	-135.13	-136.30	-137.31
400		-128.39	-128.22	-129.11	-130.01	-131.61	-132.95	-134.09
450		-131.06	-124.70	-125.29	-126.22	-128.00	-129.51	-130.80
500			-121.84	-121.52	-122.36	-124.29	-125.98	-127.43
550			-120.08	-117.89	-118.45	-120.47	-122.36	-123.97
600			-119.57	-114.53	-114.50	-116.52	-118.61	-120.41
700				-109.04	-106.56	-108.13	-110.66	-112.87
800					-98.44	-98.97	-101.99	-104.68
900					-89.74	-89.05	-92.66	-95.79
1000						-78.67	-82.87	-86.25
Zn⁺²								
25	-35.20	-35.47	-35.70	-35.89	-36.06	-36.34	-36.57	-36.77
50	-34.54	-34.82	-35.06	-35.26	-35.45	-35.76	-36.02	-36.24
75	-33.87	-34.16	-34.41	-34.63	-34.82	-35.16	-35.44	-35.68
100	-33.20	-33.50	-33.76	-33.99	-34.20	-34.55	-34.85	-35.12
125	-32.51	-32.84	-33.11	-33.36	-33.57	-33.95	-34.27	-34.55
150	-31.81	-32.16	-32.46	-32.72	-32.95	-33.35	-33.69	-33.98
175	-31.09	-31.47	-31.79	-32.07	-32.32	-32.75	-33.11	-33.42
200	-30.34	-30.76	-31.12	-31.42	-31.69	-32.15	-32.53	-32.86

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Zn²⁺ — Continued								
225	-29.56	-30.03	-30.43	-30.76	-31.05	-31.55	-31.96	-32.31
250	-28.73	-29.27	-29.72	-30.09	-30.41	-30.95	-31.39	-31.77
300	-26.90	-27.67	-28.27	-28.71	-29.10	-29.73	-30.25	-30.69
350	-25.09	-25.89	-26.80	-27.31	-27.76	-28.51	-29.12	-29.62
400		-25.36	-25.37	-25.89	-26.40	-27.27	-27.98	-28.57
450		-27.21	-24.10	-24.49	-25.03	-26.02	-26.84	-27.51
500			-23.17	-23.13	-23.65	-24.75	-25.68	-26.45
550			-22.81	-21.86	-22.26	-23.45	-24.50	-25.37
600			-23.10	-20.74	-20.87	-22.10	-23.28	-24.27
700				-19.22	-18.12	-19.19	-20.66	-21.91
800					-15.35	-15.95	-17.75	-19.28
900					-12.36	-12.38	-14.54	-16.34
1000						-8.65	-11.18	-13.12
Zn(CH₃COO)⁺								
25	-125.66	-125.39	-125.13	-124.86	-124.59	-124.04	-123.50	-122.95
50	-125.98	-125.70	-125.43	-125.15	-124.88	-124.33	-123.78	-123.24
75	-126.44	-126.16	-125.88	-125.60	-125.32	-124.78	-124.23	-123.69
100	-127.01	-126.73	-126.45	-126.18	-125.90	-125.35	-124.81	-124.27
125	-127.69	-127.41	-127.14	-126.86	-126.59	-126.04	-125.50	-124.96
150	-128.46	-128.19	-127.92	-127.65	-127.37	-126.83	-126.30	-125.76
175	-129.32	-129.05	-128.79	-128.52	-128.25	-127.72	-127.18	-126.65
200	-130.24	-129.99	-129.73	-129.47	-129.21	-128.68	-128.15	-127.63
225	-131.23	-131.01	-130.76	-130.50	-130.25	-129.73	-129.21	-128.68
250	-132.28	-132.08	-131.85	-131.60	-131.35	-130.85	-130.33	-129.82
300	-134.49	-134.41	-134.22	-134.00	-133.77	-133.29	-132.79	-132.29
350	-136.84	-136.91	-136.82	-136.63	-136.42	-135.97	-135.51	-135.02
400		-139.86	-139.65	-139.48	-139.29	-138.89	-138.45	-137.99
450		-143.20	-142.68	-142.52	-142.36	-142.00	-141.60	-141.16
500			-145.92	-145.75	-145.62	-145.31	-144.94	-144.53
550			-149.38	-149.16	-149.04	-148.78	-148.46	-148.08
600			-153.06	-152.74	-152.62	-152.41	-152.13	-151.80
700				-160.45	-160.21	-160.08	-159.91	-159.66
800					-168.36	-168.24	-168.19	-168.02
900					-176.99	-176.85	-176.92	-176.83
1000						-185.91	-186.09	-186.03
Zn(CH₃COO)²⁻								
25	-216.45	-215.59	-214.77	-213.98	-213.22	-211.74	-210.32	-208.94
50	-217.20	-216.31	-215.46	-214.65	-213.86	-212.35	-210.90	-209.49
75	-218.25	-217.35	-216.49	-215.66	-214.87	-213.33	-211.86	-210.43
100	-219.57	-218.65	-217.78	-216.95	-216.15	-214.60	-213.11	-211.67
125	-221.12	-220.20	-219.32	-218.48	-217.67	-216.11	-214.62	-213.17
150	-222.87	-221.95	-221.06	-220.22	-219.40	-217.84	-216.34	-214.88
175	-224.81	-223.89	-223.00	-222.15	-221.33	-219.76	-218.26	-216.80
200	-226.93	-226.01	-225.12	-224.27	-223.45	-221.87	-220.36	-218.89
225	-229.20	-228.30	-227.41	-226.55	-225.73	-224.15	-222.63	-221.16
250	-231.62	-230.75	-229.85	-228.99	-228.16	-226.58	-225.06	-223.59
300	-236.88	-236.08	-235.17	-234.31	-233.48	-231.89	-230.36	-228.89
350	-242.65	-241.96	-241.04	-240.17	-239.34	-237.74	-236.21	-234.73
400		-248.37	-247.41	-246.53	-245.69	-244.08	-242.55	-241.06
450		-255.35	-254.25	-253.35	-252.49	-250.88	-249.34	-247.85
500		-262.92	-261.53	-260.59	-259.73	-258.10	-256.55	-255.06
550		-270.81	-269.23	-268.24	-267.35	-265.71	-264.16	-262.66
600		-278.99	-277.32	-276.26	-275.35	-273.69	-272.13	-270.63
700		-296.21	-294.53	-293.35	-292.39	-290.68	-289.10	-287.59
800		-314.57	-312.92	-311.68	-310.67	-308.91	-307.31	-305.79
900		-333.99	-332.37	-331.11	-330.06	-328.27	-326.65	-325.12
1000		-354.39	-352.80	-351.53	-350.46	-348.64	-347.02	-345.48

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar	1.5	2.0	3.0	4.0	5.0
Zn(CH₃COO)₅									
25	-305.74	-304.22	-302.79	-301.42	-300.10	-297.56	-295.14	-292.79	
50	-306.63	-305.06	-303.59	-302.18	-300.83	-298.23	-295.74	-293.33	
75	-308.02	-306.44	-304.94	-303.52	-302.14	-299.51	-296.99	-294.55	
100	-309.83	-308.24	-306.73	-305.30	-303.92	-301.27	-298.74	-296.28	
125	-311.99	-310.41	-308.90	-307.47	-306.08	-303.43	-300.89	-298.43	
150	-314.46	-312.90	-311.41	-309.98	-308.60	-305.94	-303.40	-300.94	
175	-317.21	-315.69	-314.21	-312.79	-311.42	-308.78	-306.24	-303.78	
200	-320.21	-318.75	-317.29	-315.89	-314.53	-311.90	-309.37	-306.92	
225	-323.42	-322.04	-320.63	-319.25	-317.90	-315.30	-312.78	-310.34	
250	-326.80	-325.56	-324.19	-322.84	-321.52	-318.95	-316.45	-314.02	
300	-333.88	-333.13	-331.93	-330.68	-329.42	-326.93	-324.49	-322.10	
350	-340.61	-341.17	-340.38	-339.28	-338.12	-335.76	-333.40	-331.06	
400		-349.47	-349.38	-348.54	-347.52	-345.33	-343.08	-340.81	
450		-355.68	-358.72	-358.34	-357.54	-355.58	-353.45	-351.27	
500			-368.13	-368.56	-368.09	-366.44	-364.47	-362.39	
550			-377.39	-379.12	-379.10	-377.85	-376.08	-374.11	
600			-386.65	-389.97	-390.52	-389.76	-388.21	-386.39	
700				-412.76	-414.55	-414.93	-413.93	-412.42	
800					-440.28	-441.80	-441.39	-440.19	
900					-467.90	-470.32	-470.44	-469.51	
1000						-500.53	-501.05	-500.22	
ZnCl⁺									
25	-66.85	-66.86	-66.85	-66.82	-66.78	-66.68	-66.54	-66.39	
50	-67.45	-67.46	-67.44	-67.42	-67.38	-67.29	-67.17	-67.03	
75	-68.09	-68.10	-68.09	-68.06	-68.03	-67.94	-67.83	-67.70	
100	-68.77	-68.78	-68.77	-68.75	-68.72	-68.63	-68.53	-68.41	
125	-69.49	-69.50	-69.49	-69.47	-69.44	-69.36	-69.26	-69.14	
150	-70.24	-70.25	-70.24	-70.23	-70.20	-70.12	-70.02	-69.91	
175	-71.01	-71.03	-71.03	-71.01	-70.99	-70.91	-70.82	-70.71	
200	-71.81	-71.83	-71.84	-71.82	-71.80	-71.74	-71.65	-71.54	
225	-72.64	-72.66	-72.67	-72.66	-72.65	-72.58	-72.50	-72.40	
250	-73.47	-73.52	-73.53	-73.53	-73.51	-73.46	-73.38	-73.29	
300	-75.19	-75.27	-75.31	-75.32	-75.32	-75.28	-75.21	-75.13	
350	-76.91	-77.08	-77.17	-77.20	-77.21	-77.19	-77.13	-77.06	
400		-79.02	-79.10	-79.15	-79.17	-79.17	-79.14	-79.07	
450		-80.99	-81.09	-81.16	-81.20	-81.23	-81.21	-81.16	
500			-83.13	-83.23	-83.29	-83.35	-83.36	-83.32	
550			-85.21	-85.35	-85.44	-85.53	-85.56	-85.55	
600			-87.35	-87.52	-87.63	-87.77	-87.82	-87.82	
700				-92.04	-92.16	-92.37	-92.49	-92.53	
800					-96.88	-97.14	-97.32	-97.42	
900					-101.77	-102.06	-102.32	-102.45	
1000						-107.15	-107.46	-107.61	
ZnCl₂²⁻									
25	-98.30	-98.01	-97.73	-97.44	-97.16	-96.59	-96.02	-95.45	
50	-99.02	-98.72	-98.42	-98.13	-97.84	-97.27	-96.70	-96.13	
75	-99.81	-99.51	-99.21	-98.91	-98.62	-98.04	-97.46	-96.89	
100	-100.67	-100.36	-100.06	-99.76	-99.46	-98.88	-98.31	-97.74	
125	-101.59	-101.28	-100.97	-100.67	-100.37	-99.79	-99.21	-98.64	
150	-102.56	-102.24	-101.94	-101.63	-101.34	-100.75	-100.17	-99.60	
175	-103.58	-103.26	-102.95	-102.65	-102.35	-101.76	-101.19	-100.62	
200	-104.64	-104.33	-104.02	-103.71	-103.41	-102.83	-102.25	-101.68	
225	-105.75	-105.44	-105.13	-104.82	-104.52	-103.93	-103.36	-102.79	
250	-106.89	-106.59	-106.28	-105.97	-105.67	-105.08	-104.51	-103.94	
300	-109.28	-109.01	-108.70	-108.39	-108.09	-107.50	-106.92	-106.35	
350	-111.79	-111.57	-111.26	-110.95	-110.65	-110.06	-109.48	-108.91	
400		-114.27	-113.95	-113.64	-113.34	-112.75	-112.17	-111.60	
450		-117.09	-116.76	-116.45	-116.15	-115.56	-114.98	-114.41	

