

Evaluation of the Thermodynamic Functions for Aqueous Sodium Chloride from Equilibrium and Calorimetric Measurements below 154 °C

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A new weighted least-squares method is described which is generally applicable for the nonsubjective evaluation of the best set of thermodynamic functions from a given data set of equilibrium (ΔG) and calorimetric (ΔH , C_p) measurements. The method, applied to model a wide range of 2428 measurements for the water-sodium chloride system between -21 and 154 °C, accurately represents all measurements within experimental error. The resulting model is used to predict the thermodynamic functions and their standard errors for aqueous sodium chloride up to 110 °C. Tables are given for freezing point, solubility, boiling point, osmotic and activity coefficients, vapor pressure, apparent molal relative enthalpy, partial molal relative enthalpies, integral heat of solution, specific heat, apparent molal heat capacity, partial molal heat capacities, apparent molal relative heat capacity, partial molal relative heat capacities, standard thermodynamic functions, and their changes for dissolution.

Key words: activity coefficients; aqueous NaCl solutions; boiling points; brine properties; critically evaluated data; enthalpy; freezing points; heat capacity; osmotic coefficients; sodium chloride-water system; solubility; thermodynamic properties; vapor pressure.

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Note: In tables with parts A and B, part A gives concentrations in molality and part B gives concentrations in weight percent.

Chronological List of Thermodynamic Symbols

T	Thermodynamic temperature, Kelvin	$G_1^\circ, H_1^\circ, C_{p,1}^\circ$	Standard molar (Gibbs energy, enthalpy, heat capacity) of water
P	Total pressure	$G_2^\circ, H_2^\circ, C_{p,2}^\circ, S_2^\circ$	Standard molal (Gibbs energy, enthalpy, heat capacity, entropy) of NaCl in water
m	Molality of NaCl, mol NaCl/(kg H ₂ O)	G_1^{ex}, L_1, J_1	Partial molal (excess Gibbs energy, relative enthalpy, relative heat capacity) of water in solution
M_1	Gram-molar mass of water, 18.0152 g	G_2^{ex}, L_2, J_2	Partial molal (excess Gibbs energy, relative enthalpy, relative heat capacity) of NaCl in solution
M_2	Gram-molar mass of NaCl, 58.442 77 g	$G_\phi, L_\phi, C_{p,\phi}$	Apparent molal (excess Gibbs energy, relative enthalpy, heat capacity) of NaCl in solution
n_1, n_2	Moles of (water, NaCl) in system	$G_c, H_c, C_{p,c}, S_c$	Molar (Gibbs energy, enthalpy, heat capacity, entropy) of crystalline NaCl
R	Gas constant, 8.314 41 J mol ⁻¹ K ⁻¹	c_p	Specific heat of water, Eqs. (56) and (57)
ϕ	Practical osmotic coefficient	A, A_k	Debye-Hückel limiting slope for osmotic coefficient, parameters for Eq. (9)
γ	Ionic mean molal activity coefficient	Q_k, B_k, C_k, D_k, E_k	T -dependent parameters for Eqs. (6)-(8)
θ	Reference temperature, 298.15 K	Q_k, B_k, C_k, D_k, E_k	Model parameters, Eq. (10)
G, H, C_p, S	Total (Gibbs energy, enthalpy, heat capacity, entropy) of system	v_{gk}, v_{hk}, v_{ck}	Temperature variables for (G, H, C _p) functions, Eqs. (11), (18), and (24)
$G^\circ, H^\circ, C_p^\circ, S^\circ$	Total (Gibbs energy, enthalpy, heat capacity, entropy) of system with components in their standard states	ΔH_d	Integral heat of dilution
G^{id}	Total Gibbs energy for ideal solution system	ΔH_s	Integral heat of solution
G^{ex}, L, J	Total (excess Gibbs energy, relative enthalpy, relative heat capacity) of system	ΔH_{ds}	Differential heat of solution
$G_1, H_1, C_{p,1}$	Partial molal (Gibbs energy, enthalpy, heat capacity) of water in solution	$\Delta G_s^\circ, \Delta H_s^\circ$	Standard molal (Gibbs energy, enthalpy) of solution of NaCl
$G_2, H_2, C_{p,2}, S_2$	Partial molal (Gibbs energy, enthalpy, heat capacity, entropy) of NaCl in solution		

Chronological List of Statistical Symbols

N	Total number of data used, 2428
p	Total number of parameters used, 35
t value	Absolute value divided by standard error
W_{ij}, WI_{ij}	(Weight, internal weight) of datum j in data set i
WM	Weight factor, function of molality
m_L, m_U	(Lower, upper) limit of molality for uniform error
F	Weight factor, function of temperature, etc.
$Y_{ij}, \hat{Y}_{ij}, \delta_{ij}$	(Observed value, calculated value, residual) of dependent variable for datum

n_i	j of set i
WS_i, V_i	Number of data in data set i
δ_i^2	(Set weight, variance) of data set i
$s_i, s(\)$	Mean squared deviation for datum of unit weight in data set i
$\bar{\delta}_i, \bar{\delta}(\)$	Estimate of standard error for datum with unit weight of [data set i , data type ()]
$\frac{\bar{\delta}_i}{wi}$	Mean bias of [data set i , data type ()]
$\delta\phi, \delta\gamma, \delta L_\phi$	Mean internal weight of datum in data set
$\delta\phi/\sigma\phi, \delta\gamma/\sigma\gamma$	Deviation of literature (ϕ, γ, L_ϕ) values from model estimates
	Relative deviation of literature (ϕ, γ) values from model in standard errors

1. Introduction

Water is the world's most essential and abundant liquid. Common salt is the most abundant dissolved electrolyte in ocean water, and from the seas of antiquity are derived the very extensive rock salt deposits which occur worldwide. The continuous expansion of our industrial civilization since 1850 is directly correlated^{1,27} with the increased commercial/technological use of salt by the ever evolving chemical industry. Presently, more than one-half of all the salt used is produced as liquid sodium chloride brine by solution mining.^{138,139}

Thus it is inevitable that water is the prototype liquid solvent of science and industry, rock salt the prototype crystalline ionic solid, and liquid sodium chloride brine the prototype aqueous strong electrolyte solution. Water and salt are now readily prepared in their pure states on both large and small scales. As a consequence, modern scientific literature contains many independent experimental studies^{18-57,60-113,121-125} including numerous and deviant equilibrium and calorimetric measurements of the sodium chloride-water system at low pressures and below the normal boiling point. Measurements are particularly numerous for dilute solutions at atmospheric pressure near ambient temperature.

It is now both appropriate and timely to organize and evaluate this large and disparate data base of experimental measurements to obtain reliable thermodynamic functions for aqueous sodium chloride at all compositions between saturation pressure and atmospheric pressure for temperatures up to 110 °C.

It is now particularly essential that there be available for sodium chloride brine—the foremost strong electrolyte solution of commerce, science, and technology—reliable values of thermodynamic functions which accurately represent the numerous measurements near and below 25 °C.

1.1. Earlier Models and Tabulations

In 1945, in a classic paper, Robinson¹ combined his isopiestic measurements for sodium chloride at 25 °C with critically chosen literature values for vapor pressures,^{30,33,34,49-52} electrochemical cell emfs,^{53,54,60-63} freezing points,¹⁹ and heats of dilution.⁷⁵ The data were treated by graphical methods to give self-consistent values, in the

Gibbs–Duhem sense, for the practical osmotic coefficient (ϕ) and for the stoichiometric mean molal ionic activity coefficient (γ) for sodium chloride molality between 0.1 and 6.0 m^a at 25 °C. Robinson's values are often used for calibration and are so highly regarded that they have been published unchanged in 1955 and 1959 and again reprinted up to 1970.³

Harned and Owen² gave a critical account of the treatment of electrochemical cell emf measurements⁶⁰⁻⁶³ to determine the activity coefficient of sodium chloride. Smith and Hirtle²⁷ combined their boiling point data^{26,27} with activity coefficients from cell measurements^{61,62} to evaluate ϕ and γ of sodium chloride from 0.1 to 4.0 m from 0 to 100 °C. Values derived for the partial molal relative enthalpy of sodium chloride (L_2) and its temperature derivative (J_2) were shown to be in satisfactory agreement with calorimetric heat of dilution⁷⁵ and heat capacity⁹⁸ measurements.

In an extensive review of thermal properties of aqueous uni-univalent electrolytes, Parker⁴ critically evaluated the calorimetric determinations of aqueous sodium chloride heat capacity, integral heat of dilution (ΔH_d), and integral heat of solution (ΔH_s). Best values were tabulated for the apparent molal heat capacity ($C_{p,\phi}$) from 15 to 30 °C and up to 6.17 m at 25 °C; for the apparent molal heat capacity at infinite dilution ($C_{p,\phi}^\circ$) from 15 to 30 °C; for the apparent molal relative enthalpy (L_ϕ) up to 6.17 m at 25 °C; for L_2 up to 5.84 m at 25 °C; and for the heat of solution at infinite dilution (ΔH_s°) at 25 °C.

In an evaluation of the osmotic and activity coefficients of uni-univalent electrolytes at 25 °C, Hamer and Wu⁶ used as smoothing functions the classical Deybe–Hückel equations with an ion-size parameter,^{2,3} together with virial terms Bm , Cm^2 , and Dm^3 , as recommended by Lietzke and Stoughton.¹³ Although considerable literature was quoted, NaCl was not underlined in their Table 6.1; this indicated that their smoothed ϕ and γ values for sodium chloride were derived entirely from fitting the data listed by Robinson and Stokes³ (probably Appendix 8.3).

Gibbard, Scatchard, Rousseau, and Creek⁷ determined the osmotic coefficients of aqueous sodium chloride using the static vapor pressure method from 1.0 to 6.0 m and from

^a An expression such as 6.0 m indicates a solution whose molality (moles of sodium chloride per unit mass of water) has a value $m = 6.0$ mol/kg.

25 to 100 °C. Using the method of least squares their measurements were combined with other ϕ data^{19,21,22,30,34,38,41,43} and with Parker's⁴ tabulated enthalpy and heat capacity values at 25 °C to evaluate a 20-parameter representative model. The osmotic coefficient was represented as a function of molality by the classical Debye-Hückel function^{2,3} with temperature-invariant ion-size parameter equal to 1.5 and four virial parameters in higher order terms of the type Bm , Cm^2 , Dm^3 , and Em^4 . The temperature dependence of B (also of C , D , E , and of the Debye Hückel limiting slope) was expressed by a five-parameter equation, mathematically equivalent to those earlier recommended⁵ for the temperature dependence of $\ln K_p$. Of the 20 parameters ($B_0, B_1, B_2, B_3, B_4, C_0-C_4, D_0-D_4, E_0-E_4$), the four enthalpy parameters (B_1, C_1, D_1, E_1) were determined from values⁴ of L_ϕ at 25 °C, the four heat capacity parameters (B_2, C_2, D_2, E_2) from values⁴ of $(C_{p,\phi} - C_{p,\phi}^\circ)$ at 25 °C, while the remaining 12 parameters were determined from an unweighted least-squares treatment of the osmotic coefficients. The 251 ϕ measurements used in the regression were assigned equal unit weight, despite the fact that they were from nine different data sets using different methods and equipment over different temperature regions.

Calculated values were given for ϕ , γ , L_ϕ , and $(C_{p,\phi} - C_{p,\phi}^\circ)$ of sodium chloride from 0.1 to 6.0m between 0 and 200 °C. Although the authors⁷ found that the ϕ data taken as a whole were well represented by their model, the freezing point data sets^{19,21,22} were clearly not well represented, the residuals being systematic and several times larger than their real experimental errors. The calculated L_ϕ values above 50 °C did not agree well with the heat of dilution measurements of Ensor and Anderson⁷⁹ or Messikomer and Wood,⁸³ the deviations being almost an order of magnitude larger than the calorimetric experimental errors.

In 1973, Pitzer⁸ proposed a new empirical equation for improved representation of the thermodynamic properties of aqueous electrolytes at all concentrations. The osmotic coefficient was represented as a function of molality by a modified Debye-Hückel term, $-Am^{1/2}(1 + 1.2m^{1/2})^{-1}$, with limiting slope A , together with three other parameters in higher order terms of the type $Qm e^{-2m^{1/2}}$, Bm , and Cm^2 . The parametrically linear three-parameter equation for ϕ and its Gibbs-Duhem analogue for $\ln \gamma$ were critically tested and shown to give a proper representation of the osmotic and activity coefficients for an extensive range of single and mixed⁹ aqueous electrolytes at 25 °C. To represent the thermodynamic properties of aqueous sodium chloride, Silvester and Pitzer^{10,11} extended the equations to include solution enthalpies and heat capacities, in addition to the osmotic and activity coefficients over a wide range of temperature. The temperature dependence of B , C , and Q was represented, respectively, by five-, four-, and five-parameter equations (of type earlier recommended⁵ for $\ln K_p$) with the parameters for B equivalent to (B_0, B_1, B_2, B_3, B_4), those for C equivalent to (C_0, C_1, C_2, C_3), and those for Q equivalent to ($Q_0, 0, 0, Q_3, Q_4$) with Q_1 and Q_2 suppressed to zero. The thermodynamic properties of the solute at infinite dilution were represented by a four-parameter polynomial in T . Of the 16 undetermined parameters in their model, the three Gibbs energy

parameters (Q_0, B_0, C_0) had been determined earlier^{8,9} from the osmotic coefficients³ at 25 °C, while the remaining 13 parameters were determined from a weighted least-squares treatment of an extensive array of 21 data sets at temperatures up to 300 °C. More recently, Pitzer, Bradley, Rogers, and Peiper¹² have given an improved treatment of aqueous sodium chloride properties for 974 data between 0 and 300 °C. A substantially modified model was used containing five adjustable constants and 30 parameters determined by a weighted least-squares treatment. The model excluded freezing point measurements at low temperature and contained a discontinuity at 255 K (− 18.15 °C).

After completion of the present work, Pitzer, Peiper and Busey¹³⁶ published a new model for aqueous sodium chloride properties up to 100 MPa pressure and 300 °C. The model fitted 1227 data using two adjustable constants and 25 parameters for the low-pressure properties and an additional 28 parameters for the effects of pressure.

1.2. Present Objective

Earlier key evaluations^{1,2,4,6-12,136} of the thermodynamic properties of aqueous sodium chloride have been reviewed briefly. It is the purpose of this work to provide an adequate, significant, and accurate representation of the wide variety and numerous equilibrium and calorimetric measurements for the water-sodium chloride system in the temperature range − 22 to 154 °C. In particular, we wish (i) to describe a new, objective, and general technique for combining a variety of thermodynamic measurements of different types, from different sources and of different accuracies using the method of weighted least squares to give the best representative model, (ii) to apply the technique to represent 2428 sodium chloride measurements from 94 data sets^{1,18-57,60-113,121-125} to within their various experimental errors, and (iii) to provide the best unbiased estimates for the values and standard errors for the thermodynamic functions of aqueous sodium chloride at all concentrations between 0 and 110 °C.

In contrast with earlier studies^{7,10-12,136} which provide only estimates of the model parameters and of the derived thermodynamic properties, the present study additionally evaluates the propagation of errors from the lack of fit of the experimental measurements by the model, through the variances and covariances of the model parameters, thence to provide estimates of the standard errors on the derived thermodynamic properties. Thus during our model development, the statistical significance of each added parameter was tested¹¹⁸ to justify its inclusion in the model. Finally, our estimates of the thermodynamic properties and their standard errors quantitatively reflect the best fit and the lack of fit, respectively, of the measurements by the model.

2. Definition of the Equations

2.1. Symbols and General Equations

Consider an aqueous solution system comprising 1 kg of water solvent (component subscript 1) and m moles of sodium chloride solute (component subscript 2) at constant total pressure P and at thermodynamic temperature T . The sodium chloride is taken as fully dissociated and M_1 is the molar mass of water (in g mol⁻¹) so that the system is com-

prised of $n_1 = 1000/M_1$ moles of water together with $n_2 = m$ moles of sodium chloride or $2n_2$ moles sodium and chloride ions. For this system we define the total Gibbs energy, total enthalpy, and total heat capacity as G , H , and C_p , respectively, and as G° , H° , and C_p° for the system with components in their standard states. The total Gibbs energy for the ideal solution G^{id} is defined by $G^{\text{id}} = G^\circ + n_2 2RT(-1 + \ln m)$. The total excess Gibbs energy, the total relative enthalpy, and the total relative heat capacity for the system are defined by $G^{\text{ex}} = G - G^{\text{id}}$, $L = H - H^\circ$, and $J = C_p - C_p^\circ$, respectively.

In terms of the molar properties of the components we have

$$G^{\text{ex}} = n_1 G_1^{\text{ex}} + n_2 G_2^{\text{ex}} = n_2 G_\phi = n_2 2RT(1 - \phi + \ln \gamma), \quad (1)$$

$$L = n_1 L_1 + n_2 L_2 = n_1(H_1 - H_1^\circ) + n_2(H_2 - H_2^\circ) = H - H^\circ = n_2 L_\phi, \quad (2)$$

$$J = n_1 J_1 + n_2 J_2 = n_1(C_{p,1} - C_{p,1}^\circ) + n_2(C_{p,2} - C_{p,2}^\circ) = C_p - C_p^\circ = n_2(C_{p,\phi} - C_{p,2}^\circ), \quad (3)$$

where R is the molar gas constant, ϕ is the practical osmotic coefficient of water, γ is the ionic mean molal activity coefficient of sodium chloride. G_1^{ex} , $L_1 = H_1 - H_1^\circ$, and $J_1 = C_{p,1} - C_{p,1}^\circ$ are the partial molal excess Gibbs energy, the partial molal relative enthalpy, and the partial molal relative heat capacity, respectively, of water: G_2^{ex} , $L_2 = H_2 - H_2^\circ$, and $J_2 = C_{p,2} - C_{p,2}^\circ$ are the corresponding partial molal functions of sodium chloride. G_ϕ , L_ϕ and $C_{p,\phi}$ are the apparent molal excess Gibbs energy, the apparent molal relative enthalpy, and the apparent molal heat capacity, respectively, of sodium chloride. $C_{p,2}^\circ$ is the partial molal heat capacity of sodium chloride in the standard state and is identical with $C_{p,\phi}^\circ$, the apparent molal heat capacity of sodium chloride at infinite dilution.

For the system at constant pressure P and at constant molality m , the total functions G^{ex} , L , and J in Eqs. (1)–(3) are related by the differential equations

$$\left[\frac{\partial(G^{\text{ex}}/T)}{\partial(1/T)} \right]_{P,m} = L \quad (4)$$

and

$$\left\{ \frac{\partial[\partial(G^{\text{ex}}/T)/\partial(1/T)]}{\partial T} \right\}_{P,m} = (\partial L / \partial T)_{P,m} = J, \quad (5)$$

with similar relationships between the corresponding partial molal functions G_1^{ex} , L_1 , and J_1 ; G_2^{ex} , L_2 , and J_2 ; G_ϕ , L_ϕ , and J_ϕ ; G_1° , H_1° , and $C_{p,1}^\circ$; G_2° , H_2° , and $C_{p,2}^\circ$; and between the three apparent molal functions G_ϕ , L_ϕ , and $(C_{p,\phi} - C_{p,2}^\circ)$ of sodium chloride.

2.2. Composition and Temperature Dependence of Model

In order to adequately represent the variation of the osmotic coefficient with molality m at fixed T we use an extended Pitzer-type⁸ parametrically linear equation

$$\phi = 1 - Am^{1/2}(1 + 1.2m^{1/2})^{-1} + Qm e^{-2m^{1/2}} + Bm + Cm^2 + Dm^3 + Em^4, \quad (6)$$

in which A is the Debye–Hückel limiting slope for the osmotic coefficient^{8,14} and Q , B , C , D , and E are fitting parameters which are functions of T only.

The Gibbs–Duhem relation then gives the equivalent parametrically linear expression

$$\ln \gamma = -A [m^{1/2}(1 + 1.2m^{1/2})^{-1} + (2/1.2)\ln(1 + 1.2m^{1/2})] + Q \cdot \frac{1}{2} [1 - (1 + 2m^{1/2} - 2m)e^{-2m^{1/2}}] + B \cdot 2m + C \cdot \frac{3}{2} m^2 + D \cdot \frac{4}{3} m^3 + E \cdot \frac{5}{4} m^4 \quad (7)$$

for the composition dependence of γ at T .

The variation of G_ϕ with molality at T is given by the equation

$$G_\phi/RT = -A(4/1.2)\ln(1 + 1.2m^{1/2}) + Q [1 - (1 + 2m^{1/2})e^{-2m^{1/2}}] + B \cdot 2m + C m^2 + D \cdot \frac{2}{3} m^3 + E \cdot \frac{1}{2} m^4, \quad (8)$$

obtained by substituting Eqs. (6) and (7) into Eq. (1).

The temperature dependence of A , fully discussed elsewhere,¹⁵ is properly represented between 0 and 154 °C by the five-parameter equation

$$A = \sum_{k=0}^4 A_k v_{gk}, \quad (9)$$

in which A_k are known parameters and v_{gk} are the temperature variables defined in Eq. (11). The temperature dependences of Q , B , C , D , and E are represented by equations of the same type recommended earlier⁵ for the temperature dependence of $\ln K_p$. These equations are

$$Q = \sum_{k=0}^7 Q_k v_{gk}, \quad (10a)$$

$$B = \sum_{k=0}^6 B_k v_{gk}, \quad (10b)$$

$$C = \sum_{k=0}^6 C_k v_{gk}, \quad (10c)$$

$$D = \sum_{k=0}^6 D_k v_{gk}, \quad (10d)$$

and

$$E = \sum_{k=0}^5 E_k v_{gk}, \quad (10e)$$

where the Q_k , B_k , C_k , D_k , and E_k are invariant fitting parameters and the v_{gk} are temperature variables for Gibbs energy functions (ϕ , $\ln \gamma$, and $\ln m_s$) and are defined by the relations

$$v_{g0} = (-1/\theta), \quad (11a)$$

and for $k \geq 1$,

$$v_{gk} = \left[\frac{\theta^{k-2}}{(k-1)!} x^k \sum_{n=1}^{\infty} \frac{n}{n+k-1} (-x)^{n-1} \right], \quad (11b)$$

in which $x = (T - \theta)/\theta$, and where, in this work, the reference temperature $\theta = 298.15$ K.

2.3. Gibbs Energy Functions

The osmotic coefficient is represented as a function of m and T by the parametrically linear equation

$$\begin{aligned} \phi = & 1 - m^{1/2}(1 + 1.2m^{1/2})^{-1} \sum_{k=0}^4 A_k v_{gk} \\ & + m e^{-2m^{1/2}} \sum_{k=0}^7 Q_k v_{gk} \\ & + m \sum_{k=0}^6 B_k v_{gk} + m^2 \sum_{k=0}^6 C_k v_{gk} \\ & + m^3 \sum_{k=0}^6 D_k v_{gk} + m^4 \sum_{k=0}^5 E_k v_{gk}, \end{aligned} \quad (12)$$

obtained by substituting Eqs. (9) and (10) into Eq. (6).

The corresponding equation for the activity coefficient is

$$\begin{aligned} \ln \gamma = & - [m^{1/2}(1 + 1.2m^{1/2})^{-1} \\ & + (2/1.2)\ln(1 + 1.2m^{1/2})] \sum_{k=0}^4 A_k v_{gk} \\ & + \frac{1}{2} [1 - (1 + 2m^{1/2} - 2m)e^{-2m^{1/2}}] \sum_{k=0}^7 Q_k v_{gk} \\ & + 2m \sum_{k=0}^6 B_k v_{gk} + \frac{3}{2}m^2 \sum_{k=0}^6 C_k v_{gk} \\ & + \frac{4}{3}m^3 \sum_{k=0}^6 D_k v_{gk} + \frac{5}{4}m^4 \sum_{k=0}^5 E_k v_{gk}, \end{aligned} \quad (13)$$

and that for the apparent molal excess Gibbs energy is

$$\begin{aligned} G_\phi/R T = & - (4/1.2)\ln(1 + 1.2m^{1/2}) \sum_{k=0}^4 A_k v_{gk} \\ & + [1 - (1 + 2m^{1/2})e^{-2m^{1/2}}] \sum_{k=0}^7 Q_k v_{gk} \\ & + 2m \sum_{k=0}^6 B_k v_{gk} + m^2 \sum_{k=0}^6 C_k v_{gk} \\ & + \frac{2}{3}m^3 \sum_{k=0}^6 D_k v_{gk} + \frac{1}{2}m^4 \sum_{k=0}^5 E_k v_{gk}. \end{aligned} \quad (14)$$

2.4. Apparent Molal Relative Enthalpy

The apparent molal relative enthalpy, defined by

$$L_\phi = \left[\frac{\partial(G_\phi/T)}{\partial(1/T)} \right]_{P,m}, \quad (15)$$

is obtained by differentiating Eq. (14) with respect to $1/T$ to give the parametrically linear equation

$$\begin{aligned} L_\phi/R = & - (4/1.2)\ln(1 + 1.2m^{1/2}) \sum_{k=0}^4 A_k v_{hk} \\ & + [1 - (1 + 2m^{1/2})e^{-2m^{1/2}}] \sum_{k=0}^7 Q_k v_{hk} \\ & + 2m \sum_{k=0}^6 B_k v_{hk} + m^2 \sum_{k=0}^6 C_k v_{hk} \\ & + \frac{2}{3}m^3 \sum_{k=0}^6 D_k v_{hk} + \frac{1}{2}m^4 \sum_{k=0}^5 E_k v_{hk}, \end{aligned} \quad (16)$$

in which v_{hk} are temperature variables for enthalpy functions (L_ϕ/R , $\Delta H_d/R$, and $\Delta H_s/R$) defined by the relationship

$$v_{hk} = d(v_{gk})/d(1/T), \quad (17)$$

and obtained by differentiating Eq. (11) with respect to $1/T$ to give

$$v_{k0} = 0, \quad (18a)$$

and for $k \geq 1$,

$$v_{hk} = (-1)(T - \theta)^{k-1}/(k-1)!. \quad (18b)$$

2.5. Heat Capacity Functions

The standard partial molal heat capacity of sodium chloride $C_{p,2}^\circ$ is a function of temperature only and is represented as a Taylor's series expansion about reference temperature θ by the expression

$$\begin{aligned} C_{p,2}^\circ = & (C_{p,2}^\circ)_\theta + (dC_{p,2}^\circ/dT)_\theta (T - \theta) + (d^2C_{p,2}^\circ/dT^2)_\theta \\ & \times \frac{1}{2}(T - \theta)^2 + (d^3C_{p,2}^\circ/dT^3)_\theta \frac{1}{6}(T - \theta)^3 \\ & + (d^4C_{p,2}^\circ/dT^4)_\theta \frac{1}{24}(T - \theta)^4 \\ & + (d^5C_{p,2}^\circ/dT^5)_\theta \frac{1}{120}(T - \theta)^5 \end{aligned} \quad (19)$$

or

$$C_{p,2}^\circ = \sum_{k=2}^7 (d^{k-2}C_{p,2}^\circ/dT^{k-2})_\theta [1/(k-2)!](T - \theta)^{k-2}, \quad (20)$$

in which the six parameters with subscript θ are the temperature derivatives of $C_{p,2}^\circ$ at θ .

The apparent molal heat capacity of sodium chloride $C_{p,\phi}$ is defined by the relation

$$C_{p,\phi} = C_{p,2}^\circ + (\partial L_\phi/\partial T)_{P,m} \quad (21)$$

and is obtained from Eq. (20) and the temperature derivative of Eq. (16) to give the parametrically linear equation

$$\begin{aligned} C_{p,\phi}/R = & \sum_{k=2}^7 (-1/R)(d^{k-2}C_{p,2}^\circ/dT^{k-2})_\theta v_{ck} \\ & - (4/1.2)\ln(1 + 1.2m^{1/2}) \sum_{k=0}^4 A_k v_{ck} \\ & + [1 - (1 + 2m^{1/2})e^{-2m^{1/2}}] \sum_{k=0}^7 Q_k v_{ck} \\ & + 2m \sum_{k=0}^6 B_k v_{ck} + m^2 \sum_{k=0}^6 C_k v_{ck} \\ & + \frac{2}{3}m^3 \sum_{k=0}^6 D_k v_{ck} + \frac{1}{2}m^4 \sum_{k=0}^5 E_k v_{ck}, \end{aligned} \quad (22)$$

in which v_{ck} are temperature variables for heat capacity functions defined by the relationship

$$v_{ck} = d(v_{hk})/dT \quad (23)$$

and obtained by differentiating Eq. (18) with respect to T to give

$$v_{c0} = v_{c1} = 0 \quad (24a)$$

and for $k \geq 2$

$$v_{ck} = (-1)(T - \theta)^{k-2}/(k-2)!. \quad (24b)$$

2.6. Integral Heat of Dilution

The integral heat of dilution $\Delta H_d(m_1 \rightarrow m_2)$ is the enthalpy change per mole of sodium chloride for dilution from initial state molality m_1 to final state molality m_2 , and is given by

$$\Delta H_d(m_1 \rightarrow m_2) = L_\phi(m_2) - L_\phi(m_1), \quad (25)$$

where $L_\phi(m_2)$ and $L_\phi(m_1)$ refer to Eq. (16) with m replaced by m_2 and m_1 , respectively. We take $m_2 = 0$, for which $L_\phi(m_2) = 0$ and drop the subscript on m_1 so that Eq. (25) becomes

$$\Delta H_d(m \rightarrow 0) = -L_\phi(m) \quad (26a)$$

which is abbreviated to read

$$\Delta H_d = -L_\phi, \quad (26b)$$

where ΔH_d is the integral heat of dilution from molality m to infinite dilution and L_ϕ is defined by Eq. (16).

2.7. Heat of Solution Functions

The integral heat of solution at infinite dilution ΔH_s° is the enthalpy change for dissolution of 1 mole of crystalline sodium chloride in an infinite excess of pure water, defined by

$$\Delta H_s^\circ = H_2^\circ - H_c, \quad (27)$$

in which H_2° is the standard partial molal enthalpy of sodium chloride in solution, and H_c is the standard molar enthalpy of crystalline sodium chloride. Since H_2° and H_c are both functions of T only, ΔH_s° at T is properly represented by the relationship

$$\begin{aligned} \Delta H_s^\circ &= (\Delta H_s^\circ)_\theta + \sum_{k=2}^7 (d^{k-2} C_{p,2}^\circ / dT^{k-2})_\theta [1/(k-1)!] \\ &\quad \times (T-\theta)^{k-1} - \sum_{k=2}^4 (d^{k-2} C_{p,c} / dT^{k-2})_\theta \\ &\quad \times [1/(k-1)!] (T-\theta)^{k-1}, \end{aligned} \quad (28)$$

where the fitting parameter $(\Delta H_s^\circ)_\theta$ is the integral heat of solution at infinite dilution at θ , the six $C_{p,2}^\circ$ parameters are the same as in Eq. (20), and the other three parameters are the known temperature derivatives of $C_{p,c}$ for crystalline sodium chloride at θ .

The integral heat of solution ΔH_s for dissolution of 1 mole of sodium chloride in water to form a solution of molality m is given by the equation

$$\Delta H_s = \Delta H_s^\circ + L_\phi, \quad (29)$$

where ΔH_s° is defined by Eq. (28) and L_ϕ by Eq. (16). The resulting equation representing ΔH_s as a function of m and T is the parametrically linear equation

$$\begin{aligned} \Delta H_s/R &= (\Delta H_s^\circ)_\theta (-1/R) v_{h1} \\ &+ \sum_{k=2}^7 (-1/R) (d^{k-2} C_{p,2}^\circ / dT^{k-2})_\theta v_{hk} \\ &- \sum_{k=2}^4 (-1/R) (d^{k-2} C_{p,c} / dT^{k-2})_\theta v_{hk} \\ &- (4/1.2) \ln(1 + 1.2m^{1/2}) \sum_{k=0}^4 A_k v_{hk} \\ &+ [1 - (1 + 2m^{1/2})e^{-2m^{1/2}}] \sum_{k=0}^7 Q_k v_{hk} \\ &+ 2m \sum_{k=0}^6 B_k v_{hk} + m^2 \sum_{k=0}^6 C_k v_{hk} \\ &+ \frac{2}{3} m^3 \sum_{k=0}^6 D_k v_{hk} + \frac{1}{2} m^4 \sum_{k=0}^5 E_k v_{hk}. \end{aligned} \quad (30)$$

The differential heat of solution ΔH_{ds} is the enthalpy change per mole of sodium chloride dissolved in a solution of initial molality m_1 to form a solution of final molality m_2 , and is defined by the expression

$$\Delta H_{ds} = \Delta H_s^\circ + [m_2 L_\phi(m_2) - m_1 L_\phi(m_1)] (m_2 - m_1)^{-1}, \quad (31)$$

where ΔH_s° is given by Eq. (28), and $L_\phi(m_2)$ and $L_\phi(m_1)$ are given by Eq. (16) with m_2 and m_1 , respectively, substituted for m . In the limit, as $(m_2 - m_1) \rightarrow 0$, Eq. (31) gives

$$\Delta H_{ds} = \Delta H_s^\circ + L_2, \quad (32)$$

where L_2 is the partial molal relative enthalpy of sodium chloride at molality $m = m_2 = m_1$.

2.8. Solubility Equilibrium

The solubility molality m_s and activity coefficient γ_s for aqueous sodium chloride in equilibrium with crystalline salt is defined by the Gibbs energy equality

$$G_c = G_2^\circ + 2RT \ln m_s \gamma_s, \quad (33)$$

which is rearranged to give

$$-\Delta G_s^\circ = -(G_2^\circ - G_c) = 2RT \ln m_s \gamma_s, \quad (34)$$

where G_c is the standard molar Gibbs energy of crystalline salt and ΔG_2° is the standard molal Gibbs energy change for its dissolution in water. Since G_2° and G_c are both functions of T only, ΔG_s° at T is properly represented⁵ by the expression

$$\begin{aligned} -\Delta G_s^\circ/T &= (\Delta G_s^\circ)_\theta v_{g0} + (\Delta H_s^\circ)_\theta v_{g1} \\ &+ \sum_{k=2}^7 (d^{k-2} C_{p,2}^\circ / dT^{k-2})_\theta v_{gk} \\ &- \sum_{k=2}^4 (d^{k-2} C_{p,c} / dT^{k-2})_\theta v_{gk}, \end{aligned} \quad (35)$$

in which the fitting parameter $(\Delta G_s^\circ)_\theta$ is the standard molal Gibbs energy change for dissolution of crystalline salt in water at θ , and the other parameters are defined in Eq. (28). The resulting equation representing $\ln m_s$ as a function of T is

$$\ln m_s = -(1/2R) \Delta G_s^\circ/T - \ln \gamma_s, \quad (36)$$

where ΔG_s° is defined by Eq. (35) and $\ln \gamma_s$ by Eq. (13) with m_s replacing m to give the parametrically linear equation

$$\begin{aligned}
\ln m_s = & (1/2R)(\Delta G_s^\circ)_\theta v_{g0} + (1/2R)(\Delta H_s^\circ)_\theta v_{g1} + \sum_{k=2}^7 (1/2R)(d^{k-2} C_{p,2}^\circ/dT^{k-2})_\theta v_{gk} \\
& - \sum_{k=2}^4 (1/2R)(d^{k-2} C_{p,c}^\circ/dT^{k-2})_\theta v_{gk} + [m_s^{1/2}(1 + 1.2m_s^{1/2})^{-1} + (2/1.2)\ln(1 + 1.2m_s^{1/2})] \sum_{k=0}^4 A_k v_{gk} \\
& - \frac{1}{2} [1 - (1 + 2m_s^{1/2} - 2m_s) e^{-2m_s^{1/2}}] \sum_{k=0}^7 Q_k v_{gk} - 2m_s \sum_{k=0}^6 B_k v_{gk} - \frac{3}{2} m_s^2 \sum_{k=0}^6 C_k v_{gk} \\
& - \frac{4}{3} m_s^3 \sum_{k=0}^6 D_k v_{gk} - \frac{5}{3} m_s^4 \sum_{k=0}^5 E_k v_{gk}.
\end{aligned} \tag{37}$$

2.9. Parameters in Model

In Table 1 we list the maximum number of fitting parameters available in our regression model to represent the various types of thermodynamic measurement as a function of composition and temperature. The first two columns indicate the type of measurement and its representative equation, respectively. The third column lists the number of standard state parameters for sodium chloride and includes the molal dissolution parameters $(\Delta G_s^\circ)_\theta$ and $(\Delta H_s^\circ)_\theta$ and the solution heat capacity derivative parameters $(d^r C_{p,2}^\circ/dT^r)_\theta$. Columns 4–8 list the number of parameters available for each of the virial terms and the final column gives the maximum number of fitting parameters in each representative equation.

2.10. Additional Thermodynamic Functions

Additional equations are now given for those thermodynamic properties for which values will be tabulated later for aqueous sodium chloride. For these equations, the upper limits for k are those of our final regression model with parameters given in Table 5.

The partial molal relative enthalpy of water is given by $(L_1/R)(1000/2M_1 n_2)$

$$\begin{aligned}
= & + m^{1/2}(1 + 1.2m^{1/2})^{-1} \sum_{k=0}^4 A_k v_{hk} \\
& - m e^{-2m^{1/2}} \sum_{k=0}^6 Q_k v_{hk} \\
& - m \sum_{k=0}^5 B_k v_{hk} - m^2 \sum_{k=0}^5 C_k v_{hk} \\
& - m^3 \sum_{k=0}^4 D_k v_{hk} - m^4 \sum_{k=0}^2 E_k v_{hk}.
\end{aligned} \tag{38}$$

TABLE 1. Maximum number of parameters for fitting various types of data

Data type	Equation	$(\Delta G_s^\circ)_\theta, (\Delta H_s^\circ)_\theta, (d^r C_{p,2}^\circ/dT^r)_\theta$	Q	B	C	D	E	Total
ϕ	(12)	0	8	7	7	7	6	35
γ	(13)	0	8	7	7	7	6	35
ΔH_d	(25)	0	7	6	6	6	5	30
C_p	(22)	6	6	5	5	5	4	31
ΔH_s	(30)	7	7	6	6	6	5	37
m_s	(37)	8	8	7	7	7	6	43

The partial molal relative enthalpy of sodium chloride is given by

$$\begin{aligned}
L_2/R = & - [2m^{1/2}(1 + 1.2m^{1/2})^{-1} \\
& + (4/1.2)\ln(1 + 1.2m^{1/2})] \sum_{k=0}^4 A_k v_{hk} \\
& + [1 - (1 + 2m^{1/2} - 2m)e^{-2m^{1/2}}] \sum_{k=0}^6 Q_k v_{hk} \\
& + 4m \sum_{k=0}^5 B_k v_{hk} + 3m^2 \sum_{k=0}^5 C_k v_{hk} \\
& + \frac{4}{3} m^3 \sum_{k=0}^4 D_k v_{hk} + \frac{5}{3} m^4 \sum_{k=0}^2 E_k v_{hk}.
\end{aligned} \tag{39}$$

The partial molal relative heat capacity of water is given by

$$\begin{aligned}
(J_1/R)(1000/2M_1 n_2) = & + m^{1/2}(1 + 1.2m^{1/2})^{-1} \sum_{k=0}^4 A_k v_{ck} \\
& - m e^{-2m^{1/2}} \sum_{k=0}^6 Q_k v_{ck} \\
& - m \sum_{k=0}^5 B_k v_{ck} - m^2 \sum_{k=0}^5 C_k v_{ck} \\
& - m^3 \sum_{k=0}^4 D_k v_{ck} - m^4 \sum_{k=0}^2 E_k v_{ck}.
\end{aligned} \tag{40}$$

The partial molal relative heat capacity of sodium chloride is given by

$$\begin{aligned}
J_2/R = & - [2m^{1/2}(1 + 1.2m^{1/2})^{-1} \\
& + (4/1.2)\ln(1 + 1.2m^{1/2})] \sum_{k=0}^4 A_k v_{ck} \\
& + [1 - (1 + 2m^{1/2} - 2m)e^{-2m^{1/2}}] \sum_{k=0}^6 Q_k v_{ck} \\
& + 4m \sum_{k=0}^5 B_k v_{ck} + 3m^2 \sum_{k=0}^5 C_k v_{ck} \\
& + \frac{4}{3} m^3 \sum_{k=0}^4 D_k v_{ck} + \frac{5}{3} m^4 \sum_{k=0}^2 E_k v_{ck}.
\end{aligned} \tag{41}$$

The partial molal heat capacity of water is given by

$$C_{p,1} = J_1 + C_{p,1} \tag{42}$$

and that of sodium chloride by

$$C_{p,2} = J_2 + C_{p,2} \tag{43}$$

where J_1 and J_2 are defined by Eqs. (40) and (41), respectively, $C_{p,2}^\circ$ by Eq. (20), and $C_{p,1}^\circ$ by multiplying Eqs. (56) and (57) by $M_1/1000$.

3. Method of Data Treatment

3.1. Preparation of the Input Data

All input data measurements^{18-57,60-113,121-125} were corrected into accepted modern units.¹⁵⁻¹⁷ Molalities mol sodium chloride per kg water were corrected to the 1971 atomic weight scale¹⁵ with $18.0152 = M_1$ for the gram molar mass of water and $58.44277 = M_2$ for sodium chloride. Temperatures were corrected¹⁶ to the International Practical Temperature Scale of 1968, denoted IPTS-68, and the thermody-

namic temperature was $T \text{ K} = 273.15 + t \text{ }^\circ\text{C IPTS-68}$. Heat capacities were corrected by the factor $(dt \text{ }^\circ\text{C IPTS-48}/dt \text{ }^\circ\text{C IPTS-68})$ and to IPTS-68. Energy values were converted to absolute joules and the molar gas constant was¹⁷ $R = 8.31441 \text{ J mol}^{-1} \text{ K}^{-1}$.

Details of the data sets used in the regression analysis are given in Table 2, which lists the set name used to identify each data set, the type of thermodynamic property measured, the experimental method used, the number of measurements made, their composition range, their temperature range, and the reference.

In Table 2 the set name identifying the data set is abbreviated from the surnames of the authors. When authors have provided more than one type of measurement the resulting data sets are identified and treated separately.

TABLE 2. Input data for aqueous sodium chloride properties

Set name	Data type	Method	Number of data	Range of m (mol kg ⁻¹)		Range of t (°C)		Reference
R	ϕ	FP	12	1.0	5.2	-3.5	-21.1	18
S + P	ϕ	FP	28	0.0008	1.3	-0.003	-4.3	19
HB	ϕ	FP	4	1.5	5.1	-5.0	-21.0	20
M, D, G + C	ϕ	FP	21	0.02	3.1	-0.06	-11.2	21
G + G	ϕ	FP	32	0.14	3.6	-0.5	-13.6	22
C + VH	ϕ	FP	31	0.007	1.8	-0.03	-6.3	23
P, C + B	ϕ	FP	19	0.1	5.0	-0.4	-19.8	24, 25
S	ϕ	BP	60	0.05	1.0	60	100	26
S + H	ϕ	BP	52	1.5	3.5	60	100	27
M, D + VH	ϕ	BP	15	0.07	2.8		100	28
H, G + I	ϕ	BP	15	0.16	3.1		100	123
DO	ϕ	BP	16	0.009	1.0		100	124
N + N	ϕ	VP	30	0.1	5.8	20	25	29, 30
L + J	ϕ	VP	5	6.1	6.3	25	50	31
P + N	ϕ	DVP	16	0.2	6.1		25	32
G + A	ϕ	DVP	6	4.3	6.0		25	33
G + A, S + G	ϕ	VP	5	4.7	6.1	20	25	33, 51
O + G	ϕ	VP	36	2.3	6.2	20	30	34
ST	ϕ	IP	9	4.0	5.9		25	35
W + H	ϕ	DVP	6	6.1	6.3	1	48	36
S, C + G	ϕ	DVP	6	3.8	5.2	25	30	37
G, J + DN	ϕ	VP	7	1.0	3.0	122	154	38, 39
PT	ϕ	DVP	11	1.0	6.0		25	40
L + L	ϕ	VP	28	0.1	7.2	75	150	41, 42
P + D	ϕ	VP	13	0.5	5.9		25	43
G, S, R + C	ϕ	VP	55	1.0	6.1	25	100	44
A, T - S	ϕ	VP	13	0.8	5.8		25	45
S, H + W	ϕ	IP	17	0.1	6.1		25	47
G	ϕ	IP/EMFW	10	0.03	0.1		25	48
R(H)	ϕ	IP/EMF	20	0.2	1.0		25	1, 53, 54, 60, 61
R(L, F + S)	ϕ	IP/VP	9	1.2	3.6		25	1, 49
R(G + F)	ϕ	IP/VP	6	1.5	3.8		25	1, 50
R(S + G)	ϕ	IP/VP	7	2.3	6.1		25	1, 51
R(B + N)	ϕ	IP/DVP	3	1.3	2.5		25	1, 52
R(H + C)	ϕ	IP/EMF	6	1.4	3.6		25	1, 53
C + P	ϕ	IP	16	0.3	4.1		15	55, 57
P	ϕ	IP	16	0.4	6.1		0	56, 57
H	γ	EMF	7	0.1	3.0		25	60
H + N	γ	EMF	69	0.1	4.0	0	40	61
R + S	γ	IP/INT	11	0.1	4.0		25	46
D + M	γ	EMFW	12	0.005	0.1		25	62
J + G	γ	EMFW	34	0.01	0.1	15	45	63
H(DFN)	γ	DFN	5	0.0005	0.01		25	64
C	γ	EMF	60	0.001	4.0	0	50	65
L + A	γ	EMFS	16	0.01	0.4	25	90	66

TABLE 2. Input data for aqueous sodium chloride properties—Continued

Set name	Data type	Method	Number of data	Range of m (mol kg ⁻¹)	Range of t (°C)	Reference
T	γ	EMF	32	0.01 1.0	15 50	67
M + P	γ	EMFS	44	0.03 3.0	25 70	68
S + L, ICT	m_s	SOLY	30	6.1 7.2	0 150	70, 42, 69
K, O + V	m_s	SOLY	5	6.1 6.2	10 45	71
P + C	m_s	SOLY	12	6.1 6.7	18 100	72
RB	ΔH_d	CAL	24	0.0004 0.1	25	73
Y + V	ΔH_d	CAL	19	0.4 6.1	25	74
G + R	ΔH_d	CAL	54	0.0002 0.8	10 25	75
Y + M	ΔH_d	CAL	56	0.09 6.1	0 25	76
W, R + B	ΔH_d	CAL	9	0.1 3.0	25	77
V	ΔH_d	CAL	66	0.4 1.2	25	78
E + A	ΔH_d	CAL	163	0.001 6.1	40 80	79
M, H + H	ΔH_d	CAL	21	0.09 0.8	25	80
L + M	ΔH_d	CAL	7	0.2 1.0	30	81
F, L, P + D	ΔH_d	FCAL	23	0.005 1.0	25	121
F, L + D(D)	ΔH_d	FCAL	23	0.005 1.0	25	105
B, M + C	ΔH_d	CAL	7	0.003 1.0	25	122
C + VH(D)	ΔH_d	CAL	7	0.2 5.5	10 75	82
M + W	ΔH_d	FCAL	78	0.04 5.0	25 100	83
MR + W	ΔH_d	FCAL	101	0.007 6.0	75 150	84
R + B	ΔH_s	CAL	7	0.1 0.5	25	85
W + L	ΔH_s	CALAQ	14	0.4 5.6	25	86, 87
L, J + M	ΔH_s	CAL	37	0.04 5.9	20 25	88, 89
B + B	ΔH_s	CAL	24	0.05 1.3	25	90
M + Y	ΔH_s	CAL	11	0.06 2.5	2	91
C + C	ΔH_s	CAL	58	0.001 0.02	0 95	92
B	ΔH_s	CAL	23	0.02 0.7	25	93
D + B	ΔH_s	CAL	4	0.2 0.5	25	94
G, M + C	ΔH_s	CAL	12	0.007 0.04	114 150	95
C + VH(IH)	ΔH_s	CAL	5	0.5	5 75	82
C + VH(DH)	ΔH_s	CALAQ	41	0.02 4.1	5 40	82
TO + L	ΔH_s	CAL	88	0.05 5.0	5 25	96
D + T	ΔH_s	CAL	5	0.01 0.03	25	97
R + R	C_p	CAL	19	0.04 2.3	25	98
H + G	C_p	CAL	23	0.01 1.0	15 45	99
W	C_p	CAL	32	0.01 0.2	35 45	100
HS	C_p	CAL	14	0.003 0.2	25	101
E + S	C_p	CAL	8	1.0 6.0	25	102
P, L, P + D	C_p	FCAL	13	0.01 2.0	24	103, 111
L + B	C_p	CAL	20	0.3 2.1	80 140	104
F, L + D	C_p	FCAL	22	0.01 3.0	25	105, 111
P, F + D	C_p	FCAL	70	0.03 3.0	1 45	106, 111
CR	C_p	CAL	6	0.5 6.0	25	107
P, S + F	C_p	CAL	6	0.4 6.0	150	108
S, W, M + H	C_p	FCAL	11	0.08 0.5	25	109
D, DV, P + P	C_p	FCAL	15	0.04 1.0	25	110
T + L	C_p	CAL	118	0.04 6.0	5 85	112
O	C_p	CAL	13	1.0 3.2	25	113
A + W	C_p	FCAL	53	0.04 2.9	10 40	125

In Table 2 the data type of thermodynamic property is denoted as follows:

- ϕ —osmotic coefficient
- γ —activity coefficient
- m_s —solubility
- ΔH_d —heat of dilution
- ΔH_s —heat of solution
- C_p —heat capacity.

In Table 2 the experimental method is denoted as follows:

- FP—freezing point depression of ice

BP—boiling point elevation

VP or DVP—vapor pressure lowering by static or dynamic methods, respectively

EMF or EMFW—electromotive force of concentration cells without or with transference, respectively

EMFS—electromotive force of single compartment cell with standard electrode

IP—isopiestic comparison

IP/VP or IP/DVP— isopiestic comparison with standards of known vapor pressure by static or dynamic methods, respectively

IP/EMF or IP/EMFW— isopiestic comparison with

standards of known osmotic coefficient derived from concentration cells without or with transport, respectively

IP/INT—integration of isopiestic data

DFN—diffusion

SOLY—solubility of crystalline sodium chloride

CAL or FCAL—batch or flow calorimetry, respectively

CALAQ—dissolution calorimetry into aqueous sodium chloride.

Water activities from measurements of FP,^{18–25} BP,^{26–28,123,124} VP and DVP,^{29–45} and IP^{47–57} were corrected, expressed as osmotic coefficients and represented by Eq. (12). Measurements of FP were converted to osmotic coefficients using Eq. (A1) of Scatchard *et al.*¹¹⁴ Measurements of VP, DVP, IP/VP, and IP/DVP were corrected for the nonideality¹¹⁵ of water vapor.

Sodium chloride activity coefficients from electrochemical cell measurements^{60–68} were completely reevaluated as follows. Emfs from concentration cells without transference^{60,61,65,67} were corrected to give values of $\ln(\gamma_2/\gamma_1)$ which were represented by the difference of Eq. (13) for the two compartment molalities m_2 and m_1 . Emfs from concentration cells with transference^{62,63} were corrected and reevaluated using several different equations and various numerical methods to yield concordant values of $\ln(\gamma_2/\gamma_1)$ which were represented by the difference of Eq. (13). Emfs from single-compartment cells^{66,68} were corrected and the values of $\ln \gamma$ represented by Eq. (13).

Activity coefficients from integration of isopiestic measurements⁴⁶ were reexpressed as $\ln(\gamma_2/\gamma_1)$ values which were represented by the difference of Eq. (13) for m_2 and m_1 , where m_1 was 0.1*m*.

Heat of dilution measurements^{73–84,121,122} were represented by Eq. (25). Integral heats of solution^{85,88–97} were represented by Eq. (30) and differential heats of solution^{82,86} by Eq. (31).

Heat capacity measurements^{98–113,125} were corrected, expressed as apparent molal heat capacities and represented by Eq. (22). Sodium chloride solubility measurements^{69–72} were represented by Eq. (37).

Heats of solution and solubility measurements represented by Eqs. (30), (31), and (37) required the auxiliary values of the molar heat capacity and its temperature derivatives for crystalline sodium chloride at 298.15 K. These values are $(C_{p,c})_\theta = 50.08 \text{ J mol}^{-1} \text{ K}^{-1}$, $(dC_{p,c}/dT)_\theta = 2.737 \text{ E} - 02 \text{ J mol}^{-1} \text{ K}^{-2}$, and $(d^2C_{p,c}/dT^2)_\theta = -1.054 \text{ E} - 04 \text{ J mol}^{-1} \text{ K}^{-3}$, obtained by correcting and fitting the measurements of Leadbetter and Setatree¹¹⁶ between 304 and 423 K together with a value at 200 K from Stull and Prophet.¹¹⁷

Each experimental measurement (input datum point) defined the variables of its own representative equation. The dependent or response variable was always the sum of the measurement and its Debye–Hückel term, together with additional terms for the heat capacity of crystalline sodium chloride in the case of heats of solution and solubilities not at 298.15 K. The number of independent variables was defined by the type of measurement and corresponded with the parameters in Table I. The full regression model contained a

maximum for 43 independent variables, the eight for the standard state parameters were functions of T only, the other 35 for the virial parameters were separable products of functions of m with functions of T . Variables for each measurement were evaluated in double-precision arithmetic and were stored and identified by data set name with intraset datum number. For example, D, DV, P + P 15 refers to the variables of datum 15 in set D, DV, P + P and is found in the original paper¹¹⁰ to be the 15th measurement with $C_{p,\phi} = -39.9 \text{ J mol}^{-1} \text{ K}^{-1}$ for 0.999 28*m* NaCl at 25 °C.

3.2. Weighting the Equations

Reliable values for the thermodynamic functions of aqueous sodium chloride from zero to saturation molality between -22 and 154 °C are estimated by evaluating the regression model which adequately, properly, and best represents both the composition and temperature dependence of the numerous equilibrium and calorimetric measurements available for the system. The best unbiased estimates of the thermodynamic functions are those provided by the properly weighted least-squares regression^{118,119} of all valid literature measurements. The measurements should be widely founded in respect to data type, experimental method, composition range, and temperature range so that the adequacy and significance of the regression model parameters can be tested and realistic estimates obtained for the standard errors on the input measurements. The problem is how to evaluate the proper weight factor by which to multiply the representative equation of each measurement in the regression so that each weighted equation has the same variance and thus is equally probable. Our method is outlined as follows.

Each measurement (say, datum point j from data set i) in the regression was represented by its characteristic equation multiplied by its weight factor W_{ij} in the formation of the normal equations. The value of W_{ij} depended on the data type, was inversely proportional to the presumed variance of the measurement, and provided a quantitative measure of its importance in the regression: for an accurate measurement, the equation was weighted by a large value for W_{ij} ; for an inaccurate measurement the equation was weighted (multiplied) by a small value for W_{ij} . Measurements of the same type by the same authors were treated together as a data set, within which the variances of the individual measurements were expected to be approximately equal or closely related. On this basis of experimental similitude the datum weight was defined by

$$W_{ij} = WS_i \times WI_{ij}, \quad (44)$$

where WS_i is a common external weight factor characteristic of data set i , and WI_{ij} , is an individual internal weight factor characteristic of the relative importance (proportional to the inverse variance) of datum j within its set i . The values of WS_i for each data set were determined and optimized simultaneously, as described later, with the solution of the least-squares normal equations.

Within a given data set, the values of WI_{ij} were expect-

ed (i) all to be unity where the variances of the measurements were all equal, or (ii) to be proportional to the inverse of the variances due to molality and temperature effects or to other factors such as multiple determinations. Thus the internal weight WI_{ij} was further subdivided and defined by

$$WI_{ij} = WM \times F, \quad (45)$$

where WM is a weight factor dependent on the molality of the datum, and F is a weight factor usually, but not always, dependent on the temperature of the datum.

Consider the regression of a total number N of input measurements comprised of n_1 from data set 1, n_2 from set 2, ..., n_i from general set i , ..., and n_{94} from final set 94. Thus,

$$N = \sum_{i=1}^{94} n_i. \quad (46)$$

The representation of N measurements by a regression model with p parameters leaves $(N - p)$ degrees of freedom for the residuals of the regression. General data set i contains n_i datum points which have variance V_i and set weight WS_i . General datum point j in set i has weight W_{ij} , internal weight WI_{ij} , observed value Y_{ij} , calculated value from regression model \hat{Y}_{ij} , and residual δ_{ij} , given by

$$\delta_{ij} = Y_{ij} - \hat{Y}_{ij}. \quad (47)$$

The datum weight W_{ij} is given by Eq. (44) as the product of set weight WS_i and internal weight WI_{ij} of the datum within the set. For many data sets, the internal weights WI_{ij} are all unity, or alternatively they are functions of molality, temperature, and plurality such that the internally weighted squared residuals $WI_{ij} \delta_{ij}^2$ have the same distribution (variance) for all j members of set i . The mean-squared deviation δ_i^2 for a datum of unit internal weight is given by

$$\delta_i^2 = \left(\sum_{j=1}^{n_i} WI_{ij} \delta_{ij}^2 \right) / n_i \quad (48)$$

for set i . An estimate of the variance V_i for set i equal to the square of the estimate of the standard error s_i^2 is given by

$$V_i = s_i^2 = \left[\left(\sum_{j=1}^{n_i} WI_{ij} \delta_{ij}^2 \right) / n_i \right] [N / (N - p)] \quad (49)$$

as the product of the internally weighted mean-squared deviation δ_i^2 and the correction for the number of degrees of freedom of the residuals. Thus s_i is an estimate of the standard error for a measurement of unit internal weight in set i . For each data set we define the set weight factor as

$$WS_i = [1/V_i] [N / (N - p)], \quad (50)$$

which rearranges to give the expression

$$WS_i \left[\left(\sum_{j=1}^{n_i} WI_{ij} \delta_{ij}^2 \right) / n_i \right] = 1, \quad (51)$$

which is invariant and unity for all data sets. Multiplying Eq. (51) by n_i for set i gives

$$WS_i \sum_{j=1}^{n_i} WI_{ij} \delta_{ij}^2 = n_i, \quad (52)$$

and summing n_i over all data sets from $i = 1$ to 94 gives

$$\begin{aligned} \sum_{i=1}^{94} WS_i \sum_{j=1}^{n_i} WI_{ij} \delta_{ij}^2 &= \sum_{i=1}^{94} \sum_{j=1}^{n_i} W_{ij} \delta_{ij}^2 \\ &= \sum_{i=1}^{94} n_i = N, \end{aligned} \quad (53)$$

so that the weighted mean-squared deviation is unity, and the same for each of the N datum points in the regression.

The bias of data set i relative to the regression model is given by the weighted mean deviation $\bar{\delta}_i$ defined by

$$\bar{\delta}_i = \sum_{j=1}^{n_i} WI_{ij} \delta_{ij} / \sum_{j=1}^{n_i} WI_{ij}. \quad (54)$$

Positive bias indicates that the measurements as a set exceed their calculated values; negative bias that the calculated values from the model are more positive and larger than the measured values.

The mean internal weight of a measurement in data set i , denoted \bar{wi}_i , is defined by

$$\bar{wi}_i = \sum_{j=1}^{n_i} WI_{ij} / n_i. \quad (55)$$

The mean internal weight of a datum gives a measure of the relative goodness of the average measurement in the set compared with unit weight assigned to the good and reliable single measurement. A mean internal weight of unity shows all measurements equally good. A mean internal weight less than unity indicates the proportion and extent of experimentally prejudiced measurements within the data set. A mean internal weight of greater than unity indicates the number of replicate determinations per average input measurement.

3.3. Determination of the Weights

Initially the first weights W_{ij} for Eq. (44) were taken as unity for all measurements, and the first weighted normal equations were formed and solved to give the first regression model. This model was used to evaluate the first \hat{Y}_{ij} and through Eq. (47) the first residuals δ_{ij} which were substituted into Eq. (51) to give the first set weights WS_i . At this point the first regression cycle was complete. The second cycle started using the first set weights WS_i in Eq. (44) with all WI_{ij} taken as unity to give the second weights W_{ij} , the second weighted normal equations were formed and solved to give the second regression model, and so on. A number of cycles were run to converge the data set weights WS_i so that Eq. (51) was true for all 94 data sets under conditions where all WI_{ij} were taken as unity.

At this stage the normalized residuals $WI_{ij}^{1/2} \delta_{ij} / s_i$ were plotted on the line printer against molality and against temperature for each data set, and the graphs were examined to confirm a sensibly random distribution of residuals. In data sets where the residuals deviated significantly and systematically from randomness and where the measurement technique would lead us to expect a systematic effect for experimental reasons, internal weights WI_{ij} less than unity were applied to remove the systematic bias and make the internally weighted residuals, $WI_{ij}^{1/2} \delta_{ij} / s_i$, sensibly the same for all j measurements of data set i . The internal weights were applied by substituting WI_{ij} values in Eq. (44) and using extant

WS_i values, a number of regression cycles were run to provide new converged values of WS_i . The resulting graphs of the normalized residuals were again examined to confirm a random distribution of weighted residuals. Data sets that still showed systematic deviations from randomness attributable to experimental effects were again internally weighted and the set weights WS_i were again converged. This process was continued until all data sets showed randomly distributed normalized residuals, so that all measurements were properly weighted and the resulting regression model was the unbiased estimator^{118,119} of minimum variance of the input measurements.

Every effort was made to retain all 2444 input measurements within the regression by appropriate weighting. Those measurements that were found to lie more than three standard deviations from the model were reexamined and were

TABLE 3. Data sets with unit internal weights

Data set	Data set	Data set	Data set
R	G, S, R + C	H + N	F, L, P + D
HB	A, T + S	R + S	F, L + D(D)
S + H	S, H + W	B + M	B, M + C
H, G + I	G	J + G	C + VH(D)
L + J	R(H)	H(DFN)	W + L
P + N	R(L, F + S)	L + A	M + Y
G + A	R(G + F)	M + P	D + B
G + A, S + G	R(S + G)	K, O + V	G, M + C
O + G	R(B + N)	P + C	C + VH(DH)
ST	R(H + C)	RB	D + T
W + H	C + P	G + R	E + S
S, C + G	P	W, R + B	CR
G, J + DN	H	L + M	P, S + F
PT			

TABLE 4. Converged internal weighting of data sets

Data set	m_L (mol kg ⁻¹)			
S + P	0.2			
M, D, G + C	1.0			
G + G	1.0			
C - VH	0.2			
P, C + B	1.0			
S		$F_{60} = 0.4$	$F_{70} = 0.4$	
M, D + VH				$FN_{015} = 0.29$
DO	0.25			
N + N	1.0			
L + L		$F_{125} = 0.17$	$F_{150} = 0.11$	
P + D				$F = m^2/2.1$
C		$F_{50} = 0.4$		
T		$F_{38} = 0.15$		
S + L, ICT		$FG_{100} = 0.01$	$FICT = 0.25$	$FLL = 0.1$
Y + V		$FN_{01} = 0.01$	$FN_{02} = 0.01$	
Y + M		$F_{0.2} = 0.011$	$F_{12.6} = 0.2$	
V	0.8			
E + A	0.01	$F_{50} = F_{60} = 0.6$	$F_{70} = 0.25$	$F_{80} = 0.05$
M, H + H	0.4			
M + W	0.08	$F_{100} = 0.25$		
MR + W	0.3			$F = r$
R + B	0.25			
L, J + M	0.5	$F_{20} = 0.5$		
B + B	0.25			
C + C				$F = r$
B	0.1			
C + VH(IH)		$F_5 = 0.05$	$F_{10} = 0.15$	
TO + L		$F_5 = 0.45$	$F_{10} = 0.45$	
R + R	0.6			
H + G	0.1			
W	0.1			
HS	0.1			
P, L, P + D	0.2			
L + B	1.0			
F, L + D	0.2			
P, F + D	0.2	$F_{1.5} = 0.045$	$F_5 = 0.045$	
S, W, M + H	0.2			
D, DV, P + P	0.2			
T + L	1.5	$F_5 = 0.12$		
O	2.5			
A + W	0.2	$F_{40} = 0.5$		

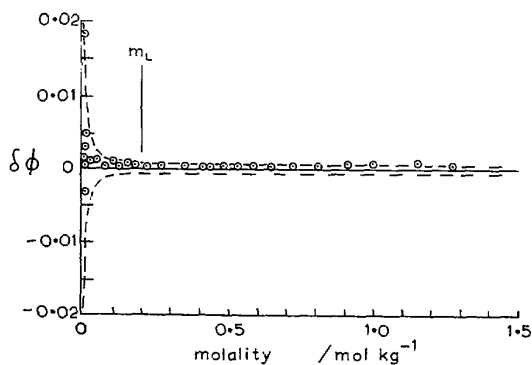


FIG. 1. The unweighted residuals $\delta\phi$ of osmotic coefficients of data set S + P (Ref. 19) show increased variability of low molality. The dashed curves indicate the envelope of the standard error, which increases in magnitude at molalities less than m_L at 0.2 mol kg^{-1} .

discarded only when they were also outliers from their own data set. This very conservative procedure resulted in the rejection of only 16 measurements from the regression and thereby reduced the risk of induced bias in the model.

In the final iteration cycle of the regression analysis, after all weight factors had been converged and were correct, the weighted equation for each of the input measurements had the same variance, was equally probable, and thus was properly weighted for the formation of the normal equations of maximum probability. The entries in Tables 3 and 4 summarize the final converged scheme of internal weights for the equations of 2428 measurements from 94 data sets.

Table 3 lists the data sets in which WI_{ij} was unity for each measurement: within a given set this implies that each datum j had the same variance and was equally reliable or probable. For small data sets without information on errors from the authors, we assumed $WI_{ij} = 1.0$ for each datum, for the lack of any more correct weighting scheme. For large data sets, the graphs of the residuals plotted against molality and against temperature confirmed *a posteriori* that $WI_{ij} = 1.0$ was a good approximation.

Table 4 lists the data sets with internal weights differing from unity. When authors gave assessments of experimental error, these were used together with the distribution of the residuals to define the internal weights for the set. Our assignment of nonunit internal weights was always conservative; if uncertain, we assigned unit internal weight. No internal weight differing from unity was ever assigned arbitrarily. All nonunit internal weights were assigned to reflect presumed real experimental effects, such as, (i) inadequate detector sensitivity for measurements at low molality and (ii) decrease of experimental accuracy for measurements at high or at low temperatures. Wherever possible, internal weights were assigned with values less than unity to leave most measurements in the set with unit internal weight; thus Table 4 indicates only those conditions where WM or F in Eq. (45) differed from unity.

For measurements of ϕ , ΔH_d , and $C_{p,\phi}$ the graphs of the unweighted residuals plotted against molality were found often to be bounded by envelopes similar to the dashed curves shown in Fig. 1. From high molality, the envelope of

residuals was sensibly parallel to the abscissa down to a lower limiting value, denoted m_L , below which it deviated sharply away from the axis, inversely proportional to m . The trumpet-shaped deviation contour at low m was to be expected from the definition of these thermodynamic properties, and arose because the experimental limits of signal detection had been reached. The values of m_L are listed in the second column of Table 4: for measurements with $m > m_L$ we took $WM = 1.0$ in Eq. (45); for those with $m < m_L$ we took $WM = (m/m_L)^2$. For heats of dilution, m and m_L were the means of the initial and final state molalities, except for the data sets E + A⁷⁹ and M, H + H⁸⁰ for which it was more realistic to use the final state molalities. For the data sets in Table 4 with no value listed for m_L , the weight factor WM in Eq. (45) was unity for all measurements.

Two data sets only gave unweighted residuals which increased systematically with molality above an upper limiting value, denoted m_U . In the case of data set T,⁶⁷ we took $m_U = 0.1 \text{ mol kg}^{-1}$, and for set M + W,⁸³ $m_U = 1.3 \text{ mol kg}^{-1}$; for measurements with $m_L < m < m_U$, we took $WM = 1.0$ in Eq. (45); for measurements with $m \geq m_U$, we took $WM = (m_U/m)^2$.

The final three columns in Table 4 indicate the nonunit values of weight factor F in Eq. (45). For data set S,²⁶ we show $F_{60} = 0.4$, abbreviated from $F(60^\circ\text{C}) = 0.4$, meaning that each measurement at 60°C had $F = 0.4$; similarly, each measurement at 70°C had $F = 0.4$. For set Y + M,⁷⁶ $F = 0.011$ for measurements at 0.2°C and $F = 0.2$ for those at 12.6°C . For set Y + V,⁷⁴ the data points Nos. 1 and 2, with atypically large dilution ratios, had $F = 0.01$. For set M, D + VH²⁸ datum No. 15 had $F = 0.29$. In set P + D,⁴³ all data were weighted; a measurement with molality m had weight $F = m^2/2.1$. In data sets C + C⁹² and MR + W⁸⁴ the input measurements were mean values for r replicate determinations so that each measurement was weighted with $F = r$. The first entry for the composite data set S + L, ICT indicates $F = 0.01$ for measurements at and above 100°C , evaluated by Linke⁷⁰; the second entry indicates $F = 0.25$ for measurements between 0 and 55°C , evaluated by Brønsted⁶⁹; the third entry shows $F = 0.1$ for the two measurements at 125 and 150°C from Liu and Lindsay.⁴² For the data sets in Table 4 where F is not specified, its value in Eq. (45) was taken as unity.

3.4. Regression Model Parameters

Extensive significance testing of many models containing from 24 to 43 parameters was conducted to determine the minimum number and type of parameters required to provide an adequate and unbiased fit of all experimental measurements. We were concerned (i) not to overfit the data and follow false peaks and valleys between inaccurate and incompatible data sets by retaining too many and spurious parameters, and (ii) not to introduce bias by underfitting^{118,119} and thereby improperly reproduce the real contours of the data by rejecting too many and significant parameters.

Tests indicated that the regression model with 43 pa-

TABLE 5. Regression model parameters and standard errors at 298.15 K

Parameter	Value	Standard error	Unit
$(\Delta G_s^0)_\theta/R$	-1.087 117 E + 03	4.33 E - 01	K
$(\Delta H_s^0)_\theta/R$	4.640 559 E + 02	1.66 E - 01	K
$(C_{p,2}^0)_\theta/R$	-1.009 694 E + 01	1.40 E - 02	
$(dC_{p,2}^0/dT)_\theta/R$	2.416 584 E - 01	1.51 E - 03	K ⁻¹
$(d^2C_{p,2}^0/dT^2)_\theta/R$	-1.380 343 E - 02	1.62 E - 04	K ⁻²
$(d^3C_{p,2}^0/dT^3)_\theta/R$	5.413 937 E - 04	1.36 E - 05	K ⁻³
$(d^4C_{p,2}^0/dT^4)_\theta/R$	-1.430 225 E - 05	7.64 E - 07	K ⁻⁴
$(d^5C_{p,2}^0/dT^5)_\theta/R$	1.474 756 E - 07	1.87 E - 08	K ⁻⁵
Q_0	-8.290 627 E + 01	5.10 E - 01	mol ⁻¹ kg K
Q_1	3.680 527 E + 01	9.25 E - 01	mol ⁻¹ kg K
Q_2	-4.135 823 E - 01	7.44 E - 02	mol ⁻¹ kg
Q_3	9.928 923 E - 02	5.66 E - 03	mol ⁻¹ kg K ⁻¹
Q_4	-6.966 493 E - 03	3.07 E - 04	mol ⁻¹ kg K ⁻²
Q_5	3.545 976 E - 04	1.35 E - 05	mol ⁻¹ kg K ⁻³
Q_6	-7.375 379 E - 06	2.95 E - 07	mol ⁻¹ kg K ⁻⁴
B_0	-2.250 462 E + 01	1.93 E - 01	mol ⁻¹ kg K
B_1	8.178 707 E + 01	3.34 E - 01	mol ⁻¹ kg K
B_2	-1.722 838 E + 00	2.20 E - 02	mol ⁻¹ kg
B_3	3.655 402 E - 02	1.32 E - 03	mol ⁻¹ kg K ⁻¹
B_4	-8.698 438 E - 04	4.81 E - 05	mol ⁻¹ kg K ⁻²
B_5	1.077 619 E - 05	8.37 E - 07	mol ⁻¹ kg K ⁻³
C_0	-7.849 751 E - 01	1.53 E - 01	mol ⁻² kg ² K
C_1	-2.045 013 E + 01	2.76 E - 01	mol ⁻² kg ² K
C_2	4.449 950 E - 01	1.24 E - 02	mol ⁻² kg ²
C_3	-9.817 574 E - 03	5.67 E - 04	mol ⁻² kg ² K ⁻¹
C_4	2.042 558 E - 04	1.47 E - 05	mol ⁻² kg ² K ⁻²
C_5	-2.065 926 E - 06	1.96 E - 07	mol ⁻² kg ² K ⁻³
D_0	9.433 827 E - 02	4.16 E - 02	mol ⁻³ kg ³ K
D_1	2.153 966 E + 00	7.78 E - 02	mol ⁻³ kg ³ K
D_2	-5.631 073 E - 02	2.44 E - 03	mol ⁻³ kg ³
D_3	7.473 613 E - 04	6.39 E - 05	mol ⁻³ kg ³ K ⁻¹
D_4	-9.246 902 E - 06	1.17 E - 06	mol ⁻³ kg ³ K ⁻²
E_0	-4.764 496 E - 03	3.61 E - 03	mol ⁻⁴ kg ⁴ K
E_1	-1.245 283 E - 01	6.93 E - 03	mol ⁻⁴ kg ⁴ K
E_2	2.492 125 E - 03	1.92 E - 04	mol ⁻⁴ kg ⁴

rameters and independent variables was probably overfitted, so that the highest order parameters with the smaller values of t (t = absolute value of parameter/standard error of parameter) were systematically rejected and the regression was reweighted, reconverged, and retested. This was repeated until a minimum set of parameters was obtained. The parameters rejected were Q_7 , B_6 , C_6 , D_6 , D_5 , E_5 , E_4 , and E_3 . Finally, we had rejected as many parameters of high order as possible, while retaining the ability of the model to represent the data sets without large increases in the estimates of the set variances. The adequacy of the regression model to fit the data depended predominantly on the conflict between measurements of various discordant data sets, not on the ability of the model to represent any particular set.

