Thermodynamic Properties of Aqueous Sodium Chloride Solutions

Kenneth S. Pitzer and J. Christopher Peiper

Department of Chemistry and Lawrence Berkeley Laboratory, University of California, Berkeley, California 94720

and

R. H. Busey

Oak Ridge National Laboratory, P.O. Box X, Oak Ridge, Tennessee 37830

Experimental measurements of the osmotic and activity coefficients, the enthalpy, and the heat capacity were used to derive a semiempirical equation for the thermodynamic properties of NaCl(aq) at constant pressure. This equation may be combined with results contained in the previous paper on the volumetric properties to yield a complete equation of state valid in the region 273 K$\leqslant T \leqslant$573 K, saturation pressure $\leqslant P \leqslant$1 kbar, $0 \leqslant m \leqslant 6.0$ mol kg^{-1}. It is shown that this equation may be extrapolated to higher solute molalities at lower pressures. An estimation of uncertainties in various quantities is given. Tables of values for various thermodynamic properties are presented in the appendix.

Key words: activity coefficients; aqueous NaCl solutions; critically evaluated data; enthalpy; equation of state; heat capacity; thermodynamic properties.

Contents

List of Tables in Appendix

List of Symbols

$A;B$	Integration constants of Eq. (36)
A_ϕ, A_H, A_J	Debye–Hückel parameters for the osmotic coefficient, enthalpy and heat capacity
b	"Ion size" parameter in Pitzer's equations, $b = 1.2$ kg$^{1/2}$ mol$^{-1/2}$
$B_{MX}, B^L_{MX}, B^J_{MX}$	Pairwise ion-interaction parameters of Pitzer's equations for the Gibbs energy, enthalpy, and heat capacity

Reprints available from ACS; see Reprints List at back of issue.

$C_{MX}, C^L_{MX}, C^J_{MX}$	Triplet ion-interaction parameters of Pitzer's equations for the Gibbs energy, enthalpy, and heat capacity
C^ϕ	Triplet ion-interaction parameter of Pitzer's equation
$\underline{C_P}$	Total heat capacity
$\overline{C}_{P,i}$	Partial molal heat capacity of component i
${}^\phi C_P$	Apparent molal heat capacity
$C^\circ_{P,i}$	Molal heat capacity of a substance in its standard state
D	Dielectric constant of water
d_w	Density of water
e	Electronic charge
$\underline{G}$	Total Gibbs energy
$\overline{G}_i$	Partial molal Gibbs energy; equivalent to μ_i
G°_i	Molal Gibbs energy of a substance in its standard state
G^{EX}	Excess Gibbs energy
ΔG_s	Gibbs energy of solution
$\underline{H}$	Total enthalpy
$\overline{H}_i$	Partial molal enthalpy of component i
H°_i	Molal enthalpy of a substance in its standard state
$h(I)$	Debye–Hückel function defined by Eq. (15)
ΔH_s	Enthalpy of solution
ΔH_d	Enthalpy of dilution
I	Ionic strength
I_r	Reference ionic strength, 5.550825 mol kg^{-1}
J	Relative heat capacity
k	Boltzmann's constant
L	Relative enthalpy
${}^\phi L$	Apparent molal relative enthalpy
m	Molality
m_r	Reference molality, 5.550825 mol kg^{-1}
M_2	Molar mass of NaCl, 58.4428 g
M_w	Molar mass of water, 18.01534 g
n_i	Moles of a component
n_w	Kilograms of solvent
N_A	Avogadro's number
P	Pressure
P_r	Reference pressure, $P_r = 177$ bar
R	Gas constant, $R = kN_0 = 8.31440$ J mol^{-1} K^{-1}
$\underline{S}$	Total entropy
$\overline{S}_i$	Partial molal entropy of a substance
S°_i	Molal entropy of a substance in its standard state
S^{EX}	Excess entropy
t	Celsius temperature
T	Temperature, Kelvin
T_r	Reference temperature, 298.15 K
v	Specific volume
V	Total volume
V°	Molal volume of a substance in its standard state
w_i	Adjustable parameters
Y	Number of water molecules associated with each molecule of NaCl at the reference composition m_r; $Y = 10$
z_i	Combined parameters for NaCl(aq) properties; also, ionic charge

Greek Symbols

α	Ionic strength dependence parameter in Pitzer's equation, $\alpha = 2$ kg$^{1/2}$ mol$^{-1/2}$
$\beta^{(0)}, \beta^{(1)}$	Pairwise ion-interaction parameters in Pitzer's equations
$\gamma, \gamma_\pm$	Mean ionic activity coefficient
μ_i	Chemical potential, equivalent to $\overline{G}_i$
ν	Number of ions generated on complete dissociation, $\nu = 2$ for NaCl
ϕ	Osmotic coefficient
σ	Standard error of least-squares fit

1. Introduction

In view of the importance of sodium chloride as the primary salt in seawater and most other natural waters and in many industrially important fluids, a comprehensive set of equations is needed for the thermodynamic properties of aqueous NaCl. This paper completes the program initiated by Rogers and Pitzer[1] who developed an equation for the volumetric properties of aqueous NaCl over the range 0–300 °C and 0–1000 bar (0–100 MPa). Special attention was given to the temperature derivatives that are needed to calculate the pressure dependence of the enthalpy, entropy, and heat capacity. We use the equations of Rogers and Pitzer for the pressure dependence of various thermodynamic properties to convert data measured at various pressures to a single pressure for further correlation. The final result of the present evaluation combined with that of Rogers and Pitzer is a general equation for the various thermodynamic properties of aqueous NaCl over the range 0–300 °C, 0–1000 bar, and 0–6 mol kg^{-1}. With reduced accuracy, the equation is applicable to saturation molality and to slightly higher temperature.

In another sense, this is a revision of the thermodynamic equation of Silvester and Pitzer[2] who evaluated the data available in 1976 which were almost entirely for 1 atm or saturation pressure. The resulting equation was reasonably accurate up to 200 °C, but above that temperature the saturation pressure rises rapidly enough to make the analysis as if on a constant pressure basis subject to considerable error. We are now able to convert all of the data to a single pressure for accurate correlation.

Also, since 1976 a number of very important experimental investigations have been completed. Especially significant are the heat of dilution measurements of Busey *et al.*[3] upon which our equation primarily depends in the higher temperature range. Also important are the heat capacity measurements of White and Wood[4] and of Smith-Magowan and Wood[5] each of which extend to high pressures and above 300 °C, as well as the lower-temperature heat capacity data of Tanner and Lamb[6] which extend to high concentration over the temperature range 5–85 °C.

We retain the form of equation for the molality dependence of the excess Gibbs energy proposed by Pitzer[7] in 1973; appropriate derivatives yield all other thermodynamic quantities. This equation is based on sound statistical mechanics and includes a Debye–Hückel term with the theoretical limiting-law slope along with virial or interaction coefficients for short-range interionic forces between ion pairs and triplets. The virial coefficients are evaluated empirically. One great advantage of this formulation is that it has been extended and applied very successfully to mixed electrolytes of any degree of complexity and to solutions with additional neutral solutes.[8–11] Thus the parameters for NaCl from this paper can be used at once with the appropriate parameters for other constituents to calculate properties of more complex solutions. Such parameters are known for a great many aqueous solutes at room temperature.[12–15] For higher temperatures (to 200 °C, at least), parameters have recently been reported for Na_2SO_4,[16] LiCl, KCl, and CsCl,[17] for $MgCl_2$ and $CaCl_2$ (Ref. 18), and other salts,[19] and the equations have been tested for mixtures[20] and for solubility calculations.[2,21] The success of the solubility calculations of Harvie and Weare[11] for a wide variety of complex mixtures based on seawater constituents is a remarkable confirmation of the general applicability of these equations.

Early in the evaluation it was essential to identify any genuine conflicts between sets of data and to make choices among the conflicting sets. Then every effort was made to fit the consistent data as nearly within experimental uncertainty as possible without "overfitting" with excess parameters.

The equation of state of Haar, Gallagher, and Kell[22] was used for the thermodynamic properties of pure water. The dielectric constant of water was taken from the equation of Bradley and Pitzer.[23]

2. Composition Dependent (Pitzer) Equations

The excess Gibbs energy G^{EX} of a system is the difference between the Gibbs energy of the real system and that of an ideal system under the same conditions. With molality, the composition variable, this yields

$$G^{EX} = G - n_1 G_1^\circ - n_2 \overline{G}_2^\circ + RT\nu n_2 (1 - \ln m_\pm) = RT\nu n_2 (\ln \gamma_\pm + 1 - \phi), \quad (1)$$

where n_1 and n_2 are the content in moles of solvent and solute, respectively, m is the molality, and ν is the total number of ions formed from dissociation of the salt. G_1° and $\overline{G}_2^\circ$ are the Gibbs energies of solvent and solute in their standard states. The definition of the standard state used here is the pure liquid for water and the hypothetical one molal ideal solution for sodium chloride at any temperature and any pressure. Normally the standard state is limited to 1 atm pressure, but for use above 100 °C in water the more general definition is more appropriate. Next one may write

$$G^{EX} = n_1 \overline{G}_1^{EX} + n_2 \overline{G}_2^{EX}, \quad (2)$$

where $\overline{G}_i^{EX}$ is the partial molal excess Gibbs energy of component i. For n_2 mol of a completely dissociated electrolyte dissolved in n_1 mol of water, the osmotic and activity coefficients are given by

$$\phi - 1 = -\frac{1}{\nu RT}\left(\frac{\partial G^{EX}}{\partial n_1}\right)_{T,P,n_2}, \quad (3)$$

and

$$\ln \gamma_\pm = \frac{1}{\nu RT}\left(\frac{\partial G^{EX}}{\partial n_2}\right)_{T,P,n_1}, \quad (4)$$

where M_w is the molecular weight of water, R is the gas constant, and T is the temperature in kelvins.

The parametric equation used by Pitzer[7,14] for the excess Gibbs energy of a binary electrolyte solution containing 1 kg of solvent is

$$\frac{G^{EX}}{n_w RT} = -A_\phi \left(\frac{4I}{b}\right) \ln(1 + bI^{1/2}) + 2\nu_M \nu_X [m^2 B_{MX} + m^3 \nu_M z_M C_{MX}], \quad (5)$$

$$B_{MX} = \beta_{MX}^{(0)} + 2\beta_{MX}^{(1)}[1 - (1 + \alpha I^{1/2})\exp(-\alpha I^{1/2})]/\alpha^2 I, \quad (6)$$

$$C_{MX} = C_{MX}^\phi / 2|z_M z_X|^{1/2}, \quad (7)$$

where n_w is the number of kg of solvent.

The corresponding equations for the osmotic and activity coefficients are

$$\phi - 1 = -|z_M z_X| A_\phi \frac{I^{1/2}}{1 + bI^{1/2}} + m \frac{2\nu_M \nu_X}{\nu}[\beta_{MX}^{(0)} + \beta_{MX}^{(1)} e^{-\alpha I^{1/2}}] + m^2 \frac{2(\nu_M \nu_X)^{3/2}}{\nu} C_{MX}^\phi, \quad (8)$$

$$\ln \gamma_\pm = -|z_M z_X| A_\phi \left[\frac{I^{1/2}}{1 + bI^{1/2}} + \frac{2}{b}\ln(1 + bI^{1/2})\right] + m \frac{2\nu_M \nu_X}{\nu}\left\{2\beta_{MX}^{(0)} + \frac{2\beta_{MX}^{(1)}}{\alpha^2 I}\left[1 - \left(1 + \alpha I^{1/2} - \frac{\alpha^2 I}{2}\right) e^{-\alpha I^{1/2}}\right]\right\} + \frac{3m^2}{2}\left[\frac{2(\nu_M \nu_X)^{3/2}}{\nu} C_{MX}^\phi\right], \quad (9)$$

where the electrolyte MX contains ν_M and ν_X ions of charge z_M and z_X, and $\nu = \nu_M + \nu_X$. I is the ionic strength,

$$I = \frac{1}{2}\sum_i m_i z_i^2,$$

and A_ϕ is the Debye–Hückel slope for the osmotic coefficient,

$$A_\phi = \frac{1}{3}\left(\frac{2\pi N_A d_w}{1000}\right)^{1/2}\left(\frac{e^2}{DkT}\right)^{3/2}, \quad (10)$$

where d_w is the density and D the dielectric constant of pure water. Values of A_ϕ and its temperature and pressure derivatives are given by Bradley and Pitzer[23] for temperatures to 350 °C and pressures to 1000 bar. In this work, the Bradley equation for the dielectric constant of water is retained; however, we use the volumetric equations of Haar *et al.*,[22] in place of the older and less accurate equation of Keenan *et al.*[24]

The leading terms in Eqs. (5), (8), and (9) are Debye–Hückel terms describing long-range electrostatic interactions. The parameters b and α have fixed values of 1.2 and 2.0 $kg^{1/2}\,mol^{-1/2}$, respectively, for all 1–1, 2–1, and 3–1 electrolytes. They are assumed to be temperature and pressure independent. The adjustable parameters $\beta^{(0)}_{MX}$, $\beta^{(1)}_{MX}$, and C^{ϕ}_{MX} account for short-range interactions between ions and for indirect forces arising from the solvent. C^{ϕ}_{MX} depends on triple ion interactions and is important only at high concentrations.

Equations (5), (8), (9), and their temperature derivatives have been used succcessfully[2] to describe the activity and thermal properties of aqueous sodium chloride solutions over a wide range of temperature. Rogers and Pitzer[1] used appropriate pressure derivatives of these equations to describe volumetric properties and give detailed equations for the volume-related functions including the pressure dependence of various thermodynamic properties.

In addition to the excess Gibbs energy and the related activity and osmotic coefficients, the excess enthalpy, entropy, and heat capacity are of primary importance. These are obtained from appropriate temperature derivatives of the excess Gibbs energy. The excess enthalpy is also called the relative enthalpy L and is related to the excess Gibbs energy of the solution by the equation

$$L = G^{EX} - T\left(\frac{\partial G^{EX}}{\partial T}\right)_{P,m} = -T^2\left(\frac{\partial G^{EX}/T}{\partial T}\right)_{P,m}. \tag{11}$$

Also, the excess entropy of the solution is

$$S^{EX} = (L - G^{EX})/T. \tag{12}$$

The apparent molal enthalpy is defined as

$$^{\phi}L = L/n_2. \tag{13}$$

The parametric form of the equation for the apparent molal enthalpy is,[2]

$$^{\phi}L = \nu|z_M z_X|A_H h(I) - 2\nu_M\nu_X RT^2[mB^L_{MX} + m^2(\nu_M z_M)C^L_{MX}], \tag{14}$$

$$h(I) = \ln(1 + bI^{1/2})/2b, \tag{15}$$

$$B^L_{MX} = (\partial B_{MX}/\partial T)_{P,I} = \beta^{(0)L}_{MX} + 2\beta^{(1)L}_{MX}[1 - (1 + \alpha I^{1/2}) \times \exp(-\alpha I^{1/2})]/\alpha^2 I, \tag{16a}$$

$$\beta^{(0)L}_{MX} = [\partial\beta^{(0)}_{MX}/\partial T]_P,\quad \beta^{(1)L}_{MX} = [\partial\beta^{(1)}_{MX}/\partial T]_P, \tag{16b}$$

$$C^L_{MX} = (\partial C_{MX}/\partial T)_P. \tag{16c}$$

A_H is the Debye–Hückel slope for enthalpy as defined by Bradley and Pitzer[23]; this is smaller by the factor 2/3 than the definition used earlier.[2]

The experimental determination of the enthalpy of an electrolyte solution is made through heat of dilution or heat of solution measurements. The molar heat of dilution $\Delta H_d/n_2$ is the heat change per mol measured when a solution at concentration m_1 is diluted to concentration m_2, and it is related to the apparent molal enthalpies at m_2 and m_1 by

$$\Delta H_d/n_2 = {}^{\phi}L(m_2) - {}^{\phi}L(m_1). \tag{17}$$

The molar heat of solution $\Delta H_s/n_2$ is the heat change measured when 1 mol of salt is dissolved in enough water to form a solution of concentration m. It is related to the apparent molal enthalpy by

$$\Delta H_s/n_2 = \Delta\overline{H}^{\circ}_s + {}^{\phi}L, \tag{18}$$

where $\Delta\overline{H}^{\circ}_s$ is the partial molal heat of solution at infinite dilution.

The apparent molal heat capacity is defined as the difference between the heat capacity of the solution and the heat capacity of pure water contained in the solution, per mol of salt,

$$^{\phi}C_p = \frac{C_p - n_1 C^{\circ}_{p,1}}{n_2}. \tag{19}$$

The superscript in $C^{\circ}_{p,1}$ implies a molar amount as well as the standard state. The apparent molal heat capacity is related to the apparent molal enthalpy by

$$^{\phi}C_p = \overline{C}^{\circ}_{p,2} + \left(\frac{\partial^{\phi}L}{\partial T}\right)_{P,m}, \tag{20}$$

where $\overline{C}^{\circ}_{p,2}$ is the partial molal heat capacity of the solute at infinite dilution. Combination of Eq. (20) and the temperature deriative of Eq. (14) yields

$$^{\phi}C_p = \overline{C}^{\circ}_{p,2} + \nu|z_M z_X|A_J h(I) - 2\nu_M\nu_X RT^2[mB^J_{MX} + m^2(\nu_M z_M)C^J_{MX}], \tag{21}$$

$$B^J_{MX} = \left(\frac{\partial^2 B_{MX}}{\partial T^2}\right)_{P,I} + \frac{2}{T}\left(\frac{\partial B_{MX}}{\partial T}\right)_{P,I} = \beta^{(0)J}_{MX} + 2\beta^{(1)J}_{MX}[1 - (1 + \alpha I^{1/2})\exp(-\alpha I^{1/2})]/\alpha^2 I, \tag{22a}$$

$$\beta^{(0)J}_{MX} = [\partial^2\beta^{(0)}_{MX}/\partial T^2]_P + 2\beta^{(0)L}_{MX}/T, \tag{22b}$$

$$\beta^{(1)J}_{MX} = [\partial^2\beta^{(1)}_{MX}/\partial T^2]_P + 2\beta^{(1)L}_{MX}/T, \tag{22c}$$

$$C^J_{MX} = (\partial^2 C_{MX}/\partial T^2)_P + 2C^L_{MX}/T, \tag{23}$$

where A_J is the Debye–Hückel slope for the heat capacity as recently defined.[23]

Two equations of Bradley and Pitzer[23] require correction as follows

$$A_V = 2A_{\phi}RT[3(\partial\ln D/\partial P)_T - \beta],$$
$$A_{EX} = (\partial A_V/\partial T)_P.$$

The chemical potential is the partial molal Gibbs energy at constant T and P; for the solvent it is readily related to the osmotic coefficient and for the solute to the activity coefficient. Nevertheless, it seems worthwhile to give explicitly the equations for the two chemical potentials. The temperature dependence of these chemical potentials or of the activity and osmotic coefficients are now best represented by the equations for the coefficients A_{ϕ}, $\beta^{(0)}$, $\beta^{(1)}$, and C^{ϕ} as a function of temperature. Thus there is less need to use the partial molal enthalpies or heat capacities than formerly when these quantities gave the only expressions for the temperature dependencies of the chemical potentials. Nevertheless, these thermal quantities are well defined and of significance. Equations for all of these partial molal quantities are readily derived from Eqs. (1)–(21) and are given below.

$$(\mu_1-\mu_1^\circ)/RT=(\overline{G}_1-G_1^\circ)/RT$$
$$=\left(\frac{M_w}{1000}\right)\Big\{-\nu m+2A_\phi\left[\frac{I^{3/2}}{1+bI^{1/2}}\right]$$
$$-2\nu_M\nu_X m^2[\beta_{MX}^{(0)}+\beta_{MX}^{(1)}\exp(-\alpha I^{1/2})$$
$$+2\nu_M z_M m C_{MX}]\Big\},\quad(24)$$

$$(\mu_2-\mu_2^\circ)/RT=(\overline{G}_2-\overline{G}_2^\circ/RT=\nu\ln(m\gamma_\pm)$$
$$=\nu\ln m-\nu|z_M z_X|\cdot A_\phi$$
$$\times\left[\frac{I^{1/2}}{1+bI^{1/2}}+\frac{2}{b}\ln(1+bI^{1/2})\right]$$
$$+2\nu_M\nu_X m\Big\{2\beta_{MX}^{(0)}+\frac{2\beta_{MX}^{(1)}}{\alpha^2 I}$$
$$\times\left[1-\left(1+\alpha I^{1/2}-\frac{\alpha^2 I}{2}\right)\exp(-\alpha I^{1/2})\right]$$
$$+3\nu_M z_M m C_{MX}\Big\},\quad(25)$$

$$\frac{(\overline{H}_1-H_1^\circ)}{RT}=\left(\frac{M_w}{1000}\right)\Big\{-\frac{A_H}{2RT}\left[\frac{I^{3/2}}{1+bI^{1/2}}\right]$$
$$+2\nu_M\nu_X Tm^2[\beta_{MX}^{(0)L}+\beta_{MX}^{(1)L}\exp(-\alpha I^{1/2})$$
$$+2\nu_M z_M m C_{MX}^L]\Big\},\quad(26)$$

$$\frac{\overline{H}_2-\overline{H}_2^\circ}{RT}=\frac{\nu|z_M z_X|A_H}{4RT}\left[\frac{I^{1/2}}{1+bI^{1/2}}+\frac{2}{b}\ln(1+bI^{1/2})\right]$$
$$-2\nu_M\nu_X Tm\Big[2\beta_{MX}^{(0)L}+\frac{2\beta_{MX}^{(1)L}}{\alpha^2 I}$$
$$\times\left\{1-\left(1+\alpha I^{1/2}-\frac{\alpha^2 I}{2}\right)\exp(-\alpha I^{1/2})\right\}$$
$$+3\nu_M z_M m C_{MX}^L\Big],\quad(27)$$

$$\overline{S}_1=(\overline{H}_1-\overline{G}_1)/T,$$
$$\overline{S}_2=(\overline{H}_2-\overline{G}_2)/T,$$

$$\frac{(\overline{C}_{p,1}-\overline{C}_{p,1}^\circ)}{R}=\left(\frac{M_w}{1000}\right)\Big\{-\frac{A_J}{2R}\left[\frac{I^{3/2}}{1+bI^{1/2}}\right]$$
$$+2\nu_M\nu_X T^2m^2[\beta_{MX}^{(0)J}+\beta_{MX}^{(1)J}\exp(-\alpha I^{1/2})$$
$$+2\nu_M z_M m C_{MX}^J]\Big\},\quad(28)$$

$$\frac{\overline{C}_{p,2}-\overline{C}_{p,2}^\circ}{R}$$
$$=\frac{\nu|z_M z_X|A_J}{4R}\left[\frac{I^{1/2}}{1+bI^{1/2}}+\frac{2}{b}\ln(1+bI^{1/2})\right]$$
$$-2\nu_M\nu_X T^2 m\Big[2\beta_{MX}^{(0)J}+\frac{2\beta_{MX}^{(1)J}}{\alpha^2 I}$$
$$\times\left\{1-\left(1+\alpha I^{1/2}-\frac{\alpha^2 I}{2}\right)\exp(-\alpha I^{1/2})\right\}$$
$$+3\nu_M z_M m C_{MX}^J\Big].\quad(29)$$

All equations to this point are written for a general valence type. For NaCl, $\nu_M=\nu_X=z_M=z_X=1$ and $\nu=2$. The many resulting simplifications will be introduced hereafter and the subscript MX will be omitted.

3. Review and Evaluation of Literature Data

Table 1 presents a summary of the data incorporated into this work. These sources were selected from a much wider array of information primarily on the basis of precision. In a few cases, it was necessary to convert measured quantities into more fundamental thermodynamic quantities. Those conversions are indicated by columns 5 and 6 of Table 1. The estimated precision of each data set (column 7) was taken as stated by the original investigator or as calculated from an isothermal–isobaric fit of the appropriate form of Pitzer's equation to the data, whichever was larger. The final column gives the precision with which the fully optimized equations (see Secs. 2 and 4) reproduce the measurements.

Estimates of the precision must be understood as weighted averages. Precise determination of the osmotic coefficient from isopiestic or vapor pressure measurements is relatively difficult at low molalities due to the small changes in water activity between the solution and pure solvent. A similar situation holds for the apparent molal heat capacity and for the enthalpy of dilution where uncertainties are large at low ionic strength. From definitions of the fit quantities, one might assume the uncertainty to behave as m^{-1}. However, it seems to us that the uncertainty will increase less rapidly than m^{-1} from 1.0 to 0.1 mol kg^{-1} and will remain relatively constant above 1.0 mol kg^{-1}. At the opposite end of the composition range, it must be remembered that the equations used here are virial expansions including pair and triplet ion-interaction terms, hence they are valid only at moderate solute concentrations. Experience with NaCl and other 1:1 charge-type electrolytes has shown that there is a deterioration in the ability of these equations to reproduce experimental measurements above an ionic strength of approximately 6.0 mol kg^{-1}. For this reason, it is necessary to decrease the weight of data at the very highest concentrations in least-squares calculations. Therefore, one may assume the uncertainty in a measurement to behave as

$$\sigma/m^{1/2},\quad 0.1<m\leqslant 1\ \text{mol kg}^{-1},$$
$$\sigma,\quad 1<m\leqslant 6\ \text{mol kg}^{-1},$$
$$\sigma m^2/36,\quad m>6\ \text{mol kg}^{-1}.$$

It is the quantity σ which is given in the last columns of Table 1.

There is one notable exception to this assumption; it involves data for the enthalpy of solution. As determined by Cobble and co-workers,[25-27] this quantity was measured at concentrations less than 0.05 mol kg^{-1}, where it seemed better to assign composition-independent uncertainties.

Of the data listed in Table 1, two sets represent compilations of a large number of older measurements: the osmotic coefficients of Robinson and Stokes[28] and the apparent enthalpies of Parker.[29] These two sets were weighted more heavily in least-squares calculations to reflect the fact that they are compilations based on many measurements of relatively high accuracy.

Since the report of Silvester and Pitzer,[2] no significant measurements of the NaCl(aq) activity or osmotic coeffi-

Table 1. Literature Data for NaCl(aq) Thermal Properties

Reference	Temperature Range (°C)	Pressure Range (bar)	Composition Range (mol kg^{-1})	Quantity Measured	Quantity Fit	Est'd Precision of Fitted Quantity	Precision of Fit
30	0	1.013	0 - 1.3	f.p.	ϕ	0.001	0.002
28	25	1.013	0.1 - 6.0	a	ϕ	0.0005	0.001
31	25-100	saturation	1.0 - 6.1	v.p.	ϕ	0.002	0.002
34,35	60-100	saturation	0.5 - 4.0	b.p.	ϕ	0.002	0.004
32,33	75-250	saturation	0.1 - saturation	v.p.	ϕ	0.002	0.003
	275,300	saturation	0.1 - saturation	v.p.	ϕ	0.004	0.005
29	25	1.013	0 - 5.8	a	${}^{\phi}L/RT$	0.004	0.005
38	25-75	1.013	0.04 - 5.0	ΔH_d	$\Delta H_d/RT$	0.003	0.004
37	40-80	1.013	0 - 6.0	ΔH_d	$\Delta H_d/RT$	0.020	0.025
36	75,100	1.013	0.01 - 6.0	ΔH_d	$\Delta H_d/RT$	0.005	0.008
	150-200	saturation	0.01 - 6.0	ΔH_d	$\Delta H_d/RT$	0.007	0.012
3	50-200	66.0	0.03 - 5.2	ΔH_d	$\Delta H_d/RT$	0.010	0.015
	250	66.0	0.03 - 5.2	ΔH_d	$\Delta H_d/RT$	0.030	0.050
	300	105	0.03 - 5.2	ΔH_d	$\Delta H_d/RT$	0.1	0.30
	350	205	0.03 - 5.2	ΔH_d	$\Delta H_d/RT$	0.3	3.0
25	0-100	1.013	0 - 0.02	ΔH_s	$\Delta H_s/RT$	0.02	0.03
26	114-200	saturation	0 - 0.05	ΔH_s	$\Delta H_s/RT$	0.05	0.09
27	300	saturation	0 - 0.02	ΔH_s	$\Delta H_s/RT$	b	4.0
39-43	1.5	1.013	0.07 - 1.8	C_p	${}^{\phi}C_p/R$	0.25	0.75
	5 - 45	1.013	0.02 - 6.0	C_p	${}^{\phi}C_p/R$	0.10	0.15
6	5 - 85	1.013	0.04 - 6.0	C_p	${}^{\phi}C_p/R$	0.10	0.15
4	75 - 200	177	3.0	C_p	${}^{\phi}C_p/R$	0.25	0.30
	200 - 325	177	3.0	C_p	${}^{\phi}C_p/R$	0.50	0.70
5	50 - 180	177	0.1 - 3.0	C_p	${}^{\phi}C_p/R$	b	0.60
	215 - 280	177	0.1 - 3.0	C_p	${}^{\phi}C_p/R$	b	1.1
	300	177	0.1 - 3.0	C_p	${}^{\phi}C_p/R$	b	5.0
	330	177	0.1 - 3.0	C_p	${}^{\phi}C_p/R$	b	70.0

[a] This data set is a tabulation of values derived from many measurements and employing various techniques.

[b] The accuracy of this data set is in question; see the text.

cients have been published. At low temperatures, we rely on the freezing point measurements of Scatchard and Prentiss[30] and the smoothed osmotic coefficients tabulated by Robinson and Stokes[28] at 25 °C which are based on both osmotic and activity measurements. At higher temperatures, there are the vapor pressure measurements of Gibbard *et al.*[31] from 25 to 100 °C, and those of Liu and Lindsay[32,33] from 75 to 300 °C. The boiling point measurements of Smith and coworkers[34,35] are very precise but disagree slightly with the vapor pressure measurements, particularly at the higher molalities (> 1.0 mol kg^{-1}). As noted in Table 1, the discrepancy is not serious.

Knowledge of the dilution enthalpy has only recently been extended beyond 100 °C. Using flow calorimetric methods, Mayrath and Wood[36] measured ΔH_d from 75 to 200 °C, along the liquid–vapor saturation curve, and Busey[3] measured ΔH_d from 50 to 400 °C at pressures of 66, 100, 200, and 400 bars. The pressure dependency equations of Rogers and Pitzer have a rapidly increasing uncertainty above 300 °C; hence we have not used the measurements at 400 °C. The few data at 400 bars, corrected via the equations of Rogers and Pitzer[1], agree with Busey's lower-pressure measurements but are somewhat scattered about them. Therefore, these few measurements were also deleted from further calculations and full dependence placed on the measurements at lower pressure.

Below 100 °C, we rely upon the apparent molal enthalpies evaluated by Parker[29] from many sources (at 25 °C) and the dilution data of Ensor and Anderson[37] (40–80 °C) and of Messikomer and Wood[38] (25–100 °C). The measurements of Ensor and Anderson agree with those of Wood and Messikomer, but are not as precise. At 100 °C, however, Messikomer's data are in error: they do not agree with the more recent measurements of Mayrath,[36] and Messikomer indicates that experimental difficulties existed. Therefore, we deleted this set of data from further calculations.

The enthalpy of solution has been measured by Cobble and co-workers[25,27] from 0 to 300 °C. The measurements at 300 °C[27] disagree with a calculation based on the lower-temperature measurements and an integration of the heat capacity of solution. Since there are no alternative measurements of ΔH_s at temperatures above 200 °C, we retained these data, but at substantially lower weight. The temperature dependence of ΔH_s was entirely consistent with heat capacity measurements at lower temperatures.

The knowledge of NaCl(aq) heat capacity was quite limited when Silvester and Pitzer[2] issued their report. Since that time, the measurements of Desnoyers and co-workers[39–42] have been extended to higher concentrations,[43] and Tanner and Lamb[6] published measurements in the 5–85 °C temperature range. These two series of measurements agree very well at 5 and 25 °C, and less well at 45 °C. Especially significant are the recent measurements of White and Wood[4] (at 3.0 mol kg^{-1}, 177 bar and temperatures from 75–325 °C) and of Smith-Magowan and Wood.[5] White and Wood did not present their measurements as heat capacities; we have converted their "calibration factors" $\Delta P/P_0$(corr) (in their notation) to apparent molal heat capacities using the known properties of water.[22] These heat capacities appear in Table 2. As discussed further in Sec. 5, the earlier measurements of Smith-Magowan and Wood are slightly in error. Since there are no alternative data at molalities other than 3 mol kg^{-1}, these measurements were retained in all calculations, but with substantially reduced weights.

In all the least-squares calculations were based on 1227 individual measurements (or evaluated values based on more extensive data at 25 °C).

Table 2. Specific and Apparent Heat Capacities from Measurements of White and Wood [4] at 2.9978 mol kg^{-1}

Temperature (°C)	Pressure (bar)	$\Delta P/P_0$ (corr)	c_p (J g^{-1} K^{-1})	$^{\phi}C_p$ (J mol^{-1} K^{-1})
75.47	170.4	-0.05229	3.5574	8.65
75.07	175.9	-0.05181	3.5581	9.37
127.44	170.4	-0.06274	3.5729	- 6.82
127.17	175.9	-0.06247	3.5741	- 6.41
127.79	175.9	-0.06292	3.5716	- 7.09
176.01	171.1	-0.07843	3.6008	-31.03
175.81	175.9	-0.07917	3.5960	-32.13
175.80	23.1	-0.08316	3.6300	-38.78
225.87	173.8	-0.10452	3.6633	-74.30
225.80	175.2	-0.10499	3.6615	-75.08
275.79	176.5	-0.15513	3.7889	-170.4
275.77	175.2	-0.15473	3.7923	-169.8
300.93	177.9	-0.20167	3.8877	-273.9
300.95	176.5	-0.20301	3.8848	-276.7
325.83	177.2	-0.28760	4.0116	-506.4
325.46	177.2	-0.28717	4.0126	-505.3

4. Calculations

4.1. Selection of Fitting Equations

The equations for the dependence of various thermodynamic properties on the composition of the solution have already been given in terms of $\beta^{(0)}_{MX}$, $\beta^{(1)}_{MX}$, C^{ϕ}_{MX}, and the Debye–Hückel parameter. It remains to choose a representation for the absolute properties of the solute as a function of temperature. The *prima facie* choice would be the standard state: the partial molal property as infinite dilution. It is found, however, that the standard-state heat capacity has a very complex behavior which is related to the various peculiarities of the solvent, water, over this wide range of temperature. Rogers and Pitzer[1] found the same problem in representing the standard-state volume $\overline{V}^{\circ}_2$. Their solution, which we adopt, is to consider a relatively concentrated solution which may be considered as a hydrated fused salt. Over this range of temperature, the first few water molecules of hydration are quite firmly bound to the Na^+ and Cl^- ions. By choosing a composition in which practically all of the water is in ion hydration shells, the peculiarities of the water structure are largely avoided. Also the properties of this solution, chosen within the range of solubility, are directly measured and do not have to be extrapolated to infinite dilution as do the standard-state properties.

Following Rogers and Pitzer,[1] we shall choose $NaCl \cdot 10 H_2O$ as our standard composition, i.e., $m = 5.550825$ mol kg^{-1}, but first derive equations in somewhat more general terms.

We begin by assuming that each mole of salt in an electrolyte solution is associated with a certain number Y of water molecules. If n_1 is the number of moles of water in the solution, and n_2 is the number of moles of salt, then the number of moles of water associated with solute ions is $n_2 Y$ and the number of unassociated water molecules is $(n_1 - n_2 Y)$. From the definition of an apparent molal property, the total heat capacity of the solution is

$$C_p = n_1 C^{\circ}_{p,1} + n_2 {}^{\phi}C_p. \tag{30}$$

where $C^{\circ}_{p,1}$ is molal heat capacity of pure water and ${}^{\phi}C_p$ is the apparent molal heat capacity of the solute. Rewriting this equation to explicitly consider the two different classes of water molecules, one obtains

$$C_p = (n_1 - n_2 Y) C^{\circ}_{p,1} + n_2({}^{\phi}C_p + Y C^{\circ}_{p,1}). \tag{31}$$

The conversion to molality and a basis of 1 kg of water yields

$$C_p / n_w = (1000/M_w - mY) C^{\circ}_{p,1} + m({}^{\phi}C_p + Y C^{\circ}_{p,1}), \tag{32}$$

where M_w is the molecular weight of water. We also prefer to consider the apparent molal heat capacity at the particular concentration m_r, where $m_r = 1000/YM_w$, since this property will vary less drastically with temperature than the infinite dilution property. Thus Eq. (32) is rewritten on the basis of 1 mol of solute as

$$C_p/n_2 = [{}^{\phi}C_p(m_r) + YC^{\circ}_{p,1}] + \left(\frac{1000}{mM_w} - Y\right)C^{\circ}_{p,1} + {}^{\phi}C_p(m) - {}^{\phi}C_p(m_r), \tag{33}$$

where the term $[{}^{\phi}C_p(m_r) + YC^{\circ}_{p,1}] = C_p(m_r)/m_r$ is the desired quantity which varies slowly with temperature, and the next term depends only on the properties of pure water.

Substitution of the parametric equations for ${}^{\phi}C_p$ yields

$$\frac{C_p(m)}{n_2} = \frac{C_p(m_r)}{n_2} + \left(\frac{1000}{m_W} - Y\right)C^{\circ}_{p,1} + 2A_J[h(I) - h(I_r)] - 2RT^2[mB^J(I) - m_rB^J(I_r) + (m^2 - m_r^2)C^J], \tag{34}$$

where I_r is the ionic strength of the solution at m_r, and $C_p(m_r)/n_2$ is the total heat capacity of the solution containing 1 mol of NaCl at concentration m_r. The total heat capacity of the solution varies monotonically with temperature, increasing more slowly with temperature the higher the concentration. The value of $Y = 10$, which was chosen before,[1] is again adopted to yield a concentration, $m_r = 5.5508$ mol kg^{-1}, conveniently at the upper concentration limit of the existing data. For aqueous sodium chloride solutions, values of the other constants in Eq. (34) are

$$M_2 = 58.4428 \text{ g},$$
$$M_w = 18.01534 \text{ g}.$$

Equation (34) is in the appropriate form for fitting measured apparent molal heat capacities at various molalities, temperatures, and pressures.

The heat capacity $C_p(m_r)$ can be integrated with respect to temperature to yield the corresponding enthalpy $H(T,m_r)$. The measured heat of solution is then given by

$$\Delta H_s(T,m)/n_2 = [H(T,m_r) - H(T_r,m_r)]/n_2 + {}^{\phi}L(T,m) - {}^{\phi}L(T,m_r) - H^{\circ}(T,s) + H^{\circ}(T_r,s) + \Delta H_s(T_r,m_r)/n_2, \tag{35}$$

where $H^{\circ}(T,s)$ is the molal enthalpy of solid NaCl at temperature T, $\Delta H_s(T_r,m_r)$ is the heat of solution at the reference temperature and molality, and the apparent molal enthalpy ${}^{\phi}L$ was given in Eq. (14).

All of these equations apply to any constant pressure, hence the pressure has not been indicated up to this point.

The enthalpy difference $[H^{\circ}(T,s) - H^{\circ}(T_r,s)]$ was computed from an equation of Kelley[44] for the enthalpy of solid NaCl.

$$\frac{H^{\circ}(T,s) - H^{\circ}(T_r,s)}{RT} = 5.52_5 + 9.8_1\times10^{-4}T - \frac{1734.6}{T}. \tag{36}$$

While these numerical values were derived from measurements at low pressure, their pressure dependence will not be significant in the range of current interest.

4.2. Choice of Reference Pressure for Isobaric Evaluation

With the equations of Rogers and Pitzer for the pressure dependence of the various thermodynamic properties, it was possible to convert all experimental results to a single reference pressure for evaluation. If these pressure dependence equations were of perfect accuracy, it would not matter what pressure was chosen for the isobaric evaluation. But there are uncertainties in the pressure dependence equations, slight for the osmotic coefficient, greater for the enthalpy, and greatest for the heat capacity since it involves second derivatives of the measured volume. Not only do the pressure corrections increase with temperature, but the uncertainties increase even more. Thus it seemed best to choose the pressure of most high-temperature heat capacity measurements as the reference pressure. All but one of the measurements of White and Wood[4] were made at 177 bar and that pressure was chosen.

By this procedure, our equation for properties at 177 bar can, with minimum uncertainty, be combined with a new and improved equation for pressure dependency when one becomes available.

4.3. Temperature Dependence of Parameters and Weighting of Data

The next task is the selection of the functional representation of the temperature dependence of parameters and of weights for the various data. But one must first determine if there are real conflicts between sets of data. Indeed our initial attempts at a comprehensive evaluation failed because we had included data that were in conflict by considerably more than the assumed uncertainty of measurement.

Eventually, we decided to break the evaluation process into several stages. First, we considered just the effect of change of composition. The data primarily pertinent to this stage are the osmotic coefficients and the heats of dilution. Only a few sets of the most precise heat capacity measurements were included as differences in heat capacity with molality. Each individual set of measurements was fitted to the equations, and the resulting values of $\beta^{(0)}$, $\beta^{(1)}$, C^{ϕ}, and the related enthalpy and heat capacity parameters were plotted as functions of temperature and examined for consistency. This process guided the particular choice for functional representation of temperature dependency. After reasonable effort, we were able to represent the composition dependence within deviations not seriously exceeding the experimental uncertainties for the data selected.

There was, however, an apparent conflict with the composition dependency of the high-temperature heat capacity measurements of Smith-Magowan and Wood.[5] Recently, White and Wood[4] have performed more stringent calibration experiments on the same high-temperature flow calorimeter and find that certain corrections were underestimated in the earlier work. The data required for a complete application of the new corrections had not been recorded earlier. Unfortunately, the new measurements of White and Wood are limited to a single composition, approximately 3 mol kg^{-1}. Consequently, we accept the composition dependence determined primarily at high temperature by the heat of dilution measurements of Busey[3] and secondarily but consistently by the osmotic coefficients of Liu and Lindsay.[32,33] There is no great discrepancy with the data of Smith-Magowan and Wood, but the deviations are greater than we had initially expected.

The second stage is the evaluation of the heat capacity and the corresponding enthalpy in terms of the standard (5.55 mol kg^{-1}) composition and the 177 bar reference pressure. For this purpose, there are, at the lower temperatures, many precise heat capacity and heat of solution data all of which are reasonably consistent. Above 85 °C, we depend primarily on the White and Wood[4] heat capacity measurements which are consistent with the heat of solution measurements of Criss and Cobble[25] and of Gardner, Mitchell, and Cobble[26] up to about 200 °C. There is a significant discrepancy with the heat of solution measurements of Cobble[27] near 300 °C. These measurements leading to very dilute solutions near 300 °C are very difficult and it seems probable to us that they are less accurate than the heat capacity measurements on a 3 m solution. There is some corroboration of our choice in the agreement with the calculated solubility of solid NaCl at 300 °C as discussed below.

In a third and final stage, an overall least-squares adjustment was made in all of the parameters with weights assigned to all consistent data in relation to our best estimates of their experimental uncertainty. Weighting was determined from the original investigator's estimates of experimental accuracy (see Table 1) as limited or modified by the consistency checks of the first two stages. Some slight adjustments of functional representations were necessary to obtain a more precise fit to the data.

Equation (37) gives the Gibbs energy of the reference solution (m_r) at the reference pressure (P_r) in terms of the empirically adjusted parameters w_1–w_5. We use functions of inverse powers of $(T-227)$ and $(680-T)$ which were chosen by Rogers and Pitzer[1] to represent the relatively extreme behavior near 0 °C and near the critical point of water. The value 227 K was chosen because supercooled water shows a singularity in that vicinity; the value 680 K has no theoretical significance.

The virial coefficients at P_r are given in Eqs. (38)–(40) in terms of parameters w_6–w_{21}. In all of these equations, the parameters have dimensions of powers of K which are obvious. Parameters w_6–w_{16} also have the dimension kg mol^{-1} while w_{17}–w_{21} also have $kg^2\,mol^{-2}$. The thermodynamic quantities are divided by n_2 to make the basis 1 mol of NaCl and by R or RT to make the terms in Eq. (37) dimensionless. We recall that $T_r = 298.15$ K, $P_r = 177$ bar, $m_r = 5.5508$ mol kg^{-1}.

The corresponding quantities for the enthalpy and heat capacity are obtained by temperature differentiation as indicated in Eqs. (11) and (20).

$$\frac{G(T,P_r,m_r)-H(T_r,P_r,m_r)}{n_2RT}+\frac{S(T_r,P_r,m_r)}{n_2R} = \frac{A}{T}+B+w_1\ln T+w_2T+w_3T^2 + \frac{w_4}{T(T-227)}+\frac{w_5}{T(680-T)^3}. \tag{37}$$

Equation (37) also involves the entropy under reference conditions, $S(T_r,P_r,m_r)$; its evaluation is discussed below. The parameters A and B are the enthalpy and Gibbs energy integration constants evaluated at the reference temperature.

$$A = w_1T_r + w_2T_r^2 + 2w_3T_r^3 - w_4\left[\frac{2T_r-227}{(T_r-227)^2}\right] + w_5\left[\frac{4T_r-680}{(680-T_r)^4}\right], \tag{37a}$$

$$B = -\frac{A}{T_r} - w_1\ln T_r - w_2T_r - w_3T_r^2 - \frac{w_4}{T_r(T_r-227)} - \frac{w_5}{T_r(680-T_r)^3}, \tag{37b}$$

$$\beta^{(0)}(T,P_r) = w_6 + \frac{w_7}{T} + w_8\ln T + w_9T + w_{10}T^2 + \frac{w_{11}}{T-227} + \frac{w_{12}}{680-T}, \tag{38}$$

$$\beta^{(1)}(T,P_r) = w_{13} + \frac{w_{14}}{T} + w_{15}T + \frac{w_{16}}{T-227}, \tag{39}$$

$$C^{\phi}(T,P_r) = w_{17} + \frac{w_{18}}{T} + w_{19}\ln T + w_{20}T + \frac{w_{21}}{T-227}. \tag{40}$$

The values of the empirically evaluated parameters are given in Table 3. In view of the relationships between parameters, uncertainties in individual parameters have limited meaning. It is more meaningful to state that the omission of any term leads to a significant degradation in the overall fit, but that no additional term significantly improves the fit. The accuracy of fit for various sets of data is discussed elsewhere.

The various thermodynamic properties at the reference

Table 3. Empirical Parameters w_i and Integration Constants A and B for Equations 36 through 39

i	Value	i	Value
1	-110.74702	12	5.4151933
2	0.039358573	13	-0.48309327
3	$-1.5267612 \times 10^{-5}$	14	119.31966
4	516.99706	15	1.4068095×10^{-3}
5	-5.9960301×10^{6}	16	-4.2345814
6	24.876940	17	0.40623173
7	-656.81518	18	-6.1084589
8	-4.4640952	19	-0.075354649
9	0.011068407	20	1.3714922×10^{-4}
10	$-5.1672818 \times 10^{-6}$	21	0.27643791
11	-1.1940217		

$[S(T_r,P_r,m_r)/n_2R] = 97.834_5$

A = -30367.658

B = 722.44390

pressure, 177 bar, may now be calculated from the equations of Secs. 2 and 4.1. Equations (38)–(40) are differentiated with respect to temperature as necessary to yield the parameters required. The resulting quantities for 177 bar can then be converted to other pressures from the tables of Rogers and Pitzer.[1] It is convenient, however, to include the pressure dependency in a set of more general equations.

5. Combined Equations Including Pressure Dependence

While all of the results of this study are included, implicitly, in the preceding Eqs. (37)–(40), it is convenient to combine these equations with those of Rogers and Pitzer[1] for the pressure dependence of the various functions. Since the same series of temperature dependent terms are used for the pressure dependence as for the parent functions, some numerical coefficients may be combined. Additional steps convert to the Gibbs energy for the solute in its standard state, a hypothetical ideal solution at 1 m, and at temperature T and pressure P.

$$\begin{aligned}\frac{\overline{G}^\circ_2(T,P)-H^\circ_2(298\ \text{K},1\ \text{atm})}{RT} &= -\frac{10G^\circ_1(T,P)}{RT}-\frac{G^{\text{EX}}(T,P,m_r)}{n_2RT}\\ &+(z_1+z_2P+z_3P^2+z_4P^3)/T\\ &+z_5+z_6P+z_7P^2+z_8P^3+z_9\ln T\\ &+(z_{10}+z_{11}P+z_{12}P^2)T+(z_{13}+z_{14}P)T^2\\ &+z_{15}/T(T-227)+z_{16}/T(680-T)^3. \end{aligned} \tag{41}$$

The z_i quantities are numerical parameters while $G^\circ_1(T,P)$, the Gibbs energy of pure water referenced to the ideal gas at 0 K, is given by the equation of state for water[22] as a function of T and P.

The excess Gibbs energy per mole of solute may be obtained from Eqs. (5)–(7) which simplify to

$$\begin{aligned}\frac{G^{\text{EX}}(T,P,m)}{n_2RT} &= -\frac{4A_\phi}{b}\ln(1+bm^{1/2})+2m\beta^{(0)}\\ &+(4\beta^{(1)}/\alpha^2)[1-(1+\alpha m^{1/2})\\ &\times\exp(-\alpha m^{1/2})]+m^2C^\phi, \end{aligned} \tag{42}$$

where the interaction coefficients are functions of temperature and pressure as follows:

$$\begin{aligned}\beta^{(0)} &= z_{17}/T+z_{18}+z_{19}P+z_{20}P^2+z_{21}P^3+z_{22}\ln T\\ &+(z_{23}+z_{24}P+z_{25}P^2+z_{26}P^3)T\\ &+(z_{27}+z_{28}P+z_{29}P^2)T^2\\ &+(z_{30}+z_{31}P+z_{32}P^2+z_{33}P^3)/(T-227)\\ &+(z_{34}+z_{35}P+z_{36}P^2+z_{37}P^3)/(680-T), \end{aligned} \tag{43}$$

$$\beta^{(1)} = z_{38}/T+z_{39}+z_{40}T+z_{41}/(T-227), \tag{44}$$

$$\begin{aligned}C^\phi &= z_{42}/T+z_{43}+z_{44}P+z_{45}\ln T\\ &+(z_{46}+z_{47}P)T+(z_{48}+z_{49}P)T^2\\ &+(z_{50}+z_{51}P)/(T-227)+(z_{52}+z_{53}P)/(680-T). \end{aligned} \tag{45}$$

Table 4. Parameters z_i for Equations 41 to 45

i	low T value	high T value
1	-71659.531	-71637.203
2	2.3483335	2.2209012
3	$-8.3668484 \times 10^{-5}$	$-7.7991396 \times 10^{-5}$
4	2.4018168×10^{-9}	$-4.8099272 \times 10^{-9}$
5	624.88208	624.68125
6	$-5.3697119 \times 10^{-4}$	6.0159787×10^{-4}
7	3.5126966×10^{-7}	3.4069074×10^{-7}
8	0	$2.1962044 \times 10^{-11}$
9	-110.74702	-110.74702
10	0.038900801	0.039494473
11	2.6973456×10^{-6}	$-6.5313475 \times 10^{-7}$
12	$-6.2746876 \times 10^{-10}$	$-6.4781894 \times 10^{-10}$
13	$-1.5267612 \times 10^{-5}$	$-1.5842012 \times 10^{-5}$
14	0	3.2452006×10^{-9}
15	516.99706	516.99706
16	$-5.9960301 \times 10^{+6}$	$-5.9960301 \times 10^{+6}$
17	-656.81518	-656.81518
18	24.879183	24.869130
19	$-2.1552731 \times 10^{-5}$	5.3812753×10^{-5}
20	5.0166855×10^{-8}	$-5.5887470 \times 10^{-8}$
21	0	$6.5893263 \times 10^{-12}$
22	-4.4640952	-4.4640952
23	0.011087099	0.011109914
24	$-6.4479761 \times 10^{-8}$	$-2.6573399 \times 10^{-7}$
25	$-2.3234032 \times 10^{-10}$	$1.7460070 \times 10^{-10}$
26	0	$1.0462619 \times 10^{-14}$
27	$-5.2194871 \times 10^{-6}$	$-5.3070129 \times 10^{-6}$
28	$2.4445210 \times 10^{-10}$	$8.6340233 \times 10^{-10}$
29	$2.8527066 \times 10^{-13}$	$-4.1785962 \times 10^{-13}$
30	-1.5696231	-1.5793660
31	2.2337864×10^{-3}	2.2022821×10^{-3}
32	$-6.3933891 \times 10^{-7}$	$-1.3105503 \times 10^{-7}$
33	$4.5270573 \times 10^{-11}$	$-6.3813683 \times 10^{-11}$
34	5.4151933	9.7065780
35	0	$-2.6860396 \times 10^{-2}$
36	0	1.5344744×10^{-5}
37	0	$-3.2153983 \times 10^{-9}$
38	119.31966	119.31966
39	-0.48309327	-0.48309327
40	1.4068095×10^{-3}	1.4068095×10^{-3}
41	-4.2345814	-4.2345814
42	-6.1084589	-6.1084589
43	0.40743803	0.40217793
44	$-6.8152430 \times 10^{-6}$	2.2902837×10^{-5}
45	-0.075354649	-0.75354649
46	1.2609014×10^{-4}	1.5317673×10^{-4}
47	6.2480692×10^{-8}	$-9.0550901 \times 10^{-8}$
48	1.8994373×10^{-8}	$-1.5386008 \times 10^{-8}$
49	$-1.0731284 \times 10^{-10}$	$8.6926600 \times 10^{-11}$
50	0.32136572	0.35310414
51	$-2.5382945 \times 10^{-4}$	$-4.3314252 \times 10^{-4}$
52	0	-0.091871455
53	0	5.1904777×10^{-4}

One notes that Eqs. (42)–(45) yield the excess Gibbs energy for the reference molality, $m_r = 5.5508$ mol kg^{-1}, which appears in Eq. (41). The derivation of the preceding equations is tedious but most of the z parameters are relatively simple combinations of the w parameters given above in Sec. 4.3 and the U parameters of Rogers and Pitzer.[1] The parameter z_5 also involves the absolute entropy of aqueous NaCl which was adjusted to fit the solubility of solid NaCl at 298.15 K (Ref. 45) (6.146 mol kg^{-1}). With an activity coefficient for the saturated solution from our equations, $\gamma_\pm = 1.006_5$, the standard-state heat of solution at 298.15 K,[29] $\Delta H_s^\circ/RT = 1.566_3$, and the absolute entropy of solid NaCl,[46] $S^\circ(298,s)/R = 8.67_6$, one obtains $\bar{S}_2^\circ(298)/R = 13.88_6$. All of these quantities are for the standard pressure of 1 atm. This entropy agrees well within the experimental uncertainty with the ionic entropies given by CODATA.[47] With corrections for pressure and molality and the addition of the entropy of 10 mol of water, one obtains $S(T_r,P_r,m_r)$ as given above.