TABLE 1. Calculated apparent standard partial molal Gibbs free energies of formation (in kcal/mol) of aqueous species other than H₂O as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
ZnCl₂ — Continued								
500		-120.02	-119.69	-119.38	-119.08	-118.48	-117.90	-117.33
550		-123.06	-122.72	-122.41	-122.10	-121.51	-120.93	-120.36
600		-126.20	-125.85	-125.54	-125.23	-124.64	-124.06	-123.49
700		-132.73	-132.39	-132.07	-131.76	-131.16	-130.58	-130.01
800		-139.59	-139.25	-138.93	-138.62	-138.02	-137.44	-136.87
900		-146.75	-146.41	-146.09	-145.78	-145.18	-144.60	-144.02
1000		-154.19	-153.85	-153.52	-153.21	-152.61	-152.03	-151.46
ZnCl₃								
25	-129.31	-128.69	-128.09	-127.50	-126.93	-125.81	-124.72	-123.65
50	-129.98	-129.34	-128.72	-128.12	-127.54	-126.40	-125.29	-124.21
75	-130.71	-130.07	-129.45	-128.84	-128.26	-127.11	-126.00	-124.91
100	-131.50	-130.86	-130.24	-129.64	-129.05	-127.91	-126.80	-125.71
125	-132.34	-131.71	-131.10	-130.50	-129.92	-128.78	-127.68	-126.59
150	-133.21	-132.60	-132.00	-131.42	-130.84	-129.72	-128.62	-127.54
175	-134.10	-133.53	-132.95	-132.38	-131.81	-130.70	-129.62	-128.54
200	-135.01	-134.48	-133.93	-133.37	-132.82	-131.74	-130.67	-129.61
225	-135.90	-135.45	-134.93	-134.40	-133.87	-132.82	-131.76	-130.72
250	-136.77	-136.42	-135.96	-135.46	-134.96	-133.93	-132.90	-131.87
300	-138.28	-138.33	-138.04	-137.64	-137.20	-136.27	-135.30	-134.31
350	-138.79	-139.99	-140.11	-139.86	-139.52	-138.71	-137.83	-136.90
400		-141.24	-142.07	-142.08	-141.89	-141.25	-140.47	-139.61
450		-139.80	-143.76	-144.23	-144.26	-143.85	-143.20	-142.44
500		-144.96	-146.25	-146.60	-146.50	-146.01	-145.35	
550		-145.49	-148.08	-148.87	-149.18	-148.88	-148.34	
600		-145.52	-149.71	-151.07	-151.86	-151.80	-151.39	
700			-152.68	-155.30	-157.24	-157.71	-157.61	
800				-159.57	-162.64	-163.69	-163.92	
900				-164.22	-168.19	-169.78	-170.26	
1000					-174.07	-176.05	-176.64	
ZnCl₄²⁻								
25	-161.89	-160.88	-159.92	-158.99	-158.09	-156.35	-154.66	-153.01
50	-162.83	-161.80	-160.82	-159.87	-158.95	-157.17	-155.45	-153.77
75	-163.84	-162.81	-161.82	-160.87	-159.95	-158.16	-156.43	-154.74
100	-164.90	-163.88	-162.90	-161.96	-161.04	-159.26	-157.53	-155.84
125	-166.00	-165.01	-164.05	-163.11	-162.20	-160.44	-158.72	-157.04
150	-167.11	-166.16	-165.23	-164.32	-163.43	-161.69	-159.99	-158.33
175	-168.22	-167.34	-166.45	-165.57	-164.71	-163.00	-161.33	-159.68
200	-169.30	-168.53	-167.70	-166.86	-166.02	-164.36	-162.73	-161.10
225	-170.33	-169.70	-168.95	-168.17	-167.37	-165.77	-164.17	-162.58
250	-171.26	-170.84	-170.20	-169.49	-168.74	-167.22	-165.67	-164.12
300	-172.53	-172.92	-172.65	-172.13	-171.53	-170.20	-168.78	-167.32
350	-171.66	-174.33	-174.92	-174.73	-174.34	-173.27	-172.03	-170.69
400		-174.91	-176.85	-177.19	-177.10	-176.40	-175.37	-174.19
450		-170.05	-178.14	-179.40	-179.76	-179.54	-178.79	-177.79
500			-178.33	-181.23	-182.24	-182.66	-182.25	-181.47
550			-177.12	-182.58	-184.50	-185.73	-185.73	-185.20
600			-174.82	-183.43	-186.50	-188.72	-189.19	-188.95
700				-184.37	-189.87	-194.42	-196.01	-196.41
800					-193.00	-199.82	-202.63	-203.72
900					-196.62	-205.22	-209.14	-210.78
1000						-211.00	-215.74	-217.61

TABLE 2. Calculated apparent standard molal Gibbs free energies of formation (in kcal/mol) of H₂O as a function of temperature and pressure (see text)

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
H₂O								
25	-56.69	-56.47	-56.26	-56.06	-55.86	-55.46	-55.07	-54.70
50	-57.12	-56.91	-56.70	-56.49	-56.28	-55.88	-55.49	-55.11
75	-57.59	-57.38	-57.16	-56.95	-56.74	-56.34	-55.94	-55.56
100	-58.10	-57.88	-57.66	-57.44	-57.23	-56.82	-56.42	-56.03
125	-58.63	-58.41	-58.18	-57.97	-57.75	-57.34	-56.93	-56.54
150	-59.19	-58.96	-58.74	-58.52	-58.30	-57.88	-57.47	-57.06
175	-59.78	-59.55	-59.32	-59.09	-58.87	-58.44	-58.02	-57.62
200	-60.39	-60.16	-59.92	-59.69	-59.46	-59.03	-58.60	-58.19
225	-61.03	-60.79	-60.55	-60.31	-60.08	-59.64	-59.21	-58.79
250	-61.69	-61.45	-61.20	-60.96	-60.72	-60.27	-59.83	-59.40
300	-63.07	-62.83	-62.56	-62.31	-62.06	-61.59	-61.13	-60.69
350	-64.53	-64.30	-64.01	-63.74	-63.47	-62.98	-62.51	-62.05
400		-65.87	-65.54	-65.24	-64.96	-64.44	-63.95	-63.48
450		-67.55	-67.14	-66.81	-66.52	-65.96	-65.45	-64.96
500		-69.36	-68.83	-68.46	-68.13	-67.55	-67.01	-66.50
550		-71.28	-70.59	-70.17	-69.81	-69.19	-68.62	-68.09
600		-73.26	-72.42	-71.94	-71.55	-70.88	-70.28	-69.73
700		-77.37	-76.27	-75.64	-75.17	-74.40	-73.75	-73.15
800		-81.63	-80.31	-79.55	-78.98	-78.10	-77.38	-76.73
900		-86.01	-84.49	-83.60	-82.95	-81.96	-81.16	-80.45
1000		-90.49	-88.79	-87.79	-87.06	-85.95	-85.07	-84.31
1100		-95.07	-93.20	-92.10	-91.29	-90.06	-89.10	-88.28
1200		-99.74	-97.71	-96.50	-95.62	-94.28	-93.25	-92.37
1300		-104.49	-102.30	-100.99	-100.04	-98.60	-97.49	-96.55
1400		-109.31	-106.97	-105.57	-104.55	-103.02	-101.83	-100.83
1500		-114.21	-111.72	-110.23	-109.14	-107.51	-106.25	-105.20
1600		-119.18	-116.54	-114.95	-113.80	-112.08	-110.75	-109.64
1700		-124.21	-121.42	-119.75	-118.53	-116.72	-115.33	-114.17
1800		-129.31	-126.37	-124.61	-123.33	-121.43	-119.97	-118.76
1900		-134.46	-131.38	-129.54	-128.19	-126.20	-124.68	-123.42
2000		-139.67	-136.45	-134.52	-133.11	-131.04	-129.46	-128.14
T, °C	7.5	10.0	12.5	15.0	20.0	25.0	30.0	
25	-53.78							
50	-54.18	-53.29	-52.43					
75	-54.62	-53.72	-52.84	-51.99				
100	-55.08	-54.17	-53.29	-52.43	-50.77			
125	-55.58	-54.66	-53.77	-52.90	-51.23	-49.61		
150	-56.09	-55.16	-54.27	-53.39	-51.71	-50.09	-48.52	
175	-56.64	-55.70	-54.79	-53.91	-52.21	-50.58	-49.01	
200	-57.20	-56.25	-55.33	-54.45	-52.74	-51.10	-49.51	
225	-57.78	-56.82	-55.90	-55.00	-53.28	-51.63	-50.04	
250	-58.39	-57.42	-56.48	-55.58	-53.85	-52.19	-50.59	
300	-59.65	-58.66	-57.71	-56.79	-55.03	-53.36	-51.74	
350	-60.98	-59.96	-59.00	-58.06	-56.28	-54.59	-52.96	
400	-62.37	-61.33	-60.35	-59.40	-57.59	-55.88	-54.24	
450	-63.82	-62.76	-61.75	-60.79	-58.96	-57.22	-55.57	
500	-65.33	-64.24	-63.21	-62.23	-60.37	-58.62	-56.95	
550	-66.88	-65.77	-64.72	-63.72	-61.84	-60.07	-58.38	
600	-68.48	-67.34	-66.27	-65.25	-63.34	-61.55	-59.85	
700	-71.81	-70.61	-69.50	-68.45	-66.48	-64.65	-62.92	
800	-75.30	-74.04	-72.87	-71.78	-69.76	-67.89	-66.13	
900	-78.93	-77.60	-76.39	-75.26	-73.18	-71.26	-69.46	
1000	-82.69	-81.29	-80.02	-78.85	-76.71	-74.75	-72.92	
1100	-86.56	-85.09	-83.77	-82.56	-80.35	-78.34	-76.48	
1200	-90.54	-89.00	-87.63	-86.37	-84.09	-82.04	-80.14	
1300	-94.62	-93.01	-91.58	-90.28	-87.93	-85.83	-83.90	
1400	-98.79	-97.11	-95.62	-94.27	-91.86	-89.71	-87.74	
1500	-103.05	-101.29	-99.75	-98.36	-95.87	-93.67	-91.66	
1600	-107.39	-105.56	-103.96	-102.52	-99.97	-97.70	-95.65	
1700	-111.81	-109.90	-108.25	-106.77	-104.13	-101.82	-99.72	
1800	-116.30	-114.32	-112.61	-111.08	-108.37	-106.00	-103.86	

TABLE 2. Calculated apparent standard molal Gibbs free energies of formation (in kcal/mol) of H₂O as a function of temperature and pressure (see text) — Continued

T, °C	7.5	10.0	12.5	15.0	20.0	25.0	30.0
	H₂O						
1900	-120.86	-118.80	-117.04	-115.46	-112.68	-110.25	-108.06
2000	-125.48	-123.35	-121.53	-119.91	-117.05	-114.56	-112.33
T, °C	40.0	50.0	75.0	100.0	125.0	150.0	200.0
25							
50							
75							
100							
125							
150							
175							
200							
225	-47.00						
250	-47.54	-44.63					
300	-48.67	-45.75					
350	-49.86	-46.93	-40.08				
400	-51.12	-48.17	-41.31	-34.97	-29.01		
450	-52.43	-49.46	-42.59	-36.25	-30.30	-24.66	-14.09
500	-53.79	-50.81	-43.91	-37.58	-31.64	-26.01	-15.50
550	-55.19	-52.20	-45.29	-38.95	-33.02	-27.40	-16.94
600	-56.64	-53.64	-46.71	-40.36	-34.43	-28.83	-18.41
700	-59.67	-56.63	-49.66	-43.31	-37.38	-31.79	-21.41
800	-62.83	-59.77	-52.76	-46.40	-40.47	-34.88	-24.51
900	-66.13	-63.03	-56.00	-49.61	-43.68	-38.10	-27.72
1000	-69.54	-66.42	-59.34	-52.95	-47.01	-41.42	-31.03
1100	-73.06	-69.91	-62.80	-56.40	-50.45	-44.85	-34.43
1200	-76.67	-73.50	-66.36	-59.94	-53.99	-48.38	-37.94
1300	-80.38	-77.18	-70.01	-63.58	-57.62	-52.01	-41.53
1400	-84.17	-80.94	-73.74	-67.30	-61.34	-55.71	-45.20
1500	-88.04	-84.78	-77.55	-71.10	-65.13	-59.50	-48.96
1600	-91.98	-88.69	-81.43	-74.98	-69.00	-63.37	-52.80
1700	-95.99	-92.67	-85.39	-78.92	-72.95	-67.30	-56.70
1800	-100.07	-96.72	-89.41	-82.94	-76.95	-71.30	-60.68
1900	-104.22	-100.83	-93.49	-87.01	-81.03	-75.37	-64.72
2000	-108.42	-105.00	-97.62	-91.14	-85.15	-79.49	-68.82

TABLE 3. Calculated apparent standard molal Gibbs free energies of formation (in kcal/mol) of 22 minerals as a function of temperature and pressure (see text)