Table 5 lists the values found for the minimum-variance unbiased estimates of the 35 parameters and their standard errors at reference temperature $\theta = 298.15$ K for our model of aqueous sodium chloride between -22 and 154 °C. Values of the parameters are given to seven figures to permit exact evaluation of derived functions; the standard errors are given to three figures. The parameters of highest order, namely $(d^5 C_{p,2}^0/dT^5)_\theta/R$, Q_6 , B_5 , C_5 , D_4 , and E_2 have statistical t values of 7.9, 25, 13, 11, 7.9, and 13, respectively, indicating that the values of our least significant parameters,

$(d^5 C_{p,2}^0/dT^5)_\theta/R$ and D_4 , could arise by chance at a probability level of about one in 10^{15} times, and even less frequently for the values of the other four parameters. We note that all sets of parameters in Table 5 are complete and have no terms arbitrarily suppressed to zero, as required for a valid general Taylor's series representation of continuous Gibbs energy functions.⁵

The values and standard errors of the model parameters of highest order are independent of the value of reference temperature θ , whereas the values and errors of all other lower order parameters depend on the value of θ . As a result the size of the t value for parameter significance also depends on the value of θ for all but the highest order parameters. To overcome this deficiency and to provide a more realistic t value we evaluate the mean absolute t value for each parameter for θ varied over the data range -20 to 150 °C. A large mean t value indicates a well-defined parameter with relatively small error; a small mean t value indicates a poorly defined parameter. The final column of Table 7 presents the mean t values for the 35 parameters of our final regression model. The systematics of the t values are clearly apparent. The parameter sets in order of decreasing t values are $\{\Delta G_s^0, \Delta H_s^0\} > \{C_{p,2}^0, \dots, (d^5 C_{p,2}^0/dT^5)\} > \{Q_0, \dots, Q_6\} > \{B_0, \dots, B_5\} > \{C_0, \dots, C_5\} > \{D_0, \dots, D_4\} > \{E_0, E_1, E_2\}$,

with the sets of standard-state parameters having greatest significance and the sets of the higher order virials having progressively less significance. Within a given parameter set the higher order temperature derivatives, denoted by the larger value subscripts, are usually of smaller significance. The zero order parameters, Q_0 , B_0 , C_0 , D_0 , and E_0 are Gibbs energy parameters and their t values reflect the accuracy of the equilibrium osmotic and activity coefficient measurements at progressively higher concentrations. The first order parameters Q_1 , B_1 , C_1 , D_1 , and E_1 are enthalpy parameters and the anomalously high t values of C_1 , D_1 , and E_1 reflect the numerous accurate calorimetric enthalpy measurements at higher concentrations. The second order parameters, Q_2 , B_2 , C_2 , D_2 , and E_2 are heat capacity parameters which reflect both the calorimetric heat capacity measurements and the first temperature derivatives of the enthalpy measurements. The parameters of third, fourth, and higher order are less significant than the first and second order parameters, and attest to the generally decreasing accuracy of the higher order temperature derivatives.

3.5. Partial Leverage of the Data

In the development and confirmation of our final weighted least-squares regression model we used the concept

of partial leverage^{127,128} to define the influence of each of the 2428 measurements, each of the 94 data sets, and each of the three major data types (Gibbs energy, enthalpy, and heat capacity) on each of the 35 independent variables, and thus on the definition of the values of the 35 parameters. Each measurement defined up to 35 partial leverages, one for each independent variable used, so that (i) the sum of the partial leverages for a given independent variable over all 2428 measurements was unity and (ii) the sum of all partial leverages over all measurements was 35. A measurement with zero leverage had¹²⁸ no influence on the fit. A measurement with a leverage of unity indicated that one degree of freedom (one parameter) had¹²⁸ effectively been devoted to fitting the measurement.

In Table 6 we list the sums of the partial leverages for each data set in order of decreasing influence. The sum of partial leverages 5.12 for data set MR + W means that the heat of dilution measurements of Mayrath and Wood⁸⁴ are influential in determining effectively 5.12 parameters out of the total 35. This high leverage sum for set MR + W reflects (i) the large number of measurements in the set, (ii) that the measurements are located away from the means at both upper temperature and concentration limits, and (iii) that the measurements are very precise and have high weights. In contrast, and despite the high precision of Harned's⁶⁴ diffusion measurements, the low partial leverage sum for set

TABLE 6. Data sets ordered by sums of partial leverages

Data set	Partial leverage sum	Data set	Partial leverage sum	Data set	Partial leverage sum
MR + W	5.12	D + B	0.15	S, H + W	0.020
Y - M	3.99	C + VH	0.14	R(H + C)	0.020
T + L	3.94	L + L	0.14	P, C + B	0.020
G + R	3.19	G + G	0.13	W, R + B	0.016
A + W	2.13	F, L + D	0.13	R(H)	0.015
E + A	1.71	T	0.13	P + N	0.015
S + L, ICT	1.63	J + G	0.12	M, H + H	0.014
V	0.92	P, L, P + D	0.11	R(L, F + S)	0.014
S	0.92	K, O + V	0.10	H	0.013
Y + V	0.73	C + C	0.089	TO + L	0.011
D, DV, P + P	0.64	R + R	0.088	H + G	0.0091
G	0.60	H + N	0.086	P + C	0.0088
G, S, R + C	0.56	C	0.073	C + VH(IH)	0.0087
L, J + M	0.49	L + M	0.071	H(DFN)	0.0082
L + B	0.49	N + N	0.065	L + J	0.0078
F, L + D(D)	0.48	A, T + S	0.063	M, D + VH	0.0075
M, D, G + C	0.45	W + L	0.063	HB	0.0071
F, L, P + D	0.45	B	0.063	DO	0.0064
P, F + D	0.42	G, M + C	0.058	C + VH(D)	0.0060
B + M	0.41	R(S + G)	0.047	M + Y	0.0048
P, S + F	0.38	R + S	0.044	R + B	0.0045
M - W	0.37	PT	0.044	M + P	0.0044
S + P	0.35	P	0.041	W + H	0.0038
RB	0.35	S, C + G	0.041	W	0.0036
G + A, S + G	0.33	C - VH(DH)	0.037	CR	0.0024
O	0.25	B + B	0.036	R(G + L)	0.0022
S, W, M + H	0.24	C + P	0.024	HS	0.0020
ST	0.23	E + S	0.024	G, J + DN	0.0013
O + G	0.19	R	0.021	R(H + N)	0.0011
S + H	0.18	D + T	0.021	H, G + L	0.0030
P + D	0.16	G + A	0.020	L + A	0.0005
B, M + C	0.16				

H(DFN) reflects the small number of measurements in the set and the fact that the measurements are located near the mean temperature and are at low concentration. More generally, a low sum of partial leverages for a data set near the bottom of the list in Table 6 reflects a low set weight and the poor agreement between the data and the more influential data sets above it in the list.

The sum of the partial leverages for all ϕ data is 4.90, for all $\ln \gamma$ data is 0.88, for all solubility data is 1.74, for Gibbs energy data is 7.52 for heat of dilution data is 17.57, for heat of solution data is 1.04 for enthalpy data is 18.61, and for all heat capacity data is 8.87. The leverage and influence of the heat of dilution data is more than twice that of all Gibbs energy data and just less than twice that of all heat capacity data. The leverage and influence of the osmotic coefficient data is more than five times that of the activity coefficient data. The Gibbs energy data define the six Gibbs energy parameters $[(\Delta G_s^0)_\theta/R, Q_0, B_0, C_0, D_0, \text{ and } E_0]$ and about two further parameters in the rest of the model.

In Table 7, we list the sums of the partial leverages for

TABLE 7. Influence of data type on parameters at 298.15 K

Parameter	Gibbs energy data sum of partial leverages	Enthalpy data sum of partial leverages	Heat capacity data sum of partial leverages	Mean t value for θ range -20 to 150 °C
$(\Delta G_s^0)_\theta/R$	0.930	0.060	0.010	2400.0
Q_0	0.937	0.056	0.007	167.0
B_0	0.901	0.086	0.013	128.0
C_0	0.857	0.126	0.017	10.8
D_0	0.816	0.163	0.021	3.1
E_0	0.785	0.191	0.024	2.2
$(\Delta H_s^0)_\theta/R$	0.007	0.971	0.022	887.0
Q_1	0.025	0.954	0.021	44.1
B_1	0.034	0.946	0.020	85.3
C_1	0.046	0.933	0.021	31.4
D_1	0.054	0.927	0.019	14.4
E_1	0.061	0.922	0.017	10.3
$(C_{p,2}^0)_\theta/R$	0.024	0.556	0.420	325.0
Q_2	0.089	0.719	0.192	22.1
B_2	0.137	0.630	0.233	51.1
C_2	0.213	0.601	0.186	21.9
D_2	0.308	0.615	0.077	16.4
E_2	0.342	0.640	0.018	13.0
$(dC_{p,2}^0/dT)_\theta/R$	0.036	0.404	0.560	55.2
Q_3	0.069	0.704	0.227	16.7
B_3	0.091	0.663	0.246	16.5
C_3	0.099	0.640	0.261	10.8
D_3	0.095	0.667	0.238	9.2
$(d^2 C_{p,2}^0/dT^2)_\theta/R$	0.016	0.264	0.720	38.3
Q_4	0.041	0.573	0.386	16.8
B_4	0.095	0.702	0.203	13.0
C_4	0.101	0.678	0.221	9.3
D_4	0.062	0.748	0.190	7.9
$(d^3 C_{p,2}^0/dT^3)_\theta/R$	0.010	0.174	0.816	19.8
Q_5	0.012	0.399	0.589	21.2
B_5	0.094	0.725	0.181	12.9
C_5	0.112	0.702	0.186	10.5
$(d^4 C_{p,2}^0/dT^4)_\theta/R$	0.005	0.051	0.944	14.2
Q_6	0.013	0.386	0.601	25.0
$(d^5 C_{p,2}^0/dT^5)_\theta/R$	0.003	0.032	0.965	7.9

all Gibbs energy data (column 2), enthalpy data (column 3), and heat capacity data (column 4) for each of the independent variable functions for the 35 parameters at 25 °C. The sum of the three entries in each row is unity, corresponding to the complete definition of the one degree of freedom associated with each parameter. The magnitude of the entries provides a quantitative measure of which type of data influences and defines each parameter.

For the first six degrees of freedom, associated with the six Gibbs parameters, the Gibbs energy data give a partial leverage sum of 5.23, the enthalpy data give 0.68, and the heat capacity data 0.09, demonstrating the expected predominant influence of the Gibbs energy data on the definition of the Gibbs energy parameters.

For the second six degrees of freedom, associated with the enthalpy parameters $[(\Delta H_s^0)_\theta/R, Q_1, B_1, C_1, D_1, \text{ and } E_1]$, the enthalpy data provide an overwhelming influence with a sum of partial leverages of 5.65, the Gibbs energy data provide 0.23, and the heat capacity data provide 0.12.

For the third six degrees of freedom, associated with the heat capacity parameters $[(C_{p,2}^0)_\theta/R, Q_2, B_2, C_2, D_2, \text{ and } E_2]$, the enthalpy data provide a surprising partial leverage sum of 3.76, three times greater than for the heat capacity data (1.13) or the Gibbs energy data (1.11).

The heat of solution parameter $(\Delta H_s^0)_\theta/R$ is defined more by the heat of dilution data with partial leverage sum of 0.51 than by the expected heat of solution data with leverage sum of 0.46. Similarly, the standard heat capacity parameter $(C_{p,2}^0)_\theta/R$ is defined more by the enthalpy data with partial sum of 0.56 than by the expected heat capacity data with leverage sum of 0.42.

Solubility data provide the largest contributions to the Gibbs energy leverages for $E_2, D_2, C_2, \text{ and } B_2$.

The virial parameter set E_0, E_1, E_2 is almost completely defined by the Gibbs energy and enthalpy data with partial leverage sum of 2.94, with the heat capacity data contributing only 0.06; this occurs because the heat capacity data contain very few measurements at high concentration at both low and high temperatures.

The five degrees of freedom associated with the standard state temperature derivatives of heat capacity $(dC_{p,2}^0/dT)_\theta/R$ to $(d^5 C_{p,2}^0/dT^5)_\theta/R$ are determined more completely for the higher derivatives by the heat capacity data and less by the enthalpy data. The two parameters Q_5 and Q_6 reflect a similar influence.

On the contrary, the remaining ten degrees of freedom associated with parameters $Q_3, B_3, C_3, D_3, Q_4, B_4, C_4, D_4, B_5$ and C_5 are defined more by the extensive enthalpy data and less by the heat capacity data.

The temperature distribution of the sums of the partial leverages showed that 20 parameters were defined by (committed to) the fits of the measurements between 0 and 25 °C, compared with 14 parameters for all measurements at the higher temperatures above 25 °C. A minimum of 21 parameters was essential for a proper representation of the very rapidly varying low-temperature measurements below 25 °C. In test regression models containing fewer than the 35 parameters it was invariably the fits of the low-temperature measurements that were significantly prejudiced by the few-

er parameters. These findings concur with earlier studies^{7,10-12,136} which discussed and showed the poorer fits to the measurements at lower temperatures.

3.6. Fit of the Model to the Measurements

The square of the multiple correlation coefficient for the model is $R^2 = 0.999\,943$, which shows that 99.9943% of the variance of the input response variable is explained by the model, and that 0.0057% is the residual, unexplained

due to bias and error. The goodness of fit of the regression model (parameters in Table 5) to the measurements of data set i is quantitatively defined by the set weight WS_i , and thus by the estimate of the standard error s_i for a measurement of unit internal weight.

Table 8 presents the fit of the model to the Gibbs energy measurements in the order of increasing standard error estimates, denoted $s(\)$, and defined in Eq. (49). The third and fourth columns list the set bias $\bar{\delta}(\)$ and the mean internal weight \bar{wi} , defined in Eqs. (54) and (55), respectively. The fifth column gives the sum of partial leverages¹²⁸ of the set.

TABLE 8. Fit of Gibbs energy measurements by regression model

Data set	$s(\)$ /0.001	$\bar{\delta}(\)$ /0.001	\bar{wi}	Partial leverage sum	Method
G	0.19	0.07	1.0	0.60	IP/EMFW
S	0.37	-0.04	0.76	0.92	BP
H(DFN)	0.39	0.30	1.0	0.0082	DFN
S + P	0.48	0.53	0.62	0.35	FP
B + M	0.49	0.07	1.0	0.41	EMFW
M, D, G + C	0.67	0.59	0.45	0.45	FP
J + G	0.72	0.19	1.0	0.12	EMFW
C + VH	0.80	-0.19	0.57	0.14	FP
S + L, ICT	0.93	0.23	0.51	1.63	SOLY
T	1.07	-0.57	0.45	0.13	EMF
K, O + V	1.12	-0.70	1.0	0.10	SOLY
G + G	2.0	2.1	0.75	0.13	FP
R(H)	2.2	-1.0	1.0	0.015	IP/EMF
ST	2.3	0.7	1.0	0.23	IP/VP
G + A, S + G	2.3	-0.2	1.0	0.33	VP
R + S	2.5	0.3	1.0	0.044	IP/INT
P + D	2.9	-1.9	1.0	0.16	VP
S + H	3.1	0.6	1.0	0.18	BP
R(H + C)	3.1	-3.0	1.0	0.020	IP/EMF
M, D + VH	3.3	0.8	0.95	0.0075	BP
A, T + S	3.3	-2.9	1.0	0.063	VP
N + N	3.5	-2.4	0.62	0.065	VP
G, S, R + C	3.9	-2.5	1.0	0.56	VP
H	4.0	3.7	1.0	0.013	EMF
R(L, F + S)	4.1	-4.0	1.0	0.014	IP/VP
C + P	4.2	-3.9	1.0	0.024	IP
C	4.2	-0.3	0.88	0.073	EMF
PT	4.7	-0.4	1.0	0.044	DVP
H + N	4.8	1.8	1.0	0.086	EMF
O + G	4.8	-4.1	1.0	0.19	VP
L + L	4.9	3.6	0.38	0.14	VP
S, C + G	5.0	-2.2	1.0	0.041	DVP
P	5.4	-4.1	1.0	0.041	IP
R(S + G)	5.4	-0.7	1.0	0.047	IP/VP
G + A	7.1	6.2	1.0	0.020	DVP
DO	7.4	-1.5	0.61	0.0064	BP
S, H + W	7.7	1.6	1.0	0.020	IP
R(B + N)	8.2	-7.9	1.0	0.0011	IP/DVP
P + C	8.7	-7.9	1.0	0.0088	SOLY
R(G + F)	9.2	-6.7	1.0	0.0022	IP/VP
P + N	9.7	-0.6	1.0	0.015	DVP
P, C + B	9.9	-1.9	0.90	0.020	FP
R	10.8	-9.9	1.0	0.021	FP
HB	11.2	-5.7	1.0	0.0071	FP
G, J + DN	12	-8	1.0	0.0013	VP
M + P	17	-1	1.0	0.0044	EMFS
L + J	18	18	1.0	0.0078	VP
W + H	27	11	1.0	0.0038	DVP
H, G + I	33	-32	1.0	0.0000	BP
L + A	66	0	1.0	0.0000	EMFS

The final column indicates the method of measurement and is included to permit ready comparison of the error estimates and biases of the various experimental techniques. In Table 8, the osmotic coefficients derived from the boiling points of set S + H²⁷ give $s(\phi) = 0.0031$ and $\bar{\delta}(\phi) = 0.0006$; the cell measurements of set B + M,⁶² completely reevaluated in this work, give $s(\ln \gamma) = 0.00049$ and $\bar{\delta}(\ln \gamma) = 0.00007$; and the solubilities of set K, O + V⁷¹ give $s(\ln m_s) = 0.00112$ and $\bar{\delta}(\ln m_s) = -0.00070$.

The top ten data sets in Table 8 involve seven different experimental techniques which give measurements of high accuracy, with standard errors of the order of or less than 0.0010 on ϕ , $\ln \gamma$, or $\ln m_s$. We confirm the high accuracy of the osmotic coefficients of set G,⁴⁸ derived isopiesticly from potassium chloride solutions and measurements¹²⁰ of concentration cells with transport. After complete reevaluation of sets B + M⁶² and J + G,⁶³ we reconfirm the well-known¹⁻³ high accuracy of the activity coefficient ratios of these sets derived from measurements of concentration cells with transport. Excellent confirmatory agreement is shown by the activity coefficients of set H(DFN)⁶⁴ derived from nonequilibrium diffusion measurements. Good agreement is also shown by the activity coefficient measurements of set T,⁶⁷ using glass electrodes in concentration cells without transport. The very accurate boiling point measurements of set S²⁶ define our model at low molality between 60 and 100 °C, and are in excellent agreement with the various cell measurements. The model reaffirms the high accuracy of the freezing points of set S + P,¹⁹ already well known,¹⁻³ and the confirmatory good agreement provided by the later measurements (sets M, D, G + C,²¹ C + V, H,²³ and G + G²²) at test to their reliability. Below 1.0*m* the freezing point measurements are in excellent mutual agreement and with the regression model reflecting the cell measurements at 25 °C and the boiling points up to 100 °C.

The osmotic coefficients derived from the best vapor pressure measurements (sets ST,³⁵ G + A, S + G,^{33,51} P + D,⁴³ A, T + S,⁴⁵ N + N,^{29,30} G, S, R + C,⁴⁴ PT,⁴⁰ O + G,³⁴ L + L,^{41,42} and S, C + G³⁷) show standard errors between 0.0023 and 0.0050 at mean molalities greater than 1.0*m*. The sets P + D, A, T + S, N + N, G, S, R + C, and O + G of static vapor pressure measurements show systematic negative biases between -0.0019 and -0.0041 . The residuals of sets N + N, G, S, R + C and O + G tend to be negative and larger at low molality and low temperature and, conversely, positive and smaller at high molality and high temperature, indicating less than perfect degassing of the salt solutions of these static vapor pressure measurements.

Similar large and systematic negative biases are shown by sets R(L, F + S) and R(G + F), containing Robinson's isopiestic comparisons¹ with static vapor pressure measurements of aqueous potassium chloride⁴⁹ and sulphuric acid,⁵⁰ respectively. On the contrary, sets ST, G + A, S + G, PT and R(S + G),¹ using other similar reliable techniques, do not show any systematic negative biases. We are therefore forced to conclude that the very careful and precise vapor pressure measurements of the Frazer school in sets N + N, R(L, F + S), and R(G + F) suffered from failure to remove

substantially all dissolved air from the apparatus. This difficulty of adequate degassing was well recognized by the authors^{29,30,33,34,43,44,49-51} for sets N + N, R(L, F + S), R(G + F), G + A, S + G, R(S + G), O + G, P + D, and G, S, R + C.

It is found that the negative biases exhibited by the sets of static vapor pressure measurements are sensibly independent of the regression model with up to 43 parameters, but depend mainly on the other data sets present, the negative biases being opposed by the positive biases (i) of the freezing point measurements of sets S + P,¹⁹ M, D, G + C²¹ and G + G,²² (ii) of the cell emf measurements of sets H⁶⁰ and H + N,⁶¹ and (iii) of the high-temperature vapor pressure measurements of set L + L.^{41,42}

The calorimetric data linking the various Gibbs energy data sets are so well determined that we are forced to conclude that either (i) the cell emf measurements from 0 to 50 °C, the diffusion measurements at 25 °C, the boiling point measurements from 60 to 100 °C, the freezing point measurements below 0 °C, the solubility measurements from 0 to 150 °C, and the calorimetric measurements are all simultaneously in excellent mutual agreement, but are all similarly biased and are wrong, or (ii) the osmotic coefficients derived from some of the static vapor pressure measurements at the lower temperatures 20 and 25 °C are biased and systematically low because of less than perfect degassing. Only conclusion (ii) is tenable, more particularly since the sets ST, G + A, S + G, PT, and R(S + G) show no significant bias.

The isopiestic method, properly conducted,^{1,3,35,46,48,55,56} is well known as a precise and reliable method for comparison of water activities of solutions down to 0.03*m* at 25 °C and at temperatures down to 15 and 0 °C. However, the results in Table 8 clearly illustrate the truism that the accuracy of isopiestic measurements is only as good as that of the primary standards used for calibration.

Greatest precision, rather than accuracy, is shown by the isopiestic osmotic coefficients of set G,⁴⁸ which confirm that our model for aqueous sodium chloride between 0.03 and 0.1*m* is in precise agreement with the very accurate cell measurements¹²⁰ of aqueous potassium chloride. Similar less accurate osmotic coefficients between 0.1 and 1.0*m* are provided by set R(H), which depends on the less accurate measurements^{53,54,60,61} of cells without transport. Stokes³⁵ used a painstaking bithermal-isopiestic technique with a pure water standard to obtain the most accurate set, ST, of solution vapor pressure measurements between 4.0 and 5.9*m*. In set R + S,⁴⁶ changes of sodium chloride activity coefficient are determined by integration of isopiestic data between 0.1 and 4.0*m*. The osmotic coefficients of set R(H + C), derived from the integration of cell measurements,^{1,53} are found to be uniformly low and biased by -0.0030 at all molalities from 1.4 to 3.6*m*. The isopiestic data sets G, R(H), ST, and R + S having the best accuracy exhibit no significant bias.

Platford *et al.*⁵⁵⁻⁵⁷ used aqueous urea and sulphuric acid as isopiestic standards to determine the osmotic coefficients of sodium chloride solutions with an assessed accuracy of ± 0.003 and ± 0.004 at 15 and 0 °C, respectively. Those studies,^{56,57} together with the work of Stokes,^{58,59} show that the osmotic coefficients of the sulphuric acid and

of the urea standards at 0 °C are not unambiguously well defined, but are systematically lower by -0.002 to -0.005 on ϕ for sodium chloride when extrapolated from the osmotic coefficients^{3,59} at 25 °C using thermal data⁵⁶ than when evaluated with small corrections from the freezing point measurements.^{19,58} Since the freezing point measurements were accurate to ± 0.001 ⁵⁸ or better¹⁹ on the osmotic coefficient at the freezing temperature, this strongly indicates that the osmotic coefficients at 25 °C of the sulphuric acid³ and aqueous urea⁵⁹ standards used for calibration are systematically too low. Our regression model reconfirms these systematic negative biases quantitatively at 15 and 0 °C. The sodium chloride osmotic coefficients of set C + P⁵⁵ at 15 °C are found to be uniformly low and biased by -0.0039 between 1.0 and 4.0*m*. The sodium chloride osmotic coefficients of set P⁵⁶ at 0 °C are in good agreement with our model between 0.4 and 2.1*m*, but are seriously low and show large negative residuals between 2.7 and 6.1*m*.

The sodium chloride osmotic coefficients and isopiestic comparisons of set S, H + W⁴⁷ are based on freezing points¹⁹ at low molality and on static^{29,30} and dynamic³² vapor pressures at high molality. The smoothed osmotic coefficients of set S, H + W are in good agreement with our model up to 1.2*m*, show a systematic negative deviation of -0.0080 at 2.0*m*, agree well at 4.0*m*, and show a large positive deviation of 0.0172 at 6.0*m*. Osmotic coefficients of set P + N,³² based on the dynamic vapor pressure measurements of Fordemwalt, exhibit large residuals which fluctuate from -0.0156 at 0.4*m*, to -0.0077 at 2.0*m*, through zero near 4.0*m*, and increase to 0.0162 at 6.0*m*. It is apparent that the deviations of set S, H + W above 2.0*m* are highly correlated with those of set P + N used for calibration.

The large standard error and almost constant negative bias of all osmotic coefficients of set R¹⁸ show that these precisely determined freezing point depressions are consistently too small by about 1%, possibly due to faulty thermocouple calibration. This is particularly unfortunate since there are no accurate freezing point measurements for aqueous sodium chloride above 3.6*m* and below -13.6 °C.

Results in Table 8 shows that the activity coefficients of sodium chloride (i) are determined most accurately in sets B + M⁶² and J + G⁶¹ by measurements of concentration cells with transference. (ii) are less accurately determined in sets T,⁶⁷ C,⁶⁵ H,⁶⁰ and H + N,⁶¹ by measurements of concentration cells without transference, and (iii) are least accurately determined in sets M + P⁶⁸ and L + A⁶⁶ by measurements of single compartment cells. These cell measurements, apart from the oldest and small set H, exhibit relatively small biases.

The regression model accurately fits the activity measurements of the large data sets H + N and C at all temperatures and compositions, while the residuals of $\ln \gamma$ provide no evidence of anomalous behavior by silver/silver chloride electrodes in the more concentrated sodium chloride solutions (above 2.5*m*¹ and above 2.0*m*⁷).

The excellent fit of the regression model to the solubilities of the composite data set S + L, ICT at all temperatures from 0 to 150 °C strongly supports the data evaluation of the authors.^{42,69,70} Within the set, the older evaluated data between 0 and 55 °C from International Critical Tables⁶⁹ exhibit a standard error of 0.0019. The fit of the modern measurements of set K, O + V⁷¹ between 0 and 45 °C is good and provides independent confirmation of the values of Linke.⁷⁰ The set P + C⁷² exhibits a large standard error; all solubilities are low and give negative residuals which become progressively larger below 40 °C.

Table 9 presents results of the fit of the regression model to the sets of heat of dilution measurements, listed in order of their standard error estimates $s(\Delta H_d/R)$. The third to fifth columns show the set bias $\bar{\delta}(\Delta H_d/R)$, the mean internal weight \bar{wi} , and the sum of the partial leverages. The final column indicates the experimental method employed, denoted CAL for batch-calorimeter and FCAL for flow-calorimeter measurements.

The data sets V,⁷⁸ Y + M,⁷⁶ and Y + V,⁷⁴ using the Young type of calorimeter, show high accuracies at 25 °C. In set Y + V, the two atypical measurements using large dilutions show an increased standard error of 1.1 K. The mea-

TABLE 9. Fit of heat of dilution measurements by regression model

Data set	$s(\Delta H_d/R)$ /K	$\bar{\delta}(\Delta H_d/R)$ /K	\bar{wi}	Partial leverage sum	Method
V	0.011	0.001	0.59	0.92	CAL
Y + M	0.034	-0.023	0.37	3.99	CAL
Y + V	0.106	0.026	0.90	0.73	CAL
F, L + D(D)	0.26	0.13	1.0	0.48	FCAL
F, L, P + D	0.27	0.14	1.0	0.45	FCAL
B, M + C	0.31	0.08	1.0	0.16	CAL
L + M	0.35	-0.33	1.0	0.071	CAL
MR + W	0.51	0.02	1.6	5.12	FCAL
RB	0.58	-0.08	1.0	0.35	CAL
M + W	0.71	-0.05	0.60	0.37	FCAL
M, H + H	0.86	-0.64	0.43	0.034	CAL
G + R	0.97	-0.15	1.0	1.19	CAL
E + A	1.37	-0.02	0.44	1.71	CAL
W, R + B	2.3	-1.6	1.0	0.016	CAL
C + VH(D)	7.8	2.8	1.0	0.006	CAL

TABLE 10. Fit of heat of solution measurements by regression model

Data set	$s(\Delta H_s/R)$ /K	$\bar{\delta}(\Delta H_s/R)$ /K	\bar{w}_i	Partial leverage sum	Method
D + B	0.44	0.34	1.0	0.15	CAL
L, J + M	0.65	-0.35	0.64	0.49	CAL
B	1.8	1.8	0.57	0.063	CAL
B + B	2.0	2.3	0.68	0.036	CAL
R + B	3.3	3.6	0.68	0.004	CAL
W + L	3.4	2.4	1.0	0.063	CALAQ
D + T	3.8	-3.4	1.0	0.021	CAL
C + VH(IH)	3.9	-4.7	0.64	0.009	CAL
C + VH(DH)	15	-12	1.0	0.037	CALAQ
TO + L	16	-8	0.80	0.011	CAL
C + C	27	-15	1.95	0.089	CAL
M + Y	32	-29	1.0	0.005	CAL
G, M + C	45	-4	1.0	0.058	CAL

measurements of set Y + M show increased standard errors of 0.076 and 0.32 K at the lower temperatures 12.6 and 0.2 °C, respectively. The regression model is in good agreement with the flow-calorimeter measurements of sets F,L,P + D¹²¹ and F,L + D(D).¹⁰⁵ The model also shows good agreement and no significant bias from set B,M + C.¹²² The batch-calorimeter measurements of set L + M⁸¹ at 30 °C exhibit uniformly negative residuals which are about one-half as large as those of the earlier set M,H + H⁸⁰ at 25 °C.

The flow-calorimeter measurements of set M + W⁸³ give weighted residuals which still increase slightly and systematically with increase of molality above 1.3*m*, despite all efforts to apply rational internal weights. The normalized residuals show just less than one standard error of negative bias at 25 °C, essentially no bias at 50 and 75 °C, and about one standard error of positive bias at 100 °C. The authors of set M + W consider the measurements at 100 °C to be less reliable,⁸⁴ and this is confirmed by the corresponding residuals which indicate an increased standard error of 1.4 K at 100 °C. The measurements of set MR + W⁸⁴ essentially define our regression model at 75, 100, and 150 °C, and the fit to these data is excellent with no bias at each temperature. The standard error of 0.51 K of set MR + W refers to a measurement comprised of a single run; for a measurement comprised of *r* replicate runs, the standard error is divided by the square root of *r*. The extensive batch-calorimeter measurements of set E + A⁷⁹ are unbiased at each temperature but show increasing standard errors of 1.8, 1.8, 2.7, and 6.1 K at the higher temperatures 50, 60, 70, and 80 °C, respectively. Further comparison of the regression model with sets E + A, M + W, and MR + W is deferred until later discussion of other models and tabulations.

Table 10 shows the fit of the regression model to the sets of heat of solution measurements, listed in the order of their increasing standard error estimates $s(\Delta H_s/R)$. The third to fifth columns show the set bias $\bar{\delta}(\Delta H_s/R)$, the mean internal weight \bar{w}_i , and the sum of the partial leverages. The final column indicates the batch-calorimetric method employed, denoted CAL for dissolution of solid sodium chloride in water and CALAQ for dissolution in aqueous sodium chloride solution.

The standard errors of heat of solution measurements are about one order of magnitude larger than those of heat of dilution measurements. The weighted mean value of the thirteen data sets in Table 10 defines the heat of solution parameter of the model, $(\Delta H_s)_p/R$ at 25 °C.

The data sets L,J + M^{88,89} and W + L^{86,87} were corrected as indicated by Benson and Benson.⁹⁰ The measurement of set L,J + M at 25 °C exhibit a remarkably small standard error, the measurements at 20 °C are slightly less accurate with a standard error of 0.93 K. The regression model fitted set B⁹³ within experimental error below 0.2*m*, but indicates a small positive bias of the measurements at higher molality. The model fits set D + B⁹⁴ well within experimental error, but the fit of the earlier set B + B⁹⁰ is not as good and indicates a positive bias of the measurements above 0.2*m*.

For set C + VH(IH)⁸² we used the authors' relative errors for the measurements at 10 and 5 °C and the model indicates the increased standard errors of 10 and 17 K, respectively, as the temperature decreased. The differential heat of solution measurements of set C + VH(DH)⁸² show predominantly negative residuals, which tend to be larger at higher molality and at low temperature.

The measurements of set TO + L⁹⁶ yield residuals which are nonrandom and are systematically correlated with molality at all temperatures in a manner that indicates isothermal data smoothing. The low-temperature measurements of set TO + L at 5 and 10 °C indicate increased standard error estimates of 24 K. All error estimates for set TO + L are probably too small.

For set C + C,⁹² the standard error refers to a measurement comprised of a single run; for measurements comprised of *r* runs the standard error is divided by the square root of *r*. The measurements of set C + C exhibit mainly negative residuals which increase systematically from less than -3 K at 55 °C and less than -4 K at 45 °C to usually less than -10 K at 35 and 25 °C, to usually less than -15 K at 20 and 15 °C, to about -20 K at 10 °C, and to less than -40 K near 0 °C. Above 55 °C the residuals are all negative and again increase systematically from about -16 K at 65 °C to about -40 K at 95 °C. The measurements of set

TABLE 11. Fit of apparent heat capacity measurements by regression model

Data set	$s(C_{p,\phi}/R)$	$\bar{\delta}(C_{p,\phi}/R)$	\bar{wi}	Partial leverage sum	Method
D, DV, P + P	0.036	-0.012	0.65	0.64	FCAL
T + L	0.037	0.004	0.54	3.94	CAL
O	0.054	-0.038	0.71	0.25	CAL
S, W, M + H	0.056	-0.038	0.75	0.24	FCAL
A + W	0.072	0.027	0.59	2.13	FCAL
P, L, P + D	0.081	-0.045	0.65	0.11	FCAL
R + R	0.097	-0.009	0.74	0.088	CAL
F, L + D	0.098	-0.004	0.72	0.13	FCAL
E + S	0.14	0.02	1.0	0.024	CAL
P, F + D	0.16	0.01	0.54	0.42	FCAL
CR	0.40	0.24	1.0	0.002	CAL
L + B	0.41	-0.24	0.65	0.49	CAL
HS	0.61	0.69	0.22	0.002	CAL
P, S + F	0.64	0.12	1.0	0.38	CAL
H + G	0.71	0.04	0.75	0.009	CAL
W	0.84	-0.68	0.61	0.004	CAL

G, M + C⁹⁵ show mean biases of about -0.7 and +0.7 standard errors at 114 and 150 °C, respectively.

Table 11 shows the fit of the regression model to the sets of heat capacity measurements, listed in order of their increasing standard error estimates of apparent molal heat capacity, $s(C_{p,\phi}/R)$. The third to fifth columns show the set bias $\bar{\delta}(C_{p,\phi}/R)$, the mean internal weight \bar{wi} , and the sum of the partial leverages. The final column indicates the experimental method used, denoted CAL for batch-calorimeter and FCAL for flow-calorimeter.

The regression model at lower temperatures is essentially defined by the first eight sets in Table 11. At low molalities the model follows the very precise flow-calorimeter measurements of sets D, DV, P + P,¹¹⁰ S, W, M + H,¹⁰⁹ A + W,¹²⁵ P, L, P + D,¹⁰³ and F, L + D¹⁰⁵; at high molalities it follows the accurate batch-calorimeter measurements of sets T + L,¹¹² O,¹¹³ and R + R.⁹⁸ The model accurately fits the extensive measurements of set T + L at all compositions and all temperatures from 5 to 85 °C, and shows an increased standard error of 0.11 for the measurements at 5 °C. At higher temperatures, the model follows the measurements of sets L + B¹⁰⁴ and P, S + F,¹⁰⁸ but it is mainly defined at higher concentrations by the heat of dilution measurements of sets M + W⁸³ and MR + W.⁸⁴

Considerable effort was spent attempting to fit the measurements of set P, F + D¹⁰⁶ with about the same range of standard error as that shown by sets D, DV, P + P, P, L, P + D, and F, L + D at 25 °C. None of our regression models was able to fit the measurements of set P, F + D with comparable small error estimates. For measurements between 15 and 45 °C, the standard error is 0.16; for those at the lower temperatures 5 and 1.5 °C, the standard error is increased to 0.76. The residuals at 1.5, 5, and 15 °C are mainly negative and show a negative bias of about one standard error. The residuals at 35 °C are mainly positive with a bias of about one standard error, and those at 45 °C are mainly positive with a bias of about one-half of a standard error.

4. Comparison of Earlier Tabulations with the Regression Model

4.1. Development of the Regression Model

In the development of our regression model for aqueous sodium chloride we were concerned initially with the ability of an extended Pitzer-type⁸ equation, with fourth and fifth virial parameters D_0 and E_0 , to provide a proper fit of precise osmotic coefficients over the whole composition range. In the earlier and extensive testing of representative equations for various aqueous electrolytes at 25 °C, Pitzer^{8,9} had shown that his three-parameter equation fitted the critically evaluated sodium chloride osmotic coefficients of Robinson¹ with a root-mean-squared deviation of 0.0007 over the range of 0.1 to 6.0*m* NaCl. We find that the Pitzer-type equations with three parameters (Q_0, B_0, C_0), four parameters (Q_0, B_0, C_0, D_0), and five parameters (Q_0, B_0, C_0, D_0, E_0) fit the osmotic coefficients (i) of Robinson^{1,3} with root-mean-squared deviations of 0.000 73, 0.000 29, and 0.000 26, respectively, and (ii) of Hamer and Wu⁶ with root-mean-squared deviations of 0.000 71, 0.000 28, and 0.000 27, respectively.

The five-parameter Pitzer-type equations equally overfit the osmotic coefficients both of Robinson and of Hamer and Wu. Clearly the three-parameter Pitzer equations underfit and provide almost equally poorer fits of both sets^{1,6} of osmotic coefficients. The four-parameter Pitzer-type equations properly fit, almost equally well, both the osmotic coefficients evaluated by Robinson and those calculated by Hamer and Wu. We find that the four-parameter Pitzer-type equation fits the osmotic coefficients of Robinson¹ slightly better than the nonlinear four-parameter equation of Hamer and Wu⁶ which exhibits a root-mean-squared deviation of 0.000 44. Comparison of residuals confirms that the linear four-parameter Pitzer-type equation represents the osmotic coefficients of Robinson as validly as the earlier nonlinear type of equation.^{6,11}

During the later development of our regression model, the inclusion of numerous accurate calorimetric enthalpy measurements forced us to include the virial parameters D_1 and E_1 and the higher order parameters up to D_4 and E_2 , while the low-temperature solubility and freezing point measurements showed the need to include the parameter D_0 and E_0 . In our final model, the statistical t values for D_0 and E_0 at 0 °C are 8.6 and 5.2, respectively, showing that these parameters are highly significant and essential for the proper fit of the model to the Gibbs energy measurements at low temperatures.

4.2. Osmotic and Activity Coefficient Data

The deviations from our regression model $\delta\phi = (\phi_{\text{author}} - \phi_{\text{model}})$ of the tabulated osmotic coefficients at 25 °C of the authors Robinson,¹ Hamer and Wu,⁶ and Gibbard *et al.*⁷ are shown in Fig. 2, plotted for clarity against the logarithm of molality. Deviations exhibited by the data points of Robinson and by the curve of Hamer and Wu are closely similar because Hamer and Wu⁶ fitted the tabulated values of Robinson¹ provided by Robinson and Stokes.³ At molalities below 1.0*m* and above 4.0*m*, the osmotic coefficients of Robinson and of Hamer and Wu deviate by less than ± 0.0020 from our model and may be considered in rough agreement with it. Between 1.2 and 3.8*m* Robinson's osmotic coefficients exhibit negative deviations greater than -0.0020 , with maximum deviation -0.0036 at 1.4*m*.

The relative deviations $\delta\phi/\sigma\phi$ of the osmotic coefficients, relative to their standard error estimates $\sigma\phi$, are shown for the same data in Fig. 3. We define relative deviations of magnitude less than ten standard errors as being within the region of possible agreement with our regression model, and those greater than ten standard errors being defined as in the region of significant deviation and of definite disagreement. Reference to Fig. 3 shows that the osmotic coefficients of Robinson and of Hamer and Wu are in possible agreement with our model between 0.1 and 0.3*m* and between 4.0 and 6.0*m*, but are in definite disagreement with

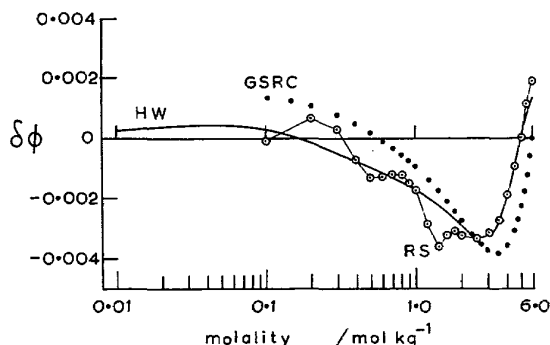


FIG. 2. Deviations $\delta\phi$ of osmotic coefficient tabulations (Refs. 1, 3, 6, and 7) from our regression model at 25 °C; deviations (i) of Robinson (Refs. 1 and 3) are shown by the curves denoted RS, (ii) of Hamer and Wu (Ref. 6) by the solid curve denoted HW, and (iii) of Gibbard *et al.* (Ref. 7) by the filled circles denoted GSRC.

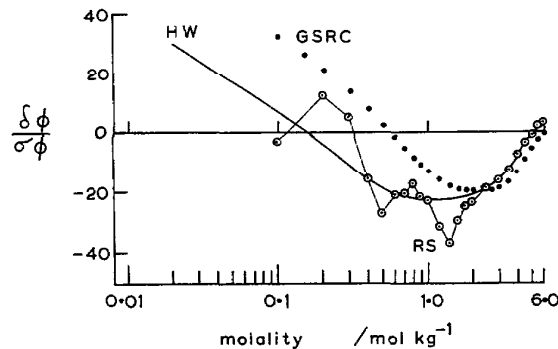


FIG. 3. Relative deviations $\delta\phi/\sigma\phi$ of the osmotic coefficient tabulations from our model divided by the standard error at 25 °C; relative deviations (i) of Robinson (Refs. 1 and 3) are shown by the open circles denoted RS, (ii) of Hamer and Wu (Ref. 6) by the solid curve denoted HW, and (iii) of Gibbard *et al.* (Ref. 7) by the filled circles denoted GSRC.

large negative relative deviations of between -10 and -36 standard errors at molalities between 0.4 and 3.6*m*. These negative deviations are so highly significant that we are forced to conclude that the tabulated osmotic coefficients of Robinson^{1,3} are too low by -0.0021 to -0.0036 between 1.2 and 3.8*m*. Osmotic coefficients from the equation of Hamer and Wu⁶ are similarly too small by -0.0032 at 2.5 and 3.0*m*.

The corresponding absolute and relative deviations ($\delta\gamma$ and $\delta\gamma/\sigma\gamma$) from our model of the tabulated activity coefficients^{1,6,7} at 25 °C are shown in Figs. 4 and 5, respectively. Below 1.2*m*, Robinson's activity coefficients^{1,3} deviate from our model by less than ± 0.0020 , above 1.2*m* the deviations are all negative and greater than -0.0020 , with maximum deviation -0.0052 at 3.4*m*. The relative deviations in Fig. 5 show that Robinson's activity coefficients are high between 0.1 and 0.3*m* and are significantly too low between 1.0 and 4.6*m*. The negative deviations are so significant that we have to conclude that the activity coefficients of Robinson^{1,3} are too small by -0.0022 to -0.0052 between 1.2 and 4.6*m*.

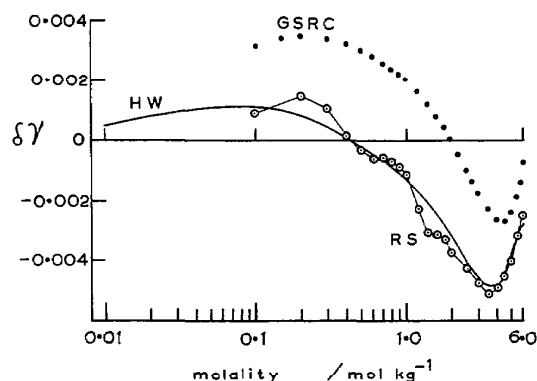


FIG. 4. Deviations $\delta\gamma$ of activity coefficient tabulations from our regression model at 25 °C; deviations (i) of Robinson (Refs. 1 and 3) are shown by the open circles denoted RS, (ii) of Hamer and Wu (Ref. 6) by the solid curve denoted HW, and (iii) of Gibbard *et al.* (Ref. 7) by the filled circles denoted GSRC.

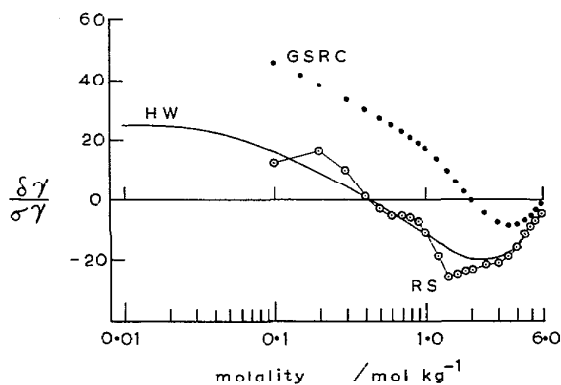


FIG. 5. Relative deviations $\delta\gamma/\sigma\gamma$ of the activity coefficient tabulations from our model divided by the standard error at 25 °C: relative deviations (i) of Robinson (Refs. 1 and 3) are shown by the open circles denoted RS, (ii) of Hamer and Wu (Ref. 6) by the solid curve denoted HW, and (iii) of Gibbard *et al.* (Ref. 7) by the filled circles denoted GSRC.

Activity coefficients from the equation of Hamer and Wu⁶ are correspondingly too small by -0.0048 and -0.0047 at 3.5 and 4.0*m*, respectively.

Shown in Fig. 2, the osmotic coefficients of Gibbard *et al.*⁷ at 25 °C exhibit significant positive deviations from our model between 0.1 and 0.3*m*, and significant negative deviations between 0.9 and 4.0*m*, with maximum deviation of -0.0039 at 3.5*m*. The corresponding activity coefficients, shown in Fig. 4, give large significant positive deviations between 0.1 and 1.2*m*, with maximum deviation 0.0035 at 0.2*m*, and negative deviations above 2.0*m*, with maximum negative deviation -0.0028 at 4.5*m*. The relative deviations, shown in Figs. 3 and 5, vary sharply from $+32$ to -20 standard errors between 0.1 and 2.0*m* for the osmotic coefficient, and from $+45$ to -9 standard errors between 0.1 and 4.0*m* for the activity coefficient. These results force us to conclude that (i) the osmotic coefficients of Gibbard *et al.*⁷ at 25 °C are too large by about 0.0010 between 0.1 and 0.3*m* and are too small by up to -0.0039 between 0.9 and 4.5*m* and (ii) their activity coefficients⁷ at 25 °C are too large

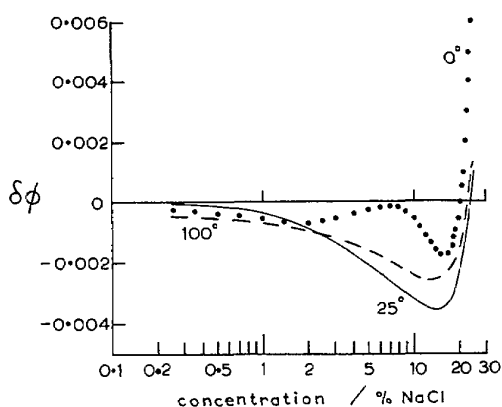


FIG. 6. Deviations $\delta\phi$ of the osmotic coefficients of Pitzer *et al.* (Ref. 12) from our regression model at 0, 25, and 100 °C.

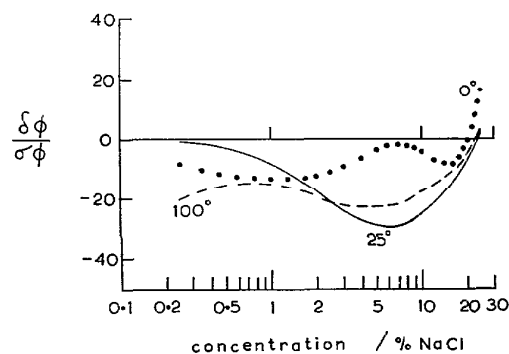


FIG. 7. Relative deviations $\delta\phi/\sigma\phi$ of the osmotic coefficients of Pitzer *et al.* (Ref. 12) from our model divided by the standard error at 0, 25, and 100 °C.

by up to 0.0035 between 0.1 and 1.4*m* and are in possible agreement with our model above 1.6*m*.

The absolute and relative deviations of the osmotic coefficients of Pitzer *et al.*¹² at 0, 25, and 100 °C are shown in Figs. 6 and 7. The deviations are mainly and significantly negative over most of the composition and temperature range, become small and positive above 5.1*m* (23%) at 25 and 100 °C, and are positive and significant only above 5.1*m* at 0 °C. At 25 °C the negative deviations are greater than -0.0020 between 0.9 and 4.5*m* (5% and 21%) and exhibit a maximum of -0.0036 at 2.8*m* (14%). Corresponding relative deviations are greater than -10 standard errors between 0.3 and 4.0*m* (1.5% and 19%) with a maximum of -29 standard errors at 1.3*m* (7% NaCl).

The deviations at 25 °C are closely similar to those of Robinson¹ and of Hamer and Wu,⁶ shown in Figs. 2 and 3. The similarity probably arises from their common data base¹ because Pitzer *et al.* at low temperature used the vapor pressures³⁴ used by Robinson and the isopiestic measurements^{55,56} directly traceable to Robinson.

The deviation curves at intermediate temperatures between 25 and 100 °C are quantitatively similar to those shown and indicate that the temperature dependence of the osmotic coefficients of Pitzer *et al.*¹² is in approximate agreement with our model between 25 and 100 °C. The deviation curves at 0 °C are atypical of those between 25 and 100 °C and demonstrate more substantial differences between the temperature coefficients of Pitzer *et al.* and those from our model at lower temperatures between 25 and 0 °C.

Most recently, after this work had been submitted for publication, Pitzer, Peiper, and Busey¹³⁶ have given a new model for NaCl(aq) by fitting the evaluated osmotic coefficients of Robinson^{1,3} at 25 °C, the evaluated heats of dilution of Parker,⁴ together with the measurements of other authors. The new osmotic coefficient values of Pitzer *et al.*¹³⁶ deviate from our regression model at 25, 50, and 100 °C in a manner similar to their earlier work,¹² shown in Figs. 6 and 7, with similar negative deviations at 25 °C of -0.0035 and -0.0037 (-17 and -14 standard errors) at 3.0 and 4.0*m*, respectively. These significant negative deviations¹³⁶ at 25 °C directly reflect the deviations of the original Robinson evaluation.^{1,3} At 0 °C, the new osmotic coefficient values of

Pitzer *et al.*¹³⁶ deviate more significantly from our regression model than their earlier work¹² and than the new values¹³⁶ at 25 °C. At 0 °C, these osmotic coefficient deviations are -0.0055 and $+0.0121$ (-28 and $+24$ standard errors) at 3.0 and 6.0*m*, respectively. The osmotic coefficient value¹³⁶ at 3.0*m* is in significant disagreement with freezing point measurements,^{19–23} the value¹³⁶ at 6.0*m* through the Gibbs–Duhem is in significant indirect disagreement with solubility data.^{69–71} In addition, at 0 °C, the activity coefficient value of Pitzer *et al.*¹³⁶ [from their Eq. (9)] for saturated NaCl(aq) deviates from our regression model by 0.0101 (17 standard errors), in significant disagreement with solubility data.^{69–71} Pitzer, Peiper, and Busey have discussed the lack of fit of their model with solubility data at 0 °C and the model's inability to fit various very rapidly varying NaCl(aq) properties near 0 °C.

We have made extensive computational investigations into the reason why our regression model always shows conclusively that the tabulated osmotic coefficients^{1,3,6,7,12,136} at 25 °C are systematically low by more than -0.0020 between 1.2 and 3.8*m*, and are significantly low by more than -10 standard errors between 0.4 and 3.6*m*. The reason for this discrepancy is that no earlier analysis has correctly included (weighted) the measurements of the freezing^{18–24} and boiling^{26–28,123,124} points relative to those of the vapor pressures^{29–45} and electrochemical cells.^{60–68}

The data available to Robinson¹ were insufficiently complete. Hamer and Wu⁶ indicated they fitted the tables of Robinson and Stokes.^{1,3} The model of Gibbard *et al.*⁷ included all osmotic coefficients at unit weight and thus greatly underestimated the effect of the more accurate freezing point^{19,21,22} and boiling point^{26,27} measurements. The model of Pitzer *et al.*¹² included no freezing point measurements and was based on the low-temperature osmotic coefficients of Platford,⁵⁶ Childs and Platford,⁵⁵ Olynyk and Gordon,³⁴ and of Gibbard *et al.*⁷ which data sets, respectively, exhibit negative biases relative to our model of -0.0041 , -0.0039 , -0.0041 , and -0.0049 (data⁷ at 25 °C). The most recent model by Pitzer, Peiper, and Busey¹³⁶ was heavily based on the evaluated osmotic coefficients of Robinson and Stokes.^{1,3}

These findings of our model agree well with the original alternative suggestion of Robinson¹ that the cell measurements of Harned *et al.*^{53,54,60,61} were substantially correct at higher molalities and that Robinson's osmotic coefficients were too low, not as suggested¹ by -0.0060 above 2.5*m*, but by -0.0036 between 1.0 and 4.0*m*.

After completion of our regression analysis, with its compelling demonstration that earlier osmotic coefficients at 25 °C were significantly too small, we wished to further reconfirm our findings and experimentally demonstrate the effect of the freezing and boiling point data on the regression model. In these tests we evaluated the weighted least-squares regression models for abridged input data sets which included all other measurements but excluded (i) the 147 freezing point measurements,^{18–24} (ii) the 158 boiling point measurements,^{26–28,123,124} and (iii) both (i) and (ii). The osmotic coefficients at 25 °C evaluated from these abridged models each exhibited similar negative deviations relative to our final model with all 2428 input data included. Smallest negative

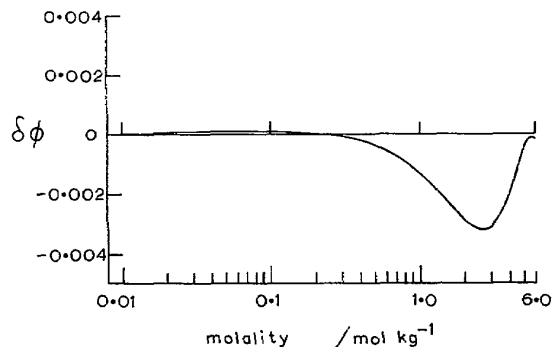


FIG. 8. The deviation $\delta\phi$ of osmotic coefficients at 25 °C for the regression model of an abridged data set, excluding freezing and boiling point measurements, relative to our final model of the complete data set.

deviations resulted from (ii) exclusion of the boiling points only; larger negative deviations resulted from (i) exclusion of the freezing points only; and the largest negative deviations (shown in Fig. 8) resulted from (iii) exclusion of both the freezing and the boiling points. The remarkable similarity in respect to shape, position, and magnitude of the deviation curves in Fig. 8 with the comparable curve in Figs. 2 and 6 illustrates quantitatively and confirms our contention that earlier data analyses^{1,3,6–12,136} have not adequately weighted the freezing and boiling point data.

4.3. Apparent Molal Relative Enthalpy and Heat of Dilution Data

By fortunate hap, one of our earlier and less complete regression models proved that an extended Pitzer-type model with five enthalpy parameters (Q_1 , B_1 , C_1 , D_1 , E_1) could accurately mimic precise values of L_ϕ over the whole composition range. For all compositions at 25 °C that model gave values of L_ϕ and L_2 which were in remarkable but coincidental agreement with all of those values critically evaluated by Parker.⁴ The L_ϕ values of Parker gave deviations from the model which showed seven changes of sign, with mean deviation 2.1 J mol⁻¹ and root-mean-squared deviation 3.7 J mol⁻¹; the L_2 values gave deviations which showed ten changes of sign, with mean deviation 2.2 J mol⁻¹ and root-mean-squared deviation 11 J mol⁻¹. This level of agreement is well within the combined limits of error and provides independent support for the essential correctness of the Parker L_ϕ values at 25 °C, since many of the measurements included in and defining that earlier model were unavailable to Parker. Deviations of the Parker L_ϕ values from our final model are slightly larger and negative, and are discussed elsewhere.

We also needed to test the ability of our model, with five enthalpy parameters, to fit isothermal heat of dilution measurements compared with other models using power series in $m^{1/2}$.^{79,83,84} A good test was provided by the extensive and accurate heat of dilution measurements and equations recently published by Mayrath and Wood.⁸⁴ We find that, providing we use the same value for the Debye–Hückel limiting slope as the authors,⁸⁴ our Pitzer-type model can accurately fit the L_ϕ values from their five-parameter equations

TABLE 12. Deviations of L_ϕ tabulations from regression model

Temperature (°C)	Ensor and Anderson ^a		Messikomer and Wood ^b		Mayrath and Wood ^c	
	Mean	RMS	Mean	RMS	Mean	RMS
25			-4	8	-8	9
40	-20	25				
50	9	34	32	36	20	29
60	-19	20				
70	-90	97				
75			-10	16	43	43
80	-64	90				
100			-22	68	35	35
150					-21	22
Full range	-37	63	-1	40	14	30

^a Reference 79.^b Reference 83.^c Reference 84.

between 0.1 and 6.0*m* with five changes of sign of the deviations and with root-mean-squared deviations of 1.3, 1.8, and 1.0 J mol⁻¹ at 75, 100, and 150.5 °C, respectively. Since these deviations are small, systematic, and uniform, and are about an order of magnitude smaller than the accuracy of the original equations and their supporting measurements, we find that our Pitzer-type model with five parameters can provide an equally valid alternate fit of these heat of dilution data.⁸⁴

Additional tests confirm that our model can also properly fit all tabulated L_ϕ values of Messikomer and Wood⁸³ at 25, 50, and 75 °C and of Ensor and Anderson⁷⁹ at 40, 50, and 60 °C, respectively, with 11, 7, 13, 11, 5, and 5 changes of sign of the deviations, and with root-mean-squared deviations of 4.1, 4.2, 2.5, 3.4, 4.4, and 3.2 J mol⁻¹.

Our final regression model fits the measurements of Mayrath and Wood⁸⁴ from 75 to 150.5 °C with a standard error of 4.3 J mol⁻¹ for a single measurement of unit weight; this error estimate compares favorably with those of 9, 5, and 13 J mol⁻¹ given by the authors⁸⁴ for the standard error of a single point in their fits at 348.15, 373.15, and 423.65 K, respectively. The measurements of Messikomer and Wood⁸³ are fitted from 25 to 75 °C with a standard error of 5.9 J mol⁻¹, and those at 100 °C with an increased standard error of 12 J mol⁻¹. The measurements of Ensor and Anderson⁷⁹ are fitted at 40, 50, 60, 70, and 80 °C with standard errors of 11, 15, 15, 23, and 51 J mol⁻¹, respectively.

We made many analyses of variance comparisons of the deviations between the tabulated L_ϕ values of Ensor and Anderson, of Messikomer and Wood, and of Mayrath and Wood between themselves and of their deviations from our model. The L_ϕ values of our model lie properly between the tabulations,^{79,83,84} and exhibit smaller variances from the tabulations than those between the tabulations. In Table 12, we show the mean deviation and root-mean-squared deviation of the tabulated^{79,83,84} L_ϕ values from our model at the experimental temperatures from 0.1 to 5.0*m*,⁸³ and to 6.0*m*.^{79,84} The L_ϕ values of Ensor and Anderson show mainly negative deviations which become larger at 70 and 80 °C.

The L_ϕ values of Messikomer and Wood show large deviations only at 100 °C, where experimental difficulties were experienced.^{83,84} The L_ϕ values of Mayrath and Wood show mainly positive deviations, none large. The deviations in Table 12 are not random but systematic and reflect biases due to use of different values for the Debye-Hückel limiting slope, use and extrapolation of different models to infinite dilution, and use of different techniques to measure heats of dilution.

Our final model estimates of L_ϕ and L_2 at 25 °C are in reasonable agreement with those compiled by Parker,⁴ recognizing the very different data bases⁷⁷⁻⁸⁴ and the entirely different methods of evaluation. The 46 L_ϕ values of Parker at 25 °C between 0.0001 and 6.0*m* deviate from our model with three changes of sign, with mean deviation -4.9 J mol⁻¹, and root-mean-squared deviation 6.8 J mol⁻¹. The deviations shown in Fig. 9 are small below 0.1*m*, are almost constant about -5 J mol⁻¹ between 0.1 and 3.0*m*, and increase from -10 to -15 J mol⁻¹ between 3.5 and 6.0*m*. The 38 L_ϕ values between 0.018 and 6.0*m* show uniformly

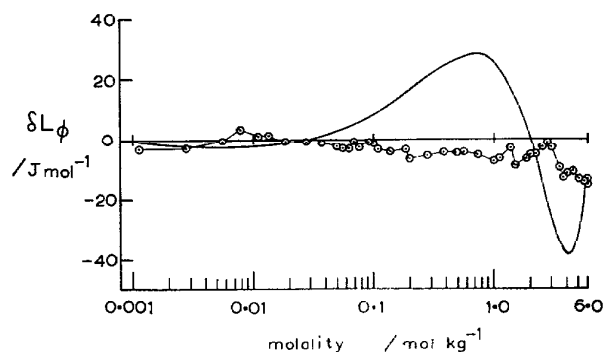


FIG. 9. Deviations δL_ϕ of apparent molal relative enthalpy tabulations from the regression model at 25 °C; deviations of Parker (Ref. 4) are shown by the open circles, of Smith, Cone, and Van Hook (Ref. 126) by the solid curve.

negative deviations from our model of about -6 standard errors. The 29 L_2 values of Parker at 25 °C between 0.0005 and 5.8m deviate from our model with eight changes of sign, with mean deviation -6.0 J mol^{-1} , and root-mean-squared deviation 11 J mol^{-1} .

The equation proposed by Smith, Cone, and Van Hook¹²⁶ gives values of L_ϕ at 25 °C which deviate systematically and significantly from our model with large positive deviations between 0.028 and 2.0m and with large negative deviations above 2.1m; the extremum deviations are 28 J mol^{-1} (26 standard errors) at 0.74m and -37 J mol^{-1} (-22 standard errors) at 4.6m. The proposed equation¹²⁶ is unreliable since 26 of its estimates of L_ϕ between 0.005 and 5.8m exhibit a root-mean-squared deviation from our model of 22 standard errors.

4.4. Heat of Solution Data

Our regression model provides a consensus of all⁸⁵⁻⁹⁷ calorimetric heat of solution measurements included within it, and gives 3858.4 and 1.4 J mol^{-1} for the best unbiased estimate and standard error of $(\Delta H_s^\circ)_\theta$, the standard enthalpy of dissolution of sodium chloride in water at 25 °C.

Table 13 presents individual estimates and standard errors derived from the respective data set biases and weights from the model. The values are in good agreement with those given by Parker⁴ and indicate agreement of the dilution enthalpies. The standard error estimates reflect the agreement of the data set measurements between themselves and with the whole regression model. The model shows that the earlier⁴ best value of 3883 J mol^{-1} for ΔH_s° at 25 °C is significantly too high by 18 standard errors, and that value^{12,92} of 3820 J mol^{-1} is significantly too low by -28 standard errors.

Table 14 presents the best unbiased estimates from the model of ΔH_s° and its standard error from 0 to 100 °C. The estimates of the standard error remain relatively small at 0 and 100 °C because of the good agreement within the model between the heat of dilution and the heat capacity measure-

TABLE 13. Standard enthalpy of solution at 25 °C: Estimates from individual data sets

Data set	$\Delta H_s^\circ(25 \text{ °C})/\text{J mol}^{-1}$			
	This work		Parker ^a	
L, J + M	3855	2	3862 3858	21 33
D + B	3862	3		
B	3873	6		
B + B	3877	6	3883	13
W + L	3878	11	3895	41
R + B	3888	19	3887	21
D + T	3830	22		
TO + L	3895	24		
C + VH(IH)	3832	28		
C + VH(DH)	3828	31		
C + C	3820	33	3824	42
Best value	3858	1.4	3883	21

^a Reference 4.

TABLE 14. Standard enthalpy of solution: Deviation of literature values

t /°C	ΔH_s° /J mol ⁻¹	se	$\delta\Delta H_s^\circ/\text{J mol}^{-1}$	
			Criss and Cobble ^b	Pitzer <i>et al.</i> ^c
0	8210.4	8.3	-267	-235
5	7121.5	5.1	-180	
10	6166.5	3.1	-166	-154
15	5318.8	2.0	-110	
20	4555.8	1.5	-105	-67
25	3858.4	1.4	-38	-40
30	3210.7	1.4		-25
35	2599.8	1.5	-34	
40	2015.2	1.7		-20
45	1448.2	1.9	-14	
50	892.4	2.2		-35
55	342.5	2.5	-17	
60	-205.6	2.8		-62
65	-754.7	3.1	-120	
70	-1307.3	3.5		-100
75	-1865.3	3.8	-181	
80	-2430.4	4.0		-152
85	-3004.2	4.0	-176	
90	-3588.3	4.0		-219
95	-4184.8	4.1	-337	
100	-4796.0	4.8		-300

^a $\delta\Delta H_s^\circ = \Delta H_s^\circ(\text{literature}) - \Delta H_s^\circ(\text{this work})$

^b Reference 92.

^c Reference 12.

ments. Columns four and five show the deviations of literature values of ΔH_s° from our regression model.

In column four, the deviations of the values of Criss and Cobble⁹² are all negative, vary systematically with temperature, are large near 0 °C, decrease to a minimum at 45 °C, thence increase in magnitude to a maximum at 95 °C. Over the whole temperature range the mean deviation is -134 J mol^{-1} (-40 standard errors) and the root-mean-squared deviation is 164 J mol^{-1} (45 standard errors). Because of these large and very significant deviations from the consensus of many other reliable calorimetric studies,^{73-91,93-113,121,122,125} it is concluded that the measurements of Criss and Cobble⁹² contain some systematic error.

In column five of Table 14, the deviations of the model of Pitzer, Bradley, Rogers, and Peiper¹² are entirely similar to those of column four, and vary systematically from 0 to 100 °C with a mean deviation of -118 J mol^{-1} (-34 standard errors) and root-mean-squared deviation of 148 J mol^{-1} (37 standard errors). Similarity of the deviations in columns five and four reflects their common origin, because Pitzer *et al.*,¹² between 0 and 100 °C, included only the heat of solution measurements of Criss and Cobble.⁹² The most recent model by Pitzer, Peiper, and Busey¹³⁶ was heavily based on the evaluated enthalpy data of Parker,⁴ already discussed.

4.5. Heat Capacity Data

In Table 15 are shown the best unbiased estimates from our model of the partial molal heat capacity of aqueous sodium chloride at infinite dilution $C_{p,2}^\circ$, together with its stan-

TABLE 15. Standard heat capacity: Deviation of literature values

t /°C	$C_{p,2}^{\circ}$		$\delta C_{p,2}^{\circ}/\text{J mol}^{-1} \text{K}^{-1}$					
	$C_{p,2}^{\circ}$ /J mol ⁻¹ K ⁻¹	se	Criss and Cobble ^b	Parker ^c	Tanner and Lamb ^d	Desnoyers <i>et al.</i> ^e	Allred and Woolley ^f	Pitzer <i>et al.</i> ^g
0	-183.80	0.89	14.4					-2.2
1.5	-174.27	0.78				-2.3		
5	-153.92	0.58			-5.0	-1.4		
10	-129.79	0.36	8.5				1.2	7.9
15	-110.58	0.23		5.1		0.3		
20	-95.53	0.16	8.1	-2.0				3.6
25	-83.95	0.12	4.8	-6.0	-4.3	-0.5	0.2	1.0
30	-75.25	0.10	3.2	-8.9				-1.1
35	-68.89	0.09				-0.3		
40	-64.43	0.10	0.4				-0.8	-4.1
45	-61.48	0.11			-3.4	-2.2		
50	-59.70	0.12	-1.4					-5.7
55	-58.83	0.13						
60	-58.65	0.14	-5.0					-7.0
65	-59.02	0.14			-0.8			
70	-59.80	0.13	-6.3					-8.3
75	-60.94	0.12						
80	-62.41	0.12	-6.6					-10.1
85	-64.20	0.15			-0.3			
90	-66.35	0.22	-5.7					-11.9
100	-72.06	0.44	-3.2					-13.3

^a $\delta C_{p,2}^{\circ} = C_{p,2}^{\circ} \text{ literature} - C_{p,2}^{\circ} \text{ this work}$.

^b Reference 92.

^c Reference 4.

^d Reference 112.

^e Reference 110.

^f Reference 125.

^g Reference 12.

standard error between 0 and 100 °C. The small values of the standard error given by the model reflect both the wealth of modern heat capacity measurements^{98-113,125} between 1.5 and 140 °C and the strongly linked effect of their substantial agreement with the many accurate heat of dilution measurements⁷³⁻⁸⁴ between 0.2 and 150.5 °C. Columns four to nine list the deviations of the literature values^{4,12,92,110,112,125} of $C_{p,2}^{\circ}$ from our regression model.

The deviations in column four of the table, derived from heat of solution values,⁹² vary significantly and systematically with temperature, are large and positive between 0 and 30 °C (52 standard errors at 20 °C), decrease to zero near 45 °C, and become large and negative between 50 and 100 °C (-56 standard errors at 80 °C). These deviations of $C_{p,2}^{\circ}$ from the model are so large and so significant, with root-mean-squared deviation of 6.6 J mol⁻¹ K⁻¹ (34 standard errors), that we are forced to conclude that the original $C_{p,2}^{\circ}$ values⁹² contain some systematic error.

The large deviations from -8.9 to 5.1 J mol⁻¹ K⁻¹ in columns five⁴ and six¹¹² reflect the lack of accuracy of the older measurements of $C_{p,\phi}$ at low molalities using batch-calorimeters, together with the large uncertainty of long extrapolations from high molalities to infinite dilution. The considerably smaller deviations from -2.3 to 1.2 J mol⁻¹ K⁻¹ in columns seven¹¹⁰ and eight¹²⁵ indicate the better precision of modern flow microcalorimetry at low molalities and the more certain extrapolations to infinite dilution.