Rogers and Pitzer[1] give two sets of parameters for their volumetric equation; thus there are two sets of parameters for the combined equations as given in Table 4. The "low-temperature" set yields maximum accuracy of pressure dependence at temperatures below 85 °C. The "overall fit" parameters are valid over the entire range to 300 °C (or slightly above) but are less accurate near or below room temperature. For many purposes, the overall fit parameters may yield results of sufficient accuracy over the entire range. But for maximum accuracy, we recommend using the two sets with a changeover at 65 °C (338.15 K). There are no significant discontinuities between the two functions or their first or second derivatives at 65 °C.

The corresponding quantities for enthalpy and for heat capacity are readily obtained by differentiation in accordance with Eqs. (11) and (20). The z parameters have dimensions of powers of K and bar which are obvious. Parameters z_{17}–z_{41} also have the dimension kg mol^{-1} while z_{42}–z_{53} also have kg^2 mol^{-2}.

One may now calculate any of the thermodynamic properties for aqueous NaCl by appropriate manipulation of these equations. Most of the equations of interest were given in Sec. 2. Tables of values of many of these quantities are given in the Appendix.

6. Activity Coefficient at Saturation

Measurements of NaCl solubility were not considered in the least-squares adjustment described earlier. Therefore these data can serve as a check on the accuracy of the resulting equations. The solubility at low temperatures is well known,[45] and Liu and Lindsay[33] determined the solubility from 75–300 °C. The standard Gibbs energy of solution is

$$\Delta G_s^\circ = -2RT\ln(m\gamma)_{sat}. \tag{46}$$

At 298 K and 1 atm, substitution of $m_{sat} = 6.146$ mol kg^{-1} and $\gamma_{sat} = 1.006_5$ [from Eq. (9)] yields $\Delta G_s^\circ/RT = -3.644$, a value used above to calculate the entropy of solution.

At other temperatures, one may calculate the activity coefficient at saturation molality by two independent methods and comparison of the results serves as a check on the accuracy of these equations. First is the use of Eq. (9) together with the expressions for the Debye–Hückel slope and the virial coefficients [Eqs. (43)–(45)]. This method depends primarily on the osmotic coefficient and heat of dilution measurements.

The second method involves direct use of the solubility in Eq. (46). In this case, the change in Gibbs energy of solution with temperature is obtained from the heat of solution whose temperature dependence is in turn related to the heat capacity difference between the solution and the solid. Various enthalpy and heat capacity measurements were considered in obtaining Eq. (41) for the solution. For solid NaCl, Eq. (36) may be integrated and combined with the entropy and the volumetric properties[48] of the solid to give

$$\frac{G^\circ(T,P,s) - H^\circ(298,1\ \text{atm},s)}{RT} = 28.913 - \frac{1734.9}{T} - 5.525\ln T - 9.8\times10^{-4}T + P\left[\frac{0.3147}{T} + 3.01\times10^{-5} + 1.46\times10^{-8}T\right]. \tag{47}$$

This equation may be combined with Eq. (41) to yield ΔG_s° of solution as required in Eq. (46).

In the second method, the solubility enters directly into the calculation and the result is sensitive to any error in m_{sat}. For each method, the pressure is taken as 1 atm below 100 °C and the saturation pressure of water above 100 °C. The solubility values of Liu and Lindsay were measured indirectly and apply to the saturation pressure of pure water rather than that of the solution as we understand their treatment.

Table 5. A Comparison of Activity Coefficients Calculated by Two Methods for Saturated NaCl(aq)

°C	P bar	m_{sat} mol kg^{-1}	γ_{sat} from eq(9)	γ_{sat} from solubility
0	1	6.097	0.921	0.910
25	1	6.146	1.006	(1.006)
50	1	6.275	1.021	1.023
75	1	6.460	0.988	0.986
100	1	6.680	0.920	0.917
125	2.3	6.935	0.829	0.826
150	4.8	7.198	0.724	0.725
175	8.9	7.573	0.615	0.612
200	15.5	7.973	0.503	0.502
225	25.5	8.435	0.397	0.397
250	39.7	8.989	0.300	0.301
275	59.4	9.649	0.215	0.216
300	85.8	10.413	0.144	0.145

Table 5 compares the results from the two methods which are in excellent agreement. The differences are within the uncertainties of the solubility measurements at most temperatures. This indicates that our equations are valid to the saturation molality even though few of the data on which they are based extend as high as 6 mol kg^{-1} and the high molality data were often given reduced weight in the least-squares analysis.

The agreement at 300 °C is especially significant because it confirms the heat of solution in the range 250–300 °C to about 0.3 in $\Delta H_s/RT$. If our equation had been fitted to the experimental ΔH_s at 300 °C of Cobble[27] instead of the heat capacity data of White and Wood,[4] there would have been a large discrepancy at 300 °C.

While the 1% discrepancy of 0 °C is small, it may be outside of the experimental uncertainty in the solubility. However, various properties vary very rapidly near 0 °C and are not perfectly represented by our equations. Thus a small discrepancy at 0 °C does not raise concern about the accuracy of the equations at higher temperatures.

A similar calculation of the activity coefficient for the saturated solution by the two methods was made for the more approximate equations of Silvester and Pitzer in their 1977 paper.[2] While the present fit is slightly better below 200 °C, the earlier equations were very satisfactory in that range. It is in the 200–300 °C range that the earlier approximations became serious, and the standard deviation in ln γ is reduced from 0.041 in the older treatment to 0.004 in the present calculations. The accuracy in this 200–300 °C range is now essentially the same as that at lower temperatures.

7. Estimation of Uncertainties

Any thermodynamic property derived from Eqs. (41)–(45) has an uncertainty which derives from two sources. First, Eqs. (37)–(40), valid at the reference pressure only, do not perfectly reproduce experimental measurements. These errors are small, as may be seen by comparing the final two columns of Table 1. Second, errors increase with pressure because of inaccuracies in the volumetric equations of Rogers and Pitzer.[1] These small inaccuracies accumulate through the many required manipulations of the NaCl(aq) volume, so that the total error is estimated as a fixed percentage of the correction due to pressure change from 177 bar. Rogers and Pitzer find that pressure corrections to the activity or osmotic coefficient may be in error by $\pm$ 10%, and those to the enthalpy or heat capacity may be in error by $\pm$ 20%. On this basis, uncertainties have been computed for a variety of conditions and are listed in Table 6.

We recall the special situation for the heat capacity where $^{\phi}C_p/R$ is known more accurately at $m = 3$ mol kg^{-1} than at other compositions. At that molality, the data are fitted to 0.3 to 200 °C and to 0.7 from 200 to 325 °C as shown in Table 1. The extrapolation of the heat capacity to zero molality introduces further uncertainty as shown for $\bar{C}^{\circ}_{p,2}/R$, but that does not affect values at higher molality.

There is a special uncertainty in the pressure dependency above 250 °C which should be explained. The volumetric equation of Rogers and Pitzer[1] depends at high temperatures on the measurements of Hilbert.[49] Near 300 °C, his lowest pressure of measurement was 900 bar. Thus the volumetric equation may be considerably in error at lower pressures and in particular in the range between 900 bar and our reference pressure of 177 bar. Since the same pressure dependency was assumed in converting measurements to 177 bar for evaluation and in generalizing the final equations for dependency on pressure, there will be a large degree of cancellation of error below or near 177 bar. Also the reasonable agreement of the heat of dilution measurements at 400 bar indicates that the error is not large. Nevertheless, this situation should be kept in mind for the use of these results near 300 °C at pressures substantially above 177 bar.

If the equations are extrapolated to molalities higher than 6 mol kg^{-1}, the problem discussed above becomes more serious. The osmotic measurements to saturation molality and at saturation pressure were considered. Thus the equations have validity to high molality at saturation pres-

Table 6. Uncertainty Estimates

Property	Molality	25°C		200°C		300°C	
		200 bar	1000 bar	200 bar	1000 bar	200 bar	1000 bar
ϕ	0–6	0.002	0.004	0.004	0.008	0.006	0.02
$\ln\gamma_{\pm}$	1.0	0.002	0.006	0.005	0.013	0.015	0.05
	3.0	0.003	0.010	0.008	0.02	0.018	0.06
	6.0	0.004	0.012	0.01	0.03	0.020	0.08
$\Delta H^{\circ}_s/RT$	-	0.06	0.22	0.08	0.30	0.8	2.5
$^{\phi}L/RT$	1.0	0.01	0.03	0.03	0.09	0.4	1.5
	3.0	0.02	0.10	0.03	0.12	0.5	2.0
	6.0	0.03	0.12	0.04	0.15	0.8	3.0
$\bar{C}^{\circ}_{p,2}/R$	-	0.6	1.8	1.5	4.0	20.	40.
$^{\phi}C_p/R$	1–4	0.3	1.2	0.6	2.5	10.	20.

sure, and this was confirmed in the comparison of activity coefficients in Table 5. But the pressure dependency has no experimental basis above 6 mol kg^{-1} and has the uncertainty noted above at temperatures approaching 300 °C. Thus one should be very cautious in using values calculated for molalities above 6 at pressures substantially above 177 bar at temperatures above 200 °C.

Before concluding, certain other data for aqueous NaCl should be noted. Since the volumetric equation of Rogers and Pitzer[1] was developed, two sets of density measurements have become available from Gehrig[50] and Grant-Taylor.[51] While it would have been impractical to revise the entire set of equations to incorporate these data, it is interesting to make a comparison. There is good agreement of our equation with Grant-Taylor's measurements at 200 bar and 200 °C and reasonable agreement at 250 °C. At 300 °C, 200 bar, and 2 mol kg^{-1}, Grant-Taylor's density is 1% higher than our value which agrees well with Gehrig's smoothed value, while at 4 mol kg^{-1} both Gehrig and Grant-Taylor report values about 1% higher than that given by our equation. These comparisons confirm our calculations of the pressure dependency of various properties up to 250 °C and reinforce the caution stated above with respect to values for pressures substantially above 177 bar at 300 °C.

Earlier compilations for aqueous NaCl were presented by Potter and Brown,[52] by Potter,[53] by Haas,[54] and by Khailbullin.[55] Since very important measurements have become available since these compilations were prepared, as noted in the introduction, it would serve little purpose to make detailed comparisons. The absolute values of the volume and certain other directly measured properties are usually quite close to our results. But our use of a comprehensive equation and the recent data for heat capacities and enthalpies of dilution yield much greater accuracy for the derivative functions.

8. Corrections to the Preceding Paper

In the preceding paper, Rogers and Pitzer,[1] there are a few errors that should be corrected. In Eq. (27) the final quantity in brackets should be

$$\left[m^2\left\{\left(\frac{\partial B^{v}_{\mathrm{MX}}}{\partial T}\right)_{P,I}+\frac{1}{T}B^{v}_{\mathrm{MX}}\right\}\right.$$
$$\left.+\,m^3(\nu_{\mathrm{M}}z_{\mathrm{M}})\left\{\left(\frac{\partial C^{v}_{\mathrm{MX}}}{\partial T}\right)+\frac{1}{T}C^{v}_{\mathrm{MX}}\right\}\right].$$

In Eq. (28), the derivative on the left should be with respect to P (not T). In Eq. (32), the first sign on the right (preceding $(2\nu_{\mathrm{M}}\nu_{\mathrm{X}}...)$ should be $-$ instead of $+$.

These are errors of the text only; the calculated values in tables are correct. It should be noted, however, that in Table A-2 values are given for $(\partial B^{v}_{\mathrm{MX}}/\partial T)_{P,I}$ and $(\partial C^{v}_{\mathrm{MX}}/\partial T)_P$ whereas the more complex quantities in braces are needed for the equations. The other terms are given in Table A-1. The two-term expressions

$$\left(\frac{\partial B^{v}_{\mathrm{MX}}}{\partial T}\right)_{P,I}+\frac{1}{T}B^{v}_{\mathrm{MX}}=B^{x}_{\mathrm{MX}}=\beta^{(0)x}_{\mathrm{MX}}, \tag{48}$$

$$\left(\frac{\partial C^{v}_{\mathrm{MX}}}{\partial T}\right)_{P}+\frac{1}{T}C^{v}_{\mathrm{MX}}=C^{x}_{\mathrm{MX}}, \tag{49}$$

are given in the present paper in Table A-6. The last equality in Eq. (48) arises because $\beta^{(1)v}$ is zero for NaCl.

9. Acknowledgments

This project has been underway more or less continuously since the publication in 1977 of the initial study of Silvester and Pitzer.[2] As additional data became available, interim evaluations were carried out by one or more among Daniel J. Bradley, George C. Flowers, Pamela S. Z. Rogers and the present authors, and one interim report was issued.[56] We express particular thanks to Dr. Bradley and Dr. Flowers for their evaluations as well as to Dr. R. H. Wood, who made available his experimental results in advance of publication. This work was supported by the Director, Office of Energy Research, Office of Basic Energy Sciences, Division of Engineering, Mathematics, and Geosciences of the U.S. Department of Energy under Contract No. DE-AC03-76SF00098.

10. Appendix

Given in the Appendix tables is a complete and consistent set of thermodynamic properties for NaCl(aq). Tables A-1 through A-7 list for various temperatures and pressures values for the pure water and solute (standard state) properties, the Debye–Hückel slope and the ion-interaction parameters computed from Eqs. (41)–(45) and Refs. 22 and 23. Tables A-8 through A-17 give computed values for many thermodynamic properties at finite NaCl composition. Tables A-5, A-6, and A-7 are essentially tables of Rogers and Pitzer[1] but are included again here for convenience.

The reference states for enthalpy are for water the ideal gas at 0 K and for NaCl the infinitely dilute aqueous solution standard state at 298.15 K. Entropy values are absolute for both H_2O and NaCl, i.e., they are referenced to states approaching zero entropy at 0 K.

In some regions of the T–P–m space, volumetric data are limited or nonexistent; Rogers and Pitzer[1] discuss this in considerable detail and there are further comments in this paper. This limitation on volumetric data yields corresponding uncertainty in the pressure dependence of other properties. Nevertheless, we have assumed in constructing these tables that their equations are at least reasonably accurate at all points in the T–P plane to 300 °C and 1000 bar, and at all NaCl compositions from 0–6 mol kg^{-1}. The reader is cautioned about these uncertainties in the tables which relate primarily to values at pressures substantially above 200 bar and at high temperature.

No values are tabulated for compositions above 6 mol kg^{-1}, although at saturation pressure it is shown that the equations yield good values of the activity and osmotic coefficients to saturation molality. The pressure dependence of these coefficients and the values of all other properties are too uncertain to justify presentation of tabulated values other than those given in Table 5.

Table A-1. The Standard Gibbs Energies of Water and NaCl(aq), Debye-Huckel Parameter A_ϕ and NaCl Virial Parameters at t and P. G_1^o is the Gibbs Energy of Water, $G_1^o(T,P) - H_1^o(0\ K, 1\ atm)$, and $\bar{G}_2^o$ the Gibbs energy for NaCl(aq) in its Standard State, $\bar{G}_2^o(T,P) - \bar{H}_2^o(298\ K, 1\ atm)$. Note that $C_{NaCl} = C^\phi_{NaCl}/2$.

t °C	P bar	G_1^o/RT	$\bar{G}_2^o/RT$	A_ϕ (kg/mol)$^{1/2}$	$\beta^{(0)}_{NaCl}$ kg/mol	$\beta^{(1)}_{NaCl}$ kg/mol	$10^3 C_{NaCl}$ (kg/mol)^2
0.0	1.0	-23.4638	-13.836	0.3767	0.0493	0.2462	2.58
10.0	1.0	-22.9100	-13.871	0.3821	0.0619	0.2612	1.68
20.0	1.0	-22.4049	-13.885	0.3882	0.0714	0.2723	0.99
25.0	1.0	-22.1689	-13.886	0.3915	0.0754	0.2770	0.70
30.0	1.0	-21.9433	-13.885	0.3949	0.0788	0.2814	0.44
40.0	1.0	-21.5208	-13.875	0.4023	0.0846	0.2893	-0.02
50.0	1.0	-21.1333	-13.858	0.4103	0.0892	0.2967	-0.40
60.0	1.0	-20.7776	-13.835	0.4190	0.0927	0.3038	-0.73
70.0	1.0	-20.4505	-13.807	0.4283	0.0956	0.3109	-1.02
80.0	1.0	-20.1494	-13.774	0.4384	0.0977	0.3180	-1.26
90.0	1.0	-19.8720	-13.737	0.4491	0.0992	0.3253	-1.47
100.0	1.0	-19.6162	-13.696	0.4606	0.1002	0.3326	-1.65
110.0	1.4	-19.3799	-13.650	0.4727	0.1008	0.3402	-1.81
120.0	2.0	-19.1616	-13.600	0.4857	0.1010	0.3480	-1.95
130.0	2.7	-18.9598	-13.545	0.4994	0.1010	0.3560	-2.06
140.0	3.6	-18.7733	-13.485	0.5140	0.1006	0.3642	-2.16
150.0	4.8	-18.6007	-13.420	0.5295	0.1000	0.3726	-2.24
160.0	6.2	-18.4411	-13.349	0.5460	0.0991	0.3812	-2.30
170.0	7.9	-18.2933	-13.272	0.5634	0.0980	0.3900	-2.35
180.0	10.0	-18.1566	-13.189	0.5820	0.0968	0.3990	-2.39
190.0	12.5	-18.0301	-13.098	0.6017	0.0954	0.4082	-2.41
200.0	15.5	-17.9130	-13.000	0.6228	0.0938	0.4175	-2.42
210.0	19.1	-17.8047	-12.894	0.6453	0.0922	0.4270	-2.42
220.0	23.2	-17.7046	-12.778	0.6694	0.0904	0.4367	-2.41
230.0	28.0	-17.6121	-12.653	0.6953	0.0885	0.4466	-2.39
240.0	33.4	-17.5266	-12.516	0.7232	0.0867	0.4565	-2.36
250.0	39.7	-17.4478	-12.367	0.7535	0.0848	0.4667	-2.32
260.0	46.9	-17.3751	-12.204	0.7865	0.0829	0.4769	-2.26
270.0	55.0	-17.3081	-12.025	0.8228	0.0811	0.4873	-2.20
280.0	64.1	-17.2466	-11.827	0.8630	0.0794	0.4978	-2.13
290.0	74.4	-17.1900	-11.607	0.9081	0.0780	0.5084	-2.04
300.0	85.8	-17.1382	-11.360	0.9595	0.0768	0.5192	-1.95

Table A-1 (continued). The Standard Gibbs Energies of Water and NaCl(aq), Debye-Huckel Parameter A_ϕ and NaCl Virial Parameters at t and P. G_1^o is the Gibbs Energy of Water, $G_1^o(T,P) - H_1^o(0\ K, 1\ atm)$, and $\bar{G}_2^o$ the Gibbs Energy for NaCl(aq) in its Standard State, $\bar{G}_2^o(T,P) - \bar{H}_2^o(298\ K, 1\ atm)$. Note that $C_{NaCl} = C^\phi_{NaCl}/2$.

t °C	P bar	G_1^o/RT	$\bar{G}_2^o/RT$	A_ϕ $(kg/mol)^{1/2}$	$\beta^{(0)}_{NaCl}$ kg/mol	$\beta^{(1)}_{NaCl}$ kg/mol	$10^3 C_{NaCl}$ $(kg/mol)^2$
0.0	200.0	-23.3067	-13.714	0.3735	0.0545	0.2462	2.25
10.0	200.0	-22.7583	-13.739	0.3787	0.0656	0.2612	1.46
20.0	200.0	-22.2582	-13.748	0.3846	0.0742	0.2723	0.84
25.0	200.0	-22.0245	-13.749	0.3878	0.0777	0.2770	0.58
30.0	200.0	-21.8011	-13.747	0.3911	0.0809	0.2814	0.34
40.0	200.0	-21.3826	-13.738	0.3982	0.0862	0.2893	-0.09
50.0	200.0	-20.9989	-13.724	0.4060	0.0904	0.2967	-0.45
60.0	200.0	-20.6465	-13.704	0.4144	0.0937	0.3038	-0.76
70.0	200.0	-20.3226	-13.680	0.4234	0.0963	0.3109	-1.03
80.0	200.0	-20.0244	-13.653	0.4331	0.0982	0.3180	-1.27
90.0	200.0	-19.7496	-13.622	0.4434	0.0997	0.3253	-1.48
100.0	200.0	-19.4962	-13.588	0.4543	0.1007	0.3326	-1.66
110.0	200.0	-19.2624	-13.550	0.4659	0.1013	0.3402	-1.82
120.0	200.0	-19.0465	-13.508	0.4782	0.1015	0.3480	-1.95
130.0	200.0	-18.8470	-13.462	0.4913	0.1015	0.3560	-2.07
140.0	200.0	-18.6627	-13.412	0.5051	0.1011	0.3642	-2.16
150.0	200.0	-18.4924	-13.357	0.5197	0.1005	0.3726	-2.24
160.0	200.0	-18.3349	-13.298	0.5351	0.0997	0.3812	-2.30
170.0	200.0	-18.1894	-13.232	0.5514	0.0986	0.3900	-2.35
180.0	200.0	-18.0549	-13.161	0.5686	0.0973	0.3990	-2.38
190.0	200.0	-17.9307	-13.084	0.5869	0.0958	0.4082	-2.40
200.0	200.0	-17.8161	-13.000	0.6063	0.0942	0.4175	-2.40
210.0	200.0	-17.7104	-12.908	0.6269	0.0923	0.4270	-2.39
220.0	200.0	-17.6130	-12.808	0.6489	0.0903	0.4367	-2.36
230.0	200.0	-17.5234	-12.699	0.6723	0.0881	0.4466	-2.33
240.0	200.0	-17.4410	-12.579	0.6975	0.0858	0.4565	-2.28
250.0	200.0	-17.3656	-12.449	0.7247	0.0834	0.4667	-2.22
260.0	200.0	-17.2966	-12.306	0.7541	0.0809	0.4769	-2.15
270.0	200.0	-17.2337	-12.148	0.7863	0.0784	0.4873	-2.07
280.0	200.0	-17.1766	-11.973	0.8219	0.0759	0.4978	-1.98
290.0	200.0	-17.1250	-11.778	0.8617	0.0736	0.5084	-1.88
300.0	200.0	-17.0786	-11.557	0.9071	0.0715	0.5192	-1.77

Table A-1 (continued). The Standard Gibbs Energies of Water and NaCl(aq), Debye-Huckel Parameter A_ϕ and NaCl Virial Parameters at t and P. G_1^o is the Gibbs Energy of Water, $G_1^o(T,P) - H_1^o(0\ K,\ 1\ atm)$, and $\bar{G}_2^o$ the Gibbs Energy for NaCl(aq) in its Standard State, $\bar{G}_2^o(T,P) - \bar{H}_2^o(298\ K,\ 1\ atm)$. Note that $C_{NaCl} = C^\phi_{NaCl}/2$.

t °C	P bar	G_1^o/RT	$\bar{G}_2^o/RT$	A_ϕ (kg/mol)$^{1/2}$	$\beta^{(0)}_{NaCl}$ kg/mol	$\beta^{(1)}_{NaCl}$ kg/mol	$10^3 C_{NaCl}$ (kg/mol)^2
0.0	400.0	-23.1503	-13.581	0.3703	0.0593	0.2462	1.93
10.0	400.0	-22.6073	-13.599	0.3754	0.0691	0.2612	1.23
20.0	400.0	-22.1120	-13.605	0.3811	0.0767	0.2723	0.68
25.0	400.0	-21.8806	-13.605	0.3842	0.0799	0.2770	0.45
30.0	400.0	-21.6593	-13.603	0.3875	0.0828	0.2814	0.23
40.0	400.0	-21.2449	-13.596	0.3944	0.0876	0.2893	-0.16
50.0	400.0	-20.8649	-13.584	0.4019	0.0915	0.2967	-0.49
60.0	400.0	-20.5159	-13.568	0.4100	0.0946	0.3038	-0.79
70.0	400.0	-20.1951	-13.549	0.4187	0.0969	0.3109	-1.04
80.0	400.0	-19.8997	-13.527	0.4280	0.0988	0.3180	-1.28
90.0	400.0	-19.6276	-13.502	0.4379	0.1002	0.3253	-1.48
100.0	400.0	-19.3767	-13.475	0.4484	0.1012	0.3326	-1.67
110.0	400.0	-19.1452	-13.444	0.4595	0.1018	0.3402	-1.82
120.0	400.0	-18.9313	-13.410	0.4713	0.1021	0.3480	-1.96
130.0	400.0	-18.7338	-13.373	0.4837	0.1021	0.3560	-2.07
140.0	400.0	-18.5513	-13.332	0.4967	0.1018	0.3642	-2.17
150.0	400.0	-18.3826	-13.286	0.5105	0.1012	0.3726	-2.25
160.0	400.0	-18.2266	-13.237	0.5250	0.1004	0.3812	-2.30
170.0	400.0	-18.0825	-13.182	0.5402	0.0994	0.3900	-2.35
180.0	400.0	-17.9492	-13.123	0.5562	0.0981	0.3990	-2.37
190.0	400.0	-17.8262	-13.057	0.5730	0.0966	0.4082	-2.38
200.0	400.0	-17.7126	-12.986	0.5908	0.0948	0.4175	-2.37
210.0	400.0	-17.6077	-12.908	0.6094	0.0928	0.4270	-2.35
220.0	400.0	-17.5111	-12.824	0.6291	0.0906	0.4367	-2.31
230.0	400.0	-17.4221	-12.731	0.6499	0.0882	0.4466	-2.26
240.0	400.0	-17.3403	-12.630	0.6719	0.0855	0.4565	-2.19
250.0	400.0	-17.2653	-12.520	0.6952	0.0825	0.4667	-2.11
260.0	400.0	-17.1965	-12.400	0.7201	0.0794	0.4769	-2.01
270.0	400.0	-17.1337	-12.269	0.7466	0.0760	0.4873	-1.89
280.0	400.0	-17.0766	-12.126	0.7751	0.0724	0.4978	-1.76
290.0	400.0	-17.0247	-11.968	0.8060	0.0685	0.5084	-1.62
300.0	400.0	-16.9779	-11.795	0.8396	0.0645	0.5192	-1.45

Table A-1 (continued). The Standard Gibbs Energies of Water and NaCl(aq), Debye-Huckel Parameter A_ϕ and NaCl Virial Parameters at t and P. G_1^o is the Gibbs Energy of Water, $G_1^o(T,P) - H_1^o(0\ K,\ 1\ atm)$, and $\bar{G}_2^o$ the Gibbs Energy for NaCl(aq) in its Standard State, $\bar{G}_2^o(T,P) - \bar{H}_2^o(298\ K,\ 1\ atm)$. Note that $C_{NaCl} = C^\phi_{NaCl}/2$.

t °C	P bar	G_1^o/RT	$\bar{G}_2^o/RT$	A_ϕ $(kg/mol)^{1/2}$	$\beta^{(0)}_{NaCl}$ kg/mol	$\beta^{(1)}_{NaCl}$ kg/mol	$10^3 C_{NaCl}$ $(kg/mol)^2$
0.0	600.0	-22.9953	-13.439	0.3672	0.0638	0.2462	1.60
10.0	600.0	-22.4576	-13.451	0.3722	0.0723	0.2612	1.01
20.0	600.0	-21.9671	-13.455	0.3778	0.0791	0.2723	0.53
25.0	600.0	-21.7379	-13.455	0.3808	0.0819	0.2770	0.32
30.0	600.0	-21.5187	-13.454	0.3840	0.0845	0.2814	0.12
40.0	600.0	-21.1083	-13.448	0.3907	0.0889	0.2893	-0.23
50.0	600.0	-20.7319	-13.440	0.3980	0.0925	0.2967	-0.54
60.0	600.0	-20.3863	-13.428	0.4059	0.0953	0.3038	-0.82
70.0	600.0	-20.0686	-13.413	0.4143	0.0974	0.3109	-1.06
80.0	600.0	-19.7761	-13.397	0.4233	0.0993	0.3180	-1.29
90.0	600.0	-19.5067	-13.378	0.4328	0.1006	0.3253	-1.49
100.0	600.0	-19.2582	-13.357	0.4429	0.1016	0.3326	-1.67
110.0	600.0	-19.0290	-13.333	0.4536	0.1023	0.3402	-1.83
120.0	600.0	-18.8173	-13.307	0.4649	0.1026	0.3480	-1.96
130.0	600.0	-18.6217	-13.278	0.4767	0.1026	0.3560	-2.08
140.0	600.0	-18.4410	-13.245	0.4891	0.1024	0.3642	-2.17
150.0	600.0	-18.2739	-13.209	0.5021	0.1019	0.3726	-2.25
160.0	600.0	-18.1195	-13.168	0.5158	0.1012	0.3812	-2.31
170.0	600.0	-17.9768	-13.124	0.5301	0.1002	0.3900	-2.34
180.0	600.0	-17.8449	-13.074	0.5451	0.0989	0.3990	-2.36
190.0	600.0	-17.7230	-13.020	0.5607	0.0974	0.4082	-2.36
200.0	600.0	-17.6104	-12.961	0.5771	0.0956	0.4175	-2.34
210.0	600.0	-17.5066	-12.895	0.5943	0.0936	0.4270	-2.31
220.0	600.0	-17.4108	-12.824	0.6122	0.0913	0.4367	-2.26
230.0	600.0	-17.3226	-12.745	0.6310	0.0886	0.4466	-2.19
240.0	600.0	-17.2414	-12.659	0.6506	0.0857	0.4565	-2.10
250.0	600.0	-17.1669	-12.566	0.6712	0.0824	0.4667	-1.99
260.0	600.0	-17.0986	-12.463	0.6927	0.0787	0.4769	-1.86
270.0	600.0	-17.0362	-12.352	0.7154	0.0747	0.4873	-1.71
280.0	600.0	-16.9792	-12.230	0.7393	0.0702	0.4978	-1.55
290.0	600.0	-16.9274	-12.096	0.7645	0.0653	0.5084	-1.35
300.0	600.0	-16.8805	-11.950	0.7913	0.0599	0.5192	-1.13

Table A-1 (continued). The Standard Gibbs Energies of Water and NaCl(aq), Debye-Huckel Parameter A_ϕ and NaCl Virial Parameters at t and P. G_1^o is the Gibbs Energy of Water, $G_1^o(T,P) - H_1^o(0\ K, 1\ atm)$, and $\bar{G}_2^o$ the Gibbs Energy for NaCl(aq) in its Standard State, $\bar{G}_2^o(T,P) - \bar{H}_2^o(298\ K, 1\ atm)$.[1] Note that $C_{NaCl} = C^\phi_{NaCl}/2$.

t °C	P bar	G_1^o/RT	$\bar{G}_2^o/RT$	A_ϕ $(kg/mol)^{1/2}$	$\beta^{(0)}_{NaCl}$ kg/mol	$\beta^{(1)}_{NaCl}$ kg/mol	10^3C_{NaCl} $(kg/mol)^2$
0.0	800.0	-22.8417	-13.288	0.3642	0.0680	0.2462	1.28
10.0	800.0	-22.3091	-13.296	0.3691	0.0753	0.2612	0.78
20.0	800.0	-21.8233	-13.300	0.3746	0.0813	0.2723	0.37
25.0	800.0	-21.5963	-13.300	0.3775	0.0838	0.2770	0.19
30.0	800.0	-21.3792	-13.300	0.3806	0.0861	0.2814	0.01
40.0	800.0	-20.9727	-13.297	0.3872	0.0901	0.2893	-0.30
50.0	800.0	-20.6000	-13.291	0.3943	0.0934	0.2967	-0.59
60.0	800.0	-20.2577	-13.284	0.4020	0.0960	0.3038	-0.85
70.0	800.0	-19.9431	-13.274	0.4101	0.0980	0.3109	-1.07
80.0	800.0	-19.6535	-13.263	0.4188	0.0997	0.3180	-1.29
90.0	800.0	-19.3867	-13.250	0.4281	0.1010	0.3253	-1.50
100.0	800.0	-19.1407	-13.235	0.4378	0.1020	0.3326	-1.68
110.0	800.0	-18.9137	-13.218	0.4481	0.1027	0.3402	-1.83
120.0	800.0	-18.7042	-13.199	0.4589	0.1031	0.3480	-1.97
130.0	800.0	-18.5106	-13.177	0.4702	0.1032	0.3560	-2.09
140.0	800.0	-18.3317	-13.152	0.4821	0.1030	0.3642	-2.18
150.0	800.0	-18.1663	-13.124	0.4945	0.1025	0.3726	-2.25
160.0	800.0	-18.0135	-13.092	0.5075	0.1018	0.3812	-2.31
170.0	800.0	-17.8722	-13.057	0.5210	0.1009	0.3900	-2.34
180.0	800.0	-17.7417	-13.017	0.5351	0.0997	0.3990	-2.35
190.0	800.0	-17.6210	-12.973	0.5498	0.0982	0.4082	-2.35
200.0	800.0	-17.5096	-12.923	0.5651	0.0964	0.4175	-2.32
210.0	800.0	-17.4068	-12.869	0.5810	0.0943	0.4270	-2.27
220.0	800.0	-17.3119	-12.809	0.5975	0.0919	0.4367	-2.20
230.0	800.0	-17.2246	-12.742	0.6147	0.0891	0.4466	-2.11
240.0	800.0	-17.1442	-12.669	0.6325	0.0860	0.4565	-2.00
250.0	800.0	-17.0703	-12.589	0.6510	0.0825	0.4667	-1.87
260.0	800.0	-17.0025	-12.501	0.6702	0.0785	0.4769	-1.72
270.0	800.0	-16.9405	-12.405	0.6901	0.0740	0.4873	-1.54
280.0	800.0	-16.8839	-12.299	0.7108	0.0689	0.4978	-1.33
290.0	800.0	-16.8324	-12.183	0.7323	0.0632	0.5084	-1.09
300.0	800.0	-16.7857	-12.056	0.7546	0.0567	0.5192	-0.82

Table A-1 (continued). The Standard Gibbs Energies of Water and NaCl(aq), Debye-Huckel Parameter A_ϕ and NaCl Virial Parameters at t and P. G_1^o is the Gibbs Energy of Water, $G_1^o(T,P) - H_1^o(0\ K,\ 1\ atm)$, and $\bar{G}_2^o$ the Gibbs Energy for NaCl(aq) in its Standard State, $\bar{G}_2^o(T,P) - \bar{H}_2^o(298\ K,\ 1\ atm)$. Note that $C_{NaCl} = C^\phi_{NaCl}/2$.

t ^oC	P bar	G_1^o/RT	$\bar{G}_2^o/RT$	A_ϕ $(kg/mol)^{1/2}$	$\beta^{(0)}_{NaCl}$ kg/mol	$\beta^{(1)}_{NaCl}$ kg/mol	10^3C_{NaCl} $(kg/mol)^2$
0.0	1000.0	-22.6893	-13.129	0.3613	0.0718	0.2462	0.95
10.0	1000.0	-22.1618	-13.136	0.3661	0.0781	0.2612	0.56
20.0	1000.0	-21.6806	-13.140	0.3715	0.0833	0.2723	0.22
25.0	1000.0	-21.4557	-13.141	0.3744	0.0856	0.2770	0.06
30.0	1000.0	-21.2407	-13.142	0.3774	0.0877	0.2814	-0.09
40.0	1000.0	-20.8381	-13.141	0.3838	0.0913	0.2893	-0.37
50.0	1000.0	-20.4690	-13.140	0.3908	0.0942	0.2967	-0.64
60.0	1000.0	-20.1301	-13.136	0.3982	0.0967	0.3038	-0.88
70.0	1000.0	-19.8185	-13.131	0.4062	0.0984	0.3109	-1.08
80.0	1000.0	-19.5318	-13.125	0.4146	0.1001	0.3180	-1.30
90.0	1000.0	-19.2677	-13.118	0.4236	0.1014	0.3253	-1.50
100.0	1000.0	-19.0241	-13.109	0.4330	0.1024	0.3326	-1.68
110.0	1000.0	-18.7994	-13.099	0.4429	0.1030	0.3402	-1.84
120.0	1000.0	-18.5920	-13.086	0.4533	0.1034	0.3480	-1.98
130.0	1000.0	-18.4004	-13.071	0.4642	0.1035	0.3560	-2.09
140.0	1000.0	-18.2233	-13.053	0.4756	0.1034	0.3642	-2.19
150.0	1000.0	-18.0597	-13.033	0.4875	0.1030	0.3726	-2.26
160.0	1000.0	-17.9085	-13.009	0.4998	0.1023	0.3812	-2.31
170.0	1000.0	-17.7687	-12.981	0.5127	0.1014	0.3900	-2.34
180.0	1000.0	-17.6395	-12.950	0.5261	0.1002	0.3990	-2.34
190.0	1000.0	-17.5201	-12.914	0.5400	0.0987	0.4082	-2.33
200.0	1000.0	-17.4099	-12.874	0.5544	0.0969	0.4175	-2.29
210.0	1000.0	-17.3082	-12.829	0.5692	0.0947	0.4270	-2.23
220.0	1000.0	-17.2143	-12.779	0.5846	0.0922	0.4367	-2.15
230.0	1000.0	-17.1279	-12.723	0.6005	0.0894	0.4466	-2.04
240.0	1000.0	-17.0483	-12.660	0.6169	0.0861	0.4565	-1.91
250.0	1000.0	-16.9751	-12.592	0.6338	0.0823	0.4667	-1.76
260.0	1000.0	-16.9080	-12.516	0.6512	0.0781	0.4769	-1.57
270.0	1000.0	-16.8466	-12.432	0.6691	0.0732	0.4873	-1.36
280.0	1000.0	-16.7905	-12.339	0.6874	0.0677	0.4978	-1.11
290.0	1000.0	-16.7393	-12.237	0.7063	0.0614	0.5084	-0.83
300.0	1000.0	-16.6929	-12.124	0.7256	0.0542	0.5192	-0.50

Table A-2. The Standard Entropies of Water and NaCl(aq), Debye-Huckel Parameter A_S and NaCl Virial Parameters at t and P. $S_1^o(T,P)$ and $\bar{S}_2^o(T,P)$ are Absolute Entropies, i.e., they are Referenced to States Approaching Zero Entropy at 0 K.

t °C	P bar	$S_1^o(T,P)/R$	$\bar{S}_2^o(T,P)/R$	A_S/R $(kg/mol)^{1/2}$	$\beta^{(0)S}_{NaCl}$ kg/mol K	$\beta^{(1)S}_{NaCl}$ kg/mol K	$10^3 C^S_{NaCl}$ kg^2/mol^2 K
0.0	1.0	7.6175	15.177	2.063	0.4493	0.7368	-25.87
10.0	1.0	7.9450	14.512	2.177	0.3704	0.6185	-20.26
20.0	1.0	8.2597	14.065	2.301	0.3166	0.5614	-16.91
25.0	1.0	8.4130	13.886	2.366	0.2953	0.5457	-15.70
30.0	1.0	8.5637	13.726	2.434	0.2766	0.5356	-14.70
40.0	1.0	8.8579	13.446	2.574	0.2450	0.5275	-13.11
50.0	1.0	9.1427	13.201	2.722	0.2189	0.5301	-11.88
60.0	1.0	9.4189	12.975	2.879	0.1966	0.5396	-10.88
70.0	1.0	9.6870	12.763	3.044	0.1776	0.5537	-9.95
80.0	1.0	9.9478	12.544	3.220	0.1603	0.5709	-9.23
90.0	1.0	10.2019	12.317	3.407	0.1446	0.5905	-8.58
100.0	1.0	10.4497	12.078	3.606	0.1301	0.6118	-7.98
110.0	1.4	10.6917	11.822	3.818	0.1166	0.6344	-7.41
120.0	2.0	10.9283	11.546	4.045	0.1037	0.6579	-6.86
130.0	2.7	11.1599	11.246	4.288	0.0915	0.6822	-6.32
140.0	3.6	11.3868	10.918	4.549	0.0797	0.7071	-5.80
150.0	4.8	11.6094	10.561	4.830	0.0684	0.7325	-5.28
160.0	6.2	11.8279	10.168	5.135	0.0573	0.7582	-4.76
170.0	7.9	12.0427	9.738	5.466	0.0466	0.7843	-4.25
180.0	10.0	12.2542	9.263	5.828	0.0363	0.8107	-3.73
190.0	12.5	12.4626	8.740	6.226	0.0265	0.8373	-3.22
200.0	15.5	12.6682	8.160	6.667	0.0173	0.8640	-2.70
210.0	19.1	12.8716	7.515	7.157	0.0088	0.8910	-2.18
220.0	23.2	13.0729	6.794	7.710	0.0014	0.9180	-1.65
230.0	28.0	13.2727	5.983	8.337	-0.0046	0.9452	-1.13
240.0	33.4	13.4712	5.064	9.058	-0.0087	0.9725	-0.59
250.0	39.7	13.6690	4.012	9.899	-0.0104	0.9998	-0.05
260.0	46.9	13.8666	2.795	10.895	-0.0089	1.0272	0.49
270.0	55.0	14.0645	1.362	12.097	-0.0031	1.0547	1.05
280.0	64.1	14.2633	-0.354	13.578	0.0084	1.0823	1.62
290.0	74.4	14.4639	-2.462	15.451	0.0278	1.1099	2.21
300.0	85.8	14.6673	-5.128	17.890	0.0577	1.1376	2.83

Table A-2 (continued). The Standard Entropies of Water and NaCl(aq), Debye-Huckel Parameter A_S and NaCl Virial Parameters at t and P. $S_1^o(T,P)$ and $\bar{S}_2^o(T,P)$ are Absolute Entropies, i.e., they are Referenced to States Approaching Zero Entropy at 0 K.

t ^oC	P bar	$S_1^o(T,P)/R$	$\bar{S}_2^o(T,P)/R$	A_S/R $(kg/mol)^{1/2}$	$\beta_{NaCl}^{(0)S}$ kg/mol K	$\beta_{NaCl}^{(1)S}$ kg/mol K	$10^3C_{NaCl}^S$ kg^2/mol^2 K
0.0	200.0	7.6193	14.687	2.032	0.4037	0.7368	-22.85
10.0	200.0	7.9402	14.189	2.145	0.3398	0.6185	-18.16
20.0	200.0	8.2501	13.850	2.265	0.2951	0.5614	-15.38
25.0	200.0	8.4013	13.711	2.328	0.2771	0.5457	-14.39
30.0	200.0	8.5502	13.586	2.392	0.2611	0.5356	-13.56
40.0	200.0	8.8411	13.365	2.527	0.2337	0.5275	-12.26
50.0	200.0	9.1229	13.169	2.668	0.2108	0.5301	-11.27
60.0	200.0	9.3963	12.986	2.817	0.1911	0.5396	-10.46
70.0	200.0	9.6618	12.807	2.975	0.1737	0.5537	-9.77
80.0	200.0	9.9200	12.627	3.140	0.1581	0.5709	-9.14
90.0	200.0	10.1716	12.439	3.316	0.1437	0.5905	-8.55
100.0	200.0	10.4169	12.239	3.501	0.1303	0.6118	-7.98
110.0	200.0	10.6564	12.022	3.697	0.1175	0.6344	-7.42
120.0	200.0	10.8905	11.787	3.906	0.1053	0.6579	-6.87
130.0	200.0	11.1196	11.528	4.128	0.0933	0.6822	-6.32
140.0	200.0	11.3439	11.245	4.364	0.0816	0.7071	-5.76
150.0	200.0	11.5638	10.934	4.617	0.0698	0.7325	-5.19
160.0	200.0	11.7796	10.593	4.888	0.0581	0.7582	-4.62
170.0	200.0	11.9916	10.216	5.179	0.0462	0.7843	-4.03
180.0	200.0	12.2002	9.802	5.493	0.0343	0.8107	-3.43
190.0	200.0	12.4055	9.345	5.834	0.0222	0.8373	-2.82
200.0	200.0	12.6080	8.840	6.207	0.0101	0.8640	-2.19
210.0	200.0	12.8080	8.280	6.616	-0.0019	0.8910	-1.56
220.0	200.0	13.0059	7.658	7.069	-0.0138	0.9180	-0.90
230.0	200.0	13.2021	6.964	7.576	-0.0252	0.9452	-0.23
240.0	200.0	13.3968	6.185	8.149	-0.0358	0.9725	0.45
250.0	200.0	13.5907	5.304	8.807	-0.0452	0.9998	1.15
260.0	200.0	13.7842	4.299	9.573	-0.0527	1.0272	1.86
270.0	200.0	13.9779	3.136	10.485	-0.0574	1.0547	2.59
280.0	200.0	14.1724	1.769	11.594	-0.0578	1.0823	3.34
290.0	200.0	14.3686	0.124	12.983	-0.0521	1.1099	4.11
300.0	200.0	14.5676	-1.916	14.784	-0.0370	1.1376	4.91

Table A-2 (continued). The Standard Entropies of Water and NaCl(aq), Debye-Huckel Parameter A_S and NaCl Virial Parameters at t and P. $S_1^o(T,P)$ and $\bar{S}_2^o(T,P)$ are Absolute Entropies, i.e., they are Referenced to States Approaching Zero Entropy at 0 K.

t ^oC	P bar	$S_1^o(T,P)/R$	$\bar{S}_2^o(T,P)/R$	A_S/R $(kg/mol)^{1/2}$	$\beta^{(0)S}_{NaCl}$ kg/mol K	$\beta^{(1)S}_{NaCl}$ kg/mol K	$10^3C^S_{NaCl}$ kg^2/mol^2 K
0.0	400.0	7.6179	14.267	2.005	0.3620	0.7368	-19.82
10.0	400.0	7.9336	13.907	2.115	0.3116	0.6185	-16.06
20.0	400.0	8.2394	13.659	2.231	0.2750	0.5614	-13.85
25.0	400.0	8.3889	13.555	2.292	0.2599	0.5457	-13.07
30.0	400.0	8.5362	13.461	2.354	0.2464	0.5356	-12.42
40.0	400.0	8.8241	13.291	2.483	0.2229	0.5275	-11.41
50.0	400.0	9.1032	13.138	2.619	0.2031	0.5301	-10.65
60.0	400.0	9.3741	12.994	2.761	0.1858	0.5396	-10.04
70.0	400.0	9.6372	12.851	2.911	0.1704	0.5537	-9.58
80.0	400.0	9.8931	12.707	3.067	0.1564	0.5709	-9.04
90.0	400.0	10.1424	12.554	3.233	0.1433	0.5905	-8.51
100.0	400.0	10.3854	12.389	3.406	0.1310	0.6118	-7.98
110.0	400.0	10.6227	12.209	3.589	0.1192	0.6344	-7.44
120.0	400.0	10.8545	12.010	3.782	0.1076	0.6579	-6.88
130.0	400.0	11.0812	11.790	3.986	0.0960	0.6822	-6.31
140.0	400.0	11.3031	11.547	4.201	0.0844	0.7071	-5.72
150.0	400.0	11.5205	11.279	4.429	0.0726	0.7325	-5.11
160.0	400.0	11.7336	10.984	4.671	0.0604	0.7582	-4.47
170.0	400.0	11.9427	10.658	4.928	0.0478	0.7843	-3.81
180.0	400.0	12.1482	10.299	5.201	0.0346	0.8107	-3.12
190.0	400.0	12.3502	9.904	5.493	0.0208	0.8373	-2.40
200.0	400.0	12.5491	9.468	5.806	0.0064	0.8640	-1.65
210.0	400.0	12.7452	8.988	6.142	-0.0088	0.8910	-0.87
220.0	400.0	12.9388	8.460	6.506	-0.0247	0.9180	-0.05
230.0	400.0	13.1301	7.875	6.902	-0.0414	0.9452	0.80
240.0	400.0	13.3194	7.229	7.335	-0.0588	0.9725	1.70
250.0	400.0	13.5071	6.513	7.815	-0.0769	0.9998	2.65
260.0	400.0	13.6936	5.714	8.350	-0.0956	1.0272	3.65
270.0	400.0	13.8791	4.821	8.955	-0.1146	1.0547	4.72
280.0	400.0	14.0641	3.814	9.650	-0.1336	1.0823	5.88
290.0	400.0	14.2489	2.670	10.462	-0.1523	1.1099	7.15
300.0	400.0	14.4340	1.354	11.433	-0.1699	1.1376	8.56

Table A-2 (continued). The Standard Entropies of Water and NaCl(aq), Debye-Huckel Parameter A_S and NaCl Virial Parameters at t and P. $S_1^o(T,P)$ and $\bar{S}_2^o(T,P)$ are Absolute Entropies, i.e., they are Referenced to States Approaching Zero Entropy at 0 K.