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Albite								
25	-888.94	-887.74	-886.54	-885.34	-884.14	-881.75	-879.35	-876.96
50	-890.22	-889.03	-887.83	-886.63	-885.43	-883.04	-880.64	-878.24
75	-891.61	-890.42	-889.22	-888.02	-886.82	-884.43	-882.03	-879.63
100	-893.10	-891.90	-890.70	-889.51	-888.31	-885.91	-883.52	-881.12
125	-894.67	-893.48	-892.28	-891.09	-889.89	-887.49	-885.10	-882.70
150	-896.34	-895.15	-893.95	-892.76	-891.56	-889.16	-886.77	-884.37
175	-898.09	-896.91	-895.71	-894.51	-893.32	-890.92	-888.52	-886.13
200	-899.91	-898.75	-897.56	-896.36	-895.16	-892.76	-890.37	-887.97
225	-901.81	-900.68	-899.48	-898.28	-897.08	-894.69	-892.29	-889.89
250	-903.78	-902.68	-901.48	-900.28	-899.09	-896.69	-894.29	-891.90
300	-907.91	-906.92	-905.72	-904.52	-903.33	-900.93	-898.53	-896.14
350	-912.26	-911.46	-910.26	-909.06	-907.87	-905.47	-903.07	-900.68
400		-916.28	-915.09	-913.89	-912.69	-910.29	-907.90	-905.50
450		-921.38	-920.18	-918.98	-917.79	-915.39	-912.99	-910.60
500		-926.74	-925.54	-924.34	-923.14	-920.75	-918.35	-915.95
550		-932.34	-931.14	-929.94	-928.74	-926.35	-923.95	-921.56
600		-938.18	-936.98	-935.78	-934.58	-932.18	-929.79	-927.39
700		-950.51	-949.32	-948.12	-946.92	-944.52	-942.13	-939.73
800		-963.68	-962.48	-961.28	-960.08	-957.68	-955.29	-952.89
900		-977.60	-976.40	-975.20	-974.00	-971.61	-969.21	-966.81
1000		-992.22	-991.02	-989.82	-988.62	-986.23	-983.83	-981.44
Albite, Low								
25	-888.94	-887.74	-886.54	-885.35	-884.15	-881.76	-879.37	-876.98
50	-890.22	-889.03	-887.83	-886.64	-885.44	-883.05	-880.66	-878.27
75	-891.61	-890.42	-889.22	-888.03	-886.83	-884.44	-882.05	-879.65
100	-893.10	-891.90	-890.70	-889.51	-888.32	-885.92	-883.53	-881.14
125	-894.67	-893.48	-892.28	-891.09	-889.90	-887.50	-885.11	-882.72
150	-896.34	-895.15	-893.95	-892.76	-891.57	-889.18	-886.78	-884.39
175	-898.09	-896.91	-895.71	-894.52	-893.33	-890.93	-888.54	-886.15
200	-899.91	-898.75	-897.56	-896.36	-895.17	-892.78	-890.38	-887.99
225	-901.81	-900.68	-899.48	-898.28	-897.09	-894.70	-892.31	-889.92
250	-903.78	-902.68	-901.49	-900.29	-899.09	-896.70	-894.31	-891.92
300	-907.90	-906.91	-905.72	-904.52	-903.32	-900.93	-898.54	-896.15
350	-912.23	-911.43	-910.23	-909.03	-907.84	-905.45	-903.05	-900.66
400		-916.21	-915.01	-913.81	-912.62	-910.23	-907.84	-905.44
450		-921.24	-920.04	-918.85	-917.65	-915.26	-912.87	-910.48
500		-926.51	-925.31	-924.12	-922.92	-920.53	-918.14	-915.75
550		-932.01	-930.81	-929.62	-928.42	-926.03	-923.64	-921.24
600		-937.72	-936.52	-935.33	-934.13	-931.74	-929.35	-926.96
700		-949.75	-948.56	-947.36	-946.17	-943.77	-941.38	-938.99
800		-962.55	-961.35	-960.15	-958.96	-956.57	-954.17	-951.78
900		-976.04	-974.84	-973.65	-972.45	-970.06	-967.67	-965.28
1000		-990.19	-988.99	-987.80	-986.60	-984.21	-981.82	-979.43
Albite, High								
25	-887.14	-885.94	-884.74	-883.54	-882.34	-879.94	-877.54	-875.14
50	-888.50	-887.30	-886.10	-884.90	-883.70	-881.29	-878.89	-876.49
75	-889.95	-888.75	-887.55	-886.35	-885.15	-882.75	-880.35	-877.95
100	-891.51	-890.31	-889.11	-887.91	-886.71	-884.31	-881.91	-879.51
125	-893.15	-891.96	-890.76	-889.56	-888.36	-885.96	-883.56	-881.16
150	-894.89	-893.70	-892.50	-891.30	-890.10	-887.70	-885.30	-882.90
175	-896.71	-895.53	-894.33	-893.13	-891.93	-889.53	-887.13	-884.73
200	-898.60	-897.44	-896.24	-895.04	-893.84	-891.44	-889.04	-886.64
225	-900.57	-899.43	-898.23	-897.03	-895.83	-893.43	-891.03	-888.63
250	-902.61	-901.51	-900.31	-899.11	-897.91	-895.51	-893.10	-890.70
300	-906.87	-905.88	-904.68	-903.48	-902.27	-899.87	-897.47	-895.07
350	-911.33	-910.53	-909.33	-908.13	-906.93	-904.53	-902.13	-899.73
400		-915.45	-914.25	-913.05	-911.85	-909.45	-907.05	-904.65
450		-920.64	-919.44	-918.24	-917.04	-914.64	-912.24	-909.84
500		-926.07	-924.87	-923.67	-922.47	-920.07	-917.67	-915.27

TABLE 3. Calculated apparent standard molal Gibbs free energies of formation (in kcal/mol) of 22 minerals as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Albite, High — Continued								
550		-931.74	-930.54	-929.34	-928.14	-925.74	-923.34	-920.94
600		-937.63	-936.43	-935.23	-934.03	-931.63	-929.23	-926.83
700		-950.04	-948.84	-947.64	-946.44	-944.04	-941.64	-939.24
800		-963.23	-962.03	-960.83	-959.63	-957.23	-954.83	-952.43
900		-977.15	-975.95	-974.75	-973.55	-971.15	-968.75	-966.35
1000		-991.75	-990.55	-989.35	-988.15	-985.75	-983.35	-980.95
Analcime								
25	-740.73	-739.57	-738.41	-737.25	-736.08	-733.76	-731.44	-729.12
50	-742.18	-741.02	-739.86	-738.70	-737.54	-735.22	-732.90	-730.57
75	-743.73	-742.57	-741.41	-740.25	-739.09	-736.77	-734.45	-732.13
100	-745.38	-744.23	-743.07	-741.90	-740.74	-738.42	-736.10	-733.78
125	-747.13	-745.97	-744.81	-743.65	-742.49	-740.17	-737.85	-735.53
150	-748.96	-747.81	-746.65	-745.49	-744.33	-742.01	-739.69	-737.36
175	-750.87	-749.73	-748.57	-747.41	-746.25	-743.93	-741.61	-739.29
200	-752.86	-751.74	-750.58	-749.42	-748.26	-745.94	-743.62	-741.30
225	-754.93	-753.83	-752.67	-751.51	-750.35	-748.03	-745.70	-743.38
250	-757.06	-755.99	-754.83	-753.67	-752.51	-750.19	-747.87	-745.55
300	-761.51	-760.55	-759.39	-758.23	-757.07	-754.74	-752.42	-750.10
350	-766.16	-765.38	-764.22	-763.06	-761.90	-759.58	-757.26	-754.94
400		-770.48	-769.32	-768.16	-767.00	-764.68	-762.36	-760.04
450		-775.84	-774.68	-773.52	-772.36	-770.04	-767.71	-765.39
500		-781.43	-780.27	-779.11	-777.95	-775.63	-773.31	-770.99
550		-787.25	-786.09	-784.93	-783.77	-781.45	-779.13	-776.81
600		-793.29	-792.13	-790.97	-789.81	-787.49	-785.17	-782.85
700		-806.00	-804.84	-803.68	-802.52	-800.20	-797.87	-795.55
800		-819.48	-818.32	-817.16	-816.00	-813.68	-811.36	-809.04
900		-833.70	-832.54	-831.38	-830.22	-827.90	-825.58	-823.26
1000		-848.62	-847.46	-846.30	-845.14	-842.81	-840.49	-838.17
Andalusite								
25	-583.51	-582.90	-582.28	-581.67	-581.05	-579.82	-578.59	-577.36
50	-584.10	-583.48	-582.87	-582.25	-581.64	-580.40	-579.17	-577.94
75	-584.75	-584.13	-583.51	-582.90	-582.28	-581.05	-579.82	-578.59
100	-585.45	-584.84	-584.22	-583.60	-582.99	-581.76	-580.53	-579.29
125	-586.21	-585.60	-584.99	-584.37	-583.75	-582.52	-581.29	-580.06
150	-587.03	-586.42	-585.81	-585.19	-584.57	-583.34	-582.11	-580.88
175	-587.90	-587.30	-586.68	-586.07	-585.45	-584.22	-582.99	-581.76
200	-588.82	-588.23	-587.61	-586.99	-586.38	-585.15	-583.92	-582.68
225	-589.79	-589.21	-588.59	-587.97	-587.36	-586.13	-584.89	-583.66
250	-590.80	-590.23	-589.62	-589.00	-588.39	-587.16	-585.92	-584.69
300	-592.95	-592.44	-591.82	-591.20	-590.59	-589.36	-588.12	-586.89
350	-595.23	-594.82	-594.20	-593.58	-592.97	-591.74	-590.50	-589.27
400		-597.36	-596.75	-596.13	-595.52	-594.29	-593.05	-591.82
450		-600.07	-599.46	-598.84	-598.23	-596.99	-595.76	-594.53
500		-602.93	-602.32	-601.70	-601.08	-599.85	-598.62	-597.39
550		-605.93	-605.32	-604.70	-604.08	-602.85	-601.62	-600.39
600		-609.07	-608.45	-607.84	-607.22	-605.99	-604.76	-603.53
700		-615.72	-615.11	-614.49	-613.88	-612.65	-611.41	-610.18
800		-622.86	-622.24	-621.62	-621.01	-619.78	-618.54	-617.31
900		-630.42	-629.81	-629.19	-628.58	-627.35	-626.11	-624.88
1000		-638.40	-637.79	-637.17	-636.55	-635.32	-634.09	-632.86
Boehmite								
25	-219.60	-219.37	-219.13	-218.90	-218.67	-218.20	-217.73	-217.26
50	-219.84	-219.60	-219.37	-219.13	-218.90	-218.43	-217.97	-217.50
75	-220.10	-219.86	-219.63	-219.40	-219.16	-218.70	-218.23	-217.76
100	-220.39	-220.15	-219.92	-219.69	-219.45	-218.99	-218.52	-218.05
125	-220.70	-220.47	-220.23	-220.00	-219.77	-219.30	-218.83	-218.37

TABLE 3. Calculated apparent standard molal Gibbs free energies of formation (in kcal/mol) of 22 minerals as a function of temperature and pressure (see text) — Continued