Column nine of Table 15 shows the deviations of those $C_{p,2}^{\circ}$ values calculated by Pitzer *et al.*¹² The relative devia-

tions are significant and positive of 22 and 23 standard errors at 10 and 20 °C, are negative and just significant of -11 standard errors at 30 °C, increase to an extremum of -85 standard errors at 80 °C, and thence decrease to -30 standard errors at 100 °C. Over the temperature range 0 to 100 °C the root-mean-squared deviation of those¹² $C_{p,2}^{\circ}$ values from the model is 7.5 J mol⁻¹ K⁻¹, corresponding to 44 standard errors.

The $C_{p,\phi}$ values of Parker⁴ at 25 °C agree with the model only at high molality between 6.0 and 1.0*m*, show increasing negative deviations between 1.0 and 0.1*m*, and show an almost constant deviation of -6 J mol⁻¹ K⁻¹ (about -50 standard errors) below 0.1*m*. The consensus of the modern flow-calorimeter measurements^{103,105,106,109,110,125} make it probable that the $C_{p,\phi}$ values of Parker at 25 °C are incorrect below 0.1*m*. Corresponding deviations of the $C_{p,\phi}$ values⁴ at 15 °C are consistently positive and 4 to 9 J mol⁻¹ K⁻¹ (21 to 80 standard errors), and at 30 °C are consistently negative and -1 to -11 J mol⁻¹ K⁻¹ (-10 to -110 standard errors). Since the model fits the measurements^{106,125} at 15 and 35 °C to better than 0.2 J mol⁻¹ K⁻¹, the tabulated values⁴ of $C_{p,\phi}$ at 15 and 30 °C are almost certainly in error.

4.6. Standard Gibbs Energy of Solution

The regression model gives -9038.7 and 3.6 J mol⁻¹ for the best unbiased estimate and standard error of $(\Delta G_s^{\circ})_{\theta}$, the standard Gibbs energy change for crystalline sodium chloride dissolution in water at 25 °C. The large estimate of the standard error derives mainly from the uncertainty of the

activity coefficient since the solubility uncertainty is smaller by a factor of 3. Standard thermodynamic function changes for salt dissolution at other temperatures are given in Table 34.

4.7. NBS Tables of Chemical Thermodynamic Properties

The recently published¹³⁵ NBS tables of chemical thermodynamic properties for sodium chloride at 25 °C provide modern values for comparison with our model. The standard partial molal heat capacity¹³⁵ deviates from our model by $-6.0 \text{ J mol}^{-1} \text{ K}^{-1}$ (-50 standard errors). The standard changes of Gibbs energy, enthalpy, and entropy for sodium chloride dissolution¹³⁵ deviate from our model estimates in Table 34 by 44 J mol^{-1} (12 standard errors), 25 J mol^{-1} (18 standard errors), and $0.113 \text{ J mol}^{-1} \text{ K}^{-1}$ (9 standard errors), respectively. The deviations exhibited by the standard partial molal heat capacity, the standard enthalpy change for dissolution and by the enthalpies of dilution are identical with those of Parker,⁴ already discussed. For the process of sodium chloride dissolution, the deviation of the standard Gibbs energy change¹³⁵ relative to our model arises mainly from the deviation of the standard enthalpy change⁴ together with a large deviation from the difference of the saturation activity coefficient, for which the value of Hamer and Wu⁶ is too small. Numerically the 44 J mol^{-1} deviation of the standard Gibbs energy change¹³⁵ is comprised of (i) a 25 J mol^{-1} deviation of the standard enthalpy change,⁴ (ii) a 16 J mol^{-1} deviation from the different activity coefficient⁶ at saturation, and (iii) a 3 J mol^{-1} deviation from the different saturation solubility.⁶

5. Thermodynamic Property Estimates from the Regression Model

5.1. Auxiliary Properties of Water

The boiling point and the vapor pressure of the solution, given in Tables 18 and 21, respectively, were calculated from the osmotic coefficient, the nonideality of water vapor,¹¹⁵ and the vapor pressure of pure water. The vapor pressure of water at temperatures up to 100 °C was calculated from Eq. (15) of Wexler.¹²⁹ Above 100 °C the water vapor pressure was calculated from the equation of Osborne and Meyers¹³⁰ using parameters from Bain.¹³¹ Before substitution into this equation, temperatures were converted to IPTS-48.

The specific heat of the solution and the partial molal heat capacity of water, given in Tables 26 and 28, respectively, were calculated from the model in conjunction with values for the heat capacity of pure water. The heat capacity of water for temperatures up to 100 °C was derived from the values of de Haas, quoted by Stimson.¹³² Temperatures were converted to IPTS-68 and the heat capacity values were also adjusted for the change of temperature scale. The resulting specific heat values were fitted by a polynomial in relative temperature variable $d = (t_{\text{IPTS-68}} - 25)$ to give the equation

$$\begin{aligned} c_p(\text{J kg}^{-1} \text{ K}^{-1}) &= 4180.133 - 3.663\,385 \text{ E} - 01 d + 2.303\,039 \text{ E} - 02 d^2 \\ &\quad - 5.446\,535 \text{ E} - 04 d^3 + 1.255\,068 \text{ E} - 05 d^4 \\ &\quad - 1.942\,578 \text{ E} - 07 d^5 + 1.793\,303 \text{ E} - 09 d^6 \\ &\quad - 7.007\,329 \text{ E} - 12 d^7 \end{aligned} \quad (56)$$

for the specific heat of water up to 100 °C.

For temperatures above 100 °C, the heat capacity of water was derived from enthalpy values between 100 and 200 °C of Osborne, Stimson, and Ginnings,¹³³ and enthalpy values at 70, 80, and 90 °C of Osborne, Stimson, and Fiock.¹³⁴ The enthalpy values were converted from international to absolute joules and the temperatures were converted to IPTS-68. The resulting enthalpies were fitted by a polynomial in d , defined above, and the resulting enthalpy equation was differentiated with respect to temperature to give

$$\begin{aligned} c_p(\text{J kg}^{-1} \text{ K}^{-1}) &= 4170.251 + 1.595\,764 \text{ E} - 01 d \\ &\quad + 2.824\,609 \text{ E} - 03 d^2 \\ &\quad + 4.133\,199 \text{ E} - 05 d^3 \end{aligned} \quad (57)$$

for the specific heat of water at saturation pressure above 100 °C.

5.2. Property Estimates for Sodium Chloride Brines

Model estimates and their standard errors for some commonly used thermodynamic properties of brine are presented in Tables 16 to 32. Part A of these tables defines the solution composition in molality units (mol NaCl/kg H₂O), part B in wt. % NaCl. The number of digits retained corresponds with up to two significant digits on the standard error. The standard error reflects only the uncertainty propagated from the deviations of the brine measurements from the model. The corresponding thermodynamic properties of the pure components water and sodium chloride are taken as known and error free.

Tables 16 A and 16 B give the freezing point and its standard error for sodium chloride solutions saturated with air at atmospheric pressure: the freezing point of salt-free water under the same conditions is taken as 0.000 °C. Freezing temperatures are increased by 0.010 °C in the absence of dissolved gas at water saturation pressure.

Tables 17 A and 17 B give the solubility of sodium chloride and its standard error for air-saturated solutions at atmospheric pressure between 0 and 109 °C.

Tables 18 A and 18 B give the boiling point and its standard error for sodium chloride solutions at water saturation pressures between 80 and 120 kPa. The maximum boiling temperature and composition of the salt-saturated brines are given and denoted SAT.

Tables 19–32 present model estimates and standard errors for thermodynamic properties of sodium chloride solutions under conditions of low pressure (water saturation pressure to 101.325 kPa) over the temperature range 0–110 °C. The table number, the thermodynamic property, and symbol used in the text are listed as follows:

Table	Thermodynamic property, text symbol	31	partial molal relative heat capacity of water, J_1
		32	partial molal relative heat capacity of sodium chloride, J_2 .
19	practical osmotic coefficient, ϕ		
20	ionic mean molal activity coefficient, γ		
21	water saturation vapor pressure of brine, p_1		
22	apparent molal relative enthalpy of sodium chloride, L_ϕ		
23	partial molal relative enthalpy of water, L_1		
24	partial molal relative enthalpy of sodium chloride, L_2		
25	integral heat of solution of sodium chloride, ΔH_s		
26	specific heat of brine (per kg solution)		
27	apparent molal heat capacity of sodium chloride, $C_{p,\phi}$		
28	partial molal heat capacity of water, $C_{p,1}$		
29	partial molal heat capacity of sodium chloride, $C_{p,2}$		
30	apparent molal relative heat capacity of sodium chloride, $C_{p,\phi} - C_{p,2}^\circ$		

The integral heat of dilution of sodium chloride brine to infinite dilution, $\Delta H_d(m \rightarrow 0)$, has the opposite sign but the same magnitude as the apparent molal relative enthalpy given in Table 22.

The deviations with temperature of the standard thermodynamic functions for aqueous sodium chloride from their values at reference temperature 25 °C [$G_2^\circ - (G_2^\circ)_\theta$, $H_2^\circ - (H_2^\circ)_\theta$, $C_{p,2}^\circ - (C_{p,2}^\circ)_\theta$, and $S_2^\circ - (S_2^\circ)_\theta$] are presented in Table 33.

The standard thermodynamic function changes for dissolution of crystalline sodium chloride in water [$G_2^\circ - G_c$, $H_2^\circ - H_c$, $C_{p,2}^\circ - C_{p,c}^\circ$ and $S_2^\circ - S_c$] and their errors at temperatures up to 110 °C are given in Table 34.

TABLE 16 A FREEZING POINT OF SODIUM CHLORIDE SOLUTION

MOLALITY	F.P. DEG C	STD. ERROR
0.001000	-0.003676	0.000000
0.002000	-0.007320	0.000000
0.005000	-0.018156	0.000000
0.010000	-0.036019	0.000000
0.020000	-0.071316	0.000001
0.050000	-0.175459	0.000005
0.100000	-0.346324	0.000015
0.200000	-0.684023	0.000036
0.300000	-1.019652	0.000057
0.400000	-1.354688	0.000078
0.500000	-1.68986	0.00010
0.600000	-2.02563	0.00013
0.700000	-2.36239	0.00017
0.800000	-2.70043	0.00021
0.900000	-3.04005	0.00025
1.000000	-3.38148	0.00030
1.200000	-4.07075	0.00040
1.400000	-4.76995	0.00051
1.500000	-5.12376	0.00058
1.600000	-5.48060	0.00066
1.800000	-6.20406	0.00084
2.000000	-6.9415	0.0011
2.200000	-7.6942	0.0013
2.400000	-8.4629	0.0015
2.500000	-8.8536	0.0017
2.600000	-9.2487	0.0018
2.800000	-10.0523	0.0021
3.000000	-10.8746	0.0024
3.200000	-11.7161	0.0027
3.400000	-12.5777	0.0031
3.500000	-13.0162	0.0033
3.600000	-13.4600	0.0036
3.800000	-14.3635	0.0042
4.000000	-15.2890	0.0049
4.200000	-16.2371	0.0058
4.400000	-17.2094	0.0069
4.500000	-17.7030	0.0074
4.600000	-18.2037	0.0081
4.800000	-19.2239	0.0095
5.000000	-20.270	0.011
5.200000	< -21.0	

TABLE 16 B FREEZING POINT OF SODIUM CHLORIDE SOLUTION

WEIGHT %	F.P. DEG C	STD. ERROR
0.100000	-0.061223	0.000001
0.200000	-0.121163	0.000003
0.300000	-0.180577	0.000005
0.400000	-0.239696	0.000009
0.500000	-0.298640	0.000012
0.600000	-0.357479	0.000016
0.700000	-0.416264	0.000019
0.800000	-0.475028	0.000023
0.900000	-0.533798	0.000027
1.000000	-0.592594	0.000031
1.200000	-0.710326	0.000038
1.400000	-0.828320	0.000045
1.600000	-0.946648	0.000052
1.800000	-1.065362	0.000060
2.000000	-1.184507	0.000067
2.500000	-1.484478	0.000087
3.000000	-1.78782	0.00011
3.500000	-2.09490	0.00014
4.000000	-2.40608	0.00018
4.500000	-2.72166	0.00021
5.000000	-3.04197	0.00025
6.000000	-3.69802	0.00034
7.000000	-4.37676	0.00044
8.000000	-5.08076	0.00057
9.000000	-5.81271	0.00074
10.000000	-6.57538	0.00095
11.000000	-7.3717	0.0012
12.000000	-8.2046	0.0015
13.000000	-9.0774	0.0017
14.000000	-9.9933	0.0020
15.000000	-10.9559	0.0024
16.000000	-11.9690	0.0028
17.000000	-13.0366	0.0033
18.000000	-14.1630	0.0040
19.000000	-15.3529	0.0050
20.000000	-16.6116	0.0062
21.000000	-17.9448	0.0077
22.000000	-19.3589	0.0097
23.000000	-20.862	0.012
24.000000	< -21.0	

TABLE 17 B SOLUBILITY OF SODIUM CHLORIDE IN WATER

TEMP. DEG C	SOLUBILITY % NaCl	S.E.	TEMP. DEG C	SOLUBILITY % NaCl	S.E.
0.000	26.2680	0.0110	55.000	26.9314	0.0088
1.000	26.2691	0.0106	56.000	26.9524	0.0089
2.000	26.2707	0.0103	57.000	26.9738	0.0090
3.000	26.2728	0.0100	58.000	26.9953	0.0091
4.000	26.2754	0.0097	59.000	27.0171	0.0093
5.000	26.2784	0.0096	60.000	27.0392	0.0094
6.000	26.2819	0.0094	61.000	27.0615	0.0096
7.000	26.2858	0.0093	62.000	27.0840	0.0097
8.000	26.2903	0.0092	63.000	27.1067	0.0099
9.000	26.2951	0.0091	64.000	27.1297	0.0101
10.000	26.3005	0.0091	65.000	27.1528	0.0103
11.000	26.3063	0.0090	66.000	27.1762	0.0105
12.000	26.3125	0.0090	67.000	27.1999	0.0107
13.000	26.3192	0.0090	68.000	27.2237	0.0110
14.000	26.3263	0.0089	69.000	27.2477	0.0112
15.000	26.3338	0.0089	70.000	27.2720	0.0114
16.000	26.3418	0.0089	71.000	27.2964	0.0117
17.000	26.3502	0.0089	72.000	27.3211	0.0120
18.000	26.3590	0.0089	73.000	27.3459	0.0122
19.000	26.3683	0.0089	74.000	27.3709	0.0125
20.000	26.3778	0.0088	75.000	27.3962	0.0128
21.000	26.3878	0.0088	76.000	27.4216	0.0131
22.000	26.3982	0.0088	77.000	27.4472	0.0134
23.000	26.4090	0.0088	78.000	27.4729	0.0137
24.000	26.4201	0.0088	79.000	27.4989	0.0140
25.000	26.4317	0.0087	80.000	27.5250	0.0143
26.000	26.4436	0.0087	81.000	27.5513	0.0146
27.000	26.4559	0.0087	82.000	27.5778	0.0150
28.000	26.4686	0.0087	83.000	27.6044	0.0153
29.000	26.4816	0.0086	84.000	27.6312	0.0157
30.000	26.4950	0.0086	85.000	27.6581	0.0160
31.000	26.5087	0.0086	86.000	27.6852	0.0164
32.000	26.5228	0.0085	87.000	27.7125	0.0167
33.000	26.5372	0.0085	88.000	27.7399	0.0171
34.000	26.5519	0.0085	89.000	27.7674	0.0175
35.000	26.5670	0.0084	90.000	27.7951	0.0179
36.000	26.5824	0.0084	91.000	27.8229	0.0183
37.000	26.5981	0.0084	92.000	27.8509	0.0187
38.000	26.6141	0.0084	93.000	27.8790	0.0191
39.000	26.6305	0.0083	94.000	27.9072	0.0195
40.000	26.6471	0.0083	95.000	27.9355	0.0199
41.000	26.6641	0.0083	96.000	27.9640	0.0204
42.000	26.6813	0.0083	97.000	27.9925	0.0208
43.000	26.6989	0.0083	98.000	28.0212	0.0213
44.000	26.7168	0.0083	99.000	28.0500	0.0217
45.000	26.7349	0.0083	100.000	28.0789	0.0222
46.000	26.7533	0.0083	101.000	28.1079	0.0227
47.000	26.7720	0.0083	102.000	28.1370	0.0233
48.000	26.7910	0.0083	103.000	28.1662	0.0238
49.000	26.8103	0.0084	104.000	28.1955	0.0243
50.000	26.8298	0.0084	105.000	28.2249	0.0249
51.000	26.8496	0.0085	106.000	28.2543	0.0255
52.000	26.8696	0.0085	107.000	28.2839	0.0261
53.000	26.8900	0.0086	108.000	28.3135	0.0267
54.000	26.9105	0.0087	109.000	28.3432	0.0274

TABLE 17 A SOLUBILITY OF SODIUM CHLORIDE IN WATER

TEMP. DEG C	SOLUBILITY MOL/KG	S.E.	TEMP. DEG C	SOLUBILITY MOL/KG	S.E.
0.000	6.0959	0.0019	55.000	6.3066	0.0015
1.000	6.0968	0.0018	56.000	6.3134	0.0015
2.000	6.0974	0.0017	57.000	6.3202	0.0015
3.000	6.0983	0.0017	58.000	6.3271	0.0016
4.000	6.0992	0.0016	59.000	6.3341	0.0016
5.000	6.1003	0.0016	60.000	6.3412	0.0016
6.000	6.1016	0.0016	61.000	6.3484	0.0016
7.000	6.1029	0.0016	62.000	6.3556	0.0017
8.000	6.1045	0.0016	63.000	6.3629	0.0017
9.000	6.1062	0.0016	64.000	6.3703	0.0017
10.000	6.1080	0.0015	65.000	6.3778	0.0018
11.000	6.1099	0.0015	66.000	6.3854	0.0018
12.000	6.1121	0.0015	67.000	6.3930	0.0018
13.000	6.1143	0.0015	68.000	6.4007	0.0019
14.000	6.1167	0.0015	69.000	6.4084	0.0019
15.000	6.1192	0.0015	70.000	6.4163	0.0020
16.000	6.1218	0.0015	71.000	6.4242	0.0020
17.000	6.1246	0.0015	72.000	6.4322	0.0020
18.000	6.1275	0.0015	73.000	6.4402	0.0021
19.000	6.1305	0.0015	74.000	6.4483	0.0021
20.000	6.1337	0.0015	75.000	6.4565	0.0022
21.000	6.1370	0.0015	76.000	6.4648	0.0022
22.000	6.1404	0.0015	77.000	6.4731	0.0023
23.000	6.1439	0.0015	78.000	6.4815	0.0023
24.000	6.1476	0.0015	79.000	6.4899	0.0024
25.000	6.1513	0.0015	80.000	6.4984	0.0025
26.000	6.1552	0.0015	81.000	6.5070	0.0025
27.000	6.1592	0.0015	82.000	6.5156	0.0026
28.000	6.1634	0.0015	83.000	6.5243	0.0026
29.000	6.1676	0.0015	84.000	6.5331	0.0027
30.000	6.1719	0.0015	85.000	6.5419	0.0027
31.000	6.1764	0.0015	86.000	6.5507	0.0028
32.000	6.1810	0.0015	87.000	6.5597	0.0029
33.000	6.1856	0.0014	88.000	6.5686	0.0029
34.000	6.1904	0.0014	89.000	6.5777	0.0030
35.000	6.1953	0.0014	90.000	6.5867	0.0031
36.000	6.2003	0.0014	91.000	6.5959	0.0031
37.000	6.2054	0.0014	92.000	6.6051	0.0032
38.000	6.2106	0.0014	93.000	6.6143	0.0033
39.000	6.2159	0.0014	94.000	6.6236	0.0033
40.000	6.2213	0.0014	95.000	6.6329	0.0034
41.000	6.2268	0.0014	96.000	6.6423	0.0035
42.000	6.2324	0.0014	97.000	6.6517	0.0036
43.000	6.2380	0.0014	98.000	6.6612	0.0036
44.000	6.2438	0.0014	99.000	6.6707	0.0037
45.000	6.2497	0.0014	100.000	6.6803	0.0038
46.000	6.2557	0.0014	101.000	6.6899	0.0039
47.000	6.2617	0.0014	102.000	6.6995	0.0040
48.000	6.2679	0.0014	103.000	6.7092	0.0041
49.000	6.2741	0.0014	104.000	6.7189	0.0042
50.000	6.2804	0.0014	105.000	6.7286	0.0043
51.000	6.2869	0.0014	106.000	6.7384	0.0044
52.000	6.2934	0.0015	107.000	6.7483	0.0045
53.000	6.2999	0.0015	108.000	6.7581	0.0046
54.000	6.3066	0.0015	109.000	6.7680	0.0047

TABLE 18 A BOILING POINT OF SODIUM CHLORIDE SOLUTION, (DEG C)

MOLALITY	P = 80.000 KPA		P = 90.000 KPA		P = 100.000 KPA		P = 110.000 KPA		P = 120.000 KPA	
	B.P.	S.E.	B.P.	S.E.	B.P.	S.E.	B.P.	S.E.	B.P.	S.E.
0.000	93.510	0.000	96.712	0.000	99.632	0.000	102.318	0.000	104.810	0.000
0.001	93.511	0.000	96.713	0.000	99.633	0.000	102.319	0.000	104.811	0.000
0.002	93.512	0.000	96.714	0.000	99.634	0.000	102.320	0.000	104.812	0.000
0.005	93.515	0.000	96.717	0.000	99.637	0.000	102.323	0.000	104.815	0.000
0.010	93.519	0.000	96.722	0.000	99.641	0.000	102.328	0.000	104.820	0.000
0.020	93.529	0.000	96.731	0.000	99.651	0.000	102.338	0.000	104.830	0.000
0.050	93.556	0.000	96.759	0.000	99.679	0.000	102.367	0.000	104.860	0.000
0.100	93.601	0.000	96.805	0.000	99.726	0.000	102.414	0.000	104.908	0.000
0.200	93.690	0.000	96.896	0.000	99.819	0.000	102.508	0.000	105.003	0.000
0.300	93.779	0.000	96.987	0.000	99.912	0.000	102.603	0.000	105.099	0.000
0.400	93.870	0.000	97.079	0.000	100.005	0.000	102.698	0.000	105.196	0.000
0.500	93.961	0.000	97.172	0.000	100.100	0.000	102.794	0.000	105.293	0.000
0.600	94.053	0.000	97.266	0.000	100.196	0.000	102.892	0.000	105.392	0.000
0.700	94.146	0.000	97.361	0.000	100.292	0.000	102.990	0.000	105.492	0.000
0.800	94.241	0.000	97.458	0.000	100.390	0.000	103.090	0.000	105.593	0.000
0.900	94.336	0.000	97.555	0.000	100.490	0.000	103.190	0.000	105.695	0.000
1.000	94.433	0.000	97.654	0.000	100.590	0.000	103.292	0.000	105.799	0.000
1.200	94.630	0.000	97.855	0.000	100.794	0.000	103.500	0.000	106.009	0.000
1.400	94.832	0.000	98.061	0.000	101.004	0.000	103.713	0.000	106.225	0.000
1.500	94.935	0.000	98.165	0.000	101.111	0.000	103.821	0.000	106.335	0.000
1.600	95.039	0.000	98.272	0.000	101.219	0.000	103.931	0.000	106.446	0.000
1.800	95.251	0.000	98.488	0.000	101.439	0.000	104.154	0.000	106.673	0.000
2.000	95.469	0.000	98.709	0.000	101.664	0.000	104.383	0.000	106.905	0.000
2.200	95.691	0.000	98.936	0.000	101.894	0.000	104.617	0.000	107.142	0.000
2.400	95.919	0.000	99.168	0.000	102.130	0.000	104.856	0.000	107.385	0.000
2.500	96.034	0.000	99.286	0.000	102.250	0.000	104.978	0.000	107.508	0.000
2.600	96.151	0.000	99.405	0.000	102.371	0.001	105.100	0.001	107.632	0.001
2.800	96.389	0.001	99.647	0.001	102.617	0.001	105.350	0.001	107.885	0.001
3.000	96.632	0.001	99.894	0.001	102.868	0.001	105.605	0.001	108.143	0.001
3.200	96.879	0.001	100.146	0.001	103.124	0.001	105.864	0.001	108.406	0.001
3.400	97.132	0.001	100.403	0.001	103.385	0.001	106.129	0.001	108.674	0.001
3.500	97.260	0.001	100.533	0.001	103.517	0.001	106.263	0.001	108.810	0.001
3.600	97.389	0.001	100.664	0.001	103.650	0.001	106.398	0.001	108.947	0.001
3.800	97.651	0.001	100.931	0.001	103.920	0.001	106.672	0.001	109.224	0.001
4.000	97.917	0.001	101.201	0.001	104.195	0.001	106.950	0.001	109.505	0.001
4.200	98.188	0.001	101.477	0.001	104.474	0.001	107.233	0.001	109.791	0.001
4.400	98.463	0.001	101.756	0.001	104.758	0.001	107.520	0.002	110.082	0.002
4.500	98.602	0.002	101.897	0.002	104.901	0.002	107.665	0.002	110.228	0.002
4.600	98.742	0.002	102.039	0.002	105.045	0.002	107.811	0.002	110.376	0.002
4.800	99.025	0.002	102.327	0.002	105.336	0.002	108.106	0.002	110.674	0.002
5.000	99.312	0.002	102.618	0.002	105.631	0.002	108.404	0.002	110.975	0.002
5.200	99.603	0.002	102.912	0.002	105.930	0.002	108.706	0.002	111.280	0.003
5.400	99.896	0.002	103.210	0.003	106.231	0.003	109.011	0.003	111.589	0.003
5.500	100.045	0.003	103.361	0.003	106.383	0.003	109.165	0.003	111.744	0.003
5.600	100.193	0.003	103.512	0.003	106.536	0.003	109.319	0.003	111.900	0.003
5.800	100.493	0.003	103.816	0.003	106.844	0.003	109.631	0.003	112.214	0.003
6.000	100.796	0.003	104.123	0.003	107.155	0.003	109.944	0.003	112.531	0.003
6.200	101.102	0.003	104.432	0.003	107.468	0.004	110.261	0.004	112.851	0.004
6.400	101.409	0.004	104.744	0.004	107.783	0.004	110.580	0.004	113.173	0.004
6.500	101.564	0.005	104.900	0.005	107.942	0.005	110.740	0.005	113.334	0.005
6.600	101.719	0.005	105.058	0.005	108.101	0.005	110.900	0.005	113.496	0.006
6.800									113.822	0.007
SAT	6.698	101.872	0.006							
SAT	6.731			105.265	0.006					
SAT	6.762					108.359	0.007			
SAT	6.790							111.207	0.007	
SAT	6.816								113.849	0.008

TABLE 18 A (CONT.) BOILING POINT OF SODIUM CHLORIDE SOLUTION, (DEG C)

MOLALITY	P = 96.000 KPA		P = 98.000 KPA		P = 101.325 KPA		P = 102.000 KPA		P = 104.000 KPA	
	B.P.	S.E.	B.P.	S.E.	B.P.	S.E.	B.P.	S.E.	B.P.	S.E.
0.000	98.494	0.000	99.068	0.000	100.000	0.000	100.186	0.000	100.732	0.000
0.001	98.495	0.000	99.069	0.000	100.001	0.000	100.187	0.000	100.733	0.000
0.002	98.496	0.000	99.070	0.000	100.002	0.000	100.188	0.000	100.734	0.000
0.005	98.499	0.000	99.073	0.000	100.005	0.000	100.191	0.000	100.737	0.000
0.010	98.504	0.000	99.078	0.000	100.010	0.000	100.196	0.000	100.742	0.000
0.020	98.514	0.000	99.087	0.000	100.020	0.000	100.206	0.000	100.751	0.000
0.050	98.542	0.000	99.115	0.000	100.048	0.000	100.234	0.000	100.780	0.000
0.100	98.588	0.000	99.162	0.000	100.095	0.000	100.281	0.000	100.827	0.000
0.200	98.680	0.000	99.254	0.000	100.187	0.000	100.374	0.000	100.920	0.000
0.300	98.772	0.000	99.347	0.000	100.281	0.000	100.467	0.000	101.014	0.000
0.400	98.865	0.000	99.440	0.000	100.374	0.000	100.561	0.000	101.108	0.000
0.500	98.959	0.000	99.534	0.000	100.469	0.000	100.656	0.000	101.203	0.000
0.600	99.054	0.000	99.630	0.000	100.565	0.000	100.752	0.000	101.300	0.000
0.700	99.151	0.000	99.726	0.000	100.662	0.000	100.849	0.000	101.397	0.000
0.800	99.248	0.000	99.824	0.000	100.760	0.000	100.948	0.000	101.496	0.000
0.900	99.346	0.000	99.923	0.000	100.860	0.000	101.047	0.000	101.596	0.000
1.000	99.446	0.000	100.023	0.000	100.960	0.000	101.148	0.000	101.697	0.000
1.200	99.649	0.000	100.227	0.000	101.165	0.000	101.353	0.000	101.902	0.000
1.400	99.857	0.000	100.435	0.000	101.375	0.000	101.563	0.000	102.113	0.000
1.500	99.963	0.000	100.542	0.000	101.482	0.000	101.670	0.000	102.221	0.000
1.600	100.070	0.000	100.649	0.000	101.591	0.000	101.778	0.000	102.329	0.000
1.800	100.289	0.000	100.869	0.000	101.811	0.000	101.999	0.000	102.551	0.000
2.000	100.513	0.000	101.093	0.000	102.037	0.000	102.225	0.000	102.777	0.000
2.200	100.742	0.000	101.323	0.000	102.268	0.000	102.456	0.000	103.009	0.000
2.400	100.976	0.000	101.558	0.000	102.504	0.000	102.693	0.000	103.246	0.000
2.500	101.095	0.000	101.677	0.000	102.624	0.000	102.813	0.000	103.367	0.000
2.600	101.215	0.001	101.798	0.001	102.745	0.001	102.934	0.001	103.489	0.001
2.800	101.460	0.001	102.043	0.001	102.991	0.001	103.181	0.001	103.736	0.001
3.000	101.709	0.001	102.293	0.001	103.243	0.001	103.433	0.001	103.989	0.001
3.200	101.964	0.001	102.548	0.001	103.500	0.001	103.689	0.001	104.246	0.001
3.400	102.223	0.001	102.809	0.001	103.761	0.001	103.951	0.001	104.508	0.001
3.500	102.354	0.001	102.940	0.001	103.893	0.001	104.084	0.001	104.641	0.001
3.600	102.487	0.001	103.073	0.001	104.027	0.001	104.217	0.001	104.776	0.001
3.800	102.756	0.001	103.343	0.001	104.298	0.001	104.488	0.001	105.047	0.001
4.000	103.029	0.001	103.617	0.001	104.573	0.001	104.764	0.001	105.323	0.001
4.200	103.306	0.001	103.895	0.001	104.853	0.001	105.044	0.001	105.604	0.001
4.400	103.588	0.001	104.178	0.001	105.136	0.001	105.328	0.001	105.889	0.002
4.500	103.731	0.002	104.321	0.002	105.280	0.002	105.471	0.002	106.033	0.002
4.600	103.874	0.002	104.464	0.002	105.424	0.002	105.616	0.002	106.178	0.002
4.800	104.164	0.002	104.755	0.002	105.716	0.002	105.908	0.002	106.470	0.002
5.000	104.457	0.002	105.049	0.002	106.011	0.002	106.204	0.002	106.767	0.002
5.200	104.754	0.002	105.347	0.002	106.310	0.002	106.503	0.002	107.067	0.002
5.400	105.054	0.003	105.648	0.003	106.613	0.003	106.805	0.003	107.370	0.003
5.500	105.206	0.003	105.800	0.003	106.765	0.003	106.958	0.003	107.523	0.003
5.600	105.358	0.003	105.952	0.003	106.918	0.003	107.111	0.003	107.676	0.003
5.800	105.664	0.003	106.259	0.003	107.226	0.003	107.419	0.003	107.985	0.003
6.000	105.973	0.003	106.569	0.003	107.537	0.003	107.731	0.003	108.297	0.003
6.200	106.285	0.004	106.881	0.004	107.851	0.004	108.044	0.004	108.612	0.004
6.400	106.599	0.004	107.196	0.004	108.167	0.004	108.360	0.004	108.928	0.004
6.500	106.757	0.005	107.354	0.005	108.325	0.005	108.519	0.005	109.088	0.005
6.600	106.915	0.005	107.513	0.005	108.484	0.005	108.679	0.005	109.247	0.005
SAT 6.750	107.153	0.007								
SAT 6.756			107.761	0.007						
SAT 6.766					108.749	0.007				
SAT 6.767							108.946	0.007		
SAT 6.773									109.525	0.007

TABLE 18 B BOILING POINT OF SODIUM CHLORIDE SOLUTION, (DEG C)

WEIGHT %	P = 80.000 KPA			P = 90.000 KPA			P = 100.000 KPA			P = 110.000 KPA			P = 120.000 KPA		
	B.P.	S.E.	C.	B.P.	S.E.	C.	B.P.	S.E.	C.	B.P.	S.E.	C.	B.P.	S.E.	C.
0.000	93.510	C.000		96.712	0.000		99.632	0.000		102.318	0.000		104.810	0.000	
0.100	93.526	C.000		96.729	0.000		99.648	0.000		102.335	0.000		104.827	0.000	
0.200	93.542	C.000		96.745	0.000		99.665	0.000		102.352	0.000		104.844	0.000	
0.300	93.557	C.000		96.761	0.000		99.681	0.000		102.368	0.000		104.861	0.000	
0.400	93.573	C.000		96.776	0.000		99.697	0.000		102.385	0.000		104.878	0.000	
0.500	93.588	C.000		96.792	0.000		99.713	0.000		102.401	0.000		104.894	0.000	
0.600	93.604	C.000		96.808	0.000		99.729	0.000		102.417	0.000		104.911	0.000	
0.700	93.619	C.000		96.824	0.000		99.745	0.000		102.434	0.000		104.927	0.000	
0.800	93.635	C.000		96.840	0.000		99.761	0.000		102.450	0.000		104.944	0.000	
0.900	93.650	C.000		96.855	0.000		99.777	0.000		102.466	0.000		104.961	0.000	
1.000	93.666	C.000		96.871	0.000		99.793	0.000		102.483	0.000		104.977	0.000	
1.200	93.697	C.000		96.903	0.000		99.826	0.000		102.516	0.000		105.011	0.000	
1.400	93.728	C.000		96.935	0.000		99.858	0.000		102.549	0.000		105.044	0.000	
1.600	93.760	C.000		96.967	0.000		99.891	0.000		102.582	0.000		105.078	0.000	
1.800	93.792	C.000		97.000	0.000		99.924	0.000		102.616	0.000		105.112	0.000	
2.000	93.824	C.000		97.032	0.000		99.958	0.000		102.650	0.000		105.147	0.000	
2.500	93.905	C.000		97.115	0.000		100.042	0.000		102.735	0.000		105.233	0.000	
3.000	93.988	C.000		97.200	0.000		100.128	0.000		102.823	0.000		105.322	0.000	
3.500	94.072	C.000		97.286	0.000		100.215	0.000		102.912	0.000		105.413	0.000	
4.000	94.159	C.000		97.374	0.000		100.303	0.000		103.003	0.000		105.505	0.000	
4.500	94.247	C.000		97.464	0.000		100.397	0.000		103.096	0.000		105.599	0.000	
5.000	94.337	C.000		97.556	0.000		100.490	0.000		103.191	0.000		105.696	0.000	
6.000	94.523	C.000		97.746	0.000		100.683	0.000		103.387	0.000		105.895	0.000	
7.000	94.718	C.000		97.945	0.000		100.886	0.000		103.593	0.000		106.104	0.000	
8.000	94.922	C.000		98.153	0.000		101.098	0.000		103.808	0.000		106.322	0.000	
9.000	95.136	C.000		98.371	0.000		101.319	0.000		104.033	0.000		106.550	0.000	
10.000	95.361	C.000		98.599	0.000		101.552	0.000		104.269	0.000		106.790	0.000	
11.000	95.596	C.000		98.839	0.000		101.795	0.000		104.517	0.000		107.040	0.000	
12.000	95.842	C.000		99.090	0.000		102.051	0.000		104.776	0.000		107.303	0.000	
13.000	96.101	C.000		99.353	0.000		102.318	0.000		105.047	0.000		107.578	0.001	
14.000	96.372	C.001		99.629	0.001		102.599	0.001		105.332	0.001		107.867	0.001	
15.000	96.656	C.001		99.918	0.001		102.892	0.001		105.630	0.001		108.169	0.001	
16.000	96.954	C.001		100.221	0.001		103.200	0.001		105.942	0.001		108.485	0.001	
17.000	97.266	C.001		100.539	0.001		103.523	0.001		106.269	0.001		108.816	0.001	
18.000	97.593	C.001		100.872	0.001		103.861	0.001		106.611	0.001		109.162	0.001	
19.000	97.936	C.001		101.220	0.001		104.214	0.001		106.970	0.001		109.525	0.001	
20.000	98.295	C.001		101.585	0.001		104.584	0.001		107.344	0.001		109.904	0.001	
21.000	98.670	C.002		101.966	0.002		104.970	0.002		107.735	0.002		110.300	0.002	
22.000	99.063	C.002		102.364	0.002		105.374	0.002		108.144	0.002		110.713	0.002	
23.000	99.473	C.002		102.781	0.002		105.796	0.002		108.571	0.002		111.144	0.002	
24.000	99.901	C.002		103.215	0.003		106.236	0.003		109.016	0.003		111.594	0.003	
25.000	100.348	C.003		103.669	0.003		106.695	0.003		109.480	0.003		112.063	0.003	
26.000	100.814	C.003		104.141	0.003		107.173	0.003		109.963	0.003		112.550	0.003	
27.000	101.299	C.004		104.632	0.004		107.670	0.004		110.466	0.004		113.058	0.004	
28.000	101.804	C.006		105.143	0.006		108.187	0.006		110.988	0.006		113.585	0.006	
SAT 28.133	101.872	C.006		105.265	0.006		108.359	0.007		111.207	0.007		113.849	0.008	
SAT 28.233															
SAT 28.324															
SAT 28.409															
SAT 28.488															

TABLE 'B B (CONT.) BOILING POINT OF SODIUM CHLORIDE SOLUTION, (DEG C)

WEIGHT %	P = 96.000 KPA		P = 98.000 KPA		P = 101.325 KPA		P = 102.000 KPA		P = 104.000 KPA	
	B.P.	S.E.	B.P.	S.E.	B.P.	S.E.	B.P.	S.E.	B.P.	S.E.
0.000	98.494	0.000	99.068	0.000	100.000	0.000	100.186	0.000	100.732	0.000
0.100	98.511	0.000	99.084	0.000	100.017	0.000	100.203	0.000	100.749	0.000
0.200	98.527	0.000	99.101	0.000	100.033	0.000	100.219	0.000	100.765	0.000
0.300	98.543	0.000	99.117	0.000	100.049	0.000	100.236	0.000	100.781	0.000
0.400	98.559	0.000	99.133	0.000	100.065	0.000	100.252	0.000	100.798	0.000
0.500	98.575	0.000	99.149	0.000	100.082	0.000	100.268	0.000	100.814	0.000
0.600	98.591	0.000	99.165	0.000	100.098	0.000	100.284	0.000	100.830	0.000
0.700	98.607	0.000	99.181	0.000	100.114	0.000	100.300	0.000	100.846	0.000
0.800	98.623	0.000	99.197	0.000	100.130	0.000	100.316	0.000	100.862	0.000
0.900	98.639	0.000	99.213	0.000	100.146	0.000	100.332	0.000	100.879	0.000
1.000	98.655	0.000	99.229	0.000	100.162	0.000	100.349	0.000	100.895	0.000
1.200	98.687	0.000	99.261	0.000	100.195	0.000	100.381	0.000	100.927	0.000
1.400	98.720	0.000	99.294	0.000	100.227	0.000	100.414	0.000	100.960	0.000
1.600	98.752	0.000	99.326	0.000	100.260	0.000	100.447	0.000	100.993	0.000
1.800	98.785	0.000	99.359	0.000	100.293	0.000	100.480	0.000	101.026	0.000
2.000	98.818	0.000	99.393	0.000	100.327	0.000	100.513	0.000	101.060	0.000
2.500	98.902	0.000	99.477	0.000	100.411	0.000	100.598	0.000	101.145	0.000
3.000	98.987	0.000	99.562	0.000	100.497	0.000	100.684	0.000	101.231	0.000
3.500	99.074	0.000	99.650	0.000	100.585	0.000	100.772	0.000	101.320	0.000
4.000	99.163	0.000	99.739	0.000	100.675	0.000	100.862	0.000	101.410	0.000
4.500	99.254	0.000	99.830	0.000	100.767	0.000	100.954	0.000	101.502	0.000
5.000	99.347	0.000	99.923	0.000	100.860	0.000	101.048	0.000	101.596	0.000
6.000	99.539	0.000	100.116	0.000	101.054	0.000	101.242	0.000	101.791	0.000
7.000	99.740	0.000	100.318	0.000	101.257	0.000	101.445	0.000	101.994	0.000
8.000	99.950	0.000	100.529	0.000	101.469	0.000	101.657	0.000	102.208	0.000
9.000	100.171	0.000	100.750	0.000	101.692	0.000	101.880	0.000	102.431	0.000
10.000	100.402	0.000	100.982	0.000	101.924	0.000	102.113	0.000	102.665	0.000
11.000	100.643	0.000	101.224	0.000	102.169	0.000	102.357	0.000	102.910	0.000
12.000	100.897	0.000	101.479	0.000	102.424	0.000	102.613	0.000	103.167	0.000
13.000	101.163	0.000	101.745	0.000	102.692	0.000	102.882	0.000	103.436	0.000
14.000	101.442	0.001	102.025	0.001	102.973	0.001	103.163	0.001	103.718	0.001
15.000	101.734	0.001	102.318	0.001	103.268	0.001	103.458	0.001	104.013	0.001
16.000	102.040	0.001	102.625	0.001	103.576	0.001	103.766	0.001	104.323	0.001
17.000	102.360	0.001	102.947	0.001	103.899	0.001	104.090	0.001	104.648	0.001
18.000	102.696	0.001	103.283	0.001	104.238	0.001	104.428	0.001	104.987	0.001
19.000	103.048	0.001	103.636	0.001	104.592	0.001	104.783	0.001	105.342	0.001
20.000	103.415	0.001	104.005	0.001	104.961	0.001	105.154	0.001	105.714	0.001
21.000	103.800	0.002	104.390	0.002	105.350	0.002	105.541	0.002	106.103	0.002
22.000	104.202	0.002	104.793	0.002	105.754	0.002	105.946	0.002	106.509	0.002
23.000	104.622	0.002	105.214	0.002	106.177	0.002	106.369	0.002	106.933	0.002
24.000	105.060	0.003	105.653	0.003	106.610	0.003	106.810	0.003	107.375	0.003
25.000	105.516	0.003	106.111	0.003	107.077	0.003	107.270	0.003	107.836	0.003
26.000	105.992	0.003	106.587	0.003	107.556	0.003	107.749	0.003	108.316	0.003
27.000	106.487	0.004	107.083	0.004	108.054	0.004	108.247	0.004	108.815	0.004
28.000	107.001	0.006	107.599	0.006	108.571	0.006	108.765	0.006	109.334	0.006
SAT 28.288	107.153	0.007	107.761	0.007	108.749	0.007	108.946	0.007	109.525	0.007
SAT 28.306										
SAT 28.336										
SAT 28.342										
SAT 28.359										

TABLE 19 A PRACTICAL OSMOTIC COEFFICIENT OF SODIUM CHLORIDE SOLUTION

MOLALITY	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	COEFF.	S. E.	COEFF.	S. E.	COEFF.	S. E.	COEFF.	S. E.	COEFF.	S. E.
0.000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000
0.001	0.98882	0.00000	0.98874	0.00000	0.98866	0.00000	0.98858	0.00000	0.98850	0.00000
0.002	0.98458	0.00000	0.98449	0.00000	0.98438	0.00000	0.98427	0.00000	0.98415	0.00000
0.005	0.97680	0.00000	0.97668	0.00000	0.97654	0.00000	0.97639	0.00000	0.97522	0.00000
0.010	0.96894	0.00001	0.96881	0.00001	0.96865	0.00001	0.96847	0.00001	0.96826	0.00001
0.020	0.95925	0.00001	0.95916	0.00001	0.95901	0.00001	0.95881	0.00001	0.95858	0.00001
0.050	0.94408	0.00003	0.94418	0.00003	0.94415	0.00003	0.94403	0.00003	0.94384	0.00003
0.100	0.93184	0.00004	0.93232	0.00004	0.93259	0.00004	0.93269	0.00004	0.93265	0.00004
0.200	0.92056	0.00005	0.92183	0.00005	0.92274	0.00005	0.92334	0.00005	0.92371	0.00005
0.300	0.91527	0.00005	0.91730	0.00005	0.91882	0.00005	0.91994	0.00005	0.92072	0.00005
0.400	0.91254	0.00005	0.91528	0.00005	0.91740	0.00005	0.91901	0.00005	0.92021	0.00005
0.500	0.91128	0.00005	0.91469	0.00005	0.91737	0.00005	0.91945	0.00005	0.92105	0.00005
0.600	0.91101	0.00006	0.91504	0.00006	0.91825	0.00006	0.92079	0.00006	0.92276	0.00006
0.700	0.91148	0.00006	0.91610	0.00006	0.91981	0.00006	0.92276	0.00006	0.92510	0.00006
0.800	0.91254	0.00007	0.91771	0.00007	0.92189	0.00007	0.92524	0.00007	0.92792	0.00007
0.900	0.91410	0.00007	0.91978	0.00007	0.92440	0.00007	0.92813	0.00007	0.93112	0.00007
1.000	0.91610	0.00008	0.92225	0.00008	0.92728	0.00008	0.93137	0.00008	0.93466	0.00008
1.200	0.92120	0.00009	0.92823	0.00009	0.93400	0.00009	0.93873	0.00009	0.94257	0.00009
1.400	0.92761	0.00010	0.93538	0.00010	0.94180	0.00010	0.94708	0.00010	0.95140	0.00010
1.500	0.93123	0.00010	0.93834	0.00010	0.94605	0.00010	0.95158	0.00010	0.95612	0.00010
1.600	0.93512	0.00011	0.94354	0.00011	0.95052	0.00011	0.95628	0.00011	0.96101	0.00011
1.800	0.94363	0.00012	0.95259	0.00012	0.96004	0.00013	0.96622	0.00013	0.97130	0.00013
2.000	0.95301	0.00014	0.96244	0.00014	0.97029	0.00014	0.97680	0.00014	0.98218	0.00014
2.200	0.96320	0.00015	0.97299	0.00016	0.98117	0.00016	0.98797	0.00016	0.99358	0.00016
2.400	0.97410	0.00017	0.98419	0.00017	0.99263	0.00017	0.99965	0.00017	1.00546	0.00017
2.500	0.97979	0.00017	0.99002	0.00018	0.99856	0.00018	1.00568	0.00018	1.01156	0.00018
2.600	0.98565	0.00018	0.99598	0.00018	1.00462	0.00018	1.01181	0.00018	1.01776	0.00018
2.800	0.99780	0.00019	1.00830	0.00019	1.01709	0.00019	1.02441	0.00019	1.03045	0.00019
3.000	1.01050	0.00020	1.02111	0.00020	1.02999	0.00020	1.03739	0.00020	1.04350	0.00020
3.200	1.02369	0.00020	1.03437	0.00021	1.04330	0.00021	1.05073	0.00021	1.05686	0.00021
3.400	1.03735	0.00022	1.04803	0.00022	1.05697	0.00022	1.06440	0.00022	1.07052	0.00022
3.500	1.04434	0.00022	1.05501	0.00022	1.06394	0.00022	1.07135	0.00022	1.07745	0.00023
3.600	1.05143	0.00023	1.06208	0.00023	1.07099	0.00023	1.07838	0.00023	1.08444	0.00023
3.800	1.06591	0.00025	1.07648	0.00025	1.08532	0.00025	1.09263	0.00025	1.09861	0.00025
4.000	1.08075	0.00027	1.09121	0.00027	1.09994	0.00027	1.10714	0.00027	1.11301	0.00028
4.200	1.09593	0.00030	1.10625	0.00030	1.11483	0.00030	1.12190	0.00030	1.12763	0.00030
4.400	1.11144	0.00033	1.12157	0.00033	1.12998	0.00033	1.13688	0.00033	1.14244	0.00033
4.500	1.11931	0.00034	1.12934	0.00034	1.13765	0.00034	1.14445	0.00034	1.14991	0.00034
4.600	1.12726	0.00036	1.13717	0.00036	1.14538	0.00036	1.15208	0.00036	1.15743	0.00035
4.800	1.14337	0.00038	1.15304	0.00038	1.16101	0.00038	1.16748	0.00038	1.17260	0.00038
5.000	1.15977	0.00039	1.16955	0.00039	1.17686	0.00039	1.18307	0.00039	1.18794	0.00039
5.200	1.17645	0.00040	1.18553	0.00040	1.19294	0.00039	1.19885	0.00039	1.20343	0.00039
5.400	1.19340	0.00040	1.20215	0.00039	1.20923	0.00039	1.21482	0.00039	1.21907	0.00039
5.500	1.20198	0.00040	1.21055	0.00039	1.21745	0.00039	1.22287	0.00039	1.22695	0.00039
5.600	1.21063	0.00040	1.21901	0.00039	1.22573	0.00039	1.23097	0.00039	1.23487	0.00039
5.800	1.22815	0.00043	1.23612	0.00042	1.24245	0.00041	1.24730	0.00041	1.25081	0.00041
6.000	1.24594	0.00050	1.25348	0.00049	1.25938	0.00048	1.26380	0.00048	1.26689	0.00048
SAT	1.25459	0.00050	1.26219	0.00055	1.26846	0.00055	1.27352	0.00056	1.27746	0.00057
SAT	6.099									
SAT	6.106									
SAT	6.117									
SAT	6.131									

TABLE 19 A (CONT.) PRACTICAL OSMOTIC COEFFICIENT OF SODIUM CHLORIDE SOLUTION

MOLALITY	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.
0.000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000
0.001	0.98840	0.00000	0.98830	0.00000	0.98809	0.00000	0.98787	0.00000	0.98763	0.00000
0.002	0.98402	0.00000	0.98389	0.00000	0.98361	0.00000	0.98331	0.00000	0.98298	0.00000
0.005	0.97604	0.00000	0.97585	0.00000	0.97544	0.00000	0.97498	0.00000	0.97449	0.00000
0.010	0.96804	0.00001	0.96779	0.00001	0.96726	0.00001	0.96667	0.00001	0.96601	0.00001
0.020	0.95832	0.00001	0.95802	0.00001	0.95736	0.00001	0.95660	0.00001	0.95576	0.00001
0.050	0.94357	0.00003	0.94325	0.00003	0.94247	0.00003	0.94151	0.00003	0.94041	0.00003
0.100	0.93250	0.00004	0.93225	0.00004	0.93151	0.00004	0.93049	0.00004	0.92925	0.00004
0.200	0.92387	0.00005	0.92387	0.00005	0.92344	0.00005	0.92257	0.00005	0.92131	0.00005
0.300	0.92123	0.00005	0.92151	0.00005	0.92149	0.00005	0.92036	0.00005	0.91972	0.00005
0.400	0.92106	0.00005	0.92162	0.00005	0.92203	0.00005	0.92168	0.00005	0.92069	0.00005
0.500	0.92224	0.00005	0.92308	0.00005	0.92391	0.00005	0.92383	0.00005	0.92301	0.00005
0.600	0.92427	0.00006	0.92538	0.00006	0.92662	0.00006	0.92682	0.00006	0.92617	0.00006
0.700	0.92691	0.00006	0.92828	0.00006	0.92992	0.00006	0.93038	0.00006	0.92989	0.00006
0.800	0.93002	0.00007	0.93163	0.00007	0.93365	0.00007	0.93436	0.00007	0.93403	0.00007
0.900	0.93350	0.00007	0.93534	0.00007	0.93771	0.00007	0.93867	0.00007	0.93850	0.00007
1.000	0.93729	0.00008	0.93935	0.00008	0.94206	0.00008	0.94325	0.00008	0.94322	0.00008
1.200	0.94567	0.00009	0.94812	0.00009	0.95144	0.00009	0.95304	0.00009	0.95326	0.00009
1.400	0.95491	0.00010	0.95771	0.00010	0.96156	0.00010	0.96351	0.00010	0.96393	0.00010
1.500	0.95980	0.00010	0.96276	0.00010	0.96684	0.00010	0.96885	0.00010	0.96946	0.00010
1.600	0.96487	0.00011	0.96796	0.00011	0.97226	0.00011	0.97451	0.00011	0.97509	0.00011
1.800	0.97545	0.00013	0.97879	0.00013	0.98347	0.00013	0.98594	0.00013	0.98654	0.00013
2.000	0.98657	0.00014	0.99012	0.00014	0.99510	0.00014	0.99775	0.00014	0.99852	0.00014
2.200	0.99818	0.00016	1.00189	0.00016	1.00710	0.00016	1.00987	0.00016	1.01066	0.00016
2.400	1.01021	0.00017	1.01405	0.00017	1.01942	0.00017	1.02226	0.00017	1.02302	0.00017
2.500	1.01638	0.00018	1.02027	0.00018	1.02570	0.00018	1.02854	0.00018	1.02927	0.00018
2.600	1.02263	0.00018	1.02656	0.00018	1.03203	0.00018	1.03488	0.00018	1.03557	0.00018
2.800	1.03540	0.00019	1.03938	0.00019	1.04489	0.00019	1.04770	0.00019	1.04828	0.00019
3.000	1.04848	0.00020	1.05248	0.00020	1.05798	0.00020	1.06069	0.00020	1.06111	0.00020
3.200	1.06185	0.00021	1.06584	0.00021	1.07126	0.00021	1.07383	0.00021	1.07405	0.00021
3.400	1.07548	0.00022	1.07943	0.00022	1.08472	0.00022	1.08710	0.00022	1.08708	0.00022
3.500	1.08238	0.00023	1.08630	0.00023	1.09150	0.00023	1.09377	0.00023	1.09361	0.00023
3.600	1.08934	0.00023	1.09322	0.00023	1.09833	0.00023	1.10047	0.00023	1.10016	0.00023
3.800	1.10343	0.00025	1.10720	0.00025	1.11207	0.00025	1.11393	0.00025	1.11329	0.00025
4.000	1.11771	0.00027	1.12135	0.00027	1.12593	0.00027	1.12746	0.00027	1.12644	0.00027
4.200	1.13217	0.00030	1.13566	0.00030	1.13990	0.00030	1.14104	0.00030	1.13961	0.00030
4.400	1.14681	0.00033	1.15011	0.00033	1.15396	0.00033	1.15467	0.00033	1.15277	0.00033
4.500	1.15418	0.00034	1.15739	0.00034	1.16101	0.00034	1.16149	0.00034	1.15934	0.00034
4.600	1.16160	0.00035	1.16469	0.00035	1.16809	0.00035	1.16832	0.00035	1.16591	0.00035
4.800	1.17653	0.00037	1.17939	0.00037	1.18228	0.00037	1.18198	0.00037	1.17901	0.00037
5.000	1.19160	0.00039	1.19419	0.00039	1.19653	0.00039	1.19565	0.00039	1.19208	0.00039
5.200	1.20680	0.00039	1.20909	0.00039	1.21082	0.00039	1.20930	0.00039	1.20508	0.00039
5.400	1.22212	0.00039	1.22408	0.00039	1.22513	0.00039	1.22293	0.00039	1.21800	0.00039
5.500	1.22983	0.00039	1.23161	0.00039	1.23230	0.00039	1.22973	0.00039	1.22444	0.00039
5.600	1.23756	0.00039	1.23916	0.00039	1.23947	0.00039	1.23652	0.00039	1.23085	0.00039
5.800	1.25311	0.00041	1.25431	0.00041	1.25383	0.00041	1.25006	0.00041	1.24359	0.00041
6.000	1.26876	0.00048	1.26954	0.00048	1.26819	0.00047	1.26355	0.00046	1.25622	0.00045
6.200	1.28038	0.00058	1.28235	0.00059	1.28254	0.00060	1.27697	0.00058	1.26873	0.00055
SAT 6.148					1.28368	0.00062	1.28193	0.00064	1.27747	0.00067
SAT 6.168										
SAT 6.216										
SAT 6.274										
SAT 6.341										

TABLE 19 A (CONT.) PRACTICAL OSMOTIC COEFFICIENT OF SODIUM CHLORIDE SOLUTION

MOLALITY	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	COEFF.	S. E.	COEFF.	S. E.	COEFF.	S. E.	COEFF.	S. E.	COEFF.	S. E.
0.000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000
0.001	0.98737	0.00000	0.98703	0.00000	0.98678	0.00000	0.98646	0.00000	0.98611	0.00000
0.002	0.98262	0.00000	0.98233	0.00000	0.98181	0.00000	0.98136	0.00000	0.98088	0.00000
0.005	0.97395	0.00000	0.97337	0.00000	0.97274	0.00000	0.97206	0.00000	0.97133	0.00000
0.010	0.96530	0.00001	0.96452	0.00001	0.96368	0.00001	0.96277	0.00001	0.96179	0.00001
0.020	0.95483	0.00001	0.95381	0.00001	0.95271	0.00001	0.95152	0.00001	0.95023	0.00001
0.050	0.93917	0.00003	0.93778	0.00003	0.93627	0.00003	0.93462	0.00003	0.93285	0.00003
0.100	0.92778	0.00004	0.92612	0.00004	0.92427	0.00004	0.92225	0.00004	0.92007	0.00004
0.200	0.91873	0.00005	0.91784	0.00005	0.91568	0.00005	0.91328	0.00005	0.91066	0.00005
0.300	0.91184	0.00005	0.91167	0.00005	0.91386	0.00005	0.91124	0.00005	0.90835	0.00005
0.400	0.91916	0.00005	0.91716	0.00005	0.91475	0.00005	0.91198	0.00005	0.90888	0.00005
0.500	0.92155	0.00005	0.91955	0.00005	0.91707	0.00005	0.91417	0.00005	0.91090	0.00005
0.600	0.92479	0.00006	0.92280	0.00006	0.92027	0.00006	0.91726	0.00006	0.91383	0.00006
0.700	0.92860	0.00006	0.92662	0.00006	0.92404	0.00006	0.92094	0.00006	0.91736	0.00006
0.800	0.93283	0.00007	0.93086	0.00007	0.92824	0.00007	0.92504	0.00007	0.92133	0.00007
0.900	0.93736	0.00007	0.93541	0.00007	0.93275	0.00007	0.92945	0.00007	0.92561	0.00007
1.000	0.94215	0.00008	0.94021	0.00008	0.93750	0.00008	0.93412	0.00008	0.93014	0.00008
1.200	0.95232	0.00009	0.95038	0.00009	0.94758	0.00009	0.94401	0.00009	0.93976	0.00009
1.400	0.96307	0.00010	0.96112	0.00010	0.95821	0.00010	0.95445	0.00010	0.94993	0.00010
1.500	0.96863	0.00010	0.96666	0.00011	0.96368	0.00011	0.95982	0.00011	0.95517	0.00011
1.600	0.97428	0.00011	0.97229	0.00011	0.96924	0.00011	0.96528	0.00011	0.96049	0.00011
1.800	0.98585	0.00013	0.98378	0.00013	0.98058	0.00013	0.97639	0.00013	0.97131	0.00013
2.000	0.99770	0.00014	0.99552	0.00014	0.99215	0.00014	0.98772	0.00014	0.98233	0.00014
2.200	1.00978	0.00016	1.00747	0.00016	1.00389	0.00016	0.99920	0.00016	0.99349	0.00016
2.400	1.02204	0.00017	1.01956	0.00017	1.01576	0.00017	1.01077	0.00017	1.00473	0.00017
2.500	1.02823	0.00018	1.02565	0.00018	1.02172	0.00018	1.01659	0.00018	1.01037	0.00018
2.600	1.03445	0.00019	1.03177	0.00019	1.02771	0.00019	1.02242	0.00019	1.01601	0.00019
2.800	1.04698	0.00019	1.04406	0.00020	1.03971	0.00020	1.03409	0.00020	1.02730	0.00020
3.000	1.05960	0.00020	1.05641	0.00020	1.05175	0.00020	1.04576	0.00021	1.03857	0.00021
3.200	1.07229	0.00021	1.06879	0.00021	1.06378	0.00021	1.05740	0.00021	1.04980	0.00021
3.400	1.08501	0.00022	1.08118	0.00022	1.07579	0.00022	1.06900	0.00022	1.06096	0.00022
3.500	1.09139	0.00022	1.08737	0.00022	1.08178	0.00023	1.07478	0.00023	1.06650	0.00023
3.600	1.09776	0.00023	1.09356	0.00023	1.08776	0.00023	1.08054	0.00023	1.07203	0.00023
3.800	1.11052	0.00025	1.10591	0.00025	1.09967	0.00025	1.09198	0.00025	1.08299	0.00025
4.000	1.12326	0.00027	1.11820	0.00027	1.11150	0.00027	1.10333	0.00027	1.09383	0.00027
4.200	1.13597	0.00030	1.13044	0.00030	1.12324	0.00030	1.11456	0.00029	1.10454	0.00029
4.400	1.14864	0.00033	1.14260	0.00033	1.13487	0.00033	1.12566	0.00032	1.11510	0.00032
4.500	1.15495	0.00034	1.14864	0.00034	1.14064	0.00034	1.13115	0.00034	1.12032	0.00034
4.600	1.16125	0.00035	1.15466	0.00036	1.14668	0.00036	1.13661	0.00036	1.12550	0.00036
4.800	1.17378	0.00038	1.16661	0.00039	1.15775	0.00039	1.14741	0.00039	1.13573	0.00039
5.000	1.18623	0.00040	1.17844	0.00041	1.16898	0.00041	1.15803	0.00042	1.14578	0.00042
5.200	1.19858	0.00041	1.19014	0.00042	1.18004	0.00042	1.16848	0.00044	1.15563	0.00044
5.400	1.21081	0.00042	1.20169	0.00043	1.19092	0.00043	1.17874	0.00046	1.16529	0.00046
5.500	1.21688	0.00042	1.20740	0.00043	1.19630	0.00043	1.18379	0.00046	1.17005	0.00047
5.600	1.22291	0.00042	1.21307	0.00043	1.20162	0.00043	1.18879	0.00046	1.17475	0.00047
5.800	1.23487	0.00042	1.22428	0.00044	1.21219	0.00044	1.19864	0.00047	1.18399	0.00049
6.000	1.24667	0.00045	1.23530	0.00045	1.22241	0.00045	1.20826	0.00049	1.19300	0.00050
6.200	1.25830	0.00053	1.24611	0.00052	1.23248	0.00052	1.21765	0.00053	1.20180	0.00054
6.400	1.26975	0.00068	1.25671	0.00065	1.24231	0.00065	1.22680	0.00062	1.21035	0.00062
6.500					1.24713	0.00071	1.23128	0.00069	1.21454	0.00069
6.600							1.22570	0.00078	1.21867	0.00077
SAT	1.27068	0.00070	1.26184	0.00074	1.25126	0.00079	1.23919	0.00086	1.22586	0.00095
SAT	6.416									
SAT	6.498									
SAT	6.587									
SAT	6.680									
SAT	6.778									

TABLE 19 B PRACTICAL OSMOTIC COEFFICIENT OF SODIUM CHLORIDE SOLUTION

WEIGHT %	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.
0.000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000
0.100	0.96157	0.00001	0.96147	0.00001	0.96131	0.00001	0.96111	0.00001	0.96089	0.00001
0.200	0.95058	0.00002	0.95057	0.00002	0.95047	0.00002	0.95030	0.00002	0.95007	0.00002
0.300	0.94356	0.00003	0.94367	0.00003	0.94366	0.00003	0.94354	0.00003	0.94335	0.00003
0.400	0.93845	0.00003	0.93869	0.00003	0.93878	0.00003	0.93873	0.00003	0.93858	0.00003
0.500	0.93448	0.00004	0.93486	0.00004	0.93504	0.00004	0.93508	0.00004	0.93499	0.00004
0.600	0.93128	0.00004	0.93179	0.00004	0.93208	0.00004	0.93219	0.00004	0.93217	0.00004
0.700	0.92861	0.00004	0.92926	0.00004	0.92966	0.00004	0.92986	0.00004	0.92990	0.00004
0.800	0.92636	0.00004	0.92715	0.00004	0.92766	0.00004	0.92795	0.00004	0.92806	0.00004
0.900	0.92443	0.00005	0.92536	0.00004	0.92598	0.00004	0.92635	0.00004	0.92653	0.00004
1.000	0.92276	0.00005	0.92382	0.00005	0.92455	0.00004	0.92502	0.00004	0.92527	0.00004
1.200	0.92000	0.00005	0.92134	0.00005	0.92229	0.00005	0.92294	0.00005	0.92333	0.00005
1.400	0.91785	0.00005	0.91945	0.00005	0.92063	0.00005	0.92145	0.00005	0.92200	0.00005
1.600	0.91614	0.00005	0.91801	0.00005	0.91940	0.00005	0.92041	0.00005	0.92110	0.00005
1.800	0.91478	0.00005	0.91691	0.00005	0.91852	0.00005	0.91970	0.00005	0.92054	0.00005
2.000	0.91370	0.00005	0.91608	0.00005	0.91790	0.00005	0.91926	0.00005	0.92025	0.00005
2.500	0.91191	0.00005	0.91492	0.00005	0.91725	0.00005	0.91905	0.00005	0.92041	0.00005
3.000	0.91112	0.00006	0.91471	0.00005	0.91755	0.00005	0.91976	0.00005	0.92147	0.00005
3.500	0.91106	0.00006	0.91521	0.00006	0.91852	0.00006	0.92115	0.00006	0.92320	0.00006
4.000	0.91159	0.00006	0.91628	0.00006	0.92005	0.00006	0.92306	0.00006	0.92544	0.00006
4.500	0.91263	0.00007	0.91783	0.00007	0.92203	0.00007	0.92541	0.00007	0.92811	0.00007
5.000	0.91411	0.00007	0.91980	0.00007	0.92441	0.00007	0.92815	0.00007	0.93114	0.00007
5.000	0.91828	0.00008	0.92485	0.00008	0.93023	0.00008	0.93462	0.00008	0.93818	0.00008
7.000	0.92387	0.00009	0.93124	0.00009	0.93731	0.00009	0.94229	0.00009	0.94635	0.00009
8.000	0.93078	0.00010	0.93885	0.00010	0.94553	0.00010	0.95103	0.00010	0.95554	0.00010
9.000	0.93893	0.00012	0.94761	0.00012	0.95482	0.00012	0.96078	0.00012	0.96568	0.00012
10.000	0.94827	0.00013	0.95748	0.00013	0.96514	0.00013	0.97149	0.00013	0.97673	0.00013
11.000	0.95877	0.00015	0.96841	0.00015	0.97646	0.00015	0.98314	0.00015	0.98866	0.00015
12.000	0.97038	0.00016	0.98039	0.00017	0.98875	0.00017	0.99570	0.00017	1.00145	0.00017
13.000	0.98310	0.00018	0.99339	0.00018	1.00199	0.00018	1.00915	0.00018	1.01507	0.00018
14.000	0.99690	0.00019	1.00739	0.00019	1.01617	0.00019	1.02348	0.00019	1.02952	0.00019
15.000	1.01176	0.00020	1.02239	0.00020	1.03128	0.00020	1.03868	0.00020	1.04479	0.00020
16.000	1.02769	0.00021	1.03837	0.00021	1.04731	0.00021	1.05475	0.00021	1.06087	0.00021
17.000	1.04466	0.00022	1.05534	0.00022	1.06426	0.00022	1.07168	0.00022	1.07777	0.00022
18.000	1.06269	0.00024	1.07329	0.00024	1.08214	0.00025	1.08947	0.00025	1.09548	0.00025
19.000	1.08177	0.00028	1.09223	0.00028	1.10094	0.00028	1.10814	0.00028	1.11400	0.00028
20.000	1.10192	0.00031	1.11217	0.00031	1.12069	0.00031	1.12769	0.00031	1.13336	0.00031
21.000	1.12315	0.00035	1.13313	0.00035	1.14139	0.00035	1.14814	0.00035	1.15355	0.00035
22.000	1.14550	0.00038	1.15513	0.00038	1.16307	0.00038	1.16950	0.00038	1.17459	0.00038
23.000	1.16899	0.00040	1.17822	0.00040	1.18576	0.00039	1.19181	0.00039	1.19652	0.00039
24.000	1.19369	0.00040	1.20243	0.00040	1.20951	0.00039	1.21509	0.00039	1.21934	0.00039
25.000	1.21967	0.00041	1.22784	0.00040	1.23436	0.00040	1.23940	0.00040	1.24310	0.00040
26.000	1.24701	0.00051	1.25452	0.00049	1.26039	0.00049	1.26479	0.00049	1.26785	0.00049
26.268	1.25459	0.00056								
SAT 26.278			1.26219	0.00055	1.26846	0.00055	1.27352	0.00056	1.27746	0.00057
SAT 26.300										
SAT 26.334										
SAT 26.378										

TABLE 19 B (CONT.) PRACTICAL OSMOTIC COEFFICIENT OF SODIUM CHLORIDE SOLUTION

WEIGHT %	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	COEFF.	S. E.	COEFF.	S. E.	COEFF.	S. E.	COEFF.	S. E.	COEFF.	S. E.
0.000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000
0.100	0.96063	0.00001	0.96034	0.00001	0.95971	0.00001	0.95899	0.00001	0.95819	0.00001
0.200	0.94979	0.00002	0.94947	0.00002	0.94872	0.00002	0.94785	0.00002	0.94685	0.00002
0.300	0.94309	0.00003	0.94277	0.00003	0.94198	0.00003	0.94102	0.00003	0.93991	0.00003
0.400	0.93835	0.00003	0.93805	0.00003	0.93726	0.00003	0.93627	0.00003	0.93509	0.00003
0.500	0.93480	0.00004	0.93452	0.00004	0.93375	0.00004	0.93274	0.00004	0.93151	0.00004
0.600	0.93202	0.00004	0.93178	0.00004	0.93104	0.00004	0.93003	0.00004	0.92878	0.00004
0.700	0.92981	0.00004	0.92960	0.00004	0.92891	0.00004	0.92791	0.00004	0.92664	0.00004
0.800	0.92801	0.00004	0.92785	0.00004	0.92721	0.00004	0.92623	0.00004	0.92495	0.00004
0.900	0.92655	0.00004	0.92642	0.00004	0.92584	0.00004	0.92488	0.00004	0.92361	0.00004
1.000	0.92534	0.00004	0.92526	0.00004	0.92474	0.00004	0.92381	0.00004	0.92254	0.00004
1.200	0.92352	0.00005	0.92354	0.00005	0.92315	0.00005	0.92229	0.00005	0.92104	0.00005
1.400	0.92231	0.00005	0.92242	0.00005	0.92217	0.00005	0.92139	0.00005	0.92018	0.00005
1.600	0.92154	0.00005	0.92175	0.00005	0.92164	0.00005	0.92095	0.00005	0.91978	0.00005
1.800	0.92110	0.00005	0.92142	0.00005	0.92146	0.00005	0.92086	0.00005	0.91974	0.00005
2.000	0.92093	0.00005	0.92135	0.00005	0.92154	0.00005	0.92104	0.00005	0.91998	0.00005
2.500	0.92139	0.00005	0.92206	0.00005	0.92264	0.00005	0.92239	0.00005	0.92146	0.00005
3.000	0.92275	0.00005	0.92367	0.00005	0.92463	0.00005	0.92463	0.00005	0.92386	0.00005
3.500	0.92477	0.00006	0.92593	0.00006	0.92726	0.00006	0.92751	0.00006	0.92689	0.00006
4.000	0.92729	0.00006	0.92869	0.00006	0.93038	0.00006	0.93088	0.00006	0.93041	0.00006
4.500	0.93022	0.00007	0.93185	0.00007	0.93389	0.00007	0.93463	0.00007	0.93431	0.00007
5.000	0.93352	0.00007	0.93536	0.00007	0.93774	0.00007	0.93870	0.00007	0.93852	0.00007
6.000	0.94103	0.00008	0.94328	0.00008	0.94628	0.00008	0.94767	0.00008	0.94775	0.00008
7.000	0.94963	0.00009	0.95224	0.00009	0.95581	0.00009	0.95757	0.00009	0.95788	0.00009
8.000	0.95920	0.00010	0.96214	0.00010	0.96620	0.00010	0.96838	0.00010	0.96878	0.00010
9.000	0.96968	0.00012	0.97289	0.00012	0.97738	0.00012	0.97973	0.00012	0.98038	0.00012
10.000	0.98101	0.00013	0.98447	0.00013	0.98930	0.00013	0.99188	0.00013	0.99261	0.00013
11.000	0.99318	0.00015	0.99683	0.00015	1.00195	0.00015	1.00467	0.00015	1.00546	0.00015
12.000	1.00615	0.00017	1.00996	0.00017	1.01528	0.00017	1.01810	0.00017	1.01887	0.00017
13.000	1.01992	0.00018	1.02383	0.00018	1.02929	0.00018	1.03213	0.00018	1.03285	0.00018
14.000	1.03446	0.00019	1.03844	0.00019	1.04395	0.00019	1.04616	0.00019	1.04735	0.00019
15.000	1.04978	0.00020	1.05378	0.00020	1.05927	0.00020	1.06197	0.00020	1.06238	0.00020
16.000	1.06586	0.00021	1.06984	0.00021	1.07523	0.00021	1.07775	0.00021	1.07790	0.00021
17.000	1.08270	0.00023	1.08662	0.00023	1.09182	0.00022	1.09408	0.00022	1.09391	0.00022
18.000	1.10031	0.00025	1.10411	0.00025	1.10904	0.00025	1.11096	0.00024	1.11040	0.00024
19.000	1.11869	0.00028	1.12233	0.00028	1.12688	0.00027	1.12838	0.00027	1.12734	0.00027
20.000	1.13784	0.00031	1.14126	0.00031	1.14535	0.00031	1.14633	0.00031	1.14472	0.00031
21.000	1.15777	0.00035	1.16092	0.00035	1.16444	0.00035	1.16480	0.00034	1.16252	0.00035
22.000	1.17849	0.00038	1.18131	0.00038	1.18414	0.00037	1.18377	0.00038	1.18072	0.00038
23.000	1.20002	0.00039	1.20245	0.00039	1.20445	0.00039	1.20323	0.00039	1.19930	0.00040
24.000	1.22238	0.00039	1.22434	0.00039	1.22538	0.00039	1.22316	0.00040	1.21822	0.00040
25.000	1.24560	0.00040	1.24700	0.00040	1.24691	0.00040	1.24354	0.00040	1.23746	0.00040
26.000	1.26970	0.00049	1.27044	0.00049	1.26904	0.00048	1.26435	0.00046	1.25697	0.00046
27.000									1.27670	0.00055
SAT 26.432	1.28038	0.00058								
SAT 26.495			1.28235	0.00059						
SAT 26.647			1.28368	0.00062			1.28193	0.00064		
SAT 26.830									1.27747	0.00067
SAT 27.039										