t °C	P bar	$S_1^o(T,P)/R$	$\bar{S}_2^o(T,P)/R$	A_S/R $(kg/mol)^{1/2}$	$\beta^{(0)S}_{NaCl}$ kg/mol K	$\beta^{(1)S}_{NaCl}$ kg/mol K	$10^3 C^S_{NaCl}$ kg^2/mol^2 K
0.0	600.0	7.6138	13.914	1.980	0.3243	0.7368	-16.78
10.0	600.0	7.9253	13.665	2.088	0.2857	0.6185	-13.96
20.0	600.0	8.2277	13.491	2.201	0.2563	0.5614	-12.32
25.0	600.0	8.3758	13.417	2.259	0.2439	0.5457	-11.75
30.0	600.0	8.5216	13.348	2.319	0.2326	0.5356	-11.28
40.0	600.0	8.8069	13.223	2.444	0.2127	0.5275	-10.56
50.0	600.0	9.0837	13.109	2.574	0.1956	0.5301	-10.03
60.0	600.0	9.3524	12.999	2.710	0.1807	0.5396	-9.62
70.0	600.0	9.6133	12.892	2.852	0.1675	0.5537	-9.40
80.0	600.0	9.8672	12.780	3.001	0.1550	0.5709	-8.95
90.0	600.0	10.1144	12.660	3.158	0.1432	0.5905	-8.48
100.0	600.0	10.3554	12.526	3.321	0.1320	0.6118	-7.98
110.0	600.0	10.5906	12.378	3.493	0.1209	0.6344	-7.46
120.0	600.0	10.8203	12.212	3.673	0.1100	0.6579	-6.90
130.0	600.0	11.0449	12.026	3.861	0.0989	0.6822	-6.31
140.0	600.0	11.2647	11.818	4.059	0.0876	0.7071	-5.68
150.0	600.0	11.4798	11.587	4.267	0.0758	0.7325	-5.02
160.0	600.0	11.6906	11.331	4.486	0.0634	0.7582	-4.32
170.0	600.0	11.8973	11.048	4.715	0.0503	0.7843	-3.58
180.0	600.0	12.1002	10.735	4.957	0.0363	0.8107	-2.80
190.0	600.0	12.2995	10.389	5.211	0.0213	0.8373	-1.97
200.0	600.0	12.4954	10.008	5.480	0.0052	0.8640	-1.10
210.0	600.0	12.6883	9.589	5.764	-0.0123	0.8910	-0.18
220.0	600.0	12.8784	9.128	6.065	-0.0312	0.9180	0.80
230.0	600.0	13.0659	8.620	6.385	-0.0518	0.9452	1.84
240.0	600.0	13.2511	8.062	6.726	-0.0742	0.9725	2.95
250.0	600.0	13.4343	7.446	7.092	-0.0988	0.9998	4.15
260.0	600.0	13.6157	6.766	7.487	-0.1257	1.0272	5.44
270.0	600.0	13.7955	6.014	7.915	-0.1555	1.0547	6.85
280.0	600.0	13.9741	5.178	8.384	-0.1885	1.0823	8.42
290.0	600.0	14.1516	4.245	8.902	-0.2255	1.1099	10.18
300.0	600.0	14.3285	3.198	9.483	-0.2676	1.1376	12.21

Table A-2 (continued). The Standard Entropies of Water and NaCl(aq), Debye-Huckel Parameter A_S and NaCl Virial Parameters at t and P. $S_1^o(T,P)$ and $\bar{S}_2^o(T,P)$ are Absolute Entropies, i.e., they are Referenced to States Approaching Zero Entropy at 0 K.

t ^oC	P bar	$S_1^o(T,P)/R$	$\bar{S}_2^o(T,P)/R$	A_S/R $(kg/mol)^{1/2}$	$\beta^{(0)S}_{NaCl}$ kg/mol K	$\beta^{(1)S}_{NaCl}$ kg/mol K	$10^3 C^S_{NaCl}$ kg^2/mol^2 K
0.0	800.0	7.6075	13.621	1.959	0.2903	0.7368	-13.75
10.0	800.0	7.9156	13.459	2.063	0.2620	0.6185	-11.85
20.0	800.0	8.2152	13.345	2.173	0.2390	0.5614	-10.79
25.0	800.0	8.3620	13.295	2.229	0.2289	0.5457	-10.42
30.0	800.0	8.5066	13.249	2.287	0.2195	0.5356	-10.14
40.0	800.0	8.7897	13.162	2.407	0.2029	0.5275	-9.71
50.0	800.0	9.0644	13.081	2.532	0.1884	0.5301	-9.41
60.0	800.0	9.3310	13.003	2.663	0.1757	0.5396	-9.20
70.0	800.0	9.5900	12.929	2.799	0.1648	0.5537	-9.21
80.0	800.0	9.8420	12.846	2.941	0.1537	0.5709	-8.85
90.0	800.0	10.0873	12.754	3.090	0.1430	0.5905	-8.44
100.0	800.0	10.3265	12.649	3.245	0.1327	0.6118	-7.98
110.0	800.0	10.5598	12.528	3.407	0.1224	0.6344	-7.47
120.0	800.0	10.7877	12.391	3.575	0.1120	0.6579	-6.91
130.0	800.0	11.0105	12.234	3.751	0.1014	0.6822	-6.30
140.0	800.0	11.2283	12.057	3.935	0.0903	0.7071	-5.64
150.0	800.0	11.4415	11.858	4.126	0.0786	0.7325	-4.93
160.0	800.0	11.6502	11.636	4.326	0.0661	0.7582	-4.17
170.0	800.0	11.8548	11.388	4.534	0.0527	0.7843	-3.35
180.0	800.0	12.0554	11.113	4.751	0.0382	0.8107	-2.48
190.0	800.0	12.2524	10.808	4.976	0.0223	0.8373	-1.55
200.0	800.0	12.4459	10.472	5.212	0.0049	0.8640	-0.55
210.0	800.0	12.6361	10.101	5.457	-0.0142	0.8910	0.51
220.0	800.0	12.8233	9.692	5.712	-0.0354	0.9180	1.65
230.0	800.0	13.0078	9.241	5.978	-0.0588	0.9452	2.88
240.0	800.0	13.1897	8.745	6.257	-0.0850	0.9725	4.21
250.0	800.0	13.3693	8.198	6.547	-0.1143	0.9998	5.65
260.0	800.0	13.5467	7.595	6.851	-0.1473	1.0272	7.23
270.0	800.0	13.7223	6.926	7.170	-0.1849	1.0547	8.98
280.0	800.0	13.8962	6.183	7.505	-0.2281	1.0823	10.96
290.0	800.0	14.0685	5.352	7.860	-0.2785	1.1099	13.22
300.0	800.0	14.2396	4.415	8.235	-0.3385	1.1376	15.86

Table A-2 (continued). The Standard Entropies of Water and NaCl(aq), Debye-Huckel Parameter A_S and NaCl Virial Parameters at t and P. $S_1^o(T,P)$ and $\bar{S}_2^o(T,P)$ are Absolute Entropies, i.e., they are Referenced to States Approaching Zero Entropy at 0 K.

t ^oC	P bar	$S_1^o(T,P)/R$	$\bar{S}_2^o(T,P)/R$	A_S/R $(kg/mol)^{1/2}$	$\beta^{(0)S}_{NaCl}$ kg/mol K	$\beta^{(1)S}_{NaCl}$ kg/mol K	$10^3C^S_{NaCl}$ kg^2/mol^2 K
0.0	1000.0	7.5993	13.382	1.940	0.2598	0.7368	-10.71
10.0	1000.0	7.9047	13.285	2.041	0.2404	0.6185	-9.75
20.0	1000.0	8.2020	13.219	2.147	0.2228	0.5614	-9.26
25.0	1000.0	8.3476	13.189	2.202	0.2148	0.5457	-9.10
30.0	1000.0	8.4913	13.160	2.258	0.2072	0.5356	-8.99
40.0	1000.0	8.7723	13.106	2.373	0.1935	0.5275	-8.86
50.0	1000.0	9.0451	13.055	2.494	0.1814	0.5301	-8.80
60.0	1000.0	9.3099	13.005	2.619	0.1708	0.5396	-8.78
70.0	1000.0	9.5672	12.960	2.750	0.1621	0.5537	-9.02
80.0	1000.0	9.8174	12.902	2.886	0.1522	0.5709	-8.76
90.0	1000.0	10.0611	12.834	3.028	0.1424	0.5905	-8.41
100.0	1000.0	10.2986	12.753	3.176	0.1328	0.6118	-7.98
110.0	1000.0	10.5303	12.657	3.329	0.1231	0.6344	-7.49
120.0	1000.0	10.7565	12.543	3.488	0.1132	0.6579	-6.93
130.0	1000.0	10.9776	12.412	3.653	0.1028	0.6822	-6.30
140.0	1000.0	11.1937	12.261	3.825	0.0919	0.7071	-5.61
150.0	1000.0	11.4051	12.089	4.003	0.0802	0.7325	-4.85
160.0	1000.0	11.6121	11.895	4.187	0.0676	0.7582	-4.02
170.0	1000.0	11.8148	11.677	4.377	0.0539	0.7843	-3.13
180.0	1000.0	12.0135	11.433	4.574	0.0388	0.8107	-2.17
190.0	1000.0	12.2084	11.162	4.777	0.0222	0.8373	-1.13
200.0	1000.0	12.3997	10.862	4.987	0.0038	0.8640	-0.01
210.0	1000.0	12.5877	10.529	5.202	-0.0166	0.8910	1.20
220.0	1000.0	12.7725	10.161	5.424	-0.0394	0.9180	2.50
230.0	1000.0	12.9544	9.755	5.651	-0.0651	0.9452	3.92
240.0	1000.0	13.1336	9.307	5.884	-0.0940	0.9725	5.46
250.0	1000.0	13.3102	8.811	6.123	-0.1267	0.9998	7.15
260.0	1000.0	13.4845	8.262	6.366	-0.1642	1.0272	9.02
270.0	1000.0	13.6567	7.651	6.614	-0.2075	1.0547	11.11
280.0	1000.0	13.8269	6.967	6.866	-0.2581	1.0823	13.49
290.0	1000.0	13.9953	6.196	7.121	-0.3181	1.1099	16.25
300.0	1000.0	14.1621	5.316	7.380	-0.3908	1.1376	19.51

Table A-3. The Standard Enthalpies of Water and NaCl(aq), Debye-Huckel Parameter A_L and NaCl Virial Parameters at t and P. H_1^o is the Enthalpy of Water, $H_1^o(T,P) - H_1^o(0\ K,$ ideal gas) and $\bar{H}_2^o$ the Enthalpy of NaCl(aq) in its Standard State, $\bar{H}_2^o(T,P) - \bar{H}_2^o(298\ K,\ 1\ atm)$.

t	P	H_1^o/RT	$\bar{H}_2^o/RT$	A_L/RT	$10^3\beta^{(0)L}_{NaCl}$	$10^3\beta^{(1)L}_{NaCl}$	$10^3C^L_{NaCl}$
^oC	bar			$(kg/mol)^{1/2}$	kg/mol K	kg/mol K	kg^2/mol^2 K
0.0	1.0	-15.8463	1.341	0.556	1.465	1.796	-0.104
10.0	1.0	-14.9650	0.641	0.649	1.089	1.262	-0.077
20.0	1.0	-14.1452	0.181	0.749	0.836	0.986	-0.061
25.0	1.0	-13.7560	0.000	0.801	0.738	0.901	-0.055
30.0	1.0	-13.3796	-0.159	0.854	0.652	0.839	-0.050
40.0	1.0	-12.6629	-0.429	0.965	0.512	0.761	-0.042
50.0	1.0	-11.9906	-0.657	1.081	0.401	0.722	-0.036
60.0	1.0	-11.3587	-0.860	1.203	0.312	0.708	-0.030
70.0	1.0	-10.7635	-1.044	1.331	0.239	0.707	-0.026
80.0	1.0	-10.2016	-1.231	1.467	0.177	0.716	-0.023
90.0	1.0	-9.6701	-1.420	1.611	0.125	0.730	-0.020
100.0	1.0	-9.1665	-1.619	1.764	0.080	0.748	-0.017
110.0	1.4	-8.6882	-1.829	1.927	0.041	0.768	-0.015
120.0	2.0	-8.2333	-2.055	2.102	0.007	0.788	-0.012
130.0	2.7	-7.7999	-2.300	2.290	-0.023	0.809	-0.011
140.0	3.6	-7.3865	-2.567	2.492	-0.050	0.830	-0.009
150.0	4.8	-6.9914	-2.860	2.712	-0.075	0.850	-0.007
160.0	6.2	-6.6132	-3.181	2.951	-0.096	0.870	-0.006
170.0	7.9	-6.2506	-3.535	3.213	-0.116	0.890	-0.004
180.0	10.0	-5.9025	-3.926	3.500	-0.133	0.909	-0.003
190.0	12.5	-5.5675	-4.359	3.819	-0.149	0.926	-0.002
200.0	15.5	-5.2448	-4.841	4.175	-0.162	0.944	-0.001
210.0	19.1	-4.9332	-5.379	4.576	-0.172	0.960	0.001
220.0	23.2	-4.6317	-5.985	5.032	-0.180	0.976	0.002
230.0	28.0	-4.3394	-6.670	5.556	-0.185	0.991	0.003
240.0	33.4	-4.0554	-7.452	6.165	-0.186	1.005	0.003
250.0	39.7	-3.7787	-8.355	6.885	-0.182	1.019	0.004
260.0	46.9	-3.5085	-9.409	7.749	-0.172	1.032	0.005
270.0	55.0	-3.2437	-10.663	8.806	-0.155	1.045	0.006
280.0	64.1	-2.9833	-12.182	10.126	-0.128	1.057	0.007
290.0	74.4	-2.7261	-14.069	11.818	-0.089	1.068	0.008
300.0	85.8	-2.4710	-16.487	14.052	-0.033	1.079	0.008

Table A-3 (continued). The Standard Enthalpies of Water and NaCl(aq), Debye-Huckel Parameter A_L and NaCl Virial Parameters at t and P. H_1^o is the Enthalpy of Water, $H_1^o(T,P) - H_1^o(0\ K,\ ideal\ gas)$ and $\bar{H}_2^o$ the Enthalpy of NaCl(aq) in its Standard State, $\bar{H}_2^o(T,P) - \bar{H}_2^o(298\ K, 1\ atm)$.

t °C	P bar	H_1^o/RT	$\bar{H}_2^o/RT$	A_L/RT $(kg/mol)^{1/2}$	$10^3\beta^{(0)L}_{NaCl}$ kg/mol K	$10^3\beta^{(1)L}_{NaCl}$ kg/mol K	$10^3C^L_{NaCl}$ $kg^2/mol^2\ K$
0.0	200.0	-15.6874	0.972	0.538	1.278	1.796	-0.092
10.0	200.0	-14.8182	0.450	0.630	0.968	1.262	-0.069
20.0	200.0	-14.0081	0.102	0.727	0.754	0.986	-0.055
25.0	200.0	-13.6232	-0.037	0.777	0.669	0.901	-0.050
30.0	200.0	-13.2508	-0.161	0.828	0.594	0.839	-0.046
40.0	200.0	-12.5415	-0.373	0.934	0.471	0.761	-0.039
50.0	200.0	-11.8760	-0.555	1.044	0.373	0.722	-0.033
60.0	200.0	-11.2502	-0.718	1.160	0.292	0.708	-0.029
70.0	200.0	-10.6608	-0.873	1.281	0.226	0.707	-0.025
80.0	200.0	-10.1043	-1.026	1.408	0.169	0.716	-0.022
90.0	200.0	-9.5780	-1.183	1.542	0.121	0.730	-0.019
100.0	200.0	-9.0793	-1.349	1.684	0.079	0.748	-0.017
110.0	200.0	-8.6060	-1.528	1.834	0.042	0.768	-0.015
120.0	200.0	-8.1560	-1.722	1.993	0.010	0.788	-0.013
130.0	200.0	-7.7274	-1.934	2.163	-0.020	0.809	-0.011
140.0	200.0	-7.3188	-2.167	2.344	-0.047	0.830	-0.009
150.0	200.0	-6.9285	-2.423	2.538	-0.073	0.850	-0.007
160.0	200.0	-6.5553	-2.705	2.747	-0.096	0.870	-0.005
170.0	200.0	-6.1977	-3.016	2.973	-0.118	0.890	-0.004
180.0	200.0	-5.8548	-3.359	3.219	-0.139	0.909	-0.002
190.0	200.0	-5.5252	-3.739	3.487	-0.159	0.926	-0.001
200.0	200.0	-5.2081	-4.160	3.781	-0.178	0.944	0.000
210.0	200.0	-4.9023	-4.628	4.108	-0.195	0.960	0.002
220.0	200.0	-4.6071	-5.150	4.473	-0.211	0.976	0.003
230.0	200.0	-4.3213	-5.735	4.886	-0.225	0.991	0.004
240.0	200.0	-4.0442	-6.395	5.359	-0.237	1.005	0.005
250.0	200.0	-3.7749	-7.145	5.908	-0.246	1.019	0.006
260.0	200.0	-3.5124	-8.007	6.557	-0.251	1.032	0.008
270.0	200.0	-3.2558	-9.012	7.339	-0.250	1.045	0.009
280.0	200.0	-3.0042	-10.204	8.306	-0.242	1.057	0.010
290.0	200.0	-2.7564	-11.654	9.536	-0.223	1.068	0.011
300.0	200.0	-2.5111	-13.474	11.156	-0.189	1.079	0.012

Table A-3 (continued). The Standard Enthalpies of Water and NaCl(aq), Debye-Huckel Parameter A_L and NaCl Virial Parameters at t and P. H_1^o is the Enthalpy of Water, $H_1^o(T,P) - H_1^o(0\ K,\ ideal\ gas)$ and $\bar{H}_2^o$ the Enthalpy of NaCl(aq) in its Standard State, $\bar{H}_2^o(T,P) - \bar{H}_2^o(298\ K,\ 1\ atm)$.

t °C	P bar	H_1^o/RT	$\bar{H}_2^o/RT$	A_L/RT $(kg/mol)^{1/2}$	$10^3\beta^{(0)L}_{NaCl}$ kg/mol K	$10^3\beta^{(1)L}_{NaCl}$ kg/mol K	$10^3C^L_{NaCl}$ kg^2/mol^2 K
0.0	400.0	-15.5324	0.686	0.524	1.108	1.796	-0.080
10.0	400.0	-14.6738	0.309	0.613	0.856	1.262	-0.061
20.0	400.0	-13.8727	0.054	0.707	0.676	0.986	-0.050
25.0	400.0	-13.4917	-0.049	0.755	0.604	0.901	-0.045
30.0	400.0	-13.1232	-0.142	0.805	0.540	0.839	-0.042
40.0	400.0	-12.4208	-0.305	0.906	0.432	0.761	-0.036
50.0	400.0	-11.7616	-0.446	1.011	0.345	0.722	-0.031
60.0	400.0	-11.1418	-0.574	1.121	0.274	0.708	-0.028
70.0	400.0	-10.5578	-0.698	1.236	0.214	0.707	-0.025
80.0	400.0	-10.0066	-0.820	1.355	0.163	0.716	-0.022
90.0	400.0	-9.4852	-0.948	1.481	0.119	0.730	-0.019
100.0	400.0	-8.9913	-1.085	1.613	0.080	0.748	-0.017
110.0	400.0	-8.5225	-1.236	1.751	0.045	0.768	-0.015
120.0	400.0	-8.0768	-1.401	1.897	0.014	0.788	-0.013
130.0	400.0	-7.6526	-1.583	2.051	-0.015	0.809	-0.011
140.0	400.0	-7.2482	-1.784	2.214	-0.042	0.830	-0.009
150.0	400.0	-6.8621	-2.007	2.387	-0.068	0.850	-0.007
160.0	400.0	-6.4930	-2.253	2.571	-0.092	0.870	-0.005
170.0	400.0	-6.1397	-2.524	2.767	-0.116	0.890	-0.003
180.0	400.0	-5.8011	-2.824	2.976	-0.140	0.909	-0.002
190.0	400.0	-5.4760	-3.154	3.201	-0.164	0.926	0.000
200.0	400.0	-5.1634	-3.518	3.443	-0.187	0.944	0.002
210.0	400.0	-4.8625	-3.920	3.704	-0.210	0.960	0.003
220.0	400.0	-4.5723	-4.364	3.990	-0.234	0.976	0.005
230.0	400.0	-4.2921	-4.856	4.302	-0.258	0.991	0.006
240.0	400.0	-4.0209	-5.401	4.648	-0.281	1.005	0.008
250.0	400.0	-3.7581	-6.008	5.034	-0.305	1.019	0.009
260.0	400.0	-3.5029	-6.686	5.470	-0.328	1.032	0.011
270.0	400.0	-3.2546	-7.448	5.969	-0.351	1.045	0.012
280.0	400.0	-3.0125	-8.312	6.549	-0.372	1.057	0.014
290.0	400.0	-2.7758	-9.299	7.238	-0.392	1.068	0.016
300.0	400.0	-2.5439	-10.441	8.075	-0.409	1.079	0.017

Table A-3 (continued). The Standard Enthalpies of Water and NaCl(aq), Debye-Huckel Parameter A_L and NaCl Virial Parameters at t and P. H_1^o is the Enthalpy of Water, $H_1^o(T,P) - H_1^o(0\ K$, ideal gas) and $\bar{H}_2^o$ the Enthalpy of NaCl(aq) in its Standard State, $\bar{H}_2^o(T,P) - \bar{H}_2^o(298\ K, 1\ atm)$.

t °C	P bar	H_1^o/RT	$\bar{H}_2^o/RT$	A_L/RT (kg/mol)$^{1/2}$	$10^3\beta^{(0)L}_{NaCl}$ kg/mol K	$10^3\beta^{(1)L}_{NaCl}$ kg/mol K	$10^3C^L_{NaCl}$ kg^2/mol^2 K
0.0	600.0	-15.3815	0.475	0.512	0.954	1.796	-0.067
10.0	600.0	-14.5323	0.215	0.599	0.754	1.262	-0.053
20.0	600.0	-13.7394	0.036	0.690	0.605	0.986	-0.044
25.0	600.0	-13.3622	-0.038	0.736	0.543	0.901	-0.040
30.0	600.0	-12.9971	-0.105	0.784	0.488	0.839	-0.038
40.0	600.0	-12.3013	-0.225	0.881	0.395	0.761	-0.033
50.0	600.0	-11.6482	-0.331	0.982	0.319	0.722	-0.029
60.0	600.0	-11.0340	-0.429	1.086	0.256	0.708	-0.026
70.0	600.0	-10.4553	-0.521	1.195	0.204	0.707	-0.024
80.0	600.0	-9.9090	-0.616	1.308	0.158	0.716	-0.022
90.0	600.0	-9.3923	-0.718	1.426	0.117	0.730	-0.019
100.0	600.0	-8.9029	-0.831	1.550	0.081	0.748	-0.017
110.0	600.0	-8.4384	-0.956	1.678	0.049	0.768	-0.015
120.0	600.0	-7.9969	-1.096	1.813	0.019	0.788	-0.013
130.0	600.0	-7.5767	-1.252	1.955	-0.009	0.809	-0.010
140.0	600.0	-7.1763	-1.427	2.103	-0.036	0.830	-0.008
150.0	600.0	-6.7941	-1.621	2.259	-0.062	0.850	-0.007
160.0	600.0	-6.4289	-1.837	2.423	-0.087	0.870	-0.005
170.0	600.0	-6.0795	-2.076	2.595	-0.113	0.890	-0.003
180.0	600.0	-5.7447	-2.340	2.777	-0.138	0.909	-0.001
190.0	600.0	-5.4235	-2.631	2.968	-0.164	0.926	0.001
200.0	600.0	-5.1150	-2.952	3.172	-0.191	0.944	0.003
210.0	600.0	-4.8182	-3.306	3.387	-0.219	0.960	0.004
220.0	600.0	-4.5324	-3.696	3.616	-0.248	0.976	0.006
230.0	600.0	-4.2567	-4.125	3.861	-0.279	0.991	0.008
240.0	600.0	-3.9903	-4.598	4.124	-0.312	1.005	0.010
250.0	600.0	-3.7326	-5.120	4.408	-0.346	1.019	0.012
260.0	600.0	-3.4829	-5.697	4.716	-0.384	1.032	0.014
270.0	600.0	-3.2406	-6.338	5.053	-0.424	1.045	0.016
280.0	600.0	-3.0051	-7.052	5.426	-0.468	1.057	0.018
290.0	600.0	-2.7758	-7.851	5.844	-0.516	1.068	0.020
300.0	600.0	-2.5521	-8.753	6.318	-0.571	1.079	0.023

Table A-3 (continued). The Standard Enthalpies of Water and NaCl(aq), Debye-Huckel Parameter A_L and NaCl Virial Parameters at t and P. H_1^o is the Enthalpy of Water, $H_1^o(T,P) - H_1^o(0\ K, \text{ideal gas})$ and $\bar{H}_2^o$ the Enthalpy of NaCl(aq) in its Standard State, $\bar{H}_2^o(T,P) - \bar{H}_2^o(298\ K, 1\ atm)$.

t °C	P bar	H_1^o/RT	$\bar{H}_2^o/RT$	A_L/RT $(kg/mol)^{1/2}$	$10^3\beta^{(0)L}_{NaCl}$ kg/mol K	$10^3\beta^{(1)L}_{NaCl}$ kg/mol K	$10^3C^L_{NaCl}$ kg^2/mol^2 K
0.0	800.0	-15.2342	0.333	0.502	0.814	1.796	-0.055
10.0	800.0	-14.3935	0.163	0.587	0.660	1.262	-0.045
20.0	800.0	-13.6081	0.045	0.674	0.538	0.986	-0.038
25.0	800.0	-13.2343	-0.005	0.719	0.487	0.901	-0.036
30.0	800.0	-12.8726	-0.051	0.765	0.440	0.839	-0.033
40.0	800.0	-12.1830	-0.135	0.858	0.360	0.761	-0.030
50.0	800.0	-11.5356	-0.210	0.955	0.294	0.722	-0.027
60.0	800.0	-10.9267	-0.281	1.055	0.239	0.708	-0.025
70.0	800.0	-10.3531	-0.345	1.158	0.195	0.707	-0.024
80.0	800.0	-9.8116	-0.416	1.266	0.153	0.716	-0.021
90.0	800.0	-9.2994	-0.496	1.378	0.116	0.730	-0.019
100.0	800.0	-8.8143	-0.587	1.494	0.082	0.748	-0.017
110.0	800.0	-8.3539	-0.690	1.614	0.051	0.768	-0.015
120.0	800.0	-7.9164	-0.809	1.740	0.023	0.788	-0.013
130.0	800.0	-7.5001	-0.943	1.871	-0.004	0.809	-0.010
140.0	800.0	-7.1034	-1.095	2.007	-0.031	0.830	-0.008
150.0	800.0	-6.7249	-1.266	2.148	-0.057	0.850	-0.006
160.0	800.0	-6.3633	-1.456	2.296	-0.082	0.870	-0.004
170.0	800.0	-6.0174	-1.669	2.450	-0.109	0.890	-0.002
180.0	800.0	-5.6862	-1.904	2.610	-0.136	0.909	0.000
190.0	800.0	-5.3686	-2.164	2.777	-0.164	0.926	0.002
200.0	800.0	-5.0637	-2.451	2.951	-0.193	0.944	0.004
210.0	800.0	-4.7707	-2.768	3.133	-0.225	0.960	0.006
220.0	800.0	-4.4886	-3.117	3.322	-0.258	0.976	0.008
230.0	800.0	-4.2168	-3.501	3.520	-0.294	0.991	0.010
240.0	800.0	-3.9545	-3.924	3.727	-0.333	1.005	0.012
250.0	800.0	-3.7010	-4.391	3.943	-0.376	1.019	0.014
260.0	800.0	-3.4558	-4.907	4.170	-0.423	1.032	0.017
270.0	800.0	-3.2182	-5.479	4.410	-0.477	1.045	0.019
280.0	800.0	-2.9878	-6.116	4.662	-0.537	1.057	0.022
290.0	800.0	-2.7639	-6.831	4.930	-0.607	1.068	0.025
300.0	800.0	-2.5461	-7.641	5.217	-0.690	1.079	0.029

Table A-3 (continued). The Standard Enthalpies of Water and NaCl(aq), Debye-Huckel Parameter A_L and NaCl Virial Parameters at t and P. H_1^o is the Enthalpy of Water, $H_1^o(T,P) - H_1^o(0\ K, \text{ideal gas})$ and $\bar{H}_2^o$ the Enthalpy of NaCl(aq) in its Standard State, $\bar{H}_2^o(T,P) - \bar{H}_2^o(298\ K, 1\ atm)$.

t	P	H_1^o/RT	$\bar{H}_2^o/RT$	A_L/RT	$10^3\beta^{(0)L}_{NaCl}$	$10^3\beta^{(1)L}_{NaCl}$	$10^3C^L_{NaCl}$
°C	bar			$(kg/mol)^{1/2}$	kg/mol K	kg/mol K	kg^2/mol^2 K
0.0	1000.0	-15.0900	0.253	0.495	0.688	1.796	-0.043
10.0	1000.0	-14.2571	0.149	0.577	0.573	1.262	-0.036
20.0	1000.0	-13.4786	0.079	0.661	0.476	0.986	-0.032
25.0	1000.0	-13.1081	0.047	0.704	0.433	0.901	-0.031
30.0	1000.0	-12.7495	0.018	0.748	0.394	0.839	-0.029
40.0	1000.0	-12.0658	-0.036	0.838	0.326	0.761	-0.027
50.0	1000.0	-11.4238	-0.085	0.931	0.270	0.722	-0.025
60.0	1000.0	-10.8201	-0.131	1.026	0.222	0.708	-0.024
70.0	1000.0	-10.2513	-0.171	1.125	0.186	0.707	-0.023
80.0	1000.0	-9.7144	-0.223	1.228	0.147	0.716	-0.021
90.0	1000.0	-9.2066	-0.284	1.334	0.113	0.730	-0.019
100.0	1000.0	-8.7255	-0.356	1.444	0.082	0.748	-0.017
110.0	1000.0	-8.2691	-0.442	1.557	0.052	0.768	-0.015
120.0	1000.0	-7.8355	-0.543	1.675	0.025	0.788	-0.013
130.0	1000.0	-7.4228	-0.659	1.797	-0.002	0.809	-0.010
140.0	1000.0	-7.0297	-0.792	1.923	-0.028	0.830	-0.008
150.0	1000.0	-6.6546	-0.943	2.053	-0.054	0.850	-0.006
160.0	1000.0	-6.2964	-1.114	2.188	-0.080	0.870	-0.004
170.0	1000.0	-5.9539	-1.304	2.326	-0.107	0.890	-0.002
180.0	1000.0	-5.6261	-1.516	2.470	-0.135	0.909	0.000
190.0	1000.0	-5.3118	-1.752	2.617	-0.165	0.926	0.003
200.0	1000.0	-5.0102	-2.012	2.769	-0.197	0.944	0.005
210.0	1000.0	-4.7205	-2.300	2.925	-0.230	0.960	0.007
220.0	1000.0	-4.4418	-2.617	3.085	-0.267	0.976	0.009
230.0	1000.0	-4.1735	-2.967	3.249	-0.307	0.991	0.012
240.0	1000.0	-3.9147	-3.353	3.417	-0.351	1.005	0.014
250.0	1000.0	-3.6649	-3.780	3.588	-0.400	1.019	0.017
260.0	1000.0	-3.4235	-4.254	3.761	-0.454	1.032	0.020
270.0	1000.0	-3.1899	-4.781	3.938	-0.517	1.045	0.023
280.0	1000.0	-2.9636	-5.372	4.116	-0.589	1.057	0.026
290.0	1000.0	-2.7440	-6.041	4.296	-0.674	1.068	0.030
300.0	1000.0	-2.5308	-6.809	4.477	-0.776	1.079	0.035

Table A-4. The Standard Heat Capacities of Water and NaCl(aq), Debye-Huckel Parameter A_J and NaCl Virial Parameters at t and P. $C^o_{p,1}$ is the heat capacity of water and $\bar{C}^o_{p,2}$ the heat capacity of NaCl(aq) in its standard state.

t °C	P bar	$C^o_{p,1}/R$	$\bar{C}^o_{p,2}/R$	A_J/R $(kg/mol)^{1/2}$	$10^6\beta^{(0)J}_{NaCl}$ $kg/mol\ K^2$	$10^6\beta^{(1)J}_{NaCl}$ $kg/mol\ K^2$	$10^6C^J_{NaCl}$ $(kg/mol\ K)^2$
0.0	1.0	9.163	-23.15	2.95	-36.07	-61.31	2.728
10.0	1.0	9.075	-14.94	3.39	-22.46	-28.42	1.486
20.0	1.0	9.064	-11.20	3.76	-15.57	-13.06	0.908
25.0	1.0	9.065	-10.08	3.94	-13.34	-8.47	0.735
30.0	1.0	9.064	-9.24	4.13	-11.61	-5.08	0.607
40.0	1.0	9.062	-8.13	4.51	-9.11	-0.62	0.439
50.0	1.0	9.061	-7.53	4.92	-7.42	2.01	0.340
60.0	1.0	9.063	-7.32	5.37	-6.23	3.62	0.279
70.0	1.0	9.072	-7.48	5.86	-5.32	4.62	0.224
80.0	1.0	9.088	-7.85	6.40	-4.66	5.26	0.193
90.0	1.0	9.110	-8.44	7.00	-4.14	5.65	0.172
100.0	1.0	9.138	-9.22	7.66	-3.75	5.89	0.157
110.0	1.4	9.170	-10.19	8.40	-3.43	6.03	0.146
120.0	2.0	9.206	-11.34	9.24	-3.18	6.09	0.137
130.0	2.7	9.247	-12.67	10.17	-2.97	6.11	0.131
140.0	3.6	9.292	-14.20	11.23	-2.80	6.09	0.126
150.0	4.8	9.343	-15.95	12.45	-2.65	6.05	0.122
160.0	6.2	9.401	-17.95	13.84	-2.51	5.99	0.119
170.0	7.9	9.466	-20.24	15.47	-2.37	5.92	0.116
180.0	10.0	9.541	-22.88	17.38	-2.22	5.84	0.113
190.0	12.5	9.627	-25.94	19.65	-2.04	5.76	0.110
200.0	15.5	9.727	-29.53	22.38	-1.84	5.67	0.108
210.0	19.1	9.842	-33.76	25.72	-1.59	5.59	0.105
220.0	23.2	9.975	-38.83	29.85	-1.28	5.50	0.103
230.0	28.0	10.130	-44.99	35.05	-0.88	5.41	0.100
240.0	33.4	10.311	-52.62	41.73	-0.38	5.32	0.097
250.0	39.7	10.523	-62.28	50.46	0.27	5.24	0.094
260.0	46.9	10.775	-74.81	62.15	1.11	5.15	0.091
270.0	55.0	11.075	-91.56	78.18	2.21	5.07	0.087
280.0	64.1	11.438	-114.67	100.78	3.66	4.99	0.082
290.0	74.4	11.885	-147.79	133.69	5.61	4.91	0.078
300.0	85.8	12.449	-197.33	183.42	8.27	4.83	0.072

Table A-4 (continued). The Standard Heat Capacities of Water and NaCl(aq), Debye-Huckel Parameter A_J and NaCl Virial Parameters at t and P. $C^o_{p,1}$ is the Heat Capacity of Water and $\bar{C}^o_{p,2}$ the Heat Capacity of NaCl(aq) in its Standard State.

t	P	$C^o_{p,1}/R$	$\bar{C}^o_{p,2}/R$	A_J/R	$10^6\beta^{(0)J}_{NaCl}$	$10^6\beta^{(1)J}_{NaCl}$	$10^6C^J_{NaCl}$
°C	bar			$(kg/mol)^{1/2}$	kg/mol K^2	kg/mol K^2	$(kg/mol\ K)^2$
0.0	200.0	8.950	-17.30	2.94	-28.78	-61.31	2.283
10.0	200.0	8.919	-11.25	3.30	-18.46	-28.42	1.238
20.0	200.0	8.939	-8.60	3.63	-13.12	-13.06	0.751
25.0	200.0	8.949	-7.82	3.80	-11.36	-8.47	0.606
30.0	200.0	8.956	-7.23	3.97	-9.97	-5.08	0.499
40.0	200.0	8.964	-6.47	4.32	-7.94	-0.62	0.358
50.0	200.0	8.968	-6.07	4.69	-6.54	2.01	0.274
60.0	200.0	8.973	-5.97	5.10	-5.53	3.62	0.223
70.0	200.0	8.983	-6.10	5.54	-4.79	4.62	0.193
80.0	200.0	8.998	-6.47	6.02	-4.23	5.26	0.172
90.0	200.0	9.019	-7.03	6.54	-3.81	5.65	0.159
100.0	200.0	9.043	-7.76	7.12	-3.49	5.89	0.150
110.0	200.0	9.072	-8.65	7.75	-3.25	6.03	0.144
120.0	200.0	9.103	-9.69	8.45	-3.07	6.09	0.140
130.0	200.0	9.137	-10.89	9.23	-2.94	6.11	0.138
140.0	200.0	9.175	-12.25	10.09	-2.84	6.09	0.136
150.0	200.0	9.217	-13.79	11.06	-2.77	6.05	0.135
160.0	200.0	9.263	-15.52	12.15	-2.72	5.99	0.134
170.0	200.0	9.315	-17.49	13.40	-2.68	5.92	0.134
180.0	200.0	9.375	-19.71	14.83	-2.65	5.84	0.134
190.0	200.0	9.442	-22.24	16.49	-2.61	5.76	0.134
200.0	200.0	9.520	-25.14	18.44	-2.56	5.67	0.134
210.0	200.0	9.609	-28.48	20.76	-2.48	5.59	0.134
220.0	200.0	9.712	-32.36	23.58	-2.37	5.50	0.134
230.0	200.0	9.831	-36.94	27.05	-2.20	5.41	0.134
240.0	200.0	9.969	-42.42	31.40	-1.97	5.32	0.135
250.0	200.0	10.128	-49.10	36.99	-1.64	5.24	0.135
260.0	200.0	10.315	-57.45	44.35	-1.18	5.15	0.136
270.0	200.0	10.535	-68.17	54.29	-0.52	5.07	0.136
280.0	200.0	10.798	-82.47	68.16	0.41	4.99	0.137
290.0	200.0	11.115	-102.37	88.26	1.74	4.91	0.139
300.0	200.0	11.508	-131.58	118.71	3.66	4.83	0.141

Table A-4 (continued). The Standard Heat Capacities of Water and NaCl(aq), Debye-Huckel Parameter A_J and NaCl Virial Parameters at t and P. $C^o_{p,1}$ is the Heat Capacity of Water and $\bar{C}^o_{p,2}$ the Heat Capacity of NaCl(aq) in its Standard State.

t ^oC	P bar	$C^o_{p,1}/R$	$\bar{C}^o_{p,2}/R$	A_J/R $(kg/mol)^{1/2}$	$10^6\beta^{(0)J}_{NaCl}$ kg/mol K^2	$10^6\beta^{(1)J}_{NaCl}$ kg/mol K^2	$10^6C^J_{NaCl}$ $(kg/mol\ K)^2$
0.0	400.0	8.782	-12.51	2.91	-22.28	-61.31	1.835
10.0	400.0	8.790	-8.16	3.21	-14.88	-28.42	0.987
20.0	400.0	8.832	-6.38	3.51	-10.91	-13.06	0.593
25.0	400.0	8.849	-5.88	3.66	-9.56	-8.47	0.476
30.0	400.0	8.862	-5.50	3.82	-8.48	-5.08	0.389
40.0	400.0	8.877	-5.00	4.14	-6.85	-0.62	0.276
50.0	400.0	8.885	-4.76	4.49	-5.70	2.01	0.209
60.0	400.0	8.892	-4.74	4.85	-4.85	3.62	0.167
70.0	400.0	8.902	-4.84	5.25	-4.27	4.62	0.161
80.0	400.0	8.917	-5.21	5.68	-3.82	5.26	0.151
90.0	400.0	8.936	-5.74	6.15	-3.48	5.65	0.146
100.0	400.0	8.959	-6.43	6.65	-3.23	5.89	0.143
110.0	400.0	8.984	-7.26	7.20	-3.05	6.03	0.143
120.0	400.0	9.011	-8.22	7.79	-2.93	6.09	0.143
130.0	400.0	9.040	-9.31	8.44	-2.86	6.11	0.144
140.0	400.0	9.072	-10.53	9.15	-2.83	6.09	0.146
150.0	400.0	9.106	-11.90	9.93	-2.83	6.05	0.148
160.0	400.0	9.143	-13.44	10.78	-2.86	5.99	0.150
170.0	400.0	9.184	-15.15	11.73	-2.91	5.92	0.153
180.0	400.0	9.231	-17.06	12.79	-2.97	5.84	0.155
190.0	400.0	9.283	-19.21	13.98	-3.05	5.76	0.158
200.0	400.0	9.342	-21.61	15.34	-3.13	5.67	0.162
210.0	400.0	9.410	-24.32	16.89	-3.22	5.59	0.165
220.0	400.0	9.487	-27.39	18.69	-3.31	5.50	0.169
230.0	400.0	9.574	-30.88	20.81	-3.39	5.41	0.174
240.0	400.0	9.673	-34.89	23.35	-3.46	5.32	0.179
250.0	400.0	9.785	-39.52	26.43	-3.51	5.24	0.186
260.0	400.0	9.912	-44.96	30.25	-3.54	5.15	0.194
270.0	400.0	10.057	-51.42	35.10	-3.52	5.07	0.205
280.0	400.0	10.223	-59.24	41.38	-3.43	4.99	0.218
290.0	400.0	10.412	-68.90	49.75	-3.25	4.91	0.237
300.0	400.0	10.629	-81.13	61.24	-2.92	4.83	0.262

Table A-4 (continued). The Standard Heat Capacities of Water and NaCl(aq), Debye-Huckel Parameter A_J and NaCl Virial Parameters at t and P. $C^o_{p,1}$ is the Heat Capacity of Water and $\bar{C}^o_{p,2}$ the Heat Capacity of NaCl(aq) in its Standard State.

t °C	P bar	$C^o_{p,1}/R$	$\bar{C}^o_{p,2}/R$	A_J/R $(kg/mol)^{1/2}$	$10^6\beta^{(0)J}_{NaCl}$ kg/mol K^2	$10^6\beta^{(1)J}_{NaCl}$ kg/mol K^2	$10^6C^J_{NaCl}$ (kg/mol K)^2
0.0	600.0	8.652	-8.70	2.85	-16.57	-61.31	1.387
10.0	600.0	8.685	-5.65	3.12	-11.71	-28.42	0.737
20.0	600.0	8.741	-4.54	3.40	-8.93	-13.06	0.436
25.0	600.0	8.763	-4.24	3.54	-7.94	-8.47	0.346
30.0	600.0	8.780	-4.02	3.68	-7.13	-5.08	0.280
40.0	600.0	8.800	-3.72	3.98	-5.86	-0.62	0.194
50.0	600.0	8.810	-3.59	4.30	-4.92	2.01	0.143
60.0	600.0	8.819	-3.62	4.64	-4.20	3.62	0.112
70.0	600.0	8.830	-3.71	5.00	-3.78	4.62	0.129
80.0	600.0	8.844	-4.07	5.39	-3.42	5.26	0.130
90.0	600.0	8.862	-4.59	5.81	-3.16	5.65	0.133
100.0	600.0	8.883	-5.24	6.25	-2.98	5.89	0.137
110.0	600.0	8.906	-6.02	6.73	-2.86	6.03	0.141
120.0	600.0	8.930	-6.91	7.24	-2.79	6.09	0.146
130.0	600.0	8.955	-7.92	7.79	-2.77	6.11	0.151
140.0	600.0	8.982	-9.04	8.38	-2.79	6.09	0.156
150.0	600.0	9.010	-10.29	9.01	-2.85	6.05	0.161
160.0	600.0	9.040	-11.67	9.70	-2.94	5.99	0.166
170.0	600.0	9.073	-13.21	10.43	-3.05	5.92	0.172
180.0	600.0	9.110	-14.91	11.23	-3.19	5.84	0.177
190.0	600.0	9.151	-16.80	12.11	-3.36	5.76	0.183
200.0	600.0	9.197	-18.90	13.06	-3.55	5.67	0.190
210.0	600.0	9.250	-21.24	14.12	-3.76	5.59	0.197
220.0	600.0	9.309	-23.85	15.29	-4.00	5.50	0.205
230.0	600.0	9.375	-26.78	16.62	-4.27	5.41	0.214
240.0	600.0	9.450	-30.08	18.12	-4.57	5.32	0.224
250.0	600.0	9.533	-33.82	19.85	-4.91	5.24	0.237
260.0	600.0	9.627	-38.10	21.87	-5.30	5.15	0.253
270.0	600.0	9.731	-43.03	24.28	-5.76	5.07	0.273
280.0	600.0	9.847	-48.78	27.20	-6.31	4.99	0.299
290.0	600.0	9.976	-55.57	30.82	-6.99	4.91	0.334
300.0	600.0	10.120	-63.70	35.40	-7.87	4.83	0.382

Table A-4 (continued). The Standard Heat Capacities of Water and NaCl(aq), Debye-Huckel Parameter A_J and NaCl Virial Parameters at t and P. $C^o_{p,1}$ is the Heat Capacity of Water and $\bar{C}^o_{p,2}$ the Heat Capacity of NaCl(aq) in its Standard State.

t °C	P bar	$C^o_{p,1}/R$	$\bar{C}^o_{p,2}/R$	A_J/R $(kg/mol)^{1/2}$	$10^6\beta^{(0)J}_{NaCl}$ kg/mol K^2	$10^6\beta^{(1)J}_{NaCl}$ kg/mol K^2	$10^6C^J_{NaCl}$ $(kg/mol\ K)^2$
0.0	800.0	8.550	-5.76	2.78	-11.62	-61.31	0.939
10.0	800.0	8.598	-3.66	3.02	-8.94	-28.42	0.487
20.0	800.0	8.664	-3.02	3.28	-7.19	-13.06	0.278
25.0	800.0	8.689	-2.87	3.42	-6.51	-8.47	0.216
30.0	800.0	8.708	-2.76	3.55	-5.92	-5.08	0.171
40.0	800.0	8.732	-2.61	3.83	-4.95	-0.62	0.112
50.0	800.0	8.744	-2.55	4.13	-4.18	2.01	0.077
60.0	800.0	8.753	-2.60	4.45	-3.57	3.62	0.056
70.0	800.0	8.764	-2.70	4.78	-3.34	4.62	0.097
80.0	800.0	8.778	-3.07	5.13	-3.07	5.26	0.109
90.0	800.0	8.795	-3.57	5.51	-2.88	5.65	0.120
100.0	800.0	8.814	-4.20	5.91	-2.76	5.89	0.130
110.0	800.0	8.835	-4.93	6.33	-2.69	6.03	0.139
120.0	800.0	8.857	-5.77	6.78	-2.66	6.09	0.149
130.0	800.0	8.879	-6.71	7.25	-2.69	6.11	0.157
140.0	800.0	8.902	-7.75	7.75	-2.75	6.09	0.166
150.0	800.0	8.925	-8.90	8.27	-2.85	6.05	0.174
160.0	800.0	8.950	-10.17	8.82	-2.98	5.99	0.182
170.0	800.0	8.977	-11.57	9.41	-3.15	5.92	0.190
180.0	800.0	9.006	-13.12	10.02	-3.35	5.84	0.199
190.0	800.0	9.039	-14.83	10.67	-3.58	5.76	0.208
200.0	800.0	9.076	-16.72	11.36	-3.85	5.67	0.218
210.0	800.0	9.117	-18.82	12.09	-4.16	5.59	0.228
220.0	800.0	9.163	-21.16	12.86	-4.51	5.50	0.240
230.0	800.0	9.215	-23.77	13.69	-4.91	5.41	0.253
240.0	800.0	9.273	-26.71	14.58	-5.38	5.32	0.269
250.0	800.0	9.337	-30.03	15.54	-5.93	5.24	0.288
260.0	800.0	9.409	-33.83	16.59	-6.59	5.15	0.312
270.0	800.0	9.487	-38.23	17.75	-7.40	5.07	0.341
280.0	800.0	9.574	-43.40	19.05	-8.41	4.99	0.380
290.0	800.0	9.669	-49.58	20.52	-9.72	4.91	0.432
300.0	800.0	9.772	-57.13	22.23	-11.47	4.83	0.503

Table A-4 (continued). The Standard Heat Capacities of Water and NaCl(aq), Debye-Huckel Parameter A_J and NaCl Virial Parameters at t and P. $C^o_{p,1}$ is the Heat Capacity of Water and $\bar{C}^o_{p,2}$ the Heat Capacity of NaCl(aq) in its Standard State.

t °C	P bar	$C^o_{p,1}/R$	$\bar{C}^o_{p,2}/R$	A_J/R $(kg/mol)^{1/2}$	$10^6\beta^{(0)J}_{NaCl}$ kg/mol K^2	$10^6\beta^{(1)J}_{NaCl}$ kg/mol K^2	$10^6C^J_{NaCl}$ $(kg/mol\ K)^2$
0.0	1000.0	8.472	-3.59	2.69	-7.38	-61.31	0.491
10.0	1000.0	8.526	-2.12	2.92	-6.55	-28.42	0.237
20.0	1000.0	8.599	-1.80	3.17	-5.66	-13.06	0.121
25.0	1000.0	8.626	-1.75	3.30	-5.24	-8.47	0.086
30.0	1000.0	8.646	-1.71	3.43	-4.83	-5.08	0.062
40.0	1000.0	8.672	-1.64	3.70	-4.11	-0.62	0.030
50.0	1000.0	8.685	-1.61	3.98	-3.49	2.01	0.011
60.0	1000.0	8.694	-1.66	4.27	-2.97	3.62	0.000
70.0	1000.0	8.704	-1.83	4.58	-2.96	4.62	0.066
80.0	1000.0	8.718	-2.20	4.91	-2.78	5.26	0.088
90.0	1000.0	8.734	-2.69	5.25	-2.66	5.65	0.107
100.0	1000.0	8.752	-3.30	5.61	-2.58	5.89	0.123
110.0	1000.0	8.771	-4.00	5.99	-2.55	6.03	0.138
120.0	1000.0	8.791	-4.80	6.38	-2.57	6.09	0.151
130.0	1000.0	8.810	-5.68	6.79	-2.63	6.11	0.164
140.0	1000.0	8.830	-6.66	7.22	-2.73	6.09	0.176
150.0	1000.0	8.850	-7.74	7.66	-2.86	6.05	0.187
160.0	1000.0	8.871	-8.92	8.11	-3.03	5.99	0.198
170.0	1000.0	8.892	-10.21	8.58	-3.24	5.92	0.209
180.0	1000.0	8.916	-11.64	9.06	-3.48	5.84	0.221
190.0	1000.0	8.942	-13.22	9.55	-3.77	5.76	0.233
200.0	1000.0	8.972	-14.96	10.05	-4.09	5.67	0.245
210.0	1000.0	9.004	-16.89	10.56	-4.47	5.59	0.259
220.0	1000.0	9.041	-19.04	11.07	-4.90	5.50	0.275
230.0	1000.0	9.082	-21.45	11.59	-5.40	5.41	0.293
240.0	1000.0	9.128	-24.17	12.10	-5.99	5.32	0.314
250.0	1000.0	9.179	-27.27	12.61	-6.69	5.24	0.339
260.0	1000.0	9.235	-30.85	13.10	-7.53	5.15	0.370
270.0	1000.0	9.296	-35.05	13.58	-8.59	5.07	0.410
280.0	1000.0	9.363	-40.08	14.04	-9.92	4.99	0.461
290.0	1000.0	9.436	-46.27	14.47	-11.67	4.91	0.529
300.0	1000.0	9.515	-54.08	14.86	-14.04	4.83	0.624

Table A-5. The Standard Volumes of Water and NaCl(aq), Debye-Huckel Parameter A_V and NaCl Virial Parameters at t and P. V_1^o is the Volume of Water and $\bar{V}_2^o$ the Volume of NaCl(aq) in its Standard State.