<i>T</i> , C°	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Boehmite — Continued								
150	-221.04	-220.81	-220.57	-220.34	-220.11	-219.64	-219.17	-218.70
175	-221.40	-221.17	-220.94	-220.70	-220.47	-220.00	-219.53	-219.07
200	-221.78	-221.56	-221.32	-221.09	-220.86	-220.39	-219.92	-219.45
225	-222.19	-221.97	-221.73	-221.50	-221.26	-220.80	-220.33	-219.86
250	-222.61	-222.40	-222.16	-221.93	-221.70	-221.23	-220.76	-220.30
300	-223.52	-223.33	-223.09	-222.86	-222.63	-222.16	-221.69	-221.22
350	-224.49	-224.34	-224.10	-223.87	-223.64	-223.17	-222.70	-222.24
400		-225.43	-225.19	-224.96	-224.73	-224.26	-223.79	-223.33
450		-226.60	-226.36	-226.13	-225.90	-225.43	-224.96	-224.49
500		-227.84	-227.60	-227.37	-227.14	-226.67	-226.20	-225.74
550		-229.15	-228.92	-228.68	-228.45	-227.98	-227.51	-227.05
600		-230.53	-230.30	-230.06	-229.83	-229.36	-228.90	-228.43
700		-233.49	-233.26	-233.02	-232.79	-232.32	-231.86	-231.39
800		-236.70	-236.47	-236.24	-236.00	-235.54	-235.07	-234.60
900		-240.16	-239.93	-239.69	-239.46	-238.99	-238.53	-238.06
1000		-243.85	-243.61	-243.38	-243.15	-242.68	-242.21	-241.75
Corundum								
25	-378.17	-377.86	-377.56	-377.25	-376.95	-376.33	-375.72	-375.11
50	-378.49	-378.19	-377.88	-377.58	-377.27	-376.66	-376.05	-375.44
75	-378.86	-378.55	-378.24	-377.94	-377.63	-377.02	-376.41	-375.80
100	-379.26	-378.95	-378.65	-378.34	-378.03	-377.42	-376.81	-376.20
125	-379.69	-379.39	-379.08	-378.78	-378.47	-377.86	-377.25	-376.64
150	-380.17	-379.86	-379.56	-379.25	-378.95	-378.34	-377.72	-377.11
175	-380.67	-380.37	-380.07	-379.76	-379.46	-378.84	-378.23	-377.62
200	-381.21	-380.92	-380.61	-380.30	-380.00	-379.39	-378.78	-378.16
225	-381.78	-381.49	-381.19	-380.88	-380.57	-379.96	-379.35	-378.74
250	-382.38	-382.10	-381.79	-381.49	-381.18	-380.57	-379.96	-379.35
300	-383.66	-383.40	-383.10	-382.79	-382.49	-381.88	-381.27	-380.65
350	-385.03	-384.83	-384.52	-384.22	-383.91	-383.30	-382.69	-382.08
400		-386.36	-386.05	-385.75	-385.44	-384.83	-384.22	-383.61
450		-387.99	-387.69	-387.38	-387.08	-386.47	-385.85	-385.24
500		-389.73	-389.42	-389.12	-388.81	-388.20	-387.59	-386.98
550		-391.55	-391.25	-390.94	-390.64	-390.02	-389.41	-388.80
600		-393.46	-393.16	-392.85	-392.55	-391.94	-391.33	-390.71
700		-397.54	-397.23	-396.93	-396.62	-396.01	-395.40	-394.79
800		-401.92	-401.61	-401.30	-401.00	-400.39	-399.78	-399.16
900		-406.57	-406.27	-405.96	-405.66	-405.05	-404.43	-403.82
1000		-411.49	-411.19	-410.88	-410.57	-409.96	-409.35	-408.74
Diaspore								
25	-220.15	-219.94	-219.73	-219.51	-219.30	-218.88	-218.45	-218.03
50	-220.37	-220.16	-219.95	-219.74	-219.53	-219.10	-218.68	-218.25
75	-220.63	-220.41	-220.20	-219.99	-219.78	-219.35	-218.93	-218.50
100	-220.90	-220.69	-220.48	-220.27	-220.05	-219.63	-219.21	-218.78
125	-221.20	-220.99	-220.78	-220.57	-220.36	-219.93	-219.51	-219.08
150	-221.53	-221.32	-221.11	-220.90	-220.68	-220.26	-219.83	-219.41
175	-221.88	-221.67	-221.46	-221.25	-221.03	-220.61	-220.18	-219.76
200	-222.25	-222.04	-221.83	-221.62	-221.41	-220.98	-220.56	-220.13
225	-222.64	-222.44	-222.23	-222.02	-221.80	-221.38	-220.96	-220.53
250	-223.06	-222.86	-222.65	-222.44	-222.22	-221.80	-221.37	-220.95
300	-223.94	-223.76	-223.55	-223.34	-223.12	-222.70	-222.28	-221.85
350	-224.89	-224.75	-224.53	-224.32	-224.11	-223.68	-223.26	-222.84
400		-225.81	-225.60	-225.38	-225.17	-224.75	-224.32	-223.90
450		-226.95	-226.74	-226.52	-226.31	-225.89	-225.46	-225.04
500		-228.16	-227.95	-227.74	-227.52	-227.10	-226.67	-226.25
550		-229.44	-229.23	-229.02	-228.81	-228.38	-227.96	-227.53
600		-230.79	-230.58	-230.37	-230.16	-229.73	-229.31	-228.88
700		-233.70	-233.48	-233.27	-233.06	-232.64	-232.21	-231.79
800		-236.85	-236.64	-236.43	-236.22	-235.79	-235.37	-234.94

TABLE 3. Calculated apparent standard molal Gibbs free energies of formation (in kcal/mol) of 22 minerals as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Diaspore — Continued								
900		-240.25	-240.04	-239.83	-239.61	-239.19	-238.76	-238.34
1000		-243.88	-243.67	-243.46	-243.25	-242.82	-242.40	-241.97
Gibbsite								
25	-276.03	-275.64	-275.26	-274.88	-274.50	-273.73	-272.97	-272.21
50	-276.46	-276.08	-275.69	-275.31	-274.93	-274.17	-273.40	-272.64
75	-276.93	-276.55	-276.17	-275.79	-275.41	-274.64	-273.88	-273.12
100	-277.46	-277.07	-276.69	-276.31	-275.93	-275.17	-274.40	-273.64
125	-278.02	-277.64	-277.26	-276.88	-276.49	-275.73	-274.97	-274.20
150	-278.63	-278.25	-277.87	-277.49	-277.10	-276.34	-275.58	-274.81
175	-279.27	-278.90	-278.52	-278.14	-277.75	-276.99	-276.23	-275.46
200	-279.96	-279.59	-279.21	-278.83	-278.45	-277.68	-276.92	-276.16
225	-280.69	-280.33	-279.94	-279.56	-279.18	-278.42	-277.65	-276.89
250	-281.45	-281.10	-280.72	-280.34	-279.95	-279.19	-278.43	-277.66
300	-283.08	-282.77	-282.38	-282.00	-281.62	-280.86	-280.09	-279.33
350	-284.84	-284.59	-284.21	-283.82	-283.44	-282.68	-281.92	-281.15
400		-286.56	-286.18	-285.80	-285.42	-284.65	-283.89	-283.12
450		-288.68	-288.30	-287.92	-287.54	-286.77	-286.01	-285.25
500		-290.95	-290.57	-290.18	-289.80	-289.04	-288.27	-287.51
550		-293.36	-292.97	-292.59	-292.21	-291.45	-290.68	-289.92
600		-295.90	-295.52	-295.14	-294.76	-294.00	-293.23	-292.47
700		-301.41	-301.03	-300.65	-300.27	-299.50	-298.74	-297.98
800		-307.46	-307.08	-306.70	-306.32	-305.55	-304.79	-304.02
900		-314.04	-313.65	-313.27	-312.89	-312.13	-311.36	-310.60
1000		-321.13	-320.74	-320.36	-319.98	-319.22	-318.45	-317.69
Jadeite								
25	-682.07	-681.35	-680.63	-679.91	-679.19	-677.74	-676.30	-674.85
50	-682.91	-682.19	-681.47	-680.74	-680.02	-678.58	-677.14	-675.69
75	-683.82	-683.10	-682.38	-681.66	-680.94	-679.49	-678.05	-676.61
100	-684.82	-684.09	-683.37	-682.65	-681.93	-680.49	-679.04	-677.60
125	-685.88	-685.16	-684.44	-683.72	-682.99	-681.55	-680.11	-678.66
150	-687.01	-686.30	-685.57	-684.85	-684.13	-682.69	-681.24	-679.80
175	-688.21	-687.50	-686.78	-686.06	-685.34	-683.89	-682.45	-681.00
200	-689.47	-688.77	-688.05	-687.33	-686.61	-685.16	-683.72	-682.27
225	-690.79	-690.11	-689.38	-688.66	-687.94	-686.50	-685.05	-683.61
250	-692.17	-691.50	-690.78	-690.06	-689.34	-687.89	-686.45	-685.01
300	-695.07	-694.47	-693.75	-693.03	-692.30	-690.86	-689.42	-687.97
350	-698.14	-697.66	-696.94	-696.22	-695.50	-694.05	-692.61	-691.16
400		-701.06	-700.34	-699.62	-698.90	-697.45	-696.01	-694.57
450		-704.66	-703.94	-703.22	-702.50	-701.05	-699.61	-698.16
500		-708.45	-707.73	-707.00	-706.28	-704.84	-703.39	-701.95
550		-712.41	-711.69	-710.97	-710.25	-708.80	-707.36	-705.91
600		-716.54	-715.82	-715.10	-714.38	-712.94	-711.49	-710.05
700		-725.29	-724.57	-723.85	-723.13	-721.68	-720.24	-718.80
800		-734.64	-733.91	-733.19	-732.47	-731.03	-729.58	-728.14
900		-744.53	-743.81	-743.09	-742.37	-740.92	-739.48	-738.04
1000		-754.95	-754.23	-753.50	-752.78	-751.34	-749.90	-748.45
K-Feldspar								
25	-897.07	-895.77	-894.47	-893.16	-891.86	-889.26	-886.66	-884.06
50	-898.39	-897.09	-895.79	-894.49	-893.19	-890.59	-887.98	-885.38
75	-899.81	-898.51	-897.21	-895.91	-894.61	-892.01	-889.40	-886.80
100	-901.33	-900.03	-898.73	-897.43	-896.12	-893.52	-890.92	-888.32
125	-902.93	-901.64	-900.34	-899.04	-897.74	-895.13	-892.53	-889.93
150	-904.63	-903.34	-902.04	-900.74	-899.44	-896.84	-894.24	-891.63
175	-906.42	-905.14	-903.84	-902.54	-901.24	-898.63	-896.03	-893.43
200	-908.28	-907.02	-905.72	-904.42	-903.12	-900.52	-897.92	-895.31
225	-910.23	-908.99	-907.69	-906.39	-905.09	-902.49	-899.89	-897.28

TABLE 3. Calculated apparent standard molal Gibbs free energies of formation (in kcal/mol) of 22 minerals as a function of temperature and pressure (see text) — Continued

T, C°	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
K-Feldspar — Continued								
250	-912.25	-911.05	-909.75	-908.45	-907.15	-904.54	-901.94	-899.34
300	-916.48	-915.40	-914.10	-912.80	-911.49	-908.89	-906.29	-903.69
350	-920.92	-920.05	-918.75	-917.45	-916.15	-913.55	-910.94	-908.34
400		-924.99	-923.69	-922.39	-921.09	-918.49	-915.89	-913.28
450		-930.21	-928.91	-927.61	-926.30	-923.70	-921.10	-918.50
500		-935.68	-934.38	-933.07	-931.77	-929.17	-926.57	-923.97
550		-941.39	-940.09	-938.79	-937.48	-934.88	-932.28	-929.68
600		-947.33	-946.03	-944.73	-943.43	-940.82	-938.22	-935.62
700		-959.86	-958.56	-957.26	-955.96	-953.35	-950.75	-948.15
800		-973.19	-971.89	-970.59	-969.28	-966.68	-964.08	-961.48
900		-987.25	-985.95	-984.65	-983.35	-980.74	-978.14	-975.54
1000		-1001.99	-1000.69	-999.39	-998.09	-995.49	-992.88	-990.28
Kalsilite								
25	-482.98	-482.27	-481.55	-480.83	-480.12	-478.69	-477.26	-475.82
50	-483.81	-483.09	-482.38	-481.66	-480.94	-479.51	-478.08	-476.65
75	-484.69	-483.98	-483.26	-482.54	-481.83	-480.40	-478.97	-477.53
100	-485.63	-484.92	-484.20	-483.48	-482.77	-481.34	-479.90	-478.47
125	-486.62	-485.91	-485.19	-484.48	-483.76	-482.33	-480.90	-479.47
150	-487.66	-486.95	-486.24	-485.52	-484.81	-483.37	-481.94	-480.51
175	-488.75	-488.05	-487.33	-486.62	-485.90	-484.47	-483.04	-481.61
200	-489.89	-489.19	-488.48	-487.76	-487.04	-485.61	-484.18	-482.75
225	-491.06	-490.38	-489.67	-488.95	-488.23	-486.80	-485.37	-483.94
250	-492.28	-491.62	-490.90	-490.19	-489.47	-488.04	-486.61	-485.18
300	-494.81	-494.22	-493.50	-492.79	-492.07	-490.64	-489.21	-487.78
350	-497.46	-496.98	-496.27	-495.55	-494.83	-493.40	-491.97	-490.54
400		-499.90	-499.19	-498.47	-497.75	-496.32	-494.89	-493.46
450		-502.97	-502.26	-501.54	-500.82	-499.39	-497.96	-496.53
500		-506.18	-505.47	-504.75	-504.03	-502.60	-501.17	-499.74
550		-509.53	-508.82	-508.10	-507.38	-505.95	-504.52	-503.09
600		-513.02	-512.30	-511.59	-510.87	-509.44	-508.01	-506.58
700		-520.35	-519.63	-518.91	-518.20	-516.77	-515.34	-513.90
800		-528.11	-527.40	-526.68	-525.97	-524.53	-523.10	-521.67
900		-536.28	-535.56	-534.85	-534.13	-532.70	-531.27	-529.84
1000		-544.80	-544.09	-543.37	-542.66	-541.22	-539.79	-538.36
Kaolinite								
25	-908.50	-907.31	-906.12	-904.93	-903.74	-901.37	-898.99	-896.61
50	-909.76	-908.57	-907.39	-906.20	-905.01	-902.63	-900.25	-897.87
75	-911.15	-909.96	-908.77	-907.58	-906.39	-904.01	-901.63	-899.25
100	-912.64	-911.46	-910.27	-909.08	-907.89	-905.51	-903.13	-900.75
125	-914.26	-913.07	-911.88	-910.69	-909.50	-907.12	-904.75	-902.37
150	-915.97	-914.80	-913.61	-912.42	-911.23	-908.85	-906.47	-904.09
175	-917.80	-916.63	-915.44	-914.25	-913.06	-910.68	-908.30	-905.92
200	-919.72	-918.56	-917.37	-916.18	-915.00	-912.62	-910.24	-907.86
225	-921.73	-920.60	-919.41	-918.22	-917.03	-914.65	-912.27	-909.90
250	-923.83	-922.74	-921.55	-920.36	-919.17	-916.79	-914.41	-912.03
300	-928.28	-927.29	-926.10	-924.91	-923.72	-921.34	-918.96	-916.59
350	-933.00	-932.21	-931.02	-929.83	-928.64	-926.26	-923.88	-921.50
400		-937.47	-936.28	-935.09	-933.90	-931.53	-929.15	-926.77
450		-943.07	-941.88	-940.69	-939.50	-937.12	-934.74	-932.36
500		-948.98	-947.79	-946.60	-945.41	-943.04	-940.66	-938.28
550		-955.20	-954.01	-952.82	-951.64	-949.26	-946.88	-944.50
600		-961.72	-960.53	-959.34	-958.15	-955.77	-953.39	-951.02
700		-975.61	-974.42	-973.23	-972.04	-969.66	-967.28	-964.90
800		-990.58	-989.39	-988.20	-987.01	-984.63	-982.25	-979.87
900		-1006.57	-1005.39	-1004.20	-1003.01	-1000.63	-998.25	-995.87
1000		-1023.56	-1022.37	-1021.18	-1019.99	-1017.61	-1015.23	-1012.85