TABLE 19 B (CONT.) PRACTICAL OSMOTIC COEFFICIENT OF SODIUM CHLORIDE SOLUTION

WEIGHT %	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.
0.000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000
0.100	0.95731	0.00001	0.95635	0.00001	0.95531	0.00001	0.95419	0.00001	0.95298	0.00001
0.200	0.94574	0.00002	0.94451	0.00002	0.94317	0.00002	0.94171	0.00002	0.94016	0.00002
0.300	0.93866	0.00003	0.93726	0.00003	0.93573	0.00003	0.93407	0.00003	0.93228	0.00003
0.400	0.93374	0.00003	0.93222	0.00003	0.93055	0.00003	0.92873	0.00003	0.92678	0.00003
0.500	0.93009	0.00004	0.92849	0.00004	0.92671	0.00004	0.92477	0.00004	0.92268	0.00004
0.600	0.92731	0.00004	0.92563	0.00004	0.92377	0.00004	0.92173	0.00004	0.91952	0.00004
0.700	0.92513	0.00004	0.92340	0.00004	0.92146	0.00004	0.91934	0.00004	0.91704	0.00004
0.800	0.92341	0.00004	0.92164	0.00004	0.91964	0.00004	0.91744	0.00004	0.91505	0.00004
0.900	0.92205	0.00004	0.92023	0.00004	0.91818	0.00004	0.91592	0.00005	0.91346	0.00005
1.000	0.92037	0.00004	0.91812	0.00005	0.91702	0.00005	0.91470	0.00005	0.91217	0.00005
1.200	0.91945	0.00005	0.91756	0.00005	0.91538	0.00005	0.91296	0.00005	0.91031	0.00005
1.400	0.91859	0.00005	0.91665	0.00005	0.91442	0.00005	0.91191	0.00005	0.90916	0.00005
1.600	0.91820	0.00005	0.91624	0.00005	0.91395	0.00005	0.91137	0.00005	0.90853	0.00005
1.800	0.91816	0.00005	0.91619	0.00005	0.91386	0.00005	0.91122	0.00005	0.90829	0.00005
2.000	0.91842	0.00005	0.91643	0.00005	0.91406	0.00005	0.91136	0.00005	0.90836	0.00005
2.500	0.91996	0.00005	0.91796	0.00005	0.91552	0.00005	0.91269	0.00005	0.90953	0.00005
3.000	0.92243	0.00005	0.92043	0.00005	0.91793	0.00005	0.91500	0.00005	0.91168	0.00005
3.500	0.92554	0.00006	0.92355	0.00006	0.92100	0.00006	0.91798	0.00006	0.91452	0.00006
4.000	0.92913	0.00006	0.92715	0.00006	0.92457	0.00006	0.92145	0.00006	0.91786	0.00006
4.500	0.93310	0.00007	0.93114	0.00007	0.92851	0.00007	0.92531	0.00007	0.92159	0.00007
5.000	0.93739	0.00007	0.93544	0.00007	0.93277	0.00007	0.92948	0.00007	0.92563	0.00007
6.000	0.94675	0.00008	0.94481	0.00008	0.94206	0.00008	0.93860	0.00008	0.93449	0.00008
7.000	0.95698	0.00009	0.95504	0.00009	0.95219	0.00009	0.94854	0.00009	0.94418	0.00009
8.000	0.96795	0.00010	0.96598	0.00010	0.96301	0.00010	0.95917	0.00011	0.95453	0.00011
9.000	0.97958	0.00012	0.97755	0.00012	0.97444	0.00012	0.97038	0.00012	0.96545	0.00012
10.000	0.99181	0.00014	0.98969	0.00014	0.98641	0.00014	0.98210	0.00014	0.97687	0.00014
11.000	1.00461	0.00015	1.00236	0.00015	0.99887	0.00015	0.99429	0.00015	0.98872	0.00015
12.000	1.01793	0.00017	1.01551	0.00017	1.01179	0.00017	1.00690	0.00017	1.00097	0.00017
13.000	1.03176	0.00018	1.02912	0.00018	1.02512	0.00018	1.01990	0.00018	1.01357	0.00018
14.000	1.04607	0.00019	1.04317	0.00020	1.03884	0.00020	1.03324	0.00020	1.02648	0.00020
15.000	1.06084	0.00020	1.05762	0.00020	1.05292	0.00021	1.04690	0.00021	1.03967	0.00021
16.000	1.07605	0.00021	1.07246	0.00021	1.06734	0.00021	1.06084	0.00021	1.05311	0.00022
17.000	1.09168	0.00022	1.08766	0.00023	1.08206	0.00023	1.07505	0.00023	1.06676	0.00023
18.000	1.10771	0.00024	1.10319	0.00024	1.09706	0.00024	1.08947	0.00024	1.08059	0.00024
19.000	1.12413	0.00027	1.11904	0.00027	1.11230	0.00027	1.10410	0.00027	1.09457	0.00027
20.000	1.14090	0.00031	1.13517	0.00031	1.12777	0.00031	1.11889	0.00031	1.10866	0.00030
21.000	1.15800	0.00035	1.15156	0.00035	1.14342	0.00035	1.13380	0.00035	1.12284	0.00034
22.000	1.17542	0.00038	1.16816	0.00039	1.15923	0.00039	1.14880	0.00039	1.13705	0.00039
23.000	1.19310	0.00041	1.18495	0.00042	1.17514	0.00043	1.16386	0.00043	1.15127	0.00043
24.000	1.21101	0.00042	1.20188	0.00043	1.19111	0.00045	1.17891	0.00046	1.16546	0.00046
25.000	1.22912	0.00042	1.21890	0.00043	1.20709	0.00045	1.19392	0.00047	1.17956	0.00048
26.000	1.24737	0.00045	1.23595	0.00046	1.22302	0.00047	1.20883	0.00049	1.19353	0.00051
27.000	1.26569	0.00062	1.25295	0.00060	1.23883	0.00058	1.22366	0.00058	1.20733	0.00059
28.000							1.223806	0.00083	1.22088	0.00082
SAT 27.272	1.27068	0.00070	1.26184	0.00074	1.25126	0.00079	1.23919	0.00086	1.22586	0.00095
SAT 27.525										
SAT 27.795										
SAT 28.079										
SAT 28.373										

TABLE 20 A IDNIC MEAN MOLAL ACTIVITY COEFFICIENT OF SODIUM CHLORIDE SOLUTION

MOLALITY	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.
0.000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000
0.001	0.96632	0.00000	0.96609	0.00000	0.96584	0.00000	0.96558	0.00000	0.96531	0.00000
0.002	0.95347	0.00000	0.95317	0.00000	0.95284	0.00000	0.95249	0.00000	0.95213	0.00000
0.005	0.92969	0.00001	0.92927	0.00001	0.92882	0.00001	0.92833	0.00001	0.92781	0.00001
0.010	0.90532	0.00002	0.90483	0.00002	0.90427	0.00002	0.90366	0.00002	0.90301	0.00002
0.020	0.87464	0.00003	0.87413	0.00003	0.87351	0.00003	0.87279	0.00003	0.87200	0.00003
0.050	0.82428	0.00005	0.82394	0.00005	0.82339	0.00005	0.82265	0.00005	0.82176	0.00005
0.100	0.77998	0.00008	0.78010	0.00008	0.77986	0.00007	0.77931	0.00007	0.77852	0.00007
0.200	0.73259	0.00010	0.73381	0.00010	0.73432	0.00010	0.73435	0.00010	0.73397	0.00010
0.300	0.70493	0.00011	0.70701	0.00010	0.70829	0.00010	0.70892	0.00010	0.70901	0.00010
0.400	0.68579	0.00011	0.68877	0.00011	0.69079	0.00011	0.69201	0.00011	0.69259	0.00011
0.500	0.67159	0.00011	0.67542	0.00011	0.67814	0.00011	0.67994	0.00011	0.68098	0.00011
0.600	0.66061	0.00011	0.66524	0.00011	0.66863	0.00011	0.67099	0.00011	0.67250	0.00011
0.700	0.65193	0.00011	0.65733	0.00011	0.66136	0.00011	0.66426	0.00011	0.66620	0.00011
0.800	0.64500	0.00011	0.65112	0.00011	0.65576	0.00011	0.65917	0.00011	0.66155	0.00011
0.900	0.63944	0.00011	0.64625	0.00011	0.65148	0.00011	0.65539	0.00011	0.65819	0.00011
1.000	0.63501	0.00011	0.64248	0.00011	0.64828	0.00011	0.65266	0.00011	0.65586	0.00011
1.200	0.62884	0.00011	0.63755	0.00011	0.64442	0.00011	0.64972	0.00011	0.65369	0.00011
1.400	0.62553	0.00012	0.63540	0.00012	0.64326	0.00012	0.64941	0.00012	0.65410	0.00012
1.500	0.62475	0.00012	0.63517	0.00012	0.64351	0.00012	0.65006	0.00012	0.65510	0.00012
1.600	0.62448	0.00013	0.63543	0.00013	0.64423	0.00013	0.65119	0.00013	0.65655	0.00013
1.800	0.62532	0.00014	0.63729	0.00014	0.64697	0.00014	0.65468	0.00014	0.66069	0.00014
2.000	0.62778	0.00015	0.64071	0.00015	0.65122	0.00015	0.65965	0.00016	0.66627	0.00016
2.200	0.63167	0.00016	0.64551	0.00017	0.65662	0.00017	0.66593	0.00017	0.67313	0.00017
2.400	0.63685	0.00018	0.65156	0.00018	0.66363	0.00018	0.67339	0.00019	0.68113	0.00019
2.500	0.63988	0.00018	0.65502	0.00019	0.66746	0.00019	0.67753	0.00019	0.68554	0.00020
2.600	0.64320	0.00019	0.65875	0.00019	0.67155	0.00020	0.68194	0.00020	0.69020	0.00020
2.800	0.65066	0.00020	0.66702	0.00021	0.68052	0.00021	0.69150	0.00022	0.70026	0.00022
3.000	0.65916	0.00021	0.67630	0.00022	0.69047	0.00022	0.70203	0.00023	0.71126	0.00023
3.200	0.66855	0.00022	0.68655	0.00024	0.70137	0.00024	0.71348	0.00024	0.72316	0.00024
3.400	0.67909	0.00024	0.69773	0.00024	0.71319	0.00025	0.72582	0.00025	0.73594	0.00026
3.500	0.68467	0.00024	0.70367	0.00025	0.71944	0.00025	0.73232	0.00026	0.74265	0.00026
3.600	0.69047	0.00025	0.70983	0.00025	0.72590	0.00026	0.73904	0.00027	0.74957	0.00027
3.800	0.70276	0.00026	0.72282	0.00027	0.73949	0.00028	0.75312	0.00028	0.76403	0.00029
4.000	0.71595	0.00028	0.73671	0.00029	0.75335	0.00030	0.76805	0.00030	0.77933	0.00031
4.200	0.73004	0.00031	0.75148	0.00031	0.76938	0.00032	0.78383	0.00033	0.79546	0.00033
4.400	0.74504	0.00033	0.76713	0.00034	0.78549	0.00035	0.80046	0.00035	0.81241	0.00036
4.500	0.75287	0.00034	0.77530	0.00035	0.79392	0.00036	0.80910	0.00037	0.82120	0.00037
4.600	0.76094	0.00036	0.78359	0.00037	0.80257	0.00038	0.81796	0.00038	0.83019	0.00039
4.800	0.77776	0.00041	0.80115	0.00039	0.82054	0.00040	0.83631	0.00041	0.84882	0.00042
5.000	0.79552	0.00044	0.81934	0.00042	0.83942	0.00043	0.85556	0.00043	0.86830	0.00044
5.200	0.81425	0.00043	0.83838	0.00044	0.85923	0.00044	0.87570	0.00045	0.88865	0.00045
5.400	0.83397	0.00044	0.85919	0.00045	0.87999	0.00046	0.89676	0.00047	0.90989	0.00047
5.500	0.84422	0.00045	0.86973	0.00046	0.89074	0.00046	0.90765	0.00047	0.92084	0.00048
5.600	0.85472	0.00046	0.88052	0.00046	0.90174	0.00047	0.91878	0.00048	0.93203	0.00048
5.800	0.87654	0.00049	0.90239	0.00049	0.92450	0.00050	0.94177	0.00050	0.95511	0.00051
6.000	0.89948	0.00056	0.92636	0.00055	0.94832	0.00056	0.96577	0.00057	0.97915	0.00058
6.096	0.91090	0.00061	0.93842	0.00061	0.96140	0.00062	0.98026	0.00064	0.99537	0.00066
SAT										
SAT										
SAT										
SAT										

TABLE 20 A (CONT.) IONIC MEAN MOLAL ACTIVITY COEFFICIENT OF SODIUM CHLORIDE SOLUTION

MOLALITY	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.
0.000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000
0.001	0.96503	0.00000	0.96474	0.00000	0.96413	0.00000	0.96347	0.00000	0.96275	0.00000
0.002	0.95175	0.00000	0.95136	0.00000	0.95052	0.00000	0.94962	0.00000	0.94864	0.00000
0.005	0.92726	0.00001	0.92669	0.00001	0.92546	0.00001	0.92413	0.00001	0.92268	0.00001
0.010	0.90231	0.00002	0.90156	0.00002	0.89937	0.00002	0.89822	0.00002	0.89632	0.00002
0.020	0.87114	0.00003	0.87022	0.00003	0.86820	0.00003	0.86597	0.00003	0.86353	0.00003
0.050	0.82074	0.00005	0.81961	0.00005	0.81707	0.00005	0.81417	0.00005	0.81094	0.00005
0.100	0.77753	0.00007	0.77636	0.00007	0.77356	0.00007	0.77024	0.00007	0.76644	0.00007
0.200	0.73325	0.00009	0.73225	0.00009	0.72954	0.00009	0.72602	0.00009	0.72180	0.00009
0.300	0.70865	0.00010	0.70792	0.00010	0.70552	0.00010	0.70207	0.00010	0.69772	0.00010
0.400	0.69261	0.00011	0.69218	0.00011	0.69016	0.00010	0.68687	0.00010	0.68251	0.00010
0.500	0.68139	0.00011	0.68126	0.00011	0.67955	0.00011	0.67657	0.00011	0.67225	0.00010
0.600	0.67328	0.00011	0.67345	0.00011	0.67236	0.00011	0.66941	0.00011	0.66516	0.00011
0.700	0.66735	0.00011	0.66782	0.00011	0.66706	0.00011	0.66443	0.00011	0.66027	0.00011
0.800	0.66306	0.00011	0.66382	0.00011	0.66347	0.00011	0.66108	0.00011	0.65701	0.00011
0.900	0.66004	0.00011	0.66108	0.00011	0.66114	0.00011	0.65898	0.00011	0.65500	0.00011
1.000	0.65805	0.00011	0.65937	0.00011	0.65983	0.00011	0.65790	0.00011	0.65401	0.00011
1.200	0.65652	0.00012	0.65836	0.00012	0.65959	0.00012	0.65810	0.00012	0.65438	0.00012
1.400	0.65753	0.00012	0.65988	0.00012	0.66182	0.00012	0.66074	0.00012	0.65717	0.00012
1.500	0.65882	0.00013	0.66140	0.00013	0.66368	0.00013	0.66279	0.00013	0.65930	0.00013
1.600	0.66055	0.00013	0.66337	0.00013	0.66598	0.00013	0.66527	0.00013	0.66183	0.00013
1.800	0.66523	0.00014	0.66848	0.00014	0.67172	0.00014	0.67135	0.00014	0.66801	0.00014
2.000	0.67131	0.00016	0.67498	0.00016	0.67880	0.00016	0.67873	0.00016	0.67545	0.00016
2.200	0.67865	0.00017	0.68270	0.000						

TABLE 20 A (CONT.) IONIC MEAN MOLAL ACTIVITY COEFFICIENT OF SODIUM CHLORIDE SOLUTION

MOLALITY	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.
0.000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000
0.001	0.96198	0.00000	0.96116	0.00000	0.96026	0.00000	0.95930	0.00000	0.95827	0.00000
0.002	0.94759	0.00000	0.94646	0.00000	0.94524	0.00000	0.94392	0.00000	0.94251	0.00000
0.005	0.92112	0.00001	0.91943	0.00001	0.91762	0.00001	0.91567	0.00001	0.91358	0.00001
0.010	0.89425	0.00002	0.89202	0.00002	0.88962	0.00002	0.88704	0.00002	0.88427	0.00002
0.020	0.86087	0.00003	0.85798	0.00003	0.85487	0.00003	0.85153	0.00003	0.84795	0.00003
0.050	0.80738	0.00005	0.80350	0.00005	0.79930	0.00005	0.79478	0.00005	0.78996	0.00005
0.100	0.76219	0.00007	0.75751	0.00007	0.75243	0.00007	0.74695	0.00007	0.74109	0.00007
0.200	0.71694	0.00009	0.71150	0.00009	0.70552	0.00009	0.69905	0.00009	0.69211	0.00010
0.300	0.69259	0.00010	0.68674	0.00010	0.68024	0.00010	0.67317	0.00010	0.66556	0.00010
0.400	0.67722	0.00010	0.67110	0.00010	0.66424	0.00010	0.65672	0.00010	0.64861	0.00010
0.500	0.66687	0.00010	0.66054	0.00010	0.65339	0.00010	0.64550	0.00010	0.63697	0.00011
0.600	0.65972	0.00010	0.65323	0.00010	0.64582	0.00011	0.63761	0.00011	0.62870	0.00010
0.700	0.65478	0.00011	0.64815	0.00011	0.64052	0.00011	0.63202	0.00011	0.62276	0.00010
0.800	0.65149	0.00011	0.64473	0.00011	0.63689	0.00011	0.62812	0.00011	0.61852	0.00010
0.900	0.64947	0.00011	0.64259	0.00011	0.63455	0.00011	0.62551	0.00011	0.61560	0.00010
1.000	0.64845	0.00011	0.64146	0.00011	0.63323	0.00011	0.62393	0.00011	0.61371	0.00011
1.200	0.64878	0.00011	0.64156	0.00011	0.63295	0.00011	0.62314	0.00011	0.61232	0.00011
1.400	0.65152	0.00012	0.64406	0.00012	0.63507	0.00012	0.62476	0.00012	0.61332	0.00011
1.500	0.65360	0.00012	0.64602	0.00012	0.63683	0.00012	0.62627	0.00012	0.61453	0.00012
1.600	0.65610	0.00013	0.64839	0.00013	0.63900	0.00013	0.62817	0.00013	0.61612	0.00012
1.800	0.66216	0.00014	0.65418	0.00014	0.64437	0.00014	0.63301	0.00014	0.62032	0.00013
2.000	0.66946	0.00016	0.66118	0.00016	0.65092	0.00015	0.63900	0.00015	0.62566	0.00015
2.200	0.67783	0.00017	0.66921	0.00017	0.65848	0.00017	0.64597	0.00017	0.63195	0.00016
2.400	0.68714	0.00019	0.67814	0.00019	0.66690	0.00019	0.65377	0.00018	0.63903	0.00018
2.500	0.69212	0.00020	0.68292	0.00020	0.67141	0.00019	0.65795	0.00019	0.64284	0.00019
2.600	0.69729	0.00021	0.68788	0.00021	0.67609	0.00020	0.66230	0.00020	0.64682	0.00020
2.800	0.70822	0.00022	0.69835	0.00022	0.68597	0.00022	0.67147	0.00021	0.65521	0.00021
3.000	0.71985	0.00024	0.70947	0.00023	0.69646	0.00023	0.68123	0.00023	0.66414	0.00022
3.200	0.73214	0.00025	0.72122	0.00023	0.70752	0.00024	0.69150	0.00024	0.67355	0.00023
3.400	0.74506	0.00026	0.73353	0.00026	0.71910	0.00026	0.70225	0.00025	0.68340	0.00025
3.500	0.75174	0.00027	0.73989	0.00027	0.72508	0.00026	0.70779	0.00026	0.68847	0.00025
3.600	0.75857	0.00028	0.74638	0.00027	0.73117	0.00027	0.71344	0.00026	0.69364	0.00026
3.800	0.77264	0.00029	0.75974	0.00029	0.74369	0.00028	0.72502	0.00028	0.70423	0.00027
4.000	0.78725	0.00031	0.77357	0.00031	0.75662	0.00030	0.73698	0.00029	0.71514	0.00028
4.200	0.80238	0.00034	0.78786	0.00033	0.76995	0.00032	0.74927	0.00031	0.72634	0.00030
4.400	0.81801	0.00036	0.80257	0.00036	0.78365	0.00036	0.76188	0.00034	0.73781	0.00033
4.500	0.82600	0.00038	0.81008	0.00037	0.79063	0.00036	0.76829	0.00035	0.74364	0.00034
4.600	0.83411	0.00039	0.81770	0.00039	0.79769	0.00038	0.77477	0.00037	0.74952	0.00035
4.800	0.85068	0.00042	0.83321	0.00042	0.81205	0.00041	0.78793	0.00040	0.76145	0.00038
5.000	0.86768	0.00045	0.84908	0.00044	0.82671	0.00044	0.80133	0.00043	0.77557	0.00044
5.200	0.88511	0.00047	0.86530	0.00047	0.84165	0.00046	0.81494	0.00045	0.78886	0.00044
5.400	0.90295	0.00049	0.88185	0.00049	0.85683	0.00048	0.82876	0.00048	0.79831	0.00046
5.500	0.91202	0.00050	0.89023	0.00050	0.86452	0.00049	0.83573	0.00049	0.80459	0.00048
5.600	0.92118	0.00050	0.89869	0.00051	0.87226	0.00051	0.84274	0.00050	0.81089	0.00049
5.800	0.93978	0.00052	0.91582	0.00052	0.88789	0.00052	0.85689	0.00052	0.82359	0.00051
6.000	0.95873	0.00055	0.93321	0.00055	0.90370	0.00055	0.87116	0.00054	0.83637	0.00053
6.200	0.97801	0.00063	0.95083	0.00061	0.91967	0.00058	0.88554	0.00058	0.84924	0.00057
6.400	0.99760	0.00078	0.96866	0.00073	0.93579	0.00069	0.90001	0.00066	0.86216	0.00064
6.500					0.94388	0.00077	0.90726	0.00072	0.86863	0.00070
6.600					0.94388	0.00077	0.91453	0.00081	0.87511	0.00077
6.415	0.99921	0.00079	0.97751	0.00082						
SAT 6.498					0.95093	0.00085	0.92038	0.00089	0.88566	0.00094
SAT 6.587										
SAT 6.680										
SAT 6.775										

TABLE 20 B (CONT.) IONIC MEAN MOLAL ACTIVITY COEFFICIENT OF SODIUM CHLORIDE SOLUTION

WEIGHT %	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.
0.000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000
0.100	0.87866	0.00002	0.87778	0.00004	0.87586	0.00002	0.87374	0.00002	0.87142	0.00002
0.200	0.84264	0.00004	0.84158	0.00004	0.83924	0.00004	0.83662	0.00004	0.83371	0.00004
0.300	0.81898	0.00005	0.81785	0.00005	0.81529	0.00005	0.81237	0.00005	0.80911	0.00005
0.400	0.80128	0.00006	0.80012	0.00006	0.79743	0.00006	0.79432	0.00006	0.79082	0.00006
0.500	0.78716	0.00007	0.78599	0.00007	0.78323	0.00007	0.77998	0.00007	0.77630	0.00007
0.600	0.77546	0.00007	0.77429	0.00007	0.77148	0.00007	0.76815	0.00007	0.76433	0.00007
0.700	0.76549	0.00008	0.76434	0.00008	0.76152	0.00008	0.75812	0.00008	0.75418	0.00008
0.800	0.75685	0.00008	0.75572	0.00008	0.75290	0.00008	0.74945	0.00008	0.74543	0.00008
0.900	0.74923	0.00009	0.74814	0.00009	0.74534	0.00009	0.74185	0.00009	0.73776	0.00009
1.000	0.74246	0.00009	0.74140	0.00009	0.73862	0.00009	0.73512	0.00009	0.73097	0.00009
1.200	0.73085	0.00010	0.72987	0.00010	0.72718	0.00009	0.72365	0.00009	0.71942	0.00009
1.400	0.72123	0.00010	0.72034	0.00010	0.71774	0.00010	0.71423	0.00010	0.70994	0.00010
1.600	0.71308	0.00010	0.71229	0.00010	0.70981	0.00010	0.70633	0.00010	0.70200	0.00010
1.800	0.70608	0.00010	0.70539	0.00010	0.70303	0.00010	0.69960	0.00010	0.69525	0.00010
2.000	0.70000	0.00010	0.69841	0.00010	0.69719	0.00010	0.69381	0.00010	0.68945	0.00010
2.500	0.68781	0.00011	0.68750	0.00011	0.68563	0.00011	0.68242	0.00010	0.67808	0.00010
3.000	0.67875	0.00011	0.67871	0.00011	0.67722	0.00011	0.67421	0.00011	0.66991	0.00010
3.500	0.67190	0.00011	0.67213	0.00011	0.67104	0.00011	0.66822	0.00011	0.66399	0.00011
4.000	0.66671	0.00011	0.66722	0.00011	0.66651	0.00011	0.66392	0.00011	0.65976	0.00011
4.500	0.66284	0.00011	0.66361	0.00011	0.66329	0.00011	0.66091	0.00011	0.65685	0.00011
5.000	0.66003	0.00011	0.66107	0.00011	0.66113	0.00011	0.65898	0.00011	0.65499	0.00011
6.000	0.65698	0.00011	0.65854	0.00011	0.65936	0.00011	0.65764	0.00011	0.65383	0.00011
7.000	0.65659	0.00012	0.65876	0.00012	0.66030	0.00012	0.65899	0.00012	0.65535	0.00012
8.000	0.65864	0.00013	0.66119	0.00013	0.66343	0.00013	0.66252	0.00013	0.65902	0.00012
9.000	0.66252	0.00014	0.66554	0.00014	0.66845	0.00014	0.66790	0.00014	0.66451	0.00014
10.000	0.66814	0.00015	0.67161	0.00015	0.67515	0.00015	0.67493	0.00015	0.67162	0.00015
11.000	0.67538	0.00017	0.67927	0.00017	0.68341	0.00017	0.68348	0.00017	0.68022	0.00017
12.000	0.68417	0.00018	0.68847	0.00019	0.69316	0.00019	0.69349	0.00019	0.69023	0.00019
13.000	0.69447	0.00020	0.69815	0.00020	0.70436	0.00021	0.70490	0.00021	0.70159	0.00021
14.000	0.70628	0.00022	0.71133	0.00022	0.71700	0.00022	0.71770	0.00022	0.71428	0.00022
15.000	0.71951	0.00023	0.72501	0.00024	0.73110	0.00024	0.73190	0.00024	0.72831	0.00024
16.000	0.73450	0.00025	0.74023	0.00025	0.74668	0.00025	0.74751	0.00026	0.74367	0.00026
17.000	0.75101	0.00027	0.75703	0.00027	0.76378	0.00027	0.76456	0.00027	0.76040	0.00027
18.000	0.76921	0.00029	0.77549	0.00029	0.78247	0.00029	0.78312	0.00029	0.77852	0.00029
19.000	0.78918	0.00031	0.79569	0.00032	0.80281	0.00032	0.80323	0.00032	0.79808	0.00032
20.000	0.81103	0.00035	0.81773	0.00035	0.82489	0.00035	0.82496	0.00035	0.81914	0.00035
21.000	0.83489	0.00038	0.84173	0.00039	0.84881	0.00039	0.84839	0.00039	0.84175	0.00039
22.000	0.86090	0.00042	0.86782	0.00043	0.87468	0.00043	0.87360	0.00043	0.86597	0.00043
23.000	0.88923	0.00046	0.89616	0.00046	0.90262	0.00046	0.90071	0.00046	0.89187	0.00046
24.000	0.92008	0.00048	0.92693	0.00048	0.93279	0.00048	0.92980	0.00049	0.91952	0.00049
25.000	0.95367	0.00050	0.96032	0.00050	0.96533	0.00051	0.96099	0.00051	0.94899	0.00051
26.000	0.99027	0.00059	0.99658	0.00059	1.00043	0.00059	0.99440	0.00058	0.98036	0.00056
27.000	1.00707	0.00068							1.01369	0.00076
SAT 26.432			1.01567	0.00070						
SAT 26.495					1.02458	0.00073				
SAT 26.647							1.02390	0.00075		
SAT 26.830									1.01503	0.00077
SAT 27.039										

TABLE 20 B (CONT.) IONIC MEAN MOLAL ACTIVITY COEFFICIENT OF SODIUM CHLORIDE SOLUTION

WEIGHT %	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.	COEFF.	S.E.
0.000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000	1.00000	0.00000
0.100	0.86890	0.00002	0.86617	0.00000	0.86323	0.00002	0.86007	0.00002	0.85669	0.00002
0.200	0.83053	0.00004	0.82707	0.00004	0.82334	0.00004	0.81933	0.00004	0.81504	0.00004
0.300	0.80552	0.00005	0.80161	0.00005	0.79737	0.00005	0.79282	0.00005	0.78795	0.00005
0.400	0.78694	0.00006	0.78269	0.00006	0.77808	0.00006	0.77313	0.00006	0.76784	0.00006
0.500	0.77220	0.00007	0.76769	0.00007	0.76280	0.00007	0.75753	0.00007	0.75191	0.00007
0.600	0.76005	0.00007	0.75533	0.00007	0.75020	0.00007	0.74468	0.00007	0.73877	0.00008
0.700	0.74976	0.00008	0.74487	0.00008	0.73954	0.00008	0.73379	0.00008	0.72765	0.00008
0.800	0.74088	0.00008	0.73585	0.00008	0.73034	0.00008	0.72440	0.00008	0.71805	0.00008
0.900	0.73311	0.00009	0.72794	0.00009	0.72229	0.00009	0.71618	0.00009	0.70964	0.00009
1.000	0.72623	0.00009	0.72095	0.00009	0.71515	0.00009	0.70889	0.00009	0.70218	0.00009
1.200	0.71454	0.00009	0.70906	0.00009	0.70303	0.00009	0.69650	0.00010	0.68950	0.00010
1.400	0.70494	0.00010	0.69930	0.00010	0.69308	0.00010	0.68631	0.00010	0.67906	0.00010
1.600	0.69691	0.00010	0.69114	0.00010	0.68474	0.00010	0.67777	0.00010	0.67030	0.00010
1.800	0.69009	0.00010	0.68420	0.00010	0.67765	0.00010	0.67050	0.00010	0.66282	0.00010
2.000	0.68423	0.00010	0.67824	0.00010	0.67155	0.00010	0.66424	0.00010	0.65637	0.00010
2.500	0.67275	0.00010	0.66654	0.00010	0.65955	0.00010	0.65188	0.00010	0.64360	0.00010
3.000	0.66450	0.00010	0.65813	0.00010	0.65089	0.00011	0.64291	0.00011	0.63426	0.00010
3.500	0.65854	0.00010	0.65202	0.00010	0.64456	0.00011	0.63629	0.00011	0.62731	0.00010
4.000	0.65428	0.00011	0.64763	0.00011	0.63997	0.00011	0.63143	0.00011	0.62212	0.00010
4.500	0.65133	0.00011	0.64456	0.00011	0.63671	0.00011	0.62792	0.00011	0.61831	0.00010
5.000	0.64946	0.00011	0.64258	0.00011	0.63454	0.00011	0.62550	0.00011	0.61559	0.00010
6.000	0.64825	0.00011	0.64116	0.00011	0.63275	0.00011	0.62332	0.00011	0.61272	0.00011
7.000	0.64972	0.00012	0.64240	0.00011	0.63362	0.00011	0.62360	0.00011	0.61251	0.00011
8.000	0.65333	0.00012	0.64576	0.00012	0.63660	0.00012	0.62606	0.00012	0.61436	0.00012
9.000	0.65873	0.00014	0.65090	0.00013	0.64192	0.00013	0.63024	0.00013	0.61791	0.00013
10.000	0.66571	0.00015	0.65758	0.00015	0.64755	0.00015	0.63591	0.00014	0.62290	0.00014
11.000	0.67415	0.00017	0.66567	0.00017	0.65515	0.00016	0.64289	0.00016	0.62916	0.00016
12.000	0.68394	0.00019	0.67507	0.00018	0.66400	0.00018	0.65108	0.00018	0.63659	0.00017
13.000	0.69503	0.00020	0.68571	0.00020	0.67405	0.00020	0.66040	0.00020	0.64508	0.00019
14.000	0.70740	0.00022	0.69756	0.00022	0.68523	0.00022	0.67079	0.00021	0.65458	0.00021
15.000	0.72102	0.00024	0.71060	0.00024	0.69752	0.00023	0.68231	0.00023	0.66504	0.00022
16.000	0.73590	0.00025	0.72480	0.00025	0.71090	0.00025	0.69464	0.00024	0.67643	0.00024
17.000	0.75205	0.00027	0.74019	0.00027	0.72536	0.00026	0.70805	0.00026	0.68871	0.00025
18.000	0.76950	0.00029	0.75676	0.00028	0.74090	0.00028	0.72244	0.00027	0.70187	0.00027
19.000	0.78827	0.00031	0.77453	0.00031	0.75752	0.00030	0.73781	0.00029	0.71589	0.00029
20.000	0.80839	0.00035	0.79352	0.00034	0.77523	0.00033	0.75413	0.00032	0.73077	0.00031
21.000	0.82991	0.00038	0.81376	0.00038	0.79404	0.00037	0.77142	0.00036	0.74648	0.00035
22.000	0.85287	0.00042	0.83526	0.00042	0.81395	0.00041	0.78966	0.00040	0.76302	0.00038
23.000	0.87730	0.00046	0.85804	0.00046	0.83497	0.00045	0.80886	0.00044	0.78037	0.00043
24.000	0.90326	0.00049	0.88213	0.00049	0.85709	0.00049	0.82899	0.00048	0.79852	0.00047
25.000	0.93077	0.00051	0.90753	0.00051	0.88033	0.00051	0.85005	0.00051	0.81745	0.00050
26.000	0.95987	0.00055	0.93425	0.00055	0.90464	0.00055	0.87484	0.00054	0.83714	0.00053
27.000	0.99058	0.00071	0.96228	0.00068	0.93002	0.00065	0.89484	0.00063	0.85754	0.00061
28.000							0.91848	0.00086	0.87863	0.00081
SAT 27.272	0.99921	0.00079								
SAT 27.525			0.97751	0.00082						
SAT 27.795					0.95093	0.00085			0.88666	0.00094
SAT 28.079							0.92038	0.00089		
SAT 28.373										

TABLE 21 A (CONT.) WATER SATURATION VAPOUR PRESSURE OF SODIUM CHLORIDE SOLUTION, (KPA)

MOLALITY	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	V.P.	S.E.	V.P.	S.E.	V.P.	S.E.	V.P.	S.E.	V.P.	S.E.
0.000	3.16874	0.00000	4.24520	0.00000	7.58127	0.00000	12.3448	0.0000	19.9331	0.0000
0.001	3.16863	0.00000	4.24505	0.00000	7.58101	0.00000	12.3443	0.0000	19.9324	0.0000
0.002	3.16851	0.00000	4.24490	0.00000	7.58075	0.00000	12.3439	0.0000	19.9317	0.0000
0.005	3.16818	0.00000	4.24445	0.00000	7.57997	0.00000	12.3426	0.0000	19.9296	0.0000
0.010	3.16763	0.00000	4.24372	0.00000	7.57869	0.00000	12.3405	0.0000	19.9261	0.0000
0.020	3.16655	0.00000	4.24227	0.00000	7.57617	0.00000	12.3362	0.0000	19.9193	0.0000
0.050	3.16335	0.00000	4.23798	0.00000	7.56872	0.00000	12.3238	0.0000	19.8992	0.0000
0.100	3.15809	0.00000	4.23094	0.00000	7.55647	0.00000	12.3033	0.0000	19.8661	0.0000
0.200	3.14768	0.00000	4.21698	0.00000	7.53219	0.00000	12.2627	0.0000	19.8005	0.0000
0.300	3.13729	0.00000	4.20305	0.00000	7.50792	0.00000	12.2221	0.0000	19.7349	0.0000
0.400	3.12689	0.00000	4.18908	0.00000	7.48358	0.00001	12.1813	0.0000	19.6690	0.0000
0.500	3.11645	0.00000	4.17506	0.00000	7.45911	0.00001	12.1403	0.0000	19.6027	0.0000
0.600	3.10596	0.00000	4.16097	0.00001	7.43450	0.00001	12.0990	0.0000	19.5359	0.0000
0.700	3.09541	0.00001	4.14679	0.00001	7.40972	0.00001	12.0574	0.0000	19.4686	0.0000
0.800	3.08480	0.00001	4.13252	0.00001	7.38477	0.00001	12.0155	0.0000	19.4009	0.0000
0.900	3.07411	0.00001	4.11815	0.00001	7.35963	0.00002	11.9733	0.0000	19.3325	0.0000
1.000	3.06336	0.00001	4.10367	0.00001	7.33430	0.00002	11.9308	0.0000	19.2636	0.0001
1.200	3.04160	0.00001	4.07439	0.00002	7.28302	0.00003	11.8446	0.0000	19.1241	0.0001
1.400	3.01951	0.00001	4.04464	0.00002	7.23091	0.00003	11.7570	0.0001	18.9823	0.0001
1.500	3.00832	0.00002	4.02958	0.00002	7.20452	0.00004	11.7127	0.0001	18.9105	0.0001
1.600	2.99705	0.00002	4.01439	0.00003	7.17791	0.00004	11.6680	0.0001	18.8380	0.0001
1.800	2.97420	0.00002	3.98364	0.00003	7.12403	0.00006	11.5774	0.0001	18.6914	0.0002
2.000	2.95097	0.00003	3.95236	0.00004	7.06923	0.00007	11.4853	0.0001	18.5424	0.0002
2.200	2.92734	0.00004	3.92054	0.00005	7.01353	0.00009	11.3918	0.0001	18.3910	0.0002
2.400	2.90330	0.00004	3.88819	0.00006	6.95692	0.00010	11.2967	0.0001	18.2373	0.0002
2.500	2.89113	0.00005	3.87182	0.00006	6.92827	0.00011	11.2487	0.0002	18.1596	0.0003
2.600	2.87886	0.00005	3.85531	0.00007	6.89940	0.00012	11.2002	0.0002	18.0813	0.0003
2.800	2.85401	0.00006	3.82189	0.00011	6.84100	0.00013	11.1023	0.0002	17.9231	0.0004
3.000	2.82876	0.00006	3.78795	0.00008	6.78173	0.00014	11.0030	0.0002	17.7628	0.0004
3.200	2.80310	0.00007	3.75349	0.00009	6.72161	0.00016	10.9024	0.0002	17.6005	0.0004
3.400	2.77706	0.00007	3.71852	0.00010	6.66065	0.00017	10.8004	0.0003	17.4362	0.0005
3.500	2.76390	0.00008	3.70085	0.00011	6.62988	0.00018	10.7490	0.0003	17.3533	0.0005
3.600	2.75064	0.00008	3.68305	0.00011	6.59890	0.00019	10.6973	0.0003	17.2700	0.0005
3.800	2.72384	0.00009	3.64711	0.00013	6.53638	0.00022	10.5929	0.0004	17.1021	0.0006
4.000	2.69667	0.00011	3.61069	0.00014	6.47311	0.00025	10.4874	0.0004	16.9326	0.0007
4.200	2.66915	0.00012	3.57383	0.00016	6.40914	0.00028	10.3808	0.0005	16.7615	0.0008
4.400	2.64130	0.00014	3.53654	0.00018	6.34449	0.00032	10.2732	0.0005	16.5890	0.0009
4.500	2.62724	0.00015	3.51773	0.00019	6.31193	0.00034	10.2191	0.0006	16.5023	0.0009
4.600	2.61311	0.00015	3.49882	0.00020	6.27921	0.00035	10.1648	0.0006	16.4152	0.0010
4.800	2.58461	0.00017	3.46072	0.00022	6.21333	0.00039	10.0554	0.0007	16.2403	0.0011
5.000	2.55580	0.00018	3.42323	0.00024	6.14689	0.00042	9.9453	0.0007	16.0643	0.0011
5.200	2.52671	0.00019	3.38339	0.00025	6.07993	0.00043	9.8344	0.0007	15.8874	0.0012
5.400	2.49734	0.00019	3.34422	0.00025	6.01250	0.00044	9.7230	0.0008	15.7097	0.0012
5.500	2.48256	0.00019	3.32451	0.00026	5.97861	0.00045	9.6670	0.0008	15.6207	0.0013
5.600	2.46771	0.00019	3.30472	0.00026	5.94462	0.00045	9.6109	0.0008	15.5314	0.0013
5.800	2.43783	0.00021	3.26493	0.00028	5.87634	0.00049	9.4984	0.0008	15.3526	0.0013
6.000	2.40772	0.00025	3.22487	0.00034	5.80772	0.00057	9.3855	0.0009	15.1734	0.0015
6.200	2.38536	0.00031			5.73877	0.00075	9.2723	0.0012	14.9940	0.0019
SAT			3.19109	0.00042						
6.148					5.53329	0.00076				
SAT							9.2302	0.0013	14.8673	0.0023
6.168										
SAT										
6.216										
SAT										
6.274										
SAT										
6.341										
SAT										

TABLE 21 A (CONT.) WATER SATURATION VAPOUR PRESSURE OF SODIUM CHLORIDE SOLUTION. (KPA)

MOLALITY	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	V.P.	S.E.	V.P.	S.E.	V.P.	S.E.	V.F.	S.E.	V.P.	S.E.
0.000	31.1773	0.0000	47.3748	0.0000	70.1190	0.0000	101.3250	0.0000	143.2455	0.0000
0.001	31.1762	0.0000	47.3731	0.0000	70.1165	0.0000	101.3213	0.0000	143.2403	0.0000
0.002	31.1751	0.0000	47.3715	0.0000	70.1140	0.0000	101.3177	0.0000	143.2352	0.0000
0.005	31.1718	0.0000	47.3665	0.0000	70.1066	0.0000	101.3070	0.0000	143.2200	0.0000
0.010	31.1664	0.0000	47.3582	0.0000	70.0944	0.0000	101.2893	0.0000	143.1950	0.0000
0.020	31.1557	0.0000	47.3420	0.0000	70.0703	0.0000	101.2545	0.0000	143.1457	0.0000
0.050	31.1242	0.0000	47.2941	0.0000	69.9994	0.0000	101.1519	0.0000	143.0006	0.0000
0.100	31.0725	0.0000	47.2155	0.0000	69.8830	0.0000	100.8500	0.0000	142.7627	0.0000
0.200	30.9699	0.0000	47.0595	0.0000	69.6521	0.0000	100.6500	0.0000	142.2914	0.0001
0.300	30.8672	0.0000	46.9035	0.0000	69.4212	0.0001	100.5164	0.0001	141.8203	0.0001
0.400	30.7641	0.0000	46.7468	0.0000	69.1892	0.0001	99.5814	0.0001	141.3474	0.0001
0.500	30.6603	0.0000	46.5890	0.0000	68.9558	0.0001	99.6443	0.0001	140.8716	0.0001
0.600	30.5558	0.0000	46.4302	0.0001	68.7207	0.0001	99.5048	0.0001	140.3926	0.0002
0.700	30.4505	0.0000	46.2701	0.0001	68.4838	0.0001	98.8628	0.0002	139.9100	0.0002
0.800	30.3443	0.0001	46.1087	0.0001	68.2450	0.0001	98.6181	0.0002	139.4238	0.0003
0.900	30.2373	0.0001	45.9460	0.0001	68.0043	0.0002	98.2707	0.0002	138.9338	0.0004
1.000	30.1294	0.0001	45.7820	0.0001	67.7616	0.0002	97.9204	0.0003	138.4399	0.0004
1.200	29.9109	0.0001	45.4498	0.0002	67.2702	0.0003	97.2113	0.0004	137.4403	0.0005
1.400	29.6887	0.0001	45.1120	0.0002	66.7706	0.0003	96.4908	0.0005	136.4250	0.0007
1.500	29.5762	0.0002	44.9411	0.0003	66.5178	0.0004	96.1262	0.0006	135.9114	0.0008
1.600	29.4627	0.0002	44.7687	0.0003	66.2630	0.0004	95.7588	0.0006	135.3940	0.0009
1.800	29.2331	0.0002	44.4199	0.0004	65.7474	0.0006	95.0156	0.0008	134.3477	0.0011
2.000	28.9998	0.0003	44.0656	0.0005	65.2239	0.0007	94.2616	0.0010	133.2856	0.0014
2.200	28.7630	0.0004	43.7060	0.0006	64.6929	0.0008	93.4969	0.0012	132.2111	0.0017
2.400	28.5226	0.0004	43.3413	0.0007	64.1546	0.0010	92.7222	0.0014	131.1221	0.0020
2.500	28.4011	0.0005	43.1570	0.0007	63.8827	0.0011	92.3311	0.0015	130.5726	0.0022
2.600	28.2788	0.0005	42.9716	0.0008	63.6092	0.0011	91.9378	0.0016	130.0201	0.0023
2.800	28.0317	0.0006	42.5971	0.0008	63.0572	0.0013	91.1444	0.0018	128.9061	0.0026
3.000	27.7815	0.0006	42.2182	0.0009	62.4990	0.0014	90.3425	0.0020	127.7809	0.0029
3.200	27.5282	0.0007	41.8350	0.0010	61.9349	0.0015	89.5327	0.0022	126.6455	0.0032
3.400	27.2722	0.0007	41.4478	0.0011	61.3653	0.0017	88.7157	0.0024	125.5007	0.0035
3.500	27.1431	0.0008	41.2528	0.0012	61.0786	0.0018	88.3047	0.0025	124.9250	0.0036
3.600	27.0134	0.0008	41.0569	0.0012	60.7907	0.0018	87.8921	0.0027	124.3474	0.0038
3.800	26.7522	0.0009	40.6626	0.0014	60.2116	0.0021	87.0626	0.0030	123.1868	0.0042
4.000	26.4887	0.0010	40.2651	0.0016	59.6283	0.0023	86.2279	0.0034	122.0197	0.0048
4.200	26.2230	0.0012	39.8648	0.0018	59.0414	0.0027	85.3857	0.0039	120.8471	0.0054
4.400	25.9554	0.0014	39.4620	0.0021	58.4514	0.0031	84.5457	0.0044	119.6700	0.0062
4.500	25.8210	0.0014	39.2598	0.0022	58.1554	0.0033	84.1229	0.0047	119.0801	0.0066
4.600	25.6862	0.0015	39.0571	0.0023	57.8587	0.0035	83.6995	0.0050	118.4894	0.0071
4.800	25.4154	0.0017	38.6502	0.0026	57.2639	0.0039	82.8510	0.0056	117.3063	0.0079
5.000	25.1433	0.0018	38.2419	0.0028	56.6673	0.0043	82.0007	0.0062	116.1216	0.0088
5.200	24.8701	0.0019	37.8323	0.0030	56.0696	0.0046	81.1495	0.0068	114.9363	0.0097
5.400	24.5960	0.0020	37.4220	0.0032	55.4713	0.0048	80.2980	0.0072	113.751	0.010
5.500	24.4588	0.0020	37.2166	0.0032	55.1720	0.0050	79.8723	0.0074	113.159	0.011
5.600	24.3214	0.0021	37.0111	0.0033	54.8728	0.0050	79.4469	0.0075	112.567	0.011
5.800	24.0463	0.0021	36.6001	0.0034	54.2746	0.0052	78.5969	0.0078	111.386	0.012
6.000	23.7710	0.0023	36.1893	0.0036	53.6773	0.0055	77.7487	0.0083	110.207	0.012
6.200	23.4958	0.0028	35.7790	0.0042	53.0814	0.0062	76.9030	0.0092	109.032	0.013
6.400	23.2208	0.0037	35.3697	0.0053	52.4873	0.0077	76.060	0.011	107.862	0.016
6.500			52.1912	0.0087			75.641	0.012	107.279	0.018
6.600	23.1984	0.0038					75.222	0.014	106.698	0.020
SAT 6.416										
SAT 6.498										
SAT 6.587										
SAT 6.680										
SAT 6.778										
			51.9348	0.0039			74.886	0.016	105.667	0.025

TABLE 21 B WATER SATURATION VAPOUR PRESSURE OF SODIUM CHLORIDE SOLUTION. (KPA)

WEIGHT %	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	V.P.	S.E.	V.P.	S.E.	V.P.	S.E.	V.P.	S.E.	V.P.	S.E.
0.000	0.61121	0.00000	0.87247	0.00000	1.22794	0.00000	1.70532	0.00000	2.33854	0.00000
0.100	0.61085	0.00000	0.87195	0.00000	1.22721	0.00000	1.70431	0.00000	2.33716	0.00000
0.200	0.61050	0.00000	0.87144	0.00000	1.22650	0.00000	1.70332	0.00000	2.33580	0.00000
0.300	0.61014	0.00000	0.87094	0.00000	1.22579	0.00000	1.70233	0.00000	2.33445	0.00000
0.400	0.60979	0.00000	0.87044	0.00000	1.22509	0.00000	1.70136	0.00000	2.33311	0.00000
0.500	0.60944	0.00000	0.86994	0.00000	1.22438	0.00000	1.70038	0.00000	2.33177	0.00000
0.600	0.60910	0.00000	0.86945	0.00000	1.22368	0.00000	1.69941	0.00000	2.33044	0.00000
0.700	0.60875	0.00000	0.86895	0.00000	1.22298	0.00000	1.69843	0.00000	2.32910	0.00000
0.800	0.60840	0.00000	0.86845	0.00000	1.22228	0.00000	1.69746	0.00000	2.32777	0.00000
0.900	0.60806	0.00000	0.86796	0.00000	1.22158	0.00000	1.69649	0.00000	2.32643	0.00000
1.000	0.60771	0.00000	0.86746	0.00000	1.22088	0.00000	1.69551	0.00000	2.32509	0.00000
1.200	0.60701	0.00000	0.86647	0.00000	1.21948	0.00000	1.69356	0.00000	2.32241	0.00000
1.400	0.60632	0.00000	0.86547	0.00000	1.21808	0.00000	1.69160	0.00000	2.31972	0.00000
1.600	0.60562	0.00000	0.86447	0.00000	1.21666	0.00000	1.68964	0.00000	2.31702	0.00000
1.800	0.60492	0.00000	0.86347	0.00000	1.21525	0.00000	1.68767	0.00000	2.31431	0.00000
2.000	0.60422	0.00000	0.86246	0.00000	1.21383	0.00000	1.68569	0.00000	2.31159	0.00000
2.500	0.60246	0.00000	0.85993	0.00000	1.21025	0.00000	1.68070	0.00000	2.30472	0.00000
3.000	0.60068	0.00000	0.85737	0.00000	1.20663	0.00000	1.67563	0.00000	2.29776	0.00000
3.500	0.59888	0.00000	0.85478	0.00000	1.20296	0.00000	1.67052	0.00000	2.29071	0.00000
4.000	0.59706	0.00000	0.85216	0.00000	1.19923	0.00000	1.66532	0.00000	2.28354	0.00000
4.500	0.59521	0.00000	0.84950	0.00000	1.19546	0.00000	1.66004	0.00000	2.27626	0.00000
5.000	0.59334	0.00000	0.84680	0.00000	1.19162	0.00000	1.65468	0.00000	2.26886	0.00001
6.000	0.58951	0.00000	0.84127	0.00000	1.18377	0.00000	1.64368	0.00001	2.25368	0.00001
7.000	0.58555	0.00000	0.83555	0.00000	1.17563	0.00000	1.63229	0.00001	2.23795	0.00001
8.000	0.58145	0.00000	0.82962	0.00000	1.16720	0.00001	1.62047	0.00001	2.22163	0.00001
9.000	0.57719	0.00000	0.82346	0.00001	1.15844	0.00001	1.60819	0.00001	2.20466	0.00002
10.000	0.57275	0.00001	0.81705	0.00001	1.14932	0.00001	1.59542	0.00001	2.18702	0.00002
11.000	0.56813	0.00001	0.81037	0.00001	1.13982	0.00001	1.58212	0.00002	2.16865	0.00003
12.000	0.56331	0.00001	0.80340	0.00001	1.12992	0.00002	1.56825	0.00002	2.14950	0.00003
13.000	0.55826	0.00001	0.79612	0.00001	1.11958	0.00002	1.55379	0.00003	2.12954	0.00004
14.000	0.55299	0.00001	0.78852	0.00001	1.10879	0.00002	1.53869	0.00003	2.10872	0.00004
15.000	0.54747	0.00001	0.78057	0.00002	1.09752	0.00002	1.52293	0.00003	2.08699	0.00005
16.000	0.54169	0.00001	0.77225	0.00002	1.08573	0.00003	1.50647	0.00004	2.06432	0.00005
17.000	0.53564	0.00002	0.76355	0.00002	1.07341	0.00003	1.48929	0.00004	2.04066	0.00006
18.000	0.52930	0.00002	0.75445	0.00002	1.06054	0.00004	1.47133	0.00005	2.01597	0.00007
19.000	0.52266	0.00002	0.74492	0.00003	1.04708	0.00004	1.45259	0.00006	1.99021	0.00008
20.000	0.51570	0.00003	0.73495	0.00004	1.03301	0.00005	1.43301	0.00007	1.96333	0.00009
21.000	0.50841	0.00003	0.72452	0.00004	1.01831	0.00006	1.41258	0.00008	1.93530	0.00011
22.000	0.50078	0.00003	0.71361	0.00005	1.00294	0.00007	1.39125	0.00009	1.90608	0.00013
23.000	0.49278	0.00004	0.70220	0.00005	0.98690	0.00007	1.36889	0.00010	1.87562	0.00014
24.000	0.48441	0.00004	0.69027	0.00005	0.97014	0.00007	1.34578	0.00010	1.84388	0.00014
25.000	0.47565	0.00004	0.67780	0.00006	0.95264	0.00008	1.32157	0.00011	1.81082	0.00015
26.000	0.46647	0.00005	0.66476	0.00007	0.93437	0.00010	1.29633	0.00014	1.77641	0.00019
SAT 26.268			0.66102	0.00008						
SAT 26.278					0.92873	0.00011				
SAT 26.300							1.28767	0.00016		
SAT 26.334									1.76305	0.00022
SAT 26.378										

TABLE 21 B (CONT.) WATER SATURATION VAPOUR PRESSURE OF SODIUM CHLORIDE SOLUTION, (KPA)

WEIGHT %	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	V.P.	S.E.	V.P.	S.E.	V.P.	S.E.	V.P.	S.E.	V.P.	S.E.
0.000	3.16874	0.00000	4.24520	0.00000	7.38127	0.00000	12.3448	0.0000	19.9331	0.0000
0.100	3.16686	0.00000	4.24268	0.00000	7.37689	0.00000	12.3374	0.0000	19.9212	0.0000
0.200	3.16502	0.00000	4.24022	0.00000	7.37260	0.00000	12.3303	0.0000	19.9097	0.0000
0.300	3.16319	0.00000	4.23777	0.00000	7.36835	0.00000	12.3232	0.0000	19.8982	0.0000
0.400	3.16137	0.00000	4.23534	0.00000	7.36412	0.00000	12.3161	0.0000	19.8868	0.0000
0.500	3.15956	0.00000	4.23291	0.00000	7.35989	0.00000	12.3090	0.0000	19.8753	0.0000
0.600	3.15775	0.00000	4.23048	0.00000	7.35567	0.00000	12.3020	0.0000	19.8640	0.0000
0.700	3.15594	0.00000	4.22805	0.00000	7.35146	0.00000	12.2949	0.0000	19.8526	0.0000
0.800	3.15413	0.00000	4.22563	0.00000	7.34723	0.00000	12.2878	0.0000	19.8412	0.0000
0.900	3.15232	0.00000	4.22320	0.00000	7.34301	0.00000	12.2808	0.0000	19.8297	0.0000
1.000	3.15050	0.00000	4.22077	0.00000	7.33878	0.00000	12.2737	0.0000	19.8183	0.0000
1.200	3.14687	0.00000	4.21589	0.00000	7.33029	0.00000	12.2595	0.0000	19.7954	0.0000
1.400	3.14322	0.00000	4.21100	0.00000	7.32177	0.00000	12.2452	0.0000	19.7723	0.0000
1.600	3.13956	0.00000	4.20608	0.00000	7.31321	0.00000	12.2309	0.0000	19.7492	0.0000
1.800	3.13588	0.00000	4.20115	0.00000	7.30461	0.00000	12.2165	0.0000	19.7259	0.0000
2.000	3.13218	0.00000	4.19618	0.00000	7.29596	0.00000	12.2020	0.0000	19.7025	0.0000
2.500	3.12285	0.00000	4.18366	0.00000	7.27412	0.00001	12.1654	0.0000	19.6433	0.0000
3.000	3.11339	0.00000	4.17095	0.00000	7.25194	0.00001	12.1282	0.0000	19.5832	0.0000
3.500	3.10379	0.00000	4.15805	0.00000	7.22941	0.00001	12.0904	0.0000	19.5221	0.0000
4.000	3.09404	0.00001	4.14495	0.00001	7.20650	0.00001	12.0520	0.0000	19.4599	0.0000
4.500	3.08413	0.00001	4.13162	0.00001	7.18320	0.00001	12.0129	0.0000	19.3966	0.0000
5.000	3.07405	0.00001	4.11806	0.00001	7.15949	0.00002	11.9731	0.0000	19.3321	0.0000
6.000	3.05337	0.00001	4.09023	0.00001	7.11077	0.00002	11.8912	0.0000	19.1996	0.0001
7.000	3.03193	0.00001	4.06137	0.00002	7.06022	0.00003	11.8063	0.0001	19.0621	0.0001
8.000	3.00968	0.00002	4.03141	0.00002	7.00773	0.00004	11.7181	0.0001	18.9192	0.0001
9.000	2.98656	0.00002	4.00027	0.00003	6.95316	0.00005	11.6264	0.0001	18.7707	0.0001
10.000	2.96250	0.00003	3.96788	0.00004	6.89642	0.00006	11.5310	0.0001	18.6163	0.0002
11.000	2.93745	0.00003	3.93416	0.00005	6.83737	0.00008	11.4318	0.0001	18.4557	0.0002
12.000	2.91137	0.00004	3.89904	0.00006	6.77590	0.00010	11.3286	0.0002	18.2888	0.0003
13.000	2.88417	0.00005	3.86246	0.00007	6.71191	0.00011	11.2212	0.0002	18.1152	0.0003
14.000	2.85583	0.00006	3.82434	0.00007	6.64528	0.00013	11.1095	0.0002	17.9347	0.0003
15.000	2.82627	0.00006	3.78460	0.00008	6.57589	0.00014	10.9932	0.0002	17.7471	0.0004
16.000	2.79544	0.00007	3.74319	0.00009	6.50365	0.00016	10.8723	0.0003	17.5521	0.0004
17.000	2.76329	0.00008	3.70003	0.00011	6.42845	0.00018	10.7466	0.0003	17.3495	0.0005
18.000	2.72976	0.00009	3.65505	0.00012	6.35019	0.00021	10.6159	0.0004	17.1392	0.0006
19.000	2.69481	0.00011	3.60820	0.00014	6.26877	0.00025	10.4801	0.0004	16.9210	0.0007
20.000	2.65837	0.00013	3.55939	0.00017	6.18411	0.00030	10.3391	0.0005	16.6947	0.0008
21.000	2.62041	0.00015	3.50859	0.00020	6.09610	0.00035	10.1928	0.0006	16.4602	0.0009
22.000	2.58086	0.00017	3.45571	0.00023	6.00469	0.00039	10.0411	0.0007	16.2174	0.0011
23.000	2.53969	0.00018	3.40072	0.00024	5.90979	0.00043	9.8838	0.0007	15.9662	0.0012
24.000	2.49684	0.00019	3.34355	0.00025	5.81135	0.00044	9.7211	0.0008	15.7067	0.0012
25.000	2.45227	0.00020	3.28415	0.00027	5.70930	0.00047	9.5527	0.0008	15.4389	0.0013
26.000	2.40592	0.00026	3.22248	0.00034	5.60363	0.00058	9.3788	0.0009	15.1628	0.0015
27.000									14.8786	0.0022
SAT 26.432	2.38536	0.00031								
SAT 26.495			3.19109	0.00042						
SAT 26.647					5.53329	0.00076			9.2302	0.0013
SAT 26.830										
SAT 27.039									14.8673	0.0023

TABLE 21 B (CONT.) WATER SATURATION VAPOUR PRESSURE OF SODIUM CHLORIDE SOLUTION, (KPA)

WEIGHT %	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	V.P.	S.E.	V.P.	S.E.	V.P.	S.E.	V.P.	S.E.	V.P.	S.E.
0.000	31.1773	0.0000	47.3746	0.0000	70.1190	0.0000	101.3250	0.0000	143.2455	0.0000
0.100	31.1588	0.0000	47.3466	0.0000	70.0772	0.0000	101.2644	0.0000	143.1598	0.0000
0.200	31.1406	0.0000	47.3191	0.0000	70.0363	0.0000	101.2053	0.0000	143.0762	0.0000
0.300	31.1227	0.0000	47.2917	0.0000	69.9959	0.0000	101.1468	0.0000	142.9934	0.0000
0.400	31.1048	0.0000	47.2646	0.0000	69.9556	0.0000	101.0886	0.0000	142.9112	0.0000
0.500	31.0870	0.0000	47.2374	0.0000	69.9155	0.0000	101.0306	0.0000	142.8291	0.0000
0.600	31.0691	0.0000	47.2104	0.0000	69.8754	0.0000	100.9726	0.0000	142.7472	0.0000
0.700	31.0513	0.0000	47.1833	0.0000	69.8353	0.0000	100.9146	0.0000	142.6653	0.0000
0.800	31.0335	0.0000	47.1562	0.0000	69.7951	0.0000	100.8566	0.0000	142.5834	0.0000
0.900	31.0156	0.0000	47.1290	0.0000	69.7550	0.0000	100.7986	0.0000	142.5013	0.0000
1.000	30.9977	0.0000	47.1018	0.0000	69.7147	0.0000	100.7405	0.0000	142.4192	0.0000
1.200	30.9619	0.0000	47.0473	0.0000	69.5340	0.0000	100.6239	0.0000	142.2546	0.0001
1.400	30.9258	0.0000	46.9926	0.0000	69.5530	0.0000	100.5068	0.0000	142.0892	0.0001
1.600	30.8896	0.0000	46.9375	0.0000	69.4715	0.0000	100.3891	0.0001	141.9230	0.0001
1.800	30.8532	0.0000	46.8822	0.0000	69.3896	0.0000	100.2708	0.0001	141.7560	0.0001
2.000	30.8165	0.0000	46.8265	0.0000	69.3072	0.0000	100.1518	0.0001	141.5880	0.0001
2.500	30.7240	0.0000	46.6858	0.0000	69.0950	0.0001	99.8511	0.0001	141.1634	0.0001
3.000	30.6299	0.0000	46.5428	0.0000	68.8873	0.0001	99.5454	0.0001	140.7321	0.0001
3.500	30.5342	0.0000	46.3973	0.0001	68.6721	0.0001	99.2346	0.0001	140.2935	0.0002
4.000	30.4368	0.0000	46.2493	0.0001	68.4530	0.0001	98.9183	0.0002	139.8473	0.0002
4.500	30.3376	0.0001	46.0986	0.0001	68.2300	0.0001	98.5964	0.0002	139.3932	0.0003
5.000	30.2367	0.0001	45.9451	0.0001	68.0029	0.0002	98.2687	0.0002	138.9310	0.0003
6.000	30.0291	0.0001	45.6296	0.0001	67.5361	0.0002	97.5950	0.0003	137.9811	0.0005
7.000	29.8137	0.0001	45.3020	0.0002	67.0516	0.0003	96.8960	0.0004	136.9960	0.0006
8.000	29.5898	0.0002	44.9618	0.0003	66.5485	0.0004	96.1705	0.0006	135.9738	0.0008
9.000	29.3573	0.0002	44.6084	0.0003	66.0261	0.0005	95.4173	0.0007	134.9132	0.0010
10.000	29.1155	0.0003	44.2413	0.0004	65.4835	0.0006	94.6354	0.0009	133.8126	0.0013
11.000	28.8643	0.0003	43.8598	0.0005	64.9200	0.0008	93.8239	0.0011	132.6709	0.0016
12.000	28.6031	0.0004	43.4635	0.0006	64.3349	0.0009	92.9817	0.0013	131.4868	0.0019
13.000	28.3317	0.0005	43.0519	0.0007	63.7276	0.0011	92.1081	0.0016	130.2593	0.0023
14.000	28.0497	0.0006	42.6245	0.0008	63.0976	0.0013	91.2023	0.0018	128.9874	0.0026
15.000	27.7559	0.0006	42.1809	0.0009	62.4441	0.0014	90.2637	0.0021	127.6704	0.0029
16.000	27.4527	0.0007	41.7208	0.0011	61.7668	0.0016	89.2916	0.0023	126.3076	0.0033
17.000	27.1372	0.0008	41.2438	0.0012	61.0653	0.0018	88.2857	0.0026	124.8984	0.0036
18.000	26.8099	0.0009	40.7496	0.0014	60.3393	0.0020	87.2455	0.0029	123.4426	0.0041
19.000	26.4706	0.0010	40.2379	0.0016	59.5884	0.0024	86.1708	0.0034	121.9399	0.0048
20.000	26.1193	0.0012	39.7086	0.0019	58.8126	0.0028	85.0616	0.0041	120.3903	0.0057
21.000	25.7557	0.0015	39.1517	0.0023	58.0118	0.0034	83.9180	0.0049	118.7941	0.0068
22.000	25.3799	0.0017	38.5970	0.0026	57.1861	0.0039	82.7400	0.0057	117.1517	0.0081
23.000	24.9918	0.0019	38.0147	0.0029	56.3357	0.0045	81.5283	0.0065	115.4637	0.0093
24.000	24.5914	0.0020	37.4150	0.0032	55.4611	0.0049	80.2835	0.0072	113.731	0.010
25.000	24.1789	0.0021	36.7982	0.0033	54.5629	0.0051	79.0064	0.0077	111.955	0.011
26.000	23.7546	0.0023	36.1649	0.0036	53.6419	0.0056	77.6983	0.0083	110.137	0.012
27.000	23.3189	0.0023	35.5156	0.0039	52.6991	0.0071	76.361	0.010	108.279	0.015
28.000	23.1984	0.0038	35.1686	0.0061	51.9348	0.0099	74.995	0.015	106.383	0.021
SAT 27.272										
SAT 27.525										
SAT 27.795										
SAT 28.079										
SAT 28.373										

TABLE 22 A APPARENT MOLAL RELATIVE ENTHALPHY OF SODIUM CHLORIDE, LPHI (J/MOL)

MOLALITY	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.001	40.55	0.05	44.04	0.03	47.61	0.02	51.29	0.01	55.14	0.01
0.002	54.62	0.09	59.89	0.06	65.18	0.04	70.57	0.03	76.13	0.02
0.005	78.00	0.22	87.34	0.15	96.45	0.10	105.51	0.07	114.69	0.05
0.010	97.39	0.43	112.14	0.29	126.17	0.19	139.82	0.13	153.37	0.09
0.020	112.90	0.80	136.66	0.54	158.68	0.36	179.57	0.24	199.87	0.17
0.050	105.6	1.7	151.4	1.2	192.45	0.77	230.13	0.50	265.57	0.36
0.100	43.2	2.9	119.3	2.0	186.1	1.3	246.11	0.84	301.21	0.59
0.200	-129.1	4.6	-2.5	3.1	107.1	2.0	203.6	1.3	290.61	0.88
0.300	-318.3	5.8	-148.3	3.8	-2.0	2.5	126.0	1.6	240.2	1.1
0.400	-510.5	6.7	-301.6	4.4	-122.3	2.8	34.1	1.7	172.9	1.2
0.500	-701.5	7.3	-456.9	4.8	-247.1	3.0	-64.6	1.9	97.0	1.2
0.600	-889.4	7.8	-611.7	5.0	-373.6	3.2	-166.7	1.9	16.3	1.3
0.700	-1073.5	8.1	-764.8	5.2	-500.0	3.3	-270.0	2.0	-67.0	1.3
0.800	-1253.3	8.4	-915.3	5.4	-625.4	3.3	-373.6	2.0	-151.4	1.3
0.900	-1428.7	8.6	-1063.1	5.5	-749.2	3.4	-476.6	2.0	-236.1	1.3
1.000	-1599.7	8.7	-1207.7	5.6	-871.0	3.4	-578.5	2.0	-320.6	1.3
1.200	-1928.2	8.9	-1487.1	5.6	-1107.8	3.4	-778.0	2.0	-487.0	1.3
1.400	-2239.3	9.0	-1753.2	5.6	-1334.6	3.4	-970.2	2.0	-648.7	1.3
1.500	-2388.5	9.1	-1881.2	5.6	-1444.1	3.4	-1063.4	2.0	-727.4	1.3
1.600	-2533.6	9.1	-2006.0	5.6	-1551.0	3.4	-1154.5	2.0	-804.5	1.3
1.800	-2811.9	9.1	-2245.8	5.6	-1756.9	3.4	-1330.5	2.0	-953.7	1.3
2.000	-3074.9	9.1	-2473.0	5.6	-1952.6	3.3	-1498.0	2.0	-1096.1	1.3
2.200	-3323.3	9.1	-2688.1	5.5	-2138.1	3.3	-1657.2	2.0	-1231.6	1.4
2.400	-3557.9	9.1	-2891.6	5.5	-2313.8	3.3	-1808.1	2.1	-1360.2	1.4
2.500	-3670.3	9.0	-2989.1	5.5	-2398.1	3.3	-1880.6	2.1	-1421.9	1.5
2.600	-3779.4	9.0	-3083.8	5.5	-2480.1	3.3	-1951.0	2.1	-1481.9	1.5
2.800	-3988.4	9.0	-3265.5	5.5	-2637.2	3.3	-2085.0	2.1	-1596.9	1.6
3.000	-4185.6	9.0	-3436.9	5.5	-2785.5	3.3	-2213.5	2.2	-1705.4	1.6
3.200	-4371.5	9.0	-3598.6	5.5	-2925.4	3.4	-2333.5	2.2	-1807.4	1.7
3.400	-4546.6	9.0	-3751.0	5.5	-3057.1	3.4	-2446.5	2.3	-1903.1	1.8
3.500	-4630.4	9.1	-3823.8	5.5	-3120.1	3.4	-2500.4	2.3	-1948.7	1.8
3.600	-4711.6	9.1	-3894.5	5.5	-3181.1	3.4	-2552.7	2.3	-1992.8	1.8
3.800	-4866.9	9.1	-4029.5	5.5	-3297.6	3.5	-2652.1	2.4	-2076.5	1.8
4.000	-5013.0	9.2	-4156.3	5.6	-3406.8	3.5	-2745.2	2.4	-2154.5	1.9
4.200	-5150.3	9.3	-4275.4	5.7	-3509.2	3.5	-2832.0	2.4	-2226.9	1.9
4.400	-5279.2	9.4	-4387.1	5.7	-3604.8	3.6	-2912.9	2.5	-2293.8	1.9
4.500	-5340.6	9.4	-4440.2	5.8	-3650.2	3.6	-2951.0	2.5	-2325.2	1.9
4.600	-5400.1	9.5	-4491.5	5.8	-3694.0	3.6	-2987.9	2.5	-2355.3	1.9
4.800	-5513.3	9.6	-4589.1	5.9	-3776.9	3.7	-3056.9	2.5	-2411.5	1.9
5.000	-5619.2	9.7	-4679.9	6.0	-3853.8	3.7	-3120.3	2.5	-2462.6	2.0
5.200	-5717.9	9.8	-4762.4	6.0	-3924.7	3.8	-3178.7	2.6	-2508.6	2.0
5.400	-5809.9	9.9	-4842.6	6.1	-3989.9	3.8	-3231.4	2.6	-2549.5	2.0
5.500	-5853	10	-4879.4	6.1	-4020.3	3.9	-3255.8	2.6	-2568.1	2.0
5.600	-5895	10	-4912.7	6.2	-4049.4	3.9	-3278.9	2.6	-2585.4	2.0
5.800	-5974	10	-4980.8	6.3	-4103.3	3.9	-3321.1	2.6	-2616.4	2.0
6.000	-6047	10	-5041.1	6.4	-4151.7	4.0	-3358.1	2.7	-2642.3	2.0
SAT 6.096										
SAT 6.089			-5066.8	6.4						
SAT 6.106					-4175.2	4.0				
SAT 6.117							-3377.2	2.7		
SAT 6.131									-2656.5	2.0