t	P	V_1^o	$\bar{V}_2^o$	A_V	$10^6\beta^{(0)V}_{NaCl}$	$10^6C^V_{NaCl}$
^oC	bar	cm^3/mol	cm^3/mol	$cm^3kg^{1/2}/mol^{3/2}$	kg/mol bar	kg^2/mol^2 bar
0.0	1.0	18.018	13.27	1.504	27.46	-1.63
10.0	1.0	18.020	15.06	1.643	19.56	-1.12
20.0	1.0	18.047	16.25	1.793	14.31	-0.78
25.0	1.0	18.068	16.68	1.875	12.34	-0.65
30.0	1.0	18.094	17.02	1.962	10.69	-0.53
40.0	1.0	18.157	17.50	2.153	8.15	-0.36
50.0	1.0	18.234	17.74	2.372	6.37	-0.24
60.0	1.0	18.323	17.77	2.622	5.14	-0.15
70.0	1.0	18.425	17.81	2.909	3.51	-0.06
80.0	1.0	18.538	17.54	3.238	2.93	-0.04
90.0	1.0	18.662	17.10	3.615	2.58	-0.03
100.0	1.0	18.797	16.49	4.050	2.41	-0.03
110.0	1.4	18.944	15.71	4.550	2.37	-0.03
120.0	2.0	19.101	14.75	5.127	2.41	-0.03
130.0	2.7	19.270	13.60	5.795	2.50	-0.03
140.0	3.6	19.451	12.26	6.572	2.59	-0.03
150.0	4.8	19.645	10.70	7.477	2.64	-0.02
160.0	6.2	19.852	8.91	8.536	2.61	0.00
170.0	7.9	20.073	6.86	9.779	2.45	0.02
180.0	10.0	20.309	4.52	11.25	2.11	0.05
190.0	12.5	20.562	1.85	12.99	1.54	0.09
200.0	15.5	20.833	-1.22	15.07	0.67	0.13
210.0	19.1	21.124	-4.74	17.6	-0.57	0.20
220.0	23.2	21.438	-8.83	20.6	-2.27	0.27
230.0	28.0	21.777	-13.6	24.3	-4.54	0.36
240.0	33.4	22.145	-19.2	28.8	-7.49	0.46
250.0	39.7	22.545	-26.0	34.4	-11.3	0.58
260.0	46.9	22.984	-34.1	41.5	-16.1	0.73
270.0	55.0	23.467	-44.3	50.5	-22.2	0.89
280.0	64.1	24.004	-57.0	62.3	-29.9	1.09
290.0	74.4	24.606	-73.6	77.8	-39.5	1.32
300.0	85.8	25.288	-95.7	98.7	-51.7	1.58

Table A-5 (continued). The Standard Volumes of Water and NaCl(aq), Debye-Huckel Parameter A_V and NaCl Virial Parameters at t and P. V_1^o is the Volume of Water and $\bar{V}_2^o$ the Volume of NaCl(aq) in its Standard State.

t °C	P bar	V_1^o cm^3/mol	$\bar{V}_2^o$ cm^3/mol	A_V $cm^3 kg^{1/2}/mol^{3/2}$	$10^6 \beta^{(0)V}_{NaCl}$ kg/mol bar	$10^6 C^V_{NaCl}$ kg^2/mol^2 bar
0.0	200.0	17.842	14.52	1.462	25.25	-1.63
10.0	200.0	17.854	16.07	1.587	18.01	-1.12
20.0	200.0	17.888	17.11	1.724	13.17	-0.78
25.0	200.0	17.911	17.49	1.799	11.33	-0.65
30.0	200.0	17.938	17.80	1.879	9.79	-0.53
40.0	200.0	18.002	18.24	2.055	7.40	-0.36
50.0	200.0	18.078	18.46	2.255	5.72	-0.24
60.0	200.0	18.166	18.50	2.484	4.55	-0.15
70.0	200.0	18.264	18.48	2.745	3.22	-0.06
80.0	200.0	18.373	18.22	3.043	2.75	-0.04
90.0	200.0	18.492	17.80	3.383	2.50	-0.03
100.0	200.0	18.621	17.23	3.772	2.43	-0.03
110.0	200.0	18.760	16.50	4.217	2.50	-0.03
120.0	200.0	18.909	15.62	4.728	2.65	-0.03
130.0	200.0	19.068	14.56	5.315	2.86	-0.03
140.0	200.0	19.238	13.33	5.991	3.09	-0.03
150.0	200.0	19.419	11.92	6.773	3.30	-0.02
160.0	200.0	19.611	10.31	7.679	3.45	0.00
170.0	200.0	19.816	8.47	8.734	3.52	0.02
180.0	200.0	20.035	6.40	9.967	3.44	0.05
190.0	200.0	20.268	4.05	11.41	3.19	0.09
200.0	200.0	20.517	1.40	13.12	2.68	0.13
210.0	200.0	20.784	-1.62	15.2	1.87	0.20
220.0	200.0	21.070	-5.06	17.6	0.67	0.27
230.0	200.0	21.377	-9.00	20.5	-1.02	0.36
240.0	200.0	21.709	-13.6	24.1	-3.31	0.46
250.0	200.0	22.070	-18.9	28.5	-6.36	0.58
260.0	200.0	22.463	-25.3	33.9	-10.4	0.73
270.0	200.0	22.895	-33.0	40.8	-15.5	0.89
280.0	200.0	23.373	-42.6	49.7	-22.2	1.09
290.0	200.0	23.906	-54.8	61.5	-30.8	1.32
300.0	200.0	24.510	-70.9	77.4	-42.0	1.58

Table A-5 (continued). The Standard Volumes of Water and NaCl(aq), Debye-Huckel Parameter A_V and NaCl Virial Parameters at t and P. V_1^o is the Volume of Water and $\bar{V}_2^o$ the Volume of NaCl(aq) in its Standard State.

t °C	P bar	V_1^o cm^3/mol	$\bar{V}_2^o$ cm^3/mol	A_V $cm^3kg^{1/2}/mol^{3/2}$	$10^6\beta^{(0)V}_{NaCl}$ kg/mol bar	$10^6C^V_{NaCl}$ kg^2/mol^2 bar
0.0	400.0	17.676	15.66	1.419	23.25	-1.63
10.0	400.0	17.697	16.98	1.532	16.65	-1.12
20.0	400.0	17.736	17.89	1.657	12.17	-0.78
25.0	400.0	17.761	18.22	1.726	10.47	-0.65
30.0	400.0	17.790	18.50	1.799	9.03	-0.53
40.0	400.0	17.855	18.89	1.961	6.78	-0.36
50.0	400.0	17.931	19.10	2.145	5.18	-0.24
60.0	400.0	18.017	19.15	2.355	4.07	-0.15
70.0	400.0	18.113	19.09	2.593	2.95	-0.06
80.0	400.0	18.219	18.84	2.864	2.55	-0.04
90.0	400.0	18.333	18.45	3.171	2.37	-0.03
100.0	400.0	18.456	17.92	3.520	2.36	-0.03
110.0	400.0	18.588	17.25	3.918	2.47	-0.03
120.0	400.0	18.729	16.44	4.370	2.68	-0.03
130.0	400.0	18.880	15.48	4.886	2.95	-0.03
140.0	400.0	19.039	14.37	5.476	3.24	-0.03
150.0	400.0	19.209	13.10	6.151	3.54	-0.02
160.0	400.0	19.388	11.65	6.927	3.80	0.00
170.0	400.0	19.578	10.02	7.819	4.01	0.02
180.0	400.0	19.779	8.20	8.848	4.11	0.05
190.0	400.0	19.993	6.15	10.04	4.09	0.09
200.0	400.0	20.219	3.86	11.4	3.88	0.13
210.0	400.0	20.459	1.31	13.0	3.44	0.20
220.0	400.0	20.715	-1.55	14.9	2.71	0.27
230.0	400.0	20.987	-4.76	17.2	1.61	0.36
240.0	400.0	21.278	-8.38	19.8	0.05	0.46
250.0	400.0	21.590	-12.5	23.0	-2.09	0.58
260.0	400.0	21.924	-17.1	26.9	-4.94	0.73
270.0	400.0	22.285	-22.5	31.5	-8.69	0.89
280.0	400.0	22.675	-28.8	37.3	-13.6	1.09
290.0	400.0	23.099	-36.1	44.5	-20.0	1.32
300.0	400.0	23.562	-45.0	53.6	-28.3	1.58

Table A-5 (continued). The Standard Volumes of Water and NaCl(aq), Debye-Huckel Parameter A_V and NaCl Virial Parameters at t and P. V_1^o is the Volume of Water and $\bar{V}_2^o$ the Volume of NaCl(aq) in its Standard State.

t	P	V_1^o	$\bar{V}_2^o$	A_V	$10^6 \beta^{(0)V}_{NaCl}$	$10^6 C^V_{NaCl}$
°C	bar	cm³/mol	cm³/mol	cm³kg$^{1/2}$/mol$^{3/2}$	kg/mol bar	kg²/mol² bar
0.0	600.0	17.519	16.68	1.379	21.50	-1.63
10.0	600.0	17.549	17.80	1.479	15.48	-1.12
20.0	600.0	17.593	18.58	1.594	11.35	-0.78
25.0	600.0	17.620	18.88	1.657	9.76	-0.65
30.0	600.0	17.649	19.12	1.724	8.41	-0.53
40.0	600.0	17.716	19.47	1.873	6.28	-0.36
50.0	600.0	17.792	19.67	2.043	4.75	-0.24
60.0	600.0	17.877	19.72	2.235	3.68	-0.15
70.0	600.0	17.971	19.64	2.453	2.70	-0.06
80.0	600.0	18.073	19.41	2.699	2.34	-0.04
90.0	600.0	18.184	19.06	2.978	2.19	-0.03
100.0	600.0	18.302	18.58	3.293	2.18	-0.03
110.0	600.0	18.429	17.98	3.649	2.30	-0.03
120.0	600.0	18.563	17.25	4.052	2.50	-0.03
130.0	600.0	18.706	16.39	4.509	2.75	-0.03
140.0	600.0	18.857	15.40	5.027	3.04	-0.03
150.0	600.0	19.016	14.26	5.615	3.34	-0.02
160.0	600.0	19.185	12.98	6.284	3.62	0.00
170.0	600.0	19.362	11.55	7.046	3.86	0.02
180.0	600.0	19.550	9.94	7.917	4.04	0.05
190.0	600.0	19.747	8.16	8.913	4.11	0.09
200.0	600.0	19.956	6.18	10.1	4.05	0.13
210.0	600.0	20.176	3.99	11.4	3.82	0.20
220.0	600.0	20.408	1.56	12.9	3.38	0.27
230.0	600.0	20.654	-1.12	14.6	2.66	0.36
240.0	600.0	20.915	-4.09	16.7	1.60	0.46
250.0	600.0	21.191	-7.37	19.1	0.11	0.58
260.0	600.0	21.485	-11.0	21.9	-1.90	0.73
270.0	600.0	21.799	-15.1	25.2	-4.59	0.89
280.0	600.0	22.133	-19.6	29.2	-8.13	1.09
290.0	600.0	22.492	-24.7	33.9	-12.8	1.32
300.0	600.0	22.876	-30.4	39.7	-18.8	1.58

Table A-5 (continued). The Standard Volumes of Water and NaCl(aq), Debye-Huckel Parameter A_V and NaCl Virial Parameters at t and P. V_1^o is the Volume of Water and $\bar{V}_2^o$ the Volume of NaCl(aq) in its Standard State.

t °C	P bar	V_1^o cm^3/mol	$\bar{V}_2^o$ cm^3/mol	A_V $cm^3kg^{1/2}/mol^{3/2}$	$10^6\beta^{(0)V}_{NaCl}$ kg/mol bar	$10^6C^V_{NaCl}$ kg^2/mol^2 bar
0.0	800.0	17.373	17.59	1.341	19.97	-1.63
10.0	800.0	17.410	18.53	1.431	14.50	-1.12
20.0	800.0	17.458	19.20	1.535	10.69	-0.78
25.0	800.0	17.486	19.46	1.593	9.20	-0.65
30.0	800.0	17.516	19.67	1.655	7.93	-0.53
40.0	800.0	17.584	19.99	1.792	5.91	-0.36
50.0	800.0	17.660	20.16	1.948	4.44	-0.24
60.0	800.0	17.744	20.21	2.125	3.40	-0.15
70.0	800.0	17.836	20.15	2.324	2.47	-0.06
80.0	800.0	17.936	19.95	2.549	2.12	-0.04
90.0	800.0	18.043	19.64	2.803	1.95	-0.03
100.0	800.0	18.157	19.22	3.088	1.91	-0.03
110.0	800.0	18.279	18.70	3.409	1.97	-0.03
120.0	800.0	18.408	18.06	3.770	2.10	-0.03
130.0	800.0	18.544	17.31	4.176	2.28	-0.03
140.0	800.0	18.688	16.45	4.634	2.49	-0.03
150.0	800.0	18.839	15.46	5.150	2.71	-0.02
160.0	800.0	18.998	14.35	5.732	2.91	0.00
170.0	800.0	19.165	13.11	6.390	3.08	0.02
180.0	800.0	19.341	11.73	7.134	3.21	0.05
190.0	800.0	19.525	10.20	7.976	3.25	0.09
200.0	800.0	19.719	8.51	8.932	3.20	0.13
210.0	800.0	19.922	6.65	10.1	3.02	0.20
220.0	800.0	20.136	4.60	11.3	2.68	0.27
230.0	800.0	20.362	2.35	12.7	2.14	0.36
240.0	800.0	20.599	-0.11	14.3	1.34	0.46
250.0	800.0	20.849	-2.81	16.1	0.24	0.58
260.0	800.0	21.113	-5.76	18.3	-1.25	0.73
270.0	800.0	21.392	-8.99	20.7	-3.23	0.89
280.0	800.0	21.688	-12.5	23.6	-5.83	1.09
290.0	800.0	22.001	-16.3	26.9	-9.21	1.32
300.0	800.0	22.334	-20.4	30.8	-13.6	1.58

Table A-5 (continued). The Standard Volumes of Water and NaCl(aq), Debye-Huckel Parameter A_V and NaCl Virial Parameters at t and P. V_1^o is the Volume of Water and $\bar{V}_2^o$ the Volume of NaCl(aq) in its Standard State.

t	P	V_1^o	$\bar{V}_2^o$	A_V	$10^6\beta^{(0)V}_{NaCl}$	$10^6 C^V_{NaCl}$
^oC	bar	cm^3/mol	cm^3/mol	$cm^3kg^{1/2}/mol^{3/2}$	kg/mol bar	kg^2/mol^2 bar
0.0	1000.0	17.235	18.40	1.307	18.69	-1.63
10.0	1000.0	17.277	19.17	1.386	13.72	-1.12
20.0	1000.0	17.329	19.74	1.480	10.19	-0.78
25.0	1000.0	17.359	19.97	1.533	8.79	-0.65
30.0	1000.0	17.390	20.16	1.590	7.59	-0.53
40.0	1000.0	17.459	20.44	1.716	5.66	-0.36
50.0	1000.0	17.535	20.61	1.860	4.24	-0.24
60.0	1000.0	17.618	20.65	2.022	3.22	-0.15
70.0	1000.0	17.709	20.63	2.206	2.26	-0.06
80.0	1000.0	17.806	20.47	2.412	1.88	-0.04
90.0	1000.0	17.910	20.21	2.643	1.65	-0.03
100.0	1000.0	18.021	19.87	2.902	1.53	-0.03
110.0	1000.0	18.138	19.43	3.192	1.48	-0.03
120.0	1000.0	18.262	18.90	3.517	1.49	-0.03
130.0	1000.0	18.392	18.27	3.881	1.52	-0.03
140.0	1000.0	18.529	17.55	4.288	1.58	-0.03
150.0	1000.0	18.674	16.74	4.743	1.63	-0.02
160.0	1000.0	18.825	15.81	5.254	1.67	0.00
170.0	1000.0	18.983	14.78	5.827	1.67	0.02
180.0	1000.0	19.148	13.64	6.469	1.63	0.05
190.0	1000.0	19.322	12.37	7.190	1.52	0.09
200.0	1000.0	19.503	10.97	7.999	1.33	0.13
210.0	1000.0	19.693	9.44	8.91	1.04	0.20
220.0	1000.0	19.892	7.75	9.94	0.62	0.27
230.0	1000.0	20.101	5.91	11.1	0.04	0.36
240.0	1000.0	20.319	3.90	12.4	-0.72	0.46
250.0	1000.0	20.549	1.71	13.9	-1.71	0.58
260.0	1000.0	20.790	-0.67	15.5	-2.99	0.73
270.0	1000.0	21.043	-3.25	17.4	-4.62	0.89
280.0	1000.0	21.309	-6.04	19.6	-6.69	1.09
290.0	1000.0	21.589	-9.03	22.0	-9.31	1.32
300.0	1000.0	21.884	-12.2	24.8	-12.7	1.58

Table A-6. The Standard Expansivities of Water and NaCl(aq), Debye-Huckel Parameter A_X and NaCl Virial Parameters at t and P. dV_1^o/dT is the Expansivity of Water and $d\bar{V}_2^o/dT$ the Expansivity of NaCl(aq) in its Standard State.

t °C	P bar	$10^3 dV_1^o/dT$ $cm^3/mol\ K$	$d\bar{V}_2^o/dT$ $cm^3/mol\ K$	A_X $cm^3 kg^{1/2}/mol^{3/2} K$	$10^6 \beta^{(0)X}_{NaCl}$ kg/mol bar K	$10^9 C^X_{NaCl}$ kg^2/mol^2 bar K
0.0	1.0	-1.45	0.221	0.0137	-0.879	55.6
10.0	1.0	1.58	0.144	0.0143	-0.565	37.1
20.0	1.0	3.77	0.096	0.0159	-0.383	26.1
25.0	1.0	4.69	0.077	0.0168	-0.318	22.1
30.0	1.0	5.52	0.061	0.0179	-0.266	18.8
40.0	1.0	7.01	0.035	0.0205	-0.186	13.6
50.0	1.0	8.34	0.013	0.0234	-0.128	9.6
60.0	1.0	9.57	-0.006	0.0268	-0.084	6.3
70.0	1.0	10.74	-0.018	0.0307	-0.063	2.7
80.0	1.0	11.87	-0.036	0.0352	-0.037	1.3
90.0	1.0	12.98	-0.053	0.0404	-0.018	0.5
100.0	1.0	14.10	-0.070	0.0466	-0.003	0.0
110.0	1.4	15.23	-0.087	0.0537	0.007	-0.2
120.0	2.0	16.38	-0.105	0.0622	0.013	-0.2
130.0	2.7	17.58	-0.125	0.0722	0.015	0.1
140.0	3.6	18.83	-0.145	0.0840	0.014	0.5
150.0	4.8	20.16	-0.168	0.0982	0.007	1.0
160.0	6.2	21.59	-0.193	0.115	-0.004	1.7
170.0	7.9	23.12	-0.220	0.136	-0.020	2.5
180.0	10.0	24.80	-0.252	0.161	-0.042	3.5
190.0	12.5	26.64	-0.289	0.192	-0.070	4.6
200.0	15.5	28.69	-0.333	0.231	-0.107	5.8
210.0	19.1	30.99	-0.386	0.279	-0.153	7.1
220.0	23.2	33.60	-0.451	0.341	-0.210	8.6
230.0	28.0	36.58	-0.532	0.419	-0.280	10.3
240.0	33.4	40.03	-0.637	0.522	-0.366	12.2
250.0	39.7	44.08	-0.773	0.657	-0.473	14.3
260.0	46.9	48.89	-0.957	0.840	-0.604	16.8
270.0	55.0	54.71	-1.21	1.09	-0.767	19.6
280.0	64.1	61.89	-1.57	1.44	-0.971	22.9
290.0	74.4	70.97	-2.09	1.95	-1.23	26.9
300.0	85.8	82.76	-2.88	2.72	-1.57	31.8

Table A-6 (continued). The Standard Expansivities of Water and NaCl(aq), Debye-Huckel Parameter A_X and NaCl Virial Parameters at t and P. dV_1^o/dT is the Expansivity of Water and $d\bar{V}_2^o/dT$ the Expansivity of NaCl(aq) in its Standard State.

t	P	$10^3 dV_1^o/dT$	$d\bar{V}_2^o/dT$	A_X	$10^6 \beta^{(0)X}_{NaCl}$	$10^9 C^X_{NaCl}$
^oC	bar	$cm^3/mol\ K$	$cm^3/mol\ K$	$cm^3 kg^{1/2}/mol^{3/2} K$	kg/mol bar K	kg^2/mol^2 bar K
0.0	200.0	-0.05	0.189	0.0121	-0.800	55.6
10.0	200.0	2.39	0.126	0.0130	-0.520	37.1
20.0	200.0	4.23	0.085	0.0145	-0.356	26.1
25.0	200.0	5.02	0.069	0.0155	-0.297	22.1
30.0	200.0	5.74	0.055	0.0165	-0.250	18.8
40.0	200.0	7.04	0.032	0.0188	-0.176	13.6
50.0	200.0	8.22	0.013	0.0214	-0.123	9.6
60.0	200.0	9.32	-0.004	0.0244	-0.081	6.3
70.0	200.0	10.37	-0.018	0.0279	-0.052	2.7
80.0	200.0	11.39	-0.034	0.0318	-0.027	1.3
90.0	200.0	12.39	-0.050	0.0363	-0.008	0.5
100.0	200.0	13.38	-0.065	0.0416	0.007	0.0
110.0	200.0	14.38	-0.081	0.0476	0.018	-0.2
120.0	200.0	15.40	-0.097	0.0547	0.025	-0.2
130.0	200.0	16.45	-0.114	0.0629	0.029	0.1
140.0	200.0	17.53	-0.132	0.0726	0.030	0.5
150.0	200.0	18.67	-0.151	0.0840	0.027	1.0
160.0	200.0	19.88	-0.172	0.0976	0.020	1.7
170.0	200.0	21.17	-0.195	0.114	0.008	2.5
180.0	200.0	22.57	-0.220	0.133	-0.008	3.5
190.0	200.0	24.08	-0.249	0.157	-0.030	4.6
200.0	200.0	25.74	-0.283	0.186	-0.059	5.8
210.0	200.0	27.58	-0.321	0.222	-0.095	7.1
220.0	200.0	29.63	-0.367	0.266	-0.141	8.6
230.0	200.0	31.94	-0.423	0.322	-0.199	10.3
240.0	200.0	34.57	-0.493	0.394	-0.271	12.2
250.0	200.0	37.60	-0.581	0.487	-0.361	14.3
260.0	200.0	41.14	-0.697	0.611	-0.473	16.8
270.0	200.0	45.33	-0.854	0.780	-0.615	19.6
280.0	200.0	50.37	-1.07	1.02	-0.796	22.9
290.0	200.0	56.59	-1.39	1.35	-1.03	26.9
300.0	200.0	64.47	-1.87	1.86	-1.34	31.8

Table A-6 (continued). The Standard Expansivities of Water and NaCl(aq), Debye-Huckel Parameter A_X and NaCl Virial Parameters at t and P. dV_1^o/dT is the Expansivity of Water and $d\bar{V}_2^o/dT$ the Expansivity of NaCl(aq) in its Standard State.

t	P	$10^3 dV_1^o/dT$	$d\bar{V}_2^o/dT$	A_X	$10^6 \beta^{(0)X}_{NaCl}$	$10^9 C^X_{NaCl}$
°C	bar	$cm^3/mol\ K$	$cm^3/mol\ K$	$cm^3 kg^{1/2}/mol^{3/2} K$	kg/mol bar K	kg^2/mol^2 bar K
0.0	400.0	1.15	0.160	0.0107	-0.726	55.6
10.0	400.0	3.11	0.109	0.0118	-0.477	37.1
20.0	400.0	4.65	0.074	0.0133	-0.330	26.1
25.0	400.0	5.32	0.061	0.0142	-0.278	22.1
30.0	400.0	5.95	0.049	0.0152	-0.235	18.8
40.0	400.0	7.09	0.029	0.0173	-0.168	13.6
50.0	400.0	8.14	0.013	0.0196	-0.117	9.6
60.0	400.0	9.12	-0.003	0.0223	-0.078	6.3
70.0	400.0	10.06	-0.018	0.0254	-0.045	2.7
80.0	400.0	10.98	-0.032	0.0288	-0.021	1.3
90.0	400.0	11.88	-0.046	0.0327	-0.002	0.5
100.0	400.0	12.77	-0.060	0.0372	0.012	0.0
110.0	400.0	13.66	-0.074	0.0424	0.023	-0.2
120.0	400.0	14.57	-0.088	0.0483	0.031	-0.2
130.0	400.0	15.49	-0.103	0.0551	0.036	0.1
140.0	400.0	16.44	-0.119	0.0630	0.038	0.5
150.0	400.0	17.43	-0.136	0.0723	0.037	1.0
160.0	400.0	18.47	-0.153	0.0830	0.033	1.7
170.0	400.0	19.56	-0.173	0.0957	0.025	2.5
180.0	400.0	20.72	-0.193	0.111	0.014	3.5
190.0	400.0	21.97	-0.216	0.128	-0.002	4.6
200.0	400.0	23.32	-0.242	0.150	-0.023	5.8
210.0	400.0	24.78	-0.270	0.175	-0.050	7.1
220.0	400.0	26.37	-0.303	0.206	-0.085	8.6
230.0	400.0	28.13	-0.340	0.244	-0.128	10.3
240.0	400.0	30.08	-0.384	0.290	-0.182	12.2
250.0	400.0	32.25	-0.436	0.348	-0.251	14.3
260.0	400.0	34.69	-0.499	0.422	-0.336	16.8
270.0	400.0	37.46	-0.577	0.516	-0.444	19.6
280.0	400.0	40.62	-0.676	0.640	-0.582	22.9
290.0	400.0	44.28	-0.805	0.805	-0.760	26.9
300.0	400.0	48.55	-0.979	1.03	-0.994	31.8

Table A-6 (continued). The Standard Expansivities of Water and NaCl(aq), Debye-Huckel Parameter A_X and NaCl Virial Parameters at t and P. dV_1^o/dT is the Expansivity of Water and $d\bar{V}_2^o/dT$ the Expansivity of NaCl(aq) in its Standard State.

t	P	$10^3 dV_1^o/dT$	$d\bar{V}_2^o/dT$	A_X	$10^6 \beta^{(0)X}_{NaCl}$	$10^9 C^X_{NaCl}$
^oC	bar	$cm^3/mol\ K$	cm^3/mol-K	$cm^3 kg^{1/2}/mol^{3/2} K$	kg/mol bar K	kg^2/mol^2 bar K
0.0	600.0	2.18	0.134	0.0095	-0.656	55.6
10.0	600.0	3.75	0.093	0.0107	-0.437	37.1
20.0	600.0	5.03	0.065	0.0122	-0.307	26.1
25.0	600.0	5.61	0.054	0.0131	-0.260	22.1
30.0	600.0	6.14	0.044	0.0139	-0.221	18.8
40.0	600.0	7.14	0.027	0.0159	-0.160	13.6
50.0	600.0	8.07	0.012	0.0180	-0.113	9.6
60.0	600.0	8.96	-0.002	0.0205	-0.076	6.3
70.0	600.0	9.81	-0.016	0.0232	-0.040	2.7
80.0	600.0	10.63	-0.029	0.0262	-0.018	1.3
90.0	600.0	11.44	-0.042	0.0296	-0.001	0.5
100.0	600.0	12.25	-0.054	0.0335	0.012	0.0
110.0	600.0	13.05	-0.067	0.0379	0.022	-0.2
120.0	600.0	13.86	-0.079	0.0429	0.030	-0.2
130.0	600.0	14.68	-0.093	0.0486	0.035	0.1
140.0	600.0	15.52	-0.106	0.0551	0.037	0.5
150.0	600.0	16.39	-0.121	0.0627	0.037	1.0
160.0	600.0	17.29	-0.136	0.0713	0.035	1.7
170.0	600.0	18.24	-0.152	0.0814	0.030	2.5
180.0	600.0	19.23	-0.169	0.0930	0.022	3.5
190.0	600.0	20.29	-0.188	0.107	0.010	4.6
200.0	600.0	21.41	-0.208	0.122	-0.005	5.8
210.0	600.0	22.61	-0.230	0.141	-0.025	7.1
220.0	600.0	23.91	-0.255	0.163	-0.050	8.6
230.0	600.0	25.31	-0.282	0.189	-0.082	10.3
240.0	600.0	26.84	-0.312	0.221	-0.123	12.2
250.0	600.0	28.50	-0.346	0.259	-0.173	14.3
260.0	600.0	30.34	-0.385	0.305	-0.236	16.8
270.0	600.0	32.36	-0.428	0.362	-0.316	19.6
280.0	600.0	34.60	-0.478	0.432	-0.418	22.9
290.0	600.0	37.10	-0.537	0.521	-0.550	26.9
300.0	600.0	39.91	-0.604	0.635	-0.723	31.8

Table A-6 (continued). The Standard Expansivities of Water and NaCl(aq), Debye-Huckel Parameter A_X and NaCl Virial Parameters at t and P. dV_1^o/dT is the Expansivity of Water and $d\bar{V}_2^o/dT$ the Expansivity of NaCl(aq) in its Standard State.

t	P	$10^3 dV_1^o/dT$	$d\bar{V}_2^o/dT$	A_X	$10^6 \beta^{(0)X}_{NaCl}$	$10^9 C^X_{NaCl}$
°C	bar	$cm^3/mol\ K$	$cm^3/mol\ K$	$cm^3 kg^{1/2}/mol^{3/2} K$	kg/mol bar K	kg^2/mol^2 bar K
0.0	800.0	3.04	0.110	0.0083	-0.590	55.6
10.0	800.0	4.29	0.079	0.0097	-0.400	37.1
20.0	800.0	5.36	0.056	0.0112	-0.285	26.1
25.0	800.0	5.85	0.047	0.0120	-0.244	22.1
30.0	800.0	6.32	0.039	0.0128	-0.209	18.8
40.0	800.0	7.20	0.024	0.0146	-0.153	13.6
50.0	800.0	8.02	0.011	0.0166	-0.110	9.6
60.0	800.0	8.82	-0.001	0.0188	-0.074	6.3
70.0	800.0	9.58	-0.014	0.0212	-0.039	2.7
80.0	800.0	10.33	-0.025	0.0239	-0.020	1.3
90.0	800.0	11.07	-0.036	0.0269	-0.005	0.5
100.0	800.0	11.79	-0.047	0.0302	0.007	0.0
110.0	800.0	12.52	-0.058	0.0340	0.015	-0.2
120.0	800.0	13.25	-0.069	0.0383	0.021	-0.2
130.0	800.0	13.99	-0.081	0.0431	0.026	0.1
140.0	800.0	14.74	-0.092	0.0486	0.028	0.5
150.0	800.0	15.51	-0.105	0.0548	0.028	1.0
160.0	800.0	16.31	-0.117	0.0618	0.026	1.7
170.0	800.0	17.13	-0.131	0.0699	0.022	2.5
180.0	800.0	18.00	-0.145	0.0791	0.016	3.5
190.0	800.0	18.90	-0.161	0.0896	0.007	4.6
200.0	800.0	19.86	-0.177	0.102	-0.004	5.8
210.0	800.0	20.88	-0.195	0.116	-0.019	7.1
220.0	800.0	21.96	-0.215	0.132	-0.038	8.6
230.0	800.0	23.12	-0.235	0.151	-0.062	10.3
240.0	800.0	24.36	-0.258	0.173	-0.091	12.2
250.0	800.0	25.70	-0.282	0.199	-0.128	14.3
260.0	800.0	27.14	-0.308	0.229	-0.174	16.8
270.0	800.0	28.71	-0.337	0.265	-0.232	19.6
280.0	800.0	30.42	-0.366	0.308	-0.306	22.9
290.0	800.0	32.28	-0.397	0.360	-0.401	26.9
300.0	800.0	34.32	-0.428	0.423	-0.525	31.8

Table A-6 (continued). The Standard Expansivities of Water and NaCl(aq), Debye-Huckel Parameter A_X and NaCl Virial Parameters at t and P. dV_1^o/dT is the Expansivity of Water and $d\bar{V}_2^o/dT$ the Expansivity of NaCl(aq) in its Standard State.

t	P	$10^3 dV_1^o/dT$	$d\bar{V}_2^o/dT$	A_X	$10^6 \beta^{(0)X}_{NaCl}$	$10^9 C^X_{NaCl}$
^oC	bar	$cm^3/mol\ K$	$cm^3/mol\ K$	$cm^3 kg^{1/2}/mol^{3/2} K$	kg/mol bar K	kg^2/mol^2 bar K
0.0	1000.0	3.73	0.089	0.0072	-0.528	55.6
10.0	1000.0	4.74	0.066	0.0087	-0.365	37.1
20.0	1000.0	5.65	0.049	0.0102	-0.266	26.1
25.0	1000.0	6.07	0.042	0.0110	-0.229	22.1
30.0	1000.0	6.47	0.035	0.0118	-0.198	18.8
40.0	1000.0	7.25	0.022	0.0135	-0.148	13.6
50.0	1000.0	7.98	0.011	0.0153	-0.107	9.6
60.0	1000.0	8.69	-0.001	0.0173	-0.073	6.3
70.0	1000.0	9.39	-0.011	0.0194	-0.040	2.7
80.0	1000.0	10.07	-0.021	0.0218	-0.025	1.3
90.0	1000.0	10.74	-0.030	0.0245	-0.013	0.5
100.0	1000.0	11.40	-0.039	0.0274	-0.004	0.0
110.0	1000.0	12.06	-0.048	0.0307	0.002	-0.2
120.0	1000.0	12.72	-0.058	0.0343	0.006	-0.2
130.0	1000.0	13.38	-0.067	0.0384	0.009	0.1
140.0	1000.0	14.06	-0.077	0.0431	0.009	0.5
150.0	1000.0	14.75	-0.087	0.0482	0.009	1.0
160.0	1000.0	15.47	-0.098	0.0540	0.006	1.7
170.0	1000.0	16.19	-0.109	0.0606	0.002	2.5
180.0	1000.0	16.95	-0.121	0.0680	-0.004	3.5
190.0	1000.0	17.74	-0.133	0.0763	-0.011	4.6
200.0	1000.0	18.57	-0.146	0.0858	-0.021	5.8
210.0	1000.0	19.44	-0.161	0.0965	-0.033	7.1
220.0	1000.0	20.37	-0.176	0.109	-0.048	8.6
230.0	1000.0	21.35	-0.192	0.123	-0.066	10.3
240.0	1000.0	22.38	-0.210	0.139	-0.088	12.2
250.0	1000.0	23.49	-0.228	0.157	-0.116	14.3
260.0	1000.0	24.67	-0.248	0.177	-0.150	16.8
270.0	1000.0	25.94	-0.268	0.201	-0.192	19.6
280.0	1000.0	27.30	-0.289	0.229	-0.245	22.9
290.0	1000.0	28.76	-0.309	0.261	-0.312	26.9
300.0	1000.0	30.34	-0.328	0.299	-0.400	31.8

Table A-7. The Standard Compressibilities of Water and NaCl(aq), Debye-Huckel Parameter A_K and NaCl Virial Parameters at t and P. dV_1^o/dP is the compressibility of water and $d\bar{V}_2^o/dP$ the compressibility of NaCl(aq) in its standard state.

t °C	P bar	$10^3 dV_1^o/dP$ $cm^3/mol\ bar$	$10^3 d\bar{V}_2^o/dP$ $cm^3/mol\ bar$	$10^3 A_K$ $cm^3 kg^{1/2}/mol^{3/2} bar$	$10^9 \beta^{(0)K}_{NaCl}$ $kg/mol\ bar^2$
0.0	1.0	-0.919	6.63	-0.201	-11.73
10.0	1.0	-0.861	5.34	-0.281	-8.27
20.0	1.0	-0.827	4.58	-0.351	-6.18
25.0	1.0	-0.817	4.34	-0.388	-5.46
30.0	1.0	-0.810	4.15	-0.425	-4.89
40.0	1.0	-0.804	3.93	-0.508	-4.07
50.0	1.0	-0.807	3.87	-0.604	-3.54
60.0	1.0	-0.817	3.92	-0.718	-3.19
70.0	1.0	-0.834	3.56	-0.855	-1.50
80.0	1.0	-0.857	3.60	-1.02	-0.86
90.0	1.0	-0.887	3.71	-1.22	-0.24
100.0	1.0	-0.923	3.91	-1.47	0.38
110.0	1.4	-0.966	4.19	-1.77	1.03
120.0	2.0	-1.016	4.58	-2.14	1.74
130.0	2.7	-1.075	5.08	-2.60	2.52
140.0	3.6	-1.143	5.73	-3.17	3.41
150.0	4.8	-1.221	6.54	-3.88	4.44
160.0	6.2	-1.311	7.58	-4.78	5.66
170.0	7.9	-1.416	8.89	-5.93	7.09
180.0	10.0	-1.538	10.6	-7.38	8.79
190.0	12.5	-1.679	12.7	-9.25	10.8
200.0	15.5	-1.845	15.5	-11.7	13.3
210.0	19.1	-2.041	19.1	-14.9	16.2
220.0	23.2	-2.274	24.0	-19.1	19.7
230.0	28.0	-2.554	30.4	-24.7	23.8
240.0	33.4	-2.894	39.2	-32.3	28.9
250.0	39.7	-3.313	51.4	-42.7	34.9
260.0	46.9	-3.837	68.4	-57.2	42.2
270.0	55.0	-4.503	92.7	-77.8	51.0
280.0	64.1	-5.369	128.	-107.	61.7
290.0	74.4	-6.525	181.	-152.	74.9
300.0	85.8	-8.120	261.	-218.	91.2

t °C	P bar	$10^3 dV_1^o/dP$ $cm^3/mol\ bar$	$10^3 d\bar{V}_2^o/dP$ $cm^3/mol\ bar$	$10^3 A_K$ $cm^3 kg^{1/2}/mol^{3/2} bar$	$10^9 \beta^{(0)K}_{NaCl}$ $kg/mol\ bar^2$
0.0	200.0	-0.858	5.98	-0.215	-10.56
10.0	200.0	-0.808	4.80	-0.281	-7.30
20.0	200.0	-0.778	4.10	-0.342	-5.37
25.0	200.0	-0.769	3.87	-0.375	-4.70
30.0	200.0	-0.762	3.69	-0.408	-4.18
40.0	200.0	-0.756	3.48	-0.482	-3.44
50.0	200.0	-0.757	3.40	-0.569	-2.98
60.0	200.0	-0.765	3.43	-0.671	-2.69
70.0	200.0	-0.779	3.18	-0.792	-1.40
80.0	200.0	-0.799	3.24	-0.937	-0.94
90.0	200.0	-0.824	3.37	-1.11	-0.52
100.0	200.0	-0.854	3.57	-1.33	-0.12
110.0	200.0	-0.890	3.86	-1.58	0.27
120.0	200.0	-0.932	4.23	-1.90	0.68
130.0	200.0	-0.981	4.70	-2.28	1.14
140.0	200.0	-1.037	5.29	-2.76	1.67
150.0	200.0	-1.101	6.01	-3.35	2.30
160.0	200.0	-1.174	6.90	-4.08	3.08
170.0	200.0	-1.258	7.98	-4.99	4.04
180.0	200.0	-1.355	9.32	-6.14	5.23
190.0	200.0	-1.466	11.0	-7.60	6.71
200.0	200.0	-1.595	13.1	-9.46	8.54
210.0	200.0	-1.744	15.7	-11.9	10.8
220.0	200.0	-1.919	19.1	-15.0	13.6
230.0	200.0	-2.126	23.6	-19.1	17.1
240.0	200.0	-2.373	29.5	-24.6	21.3
250.0	200.0	-2.671	37.6	-32.1	26.6
260.0	200.0	-3.035	48.8	-42.4	33.1
270.0	200.0	-3.487	64.6	-56.9	41.1
280.0	200.0	-4.059	87.8	-77.9	51.0
290.0	200.0	-4.802	122.6	-109.	63.4
300.0	200.0	-5.795	177.0	-157.	79.1

Table A-7 (continued). The Standard Compressibilities of Water and NaCl(aq), Debye-Huckel Parameter A_K and NaCl Virial Parameters at t and P. dV_1^o/dP is the compressibility of water and $d\bar{V}_2^o/dP$ the compressibility of NaCl(aq) in its standard state.

t	P	$10^3 dV_1^o/dP$	$10^3 d\bar{V}_2^o/dP$	$10^3 A_K$	$10^9 \beta^{(0)K}_{NaCl}$
°C	bar	$cm^3/mol\ bar$	$cm^3/mol\ bar$	$cm^3 kg^{1/2}/mol^{3/2} bar$	$kg/mol\ bar^2$
0.0	400.0	-0.805	5.39	-0.211	-9.38
10.0	400.0	-0.761	4.31	-0.270	-6.34
20.0	400.0	-0.735	3.67	-0.326	-4.54
25.0	400.0	-0.726	3.45	-0.355	-3.94
30.0	400.0	-0.720	3.29	-0.386	-3.47
40.0	400.0	-0.714	3.08	-0.453	-2.81
50.0	400.0	-0.714	3.01	-0.531	-2.42
60.0	400.0	-0.721	3.02	-0.622	-2.17
70.0	400.0	-0.732	2.88	-0.730	-1.30
80.0	400.0	-0.749	2.97	-0.858	-1.01
90.0	400.0	-0.770	3.12	-1.01	-0.79
100.0	400.0	-0.796	3.36	-1.20	-0.63
110.0	400.0	-0.826	3.67	-1.42	-0.50
120.0	400.0	-0.862	4.06	-1.68	-0.39
130.0	400.0	-0.903	4.54	-2.01	-0.27
140.0	400.0	-0.949	5.12	-2.40	-0.11
150.0	400.0	-1.003	5.81	-2.88	0.11
160.0	400.0	-1.063	6.64	-3.47	0.42
170.0	400.0	-1.131	7.61	-4.19	0.87
180.0	400.0	-1.208	8.77	-5.09	1.48
190.0	400.0	-1.296	10.1	-6.20	2.31
200.0	400.0	-1.396	11.8	-7.60	3.42
210.0	400.0	-1.510	13.8	-9.35	4.88
220.0	400.0	-1.641	16.3	-11.6	6.77
230.0	400.0	-1.792	19.3	-14.4	9.20
240.0	400.0	-1.966	23.1	-18.1	12.3
250.0	400.0	-2.169	28.0	-22.9	16.2
260.0	400.0	-2.408	34.4	-29.3	21.1
270.0	400.0	-2.690	42.9	-37.8	27.4
280.0	400.0	-3.028	54.4	-49.4	35.2
290.0	400.0	-3.436	70.5	-65.6	45.2
300.0	400.0	-3.936	93.5	-88.6	57.8
t	P	$10^3 dV_1^o/dP$	$10^3 d\bar{V}_2^o/dP$	$10^3 A_K$	$10^9 \beta^{(0)K}_{NaCl}$
°C	bar	$cm^3/mol\ bar$	$cm^3/mol\ bar$	$cm^3 kg^{1/2}/mol^{3/2} bar$	$kg/mol\ bar^2$
0.0	600.0	-0.757	4.83	-0.197	-8.20
10.0	600.0	-0.719	3.86	-0.253	-5.37
20.0	600.0	-0.696	3.27	-0.306	-3.72
25.0	600.0	-0.688	3.07	-0.333	-3.17
30.0	600.0	-0.682	2.92	-0.362	-2.75
40.0	600.0	-0.676	2.73	-0.423	-2.18
50.0	600.0	-0.677	2.66	-0.494	-1.85
60.0	600.0	-0.682	2.66	-0.576	-1.66
70.0	600.0	-0.692	2.65	-0.672	-1.20
80.0	600.0	-0.706	2.77	-0.785	-1.08
90.0	600.0	-0.724	2.97	-0.919	-1.06
100.0	600.0	-0.746	3.24	-1.08	-1.13
110.0	600.0	-0.772	3.59	-1.27	-1.27
120.0	600.0	-0.803	4.03	-1.50	-1.46
130.0	600.0	-0.838	4.55	-1.77	-1.67
140.0	600.0	-0.878	5.17	-2.10	-1.88
150.0	600.0	-0.922	5.88	-2.49	-2.08
160.0	600.0	-0.973	6.71	-2.97	-2.23
170.0	600.0	-1.030	7.67	-3.55	-2.31
180.0	600.0	-1.094	8.77	-4.26	-2.27
190.0	600.0	-1.165	10.0	-5.12	-2.08
200.0	600.0	-1.246	11.5	-6.18	-1.69
210.0	600.0	-1.336	13.2	-7.49	-1.04
220.0	600.0	-1.439	15.2	-9.12	-0.07
230.0	600.0	-1.554	17.5	-11.1	1.33
240.0	600.0	-1.686	20.3	-13.7	3.24
250.0	600.0	-1.836	23.6	-16.9	5.81
260.0	600.0	-2.008	27.7	-21.0	9.21
270.0	600.0	-2.205	32.8	-26.3	13.6
280.0	600.0	-2.434	39.1	-33.2	19.4
290.0	600.0	-2.700	47.3	-42.2	26.9
300.0	600.0	-3.011	58.0	-54.3	36.6

Table A-7 (continued). The Standard Compressibilities of Water and NaCl(aq), Debye-Huckel Parameter A_K and NaCl Virial Parameters at t and P. dV_1^o/dP is the compressibility of water and $d\bar{V}_2^o/dP$ the compressibility of NaCl(aq) in its standard state.

t	P	$10^3 dV_1^o/dP$	$10^3 d\bar{V}_2^o/dP$	$10^3 A_K$	$10^9 \beta^{(0)K}_{NaCl}$
^oC	bar	cm^3/mol bar	cm^3/mol bar	$cm^3 kg^{1/2}/mol^{3/2} bar$	kg/mol bar^2
0.0	800.0	-0.711	4.30	-0.180	-7.02
10.0	800.0	-0.680	3.43	-0.234	-4.40
20.0	800.0	-0.660	2.90	-0.285	-2.90
25.0	800.0	-0.653	2.72	-0.310	-2.41
30.0	800.0	-0.648	2.59	-0.337	-2.04
40.0	800.0	-0.643	2.42	-0.394	-1.55
50.0	800.0	-0.642	2.35	-0.458	-1.29
60.0	800.0	-0.647	2.34	-0.532	-1.15
70.0	800.0	-0.655	2.47	-0.617	-1.10
80.0	800.0	-0.668	2.63	-0.718	-1.15
90.0	800.0	-0.683	2.88	-0.836	-1.34
100.0	800.0	-0.703	3.21	-0.975	-1.64
110.0	800.0	-0.726	3.62	-1.14	-2.04
120.0	800.0	-0.752	4.11	-1.34	-2.53
130.0	800.0	-0.783	4.70	-1.57	-3.07
140.0	800.0	-0.817	5.37	-1.84	-3.66
150.0	800.0	-0.855	6.15	-2.17	-4.27
160.0	800.0	-0.899	7.04	-2.56	-4.89
170.0	800.0	-0.947	8.05	-3.03	-5.48
180.0	800.0	-1.001	9.18	-3.60	-6.02
190.0	800.0	-1.060	10.5	-4.28	-6.48
200.0	800.0	-1.127	11.9	-5.10	-6.81
210.0	800.0	-1.201	13.5	-6.10	-6.97
220.0	800.0	-1.284	15.3	-7.31	-6.91
230.0	800.0	-1.377	17.4	-8.79	-6.54
240.0	800.0	-1.480	19.7	-10.6	-5.80
250.0	800.0	-1.597	22.4	-12.8	-4.57
260.0	800.0	-1.728	25.4	-15.6	-2.72
270.0	800.0	-1.876	29.0	-19.1	-0.07
280.0	800.0	-2.043	33.1	-23.4	3.61
290.0	800.0	-2.233	37.9	-28.9	8.62
300.0	800.0	-2.450	43.7	-35.9	15.4

t	P	$10^3 dV_1^o/dP$	$10^3 d\bar{V}_2^o/dP$	$10^3 A_K$	$10^9 \beta^{(0)K}_{NaCl}$
^oC	bar	cm^3/mol bar	cm^3/mol bar	$cm^3 kg^{1/2}/mol^{3/2} bar$	kg/mol bar^2
0.0	1000.0	-0.667	3.78	-0.163	-5.85
10.0	1000.0	-0.642	3.02	-0.215	-3.43
20.0	1000.0	-0.626	2.56	-0.264	-2.08
25.0	1000.0	-0.620	2.40	-0.288	-1.65
30.0	1000.0	-0.616	2.28	-0.313	-1.33
40.0	1000.0	-0.612	2.14	-0.365	-0.92
50.0	1000.0	-0.612	2.07	-0.424	-0.72
60.0	1000.0	-0.615	2.06	-0.491	-0.64
70.0	1000.0	-0.623	2.33	-0.568	-1.00
80.0	1000.0	-0.634	2.54	-0.657	-1.22
90.0	1000.0	-0.648	2.84	-0.762	-1.61
100.0	1000.0	-0.665	3.23	-0.884	-2.15
110.0	1000.0	-0.685	3.71	-1.03	-2.81
120.0	1000.0	-0.708	4.28	-1.20	-3.59
130.0	1000.0	-0.735	4.95	-1.39	-4.47
140.0	1000.0	-0.765	5.71	-1.63	-5.44
150.0	1000.0	-0.798	6.59	-1.90	-6.47
160.0	1000.0	-0.836	7.57	-2.23	-7.55
170.0	1000.0	-0.877	8.67	-2.61	-8.66
180.0	1000.0	-0.923	9.90	-3.07	-9.77
190.0	1000.0	-0.974	11.3	-3.61	-10.9
200.0	1000.0	-1.031	12.8	-4.26	-11.9
210.0	1000.0	-1.093	14.5	-5.03	-12.9
220.0	1000.0	-1.162	16.3	-5.95	-13.7
230.0	1000.0	-1.238	18.4	-7.06	-14.4
240.0	1000.0	-1.322	20.6	-8.39	-14.8
250.0	1000.0	-1.416	23.1	-10.0	-15.0
260.0	1000.0	-1.520	25.8	-11.9	-14.6
270.0	1000.0	-1.636	28.8	-14.3	-13.8
280.0	1000.0	-1.765	32.2	-17.2	-12.2
290.0	1000.0	-1.909	35.8	-20.7	-9.7
300.0	1000.0	-2.071	39.8	-25.1	-5.9

Table A-8. The Activity Coefficient of NaCl(aq).