TABLE 3. Calculated apparent standard molal Gibbs free energies of formation (in kcal/mol) of 22 minerals as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Kyanite								
25	-583.88	-583.36	-582.83	-582.30	-581.78	-580.72	-579.67	-578.61
50	-584.41	-583.89	-583.36	-582.83	-582.31	-581.25	-580.20	-579.14
75	-585.00	-584.48	-583.95	-583.42	-582.90	-581.84	-580.79	-579.73
100	-585.65	-585.13	-584.60	-584.07	-583.55	-582.49	-581.44	-580.39
125	-586.36	-585.84	-585.31	-584.78	-584.25	-583.20	-582.15	-581.09
150	-587.12	-586.60	-586.07	-585.55	-585.02	-583.97	-582.91	-581.86
175	-587.94	-587.42	-586.89	-586.37	-585.84	-584.79	-583.73	-582.68
200	-588.80	-588.29	-587.77	-587.24	-586.71	-585.66	-584.60	-583.55
225	-589.72	-589.22	-588.69	-588.16	-587.64	-586.58	-585.53	-584.47
250	-590.67	-590.19	-589.66	-589.14	-588.61	-587.56	-586.50	-585.45
300	-592.72	-592.28	-591.75	-591.23	-590.70	-589.65	-588.59	-587.54
350	-594.90	-594.55	-594.02	-593.50	-592.97	-591.92	-590.86	-589.81
400		-596.99	-596.46	-595.94	-595.41	-594.36	-593.30	-592.25
450		-599.59	-599.06	-598.54	-598.01	-596.96	-595.90	-594.85
500		-602.34	-601.82	-601.29	-600.76	-599.71	-598.66	-597.60
550		-605.24	-604.71	-604.19	-603.66	-602.61	-601.55	-600.50
600		-608.27	-607.75	-607.22	-606.69	-605.64	-604.59	-603.53
700		-614.73	-614.20	-613.67	-613.15	-612.09	-611.04	-609.98
800		-621.66	-621.13	-620.61	-620.08	-619.03	-617.97	-616.92
900		-629.04	-628.51	-627.98	-627.46	-626.40	-625.35	-624.30
1000		-636.83	-636.30	-635.78	-635.25	-634.19	-633.14	-632.09
Microcline, Maximum								
25	-897.07	-895.77	-894.47	-893.17	-891.87	-889.27	-886.67	-884.07
50	-898.40	-897.10	-895.80	-894.50	-893.20	-890.60	-888.00	-885.40
75	-899.82	-898.53	-897.23	-895.93	-894.63	-892.03	-889.43	-886.83
100	-901.35	-900.05	-898.75	-897.45	-896.15	-893.55	-890.95	-888.36
125	-902.97	-901.67	-900.37	-899.07	-897.77	-895.17	-892.58	-889.98
150	-904.67	-903.38	-902.08	-900.78	-899.49	-896.89	-894.29	-891.69
175	-906.46	-905.18	-903.88	-902.59	-901.29	-898.69	-896.09	-893.49
200	-908.33	-907.07	-905.77	-904.47	-903.17	-900.57	-897.97	-895.37
225	-910.27	-909.04	-907.74	-906.44	-905.14	-902.54	-899.94	-897.34
250	-912.28	-911.08	-909.79	-908.49	-907.19	-904.59	-901.99	-899.39
300	-916.48	-915.41	-914.11	-912.81	-911.51	-908.91	-906.31	-903.71
350	-920.89	-920.02	-918.72	-917.42	-916.12	-913.52	-910.92	-908.32
400		-924.90	-923.60	-922.30	-921.00	-918.40	-915.80	-913.20
450		-930.04	-928.74	-927.44	-926.14	-923.54	-920.94	-918.34
500		-935.42	-934.12	-932.82	-931.52	-928.92	-926.32	-923.72
550		-941.03	-939.73	-938.43	-937.13	-934.53	-931.93	-929.33
600		-946.85	-945.55	-944.25	-942.95	-940.35	-937.76	-935.16
700		-959.12	-957.82	-956.53	-955.23	-952.63	-950.03	-947.43
800		-972.16	-970.86	-969.56	-968.26	-965.67	-963.07	-960.47
900		-985.91	-984.61	-983.31	-982.01	-979.41	-976.82	-974.22
1000		-1000.33	-999.03	-997.73	-996.43	-993.83	-991.23	-988.63
Muscovite								
25	-1340.32	-1338.64	-1336.96	-1335.28	-1333.59	-1330.23	-1326.86	-1323.50
50	-1342.12	-1340.44	-1338.76	-1337.08	-1335.39	-1332.03	-1328.66	-1325.30
75	-1344.08	-1342.40	-1340.72	-1339.04	-1337.35	-1333.99	-1330.62	-1327.26
100	-1346.19	-1344.52	-1342.83	-1341.15	-1339.47	-1336.10	-1332.73	-1329.37
125	-1348.45	-1346.78	-1345.09	-1343.41	-1341.73	-1338.36	-1335.00	-1331.63
150	-1350.85	-1349.18	-1347.50	-1345.82	-1344.14	-1340.77	-1337.40	-1334.04
175	-1353.38	-1351.73	-1350.05	-1348.36	-1346.68	-1343.32	-1339.95	-1336.58
200	-1356.04	-1354.41	-1352.73	-1351.05	-1349.36	-1346.00	-1342.63	-1339.27
225	-1358.82	-1357.23	-1355.54	-1353.86	-1352.18	-1348.81	-1345.45	-1342.08
250	-1361.72	-1360.17	-1358.48	-1356.80	-1355.12	-1351.75	-1348.39	-1345.02
300	-1367.81	-1366.42	-1364.74	-1363.05	-1361.37	-1358.01	-1354.64	-1351.27
350	-1374.27	-1373.14	-1371.46	-1369.77	-1368.09	-1364.73	-1361.36	-1357.99
400		-1380.30	-1378.62	-1376.94	-1375.26	-1371.89	-1368.52	-1365.16
450		-1387.89	-1386.20	-1384.52	-1382.84	-1379.47	-1376.11	-1372.74

TABLE 3. Calculated apparent standard molal Gibbs free energies of formation (in kcal/mol) of 22 minerals as a function of temperature and pressure (see text) — Continued

<i>T</i> , °C	Sat.	0.5	1.0	Pressure, kbar					
				1.5	2.0	3.0	4.0	5.0	
Muscovite — Continued									
500		-1395.87	-1394.18	-1392.50	-1390.82	-1387.45	-1384.09	-1380.72	
550		-1404.22	-1402.54	-1400.86	-1399.17	-1395.81	-1392.44	-1389.08	
600		-1412.94	-1411.25	-1409.57	-1407.89	-1404.52	-1401.16	-1397.79	
700		-1431.37	-1429.69	-1428.01	-1426.32	-1422.96	-1419.59	-1416.23	
800		-1451.06	-1449.38	-1447.69	-1446.01	-1442.65	-1439.28	-1435.92	
900		-1471.90	-1470.22	-1468.54	-1466.85	-1463.49	-1460.12	-1456.76	
1000		-1493.81	-1492.13	-1490.45	-1488.77	-1485.40	-1482.03	-1478.67	
Nepheline									
25	-475.50	-474.85	-474.20	-473.56	-472.91	-471.62	-470.32	-469.03	
50	-476.27	-475.63	-474.98	-474.33	-473.68	-472.39	-471.09	-469.80	
75	-477.11	-476.46	-475.81	-475.16	-474.52	-473.22	-471.93	-470.63	
100	-478.00	-477.35	-476.70	-476.06	-475.41	-474.11	-472.82	-471.53	
125	-478.94	-478.30	-477.65	-477.00	-476.36	-475.06	-473.77	-472.47	
150	-479.94	-479.30	-478.65	-478.00	-477.36	-476.06	-474.77	-473.47	
175	-480.98	-480.35	-479.70	-479.05	-478.41	-477.11	-475.82	-474.52	
200	-482.07	-481.45	-480.80	-480.15	-479.51	-478.21	-476.92	-475.62	
225	-483.21	-482.59	-481.95	-481.30	-480.65	-479.36	-478.06	-476.77	
250	-484.38	-483.79	-483.14	-482.49	-481.85	-480.55	-479.26	-477.96	
300	-486.84	-486.30	-485.65	-485.01	-484.36	-483.06	-481.77	-480.48	
350	-489.41	-488.98	-488.33	-487.68	-487.04	-485.74	-484.45	-483.15	
400		-491.81	-491.16	-490.51	-489.87	-488.57	-487.28	-485.98	
450		-494.78	-494.14	-493.49	-492.84	-491.55	-490.25	-488.96	
500		-497.89	-497.25	-496.60	-495.95	-494.66	-493.36	-492.07	
550		-501.13	-500.48	-499.84	-499.19	-497.89	-496.60	-495.30	
600		-504.49	-503.84	-503.20	-502.55	-501.25	-499.96	-498.66	
700		-511.55	-510.91	-510.26	-509.61	-508.32	-507.02	-505.73	
800		-519.04	-518.40	-517.75	-517.10	-515.81	-514.51	-513.22	
900		-526.93	-526.28	-525.63	-524.98	-523.69	-522.39	-521.10	
1000		-535.17	-534.53	-533.88	-533.23	-531.94	-530.64	-529.35	
Paragonite									
25	-1331.65	-1330.07	-1328.49	-1326.90	-1325.32	-1322.15	-1318.98	-1315.81	
50	-1333.39	-1331.81	-1330.22	-1328.64	-1327.05	-1323.89	-1320.72	-1317.55	
75	-1335.28	-1333.70	-1332.11	-1330.53	-1328.95	-1325.78	-1322.61	-1319.44	
100	-1337.32	-1335.74	-1334.16	-1332.57	-1330.99	-1327.82	-1324.66	-1321.49	
125	-1339.51	-1337.94	-1336.35	-1334.77	-1333.18	-1330.02	-1326.85	-1323.68	
150	-1341.84	-1340.27	-1338.69	-1337.10	-1335.52	-1332.35	-1329.18	-1326.02	
175	-1344.30	-1342.74	-1341.16	-1339.57	-1337.99	-1334.82	-1331.66	-1328.49	
200	-1346.88	-1345.35	-1343.76	-1342.18	-1340.60	-1337.43	-1334.26	-1331.09	
225	-1349.58	-1348.08	-1346.50	-1344.91	-1343.33	-1340.16	-1336.99	-1333.83	
250	-1352.40	-1350.94	-1349.36	-1347.77	-1346.19	-1343.02	-1339.85	-1336.69	
300	-1358.33	-1357.02	-1355.44	-1353.85	-1352.27	-1349.10	-1345.93	-1342.77	
350	-1364.62	-1363.56	-1361.97	-1360.39	-1358.81	-1355.64	-1352.47	-1349.30	
400		-1370.53	-1368.94	-1367.36	-1365.78	-1362.61	-1359.44	-1356.27	
450		-1377.91	-1376.33	-1374.74	-1373.16	-1369.99	-1366.82	-1363.66	
500		-1385.68	-1384.10	-1382.52	-1380.93	-1377.77	-1374.60	-1371.43	
550		-1393.83	-1392.25	-1390.67	-1389.08	-1385.92	-1382.75	-1379.58	
600		-1402.35	-1400.76	-1399.18	-1397.60	-1394.43	-1391.26	-1388.09	
700		-1420.40	-1418.82	-1417.23	-1415.65	-1412.48	-1409.32	-1406.15	
800		-1439.76	-1438.18	-1436.59	-1435.01	-1431.84	-1428.67	-1425.50	
900		-1460.34	-1458.75	-1457.17	-1455.59	-1452.42	-1449.25	-1446.08	
1000		-1482.07	-1480.49	-1478.91	-1477.32	-1474.16	-1470.99	-1467.82	
Pyrophyllite									
25	-1259.02	-1257.50	-1255.97	-1254.44	-1252.91	-1249.86	-1246.80	-1243.75	
50	-1260.53	-1259.00	-1257.47	-1255.94	-1254.42	-1251.36	-1248.31	-1245.25	
75	-1262.17	-1260.65	-1259.12	-1257.59	-1256.06	-1253.01	-1249.95	-1246.90	
100	-1263.96	-1262.43	-1260.90	-1259.38	-1257.85	-1254.79	-1251.74	-1248.68	