TABLE 22 A (CONT.) APPARENT MOLAL RELATIVE ENTHALPY OF SODIUM CHLORIDE, LPHI (J/MOL)

MOLALITY	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.001	59.19	0.01	63.48	0.01	72.89	0.01	83.58	0.01	95.73	0.01
0.002	81.34	0.02	88.04	0.02	101.36	0.02	116.43	0.02	133.51	0.03
0.005	124.11	0.04	133.91	0.04	155.02	0.05	178.70	0.06	205.40	0.07
0.010	167.08	0.03	181.17	0.08	211.15	0.10	244.44	0.11	281.77	0.13
0.020	220.02	0.15	240.40	0.16	283.10	0.18	329.88	0.20	381.93	0.23
0.050	299.77	0.32	333.51	0.33	402.25	0.38	475.70	0.43	556.20	0.50
0.100	353.15	0.51	403.36	0.53	503.02	0.63	606.91	0.72	718.90	0.82
0.200	370.91	0.77	446.92	0.80	593.64	0.95	742.1	1.1	898.8	1.3
0.300	344.52	0.91	442.37	0.96	628.0	1.1	812.4	1.3	1004.0	1.5
0.400	299.05	0.99	416.3	1.0	636.6	1.3	852.5	1.5	1074.4	1.7
0.500	243.2	1.0	378.5	1.1	630.7	1.3	875.3	1.6	1124.5	1.9
0.600	181.3	1.1	333.5	1.1	615.6	1.4	886.9	1.6	1161.4	2.0
0.700	115.9	1.1	284.2	1.1	594.5	1.4	891.0	1.7	1189.0	2.0
0.800	48.4	1.1	232.0	1.1	569.3	1.4	889.6	1.7	1210.0	2.1
0.900	-20.1	1.1	178.1	1.1	541.2	1.4	884.4	1.7	1226.1	2.1
1.000	-88.9	1.1	123.3	1.1	511.1	1.4	876.2	1.7	1238.3	2.1
1.200	-226.0	1.0	12.8	1.1	447.5	1.4	854.1	1.7	1254.7	2.1
1.400	-360.3	1.0	-96.7	1.1	381.8	1.4	827.9	1.7	1263.9	2.1
1.500	-425.9	1.0	-150.6	1.1	348.9	1.4	813.0	1.7	1266.7	2.1
1.600	-490.4	1.0	-203.6	1.1	316.3	1.4	798.3	1.7	1268.8	2.1
1.800	-615.6	1.0	-306.8	1.1	252.0	1.4	768.7	1.7	1271.3	2.1
2.000	-735.3	1.1	-405.8	1.1	190.0	1.5	739.6	1.7	1272.7	2.1
2.200	-849.3	1.1	-500.3	1.2	130.7	1.5	711.7	1.7	1274.1	2.1
2.400	-957.6	1.2	-589.9	1.2	74.5	1.5	685.6	1.8	1276.0	2.1
2.500	-1009.6	1.2	-632.9	1.3	47.7	1.5	673.3	1.8	1277.3	2.1
2.600	-1060.1	1.3	-674.6	1.3	21.8	1.6	661.6	1.8	1278.9	2.1
2.800	-1156.7	1.4	-754.4	1.4	-27.4	1.6	640.2	1.8	1283.4	2.1
3.000	-1247.7	1.4	-829.2	1.4	-72.8	1.6	621.4	1.8	1289.7	2.1
3.200	-1333.1	1.5	-899.1	1.5	-114.5	1.7	605.5	1.9	1298.1	2.2
3.400	-1412.9	1.6	-964.1	1.6	-152.3	1.7	592.6	1.9	1308.8	2.2
3.500	-1450.8	1.6	-994.7	1.6	-169.7	1.8	587.3	1.9	1315.0	2.2
3.600	-1487.3	1.6	-1024.2	1.6	-186.2	1.8	582.9	1.9	1321.9	2.2
3.800	-1556.4	1.6	-1079.6	1.6	-216.1	1.8	576.3	1.9	1337.7	2.2
4.000	-1620.3	1.7	-1130.2	1.7	-242.2	1.8	573.1	2.0	1356.1	2.2
4.200	-1679.2	1.7	-1176.2	1.7	-264.3	1.9	573.2	2.0	1377.5	2.2
4.400	-1732.9	1.7	-1217.6	1.7	-282.4	1.9	576.8	2.0	1401.7	2.2
4.500	-1758.0	1.7	-1236.6	1.7	-290.0	1.9	579.8	2.0	1415.0	2.2
4.600	-1825.7	1.7	-1254.4	1.7	-296.8	1.9	583.8	2.0	1429.0	2.2
5.000	-1864.9	1.7	-1314.4	1.7	-312.9	2.0	594.4	2.0	1459.4	2.3
5.200	-1899.2	1.8	-1337.6	1.8	-314.9	2.0	608.6	2.1	1493.0	2.3
5.400	-1928.8	1.8	-1356.3	1.8	-312.9	2.0	626.4	2.1	1529.8	2.3
5.500	-1941.9	1.8	-1363.9	1.8	-310.3	2.0	648.0	2.1	1570.0	2.4
5.600	-1953.7	1.8	-1370.4	1.8	-306.7	2.0	660.2	2.2	1591.4	2.4
5.800	-1973.7	1.8	-1380.0	1.8	-296.3	2.0	673.3	2.2	1613.6	2.5
6.000	-1989.0	1.8	-1384.9	1.8	-281.6	2.1	702.5	2.3	1660.6	2.6
6.200	-1997.2	1.8	-1385.5	1.8	-262.6	2.2	735.7	2.4	1711.2	2.8
SAT 6.148							772.9	2.5	1765.4	3.0
SAT 6.168										
SAT 6.216										
SAT 6.274							787.7	2.6	1805.9	3.2
SAT 6.341										

TABLE 22 A (CONT.) APPARENT MOLAL RELATIVE ENTHALPY OF SODIUM CHLORIDE, LPHI (J/MOL)

MOLALITY	70.000 DEG C			80.000 DEG C			90.000 DEG C			100.000 DEG C			110.000 DEG C		
	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.	VALUE	S.E.	
0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.001	109.48	0.02	0.02	124.95	0.02	0.02	142.28	0.02	0.02	161.58	0.02	0.02	183.00	0.03	
0.002	152.80	0.03	0.03	174.48	0.04	0.04	198.71	0.04	0.04	225.65	0.04	0.04	255.52	0.06	
0.005	235.46	0.08	0.08	269.12	0.08	0.08	306.61	0.09	0.09	348.16	0.11	0.11	394.13	0.13	
0.010	323.63	0.14	0.14	370.32	0.16	0.16	422.11	0.17	0.17	479.32	0.20	0.20	542.45	0.25	
0.020	439.94	0.27	0.27	504.32	0.29	0.29	575.34	0.32	0.32	653.42	0.37	0.37	739.25	0.47	
0.050	644.91	0.56	0.56	742.33	0.62	0.62	848.71	0.67	0.67	964.53	0.78	0.78	1091.0	1.0	
0.100	840.79	0.94	0.94	973.2	1.0	1.0	1116.1	1.1	1.1	1270.3	1.3	1.3	1437.2	1.7	
0.200	1066.5	1.4	1.4	1246.0	1.6	1.6	1437.3	1.7	1.7	1640.8	1.9	1.9	1859.2	2.6	
0.300	1206.9	1.8	1.8	1421.9	1.9	1.9	1648.8	2.0	2.0	1888.3	2.3	2.3	2143.5	3.2	
0.400	1307.2	2.0	2.0	1552.1	2.2	2.2	1808.8	2.4	2.4	2078.1	2.6	2.6	2363.6	3.6	
0.500	1384.1	2.2	2.2	1655.4	2.3	2.3	1938.4	2.4	2.4	2233.8	2.7	2.7	2545.8	3.9	
0.600	1445.5	2.3	2.3	1741.0	2.5	2.5	2047.9	2.4	2.4	2367.1	2.8	2.8	2703.1	4.1	
0.700	1496.0	2.4	2.4	1814.0	2.5	2.5	2143.1	2.5	2.5	2484.3	2.9	2.9	2842.5	4.3	
0.800	1538.6	2.4	2.4	1877.8	2.6	2.6	2227.7	2.5	2.5	2589.6	2.9	2.9	2968.7	4.5	
0.900	1575.1	2.5	2.5	1934.3	2.7	2.7	2304.1	2.6	2.6	2685.6	2.9	2.9	3084.5	4.6	
1.000	1606.9	2.5	2.5	1985.3	2.7	2.7	2374.0	2.6	2.6	2774.3	2.9	2.9	3192.1	4.7	
1.200	1660.2	2.6	2.6	2074.7	2.8	2.8	2499.0	2.6	2.6	2934.7	2.9	2.9	3388.3	4.8	
1.400	1703.9	2.6	2.6	2152.1	2.8	2.8	2609.6	2.6	2.6	3078.5	2.9	2.9	3565.6	4.9	
1.500	1723.2	2.6	2.6	2187.5	2.8	2.8	2660.9	2.6	2.6	3145.7	2.9	2.9	3648.9	5.0	
1.600	1741.3	2.6	2.6	2221.2	2.8	2.8	2710.1	2.6	2.6	3210.4	2.9	2.9	3729.3	5.0	
1.800	1774.6	2.6	2.6	2284.6	2.9	2.9	2803.4	2.6	2.6	3333.6	2.9	2.9	3882.8	5.1	
2.000	1805.3	2.6	2.6	2344.1	2.9	2.9	2891.5	2.6	2.6	3450.3	2.9	2.9	4028.5	5.2	
2.200	1834.7	2.7	2.7	2401.0	2.9	2.9	2975.8	2.7	2.7	3562.1	2.9	2.9	4168.2	5.3	
2.400	1863.5	2.7	2.7	2456.3	2.9	2.9	3057.5	2.7	2.7	3670.3	3.0	3.0	4303.3	5.4	
2.500	1878.0	2.7	2.7	2483.6	2.9	2.9	3097.6	2.7	2.7	3723.4	3.0	3.0	4369.5	5.4	
2.600	1892.5	2.7	2.7	2510.8	3.0	3.0	3137.4	2.7	2.7	3775.9	3.0	3.0	4434.8	5.5	
2.800	1922.0	2.7	2.7	2565.0	3.0	3.0	3216.3	2.8	2.8	3879.5	3.1	3.1	4563.7	5.6	
3.000	1952.6	2.7	2.7	2619.5	3.0	3.0	3294.6	2.8	2.8	3982.0	3.2	3.2	4690.6	5.7	
3.200	1984.5	2.7	2.7	2674.6	3.0	3.0	3372.9	2.9	2.9	4083.6	3.2	3.2	4816.0	5.7	
3.400	2018.0	2.7	2.7	2730.6	3.1	3.1	3451.5	2.9	2.9	4184.9	3.3	3.3	4940.4	5.8	
3.500	2035.4	2.7	2.7	2759.1	3.1	3.1	3491.0	2.9	2.9	4235.6	3.3	3.3	5002.3	5.9	
3.600	2053.3	2.7	2.7	2787.9	3.1	3.1	3530.7	2.9	2.9	4286.3	3.3	3.3	5064.1	5.9	
3.800	2090.7	2.7	2.7	2846.7	3.1	3.1	3610.9	3.0	3.0	4387.9	3.4	3.4	5187.6	5.9	
4.000	2130.3	2.7	2.7	2907.1	3.1	3.1	3692.1	3.0	3.0	4490.1	3.4	3.4	5311.0	6.0	
4.200	2172.2	2.7	2.7	2969.4	3.1	3.1	3774.6	3.0	3.0	4593.0	3.4	3.4	5434.6	6.0	
4.400	2216.6	2.8	2.8	3033.6	3.1	3.1	3858.6	3.0	3.0	4696.8	3.4	3.4	5558.5	6.0	
4.500	2239.7	2.8	2.8	3066.5	3.2	3.2	3901.1	3.0	3.0	4749.0	3.4	3.4	5620.6	6.0	
4.600	2263.6	2.8	2.8	3099.9	3.2	3.2	3944.1	3.0	3.0	4801.6	3.4	3.4	5682.8	6.1	
4.800	2313.2	2.8	2.8	3168.3	3.2	3.2	4031.2	3.0	3.0	4907.4	3.4	3.4	5807.6	6.1	
5.000	2365.5	2.8	2.8	3239.1	3.2	3.2	4120.1	3.0	3.0	5014.5	3.4	3.4	5933.0	6.1	
5.200	2420.7	2.9	2.9	3312.2	3.2	3.2	4210.8	3.0	3.0	5122.7	3.3	3.3	6059.0	6.0	
5.400	2478.8	2.9	2.9	3387.6	3.2	3.2	4303.4	3.0	3.0	5232.2	3.3	3.3	6185.5	6.0	
5.500	2508.9	2.9	2.9	3426.3	3.3	3.3	4350.3	3.0	3.0	5287.4	3.3	3.3	6249.0	6.0	
5.600	2539.8	3.0	3.0	3465.5	3.3	3.3	4397.8	3.0	3.0	5342.9	3.3	3.3	6312.7	6.0	
5.800	2603.9	3.1	3.1	3545.9	3.4	3.4	4494.0	3.0	3.0	5454.8	3.2	3.2	6440.3	6.1	
6.000	2671.0	3.3	3.3	3628.8	3.5	3.5	4592.2	3.1	3.1	5567.9	3.2	3.2	6568.5	6.2	
6.200	2741.2	3.6	3.6	3714.2	3.8	3.8	4692.2	3.2	3.2	5682.2	3.5	3.5	6696.9	6.3	
6.400	2814.6	3.9	3.9	3802.2	4.1	4.1	4794.0	3.3	3.3	5797.4	3.8	3.8	6825.6	6.6	
6.500							4845.6	3.9	3.9	5855.4	4.1	4.1	6890.0	6.9	
6.600										5913.7	4.4	4.4	6954.4	7.1	
SAT 6.416	2820.7	4.0		3846.4	4.3		4890.7	4.2		5560.6	4.7		7069.0	7.8	
SAT 6.498															
SAT 6.587															
SAT 6.680															
SAT 6.778															

TABLE 22 B APPARENT MOLAL RELATIVE ENTHALPY OF SODIUM CHLORIDE, LPHI (J/MOL)

WEIGHT %	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.200	110.23	0.69	131.55	0.47	151.43	0.31	170.40	0.21	188.92	0.15
0.300	115.0	1.3	149.88	0.86	181.54	0.57	210.99	0.37	239.07	0.27
0.400	104.3	1.8	151.1	1.2	193.00	0.78	231.41	0.51	267.52	0.37
0.500	86.2	2.2	144.0	1.5	195.23	0.98	241.78	0.64	285.09	0.46
0.600	63.7	2.6	131.7	1.8	191.8	1.2	245.93	0.75	295.91	0.53
0.700	38.2	3.0	116.1	2.0	184.5	1.3	245.82	0.85	302.08	0.60
0.800	10.7	3.3	98.0	2.2	174.4	1.5	242.57	0.95	304.82	0.66
0.900	-18.3	3.7	78.1	2.5	162.2	1.6	236.9	1.0	304.92	0.72
1.000	-48.5	4.0	56.7	2.6	148.2	1.7	229.4	1.1	302.90	0.77
1.200	-79.5	4.2	34.2	2.8	133.0	1.8	220.2	1.2	299.17	0.82
1.400	-143.6	4.8	-13.4	3.2	99.2	2.0	198.4	1.3	287.63	0.90
1.600	-209.5	5.2	-63.6	3.4	62.3	2.2	172.8	1.4	271.93	0.97
1.800	-276.6	5.6	-115.6	3.7	23.0	2.4	144.5	1.5	253.1	1.0
2.000	-344.5	6.0	-169.0	3.9	-18.0	2.5	114.1	1.6	231.8	1.1
2.500	-412.9	6.3	-223.3	4.1	-60.3	2.6	81.9	1.7	208.6	1.1
3.000	-584.8	6.9	-361.7	4.5	-170.3	2.9	-3.6	1.8	144.3	1.1
3.500	-756.7	7.4	-502.3	4.8	-284.0	3.0	-94.2	1.9	73.8	1.2
4.000	-927.7	7.8	-643.4	5.1	-399.7	3.2	-187.9	1.9	-0.7	1.3
4.500	-1097.0	8.2	-784.4	5.3	-516.3	3.3	-283.5	2.0	-77.9	1.3
5.000	-1264.4	8.4	-924.7	5.4	-633.2	3.3	-380.1	2.0	-156.7	1.3
5.500	-1429.7	8.6	-1063.9	5.5	-749.9	3.4	-477.2	2.0	-236.6	1.3
6.000	-1753.3	8.8	-1338.1	5.6	-981.3	3.4	-671.2	2.0	-397.8	1.3
7.000	-2067.0	9.0	-1605.7	5.6	-1208.7	3.4	-863.4	2.0	-558.8	1.3
8.000	-2370.6	9.1	-1865.9	5.6	-1431.0	3.4	-1052.2	2.0	-717.9	1.3
9.000	-2663.9	9.1	-2118.2	5.6	-1647.3	3.4	-1236.8	2.0	-874.2	1.3
10.000	-2946.8	9.1	-2362.3	5.6	-1857.2	3.4	-1416.3	2.0	-1026.6	1.3
11.000	-3219.2	9.1	-2597.9	5.6	-2060.3	3.3	-1590.4	2.0	-1174.8	1.3
12.000	-3481.2	9.1	-2824.9	5.5	-2256.2	3.3	-1758.7	2.0	-1318.1	1.4
13.000	-3732.6	9.0	-3043.2	5.5	-2444.9	3.3	-1920.8	2.1	-1456.2	1.5
14.000	-3973.7	9.0	-3252.6	5.5	-2626.1	3.3	-2076.5	2.1	-1588.8	1.6
15.000	-4204.2	9.0	-3453.1	5.5	-2799.5	3.3	-2229.5	2.2	-1715.6	1.6
16.000	-4424.4	9.0	-3644.6	5.5	-2965.2	3.4	-2367.7	2.2	-1836.3	1.7
17.000	-4634.2	9.1	-3827.1	5.5	-3122.9	3.4	-2502.9	2.3	-1950.8	1.8
18.000	-4833.6	9.1	-4000.5	5.5	-3272.6	3.4	-2630.8	2.3	-2058.6	1.8
19.000	-5022.6	9.2	-4164.7	5.6	-3414.0	3.5	-2751.3	2.4	-2159.6	1.9
20.000	-5201.4	9.3	-4319.7	5.7	-3547.1	3.6	-2864.1	2.4	-2253.5	1.9
21.000	-5369.7	9.4	-4465.2	5.8	-3671.6	3.6	-2968.9	2.5	-2339.9	1.9
22.000	-5527.5	9.6	-4601.3	5.9	-3787.3	3.7	-3065.5	2.5	-2418.5	1.9
23.000	-5674.8	9.7	-4727.6	6.0	-3893.9	3.8	-3153.5	2.6	-2488.8	2.0
24.000	-5811.4	9.9	-4843.8	6.1	-3990.9	3.8	-3232.3	2.6	-2550.2	2.0
25.000	-5937	10	-4949.7	6.2	-4078.0	3.9	-3301.4	2.6	-2602.1	2.0
26.000	-6051	10	-5044.5	6.4	-4154.4	4.0	-3360.1	2.7	-2643.7	2.0
SAT 26.268	-6079		-5068.8	6.4	-4175.2	4.0	-3377.2	2.7	-2656.5	2.0
SAT 26.278										
SAT 26.300										
SAT 26.334										
SAT 26.378										

TABLE 22 B (CONT.) APPARENT MOLAL RELATIVE ENTHALPY OF SODIUM CHLORIDE, LPHI (J/MOL)

WEIGHT %	25.000 DEG C			30.000 DEG C			40.000 DEG C			50.000 DEG C			60.000 DEG C		
	VALUE	S.E.		VALUE	S.E.		VALUE	S.E.		VALUE	S.E.		VALUE	S.E.	
0.000	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
0.100	207.38	0.13		226.14	0.14		265.58	0.16		308.93	0.18		357.26	0.20	
0.200	266.49	0.23		293.85	0.24		350.26	0.28		411.23	0.32		478.52	0.37	
0.300	302.31	0.32		336.62	0.33		406.42	0.39		480.95	0.44		562.58	0.51	
0.400	326.42	0.40		366.84	0.41		448.22	0.48		534.26	0.55		627.89	0.63	
0.500	343.27	0.47		389.25	0.48		481.05	0.57		577.32	0.65		681.51	0.74	
0.600	355.07	0.53		406.24	0.55		507.67	0.64		613.28	0.73		727.01	0.84	
0.700	363.16	0.58		419.23	0.60		529.68	0.71		643.95	0.81		766.49	0.93	
0.800	368.37	0.63		429.11	0.65		548.11	0.77		670.54	0.88		801.3	1.0	
0.900	371.28	0.67		436.50	0.70		563.68	0.83		693.84	0.95		832.3	1.1	
1.000	372.32	0.71		441.87	0.74		576.90	0.88		714.5	1.0		860.3	1.2	
1.200	369.92	0.78		447.75	0.82		597.72	0.97		749.2	1.1		908.9	1.3	
1.400	362.93	0.84		448.62	0.88		612.7	1.0		777.3	1.2		949.8	1.4	
1.600	352.46	0.88		445.70	0.93		623.3	1.1		800.3	1.3		984.8	1.5	
1.800	339.26	0.92		439.78	0.97		630.4	1.2		819.2	1.4		1015.2	1.6	
2.000	323.89	0.96		431.5	1.0		634.6	1.2		834.8	1.4		1041.9	1.6	
2.500	278.3	1.0		402.7	1.1		635.7	1.3		863.0	1.5		1095.8	1.8	
3.000	225.6	1.1		365.9	1.1		627.1	1.4		879.6	1.6		1136.4	1.9	
3.500	168.0	1.1		323.7	1.1		611.7	1.4		888.3	1.6		1167.7	2.0	
4.000	107.2	1.1		277.5	1.1		591.5	1.4		891.1	1.7		1192.1	2.1	
4.500	44.2	1.1		228.6	1.1		567.6	1.4		889.4	1.7		1211.2	2.1	
5.000	-20.4	1.1		177.8	1.1		541.0	1.4		884.4	1.7		1226.2	2.1	
6.000	-152.3	1.0		72.4	1.1		482.2	1.4		866.8	1.7		1247.0	2.1	
7.000	-285.5	1.0		-35.6	1.1		418.7	1.4		842.7	1.7		1259.4	2.1	
8.000	-418.1	1.0		-144.1	1.1		352.9	1.4		814.7	1.7		1266.4	2.1	
9.000	-548.8	1.0		-251.7	1.1		286.4	1.4		784.7	1.7		1270.1	2.1	
10.000	-676.8	1.1		-357.5	1.1		220.3	1.4		753.9	1.7		1272.1	2.1	
11.000	-801.5	1.1		-460.6	1.2		155.6	1.5		723.4	1.7		1273.5	2.1	
12.000	-922.1	1.2		-560.5	1.2		92.9	1.5		694.1	1.8		1275.2	2.1	
13.000	-1038.4	1.3		-656.7	1.3		32.9	1.5		666.6	1.8		1278.2	2.1	
14.000	-1149.9	1.4		-748.7	1.4		-23.9	1.6		641.6	1.8		1283.0	2.1	
15.000	-1256.3	1.4		-836.2	1.4		-77.1	1.7		619.7	1.8		1290.5	2.1	
16.000	-1357.3	1.5		-918.8	1.5		-126.0	1.7		601.4	1.9		1301.0	2.2	
17.000	-1452.5	1.6		-996.1	1.6		-170.5	1.8		587.1	1.9		1315.9	2.2	
18.000	-1541.7	1.6		-1067.8	1.6		-209.9	1.8		575.5	1.9		1334.0	2.2	
19.000	-1624.5	1.7		-1133.5	1.7		-243.8	1.8		573.0	2.0		1357.5	2.2	
20.000	-1700.6	1.7		-1192.9	1.7		-271.8	1.9		574.2	2.0		1386.5	2.2	
21.000	-1769.7	1.7		-1245.3	1.7		-293.3	1.9		596.0	2.1		1421.7	2.2	
22.000	-1831.1	1.7		-1290.5	1.7		-312.8	2.0		618.0	2.1		1463.6	2.3	
23.000	-1884.5	1.7		-1327.8	1.8		-314.5	2.0		648.4	2.1		1513.0	2.4	
24.000	-1929.3	1.8		-1356.5	1.8		-312.8	2.0		688.0	2.2		1570.7	2.5	
25.000	-1964.7	1.8		-1375.9	1.8		-301.9	2.0		737.8	2.4		1637.5	2.6	
26.000	-1989.8	1.8		-1385.1	1.8		-280.6	2.1		787.7	2.6		1714.3	2.8	
27.000	-1997.2	1.8		-1385.5	1.8		-260.9	2.2		1802.2	3.2		1805.9	3.2	
SAT 26.432															
SAT 26.495															
SAT 26.647															
SAT 26.830															
SAT 27.039															

TABLE 22 B (CONT.) APPARENT MOLAL RELATIVE ENTHALPY OF SODIUM CHLORIDE, LPHI (J/MOL)

WEIGHT %	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	C.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.100	411.21	0.23	471.16	0.26	537.39	0.28	610.28	0.32	690.49	0.41
0.200	553.07	0.42	635.33	0.46	725.59	0.50	824.29	0.58	932.39	0.74
0.300	652.49	0.58	751.19	0.64	858.92	0.69	976.18	0.79	1104.1	1.0
0.400	730.54	0.72	842.73	0.79	954.68	0.85	1096.88	0.98	1240.7	1.3
0.500	795.26	0.85	919.12	0.93	1053.3	1.0	1198.2	1.2	1355.5	1.5
0.600	850.73	0.96	985.0	1.1	1129.9	1.1	1286.1	1.3	1455.2	1.7
0.700	899.3	1.1	1043.1	1.2	1197.8	1.2	1364.0	1.4	1543.7	1.9
0.800	942.6	1.2	1095.1	1.3	1258.8	1.4	1434.2	1.6	1623.5	2.1
0.900	981.6	1.3	1142.2	1.4	1314.3	1.5	1498.3	1.7	1696.5	2.2
1.000	1017.1	1.3	1185.4	1.5	1365.3	1.5	1557.3	1.8	1763.8	2.4
1.200	1079.6	1.5	1262.2	1.6	1456.6	1.7	1663.3	2.0	1884.9	2.6
1.400	1133.5	1.6	1329.1	1.7	1536.7	1.8	1756.7	2.1	1992.0	2.9
1.600	1180.6	1.7	1388.4	1.9	1608.2	1.9	1840.6	2.2	2088.5	3.1
1.800	1222.4	1.8	1441.7	2.0	1673.0	2.0	1916.8	2.4	2176.5	3.3
2.000	1259.9	1.9	1490.1	2.1	1732.3	2.1	1987.0	2.4	2257.7	3.4
2.500	1339.2	2.1	1594.7	2.2	1851.9	2.3	2141.6	2.6	2437.8	3.7
3.000	1403.3	2.2	1682.0	2.4	1972.2	2.4	2274.7	2.7	2593.9	4.0
3.500	1456.6	2.3	1756.9	2.5	2068.6	2.5	2392.4	2.8	2733.1	4.2
4.000	1501.9	2.4	1822.8	2.6	2154.6	2.5	2498.6	2.9	2859.5	4.3
4.500	1541.0	2.4	1881.5	2.6	2232.7	2.5	2595.9	2.9	2976.2	4.5
5.000	1575.3	2.5	1934.6	2.7	2304.5	2.6	2686.1	2.9	3085.1	4.6
6.000	1633.0	2.5	2028.3	2.7	2433.7	2.6	2850.7	2.9	3285.3	4.7
7.000	1680.4	2.6	2109.9	2.8	2549.1	2.6	2999.6	2.9	3468.2	4.9
8.000	1720.9	2.6	2183.3	2.8	2654.8	2.6	3137.7	2.9	3639.0	5.0
9.000	1757.0	2.6	2251.0	2.9	2753.9	2.6	3268.2	2.9	3801.2	5.1
10.000	1790.4	2.6	2315.1	2.9	2848.5	2.6	3393.4	2.9	3957.3	5.2
11.000	1822.3	2.7	2377.0	2.9	2940.3	2.7	3515.0	2.9	4109.3	5.3
12.000	1853.9	2.7	2438.0	2.9	3030.5	2.7	3634.6	3.0	4258.7	5.4
13.000	1886.2	2.7	2499.1	3.0	3120.3	2.7	3753.3	3.0	4406.7	5.5
14.000	1919.8	2.7	2561.1	3.0	3210.6	2.8	3872.1	3.1	4554.4	5.6
15.000	1955.6	2.7	2624.8	3.0	3302.3	2.8	3991.9	3.2	4702.9	5.7
16.000	1994.2	2.7	2691.0	3.0	3396.1	2.9	4113.6	3.2	4852.9	5.8
17.000	2036.2	2.7	2760.4	3.1	3492.8	2.9	4237.9	3.3	5005.2	5.9
18.000	2082.3	2.7	2833.6	3.1	3593.2	3.0	4365.5	3.4	5160.5	5.9
19.000	2133.1	2.7	2911.3	3.1	3697.7	3.0	4497.1	3.4	5319.5	6.0
20.000	2189.2	2.7	2994.1	3.1	3807.0	3.0	4633.2	3.4	5482.7	6.0
21.000	2251.2	2.8	3082.6	3.2	3921.9	3.0	4774.4	3.4	5650.7	6.0
22.000	2319.8	2.8	3177.5	3.2	4042.7	3.0	4921.4	3.4	5823.9	6.1
23.000	2395.8	2.8	3279.4	3.2	4170.3	3.0	5074.4	3.4	6002.8	6.0
24.000	2479.8	2.9	3388.9	3.2	4305.0	3.0	5234.1	3.3	6187.7	6.0
25.000	2572.6	3.0	3506.9	3.3	4447.4	3.0	5400.7	3.2	6378.7	6.1
26.000	2675.1	3.3	3633.8	3.5	4598.0	3.1	5574.7	3.3	6576.1	6.2
27.000	2788.1	3.8	3770.5	4.0	4757.4	3.5	5756.2	3.7	6779.7	6.5
28.000	2820.7	4.0					5945.3	4.6	6989.3	7.3
SAT 27.272			3846.4	4.3						
SAT 27.525					4890.7	4.2				
SAT 27.795							5960.6	4.7	7069.0	7.8
SAT 28.079										
SAT 28.373										

TABLE 23 A PARTIAL MOLAL RELATIVE ENTHALPY OF WATER, L1 (J/MOL)

MOLALITY	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.001	-0.00	0.00	-0.00	0.00	-0.00	0.00	-0.00	0.00	-0.00	0.00
0.002	-0.00	0.00	-0.00	0.00	-0.00	0.00	-0.00	0.00	-0.00	0.00
0.005	-0.00	0.00	-0.00	0.00	-0.00	0.00	-0.00	0.00	-0.00	0.00
0.010	-0.00	0.00	-0.01	0.00	-0.01	0.00	-0.01	0.00	-0.01	0.00
0.020	-0.01	0.00	-0.01	0.00	-0.02	0.00	-0.02	0.00	-0.03	0.00
0.050	0.04	0.00	0.01	0.00	-0.02	0.00	-0.04	0.00	-0.06	0.00
0.100	0.27	0.00	0.17	0.00	0.09	0.00	0.01	0.00	-0.05	0.00
0.200	1.33	0.01	1.00	0.01	0.72	0.00	0.47	0.00	0.26	0.00
0.300	3.11	0.02	2.45	0.01	1.88	0.01	1.40	0.00	0.99	0.00
0.400	5.53	0.02	4.46	0.01	3.55	0.01	2.77	0.00	2.09	0.00
0.500	8.54	0.03	7.00	0.02	5.68	0.01	4.54	0.01	3.55	0.00
0.600	12.07	0.03	9.99	0.02	8.21	0.01	6.68	0.01	5.33	0.00
0.700	16.06	0.04	13.41	0.02	11.12	0.01	9.15	0.01	7.42	0.00
0.800	20.48	0.05	17.20	0.03	14.37	0.02	11.92	0.01	9.76	0.01
0.900	25.27	0.05	21.33	0.03	17.93	0.02	14.96	0.01	12.35	0.01
1.000	30.39	0.06	25.76	0.04	21.75	0.02	18.25	0.01	15.16	0.01
1.200	41.47	0.08	35.38	0.05	30.08	0.03	25.43	0.02	21.31	0.01
1.400	53.42	0.10	45.80	0.07	39.13	0.04	33.26	0.03	28.04	0.02
1.500	59.64	0.11	51.23	0.08	43.86	0.05	37.36	0.03	31.57	0.02
1.600	65.99	0.13	56.78	0.08	48.69	0.05	41.55	0.04	35.18	0.03
1.800	78.95	0.15	68.13	0.10	58.59	0.07	50.13	0.05	42.57	0.04
2.000	92.10	0.17	79.65	0.12	68.65	0.08	58.85	0.06	50.07	0.05
2.200	105.25	0.20	91.20	0.13	78.72	0.09	67.58	0.07	57.56	0.06
2.400	118.27	0.22	102.62	0.15	88.68	0.11	76.20	0.08	64.93	0.07
2.500	124.68	0.24	108.25	0.16	93.59	0.11	80.43	0.09	68.53	0.07
2.600	131.00	0.25	113.79	0.17	98.41	0.12	84.59	0.09	72.06	0.08
2.800	143.34	0.29	124.61	0.20	107.81	0.14	92.65	0.10	78.87	0.08
3.000	155.18	0.33	134.97	0.23	116.77	0.16	100.30	0.12	85.27	0.09
3.200	166.43	0.37	144.78	0.26	125.22	0.18	107.45	0.13	91.18	0.10
3.400	177.01	0.43	153.98	0.30	133.03	0.21	114.02	0.15	96.51	0.11
3.500	182.03	0.46	158.32	0.32	136.77	0.22	117.07	0.15	98.94	0.12
3.600	186.86	0.49	162.48	0.34	140.28	0.24	119.95	0.16	101.19	0.12
3.800	195.91	0.55	170.23	0.39	146.75	0.27	125.15	0.19	105.15	0.14
4.000	204.10	0.62	177.16	0.44	152.42	0.31	129.56	0.22	108.31	0.17
4.200	211.38	0.69	183.21	0.49	157.22	0.34	133.11	0.25	110.59	0.19
4.400	217.70	0.77	188.32	0.54	161.10	0.38	135.72	0.28	111.92	0.22
4.500	220.48	0.81	190.51	0.57	162.66	0.40	135.64	0.29	112.20	0.24
4.600	223.00	0.85	192.43	0.60	163.98	0.42	137.30	0.31	112.20	0.25
4.800	227.21	0.94	195.46	0.66	165.74	0.46	137.79	0.33	111.35	0.27
5.000	230.3	1.1	197.34	0.73	166.95	0.50	137.07	0.36	109.26	0.29
5.200	232.1	1.2	197.98	0.82	165.69	0.55	135.04	0.38	105.83	0.30
5.400	232.7	1.4	197.30	0.95	163.67	0.62	131.60	0.41	100.92	0.29
5.500	232.4	1.5	196.4	1.0	162.10	0.67	129.31	0.43	97.88	0.30
5.600	231.8	1.7	195.2	1.1	160.15	0.73	125.61	0.46	94.42	0.30
5.800	229.5	2.1	191.5	1.4	155.00	0.91	119.93	0.56	86.15	0.35
6.000	225.5	2.6	186.1	1.8	148.1	1.2	111.40	0.75	75.97	0.48
6.096	223.0	2.8	182.7	2.0						
SAT					143.6	1.4	105.50	0.90	68.20	0.62
SAT										
SAT										
SAT										
SAT										

TABLE 23 A (CONT.) PARTIAL MOLAL RELATIVE ENTHALPY OF WATER, L1 (J/MOL)

MOLALITY	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.
0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.001	-0.00	0.00	-0.00	0.00	-0.00	0.00	-0.00	0.00	-0.00	0.00
0.002	-0.00	0.00	-0.00	0.00	-0.00	0.00	-0.00	0.00	-0.00	0.00
0.005	-0.00	0.00	-0.01	0.00	-0.01	0.00	-0.01	0.00	-0.01	0.00
0.010	-0.01	0.00	-0.01	0.00	-0.02	0.00	-0.02	0.00	-0.02	0.00
0.020	-0.03	0.00	-0.03	0.00	-0.04	0.00	-0.04	0.00	-0.05	0.00
0.050	-0.08	0.00	-0.10	0.00	-0.13	0.00	-0.16	0.00	-0.20	0.00
0.100	-0.11	0.00	-0.16	0.00	-0.26	0.00	-0.35	0.00	-0.45	0.00
0.200	0.08	0.00	-0.09	0.00	-0.39	0.00	-0.67	0.00	-0.95	0.00
0.300	0.62	0.00	0.29	0.00	-0.31	0.00	-0.85	0.00	-1.37	0.00
0.400	1.49	0.00	0.95	0.00	-0.00	0.00	-0.87	0.00	-1.69	0.01
0.500	2.68	0.00	1.89	0.00	0.50	0.00	-0.74	0.01	-1.92	0.01
0.600	4.15	0.00	3.08	0.00	1.20	0.01	-0.48	0.01	-2.06	0.01
0.700	5.88	0.00	4.50	0.00	2.07	0.01	-0.09	0.01	-2.12	0.01
0.800	7.85	0.00	6.13	0.01	3.10	0.01	0.40	0.01	-2.11	0.01
0.900	10.04	0.01	7.95	0.01	4.26	0.01	1.00	0.01	-2.04	0.02
1.000	12.41	0.01	9.93	0.01	5.55	0.01	1.68	0.02	-1.92	0.02
1.200	17.64	0.01	14.31	0.01	8.44	0.02	3.24	0.02	-1.58	0.02
1.400	23.37	0.02	19.13	0.02	11.63	0.02	4.98	0.03	-1.18	0.03
1.500	26.38	0.02	21.66	0.02	13.30	0.03	5.89	0.03	-0.98	0.03
1.600	29.45	0.02	24.25	0.02	15.01	0.03	6.81	0.03	-0.80	0.04
1.800	35.75	0.03	29.53	0.03	18.46	0.04	8.61	0.04	-0.53	0.04
2.000	42.12	0.04	34.86	0.04	21.89	0.04	10.31	0.05	-0.45	0.05
2.200	48.47	0.05	40.13	0.05	25.19	0.05	11.81	0.06	-0.66	0.06
2.400	54.67	0.06	45.24	0.06	28.27	0.06	13.02	0.06	-1.22	0.07
2.500	57.68	0.07	47.70	0.06	29.70	0.07	13.49	0.07	-1.67	0.07
2.600	60.63	0.07	50.08	0.07	31.04	0.07	13.85	0.07	-2.24	0.08
2.800	66.25	0.08	54.58	0.08	33.41	0.08	14.23	0.08	-3.78	0.09
3.000	71.46	0.08	58.65	0.08	35.31	0.09	14.07	0.09	-5.92	0.10
3.200	76.16	0.09	62.19	0.09	36.64	0.10	13.29	0.11	-8.76	0.11
3.400	80.29	0.10	65.15	0.10	37.33	0.11	11.80	0.12	-12.37	0.12
3.500	82.11	0.10	66.37	0.11	37.41	0.12	10.77	0.13	-14.49	0.13
3.600	83.76	0.11	67.42	0.11	37.30	0.13	9.52	0.14	-16.83	0.13
3.800	86.49	0.13	68.95	0.13	36.45	0.15	6.37	0.16	-22.23	0.15
4.000	88.41	0.15	69.63	0.15	34.71	0.17	2.26	0.18	-28.66	0.18
4.200	89.43	0.18	69.39	0.18	31.98	0.19	-2.91	0.21	-36.19	0.21
4.400	89.47	0.21	68.14	0.21	28.17	0.22	-9.22	0.24	-44.93	0.25
4.500	89.09	0.22	67.11	0.22	25.83	0.23	-12.83	0.25	-49.77	0.27
4.600	88.43	0.23	65.79	0.23	23.18	0.25	-16.77	0.27	-54.96	0.30
4.800	86.23	0.25	62.22	0.25	16.91	0.28	-25.68	0.32	-66.37	0.36
5.000	82.75	0.27	57.34	0.27	9.24	0.31	-36.04	0.38	-79.28	0.44
5.200	77.87	0.27	51.01	0.28	0.06	0.36	-47.97	0.46	-93.77	0.54
5.400	71.48	0.27	43.12	0.30	-10.78	0.42	-61.59	0.57	-109.96	0.68
5.500	67.67	0.26	38.55	0.30	-16.86	0.46	-69.08	0.64	-118.72	0.77
5.600	63.42	0.27	33.52	0.32	-23.40	0.51	-77.04	0.71	-127.95	0.86
5.800	53.56	0.30	22.06	0.38	-37.96	0.65	-94.45	0.91	-147.9	1.1
6.000	41.71	0.41	8.56	0.50	-54.62	0.84	-114.0	1.2	-169.8	1.4
6.200	31.59	0.55	-4.46	0.67	-73.6	1.1	-135.8	1.5	-194.0	1.8
SAT 6.148										
SAT 6.168										
SAT 6.216										
SAT 6.274										
SAT 6.341										

TABLE 23 B PARTIAL MOLAL RELATIVE ENTHALPY OF WATER, L1 (J/MOL)

WEIGHT %	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.100	-0.01	0.00	-0.01	0.00	-0.01	0.00	-0.01	0.00	-0.02	0.00
0.200	0.01	0.00	-0.01	0.00	-0.02	0.00	-0.03	0.00	-0.04	0.00
0.300	0.04	0.00	0.01	0.00	-0.02	0.00	-0.04	0.00	-0.06	0.00
0.400	0.10	0.00	0.05	0.00	0.00	0.00	-0.03	0.00	-0.07	0.00
0.500	0.19	0.00	0.11	0.00	0.04	0.00	-0.01	0.00	-0.06	0.00
0.600	0.30	0.00	0.19	0.00	0.10	0.00	0.02	0.00	-0.05	0.00
0.700	0.43	0.01	0.29	0.00	0.17	0.00	0.07	0.00	-0.02	0.00
0.800	0.58	0.01	0.41	0.00	0.26	0.00	0.13	0.00	0.02	0.00
0.900	0.77	0.01	0.55	0.00	0.37	0.00	0.21	0.00	0.07	0.00
1.000	0.97	0.01	0.71	0.01	0.48	0.00	0.30	0.00	0.14	0.00
1.200	1.45	0.01	1.09	0.01	0.78	0.00	0.53	0.00	0.31	0.00
1.400	2.01	0.01	1.55	0.01	1.15	0.01	0.82	0.00	0.53	0.00
1.600	2.67	0.02	2.08	0.01	1.58	0.01	1.16	0.00	0.80	0.00
1.800	3.40	0.02	2.69	0.01	2.08	0.01	1.57	0.00	1.11	0.00
2.000	4.23	0.02	3.37	0.01	2.65	0.01	2.02	0.00	1.48	0.00
2.500	6.63	0.02	5.39	0.02	4.32	0.01	3.41	0.01	2.62	0.00
3.000	9.52	0.03	7.82	0.02	6.38	0.01	5.13	0.01	4.04	0.00
3.500	12.85	0.03	10.66	0.02	8.78	0.01	7.16	0.01	5.74	0.00
4.000	16.61	0.04	13.88	0.02	11.53	0.02	9.49	0.01	7.71	0.01
4.500	20.77	0.05	17.45	0.03	14.59	0.02	12.10	0.01	9.92	0.01
5.000	25.30	0.05	21.36	0.03	17.95	0.02	14.98	0.01	12.37	0.01
6.000	35.37	0.07	30.08	0.05	25.48	0.03	21.46	0.02	17.91	0.01
7.000	46.63	0.09	39.88	0.06	33.98	0.04	28.80	0.02	24.21	0.02
8.000	58.88	0.11	50.57	0.07	43.28	0.05	36.85	0.03	31.14	0.02
9.000	71.93	0.14	61.98	0.09	53.23	0.06	45.48	0.04	38.57	0.03
10.000	85.59	0.16	73.95	0.11	63.67	0.07	54.53	0.05	46.36	0.04
11.000	99.66	0.19	86.29	0.13	74.44	0.09	63.87	0.06	54.38	0.05
12.000	113.95	0.21	98.83	0.15	85.38	0.10	73.34	0.08	62.49	0.06
13.000	128.28	0.25	111.41	0.17	96.34	0.12	82.80	0.09	70.54	0.07
14.000	142.46	0.28	123.84	0.20	107.14	0.14	92.08	0.10	78.39	0.08
15.000	156.31	0.33	135.95	0.23	117.62	0.16	101.02	0.12	85.87	0.09
16.000	169.63	0.39	147.57	0.27	127.62	0.19	109.46	0.13	92.82	0.10
17.000	182.26	0.46	158.52	0.32	136.94	0.22	117.21	0.16	99.04	0.12
18.000	193.99	0.53	168.59	0.38	145.38	0.26	124.07	0.18	104.35	0.14
19.000	204.63	0.62	177.60	0.44	152.78	0.31	129.83	0.22	108.49	0.17
20.000	213.96	0.72	185.31	0.51	158.84	0.36	134.24	0.26	111.23	0.21
21.000	221.73	0.83	191.47	0.58	163.32	0.41	137.00	0.30	112.24	0.24
22.000	227.68	0.96	195.77	0.66	165.89	0.46	137.76	0.34	111.15	0.28
23.000	231.5	1.1	197.86	0.77	166.15	0.52	136.11	0.37	107.53	0.29
24.000	232.7	1.4	197.27	0.95	163.62	0.62	131.53	0.41	100.83	0.29
25.000	230.8	1.9	193.5	1.3	157.70	0.81	123.37	0.50	90.36	0.32
26.000	225.2	2.6	185.7	1.8	147.6	1.2	110.84	0.76	75.30	0.49
SAT 26.268			182.7	2.0						
SAT 26.278					143.6	1.4			68.20	0.62
SAT 26.300							105.50	0.90		
SAT 26.334										
SAT 26.378										

TABLE 23 B (CONT.) PARTIAL MOLAL RELATIVE ENTHALPY OF WATER, L1 (J/MOL)

WEIGHT %	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.100	-0.02	0.00	-0.03	0.00	-0.03	0.00	-0.04	0.00	-0.05	0.00
0.200	-0.05	0.00	-0.06	0.00	-0.08	0.00	-0.10	0.00	-0.12	0.00
0.300	-0.08	0.00	-0.10	0.00	-0.13	0.00	-0.17	0.00	-0.20	0.00
0.400	-0.10	0.00	-0.13	0.00	-0.18	0.00	-0.23	0.00	-0.29	0.00
0.500	-0.11	0.00	-0.15	0.00	-0.23	0.00	-0.30	0.00	-0.38	0.00
0.600	-0.11	0.00	-0.16	0.00	-0.27	0.00	-0.37	0.00	-0.47	0.00
0.700	-0.10	0.00	-0.17	0.00	-0.30	0.00	-0.43	0.00	-0.56	0.00
0.800	-0.08	0.00	-0.17	0.00	-0.33	0.00	-0.49	0.00	-0.65	0.00
0.900	-0.05	0.00	-0.16	0.00	-0.36	0.00	-0.55	0.00	-0.73	0.00
1.000	-0.01	0.00	-0.14	0.00	-0.38	0.00	-0.60	0.00	-0.82	0.00
1.200	0.11	0.00	-0.07	0.00	-0.39	0.00	-0.69	0.00	-0.98	0.00
1.400	0.27	0.00	0.04	0.00	-0.38	0.00	-0.76	0.00	-1.14	0.00
1.600	0.47	0.00	0.18	0.00	-0.34	0.00	-0.82	0.00	-1.28	0.00
1.800	0.72	0.00	0.36	0.00	-0.28	0.00	-0.86	0.00	-1.42	0.00
2.000	1.01	0.00	0.58	0.00	-0.18	0.00	-0.87	0.00	-1.54	0.00
2.500	1.91	0.00	1.28	0.00	0.17	0.00	-0.84	0.00	-1.79	0.01
3.000	3.08	0.00	2.21	0.00	0.69	0.00	-0.68	0.01	-1.97	0.01
3.500	4.48	0.00	3.35	0.00	1.36	0.01	-0.41	0.01	-2.08	0.01
4.000	6.12	0.00	4.70	0.00	2.19	0.01	-0.04	0.01	-2.12	0.01
4.500	7.98	0.00	6.24	0.01	3.17	0.01	0.44	0.01	-2.11	0.01
5.000	10.05	0.01	7.95	0.01	4.27	0.01	1.00	0.01	-2.04	0.02
6.000	14.75	0.01	11.89	0.01	6.84	0.02	2.37	0.02	-1.78	0.02
7.000	20.11	0.01	16.39	0.01	9.81	0.02	3.99	0.02	-1.40	0.03
8.000	26.01	0.02	21.35	0.02	13.10	0.03	5.78	0.03	-1.00	0.03
9.000	32.34	0.03	26.67	0.03	16.60	0.03	7.65	0.04	-0.65	0.04
10.000	38.97	0.04	32.23	0.04	20.21	0.04	9.49	0.04	-0.46	0.05
11.000	45.78	0.05	37.90	0.05	23.80	0.05	11.20	0.05	-0.53	0.05
12.000	52.62	0.06	43.56	0.06	27.27	0.06	12.65	0.06	-0.99	0.06
13.000	59.36	0.07	49.05	0.07	30.47	0.07	13.71	0.07	-1.98	0.07
14.000	65.86	0.08	54.27	0.08	33.26	0.08	14.22	0.08	-3.64	0.08
15.000	71.94	0.08	59.02	0.08	35.45	0.09	14.02	0.10	-6.17	0.10
16.000	77.45	0.09	63.13	0.09	36.92	0.10	12.93	0.11	-9.74	0.11
17.000	82.19	0.10	66.43	0.11	37.41	0.12	10.71	0.13	-14.59	0.13
18.000	85.96	0.12	68.68	0.13	36.71	0.14	7.14	0.15	-20.96	0.15
19.000	88.50	0.15	69.64	0.16	34.55	0.17	1.94	0.18	-29.13	0.18
20.000	89.56	0.19	69.03	0.19	30.63	0.20	-5.22	0.22	-39.44	0.22
21.000	88.81	0.23	66.50	0.23	24.59	0.24	-14.70	0.26	-52.24	0.28
22.000	85.85	0.26	61.66	0.26	15.93	0.28	-26.95	0.33	-67.97	0.37
23.000	80.22	0.27	54.01	0.28	4.34	0.34	-42.46	0.42	-87.12	0.49
24.000	71.36	0.27	42.98	0.30	-10.98	0.42	-61.84	0.57	-110.25	0.69
25.000	58.55	0.28	27.83	0.34	-30.63	0.57	-85.80	0.81	-138.02	0.98
26.000	40.94	0.42	7.69	0.51	-55.63	0.85	-115.2	1.2	-171.2	1.4
27.000	31.59	0.55							-210.7	2.1
SAT 26.432			-4.46	0.67						
SAT 26.495					-75.2	1.1	-144.4	1.6	-212.4	2.1
SAT 26.647										
SAT 26.830										
SAT 27.039										

TABLE 23 B (CONT.) PARTIAL MOLAL RELATIVE ENTHALPY OF WATER, L1 (J/MOL)

WEIGHT %	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
C.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C.100	-0.06	0.00	-0.06	0.00	-0.07	0.00	-0.08	0.00	-0.09	0.00
C.200	-0.14	0.00	-0.16	0.00	-0.19	0.00	-0.22	0.00	-0.24	0.00
C.300	-0.24	0.00	-0.28	0.00	-0.32	0.00	-0.37	0.00	-0.42	0.00
C.400	-0.35	0.00	-0.41	0.00	-0.47	0.00	-0.54	0.00	-0.61	0.00
C.500	-0.46	0.00	-0.54	0.00	-0.63	0.00	-0.72	0.00	-0.82	0.00
C.600	-0.57	0.00	-0.68	0.00	-0.80	0.00	-0.91	0.00	-1.04	0.00
C.700	-0.69	0.00	-0.83	0.00	-0.97	0.00	-1.11	0.00	-1.27	0.00
C.800	-0.81	0.00	-0.97	0.00	-1.15	0.00	-1.32	0.00	-1.50	0.00
C.900	-0.93	0.00	-1.12	0.00	-1.33	0.00	-1.53	0.00	-1.75	0.00
1.000	-1.05	0.00	-1.28	0.00	-1.51	0.00	-1.75	0.00	-2.00	0.00
1.200	-1.28	0.00	-1.58	0.00	-1.89	0.00	-2.20	0.00	-2.52	0.01
1.400	-1.52	0.00	-1.90	0.00	-2.28	0.00	-2.67	0.00	-3.06	0.01
1.600	-1.75	0.00	-2.21	0.00	-2.68	0.00	-3.15	0.01	-3.63	0.01
1.800	-1.97	0.00	-2.53	0.01	-3.09	0.00	-3.65	0.01	-4.21	0.01
2.000	-2.20	0.01	-2.85	0.01	-3.50	0.01	-4.16	0.01	-4.82	0.01
2.500	-2.73	0.01	-3.66	0.01	-4.58	0.01	-5.49	0.01	-6.42	0.01
3.000	-3.23	0.01	-4.47	0.01	-5.69	0.01	-6.91	0.01	-8.14	0.02
3.500	-3.69	0.01	-5.29	0.01	-6.86	0.01	-8.41	0.01	-9.99	0.02
4.000	-4.14	0.01	-6.11	0.01	-8.07	0.01	-10.00	0.01	-11.95	0.02
4.500	-4.56	0.02	-6.96	0.02	-9.33	0.02	-11.68	0.02	-14.05	0.03
5.000	-4.96	0.02	-7.82	0.02	-10.64	0.02	-13.45	0.02	-16.27	0.03
6.000	-5.75	0.02	-9.64	0.02	-13.47	0.02	-17.29	0.03	-21.14	0.04
7.000	-6.57	0.03	-11.62	0.03	-16.61	0.03	-21.59	0.03	-26.61	0.05
8.000	-7.49	0.03	-13.84	0.03	-20.13	0.03	-26.40	0.04	-32.75	0.06
9.000	-8.60	0.04	-16.39	0.04	-24.11	0.04	-31.83	0.05	-39.65	0.07
10.000	-10.00	0.05	-19.35	0.04	-28.64	0.04	-37.96	0.06	-47.40	0.09
11.000	-11.80	0.05	-22.85	0.05	-33.86	0.05	-44.90	0.07	-56.11	0.10
12.000	-14.11	0.06	-27.02	0.06	-39.87	0.06	-52.79	0.08	-65.91	0.12
13.000	-17.10	0.07	-31.98	0.07	-46.83	0.07	-61.78	0.10	-76.95	0.14
14.000	-20.90	0.08	-37.91	0.08	-54.90	0.09	-72.01	0.11	-89.39	0.15
15.000	-25.71	0.09	-44.99	0.09	-64.26	0.10	-83.68	0.13	-103.40	0.17
16.000	-31.72	0.11	-53.42	0.11	-75.11	0.11	-96.97	0.14	-119.18	0.18
17.000	-39.15	0.12	-63.42	0.12	-87.67	0.13	-112.11	0.16	-136.93	0.20
18.000	-48.27	0.14	-75.24	0.14	-102.18	0.14	-129.31	0.17	-156.85	0.22
19.000	-59.34	0.17	-89.15	0.16	-118.89	0.16	-148.82	0.19	-179.17	0.25
20.000	-72.69	0.22	-105.46	0.20	-138.09	0.19	-170.88	0.21	-204.10	0.29
21.000	-88.68	0.28	-124.50	0.25	-160.08	0.22	-195.74	0.24	-231.85	0.34
22.000	-107.70	0.37	-146.63	0.33	-185.15	0.28	-223.66	0.29	-262.60	0.41
23.000	-130.22	0.51	-172.24	0.46	-213.64	0.39	-254.87	0.39	-296.50	0.54
24.000	-156.73	0.72	-201.77	0.68	-245.87	0.61	-289.60	0.62	-333.67	0.79
25.000	-187.8	1.1	-235.7	1.0	-282.18	0.99	-328.0	1.0	-374.1	1.3
26.000	-224.1	1.5	-274.5	1.6	-322.9	1.6	-416.4	2.8	-464.4	3.2
27.000	-266.4	2.3	-318.7	2.4	-368.3	2.5	-466.3	4.4	-513.7	5.0
28.000										
SAT 27.272	-279.1	2.5	-344.3	3.0	-408.0	3.6	-470.4	4.5	-532.6	5.9
SAT 27.525										
SAT 27.795										
SAT 28.079										
SAT 28.373										

TABLE 24 A PARTIAL MOLAL RELATIVE ENTHALPY OF SODIUM CHLORIDE, L2 (J/MOL)

MOLALITY	0.000 DEG C			5.000 DEG C			10.000 DEG C			15.000 DEG C			20.000 DEG C		
	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.
0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.001	58.48	0.09	0.06	64.01	0.06	0.04	69.57	0.04	0.03	75.25	0.03	0.02	81.12	0.02	0.02
0.002	77.31	0.18	0.13	85.78	0.13	0.08	94.13	0.08	0.06	102.51	0.06	0.04	111.06	0.04	0.04
0.005	105.78	0.44	0.30	121.15	0.30	0.20	135.82	0.20	0.13	150.13	0.13	0.10	164.39	0.10	0.10
0.010	124.40	0.82	0.56	149.08	0.56	0.37	172.05	0.37	0.24	193.92	0.24	0.18	215.23	0.18	0.18
0.020	127.9	1.5	1.0	168.3	1.0	0.67	204.96	0.67	0.44	238.96	0.44	0.32	271.29	0.32	0.32
0.050	63.5	3.1	2.1	142.6	2.1	1.4	212.2	1.4	0.89	274.69	0.89	0.63	332.27	0.63	0.63
0.100	-108.0	5.0	3.4	24.0	3.4	2.2	138.3	2.2	1.4	239.0	1.4	0.98	329.85	0.98	0.98
0.200	-486.6	7.5	4.9	-279.4	4.9	3.1	83.3	3.1	2.0	217.1	2.0	1.3	277.1	1.3	1.3
0.300	-893.7	8.8	5.8	-601.1	5.8	3.6	-133.7	3.6	2.2	72.0	2.2	1.5	57.8	1.5	1.5
0.400	-1278.6	9.6	6.2	-921.1	6.2	3.9	-350.4	3.9	2.3	-350.4	2.3	1.5	-117.1	1.5	1.5
0.500	-1650	10	6.6	-1233.5	6.6	4.0	-615.3	4.0	2.4	-568.6	2.4	1.5	-297.1	1.5	1.5
0.600	-2006	10	6.6	-1536.1	6.6	4.0	-877.2	4.0	2.4	-784.3	2.4	1.5	-477.2	1.5	1.5
0.700	-2347	11	6.6	-1828.0	6.6	4.0	-1133.4	4.0	2.3	-995.4	2.3	1.4	-655.0	1.4	1.4
0.800	-2674	11	6.6	-2108.9	6.6	4.0	-1382.2	4.0	2.3	-1200.6	2.3	1.4	-828.9	1.4	1.4
0.900	-2987	11	6.5	-2378.8	6.5	3.9	-1622.8	3.9	2.3	-1399.4	2.3	1.4	-998.1	1.4	1.4
1.000	-3287	11	6.5	-2637.7	6.5	3.9	-1854.9	3.9	2.2	-1591.3	2.2	1.3	-1162.0	1.3	1.3
1.200	-3846	10	6.4	-3123.7	6.4	3.8	-2078.3	3.8	2.2	-1591.3	2.2	1.4	-1473.0	1.4	1.4
1.400	-4357	10	6.3	-3569.0	6.3	3.7	-2499.1	3.7	2.2	-1954.2	2.2	1.5	-1760.6	1.5	1.5
1.500	-4596	10	6.2	-3777.1	6.2	3.7	-2886.0	3.7	2.3	-2288.8	2.3	1.5	-1895.7	1.5	1.5
1.600	-4823	10	6.2	-3975.9	6.2	3.7	-3067.1	3.7	2.3	-2445.8	2.3	1.6	-1895.7	1.6	1.6
1.800	-5246	10	6.1	-4346.8	6.1	3.8	-3240.3	3.8	2.5	-2595.9	2.5	1.9	-2025.0	1.9	1.9
2.000	-5631	10	6.2	-4683.8	6.2	3.8	-3563.7	3.8	2.6	-2876.4	2.6	2.1	-2266.4	2.1	2.1
2.200	-5979	10	6.2	-4989.2	6.2	3.9	-4124.4	3.9	2.8	-3362.4	2.8	2.3	-2683.9	2.3	2.3
2.400	-6293	10	6.3	-5265.0	6.3	4.1	-4365.0	4.1	3.0	-3570.5	3.0	2.3	-2861.8	2.3	2.3
2.500	-6499	10	6.3	-5476.0	6.3	4.2	-4476.0	4.2	3.1	-3666.3	3.1	2.7	-2943.5	2.7	2.7
2.600	-6576	10	6.4	-5513.3	6.4	4.2	-4581.1	4.2	3.2	-3756.9	3.2	2.7	-3020.4	2.7	2.7
2.800	-6830	11	6.5	-5735.8	6.5	4.4	-4774.4	4.4	3.4	-3922.8	3.4	2.9	-3160.6	2.9	2.9
3.000	-7057	11	6.3	-5934.2	6.3	4.7	-4946.1	4.7	3.5	-4069.3	3.5	3.0	-3283.2	3.0	3.0
3.200	-7258	11	7.2	-6110.0	7.2	4.9	-5097.6	4.9	3.6	-4197.4	3.6	3.0	-3389.0	3.0	3.0
3.400	-7437	12	7.5	-6264.8	7.5	5.1	-5229.9	5.1	3.8	-4308.1	3.8	3.1	-3478.7	3.1	3.1
3.500	-7517	12	7.8	-6334.7	7.8	5.3	-5289.2	5.3	3.8	-4357.2	3.8	3.1	-3517.8	3.1	3.1
3.600	-7593	12	8.0	-6399.8	8.0	5.4	-5344.1	5.4	3.9	-4402.1	3.9	3.1	-3559.1	3.1	3.1
3.800	-7729	13	8.5	-6516.1	8.5	5.7	-5441.2	5.7	4.1	-4480.3	4.1	3.2	-3612.5	3.2	3.2
4.000	-7845	14	9.0	-6614.8	9.0	6.0	-5522.0	6.0	4.2	-4543.1	4.2	3.3	-3657.5	3.3	3.3
4.200	-7944	14	9.4	-6696.8	9.4	6.3	-5587.1	6.3	4.4	-4591.2	4.4	3.4	-3688.5	3.4	3.4
4.400	-8026	15	9.3	-6762.9	9.3	6.6	-5637.1	6.6	4.6	-4624.9	4.6	3.6	-3705.7	3.6	3.6
4.500	-8060	15	10	-6790	10	6.7	-5656.6	6.7	4.7	-4636.5	4.7	3.7	-3709.2	3.7	3.7
4.600	-8091	15	10	-6814	10	6.9	-5672.6	6.9	4.8	-4644.6	4.8	3.8	-3709.2	3.8	3.8
4.800	-8141	16	11	-6849	11	7.1	-5693.6	7.1	5.0	-4650.3	5.0	3.9	-3699.2	3.9	3.9
5.000	-8176	17	11	-6871	11	7.3	-5700.5	7.3	5.1	-4642.2	5.1	3.9	-3675.6	3.9	3.9
5.200	-8196	18	12	-6878	12	7.6	-5693.5	7.6	5.1	-4620.2	5.1	3.9	-3638.3	3.9	3.9
5.400	-8202	19	13	-6871	13	8.0	-5672.3	8.0	5.2	-4584.2	5.2	3.8	-3587.0	3.8	3.8
5.500	-8199	20	13	-6862	13	8.3	-5656.3	8.3	5.3	-4560.9	5.3	3.8	-3556.0	3.8	3.8
5.600	-8193	21	14	-6849	14	8.7	-5636.8	8.7	5.5	-4533.9	5.5	3.8	-3521.3	3.8	3.8
5.800	-8170	24	16	-6813	16	10	-5587	10	6.2	-4468.9	6.2	4.1	-3440.9	4.1	4.1
6.000	-8133	28	19	-6763	19	12	-5522	12	7.7	-4388.7	7.7	5.1	-3345.1	5.1	5.1
6.095	-8110	30	20	-6732	20	14	-5481	14	8.9	-4334.7	8.9	6.2	-3274.1	6.2	6.2
SAT															
SAT															
SAT															
SAT															

TABLE 24 A (CONT.) PARTIAL MOLAL RELATIVE ENTHALPY OF SODIUM CHLORIDE, L2 (J/MOL)

MOLALITY	25.000 DEG C			30.000 DEG C			40.000 DEG C			50.000 DEG C			60.000 DEG C		
	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.
0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.001	87.26	0.02	0.02	93.73	0.02	0.02	107.86	0.02	0.02	123.85	0.02	0.02	141.98	0.03	0.03
0.002	119.90	0.04	0.04	129.14	0.04	0.04	149.14	0.04	0.04	171.66	0.05	0.05	197.11	0.05	0.05
0.005	178.86	0.08	0.08	193.74	0.09	0.09	225.51	0.10	0.10	260.84	0.11	0.11	300.51	0.13	0.13
0.010	236.44	0.16	0.16	257.96	0.16	0.16	303.16	0.19	0.19	352.79	0.21	0.21	408.10	0.24	0.24
0.020	302.80	0.28	0.28	334.19	0.29	0.29	398.81	0.33	0.33	468.54	0.38	0.38	545.45	0.43	0.43
0.050	386.68	0.55	0.55	439.40	0.58	0.58	544.39	0.67	0.67	654.24	0.77	0.77	772.98	0.88	0.88
0.100	413.77	0.85	0.85	493.36	0.89	0.89	647.4	1.1	1.1	803.9	1.2	1.2	969.5	1.4	1.4
0.200	348.8	1.1	1.1	471.4	1.2	1.2	701.9	1.4	1.4	928.5	1.7	1.7	1162.1	2.0	2.0
0.300	230.4	1.2	1.2	389.5	1.3	1.3	684.5	1.6	1.6	968.8	1.9	1.9	1257.1	2.2	2.2
0.400	92.2	1.3	1.3	284.3	1.3	1.3	637.2	1.7	1.7	972.8	2.0	2.0	1309.1	2.4	2.4
0.500	-53.8	1.2	1.2	168.7	1.3	1.3	575.0	1.7	1.7	957.6	2.0	2.0	1337.6	2.5	2.5
0.600	-202.4	1.2	1.2	48.5	1.3	1.3	504.8	1.7	1.7	931.4	2.0	2.0	1351.9	2.5	2.5
0.700	-350.5	1.1	1.1	-72.8	1.2	1.2	430.5	1.6	1.6	898.4	2.0	2.0	1357.1	2.5	2.5
0.800	-496.4	1.1	1.1	-193.4	1.2	1.2	354.5	1.6	1.6	861.7	2.0	2.0	1356.4	2.5	2.5
0.900	-639.0	1.0	1.0	-312.0	1.1	1.1	278.3	1.6	1.6	822.8	2.0	2.0	1351.8	2.5	2.5
1.000	-777.8	1.0	1.0	-427.9	1.1	1.1	202.9	1.6	1.6	783.0	2.0	2.0	1344.9	2.5	2.5
1.200	-1041.9	1.1	1.1	-649.4	1.1	1.1	57.1	1.6	1.6	704.2	2.0	2.0	1327.8	2.5	2.5
1.400	-1287.0	1.2	1.2	-855.4	1.2	1.2	-79.3	1.7	1.7	629.8	2.0	2.0	1310.5	2.5	2.5
1.500	-1402.1	1.3	1.3	-952.3	1.3	1.3	-143.3	1.7	1.7	595.0	2.1	2.1	1302.9	2.5	2.5
1.600	-1512.3	1.4	1.4	-1044.9	1.4	1.4	-204.4	1.8	1.8	562.2	2.1	2.1	1296.4	2.5	2.5
1.800	-1718.0	1.6	1.6	-1217.6	1.6	1.6	-317.3	1.9	1.9	503.1	2.2	2.2	1287.5	2.5	2.5
2.000	-1904.4	1.9	1.9	-1373.4	1.9	1.9	-417.5	2.1	2.1	453.4	2.3	2.3	1285.3	2.5	2.5
2.200	-2072.2	2.1	2.1	-1512.8	2.1	2.1	-504.8	2.2	2.2	413.8	2.4	2.4	1290.6	2.6	2.6
2.400	-2222.0	2.4	2.4	-1636.1	2.3	2.3	-579.3	2.4	2.4	384.5	2.5	2.5	1304.3	2.6	2.6
2.500	-2290.3	2.4	2.4	-1691.9	2.4	2.4	-611.7	2.5	2.5	373.8	2.5	2.5	1314.4	2.7	2.7
2.600	-2354.4	2.5	2.5	-1743.9	2.5	2.5	-640.9	2.5	2.5	365.8	2.6	2.6	1326.7	2.7	2.7
2.800	-2470.2	2.6	2.6	-1836.4	2.6	2.6	-689.8	2.7	2.7	358.0	2.7	2.7	1358.3	2.8	2.8
3.000	-2569.9	2.7	2.7	-1914.3	2.7	2.7	-726.1	2.8	2.8	361.0	2.8	2.8	1399.3	2.9	2.9
3.200	-2654.3	2.8	2.8	-1977.9	2.7	2.7	-750.1	2.9	2.9	375.0	2.9	2.9	1450.0	3.0	3.0
3.400	-2723.7	2.8	2.8	-2027.7	2.8	2.8	-761.7	3.0	3.0	399.9	3.0	3.0	1510.7	3.0	3.0
3.500	-2778.8	2.8	2.8	-2047.4	2.8	2.8	-763.0	3.0	3.0	416.6	3.1	3.1	1544.8	3.1	3.1
3.600	-2819.8	2.9	2.9	-2063.8	2.8	2.8	-748.6	3.2	3.2	483.2	3.3	3.3	1662.4	3.3	3.3
3.800	-2847.2	3.0	3.0	-2096.5	3.0	3.0	-723.8	3.4	3.4	541.7	3.4	3.4	1753.8	3.5	3.5
4.000	-2861.0	3.1	3.1	-2093.3	3.1	3.1	-686.9	3.5	3.5	611.6	3.6	3.6	1855.8	3.7	3.7
4.200	-2861.6	3.3	3.3	-2077.3	3.3	3.3	-637.8	3.7	3.7	693.1	3.9	3.9	1968.5	4.0	4.0
4.400	-2856.9	3.3	3.3	-2064.4	3.4	3.4	-608.6	3.7	3.7	738.2	4.0	4.0	2029.0	4.2	4.2
4.500	-2848.9	3.4	3.4	-2048.2	3.5	3.5	-576.3	3.8	3.8	786.2	4.1	4.1	2092.2	4.4	4.4
4.800	-2822.9	3.5	3.5	-2006.2	3.6	3.6	-502.5	4.0	4.0	891.3	4.5	4.5	2227.0	5.0	5.0
5.000	-2783.5	3.6	3.6	-1950.9	3.7	3.7	-415.5	4.2	4.2	1008.6	5.0	5.0	2373.1	5.7	5.7
5.200	-2730.5	3.6	3.6	-1882.1	3.7	3.7	-315.5	4.5	4.5	1138.4	5.7	5.7	2530.8	6.7	6.7
5.400	-2663.6	3.4	3.4	-1799.5	3.7	3.7	-202.1	5.0	5.0	1281.1	6.6	6.6	2700.3	8.0	8.0
5.500	-2624.8	3.4	3.4	-1752.9	3.7	3.7	-140.2	5.3	5.3	1357.3	7.2	7.2	2789.6	8.8	8.8
5.600	-2582.4	3.4	3.4	-1702.7	3.8	3.8	-74.8	5.7	5.7	1437.0	7.9	7.9	2881.9	9.6	9.6
5.800	-2486.3	3.6	3.6	-1591.1	4.2	4.2	67.0	6.8	6.8	1606.5	9.6	9.6	3076	12	12
6.000	-2374.9	4.4	4.4	-1464.1	5.2	5.2	223.7	8.4	8.4	1790	12	12	3282	14	14
6.200	-2282.4	5.6	5.6	-1345.4	6.6	6.6	396	11	11	1988	15	15	3502	18	18
SAT 6.148															
SAT 6.168															
SAT 6.216															
SAT 6.274															
SAT 6.341															