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	1.0	0.780	0.717	0.672	0.649	0.635	0.626	0.655	0.710	0.793	0.908
10.0	1.0	0.780	0.720	0.678	0.658	0.648	0.649	0.686	0.748	0.835	0.951
20.0	1.0	0.779	0.720	0.681	0.663	0.655	0.664	0.706	0.773	0.863	0.979
25.0	1.0	0.778	0.720	0.681	0.665	0.657	0.669	0.714	0.782	0.873	0.987
30.0	1.0	0.777	0.719	0.681	0.665	0.659	0.672	0.719	0.789	0.880	0.993
40.0	1.0	0.774	0.716	0.680	0.665	0.659	0.676	0.725	0.796	0.886	0.996
50.0	1.0	0.770	0.713	0.676	0.662	0.657	0.676	0.726	0.797	0.884	0.989
60.0	1.0	0.767	0.708	0.672	0.658	0.653	0.672	0.723	0.791	0.876	0.975
70.0	1.0	0.762	0.703	0.667	0.652	0.647	0.666	0.716	0.782	0.863	0.955
80.0	1.0	0.757	0.697	0.660	0.645	0.640	0.658	0.705	0.768	0.844	0.930
90.0	1.0	0.752	0.691	0.653	0.637	0.631	0.647	0.692	0.751	0.822	0.901
100.0	1.0	0.746	0.684	0.644	0.628	0.622	0.635	0.676	0.731	0.796	0.868
110.0	1.4	0.740	0.676	0.635	0.618	0.611	0.621	0.659	0.709	0.769	0.833
120.0	2.0	0.733	0.668	0.625	0.607	0.599	0.606	0.639	0.685	0.739	0.796
130.0	2.7	0.726	0.659	0.615	0.596	0.586	0.589	0.619	0.660	0.707	0.758
140.0	3.6	0.719	0.649	0.604	0.583	0.573	0.572	0.597	0.633	0.675	0.719
150.0	4.8	0.711	0.639	0.592	0.570	0.559	0.553	0.574	0.605	0.641	0.679
160.0	6.2	0.703	0.629	0.580	0.556	0.544	0.534	0.550	0.576	0.607	0.639
170.0	7.9	0.694	0.618	0.567	0.542	0.528	0.514	0.525	0.547	0.573	0.600
180.0	10.0	0.685	0.606	0.553	0.527	0.511	0.493	0.500	0.517	0.538	0.560
190.0	12.5	0.675	0.594	0.539	0.511	0.494	0.472	0.475	0.487	0.504	0.521
200.0	15.5	0.665	0.581	0.524	0.494	0.477	0.450	0.449	0.457	0.470	0.483
210.0	19.1	0.654	0.568	0.508	0.477	0.459	0.427	0.423	0.428	0.436	0.446
220.0	23.2	0.643	0.554	0.492	0.460	0.440	0.405	0.397	0.398	0.403	0.409
230.0	28.0	0.631	0.539	0.475	0.441	0.420	0.382	0.370	0.369	0.371	0.374
240.0	33.4	0.618	0.523	0.457	0.423	0.400	0.358	0.344	0.340	0.339	0.340
250.0	39.7	0.604	0.507	0.439	0.403	0.380	0.335	0.318	0.311	0.309	0.307
260.0	46.9	0.589	0.490	0.420	0.382	0.358	0.311	0.292	0.283	0.279	0.276
270.0	55.0	0.574	0.471	0.399	0.361	0.337	0.287	0.266	0.256	0.250	0.246
280.0	64.1	0.557	0.452	0.378	0.339	0.314	0.263	0.241	0.229	0.222	0.218
290.0	74.4	0.539	0.431	0.356	0.316	0.290	0.238	0.216	0.203	0.196	0.190
300.0	85.8	0.518	0.408	0.332	0.292	0.266	0.214	0.191	0.178	0.170	0.164

Table A-8 (continued). The Activity Coefficient of NaCl(aq).

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	200.0	0.782	0.722	0.678	0.657	0.645	0.641	0.675	0.735	0.823	0.942
10.0	200.0	0.782	0.724	0.684	0.665	0.656	0.662	0.703	0.769	0.861	0.981
20.0	200.0	0.781	0.724	0.686	0.670	0.663	0.675	0.721	0.792	0.886	1.005
25.0	200.0	0.780	0.723	0.686	0.671	0.664	0.679	0.728	0.800	0.894	1.013
30.0	200.0	0.779	0.723	0.686	0.671	0.665	0.682	0.733	0.806	0.900	1.017
40.0	200.0	0.776	0.720	0.684	0.670	0.666	0.686	0.738	0.812	0.905	1.019
50.0	200.0	0.773	0.717	0.681	0.668	0.663	0.685	0.738	0.812	0.903	1.011
60.0	200.0	0.769	0.712	0.677	0.664	0.659	0.682	0.734	0.806	0.894	0.997
70.0	200.0	0.765	0.707	0.672	0.658	0.654	0.675	0.727	0.796	0.880	0.976
80.0	200.0	0.760	0.702	0.665	0.651	0.647	0.667	0.716	0.782	0.861	0.950
90.0	200.0	0.755	0.695	0.658	0.644	0.639	0.657	0.703	0.766	0.839	0.921
100.0	200.0	0.750	0.688	0.650	0.635	0.629	0.645	0.688	0.746	0.814	0.889
110.0	200.0	0.744	0.681	0.642	0.625	0.619	0.632	0.671	0.725	0.787	0.854
120.0	200.0	0.738	0.673	0.632	0.615	0.608	0.617	0.653	0.701	0.758	0.818
130.0	200.0	0.731	0.665	0.622	0.604	0.596	0.601	0.633	0.677	0.727	0.781
140.0	200.0	0.724	0.656	0.612	0.592	0.583	0.584	0.612	0.651	0.695	0.742
150.0	200.0	0.717	0.647	0.601	0.580	0.569	0.566	0.590	0.624	0.663	0.704
160.0	200.0	0.709	0.637	0.589	0.567	0.555	0.548	0.567	0.596	0.629	0.665
170.0	200.0	0.701	0.626	0.577	0.553	0.540	0.529	0.543	0.567	0.596	0.626
180.0	200.0	0.692	0.615	0.564	0.539	0.524	0.509	0.519	0.538	0.562	0.587
190.0	200.0	0.683	0.604	0.550	0.524	0.508	0.488	0.494	0.509	0.528	0.548
200.0	200.0	0.673	0.592	0.536	0.508	0.491	0.467	0.468	0.480	0.494	0.510
210.0	200.0	0.663	0.579	0.521	0.492	0.474	0.445	0.443	0.450	0.461	0.473
220.0	200.0	0.653	0.566	0.506	0.475	0.456	0.423	0.417	0.421	0.428	0.436
230.0	200.0	0.642	0.553	0.490	0.458	0.437	0.401	0.391	0.391	0.395	0.400
240.0	200.0	0.630	0.538	0.474	0.440	0.418	0.378	0.365	0.362	0.363	0.366
250.0	200.0	0.617	0.523	0.456	0.421	0.399	0.355	0.339	0.334	0.332	0.332
260.0	200.0	0.604	0.507	0.438	0.402	0.378	0.332	0.313	0.305	0.302	0.300
270.0	200.0	0.590	0.490	0.419	0.382	0.357	0.308	0.288	0.278	0.272	0.269
280.0	200.0	0.574	0.472	0.399	0.361	0.335	0.284	0.262	0.250	0.243	0.239
290.0	200.0	0.558	0.452	0.378	0.338	0.313	0.260	0.236	0.224	0.216	0.210
300.0	200.0	0.539	0.431	0.355	0.315	0.289	0.235	0.211	0.197	0.189	0.183

Table A-8 (continued). The Activity Coefficient of NaCl(aq).

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	400.0	0.785	0.726	0.684	0.665	0.654	0.656	0.694	0.759	0.850	0.973
10.0	400.0	0.785	0.728	0.689	0.672	0.664	0.674	0.719	0.789	0.884	1.007
20.0	400.0	0.784	0.728	0.691	0.676	0.670	0.686	0.735	0.809	0.907	1.029
25.0	400.0	0.783	0.727	0.691	0.677	0.671	0.689	0.741	0.816	0.914	1.036
30.0	400.0	0.782	0.726	0.691	0.677	0.672	0.692	0.745	0.821	0.919	1.039
40.0	400.0	0.779	0.724	0.689	0.676	0.672	0.695	0.750	0.826	0.923	1.040
50.0	400.0	0.776	0.720	0.686	0.673	0.670	0.694	0.749	0.826	0.920	1.032
60.0	400.0	0.772	0.716	0.682	0.669	0.666	0.690	0.745	0.820	0.910	1.016
70.0	400.0	0.768	0.711	0.676	0.664	0.660	0.684	0.738	0.809	0.896	0.995
80.0	400.0	0.763	0.706	0.670	0.657	0.653	0.676	0.727	0.796	0.877	0.970
90.0	400.0	0.759	0.700	0.664	0.650	0.645	0.666	0.715	0.779	0.855	0.941
100.0	400.0	0.753	0.693	0.656	0.641	0.636	0.654	0.700	0.761	0.831	0.909
110.0	400.0	0.748	0.686	0.648	0.632	0.627	0.642	0.684	0.740	0.804	0.875
120.0	400.0	0.742	0.679	0.639	0.623	0.616	0.628	0.666	0.717	0.776	0.840
130.0	400.0	0.735	0.671	0.629	0.612	0.604	0.612	0.647	0.693	0.747	0.803
140.0	400.0	0.729	0.662	0.619	0.601	0.592	0.596	0.627	0.668	0.716	0.766
150.0	400.0	0.722	0.653	0.609	0.589	0.579	0.579	0.605	0.642	0.684	0.728
160.0	400.0	0.714	0.644	0.598	0.577	0.566	0.562	0.583	0.615	0.652	0.690
170.0	400.0	0.707	0.634	0.586	0.564	0.552	0.543	0.561	0.588	0.620	0.652
180.0	400.0	0.699	0.624	0.574	0.550	0.537	0.524	0.537	0.560	0.587	0.614
190.0	400.0	0.690	0.613	0.561	0.536	0.522	0.505	0.513	0.531	0.554	0.577
200.0	400.0	0.682	0.602	0.548	0.522	0.506	0.484	0.489	0.503	0.521	0.539
210.0	400.0	0.672	0.591	0.535	0.506	0.489	0.464	0.464	0.474	0.488	0.503
220.0	400.0	0.663	0.579	0.521	0.491	0.473	0.443	0.439	0.445	0.455	0.467
230.0	400.0	0.653	0.566	0.506	0.475	0.455	0.421	0.414	0.417	0.423	0.431
240.0	400.0	0.642	0.553	0.491	0.458	0.438	0.400	0.389	0.388	0.392	0.396
250.0	400.0	0.631	0.540	0.475	0.441	0.419	0.378	0.364	0.360	0.361	0.363
260.0	400.0	0.620	0.526	0.459	0.424	0.401	0.356	0.339	0.332	0.330	0.330
270.0	400.0	0.608	0.511	0.442	0.406	0.382	0.333	0.314	0.305	0.301	0.299
280.0	400.0	0.595	0.496	0.425	0.387	0.362	0.311	0.289	0.278	0.272	0.268
290.0	400.0	0.581	0.479	0.407	0.368	0.342	0.288	0.265	0.252	0.244	0.240
300.0	400.0	0.567	0.462	0.388	0.348	0.321	0.266	0.240	0.226	0.218	0.212

Table A-8 (continued). The Activity Coefficient of NaCl(aq).

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	600.0	0.788	0.730	0.690	0.672	0.663	0.670	0.712	0.781	0.875	1.000
10.0	600.0	0.787	0.731	0.694	0.679	0.672	0.686	0.734	0.808	0.906	1.031
20.0	600.0	0.786	0.731	0.696	0.682	0.677	0.696	0.749	0.826	0.926	1.051
25.0	600.0	0.785	0.730	0.696	0.682	0.678	0.699	0.754	0.832	0.932	1.057
30.0	600.0	0.784	0.729	0.695	0.682	0.678	0.701	0.757	0.836	0.937	1.060
40.0	600.0	0.781	0.727	0.694	0.681	0.678	0.703	0.761	0.840	0.940	1.059
50.0	600.0	0.778	0.724	0.690	0.678	0.675	0.702	0.760	0.839	0.936	1.050
60.0	600.0	0.775	0.720	0.686	0.674	0.671	0.698	0.756	0.833	0.926	1.035
70.0	600.0	0.771	0.715	0.681	0.669	0.666	0.692	0.748	0.822	0.911	1.014
80.0	600.0	0.766	0.709	0.675	0.663	0.659	0.684	0.738	0.809	0.893	0.988
90.0	600.0	0.762	0.704	0.669	0.656	0.652	0.674	0.726	0.793	0.871	0.959
100.0	600.0	0.757	0.697	0.661	0.648	0.643	0.663	0.711	0.774	0.847	0.928
110.0	600.0	0.751	0.691	0.653	0.639	0.634	0.651	0.696	0.754	0.821	0.895
120.0	600.0	0.745	0.684	0.645	0.630	0.624	0.638	0.679	0.732	0.794	0.860
130.0	600.0	0.739	0.676	0.636	0.619	0.613	0.623	0.660	0.709	0.765	0.825
140.0	600.0	0.733	0.668	0.626	0.609	0.601	0.608	0.641	0.685	0.736	0.789
150.0	600.0	0.727	0.660	0.616	0.598	0.589	0.592	0.620	0.660	0.705	0.752
160.0	600.0	0.720	0.651	0.606	0.586	0.576	0.575	0.599	0.634	0.674	0.715
170.0	600.0	0.712	0.642	0.595	0.574	0.562	0.557	0.577	0.608	0.642	0.678
180.0	600.0	0.705	0.632	0.584	0.561	0.548	0.539	0.555	0.581	0.611	0.642
190.0	600.0	0.697	0.622	0.572	0.548	0.534	0.520	0.532	0.553	0.579	0.605
200.0	600.0	0.689	0.612	0.559	0.534	0.519	0.501	0.508	0.525	0.546	0.568
210.0	600.0	0.680	0.601	0.547	0.520	0.503	0.481	0.484	0.497	0.514	0.532
220.0	600.0	0.672	0.590	0.534	0.505	0.488	0.461	0.460	0.469	0.482	0.497
230.0	600.0	0.662	0.578	0.520	0.490	0.471	0.440	0.436	0.441	0.451	0.462
240.0	600.0	0.653	0.567	0.506	0.475	0.455	0.419	0.411	0.413	0.419	0.427
250.0	600.0	0.643	0.554	0.492	0.459	0.438	0.398	0.387	0.385	0.388	0.393
260.0	600.0	0.633	0.542	0.477	0.442	0.420	0.377	0.362	0.358	0.358	0.360
270.0	600.0	0.622	0.528	0.462	0.426	0.402	0.356	0.338	0.330	0.328	0.328
280.0	600.0	0.611	0.515	0.446	0.409	0.384	0.334	0.313	0.303	0.299	0.297
290.0	600.0	0.600	0.501	0.430	0.391	0.366	0.312	0.289	0.277	0.271	0.267
300.0	600.0	0.588	0.486	0.413	0.374	0.347	0.291	0.265	0.251	0.243	0.239

Table A-8 (continued). The Activity Coefficient of NaCl(aq).

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	800.0	0.790	0.734	0.696	0.679	0.672	0.683	0.729	0.801	0.898	1.024
10.0	800.0	0.790	0.735	0.699	0.685	0.679	0.697	0.749	0.825	0.926	1.053
20.0	800.0	0.788	0.734	0.700	0.687	0.683	0.706	0.762	0.841	0.944	1.071
25.0	800.0	0.787	0.734	0.700	0.688	0.684	0.708	0.766	0.847	0.950	1.076
30.0	800.0	0.786	0.733	0.700	0.688	0.684	0.710	0.769	0.850	0.953	1.079
40.0	800.0	0.784	0.730	0.698	0.686	0.684	0.712	0.772	0.853	0.955	1.077
50.0	800.0	0.781	0.727	0.695	0.683	0.681	0.710	0.770	0.851	0.951	1.068
60.0	800.0	0.777	0.723	0.691	0.679	0.677	0.706	0.766	0.845	0.941	1.052
70.0	800.0	0.773	0.718	0.685	0.674	0.671	0.700	0.758	0.834	0.926	1.031
80.0	800.0	0.769	0.713	0.680	0.668	0.665	0.692	0.748	0.821	0.907	1.005
90.0	800.0	0.764	0.708	0.673	0.661	0.658	0.683	0.736	0.805	0.886	0.977
100.0	800.0	0.760	0.702	0.666	0.653	0.650	0.672	0.722	0.787	0.863	0.946
110.0	800.0	0.754	0.695	0.659	0.645	0.640	0.660	0.707	0.768	0.837	0.914
120.0	800.0	0.749	0.688	0.651	0.636	0.631	0.647	0.690	0.746	0.811	0.880
130.0	800.0	0.743	0.681	0.642	0.626	0.620	0.633	0.673	0.724	0.783	0.845
140.0	800.0	0.737	0.673	0.633	0.616	0.609	0.619	0.654	0.701	0.754	0.810
150.0	800.0	0.731	0.665	0.623	0.606	0.597	0.603	0.634	0.677	0.724	0.775
160.0	800.0	0.724	0.657	0.614	0.594	0.585	0.587	0.614	0.652	0.694	0.739
170.0	800.0	0.717	0.648	0.603	0.583	0.572	0.570	0.593	0.626	0.664	0.703
180.0	800.0	0.710	0.639	0.592	0.571	0.559	0.552	0.571	0.600	0.633	0.667
190.0	800.0	0.703	0.630	0.581	0.558	0.545	0.534	0.549	0.573	0.602	0.631
200.0	800.0	0.695	0.620	0.569	0.545	0.531	0.516	0.526	0.546	0.570	0.596
210.0	800.0	0.687	0.610	0.557	0.531	0.516	0.497	0.503	0.519	0.539	0.560
220.0	800.0	0.679	0.600	0.545	0.518	0.501	0.477	0.479	0.491	0.508	0.525
230.0	800.0	0.671	0.589	0.532	0.503	0.486	0.457	0.456	0.464	0.476	0.491
240.0	800.0	0.662	0.578	0.519	0.489	0.470	0.437	0.432	0.436	0.445	0.456
250.0	800.0	0.653	0.567	0.506	0.474	0.454	0.417	0.408	0.409	0.415	0.423
260.0	800.0	0.644	0.555	0.492	0.459	0.437	0.396	0.383	0.381	0.384	0.390
270.0	800.0	0.634	0.543	0.478	0.443	0.420	0.376	0.359	0.354	0.354	0.357
280.0	800.0	0.624	0.531	0.464	0.427	0.403	0.355	0.335	0.327	0.325	0.325
290.0	800.0	0.614	0.518	0.449	0.411	0.386	0.333	0.311	0.300	0.296	0.295
300.0	800.0	0.604	0.505	0.434	0.395	0.368	0.312	0.287	0.274	0.267	0.265

Table A-8 (continued). The Activity Coefficient of NaCl(aq).

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	1000.0	0.792	0.737	0.701	0.686	0.680	0.695	0.745	0.819	0.918	1.044
10.0	1000.0	0.792	0.738	0.704	0.691	0.686	0.707	0.762	0.841	0.944	1.072
20.0	1000.0	0.790	0.738	0.705	0.693	0.689	0.715	0.774	0.856	0.961	1.090
25.0	1000.0	0.790	0.737	0.705	0.693	0.690	0.717	0.777	0.861	0.966	1.094
30.0	1000.0	0.788	0.736	0.704	0.693	0.690	0.719	0.780	0.864	0.969	1.097
40.0	1000.0	0.786	0.733	0.702	0.691	0.689	0.719	0.782	0.866	0.970	1.095
50.0	1000.0	0.783	0.730	0.699	0.688	0.686	0.718	0.780	0.863	0.965	1.085
60.0	1000.0	0.779	0.726	0.695	0.684	0.682	0.713	0.775	0.857	0.955	1.069
70.0	1000.0	0.776	0.722	0.690	0.679	0.677	0.707	0.767	0.846	0.940	1.048
80.0	1000.0	0.772	0.717	0.684	0.673	0.671	0.699	0.757	0.832	0.921	1.022
90.0	1000.0	0.767	0.711	0.678	0.666	0.664	0.690	0.745	0.817	0.900	0.993
100.0	1000.0	0.762	0.705	0.671	0.659	0.656	0.680	0.732	0.799	0.877	0.963
110.0	1000.0	0.757	0.699	0.664	0.651	0.647	0.669	0.717	0.780	0.852	0.931
120.0	1000.0	0.752	0.693	0.656	0.642	0.637	0.656	0.701	0.759	0.826	0.897
130.0	1000.0	0.747	0.686	0.648	0.633	0.627	0.643	0.684	0.738	0.799	0.864
140.0	1000.0	0.741	0.678	0.639	0.623	0.617	0.628	0.666	0.715	0.771	0.829
150.0	1000.0	0.735	0.671	0.630	0.613	0.605	0.613	0.647	0.691	0.742	0.794
160.0	1000.0	0.729	0.663	0.620	0.602	0.594	0.598	0.627	0.667	0.712	0.759
170.0	1000.0	0.722	0.654	0.610	0.591	0.581	0.581	0.607	0.642	0.683	0.724
180.0	1000.0	0.715	0.646	0.600	0.579	0.569	0.565	0.586	0.617	0.653	0.689
190.0	1000.0	0.708	0.637	0.589	0.567	0.555	0.547	0.564	0.591	0.622	0.655
200.0	1000.0	0.701	0.628	0.578	0.555	0.542	0.529	0.542	0.565	0.592	0.620
210.0	1000.0	0.694	0.618	0.567	0.542	0.528	0.511	0.519	0.538	0.561	0.585
220.0	1000.0	0.686	0.608	0.555	0.529	0.513	0.492	0.496	0.511	0.530	0.551
230.0	1000.0	0.678	0.598	0.543	0.515	0.498	0.473	0.473	0.484	0.500	0.517
240.0	1000.0	0.670	0.588	0.531	0.501	0.483	0.453	0.450	0.457	0.469	0.483
250.0	1000.0	0.662	0.577	0.518	0.487	0.468	0.433	0.426	0.430	0.438	0.449
260.0	1000.0	0.653	0.567	0.505	0.473	0.452	0.413	0.402	0.402	0.408	0.416
270.0	1000.0	0.644	0.556	0.492	0.458	0.436	0.393	0.378	0.375	0.378	0.384
280.0	1000.0	0.636	0.544	0.479	0.443	0.420	0.372	0.354	0.348	0.348	0.352
290.0	1000.0	0.627	0.533	0.465	0.428	0.403	0.351	0.330	0.321	0.318	0.320
300.0	1000.0	0.617	0.521	0.451	0.412	0.386	0.330	0.306	0.294	0.289	0.289

Table A-9. The Osmotic Coefficient of NaCl(aq).

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	1.0	0.932	0.918	0.912	0.913	0.917	0.951	1.005	1.076	1.160	1.258
10.0	1.0	0.933	0.920	0.917	0.921	0.927	0.968	1.025	1.096	1.176	1.266
20.0	1.0	0.933	0.922	0.921	0.926	0.934	0.979	1.039	1.109	1.187	1.271
25.0	1.0	0.933	0.922	0.922	0.928	0.936	0.984	1.045	1.114	1.190	1.272
30.0	1.0	0.932	0.922	0.923	0.929	0.938	0.987	1.049	1.118	1.193	1.272
40.0	1.0	0.932	0.922	0.924	0.931	0.941	0.992	1.054	1.123	1.195	1.270
50.0	1.0	0.931	0.921	0.924	0.932	0.942	0.995	1.057	1.124	1.194	1.264
60.0	1.0	0.929	0.920	0.923	0.931	0.942	0.996	1.058	1.123	1.190	1.257
70.0	1.0	0.928	0.919	0.921	0.930	0.941	0.995	1.057	1.121	1.185	1.248
80.0	1.0	0.926	0.917	0.919	0.928	0.939	0.993	1.054	1.116	1.177	1.237
90.0	1.0	0.924	0.914	0.917	0.925	0.936	0.990	1.049	1.109	1.168	1.224
100.0	1.0	0.922	0.912	0.914	0.922	0.933	0.985	1.043	1.101	1.158	1.211
110.0	1.4	0.920	0.909	0.910	0.918	0.928	0.979	1.036	1.092	1.146	1.196
120.0	2.0	0.917	0.905	0.906	0.913	0.923	0.973	1.027	1.082	1.133	1.180
130.0	2.7	0.914	0.902	0.902	0.909	0.918	0.966	1.018	1.070	1.119	1.163
140.0	3.6	0.912	0.898	0.897	0.903	0.912	0.957	1.008	1.058	1.104	1.145
150.0	4.8	0.908	0.893	0.892	0.897	0.905	0.948	0.997	1.044	1.088	1.126
160.0	6.2	0.905	0.889	0.886	0.890	0.898	0.939	0.984	1.029	1.071	1.106
170.0	7.9	0.901	0.884	0.880	0.883	0.890	0.928	0.971	1.014	1.053	1.086
180.0	10.0	0.897	0.879	0.873	0.876	0.881	0.916	0.957	0.998	1.034	1.065
190.0	12.5	0.893	0.873	0.866	0.867	0.872	0.904	0.943	0.980	1.014	1.043
200.0	15.5	0.889	0.867	0.858	0.859	0.862	0.891	0.927	0.962	0.994	1.020
210.0	19.1	0.884	0.860	0.850	0.849	0.852	0.877	0.910	0.943	0.972	0.996
220.0	23.2	0.879	0.853	0.841	0.839	0.840	0.862	0.892	0.923	0.950	0.972
230.0	28.0	0.873	0.846	0.831	0.828	0.828	0.846	0.873	0.901	0.927	0.947
240.0	33.4	0.867	0.837	0.821	0.816	0.815	0.829	0.853	0.879	0.902	0.921
250.0	39.7	0.860	0.828	0.810	0.803	0.801	0.811	0.832	0.856	0.877	0.894
260.0	46.9	0.853	0.819	0.797	0.789	0.785	0.792	0.810	0.831	0.851	0.867
270.0	55.0	0.845	0.808	0.784	0.774	0.769	0.771	0.786	0.806	0.824	0.838
280.0	64.1	0.837	0.796	0.769	0.757	0.750	0.748	0.761	0.778	0.795	0.809
290.0	74.4	0.827	0.782	0.752	0.738	0.730	0.723	0.734	0.749	0.765	0.779
300.0	85.8	0.815	0.767	0.734	0.717	0.707	0.696	0.704	0.719	0.734	0.747

Table A-9 (continued). The Osmotic Coefficient of NaCl(aq).

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	200.0	0.933	0.920	0.915	0.917	0.923	0.960	1.017	1.088	1.172	1.268
10.0	200.0	0.934	0.922	0.920	0.925	0.932	0.975	1.035	1.105	1.186	1.275
20.0	200.0	0.934	0.924	0.923	0.929	0.938	0.986	1.047	1.117	1.195	1.278
25.0	200.0	0.934	0.924	0.924	0.931	0.940	0.989	1.051	1.122	1.198	1.279
30.0	200.0	0.933	0.924	0.925	0.932	0.942	0.993	1.055	1.125	1.200	1.279
40.0	200.0	0.933	0.924	0.926	0.934	0.944	0.997	1.060	1.129	1.201	1.276
50.0	200.0	0.932	0.923	0.926	0.934	0.945	0.999	1.063	1.130	1.200	1.271
60.0	200.0	0.931	0.922	0.925	0.934	0.945	1.000	1.063	1.129	1.196	1.263
70.0	200.0	0.929	0.920	0.923	0.932	0.944	0.999	1.061	1.126	1.190	1.254
80.0	200.0	0.927	0.918	0.921	0.931	0.942	0.997	1.058	1.121	1.183	1.243
90.0	200.0	0.926	0.916	0.919	0.928	0.939	0.994	1.054	1.114	1.174	1.231
100.0	200.0	0.924	0.914	0.916	0.925	0.936	0.989	1.048	1.107	1.164	1.217
110.0	200.0	0.921	0.911	0.913	0.921	0.932	0.984	1.041	1.098	1.152	1.202
120.0	200.0	0.919	0.908	0.909	0.917	0.927	0.978	1.033	1.088	1.140	1.187
130.0	200.0	0.916	0.904	0.905	0.912	0.922	0.971	1.024	1.077	1.126	1.170
140.0	200.0	0.914	0.901	0.901	0.907	0.917	0.963	1.015	1.065	1.112	1.153
150.0	200.0	0.911	0.897	0.896	0.902	0.910	0.955	1.004	1.052	1.096	1.135
160.0	200.0	0.908	0.892	0.890	0.896	0.903	0.945	0.992	1.038	1.080	1.117
170.0	200.0	0.904	0.888	0.885	0.889	0.896	0.935	0.980	1.024	1.063	1.097
180.0	200.0	0.901	0.883	0.878	0.882	0.888	0.925	0.967	1.008	1.045	1.077
190.0	200.0	0.897	0.878	0.872	0.874	0.880	0.913	0.953	0.991	1.026	1.056
200.0	200.0	0.893	0.872	0.865	0.866	0.870	0.901	0.937	0.974	1.007	1.034
210.0	200.0	0.888	0.866	0.857	0.857	0.860	0.887	0.921	0.955	0.986	1.011
220.0	200.0	0.883	0.860	0.849	0.847	0.850	0.873	0.904	0.936	0.964	0.987
230.0	200.0	0.878	0.853	0.840	0.837	0.838	0.858	0.886	0.915	0.941	0.963
240.0	200.0	0.873	0.845	0.830	0.826	0.826	0.842	0.867	0.893	0.917	0.937
250.0	200.0	0.867	0.837	0.820	0.814	0.813	0.824	0.846	0.870	0.892	0.910
260.0	200.0	0.861	0.828	0.809	0.801	0.798	0.805	0.824	0.846	0.866	0.883
270.0	200.0	0.853	0.818	0.797	0.787	0.783	0.785	0.801	0.820	0.839	0.854
280.0	200.0	0.846	0.808	0.783	0.772	0.766	0.764	0.776	0.793	0.810	0.824
290.0	200.0	0.837	0.796	0.768	0.755	0.747	0.740	0.750	0.764	0.780	0.793
300.0	200.0	0.827	0.782	0.751	0.735	0.726	0.715	0.721	0.734	0.748	0.761

Table A-9 (continued). The Osmotic Coefficient of NaCl(aq).

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	400.0	0.934	0.922	0.919	0.922	0.928	0.969	1.027	1.099	1.182	1.276
10.0	400.0	0.935	0.924	0.923	0.928	0.936	0.982	1.043	1.114	1.194	1.281
20.0	400.0	0.935	0.925	0.926	0.933	0.942	0.991	1.054	1.124	1.202	1.285
25.0	400.0	0.935	0.925	0.927	0.934	0.944	0.995	1.058	1.128	1.204	1.285
30.0	400.0	0.934	0.926	0.927	0.935	0.945	0.997	1.061	1.131	1.206	1.285
40.0	400.0	0.934	0.925	0.928	0.936	0.947	1.001	1.065	1.135	1.207	1.282
50.0	400.0	0.933	0.924	0.928	0.937	0.948	1.003	1.067	1.135	1.206	1.277
60.0	400.0	0.932	0.923	0.927	0.936	0.948	1.004	1.067	1.134	1.202	1.269
70.0	400.0	0.930	0.922	0.926	0.935	0.947	1.003	1.065	1.131	1.196	1.260
80.0	400.0	0.929	0.920	0.924	0.933	0.945	1.000	1.062	1.126	1.188	1.249
90.0	400.0	0.927	0.918	0.921	0.931	0.942	0.997	1.058	1.119	1.179	1.236
100.0	400.0	0.925	0.916	0.919	0.928	0.939	0.993	1.052	1.112	1.169	1.223
110.0	400.0	0.923	0.913	0.916	0.924	0.935	0.988	1.046	1.103	1.158	1.209
120.0	400.0	0.921	0.910	0.912	0.920	0.931	0.982	1.038	1.094	1.146	1.194
130.0	400.0	0.918	0.907	0.908	0.916	0.926	0.976	1.030	1.083	1.133	1.178
140.0	400.0	0.916	0.903	0.904	0.911	0.921	0.969	1.021	1.072	1.120	1.162
150.0	400.0	0.913	0.900	0.900	0.906	0.915	0.961	1.011	1.060	1.105	1.145
160.0	400.0	0.910	0.896	0.895	0.900	0.909	0.952	1.000	1.047	1.090	1.127
170.0	400.0	0.907	0.892	0.889	0.894	0.902	0.943	0.989	1.033	1.074	1.109
180.0	400.0	0.903	0.887	0.884	0.888	0.895	0.933	0.976	1.019	1.057	1.090
190.0	400.0	0.900	0.882	0.878	0.881	0.887	0.922	0.963	1.003	1.039	1.070
200.0	400.0	0.896	0.877	0.871	0.873	0.878	0.910	0.949	0.987	1.021	1.050
210.0	400.0	0.892	0.872	0.864	0.865	0.869	0.898	0.933	0.969	1.001	1.028
220.0	400.0	0.888	0.866	0.857	0.856	0.859	0.885	0.917	0.950	0.981	1.006
230.0	400.0	0.884	0.860	0.849	0.847	0.849	0.870	0.900	0.931	0.959	0.982
240.0	400.0	0.879	0.853	0.840	0.837	0.837	0.855	0.882	0.910	0.936	0.958
250.0	400.0	0.874	0.846	0.831	0.826	0.825	0.839	0.862	0.888	0.912	0.932
260.0	400.0	0.868	0.838	0.821	0.815	0.813	0.822	0.842	0.865	0.887	0.905
270.0	400.0	0.862	0.830	0.811	0.802	0.799	0.803	0.820	0.840	0.860	0.877
280.0	400.0	0.856	0.821	0.799	0.789	0.784	0.783	0.796	0.814	0.832	0.848
290.0	400.0	0.849	0.812	0.787	0.775	0.768	0.762	0.771	0.786	0.802	0.816
300.0	400.0	0.842	0.801	0.773	0.759	0.750	0.739	0.744	0.756	0.770	0.784

Table A-9 (continued). The Osmotic Coefficient of NaCl(aq).

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	600.0	0.935	0.924	0.922	0.926	0.933	0.977	1.037	1.109	1.190	1.281
10.0	600.0	0.936	0.926	0.926	0.932	0.940	0.988	1.050	1.122	1.201	1.287
20.0	600.0	0.936	0.927	0.928	0.936	0.945	0.996	1.060	1.131	1.208	1.290
25.0	600.0	0.936	0.927	0.929	0.937	0.947	0.999	1.063	1.134	1.210	1.290
30.0	600.0	0.935	0.927	0.930	0.938	0.948	1.002	1.066	1.137	1.212	1.290
40.0	600.0	0.935	0.927	0.930	0.939	0.950	1.005	1.070	1.140	1.212	1.287
50.0	600.0	0.934	0.926	0.930	0.939	0.951	1.007	1.072	1.140	1.211	1.282
60.0	600.0	0.933	0.925	0.929	0.939	0.950	1.007	1.071	1.139	1.207	1.274
70.0	600.0	0.931	0.923	0.928	0.937	0.949	1.006	1.069	1.135	1.201	1.265
80.0	600.0	0.930	0.922	0.926	0.935	0.947	1.004	1.066	1.130	1.193	1.254
90.0	600.0	0.928	0.920	0.924	0.933	0.945	1.001	1.062	1.124	1.184	1.242
100.0	600.0	0.926	0.917	0.921	0.930	0.942	0.997	1.057	1.117	1.175	1.229
110.0	600.0	0.924	0.915	0.918	0.927	0.938	0.992	1.051	1.109	1.164	1.215
120.0	600.0	0.922	0.912	0.915	0.924	0.934	0.987	1.044	1.100	1.152	1.201
130.0	600.0	0.920	0.909	0.911	0.919	0.930	0.981	1.036	1.090	1.140	1.186
140.0	600.0	0.917	0.906	0.907	0.915	0.925	0.974	1.027	1.079	1.127	1.170
150.0	600.0	0.915	0.903	0.903	0.910	0.920	0.967	1.018	1.068	1.114	1.154
160.0	600.0	0.912	0.899	0.898	0.905	0.914	0.959	1.008	1.055	1.099	1.137
170.0	600.0	0.909	0.895	0.894	0.899	0.907	0.950	0.997	1.043	1.084	1.120
180.0	600.0	0.906	0.891	0.888	0.893	0.900	0.940	0.985	1.029	1.068	1.102
190.0	600.0	0.903	0.886	0.883	0.886	0.893	0.930	0.973	1.014	1.052	1.084
200.0	600.0	0.899	0.882	0.877	0.879	0.885	0.919	0.959	0.999	1.034	1.065
210.0	600.0	0.896	0.877	0.870	0.872	0.877	0.908	0.945	0.982	1.016	1.045
220.0	600.0	0.892	0.871	0.863	0.864	0.868	0.895	0.930	0.965	0.997	1.024
230.0	600.0	0.888	0.866	0.856	0.855	0.858	0.882	0.913	0.946	0.976	1.002
240.0	600.0	0.884	0.860	0.848	0.846	0.848	0.867	0.896	0.926	0.955	0.979
250.0	600.0	0.879	0.854	0.840	0.836	0.836	0.852	0.878	0.905	0.932	0.955
260.0	600.0	0.874	0.847	0.831	0.826	0.825	0.836	0.858	0.883	0.907	0.929
270.0	600.0	0.869	0.840	0.822	0.815	0.812	0.818	0.836	0.859	0.881	0.902
280.0	600.0	0.864	0.832	0.812	0.803	0.798	0.799	0.814	0.833	0.854	0.873
290.0	600.0	0.858	0.824	0.801	0.790	0.784	0.779	0.789	0.806	0.824	0.842
300.0	600.0	0.852	0.815	0.790	0.777	0.768	0.757	0.763	0.776	0.792	0.809

Table A-9 (continued). The Osmotic Coefficient of NaCl(aq).

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	800.0	0.936	0.926	0.925	0.930	0.938	0.984	1.045	1.116	1.197	1.284
10.0	800.0	0.937	0.928	0.929	0.935	0.944	0.994	1.057	1.128	1.206	1.290
20.0	800.0	0.937	0.928	0.931	0.938	0.949	1.001	1.065	1.137	1.213	1.294
25.0	800.0	0.937	0.928	0.931	0.940	0.950	1.004	1.068	1.139	1.215	1.294
30.0	800.0	0.936	0.928	0.932	0.940	0.951	1.006	1.071	1.142	1.216	1.294
40.0	800.0	0.936	0.928	0.932	0.941	0.953	1.009	1.074	1.144	1.217	1.291
50.0	800.0	0.935	0.927	0.932	0.941	0.953	1.010	1.076	1.144	1.215	1.286
60.0	800.0	0.934	0.926	0.931	0.941	0.953	1.010	1.075	1.143	1.211	1.279
70.0	800.0	0.932	0.925	0.929	0.939	0.951	1.009	1.073	1.139	1.205	1.270
80.0	800.0	0.931	0.923	0.928	0.938	0.950	1.007	1.070	1.134	1.198	1.259
90.0	800.0	0.929	0.921	0.926	0.935	0.947	1.004	1.066	1.128	1.189	1.247
100.0	800.0	0.927	0.919	0.923	0.933	0.945	1.000	1.061	1.121	1.180	1.234
110.0	800.0	0.926	0.917	0.920	0.930	0.941	0.996	1.055	1.113	1.169	1.221
120.0	800.0	0.924	0.914	0.917	0.926	0.938	0.991	1.048	1.105	1.158	1.207
130.0	800.0	0.921	0.911	0.914	0.923	0.933	0.985	1.041	1.095	1.146	1.192
140.0	800.0	0.919	0.908	0.910	0.918	0.929	0.979	1.033	1.085	1.134	1.177
150.0	800.0	0.917	0.905	0.906	0.914	0.924	0.972	1.024	1.074	1.121	1.162
160.0	800.0	0.914	0.902	0.902	0.909	0.918	0.964	1.014	1.063	1.108	1.147
170.0	800.0	0.911	0.898	0.897	0.904	0.912	0.956	1.004	1.051	1.093	1.130
180.0	800.0	0.908	0.894	0.892	0.898	0.906	0.947	0.993	1.038	1.079	1.114
190.0	800.0	0.905	0.890	0.887	0.892	0.899	0.938	0.981	1.024	1.063	1.097
200.0	800.0	0.902	0.886	0.882	0.885	0.891	0.927	0.969	1.010	1.047	1.079
210.0	800.0	0.899	0.881	0.876	0.878	0.883	0.916	0.955	0.994	1.030	1.060
220.0	800.0	0.895	0.876	0.869	0.871	0.875	0.904	0.941	0.978	1.011	1.041
230.0	800.0	0.892	0.871	0.863	0.863	0.866	0.892	0.925	0.960	0.992	1.020
240.0	800.0	0.888	0.866	0.856	0.854	0.856	0.878	0.909	0.941	0.972	0.999
250.0	800.0	0.884	0.860	0.848	0.845	0.846	0.864	0.891	0.921	0.950	0.976
260.0	800.0	0.880	0.854	0.840	0.836	0.835	0.848	0.872	0.900	0.927	0.952
270.0	800.0	0.875	0.847	0.831	0.825	0.823	0.831	0.852	0.876	0.902	0.926
280.0	800.0	0.870	0.841	0.822	0.814	0.811	0.813	0.830	0.851	0.875	0.898
290.0	800.0	0.865	0.834	0.813	0.803	0.797	0.794	0.806	0.824	0.846	0.868
300.0	800.0	0.860	0.826	0.802	0.790	0.782	0.773	0.780	0.795	0.814	0.835

Table A-9 (continued). The Osmotic Coefficient of NaCl(aq).

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	1000.0	0.937	0.928	0.928	0.934	0.943	0.991	1.052	1.123	1.201	1.286
10.0	1000.0	0.938	0.929	0.931	0.938	0.948	1.000	1.063	1.134	1.211	1.293
20.0	1000.0	0.938	0.930	0.933	0.941	0.952	1.006	1.070	1.142	1.217	1.297
25.0	1000.0	0.937	0.930	0.933	0.942	0.953	1.008	1.073	1.144	1.219	1.297
30.0	1000.0	0.937	0.930	0.934	0.943	0.954	1.010	1.075	1.146	1.221	1.297
40.0	1000.0	0.937	0.929	0.934	0.943	0.955	1.012	1.078	1.149	1.221	1.295
50.0	1000.0	0.936	0.929	0.933	0.943	0.956	1.014	1.079	1.149	1.219	1.290
60.0	1000.0	0.935	0.928	0.933	0.943	0.955	1.013	1.079	1.147	1.215	1.283
70.0	1000.0	0.933	0.926	0.931	0.941	0.954	1.012	1.077	1.143	1.209	1.274
80.0	1000.0	0.932	0.925	0.929	0.940	0.952	1.010	1.073	1.138	1.202	1.263
90.0	1000.0	0.930	0.923	0.927	0.938	0.950	1.007	1.069	1.132	1.193	1.251
100.0	1000.0	0.929	0.921	0.925	0.935	0.947	1.004	1.064	1.125	1.184	1.239
110.0	1000.0	0.927	0.918	0.923	0.932	0.944	0.999	1.059	1.118	1.174	1.226
120.0	1000.0	0.925	0.916	0.920	0.929	0.941	0.994	1.052	1.109	1.163	1.212
130.0	1000.0	0.923	0.913	0.916	0.925	0.937	0.989	1.045	1.100	1.152	1.198
140.0	1000.0	0.921	0.910	0.913	0.921	0.932	0.983	1.037	1.091	1.140	1.184
150.0	1000.0	0.918	0.907	0.909	0.917	0.927	0.976	1.029	1.080	1.127	1.169
160.0	1000.0	0.916	0.904	0.905	0.912	0.922	0.969	1.020	1.069	1.115	1.154
170.0	1000.0	0.913	0.901	0.901	0.907	0.916	0.961	1.010	1.058	1.101	1.139
180.0	1000.0	0.911	0.897	0.896	0.902	0.910	0.953	1.000	1.045	1.087	1.123
190.0	1000.0	0.908	0.893	0.891	0.896	0.904	0.944	0.989	1.032	1.072	1.107
200.0	1000.0	0.905	0.889	0.886	0.890	0.897	0.934	0.977	1.019	1.057	1.090
210.0	1000.0	0.902	0.885	0.880	0.883	0.889	0.924	0.964	1.004	1.041	1.073
220.0	1000.0	0.898	0.880	0.874	0.876	0.881	0.912	0.950	0.988	1.024	1.055
230.0	1000.0	0.895	0.875	0.868	0.869	0.873	0.900	0.935	0.972	1.006	1.036
240.0	1000.0	0.891	0.870	0.862	0.861	0.864	0.887	0.920	0.954	0.986	1.016
250.0	1000.0	0.888	0.865	0.855	0.853	0.854	0.873	0.903	0.935	0.966	0.994
260.0	1000.0	0.884	0.860	0.847	0.844	0.843	0.859	0.884	0.914	0.944	0.972
270.0	1000.0	0.880	0.854	0.839	0.834	0.832	0.842	0.865	0.892	0.920	0.947
280.0	1000.0	0.876	0.848	0.831	0.824	0.820	0.825	0.843	0.867	0.894	0.921
290.0	1000.0	0.871	0.841	0.822	0.813	0.808	0.806	0.820	0.841	0.866	0.892
300.0	1000.0	0.867	0.834	0.812	0.801	0.794	0.785	0.794	0.812	0.835	0.861

Table A-10. The Standard Entropy of Solution of NaCl(aq), divided by R. The entropies of column 3 are given for pressures of 1.0 bar below 100°C and saturation pressure (column 2) above 100°C.

t °C	P_{sat} bar	1.0 bar	200 bar	400 bar	600 bar	800 bar	1000 bar
0.0		7.031	6.533	6.106	5.745	5.445	5.198
10.0		6.148	5.817	5.528	5.278	5.064	4.883
20.0		5.490	5.266	5.068	4.892	4.739	4.604
25.0		5.207	5.025	4.861	4.715	4.585	4.471
30.0		4.945	4.798	4.665	4.544	4.437	4.340
40.0		4.466	4.378	4.296	4.220	4.151	4.087
50.0		4.028	3.988	3.949	3.912	3.876	3.842
60.0		3.614	3.617	3.617	3.614	3.610	3.604
70.0		3.219	3.255	3.291	3.324	3.352	3.375
80.0		2.822	2.897	2.968	3.034	3.091	3.139
90.0		2.421	2.535	2.642	2.739	2.825	2.897
100.0	1.0	2.012	2.165	2.307	2.436	2.550	2.646
110.0	1.4	1.590	1.782	1.960	2.121	2.263	2.383
120.0	2.0	1.152	1.385	1.599	1.793	1.963	2.108
130.0	2.7	0.693	0.968	1.221	1.448	1.648	1.818
140.0	3.6	0.211	0.530	0.823	1.086	1.316	1.511
150.0	4.8	-0.298	0.067	0.403	0.703	0.965	1.187
160.0	6.2	-0.839	-0.423	-0.041	0.298	0.594	0.844
170.0	7.9	-1.416	-0.945	-0.513	-0.132	0.200	0.480
180.0	10.0	-2.033	-1.503	-1.015	-0.588	-0.218	0.093
190.0	12.5	-2.697	-2.100	-1.551	-1.074	-0.664	-0.319
200.0	15.5	-3.415	-2.743	-2.124	-1.593	-1.138	-0.757
210.0	19.1	-4.195	-3.438	-2.739	-2.147	-1.645	-1.225
220.0	23.2	-5.049	-4.193	-3.401	-2.741	-2.187	-1.726
230.0	28.0	-5.991	-5.018	-4.115	-3.380	-2.768	-2.263
240.0	33.4	-7.038	-5.925	-4.890	-4.067	-3.393	-2.840
250.0	39.7	-8.216	-6.932	-5.733	-4.809	-4.066	-3.462
260.0	46.9	-9.559	-8.062	-6.656	-5.613	-4.794	-4.136
270.0	55.0	-11.114	-9.347	-7.672	-6.488	-5.585	-4.870
280.0	64.1	-12.952	-10.835	-8.799	-7.445	-6.449	-5.675
290.0	74.4	-15.178	-12.598	-10.062	-8.497	-7.399	-6.565
300.0	85.8	-17.961	-14.756	-11.495	-9.661	-8.453	-7.562

Table A-11. The Standard Enthalpy of Solution of NaCl(aq), divided by RT. The enthalpies of column 3 are given for pressures of 1.0 bar below 100°C and saturation pressure (column 2) above 100°C.

t °C	P_{sat} bar	1.0 bar	200 bar	400 bar	600 bar	800 bar	1000 bar
0.0		3.607	2.995	2.464	2.009	1.622	1.297
10.0		2.613	2.186	1.808	1.477	1.189	0.939
20.0		1.877	1.570	1.293	1.046	0.826	0.631
25.0		1.566	1.304	1.066	0.852	0.660	0.486
30.0		1.280	1.057	0.853	0.668	0.500	0.348
40.0		0.768	0.610	0.462	0.326	0.201	0.085
50.0		0.313	0.207	0.106	0.012	-0.077	-0.161
60.0		-0.104	-0.165	-0.225	-0.283	-0.339	-0.393
70.0		-0.491	-0.517	-0.541	-0.562	-0.584	-0.609
80.0		-0.869	-0.856	-0.844	-0.833	-0.827	-0.826
90.0		-1.240	-1.190	-1.144	-1.103	-1.069	-1.045
100.0	1.0	-1.611	-1.524	-1.444	-1.373	-1.313	-1.267
110.0	1.4	-1.985	-1.862	-1.750	-1.649	-1.564	-1.495
120.0	2.0	-2.367	-2.208	-2.063	-1.933	-1.822	-1.731
130.0	2.7	-2.762	-2.565	-2.386	-2.227	-2.089	-1.977
140.0	3.6	-3.172	-2.936	-2.722	-2.532	-2.369	-2.234
150.0	4.8	-3.601	-3.325	-3.073	-2.852	-2.661	-2.503
160.0	6.2	-4.053	-3.733	-3.443	-3.188	-2.968	-2.787
170.0	7.9	-4.533	-4.166	-3.832	-3.542	-3.292	-3.086
180.0	10.0	-5.045	-4.625	-4.245	-3.916	-3.635	-3.402
190.0	12.5	-5.594	-5.117	-4.684	-4.313	-3.998	-3.738
200.0	15.5	-6.188	-5.645	-5.153	-4.737	-4.385	-4.095
210.0	19.1	-6.836	-6.217	-5.656	-5.188	-4.797	-4.475
220.0	23.2	-7.546	-6.838	-6.197	-5.673	-5.238	-4.882
230.0	28.0	-8.333	-7.520	-6.782	-6.193	-5.711	-5.319
240.0	33.4	-9.214	-8.272	-7.418	-6.754	-6.220	-5.788
250.0	39.7	-10.212	-9.112	-8.112	-7.361	-6.769	-6.296
260.0	46.9	-11.360	-10.061	-8.875	-8.021	-7.365	-6.847
270.0	55.0	-12.704	-11.149	-9.719	-8.741	-8.015	-7.450
280.0	64.1	-14.311	-12.423	-10.661	-9.532	-8.728	-8.115
290.0	74.4	-16.285	-13.951	-11.725	-10.407	-9.516	-8.855
300.0	85.8	-18.788	-15.847	-12.941	-11.381	-10.396	-9.691

Table A-12. The Excess Entropy of NaCl(aq), Divided by R.