TABLE 3. Calculated apparent standard molal Gibbs free energies of formation (in kcal/mol) of 22 minerals as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	Pressure, kbar						
		0.5	1.0	1.5	2.0	3.0	4.0	5.0
Pyrophyllite — Continued								
125	-1265.87	-1264.35	-1262.82	-1261.30	-1259.77	-1256.71	-1253.66	-1250.60
150	-1267.92	-1266.40	-1264.88	-1263.35	-1261.82	-1258.77	-1255.71	-1252.66
175	-1270.08	-1268.58	-1267.06	-1265.53	-1264.00	-1260.95	-1257.89	-1254.84
200	-1272.36	-1270.89	-1269.36	-1267.83	-1266.30	-1263.25	-1260.19	-1257.14
225	-1274.76	-1273.31	-1271.78	-1270.25	-1268.72	-1265.67	-1262.61	-1259.56
250	-1277.25	-1275.84	-1274.31	-1272.79	-1271.26	-1268.20	-1265.15	-1262.09
300	-1282.51	-1281.25	-1279.72	-1278.19	-1276.67	-1273.61	-1270.56	-1267.50
350	-1288.10	-1287.08	-1285.55	-1284.02	-1282.50	-1279.44	-1276.39	-1273.33
400		-1293.31	-1291.79	-1290.26	-1288.73	-1285.68	-1282.62	-1279.57
450		-1299.93	-1298.41	-1296.88	-1295.35	-1292.30	-1289.24	-1286.19
500		-1306.92	-1305.39	-1303.87	-1302.34	-1299.28	-1296.23	-1293.17
550		-1314.26	-1312.73	-1311.21	-1309.68	-1306.62	-1303.57	-1300.51
600		-1321.94	-1320.42	-1318.89	-1317.36	-1314.31	-1311.25	-1308.20
700		-1338.28	-1336.75	-1335.23	-1333.70	-1330.64	-1327.59	-1324.53
800		-1355.85	-1354.32	-1352.80	-1351.27	-1348.21	-1345.16	-1342.10
900		-1374.59	-1373.06	-1371.53	-1370.01	-1366.95	-1363.90	-1360.84
1000		-1394.44	-1392.91	-1391.38	-1389.85	-1386.80	-1383.74	-1380.69
Quartz								
25	-204.65	-204.38	-204.10	-203.83	-203.56	-203.03	-202.49	-201.95
50	-204.90	-204.63	-204.36	-204.09	-203.82	-203.28	-202.74	-202.20
75	-205.18	-204.91	-204.64	-204.37	-204.10	-203.56	-203.02	-202.48
100	-205.49	-205.21	-204.94	-204.67	-204.40	-203.86	-203.32	-202.78
125	-205.81	-205.54	-205.26	-204.99	-204.72	-204.18	-203.64	-203.10
150	-206.15	-205.88	-205.60	-205.33	-205.06	-204.52	-203.97	-203.43
175	-206.51	-206.24	-205.96	-205.69	-205.42	-204.88	-204.33	-203.79
200	-206.88	-206.62	-206.34	-206.07	-205.80	-205.25	-204.71	-204.17
225	-207.28	-207.02	-206.74	-206.47	-206.20	-205.65	-205.11	-204.56
250	-207.68	-207.43	-207.16	-206.88	-206.61	-206.06	-205.52	-204.98
300	-208.54	-208.32	-208.04	-207.77	-207.49	-206.94	-206.40	-205.85
350	-209.45	-209.27	-208.99	-208.71	-208.44	-207.89	-207.34	-206.79
400		-210.28	-210.00	-209.73	-209.45	-208.90	-208.35	-207.80
450		-211.35	-211.07	-210.80	-210.52	-209.97	-209.42	-208.87
500		-212.48	-212.20	-211.93	-211.65	-211.09	-210.54	-209.99
550		-213.67	-213.39	-213.11	-212.83	-212.28	-211.72	-211.17
600		-214.91	-214.62	-214.35	-214.07	-213.51	-212.95	-212.40
700		-217.56	-217.27	-216.99	-216.71	-216.14	-215.57	-215.01
800		-220.37	-220.09	-219.81	-219.52	-218.96	-218.39	-217.82
900		-223.34	-223.06	-222.78	-222.49	-221.93	-221.36	-220.79
1000		-226.46	-226.17	-225.89	-225.61	-225.04	-224.47	-223.91
Sanidine, High								
25	-895.43	-894.13	-892.83	-891.52	-890.22	-887.62	-885.01	-882.40
50	-896.85	-895.54	-894.24	-892.94	-891.63	-889.03	-886.42	-883.82
75	-898.36	-897.06	-895.75	-894.45	-893.15	-890.54	-887.94	-885.33
100	-899.97	-898.67	-897.36	-896.06	-894.76	-892.15	-889.55	-886.94
125	-901.67	-900.37	-899.07	-897.77	-896.46	-893.86	-891.25	-888.65
150	-903.46	-902.17	-900.87	-899.56	-898.26	-895.66	-893.05	-890.45
175	-905.33	-904.06	-902.75	-901.45	-900.15	-897.54	-894.94	-892.33
200	-907.29	-906.03	-904.72	-903.42	-902.12	-899.51	-896.91	-894.30
225	-909.31	-908.08	-906.78	-905.47	-904.17	-901.56	-898.96	-896.35
250	-911.41	-910.21	-908.91	-907.61	-906.30	-903.70	-901.09	-898.49
300	-915.78	-914.70	-913.40	-912.10	-910.80	-908.19	-905.58	-902.98
350	-920.36	-919.48	-918.18	-916.88	-915.58	-912.97	-910.37	-907.76
400		-924.54	-923.23	-921.93	-920.63	-918.02	-915.42	-912.81
450		-929.84	-928.54	-927.24	-925.94	-923.33	-920.72	-918.12
500		-935.39	-934.09	-932.79	-931.48	-928.88	-926.27	-923.67
550		-941.17	-939.87	-938.57	-937.26	-934.66	-932.05	-929.45
600		-947.17	-945.87	-944.56	-943.26	-940.65	-938.05	-935.44
700		-959.78	-958.48	-957.17	-955.87	-953.27	-950.66	-948.06

TABLE 3. Calculated apparent standard molal Gibbs free energies of formation (in kcal/mol) of 22 minerals as a function of temperature and pressure (see text) — Continued

T, °C	Sat.	0.5	1.0	Pressure, kbar				
				1.5	2.0	3.0	4.0	5.0
Sanidine, High — Continued								
800		-973.16	-971.86	-970.55	-969.25	-966.65	-964.04	-961.43
900		-987.25	-985.95	-984.64	-983.34	-980.73	-978.13	-975.52
1000		-1002.00	-1000.70	-999.40	-998.09	-995.49	-992.88	-990.28
Sillimanite								
25	-583.02	-582.42	-581.83	-581.23	-580.63	-579.44	-578.25	-577.05
50	-583.63	-583.03	-582.43	-581.84	-581.24	-580.65	-578.86	-577.66
75	-584.30	-583.70	-583.10	-582.51	-581.91	-580.72	-579.53	-578.33
100	-585.02	-584.43	-583.83	-583.24	-582.64	-581.45	-580.25	-579.06
125	-585.81	-585.21	-584.62	-584.02	-583.42	-582.23	-581.04	-579.85
150	-586.65	-586.06	-585.46	-584.86	-584.27	-583.07	-581.88	-580.69
175	-587.54	-586.95	-586.35	-585.76	-585.16	-583.97	-582.78	-581.58
200	-588.48	-587.90	-587.30	-586.71	-586.11	-584.92	-583.72	-582.53
225	-589.46	-588.90	-588.30	-587.71	-587.11	-585.92	-584.72	-583.53
250	-590.49	-589.95	-589.35	-588.75	-588.16	-586.96	-585.77	-584.58
300	-592.68	-592.18	-591.59	-590.99	-590.39	-589.20	-588.01	-586.81
350	-594.99	-594.59	-594.00	-593.40	-592.81	-591.61	-590.42	-589.23
400		-597.18	-596.58	-595.98	-595.39	-594.19	-593.00	-591.81
450		-599.91	-599.32	-598.72	-598.12	-596.93	-595.74	-594.55
500		-602.80	-602.20	-601.61	-601.01	-599.82	-598.63	-597.43
550		-605.83	-605.23	-604.64	-604.04	-602.85	-601.66	-600.46
600		-608.99	-608.40	-607.80	-607.21	-606.01	-604.82	-603.63
700		-615.70	-615.11	-614.51	-613.91	-612.72	-611.53	-610.34
800		-622.88	-622.29	-621.69	-621.10	-619.90	-618.71	-617.52
900		-630.50	-629.91	-629.31	-628.71	-627.52	-626.33	-625.14
1000		-638.53	-637.93	-637.34	-636.74	-635.55	-634.36	-633.16

TABLE 4. Calculated apparent standard molal Gibbs free energies (in kcal/mol) of 18 gases as a function of temperature (see text)

Gases									
T, °C	Ar	CH ₄	C ₂ H ₄	CO	CO ₂	H ₂	H ₂ O	H ₂ S	He
25	0.00	-12.12	16.28	-32.78	-94.25	0.00	-54.53	-8.02	0.00
50	-0.93	-13.24	14.96	-33.97	-95.54	-0.79	-55.65	-9.26	-0.76
75	-1.87	-14.38	13.63	-35.17	-96.84	-1.59	-56.80	-10.51	-1.53
100	-2.82	-15.54	12.29	-36.39	-98.17	-2.40	-58.11	-11.78	-2.30
125	-3.78	-16.71	10.94	-37.61	-99.50	-3.23	-59.29	-13.07	-3.09
150	-4.74	-17.90	9.58	-38.85	-100.86	-4.06	-60.48	-14.36	-3.88
175	-5.71	-19.10	8.20	-40.10	-102.23	-4.91	-61.68	-15.67	-4.68
200	-6.69	-20.32	6.82	-41.36	-103.61	-5.77	-62.90	-17.00	-5.49
225	-7.68	-21.55	5.43	-42.63	-105.01	-6.63	-64.12	-18.33	-6.31
250	-8.67	-22.79	4.02	-43.90	-106.42	-7.50	-65.36	-19.68	-7.13
300	-10.67	-25.33	1.19	-46.48	-109.28	-9.28	-67.87	-22.40	-8.79
350	-12.70	-27.91	-1.68	-49.09	-112.19	-11.08	-70.41	-25.17	-10.47
400	-14.74	-30.55	-4.58	-51.73	-115.15	-12.91	-72.99	-27.97	-12.17
450	-16.80	-33.23	-7.50	-54.40	-118.15	-14.77	-75.60	-30.81	-13.89
500	-18.88	-35.96	-10.46	-57.09	-121.18	-16.65	-78.25	-33.69	-15.62
550	-20.97	-38.74	-13.44	-59.81	-124.26	-18.56	-80.92	-36.59	-17.37
600	-23.08	-41.57	-16.45	-62.55	-127.38	-20.48	-83.62	-39.53	-19.14
700	-27.35	-47.35	-22.53	-68.10	-133.71	-24.40	-89.10	-45.49	-22.72
800	-31.66	-53.30	-28.70	-73.73	-140.16	-28.39	-94.69	-51.57	-26.35
900	-36.02	-59.42	-34.94	-79.43	-146.74	-32.45	-100.37	-57.74	-30.02
1000	-40.42	-65.71	-41.26	-85.20	-153.42	-36.57	-106.13	-64.01	-33.74
T, °C	Kr	N ₂	NH ₃	Ne	O ₂	Rn	S ₂	SO ₂	Xe
25	0.00	0.00	-3.93	0.00	0.00	0.00	18.95	-71.75	0.00
50	-0.99	-1.15	-5.09	-0.88	-1.23	-1.06	17.58	-73.24	-1.02
75	-1.98	-2.32	-6.27	-1.77	-2.48	-2.13	16.19	-74.75	-2.05
100	-2.98	-3.50	-7.46	-2.67	-3.74	-3.20	14.79	-76.28	-3.08
125	-4.00	-4.69	-8.66	-3.57	-5.01	-4.29	13.38	-77.83	-4.13
150	-5.02	-5.89	-9.89	-4.49	-6.29	-5.38	11.95	-79.40	-5.18
175	-6.04	-7.10	-11.12	-5.41	-7.59	-6.48	10.51	-80.98	-6.25
200	7.08	-8.32	-12.37	-6.34	-8.89	-7.59	9.06	-82.57	-7.31
225	-8.12	-9.55	-13.63	-7.27	-10.21	-8.70	7.60	-84.18	-8.39
250	-9.17	-10.79	-14.91	-8.21	-11.53	-9.82	6.12	-85.81	-9.47
300	-11.28	-13.30	-17.49	-10.11	-14.20	-12.08	3.15	-89.10	-11.65
350	-13.41	-15.84	-20.12	-12.03	-16.91	-14.36	0.13	-92.44	-13.85
400	-15.57	-18.41	-22.79	-13.98	-19.65	-16.66	-2.92	-95.82	-16.07
450	-17.74	-21.00	-25.51	-15.94	-22.42	-18.97	-6.00	-99.26	-18.31
500	-19.93	-23.62	-28.26	-17.91	-25.21	-21.31	-9.11	-102.73	-20.56
550	-22.13	-26.27	-31.05	-19.91	-28.03	-23.66	-12.24	-106.24	-22.84
600	-24.35	-28.94	-33.88	-21.91	-30.87	-26.02	-15.41	-109.79	-25.12
700	-28.84	-34.34	-39.64	-25.97	-36.63	-30.80	-21.81	-117.00	-29.74
800	-33.37	-39.82	-45.53	-30.08	-42.46	-35.62	-28.31	-124.33	-34.41
900	-37.95	-45.37	-51.55	-34.24	-48.38	-40.49	-34.88	-131.79	-39.12
1000	-42.57	-50.99	-57.69	-38.44	-54.36	-45.40	-41.54	-139.36	-43.88