TABLE 24 A (CONT.) PARTIAL MOLAL RELATIVE ENTHALPY OF SODIUM CHLORIDE, L2 (J/MOL)

MOLALITY	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.001	162.47	0.03	185.51	0.04	211.26	0.04	239.90	0.05	271.67	0.06
0.002	225.79	0.06	257.96	0.07	293.84	0.08	333.67	0.09	377.76	0.11
0.005	345.01	0.15	391.69	0.16	449.83	0.18	510.79	0.20	578.08	0.26
0.010	469.81	0.27	538.35	0.30	614.04	0.33	697.31	0.38	788.90	0.48
0.020	630.60	0.49	724.49	0.54	827.45	0.59	939.36	0.68	1063.12	0.87
0.050	902.5	1.0	1043.3	1.1	1195.7	1.2	1360.1	1.4	1538.4	1.8
0.100	1147.2	1.6	1337.8	1.7	1541.0	1.8	1757.6	2.1	1990.2	2.8
0.200	1407.8	2.3	1666.6	2.4	1938.1	2.5	2223.0	2.9	2525.1	4.1
0.300	1556.1	2.6	1867.5	2.8	2190.9	2.8	2527.1	3.2	2881.0	4.7
0.400	1654.4	2.8	2011.1	3.0	2378.9	2.9	2758.9	3.4	3156.8	5.1
0.500	1724.8	2.9	2122.2	3.1	2590.1	3.0	2949.5	3.4	3387.0	5.3
0.600	1777.8	3.0	2212.9	3.2	2657.6	3.0	3113.6	3.3	3587.7	5.5
0.700	1819.3	3.0	2289.7	3.2	2769.1	3.0	3259.3	3.3	3768.0	5.6
0.800	1852.9	3.0	2356.6	3.2	2868.9	2.9	3391.8	3.2	3939.3	5.6
0.900	1881.0	3.0	2416.5	3.3	2960.1	2.9	3514.2	3.2	4087.2	5.7
1.000	1905.3	3.1	2471.2	3.3	3044.8	2.9	3628.9	3.2	4232.2	5.8
1.200	1947.0	3.0	2570.2	3.3	3200.6	2.9	3841.6	3.1	4502.6	5.9
1.400	1984.3	3.0	2661.1	3.3	3344.7	2.9	4039.2	3.2	4754.4	6.0
1.600	2002.8	3.0	2705.0	3.3	3414.1	2.9	4134.2	3.2	4875.5	6.1
1.800	2021.5	3.0	2748.5	3.3	3482.3	3.0	4227.4	3.3	4994.1	6.2
2.000	2060.9	3.0	2835.6	3.3	3617.0	3.0	4410.3	3.4	5225.9	6.4
2.200	2104.5	3.0	2924.4	3.4	3751.3	3.1	4590.5	3.6	5452.9	6.6
2.400	2153.6	3.1	3015.7	3.4	3887.0	3.3	4770.2	3.8	5677.5	6.8
2.600	2209.3	3.1	3113.6	3.5	4025.6	3.4	4951.1	4.0	5901.4	7.0
2.800	2239.3	3.2	3164.1	3.6	4096.3	3.5	5042.3	4.2	6013.5	7.1
3.000	2271.5	3.2	3216.0	3.6	4168.1	3.6	5134.3	4.3	6125.9	7.2
3.200	2341.7	3.3	3324.7	3.7	4315.5	3.7	5320.8	4.5	6352.3	7.4
3.400	2420.1	3.3	3440.2	3.8	4468.3	3.9	5511.3	4.6	6581.2	7.5
3.600	2507.0	3.4	3563.0	3.8	4627.1	4.0	5706.5	4.7	6813.3	7.6
3.800	2602.7	3.4	3693.5	3.9	4792.3	4.0	5906.7	4.8	7049.0	7.6
4.000	2659.9	3.5	3761.7	3.9	4877.4	4.1	6038.9	4.8	7168.4	7.6
4.200	2707.4	3.5	3831.9	3.9	4964.2	4.1	6112.3	4.8	7288.7	7.6
4.400	2821.5	3.6	3978.4	4.0	5143.1	4.1	6323.5	4.8	7532.5	7.6
4.600	2945.0	3.8	4133.4	4.1	5329.0	4.1	6540.3	4.7	7780.4	7.5
4.800	3078.1	4.0	4296.8	4.2	5522.1	4.1	6752.7	4.6	8032.3	7.5
5.000	3221.0	4.3	4468.8	4.4	5722.3	4.1	6930.6	4.5	8288.0	7.5
5.200	3373.8	4.5	4658.0	4.5	5825.0	4.1	7106.6	4.4	8417.3	7.5
5.400	3536.6	4.7	4849.4	4.7	5929.5	4.1	7223.9	4.3	8547.4	7.5
5.600	3709.6	5.3	5036.5	5.1	6143.8	4.2	7452.3	4.3	8809.8	7.6
5.800	3892.9	6.1	5243.0	6.7	6364.9	4.6	7705.6	4.4	9075.0	7.9
6.000	4086.5	8.6	5458.0	8.1	6592.6	5.4	7953.2	5.1	9342.2	8.7
6.200	4187.3	9.5	5568.7	9.1	6946.1	7.8	8331.9	6.6	9611	10
6.400	4291	10	5682	10	7066.9	8.9	8459.9	8.0	9745	11
6.600	4505	13	5913	13	7313	12	8718	12	9880	12
6.800	4731	16	6154	16	7564	16	8978	16	10149	16
7.000	4967	20	6402	20	7821	21	9240	22	10418	20
7.200	5214	24	6658	26	8081	27	9502	29	10684	24
7.400	5235	25	6787	28	8213	30	9633	33	10947	34
7.600							9754	38	11076	39
7.800									11205	44
8.000										
SAT										
6.416			6787	28	8329	33	9859	41	11431	53
6.498										
6.587										
6.680										
6.778										

TABLE 24 B PARTIAL MOLAL RELATIVE ENTHALPY OF SODIUM CHLORIDE, L2 (J/MOL)

WEIGHT %	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.100	129.5	1.3	165.60	0.89	198.55	0.59	229.30	0.39	258.71	0.28
0.200	104.8	2.3	164.7	0.89	217.9	1.0	266.44	0.68	311.68	0.48
0.300	59.1	3.2	139.9	2.1	210.9	1.4	274.74	0.91	333.42	0.65
0.400	3.9	3.9	104.0	2.6	191.3	1.7	269.0	1.1	339.83	0.78
0.500	-56.6	4.6	61.5	3.1	164.1	2.0	254.8	1.3	336.92	0.90
0.600	-120.3	5.1	14.9	3.4	131.9	2.2	234.9	1.4	327.71	0.99
0.700	-186.2	5.7	-34.6	3.8	96.1	2.4	210.9	1.6	313.9	1.1
0.800	-253.5	6.1	-86.2	4.1	57.8	2.6	183.9	1.7	296.7	1.1
0.900	-321.8	6.5	-139.3	4.3	17.5	2.8	154.6	1.8	276.8	1.2
1.000	-390.7	6.9	-193.6	4.6	-24.3	2.9	123.3	1.9	254.7	1.3
1.200	-529.6	7.6	-304.4	5.0	-111.3	3.2	56.7	2.0	205.7	1.3
1.400	-669.1	8.1	-417.1	5.3	-201.4	3.4	-14.0	2.1	151.7	1.4
1.600	-808.3	8.6	-530.9	5.6	-293.5	3.5	-87.5	2.2	94.4	1.5
1.800	-947.0	9.0	-645.0	5.8	-386.8	3.7	-162.9	2.3	34.5	1.5
2.000	-1084.7	9.3	-759.3	6.0	-480.9	3.8	-239.7	2.3	-27.2	1.5
2.500	-1424.1	9.9	-1043.2	6.3	-717.3	3.9	-435.0	2.4	-186.6	1.5
3.000	-1755	10	-1323.0	6.5	-952.7	4.0	-632.0	2.4	-349.8	1.5
3.500	-2077	10	-1597.2	6.6	-1185.3	4.0	-828.2	2.4	-514.1	1.5
4.000	-2391	11	-1865.0	6.6	-1413.8	4.0	-1022.3	2.3	-677.8	1.4
4.500	-2684	11	-2126.2	6.6	-1637.6	4.0	-1213.2	2.3	-839.7	1.4
5.000	-2989	11	-2380.3	6.5	-1856.2	3.9	-1400.5	2.3	-999.0	1.4
6.000	-3551	10	-2866.9	6.4	-2276.5	3.8	-1762.1	2.2	-1308.2	1.3
7.000	-4077	10	-3324.3	6.3	-2673.3	3.7	-2104.7	2.2	-1602.3	1.4
8.000	-4567	10	-3752.4	6.2	-3045.6	3.7	-2437.1	2.2	-1879.7	1.5
9.000	-5023	10	-4151.4	6.2	-3393.3	3.7	-2728.5	2.4	-2139.2	1.7
10.000	-5446	10	-4521.4	6.1	-3716.1	3.8	-3008.6	2.5	-2380.1	2.0
11.000	-5835	10	-4862.8	6.1	-4014.1	3.9	-3266.9	2.7	-2602.1	2.2
12.000	-6192	10	-5175.2	6.2	-4287.5	4.0	-3503.5	3.0	-2804.7	2.5
13.000	-6518	10	-5461.9	6.4	-4536.4	4.2	-3718.4	3.2	-2987.7	2.7
14.000	-6813	11	-5720.4	6.6	-4761.1	4.4	-3911.4	3.4	-3151.0	2.9
15.000	-7078	11	-5952.3	6.9	-4961.8	4.7	-4082.6	3.5	-3294.2	3.0
16.000	-7314	11	-6158.0	7.3	-5138.7	5.0	-4232.0	3.7	-3417.2	3.0
17.000	-7521	12	-6337.8	7.8	-5291.8	5.3	-4359.3	3.8	-3519.5	3.1
18.000	-7700	13	-6492.1	8.4	-5421.3	5.6	-4464.4	4.0	-3600.7	3.2
19.000	-7853	14	-6620.9	9.0	-5526.9	6.0	-4546.9	4.3	-3660.1	3.3
20.000	-7978	14	-6724.3	9.6	-5608.3	6.4	-4606.0	4.5	-3696.8	3.5
21.000	-8076	15	-6802	10	-5664.8	6.8	-4640.8	4.8	-3709.6	3.7
22.000	-8146	16	-6853	11	-5695.3	7.1	-4650.0	5.0	-3696.9	3.9
23.000	-8189	17	-6876	11	-5698.3	7.5	-4631.7	5.1	-3656.6	3.9
24.000	-8202	19	-6870	13	-5671.8	8.0	-4583.5	5.2	-3586.0	3.9
25.000	-8183	23	-6832	15	-5612.7	9.3	-4502.1	5.8	-3481.5	3.9
26.000	-8130	28	-6759	19	-5517	12	-4383.4	7.8	-3338.9	5.2
SAT 26.268			-6732	20						
SAT 26.278					-5481	14	-4334.7	8.9	-3274.1	6.2
SAT 26.300										
SAT 26.334										
SAT 26.378										

TABLE 24 B (CONT.) PARTIAL MOLAL RELATIVE ENTHALPY OF SODIUM CHLORIDE, L2 (J/MOL)

WEIGHT %	25.000 DEG C			30.000 DEG C			40.000 DEG C			50.000 DEG C			60.000 DEG C		
	VALUE	S.E.		VALUE	S.E.		VALUE	S.E.		VALUE	S.E.		VALUE	S.E.	
0.000	G.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
0.100	287.52	0.25		316.34	0.25		375.96	0.29		440.58	0.33		512.03	0.38	
0.200	354.98	0.42		397.44	0.44		483.21	0.51		574.21	0.58		673.49	0.67	
0.300	388.82	0.57		442.44	0.59		549.11	0.69		650.59	0.79		780.99	0.90	
0.400	406.06	0.68		469.59	0.71		594.50	0.84		723.50	0.96		861.7	1.1	
0.500	413.17	0.78		485.81	0.81		627.28	0.96		772.0	1.1		925.9	1.3	
0.600	413.38	0.86		494.55	0.90		651.4	1.1		810.6	1.2		978.8	1.4	
0.700	408.58	0.93		497.84	0.98		659.3	1.2		841.9	1.3		1023.4	1.5	
0.800	399.96	0.99		497.0	1.0		682.2	1.2		857.6	1.4		1061.6	1.5	
0.900	388.4	1.0		492.8	1.1		691.4	1.3		838.9	1.5		1094.7	1.8	
1.000	374.4	1.1		486.1	1.1		697.5	1.4		906.7	1.6		1123.7	1.8	
1.200	340.8	1.2		466.3	1.2		702.3	1.5		932.1	1.7		1172.0	2.0	
1.400	301.6	1.2		440.4	1.3		699.7	1.5		932.1	1.8		1210.3	2.1	
1.600	258.5	1.2		410.0	1.3		691.6	1.6		954.0	1.9		1241.1	2.2	
1.800	212.3	1.3		376.1	1.3		679.4	1.6		970.9	1.9		1266.1	2.3	
2.000	163.9	1.3		339.6	1.3		663.8	1.7		973.9	2.0		1286.5	2.3	
2.500	36.2	1.3		240.4	1.3		614.4	1.7		958.7	2.0		1322.3	2.4	
3.000	-97.1	1.2		133.9	1.3		555.1	1.7		950.9	2.0		1343.0	2.5	
3.500	-233.0	1.2		23.6	1.3		489.7	1.7		925.0	2.0		1353.6	2.5	
4.000	-369.5	1.1		-88.5	1.2		420.7	1.6		893.9	2.0		1357.3	2.5	
4.500	-505.4	1.1		-200.9	1.2		349.7	1.6		859.3	2.0		1356.2	2.5	
5.000	-639.8	1.0		-312.7	1.1		277.8	1.6		822.6	2.0		1351.8	2.5	
6.000	-901.8	1.0		-531.8	1.1		134.7	1.6		746.4	2.0		1337.3	2.5	
7.000	-1152.0	1.1		-741.9	1.2		-4.1	1.6		670.8	2.0		1320.0	2.5	
8.000	-1388.4	1.3		-940.8	1.3		-135.7	1.7		599.1	2.1		1303.8	2.5	
9.000	-1609.6	1.5		-1126.7	1.5		-258.1	1.9		533.8	2.1		1291.5	2.5	
10.000	-1814.7	1.8		-1298.5	1.8		-369.6	2.0		476.7	2.2		1285.5	2.5	
11.000	-2003.0	2.0		-1455.4	2.0		-469.2	2.2		429.4	2.3		1287.4	2.5	
12.000	-2174.0	2.3		-1596.8	2.2		-555.9	2.3		393.1	2.4		1298.8	2.6	
13.000	-2327.2	2.5		-1721.9	2.4		-628.6	2.5		369.0	2.6		1321.1	2.7	
14.000	-2462.3	2.6		-1830.2	2.6		-686.6	2.7		358.2	2.7		1355.7	2.8	
15.000	-2578.8	2.7		-1921.1	2.7		-729.0	2.8		351.9	2.8		1403.8	2.9	
16.000	-2676.4	2.8		-1994.1	2.7		-754.8	2.9		341.2	2.9		1467.0	3.0	
17.000	-2754.3	2.8		-2048.3	2.8		-763.0	3.0		417.4	3.1		1546.4	3.1	
18.000	-2812.0	2.9		-2082.8	2.9		-752.4	3.2		471.9	3.2		1643.7	3.2	
19.000	-2848.5	3.0		-2096.7	3.0		-721.7	3.4		546.1	3.5		1760.4	3.5	
20.000	-2862.8	3.2		-2088.6	3.2		-668.3	3.6		641.9	3.7		1898.3	3.8	
21.000	-2853.4	3.4		-2057.0	3.4		-593.4	3.8		761.1	4.1		2059.2	4.3	
22.000	-2818.5	3.6		-1999.7	3.6		-491.7	4.0		905.9	4.6		2245.4	5.1	
23.000	-2755.8	3.6		-1914.4	3.7		-361.7	4.4		1079.1	5.3		2459.2	6.2	
24.000	-2662.3	3.4		-1798.0	3.7		-200.1	5.0		1283.6	5.6		2703.3	8.0	
25.000	-2534.5	3.4		-1646.8	4.0		-3.2	6.2		1523.0	5.7		2881	11	
26.000	-2367.7	4.5		-1456.1	5.3		233.5	8.5		1801	12		3295	15	
27.000													3650	20	
SAT 26.432		5.6		-2282.4											
SAT 26.495															
SAT 26.647							410	11		2066	15		3665	21	
SAT 26.830															
SAT 27.039															

TABLE 24 B (CONT.) PARTIAL MOLAL RELATIVE ENTHALPY OF SODIUM CHLORIDE, L2 (J/MOL)

WEIGHT %	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.100	591.30	0.43	678.87	0.48	775.06	0.52	880.35	0.60	995.76	0.76
0.200	782.54	0.76	901.89	0.84	1031.80	0.90	1172.8	1.0	1326.4	1.3
0.300	912.2	1.0	1054.9	1.1	1209.2	1.2	1375.5	1.4	1555.9	1.8
0.400	1011.4	1.3	1173.2	1.4	1347.2	1.5	1534.0	1.7	1735.6	2.2
0.500	1091.7	1.4	1270.2	1.6	1461.1	1.7	1665.2	1.9	1884.8	2.6
0.600	1159.2	1.6	1352.4	1.8	1558.5	1.9	1777.8	2.2	2019.2	2.9
0.700	1217.1	1.8	1424.0	1.9	1643.7	2.0	1876.8	2.3	2126.4	3.2
0.800	1267.8	1.9	1487.3	2.1	1719.6	2.2	1965.4	2.5	2228.0	3.4
0.900	1312.7	2.0	1544.0	2.2	1788.1	2.3	2045.8	2.6	2320.3	3.6
1.000	1352.9	2.1	1595.3	2.3	1850.6	2.4	2119.4	2.8	2405.2	3.8
1.200	1422.2	2.3	1685.4	2.5	1961.4	2.6	2250.7	3.0	2557.4	4.1
1.400	1480.0	2.4	1762.6	2.6	2057.6	2.7	2365.8	3.1	2691.5	4.4
1.600	1529.3	2.6	1830.0	2.7	2142.9	2.8	2468.7	3.2	2812.2	4.6
1.800	1571.8	2.6	1889.7	2.8	2219.5	2.9	2562.0	3.3	2922.2	4.8
2.000	1608.9	2.7	1943.3	2.9	2289.2	2.9	2647.7	3.3	3023.9	4.9
2.500	1684.3	2.9	2057.2	3.0	2440.9	3.0	2836.6	3.4	3250.2	5.2
3.000	1741.7	2.9	2150.5	3.1	2569.3	3.0	2999.7	3.4	3448.1	5.4
3.500	1787.1	3.0	2229.7	3.2	2681.7	3.0	3144.9	3.3	3626.3	5.5
4.000	1824.0	3.0	2298.8	3.2	2782.6	3.0	3277.2	3.3	3790.2	5.6
4.500	1854.8	3.0	2360.6	3.2	2874.8	2.9	3399.7	3.2	3943.3	5.7
5.000	1881.2	3.0	2416.8	3.3	2960.6	2.9	3514.9	3.2	4088.1	5.7
6.000	1925.4	3.1	2518.2	3.3	3118.5	2.9	3729.3	3.1	4359.7	5.8
7.000	1963.6	3.0	2610.8	3.3	3265.0	2.9	3929.9	3.1	4615.1	5.9
8.000	2000.5	3.0	2698.7	3.3	3405.7	2.9	4122.8	3.2	4860.9	6.1
9.000	2039.3	3.0	2788.6	3.3	3544.7	3.0	4312.3	3.3	5101.8	6.3
10.000	2082.4	3.0	2880.2	3.3	3684.9	3.1	4501.6	3.5	5341.2	6.5
11.000	2131.9	3.1	2976.9	3.4	3828.9	3.2	4693.6	3.7	5582.0	6.7
12.000	2189.7	3.1	3080.7	3.5	3979.0	3.4	4890.6	4.0	5826.7	6.9
13.000	2257.4	3.2	3193.4	3.6	4136.9	3.6	5094.4	4.2	6077.3	7.2
14.000	2336.4	3.2	3316.6	3.7	4304.6	3.7	5307.1	4.4	6335.7	7.4
15.000	2428.2	3.3	3451.9	3.8	4483.5	3.9	5530.2	4.6	6603.7	7.5
16.000	2534.4	3.4	3600.8	3.8	4675.3	4.0	5765.2	4.7	6882.7	7.6
17.000	2656.3	3.5	3764.8	3.9	4881.4	4.1	6013.6	4.8	7173.9	7.6
18.000	2795.6	3.6	3945.5	4.0	5103.2	4.1	6276.6	4.8	7478.5	7.6
19.000	2953.7	3.8	4144.2	4.1	5341.9	4.1	6555.2	4.7	7797.4	7.5
20.000	3132.4	4.1	4362.6	4.3	5599.0	4.1	6850.5	4.6	8131.2	7.5
21.000	3333.4	4.6	4602.0	4.6	5875.4	4.1	7163.2	4.4	8480.2	7.5
22.000	3558.6	5.4	4863.9	5.2	6172.3	4.2	7493.8	4.3	8844.3	7.6
23.000	3810.1	6.7	5150.0	6.2	6490.5	5.0	7842.5	4.7	9223.1	8.3
24.000	4089.9	8.6	5461.7	8.2	6830.8	6.8	8209.1	6.6	9615	10
25.000	4401	12	5801	11	7194	10	8593	11	10020	14
26.000	4745	16	6168	16	7579	16	8993	17	10433	21
27.000	5125	23	6566	24	7998	24	9408	27	10853	31
28.000	5235	25	6787	28	8329	33	9869	41	11431	53
SAT 27.272										
SAT 27.525										
SAT 27.795										
SAT 28.079										
SAT 28.373										

TABLE 25 A INTEGRAL HEAT OF SOLUTION OF SODIUM CHLORIDE, HSOLN (J/MOL)

MOLALITY	0.000 DEG C			5.000 DEG C			10.000 DEG C			15.000 DEG C			20.000 DEG C		
	VALUE	S.E.		VALUE	S.E.		VALUE	S.E.		VALUE	S.E.		VALUE	S.E.	
0.000	8140.1	7.6		7092.7	4.9		6157.4	3.1		5317.0	2.0		4555.7	1.5	
0.001	8180.8	7.5		7136.8	4.8		6205.0	3.1		5368.3	2.0		4610.8	1.5	
0.002	8194.9	7.5		7152.7	4.8		6222.6	3.0		5387.6	2.0		4631.8	1.5	
0.005	8218.6	7.4		7180.2	4.8		6253.9	3.0		5422.5	2.0		4670.3	1.5	
0.010	8238.4	7.2		7205.2	4.6		6283.7	2.9		5456.9	1.9		4709.0	1.5	
0.020	8254.6	7.0		7230.0	4.5		6316.3	2.8		5496.6	1.9		4755.5	1.4	
0.050	8249.3	6.3		7245.6	4.0		6350.3	2.5		5547.2	1.7		4821.2	1.3	
0.100	8189.8	5.5		7214.6	3.5		6344.4	2.2		5563.3	1.5		4856.9	1.1	
0.200	8022.0	4.6		7094.7	2.9		6265.9	1.8		5520.9	1.3		4846.3	1.1	
0.300	7836.4	4.1		6950.3	2.6		6157.3	1.7		5443.4	1.2		4795.9	1.0	
0.400	7647.3	3.9		6798.3	2.5		6037.4	1.7		5351.5	1.2		4728.6	1.0	
0.500	7459.0	3.3		6544.1	2.5		5912.9	1.7		5252.9	1.2		4652.7	1.0	
0.600	7273.4	3.7		6490.3	2.5		5786.7	1.7		5150.9	1.2		4572.0	1.0	
0.700	7091.4	3.7		6338.1	2.5		5660.6	1.7		5047.6	1.2		4488.7	1.0	
0.800	6913.4	3.7		6188.3	2.5		5535.4	1.7		4944.1	1.2		4404.3	1.0	
0.900	6739.7	3.7		6041.2	2.5		5411.9	1.7		4841.2	1.2		4319.6	1.0	
1.000	6570.3	3.7		5897.3	2.5		5290.3	1.7		4739.3	1.2		4235.1	1.0	
1.200	6244.5	3.5		5518.9	2.5		5053.8	1.7		4539.9	1.2		4068.67	0.99	
1.400	5935.7	3.5		5353.8	2.5		4827.3	1.7		4347.7	1.2		3907.00	0.98	
1.500	5787.6	3.5		5226.2	2.5		4718.0	1.7		4254.5	1.2		3828.34	0.98	
1.600	5643.4	3.5		5101.8	2.5		4611.2	1.7		4163.4	1.2		3751.25	0.98	
1.800	5366.9	3.7		4862.7	2.5		4405.5	1.7		3987.5	1.2		3602.02	0.98	
2.000	5105.4	3.7		4556.1	2.6		4210.0	1.8		3820.0	1.2		3459.61	0.99	
2.200	4858.3	3.8		4421.6	2.6		4024.7	1.8		3660.9	1.3		3324.1	1.0	
2.400	4624.8	3.8		4218.6	2.6		3849.1	1.8		3510.0	1.3		3195.5	1.0	
2.500	4513.1	3.8		4121.3	2.6		3764.9	1.8		3437.6	1.3		3133.8	1.1	
2.600	4404.4	3.8		4026.8	2.7		3683.0	1.8		3367.1	1.3		3073.8	1.1	
2.800	4196.4	3.9		3845.5	2.7		3526.0	1.9		3232.1	1.4		2988.8	1.1	
3.000	4000.1	3.9		3574.5	2.7		3377.8	1.9		3104.7	1.4		2850.4	1.2	
3.200	3815.0	3.9		3513.1	2.7		3238.0	1.9		2984.6	1.4		2748.4	1.2	
3.400	3640.5	4.0		3361.0	2.8		3106.4	2.0		2871.7	1.5		2652.6	1.3	
3.500	3557.1	4.0		3288.3	2.8		3043.5	2.0		2817.8	1.5		2607.0	1.3	
3.600	3476.1	4.0		3217.7	2.8		2982.5	2.0		2765.6	1.5		2563.0	1.3	
3.800	3321.4	4.1		3083.0	2.8		2866.1	2.0		2666.1	1.5		2479.2	1.3	
4.000	3175.8	4.1		2956.3	2.9		2756.9	2.1		2573.1	1.6		2401.2	1.4	
4.200	3038.9	4.2		2837.4	2.9		2654.6	2.1		2486.3	1.6		2328.9	1.4	
4.400	2910.4	4.3		2725.9	3.0		2559.0	2.2		2405.5	1.6		2262.0	1.4	
4.500	2849.2	4.3		2672.9	3.0		2513.7	2.2		2367.3	1.7		2230.6	1.4	
4.600	2789.9	4.3		2621.6	3.1		2469.9	2.2		2330.6	1.7		2200.5	1.4	
4.800	2677.0	4.4		2524.2	3.1		2387.0	2.3		2261.4	1.7		2144.2	1.5	
5.000	2571.4	4.5		2433.4	3.2		2310.2	2.3		2197.8	1.8		2093.1	1.5	
5.200	2472.8	4.7		2349.0	3.3		2239.3	2.4		2139.7	1.8		2047.2	1.5	
5.400	2381.1	4.8		2270.9	3.4		2174.1	2.4		2086.9	1.9		2006.2	1.6	
5.500	2337.7	4.8		2234.2	3.4		2143.7	2.5		2062.5	1.9		1987.6	1.6	
5.600	2295.9	4.9		2198.9	3.5		2114.6	2.5		2039.4	1.9		1970.3	1.6	
5.800	2217.1	5.1		2132.8	3.6		2060.7	2.6		1997.2	1.9		1939.4	1.6	
6.000	2144.5	5.3		2072.6	3.7		2012.3	2.6		1960.3	2.0		1913.4	1.6	
SAT	2111.9	5.5		2044.8	3.8		1988.9	2.7		1941.1	2.0		1899.2	1.7	
6.099															
SAT															
6.106															
SAT															
6.117															
SAT															
6.131															
SAT															

TABLE 25 A (CONT.) INTEGRAL HEAT OF SOLUTION OF SODIUM CHLORIDE, HSOLN (J/MOL)

MOLALITY	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
C.000	3858.4	1.4	3210.6	1.4	2006.1	1.7	822.2	3.0	-475.3	8.1
C.001	3917.5	1.4	3274.1	1.4	2079.0	1.7	905.8	3.0	-379.2	8.1
C.002	3940.3	1.4	3298.6	1.4	2107.4	1.7	938.8	3.0	-341.1	8.1
C.005	3982.5	1.3	3344.5	1.4	2161.1	1.7	1001.3	2.9	-268.2	8.1
C.010	4025.4	1.3	3391.8	1.4	2217.3	1.7	1067.4	2.9	-190.3	8.0
C.020	4078.4	1.3	3451.0	1.3	2289.4	1.6	1153.6	2.9	-87.3	7.9
C.050	4158.1	1.2	3544.1	1.2	2408.8	1.5	1301.4	2.8	94.6	7.7
C.100	4211.5	1.1	3614.0	1.1	2509.9	1.4	1435.5	2.7	268.1	7.5
C.200	4229.26	0.99	3657.5	1.0	2601.1	1.3	1575.2	2.6	465.4	7.1
C.300	4202.97	0.96	3653.0	1.0	2635.9	1.3	1649.1	2.6	584.7	6.8
C.400	4157.40	0.96	3626.94	0.99	2645.0	1.3	1692.3	2.5	667.0	6.6
C.500	4101.51	0.96	3589.10	0.99	2639.4	1.3	1717.8	2.5	727.3	6.5
C.600	4039.64	0.96	3544.2	1.0	2624.6	1.3	1731.8	2.5	773.2	6.4
C.700	3974.23	0.96	3494.8	1.0	2603.8	1.3	1737.9	2.5	808.8	6.3
C.800	3906.79	0.96	3442.62	0.99	2578.8	1.3	1738.4	2.5	837.0	6.2
C.900	3838.29	0.96	3388.75	0.99	2550.9	1.3	1734.9	2.4	859.5	6.2
1.000	3769.42	0.96	3333.92	0.99	2521.0	1.3	1728.3	2.4	877.7	6.1
1.200	3632.34	0.95	3223.40	0.98	2457.7	1.2	1708.8	2.4	904.4	6.1
1.400	3498.05	0.94	3113.90	0.97	2392.4	1.2	1684.3	2.4	922.5	6.1
1.500	3432.41	0.93	3060.07	0.97	2359.6	1.2	1671.0	2.4	929.3	6.1
1.600	3367.93	0.93	3007.05	0.97	2327.1	1.3	1657.3	2.4	935.0	6.0
1.800	3242.78	0.93	2803.83	0.98	2263.1	1.3	1629.5	2.4	944.2	6.0
2.000	3123.06	0.94	2804.83	0.99	2201.2	1.3	1601.9	2.4	951.5	6.0
2.200	3009.01	0.96	2710.4	1.0	2142.1	1.3	1575.3	2.4	958.0	6.0
2.400	2900.75	0.99	2620.8	1.0	2086.1	1.3	1550.4	2.4	964.5	6.0
2.500	2848.8	1.0	2577.8	1.1	2059.4	1.3	1538.7	2.4	967.9	6.0
2.600	2798.3	1.0	2536.1	1.1	2033.5	1.4	1527.5	2.4	971.6	6.1
2.800	2701.6	1.1	2456.3	1.1	1984.5	1.4	1507.0	2.5	979.8	6.1
3.000	2610.6	1.1	2381.5	1.2	1939.1	1.4	1489.1	2.5	989.4	6.1
3.200	2525.3	1.2	2311.6	1.2	1897.6	1.4	1474.0	2.5	1000.7	6.1
3.400	2445.4	1.2	2246.6	1.2	1859.9	1.5	1461.8	2.5	1014.0	6.1
3.500	2407.6	1.2	2215.9	1.3	1842.5	1.5	1456.8	2.5	1021.5	6.1
3.600	2371.0	1.2	2186.5	1.3	1826.1	1.5	1452.6	2.5	1029.6	6.1
3.800	2301.9	1.3	2131.1	1.3	1796.2	1.5	1446.7	2.5	1047.4	6.1
4.000	2238.0	1.3	2080.4	1.3	1770.2	1.5	1443.9	2.5	1067.8	6.1
4.200	2179.2	1.3	2034.4	1.3	1748.1	1.6	1444.5	2.5	1090.8	6.1
4.400	2125.4	1.3	1993.1	1.4	1730.0	1.6	1448.4	2.5	1116.6	6.1
4.500	2100.4	1.4	1974.1	1.4	1722.5	1.6	1451.7	2.5	1130.5	6.1
4.600	2076.6	1.4	1956.3	1.4	1715.9	1.6	1455.8	2.5	1145.2	6.1
4.800	2032.6	1.4	1924.0	1.4	1705.8	1.6	1466.7	2.5	1176.7	6.1
5.000	1993.5	1.4	1896.3	1.5	1699.7	1.6	1481.1	2.5	1211.3	6.1
5.200	1959.1	1.5	1873.1	1.5	1697.7	1.7	1499.2	2.6	1249.0	6.2
5.400	1929.5	1.5	1854.4	1.5	1699.7	1.7	1520.9	2.6	1289.8	6.2
5.500	1916.5	1.5	1846.8	1.5	1702.3	1.7	1533.2	2.6	1311.4	6.2
5.600	1904.7	1.5	1840.3	1.5	1705.9	1.7	1546.4	2.6	1333.9	6.2
5.800	1884.6	1.5	1830.7	1.6	1716.3	1.8	1575.7	2.7	1381.3	6.2
6.000	1869.3	1.6	1825.7	1.6	1731.0	1.8	1609.0	2.7	1432.2	6.3
6.200	1861.2	1.6	1825.2	1.6	1750.1	1.9	1646.2	2.9	1486.5	6.3
SAT 6.148					1751.8	1.9	1661.0	2.9	1527.0	6.4
SAT 6.168										
SAT 6.216										
SAT 6.274										
SAT 6.341										

TABLE 25 B INTEGRAL HEAT OF SOLUTION OF SODIUM CHLORIDE, HSOLN (J/MOL)

WEIGHT %	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	8140.1	7.6	7092.7	4.9	6157.4	3.1	5317.0	2.0	4555.7	1.5
0.100	8251.7	7.0	7224.8	4.5	6309.0	2.9	5487.4	1.9	4744.6	1.4
0.200	8257.8	6.6	7243.6	4.2	6339.3	2.7	5528.1	1.8	4794.7	1.3
0.300	8248.2	6.3	7245.3	4.0	6350.9	2.5	5548.5	1.7	4823.2	1.3
0.400	8231.0	6.0	7238.6	3.8	6353.2	2.4	5558.9	1.6	4840.8	1.2
0.500	8209.5	5.7	7226.8	3.6	6349.9	2.3	5563.1	1.5	4851.6	1.2
0.600	8184.9	5.5	7211.5	3.4	6342.8	2.2	5563.0	1.5	4857.8	1.2
0.700	8158.3	5.2	7193.8	3.3	6332.8	2.1	5559.8	1.4	4860.5	1.1
0.800	8130.1	5.1	7174.2	3.2	6320.6	2.0	5554.1	1.4	4860.6	1.1
0.900	8100.7	4.9	7153.1	3.1	6306.8	2.0	5546.6	1.4	4858.6	1.1
1.000	8070.4	4.8	7130.9	3.0	6291.6	1.9	5537.5	1.3	4854.8	1.1
1.200	8007.8	4.5	7083.9	2.9	6258.1	1.8	5515.7	1.3	4843.3	1.0
1.400	7943.2	4.3	7034.2	2.7	6221.3	1.8	5490.2	1.2	4827.6	1.0
1.600	7877.4	4.2	6982.7	2.7	6182.2	1.7	5461.9	1.2	4808.8	1.0
1.800	7810.7	4.1	6929.9	2.6	6141.4	1.7	5431.5	1.2	4787.5	1.0
2.000	7743.4	4.0	6876.0	2.6	6099.2	1.7	5399.4	1.2	4764.3	1.0
2.500	7574.1	3.8	6738.6	2.5	5989.5	1.7	5313.9	1.2	4700.0	1.0
3.000	7404.5	3.8	6599.1	2.5	5876.1	1.7	5223.4	1.2	4629.5	1.0
3.500	7235.6	3.7	6458.7	2.5	5760.7	1.7	5129.7	1.2	4555.0	1.0
4.000	7068.1	3.7	6318.5	2.5	5644.3	1.7	5034.2	1.2	4477.8	1.0
4.500	6902.4	3.7	6179.0	2.5	5527.6	1.7	4937.6	1.2	4399.0	1.0
5.000	6738.8	3.7	6040.4	2.5	5411.2	1.7	4840.6	1.2	4319.1	1.0
6.000	6418.0	3.6	5767.4	2.5	5180.1	1.7	4646.6	1.2	4157.9	1.0
7.000	6106.7	3.6	5500.8	2.5	4953.0	1.7	4454.5	1.2	3996.94	0.99
8.000	5805.3	3.6	5241.5	2.5	4731.1	1.7	4265.7	1.2	3837.78	0.98
9.000	5513.9	3.7	4989.9	2.5	4515.0	1.7	4081.2	1.2	3681.57	0.98
10.000	5232.7	3.7	4746.5	2.6	4305.3	1.7	3901.7	1.2	3529.10	0.99
11.000	4961.8	3.7	4511.5	2.6	4102.4	1.8	3721.6	1.2	3381.0	1.0
12.000	4701.2	3.8	4285.1	2.6	3906.6	1.8	3559.4	1.3	3237.7	1.0
13.000	4451.0	3.8	4067.3	2.7	3718.1	1.9	3397.3	1.3	3099.5	1.1
14.000	4211.1	3.9	3858.4	2.7	3537.1	1.9	3241.7	1.4	2966.9	1.1
15.000	3981.5	3.9	3658.3	2.7	3363.8	1.9	3092.6	1.4	2840.1	1.2
16.000	3762.3	3.9	3467.1	2.8	3198.2	1.9	2950.5	1.5	2719.4	1.2
17.000	3553.3	4.0	3285.0	2.8	3040.6	2.0	2815.3	1.5	2605.0	1.3
18.000	3354.6	4.0	3111.9	2.8	2891.1	2.0	2687.4	1.5	2497.1	1.3
19.000	3166.2	4.1	2948.0	2.9	2749.7	2.1	2567.0	1.6	2396.1	1.4
20.000	2988.1	4.2	2793.2	3.0	2616.7	2.1	2454.2	1.6	2302.2	1.4
21.000	2820.2	4.3	2647.8	3.1	2492.3	2.2	2349.4	1.7	2215.8	1.4
22.000	2662.8	4.4	2512.0	3.2	2376.6	2.3	2252.8	1.7	2137.3	1.5
23.000	2515.8	4.6	2385.8	3.3	2270.1	2.4	2164.9	1.8	2067.0	1.5
24.000	2379.6	4.8	2269.7	3.4	2173.1	2.4	2086.0	1.9	2005.6	1.6
25.000	2254.3	5.0	2163.9	3.5	2086.0	2.5	2016.9	1.9	1953.7	1.6
26.000	2140.4	5.3	2069.2	3.7	2009.6	2.6	1958.2	2.0	1912.1	1.6
SAT 25.268	2111.9	5.5	2044.8	3.8	1988.9	2.7	1941.1	2.0	1899.2	1.7
SAT 25.278										
SAT 25.300										
SAT 25.334										
SAT 25.378										

TABLE 25 B (CONT.) INTEGRAL HEAT OF SOLUTION OF SODIUM CHLORIDE, HSOLN (J/MOL)

WEIGHT %	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	3858.4	1.4	3210.6	1.4	2006.1	1.7	822.2	3.0	-475.3	8.1
0.100	4065.7	1.3	3436.7	1.3	2271.8	1.6	1132.5	2.9	-112.7	8.0
0.200	4124.8	1.2	3504.4	1.3	2356.6	1.6	1236.0	2.8	13.1	7.8
0.300	4160.7	1.2	3547.2	1.2	2412.9	1.5	1306.8	2.8	101.4	7.7
0.400	4184.8	1.1	3577.4	1.2	2454.9	1.5	1361.1	2.7	170.6	7.6
0.500	4201.6	1.1	3599.9	1.1	2487.8	1.4	1405.1	2.7	227.9	7.5
0.600	4213.4	1.1	3616.8	1.1	2514.6	1.4	1442.0	2.7	276.9	7.4
0.700	4221.5	1.0	3629.8	1.1	2536.7	1.4	1473.5	2.7	319.7	7.4
0.800	4226.7	1.0	3639.7	1.1	2555.2	1.4	1501.0	2.7	357.6	7.3
0.900	4228.6	1.0	3647.1	1.0	2570.9	1.3	1525.0	2.6	391.7	7.2
1.000	4230.7	1.0	3652.5	1.0	2584.2	1.3	1546.4	2.6	422.6	7.2
1.200	4228.27	0.98	3658.4	1.0	2605.2	1.3	1582.6	2.6	476.7	7.1
1.400	4221.28	0.97	3659.2	1.0	2620.4	1.3	1612.1	2.6	522.8	7.0
1.600	4210.81	0.96	3656.3	1.0	2631.1	1.3	1635.3	2.6	562.7	6.9
1.800	4197.62	0.96	3650.4	1.0	2638.4	1.3	1656.4	2.6	597.7	6.8
2.000	4182.24	0.96	3642.08	0.99	2642.7	1.3	1673.2	2.5	628.6	6.7
2.500	4136.67	0.96	3613.36	0.99	2644.2	1.3	1703.9	2.5	692.5	6.6
3.000	4083.93	0.96	3576.6	1.0	2635.9	1.3	1722.9	2.5	742.0	6.5
3.500	4026.39	0.96	3534.3	1.0	2620.8	1.3	1733.6	2.5	781.2	6.4
4.000	3965.59	0.96	3488.2	1.0	2600.8	1.3	1738.3	2.5	812.8	6.3
4.500	3902.52	0.96	3439.28	0.99	2577.1	1.3	1738.3	2.5	838.6	6.2
5.000	3837.90	0.96	3388.44	0.99	2550.7	1.3	1734.8	2.4	859.6	6.2
6.000	3706.02	0.95	3283.00	0.98	2492.3	1.2	1720.2	2.4	891.4	6.1
7.000	3572.87	0.94	3175.03	0.98	2429.1	1.2	1698.5	2.4	913.2	6.1
8.000	3440.29	0.93	3066.55	0.97	2363.6	1.2	1672.7	2.4	928.5	6.1
9.000	3308.54	0.93	2958.94	0.97	2297.3	1.3	1644.5	2.4	939.6	6.0
10.000	3181.51	0.94	2853.18	0.98	2231.5	1.3	1615.4	2.4	948.1	6.0
11.000	3056.89	0.95	2750.0	1.0	2166.9	1.3	1586.4	2.4	955.3	6.0
12.000	2936.22	0.98	2650.1	1.0	2104.4	1.3	1558.5	2.4	962.3	6.0
13.000	2819.9	1.0	2553.9	1.1	2044.6	1.4	1532.3	2.4	970.0	6.1
14.000	2708.4	1.1	2461.9	1.1	1987.9	1.4	1508.4	2.4	979.1	6.1
15.000	2602.0	1.1	2374.4	1.2	1934.9	1.4	1487.5	2.5	990.4	6.1
16.000	2501.1	1.2	2291.9	1.2	1886.0	1.5	1470.0	2.5	1004.4	6.1
17.000	2405.9	1.2	2214.5	1.3	1841.7	1.5	1455.6	2.5	1021.9	6.1
18.000	2316.7	1.3	2142.9	1.3	1802.4	1.5	1447.7	2.5	1043.3	6.1
19.000	2233.8	1.3	2077.1	1.3	1768.5	1.5	1443.9	2.5	1069.3	6.1
20.000	2157.7	1.3	2017.8	1.4	1740.6	1.6	1445.6	2.5	1100.5	6.1
21.000	2088.7	1.4	1965.3	1.4	1719.2	1.6	1453.6	2.5	1137.5	6.1
22.000	2027.2	1.4	1920.2	1.4	1704.8	1.6	1468.4	2.5	1181.1	6.1
23.000	1973.8	1.5	1882.9	1.5	1698.1	1.7	1490.7	2.6	1231.8	6.2
24.000	1929.0	1.5	1854.1	1.5	1699.8	1.7	1521.3	2.6	1290.5	6.2
25.000	1893.7	1.5	1834.7	1.6	1710.8	1.8	1561.1	2.6	1358.1	6.2
26.000	1868.6	1.6	1825.6	1.6	1732.0	1.8	1611.1	2.7	1435.3	6.3
27.000	1861.2	1.6	1825.2	1.6	1751.8	1.9	1661.0	2.9	1523.4	6.4
SAT 26.432										
SAT 26.495										
SAT 26.647										
SAT 26.830										
SAT 27.039										

TABLE 25 B (CONT.) INTEGRAL HEAT OF SOLUTION OF SODIUM CHLORIDE, HSOLN (J/MOL)

WEIGHT %	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	-2044	20	-4075	43	-6797	82	-10480	140	-15460	240
0.100	-1619	20	-3572	42	-6197	80	-9760	140	-14580	230
0.200	-1464	19	-3380	41	-5954	79	-9450	140	-14180	230
0.300	-1353	19	-3238	41	-5770	78	-9210	140	-13860	230
0.400	-1265	19	-3123	40	-5618	77	-9010	140	-13590	220
0.500	-1190	19	-3024	40	-5486	76	-8830	130	-13350	220
0.600	-1125	18	-2937	39	-5368	75	-8670	130	-13130	220
0.700	-1067	18	-2858	39	-5260	74	-8520	130	-12920	220
0.800	-1015	18	-2787	38	-5162	73	-8380	130	-12730	210
0.900	-968	18	-2721	38	-5070	73	-8250	130	-12550	210
1.000	-925	18	-2660	37	-4984	72	-8130	130	-12390	210
1.200	-847	17	-2550	37	-4827	71	-7910	120	-12070	210
1.400	-779	17	-2451	36	-4685	69	-7710	120	-11780	200
1.600	-719	17	-2363	36	-4556	68	-7520	120	-11520	200
1.800	-664	17	-2281	35	-4437	68	-7350	120	-11270	200
2.000	-615	16	-2207	35	-4326	67	-7190	120	-11040	200
2.500	-508	16	-2042	34	-4079	65	-6820	120	-10520	190
3.000	-420	16	-1900	33	-3863	64	-6500	110	-10050	190
3.500	-345	15	-1777	32	-3672	63	-6220	110	-9640	190
4.000	-280	15	-1667	32	-3500	62	-5960	110	-9260	180
4.500	-223	15	-1568	32	-3343	61	-5720	110	-8910	180
5.000	-172	15	-1477	31	-3198	61	-5500	110	-8590	180
6.000	-84	15	-1317	31	-2940	60	-5110	110	-8010	180
7.000	-11	14	-1178	31	-2712	60	-4760	110	-7500	180
8.000	52	14	-1054	31	-2508	60	-4450	110	-7040	180
9.000	108	14	-942	31	-2321	60	-4160	110	-6620	180
10.000	159	14	-838	31	-2149	60	-3900	110	-6240	180
11.000	207	14	-740	31	-1988	60	-3660	110	-5880	180
12.000	253	14	-647	31	-1835	60	-3430	110	-5550	180
13.000	298	15	-557	31	-1689	60	-3210	110	-5240	180
14.000	344	15	-469	31	-1548	61	-3000	110	-4940	180
15.000	390	15	-382	31	-1410	61	-2800	110	-4660	180
16.000	438	15	-294	31	-1275	61	-2600	110	-4390	180
17.000	489	15	-206	32	-1141	61	-2410	110	-4130	180
18.000	542	15	-116	32	-1008	62	-2230	110	-3870	180
19.000	600	15	-23	32	-874	62	-2040	110	-3630	180
20.000	662	15	73	32	-738	62	-1860	110	-3390	180
21.000	729	15	173	32	-601	62	-1680	110	-3160	180
22.000	802	15	278	32	-461	62	-1500	110	-2930	190
23.000	882	15	387	32	-318	62	-1320	110	-2700	190
24.000	969	15	503	32	-171	63	-1140	110	-2480	190
25.000	1063	15	626	32	-20	63	-950	110	-2270	190
26.000	1167	15	756	32	136	63	-770	110	-2050	190
27.000	1280	15	893	32	297	63	-590	110	-1840	190
28.000	1313	15	969	32	429	63	-400	110	-1640	190
SAT 27.272										
SAT 27.525										
SAT 27.795										
SAT 28.079										
SAT 28.373										

TABLE 26 A SPECIFIC HEAT OF SODIUM CHLORIDE SOLUTION, (J/KG.K)

MOLALITY	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.
0.000	4219.48	0.00	4203.78	0.00	4193.45	0.00	4186.79	0.00	4182.62	0.00
0.001	4219.23	0.00	4203.54	0.00	4193.21	0.00	4186.55	0.00	4182.38	0.00
0.002	4218.99	0.00	4203.30	0.00	4192.97	0.00	4186.31	0.00	4182.14	0.00
0.005	4218.26	0.00	4202.58	0.00	4192.25	0.00	4185.59	0.00	4181.42	0.00
0.010	4217.05	0.01	4201.37	0.01	4191.05	0.00	4184.39	0.00	4180.22	0.00
0.020	4214.63	0.02	4198.96	0.01	4188.64	0.01	4181.99	0.00	4177.82	0.00
0.050	4207.39	0.04	4191.74	0.02	4181.44	0.02	4174.80	0.01	4170.64	0.01
0.100	4195.38	0.07	4179.78	0.04	4169.50	0.03	4162.88	0.02	4158.73	0.01
0.200	4171.56	0.12	4156.05	0.08	4145.83	0.04	4139.25	0.03	4135.12	0.02
0.300	4148.02	0.17	4132.59	0.10	4122.43	0.06	4115.88	0.03	4111.78	0.02
0.400	4124.74	0.21	4109.40	0.12	4099.30	0.07	4092.79	0.04	4088.71	0.03
0.500	4101.73	0.24	4086.47	0.15	4076.43	0.09	4069.95	0.05	4065.90	0.04
0.600	4078.98	0.28	4063.80	0.17	4053.82	0.10	4047.38	0.06	4043.34	0.04
0.700	4056.48	0.32	4041.39	0.19	4031.46	0.12	4025.06	0.08	4021.04	0.05
0.800	4034.23	0.35	4019.23	0.21	4009.35	0.13	4002.98	0.09	3998.98	0.06
0.900	4012.24	0.38	3997.31	0.23	3987.49	0.14	3981.16	0.10	3977.19	0.07
1.000	3990.48	0.42	3975.64	0.25	3965.87	0.16	3959.57	0.11	3955.62	0.07
1.200	3947.68	0.48	3933.00	0.29	3923.34	0.18	3917.10	0.13	3913.20	0.09
1.400	3905.81	0.55	3891.28	0.33	3881.72	0.21	3875.56	0.15	3871.69	0.10
1.500	3885.21	0.58	3870.76	0.35	3861.25	0.23	3855.12	0.16	3851.27	0.11
1.600	3864.83	0.62	3850.46	0.37	3841.00	0.24	3834.89	0.17	3831.07	0.12
1.800	3824.72	0.69	3810.50	0.41	3801.13	0.27	3795.09	0.19	3791.31	0.13
2.000	3785.45	0.76	3771.37	0.46	3762.10	0.30	3756.13	0.21	3752.38	0.15
2.200	3746.99	0.83	3733.06	0.50	3723.88	0.33	3717.97	0.23	3714.26	0.17
2.400	3709.32	0.91	3695.53	0.55	3686.45	0.36	3680.59	0.25	3676.92	0.18
2.500	3690.78	0.94	3677.05	0.57	3668.01	0.37	3662.19	0.26	3658.54	0.19
2.600	3672.42	0.98	3658.76	0.60	3649.77	0.39	3643.97	0.27	3640.34	0.20
2.800	3636.3	1.1	3622.73	0.64	3613.83	0.42	3608.09	0.29	3604.49	0.21
3.000	3600.8	1.1	3587.42	0.69	3578.60	0.45	3572.92	0.31	3569.36	0.23
3.200	3566.1	1.2	3552.80	0.74	3544.07	0.48	3538.44	0.33	3534.91	0.24
3.400	3532.0	1.3	3518.86	0.78	3510.21	0.50	3504.64	0.35	3501.14	0.26
3.500	3515.2	1.3	3502.14	0.80	3493.53	0.52	3487.98	0.36	3484.50	0.26
3.600	3498.6	1.4	3485.57	0.83	3477.01	0.53	3471.48	0.37	3468.02	0.27
3.800	3465.8	1.4	3452.92	0.87	3444.44	0.56	3438.97	0.39	3435.54	0.29
4.000	3433.7	1.5	3420.89	0.92	3412.49	0.60	3407.06	0.42	3403.67	0.31
4.200	3402.1	1.6	3389.46	0.97	3381.13	0.63	3375.76	0.44	3372.40	0.33
4.400	3371.2	1.6	3358.6	1.0	3350.36	0.66	3345.04	0.47	3341.71	0.35
4.500	3355.9	1.7	3343.4	1.0	3335.19	0.68	3329.89	0.48	3326.57	0.36
4.600	3340.8	1.7	3328.3	1.1	3320.16	0.70	3314.89	0.50	3311.58	0.37
4.800	3310.9	1.8	3298.6	1.1	3290.51	0.74	3285.28	0.53	3282.01	0.39
5.000	3281.6	1.9	3269.4	1.2	3261.40	0.78	3256.21	0.56	3252.97	0.42
5.200	3252.9	2.0	3240.8	1.2	3232.80	0.83	3227.67	0.59	3224.45	0.44
5.400	3224.6	2.0	3212.6	1.3	3204.72	0.87	3199.63	0.63	3196.44	0.47
5.500	3210.7	2.1	3198.7	1.3	3190.86	0.90	3185.79	0.65	3182.62	0.47
5.600	3196.8	2.1	3185.0	1.4	3177.13	0.93	3172.08	0.66	3168.92	0.49
5.800	3169.6	2.3	3157.8	1.5	3150.02	0.99	3145.01	0.71	3141.88	0.52
6.000	3142.8	2.4	3131.1	1.6	3123.4	1.1	3118.42	0.76	3115.31	0.56
6.096	3130.1	2.5								
SAT			3118.0	1.6	3109.4	1.1	3103.11	0.80	3098.21	0.59
SAT	6.099									
SAT	6.106									
SAT	6.117									
SAT	6.131									

TABLE 26 A (CONT.) SPECIFIC HEAT OF SODIUM CHLORIDE SOLUTION, (J/KG.K)

MOLALITY	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
C.000	4180.13	0.00	4178.82	0.00	4178.49	0.00	4180.26	0.00	4183.65	0.00
C.001	4179.89	0.00	4178.58	0.00	4178.25	0.00	4180.02	0.00	4183.41	0.00
C.002	4179.65	0.00	4178.34	0.00	4178.01	0.00	4179.78	0.00	4183.17	0.00
C.005	4178.93	0.00	4177.62	0.00	4177.29	0.00	4179.06	0.00	4182.45	0.00
C.010	4177.73	0.00	4176.42	0.00	4176.09	0.00	4177.86	0.00	4181.25	0.00
C.020	4175.34	0.00	4174.02	0.00	4173.69	0.00	4175.46	0.00	4178.85	0.00
C.050	4168.16	0.00	4166.85	0.00	4166.52	0.01	4168.29	0.01	4171.67	0.01
C.100	4156.26	0.01	4154.95	0.01	4154.63	0.01	4156.39	0.01	4159.76	0.01
C.200	4132.66	0.01	4131.36	0.01	4131.04	0.02	4132.79	0.02	4136.14	0.02
C.300	4109.34	0.02	4108.04	0.02	4107.72	0.02	4109.46	0.02	4112.79	0.03
C.400	4086.28	0.02	4084.99	0.02	4084.67	0.03	4086.40	0.03	4089.72	0.04
C.500	4063.48	0.03	4062.20	0.03	4061.88	0.03	4063.60	0.04	4066.90	0.04
C.600	4040.94	0.03	4039.67	0.03	4039.35	0.04	4041.06	0.04	4044.34	0.05
C.700	4018.66	0.04	4017.39	0.04	4017.08	0.05	4018.78	0.05	4022.04	0.05
C.800	3996.62	0.04	3995.36	0.04	3995.05	0.05	3996.74	0.06	3999.98	0.06
C.900	3974.83	0.05	3973.57	0.05	3973.26	0.06	3974.95	0.07	3978.17	0.06
1.000	3953.27	0.05	3952.03	0.05	3951.72	0.07	3953.39	0.07	3956.60	0.07
1.200	3910.87	0.06	3909.64	0.06	3909.34	0.08	3910.99	0.08	3914.16	0.08
1.400	3869.39	0.07	3868.17	0.07	3867.87	0.09	3869.51	0.09	3872.65	0.09
1.500	3848.99	0.08	3847.77	0.07	3847.47	0.09	3849.10	0.10	3852.22	0.10
1.600	3828.80	0.09	3827.59	0.08	3827.29	0.10	3828.91	0.10	3832.02	0.10
1.800	3789.06	0.10	3787.87	0.09	3787.57	0.11	3789.17	0.11	3792.25	0.11
2.000	3750.15	0.11	3748.97	0.10	3748.68	0.12	3750.27	0.12	3753.31	0.12
2.200	3712.06	0.13	3710.89	0.11	3710.60	0.13	3712.17	0.13	3715.18	0.13
2.400	3674.74	0.14	3673.58	0.12	3673.29	0.14	3674.85	0.14	3677.83	0.14
2.500	3656.36	0.14	3655.21	0.13	3654.93	0.15	3656.47	0.15	3659.44	0.14
2.600	3638.18	0.15	3637.03	0.13	3636.75	0.15	3638.29	0.15	3641.24	0.15
2.800	3602.35	0.16	3601.22	0.14	3600.93	0.16	3602.46	0.16	3605.38	0.16
3.000	3567.24	0.17	3566.11	0.15	3565.83	0.18	3567.34	0.17	3570.24	0.17
3.200	3532.81	0.18	3531.70	0.16	3531.42	0.19	3532.92	0.18	3535.78	0.18
3.400	3499.06	0.20	3497.96	0.18	3497.69	0.20	3499.17	0.19	3502.01	0.19
3.500	3482.43	0.20	3481.34	0.18	3481.06	0.20	3482.54	0.20	3485.36	0.19
3.600	3465.96	0.21	3464.87	0.19	3464.60	0.21	3466.07	0.20	3468.88	0.20
3.800	3433.50	0.22	3432.42	0.20	3432.15	0.22	3433.60	0.21	3436.39	0.21
4.000	3401.65	0.24	3400.58	0.21	3400.31	0.23	3401.75	0.22	3404.51	0.22
4.200	3370.39	0.25	3369.33	0.22	3369.07	0.24	3370.50	0.23	3373.29	0.23
4.400	3339.72	0.27	3338.67	0.24	3338.41	0.25	3339.82	0.24	3342.53	0.24
4.500	3324.60	0.28	3323.55	0.24	3323.29	0.25	3324.70	0.24	3327.39	0.24
4.600	3309.62	0.29	3308.57	0.25	3308.31	0.26	3309.72	0.25	3312.40	0.25
4.800	3280.06	0.30	3279.03	0.26	3278.77	0.27	3280.16	0.25	3282.82	0.25
5.000	3251.04	0.32	3250.01	0.27	3249.76	0.27	3251.13	0.26	3253.77	0.26
5.200	3222.53	0.34	3221.52	0.29	3221.27	0.29	3222.63	0.27	3225.24	0.27
5.400	3194.54	0.36	3193.53	0.30	3193.28	0.30	3194.63	0.29	3197.22	0.28
5.500	3180.73	0.37	3179.72	0.31	3179.48	0.31	3180.82	0.29	3183.40	0.29
5.600	3167.04	0.38	3166.04	0.32	3165.79	0.32	3167.13	0.30	3169.70	0.30
5.800	3140.01	0.40	3139.02	0.34	3138.78	0.34	3140.11	0.32	3142.65	0.31
6.000	3113.46	0.43	3112.48	0.37	3112.23	0.37	3113.55	0.35	3116.08	0.33
6.200	3094.16	0.47	3090.58	0.41	3086.15	0.42	3087.45	0.39	3089.96	0.36
SAT 6.148										
SAT 6.168					3084.09	0.42	3077.89	0.41	3071.78	0.39
SAT 6.216										
SAT 6.274										
SAT 6.341										

TABLE 26 A (CONT.) SPECIFIC HEAT OF SODIUM CHLORIDE SOLUTION, (J/KG.K)

MOLALITY	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	4188.55	0.00	4195.09	0.00	4203.59	0.00	4214.19	0.00	4229.61	0.00
0.001	4188.30	0.00	4194.84	0.00	4203.35	0.00	4213.95	0.00	4229.36	0.00
0.002	4188.06	0.00	4194.60	0.00	4203.11	0.00	4213.71	0.00	4229.12	0.00
0.005	4187.34	0.00	4193.88	0.00	4202.38	0.00	4212.98	0.00	4228.39	0.00
0.010	4186.14	0.00	4192.68	0.00	4201.18	0.00	4211.77	0.00	4227.18	0.01
0.020	4183.74	0.00	4190.27	0.00	4198.76	0.00	4209.35	0.01	4224.75	0.01
0.050	4176.55	0.01	4183.07	0.01	4191.55	0.01	4202.12	0.02	4217.49	0.03
0.100	4164.62	0.01	4171.13	0.01	4179.58	0.02	4190.12	0.04	4205.45	0.07
0.200	4140.98	0.02	4147.45	0.02	4155.85	0.03	4166.33	0.08	4181.58	0.13
0.300	4117.61	0.03	4124.04	0.03	4132.40	0.05	4142.82	0.11	4157.97	0.19
0.400	4094.50	0.04	4100.90	0.04	4109.21	0.06	4119.57	0.14	4134.64	0.24
0.500	4071.66	0.05	4078.02	0.04	4086.28	0.08	4096.59	0.17	4111.57	0.30
0.600	4049.07	0.05	4055.40	0.05	4073.86	0.09	4073.86	0.20	4088.77	0.35
0.700	4026.74	0.06	4033.03	0.06	4041.21	0.10	4051.40	0.23	4066.22	0.41
0.800	4004.66	0.07	4010.91	0.07	4019.04	0.11	4029.18	0.26	4043.92	0.46
0.900	3982.82	0.07	3989.04	0.07	3997.13	0.12	4007.21	0.28	4021.87	0.51
1.000	3961.23	0.08	3967.41	0.08	3975.46	0.14	3985.48	0.31	4000.06	0.56
1.200	3918.74	0.09	3924.86	0.09	3932.82	0.16	3942.74	0.37	3957.16	0.66
1.400	3877.18	0.10	3883.23	0.10	3891.10	0.18	3900.92	0.42	3915.19	0.76
1.600	3856.73	0.11	3862.75	0.11	3870.58	0.19	3880.34	0.44	3894.54	0.81
1.800	3836.50	0.12	3842.49	0.12	3850.28	0.20	3859.99	0.47	3874.11	0.86
2.000	3796.68	0.13	3802.61	0.13	3810.32	0.22	3819.93	0.52	3833.90	0.95
2.200	3757.70	0.14	3763.57	0.14	3771.20	0.24	3780.71	0.57	3794.15	1.0
2.400	3719.53	0.15	3725.33	0.15	3732.88	0.26	3742.30	0.62	3756.0	1.1
2.600	3682.13	0.16	3687.88	0.16	3699.36	0.28	3704.68	0.67	3718.2	1.2
2.800	3653.72	0.17	3669.44	0.17	3676.88	0.29	3686.15	0.69	3699.16	1.3
3.000	3645.50	0.18	3651.19	0.18	3658.59	0.30	3667.82	0.72	3681.2	1.3
3.200	3639.92	0.21	3645.24	0.18	3652.56	0.32	3661.70	0.76	3645.0	1.4
3.400	3609.60	0.20	3630.00	0.19	3637.25	0.34	3639.30	0.81	3609.5	1.5
3.600	3574.41	0.22	3595.45	0.20	3592.64	0.36	3561.60	0.85	3574.6	1.6
3.800	3539.92	0.21	3561.58	0.21	3552.64	0.37	3527.57	0.90	3540.5	1.6
4.000	3506.10	0.22	3511.58	0.21	3501.97	0.38	3510.80	0.92	3523.6	1.7
4.200	3489.44	0.22	3494.89	0.22	3485.41	0.39	3494.20	0.94	3507.0	1.7
4.400	3472.94	0.23	3478.36	0.23	3478.76	0.41	3461.47	0.99	3474.1	1.8
4.600	3440.41	0.24	3445.78	0.24	3452.76	0.43	3429.4	1.0	3441.9	1.9
4.800	3408.49	0.25	3413.81	0.25	3420.73	0.43	3429.4	1.0	3410.3	2.0
5.000	3377.18	0.26	3382.45	0.26	3389.31	0.44	3397.9	1.1	3410.3	2.0
5.200	3346.44	0.27	3351.67	0.27	3358.46	0.46	3366.9	1.1	3379.2	2.0
5.400	3331.29	0.28	3336.49	0.27	3343.25	0.47	3351.7	1.1	3363.9	2.1
5.600	3316.28	0.28	3321.45	0.27	3328.19	0.47	3336.6	1.1	3348.8	2.1
5.800	3286.66	0.29	3291.79	0.28	3288.46	0.49	3308.8	1.2	3318.9	2.2
6.000	3237.58	0.30	3262.67	0.29	3269.28	0.50	3277.5	1.2	3288.5	2.2
6.200	3229.02	0.31	3234.06	0.30	3240.62	0.52	3248.8	1.3	3260.7	2.3
6.400	3200.97	0.32	3205.97	0.31	3212.46	0.54	3220.6	1.3	3232.3	2.4
6.600	3157.13	0.33	3192.10	0.32	3198.57	0.55	3208.6	1.3	3218.4	2.4
6.800	3173.41	0.33	3178.36	0.32	3184.81	0.56	3192.8	1.3	3204.5	2.5
7.000	3146.33	0.35	3151.25	0.34	3157.63	0.59	3165.6	1.4	3177.2	2.5
7.200	3119.72	0.36	3124.60	0.37	3130.93	0.62	3138.8	1.4	3150.3	2.6
7.400	3093.57	0.39	3098.40	0.41	3104.68	0.67	3112.5	1.5	3123.9	2.7
7.600	3057.87	0.43	3072.66	0.46	3078.88	0.74	3086.6	1.6	3097.9	2.7
7.800					3066.15	0.78	3073.9	1.6	3085.1	2.8
8.000							3061.2	1.6	3072.4	2.8
SAT	3065.79	0.43	3060.15	0.50	3055.19	0.82	3051.1	1.7	3050.1	2.9
SAT	6.416									
SAT	6.498									
SAT	6.587									
SAT	6.680									
SAT	6.778									

TABLE 26 B SPECIFIC HEAT OF SODIUM CHLORIDE SOLUTION, (J/KG.K)

WEIGHT %	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	4219.48	0.00	4203.78	0.00	4193.45	0.00	4186.79	0.00	4182.62	0.00
0.100	4215.33	0.01	4199.65	0.01	4189.33	0.01	4182.68	0.00	4178.51	0.00
0.200	4211.18	0.03	4195.52	0.02	4185.21	0.01	4178.56	0.01	4174.40	0.00
0.300	4207.03	0.04	4191.39	0.03	4181.09	0.02	4174.45	0.01	4170.28	0.01
0.400	4202.89	0.05	4187.26	0.03	4176.97	0.02	4170.33	0.01	4166.17	0.01
0.500	4198.74	0.06	4183.12	0.04	4172.84	0.02	4166.22	0.01	4162.06	0.01
0.600	4194.59	0.07	4178.99	0.05	4168.72	0.03	4162.10	0.02	4157.95	0.01
0.700	4190.45	0.08	4174.86	0.05	4164.60	0.03	4157.98	0.02	4153.84	0.01
0.800	4186.30	0.09	4170.73	0.06	4160.48	0.03	4153.87	0.02	4149.73	0.01
0.900	4182.15	0.10	4166.60	0.06	4156.36	0.04	4149.75	0.02	4145.62	0.01
1.000	4178.00	0.11	4162.46	0.07	4152.24	0.04	4145.64	0.02	4141.51	0.02
1.200	4169.71	0.13	4154.20	0.08	4143.99	0.05	4137.41	0.03	4133.28	0.02
1.400	4161.41	0.14	4145.94	0.09	4135.75	0.05	4129.18	0.03	4125.06	0.02
1.600	4153.12	0.16	4137.67	0.10	4127.51	0.06	4120.95	0.03	4116.84	0.02
1.800	4144.83	0.17	4129.41	0.10	4119.26	0.06	4112.72	0.04	4108.62	0.02
2.000	4136.53	0.19	4121.15	0.11	4111.02	0.07	4104.49	0.04	4100.40	0.03
2.500	4115.79	0.22	4100.49	0.13	4090.41	0.08	4083.91	0.05	4079.84	0.03
3.000	4095.06	0.26	4079.83	0.15	4069.80	0.09	4063.34	0.06	4059.29	0.04
3.500	4074.32	0.29	4059.17	0.17	4049.19	0.10	4042.76	0.07	4038.73	0.05
4.000	4053.58	0.32	4038.51	0.19	4028.58	0.12	4022.18	0.08	4018.18	0.05
4.500	4032.85	0.35	4017.85	0.21	4007.98	0.13	4001.61	0.09	3997.62	0.06
5.000	4012.11	0.38	3997.19	0.23	3987.37	0.14	3981.03	0.10	3977.06	0.07
6.000	3970.64	0.45	3955.87	0.27	3946.15	0.17	3939.88	0.12	3935.95	0.08
7.000	3929.17	0.51	3914.55	0.31	3904.93	0.20	3898.73	0.13	3894.84	0.09
8.000	3887.69	0.58	3873.23	0.35	3863.72	0.22	3857.58	0.15	3853.73	0.11
9.000	3846.22	0.65	3831.92	0.39	3822.50	0.25	3816.43	0.18	3812.62	0.13
10.000	3804.75	0.72	3790.60	0.44	3781.28	0.28	3775.28	0.20	3771.51	0.14
11.000	3763.28	0.80	3749.28	0.48	3740.07	0.31	3734.12	0.22	3730.40	0.16
12.000	3721.80	0.88	3707.96	0.53	3698.85	0.35	3692.97	0.25	3689.29	0.18
13.000	3680.33	0.97	3666.64	0.59	3657.63	0.38	3651.82	0.27	3648.18	0.20
14.000	3638.8	1.1	3625.32	0.64	3616.41	0.42	3610.67	0.29	3607.07	0.21
15.000	3597.4	1.1	3584.00	0.69	3575.20	0.45	3569.52	0.32	3565.96	0.23
16.000	3555.9	1.2	3542.69	0.75	3533.98	0.48	3528.37	0.34	3524.85	0.25
17.000	3514.4	1.3	3501.37	0.80	3492.76	0.52	3487.22	0.36	3483.74	0.26
18.000	3473.0	1.4	3460.05	0.86	3451.55	0.56	3446.06	0.39	3442.63	0.28
19.000	3431.5	1.5	3418.73	0.92	3410.33	0.60	3404.91	0.42	3401.52	0.31
20.000	3390.0	1.6	3377.41	0.98	3369.11	0.64	3363.76	0.45	3360.41	0.34
21.000	3348.5	1.7	3336.1	1.1	3327.90	0.69	3322.61	0.49	3319.30	0.37
22.000	3307.1	1.8	3294.8	1.1	3286.68	0.75	3281.46	0.53	3278.19	0.40
23.000	3265.6	1.9	3253.5	1.2	3245.46	0.81	3240.31	0.58	3237.08	0.43
24.000	3224.1	2.0	3212.1	1.3	3204.24	0.87	3199.15	0.63	3195.97	0.47
25.000	3182.7	2.2	3170.8	1.4	3163.03	0.96	3158.00	0.69	3154.85	0.51
26.000	3141.2	2.4	3129.5	1.6	3121.8	1.1	3116.85	0.77	3113.74	0.56
SAT 26.268	3130.1	2.5	3118.0	1.6						
SAT 26.278					3109.4	1.1	3103.11	0.80	3098.21	0.59
SAT 26.300										
SAT 26.334										
SAT 26.378										