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	1.0	0.366	0.392	0.316	0.200	0.071	-0.455	-0.931	-1.332	-1.649	-1.876
10.0	1.0	0.428	0.507	0.499	0.441	0.363	0.002	-0.350	-0.656	-0.905	-1.090
20.0	1.0	0.479	0.597	0.638	0.621	0.579	0.337	0.078	-0.155	-0.347	-0.490
25.0	1.0	0.503	0.637	0.699	0.698	0.671	0.479	0.259	0.057	-0.109	-0.231
30.0	1.0	0.526	0.675	0.755	0.770	0.757	0.609	0.424	0.253	0.111	0.007
40.0	1.0	0.571	0.748	0.861	0.903	0.914	0.845	0.724	0.605	0.507	0.440
50.0	1.0	0.616	0.818	0.962	1.027	1.060	1.060	0.995	0.923	0.866	0.832
60.0	1.0	0.661	0.888	1.060	1.148	1.199	1.263	1.249	1.221	1.200	1.197
70.0	1.0	0.707	0.959	1.157	1.267	1.336	1.458	1.490	1.499	1.510	1.534
80.0	1.0	0.756	1.031	1.257	1.387	1.475	1.654	1.731	1.778	1.822	1.875
90.0	1.0	0.806	1.107	1.360	1.511	1.616	1.850	1.972	2.056	2.131	2.211
100.0	1.0	0.860	1.187	1.468	1.639	1.762	2.052	2.216	2.336	2.442	2.548
110.0	1.4	0.916	1.270	1.580	1.773	1.914	2.259	2.466	2.622	2.758	2.890
120.0	2.0	0.976	1.359	1.699	1.914	2.073	2.475	2.725	2.917	3.083	3.241
130.0	2.7	1.041	1.454	1.825	2.063	2.242	2.702	2.995	3.223	3.420	3.604
140.0	3.6	1.110	1.556	1.960	2.223	2.421	2.941	3.280	3.544	3.772	3.982
150.0	4.8	1.184	1.665	2.105	2.393	2.612	3.196	3.581	3.883	4.142	4.378
160.0	6.2	1.265	1.783	2.261	2.577	2.818	3.468	3.901	4.242	4.533	4.797
170.0	7.9	1.352	1.911	2.430	2.776	3.041	3.760	4.244	4.625	4.950	5.242
180.0	10.0	1.448	2.051	2.615	2.992	3.283	4.076	4.613	5.036	5.396	5.717
190.0	12.5	1.553	2.205	2.817	3.229	3.547	4.420	5.013	5.480	5.876	6.227
200.0	15.5	1.669	2.374	3.040	3.489	3.838	4.796	5.448	5.962	6.396	6.778
210.0	19.1	1.799	2.564	3.289	3.779	4.160	5.211	5.926	6.489	6.962	7.377
220.0	23.2	1.945	2.776	3.567	4.103	4.521	5.671	6.455	7.070	7.584	8.033
230.0	28.0	2.110	3.018	3.883	4.470	4.928	6.189	7.046	7.716	8.274	8.757
240.0	33.4	2.301	3.295	4.245	4.890	5.393	6.777	7.714	8.443	9.047	9.567
250.0	39.7	2.523	3.618	4.666	5.377	5.931	7.453	8.479	9.272	9.925	10.483
260.0	46.9	2.786	4.000	5.163	5.952	6.565	8.245	9.370	10.234	10.939	11.538
270.0	55.0	3.104	4.461	5.760	6.642	7.326	9.190	10.427	11.370	12.133	12.774
280.0	64.1	3.495	5.028	6.496	7.489	8.258	10.342	11.712	12.744	13.572	14.261
290.0	74.4	3.989	5.744	7.423	8.557	9.433	11.787	13.316	14.456	15.358	16.099
300.0	85.8	4.633	6.677	8.630	9.946	10.958	13.657	15.387	16.658	17.652	18.455

Table A-12 (continued). The Excess Entropy of NaCl(aq), Divided by R.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	200.0	0.367	0.402	0.344	0.246	0.136	-0.322	-0.740	-1.095	-1.377	-1.581
10.0	200.0	0.425	0.509	0.512	0.465	0.398	0.081	-0.234	-0.512	-0.740	-0.911
20.0	200.0	0.474	0.593	0.640	0.630	0.595	0.381	0.146	-0.069	-0.247	-0.382
25.0	200.0	0.497	0.631	0.697	0.701	0.680	0.509	0.308	0.122	-0.034	-0.151
30.0	200.0	0.518	0.667	0.749	0.768	0.759	0.628	0.459	0.299	0.165	0.065
40.0	200.0	0.561	0.735	0.848	0.891	0.904	0.844	0.732	0.620	0.527	0.461
50.0	200.0	0.603	0.801	0.942	1.007	1.039	1.043	0.982	0.914	0.857	0.823
60.0	200.0	0.646	0.867	1.034	1.119	1.169	1.231	1.217	1.189	1.167	1.163
70.0	200.0	0.689	0.933	1.125	1.231	1.298	1.414	1.444	1.453	1.464	1.488
80.0	200.0	0.735	1.001	1.218	1.343	1.426	1.596	1.668	1.712	1.753	1.803
90.0	200.0	0.782	1.072	1.314	1.458	1.557	1.778	1.890	1.969	2.039	2.114
100.0	200.0	0.831	1.145	1.413	1.576	1.692	1.964	2.116	2.228	2.326	2.426
110.0	200.0	0.884	1.223	1.517	1.700	1.832	2.155	2.347	2.491	2.618	2.742
120.0	200.0	0.939	1.304	1.626	1.829	1.979	2.354	2.586	2.763	2.918	3.065
130.0	200.0	0.997	1.391	1.741	1.966	2.133	2.562	2.835	3.045	3.228	3.399
140.0	200.0	1.060	1.482	1.864	2.110	2.296	2.781	3.095	3.340	3.551	3.746
150.0	200.0	1.127	1.580	1.994	2.264	2.469	3.013	3.370	3.650	3.891	4.111
160.0	200.0	1.198	1.685	2.133	2.429	2.654	3.259	3.662	3.979	4.250	4.495
170.0	200.0	1.275	1.798	2.283	2.605	2.852	3.522	3.973	4.328	4.631	4.903
180.0	200.0	1.358	1.921	2.445	2.796	3.066	3.805	4.306	4.701	5.037	5.337
190.0	200.0	1.449	2.053	2.621	3.002	3.297	4.110	4.664	5.102	5.473	5.802
200.0	200.0	1.547	2.198	2.812	3.227	3.549	4.440	5.051	5.534	5.942	6.302
210.0	200.0	1.656	2.357	3.022	3.473	3.825	4.801	5.472	6.003	6.450	6.842
220.0	200.0	1.776	2.533	3.254	3.745	4.129	5.197	5.933	6.514	7.003	7.429
230.0	200.0	1.911	2.730	3.514	4.048	4.467	5.635	6.441	7.076	7.608	8.071
240.0	200.0	2.063	2.953	3.806	4.390	4.847	6.125	7.006	7.699	8.278	8.778
250.0	200.0	2.237	3.208	4.141	4.780	5.281	6.680	7.643	8.398	9.026	9.566
260.0	200.0	2.441	3.504	4.529	5.231	5.782	7.316	8.370	9.192	9.873	10.454
270.0	200.0	2.682	3.856	4.988	5.764	6.372	8.061	9.215	10.110	10.847	11.472
280.0	200.0	2.976	4.283	5.545	6.408	7.084	8.953	10.219	11.196	11.993	12.665
290.0	200.0	3.344	4.817	6.239	7.209	7.967	10.051	11.449	12.517	13.380	14.101
300.0	200.0	3.820	5.508	7.134	8.241	9.102	11.452	13.008	14.183	15.121	15.895

Table A-12 (continued). The Excess Entropy of NaCl(aq), Divided by R.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	400.0	0.368	0.412	0.370	0.289	0.195	-0.202	-0.571	-0.887	-1.142	-1.331
10.0	400.0	0.423	0.511	0.524	0.487	0.431	0.152	-0.131	-0.384	-0.595	-0.758
20.0	400.0	0.469	0.590	0.643	0.638	0.610	0.421	0.207	0.009	-0.159	-0.290
25.0	400.0	0.490	0.625	0.695	0.704	0.688	0.538	0.354	0.181	0.033	-0.081
30.0	400.0	0.511	0.659	0.744	0.766	0.761	0.646	0.491	0.341	0.213	0.115
40.0	400.0	0.551	0.723	0.836	0.881	0.895	0.845	0.741	0.635	0.545	0.480
50.0	400.0	0.591	0.786	0.924	0.989	1.021	1.028	0.971	0.906	0.850	0.815
60.0	400.0	0.632	0.847	1.010	1.093	1.142	1.202	1.189	1.160	1.138	1.132
70.0	400.0	0.673	0.910	1.096	1.197	1.262	1.373	1.401	1.409	1.418	1.441
80.0	400.0	0.715	0.974	1.183	1.302	1.382	1.541	1.608	1.648	1.686	1.733
90.0	400.0	0.760	1.039	1.272	1.409	1.503	1.710	1.814	1.886	1.951	2.021
100.0	400.0	0.806	1.108	1.364	1.519	1.629	1.883	2.023	2.125	2.216	2.309
110.0	400.0	0.854	1.180	1.460	1.633	1.758	2.060	2.236	2.369	2.485	2.600
120.0	400.0	0.905	1.255	1.561	1.752	1.893	2.243	2.457	2.619	2.761	2.897
130.0	400.0	0.959	1.334	1.666	1.878	2.034	2.434	2.686	2.879	3.047	3.204
140.0	400.0	1.016	1.417	1.777	2.009	2.183	2.635	2.925	3.150	3.344	3.523
150.0	400.0	1.076	1.506	1.895	2.149	2.340	2.846	3.177	3.434	3.655	3.857
160.0	400.0	1.140	1.599	2.020	2.296	2.507	3.069	3.442	3.734	3.983	4.209
170.0	400.0	1.207	1.699	2.153	2.453	2.684	3.307	3.724	4.052	4.331	4.581
180.0	400.0	1.280	1.806	2.295	2.621	2.873	3.559	4.024	4.390	4.700	4.976
190.0	400.0	1.357	1.920	2.447	2.801	3.075	3.829	4.345	4.751	5.094	5.398
200.0	400.0	1.440	2.043	2.610	2.993	3.292	4.119	4.688	5.137	5.516	5.849
210.0	400.0	1.530	2.175	2.786	3.201	3.526	4.431	5.057	5.553	5.969	6.334
220.0	400.0	1.627	2.318	2.977	3.426	3.779	4.768	5.456	6.000	6.458	6.856
230.0	400.0	1.733	2.474	3.184	3.671	4.055	5.134	5.888	6.486	6.987	7.421
240.0	400.0	1.849	2.645	3.412	3.940	4.356	5.534	6.359	7.014	7.562	8.035
250.0	400.0	1.978	2.835	3.664	4.236	4.689	5.974	6.876	7.592	8.190	8.705
260.0	400.0	2.121	3.046	3.944	4.567	5.060	6.462	7.448	8.230	8.882	9.442
270.0	400.0	2.284	3.285	4.261	4.939	5.477	7.008	8.086	8.940	9.650	10.258
280.0	400.0	2.470	3.560	4.624	5.365	5.953	7.629	8.807	9.739	10.512	11.171
290.0	400.0	2.688	3.880	5.047	5.860	6.505	8.344	9.634	10.651	11.492	12.205
300.0	400.0	2.948	4.261	5.549	6.447	7.159	9.184	10.600	11.712	12.627	13.398

Table A-12 (continued). The Excess Entropy of NaCl(aq), Divided by R.

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	600.0	0.369	0.421	0.394	0.328	0.249	-0.096	-0.422	-0.707	-0.943	-1.125
10.0	600.0	0.421	0.513	0.535	0.507	0.461	0.216	-0.039	-0.272	-0.471	-0.630
20.0	600.0	0.464	0.587	0.645	0.646	0.625	0.458	0.263	0.078	-0.082	-0.211
25.0	600.0	0.485	0.620	0.693	0.707	0.696	0.564	0.396	0.233	0.092	-0.021
30.0	600.0	0.504	0.652	0.739	0.764	0.763	0.663	0.520	0.379	0.256	0.159
40.0	600.0	0.543	0.713	0.826	0.871	0.888	0.846	0.750	0.649	0.562	0.496
50.0	600.0	0.581	0.771	0.908	0.972	1.005	1.016	0.962	0.899	0.845	0.809
60.0	600.0	0.619	0.830	0.989	1.070	1.118	1.177	1.164	1.135	1.112	1.104
70.0	600.0	0.658	0.888	1.069	1.167	1.229	1.335	1.360	1.366	1.375	1.396
80.0	600.0	0.698	0.948	1.150	1.265	1.341	1.491	1.552	1.588	1.623	1.667
90.0	600.0	0.740	1.010	1.234	1.365	1.454	1.649	1.744	1.809	1.869	1.935
100.0	600.0	0.783	1.074	1.320	1.467	1.571	1.809	1.938	2.031	2.115	2.201
110.0	600.0	0.828	1.141	1.409	1.573	1.691	1.973	2.136	2.257	2.364	2.470
120.0	600.0	0.875	1.211	1.502	1.684	1.816	2.143	2.340	2.489	2.619	2.744
130.0	600.0	0.925	1.283	1.599	1.799	1.947	2.320	2.551	2.729	2.882	3.027
140.0	600.0	0.977	1.360	1.702	1.920	2.083	2.504	2.772	2.979	3.156	3.320
150.0	600.0	1.032	1.441	1.809	2.048	2.227	2.698	3.004	3.241	3.443	3.627
160.0	600.0	1.089	1.525	1.922	2.182	2.379	2.903	3.248	3.517	3.745	3.950
170.0	600.0	1.150	1.615	2.042	2.323	2.539	3.119	3.506	3.808	4.064	4.291
180.0	600.0	1.214	1.709	2.168	2.473	2.708	3.348	3.780	4.117	4.402	4.654
190.0	600.0	1.282	1.809	2.302	2.632	2.888	3.591	4.070	4.446	4.762	5.040
200.0	600.0	1.353	1.916	2.444	2.801	3.079	3.850	4.380	4.797	5.147	5.452
210.0	600.0	1.429	2.028	2.595	2.981	3.283	4.127	4.711	5.173	5.559	5.894
220.0	600.0	1.510	2.148	2.757	3.173	3.501	4.423	5.066	5.575	6.001	6.369
230.0	600.0	1.597	2.277	2.930	3.379	3.734	4.740	5.448	6.008	6.477	6.881
240.0	600.0	1.689	2.414	3.115	3.600	3.985	5.082	5.859	6.476	6.991	7.434
250.0	600.0	1.788	2.563	3.315	3.839	4.255	5.452	6.304	6.982	7.549	8.034
260.0	600.0	1.896	2.723	3.532	4.098	4.550	5.855	6.788	7.534	8.157	8.689
270.0	600.0	2.013	2.898	3.769	4.381	4.871	6.295	7.318	8.138	8.823	9.407
280.0	600.0	2.141	3.091	4.030	4.692	5.226	6.781	7.904	8.805	9.558	10.199
290.0	600.0	2.284	3.305	4.320	5.039	5.620	7.322	8.556	9.548	10.378	11.083
300.0	600.0	2.445	3.546	4.647	5.431	6.066	7.933	9.293	10.388	11.302	12.079

Table A-12 (continued). The Excess Entropy of NaCl(aq), Divided by R.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	800.0	0.370	0.429	0.415	0.363	0.296	-0.002	-0.293	-0.554	-0.778	-0.960
10.0	800.0	0.419	0.515	0.545	0.526	0.488	0.274	0.042	-0.175	-0.366	-0.525
20.0	800.0	0.460	0.584	0.647	0.654	0.638	0.492	0.313	0.139	-0.016	-0.145
25.0	800.0	0.480	0.616	0.692	0.710	0.704	0.589	0.434	0.280	0.143	0.029
30.0	800.0	0.498	0.646	0.735	0.764	0.766	0.680	0.548	0.414	0.294	0.196
40.0	800.0	0.535	0.703	0.816	0.863	0.882	0.848	0.759	0.663	0.577	0.510
50.0	800.0	0.571	0.759	0.894	0.958	0.991	1.005	0.956	0.895	0.841	0.803
60.0	800.0	0.607	0.814	0.969	1.049	1.096	1.155	1.142	1.114	1.090	1.080
70.0	800.0	0.644	0.869	1.044	1.139	1.199	1.300	1.323	1.328	1.334	1.354
80.0	800.0	0.682	0.925	1.121	1.231	1.304	1.446	1.502	1.535	1.566	1.608
90.0	800.0	0.722	0.984	1.199	1.325	1.410	1.593	1.681	1.740	1.795	1.857
100.0	800.0	0.762	1.044	1.280	1.421	1.519	1.743	1.862	1.947	2.024	2.105
110.0	800.0	0.805	1.106	1.363	1.520	1.632	1.896	2.046	2.158	2.256	2.355
120.0	800.0	0.849	1.171	1.450	1.623	1.748	2.054	2.236	2.373	2.493	2.609
130.0	800.0	0.895	1.239	1.541	1.730	1.869	2.219	2.433	2.597	2.738	2.871
140.0	800.0	0.943	1.310	1.635	1.842	1.996	2.390	2.639	2.829	2.992	3.142
150.0	800.0	0.993	1.384	1.734	1.960	2.129	2.570	2.853	3.072	3.257	3.426
160.0	800.0	1.046	1.461	1.838	2.083	2.268	2.759	3.079	3.327	3.536	3.724
170.0	800.0	1.101	1.543	1.946	2.212	2.414	2.958	3.318	3.597	3.831	4.039
180.0	800.0	1.158	1.628	2.060	2.348	2.568	3.168	3.570	3.882	4.144	4.373
190.0	800.0	1.219	1.717	2.180	2.491	2.731	3.390	3.837	4.186	4.476	4.729
200.0	800.0	1.282	1.810	2.307	2.642	2.902	3.625	4.121	4.508	4.831	5.109
210.0	800.0	1.347	1.909	2.440	2.801	3.083	3.875	4.423	4.853	5.210	5.517
220.0	800.0	1.417	2.012	2.580	2.969	3.275	4.141	4.745	5.222	5.617	5.954
230.0	800.0	1.489	2.121	2.728	3.147	3.479	4.424	5.090	5.617	6.054	6.426
240.0	800.0	1.565	2.235	2.884	3.336	3.695	4.727	5.460	6.042	6.526	6.935
250.0	800.0	1.645	2.357	3.050	3.536	3.925	5.051	5.859	6.502	7.036	7.489
260.0	800.0	1.730	2.485	3.227	3.750	4.171	5.401	6.290	7.001	7.592	8.092
270.0	800.0	1.819	2.621	3.416	3.980	4.436	5.780	6.759	7.545	8.201	8.755
280.0	800.0	1.914	2.766	3.618	4.227	4.723	6.193	7.273	8.145	8.873	9.489
290.0	800.0	2.015	2.923	3.838	4.497	5.035	6.648	7.843	8.812	9.624	10.310
300.0	800.0	2.124	3.092	4.077	4.792	5.381	7.156	8.484	9.566	10.473	11.242

Table A-12 (continued). The Excess Entropy of NaCl(aq), Divided by R.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	1000.0	0.371	0.437	0.435	0.394	0.339	0.081	-0.182	-0.426	-0.645	-0.834
10.0	1000.0	0.417	0.517	0.554	0.543	0.513	0.326	0.114	-0.091	-0.279	-0.442
20.0	1000.0	0.457	0.582	0.649	0.661	0.650	0.523	0.358	0.193	0.041	-0.091
25.0	1000.0	0.475	0.612	0.692	0.714	0.711	0.612	0.469	0.323	0.188	0.072
30.0	1000.0	0.493	0.640	0.732	0.763	0.769	0.695	0.573	0.446	0.328	0.228
40.0	1000.0	0.528	0.694	0.808	0.856	0.877	0.851	0.769	0.677	0.592	0.523
50.0	1000.0	0.562	0.747	0.881	0.945	0.978	0.996	0.951	0.892	0.838	0.799
60.0	1000.0	0.597	0.799	0.952	1.030	1.076	1.135	1.123	1.096	1.071	1.059
70.0	1000.0	0.632	0.851	1.022	1.114	1.172	1.269	1.290	1.293	1.299	1.317
80.0	1000.0	0.668	0.905	1.094	1.201	1.271	1.406	1.458	1.488	1.517	1.556
90.0	1000.0	0.705	0.960	1.168	1.289	1.371	1.544	1.626	1.681	1.732	1.791
100.0	1000.0	0.744	1.017	1.244	1.379	1.473	1.685	1.796	1.876	1.948	2.024
110.0	1000.0	0.784	1.076	1.323	1.473	1.579	1.829	1.970	2.073	2.165	2.259
120.0	1000.0	0.825	1.137	1.404	1.569	1.689	1.978	2.148	2.276	2.388	2.497
130.0	1000.0	0.868	1.200	1.489	1.670	1.802	2.132	2.333	2.485	2.617	2.741
140.0	1000.0	0.913	1.266	1.577	1.774	1.921	2.293	2.525	2.703	2.854	2.995
150.0	1000.0	0.960	1.335	1.669	1.884	2.044	2.461	2.726	2.930	3.102	3.259
160.0	1000.0	1.008	1.406	1.765	1.998	2.173	2.637	2.938	3.169	3.363	3.537
170.0	1000.0	1.059	1.481	1.865	2.117	2.309	2.822	3.160	3.421	3.638	3.830
180.0	1000.0	1.111	1.558	1.969	2.242	2.451	3.017	3.395	3.687	3.930	4.141
190.0	1000.0	1.165	1.639	2.078	2.372	2.599	3.222	3.643	3.970	4.240	4.472
200.0	1000.0	1.221	1.723	2.192	2.509	2.756	3.439	3.906	4.270	4.570	4.826
210.0	1000.0	1.280	1.810	2.311	2.652	2.920	3.669	4.186	4.590	4.923	5.205
220.0	1000.0	1.340	1.901	2.436	2.803	3.092	3.912	4.484	4.933	5.302	5.612
230.0	1000.0	1.403	1.996	2.566	2.961	3.274	4.170	4.802	5.300	5.709	6.052
240.0	1000.0	1.467	2.094	2.702	3.127	3.466	4.445	5.143	5.695	6.148	6.528
250.0	1000.0	1.534	2.196	2.845	3.301	3.668	4.739	5.509	6.121	6.625	7.046
260.0	1000.0	1.603	2.303	2.995	3.486	3.883	5.054	5.905	6.584	7.145	7.613
270.0	1000.0	1.674	2.414	3.153	3.681	4.112	5.394	6.335	7.091	7.717	8.238
280.0	1000.0	1.748	2.531	3.320	3.890	4.358	5.764	6.808	7.652	8.351	8.935
290.0	1000.0	1.825	2.653	3.498	4.114	4.624	6.172	7.334	8.279	9.066	9.723
300.0	1000.0	1.905	2.783	3.689	4.359	4.916	6.629	7.930	8.995	9.884	10.629

Table A-13. The Excess Enthalpy of NaCl(aq), Divided by RT.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	1.0	0.005	-0.108	-0.304	-0.491	-0.669	-1.292	-1.789	-2.169	-2.434	-2.586
10.0	1.0	0.065	0.008	-0.113	-0.237	-0.359	-0.798	-1.155	-1.429	-1.618	-1.723
20.0	1.0	0.114	0.096	0.028	-0.052	-0.134	-0.442	-0.696	-0.888	-1.014	-1.074
25.0	1.0	0.135	0.135	0.087	0.025	-0.041	-0.294	-0.505	-0.662	-0.761	-0.800
30.0	1.0	0.156	0.170	0.142	0.096	0.045	-0.161	-0.333	-0.458	-0.531	-0.551
40.0	1.0	0.195	0.236	0.242	0.224	0.198	0.077	-0.027	-0.096	-0.124	-0.107
50.0	1.0	0.233	0.298	0.333	0.340	0.335	0.286	0.240	0.220	0.233	0.282
60.0	1.0	0.271	0.358	0.420	0.448	0.463	0.478	0.484	0.506	0.554	0.633
70.0	1.0	0.308	0.417	0.504	0.552	0.584	0.656	0.707	0.767	0.845	0.948
80.0	1.0	0.347	0.477	0.588	0.655	0.704	0.830	0.925	1.020	1.129	1.256
90.0	1.0	0.388	0.539	0.673	0.759	0.824	1.002	1.137	1.266	1.403	1.553
100.0	1.0	0.430	0.603	0.761	0.865	0.946	1.173	1.347	1.508	1.672	1.845
110.0	1.4	0.475	0.670	0.852	0.975	1.071	1.348	1.559	1.751	1.940	2.134
120.0	2.0	0.522	0.741	0.948	1.090	1.201	1.527	1.775	1.998	2.212	2.426
130.0	2.7	0.573	0.816	1.049	1.210	1.338	1.713	1.998	2.251	2.490	2.724
140.0	3.6	0.627	0.897	1.157	1.338	1.483	1.908	2.231	2.514	2.777	3.032
150.0	4.8	0.686	0.983	1.273	1.475	1.637	2.115	2.476	2.789	3.077	3.353
160.0	6.2	0.750	1.077	1.398	1.623	1.804	2.335	2.736	3.080	3.394	3.690
170.0	7.9	0.819	1.180	1.534	1.783	1.983	2.572	3.014	3.390	3.730	4.047
180.0	10.0	0.896	1.293	1.683	1.958	2.179	2.828	3.313	3.723	4.089	4.428
190.0	12.5	0.981	1.417	1.848	2.151	2.394	3.108	3.638	4.082	4.477	4.838
200.0	15.5	1.075	1.556	2.030	2.364	2.632	3.415	3.993	4.474	4.897	5.282
210.0	19.1	1.182	1.711	2.235	2.602	2.897	3.756	4.385	4.904	5.358	5.767
220.0	23.2	1.303	1.888	2.466	2.872	3.197	4.138	4.821	5.382	5.868	6.302
230.0	28.0	1.442	2.091	2.731	3.180	3.538	4.570	5.313	5.917	6.437	6.897
240.0	33.4	1.603	2.326	3.038	3.536	3.932	5.066	5.874	6.525	7.081	7.568
250.0	39.7	1.794	2.603	3.399	3.953	4.393	5.643	6.523	7.227	7.820	8.336
260.0	46.9	2.023	2.935	3.831	4.452	4.943	6.326	7.289	8.049	8.684	9.231
270.0	55.0	2.302	3.341	4.357	5.058	5.611	7.152	8.210	9.034	9.715	10.294
280.0	64.1	2.651	3.847	5.012	5.813	6.440	8.174	9.344	10.243	10.976	11.592
290.0	74.4	3.098	4.494	5.850	6.777	7.500	9.473	10.781	11.771	12.566	13.223
300.0	85.8	3.689	5.349	6.956	8.048	8.894	11.178	12.663	13.768	14.640	15.348

Table A-13 (continued). The Excess Enthalpy of NaCl(aq), Divided by RT.

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
^{o}C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	200.0	0.010	-0.090	-0.264	-0.429	-0.586	-1.130	-1.561	-1.887	-2.112	-2.237
10.0	200.0	0.067	0.018	-0.090	-0.200	-0.308	-0.696	-1.009	-1.248	-1.412	-1.500
20.0	200.0	0.113	0.100	0.040	-0.031	-0.104	-0.377	-0.601	-0.770	-0.880	-0.929
25.0	200.0	0.133	0.135	0.095	0.040	-0.018	-0.243	-0.430	-0.568	-0.653	-0.684
30.0	200.0	0.152	0.169	0.146	0.106	0.060	-0.122	-0.274	-0.383	-0.446	-0.459
40.0	200.0	0.189	0.231	0.238	0.224	0.201	0.095	0.004	-0.055	-0.075	-0.054
50.0	200.0	0.225	0.288	0.323	0.331	0.328	0.288	0.250	0.236	0.253	0.304
60.0	200.0	0.260	0.344	0.404	0.432	0.447	0.464	0.474	0.500	0.550	0.629
70.0	200.0	0.296	0.400	0.482	0.529	0.560	0.631	0.684	0.746	0.827	0.931
80.0	200.0	0.332	0.456	0.561	0.625	0.671	0.792	0.884	0.979	1.088	1.215
90.0	200.0	0.370	0.513	0.639	0.721	0.782	0.950	1.080	1.206	1.340	1.489
100.0	200.0	0.409	0.572	0.720	0.818	0.894	1.108	1.274	1.429	1.588	1.756
110.0	200.0	0.449	0.633	0.804	0.919	1.009	1.268	1.468	1.652	1.834	2.022
120.0	200.0	0.492	0.697	0.891	1.023	1.128	1.432	1.667	1.878	2.083	2.290
130.0	200.0	0.538	0.765	0.983	1.133	1.252	1.602	1.871	2.110	2.338	2.563
140.0	200.0	0.587	0.838	1.080	1.248	1.383	1.780	2.083	2.351	2.601	2.844
150.0	200.0	0.639	0.915	1.183	1.371	1.521	1.967	2.306	2.602	2.875	3.137
160.0	200.0	0.695	0.997	1.294	1.502	1.669	2.165	2.541	2.866	3.163	3.445
170.0	200.0	0.755	1.087	1.413	1.642	1.827	2.376	2.791	3.147	3.469	3.770
180.0	200.0	0.821	1.184	1.541	1.794	1.998	2.603	3.059	3.447	3.794	4.116
190.0	200.0	0.893	1.289	1.682	1.960	2.184	2.849	3.347	3.768	4.143	4.487
200.0	200.0	0.971	1.405	1.836	2.141	2.387	3.116	3.660	4.116	4.520	4.887
210.0	200.0	1.059	1.533	2.006	2.340	2.610	3.408	4.001	4.495	4.929	5.321
220.0	200.0	1.156	1.677	2.195	2.562	2.859	3.731	4.376	4.910	5.376	5.794
230.0	200.0	1.266	1.838	2.408	2.812	3.137	4.091	4.792	5.369	5.869	6.314
240.0	200.0	1.392	2.023	2.651	3.095	3.452	4.496	5.258	5.882	6.418	6.892
250.0	200.0	1.539	2.237	2.932	3.422	3.816	4.960	5.788	6.462	7.037	7.541
260.0	200.0	1.711	2.489	3.261	3.805	4.240	5.498	6.400	7.127	7.743	8.279
270.0	200.0	1.919	2.792	3.657	4.263	4.747	6.135	7.119	7.906	8.566	9.136
280.0	200.0	2.176	3.165	4.142	4.825	5.367	6.908	7.987	8.839	9.548	10.153
290.0	200.0	2.502	3.638	4.756	5.533	6.147	7.873	9.064	9.992	10.753	11.396
300.0	200.0	2.930	4.259	5.561	6.460	7.166	9.126	10.452	11.470	12.292	12.976

Table A-13 (continued). The Excess Enthalpy of NaCl(aq), Divided by RT.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	400.0	0.015	-0.073	-0.226	-0.372	-0.509	-0.983	-1.356	-1.637	-1.830	-1.937
10.0	400.0	0.069	0.027	-0.067	-0.165	-0.260	-0.601	-0.877	-1.086	-1.229	-1.306
20.0	400.0	0.112	0.103	0.052	-0.011	-0.075	-0.316	-0.514	-0.663	-0.759	-0.802
25.0	400.0	0.131	0.137	0.102	0.055	0.004	-0.195	-0.360	-0.481	-0.556	-0.581
30.0	400.0	0.149	0.168	0.150	0.115	0.076	-0.085	-0.219	-0.315	-0.368	-0.377
40.0	400.0	0.184	0.226	0.236	0.225	0.206	0.113	0.035	-0.015	-0.030	-0.006
50.0	400.0	0.218	0.280	0.315	0.324	0.323	0.290	0.260	0.252	0.272	0.324
60.0	400.0	0.251	0.332	0.390	0.417	0.433	0.453	0.467	0.495	0.547	0.626
70.0	400.0	0.285	0.384	0.463	0.508	0.538	0.608	0.662	0.725	0.807	0.912
80.0	400.0	0.318	0.436	0.536	0.596	0.641	0.757	0.846	0.940	1.048	1.174
90.0	400.0	0.353	0.489	0.609	0.685	0.743	0.903	1.027	1.149	1.280	1.426
100.0	400.0	0.389	0.544	0.684	0.776	0.847	1.048	1.205	1.354	1.507	1.672
110.0	400.0	0.427	0.600	0.760	0.868	0.952	1.196	1.385	1.559	1.734	1.915
120.0	400.0	0.466	0.659	0.840	0.964	1.061	1.346	1.567	1.767	1.962	2.160
130.0	400.0	0.508	0.721	0.924	1.063	1.175	1.502	1.754	1.980	2.195	2.409
140.0	400.0	0.552	0.786	1.011	1.168	1.293	1.663	1.948	2.199	2.436	2.666
150.0	400.0	0.598	0.855	1.104	1.278	1.418	1.833	2.151	2.428	2.686	2.933
160.0	400.0	0.647	0.928	1.202	1.394	1.550	2.011	2.364	2.669	2.948	3.213
170.0	400.0	0.700	1.005	1.306	1.518	1.690	2.201	2.589	2.923	3.225	3.508
180.0	400.0	0.756	1.089	1.418	1.651	1.839	2.402	2.829	3.193	3.520	3.822
190.0	400.0	0.816	1.178	1.537	1.793	2.000	2.617	3.085	3.481	3.834	4.157
200.0	400.0	0.881	1.274	1.666	1.945	2.172	2.849	3.359	3.790	4.170	4.516
210.0	400.0	0.952	1.379	1.806	2.111	2.359	3.099	3.655	4.122	4.532	4.902
220.0	400.0	1.029	1.493	1.958	2.291	2.562	3.369	3.976	4.482	4.924	5.320
230.0	400.0	1.113	1.618	2.125	2.488	2.784	3.665	4.325	4.873	5.350	5.773
240.0	400.0	1.206	1.756	2.309	2.705	3.028	3.990	4.707	5.301	5.815	6.269
250.0	400.0	1.311	1.910	2.514	2.947	3.300	4.349	5.129	5.773	6.326	6.813
260.0	400.0	1.428	2.084	2.745	3.220	3.605	4.751	5.599	6.296	6.893	7.415
270.0	400.0	1.563	2.282	3.009	3.529	3.952	5.205	6.129	6.884	7.527	8.087
280.0	400.0	1.719	2.513	3.314	3.888	4.353	5.726	6.732	7.551	8.246	8.845
290.0	400.0	1.905	2.785	3.674	4.309	4.823	6.333	7.433	8.322	9.071	9.714
300.0	400.0	2.129	3.115	4.108	4.816	5.387	7.055	8.261	9.228	10.037	10.727

Table A-13 (continued). The Excess Enthalpy of NaCl(aq), Divided by RT.

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	600.0	0.020	-0.057	-0.192	-0.320	-0.439	-0.851	-1.175	-1.420	-1.590	-1.687
10.0	600.0	0.071	0.035	-0.047	-0.132	-0.216	-0.515	-0.757	-0.942	-1.070	-1.141
20.0	600.0	0.111	0.107	0.063	0.009	-0.047	-0.260	-0.435	-0.566	-0.652	-0.691
25.0	600.0	0.130	0.138	0.110	0.069	0.024	-0.151	-0.296	-0.403	-0.468	-0.491
30.0	600.0	0.147	0.167	0.154	0.125	0.090	-0.050	-0.168	-0.252	-0.298	-0.304
40.0	600.0	0.180	0.221	0.234	0.226	0.210	0.132	0.064	0.022	0.012	0.037
50.0	600.0	0.212	0.272	0.308	0.318	0.319	0.294	0.271	0.268	0.291	0.344
60.0	600.0	0.243	0.322	0.378	0.405	0.421	0.445	0.461	0.492	0.545	0.625
70.0	600.0	0.274	0.370	0.446	0.488	0.518	0.587	0.641	0.705	0.787	0.893
80.0	600.0	0.306	0.419	0.513	0.571	0.613	0.724	0.812	0.903	1.010	1.135
90.0	600.0	0.339	0.468	0.582	0.654	0.708	0.859	0.978	1.096	1.224	1.368
100.0	600.0	0.372	0.519	0.651	0.738	0.804	0.994	1.143	1.286	1.434	1.594
110.0	600.0	0.407	0.571	0.722	0.823	0.902	1.130	1.309	1.475	1.642	1.818
120.0	600.0	0.444	0.625	0.796	0.911	1.003	1.269	1.477	1.667	1.853	2.042
130.0	600.0	0.482	0.682	0.872	1.003	1.107	1.413	1.649	1.862	2.067	2.271
140.0	600.0	0.521	0.741	0.952	1.098	1.215	1.561	1.828	2.064	2.287	2.506
150.0	600.0	0.563	0.803	1.035	1.198	1.328	1.716	2.014	2.274	2.517	2.750
160.0	600.0	0.607	0.868	1.123	1.303	1.447	1.878	2.208	2.495	2.757	3.005
170.0	600.0	0.653	0.937	1.216	1.413	1.573	2.050	2.414	2.727	3.010	3.275
180.0	600.0	0.702	1.010	1.314	1.530	1.706	2.231	2.631	2.972	3.278	3.561
190.0	600.0	0.754	1.087	1.418	1.655	1.847	2.423	2.862	3.234	3.564	3.866
200.0	600.0	0.809	1.169	1.529	1.787	1.997	2.629	3.108	3.513	3.870	4.192
210.0	600.0	0.868	1.257	1.647	1.928	2.157	2.848	3.371	3.811	4.197	4.543
220.0	600.0	0.930	1.350	1.774	2.079	2.329	3.083	3.654	4.133	4.550	4.921
230.0	600.0	0.997	1.450	1.909	2.241	2.514	3.336	3.959	4.479	4.931	5.330
240.0	600.0	1.069	1.558	2.056	2.417	2.713	3.610	4.289	4.855	5.344	5.774
250.0	600.0	1.147	1.675	2.215	2.607	2.929	3.907	4.648	5.264	5.794	6.259
260.0	600.0	1.232	1.803	2.388	2.814	3.166	4.233	5.041	5.711	6.287	6.790
270.0	600.0	1.325	1.943	2.579	3.043	3.425	4.591	5.474	6.205	6.832	7.376
280.0	600.0	1.429	2.099	2.791	3.297	3.716	4.989	5.955	6.754	7.437	8.028
290.0	600.0	1.545	2.274	3.029	3.583	4.041	5.438	6.496	7.371	8.117	8.762
300.0	600.0	1.677	2.473	3.300	3.908	4.412	5.949	7.113	8.074	8.893	9.597

Table A-13 (continued). The Excess Enthalpy of NaCl(aq), Divided by RT.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	800.0	0.025	-0.042	-0.160	-0.272	-0.376	-0.734	-1.015	-1.232	-1.387	-1.482
10.0	800.0	0.073	0.044	-0.028	-0.102	-0.175	-0.437	-0.651	-0.816	-0.933	-1.002
20.0	800.0	0.111	0.110	0.074	0.027	-0.022	-0.208	-0.362	-0.480	-0.558	-0.595
25.0	800.0	0.128	0.139	0.117	0.083	0.044	-0.109	-0.237	-0.331	-0.390	-0.412
30.0	800.0	0.145	0.167	0.158	0.134	0.105	-0.017	-0.120	-0.194	-0.234	-0.239
40.0	800.0	0.176	0.218	0.233	0.228	0.216	0.150	0.092	0.058	0.052	0.077
50.0	800.0	0.206	0.266	0.302	0.314	0.316	0.299	0.283	0.284	0.310	0.363
60.0	800.0	0.236	0.312	0.367	0.394	0.410	0.438	0.458	0.491	0.546	0.625
70.0	800.0	0.265	0.357	0.430	0.471	0.500	0.568	0.622	0.687	0.770	0.875
80.0	800.0	0.295	0.403	0.493	0.549	0.589	0.695	0.781	0.871	0.976	1.101
90.0	800.0	0.326	0.449	0.557	0.626	0.677	0.821	0.936	1.050	1.175	1.316
100.0	800.0	0.357	0.497	0.622	0.704	0.767	0.947	1.089	1.226	1.370	1.526
110.0	800.0	0.390	0.545	0.688	0.783	0.858	1.073	1.243	1.402	1.563	1.732
120.0	800.0	0.424	0.596	0.756	0.865	0.951	1.202	1.399	1.579	1.757	1.940
130.0	800.0	0.459	0.648	0.827	0.950	1.047	1.335	1.559	1.760	1.955	2.150
140.0	800.0	0.495	0.702	0.900	1.037	1.147	1.472	1.724	1.947	2.159	2.366
150.0	800.0	0.533	0.759	0.977	1.129	1.251	1.615	1.895	2.141	2.370	2.591
160.0	800.0	0.573	0.818	1.056	1.224	1.360	1.764	2.075	2.344	2.591	2.825
170.0	800.0	0.614	0.880	1.140	1.324	1.474	1.921	2.264	2.558	2.825	3.073
180.0	800.0	0.657	0.944	1.228	1.430	1.594	2.087	2.463	2.784	3.072	3.336
190.0	800.0	0.703	1.012	1.320	1.540	1.720	2.261	2.674	3.024	3.334	3.616
200.0	800.0	0.750	1.083	1.417	1.657	1.853	2.446	2.898	3.279	3.615	3.916
210.0	800.0	0.800	1.158	1.519	1.780	1.994	2.643	3.137	3.553	3.915	4.238
220.0	800.0	0.852	1.237	1.627	1.911	2.144	2.853	3.393	3.845	4.238	4.585
230.0	800.0	0.907	1.320	1.742	2.049	2.302	3.076	3.667	4.161	4.587	4.961
240.0	800.0	0.965	1.408	1.863	2.196	2.472	3.316	3.962	4.501	4.964	5.369
250.0	800.0	1.026	1.501	1.992	2.353	2.652	3.574	4.281	4.870	5.375	5.814
260.0	800.0	1.090	1.600	2.129	2.521	2.847	3.854	4.628	5.273	5.825	6.303
270.0	800.0	1.158	1.705	2.277	2.702	3.057	4.158	5.007	5.715	6.321	6.844
280.0	800.0	1.231	1.819	2.436	2.898	3.286	4.492	5.427	6.207	6.873	7.447
290.0	800.0	1.310	1.941	2.611	3.114	3.537	4.864	5.895	6.758	7.495	8.129
300.0	800.0	1.395	2.075	2.803	3.353	3.818	5.282	6.428	7.387	8.207	8.911

Table A-13 (continued). The Excess Enthalpy of NaCl(aq), Divided by RT.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	1000.0	0.030	-0.028	-0.131	-0.228	-0.319	-0.629	-0.876	-1.071	-1.219	-1.320
10.0	1000.0	0.075	0.052	-0.009	-0.074	-0.137	-0.366	-0.555	-0.705	-0.816	-0.888
20.0	1000.0	0.111	0.114	0.084	0.045	0.003	-0.159	-0.296	-0.401	-0.474	-0.513
25.0	1000.0	0.127	0.141	0.125	0.096	0.063	-0.069	-0.181	-0.266	-0.320	-0.343
30.0	1000.0	0.143	0.167	0.163	0.144	0.119	0.015	-0.075	-0.139	-0.176	-0.182
40.0	1000.0	0.173	0.215	0.233	0.231	0.222	0.168	0.120	0.092	0.089	0.114
50.0	1000.0	0.201	0.260	0.297	0.311	0.315	0.306	0.295	0.301	0.329	0.382
60.0	1000.0	0.229	0.304	0.358	0.385	0.402	0.433	0.457	0.493	0.548	0.627
70.0	1000.0	0.257	0.346	0.416	0.456	0.484	0.552	0.607	0.672	0.756	0.862
80.0	1000.0	0.285	0.389	0.476	0.529	0.567	0.671	0.755	0.845	0.949	1.073
90.0	1000.0	0.314	0.433	0.536	0.601	0.651	0.789	0.900	1.012	1.135	1.275
100.0	1000.0	0.344	0.477	0.597	0.674	0.734	0.906	1.043	1.177	1.317	1.471
110.0	1000.0	0.375	0.523	0.659	0.749	0.820	1.025	1.187	1.341	1.498	1.664
120.0	1000.0	0.406	0.570	0.722	0.825	0.907	1.146	1.333	1.507	1.679	1.857
130.0	1000.0	0.439	0.618	0.788	0.904	0.997	1.270	1.483	1.676	1.864	2.052
140.0	1000.0	0.472	0.669	0.856	0.986	1.089	1.398	1.637	1.851	2.053	2.253
150.0	1000.0	0.507	0.721	0.926	1.070	1.186	1.531	1.797	2.032	2.250	2.461
160.0	1000.0	0.543	0.775	1.000	1.158	1.286	1.669	1.964	2.221	2.456	2.679
170.0	1000.0	0.581	0.831	1.076	1.250	1.391	1.815	2.140	2.420	2.673	2.908
180.0	1000.0	0.620	0.889	1.156	1.346	1.501	1.967	2.325	2.630	2.902	3.151
190.0	1000.0	0.660	0.950	1.239	1.446	1.615	2.128	2.520	2.853	3.146	3.411
200.0	1000.0	0.702	1.013	1.325	1.551	1.736	2.298	2.728	3.090	3.406	3.689
210.0	1000.0	0.745	1.078	1.416	1.661	1.862	2.478	2.948	3.343	3.685	3.988
220.0	1000.0	0.790	1.147	1.510	1.776	1.995	2.668	3.183	3.614	3.985	4.310
230.0	1000.0	0.836	1.217	1.609	1.897	2.136	2.871	3.435	3.905	4.309	4.660
240.0	1000.0	0.883	1.291	1.713	2.024	2.284	3.087	3.705	4.220	4.661	5.040
250.0	1000.0	0.933	1.368	1.821	2.159	2.441	3.319	3.997	4.562	5.044	5.457
260.0	1000.0	0.984	1.448	1.935	2.301	2.608	3.569	4.314	4.936	5.464	5.916
270.0	1000.0	1.036	1.531	2.056	2.452	2.787	3.840	4.662	5.347	5.930	6.427
280.0	1000.0	1.091	1.619	2.185	2.615	2.980	4.137	5.046	5.806	6.452	7.002
290.0	1000.0	1.148	1.711	2.322	2.791	3.191	4.468	5.478	6.325	7.046	7.658
300.0	1000.0	1.207	1.810	2.472	2.984	3.424	4.843	5.973	6.924	7.734	8.423

Table A-14. The Excess Heat Capacity of NaCl(aq), Divided by R.

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
^{o}C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	1.0	1.93	3.69	5.99	7.92	9.63	15.12	19.19	22.18	24.23	25.39
10.0	1.0	1.57	2.81	4.42	5.76	6.94	10.81	13.79	16.12	17.87	19.08
20.0	1.0	1.42	2.43	3.69	4.73	5.66	8.71	11.12	13.07	14.62	15.81
25.0	1.0	1.39	2.33	3.48	4.44	5.28	8.07	10.29	12.11	13.59	14.76
30.0	1.0	1.38	2.27	3.35	4.23	5.01	7.60	9.67	11.38	12.80	13.95
40.0	1.0	1.40	2.22	3.21	4.00	4.70	7.01	8.86	10.42	11.74	12.83
50.0	1.0	1.45	2.26	3.19	3.94	4.59	6.72	8.44	9.89	11.13	12.17
60.0	1.0	1.52	2.34	3.26	3.98	4.61	6.65	8.28	9.66	10.83	11.83
70.0	1.0	1.62	2.46	3.39	4.11	4.73	6.72	8.31	9.65	10.80	11.80
80.0	1.0	1.74	2.62	3.57	4.31	4.93	6.91	8.48	9.80	10.94	11.92
90.0	1.0	1.89	2.81	3.81	4.56	5.20	7.21	8.79	10.11	11.24	12.21
100.0	1.0	2.05	3.04	4.10	4.88	5.55	7.61	9.21	10.54	11.68	12.66
110.0	1.4	2.24	3.31	4.43	5.27	5.96	8.11	9.75	11.11	12.27	13.26
120.0	2.0	2.45	3.61	4.82	5.71	6.45	8.70	10.41	11.82	13.00	14.02
130.0	2.7	2.69	3.96	5.27	6.23	7.02	9.41	11.19	12.66	13.89	14.94
140.0	3.6	2.97	4.36	5.79	6.83	7.68	10.22	12.11	13.65	14.94	16.03
150.0	4.8	3.29	4.82	6.39	7.52	8.44	11.18	13.19	14.81	16.16	17.31
160.0	6.2	3.66	5.36	7.08	8.32	9.33	12.28	14.43	16.15	17.58	18.79
170.0	7.9	4.09	5.98	7.89	9.26	10.36	13.57	15.88	17.71	19.23	20.51
180.0	10.0	4.59	6.71	8.85	10.36	11.57	15.08	17.57	19.53	21.15	22.50
190.0	12.5	5.19	7.59	9.98	11.66	13.01	16.85	19.55	21.67	23.39	24.82
200.0	15.5	5.91	8.63	11.33	13.22	14.73	18.98	21.92	24.19	26.04	27.56
210.0	19.1	6.79	9.91	12.99	15.13	16.81	21.54	24.76	27.22	29.20	30.82
220.0	23.2	7.89	11.49	15.03	17.47	19.39	24.69	28.23	30.91	33.03	34.75
230.0	28.0	9.26	13.47	17.59	20.41	22.61	28.61	32.55	35.48	37.77	39.59
240.0	33.4	11.02	16.02	20.87	24.17	26.73	33.61	38.03	41.26	43.74	45.69
250.0	39.7	13.32	19.35	25.16	29.08	32.11	40.11	45.14	48.75	51.46	53.54
260.0	46.9	16.40	23.79	30.89	35.65	39.28	48.79	54.62	58.70	61.71	63.97
270.0	55.0	20.63	29.90	38.74	44.65	49.13	60.67	67.60	72.34	75.75	78.24
280.0	64.1	26.59	38.51	49.84	57.35	63.02	77.47	85.95	91.63	95.61	98.44
290.0	74.4	35.28	51.06	66.02	75.89	83.31	102.02	112.82	119.91	124.78	128.15
300.0	85.8	48.42	70.06	90.52	103.99	114.09	139.36	153.77	163.11	169.43	173.72

Table A-14 (continued). The Excess Heat Capacity of NaCl(aq), Divided by R.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	200.0	1.82	3.41	5.46	7.14	8.60	13.20	16.51	18.89	20.44	21.24
10.0	200.0	1.48	2.62	4.06	5.25	6.28	9.62	12.15	14.10	15.56	16.57
20.0	200.0	1.35	2.28	3.42	4.36	5.18	7.87	9.97	11.68	13.05	14.11
25.0	200.0	1.32	2.19	3.24	4.10	4.86	7.33	9.30	10.92	12.24	13.30
30.0	200.0	1.31	2.13	3.12	3.92	4.63	6.94	8.79	10.34	11.62	12.68
40.0	200.0	1.32	2.09	3.00	3.72	4.36	6.45	8.14	9.56	10.78	11.81
50.0	200.0	1.37	2.12	2.98	3.67	4.27	6.22	7.80	9.14	10.29	11.29
60.0	200.0	1.44	2.19	3.04	3.71	4.29	6.16	7.67	8.95	10.06	11.02
70.0	200.0	1.52	2.30	3.16	3.83	4.40	6.23	7.69	8.94	10.01	10.94
80.0	200.0	1.63	2.44	3.33	4.00	4.58	6.41	7.85	9.08	10.13	11.03
90.0	200.0	1.75	2.61	3.53	4.23	4.82	6.68	8.13	9.34	10.39	11.28
100.0	200.0	1.90	2.81	3.78	4.51	5.12	7.03	8.51	9.74	10.78	11.68
110.0	200.0	2.06	3.04	4.07	4.84	5.48	7.46	8.99	10.24	11.31	12.21
120.0	200.0	2.24	3.30	4.40	5.22	5.90	7.98	9.57	10.87	11.96	12.89
130.0	200.0	2.44	3.59	4.78	5.66	6.38	8.59	10.26	11.61	12.75	13.71
140.0	200.0	2.66	3.92	5.21	6.16	6.94	9.29	11.06	12.49	13.68	14.69
150.0	200.0	2.92	4.29	5.70	6.73	7.57	10.10	11.98	13.50	14.76	15.82
160.0	200.0	3.21	4.72	6.26	7.37	8.29	11.02	13.03	14.66	16.00	17.13
170.0	200.0	3.54	5.20	6.89	8.12	9.11	12.08	14.24	15.98	17.42	18.63
180.0	200.0	3.92	5.76	7.63	8.97	10.06	13.29	15.63	17.50	19.05	20.34
190.0	200.0	4.37	6.41	8.48	9.96	11.16	14.68	17.23	19.25	20.92	22.30
200.0	200.0	4.89	7.17	9.47	11.12	12.44	16.31	19.08	21.27	23.07	24.56
210.0	200.0	5.51	8.07	10.66	12.49	13.96	18.22	21.24	23.62	25.56	27.17
220.0	200.0	6.26	9.17	12.08	14.14	15.78	20.50	23.81	26.39	28.49	30.22
230.0	200.0	7.18	10.51	13.82	16.15	18.01	23.26	26.90	29.72	31.99	33.85
240.0	200.0	8.34	12.18	16.00	18.66	20.77	26.67	30.70	33.77	36.23	38.22
250.0	200.0	9.82	14.33	18.78	21.86	24.28	30.98	35.46	38.84	41.50	43.63
260.0	200.0	11.76	17.14	22.42	26.03	28.86	36.56	41.61	45.34	48.23	50.51
270.0	200.0	14.38	20.94	27.31	31.65	35.01	44.02	49.78	53.94	57.10	59.54
280.0	200.0	18.04	26.23	34.12	39.45	43.55	54.34	61.05	65.78	69.27	71.89
290.0	200.0	23.34	33.88	43.98	50.73	55.88	69.22	77.27	82.78	86.73	89.57
300.0	200.0	31.37	45.47	58.90	67.81	74.56	91.74	101.81	108.51	113.14	116.33

Table A-14 (continued). The Excess Heat Capacity of NaCl(aq), Divided by R.