TABLE 5. Chemical formulas of the 97 aqueous organic species considered in the present study

Organic species	Formula	Organic species	Formula
1-Butanamine	C ₄ H ₉ NH ₂	Formaldehyde	HCHO
1-Butanol	C ₄ H ₉ OH	Formate	HCOO ⁻
1-Butene	C ₄ H ₈	Formic Acid	HCOOH
1-Butyne	C ₄ H ₆	Glutamic Acid	C ₅ H ₉ NO ₄
1-Heptanamine	C ₇ H ₁₅ NH ₂	Glutamine	C ₅ H ₁₀ N ₂ O ₃
1-Heptanol	C ₇ H ₁₅ OH	Glycine	C ₂ H ₅ NO ₂
1-Heptene	C ₇ H ₁₄	Heptanoate	C ₆ H ₁₃ COO ⁻
1-Heptyne	C ₇ H ₁₂	Heptanoic Acid	C ₆ H ₁₃ COOH
1-Hexanamine	C ₆ H ₁₃ NH ₂	Hexanoate	C ₅ H ₁₁ COO ⁻
1-Hexanol	C ₆ H ₁₃ OH	Hexanoic Acid	C ₅ H ₁₁ COOH
1-Hexene	C ₆ H ₁₂	Isoleucine	C ₆ H ₁₃ NO ₂
1-Hexyne	C ₆ H ₁₀	Leucine	C ₆ H ₁₃ NO ₂
1-Octanamine	C ₈ H ₁₇ NH ₂	Methanamine	CH ₃ NH ₂
1-Octanol	C ₈ H ₁₇ OH	Methane	CH ₄
1-Octene	C ₈ H ₁₆	Methanol	CH ₃ OH
1-Octyne	C ₈ H ₁₄	Methionine	C ₅ H ₁₁ NO ₂ S
1-Pentanamine	C ₅ H ₁₁ NH ₂	Monochloroacetate	CH ₂ ClCOO ⁻
1-Pentanol	C ₅ H ₁₁ OH	Monochloroacetic Acid	CH ₂ ClCOOH
1-Pentene	C ₅ H ₁₀	Monochloroacetyl Chloride	CH ₂ ClCOCl
1-Pentyne	C ₅ H ₈	N-Butane	C ₄ H ₁₀
1-Propanamine	C ₃ H ₇ NH ₂	N-Butylbenzene	C ₆ H ₅ C ₄ H ₉
1-Propanol	C ₃ H ₇ OH	N-Heptane	C ₇ H ₁₆
1-Propene	C ₃ H ₆	N-Heptylbenzene	C ₆ H ₅ C ₇ H ₁₅
1-Propyne	C ₃ H ₄	N-Hexane	C ₆ H ₁₄
2-Butanone	C ₄ H ₈ O	N-Hexylbenzene	C ₆ H ₅ C ₆ H ₁₃
2-Heptanone	C ₇ H ₁₄ O	N-Octane	C ₈ H ₁₈
2-Hexanone	C ₆ H ₁₂ O	N-Octylbenzene	C ₆ H ₅ C ₈ H ₁₇
2-Octanone	C ₈ H ₁₆ O	N-Pentane	C ₅ H ₁₂
2-Pentanone	C ₃ H ₁₀ O	N-Pentylbenzene	C ₆ H ₅ C ₅ H ₁₁
A-Aminobutyric Acid	C ₄ H ₉ NO ₂	N-Propylbenzene	C ₆ H ₅ C ₃ H ₇
Acetate	CH ₃ COO ⁻	Octanoate	C ₇ H ₁₅ COO ⁻
Acetic Acid	CH ₃ COOH	Octanoic Acid	C ₇ H ₁₅ COOH
Acetyl Chloride	CH ₃ COCl	Pentanoate	C ₄ H ₉ COO ⁻
Acetone	C ₃ H ₆ O	Pentanoic Acid	C ₄ H ₉ COOH
Alanine	C ₃ H ₇ NO ₂	Phenol	C ₆ H ₅ OH
Asparagine	C ₄ H ₈ N ₂ O ₃	Phenylalanine	C ₉ H ₁₁ NO ₂
Aspartic Acid	C ₄ H ₇ NO ₄	Propane	C ₃ H ₈
Benzene	C ₆ H ₆	Propanoate	C ₂ H ₅ COO ⁻
Butanoate	C ₄ H ₇ COO ⁻	Propanoic Acid	C ₂ H ₅ COOH
Butanoic Acid	C ₄ H ₇ COOH	Serine	C ₃ H ₇ NO ₃
Dichloroacetate	CHCl ₂ COO ⁻	Threonine	C ₄ H ₉ NO ₃
Dichloroacetic Acid	CHCl ₂ COOH	Toluene	C ₆ H ₅ CH ₃
Dichloroacetyl Chloride	CHCl ₂ COCl	Trichloroacetate	CCl ₃ COO ⁻
Ethanamine	C ₂ H ₅ NH ₂	Trichloroacetic Acid	CCl ₃ COOH
Ethane	C ₂ H ₆	Trichloroacetyl Chloride	CCl ₃ COCl
Ethanol	C ₂ H ₅ OH	Tryptophan	C ₁₁ H ₁₂ N ₂ O ₂
Ethylbenzene	C ₆ H ₅ C ₂ H ₅	Tyrosine	C ₉ H ₁₁ NO ₃
Ethylene	C ₂ H ₄	Valine	C ₅ H ₁₁ NO ₂
Ethyne	C ₂ H ₂		

TABLE 6. Index of the aqueous species considered in the present study and their references

Species	Reference	Page	Species	Reference	Page
1-Butanamide	SH2	1408	BO ₂ ⁻	SH1	1433
1-Butanol	SH2	1408	Ba ⁺²	SH1	1433
1-Butene	SH2	1408	BaCO ₃ ⁰	SSH	1433
1-Butyne	SH2	1409	BaCl ⁺	SSH	1434
1-Heptanamine	SH2	1409	BaF ⁺	SSH	1434
1-Heptanol	SH2	1409	Ba ⁺²	SH1	1434
1-Heptene	SH2	1410	BeO ₂ ⁻²	SH1	1435
1-Heptyne	SH2	1410	Br ⁻	SH1	1435
1-Hexanamine	SH2	1411	Br ₃ ⁻	SH1	1436
1-Hexanol	SH2	1411	BrO ⁻	SH1	1436
1-Hexene	SH2	1411	BrO ₃ ⁻	SH1	1436
1-Hexyne	SH2	1412	BrO ₄ ⁻	SH1	1437
1-Octanamine	SH2	1412	CN ⁻	SH1	1437
1-Octanol	SH2	1413	CO ⁰	SM	1438
1-Octene	SH2	1413	CO ₂ ⁰	SHS	1438
1-Octyne	SH2	1413	CO ₃ ⁻²	SH1	1438
1-Pentanamine	SH2	1414	Ca ⁺²	SH1	1439
1-Pentanol	SH2	1414	Ca(CH ₃ COO) ⁺	SK	1439
1-Pentene	SH2	1414	Ca(CH ₃ COO) ₂ ⁰	SK	1440
1-Pentyne	SH2	1415	CaCO ₃ ⁰	SSH	1440
1-Propanamine	SH2	1415	CaCl ⁺	SSH	1440
1-Propanol	SH2	1416	CaCl ₂ ⁰	SSH	1441
1-Propene	SH2	1416	CaHCO ₃ ⁺	SSH	1441
1-Propyne	SH2	1416	CaF ⁺	SSH	1441
2-Butanone	SH2	1417	CaSO ₄ ²⁻	SSH	1442
2-Heptanone	SH2	1417	Cd ⁺²	SH1	1442
2-Hexanone	SH2	1418	Ce ⁺³	SH1	1443
2-Octanone	SH2	1418	Cl ⁻	SH1	1443
2-Pentanone	SH2	1418	ClO ⁻	SH1	1443
A-Aminobutyric Acid	SH2	1419	ClO ₂ ⁻	SH1	1444
Acetate	SH2	1419	ClO ₃ ⁻	SH1	1444
Acetic Acid	SH2	1419	ClO ₄ ⁻	SH1	1445
Acetone	SH2	1420	Co ⁺²	SH1	1445
Acetyl Chloride	H1	1420	Co ⁺³	SH1	1445
Alanine	SH2	1421	CrO ₄ ⁻²	SH1	1446
Asparagine	SH2	1421	Cr ₂ O ₇ ⁻²	SH1	1446
Aspartic Acid	SH2	1421	Cs ⁺	SH1	1446
Ag ⁺	SH1	1422	CsBr ⁰	SSH	1447
Ag ⁺²	SH1	1422	CsCl ⁰	SSH	1447
Ag(CH ₃ COO) ⁰	SK	1423	CsI ⁰	SSH	1448
Ag(CH ₃ COO) ₂ ⁰	SK	1423	Cu ⁺	SH1	1448
Ag(CO ₃) ⁻	SSH	1423	Cu ⁺²	SH1	1448
Ag(CO ₃) ₂ ⁻³	SSH	1424	Cu(CH ₃ COO) ⁰	SK	1449
AgCl ⁰	SSH	1424	Cu(CH ₃ COO) ₂ ⁰	SK	1449
AgCl ₂ ⁻	SSH	1424	Cu(CH ₃ COO) ⁺	SK	1450
AgCl ₃ ⁻²	SSH	1425	Cu(CH ₃ COO) ₂ ⁰	SK	1450
AgCl ₄ ⁻³	SSH	1425	Cu(CH ₃ COO) ₃ ⁰	SK	1450
AgNO ₃ ⁰	SSH	1426	Dichloroacetate	H1	1451
Al ⁺³	PH1	1426	Dichloroacetic Acid	H1	1451
Al(CH ₃ COO) ⁺²	*	1426	Dichloroacetyl Chloride	H1	1451
Al(CH ₃ COO) ₂ ⁰	*	1427	Dy ⁺³	SH1	1452
AlHO ₂ ⁰	PH1	1427	Ethanamine	SH2	1452
Al(OH) ⁺²	PH1	1428	Ethane	SH2	1453
Al(OH) ₂ ⁺	PH1	1428	Ethanol	SH2	1453
AlO ₂ ⁻	PH1	1428	Ethylbenzene	SH2	1453
Ar ⁰	SHS	1429	Ethylene	SH2	1454
Au ⁺	SH1	1429	Ethyne	SH2	1454
Au ⁺³	SH1	1429	Er ⁺³	SH1	1455
Au(CH ₃ COO) ⁰	SK	1430	Eu ⁺²	SH1	1455
Au(CH ₃ COO) ₂ ⁰	SK	1430	Eu ⁺³	SH1	1455
Benzene	SH2	1431	Formaldehyde	ScS	1456
Butanoate	SH2	1431	Formate	SH2	1456
Butanoic Acid	SH2	1431	Formic Acid	SH2	1456
BF ₄ ⁻	SH1	1432	F ⁻	SH1	1457
B(OH) ₃ ⁰	SHS	1432	Fe ⁺²	SH1	1457