TABLE 26 B (CONT.) SPECIFIC HEAT OF SODIUM CHLORIDE SOLUTION, (J/KG.K)

WEIGHT %	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.
0.000	4180.13	0.00	4178.82	0.00	4178.49	0.00	4180.26	0.00	4183.65	0.00
0.100	4176.02	0.00	4174.71	0.00	4174.38	0.00	4176.15	0.00	4179.54	0.00
0.200	4171.92	0.00	4170.60	0.00	4170.27	0.00	4172.04	0.00	4175.42	0.00
0.300	4167.81	0.00	4166.49	0.00	4166.17	0.00	4167.93	0.01	4171.31	0.01
0.400	4163.70	0.01	4162.39	0.01	4162.06	0.01	4163.82	0.01	4167.20	0.01
0.500	4159.59	0.01	4158.28	0.01	4157.95	0.01	4159.72	0.01	4163.09	0.01
0.600	4155.48	0.01	4154.17	0.01	4153.85	0.01	4155.61	0.01	4158.98	0.01
0.700	4151.37	0.01	4150.07	0.01	4149.74	0.01	4151.50	0.01	4154.86	0.01
0.800	4147.26	0.01	4145.96	0.01	4145.63	0.01	4147.39	0.01	4150.75	0.01
0.900	4143.16	0.01	4141.85	0.01	4141.53	0.01	4143.28	0.01	4146.64	0.02
1.000	4139.05	0.01	4137.74	0.01	4137.42	0.01	4139.17	0.02	4142.53	0.02
1.200	4130.83	0.01	4129.53	0.01	4129.20	0.02	4130.95	0.02	4134.30	0.02
1.400	4122.61	0.02	4121.31	0.02	4120.99	0.02	4122.74	0.02	4126.08	0.02
1.600	4114.40	0.02	4113.10	0.02	4112.78	0.02	4114.52	0.02	4117.86	0.03
1.800	4106.18	0.02	4104.88	0.02	4104.56	0.02	4106.30	0.03	4109.63	0.03
2.000	4097.96	0.02	4096.67	0.02	4096.35	0.03	4098.08	0.03	4101.41	0.03
2.500	4077.42	0.03	4076.13	0.02	4075.81	0.03	4077.54	0.03	4080.85	0.04
3.000	4056.87	0.03	4055.60	0.03	4055.28	0.04	4057.00	0.04	4060.29	0.04
3.500	4036.33	0.03	4035.06	0.03	4034.74	0.04	4036.45	0.05	4039.73	0.05
4.000	4015.79	0.04	4014.52	0.04	4014.21	0.05	4015.91	0.05	4019.17	0.05
4.500	3995.25	0.04	3993.99	0.04	3993.67	0.05	3995.37	0.06	3998.61	0.06
5.000	3974.70	0.05	3973.45	0.05	3973.14	0.06	3974.82	0.06	3978.05	0.06
6.000	3933.62	0.06	3932.38	0.05	3932.07	0.07	3933.74	0.07	3936.92	0.07
7.000	3892.53	0.07	3891.30	0.06	3891.00	0.08	3892.65	0.08	3895.80	0.08
8.000	3851.44	0.08	3850.23	0.07	3849.93	0.09	3851.56	0.09	3854.68	0.09
9.000	3810.36	0.09	3809.16	0.08	3808.86	0.10	3810.47	0.11	3813.56	0.10
10.000	3769.27	0.11	3768.08	0.09	3767.79	0.11	3768.39	0.12	3772.44	0.12
11.000	3728.19	0.12	3727.01	0.11	3726.72	0.13	3728.30	0.13	3731.32	0.13
12.000	3687.10	0.13	3685.94	0.12	3685.65	0.14	3687.21	0.14	3690.20	0.14
13.000	3646.01	0.15	3644.87	0.13	3644.58	0.15	3646.12	0.15	3649.08	0.15
14.000	3604.93	0.16	3603.79	0.14	3603.51	0.16	3605.04	0.16	3607.96	0.16
15.000	3563.84	0.17	3562.72	0.15	3562.44	0.18	3563.95	0.17	3566.84	0.17
16.000	3522.76	0.19	3521.65	0.17	3521.37	0.19	3522.86	0.19	3525.72	0.18
17.000	3481.67	0.20	3480.57	0.18	3480.30	0.20	3481.77	0.20	3484.60	0.19
18.000	3440.58	0.22	3439.50	0.20	3439.23	0.22	3440.69	0.21	3443.48	0.20
19.000	3399.50	0.24	3398.43	0.21	3398.16	0.23	3399.60	0.22	3402.36	0.22
20.000	3358.41	0.25	3357.35	0.23	3357.09	0.24	3358.51	0.23	3361.24	0.23
21.000	3317.33	0.28	3316.28	0.25	3316.02	0.25	3317.43	0.24	3320.12	0.24
22.000	3276.24	0.31	3275.21	0.26	3274.95	0.27	3276.34	0.26	3278.99	0.26
23.000	3235.15	0.33	3234.13	0.28	3233.88	0.28	3235.25	0.27	3237.87	0.27
24.000	3194.07	0.35	3193.06	0.30	3192.81	0.30	3194.15	0.29	3196.75	0.28
25.000	3152.98	0.39	3151.99	0.33	3151.74	0.33	3153.08	0.31	3155.63	0.30
26.000	3111.90	0.44	3110.91	0.38	3110.67	0.38	3111.99	0.36	3114.51	0.33
27.000									3073.39	0.38
SAT 26.432	3094.16	0.47								
SAT 26.495			3090.58	0.41						
SAT 26.647					3084.09	0.42			3077.89	0.41
SAT 26.830										
SAT 27.039										
									3071.78	0.39

TABLE 26 B (CONT.) SPECIFIC HEAT OF SODIUM CHLORIDE SOLUTION, (J/KG.K)

WEIGHT %	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	4188.55	0.00	4195.09	0.00	4203.58	0.00	4214.19	0.00	4229.61	0.00
0.100	4184.43	0.00	4190.96	0.00	4199.46	0.00	4210.05	0.01	4225.45	0.01
0.200	4180.31	0.00	4186.84	0.00	4195.32	0.01	4205.90	0.01	4221.29	0.02
0.300	4176.19	0.01	4182.72	0.01	4191.18	0.01	4201.76	0.02	4217.13	0.04
0.400	4172.08	0.01	4178.59	0.01	4187.06	0.01	4197.62	0.03	4212.98	0.05
0.500	4167.96	0.01	4174.47	0.01	4182.93	0.02	4193.48	0.03	4208.82	0.06
0.600	4163.84	0.01	4170.35	0.01	4178.80	0.02	4189.34	0.04	4204.66	0.07
0.700	4159.73	0.01	4166.22	0.01	4174.67	0.02	4185.19	0.05	4200.51	0.08
0.800	4155.61	0.02	4162.10	0.01	4170.54	0.03	4181.05	0.05	4196.35	0.09
0.900	4151.49	0.02	4157.98	0.02	4166.42	0.03	4176.91	0.06	4192.19	0.10
1.000	4147.38	0.02	4153.85	0.02	4162.27	0.03	4172.77	0.07	4188.03	0.11
1.200	4139.14	0.02	4145.61	0.02	4154.01	0.04	4164.48	0.08	4179.72	0.13
1.400	4130.91	0.02	4137.36	0.02	4145.75	0.04	4156.20	0.09	4171.40	0.15
1.600	4122.68	0.03	4129.11	0.03	4137.48	0.05	4147.92	0.10	4163.09	0.17
1.800	4114.44	0.03	4120.87	0.03	4129.22	0.05	4139.63	0.11	4154.78	0.19
2.000	4106.21	0.04	4112.62	0.03	4120.96	0.06	4131.35	0.12	4146.46	0.22
2.500	4085.62	0.04	4092.00	0.04	4100.30	0.07	4110.64	0.15	4125.67	0.27
3.000	4065.04	0.05	4071.39	0.05	4079.64	0.08	4089.93	0.18	4104.89	0.31
3.500	4044.45	0.05	4050.77	0.05	4058.98	0.09	4069.22	0.21	4084.10	0.36
4.000	4023.87	0.06	4030.15	0.06	4038.32	0.10	4048.51	0.23	4063.32	0.41
4.500	4003.29	0.07	4009.54	0.07	4017.66	0.11	4027.80	0.26	4042.53	0.46
5.000	3982.70	0.07	3988.92	0.07	3997.01	0.12	4007.09	0.28	4021.74	0.51
6.000	3941.53	0.09	3947.69	0.09	3955.69	0.15	3965.66	0.34	3980.17	0.61
7.000	3900.36	0.10	3906.45	0.10	3914.37	0.17	3924.24	0.39	3938.60	0.70
8.000	3859.20	0.11	3865.22	0.11	3873.06	0.19	3882.82	0.41	3897.03	0.80
9.000	3818.03	0.12	3823.99	0.12	3831.74	0.21	3841.40	0.49	3855.45	0.90
10.000	3776.86	0.13	3782.76	0.13	3790.42	0.23	3799.98	0.55	3813.9	1.0
11.000	3735.69	0.15	3741.52	0.15	3749.11	0.25	3758.56	0.60	3772.3	1.1
12.000	3694.52	0.16	3700.29	0.16	3707.79	0.27	3717.14	0.65	3730.7	1.2
13.000	3653.35	0.17	3659.06	0.17	3666.47	0.29	3675.72	0.70	3689.2	1.3
14.000	3612.18	0.18	3617.82	0.18	3625.16	0.32	3634.30	0.76	3647.6	1.4
15.000	3571.01	0.20	3576.59	0.19	3585.84	0.34	3592.88	0.81	3606.0	1.5
16.000	3529.85	0.21	3535.36	0.21	3542.52	0.36	3551.46	0.87	3564.4	1.6
17.000	3488.68	0.22	3494.12	0.22	3501.21	0.38	3510.04	0.92	3522.9	1.7
18.000	3447.51	0.24	3452.89	0.23	3459.89	0.41	3468.61	0.98	3481.3	1.8
19.000	3406.34	0.25	3411.66	0.25	3418.57	0.43	3427.2	1.0	3439.7	1.9
20.000	3365.17	0.27	3370.42	0.26	3377.26	0.45	3385.8	1.1	3398.2	2.0
21.000	3324.00	0.28	3329.19	0.27	3335.94	0.47	3344.4	1.1	3356.6	2.1
22.000	3282.83	0.29	3287.96	0.28	3294.62	0.49	3302.9	1.2	3315.0	2.2
23.000	3241.66	0.31	3246.73	0.30	3253.31	0.51	3261.5	1.2	3273.4	2.3
24.000	3200.49	0.32	3205.49	0.31	3211.99	0.54	3220.1	1.3	3231.9	2.4
25.000	3159.33	0.34	3164.26	0.33	3170.67	0.57	3178.7	1.4	3190.3	2.5
26.000	3118.16	0.36	3123.03	0.37	3129.36	0.63	3137.2	1.4	3148.7	2.6
27.000	3076.99	0.41	3081.79	0.44	3088.04	0.71	3095.8	1.5	3107.2	2.7
28.000	3065.79	0.43	3060.15	0.50	3055.19	0.82	3054.4	1.7	3065.6	2.9
SAT 27.272										
SAT 27.525										
SAT 27.795										
SAT 28.079										
SAT 28.373										
							3051.1	1.7	3050.1	2.9

TABLE 27 A APPARENT MOLAL HEAT CAPACITY OF SODIUM CHLORIDE, C_PPHI (J/MOL.K)

MOLALITY	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	-183.80	0.89	-153.92	0.58	-129.79	0.36	-110.58	0.23	-95.53	0.16
0.001	-183.11	0.89	-153.21	0.57	-129.07	0.36	-109.83	0.23	-94.74	0.15
0.002	-182.74	0.89	-152.86	0.57	-128.73	0.36	-109.49	0.23	-94.39	0.15
0.005	-181.90	0.88	-152.08	0.56	-127.98	0.36	-108.76	0.23	-93.67	0.15
0.010	-180.76	0.87	-151.05	0.56	-127.03	0.35	-107.87	0.22	-92.81	0.15
0.020	-178.83	0.84	-149.36	0.54	-125.52	0.34	-106.48	0.21	-91.50	0.14
0.050	-174.08	0.79	-145.28	0.50	-121.96	0.31	-103.30	0.19	-88.59	0.12
0.100	-167.50	0.72	-139.71	0.45	-117.18	0.27	-99.14	0.16	-84.88	0.10
0.200	-156.49	0.63	-130.44	0.38	-109.30	0.22	-92.33	0.13	-78.889	0.085
0.300	-147.05	0.57	-122.48	0.34	-102.52	0.20	-86.50	0.12	-73.782	0.077
0.400	-138.60	0.53	-115.32	0.32	-96.42	0.19	-81.23	0.11	-69.175	0.075
0.500	-130.86	0.50	-108.75	0.30	-90.79	0.18	-76.37	0.11	-64.914	0.075
0.600	-123.69	0.48	-102.63	0.29	-85.54	0.17	-71.82	0.11	-60.919	0.076
0.700	-116.99	0.47	-96.90	0.28	-80.60	0.17	-67.52	0.11	-57.141	0.077
0.800	-110.68	0.46	-91.48	0.27	-75.92	0.17	-63.44	0.11	-53.546	0.077
0.900	-104.71	0.45	-86.34	0.27	-71.47	0.17	-59.55	0.11	-50.111	0.077
1.000	-99.05	0.44	-81.45	0.27	-67.22	0.17	-55.83	0.11	-46.819	0.077
1.200	-88.51	0.43	-72.31	0.26	-59.26	0.16	-48.83	0.11	-40.610	0.078
1.400	-78.87	0.42	-63.92	0.26	-51.90	0.16	-42.35	0.11	-34.835	0.079
1.500	-74.34	0.42	-59.96	0.25	-48.43	0.16	-39.28	0.11	-32.092	0.080
1.600	-69.99	0.42	-56.16	0.25	-45.08	0.16	-36.31	0.11	-29.437	0.081
1.800	-61.78	0.42	-48.95	0.25	-38.72	0.16	-30.65	0.12	-24.371	0.083
2.000	-54.16	0.42	-42.24	0.26	-32.77	0.17	-25.35	0.12	-19.604	0.085
2.200	-47.06	0.43	-35.96	0.26	-27.20	0.17	-20.37	0.12	-15.107	0.086
2.400	-40.44	0.43	-30.09	0.26	-21.96	0.17	-15.67	0.12	-10.854	0.087
2.500	-37.30	0.43	-27.29	0.26	-19.46	0.17	-13.42	0.12	-8.812	0.088
2.600	-34.26	0.43	-24.58	0.26	-17.04	0.17	-11.23	0.12	-6.825	0.088
2.800	-28.46	0.44	-19.41	0.27	-12.39	0.17	-7.03	0.12	-3.000	0.089
3.000	-23.03	0.44	-14.54	0.27	-8.00	0.17	-3.05	0.12	0.637	0.089
3.200	-17.93	0.45	-9.95	0.27	-3.86	0.18	0.73	0.12	4.101	0.090
3.400	-13.13	0.45	-5.62	0.28	0.08	0.18	4.32	0.12	7.408	0.090
3.500	-10.84	0.45	-3.55	0.28	1.96	0.18	6.05	0.12	9.006	0.091
3.600	-8.61	0.46	-1.53	0.28	3.81	0.18	7.74	0.13	10.569	0.091
3.800	-4.36	0.46	2.34	0.28	7.35	0.18	11.01	0.13	13.598	0.093
4.000	-0.34	0.46	6.02	0.28	10.73	0.18	14.13	0.13	16.506	0.095
4.200	3.46	0.47	9.50	0.29	13.95	0.19	17.12	0.13	19.302	0.097
4.400	7.06	0.47	12.82	0.29	17.02	0.19	19.59	0.13	22.00	0.10
4.500	8.79	0.47	14.43	0.29	18.51	0.19	21.38	0.14	23.31	0.10
4.600	10.48	0.47	15.99	0.29	19.97	0.19	22.75	0.14	24.60	0.10
4.800	13.73	0.48	19.01	0.30	22.80	0.20	25.42	0.14	27.12	0.11
5.000	16.82	0.48	21.91	0.30	25.53	0.20	27.59	0.14	29.57	0.11
5.200	19.77	0.49	24.69	0.31	28.15	0.21	30.48	0.15	31.94	0.11
5.400	22.60	0.50	27.36	0.32	30.69	0.21	32.50	0.15	34.26	0.11
5.500	23.97	0.50	28.66	0.32	31.93	0.22	34.09	0.15	35.39	0.12
5.600	25.31	0.51	29.94	0.33	33.15	0.22	35.26	0.16	36.52	0.12
5.800	27.92	0.52	32.44	0.34	35.54	0.23	37.56	0.16	38.73	0.12
6.000	30.44	0.54	34.86	0.35	37.87	0.24	39.80	0.17	40.90	0.13
SAT	31.62	0.55	36.03	0.36	39.09	0.25	41.09	0.18	42.29	0.13
SAT	6.096									
SAT	6.099									
SAT	6.106									
SAT	6.117									
SAT	6.131									

TABLE 27 A (CONT.) APPARENT MOLAL HEAT CAPACITY OF SODIUM CHLORIDE, CPPHI (J/MOL.K)

MOLALITY	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	-83.95	0.12	-75.248	0.099	-64.434	0.097	-59.70	0.12	-58.65	0.13
0.001	-83.12	0.12	-74.364	0.099	-63.432	0.097	-58.56	0.12	-57.36	0.13
0.002	-82.76	0.12	-73.993	0.098	-63.019	0.097	-58.09	0.12	-56.84	0.13
0.005	-82.03	0.11	-73.244	0.097	-62.203	0.096	-57.18	0.12	-55.82	0.13
0.010	-81.18	0.11	-72.381	0.095	-61.285	0.095	-56.18	0.11	-54.70	0.13
0.020	-79.91	0.11	-71.125	0.092	-59.985	0.093	-54.77	0.11	-53.16	0.13
0.050	-77.181	0.094	-68.495	0.084	-57.375	0.088	-52.03	0.11	-50.21	0.12
0.100	-73.778	0.081	-65.298	0.075	-54.342	0.082	-48.948	0.098	-46.98	0.11
0.200	-68.392	0.067	-60.334	0.066	-49.818	0.077	-44.513	0.089	-42.46	0.10
0.300	-63.835	0.062	-56.177	0.061	-46.127	0.074	-40.994	0.084	-38.961	0.095
0.400	-59.732	0.060	-52.450	0.059	-42.851	0.073	-37.928	0.081	-35.960	0.090
0.500	-55.938	0.059	-49.010	0.057	-39.868	0.072	-35.149	0.079	-33.266	0.086
0.600	-52.378	0.058	-45.783	0.056	-37.074	0.071	-32.573	0.077	-30.788	0.083
0.700	-49.007	0.058	-42.728	0.055	-34.435	0.070	-30.152	0.076	-28.472	0.080
0.800	-45.796	0.057	-39.817	0.054	-31.924	0.070	-27.857	0.074	-26.285	0.078
0.900	-42.724	0.057	-37.029	0.053	-29.521	0.069	-25.667	0.073	-24.204	0.076
1.000	-39.776	0.056	-34.351	0.053	-27.214	0.069	-23.568	0.072	-22.214	0.074
1.200	-34.202	0.057	-29.283	0.052	-22.844	0.068	-19.599	0.071	-18.459	0.072
1.400	-29.004	0.057	-24.546	0.052	-18.754	0.068	-15.886	0.070	-14.553	0.070
1.500	-26.529	0.058	-22.287	0.053	-16.800	0.067	-14.112	0.069	-13.279	0.069
1.600	-24.131	0.059	-20.096	0.053	-14.902	0.067	-12.388	0.069	-11.651	0.069
1.800	-19.545	0.061	-15.898	0.054	-11.258	0.067	-9.075	0.068	-8.521	0.068
2.000	-15.218	0.063	-11.927	0.056	-7.798	0.067	-5.922	0.067	-5.540	0.067
2.200	-11.123	0.064	-8.160	0.057	-4.502	0.067	-2.912	0.067	2.689	0.067
2.400	-7.239	0.065	-4.578	0.058	-1.355	0.068	-0.030	0.067	0.046	0.066
2.500	-5.371	0.066	-2.851	0.058	0.167	0.068	1.368	0.067	1.374	0.065
2.800	-3.548	0.066	-1.164	0.059	1.658	0.068	2.738	0.067	2.678	0.066
3.000	3.318	0.068	2.096	0.060	4.549	0.068	5.403	0.067	5.217	0.066
3.200	6.523	0.068	5.215	0.060	7.329	0.069	7.975	0.067	7.673	0.066
3.400	9.592	0.069	8.206	0.061	10.009	0.069	10.463	0.068	10.053	0.066
3.500	11.080	0.070	11.080	0.062	12.596	0.070	12.873	0.068	12.364	0.066
3.600	12.537	0.070	12.476	0.062	13.858	0.070	14.051	0.068	13.495	0.066
3.800	15.369	0.071	13.846	0.063	15.100	0.070	15.213	0.068	14.611	0.066
4.000	18.096	0.073	16.514	0.064	17.527	0.071	17.489	0.068	16.800	0.067
4.200	20.729	0.075	19.093	0.065	19.895	0.071	19.706	0.068	18.934	0.067
4.400	23.276	0.077	21.590	0.066	22.178	0.071	21.868	0.068	21.018	0.067
4.500	24.520	0.078	24.013	0.067	24.414	0.071	23.981	0.068	23.054	0.067
4.600	25.745	0.079	26.368	0.069	26.596	0.071	25.019	0.068	24.055	0.067
4.800	28.143	0.081	28.662	0.070	28.729	0.071	26.046	0.068	25.045	0.068
5.000	30.476	0.083	30.901	0.071	30.817	0.071	27.048	0.068	26.992	0.068
5.200	32.752	0.085	33.089	0.072	32.863	0.072	30.048	0.069	28.897	0.068
5.400	34.975	0.087	35.231	0.074	34.871	0.073	33.892	0.070	30.760	0.069
5.500	36.069	0.088	36.286	0.075	35.851	0.074	33.892	0.070	32.583	0.069
5.800	39.286	0.093	37.331	0.076	36.842	0.075	35.758	0.071	33.478	0.070
6.000	41.381	0.098	41.421	0.084	38.778	0.079	37.587	0.075	36.102	0.072
SAT	42.91	0.10	43.096	0.091	42.553	0.092	41.136	0.086	39.449	0.079
6.148					42.700	0.093				
SAT							41.778	0.089		40.586
6.216										
SAT										
6.274										
SAT										
6.341										
SAT										

TABLE 27 A (CONT.) APPARENT MOLAL HEAT CAPACITY OF SODIUM CHLORIDE, CPPII (J/MOL.K)

MOLALITY	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	-59.80	0.13	-62.40	0.12	-66.35	0.22	-72.06	0.44	-80.33	0.71
0.001	-58.34	0.13	-60.77	0.12	-64.52	0.22	-70.03	0.44	-78.08	0.71
0.002	-57.76	0.13	-60.11	0.12	-63.80	0.22	-69.22	0.44	-77.19	0.71
0.005	-56.62	0.13	-58.85	0.12	-62.41	0.22	-67.69	0.44	-75.50	0.70
0.010	-55.38	0.13	-57.49	0.12	-60.91	0.21	-66.05	0.43	-73.70	0.70
0.020	-53.69	0.13	-55.64	0.11	-58.91	0.20	-63.88	0.43	-71.33	0.69
0.050	-50.50	0.12	-52.22	0.11	-55.26	0.20	-59.98	0.42	-67.09	0.69
0.100	-47.09	0.11	-48.64	0.10	-51.51	0.19	-56.05	0.40	-62.89	0.67
0.200	-42.44	0.11	-43.865	0.096	-46.53	0.18	-51.03	0.38	-57.59	0.65
0.300	-38.91	0.10	-40.307	0.093	-43.06	0.17	-47.41	0.37	-53.82	0.63
0.400	-35.922	0.096	-37.323	0.091	-40.08	0.16	-44.42	0.36	-50.72	0.62
0.500	-33.261	0.093	-34.684	0.090	-37.47	0.16	-41.80	0.35	-48.03	0.62
0.600	-30.827	0.091	-32.279	0.089	-35.09	0.15	-39.43	0.34	-45.59	0.61
0.700	-28.562	0.089	-30.046	0.088	-32.88	0.15	-37.22	0.34	-43.33	0.60
0.800	-26.430	0.087	-27.948	0.086	-30.80	0.15	-35.15	0.34	-41.21	0.60
0.900	-24.405	0.085	-25.897	0.085	-28.84	0.15	-33.19	0.33	-39.20	0.60
1.000	-22.472	0.084	-24.056	0.084	-26.96	0.14	-31.31	0.33	-37.29	0.59
1.200	-18.829	0.082	-20.476	0.082	-23.41	0.14	-27.76	0.33	-33.66	0.59
1.400	-15.430	0.080	-17.132	0.081	-20.09	0.14	-24.44	0.32	-30.27	0.59
1.500	-13.807	0.080	-15.533	0.080	-18.50	0.14	-22.84	0.32	-28.64	0.59
1.600	-12.228	0.079	-13.978	0.080	-16.96	0.14	-21.29	0.32	-27.06	0.58
1.800	-9.191	0.079	-10.983	0.078	-13.97	0.13	-18.29	0.32	-23.99	0.58
2.000	-6.296	0.078	-8.124	0.077	-11.12	0.13	-15.41	0.32	-21.06	0.58
2.200	-3.524	0.078	-5.382	0.077	-8.38	0.13	-12.65	0.32	-18.24	0.58
2.400	-0.861	0.077	-2.744	0.076	-5.74	0.13	-9.98	0.32	-15.52	0.58
2.500	0.434	0.077	-1.461	0.076	-4.45	0.13	-8.68	0.32	-14.19	0.58
2.600	1.706	0.077	-0.199	0.076	-3.18	0.13	-7.40	0.32	-12.89	0.58
2.800	4.186	0.077	2.263	0.076	-0.72	0.13	-4.91	0.32	-10.34	0.58
3.000	6.587	0.077	4.648	0.076	1.58	0.13	-2.48	0.32	-7.87	0.58
3.200	8.916	0.077	6.964	0.076	4.00	0.13	-0.13	0.32	-5.47	0.58
3.400	11.180	0.077	9.215	0.076	6.27	0.13	2.16	0.32	-3.14	0.58
3.500	12.289	0.077	10.317	0.076	7.37	0.13	3.28	0.32	-2.00	0.58
3.600	13.383	0.077	11.405	0.076	8.46	0.13	4.38	0.32	-0.88	0.58
3.800	15.529	0.077	13.539	0.076	10.61	0.13	6.55	0.32	1.33	0.58
4.000	17.622	0.077	15.618	0.076	12.69	0.13	8.65	0.32	3.48	0.58
4.200	19.664	0.078	17.644	0.076	14.72	0.13	10.70	0.32	5.56	0.58
4.400	21.657	0.078	19.619	0.076	16.70	0.13	12.69	0.32	7.59	0.58
4.500	22.636	0.078	20.588	0.076	17.66	0.13	13.67	0.32	8.59	0.58
4.600	23.604	0.078	21.544	0.076	18.62	0.13	14.63	0.32	9.57	0.58
4.800	25.504	0.078	23.418	0.075	20.48	0.13	16.51	0.32	11.48	0.58
5.000	27.358	0.078	25.242	0.075	22.30	0.13	18.33	0.32	13.33	0.58
5.200	29.166	0.079	27.015	0.075	24.05	0.13	20.09	0.32	15.12	0.58
5.400	30.928	0.079	28.734	0.075	25.75	0.13	21.79	0.32	16.85	0.58
5.500	31.791	0.079	29.573	0.076	26.57	0.13	22.61	0.32	17.69	0.58
5.600	32.642	0.079	30.399	0.076	27.38	0.13	23.42	0.32	18.51	0.58
5.800	34.306	0.080	32.006	0.079	28.96	0.14	24.98	0.32	20.10	0.58
6.000	35.919	0.082	33.554	0.083	30.46	0.14	26.47	0.32	21.66	0.59
6.200	37.477	0.085	35.038	0.089	31.90	0.15	27.89	0.33	23.06	0.59
6.400	38.979	0.091	36.455	0.099	33.26	0.16	29.23	0.33	24.42	0.59
6.500			33.90			0.17	29.86	0.34	25.06	0.59
6.600							30.48	0.34	25.69	
SAT 6.416	39.099	0.092	37.13	0.11	34.45	0.17	30.95	0.35	26.74	0.60
SAT 6.498										
SAT 6.587										
SAT 6.680										
SAT 6.778										

TABLE 27 B APPARENT MOLAL HEAT CAPACITY OF SODIUM CHLORIDE, CPPHI (J/MOL.K)

WEIGHT %	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	-183.80	0.89	-153.92	0.58	-129.79	0.36	-110.58	0.23	-95.53	0.16
0.100	-179.36	0.85	-149.81	0.54	-125.92	0.34	-106.85	0.21	-91.84	0.14
0.200	-176.45	0.82	-147.30	0.52	-123.71	0.32	-104.85	0.20	-90.00	0.13
0.300	-173.87	0.79	-145.10	0.50	-121.80	0.30	-103.17	0.19	-88.47	0.12
0.400	-171.48	0.76	-143.08	0.48	-120.06	0.29	-101.64	0.18	-87.10	0.12
0.500	-169.24	0.74	-141.18	0.46	-118.44	0.28	-100.23	0.17	-85.84	0.11
0.600	-167.10	0.72	-139.37	0.44	-116.90	0.27	-98.89	0.16	-84.66	0.10
0.700	-165.05	0.70	-137.64	0.43	-115.42	0.26	-97.61	0.15	-83.529	0.099
0.800	-163.07	0.68	-135.98	0.42	-114.00	0.25	-96.39	0.15	-82.449	0.095
0.900	-161.15	0.66	-134.36	0.40	-112.63	0.24	-95.20	0.14	-81.408	0.091
1.000	-159.29	0.65	-132.80	0.39	-111.30	0.23	-94.05	0.14	-80.400	0.088
1.200	-155.71	0.62	-129.78	0.38	-108.74	0.22	-91.85	0.13	-78.465	0.084
1.400	-152.29	0.60	-126.90	0.36	-106.29	0.21	-89.74	0.12	-76.619	0.080
1.600	-149.01	0.58	-124.13	0.35	-103.93	0.20	-87.71	0.12	-74.844	0.078
1.800	-145.85	0.56	-121.46	0.34	-101.66	0.20	-85.75	0.12	-73.129	0.077
2.000	-142.79	0.55	-118.87	0.33	-99.45	0.19	-83.85	0.11	-71.465	0.076
2.500	-135.52	0.52	-112.71	0.31	-94.19	0.18	-79.31	0.11	-67.488	0.075
3.000	-128.71	0.50	-106.92	0.30	-89.23	0.18	-75.01	0.11	-63.722	0.076
3.500	-122.27	0.48	-101.42	0.29	-84.50	0.17	-70.91	0.11	-60.124	0.076
4.000	-116.15	0.47	-96.18	0.28	-79.98	0.17	-66.98	0.11	-56.665	0.077
4.500	-110.29	0.46	-91.15	0.27	-75.64	0.17	-63.19	0.11	-53.326	0.077
5.000	-104.68	0.45	-86.31	0.27	-71.45	0.17	-59.53	0.11	-50.092	0.077
6.000	-94.07	0.44	-77.14	0.26	-63.47	0.17	-52.54	0.11	-43.899	0.078
7.000	-84.17	0.43	-68.54	0.26	-55.95	0.16	-45.93	0.11	-38.022	0.079
8.000	-74.88	0.42	-60.43	0.25	-48.84	0.16	-39.64	0.11	-32.419	0.080
9.000	-66.12	0.42	-52.77	0.25	-42.09	0.16	-33.65	0.11	-27.061	0.082
10.000	-57.85	0.42	-45.49	0.26	-35.66	0.17	-27.93	0.12	-21.924	0.084
11.000	-50.02	0.43	-38.58	0.26	-29.53	0.17	-22.45	0.12	-16.991	0.086
12.000	-42.60	0.43	-32.01	0.26	-23.68	0.17	-17.20	0.12	-12.246	0.087
13.000	-35.56	0.43	-25.75	0.26	-18.08	0.17	-12.17	0.12	-7.677	0.088
14.000	-28.87	0.44	-19.78	0.27	-12.72	0.17	-7.33	0.12	-3.271	0.089
15.000	-22.52	0.44	-14.08	0.27	-7.59	0.18	-2.67	0.12	0.982	0.089
16.000	-16.48	0.45	-8.65	0.27	-2.67	0.18	1.81	0.12	5.096	0.090
17.000	-10.73	0.45	-3.45	0.28	2.05	0.18	6.13	0.12	9.079	0.091
18.000	-5.27	0.46	1.51	0.28	6.59	0.18	10.30	0.13	12.943	0.092
19.000	-0.07	0.46	6.26	0.28	10.95	0.18	14.34	0.13	16.700	0.095
20.000	4.89	0.47	10.81	0.29	15.16	0.19	18.25	0.13	20.361	0.098
21.000	9.62	0.47	15.19	0.29	19.22	0.19	22.05	0.14	23.94	0.10
22.000	14.14	0.48	19.40	0.30	23.16	0.20	25.76	0.14	27.44	0.11
23.000	18.48	0.49	23.46	0.31	26.99	0.20	29.38	0.15	30.89	0.11
24.000	22.65	0.50	27.41	0.32	30.73	0.21	32.94	0.15	34.30	0.11
25.000	26.68	0.52	31.24	0.33	34.40	0.22	36.45	0.16	37.67	0.12
26.000	30.59	0.54	35.00	0.35	38.01	0.24	39.93	0.17	41.03	0.13
SAT 26.268	31.62	0.55	36.03	0.36	39.09	0.25	41.09	0.18	42.29	0.13
SAT 26.278										
SAT 26.300										
SAT 26.334										
SAT 26.378										

TABLE 27 B (CONT.) APPARENT MOLAL HEAT CAPACITY OF SODIUM CHLORIDE, CPPHI. (J/MOL.K)

WEIGHT %	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.
0.000	-83.95	0.12	-75.248	0.089	-64.434	0.097	-59.70	0.12	-58.65	0.13
0.100	-80.24	0.11	-71.449	0.093	-60.317	0.093	-55.13	0.11	-53.57	0.13
0.200	-78.49	0.10	-69.748	0.088	-58.603	0.090	-53.31	0.11	-51.57	0.13
0.300	-77.065	0.094	-68.386	0.084	-57.269	0.088	-51.92	0.11	-50.09	0.12
0.400	-75.807	0.089	-67.196	0.080	-56.127	0.085	-50.75	0.10	-48.85	0.12
0.500	-74.655	0.084	-66.115	0.077	-55.106	0.084	-49.71	0.10	-47.77	0.12
0.600	-73.579	0.080	-65.112	0.075	-54.170	0.082	-48.776	0.098	-46.80	0.11
0.700	-72.560	0.077	-64.167	0.072	-53.296	0.081	-47.908	0.096	-45.90	0.11
0.800	-71.586	0.074	-63.268	0.071	-52.471	0.080	-47.094	0.094	-45.07	0.11
0.900	-70.650	0.072	-62.405	0.069	-51.693	0.079	-46.325	0.093	-44.29	0.11
1.000	-69.746	0.070	-61.574	0.068	-50.933	0.078	-45.592	0.091	-43.55	0.11
1.200	-68.014	0.067	-59.987	0.065	-49.507	0.076	-44.214	0.089	-42.16	0.10
1.400	-66.364	0.064	-58.481	0.063	-48.165	0.075	-42.928	0.087	-40.876	0.099
1.600	-64.781	0.063	-57.038	0.062	-46.887	0.074	-41.713	0.085	-39.671	0.097
1.800	-63.253	0.061	-55.648	0.061	-45.661	0.074	-40.554	0.084	-38.528	0.095
2.000	-61.771	0.060	-54.301	0.060	-44.479	0.073	-39.442	0.083	-37.437	0.093
2.500	-58.230	0.059	-51.088	0.058	-41.674	0.072	-36.823	0.080	-34.886	0.088
3.000	-54.876	0.058	-48.048	0.057	-39.034	0.071	-34.378	0.077	-32.523	0.085
3.500	-51.669	0.058	-45.141	0.056	-36.518	0.071	-32.062	0.078	-30.299	0.082
4.000	-48.583	0.057	-42.344	0.055	-34.103	0.070	-29.848	0.075	-28.182	0.080
4.500	-45.600	0.057	-39.639	0.054	-31.770	0.070	-27.717	0.074	-26.151	0.078
5.000	-42.707	0.057	-37.014	0.053	-29.508	0.069	-25.655	0.073	-24.193	0.076
6.000	-37.156	0.056	-31.971	0.052	-25.162	0.069	-21.703	0.072	-20.449	0.073
7.000	-31.874	0.057	-27.163	0.052	-21.015	0.068	-17.838	0.070	-16.891	0.071
8.000	-26.824	0.058	-22.557	0.053	-17.034	0.067	-14.824	0.069	-13.479	0.069
9.000	-21.981	0.060	-18.130	0.054	-13.196	0.067	-10.838	0.068	-10.187	0.068
10.000	-17.325	0.062	-13.862	0.055	-9.485	0.067	-7.461	0.068	-6.995	0.067
11.000	-12.840	0.064	-9.741	0.056	-5.887	0.067	-4.178	0.067	-3.888	0.067
12.000	-8.512	0.065	-5.753	0.057	-2.389	0.067	-0.978	0.067	-0.854	0.066
13.000	-4.331	0.066	-1.888	0.059	1.018	0.068	2.149	0.067	2.117	0.066
14.000	-0.284	0.067	1.864	0.060	4.343	0.068	8.222	0.067	5.036	0.066
15.000	3.638	0.068	5.513	0.060	7.595	0.069	11.184	0.067	7.909	0.066
16.000	7.445	0.068	9.069	0.061	10.784	0.069	14.184	0.068	10.744	0.066
17.000	11.147	0.070	12.540	0.062	13.916	0.070	16.994	0.068	13.547	0.066
18.000	14.755	0.071	15.936	0.063	17.000	0.070	19.855	0.068	16.323	0.066
19.000	18.279	0.073	19.266	0.065	20.043	0.071	22.695	0.068	19.078	0.067
20.000	21.729	0.076	22.540	0.067	23.053	0.071	25.518	0.068	21.814	0.067
21.000	25.116	0.079	25.767	0.068	26.038	0.071	28.329	0.068	24.536	0.068
22.000	28.451	0.082	28.958	0.070	29.004	0.071	31.130	0.068	27.243	0.068
23.000	31.746	0.084	32.121	0.072	31.958	0.071	33.924	0.070	29.936	0.068
24.000	35.013	0.087	35.267	0.074	34.905	0.073	36.710	0.073	32.613	0.069
25.000	38.262	0.091	38.404	0.077	37.849	0.077	39.486	0.080	35.269	0.071
26.000	41.505	0.098	41.541	0.085	40.794	0.085			37.897	0.075
27.000	42.91	0.10							40.486	0.083
SAT 26.432			43.096	0.091						
SAT 26.495					42.700	0.093				
SAT 26.647							41.778	0.089		
SAT 26.830									40.586	0.083
SAT 27.039										

TABLE 27 B (CONT.) APPARENT MOLAL HEAT CAPACITY OF SODIUM CHLORIDE, CPPHI (J/MOL.K)

WEIGHT %	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	-59.80	0.13	-62.40	0.12	-66.35	0.22	-72.06	0.44	-80.33	0.71
0.100	-54.11	0.13	-56.10	0.11	-59.41	0.21	-64.42	0.43	-71.91	0.70
0.200	-51.97	0.12	-53.78	0.11	-56.92	0.21	-61.74	0.42	-69.00	0.69
0.300	-50.38	0.12	-52.09	0.11	-55.12	0.20	-59.83	0.42	-66.93	0.69
0.400	-49.07	0.12	-50.70	0.11	-53.66	0.20	-58.29	0.41	-65.28	0.68
0.500	-47.93	0.11	-49.51	0.10	-52.41	0.19	-56.99	0.41	-63.89	0.67
0.600	-46.91	0.11	-48.45	0.10	-51.32	0.19	-55.84	0.40	-62.67	0.67
0.700	-45.98	0.11	-47.48	0.10	-50.32	0.19	-54.81	0.40	-61.58	0.67
0.800	-45.12	0.11	-46.60	0.10	-49.41	0.18	-53.88	0.39	-60.58	0.66
0.900	-44.31	0.11	-45.770	0.098	-48.57	0.18	-53.01	0.39	-59.67	0.66
1.000	-43.55	0.11	-44.993	0.097	-47.78	0.18	-52.20	0.39	-58.81	0.65
1.200	-42.14	0.10	-43.557	0.096	-46.32	0.18	-50.71	0.38	-57.26	0.65
1.400	-40.84	0.10	-42.242	0.095	-45.00	0.17	-49.37	0.38	-55.85	0.64
1.600	-39.62	0.10	-41.021	0.094	-43.77	0.17	-48.13	0.37	-54.56	0.64
1.800	-38.479	0.099	-39.873	0.093	-42.62	0.17	-46.97	0.37	-53.36	0.63
2.000	-37.391	0.098	-38.785	0.092	-41.54	0.16	-45.88	0.36	-52.23	0.63
2.500	-34.859	0.095	-36.267	0.091	-39.04	0.16	-43.37	0.35	-49.64	0.62
3.000	-32.530	0.093	-33.961	0.089	-36.75	0.16	-41.09	0.35	-47.29	0.61
3.500	-30.348	0.090	-31.806	0.088	-34.62	0.15	-38.96	0.34	-45.11	0.61
4.000	-28.279	0.089	-29.768	0.087	-32.60	0.15	-36.95	0.34	-43.05	0.60
4.500	-26.300	0.087	-27.820	0.085	-30.68	0.15	-35.03	0.34	-41.08	0.60
5.000	-24.394	0.085	-25.946	0.085	-28.83	0.15	-33.18	0.33	-39.19	0.60
6.000	-20.759	0.083	-22.373	0.083	-25.29	0.14	-29.64	0.33	-35.58	0.59
7.000	-17.308	0.081	-18.980	0.082	-21.93	0.14	-26.28	0.32	-32.15	0.59
8.000	-14.001	0.080	-15.724	0.080	-18.69	0.14	-23.03	0.32	-28.84	0.59
9.000	-10.808	0.079	-12.578	0.079	-15.56	0.14	-19.89	0.32	-25.63	0.58
10.000	-7.710	0.078	-9.521	0.078	-12.51	0.13	-16.82	0.32	-22.49	0.58
11.000	-4.691	0.078	-6.536	0.077	-9.53	0.13	-13.81	0.32	-19.43	0.58
12.000	-1.738	0.077	-3.613	0.077	-6.61	0.13	-10.86	0.32	-16.42	0.58
13.000	1.159	0.077	-0.742	0.076	-3.73	0.13	-7.95	0.32	-13.45	0.58
14.000	4.008	0.077	2.086	0.076	-0.89	0.13	-5.09	0.32	-10.53	0.58
15.000	6.817	0.077	4.877	0.076	1.91	0.13	-2.25	0.32	-7.64	0.58
16.000	9.593	0.077	7.637	0.076	4.68	0.13	0.55	0.32	-4.78	0.58
17.000	12.339	0.077	10.368	0.076	7.42	0.13	3.33	0.32	-1.95	0.58
18.000	15.062	0.077	13.074	0.076	10.14	0.13	6.07	0.32	0.85	0.58
19.000	17.762	0.077	15.757	0.076	12.83	0.13	8.79	0.32	3.62	0.58
20.000	20.444	0.078	18.417	0.076	15.49	0.13	11.48	0.32	6.36	0.58
21.000	23.106	0.078	21.052	0.076	18.13	0.13	14.14	0.32	9.06	0.58
22.000	25.749	0.078	23.659	0.075	20.72	0.13	16.75	0.32	11.72	0.58
23.000	28.368	0.079	26.232	0.075	23.28	0.13	19.31	0.32	14.33	0.58
24.000	30.958	0.079	28.763	0.075	25.78	0.13	21.81	0.32	16.88	0.58
25.000	33.510	0.079	31.238	0.077	28.21	0.13	24.24	0.32	19.34	0.58
26.000	36.013	0.082	33.644	0.083	30.55	0.14	26.56	0.32	21.70	0.58
27.000	38.450	0.089	35.957	0.095	32.78	0.15	28.76	0.33	23.94	0.59
28.000	39.099	0.092	37.13	0.11	34.45	0.17	30.80	0.35	26.02	0.60
SAT 27.272										
SAT 27.525										
SAT 27.795										
SAT 28.079										
SAT 28.373										
									26.74	0.60

TABLE 2B A PARTIAL MOLAL HEAT CAPACITY OF WATER, CP1 (J/MOL.K)

MOLALITY	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	76.015	0.000	75.732	0.000	75.546	0.000	75.426	0.000	75.351	0.000
0.001	76.015	0.000	75.732	0.000	75.546	0.000	75.426	0.000	75.351	0.000
0.002	76.015	0.000	75.732	0.000	75.546	0.000	75.426	0.000	75.351	0.000
0.005	76.015	0.000	75.732	0.000	75.546	0.000	75.426	0.000	75.350	0.000
0.010	76.014	0.000	75.732	0.000	75.546	0.000	75.425	0.000	75.350	0.000
0.020	76.013	0.000	75.731	0.000	75.545	0.000	75.425	0.000	75.350	0.000
0.050	76.008	0.000	75.726	0.000	75.541	0.000	75.422	0.000	75.347	0.000
0.100	75.993	0.000	75.713	0.000	75.530	0.000	75.412	0.000	75.339	0.000
0.200	75.942	0.001	75.671	0.001	75.494	0.000	75.381	0.000	75.311	0.000
0.300	75.871	0.002	75.610	0.001	75.442	0.001	75.337	0.001	75.273	0.000
0.400	75.782	0.002	75.535	0.001	75.377	0.001	75.280	0.001	75.223	0.000
0.500	75.680	0.003	75.447	0.002	75.302	0.001	75.214	0.001	75.165	0.001
0.600	75.566	0.003	75.348	0.002	75.216	0.001	75.139	0.001	75.099	0.001
0.700	75.441	0.004	75.240	0.003	75.122	0.002	75.057	0.001	75.026	0.001
0.800	75.308	0.004	75.124	0.003	75.020	0.002	74.967	0.001	74.946	0.001
0.900	75.167	0.005	75.001	0.003	74.912	0.002	74.871	0.002	74.860	0.001
1.000	75.020	0.006	74.872	0.004	74.797	0.003	74.770	0.002	74.770	0.002
1.200	74.709	0.007	74.598	0.005	74.555	0.004	74.553	0.002	74.575	0.002
1.400	74.383	0.009	74.308	0.006	74.297	0.005	74.322	0.003	74.366	0.002
1.500	74.217	0.010	74.160	0.007	74.163	0.005	74.202	0.004	74.257	0.003
1.600	74.048	0.011	74.009	0.008	74.028	0.006	74.079	0.004	74.146	0.003
1.800	73.708	0.013	73.703	0.009	73.752	0.007	73.829	0.005	73.917	0.003
2.000	73.367	0.015	73.395	0.011	73.473	0.008	73.574	0.005	73.683	0.004
2.200	73.029	0.016	73.088	0.012	73.192	0.009	73.315	0.005	73.415	0.004
2.400	72.696	0.018	72.783	0.013	72.912	0.010	73.057	0.007	73.204	0.005
2.500	72.532	0.019	72.632	0.014	72.772	0.010	72.925	0.007	73.083	0.005
2.600	72.370	0.020	72.483	0.015	72.634	0.011	72.798	0.008	72.961	0.006
2.800	72.054	0.022	72.189	0.017	72.359	0.012	72.541	0.009	72.718	0.007
3.000	71.748	0.025	71.902	0.019	72.089	0.014	72.284	0.011	72.474	0.008
3.200	71.454	0.028	71.622	0.021	71.822	0.016	72.090	0.012	72.230	0.009
3.400	71.170	0.031	71.350	0.024	71.561	0.019	71.777	0.014	71.985	0.011
3.500	71.033	0.033	71.217	0.025	71.431	0.020	71.651	0.015	71.863	0.012
3.600	70.898	0.035	71.085	0.027	71.303	0.021	71.525	0.016	71.740	0.012
3.800	70.636	0.039	70.827	0.031	71.048	0.024	71.275	0.018	71.492	0.014
4.000	70.384	0.044	70.575	0.035	70.796	0.027	71.024	0.021	71.243	0.016
4.200	70.140	0.049	70.327	0.039	70.545	0.030	70.771	0.023	70.990	0.017
4.400	69.903	0.056	70.082	0.044	70.295	0.033	70.517	0.025	70.733	0.018
4.500	69.786	0.060	69.960	0.046	70.169	0.035	70.388	0.026	70.603	0.019
4.600	69.670	0.064	69.838	0.049	70.042	0.037	70.258	0.027	70.471	0.020
4.800	69.441	0.073	69.594	0.056	69.787	0.041	69.995	0.030	70.202	0.022
5.000	69.212	0.084	69.347	0.064	69.526	0.047	69.724	0.034	69.925	0.024
5.200	68.981	0.098	69.096	0.074	69.259	0.054	68.445	0.039	69.639	0.028
5.400	68.75	0.12	68.837	0.087	68.983	0.064	68.157	0.046	69.343	0.034
5.500	68.62	0.13	68.704	0.095	68.841	0.070	68.009	0.051	69.191	0.038
5.600	68.50	0.14	68.57	0.10	68.696	0.077	68.857	0.057	69.036	0.042
5.800	68.25	0.16	68.29	0.12	68.395	0.094	68.544	0.070	68.716	0.054
6.000	67.98	0.19	67.99	0.15	68.08	0.11	68.217	0.088	68.383	0.069
SAT 6.096	67.85		67.84	0.16						
SAT 6.099					57.91	0.13	68.02	0.10	68.158	0.081
SAT 6.106										
SAT 6.117										
SAT 6.131										

TABLE 28 A (CONT.) PARTIAL MOLAL HEAT CAPACITY OF WATER, CP1 (J/MOL.K)

MOLALITY	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	75.306	0.000	75.282	0.000	75.276	0.000	75.308	0.000	75.369	0.000
0.001	75.306	0.000	75.282	0.000	75.276	0.000	75.308	0.000	75.369	0.000
0.002	75.306	0.000	75.282	0.000	75.276	0.000	75.308	0.000	75.369	0.000
0.005	75.306	0.000	75.282	0.000	75.276	0.000	75.308	0.000	75.369	0.000
0.010	75.306	0.000	75.282	0.000	75.276	0.000	75.308	0.000	75.369	0.000
0.020	75.305	0.000	75.281	0.000	75.275	0.000	75.307	0.000	75.368	0.000
0.050	75.302	0.000	75.279	0.000	75.273	0.000	75.305	0.000	75.366	0.000
0.100	75.295	0.000	75.272	0.000	75.267	0.000	75.299	0.000	75.359	0.000
0.200	75.271	0.000	75.250	0.000	75.248	0.000	75.280	0.000	75.341	0.000
0.300	75.236	0.000	75.219	0.000	75.220	0.000	75.255	0.000	75.317	0.000
0.400	75.193	0.000	75.179	0.000	75.187	0.000	75.224	0.000	75.288	0.000
0.500	75.141	0.000	75.132	0.000	75.146	0.000	75.188	0.000	75.253	0.000
0.600	75.082	0.000	75.079	0.000	75.100	0.000	75.147	0.000	75.214	0.000
0.700	75.016	0.001	75.019	0.000	75.049	0.000	75.100	0.000	75.171	0.000
0.800	74.944	0.001	74.954	0.001	74.993	0.000	75.050	0.000	75.124	0.001
0.900	74.867	0.001	74.884	0.001	74.933	0.001	74.996	0.001	75.073	0.001
1.000	74.785	0.001	74.809	0.001	74.869	0.001	74.937	0.001	75.018	0.001
1.200	74.609	0.001	74.647	0.001	74.729	0.001	74.811	0.001	74.900	0.001
1.400	74.418	0.002	74.472	0.001	74.576	0.001	74.673	0.001	74.769	0.001
1.500	74.319	0.002	74.381	0.002	74.496	0.001	74.600	0.001	74.700	0.001
1.600	74.217	0.002	74.286	0.002	74.413	0.001	74.524	0.001	74.629	0.001
1.800	74.007	0.003	74.091	0.002	74.241	0.002	74.366	0.001	74.479	0.001
2.000	73.790	0.003	73.889	0.002	74.060	0.002	74.199	0.002	74.320	0.002
2.200	73.568	0.003	73.681	0.003	73.873	0.002	74.025	0.002	74.153	0.002
2.400	73.343	0.004	73.469	0.003	73.679	0.003	73.843	0.002	73.978	0.002
2.500	73.229	0.004	73.361	0.003	73.580	0.003	73.750	0.002	73.888	0.002
2.600	73.114	0.004	73.252	0.003	73.480	0.003	73.655	0.003	73.796	0.002
2.800	72.883	0.005	73.031	0.004	73.275	0.003	73.460	0.003	73.606	0.003
3.000	72.650	0.006	72.807	0.005	73.065	0.003	73.259	0.003	73.410	0.003
3.200	72.414	0.007	72.579	0.006	72.849	0.004	73.051	0.003	73.207	0.003
3.400	72.177	0.008	72.348	0.006	72.627	0.004	72.836	0.004	72.997	0.004
3.500	72.057	0.009	72.230	0.007	72.514	0.004	72.726	0.004	72.890	0.004
3.600	71.936	0.009	72.112	0.007	72.400	0.005	72.615	0.004	72.781	0.004
3.800	71.693	0.011	71.872	0.008	72.166	0.005	72.387	0.005	72.558	0.005
4.000	71.445	0.012	71.626	0.009	71.926	0.006	72.153	0.005	72.330	0.005
4.200	71.193	0.013	71.375	0.010	71.679	0.007	71.913	0.006	72.097	0.006
4.400	70.935	0.014	71.118	0.011	71.426	0.009	71.666	0.008	71.859	0.007
4.500	70.803	0.014	70.986	0.011	71.296	0.009	71.541	0.008	71.738	0.007
4.600	70.670	0.015	70.853	0.012	71.165	0.010	71.414	0.009	71.617	0.007
4.800	70.399	0.016	70.581	0.014	70.897	0.012	71.156	0.011	71.372	0.009
5.000	70.119	0.018	70.300	0.016	70.622	0.015	70.894	0.014	71.126	0.010
5.200	69.829	0.022	70.011	0.019	70.341	0.019	70.627	0.017	70.881	0.012
5.400	69.530	0.027	69.712	0.024	70.052	0.024	70.359	0.021	70.637	0.016
5.500	69.377	0.030	69.559	0.028	69.906	0.026	70.224	0.023	70.517	0.018
5.600	69.220	0.034	69.404	0.031	69.758	0.029	70.089	0.026	70.398	0.020
5.800	68.899	0.045	69.087	0.040	69.459	0.037	69.820	0.032	70.165	0.026
6.000	68.567	0.058	68.760	0.051	69.156	0.046	69.554	0.040	69.943	0.034
6.200					68.851	0.057	69.293	0.050	69.733	0.045
SAT	68.314	0.069	68.478	0.063	68.827	0.058	69.198	0.055	69.595	0.053
6.148										
SAT										
6.216										
SAT										
6.274										
SAT										
6.341										
SAT										

TABLE 28 A (CONT.) PARTIAL MOLAL HEAT CAPACITY OF WATER, CP1 (J/MOL.K)

MOLALITY	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	75.457	0.000	75.575	0.000	75.728	0.000	75.919	0.000	76.197	0.000
0.001	75.457	0.000	75.575	0.000	75.728	0.000	75.919	0.000	76.197	0.000
0.002	75.457	0.000	75.575	0.000	75.728	0.000	75.919	0.000	76.197	0.000
0.005	75.457	0.000	75.575	0.000	75.728	0.000	75.919	0.000	76.197	0.000
0.010	75.457	0.000	75.575	0.000	75.728	0.000	75.919	0.000	76.197	0.000
0.020	75.456	0.000	75.574	0.000	75.727	0.000	75.918	0.000	76.196	0.000
0.050	75.454	0.000	75.571	0.000	75.724	0.000	75.915	0.000	76.192	0.000
0.100	75.447	0.000	75.565	0.000	75.717	0.000	75.908	0.000	76.185	0.000
0.200	75.429	0.000	75.547	0.000	75.699	0.000	75.890	0.000	76.166	0.000
0.300	75.405	0.000	75.523	0.000	75.676	0.000	75.867	0.000	76.143	0.001
0.400	75.377	0.000	75.495	0.000	75.649	0.000	75.839	0.001	76.115	0.001
0.500	75.343	0.000	75.462	0.000	75.617	0.001	75.808	0.001	76.082	0.001
0.600	75.306	0.000	75.425	0.000	75.580	0.001	75.772	0.001	76.046	0.001
0.700	75.264	0.000	75.385	0.000	75.540	0.001	75.731	0.001	76.005	0.002
0.800	75.218	0.001	75.340	0.000	75.496	0.001	75.687	0.001	75.960	0.002
0.900	75.169	0.001	75.292	0.001	75.448	0.001	75.639	0.002	75.911	0.002
1.000	75.117	0.001	75.240	0.001	75.397	0.001	75.588	0.002	75.859	0.002
1.200	75.002	0.001	75.127	0.001	75.284	0.001	75.475	0.002	75.743	0.003
1.400	74.876	0.001	75.003	0.001	75.160	0.001	75.349	0.003	75.615	0.003
1.500	74.809	0.001	74.936	0.001	75.093	0.002	75.282	0.003	75.546	0.003
1.600	74.739	0.001	74.867	0.002	75.024	0.002	75.211	0.003	75.475	0.004
1.800	74.593	0.002	74.722	0.002	74.877	0.003	75.063	0.004	75.323	0.004
2.000	74.437	0.002	74.567	0.002	74.721	0.003	74.904	0.004	75.161	0.005
2.200	74.274	0.002	74.404	0.003	74.556	0.004	74.736	0.005	74.990	0.005
2.400	74.102	0.002	74.232	0.003	74.382	0.004	74.560	0.005	74.810	0.006
2.500	74.013	0.002	74.143	0.003	74.293	0.004	74.468	0.005	74.717	0.006
2.600	73.922	0.003	74.052	0.003	74.201	0.004	74.375	0.006	74.622	0.006
2.800	73.735	0.003	73.865	0.004	74.012	0.005	74.183	0.006	74.426	0.006
3.000	73.541	0.003	73.670	0.004	73.816	0.005	73.985	0.006	74.224	0.007
3.200	73.340	0.004	73.470	0.005	73.614	0.006	73.780	0.007	74.016	0.007
3.400	73.133	0.004	73.264	0.005	73.407	0.006	73.571	0.007	73.803	0.007
3.500	73.027	0.005	73.158	0.005	73.302	0.006	73.465	0.007	73.695	0.008
3.600	72.920	0.005	73.052	0.005	73.195	0.006	73.358	0.008	73.586	0.008
3.800	72.701	0.005	72.836	0.006	72.981	0.007	73.142	0.008	73.367	0.009
4.000	72.478	0.006	72.617	0.007	72.764	0.008	72.925	0.010	73.146	0.010
4.200	72.252	0.006	72.396	0.007	72.547	0.010	72.708	0.011	72.926	0.012
4.400	72.022	0.006	72.175	0.008	72.330	0.011	72.494	0.014	72.709	0.014
4.500	71.907	0.007	72.065	0.009	72.223	0.012	72.388	0.015	72.602	0.015
4.600	71.792	0.007	71.955	0.010	72.118	0.014	72.284	0.017	72.496	0.017
4.800	71.562	0.008	71.737	0.012	71.910	0.017	72.081	0.020	72.290	0.021
5.000	71.333	0.009	71.526	0.014	71.711	0.020	71.888	0.025	72.095	0.025
5.200	71.110	0.011	71.322	0.018	71.524	0.025	71.708	0.030	71.913	0.031
5.400	70.893	0.015	71.130	0.022	71.351	0.031	71.546	0.037	71.747	0.038
5.500	70.788	0.017	71.039	0.025	71.271	0.035	71.472	0.041	71.673	0.042
5.600	70.686	0.020	70.953	0.028	71.196	0.039	71.404	0.046	71.603	0.047
5.800	70.491	0.027	70.794	0.036	71.065	0.048	71.287	0.055	71.485	0.057
6.000	70.314	0.036	70.658	0.046	70.961	0.059	71.201	0.067	71.398	0.070
6.200	70.157	0.047	70.549	0.058	70.890	0.072	71.152	0.082	71.347	0.085
6.400	70.027	0.061	70.474	0.074	70.858	0.089	71.144	0.099	71.34	0.10
6.500					70.859	0.098	71.16	0.11	71.35	0.11
6.600							71.19	0.12	71.38	0.12
SAT	70.017	0.062	70.451	0.082	70.87	0.11	71.22	0.13	71.46	0.15
SAT										
SAT										
SAT										
SAT										

TABLE 28 B PARTIAL MOLAL HEAT CAPACITY OF WATER, CP₁ (J/MOL.K)

WEIGHT %	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	76.015	0.000	75.732	0.000	75.546	0.000	75.426	0.000	75.351	0.000
0.100	76.014	0.000	75.731	0.000	75.545	0.000	75.425	0.000	75.350	0.000
0.200	76.011	0.000	75.729	0.000	75.543	0.000	75.424	0.000	75.349	0.000
0.300	76.008	0.000	75.726	0.000	75.541	0.000	75.421	0.000	75.347	0.000
0.400	76.003	0.000	75.722	0.000	75.538	0.000	75.419	0.000	75.344	0.000
0.500	75.998	0.000	75.718	0.000	75.534	0.000	75.415	0.000	75.341	0.000
0.600	75.991	0.000	75.712	0.000	75.529	0.000	75.411	0.000	75.338	0.000
0.700	75.984	0.000	75.706	0.000	75.524	0.000	75.407	0.000	75.334	0.000
0.800	75.976	0.001	75.700	0.000	75.518	0.000	75.402	0.000	75.330	0.000
0.900	75.968	0.001	75.692	0.000	75.512	0.000	75.397	0.000	75.325	0.000
1.000	75.958	0.001	75.684	0.001	75.505	0.000	75.391	0.000	75.320	0.000
1.200	75.937	0.001	75.667	0.001	75.490	0.000	75.378	0.000	75.309	0.000
1.400	75.914	0.001	75.647	0.001	75.473	0.001	75.363	0.000	75.296	0.000
1.600	75.888	0.001	75.625	0.001	75.455	0.001	75.347	0.000	75.282	0.000
1.800	75.859	0.002	75.601	0.001	75.434	0.001	75.330	0.001	75.266	0.000
2.000	75.829	0.002	75.575	0.001	75.412	0.001	75.310	0.001	75.250	0.000
2.500	75.744	0.002	75.502	0.002	75.349	0.001	75.256	0.001	75.202	0.000
3.000	75.648	0.003	75.419	0.002	75.278	0.001	75.193	0.001	75.147	0.001
3.500	75.541	0.003	75.327	0.002	75.197	0.002	75.123	0.001	75.084	0.001
4.000	75.424	0.004	75.226	0.003	75.109	0.002	75.045	0.001	75.016	0.001
4.500	75.299	0.005	75.117	0.003	75.013	0.002	74.961	0.001	74.941	0.001
5.000	75.166	0.005	75.000	0.003	74.911	0.002	74.871	0.002	74.860	0.001
6.000	74.879	0.007	74.748	0.004	74.688	0.003	74.672	0.002	74.682	0.002
7.000	74.568	0.008	74.472	0.006	74.443	0.004	74.453	0.003	74.485	0.002
8.000	74.237	0.010	74.178	0.007	74.180	0.005	74.216	0.004	74.270	0.003
9.000	73.891	0.012	73.868	0.008	73.901	0.006	73.965	0.004	74.041	0.003
10.000	73.535	0.014	73.548	0.010	73.611	0.007	73.701	0.005	73.800	0.004
11.000	73.172	0.016	73.218	0.011	73.312	0.008	73.426	0.006	73.547	0.004
12.000	72.806	0.018	72.864	0.013	73.005	0.009	73.144	0.007	73.285	0.005
13.000	72.440	0.020	72.547	0.015	72.694	0.011	72.854	0.008	73.014	0.006
14.000	72.077	0.022	72.210	0.017	72.379	0.012	72.559	0.009	72.736	0.007
15.000	71.719	0.025	71.874	0.019	72.062	0.014	72.259	0.011	72.450	0.008
16.000	71.368	0.028	71.541	0.022	71.744	0.017	71.955	0.013	72.158	0.010
17.000	71.026	0.033	71.211	0.026	71.425	0.020	71.645	0.015	71.857	0.012
18.000	70.693	0.038	70.884	0.030	71.104	0.023	71.330	0.018	71.547	0.014
19.000	70.367	0.044	70.558	0.035	70.779	0.027	71.007	0.021	71.226	0.016
20.000	70.047	0.052	70.231	0.041	70.448	0.031	70.673	0.024	70.891	0.018
21.000	69.730	0.062	69.901	0.048	70.108	0.036	70.325	0.027	70.539	0.020
22.000	69.411	0.074	69.562	0.057	69.753	0.042	69.960	0.030	70.166	0.022
23.000	69.084	0.092	69.208	0.069	69.379	0.051	69.571	0.036	69.767	0.026
24.000	68.74	0.12	68.832	0.087	68.978	0.064	69.152	0.046	69.338	0.034
25.000	68.37	0.15	68.42	0.11	68.542	0.085	68.697	0.063	68.872	0.048
26.000	67.96	0.20	67.97	0.15	68.06	0.12	68.197	0.089	68.363	0.070
SAT 26.268			67.84	0.16						
SAT 26.278					67.91	0.13				
SAT 26.300							68.02	0.10		0.081
SAT 26.334										
SAT 26.378										

TABLE 28 B (CONT.) PARTIAL MOLAL HEAT CAPACITY OF WATER, CP1 (J/MOL.K)

WEIGHT %	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	75.306	0.000	75.282	0.000	75.276	0.000	75.308	0.000	75.369	0.000
0.100	75.305	0.000	75.282	0.000	75.276	0.000	75.308	0.000	75.369	0.000
0.200	75.304	0.000	75.280	0.000	75.274	0.000	75.306	0.000	75.367	0.000
0.300	75.302	0.000	75.279	0.000	75.273	0.000	75.305	0.000	75.366	0.000
0.400	75.300	0.000	75.277	0.000	75.271	0.000	75.303	0.000	75.364	0.000
0.500	75.297	0.000	75.274	0.000	75.269	0.000	75.301	0.000	75.361	0.000
0.600	75.294	0.000	75.271	0.000	75.266	0.000	75.298	0.000	75.359	0.000
0.700	75.291	0.000	75.268	0.000	75.264	0.000	75.296	0.000	75.356	0.000
0.800	75.287	0.000	75.265	0.000	75.260	0.000	75.293	0.000	75.353	0.000
0.900	75.283	0.000	75.261	0.000	75.254	0.000	75.289	0.000	75.350	0.000
1.000	75.278	0.000	75.257	0.000	75.254	0.000	75.286	0.000	75.347	0.000
1.200	75.268	0.000	75.248	0.000	75.246	0.000	75.279	0.000	75.340	0.000
1.400	75.257	0.000	75.238	0.000	75.237	0.000	75.270	0.000	75.332	0.000
1.600	75.245	0.000	75.226	0.000	75.227	0.000	75.261	0.000	75.323	0.000
1.800	75.231	0.000	75.214	0.000	75.216	0.000	75.252	0.000	75.314	0.000
2.000	75.216	0.000	75.200	0.000	75.205	0.000	75.241	0.000	75.303	0.000
2.500	75.173	0.000	75.162	0.000	75.172	0.000	75.211	0.000	75.275	0.000
3.000	75.124	0.000	75.117	0.000	75.134	0.000	75.176	0.000	75.242	0.000
3.500	75.069	0.000	75.067	0.000	75.090	0.000	75.137	0.000	75.206	0.000
4.000	75.007	0.001	75.011	0.000	75.042	0.000	75.094	0.000	75.165	0.000
4.500	74.939	0.001	74.950	0.001	74.990	0.000	75.047	0.000	75.121	0.001
5.000	74.867	0.001	74.883	0.001	74.933	0.001	74.995	0.001	75.072	0.001
6.000	74.706	0.001	74.736	0.001	74.806	0.001	74.881	0.001	74.965	0.001
7.000	74.526	0.002	74.572	0.001	74.663	0.001	74.752	0.001	74.844	0.001
8.000	74.331	0.002	74.392	0.002	74.506	0.001	74.609	0.001	74.709	0.001
9.000	74.121	0.002	74.197	0.002	74.335	0.001	74.452	0.001	74.561	0.001
10.000	73.898	0.003	73.990	0.002	74.150	0.002	74.282	0.002	74.399	0.002
11.000	73.663	0.003	73.771	0.002	73.954	0.002	74.100	0.002	74.225	0.002
12.000	73.418	0.004	73.540	0.003	73.745	0.003	73.905	0.002	74.037	0.002
13.000	73.164	0.004	73.299	0.003	73.524	0.003	73.696	0.003	73.836	0.002
14.000	72.900	0.005	73.047	0.004	73.290	0.003	73.474	0.003	73.620	0.003
15.000	72.627	0.006	72.785	0.005	73.044	0.004	73.239	0.003	73.391	0.003
16.000	72.344	0.007	72.511	0.006	72.784	0.004	72.988	0.004	73.146	0.004
17.000	72.051	0.009	72.225	0.007	72.509	0.004	72.721	0.004	72.885	0.004
18.000	71.746	0.010	71.925	0.008	72.218	0.005	72.438	0.005	72.608	0.005
19.000	71.428	0.012	71.609	0.009	71.909	0.006	72.137	0.006	72.315	0.005
20.000	71.093	0.013	71.276	0.010	71.583	0.008	71.818	0.007	72.005	0.006
21.000	70.739	0.015	70.922	0.012	71.233	0.010	71.479	0.009	71.680	0.007
22.000	70.363	0.017	70.545	0.014	70.862	0.013	71.122	0.012	71.340	0.009
23.000	69.958	0.020	70.141	0.018	70.467	0.017	70.746	0.015	70.990	0.011
24.000	69.525	0.027	69.707	0.024	70.047	0.024	70.354	0.021	70.633	0.016
25.000	69.056	0.039	69.241	0.035	69.604	0.033	69.950	0.029	70.276	0.023
26.000	68.547	0.058	68.740	0.052	69.138	0.047	69.538	0.041	69.950	0.035
27.000									69.607	0.053
SAT 26.432	68.314	0.068	68.478	0.063	68.827	0.058	69.198	0.055	69.595	0.053
SAT 26.495										
SAT 26.647										
SAT 26.830										
SAT 27.039										

TABLE 28 B (CONT.) PARTIAL MOLAL HEAT CAPACITY OF WATER, CP1 (J/MOL.K)