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	400.0	1.72	3.16	4.97	6.43	7.68	11.50	14.17	16.04	17.22	17.79
10.0	400.0	1.40	2.45	3.74	4.78	5.69	8.56	10.70	12.35	13.59	14.46
20.0	400.0	1.28	2.13	3.17	4.01	4.75	7.11	8.96	10.47	11.69	12.66
25.0	400.0	1.25	2.05	3.02	3.79	4.47	6.67	8.42	9.87	11.07	12.06
30.0	400.0	1.24	2.00	2.91	3.64	4.27	6.35	8.01	9.41	10.59	11.58
40.0	400.0	1.25	1.97	2.80	3.47	4.05	5.94	7.48	8.79	9.93	10.91
50.0	400.0	1.29	2.00	2.79	3.42	3.97	5.75	7.20	8.45	9.54	10.50
60.0	400.0	1.36	2.06	2.85	3.46	3.99	5.71	7.10	8.30	9.35	10.28
70.0	400.0	1.44	2.16	2.96	3.57	4.09	5.78	7.13	8.28	9.27	10.15
80.0	400.0	1.53	2.29	3.10	3.73	4.26	5.94	7.28	8.40	9.38	10.22
90.0	400.0	1.64	2.44	3.29	3.93	4.48	6.19	7.53	8.65	9.61	10.43
100.0	400.0	1.76	2.61	3.51	4.18	4.74	6.50	7.87	9.00	9.96	10.78
110.0	400.0	1.90	2.81	3.76	4.47	5.06	6.89	8.30	9.45	10.43	11.25
120.0	400.0	2.05	3.03	4.04	4.80	5.42	7.35	8.82	10.01	11.02	11.86
130.0	400.0	2.22	3.27	4.37	5.17	5.84	7.89	9.43	10.68	11.72	12.59
140.0	400.0	2.41	3.55	4.73	5.59	6.31	8.49	10.13	11.46	12.56	13.47
150.0	400.0	2.62	3.85	5.13	6.07	6.84	9.19	10.94	12.35	13.52	14.48
160.0	400.0	2.85	4.19	5.58	6.59	7.43	9.97	11.85	13.36	14.62	15.65
170.0	400.0	3.10	4.57	6.08	7.19	8.10	10.84	12.88	14.51	15.86	16.98
180.0	400.0	3.39	4.99	6.65	7.85	8.85	11.83	14.04	15.81	17.28	18.49
190.0	400.0	3.71	5.47	7.29	8.61	9.69	12.95	15.35	17.28	18.87	20.19
200.0	400.0	4.08	6.02	8.01	9.46	10.65	14.21	16.83	18.94	20.67	22.11
210.0	400.0	4.50	6.64	8.84	10.44	11.75	15.65	18.52	20.82	22.71	24.29
220.0	400.0	4.99	7.36	9.80	11.57	13.01	17.31	20.45	22.96	25.04	26.77
230.0	400.0	5.57	8.21	10.93	12.89	14.49	19.23	22.68	25.44	27.71	29.60
240.0	400.0	6.25	9.22	12.26	14.45	16.24	21.49	25.29	28.32	30.81	32.87
250.0	400.0	7.09	10.45	13.88	16.34	18.34	24.18	28.39	31.72	34.44	36.70
260.0	400.0	8.12	11.96	15.86	18.65	20.91	27.46	32.13	35.80	38.79	41.25
270.0	400.0	9.42	13.86	18.36	21.56	24.13	31.53	36.74	40.80	44.08	46.77
280.0	400.0	11.10	16.32	21.57	25.28	28.25	36.69	42.55	47.07	50.68	53.60
290.0	400.0	13.33	19.58	25.82	30.20	33.67	43.45	50.11	55.16	59.14	62.31
300.0	400.0	16.40	24.04	31.62	36.89	41.04	52.55	60.23	65.93	70.34	73.77

Table A-14 (continued). The Excess Heat Capacity of NaCl(aq), Divided by R.

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
^{o}C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	600.0	1.62	2.93	4.53	5.79	6.86	10.01	12.16	13.64	14.58	15.02
10.0	600.0	1.33	2.29	3.45	4.37	5.16	7.62	9.45	10.87	11.96	12.75
20.0	600.0	1.21	2.01	2.95	3.71	4.36	6.45	8.08	9.42	10.55	11.47
25.0	600.0	1.19	1.93	2.81	3.51	4.12	6.09	7.65	8.96	10.07	11.02
30.0	600.0	1.18	1.89	2.72	3.38	3.95	5.82	7.32	8.60	9.70	10.66
40.0	600.0	1.19	1.86	2.63	3.24	3.76	5.48	6.89	8.10	9.18	10.13
50.0	600.0	1.23	1.88	2.62	3.20	3.70	5.33	6.66	7.82	8.86	9.80
60.0	600.0	1.28	1.94	2.67	3.23	3.72	5.29	6.57	7.70	8.70	9.62
70.0	600.0	1.36	2.04	2.77	3.34	3.82	5.37	6.61	7.68	8.61	9.44
80.0	600.0	1.44	2.15	2.91	3.48	3.97	5.53	6.76	7.80	8.70	9.49
90.0	600.0	1.54	2.28	3.07	3.67	4.17	5.75	6.99	8.02	8.91	9.67
100.0	600.0	1.65	2.44	3.27	3.89	4.41	6.04	7.30	8.34	9.22	9.97
110.0	600.0	1.77	2.61	3.49	4.15	4.69	6.39	7.69	8.75	9.64	10.39
120.0	600.0	1.90	2.80	3.74	4.44	5.02	6.81	8.16	9.26	10.17	10.93
130.0	600.0	2.05	3.01	4.02	4.76	5.38	7.28	8.71	9.86	10.81	11.60
140.0	600.0	2.20	3.24	4.32	5.12	5.79	7.82	9.34	10.56	11.57	12.39
150.0	600.0	2.37	3.50	4.66	5.53	6.24	8.42	10.06	11.37	12.44	13.31
160.0	600.0	2.56	3.77	5.04	5.97	6.74	9.10	10.86	12.27	13.43	14.37
170.0	600.0	2.76	4.07	5.44	6.46	7.30	9.85	11.76	13.30	14.55	15.57
180.0	600.0	2.98	4.41	5.89	6.99	7.91	10.69	12.77	14.45	15.82	16.93
190.0	600.0	3.22	4.77	6.39	7.59	8.58	11.62	13.90	15.73	17.23	18.46
200.0	600.0	3.49	5.17	6.94	8.24	9.33	12.65	15.15	17.16	18.82	20.19
210.0	600.0	3.79	5.62	7.55	8.98	10.17	13.81	16.55	18.77	20.60	22.12
220.0	600.0	4.12	6.12	8.23	9.79	11.10	15.11	18.12	20.58	22.61	24.29
230.0	600.0	4.49	6.68	9.00	10.72	12.16	16.57	19.90	22.62	24.87	26.75
240.0	600.0	4.91	7.32	9.87	11.77	13.36	18.24	21.93	24.94	27.45	29.55
250.0	600.0	5.40	8.06	10.88	12.99	14.75	20.16	24.26	27.61	30.42	32.76
260.0	600.0	5.97	8.92	12.06	14.41	16.37	22.40	26.98	30.73	33.86	36.49
270.0	600.0	6.65	9.95	13.47	16.10	18.30	25.07	30.21	34.42	37.94	40.90
280.0	600.0	7.47	11.20	15.18	18.16	20.64	28.30	34.11	38.87	42.85	46.19
290.0	600.0	8.50	12.75	17.30	20.70	23.54	32.29	38.93	44.35	48.89	52.69
300.0	600.0	9.79	14.72	19.99	23.93	27.23	37.37	45.05	51.31	56.53	60.89

Table A-14 (continued). The Excess Heat Capacity of NaCl(aq), Divided by R.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	800.0	1.52	2.72	4.14	5.24	6.14	8.74	10.48	11.68	12.47	12.91
10.0	800.0	1.26	2.14	3.19	4.00	4.70	6.82	8.39	9.64	10.64	11.42
20.0	800.0	1.15	1.89	2.75	3.43	4.01	5.86	7.32	8.54	9.60	10.51
25.0	800.0	1.13	1.82	2.63	3.26	3.81	5.57	6.97	8.18	9.24	10.18
30.0	800.0	1.12	1.78	2.55	3.15	3.67	5.35	6.71	7.89	8.95	9.90
40.0	800.0	1.13	1.76	2.47	3.02	3.50	5.07	6.36	7.49	8.52	9.47
50.0	800.0	1.17	1.78	2.46	2.99	3.45	4.94	6.17	7.26	8.26	9.18
60.0	800.0	1.22	1.83	2.50	3.02	3.46	4.90	6.09	7.14	8.11	9.01
70.0	800.0	1.29	1.92	2.61	3.13	3.58	5.01	6.16	7.15	8.04	8.83
80.0	800.0	1.37	2.03	2.73	3.27	3.72	5.16	6.30	7.27	8.12	8.86
90.0	800.0	1.45	2.15	2.89	3.44	3.91	5.37	6.52	7.48	8.30	9.01
100.0	800.0	1.55	2.29	3.06	3.64	4.13	5.64	6.81	7.77	8.59	9.27
110.0	800.0	1.66	2.44	3.26	3.87	4.38	5.96	7.17	8.15	8.97	9.64
120.0	800.0	1.77	2.61	3.48	4.13	4.67	6.34	7.60	8.62	9.45	10.13
130.0	800.0	1.90	2.79	3.72	4.42	4.99	6.77	8.10	9.17	10.03	10.73
140.0	800.0	2.03	2.99	3.99	4.73	5.35	7.25	8.67	9.80	10.72	11.45
150.0	800.0	2.17	3.20	4.28	5.08	5.75	7.79	9.32	10.53	11.51	12.29
160.0	800.0	2.33	3.43	4.60	5.46	6.18	8.39	10.04	11.36	12.42	13.26
170.0	800.0	2.49	3.68	4.94	5.87	6.65	9.05	10.85	12.29	13.45	14.37
180.0	800.0	2.66	3.95	5.30	6.32	7.17	9.78	11.75	13.33	14.60	15.62
190.0	800.0	2.85	4.23	5.70	6.80	7.73	10.59	12.75	14.48	15.89	17.02
200.0	800.0	3.05	4.54	6.13	7.33	8.34	11.47	13.85	15.77	17.34	18.61
210.0	800.0	3.26	4.87	6.59	7.90	9.00	12.44	15.07	17.21	18.96	20.38
220.0	800.0	3.49	5.23	7.10	8.53	9.73	13.52	16.43	18.81	20.78	22.38
230.0	800.0	3.74	5.61	7.66	9.22	10.54	14.72	17.96	20.62	22.83	24.65
240.0	800.0	4.00	6.04	8.27	9.98	11.44	16.07	19.69	22.67	25.16	27.22
250.0	800.0	4.30	6.51	8.95	10.84	12.45	17.61	21.65	25.02	27.84	30.20
260.0	800.0	4.63	7.04	9.72	11.81	13.60	19.37	23.94	27.75	30.97	33.67
270.0	800.0	5.00	7.64	10.60	12.93	14.94	21.45	26.63	30.98	34.68	37.79
280.0	800.0	5.42	8.33	11.64	14.25	16.52	23.93	29.88	34.91	39.19	42.81
290.0	800.0	5.91	9.15	12.88	15.85	18.45	27.00	33.92	39.79	44.82	49.09
300.0	800.0	6.50	10.15	14.41	17.85	20.87	30.91	39.10	46.09	52.09	57.21

Table A-14 (continued). The Excess Heat Capacity of NaCl(aq), Divided by R.

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	1000.0	1.44	2.53	3.80	4.75	5.51	7.67	9.10	10.13	10.89	11.42
10.0	1000.0	1.19	2.01	2.95	3.68	4.29	6.13	7.51	8.65	9.62	10.45
20.0	1000.0	1.10	1.78	2.57	3.18	3.70	5.35	6.67	7.81	8.84	9.79
25.0	1000.0	1.08	1.72	2.46	3.04	3.53	5.11	6.39	7.53	8.56	9.52
30.0	1000.0	1.07	1.69	2.39	2.94	3.41	4.93	6.18	7.29	8.32	9.29
40.0	1000.0	1.08	1.67	2.32	2.83	3.27	4.69	5.88	6.96	7.96	8.91
50.0	1000.0	1.11	1.68	2.31	2.80	3.22	4.58	5.71	6.75	7.71	8.64
60.0	1000.0	1.16	1.73	2.35	2.82	3.23	4.54	5.64	6.63	7.56	8.45
70.0	1000.0	1.23	1.82	2.46	2.95	3.37	4.70	5.77	6.72	7.56	8.34
80.0	1000.0	1.30	1.92	2.58	3.08	3.51	4.85	5.92	6.83	7.64	8.35
90.0	1000.0	1.38	2.03	2.72	3.24	3.68	5.05	6.13	7.03	7.81	8.48
100.0	1000.0	1.47	2.16	2.88	3.43	3.88	5.30	6.40	7.30	8.06	8.70
110.0	1000.0	1.56	2.30	3.06	3.64	4.12	5.60	6.73	7.65	8.41	9.04
120.0	1000.0	1.66	2.45	3.26	3.87	4.38	5.95	7.13	8.08	8.85	9.47
130.0	1000.0	1.77	2.61	3.48	4.13	4.67	6.34	7.59	8.59	9.39	10.02
140.0	1000.0	1.89	2.78	3.72	4.41	5.00	6.78	8.12	9.18	10.02	10.68
150.0	1000.0	2.01	2.96	3.97	4.72	5.35	7.28	8.72	9.85	10.76	11.45
160.0	1000.0	2.14	3.16	4.24	5.05	5.73	7.82	9.38	10.62	11.59	12.35
170.0	1000.0	2.27	3.37	4.53	5.40	6.14	8.41	10.12	11.47	12.54	13.37
180.0	1000.0	2.41	3.58	4.84	5.78	6.58	9.06	10.94	12.43	13.61	14.53
190.0	1000.0	2.56	3.81	5.16	6.19	7.06	9.78	11.84	13.49	14.81	15.84
200.0	1000.0	2.71	4.05	5.51	6.63	7.57	10.56	12.84	14.67	16.15	17.31
210.0	1000.0	2.87	4.31	5.88	7.09	8.13	11.41	13.94	15.99	17.65	18.97
220.0	1000.0	3.03	4.57	6.28	7.60	8.73	12.35	15.17	17.47	19.35	20.85
230.0	1000.0	3.20	4.85	6.70	8.14	9.39	13.40	16.55	19.13	21.27	22.99
240.0	1000.0	3.37	5.15	7.15	8.73	10.11	14.56	18.10	21.03	23.46	25.45
250.0	1000.0	3.55	5.46	7.65	9.39	10.91	15.89	19.89	23.22	26.01	28.31
260.0	1000.0	3.74	5.80	8.19	10.12	11.81	17.42	21.97	25.79	29.01	31.69
270.0	1000.0	3.95	6.18	8.81	10.96	12.86	19.24	24.46	28.89	32.64	35.78
280.0	1000.0	4.17	6.60	9.52	11.94	14.11	21.44	27.52	32.70	37.13	40.86
290.0	1000.0	4.41	7.08	10.38	13.15	15.65	24.22	31.40	37.58	42.88	47.37
300.0	1000.0	4.69	7.68	11.46	14.69	17.63	27.86	36.53	44.04	50.52	56.04

Table A-15. The Density of NaCl(aq), g/cm^3.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	1.0	1.00429	1.01086	1.02156	1.03200	1.04218	1.08058	1.11570	1.14810	1.17833	1.20697
10.0	1.0	1.00402	1.01032	1.02061	1.03065	1.04047	1.07769	1.11201	1.14389	1.17375	1.20203
20.0	1.0	1.00239	1.00851	1.01850	1.02827	1.03783	1.07421	1.10795	1.13940	1.16894	1.19688
25.0	1.0	1.00117	1.00722	1.01710	1.02676	1.03623	1.07228	1.10577	1.13705	1.16644	1.19423
30.0	1.0	0.99972	1.00571	1.01550	1.02507	1.03445	1.07022	1.10351	1.13463	1.16388	1.19152
40.0	1.0	0.99622	1.00212	1.01176	1.02119	1.03044	1.06577	1.09872	1.12958	1.15859	1.18597
50.0	1.0	0.99200	0.99784	1.00738	1.01672	1.02588	1.06089	1.09359	1.12425	1.15307	1.18023
60.0	1.0	0.98715	0.99296	1.00244	1.01172	1.02081	1.05561	1.08814	1.11865	1.14732	1.17432
70.0	1.0	0.98171	0.98748	0.99689	1.00611	1.01515	1.04976	1.08219	1.11267	1.14134	1.16836
80.0	1.0	0.97575	0.98152	0.99093	1.00013	1.00915	1.04371	1.07609	1.10653	1.13520	1.16221
90.0	1.0	0.96930	0.97508	0.98451	0.99373	1.00276	1.03733	1.06972	1.10017	1.12885	1.15588
100.0	1.0	0.96237	0.96819	0.97767	0.98692	0.99598	1.03064	1.06309	1.09359	1.12230	1.14936
110.0	1.4	0.95501	0.96089	0.97043	0.97974	0.98885	1.02367	1.05623	1.08681	1.11557	1.14267
120.0	2.0	0.94723	0.95316	0.96279	0.97218	0.98136	1.01640	1.04912	1.07981	1.10866	1.13580
130.0	2.7	0.93901	0.94503	0.95477	0.96425	0.97352	1.00884	1.04177	1.07260	1.10155	1.12874
140.0	3.6	0.93039	0.93649	0.94636	0.95596	0.96533	1.00099	1.03416	1.06518	1.09424	1.12151
150.0	4.8	0.92134	0.92755	0.93757	0.94730	0.95679	0.99283	1.02630	1.05754	1.08675	1.11411
160.0	6.2	0.91188	0.91820	0.92838	0.93826	0.94789	0.98437	1.01818	1.04967	1.07908	1.10654
170.0	7.9	0.90198	0.90843	0.91880	0.92884	0.93861	0.97559	1.00978	1.04158	1.07121	1.09882
180.0	10.0	0.89165	0.89824	0.90881	0.91902	0.92895	0.96647	1.00110	1.03325	1.06315	1.09095
190.0	12.5	0.88086	0.88760	0.89838	0.90879	0.91889	0.95700	0.99212	1.02467	1.05490	1.08296
200.0	15.5	0.86958	0.87649	0.88751	0.89812	0.90841	0.94716	0.98281	1.01583	1.04647	1.07485
210.0	19.1	0.85780	0.86489	0.87616	0.88699	0.89748	0.93692	0.97316	1.00673	1.03784	1.06665
220.0	23.2	0.84548	0.85276	0.86430	0.87537	0.88607	0.92625	0.96315	0.99733	1.02903	1.05837
230.0	28.0	0.83258	0.84007	0.85191	0.86323	0.87416	0.91514	0.95276	0.98763	1.02002	1.05003
240.0	33.4	0.81905	0.82677	0.83893	0.85053	0.86171	0.90354	0.94195	0.97762	1.01082	1.04165
250.0	39.7	0.80482	0.81281	0.82533	0.83723	0.84868	0.89144	0.93071	0.96728	1.00144	1.03327
260.0	46.9	0.78984	0.79813	0.81105	0.82328	0.83503	0.87880	0.91903	0.95661	0.99186	1.02490
270.0	55.0	0.77401	0.78265	0.79603	0.80865	0.82073	0.86562	0.90688	0.94559	0.98211	1.01656
280.0	64.1	0.75721	0.76627	0.78021	0.79327	0.80574	0.85188	0.89430	0.93424	0.97219	1.00828
290.0	74.4	0.73932	0.74890	0.76351	0.77712	0.79005	0.83764	0.88132	0.92262	0.96213	1.00005
300.0	85.8	0.72015	0.73039	0.74586	0.76015	0.77365	0.82299	0.86807	0.91081	0.95198	0.99187

Table A-15 (continued). The Density of NaCl(aq), g/cm^3.

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	200.0	1.01409	1.02052	1.03099	1.04120	1.05116	1.08876	1.12324	1.15517	1.18512	1.21369
10.0	200.0	1.01323	1.01942	1.02953	1.03939	1.04904	1.08563	1.11942	1.15090	1.18050	1.20867
20.0	200.0	1.01123	1.01726	1.02710	1.03672	1.04614	1.08199	1.11527	1.14638	1.17566	1.20346
25.0	200.0	1.00988	1.01585	1.02559	1.03511	1.04444	1.08000	1.11307	1.14402	1.17315	1.20079
30.0	200.0	1.00834	1.01425	1.02390	1.03335	1.04260	1.07790	1.11079	1.14159	1.17059	1.19808
40.0	200.0	1.00471	1.01054	1.02006	1.02937	1.03850	1.07340	1.10598	1.13654	1.16531	1.19253
50.0	200.0	1.00045	1.00622	1.01564	1.02487	1.03391	1.06852	1.10087	1.13123	1.15982	1.18682
60.0	200.0	0.99561	1.00135	1.01072	1.01988	1.02887	1.06327	1.09546	1.12568	1.15412	1.18095
70.0	200.0	0.99025	0.99596	1.00528	1.01440	1.02335	1.05761	1.08972	1.11989	1.14830	1.17507
80.0	200.0	0.98441	0.99013	0.99944	1.00855	1.01749	1.05171	1.08377	1.11391	1.14228	1.16903
90.0	200.0	0.97813	0.98386	0.99320	1.00233	1.01128	1.04552	1.07759	1.10772	1.13609	1.16282
100.0	200.0	0.97142	0.97718	0.98657	0.99573	1.00472	1.03905	1.07118	1.10134	1.12972	1.15644
110.0	200.0	0.96430	0.97011	0.97957	0.98879	0.99782	1.03231	1.06454	1.09476	1.12317	1.14988
120.0	200.0	0.95679	0.96267	0.97221	0.98151	0.99061	1.02531	1.05768	1.08799	1.11644	1.14315
130.0	200.0	0.94889	0.95485	0.96450	0.97389	0.98308	1.01805	1.05060	1.08103	1.10953	1.13624
140.0	200.0	0.94062	0.94666	0.95644	0.96595	0.97523	1.01052	1.04330	1.07387	1.10243	1.12915
150.0	200.0	0.93197	0.93811	0.94803	0.95766	0.96706	1.00272	1.03576	1.06651	1.09516	1.12188
160.0	200.0	0.92294	0.92919	0.93927	0.94904	0.95857	0.99465	1.02799	1.05893	1.08770	1.11444
170.0	200.0	0.91352	0.91989	0.93015	0.94007	0.94974	0.98628	1.01996	1.05115	1.08005	1.10682
180.0	200.0	0.90370	0.91021	0.92065	0.93075	0.94057	0.97761	1.01168	1.04314	1.07221	1.09904
190.0	200.0	0.89347	0.90012	0.91076	0.92104	0.93102	0.96862	1.00310	1.03489	1.06417	1.09111
200.0	200.0	0.88281	0.88960	0.90047	0.91093	0.92109	0.95927	0.99423	1.02638	1.05593	1.08302
210.0	200.0	0.87168	0.87864	0.88973	0.90040	0.91075	0.94956	0.98503	1.01760	1.04749	1.07480
220.0	200.0	0.86006	0.86719	0.87853	0.88942	0.89995	0.93943	0.97547	1.00853	1.03883	1.06646
230.0	200.0	0.84791	0.85523	0.86683	0.87794	0.88868	0.92886	0.96551	0.99914	1.02994	1.05800
240.0	200.0	0.83518	0.84270	0.85458	0.86592	0.87688	0.91780	0.95513	0.98941	1.02083	1.04946
250.0	200.0	0.82182	0.82955	0.84172	0.85332	0.86450	0.90622	0.94428	0.97929	1.01147	1.04084
260.0	200.0	0.80774	0.81571	0.82821	0.84008	0.85150	0.89404	0.93291	0.96877	1.00185	1.03217
270.0	200.0	0.79286	0.80110	0.81396	0.82612	0.83780	0.88124	0.92097	0.95780	0.99196	1.02347
280.0	200.0	0.77706	0.78562	0.79888	0.81138	0.82334	0.86774	0.90843	0.94635	0.98179	1.01477
290.0	200.0	0.76020	0.76914	0.78289	0.79577	0.80806	0.85353	0.89525	0.93440	0.97134	1.00609
300.0	200.0	0.74208	0.75151	0.76586	0.77921	0.79190	0.83859	0.88146	0.92196	0.96060	0.99743

Table A-15 (continued). The Density of NaCl(aq), g/cm^3.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	400.0	1.02350	1.02979	1.04005	1.05005	1.05980	1.09666	1.13053	1.16203	1.19173	1.22023
10.0	400.0	1.02210	1.02819	1.03813	1.04783	1.05731	1.09331	1.12662	1.15772	1.18707	1.21512
20.0	400.0	1.01976	1.02570	1.03540	1.04489	1.05417	1.08953	1.12240	1.15317	1.18221	1.20986
25.0	400.0	1.01829	1.02418	1.03379	1.04319	1.05239	1.08749	1.12017	1.15080	1.17969	1.20718
30.0	400.0	1.01665	1.02249	1.03202	1.04134	1.05048	1.08535	1.11787	1.14836	1.17713	1.20446
40.0	400.0	1.01290	1.01866	1.02806	1.03727	1.04630	1.08080	1.11304	1.14332	1.17186	1.19892
50.0	400.0	1.00857	1.01428	1.02360	1.03272	1.04167	1.07591	1.10794	1.13803	1.16640	1.19324
60.0	400.0	1.00374	1.00942	1.01868	1.02775	1.03664	1.07069	1.10257	1.13253	1.16076	1.18742
70.0	400.0	0.99843	1.00409	1.01332	1.02236	1.03122	1.06516	1.09698	1.12688	1.15504	1.18160
80.0	400.0	0.99270	0.99835	1.00758	1.01661	1.02547	1.05938	1.09115	1.12102	1.14914	1.17565
90.0	400.0	0.98655	0.99223	1.00148	1.01053	1.01940	1.05333	1.08511	1.11497	1.14307	1.16956
100.0	400.0	0.98002	0.98573	0.99503	1.00411	1.01301	1.04704	1.07887	1.10875	1.13685	1.16331
110.0	400.0	0.97311	0.97887	0.98824	0.99738	1.00633	1.04050	1.07243	1.10236	1.13047	1.15690
120.0	400.0	0.96586	0.97168	0.98113	0.99034	0.99936	1.03374	1.06579	1.09579	1.12392	1.15033
130.0	400.0	0.95826	0.96415	0.97370	0.98301	0.99210	1.02674	1.05896	1.08905	1.11722	1.14359
140.0	400.0	0.95032	0.95630	0.96597	0.97538	0.98457	1.01951	1.05193	1.08215	1.11035	1.13668
150.0	400.0	0.94206	0.94812	0.95793	0.96746	0.97676	1.01205	1.04471	1.07506	1.10331	1.12961
160.0	400.0	0.93346	0.93963	0.94959	0.95925	0.96867	1.00435	1.03728	1.06780	1.09611	1.12237
170.0	400.0	0.92452	0.93081	0.94093	0.95074	0.96030	0.99640	1.02964	1.06035	1.08874	1.11496
180.0	400.0	0.91525	0.92166	0.93196	0.94193	0.95163	0.98820	1.02178	1.05271	1.08120	1.10738
190.0	400.0	0.90563	0.91217	0.92266	0.93280	0.94265	0.97974	1.01369	1.04487	1.07348	1.09965
200.0	400.0	0.89566	0.90233	0.91303	0.92334	0.93336	0.97098	1.00534	1.03681	1.06558	1.09177
210.0	400.0	0.88531	0.89213	0.90304	0.91354	0.92372	0.96193	0.99673	1.02853	1.05749	1.08374
220.0	400.0	0.87457	0.88154	0.89267	0.90337	0.91373	0.95254	0.98783	1.02000	1.04922	1.07557
230.0	400.0	0.86341	0.87055	0.88191	0.89281	0.90336	0.94280	0.97861	1.01121	1.04075	1.06728
240.0	400.0	0.85182	0.85913	0.87073	0.88184	0.89258	0.93267	0.96904	1.00213	1.03207	1.05889
250.0	400.0	0.83976	0.84725	0.85909	0.87042	0.88135	0.92211	0.95909	0.99274	1.02317	1.05039
260.0	400.0	0.82719	0.83487	0.84697	0.85851	0.86963	0.91109	0.94871	0.98300	1.01405	1.04183
270.0	400.0	0.81407	0.82195	0.83431	0.84607	0.85739	0.89954	0.93786	0.97287	1.00468	1.03321
280.0	400.0	0.80036	0.80844	0.82108	0.83306	0.84457	0.88742	0.92646	0.96231	0.99505	1.02456
290.0	400.0	0.78598	0.79429	0.80721	0.81941	0.83112	0.87466	0.91446	0.95126	0.98513	1.01593
300.0	400.0	0.77087	0.77943	0.79265	0.80508	0.81698	0.86118	0.90178	0.93965	0.97490	1.00735

Table A-15 (continued). The Density of NaCl(aq), g/cm^3.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	600.0	1.03250	1.03867	1.04873	1.05853	1.06809	1.10426	1.13758	1.16866	1.19811	1.22654
10.0	600.0	1.03062	1.03661	1.04639	1.05594	1.06528	1.10073	1.13358	1.16433	1.19342	1.22134
20.0	600.0	1.02796	1.03382	1.04340	1.05276	1.06192	1.09683	1.12930	1.15975	1.18854	1.21603
25.0	600.0	1.02638	1.03219	1.04168	1.05097	1.06006	1.09474	1.12705	1.15736	1.18602	1.21334
30.0	600.0	1.02465	1.03041	1.03984	1.04905	1.05808	1.09256	1.12473	1.15493	1.18346	1.21062
40.0	600.0	1.02077	1.02646	1.03577	1.04488	1.05381	1.08796	1.11988	1.14988	1.17820	1.20508
50.0	600.0	1.01638	1.02203	1.03126	1.04029	1.04915	1.08305	1.11479	1.14462	1.17278	1.19944
60.0	600.0	1.01154	1.01716	1.02633	1.03531	1.04412	1.07785	1.10945	1.13916	1.16718	1.19368
70.0	600.0	1.00627	1.01188	1.02102	1.02998	1.03876	1.07241	1.10395	1.13360	1.16154	1.18790
80.0	600.0	1.00061	1.00622	1.01536	1.02431	1.03309	1.06671	1.09821	1.12782	1.15572	1.18203
90.0	600.0	0.99458	1.00020	1.00937	1.01834	1.02713	1.06077	1.09228	1.12188	1.14976	1.17603
100.0	600.0	0.98819	0.99385	1.00306	1.01206	1.02088	1.05460	1.08616	1.11579	1.14366	1.16991
110.0	600.0	0.98147	0.98717	0.99644	1.00549	1.01436	1.04822	1.07986	1.10954	1.13742	1.16364
120.0	600.0	0.97443	0.98018	0.98953	0.99865	1.00758	1.04163	1.07339	1.10313	1.13103	1.15723
130.0	600.0	0.96708	0.97290	0.98234	0.99155	1.00055	1.03484	1.06675	1.09658	1.12450	1.15067
140.0	600.0	0.95942	0.96532	0.97488	0.98418	0.99327	1.02783	1.05994	1.08987	1.11782	1.14395
150.0	600.0	0.95147	0.95746	0.96714	0.97655	0.98574	1.02063	1.05295	1.08301	1.11100	1.13708
160.0	600.0	0.94323	0.94931	0.95913	0.96867	0.97797	1.01322	1.04579	1.07599	1.10402	1.13004
170.0	600.0	0.93470	0.94088	0.95085	0.96053	0.96995	1.00560	1.03844	1.06881	1.09690	1.12285
180.0	600.0	0.92587	0.93216	0.94230	0.95212	0.96168	0.99776	1.03091	1.06147	1.08962	1.11550
190.0	600.0	0.91675	0.92316	0.93347	0.94345	0.95315	0.98970	1.02319	1.05395	1.08218	1.10800
200.0	600.0	0.90732	0.91386	0.92436	0.93450	0.94435	0.98140	1.01525	1.04625	1.07458	1.10034
210.0	600.0	0.89758	0.90425	0.91495	0.92526	0.93527	0.97285	1.00710	1.03837	1.06682	1.09254
220.0	600.0	0.88752	0.89433	0.90523	0.91572	0.92590	0.96404	0.99872	1.03028	1.05888	1.08459
230.0	600.0	0.87712	0.88408	0.89519	0.90587	0.91621	0.95493	0.99007	1.02198	1.05078	1.07651
240.0	600.0	0.86637	0.87349	0.88481	0.89568	0.90620	0.94552	0.98115	1.01344	1.04249	1.06831
250.0	600.0	0.85526	0.86253	0.87407	0.88514	0.89583	0.93576	0.97192	1.00465	1.03401	1.05999
260.0	600.0	0.84376	0.85119	0.86295	0.87421	0.88508	0.92563	0.96234	0.99557	1.02534	1.05157
270.0	600.0	0.83185	0.83944	0.85142	0.86287	0.87391	0.91508	0.95238	0.98617	1.01645	1.04308
280.0	600.0	0.81950	0.82725	0.83945	0.85108	0.86228	0.90406	0.94198	0.97642	1.00733	1.03453
290.0	600.0	0.80668	0.81459	0.82700	0.83879	0.85015	0.89251	0.93106	0.96624	0.99796	1.02595
300.0	600.0	0.79336	0.80143	0.81402	0.82597	0.83746	0.88033	0.91954	0.95558	0.98831	1.01739

Table A-15 (continued). The Density of NaCl(aq), g/cm^3.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	[illegible] [illegible]
0.0	800.0	1.04110	1.04716	1.05704	1.06666	1.07605	1.11158	1.14437	1.17506	1.20427	1.23[illegible]
10.0	800.0	1.03880	1.04471	1.05435	1.06376	1.07296	1.10791	1.14032	1.17072	1.19956	1.227[illegible]
20.0	800.0	1.03586	1.04165	1.05111	1.06035	1.06940	1.10389	1.13599	1.16612	1.19465	1.221[illegible]
25.0	800.0	1.03417	1.03992	1.04930	1.05848	1.06747	1.10175	1.13371	1.16373	1.19213	1.219[illegible]
30.0	800.0	1.03235	1.03806	1.04738	1.05650	1.06543	1.09954	1.13138	1.16128	1.18957	1.2165[illegible]
40.0	800.0	1.02835	1.03400	1.04321	1.05223	1.06108	1.09490	1.12652	1.15624	1.18433	1.211[illegible]
50.0	800.0	1.02391	1.02950	1.03864	1.04759	1.05637	1.08997	1.12142	1.15101	1.17894	1.205[illegible]
60.0	800.0	1.01905	1.02461	1.03371	1.04261	1.05134	1.08478	1.11611	1.14559	1.17340	1.1997[illegible]
70.0	800.0	1.01380	1.01936	1.02842	1.03730	1.04601	1.07937	1.11064	1.14006	1.16778	1.193[illegible]
80.0	800.0	1.00820	1.01376	1.02282	1.03169	1.04039	1.07372	1.10496	1.13434	1.16202	1.1881[illegible]
90.0	800.0	1.00226	1.00783	1.01691	1.02580	1.03451	1.06785	1.09910	1.12847	1.15614	1.1822[illegible]
100.0	800.0	0.99600	1.00159	1.01071	1.01962	1.02836	1.06178	1.09307	1.12246	1.15014	1.17623
110.0	800.0	0.98943	0.99506	1.00423	1.01319	1.02197	1.05551	1.08687	1.11631	1.14401	1.17010
120.0	800.0	0.98257	0.98825	0.99749	1.00651	1.01534	1.04904	1.08051	1.11003	1.13775	1.16384
130.0	800.0	0.97543	0.98117	0.99049	0.99958	1.00847	1.04239	1.07400	1.10360	1.13137	1.15745
140.0	800.0	0.96801	0.97382	0.98324	0.99242	1.00139	1.03555	1.06734	1.09704	1.12485	1.15092
150.0	800.0	0.96033	0.96621	0.97575	0.98502	0.99408	1.02853	1.06052	1.09035	1.11821	1.14426
160.0	800.0	0.95239	0.95836	0.96801	0.97740	0.98655	1.02133	1.05354	1.08351	1.11143	1.13744
170.0	800.0	0.94419	0.95025	0.96004	0.96954	0.97881	1.01394	1.04641	1.07654	1.10451	1.13049
180.0	800.0	0.93573	0.94189	0.95182	0.96146	0.97085	1.00637	1.03912	1.06942	1.09746	1.12338
190.0	800.0	0.92702	0.93328	0.94337	0.95314	0.96266	0.99860	1.03166	1.06215	1.09027	1.11612
200.0	800.0	0.91804	0.92441	0.93467	0.94459	0.95424	0.99064	1.02403	1.05473	1.08293	1.10872
210.0	800.0	0.90879	0.91529	0.92572	0.93580	0.94559	0.98247	1.01621	1.04716	1.07545	1.10117
220.0	800.0	0.89927	0.90590	0.91651	0.92675	0.93669	0.97407	1.00821	1.03941	1.06781	1.09348
230.0	800.0	0.88948	0.89623	0.90703	0.91744	0.92754	0.96545	1.00000	1.03149	1.06003	1.08565
240.0	800.0	0.87939	0.88628	0.89727	0.90786	0.91811	0.95657	0.99156	1.02337	1.05208	1.07768
250.0	800.0	0.86901	0.87603	0.88723	0.89798	0.90840	0.94743	0.98289	1.01506	1.04397	1.06959
260.0	800.0	0.85832	0.86548	0.87687	0.88780	0.89839	0.93799	0.97394	1.00651	1.03570	1.06138
270.0	800.0	0.84730	0.85460	0.86619	0.87730	0.88804	0.92822	0.96470	0.99772	1.02724	1.05307
280.0	800.0	0.83595	0.84339	0.85517	0.86644	0.87733	0.91809	0.95511	0.98865	1.01859	1.04467
290.0	800.0	0.82423	0.83181	0.84377	0.85519	0.86623	0.90753	0.94514	0.97926	1.00973	1.03620
300.0	800.0	0.81215	0.81985	0.83196	0.84352	0.85469	0.89649	0.93469	0.96949	1.00063	1.02769

Table A-15 (continued). The Density of NaCl(aq), g/cm^3.

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	1000.0	1.04932	1.05528	1.06498	1.07444	1.08367	1.11862	1.15092	1.18124	1.21020	1.23841
10.0	1000.0	1.04666	1.05249	1.06200	1.07128	1.08036	1.11484	1.14684	1.17689	1.20547	1.23303
20.0	1000.0	1.04347	1.04919	1.05855	1.06769	1.07664	1.11073	1.14247	1.17228	1.20055	1.22764
25.0	1000.0	1.04168	1.04737	1.05666	1.06574	1.07463	1.10855	1.14018	1.16989	1.19803	1.22492
30.0	1000.0	1.03979	1.04544	1.05467	1.06370	1.07254	1.10631	1.13783	1.16744	1.19547	1.22220
40.0	1000.0	1.03568	1.04127	1.05040	1.05934	1.06811	1.10162	1.13295	1.16240	1.19024	1.21670
50.0	1000.0	1.03117	1.03672	1.04578	1.05466	1.06336	1.09667	1.12786	1.15719	1.18488	1.21115
60.0	1000.0	1.02629	1.03181	1.04083	1.04966	1.05832	1.09149	1.12257	1.15181	1.17940	1.20553
70.0	1000.0	1.02106	1.02656	1.03555	1.04435	1.05298	1.08606	1.11708	1.14626	1.17376	1.19974
80.0	1000.0	1.01550	1.02100	1.02998	1.03878	1.04740	1.08044	1.11142	1.14056	1.16804	1.19399
90.0	1000.0	1.00963	1.01515	1.02414	1.03294	1.04157	1.07461	1.10559	1.13473	1.16221	1.18816
100.0	1000.0	1.00348	1.00901	1.01803	1.02685	1.03549	1.06859	1.09960	1.12877	1.15628	1.18225
110.0	1000.0	0.99704	1.00260	1.01166	1.02051	1.02919	1.06238	1.09346	1.12269	1.15023	1.17624
120.0	1000.0	0.99033	0.99593	1.00504	1.01394	1.02266	1.05599	1.08717	1.11647	1.14408	1.17013
130.0	1000.0	0.98337	0.98901	0.99820	1.00715	1.01592	1.04942	1.08073	1.11013	1.13781	1.16392
140.0	1000.0	0.97616	0.98186	0.99112	1.00015	1.00898	1.04268	1.07415	1.10367	1.13143	1.15758
150.0	1000.0	0.96871	0.97447	0.98382	0.99293	1.00184	1.03578	1.06743	1.09708	1.12493	1.15113
160.0	1000.0	0.96102	0.96685	0.97631	0.98550	0.99449	1.02871	1.06057	1.09037	1.11832	1.14455
170.0	1000.0	0.95310	0.95901	0.96858	0.97787	0.98695	1.02148	1.05357	1.08354	1.11158	1.13783
180.0	1000.0	0.94496	0.95095	0.96063	0.97004	0.97922	1.01407	1.04642	1.07657	1.10472	1.13098
190.0	1000.0	0.93658	0.94266	0.95248	0.96200	0.97128	1.00650	1.03913	1.06948	1.09773	1.12400
200.0	1000.0	0.92798	0.93415	0.94410	0.95375	0.96315	0.99876	1.03169	1.06225	1.09061	1.11688
210.0	1000.0	0.91914	0.92542	0.93551	0.94529	0.95481	0.99084	1.02409	1.05489	1.08337	1.10961
220.0	1000.0	0.91007	0.91645	0.92670	0.93662	0.94627	0.98274	1.01634	1.04738	1.07599	1.10221
230.0	1000.0	0.90077	0.90726	0.91767	0.92772	0.93751	0.97444	1.00842	1.03973	1.06847	1.09467
240.0	1000.0	0.89122	0.89782	0.90839	0.91860	0.92852	0.96594	1.00032	1.03192	1.06082	1.08699
250.0	1000.0	0.88142	0.88814	0.89888	0.90924	0.91930	0.95723	0.99203	1.02395	1.05303	1.07917
260.0	1000.0	0.87136	0.87820	0.88912	0.89963	0.90984	0.94828	0.98353	1.01581	1.04509	1.07123
270.0	1000.0	0.86104	0.86800	0.87909	0.88976	0.90011	0.93909	0.97481	1.00748	1.03700	1.06317
280.0	1000.0	0.85045	0.85753	0.86879	0.87961	0.89011	0.92962	0.96584	0.99894	1.02875	1.05499
290.0	1000.0	0.83957	0.84677	0.85820	0.86916	0.87979	0.91983	0.95658	0.99016	1.02033	1.04671
300.0	1000.0	0.82841	0.83571	0.84729	0.85839	0.86914	0.90969	0.94700	0.98112	1.01173	1.03834

Table A-16. The Specific Entropy of NaCl(aq), J/g·K

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	1.0	3.513	3.507	3.492	3.475	3.457	3.376	3.289	3.202	3.117	3.036
10.0	1.0	3.663	3.654	3.637	3.617	3.597	3.508	3.416	3.325	3.236	3.152
20.0	1.0	3.807	3.797	3.777	3.755	3.732	3.637	3.539	3.444	3.352	3.265
25.0	1.0	3.878	3.866	3.845	3.822	3.798	3.699	3.600	3.502	3.409	3.321
30.0	1.0	3.947	3.935	3.912	3.888	3.864	3.761	3.659	3.559	3.465	3.375
40.0	1.0	4.081	4.068	4.043	4.018	3.991	3.882	3.775	3.671	3.573	3.481
50.0	1.0	4.212	4.197	4.171	4.143	4.114	3.999	3.887	3.780	3.679	3.584
60.0	1.0	4.338	4.323	4.294	4.264	4.234	4.113	3.996	3.885	3.781	3.683
70.0	1.0	4.461	4.444	4.414	4.382	4.350	4.224	4.102	3.987	3.880	3.780
80.0	1.0	4.581	4.563	4.530	4.497	4.463	4.331	4.205	4.086	3.976	3.873
90.0	1.0	4.697	4.678	4.644	4.609	4.574	4.436	4.305	4.183	4.069	3.964
100.0	1.0	4.811	4.790	4.754	4.718	4.681	4.538	4.402	4.277	4.160	4.052
110.0	1.4	4.922	4.900	4.862	4.824	4.786	4.637	4.497	4.368	4.248	4.138
120.0	2.0	5.030	5.007	4.968	4.928	4.888	4.734	4.590	4.457	4.335	4.222
130.0	2.7	5.136	5.112	5.071	5.029	4.988	4.828	4.680	4.544	4.418	4.303
140.0	3.6	5.240	5.215	5.172	5.128	5.086	4.921	4.768	4.629	4.500	4.383
150.0	4.8	5.342	5.316	5.271	5.226	5.181	5.011	4.855	4.711	4.580	4.460
160.0	6.2	5.442	5.414	5.368	5.321	5.275	5.100	4.939	4.792	4.658	4.536
170.0	7.9	5.540	5.512	5.463	5.415	5.367	5.186	5.021	4.871	4.734	4.610
180.0	10.0	5.637	5.607	5.557	5.507	5.458	5.271	5.102	4.949	4.809	4.682
190.0	12.5	5.732	5.701	5.649	5.597	5.546	5.355	5.181	5.024	4.882	4.753
200.0	15.5	5.826	5.794	5.740	5.686	5.634	5.437	5.259	5.099	4.954	4.822
210.0	19.1	5.919	5.885	5.829	5.774	5.720	5.517	5.335	5.172	5.024	4.890
220.0	23.2	6.011	5.976	5.918	5.861	5.805	5.597	5.410	5.243	5.092	4.956
230.0	28.0	6.102	6.066	6.005	5.946	5.889	5.675	5.484	5.313	5.160	5.021
240.0	33.4	6.193	6.155	6.092	6.031	5.972	5.752	5.557	5.383	5.226	5.085
250.0	39.7	6.283	6.243	6.178	6.115	6.054	5.828	5.628	5.451	5.291	5.148
260.0	46.9	6.373	6.331	6.264	6.199	6.136	5.903	5.699	5.517	5.355	5.209
270.0	55.0	6.462	6.419	6.349	6.282	6.217	5.978	5.769	5.584	5.418	5.270
280.0	64.1	6.553	6.507	6.434	6.364	6.297	6.052	5.838	5.649	5.480	5.329
290.0	74.4	6.643	6.596	6.520	6.447	6.377	6.125	5.906	5.713	5.542	5.388
300.0	85.8	6.735	6.685	6.605	6.529	6.457	6.197	5.973	5.777	5.602	5.446

Table A-16. The Specific Entropy of NaCl(aq), J/g·K (continued)

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	200.0	3.514	3.506	3.491	3.473	3.454	3.371	3.284	3.196	3.110	3.029
10.0	200.0	3.661	3.652	3.634	3.614	3.593	3.503	3.410	3.318	3.229	3.145
20.0	200.0	3.803	3.792	3.772	3.750	3.727	3.630	3.532	3.437	3.345	3.258
25.0	200.0	3.872	3.861	3.839	3.816	3.792	3.692	3.592	3.495	3.401	3.313
30.0	200.0	3.940	3.928	3.906	3.882	3.857	3.754	3.651	3.552	3.457	3.367
40.0	200.0	4.074	4.060	4.036	4.010	3.983	3.874	3.767	3.663	3.565	3.473
50.0	200.0	4.203	4.188	4.162	4.134	4.105	3.991	3.878	3.771	3.670	3.576
60.0	200.0	4.328	4.312	4.284	4.254	4.224	4.104	3.987	3.876	3.772	3.675
70.0	200.0	4.450	4.433	4.402	4.371	4.339	4.213	4.092	3.978	3.871	3.771
80.0	200.0	4.568	4.550	4.518	4.485	4.452	4.320	4.195	4.077	3.966	3.864
90.0	200.0	4.683	4.664	4.630	4.596	4.561	4.424	4.294	4.172	4.059	3.955
100.0	200.0	4.796	4.776	4.740	4.704	4.667	4.525	4.391	4.266	4.150	4.043
110.0	200.0	4.906	4.884	4.847	4.809	4.771	4.624	4.485	4.357	4.238	4.128
120.0	200.0	5.013	4.990	4.951	4.912	4.872	4.720	4.577	4.445	4.323	4.211
130.0	200.0	5.118	5.094	5.053	5.012	4.972	4.814	4.667	4.532	4.407	4.292
140.0	200.0	5.221	5.196	5.153	5.111	5.068	4.906	4.755	4.616	4.488	4.371
150.0	200.0	5.321	5.295	5.251	5.207	5.163	4.995	4.840	4.698	4.568	4.449
160.0	200.0	5.420	5.393	5.347	5.301	5.256	5.083	4.924	4.778	4.645	4.524
170.0	200.0	5.517	5.489	5.441	5.394	5.347	5.169	5.006	4.857	4.721	4.598
180.0	200.0	5.613	5.583	5.534	5.485	5.436	5.253	5.086	4.934	4.796	4.670
190.0	200.0	5.706	5.676	5.625	5.574	5.524	5.336	5.164	5.009	4.868	4.740
200.0	200.0	5.799	5.767	5.714	5.662	5.611	5.417	5.241	5.083	4.939	4.809
210.0	200.0	5.890	5.858	5.803	5.749	5.696	5.496	5.317	5.155	5.009	4.877
220.0	200.0	5.981	5.947	5.890	5.834	5.779	5.575	5.391	5.226	5.078	4.943
230.0	200.0	6.070	6.035	5.976	5.918	5.862	5.652	5.464	5.296	5.145	5.008
240.0	200.0	6.159	6.122	6.061	6.002	5.944	5.728	5.536	5.365	5.211	5.072
250.0	200.0	6.248	6.209	6.146	6.085	6.025	5.804	5.607	5.432	5.276	5.135
260.0	200.0	6.336	6.296	6.230	6.167	6.105	5.878	5.677	5.499	5.340	5.197
270.0	200.0	6.424	6.382	6.314	6.249	6.185	5.952	5.747	5.565	5.403	5.257
280.0	200.0	6.512	6.469	6.398	6.330	6.265	6.025	5.815	5.630	5.465	5.317
290.0	200.0	6.601	6.556	6.482	6.412	6.345	6.098	5.884	5.695	5.527	5.377
300.0	200.0	6.691	6.644	6.567	6.494	6.424	6.171	5.952	5.759	5.589	5.436

Table A-16. The Specific Entropy of NaCl(aq), J/g·K (continued)