TABLE 6. Index of the aqueous species considered in the present study and their references — Continued

Species	Reference	Page	Species	Reference	Page
Fe ⁺³	SH1	1458	KOH°	PH3	1483
Fe(CH ₃ COO) ⁺	SK	1458	HSO ₄ ⁻	SSH	1483
Fe(CH ₃ COO) ₂ ⁰	SK	1458	Kr°	SHS	1483
FeCl ⁺	SSH	1459	Leucine	SH2	1484
FeCl ₂ ⁰	SSH	1459	La ⁺³	SH1	1484
Glutamic Acid	SH2	1460	Li ⁺	SH1	1485
Glutamine	SH2	1460	Li(CH ₃ COO) ⁰	SK	1485
Glycine	SH2	1460	Li(CH ₃ COO) ₂ ⁻	SK	1485
Ga ⁺³	SH1	1461	LiCl°	SSH	1486
Gd ⁺³	SH1	1461	Lu ⁺³	SH1	1486
Heptanoate	SH2	1461	Methanamine	SH2	1486
Heptanoic Acid	SH2	1462	Methane	SH2	1487
Hexanoate	SH2	1462	Methanol	SH2	1487
Hexanoic Acid	SH2	1463	Methionine	SH2	1488
H ⁺	SH1	1463	Monochloroacetate	H1	1488
H ₂ ⁰	SHS	1463	Monochloroacetic Acid	H1	1488
HAsO ₄ ⁻²	SH1	1464	Monochloroacetyl Chloride	H1	1489
H ₂ AsO ₃ ⁻	SH1	1464	Mg ⁺²	SH1	1489
H ₂ AsO ₄ ⁻	SH1	1465	Mg(CH ₃ COO) ⁺	SK	1490
HBr°	PH2	1465	Mg(CH ₃ COO) ₂ ⁰	SK	1490
HCN°	SM	1465	MgCO ⁰	SSH	1490
HCO ₃ ⁻	SH1	1466	MgCl ⁺	SSH	1491
HCl°	PH2	1466	MgF ⁺	SSH	1491
HCrO ₄ ⁻	SH1	1466	MgHCO ₃ ⁺	SSH	1491
HF°	SHS	1467	Mn ⁺²	SH1	1492
HF ₂ ⁻	SH1	1467	MnCl ⁺	SSH	1492
HO ₂ ⁻	SH1	1468	MnO ₄ ⁻	SH1	1493
HPO ₄ ⁻²	SH1	1468	MnO ₂ ⁻²	SSH	1493
H ₂ PO ₄ ⁻	SH1	1468	MnSO ₄ ⁰	SSH	1493
H ₂ P ₂ O ₇ ⁻²	SH1	1469	MoO ₄ ⁻²	SH1	1494
H ₃ PO ₃ ⁰	SHS	1469	N-Butane	SH2	1494
H ₃ P ₂ O ₇ ⁻	SH1	1470	N-Butylbenzene	SH2	1495
HS ⁻	SH1	1470	N-Heptane	SH2	1495
HSO ₃ ⁻	SH1	1470	N-Heptylbenzene	SH2	1495
HSO ₄ ⁻	SH1	1471	N-Hexane	SH2	1496
HSO ₅ ⁻	SH1	1471	N-Hexylbenzene	SH2	1496
H ₂ S ⁰	SHS	1471	N-Octane	SH2	1496
HSe ⁻	SH1	1472	N-Octylbenzene	SH2	1497
HSeO ₃ ⁻	SH1	1472	N-Pentane	SH2	1497
HSeO ₄ ⁻	SH1	1473	N-Pentylbenzene	SH2	1498
HSiO ₃ ⁻	SSH	1473	N-Propylbenzene	SH2	1498
HVO ₄ ⁻²	SH1	1473	N ₂ ⁰	SHS	1498
H ₂ VO ₄ ⁻	SH1	1474	NH ₃ ⁰	SHS	1499
He°	SHS	1474	NH ₄ ⁺	SH1	1499
Hg ⁺²	SH1	1475	NO ₂ ⁻	SH1	1500
Hg ₂ ⁺²	SH1	1475	NO ₃ ⁻	SH1	1500
Hg(CH ₃ COO) ⁺	SK	1475	Na ⁺	SH1	1500
Hg(CH ₃ COO) ₂ ⁰	SK	1476	NaAlO ₂ ⁰	PH1	1501
Hg(CH ₃ COO) ₃ ⁻	SK	1476	NaBr°	SSH	1501
Ho ⁺³	SH1	1476	Na(CH ₃ COO) ⁰	SK	1501
Isoleucine	SH2	1477	Na(CH ₃ COO) ₂ ⁻	SK	1502
I ⁻	SH1	1477	NaCl°	SSH	1502
I ₃ ⁻	SH1	1478	NaF°	SSH	1503
IO ⁻	SH1	1478	NaHSiO ₃ ⁰	SSH	1503
IO ₃ ⁻	SH1	1478	NaI°	SSH	1503
IO ₄ ⁻	SH1	1479	NaOH°	PH1	1504
In ⁺³	SH1	1479	Nd ⁺³	SH1	1504
K ⁺	SH1	1480	Ne°	SHS	1505
KAlO ₂ ⁰	PH3	1480	Ni ⁺²	SH1	1505
KBr°	SSH	1480	Ni(CH ₃ COO) ⁺	SK	1505
K(CH ₃ COO) ⁰	SK	1481	Ni(CH ₃ COO) ₂ ⁰	SK	1506
K(CH ₃ COO) ₂ ⁰	SK	1481	Ni(CH ₃ COO) ₃ ⁻	SK	1506
KCl°	PH2	1481	NiCl ⁺	SSH	1506
KHSO ₄ ⁰	SSH	1482	Octanoate	SH2	1507
KI°	SSH	1482	Octanoic Acid	SH2	1507

TABLE 6. Index of the aqueous species considered in the present study and their references — Continued

Species	Reference	Page	Species	Reference	Page
O ₂	SHS	1508	SrF ⁺	SSH	1531
OH ⁻	SH1	1508	Threonine	SH2	1531
Pentanoate	SH2	1508	Trichloroacetate	H1	1531
Pentanoic Acid	SH2	1509	Trichloroacetic Acid	H1	1532
Phenol	SH2	1509	Trichloroacetyl Chloride	H1	1532
Phenylalanine	SH2	1510	Toluene	SH2	1533
Propane	SH2	1510	Tryptophan	SH2	1533
Propanoate	SH2	1510	Tyrosine	SH2	1533
Propanoic Acid	SH2	1511	Tb ⁺³	SH1	1534
PO ₄ ³⁻	SH1	1511	Tl ⁺	SH1	1534
Pb ⁺²	SH1	1511	Tl ⁺³	SH1	1535
Pb(CH ₃ COO) ⁺	SK	1512	Tm ⁺³	SH1	1535
Pb(CH ₃ COO) ₂	SK	1512	Valine	SH2	1535
PbCl ⁺	SSH	1513	VO ⁺²	SH1	1536
PbCl ₂ ²⁻	SSH	1513	VO ₂ ⁺	SH1	1536
PbCl ₃ ⁻	SSH	1513	WO ₄ ²⁻	SH1	1536
PbCl ₄ ⁻²	SSH	1514	Xe ^o	SHS	1537
Pd ⁺²	SH1	1514	Y ⁺³	SH1	1537
PdCl ⁺	SaS	1515	Yb ⁺²	SH1	1538
PdCl ₂ ²⁻	SaS	1515	Yb ⁺³	SH1	1538
PdCl ₃ ⁻	SaS	1515	Zn ⁺²	SH1	1538
PdCl ₄ ⁻²	SaS	1516	Zn(CH ₃ COO) ⁺	SK	1539
PdOH ⁺	SaS	1516	Zn(CH ₃ COO) ₂ ²⁻	SK	1539
PdO ^o	SaS	1516	Zn(CH ₃ COO) ₃ ⁻	SK	1540
Pr ⁺³	SH1	1517	ZnCl ⁺	SSH	1540
Ra ⁺²	SH1	1517	ZnCl ₂ ²⁻	SSH	1540
Rb ⁺	SH1	1518	ZnCl ₃ ⁻	SSH	1541
RbBr ^o	SSH	1518	ZnCl ₄ ⁻²	SSH	1541
RbCl ^o	SSH	1518			
RbF ^o	SSH	1519			
RbI ^o	SSH	1519			
ReO ₄ ⁻	SH1	1520			
Rn ^o	SHS	1520			
Serine	SH2	1520			
S ₂ ⁻²	SH1	1521			
SO ₂ ^o	SHS	1521			
SO ₃ ⁻²	SH1	1521			
SO ₄ ⁻²	SH1	1522			
S ₂ O ₃ ⁻²	SH1	1522			
S ₂ O ₄ ⁻²	SH1	1523			
S ₂ O ₅ ⁻²	SH1	1523			
S ₂ O ₆ ⁻²	SH1	1523			
S ₂ O ₈ ⁻²	SH1	1524			
S ₃ ⁻²	SH1	1524			
S ₃ O ₆ ⁻²	SH1	1525			
S ₄ ⁻²	SH1	1525			
S ₄ O ₆ ⁻²	SH1	1525			
S ₅ ⁻²	SH1	1526			
S ₅ O ₆ ⁻²	SH1	1526			
Sc ⁺³	SH1	1526			
SeO ₃ ⁻²	SH1	1527			
SeO ₄ ⁻²	SH1	1527			
SiF ₆ ⁻²	SH1	1528			
SiO ₂ ^o	SHS	1528			
Sm ⁺²	SH1	1528			
Sm ⁺³	SH1	1529			
Sn ⁺²	SH1	1529			
Sr ⁺²	SH1	1530			
SrCO ₃ ^o	SSH	1530			
SrCl ⁺	SSH	1530			

References:

H1: Helgeson (1992a)
PH1: Pokrovskii and Helgeson (1995a)
PH2: Pokrovskii and Helgeson (1995b)
PH3: Pokrovskii and Helgeson (1995c)
SH1: Shock and Helgeson (1988)
SH2: Shock and Helgeson (1990)
SaS: Sassani and Shock (1990)
ScS: Schulte and Shock (1993)
SHS: Shock *et al.* (1989)
SK: Shock and Koretsky (1993)
SM: Shock and McKinnon (1993)
SSH: Sverjensky *et al.* (1995)

*: Computed using equation of state parameters generated from the procedure outlined by Shock and Koretsky (1993) together with values of ΔG , ΔS and ΔV consistent with the thermodynamic properties of aqueous Al⁺³ reported by Pokrovskii and Helgeson (1995a). The resulting equation of state parameters are:

Parameter	Al(CH ₃ COO) ⁺²	Al(CH ₃ COO) ₂ ⁺
$\bar{\Delta}G_f^o$ (cal/mol)	-208564	-299359
S_{f,r,T_f}^o (cal/mol/K)	-32.77	8.52
$a_1 \times 10$ (cal/mol/bar)	2.1643	8.5167
$a_2 \times 10^{-2}$ (cal/mol)	-2.4961	13.0156
a_3 (cal K/mol/bar)	6.7288	0.6302
$a_4 \times 10^{-4}$ (cal K/mol)	-2.6757	-3.317
c_1 (cal/mol/K)	63.2437	109.3239
$c_2 \times 10^{-4}$ (cal K/mol)	11.8151	31.4722
$\omega \times 10^{-5}$ (cal/mol)	1.5579	0.4210

TABLE 7. Index of minerals considered in the present study and their chemical formulas

Mineral	Formula	Page
Albite	NaAlSi ₃ O ₈	1544
Albite, Low	NaAlSi ₃ O ₈	1544
Albite, High	NaAlSi ₃ O ₈	1544
Analcime	NaAlSi ₂ O ₆ ·H ₂ O	1545
Andalusite	Al ₂ SiO ₅	1545
Boehmite	AlO(OH)	1545
Corundum	Al ₂ O ₃	1546
Diasporite	AlO(OH)	1546
Gibbsite	Al(OH) ₃	1547
Jadeite	NaAl(SiO ₃) ₂	1547
K-Feldspar	KAISi ₃ O ₈	1547
Kalsilite	KAISiO ₄	1548
Kaolinite	Al ₂ Si ₂ O ₅ (OH) ₄	1548
Kyanite	Al ₂ SiO ₅	1549
Microcline, Maximum	KAISi ₃ O ₈	1549
Muscovite	KAl ₂ (AlSi ₃)O ₁₀ (OH) ₂	1549
Nepheline	NaAlSiO ₄	1550
Paragonite	NaAl ₂ (AlSi ₃)O ₁₀ (OH) ₂	1550
Pyrophyllite	Al ₂ Si ₄ O ₁₀ (OH) ₂	1550
Quartz	SiO ₂	1551
Sanidine, High	KAISi ₃ O ₈	1551
Sillimanite	Al ₂ SiO ₅	1552

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