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	400.0	3.513	3.505	3.489	3.471	3.451	3.366	3.278	3.190	3.104	3.022
10.0	400.0	3.658	3.648	3.629	3.609	3.588	3.497	3.403	3.311	3.223	3.138
20.0	400.0	3.798	3.787	3.766	3.744	3.720	3.623	3.525	3.430	3.338	3.251
25.0	400.0	3.866	3.855	3.833	3.810	3.785	3.685	3.585	3.488	3.394	3.306
30.0	400.0	3.934	3.922	3.899	3.875	3.850	3.746	3.644	3.544	3.449	3.360
40.0	400.0	4.066	4.052	4.028	4.002	3.975	3.866	3.759	3.655	3.557	3.465
50.0	400.0	4.194	4.179	4.153	4.125	4.096	3.982	3.870	3.763	3.662	3.567
60.0	400.0	4.318	4.302	4.274	4.244	4.214	4.094	3.978	3.867	3.763	3.666
70.0	400.0	4.439	4.422	4.391	4.360	4.329	4.203	4.083	3.969	3.862	3.762
80.0	400.0	4.556	4.538	4.506	4.473	4.440	4.309	4.184	4.067	3.957	3.855
90.0	400.0	4.670	4.651	4.618	4.583	4.549	4.413	4.283	4.162	4.050	3.946
100.0	400.0	4.782	4.761	4.726	4.690	4.654	4.513	4.380	4.255	4.140	4.033
110.0	400.0	4.890	4.869	4.832	4.795	4.757	4.611	4.474	4.346	4.227	4.118
120.0	400.0	4.997	4.974	4.936	4.897	4.858	4.707	4.565	4.434	4.313	4.201
130.0	400.0	5.100	5.077	5.037	4.996	4.956	4.800	4.654	4.520	4.396	4.282
140.0	400.0	5.202	5.178	5.136	5.094	5.052	4.891	4.741	4.604	4.477	4.360
150.0	400.0	5.302	5.276	5.233	5.189	5.146	4.980	4.826	4.685	4.556	4.437
160.0	400.0	5.399	5.373	5.328	5.283	5.238	5.067	4.909	4.765	4.633	4.512
170.0	400.0	5.495	5.468	5.421	5.374	5.328	5.152	4.991	4.843	4.708	4.585
180.0	400.0	5.589	5.560	5.512	5.464	5.416	5.235	5.070	4.919	4.782	4.657
190.0	400.0	5.681	5.652	5.602	5.552	5.503	5.317	5.148	4.994	4.854	4.727
200.0	400.0	5.772	5.742	5.690	5.638	5.588	5.397	5.224	5.067	4.925	4.795
210.0	400.0	5.862	5.830	5.776	5.723	5.671	5.476	5.299	5.139	4.994	4.863
220.0	400.0	5.951	5.917	5.862	5.807	5.754	5.553	5.372	5.209	5.062	4.928
230.0	400.0	6.038	6.003	5.946	5.890	5.835	5.628	5.444	5.278	5.128	4.993
240.0	400.0	6.124	6.089	6.029	5.971	5.914	5.703	5.514	5.346	5.194	5.057
250.0	400.0	6.210	6.173	6.112	6.052	5.993	5.776	5.584	5.412	5.258	5.119
260.0	400.0	6.295	6.257	6.193	6.131	6.071	5.849	5.652	5.477	5.321	5.180
270.0	400.0	6.380	6.340	6.274	6.210	6.148	5.920	5.720	5.542	5.383	5.241
280.0	400.0	6.464	6.422	6.354	6.288	6.225	5.991	5.786	5.606	5.445	5.301
290.0	400.0	6.548	6.505	6.434	6.366	6.301	6.061	5.852	5.668	5.505	5.360
300.0	400.0	6.632	6.587	6.514	6.444	6.376	6.130	5.917	5.731	5.566	5.419

Table A-16. The Specific Entropy of NaCl(aq), J/g·K (continued)

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	600.0	3.511	3.502	3.486	3.467	3.447	3.361	3.272	3.183	3.097	3.016
10.0	600.0	3.654	3.644	3.625	3.604	3.582	3.491	3.397	3.305	3.216	3.131
20.0	600.0	3.792	3.781	3.760	3.738	3.714	3.617	3.519	3.423	3.331	3.243
25.0	600.0	3.860	3.848	3.826	3.803	3.779	3.678	3.578	3.480	3.387	3.298
30.0	600.0	3.927	3.915	3.892	3.867	3.842	3.739	3.636	3.537	3.442	3.352
40.0	600.0	4.058	4.044	4.020	3.993	3.967	3.858	3.751	3.648	3.550	3.458
50.0	600.0	4.185	4.170	4.144	4.116	4.087	3.973	3.861	3.755	3.654	3.559
60.0	600.0	4.308	4.292	4.264	4.234	4.205	4.085	3.969	3.859	3.755	3.658
70.0	600.0	4.428	4.411	4.381	4.350	4.318	4.193	4.073	3.960	3.853	3.754
80.0	600.0	4.544	4.526	4.495	4.462	4.429	4.299	4.175	4.058	3.948	3.847
90.0	600.0	4.657	4.639	4.605	4.571	4.537	4.402	4.273	4.153	4.041	3.937
100.0	600.0	4.768	4.748	4.713	4.677	4.642	4.502	4.369	4.245	4.130	4.024
110.0	600.0	4.876	4.855	4.818	4.781	4.744	4.599	4.462	4.335	4.218	4.109
120.0	600.0	4.981	4.959	4.921	4.882	4.844	4.694	4.553	4.423	4.302	4.191
130.0	600.0	5.084	5.061	5.021	4.981	4.941	4.787	4.642	4.509	4.385	4.272
140.0	600.0	5.185	5.161	5.120	5.078	5.037	4.877	4.729	4.592	4.466	4.350
150.0	600.0	5.283	5.258	5.216	5.173	5.130	4.966	4.813	4.673	4.544	4.426
160.0	600.0	5.380	5.354	5.309	5.265	5.221	5.052	4.896	4.753	4.621	4.501
170.0	600.0	5.474	5.447	5.401	5.356	5.310	5.136	4.976	4.830	4.696	4.573
180.0	600.0	5.567	5.539	5.492	5.444	5.397	5.219	5.055	4.906	4.769	4.645
190.0	600.0	5.659	5.629	5.580	5.531	5.483	5.300	5.132	4.980	4.841	4.714
200.0	600.0	5.748	5.718	5.667	5.617	5.567	5.379	5.208	5.052	4.911	4.782
210.0	600.0	5.836	5.805	5.753	5.700	5.649	5.456	5.282	5.123	4.980	4.849
220.0	600.0	5.923	5.891	5.837	5.783	5.730	5.533	5.354	5.193	5.047	4.914
230.0	600.0	6.009	5.975	5.919	5.864	5.810	5.607	5.425	5.261	5.113	4.979
240.0	600.0	6.094	6.059	6.001	5.944	5.888	5.680	5.495	5.328	5.178	5.042
250.0	600.0	6.177	6.141	6.081	6.023	5.965	5.753	5.563	5.394	5.241	5.104
260.0	600.0	6.260	6.223	6.161	6.100	6.042	5.823	5.630	5.458	5.304	5.165
270.0	600.0	6.342	6.303	6.239	6.177	6.117	5.893	5.696	5.521	5.365	5.225
280.0	600.0	6.423	6.383	6.317	6.253	6.191	5.962	5.761	5.583	5.426	5.284
290.0	600.0	6.504	6.462	6.394	6.328	6.264	6.029	5.824	5.645	5.486	5.343
300.0	600.0	6.585	6.541	6.470	6.402	6.336	6.096	5.887	5.705	5.545	5.402

Table A-16. The Specific Entropy of NaCl(aq), J/g·K (continued)

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	800.0	3.508	3.499	3.482	3.463	3.442	3.356	3.266	3.177	3.091	3.009
10.0	800.0	3.649	3.639	3.620	3.599	3.577	3.485	3.391	3.298	3.209	3.124
20.0	800.0	3.786	3.775	3.754	3.731	3.708	3.610	3.512	3.416	3.324	3.236
25.0	800.0	3.854	3.842	3.820	3.796	3.772	3.671	3.571	3.473	3.380	3.291
30.0	800.0	3.920	3.908	3.885	3.860	3.835	3.732	3.629	3.530	3.435	3.345
40.0	800.0	4.050	4.036	4.012	3.985	3.959	3.850	3.743	3.640	3.542	3.450
50.0	800.0	4.176	4.161	4.135	4.107	4.079	3.964	3.853	3.747	3.646	3.552
60.0	800.0	4.298	4.282	4.254	4.225	4.195	4.076	3.960	3.850	3.747	3.650
70.0	800.0	4.417	4.400	4.370	4.340	4.308	4.184	4.064	3.951	3.845	3.746
80.0	800.0	4.532	4.515	4.483	4.451	4.418	4.289	4.165	4.048	3.940	3.838
90.0	800.0	4.645	4.626	4.593	4.559	4.525	4.391	4.263	4.143	4.032	3.928
100.0	800.0	4.755	4.735	4.700	4.665	4.630	4.491	4.359	4.235	4.121	4.015
110.0	800.0	4.862	4.841	4.805	4.768	4.731	4.587	4.452	4.325	4.208	4.100
120.0	800.0	4.966	4.945	4.907	4.869	4.831	4.682	4.542	4.413	4.293	4.182
130.0	800.0	5.068	5.046	5.007	4.967	4.927	4.774	4.631	4.498	4.375	4.262
140.0	800.0	5.168	5.145	5.104	5.063	5.022	4.864	4.717	4.581	4.455	4.340
150.0	800.0	5.266	5.241	5.199	5.157	5.114	4.952	4.801	4.662	4.533	4.416
160.0	800.0	5.361	5.336	5.292	5.248	5.205	5.038	4.883	4.741	4.610	4.490
170.0	800.0	5.455	5.429	5.383	5.338	5.293	5.121	4.963	4.818	4.684	4.562
180.0	800.0	5.547	5.520	5.473	5.426	5.380	5.203	5.041	4.893	4.757	4.633
190.0	800.0	5.637	5.609	5.560	5.512	5.465	5.283	5.118	4.967	4.829	4.702
200.0	800.0	5.726	5.696	5.646	5.597	5.548	5.362	5.193	5.039	4.898	4.770
210.0	800.0	5.813	5.782	5.731	5.679	5.629	5.439	5.266	5.109	4.966	4.836
220.0	800.0	5.898	5.867	5.813	5.761	5.709	5.514	5.338	5.178	5.033	4.901
230.0	800.0	5.983	5.950	5.895	5.841	5.787	5.588	5.408	5.246	5.099	4.965
240.0	800.0	6.066	6.032	5.975	5.919	5.865	5.660	5.477	5.312	5.163	5.028
250.0	800.0	6.148	6.113	6.054	5.997	5.940	5.731	5.544	5.377	5.226	5.089
260.0	800.0	6.229	6.192	6.132	6.073	6.015	5.800	5.610	5.440	5.288	5.150
270.0	800.0	6.309	6.271	6.209	6.148	6.088	5.869	5.675	5.502	5.348	5.210
280.0	800.0	6.388	6.349	6.285	6.222	6.161	5.936	5.738	5.564	5.408	5.269
290.0	800.0	6.467	6.426	6.359	6.294	6.232	6.001	5.800	5.624	5.467	5.327
300.0	800.0	6.545	6.502	6.433	6.366	6.302	6.066	5.861	5.683	5.526	5.386

Table A-16. The Specific Entropy of NaCl(aq), J/g·K (continued)

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	1000.0	3.504	3.495	3.477	3.458	3.437	3.350	3.260	3.171	3.085	3.002
10.0	1000.0	3.644	3.634	3.614	3.593	3.571	3.478	3.384	3.292	3.202	3.117
20.0	1000.0	3.780	3.769	3.748	3.725	3.701	3.603	3.505	3.409	3.317	3.229
25.0	1000.0	3.847	3.835	3.813	3.789	3.765	3.664	3.564	3.466	3.373	3.284
30.0	1000.0	3.913	3.900	3.877	3.853	3.828	3.724	3.622	3.522	3.427	3.337
40.0	1000.0	4.042	4.028	4.004	3.977	3.951	3.842	3.735	3.632	3.535	3.442
50.0	1000.0	4.167	4.152	4.126	4.098	4.070	3.956	3.845	3.739	3.638	3.544
60.0	1000.0	4.288	4.273	4.245	4.216	4.186	4.067	3.951	3.842	3.739	3.642
70.0	1000.0	4.406	4.390	4.360	4.329	4.298	4.174	4.055	3.942	3.836	3.738
80.0	1000.0	4.521	4.504	4.472	4.440	4.408	4.279	4.156	4.040	3.931	3.830
90.0	1000.0	4.633	4.615	4.582	4.548	4.514	4.381	4.253	4.134	4.023	3.920
100.0	1000.0	4.742	4.723	4.688	4.653	4.618	4.480	4.349	4.226	4.112	4.006
110.0	1000.0	4.848	4.828	4.792	4.756	4.719	4.576	4.441	4.315	4.199	4.091
120.0	1000.0	4.952	4.931	4.893	4.856	4.818	4.670	4.531	4.402	4.283	4.173
130.0	1000.0	5.053	5.031	4.992	4.953	4.914	4.762	4.619	4.487	4.365	4.252
140.0	1000.0	5.152	5.129	5.089	5.048	5.008	4.851	4.705	4.570	4.445	4.330
150.0	1000.0	5.249	5.225	5.183	5.141	5.100	4.939	4.789	4.650	4.523	4.406
160.0	1000.0	5.344	5.319	5.276	5.233	5.189	5.024	4.870	4.729	4.599	4.479
170.0	1000.0	5.437	5.411	5.366	5.322	5.277	5.107	4.950	4.806	4.673	4.551
180.0	1000.0	5.528	5.501	5.455	5.409	5.363	5.188	5.028	4.881	4.746	4.622
190.0	1000.0	5.617	5.589	5.542	5.494	5.447	5.268	5.104	4.954	4.817	4.691
200.0	1000.0	5.705	5.676	5.627	5.578	5.529	5.346	5.178	5.025	4.886	4.758
210.0	1000.0	5.791	5.761	5.710	5.660	5.610	5.422	5.251	5.095	4.954	4.824
220.0	1000.0	5.875	5.844	5.792	5.740	5.689	5.497	5.322	5.164	5.020	4.889
230.0	1000.0	5.959	5.926	5.872	5.819	5.767	5.569	5.392	5.231	5.085	4.952
240.0	1000.0	6.041	6.007	5.951	5.897	5.843	5.641	5.460	5.296	5.149	5.014
250.0	1000.0	6.121	6.087	6.029	5.973	5.917	5.711	5.526	5.361	5.211	5.075
260.0	1000.0	6.201	6.165	6.106	6.048	5.991	5.779	5.591	5.424	5.273	5.136
270.0	1000.0	6.279	6.242	6.181	6.121	6.063	5.847	5.655	5.485	5.333	5.195
280.0	1000.0	6.357	6.319	6.255	6.194	6.134	5.912	5.718	5.546	5.392	5.254
290.0	1000.0	6.434	6.394	6.329	6.265	6.203	5.976	5.779	5.605	5.450	5.312
300.0	1000.0	6.510	6.468	6.401	6.335	6.271	6.039	5.838	5.663	5.508	5.370

Table A-17. The Specific Enthalpy of NaCl(aq), J/g.

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	1.0	-1985.7	-1968.2	-1939.8	-1912.4	-1885.9	-1788.4	-1702.3	-1625.2	-1555.5	-1491.6
10.0	1.0	-1944.1	-1927.1	-1899.5	-1872.8	-1847.0	-1751.6	-1667.0	-1591.1	-1522.3	-1459.2
20.0	1.0	-1902.6	-1886.0	-1859.2	-1833.2	-1808.0	-1714.6	-1631.5	-1556.7	-1488.9	-1426.6
25.0	1.0	-1881.8	-1865.5	-1839.0	-1813.3	-1788.4	-1696.1	-1613.7	-1539.5	-1472.1	-1410.3
30.0	1.0	-1861.1	-1845.0	-1818.8	-1793.4	-1768.8	-1677.5	-1595.9	-1522.3	-1455.4	-1393.9
40.0	1.0	-1819.5	-1803.9	-1778.4	-1753.6	-1729.6	-1640.2	-1560.1	-1487.8	-1421.8	-1361.2
50.0	1.0	-1778.0	-1762.8	-1737.9	-1713.8	-1690.4	-1602.9	-1524.4	-1453.3	-1388.3	-1328.5
60.0	1.0	-1736.5	-1721.6	-1697.5	-1673.9	-1651.1	-1565.6	-1488.6	-1418.7	-1354.8	-1295.8
70.0	1.0	-1694.9	-1680.5	-1657.0	-1634.0	-1611.7	-1528.2	-1452.8	-1384.2	-1321.3	-1263.3
80.0	1.0	-1653.3	-1639.3	-1616.4	-1594.1	-1572.4	-1490.8	-1417.0	-1349.7	-1287.9	-1230.7
90.0	1.0	-1611.6	-1598.0	-1575.8	-1554.1	-1532.9	-1453.4	-1381.1	-1315.2	-1254.4	-1198.2
100.0	1.0	-1569.8	-1556.7	-1535.1	-1514.0	-1493.4	-1415.9	-1345.3	-1280.6	-1221.0	-1165.7
110.0	1.4	-1527.8	-1515.1	-1494.2	-1473.8	-1453.8	-1378.3	-1309.4	-1246.0	-1187.6	-1133.2
120.0	2.0	-1485.7	-1473.4	-1453.2	-1433.4	-1414.0	-1340.6	-1273.4	-1211.5	-1154.1	-1100.7
130.0	2.7	-1443.4	-1431.6	-1412.1	-1392.9	-1374.2	-1302.9	-1237.4	-1176.8	-1120.6	-1068.2
140.0	3.6	-1400.9	-1389.6	-1370.8	-1352.3	-1334.2	-1265.1	-1201.3	-1142.2	-1087.2	-1035.7
150.0	4.8	-1358.2	-1347.3	-1329.3	-1311.5	-1294.0	-1227.2	-1165.1	-1107.5	-1053.6	-1003.2
160.0	6.2	-1315.2	-1304.8	-1287.6	-1270.5	-1253.7	-1189.1	-1128.9	-1072.7	-1020.1	-970.7
170.0	7.9	-1272.0	-1262.1	-1245.7	-1229.3	-1213.2	-1151.0	-1092.6	-1037.9	-986.5	-938.1
180.0	10.0	-1228.4	-1219.1	-1203.5	-1187.9	-1172.5	-1112.6	-1056.2	-1003.0	-952.9	-905.5
190.0	12.5	-1184.4	-1175.7	-1161.0	-1146.2	-1131.5	-1074.2	-1019.6	-968.0	-919.2	-872.9
200.0	15.5	-1140.1	-1132.0	-1118.1	-1104.2	-1090.3	-1035.5	-983.0	-933.0	-885.4	-840.2
210.0	19.1	-1095.3	-1087.8	-1074.9	-1061.8	-1048.7	-996.6	-946.1	-897.8	-851.6	-807.5
220.0	23.2	-1049.9	-1043.1	-1031.2	-1019.1	-1006.8	-957.4	-909.1	-862.4	-817.6	-774.7
230.0	28.0	-1004.0	-997.9	-987.1	-975.8	-964.4	-917.9	-871.8	-827.0	-783.6	-741.8
240.0	33.4	-957.3	-952.0	-942.3	-932.1	-921.6	-878.2	-834.4	-791.3	-749.4	-708.9
250.0	39.7	-909.9	-905.4	-896.9	-887.8	-878.3	-838.0	-796.6	-755.4	-715.0	-675.8
260.0	46.9	-861.5	-857.9	-850.8	-842.8	-834.3	-797.4	-758.5	-719.3	-680.5	-642.7
270.0	55.0	-812.1	-809.5	-803.9	-797.1	-789.8	-756.4	-720.1	-682.9	-645.8	-609.4
280.0	64.1	-761.5	-760.1	-756.0	-750.7	-744.5	-714.9	-681.3	-646.2	-610.8	-575.9
290.0	74.4	-709.5	-709.4	-707.1	-703.3	-698.5	-672.9	-642.1	-609.2	-575.6	-542.2
300.0	85.8	-655.9	-657.3	-657.1	-655.1	-651.7	-630.5	-602.6	-571.8	-539.9	-508.0

Table A-17. The Specific Enthalpy of NaCl(aq), J/g (continued)

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	nol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	200.0	-1965.9	-1948.6	-1920.7	-1893.7	-1867.6	-1771.3	-1686.0	-1609.6	-1540.4	-1477.0
10.0	200.0	-1925.0	-1908.3	-1881.0	-1854.7	-1829.2	-1734.8	-1650.9	-1575.6	-1507.3	-1444.7
20.0	200.0	-1884.1	-1867.8	-1841.2	-1815.5	-1790.6	-1698.1	-1615.6	-1541.4	-1474.0	-1412.2
25.0	200.0	-1863.7	-1847.5	-1821.3	-1795.9	-1771.2	-1679.6	-1597.9	-1524.3	-1457.3	-1395.9
30.0	200.0	-1843.1	-1827.2	-1801.3	-1776.2	-1751.8	-1661.2	-1580.2	-1507.1	-1440.6	-1379.6
40.0	200.0	-1802.1	-1786.5	-1761.3	-1736.7	-1712.9	-1624.2	-1544.6	-1472.7	-1407.2	-1346.9
50.0	200.0	-1761.0	-1745.8	-1721.2	-1697.2	-1674.0	-1587.1	-1509.1	-1438.4	-1373.8	-1314.4
60.0	200.0	-1719.9	-1705.1	-1681.1	-1657.7	-1635.0	-1550.0	-1473.5	-1404.0	-1340.4	-1281.8
70.0	200.0	-1678.7	-1664.4	-1641.0	-1618.2	-1596.0	-1512.9	-1437.9	-1369.6	-1307.1	-1249.3
80.0	200.0	-1637.5	-1623.6	-1600.8	-1578.6	-1556.9	-1475.7	-1402.3	-1335.3	-1273.8	-1216.8
90.0	200.0	-1596.2	-1582.7	-1560.5	-1538.9	-1517.8	-1438.5	-1366.6	-1300.9	-1240.5	-1184.4
100.0	200.0	-1554.8	-1541.7	-1520.2	-1499.1	-1478.6	-1401.3	-1331.0	-1266.5	-1207.2	-1152.1
110.0	200.0	-1513.3	-1500.6	-1479.7	-1459.3	-1439.3	-1364.0	-1295.3	-1232.2	-1173.9	-1119.7
120.0	200.0	-1471.7	-1459.4	-1439.2	-1419.4	-1400.0	-1326.7	-1259.6	-1197.8	-1140.7	-1087.4
130.0	200.0	-1429.9	-1418.0	-1398.5	-1379.3	-1360.5	-1289.3	-1223.8	-1163.4	-1107.4	-1055.2
140.0	200.0	-1388.0	-1376.5	-1357.7	-1339.2	-1321.0	-1251.9	-1188.1	-1129.1	-1074.2	-1022.9
150.0	200.0	-1345.8	-1334.9	-1316.8	-1298.9	-1281.4	-1214.4	-1152.3	-1094.7	-1041.0	-990.6
160.0	200.0	-1303.5	-1293.1	-1275.7	-1258.5	-1241.6	-1176.8	-1116.5	-1060.3	-1007.7	-958.4
170.0	200.0	-1261.0	-1251.1	-1234.5	-1218.0	-1201.7	-1139.1	-1080.6	-1025.8	-974.5	-926.2
180.0	200.0	-1218.3	-1208.8	-1193.0	-1177.3	-1161.7	-1101.4	-1044.7	-991.4	-941.2	-893.9
190.0	200.0	-1175.3	-1166.3	-1151.3	-1136.4	-1121.5	-1063.6	-1008.7	-956.9	-907.9	-861.6
200.0	200.0	-1131.9	-1123.6	-1109.4	-1095.2	-1081.1	-1025.6	-972.7	-922.3	-874.6	-829.3
210.0	200.0	-1088.2	-1080.5	-1067.2	-1053.8	-1040.4	-987.5	-936.5	-887.7	-841.3	-797.0
220.0	200.0	-1044.1	-1037.0	-1024.7	-1012.1	-999.5	-949.2	-900.2	-853.1	-807.9	-764.6
230.0	200.0	-999.5	-993.0	-981.7	-970.1	-958.3	910.8	-863.9	-818.3	-774.4	-732.2
240.0	200.0	-954.3	-948.6	-938.3	-927.7	-916.8	-872.1	-827.3	-783.4	-740.8	-699.7
250.0	200.0	-908.5	-903.5	-894.4	-884.8	-874.8	-833.1	-790.5	-748.4	-707.1	-667.2
260.0	200.0	-862.0	-857.8	-849.9	-841.3	-832.3	-793.7	-753.5	-713.1	-673.3	-634.5
270.0	200.0	-814.6	-811.3	-804.7	-797.3	-789.3	-754.0	-716.2	-677.7	-639.4	-601.8
280.0	200.0	-766.2	-763.9	-758.7	-752.5	-745.6	-713.8	-678.6	-642.0	-605.2	-568.9
290.0	200.0	-716.5	-715.3	-711.7	-706.9	-701.2	-673.1	-640.5	-605.9	-570.7	-535.8
300.0	200.0	-665.4	-665.5	-663.7	-660.3	-655.9	-631.8	-601.9	-569.3	-535.8	-502.3

Table A-17. The Specific Enthalpy of NaCl(aq), J/g (continued)

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	400.0	-1946.5	-1929.5	-1902.0	-1875.3	-1849.6	-1754.4	-1669.9	-1594.1	-1525.4	-1462.4
10.0	400.0	-1906.3	-1889.7	-1862.8	-1836.8	-1811.6	-1718.1	-1634.9	-1560.2	-1492.3	-1430.2
20.0	400.0	-1865.9	-1849.8	-1823.5	-1798.0	-1773.3	-1681.6	-1599.8	-1526.1	-1459.1	-1397.7
25.0	400.0	-1845.7	-1829.7	-1803.7	-1778.5	-1754.1	-1663.3	-1582.1	-1509.0	-1442.5	-1381.5
30.0	400.0	-1825.4	-1809.6	-1783.9	-1759.0	-1734.8	-1644.9	-1564.5	-1491.9	-1425.8	-1365.2
40.0	400.0	-1784.7	-1769.3	-1744.2	-1719.9	-1696.2	-1608.1	-1529.1	-1457.7	-1392.6	-1332.7
50.0	400.0	-1744.0	-1729.0	-1704.5	-1680.7	-1657.6	-1571.3	-1493.7	-1423.5	-1359.3	-1300.2
60.0	400.0	-1703.2	-1688.6	-1664.7	-1641.5	-1618.9	-1534.4	-1458.3	-1389.2	-1326.0	-1267.7
70.0	400.0	-1662.4	-1648.2	-1624.9	-1602.2	-1580.2	-1497.5	-1422.9	-1355.0	-1292.8	-1235.3
80.0	400.0	-1621.6	-1607.7	-1585.0	-1562.9	-1541.4	-1460.6	-1387.4	-1320.8	-1259.5	-1202.9
90.0	400.0	-1580.7	-1567.2	-1545.1	-1523.5	-1502.5	-1423.6	-1352.0	-1286.6	-1226.4	-1170.6
100.0	400.0	-1539.7	-1526.6	-1505.1	-1484.1	-1463.6	-1386.6	-1316.5	-1252.4	-1193.2	-1138.4
110.0	400.0	-1498.5	-1485.8	-1465.0	-1444.6	-1424.7	-1349.6	-1281.0	-1218.2	-1160.1	-1106.2
120.0	400.0	-1457.3	-1445.0	-1424.8	-1405.0	-1385.6	-1312.5	-1245.5	-1184.0	-1127.0	-1074.0
130.0	400.0	-1415.9	-1404.1	-1384.5	-1365.3	-1346.5	-1275.3	-1210.0	-1149.8	-1093.9	-1041.9
140.0	400.0	-1374.4	-1363.0	-1344.1	-1325.5	-1307.3	-1238.2	-1174.5	-1115.6	-1060.9	-1009.8
150.0	400.0	-1332.8	-1321.8	-1303.6	-1285.7	-1268.1	-1201.0	-1138.9	-1081.4	-1027.8	-977.7
160.0	400.0	-1291.0	-1280.5	-1263.0	-1245.7	-1228.7	-1163.7	-1103.4	-1047.2	-994.8	-945.7
170.0	400.0	-1249.1	-1239.0	-1222.2	-1205.6	-1189.3	-1126.4	-1067.8	-1013.0	-961.8	-913.6
180.0	400.0	-1206.9	-1197.4	-1181.3	-1165.5	-1149.7	-1089.1	-1032.2	-978.8	-928.7	-881.5
190.0	400.0	-1164.6	-1155.5	-1140.3	-1125.1	-1110.1	-1051.7	-996.6	-944.6	-895.7	-849.5
200.0	400.0	-1122.0	-1113.5	-1099.0	-1084.6	-1070.3	-1014.2	-960.9	-910.4	-862.6	-817.4
210.0	400.0	-1079.1	-1071.2	-1057.6	-1043.9	-1030.3	-976.7	-925.2	-876.2	-829.6	-785.2
220.0	400.0	-1036.0	-1028.6	-1015.9	-1003.1	-990.2	-939.1	-889.5	-841.9	-796.5	-753.1
230.0	400.0	-992.4	-985.7	-973.9	-961.9	-949.8	-901.3	-853.7	-807.6	-763.3	-720.9
240.0	400.0	-948.5	-942.4	-931.6	-920.5	-909.3	-863.4	-817.8	-773.2	-730.1	-688.6
250.0	400.0	-904.1	-898.7	-889.0	-878.8	-868.4	-825.3	-781.8	-738.8	-696.8	-656.3
260.0	400.0	-859.2	-854.5	-845.9	-836.8	-827.2	-787.1	-745.6	-704.2	-663.5	-623.8
270.0	400.0	-813.8	-809.8	-802.4	-794.3	-785.7	-748.6	-709.4	-669.5	-630.0	-591.2
280.0	400.0	-767.6	-764.6	-758.4	-751.4	-743.8	-709.9	-672.9	-634.7	-596.3	-558.5
290.0	400.0	-720.7	-718.6	-713.8	-707.9	-701.4	-670.8	-636.1	-599.6	-562.4	-525.5
300.0	400.0	-672.9	-671.8	-668.5	-663.9	-658.5	-631.4	-599.0	-564.1	-528.2	-492.2

Table A-17. The Specific Enthalpy of NaCl(aq), J/g (continued)

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	600.0	-1927.7	-1910.9	-1883.7	-1857.4	-1831.9	-1737.7	-1653.9	-1578.6	-1510.4	-1447.9
10.0	600.0	-1888.0	-1871.6	-1845.0	-1819.2	-1794.2	-1701.6	-1619.0	-1544.8	-1477.4	-1415.7
20.0	600.0	-1848.0	-1832.0	-1806.0	-1780.7	-1756.2	-1665.3	-1584.1	-1510.8	-1444.3	-1383.4
25.0	600.0	-1827.9	-1812.1	-1786.4	-1761.4	-1737.2	-1647.1	-1566.5	-1493.8	-1427.7	-1367.1
30.0	600.0	-1807.8	-1792.2	-1766.7	-1742.0	-1718.0	-1628.8	-1548.9	-1476.8	-1411.2	-1350.9
40.0	600.0	-1767.5	-1752.2	-1727.4	-1703.2	-1679.7	-1592.2	-1513.7	-1442.7	-1378.0	-1318.5
50.0	600.0	-1727.1	-1712.2	-1687.9	-1664.3	-1641.3	-1555.6	-1478.5	-1408.6	-1344.8	-1286.1
60.0	600.0	-1686.7	-1672.2	-1648.4	-1625.3	-1602.9	-1518.9	-1443.2	-1374.5	-1311.6	-1253.7
70.0	600.0	-1646.2	-1632.1	-1608.9	-1586.3	-1564.4	-1482.2	-1407.9	-1340.4	-1278.4	-1221.2
80.0	600.0	-1605.7	-1591.9	-1569.3	-1547.3	-1525.9	-1445.4	-1372.6	-1306.3	-1245.3	-1189.0
90.0	600.0	-1565.1	-1551.7	-1529.7	-1508.2	-1487.3	-1408.7	-1337.3	-1272.2	-1212.3	-1156.8
100.0	600.0	-1524.4	-1511.4	-1490.0	-1469.0	-1448.6	-1371.9	-1302.0	-1238.1	-1179.3	-1124.7
110.0	600.0	-1483.7	-1471.0	-1450.2	-1429.8	-1409.9	-1335.0	-1266.7	-1204.1	-1146.3	-1092.6
120.0	600.0	-1442.8	-1430.5	-1410.3	-1390.5	-1371.2	-1298.1	-1231.4	-1170.0	-1113.3	-1060.6
130.0	600.0	-1401.8	-1389.9	-1370.3	-1351.1	-1332.4	-1261.2	-1196.0	-1136.0	-1080.4	-1028.6
140.0	600.0	-1360.7	-1349.2	-1330.3	-1311.7	-1293.5	-1224.3	-1160.7	-1102.0	-1047.5	-996.6
150.0	600.0	-1319.5	-1308.4	-1290.2	-1272.2	-1254.5	-1187.4	-1125.4	-1068.0	-1014.6	-964.7
160.0	600.0	-1278.2	-1267.5	-1249.9	-1232.6	-1215.5	-1150.4	-1090.1	-1034.0	-981.7	-932.8
170.0	600.0	-1236.7	-1226.5	-1209.6	-1192.9	-1176.5	-1113.4	-1054.7	-1000.0	-948.9	-901.0
180.0	600.0	-1195.1	-1185.4	-1169.2	-1153.2	-1137.3	-1076.4	-1019.4	-966.1	-916.1	-869.1
190.0	600.0	-1153.3	-1144.1	-1128.6	-1113.3	-1098.1	-1039.4	-984.1	-932.1	-883.2	-837.2
200.0	600.0	-1111.3	-1102.6	-1088.0	-1073.3	-1058.8	-1002.3	-948.8	-898.2	-850.4	-805.3
210.0	600.0	-1069.1	-1060.9	-1047.1	-1033.2	-1019.4	-965.2	-913.5	-864.2	-817.6	-773.4
220.0	600.0	-1026.7	-1019.1	-1006.1	-993.0	-979.9	-928.1	-878.1	-830.3	-784.7	-741.4
230.0	600.0	-984.0	-977.0	-964.9	-952.6	-940.2	-890.9	-842.8	-796.4	-751.9	-709.4
240.0	600.0	-941.0	-934.6	-923.5	-912.0	-900.4	-853.7	-807.4	-762.4	-719.0	-677.4
250.0	600.0	-897.7	-891.9	-881.8	-871.2	-860.5	-816.3	-772.0	-728.4	-686.1	-645.2
260.0	600.0	-854.0	-848.9	-839.8	-830.2	-820.3	-778.9	-736.6	-694.4	-653.1	-613.0
270.0	600.0	-809.9	-805.5	-797.5	-788.9	-779.9	-741.5	-701.1	-660.4	-620.0	-580.6
280.0	600.0	-765.3	-761.7	-754.9	-747.4	-739.3	-703.9	-665.6	-626.3	-586.8	-548.1
290.0	600.0	-720.2	-717.5	-711.9	-705.5	-698.5	-666.2	-630.0	-592.0	-553.5	-515.2
300.0	600.0	-674.5	-672.7	-668.5	-663.3	-657.3	-628.4	-594.3	-557.6	-519.8	-482.0

Table A-17. The Specific Enthalpy of NaCl(aq), J/g (continued)

t	P	m=0.1	m=0.25	m=0.5	m=0.75	m=1.0	m=2.0	m=3.0	m=4.0	m=5.0	m=6.0
°C	bar	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg	mol/kg
0.0	800.0	-1909.2	-1892.7	-1865.8	-1839.7	-1814.5	-1721.1	-1638.0	-1563.2	-1495.5	-1433.5
10.0	800.0	-1869.9	-1853.7	-1827.4	-1801.8	-1777.1	-1685.2	-1603.3	-1529.5	-1462.6	-1401.4
20.0	800.0	-1830.4	-1814.5	-1788.7	-1763.7	-1739.4	-1649.1	-1568.4	-1495.7	-1429.6	-1369.1
25.0	800.0	-1810.5	-1794.8	-1769.2	-1744.5	-1720.4	-1631.0	-1550.9	-1478.7	-1413.1	-1352.9
30.0	800.0	-1790.5	-1775.0	-1749.7	-1725.2	-1701.4	-1612.8	-1533.4	-1461.8	-1396.5	-1336.7
40.0	800.0	-1750.5	-1735.3	-1710.6	-1686.6	-1663.3	-1576.4	-1498.4	-1427.8	-1363.4	-1304.3
50.0	800.0	-1710.4	-1695.6	-1671.4	-1648.0	-1625.2	-1539.9	-1463.3	-1393.8	-1330.3	-1272.0
60.0	800.0	-1670.3	-1655.8	-1632.2	-1609.3	-1586.9	-1503.4	-1428.2	-1359.8	-1297.3	-1239.7
70.0	800.0	-1630.1	-1616.0	-1592.9	-1570.5	-1548.7	-1466.9	-1393.0	-1325.8	-1264.2	-1207.2
80.0	800.0	-1589.9	-1576.1	-1553.6	-1531.7	-1510.4	-1430.3	-1357.9	-1291.8	-1231.2	-1175.1
90.0	800.0	-1549.6	-1536.2	-1514.2	-1492.9	-1472.0	-1393.7	-1322.7	-1257.9	-1198.2	-1143.0
100.0	800.0	-1509.2	-1496.2	-1474.8	-1454.0	-1433.6	-1357.1	-1287.5	-1223.9	-1165.3	-1110.9
110.0	800.0	-1468.7	-1456.1	-1435.3	-1415.0	-1395.2	-1320.4	-1252.4	-1190.0	-1132.4	-1079.0
120.0	800.0	-1428.2	-1415.9	-1395.7	-1376.0	-1356.7	-1283.8	-1217.2	-1156.1	-1099.6	-1047.1
130.0	800.0	-1387.5	-1375.6	-1356.0	-1336.9	-1318.1	-1247.1	-1182.0	-1122.2	-1066.8	-1015.2
140.0	800.0	-1346.8	-1335.3	-1316.3	-1297.7	-1279.5	-1210.4	-1146.9	-1088.3	-1034.0	-983.4
150.0	800.0	-1305.9	-1294.8	-1276.5	-1258.5	-1240.8	-1173.7	-1111.7	-1054.5	-1001.3	-951.7
160.0	800.0	-1265.0	-1254.3	-1236.6	-1219.2	-1202.2	-1137.0	-1076.6	-1020.7	-968.6	-919.9
170.0	800.0	-1223.9	-1213.7	-1196.7	-1179.9	-1163.4	-1100.2	-1041.5	-986.9	-935.9	-888.2
180.0	800.0	-1182.8	-1173.0	-1156.7	-1140.5	-1124.6	-1063.5	-1006.4	-953.1	-903.3	-856.5
190.0	800.0	-1141.4	-1132.1	-1116.6	-1101.1	-1085.8	-1026.8	-971.4	-919.4	-870.6	-824.8
200.0	800.0	-1100.0	-1091.2	-1076.3	-1061.6	-1046.9	-990.1	-936.3	-885.7	-838.0	-793.1
210.0	800.0	-1058.4	-1050.1	-1036.0	-1022.0	-1008.0	-953.4	-901.3	-852.0	-805.4	-761.4
220.0	800.0	-1016.6	-1008.8	-995.6	-982.3	-969.0	-916.6	-866.3	-818.3	-772.8	-729.6
230.0	800.0	-974.6	-967.3	-955.0	-942.4	-929.9	-879.9	-831.4	-784.7	-740.2	-697.9
240.0	800.0	-932.3	-925.7	-914.2	-902.5	-890.7	-843.2	-796.4	-751.1	-707.6	-666.0
250.0	800.0	-889.8	-883.8	-873.3	-862.4	-851.4	-806.4	-761.5	-717.5	-674.9	-634.1
260.0	800.0	-847.1	-841.7	-832.2	-822.2	-812.0	-769.7	-726.6	-684.0	-642.3	-602.1
270.0	800.0	-804.0	-799.3	-790.8	-781.9	-772.5	-733.0	-691.8	-650.4	-609.6	-569.9
280.0	800.0	-760.5	-756.6	-749.3	-741.4	-732.9	-696.3	-657.1	-616.9	-576.8	-537.5
290.0	800.0	-716.7	-713.6	-707.6	-700.7	-693.3	-659.7	-622.4	-583.4	-543.9	-504.9
300.0	800.0	-672.5	-670.3	-665.6	-659.9	-653.5	-623.1	-587.8	-549.8	-510.8	-471.7

Table A-17. The Specific Enthalpy of NaCl(aq), J/g (continued)

t °C	P bar	m=0.1 mol/kg	m=0.25 mol/kg	m=0.5 mol/kg	m=0.75 mol/kg	m=1.0 mol/kg	m=2.0 mol/kg	m=3.0 mol/kg	m=4.0 mol/kg	m=5.0 mol/kg	m=6.0 mol/kg
0.0	1000.0	-1891.2	-1874.8	-1848.2	-1822.4	-1797.4	-1704.8	-1622.1	-1547.9	-1480.6	-1419.2
10.0	1000.0	-1852.2	-1836.2	-1810.0	-1784.7	-1760.2	-1669.0	-1587.6	-1514.3	-1447.9	-1387.1
20.0	1000.0	-1812.9	-1797.2	-1771.6	-1746.8	-1722.7	-1633.1	-1552.9	-1480.6	-1414.9	-1354.9
25.0	1000.0	-1793.2	-1777.6	-1752.3	-1727.7	-1703.9	-1615.0	-1535.5	-1463.7	-1398.5	-1338.7
30.0	1000.0	-1773.4	-1758.0	-1732.9	-1708.6	-1685.0	-1597.0	-1518.1	-1446.8	-1382.0	-1322.5
40.0	1000.0	-1733.6	-1718.6	-1694.0	-1670.2	-1647.1	-1560.7	-1483.1	-1412.9	-1348.9	-1290.2
50.0	1000.0	-1693.8	-1679.1	-1655.1	-1631.8	-1609.1	-1524.4	-1448.2	-1379.1	-1315.9	-1257.9
60.0	1000.0	-1654.0	-1639.6	-1616.1	-1593.3	-1571.1	-1488.0	-1413.2	-1345.2	-1283.0	-1225.6
70.0	1000.0	-1614.0	-1600.0	-1577.1	-1554.7	-1533.0	-1451.7	-1378.2	-1311.3	-1249.9	-1193.3
80.0	1000.0	-1574.1	-1560.4	-1538.0	-1516.2	-1494.9	-1415.2	-1343.1	-1277.4	-1217.0	-1161.2
90.0	1000.0	-1534.0	-1520.7	-1498.8	-1477.5	-1456.8	-1378.8	-1308.1	-1243.5	-1184.2	-1129.1
100.0	1000.0	-1493.9	-1480.9	-1459.6	-1438.9	-1418.6	-1342.4	-1273.1	-1209.7	-1151.3	-1097.2
110.0	1000.0	-1453.8	-1441.1	-1420.4	-1400.1	-1380.4	-1305.9	-1238.1	-1175.9	-1118.6	-1065.3
120.0	1000.0	-1413.5	-1401.2	-1381.1	-1361.3	-1342.1	-1269.4	-1203.0	-1142.1	-1085.8	-1033.5
130.0	1000.0	-1373.1	-1361.2	-1341.7	-1322.5	-1303.8	-1232.9	-1168.0	-1108.4	-1053.2	-1001.8
140.0	1000.0	-1332.7	-1321.2	-1302.2	-1283.6	-1265.4	-1196.4	-1133.0	-1074.6	-1020.5	-970.1
150.0	1000.0	-1292.2	-1281.1	-1262.7	-1244.7	-1227.0	-1159.9	-1098.1	-1040.9	-987.9	-938.5
160.0	1000.0	-1251.6	-1240.9	-1223.2	-1205.7	-1188.6	-1123.4	-1063.1	-1007.3	-955.4	-906.9
170.0	1000.0	-1210.9	-1200.6	-1183.5	-1166.7	-1150.2	-1086.9	-1028.2	-973.7	-922.8	-875.3
180.0	1000.0	-1170.1	-1160.3	-1143.9	-1127.7	-1111.7	-1050.4	-993.3	-940.1	-890.4	-843.8
190.0	1000.0	-1129.2	-1119.8	-1104.1	-1088.6	-1073.2	-1014.0	-958.5	-906.5	-857.9	-812.3
200.0	1000.0	-1088.2	-1079.3	-1064.3	-1049.4	-1034.7	-977.6	-923.7	-873.0	-825.5	-780.7
210.0	1000.0	-1047.1	-1038.6	-1024.4	-1010.2	-996.1	-941.2	-888.9	-839.6	-793.0	-749.2
220.0	1000.0	-1005.8	-997.9	-984.5	-971.0	-957.5	-904.8	-854.2	-806.2	-760.6	-717.7
230.0	1000.0	-964.4	-957.0	-944.4	-931.7	-918.9	-868.4	-819.6	-772.8	-728.3	-686.1
240.0	1000.0	-922.8	-915.9	-904.2	-892.3	-880.2	-832.1	-785.0	-739.5	-695.9	-654.4
250.0	1000.0	-881.0	-874.7	-863.9	-852.8	-841.5	-795.9	-750.5	-706.2	-663.5	-622.7
260.0	1000.0	-838.9	-833.3	-823.5	-813.2	-802.8	-759.7	-716.0	-673.0	-631.1	-590.9
270.0	1000.0	-796.7	-791.7	-782.9	-773.6	-764.0	-723.6	-681.7	-639.8	-598.7	-559.0
280.0	1000.0	-754.1	-749.9	-742.2	-733.9	-725.2	-687.6	-647.5	-606.8	-566.3	-526.9
290.0	1000.0	-711.3	-707.9	-701.4	-694.2	-686.4	-651.7	-613.5	-573.8	-533.7	-494.4
300.0	1000.0	-668.2	-665.7	-660.5	-654.4	-647.7	-616.2	-579.8	-540.8	-501.0	-461.5

11. References

[1]P. S. Z. Rogers and K. S. Pitzer, J. Phys. Chem. Ref. Data **11**, 15 (1982).
[2]L. F. Silvester and K. S. Pitzer, J. Phys. Chem. **81**, 1822 (1977).
[3]R. H. Busey, H. F. Holmes, and R. E. Mesmer, J. Chem. Thermodyn. (in press).
[4]D. E. White and R. H. Wood, J. Solution Chem. **11**, 223 (1982).
[5]D. Smith-Magowan and R. H. Wood, J. Chem. Thermodyn. **13**, 1047 (1981).
[6]J. E. Tanner and F. W. Lamb, J. Solution Chem. **7**, 303 (1978).
[7]K. S. Pitzer, J. Phys. Chem. **77**, 268 (1973).
[8]K. S. Pitzer and J. J. Kim, J. Am. Chem. Soc. **96**, 5701 (1974).
[9]K. S. Pitzer and L. F. Silvester, J. Solution Chem. **5**, 269 (1976).
[10]K. S. Pitzer, R. N. Roy, and L. F. Silvester, J. Am. Chem. Soc. **99**, 4930 (1977).
[11]C. E. Harvie and J. H. Weare, Geochim. Cosmochim. Acta **44**, 981 (1980).
[12]K. S. Pitzer and G. Mayorga, J. Phys. Chem. **77**, 2300 (1973); **78**, 2698 (1974).
[13]K. S. Pitzer and G. Mayorga, J. Solution Chem. **3**, 539 (1974).
[14]K. S. Pitzer, *Activity Coefficients in Electrolyte Solutions*, edited by R. M. Pytkowicz (CRC, Boca Raton, FL, 1979), Chap. 7.
[15]L. F. Silvester and K. S. Pitzer, J. Solution Chem. **7**, 327 (1978).
[16]P. S. Z. Rogers and K. S. Pitzer, J. Phys. Chem. **85**, 2886 (1981); **86**, 2110 (1982).
[17]H. F. Holmes and R. E. Mesmer (submitted for publication).
[18]H. F. Holmes, C. F. Baes, Jr., and R. E. Mesmer, J. Chem. Thermodyn. **10**, 983 (1978).
[19]H. F. Holmes and R. E Mesmer, J. Chem. Thermodyn. **13**, 131, 1025, 1035 (1981).
[20]H. F. Holmes, C. F. Baes, Jr., and R. E. Mesmer, J. Chem. Thermodyn. **11**, 1035 (1979); **13**, 101 (1981).
[21]K. S. Pitzer and J. S. Murdzek, J. Solution Chem. (in press).
[22]L. Haar, J. S. Gallagher, and G. S. Kell, *Proceedings of the 8th Symposium on Thermophysical Properties*, edited by J. V. Sengers (American Society of Mechanical Engineers, New York, 1981), Vol. II, p. 298; *Proceedings of the 9th International Conference on the Properties of Steam*, edited by J. Straub and K. Scheffler (Pergamon, Oxford, 1980), p. 69.
[23]D. J. Bradley and K. S. Pitzer, J. Phys. Chem. **83**, 1599 (1979).
[24]J. H. Keenan, F. G. Keyes, P. G. Hill, and J. G.Moore, *Steam Tables* (Wiley, New York, 1969).
[25]C. M. Criss and J. W. Cobble, J. Am. Chem. Soc. **83**, 3223 (1961).
[26]W. L. Gardner, R. E. Mitchell, and J. W. Cobble, J. Phys. Chem. **73**, 2025 (1969).
[27]J. W. Cobble, "Chemical Thermodynamic Studies of Aqueous Trace Components in Light Water Reactors at High Temperature and Pressure," Electric Power Research Institute Report, 1978.
[28]R. A. Robinson and R. H. Stokes, *Electrolyte Solutions* (Butterworths, London, 1955).
[29]V. Parker, "Thermal Properties of Aqueous Univalent Electrolytes," Natl. Bur. Stand. (U.S.) Report NSRDS-NBS 2, 1965.
[30]G. Scatchard and S. S. Prentiss, J. Am. Chem. Soc. **55**, 4355 (1933).
[31]H. F. Gibbard, Jr., G. Scatchard, R. A. Rocesseau, and J. L. Creek, J. Chem. Eng. Data **19**, 281 (1974).
[32]C. Liu and W. T. Lindsay, Jr., J. Phys. Chem. **74**, 341 (1970).
[33]C. Liu and W. T. Lindsay, Jr., J. Solution Chem. **1**, 45, (1972).
[34]R. P. Smith, J. Am. Chem. Soc. **61**, 497 (1939).
[35]R. P. Smith and D. S. Hirtle, J. Am. Chem. Soc. **61**, 1123 (1939).
[36]J. E. Mayrath and R. H. Wood, J. Chem. Thermodyn. **14**, 15 (1982).
[37]D. D. Ensor and H. L. Anderson, J. Chem. Eng. Data **18**, 205 (1973).
[38]E. E. Messikomer and R. H. Wood, J. Chem. Thermodyn. **7**, 119 (1975).
[39]P. Picker, P. A. Leduc, P. R. Philip, and J. E. Desnoyers, J. Chem. Thermodyn. **3**, 631 (1971).
[40]J. L. Fortier, P. A. Leduc, and J. E. Desnoyers, J. Solution Chem. **3**, 377 (1974).
[41]G. Perron, J. L. Fortier, and J. E. Desnoyers, J. Chem. Thermodyn. **7**, 1177 (1975).
[42]J. E. Desnoyers, C. de Visser, G. Perron, and P. Picker, J. Solution Chem. **5**, 505 (1976).
[43]G. Perron, A. Roux, and J. E. Desnoyers, Can. J. Chem (in press).
[44]K. K. Kelley, U. S. Bur. Mines Bull. **584** (1960).
[45]W. F. Linke, revision of *Solubilities* by A. Seidell (American Chemical Society, Washington, D.C., 1965).
[46]D. D. Wagman, W. H. Evans, V. B. Parker, R. H. Schumm, and R. L. Nuttall, Natl. Bur. Stand. (U.S.) Tech. Note **270-8** (1981).
[47]CODATA (report), J. Chem. Thermodyn. **10**, 903 (1978).
[48]*American Institute of Physics Handbook*, 3rd ed. (McGraw–Hill, New York, 1972).
[49]R. Hilbert, Doctoral dissertation (University of Karlsruhe, Karlsruhe, West Germany, 1979).
[50]M. Gehrig, Doctoral dissertation (University of Karlsruhe, Karlsruhe, West Germany, 1980).
[51]D. F. Grant-Taylor, J. Solution Chem. **10**, 621 (1981).
[52]R. W. Potter, II and D. L. Brown, U.S. Geological Survey Open-file Report 75-636, 1975.
[53]R. W. Potter, II, U. S. Geological Survey, Open-file Report 78-549, 1978.
[54]J. L. Haas, Jr., U. S. Geological Survey, Bulletin 1421-A, 1976.
[55]I. Kh. Khailbullin, *Tables of Thermodynamic Properties of Gases and Liquids, No. 6: Aqueous and Vapor-Phase Solutions. Water–Sodium Chloride System* (Izdatel'stvo Standartov, Moscow, USSR, 1980).
[56]K. S. Pitzer, D. J. Bradley, P. S. Z. Rogers, and J. C. Peiper, LBL Report No. LBL-8973, 1979.