WEIGHT %	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	75.457	0.000	75.575	0.000	75.728	0.000	75.919	0.000	76.197	0.000
0.100	75.457	0.000	75.574	0.000	75.728	0.000	75.918	0.000	76.196	0.000
0.200	75.455	0.000	75.573	0.000	75.726	0.000	75.917	0.000	76.194	0.000
0.300	75.454	0.000	75.571	0.000	75.724	0.000	75.915	0.000	76.192	0.000
0.400	75.451	0.000	75.569	0.000	75.722	0.000	75.913	0.000	76.190	0.000
0.500	75.449	0.000	75.567	0.000	75.720	0.000	75.910	0.000	76.187	0.000
0.600	75.447	0.000	75.564	0.000	75.717	0.000	75.907	0.000	76.184	0.000
0.700	75.444	0.000	75.561	0.000	75.714	0.000	75.905	0.000	76.182	0.000
0.800	75.441	0.000	75.558	0.000	75.711	0.000	75.902	0.000	76.178	0.000
0.900	75.438	0.000	75.555	0.000	75.708	0.000	75.899	0.000	76.175	0.000
1.000	75.435	0.000	75.552	0.000	75.705	0.000	75.895	0.000	76.172	0.000
1.200	75.427	0.000	75.545	0.000	75.698	0.000	75.888	0.000	76.165	0.000
1.400	75.420	0.000	75.537	0.000	75.690	0.000	75.881	0.000	76.157	0.000
1.600	75.411	0.000	75.529	0.000	75.682	0.000	75.872	0.000	76.148	0.001
1.800	75.402	0.000	75.520	0.000	75.673	0.000	75.863	0.001	76.139	0.001
2.000	75.392	0.000	75.510	0.000	75.663	0.000	75.854	0.001	76.129	0.001
2.500	75.364	0.000	75.483	0.000	75.637	0.000	75.828	0.001	76.103	0.001
3.000	75.333	0.000	75.452	0.000	75.606	0.001	75.798	0.001	76.072	0.001
3.500	75.297	0.000	75.417	0.000	75.572	0.001	75.764	0.001	76.037	0.001
4.000	75.258	0.000	75.379	0.000	75.534	0.001	75.726	0.001	75.999	0.002
4.500	75.215	0.001	75.337	0.001	75.493	0.001	75.684	0.001	75.957	0.002
5.000	75.169	0.001	75.291	0.001	75.448	0.001	75.639	0.002	75.911	0.002
6.000	75.065	0.001	75.190	0.001	75.347	0.001	75.537	0.002	75.807	0.003
7.000	74.948	0.001	75.074	0.001	75.241	0.002	75.421	0.002	75.688	0.003
8.000	74.817	0.001	74.945	0.001	75.101	0.002	75.290	0.003	75.555	0.003
9.000	74.673	0.001	74.802	0.002	74.958	0.002	75.144	0.003	75.406	0.004
10.000	74.515	0.002	74.645	0.002	74.800	0.003	74.984	0.004	75.243	0.004
11.000	74.344	0.002	74.474	0.002	74.628	0.003	74.809	0.004	75.064	0.005
12.000	74.160	0.002	74.290	0.003	74.441	0.004	74.620	0.005	74.871	0.005
13.000	73.961	0.003	74.091	0.003	74.241	0.004	74.416	0.005	74.663	0.006
14.000	73.749	0.003	73.878	0.004	74.026	0.005	74.197	0.006	74.441	0.006
15.000	73.521	0.003	73.651	0.004	73.796	0.005	73.965	0.006	74.204	0.007
16.000	73.279	0.004	73.409	0.005	73.553	0.006	73.719	0.007	73.953	0.007
17.000	73.022	0.005	73.154	0.005	73.297	0.006	73.460	0.007	73.690	0.008
18.000	72.750	0.005	72.884	0.006	73.028	0.007	73.189	0.008	73.415	0.009
19.000	72.463	0.006	72.602	0.007	72.749	0.008	72.910	0.010	73.131	0.010
20.000	72.163	0.006	72.310	0.008	72.462	0.010	72.624	0.012	72.841	0.012
21.000	71.851	0.007	72.011	0.009	72.172	0.013	72.337	0.016	72.550	0.016
22.000	71.532	0.008	71.709	0.012	71.884	0.017	72.055	0.021	72.264	0.021
23.000	71.209	0.010	71.412	0.016	71.605	0.023	71.786	0.028	71.992	0.028
24.000	70.889	0.015	71.127	0.022	71.348	0.031	71.543	0.037	71.745	0.038
25.000	70.583	0.023	70.868	0.032	71.125	0.043	71.340	0.050	71.539	0.052
26.000	70.304	0.036	70.650	0.047	70.956	0.059	71.197	0.068	71.394	0.070
27.000	70.070	0.056	70.497	0.068	70.865	0.082	71.142	0.092	71.336	0.096
28.000							71.21	0.13	71.40	0.13
SAT 27.272	70.017	0.062								
SAT 27.525			70.451	0.082						
SAT 27.795					70.87	0.11			71.22	0.13
SAT 28.079										
SAT 28.373									71.46	0.15

TABLE 29 A (CONT.) PARTIAL MOLAL HEAT CAPACITY OF SODIUM CHLORIDE, CP2 (J/MOL.K)

MOLALITY	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	-83.95	0.12	-75.248	0.099	-64.434	0.097	-59.70	0.12	-58.65	0.13
0.001	-82.69	0.12	-73.918	0.098	-62.933	0.097	-57.99	0.12	-56.73	0.13
0.002	-82.15	0.11	-73.355	0.097	-62.316	0.096	-57.30	0.12	-55.95	0.13
0.005	-81.02	0.11	-72.215	0.095	-61.095	0.095	-55.96	0.11	-54.45	0.13
0.010	-79.69	0.11	-70.891	0.092	-59.718	0.093	-54.47	0.11	-52.81	0.13
0.020	-77.681	0.097	-68.942	0.086	-57.760	0.089	-52.39	0.11	-50.56	0.12
0.050	-73.282	0.080	-64.788	0.074	-53.781	0.082	-48.314	0.097	-46.26	0.11
0.100	-67.676	0.067	-59.620	0.065	-49.059	0.076	-43.669	0.088	-41.51	0.10
0.200	-58.650	0.065	-51.418	0.062	-41.826	0.074	-36.811	0.081	-34.729	0.089
0.300	-50.946	0.068	-44.453	0.062	-35.799	0.074	-31.237	0.078	-29.346	0.082
0.400	-44.052	0.070	-38.178	0.062	-30.408	0.074	-26.312	0.077	-24.651	0.078
0.500	-37.599	0.070	-32.387	0.061	-25.445	0.074	-21.809	0.075	-20.392	0.075
0.600	-31.622	0.070	-26.972	0.060	-20.808	0.073	-17.619	0.074	-16.445	0.073
0.700	-26.031	0.071	-21.872	0.061	-16.437	0.073	-13.676	0.073	-12.743	0.071
0.800	-20.689	0.073	-17.042	0.062	-12.292	0.072	-9.941	0.073	-9.240	0.071
0.900	-15.652	0.076	-12.454	0.065	-8.346	0.073	-6.385	0.072	-5.907	0.071
1.000	-10.862	0.080	-8.082	0.068	-4.578	0.073	-2.987	0.072	-2.722	0.071
1.200	-1.944	0.089	0.081	0.075	2.487	0.074	3.397	0.072	3.270	0.072
1.400	6.196	0.098	7.564	0.081	9.004	0.077	9.310	0.073	8.835	0.073
1.500	10.01	0.10	11.078	0.084	12.081	0.078	12.113	0.074	11.480	0.074
1.600	13.65	0.10	14.454	0.086	15.048	0.080	14.823	0.075	14.044	0.075
1.800	20.52	0.11	20.822	0.090	20.681	0.083	19.991	0.077	18.948	0.076
2.000	26.85	0.11	26.730	0.093	25.951	0.086	24.860	0.080	23.591	0.078
2.200	32.72	0.11	32.229	0.095	30.904	0.089	29.469	0.083	28.007	0.079
2.400	38.17	0.12	37.367	0.098	35.579	0.092	33.850	0.085	32.225	0.081
2.500	40.75	0.12	39.813	0.099	37.822	0.094	35.965	0.087	34.268	0.082
2.600	43.25	0.12	42.19	0.10	40.008	0.095	38.033	0.088	36.271	0.083
2.800	48.00	0.13	46.72	0.11	44.224	0.097	42.042	0.090	40.164	0.085
3.000	52.47	0.13	51.02	0.11	48.253	0.099	45.899	0.091	43.922	0.088
3.200	56.68	0.15	55.10	0.12	52.12	0.10	49.624	0.092	47.561	0.090
3.400	60.68	0.16	58.99	0.13	55.85	0.10	53.233	0.093	51.090	0.093
3.500	62.61	0.16	60.88	0.13	57.67	0.10	54.998	0.094	52.818	0.095
3.600	64.49	0.17	62.73	0.14	59.46	0.10	56.739	0.095	54.521	0.097
3.800	68.15	0.18	66.33	0.14	62.96	0.11	60.153	0.097	57.86	0.10
4.000	71.68	0.19	69.83	0.15	66.38	0.11	63.49	0.10	61.11	0.10
4.200	75.09	0.20	73.22	0.16	69.72	0.12	66.74	0.11	64.27	0.11
4.400	78.42	0.21	76.55	0.16	72.99	0.13	69.93	0.12	67.34	0.11
4.500	80.05	0.21	78.19	0.17	74.61	0.14	71.49	0.12	68.85	0.11
4.600	81.68	0.22	79.81	0.17	76.21	0.14	73.04	0.13	70.33	0.12
4.800	84.89	0.22	83.03	0.18	79.37	0.16	76.09	0.15	73.21	0.12
5.000	88.07	0.24	86.21	0.20	82.48	0.19	79.06	0.17	76.00	0.14
5.200	91.21	0.26	89.36	0.23	85.55	0.22	81.95	0.20	78.68	0.16
5.400	94.35	0.31	92.49	0.27	88.57	0.27	84.77	0.24	81.23	0.18
5.500	95.91	0.34	94.04	0.30	90.06	0.29	86.14	0.26	82.45	0.20
5.600	97.47	0.37	95.59	0.33	91.54	0.32	87.49	0.28	83.64	0.22
5.800	100.60	0.46	98.69	0.41	94.45	0.39	90.11	0.34	85.91	0.28
6.000	103.73	0.57	101.77	0.52	97.30	0.47	92.62	0.41	88.00	0.35
6.200	106.04	0.68	104.33	0.62	100.08	0.57	94.99	0.50	89.91	0.44
SAT 6.148										
SAT 6.168			104.33	0.62	100.30	0.58	95.84	0.54	91.13	0.51
SAT 6.216										
SAT 6.274										
SAT 6.341										

TABLE 29 A (CONT.) PARTIAL MOLAL HEAT CAPACITY OF SODIUM CHLORIDE, CP2 (J/MOL.K)

MOLALITY	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	-59.80	0.13	-62.40	0.12	-66.35	0.22	-72.06	0.44	-80.33	0.71
0.001	-57.63	0.13	-59.97	0.12	-63.64	0.22	-69.05	0.44	-76.99	0.71
0.002	-56.76	0.13	-59.01	0.12	-62.57	0.22	-67.87	0.44	-75.70	0.71
0.005	-55.10	0.13	-57.17	0.12	-60.56	0.21	-65.66	0.43	-73.26	0.70
0.010	-53.30	0.13	-55.20	0.11	-58.42	0.21	-63.93	0.43	-70.72	0.70
0.020	-50.86	0.12	-52.57	0.11	-55.59	0.20	-60.30	0.42	-67.42	0.69
0.050	-46.29	0.11	-47.75	0.10	-50.53	0.19	-54.97	0.40	-61.70	0.67
0.100	-41.39	0.10	-42.71	0.096	-45.38	0.17	-49.67	0.38	-56.10	0.65
0.200	-34.580	0.096	-35.885	0.093	-38.56	0.16	-42.81	0.35	-48.98	0.62
0.300	-29.284	0.091	-30.659	0.092	-33.41	0.15	-37.69	0.34	-43.73	0.60
0.400	-24.711	0.088	-26.175	0.091	-29.01	0.15	-33.32	0.33	-39.27	0.60
0.500	-20.585	0.085	-22.139	0.089	-25.04	0.15	-29.39	0.33	-35.26	0.59
0.600	-16.774	0.083	-18.414	0.088	-21.37	0.14	-25.74	0.33	-31.55	0.59
0.700	-13.204	0.082	-14.923	0.086	-17.93	0.14	-22.31	0.32	-28.06	0.59
0.800	-9.829	0.081	-11.619	0.085	-14.66	0.14	-19.04	0.32	-24.74	0.58
0.900	-6.617	0.081	-8.470	0.084	-11.54	0.14	-15.92	0.32	-21.56	0.58
1.000	-3.546	0.082	-5.454	0.084	-8.55	0.14	-12.91	0.32	-18.49	0.58
1.200	2.241	0.083	0.242	0.084	-2.46	0.14	-7.20	0.32	-12.67	0.58
1.400	7.630	0.084	5.566	0.085	2.46	0.14	-1.82	0.32	-7.19	0.58
1.500	10.198	0.085	8.108	0.086	5.01	0.14	0.76	0.32	-4.55	0.58
1.600	12.690	0.086	10.580	0.087	7.49	0.14	3.28	0.32	-1.99	0.58
1.800	17.471	0.087	15.331	0.090	12.27	0.15	6.13	0.33	2.96	0.59
2.000	22.013	0.088	19.857	0.092	16.83	0.15	12.76	0.33	7.68	0.59
2.200	26.346	0.089	24.183	0.095	21.20	0.15	17.20	0.33	12.21	0.59
2.400	30.498	0.090	28.334	0.098	25.40	0.16	21.47	0.33	16.56	0.59
2.500	32.512	0.091	30.349	0.099	27.43	0.16	23.53	0.33	18.67	0.59
2.600	34.488	0.092	32.33	0.10	29.43	0.16	25.57	0.34	20.74	0.59
2.800	38.334	0.095	36.18	0.10	33.32	0.16	29.51	0.34	24.76	0.59
3.000	42.050	0.098	39.89	0.11	37.07	0.16	33.32	0.34	28.63	0.59
3.200	45.65	0.10	43.48	0.11	40.68	0.17	36.98	0.34	32.36	0.59
3.400	49.13	0.11	46.96	0.11	44.17	0.17	40.50	0.34	35.94	0.59
3.500	50.84	0.11	48.65	0.11	45.86	0.17	42.21	0.34	37.68	0.59
3.600	52.51	0.11	50.31	0.11	47.52	0.17	43.88	0.34	39.38	0.60
3.800	55.79	0.11	53.55	0.12	50.74	0.17	47.12	0.34	42.67	0.60
4.000	58.96	0.11	56.67	0.12	53.83	0.17	50.21	0.34	45.81	0.60
4.200	62.03	0.12	59.66	0.12	56.77	0.18	53.15	0.35	48.79	0.60
4.400	64.99	0.12	62.52	0.13	59.56	0.19	55.91	0.36	51.60	0.61
4.500	66.43	0.12	63.89	0.13	60.90	0.20	57.23	0.36	52.94	0.61
4.600	67.84	0.12	65.24	0.14	62.19	0.21	58.50	0.37	54.23	0.61
4.800	70.56	0.12	67.80	0.15	64.64	0.23	60.90	0.37	56.66	0.63
5.000	73.14	0.13	70.20	0.17	66.83	0.26	63.08	0.42	58.87	0.64
5.200	75.58	0.15	72.41	0.20	68.94	0.30	65.04	0.46	60.86	0.67
5.400	77.85	0.17	74.43	0.24	70.75	0.36	66.75	0.51	62.59	0.71
5.500	78.92	0.19	75.35	0.27	71.55	0.39	67.50	0.54	63.35	0.73
5.600	79.94	0.22	76.22	0.30	72.31	0.42	68.18	0.57	64.04	0.76
5.800	81.83	0.28	77.77	0.37	73.53	0.51	68.31	0.55	65.19	0.82
6.000	83.50	0.36	79.05	0.46	74.57	0.61	70.12	0.75	66.02	0.91
6.200	84.93	0.46	80.04	0.57	75.21	0.72	70.58	0.87	66.5	1.0
6.400	86.08	0.58	80.70	0.70	75.50	0.86	70.6	1.0	66.6	1.1
6.500					75.43	0.94	70.3	1.2	66.4	1.2
6.600	86.16	0.59							66.2	1.3
SAT										
6.416			80.90	0.78						
SAT					75.4	1.0				
6.498							70.0	1.2		
SAT									65.5	1.5
6.587										
SAT										
6.680										
SAT										
6.778										

TABLE 29 B PARTIAL MOLAL HEAT CAPACITY OF SODIUM CHLORIDE, CP2 (J/MOL.K)

WEIGHT %	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	-183.80	0.89	-153.92	0.58	-129.79	0.36	-110.58	0.23	-95.53	0.16
0.100	-176.18	0.81	-147.04	0.52	-123.45	0.32	-104.53	0.20	-89.73	0.13
0.200	-171.04	0.76	-142.67	0.47	-119.67	0.29	-101.26	0.17	-86.71	0.11
0.300	-166.48	0.71	-138.82	0.44	-116.38	0.26	-98.40	0.16	-84.18	0.10
0.400	-162.29	0.67	-135.29	0.41	-113.38	0.24	-95.81	0.14	-81.891	0.083
0.500	-158.35	0.64	-131.99	0.39	-110.58	0.23	-93.39	0.13	-79.773	0.087
0.600	-154.62	0.61	-128.85	0.37	-107.92	0.22	-91.11	0.13	-77.776	0.083
0.700	-151.05	0.59	-125.85	0.35	-105.38	0.21	-88.93	0.12	-75.871	0.081
0.800	-147.62	0.57	-122.97	0.34	-102.94	0.20	-86.83	0.12	-74.043	0.080
0.900	-144.31	0.56	-120.19	0.33	-100.58	0.20	-84.81	0.12	-72.277	0.080
1.000	-141.12	0.54	-117.50	0.33	-98.29	0.19	-82.85	0.12	-70.566	0.081
1.200	-135.00	0.52	-112.33	0.31	-93.91	0.19	-79.03	0.12	-67.278	0.083
1.400	-129.20	0.51	-107.43	0.31	-89.73	0.19	-75.48	0.13	-64.138	0.087
1.600	-123.67	0.50	-102.74	0.31	-85.72	0.19	-72.02	0.13	-61.121	0.090
1.800	-118.37	0.49	-98.23	0.31	-81.87	0.20	-68.69	0.13	-58.208	0.092
2.000	-113.27	0.49	-93.89	0.30	-78.14	0.20	-65.47	0.14	-55.385	0.094
2.500	-101.30	0.48	-83.64	0.31	-69.32	0.20	-57.81	0.14	-48.659	0.088
3.000	-90.22	0.48	-74.12	0.31	-61.08	0.20	-50.62	0.14	-42.325	0.099
3.500	-79.89	0.48	-65.19	0.31	-53.32	0.21	-43.83	0.14	-36.31	0.10
4.000	-70.19	0.48	-56.77	0.31	-45.97	0.21	-37.37	0.14	-30.58	0.10
4.500	-61.04	0.48	-48.79	0.31	-38.98	0.21	-31.20	0.15	-25.10	0.10
5.000	-52.38	0.49	-41.21	0.31	-32.32	0.21	-25.30	0.15	-19.83	0.11
6.000	-36.34	0.50	-27.11	0.32	-19.85	0.22	-14.22	0.16	-9.91	0.11
7.000	-21.80	0.52	-14.24	0.34	-8.41	0.23	-3.99	0.17	-0.69	0.12
8.000	-8.55	0.55	-2.45	0.36	2.13	0.25	5.43	0.18	7.89	0.13
9.000	3.52	0.57	8.36	0.38	11.85	0.26	14.27	0.19	15.89	0.14
10.000	14.54	0.60	18.28	0.40	20.82	0.27	22.44	0.20	23.37	0.14
11.000	24.59	0.62	27.39	0.41	29.11	0.28	30.03	0.20	30.36	0.15
12.000	33.74	0.64	35.74	0.42	36.77	0.29	37.09	0.21	36.91	0.15
13.000	42.05	0.65	43.39	0.44	43.85	0.30	43.65	0.21	43.05	0.15
14.000	49.61	0.67	50.41	0.45	50.39	0.31	49.80	0.22	48.84	0.16
15.000	56.45	0.68	56.84	0.47	56.45	0.33	55.54	0.21	54.30	0.18
16.000	62.66	0.70	62.73	0.49	62.07	0.35	60.92	0.26	59.48	0.19
17.000	68.28	0.73	68.15	0.52	67.32	0.38	66.01	0.28	64.42	0.21
18.000	73.38	0.76	73.16	0.55	72.23	0.41	70.83	0.31	69.16	0.23
19.000	78.04	0.81	77.82	0.59	76.88	0.44	75.45	0.33	73.75	0.25
20.000	82.33	0.86	82.19	0.63	81.31	0.47	79.92	0.36	78.23	0.27
21.000	86.32	0.94	86.35	0.69	85.59	0.51	84.30	0.38	82.66	0.28
22.000	90.1	1.0	90.36	0.76	89.79	0.56	88.63	0.41	87.08	0.30
23.000	93.7	1.2	94.31	0.87	93.97	0.63	92.97	0.45	91.53	0.33
24.000	97.4	1.4	98.3	1.0	98.21	0.74	97.39	0.54	96.06	0.39
25.000	101.1	1.7	102.4	1.2	102.56	0.92	101.94	0.68	100.72	0.51
26.000	104.9	2.1	106.6	1.6	107.1	1.2	106.68	0.90	105.55	0.70
SAT 26.268	106.0	2.2	107.9	1.7	108.5	1.3	108.31	0.99	107.42	0.79
SAT 26.278										
SAT 26.300										
SAT 26.334										
SAT 26.378										

TABLE 29 B (CONT.) PARTIAL MOLAL HEAT CAPACITY OF SODIUM CHLORIDE, CP2 (J/MOL.K)

WEIGHT %	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.
0.000	-83.95	0.12	-75.248	0.099	-64.434	0.097	-59.70	0.12	-58.65	0.13
0.100	-78.256	0.099	-69.447	0.087	-58.261	0.090	-52.92	0.11	-51.13	0.13
0.200	-75.408	0.087	-66.780	0.079	-55.662	0.085	-50.22	0.10	-48.25	0.12
0.300	-73.034	0.079	-64.613	0.074	-53.618	0.081	-48.150	0.097	-46.09	0.11
0.400	-71.032	0.073	-62.702	0.070	-51.852	0.079	-46.395	0.093	-44.28	0.11
0.500	-69.130	0.069	-60.952	0.067	-50.259	0.077	-44.834	0.090	-42.69	0.10
0.600	-67.344	0.066	-59.317	0.065	-48.788	0.076	-43.407	0.088	-41.25	0.10
0.700	-65.647	0.065	-57.768	0.064	-47.405	0.075	-42.079	0.086	-39.919	0.098
0.800	-64.019	0.064	-56.287	0.063	-46.093	0.075	-40.827	0.085	-38.675	0.096
0.900	-62.450	0.064	-54.861	0.062	-44.837	0.074	-39.638	0.083	-37.499	0.093
1.000	-60.930	0.064	-53.482	0.062	-43.628	0.074	-38.498	0.082	-36.379	0.092
1.200	-58.011	0.065	-50.840	0.062	-41.323	0.074	-36.342	0.081	-34.273	0.088
1.400	-55.225	0.066	-48.320	0.062	-39.137	0.074	-34.313	0.080	-32.306	0.086
1.600	-52.548	0.068	-45.900	0.062	-37.046	0.074	-32.383	0.079	-30.447	0.084
1.800	-49.951	0.069	-43.563	0.062	-35.033	0.074	-30.534	0.078	-28.673	0.082
2.000	-47.452	0.069	-41.296	0.061	-33.084	0.074	-28.751	0.077	-26.971	0.080
2.500	-41.455	0.070	-35.885	0.061	-28.442	0.074	-24.525	0.076	-22.958	0.077
3.000	-35.813	0.070	-30.770	0.061	-24.061	0.073	-20.557	0.075	-19.211	0.074
3.500	-30.437	0.071	-25.898	0.060	-19.887	0.073	-16.788	0.074	-15.664	0.072
4.000	-25.237	0.071	-21.232	0.061	-15.888	0.073	-13.181	0.073	-12.278	0.071
4.500	-20.356	0.073	-16.748	0.062	-12.039	0.072	-9.713	0.073	-9.026	0.071
5.000	-15.624	0.076	-12.428	0.065	-8.324	0.073	-6.365	0.072	-5.888	0.071
6.000	-6.648	0.085	-4.229	0.071	-1.248	0.074	0.019	0.072	0.098	0.071
7.000	1.723	0.093	3.448	0.078	5.414	0.075	6.049	0.073	5.764	0.073
8.000	9.55	0.10	10.660	0.083	11.714	0.078	11.778	0.074	11.165	0.074
9.000	16.90	0.11	17.453	0.088	17.695	0.081	17.247	0.076	16.341	0.075
10.000	23.79	0.11	23.866	0.091	23.390	0.084	22.490	0.079	21.327	0.077
11.000	30.28	0.11	29.933	0.094	28.831	0.088	27.536	0.081	26.151	0.078
12.000	36.40	0.11	35.690	0.097	34.048	0.091	32.412	0.084	30.838	0.080
13.000	42.18	0.12	41.17	0.10	39.070	0.094	37.144	0.087	35.410	0.082
14.000	47.67	0.13	46.40	0.11	43.924	0.097	41.756	0.090	39.886	0.085
15.000	52.89	0.14	51.42	0.11	48.64	0.10	46.269	0.091	44.283	0.088
16.000	57.89	0.15	56.27	0.12	53.24	0.10	50.704	0.093	48.616	0.091
17.000	62.70	0.16	60.96	0.13	57.75	0.10	55.079	0.094	52.897	0.095
18.000	67.35	0.18	65.55	0.14	62.20	0.11	59.410	0.097	57.132	0.099
19.000	71.91	0.19	70.06	0.15	66.61	0.11	63.71	0.10	61.32	0.10
20.000	76.39	0.20	74.52	0.16	71.00	0.12	67.99	0.11	65.47	0.11
21.000	80.85	0.21	78.98	0.17	75.38	0.14	72.24	0.13	69.56	0.12
22.000	85.31	0.23	83.45	0.19	79.78	0.17	76.48	0.15	73.58	0.13
23.000	89.81	0.25	87.96	0.22	84.19	0.21	80.68	0.19	77.50	0.15
24.000	94.40	0.31	92.54	0.27	88.62	0.27	84.82	0.24	81.27	0.18
25.000	99.09	0.41	97.20	0.37	93.05	0.35	88.86	0.31	84.84	0.25
26.000	103.92	0.58	101.95	0.52	97.47	0.48	92.76	0.42	88.12	0.35
27.000	106.04	0.68	104.33	0.62	100.30	0.58	95.84	0.54	91.13	0.51
SAT 26.432										
SAT 26.495										
SAT 26.647										
SAT 26.830										
SAT 27.039										

TABLE 29 B (CONT.) PARTIAL MOLAL HEAT CAPACITY OF SODIUM CHLORIDE, C[∞]2 (J/MOL.K)

WEIGHT %	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	-59.80	0.13	-62.40	0.12	-66.35	0.22	-72.06	0.44	-80.33	0.71
0.100	-51.47	0.12	-53.22	0.11	-56.29	0.21	-61.05	0.42	-68.23	0.69
0.200	-48.39	0.12	-49.95	0.11	-52.82	0.20	-57.37	0.41	-64.26	0.68
0.300	-46.11	0.11	-47.56	0.10	-50.34	0.19	-54.77	0.40	-61.48	0.67
0.400	-44.23	0.11	-45.615	0.099	-48.34	0.18	-52.70	0.39	-59.29	0.66
0.500	-42.59	0.11	-43.936	0.097	-46.62	0.18	-50.94	0.38	-57.43	0.65
0.600	-41.12	0.10	-42.439	0.096	-45.11	0.17	-49.39	0.38	-55.81	0.64
0.700	-39.77	0.10	-41.075	0.094	-43.73	0.17	-48.00	0.37	-54.36	0.64
0.800	-38.52	0.10	-39.813	0.094	-42.47	0.17	-46.73	0.37	-53.03	0.63
0.900	-37.338	0.099	-38.631	0.093	-41.29	0.17	-45.54	0.36	-51.80	0.63
1.000	-36.219	0.098	-37.515	0.093	-40.18	0.16	-44.43	0.36	-50.65	0.63
1.200	-34.128	0.096	-35.437	0.092	-38.12	0.16	-42.37	0.35	-48.53	0.62
1.400	-32.187	0.094	-33.517	0.092	-36.23	0.16	-40.48	0.35	-46.59	0.61
1.600	-30.361	0.092	-31.718	0.092	-34.45	0.15	-38.72	0.34	-44.79	0.61
1.800	-28.626	0.091	-30.013	0.092	-32.78	0.15	-37.06	0.34	-43.08	0.60
2.000	-26.966	0.090	-28.384	0.091	-31.18	0.15	-35.47	0.34	-41.46	0.60
2.500	-23.069	0.087	-24.568	0.090	-27.43	0.15	-31.76	0.33	-37.68	0.59
3.000	-19.444	0.085	-21.024	0.089	-23.94	0.15	-28.30	0.33	-34.15	0.59
3.500	-16.021	0.083	-17.678	0.087	-20.65	0.14	-25.02	0.33	-30.82	0.59
4.000	-12.757	0.082	-14.486	0.086	-17.50	0.14	-21.88	0.32	-27.62	0.58
4.500	-9.623	0.081	-11.417	0.085	-14.46	0.14	-18.84	0.32	-24.54	0.58
5.000	-6.599	0.081	-8.452	0.084	-11.53	0.14	-15.90	0.32	-21.54	0.58
6.000	-4.824	0.084	-6.777	0.084	-9.88	0.14	-14.23	0.32	-19.76	0.58
7.000	4.654	0.084	2.624	0.085	-0.49	0.14	-4.79	0.32	-10.22	0.58
8.000	9.891	0.085	7.804	0.086	4.70	0.14	0.45	0.32	-4.87	0.58
9.000	14.928	0.086	12.802	0.089	9.72	0.14	5.54	0.33	0.32	0.59
10.000	19.797	0.087	17.647	0.091	14.61	0.15	10.50	0.33	5.38	0.59
11.000	24.524	0.088	22.363	0.094	19.36	0.15	15.33	0.33	10.31	0.59
12.000	29.132	0.090	26.968	0.097	24.02	0.16	20.06	0.33	15.13	0.59
13.000	33.638	0.092	31.48	0.10	28.57	0.16	24.69	0.34	19.85	0.59
14.000	38.059	0.095	35.90	0.10	33.04	0.16	29.23	0.34	24.47	0.59
15.000	42.407	0.098	40.25	0.11	37.43	0.16	33.68	0.34	29.00	0.59
16.000	46.69	0.10	44.52	0.11	41.73	0.17	38.03	0.34	33.44	0.59
17.000	50.91	0.11	48.73	0.11	45.94	0.17	42.29	0.34	37.76	0.59
18.000	55.08	0.11	52.85	0.12	50.05	0.17	46.42	0.34	41.96	0.60
19.000	59.18	0.11	56.87	0.12	54.04	0.17	50.42	0.34	46.02	0.60
20.000	63.20	0.12	60.78	0.13	57.88	0.18	54.24	0.35	49.91	0.60
21.000	67.11	0.12	64.55	0.13	61.53	0.20	57.85	0.37	53.57	0.61
22.000	70.90	0.12	68.12	0.15	64.95	0.23	61.20	0.39	56.96	0.63
23.000	74.51	0.14	71.45	0.19	68.06	0.28	64.20	0.44	60.01	0.66
24.000	77.89	0.17	74.46	0.25	70.78	0.36	66.77	0.51	62.62	0.71
25.000	80.95	0.25	77.05	0.47	73.01	0.61	68.81	0.61	64.68	0.79
26.000	83.60	0.36	79.12	0.74	74.62	0.91	70.16	0.76	66.06	0.91
27.000	85.70	0.53	80.50	0.65	75.44	0.81	70.67	0.95	66.6	1.1
28.000	86.16	0.59	80.90	0.78	75.4	1.0	70.1	1.2	66.0	1.3
SAT 27.272										
SAT 27.525										
SAT 27.795										
SAT 28.079										
SAT 28.373										

TABLE 30 A APPARENT MOLAL RELATIVE HEAT CAPACITY OF SODIUM CHLORIDE, (J/MOL.K)

MOLALITY	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.001	0.695	0.004	0.704	0.003	0.723	0.002	0.752	0.002	0.789	0.001
0.002	1.059	0.007	1.053	0.006	1.065	0.004	1.093	0.003	1.135	0.002
0.005	1.905	0.018	1.839	0.013	1.811	0.010	1.818	0.007	1.855	0.005
0.010	3.043	0.034	2.867	0.025	2.757	0.019	2.711	0.014	2.719	0.010
0.020	4.971	0.064	4.556	0.048	4.273	0.035	4.103	0.026	4.031	0.019
0.050	9.72	0.14	8.63	0.10	7.832	0.077	7.278	0.056	6.934	0.041
0.100	16.31	0.24	14.21	0.18	12.61	0.13	11.445	0.095	10.653	0.068
0.200	27.31	0.39	23.47	0.29	20.49	0.21	18.25	0.15	16.64	0.11
0.300	36.75	0.49	31.44	0.36	27.27	0.26	24.09	0.19	21.75	0.13
0.400	45.21	0.57	38.60	0.42	33.37	0.30	29.35	0.21	26.35	0.15
0.500	52.94	0.64	45.17	0.46	39.00	0.33	34.21	0.23	30.61	0.16
0.600	60.11	0.69	51.28	0.49	44.25	0.35	38.76	0.24	34.61	0.17
0.700	66.82	0.73	57.02	0.52	49.19	0.36	43.06	0.25	38.39	0.17
0.800	73.13	0.76	62.44	0.54	53.87	0.37	47.14	0.26	41.98	0.18
0.900	84.76	0.81	72.46	0.57	58.32	0.38	51.03	0.26	45.42	0.18
1.000	95.30	0.85	81.60	0.59	62.57	0.39	54.75	0.26	48.71	0.18
1.200	104.94	0.87	90.00	0.60	70.53	0.40	61.75	0.27	54.92	0.18
1.500	109.46	0.88	93.95	0.60	77.89	0.40	68.23	0.27	60.69	0.18
1.600	113.81	0.89	97.76	0.61	81.36	0.40	71.31	0.27	63.44	0.18
1.800	122.02	0.90	104.97	0.61	84.71	0.40	74.28	0.27	66.09	0.18
2.000	129.65	0.92	111.68	0.62	87.93	0.40	79.93	0.26	71.16	0.18
2.200	136.74	0.93	117.95	0.62	91.02	0.40	85.23	0.26	75.92	0.17
2.400	143.36	0.94	123.82	0.62	97.02	0.40	90.22	0.26	80.42	0.17
2.500	146.51	0.94	126.62	0.62	102.59	0.40	94.92	0.25	81.67	0.17
2.600	149.55	0.94	129.33	0.62	107.83	0.40	97.17	0.25	86.72	0.17
2.800	155.34	0.95	134.51	0.63	110.33	0.40	99.35	0.25	88.70	0.17
3.000	160.78	0.95	139.37	0.63	112.75	0.40	103.55	0.25	92.53	0.16
3.200	165.88	0.96	143.96	0.63	117.40	0.40	107.53	0.25	95.16	0.16
3.400	170.67	0.96	148.29	0.63	121.79	0.40	107.53	0.25	99.63	0.16
3.500	172.97	0.97	150.37	0.63	125.94	0.40	111.31	0.25	102.94	0.16
3.600	175.19	0.97	152.38	0.63	129.87	0.40	114.90	0.25	104.53	0.17
3.800	179.45	0.97	156.26	0.64	131.76	0.40	118.32	0.25	106.10	0.17
4.000	183.47	0.98	159.93	0.64	137.14	0.40	121.59	0.25	109.13	0.17
4.200	187.27	0.99	163.42	0.65	140.52	0.40	124.71	0.25	112.03	0.17
4.400	190.87	0.99	166.74	0.65	143.74	0.41	127.70	0.25	114.83	0.18
4.500	192.6	1.0	168.34	0.65	146.81	0.41	130.57	0.26	117.53	0.18
4.600	194.3	1.0	169.91	0.66	148.30	0.41	131.97	0.26	118.84	0.18
4.800	197.5	1.0	172.93	0.66	149.76	0.41	133.33	0.26	120.13	0.18
5.000	200.6	1.0	175.82	0.67	152.59	0.42	136.00	0.27	122.65	0.18
5.200	203.6	1.0	178.60	0.67	155.32	0.42	138.57	0.27	125.09	0.19
5.400	206.4	1.0	181.28	0.68	157.94	0.43	141.06	0.27	127.47	0.19
5.500	207.8	1.0	182.58	0.69	160.48	0.44	143.48	0.28	129.79	0.19
5.600	209.1	1.0	183.86	0.69	161.72	0.44	144.67	0.28	130.92	0.19
5.800	211.7	1.1	185.35	0.70	162.94	0.44	145.84	0.28	132.05	0.19
6.000	214.2	1.1	188.77	0.71	165.34	0.45	148.14	0.29	134.26	0.20
6.056	215.4	1.1	189.95	0.72	167.67	0.46	150.38	0.29	136.43	0.20
SAT										
SAT	6.099		168.88	0.46	151.67	0.29	137.82	0.20		
SAT	6.106									
SAT	6.117									
SAT	6.131									

TABLE 30 A (CONT.) APPARENT MOLAL RELATIVE HEAT CAPACITY OF SODIUM CHLORIDE. (J/MOL.K)

MOLALITY	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.001	0.833	0.001	0.883	0.001	1.002	0.001	1.139	0.001	1.293	0.001
0.002	1.189	0.002	1.255	0.001	1.414	0.001	1.604	0.001	1.816	0.001
0.005	1.918	0.004	2.004	0.003	2.231	0.002	2.513	0.002	2.833	0.003
0.010	2.773	0.008	2.867	0.006	3.149	0.004	3.521	0.005	3.953	0.005
0.020	4.042	0.014	4.123	0.011	4.449	0.008	4.926	0.009	5.495	0.009
0.050	6.769	0.030	6.753	0.023	7.059	0.018	7.670	0.018	8.448	0.019
0.100	10.172	0.050	9.950	0.038	10.092	0.030	10.749	0.031	11.677	0.032
0.200	15.558	0.077	14.914	0.059	14.616	0.046	15.184	0.049	16.194	0.051
0.300	20.115	0.095	19.071	0.072	18.307	0.057	18.704	0.061	19.693	0.064
0.400	24.22	0.11	22.798	0.081	21.573	0.065	21.769	0.070	22.695	0.073
0.500	28.01	0.12	26.238	0.087	24.566	0.070	24.548	0.077	25.388	0.081
0.600	31.57	0.12	29.464	0.092	27.360	0.074	27.125	0.082	27.867	0.086
0.700	34.94	0.12	32.520	0.095	29.999	0.077	29.545	0.085	30.183	0.091
0.800	38.15	0.13	35.431	0.097	32.510	0.079	31.840	0.088	32.369	0.094
0.900	41.23	0.13	38.219	0.098	34.912	0.080	34.030	0.091	34.450	0.097
1.000	44.17	0.13	40.896	0.099	37.220	0.081	36.129	0.093	36.44	0.10
1.200	49.75	0.13	45.97	0.10	41.589	0.083	40.099	0.095	40.19	0.10
1.400	54.95	0.13	50.70	0.10	45.680	0.083	43.811	0.097	43.70	0.11
1.500	57.42	0.13	52.96	0.10	47.633	0.083	45.585	0.097	45.38	0.11
1.600	59.82	0.13	55.15	0.10	49.532	0.084	47.309	0.098	47.00	0.11
1.800	64.40	0.13	59.35	0.10	53.176	0.084	50.623	0.099	50.13	0.11
2.000	68.73	0.13	63.32	0.10	56.636	0.084	53.775	0.099	53.11	0.11
2.200	72.83	0.13	67.09	0.10	59.932	0.084	56.78	0.10	55.97	0.12
2.400	76.71	0.13	70.67	0.10	63.079	0.085	59.67	0.10	58.70	0.12
2.500	78.58	0.13	72.40	0.10	64.601	0.085	61.06	0.10	60.03	0.12
2.600	80.40	0.13	74.08	0.11	66.092	0.085	62.44	0.10	61.33	0.12
2.800	83.92	0.13	77.34	0.11	68.983	0.086	65.10	0.10	63.87	0.12
3.000	87.27	0.13	80.46	0.11	71.763	0.086	67.67	0.10	66.33	0.12
3.200	90.47	0.13	83.45	0.11	74.442	0.087	70.16	0.10	68.71	0.12
3.400	93.54	0.13	86.33	0.11	77.030	0.088	72.57	0.10	71.02	0.13
3.500	95.03	0.13	87.72	0.11	78.292	0.088	73.75	0.10	72.15	0.13
3.600	96.49	0.13	89.09	0.11	79.534	0.088	74.91	0.10	73.26	0.13
3.800	99.32	0.13	91.76	0.11	81.951	0.089	77.19	0.10	75.45	0.13
4.000	102.05	0.13	94.34	0.12	84.318	0.089	79.40	0.11	77.59	0.13
4.200	104.68	0.14	96.84	0.12	86.612	0.090	81.57	0.11	79.67	0.13
4.400	107.23	0.14	99.26	0.12	88.848	0.090	83.68	0.11	81.71	0.13
4.500	108.47	0.14	100.45	0.12	89.945	0.091	84.72	0.11	82.71	0.13
4.600	109.70	0.14	101.62	0.12	91.030	0.091	85.74	0.11	83.70	0.13
4.800	112.09	0.14	103.91	0.12	93.163	0.092	87.76	0.11	85.65	0.13
5.000	114.43	0.15	106.15	0.12	95.251	0.093	89.75	0.11	87.55	0.14
5.200	116.70	0.15	108.34	0.12	97.297	0.094	91.69	0.11	89.41	0.14
5.400	118.93	0.15	110.48	0.13	99.305	0.096	93.59	0.11	91.24	0.14
5.500	120.02	0.15	111.53	0.13	100.295	0.097	94.53	0.11	92.13	0.14
5.600	121.10	0.15	112.58	0.13	101.276	0.099	95.46	0.12	93.02	0.14
5.800	123.24	0.15	114.64	0.13	103.21	0.10	97.28	0.12	94.76	0.14
6.000	125.33	0.15	116.67	0.13	105.12	0.11	99.08	0.12	96.45	0.14
6.200	126.86	0.16	118.34	0.13	106.99	0.12	100.83	0.13	98.10	0.14
SAT										
SAT	6.168		118.34	0.13	107.13	0.12	101.47	0.13	99.24	0.15
SAT	6.216									
SAT	6.274									
SAT	6.341									

TABLE 30 A (CONT.) APPARENT MOLAL RELATIVE HEAT CAPACITY OF SODIUM CHLORIDE, (J/MOL.K)

MOLALITY	70 000 DEG C		80 000 DEG C		90 000 DEG C		100 000 DEG C		110 000 DEG C	
	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.	VALUE	S. E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.001	1.459	0.001	1.638	0.001	1.829	0.001	2.033	0.001	2.254	0.001
0.002	2.046	0.001	2.293	0.001	2.555	0.001	2.837	0.002	3.142	0.002
0.005	3.182	0.002	3.553	0.003	3.947	0.004	4.370	0.005	4.832	0.006
0.010	4.423	0.005	4.920	0.005	5.444	0.007	6.007	0.009	6.631	0.011
0.020	6.114	0.009	6.765	0.010	7.446	0.013	8.180	0.017	9.006	0.020
0.050	9.302	0.019	10.185	0.020	11.098	0.028	12.086	0.038	13.240	0.044
0.100	12.710	0.031	13.765	0.034	14.839	0.048	16.012	0.065	17.444	0.077
0.200	17.362	0.049	18.539	0.054	19.719	0.076	21.03	0.11	22.74	0.13
0.300	20.891	0.061	22.098	0.065	23.296	0.097	24.65	0.14	26.52	0.17
0.400	23.881	0.069	25.082	0.075	26.27	0.11	27.64	0.16	29.51	0.20
0.500	26.542	0.075	27.721	0.081	28.89	0.12	30.26	0.18	32.30	0.22
0.600	28.976	0.080	30.126	0.085	31.27	0.13	32.64	0.20	34.74	0.24
0.700	31.242	0.083	32.358	0.088	33.47	0.14	34.84	0.21	37.00	0.26
0.800	33.374	0.086	34.457	0.091	35.55	0.15	36.91	0.22	39.12	0.28
0.900	35.398	0.088	36.448	0.092	37.52	0.15	38.87	0.23	41.13	0.29
1.000	37.392	0.090	38.348	0.093	39.40	0.16	40.75	0.24	43.09	0.30
1.200	40.975	0.093	41.929	0.094	42.94	0.16	44.30	0.26	46.67	0.32
1.400	44.374	0.096	45.273	0.095	46.26	0.17	47.62	0.27	50.06	0.34
1.500	45.997	0.097	46.871	0.095	47.85	0.17	49.22	0.27	51.69	0.35
1.600	47.576	0.098	48.427	0.095	49.40	0.17	50.77	0.28	53.28	0.35
1.800	50.61	0.10	51.421	0.095	52.38	0.17	53.77	0.28	56.34	0.36
2.000	53.51	0.10	54.281	0.095	55.24	0.17	56.65	0.29	59.27	0.37
2.200	56.28	0.10	57.023	0.096	57.98	0.18	59.41	0.30	62.09	0.38
2.400	58.94	0.11	59.661	0.096	60.62	0.18	62.08	0.30	64.81	0.39
2.500	60.24	0.11	60.944	0.097	61.90	0.18	63.38	0.30	66.14	0.39
2.600	61.51	0.11	62.206	0.097	63.17	0.18	64.66	0.30	67.44	0.40
2.800	63.99	0.11	64.667	0.098	65.64	0.18	67.15	0.31	69.99	0.40
3.000	66.39	0.11	67.053	0.099	68.03	0.18	69.58	0.31	72.46	0.41
3.200	68.72	0.11	69.37	0.10	70.36	0.18	71.93	0.31	74.86	0.41
3.400	70.98	0.11	71.62	0.10	72.62	0.18	74.22	0.32	77.19	0.41
3.500	72.09	0.12	72.72	0.10	73.73	0.18	75.34	0.32	78.33	0.42
3.600	73.19	0.12	73.81	0.10	74.82	0.18	76.44	0.32	79.46	0.42
3.800	75.33	0.12	75.94	0.10	76.96	0.19	78.61	0.32	81.66	0.42
4.000	77.43	0.12	78.02	0.10	79.04	0.19	80.71	0.32	83.81	0.42
4.200	79.47	0.12	80.05	0.10	81.07	0.19	82.76	0.32	85.90	0.43
4.400	81.46	0.12	82.02	0.11	83.05	0.19	84.76	0.33	87.93	0.43
4.500	82.44	0.12	82.99	0.11	84.02	0.19	85.73	0.33	88.92	0.43
4.600	83.41	0.12	83.95	0.11	84.97	0.19	86.69	0.33	89.90	0.43
4.800	85.31	0.12	85.82	0.11	86.84	0.19	88.57	0.33	91.81	0.43
5.000	87.16	0.12	87.65	0.11	88.65	0.19	90.39	0.33	93.66	0.44
5.200	88.97	0.12	89.42	0.11	90.41	0.19	92.15	0.34	95.45	0.44
5.400	90.73	0.13	91.14	0.11	92.10	0.20	93.85	0.34	97.18	0.44
5.500	91.59	0.13	91.98	0.11	92.93	0.20	94.67	0.34	98.02	0.45
5.600	92.45	0.13	92.80	0.11	93.74	0.20	95.48	0.34	98.84	0.45
5.800	94.11	0.13	94.41	0.11	95.31	0.20	97.04	0.35	100.43	0.45
6.000	95.72	0.13	95.96	0.11	96.82	0.21	98.54	0.35	101.95	0.46
6.200	97.28	0.13	97.44	0.11	98.25	0.22	99.95	0.35	103.39	0.47
6.400	98.78	0.13	98.86	0.12	99.61	0.23	101.29	0.37	104.75	0.48
6.500					100.26	0.23	102.54	0.38	105.40	0.48
6.600									106.02	0.49
SAT 6.416	98.90	0.13	99.53	0.13	100.81	0.24	103.02	0.39	107.08	0.50
SAT 6.498										
SAT 6.587										
SAT 6.680										
SAT 6.778										

TABLE 30 B APPARENT MOLAL RELATIVE HEAT CAPACITY OF SODIUM CHLORIDE, (J/MOL.K)

WEIGHT %	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	4.449	0.055	4.101	0.042	3.868	0.031	3.734	0.023	3.687	0.016
0.200	7.36	0.10	6.615	0.076	6.081	0.056	5.727	0.041	5.528	0.030
0.300	9.94	0.14	8.82	0.11	7.989	0.078	7.416	0.057	7.059	0.042
0.400	12.32	0.18	10.84	0.13	9.729	0.098	8.940	0.072	8.426	0.052
0.500	14.57	0.21	12.74	0.16	11.35	0.12	10.356	0.085	9.687	0.061
0.600	16.70	0.25	14.54	0.18	12.89	0.13	11.693	0.097	10.873	0.070
0.700	18.76	0.27	16.27	0.20	14.37	0.15	12.97	0.11	11.999	0.078
0.800	20.74	0.30	17.94	0.22	15.79	0.16	14.19	0.12	13.079	0.085
0.900	22.65	0.33	19.55	0.24	17.16	0.18	15.38	0.13	14.120	0.092
1.000	24.51	0.35	21.12	0.26	18.49	0.19	16.53	0.14	15.128	0.098
1.200	28.09	0.40	24.13	0.29	21.05	0.21	18.73	0.15	17.06	0.11
1.400	31.51	0.44	27.01	0.32	23.50	0.23	20.84	0.17	18.91	0.12
1.600	34.79	0.47	29.78	0.35	25.86	0.25	22.87	0.18	20.68	0.13
1.800	37.96	0.51	32.45	0.37	28.13	0.27	24.83	0.19	22.40	0.13
2.000	41.02	0.54	35.04	0.39	30.34	0.28	26.73	0.20	24.06	0.14
2.500	48.28	0.60	41.20	0.44	35.60	0.31	31.23	0.22	28.04	0.15
3.000	55.09	0.65	47.00	0.47	40.57	0.33	35.57	0.23	31.81	0.16
3.500	61.53	0.70	52.49	0.50	45.29	0.35	39.67	0.24	35.40	0.17
4.000	67.65	0.73	57.74	0.52	49.81	0.36	43.60	0.25	38.86	0.17
4.500	73.51	0.76	62.77	0.54	54.15	0.38	47.39	0.26	42.20	0.18
5.000	79.12	0.79	67.60	0.56	58.34	0.39	51.05	0.26	45.44	0.18
6.000	89.74	0.83	76.78	0.58	66.32	0.39	58.04	0.27	51.63	0.18
7.000	99.64	0.86	85.38	0.59	73.84	0.40	64.65	0.27	57.51	0.18
8.000	108.93	0.88	93.48	0.60	80.95	0.40	70.94	0.27	63.11	0.18
9.000	117.68	0.90	101.15	0.61	87.70	0.40	76.93	0.26	68.47	0.18
10.000	125.95	0.91	108.42	0.62	94.13	0.40	82.65	0.26	73.60	0.17
11.000	133.78	0.92	115.33	0.62	100.26	0.40	88.13	0.26	78.54	0.17
12.000	141.20	0.93	121.91	0.62	106.12	0.40	93.38	0.25	83.28	0.17
13.000	148.25	0.94	128.17	0.62	111.71	0.40	98.42	0.25	87.85	0.17
14.000	154.93	0.95	134.14	0.63	117.07	0.40	103.26	0.25	92.26	0.17
15.000	161.29	0.95	139.83	0.63	122.20	0.40	107.91	0.25	96.51	0.16
16.000	167.33	0.96	145.27	0.63	127.12	0.40	112.39	0.25	100.62	0.16
17.000	173.07	0.97	150.46	0.63	131.84	0.40	116.71	0.25	104.61	0.17
18.000	178.53	0.97	155.42	0.64	136.38	0.40	120.88	0.25	108.47	0.17
19.000	183.73	0.98	160.18	0.64	140.74	0.40	124.92	0.25	112.23	0.17
20.000	188.69	0.99	164.73	0.65	144.95	0.41	128.83	0.26	115.89	0.17
21.000	193.4	1.0	169.10	0.65	149.01	0.41	132.63	0.26	119.47	0.18
22.000	197.9	1.0	173.31	0.66	152.95	0.42	136.34	0.27	122.97	0.18
23.000	202.3	1.0	177.38	0.67	156.79	0.43	139.96	0.27	125.42	0.19
24.000	206.5	1.0	181.32	0.68	160.52	0.44	143.52	0.28	129.82	0.19
25.000	210.5	1.0	185.16	0.68	164.19	0.44	147.04	0.28	133.20	0.19
26.000	214.4	1.1	188.92	0.71	167.80	0.46	150.52	0.29	136.55	0.20
SAT 26.268	215.4	1.1	189.95	0.72	168.88	0.46	151.67	0.29	137.82	0.20
SAT 26.278										
SAT 26.300										
SAT 26.334										
SAT 26.378										

TABLE 30 B (CONT.) APPARENT MOLAL RELATIVE HEAT CAPACITY OF SODIUM CHLORIDE, (J/MOL.K)

WEIGHT %	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	3.712	0.012	3.799	0.009	4.117	0.007	4.570	0.007	5.106	0.008
0.200	5.459	0.022	5.500	0.017	5.831	0.013	6.392	0.014	7.082	0.014
0.300	6.884	0.030	6.862	0.023	7.165	0.018	7.780	0.019	8.565	0.020
0.400	8.143	0.038	8.052	0.029	8.307	0.023	8.849	0.024	9.800	0.025
0.500	9.295	0.045	9.132	0.034	9.327	0.027	9.883	0.028	10.881	0.029
0.600	10.372	0.051	10.136	0.039	10.264	0.030	10.821	0.032	11.855	0.033
0.700	11.381	0.057	11.081	0.043	11.138	0.034	11.790	0.036	12.750	0.037
0.800	12.364	0.062	11.980	0.047	11.963	0.037	12.603	0.039	13.582	0.040
0.900	13.300	0.067	12.842	0.051	12.748	0.040	13.372	0.042	14.365	0.044
1.000	14.204	0.071	13.674	0.054	13.500	0.042	14.105	0.045	15.107	0.047
1.200	15.937	0.079	15.261	0.060	14.926	0.047	15.483	0.050	16.494	0.052
1.400	17.586	0.086	16.767	0.065	16.269	0.051	16.769	0.055	17.778	0.057
1.600	19.169	0.092	18.209	0.070	17.547	0.055	17.585	0.059	18.983	0.062
1.800	20.697	0.097	19.600	0.074	18.773	0.058	19.143	0.063	20.126	0.065
2.000	22.18	0.10	20.947	0.077	19.955	0.061	20.255	0.066	21.217	0.069
2.500	25.72	0.11	24.159	0.084	22.760	0.067	22.874	0.073	23.768	0.076
3.000	29.07	0.12	27.200	0.089	25.400	0.071	25.319	0.078	26.131	0.082
3.500	32.28	0.12	30.107	0.092	27.915	0.075	27.635	0.083	28.356	0.087
4.000	35.37	0.12	32.904	0.095	30.331	0.077	29.849	0.086	30.472	0.091
4.500	38.35	0.13	35.609	0.097	32.664	0.079	31.880	0.089	32.503	0.095
5.000	41.24	0.13	38.234	0.098	34.926	0.080	34.042	0.091	34.461	0.098
6.000	46.79	0.13	43.28	0.10	39.272	0.082	37.594	0.094	38.20	0.10
7.000	52.08	0.13	48.09	0.10	43.419	0.083	41.759	0.096	41.76	0.11
8.000	57.13	0.13	52.69	0.10	47.400	0.083	45.373	0.097	45.18	0.11
9.000	61.97	0.13	57.12	0.10	51.237	0.084	48.859	0.098	48.47	0.11
10.000	66.63	0.13	61.39	0.10	54.949	0.084	52.236	0.099	51.66	0.11
11.000	71.11	0.13	65.51	0.10	58.547	0.084	55.52	0.10	54.77	0.12
12.000	75.44	0.13	69.49	0.10	62.045	0.085	58.72	0.10	57.80	0.12
13.000	79.62	0.13	73.36	0.10	65.451	0.085	61.85	0.10	60.77	0.12
14.000	83.67	0.13	77.11	0.11	68.777	0.086	64.91	0.10	63.69	0.12
15.000	87.59	0.13	80.76	0.11	72.029	0.086	67.92	0.10	66.56	0.12
16.000	91.40	0.13	84.32	0.11	75.217	0.087	70.88	0.10	69.40	0.13
17.000	95.10	0.13	87.79	0.11	78.350	0.088	73.80	0.10	72.20	0.13
18.000	98.71	0.13	91.18	0.11	81.433	0.089	76.69	0.10	74.98	0.13
19.000	102.23	0.13	94.51	0.12	84.477	0.089	79.55	0.11	77.73	0.13
20.000	105.68	0.14	97.79	0.12	87.487	0.090	82.39	0.11	80.47	0.13
21.000	109.07	0.14	101.01	0.12	90.472	0.091	85.21	0.11	83.19	0.13
22.000	112.40	0.14	104.21	0.12	93.438	0.092	88.03	0.11	85.90	0.13
23.000	115.70	0.15	107.37	0.12	96.392	0.093	90.83	0.11	88.59	0.14
24.000	118.96	0.15	110.51	0.13	99.338	0.096	93.62	0.11	91.27	0.14
25.000	122.21	0.15	113.65	0.13	102.28	0.10	96.41	0.12	93.92	0.14
26.000	125.46	0.15	116.79	0.13	105.23	0.11	99.18	0.12	96.55	0.14
27.000	126.86	0.16							99.14	0.15
SAT 26.432			118.34	0.13	107.13	0.12	101.47	0.13	99.24	0.15
SAT 26.495										
SAT 26.647										
SAT 26.830										
SAT 27.039										

TABLE 30 B (CONT.) APPARENT MOLAL RELATIVE HEAT CAPACITY OF SODIUM CHLORIDE, (J/MOL.K)

WEIGHT %	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	5.690	0.008	6.304	0.008	6.948	0.011	7.641	0.015	8.418	0.017
0.200	7.835	0.014	8.621	0.015	9.437	0.020	10.319	0.027	11.331	0.032
0.300	9.426	0.019	10.317	0.021	11.237	0.028	12.233	0.039	13.399	0.045
0.400	10.738	0.024	11.703	0.026	12.694	0.036	13.770	0.049	15.050	0.057
0.500	11.877	0.028	12.897	0.031	13.939	0.043	15.074	0.058	16.445	0.069
0.600	12.896	0.032	13.958	0.035	15.038	0.049	16.219	0.067	17.665	0.079
0.700	13.826	0.036	14.920	0.039	16.031	0.054	17.247	0.075	18.756	0.089
0.800	14.687	0.039	15.808	0.042	16.941	0.060	18.186	0.083	19.749	0.098
0.900	15.493	0.042	16.634	0.046	17.785	0.065	19.054	0.090	20.666	0.111
1.000	16.253	0.045	17.412	0.049	18.576	0.070	19.864	0.097	21.52	0.12
1.200	17.666	0.050	18.848	0.055	20.031	0.078	21.35	0.11	23.07	0.13
1.400	18.966	0.054	20.163	0.060	21.356	0.086	22.69	0.12	24.48	0.15
1.600	20.180	0.058	21.384	0.064	22.582	0.093	23.93	0.13	25.77	0.16
1.800	21.324	0.062	22.532	0.068	23.729	0.099	25.08	0.14	26.97	0.17
2.000	22.413	0.065	23.619	0.071	24.81	0.10	26.18	0.15	28.10	0.18
2.500	24.944	0.071	26.138	0.077	27.32	0.12	28.69	0.17	30.69	0.21
3.000	27.273	0.076	28.444	0.082	29.60	0.13	30.97	0.19	33.04	0.23
3.500	29.455	0.080	30.598	0.086	31.73	0.14	33.10	0.20	35.22	0.25
4.000	31.525	0.083	32.637	0.089	33.75	0.14	35.11	0.21	37.28	0.26
4.500	33.504	0.086	34.585	0.091	35.68	0.15	37.03	0.23	39.25	0.28
5.000	35.410	0.088	36.459	0.092	37.53	0.15	38.88	0.23	41.14	0.29
6.000	39.045	0.092	40.032	0.094	41.06	0.16	42.42	0.25	44.75	0.31
7.000	42.485	0.094	43.425	0.095	44.43	0.16	45.79	0.26	48.19	0.33
8.000	45.803	0.097	46.680	0.095	47.66	0.17	49.03	0.27	51.50	0.35
9.000	48.986	0.099	49.826	0.095	50.79	0.17	52.18	0.28	54.71	0.36
10.000	52.08	0.10	52.884	0.095	53.84	0.17	55.24	0.29	57.84	0.37
11.000	55.11	0.10	55.868	0.096	56.82	0.17	58.25	0.29	60.90	0.38
12.000	58.07	0.11	58.791	0.096	59.75	0.18	61.20	0.30	63.91	0.39
13.000	60.96	0.11	61.663	0.097	62.63	0.18	64.11	0.30	66.88	0.39
14.000	63.81	0.11	64.491	0.098	65.46	0.18	66.98	0.31	69.81	0.40
15.000	66.62	0.11	67.282	0.099	68.26	0.18	69.81	0.31	72.70	0.41
16.000	69.40	0.11	70.04	0.10	71.03	0.18	72.61	0.31	75.55	0.41
17.000	72.14	0.12	72.77	0.10	73.78	0.18	75.39	0.32	78.38	0.42
18.000	74.87	0.12	75.48	0.10	76.49	0.19	78.14	0.32	81.18	0.42
19.000	77.57	0.12	78.16	0.10	79.18	0.19	80.86	0.32	83.95	0.42
20.000	80.25	0.12	80.82	0.10	81.85	0.19	83.54	0.33	86.69	0.43
21.000	82.91	0.12	83.46	0.11	84.48	0.19	86.20	0.33	89.39	0.43
22.000	85.55	0.12	86.06	0.11	87.08	0.19	88.81	0.33	92.05	0.43
23.000	88.17	0.12	88.64	0.11	89.63	0.19	91.38	0.33	94.66	0.44
24.000	90.76	0.13	91.17	0.11	92.13	0.20	93.88	0.34	97.21	0.44
25.000	93.31	0.13	93.64	0.11	94.56	0.20	96.30	0.35	99.67	0.44
26.000	95.82	0.13	96.05	0.11	96.90	0.21	98.62	0.35	102.04	0.46
27.000	98.25	0.13	98.36	0.12	99.13	0.22	100.82	0.37	104.27	0.47
28.000							102.86	0.39	106.35	0.49
SAT 27.272	98.90	0.13	99.53	0.13	100.81	0.24				
SAT 27.525							103.02	0.39	107.08	0.50
SAT 27.795										
SAT 28.079										
SAT 28.373										

TABLE 31 A PARTIAL MOLAL RELATIVE HEAT CAPACITY OF WATER, J_1 (J/MOL.K)

MOLALITY	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.001	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000
0.002	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000
0.005	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000
0.010	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000
0.020	-0.001	0.000	-0.001	0.000	-0.001	0.000	-0.001	0.000	-0.001	0.000
0.050	-0.007	0.000	-0.006	0.000	-0.005	0.000	-0.004	0.000	-0.004	0.000
0.100	-0.022	0.000	-0.019	0.000	-0.016	0.000	-0.014	0.000	-0.012	0.000
0.200	-0.073	0.001	-0.061	0.001	-0.052	0.001	-0.045	0.001	-0.039	0.000
0.300	-0.144	0.002	-0.122	0.001	-0.104	0.001	-0.089	0.001	-0.078	0.000
0.400	-0.232	0.002	-0.197	0.001	-0.168	0.001	-0.145	0.001	-0.127	0.000
0.500	-0.335	0.003	-0.285	0.002	-0.244	0.001	-0.211	0.001	-0.185	0.001
0.600	-0.449	0.003	-0.384	0.002	-0.330	0.001	-0.286	0.001	-0.252	0.001
0.700	-0.573	0.004	-0.492	0.003	-0.424	0.002	-0.369	0.001	-0.325	0.001
0.800	-0.707	0.004	-0.608	0.003	-0.526	0.002	-0.459	0.001	-0.405	0.001
0.900	-0.848	0.005	-0.731	0.003	-0.634	0.002	-0.555	0.002	-0.490	0.001
1.000	-0.995	0.006	-0.860	0.004	-0.748	0.003	-0.656	0.002	-0.581	0.001
1.200	-1.306	0.007	-1.134	0.005	-0.991	0.004	-0.873	0.002	-0.776	0.002
1.400	-1.631	0.009	-1.424	0.006	-1.249	0.005	-1.104	0.003	-0.985	0.002
1.600	-1.967	0.010	-1.572	0.007	-1.383	0.005	-1.224	0.004	-1.094	0.003
1.800	-2.307	0.013	-2.029	0.009	-1.794	0.007	-1.597	0.005	-1.433	0.003
2.000	-2.648	0.015	-2.337	0.011	-2.073	0.008	-1.852	0.006	-1.668	0.004
2.200	-2.986	0.016	-2.644	0.012	-2.354	0.009	-2.110	0.006	-1.906	0.004
2.400	-3.319	0.018	-2.949	0.013	-2.634	0.010	-2.369	0.007	-2.147	0.005
2.500	-3.483	0.019	-3.100	0.014	-2.773	0.010	-2.498	0.007	-2.268	0.005
2.600	-3.645	0.020	-3.249	0.015	-2.912	0.011	-2.627	0.008	-2.389	0.006
2.800	-4.266	0.025	-3.830	0.019	-3.457	0.014	-3.142	0.011	-2.876	0.008
3.000	-4.982	0.031	-4.515	0.024	-4.115	0.016	-3.775	0.015	-3.611	0.012
3.200	-4.561	0.028	-4.110	0.021	-3.724	0.016	-3.396	0.012	-3.121	0.009
3.400	-4.845	0.031	-4.382	0.024	-3.985	0.019	-3.649	0.014	-3.365	0.011
3.600	-5.117	0.035	-4.647	0.027	-4.243	0.021	-3.900	0.016	-3.611	0.012
3.800	-5.379	0.039	-4.905	0.031	-4.498	0.024	-4.151	0.018	-3.858	0.014
4.000	-5.631	0.044	-5.157	0.035	-4.750	0.027	-4.402	0.021	-4.108	0.016
4.200	-5.875	0.049	-5.405	0.039	-5.000	0.030	-4.654	0.023	-4.361	0.018
4.400	-6.112	0.056	-5.650	0.044	-5.251	0.033	-4.909	0.025	-4.618	0.018
4.500	-6.229	0.060	-5.772	0.046	-5.377	0.035	-5.038	0.026	-4.748	0.019
4.600	-6.344	0.064	-5.894	0.049	-5.503	0.037	-5.168	0.027	-4.880	0.020
4.800	-6.574	0.073	-6.138	0.056	-5.759	0.041	-5.431	0.030	-5.149	0.022
5.000	-6.803	0.084	-6.385	0.064	-6.019	0.047	-5.702	0.034	-5.426	0.024
5.200	-7.034	0.098	-6.636	0.074	-6.287	0.054	-5.980	0.039	-5.712	0.028
5.400	-7.27	0.12	-6.895	0.087	-6.563	0.064	-6.269	0.046	-6.008	0.034
5.500	-7.39	0.13	-7.028	0.095	-6.705	0.070	-6.417	0.051	-6.160	0.038
5.600	-7.51	0.14	-7.16	0.10	-6.850	0.077	-6.569	0.057	-6.315	0.042
5.800	-7.77	0.16	-7.44	0.12	-7.150	0.094	-6.882	0.070	-6.634	0.054
6.000	-8.03	0.19	-7.74	0.15	-7.47	0.11	-7.209	0.088	-6.967	0.069
6.096	-8.17	0.21	-7.89	0.16	-7.64	0.13	-7.41	0.10	-7.192	0.081
SAT 6.099										
SAT 6.106										
SAT 6.117										
SAT 6.131										

TABLE 31 A (CONT.) PARTIAL MOLAL RELATIVE HEAT CAPACITY OF WATER, J1 (J/MOL.K)

MOLALITY	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.001	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000
0.002	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000
0.005	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000
0.010	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.001	0.000
0.020	-0.001	0.000	-0.001	0.000	-0.001	0.000	-0.001	0.000	-0.001	0.000
0.050	-0.004	0.000	-0.004	0.000	-0.004	0.000	-0.005	0.000	-0.005	0.000
0.100	-0.010	0.000	-0.011	0.000	-0.011	0.000	-0.011	0.000	-0.011	0.000
0.200	-0.028	0.000	-0.029	0.000	-0.029	0.000	-0.030	0.000	-0.031	0.000
0.300	-0.052	0.000	-0.052	0.000	-0.052	0.000	-0.053	0.000	-0.053	0.001
0.400	-0.081	0.000	-0.080	0.000	-0.080	0.000	-0.080	0.001	-0.083	0.001
0.500	-0.114	0.000	-0.113	0.000	-0.112	0.001	-0.112	0.001	-0.115	0.001
0.600	-0.152	0.000	-0.150	0.000	-0.148	0.001	-0.148	0.001	-0.152	0.001
0.700	-0.194	0.000	-0.191	0.000	-0.189	0.001	-0.188	0.001	-0.193	0.002
0.800	-0.239	0.001	-0.235	0.000	-0.233	0.001	-0.232	0.001	-0.237	0.002
0.900	-0.288	0.001	-0.284	0.001	-0.280	0.001	-0.280	0.002	-0.286	0.002
1.000	-0.341	0.001	-0.335	0.001	-0.332	0.001	-0.331	0.002	-0.339	0.002
1.200	-0.455	0.001	-0.448	0.001	-0.444	0.001	-0.445	0.002	-0.454	0.003
1.400	-0.582	0.001	-0.572	0.001	-0.569	0.002	-0.570	0.003	-0.582	0.003
1.500	-0.649	0.001	-0.639	0.001	-0.638	0.002	-0.638	0.003	-0.651	0.003
1.600	-0.718	0.001	-0.708	0.002	-0.705	0.002	-0.708	0.003	-0.723	0.004
1.800	-0.865	0.002	-0.853	0.002	-0.851	0.003	-0.857	0.004	-0.874	0.004
2.000	-1.020	0.002	-1.008	0.002	-1.007	0.003	-1.015	0.004	-1.036	0.005
2.200	-1.184	0.002	-1.172	0.003	-1.172	0.004	-1.183	0.005	-1.207	0.005
2.400	-1.356	0.002	-1.344	0.003	-1.346	0.004	-1.360	0.005	-1.387	0.006
2.500	-1.445	0.002	-1.433	0.003	-1.436	0.004	-1.451	0.005	-1.480	0.006
2.600	-1.535	0.003	-1.524	0.003	-1.528	0.004	-1.544	0.006	-1.575	0.006
2.800	-1.723	0.003	-1.711	0.004	-1.717	0.005	-1.736	0.006	-1.771	0.006
3.000	-1.917	0.003	-1.905	0.004	-1.913	0.005	-1.935	0.006	-1.973	0.007
3.200	-2.117	0.004	-2.105	0.005	-2.114	0.006	-2.139	0.007	-2.181	0.007
3.400	-2.325	0.004	-2.312	0.005	-2.322	0.006	-2.349	0.007	-2.394	0.007
3.500	-2.431	0.005	-2.417	0.005	-2.427	0.006	-2.455	0.007	-2.502	0.008
3.600	-2.538	0.005	-2.523	0.006	-2.533	0.007	-2.562	0.008	-2.611	0.008
3.800	-2.756	0.005	-2.739	0.006	-2.748	0.007	-2.778	0.008	-2.830	0.009
4.000	-2.979	0.006	-2.958	0.007	-2.955	0.008	-2.995	0.010	-3.051	0.010
4.200	-3.206	0.006	-3.179	0.007	-3.182	0.010	-3.212	0.011	-3.271	0.012
4.400	-3.435	0.006	-3.400	0.008	-3.398	0.011	-3.426	0.014	-3.488	0.014
4.500	-3.550	0.007	-3.511	0.009	-3.505	0.012	-3.532	0.015	-3.596	0.015
4.600	-3.666	0.007	-3.621	0.010	-3.611	0.014	-3.636	0.017	-3.701	0.017
4.800	-3.896	0.008	-3.838	0.012	-3.818	0.017	-3.839	0.020	-3.907	0.021
5.000	-4.124	0.009	-4.049	0.014	-4.017	0.020	-4.031	0.025	-4.102	0.025
5.200	-4.348	0.011	-4.253	0.018	-4.205	0.025	-4.211	0.030	-4.285	0.031
5.400	-4.565	0.015	-4.445	0.022	-4.378	0.031	-4.374	0.037	-4.450	0.038
5.500	-4.670	0.017	-4.536	0.025	-4.458	0.035	-4.448	0.041	-4.525	0.042
5.600	-4.772	0.020	-4.623	0.028	-4.532	0.039	-4.516	0.046	-4.594	0.047
5.800	-4.966	0.027	-4.782	0.036	-4.654	0.048	-4.632	0.055	-4.712	0.057
6.000	-5.144	0.036	-4.918	0.046	-4.758	0.059	-4.718	0.067	-4.799	0.070
6.200	-5.300	0.047	-5.026	0.058	-4.838	0.072	-4.768	0.082	-4.850	0.085
6.400	-5.431	0.061	-5.101	0.074	-4.870	0.089	-4.775	0.099	-4.86	0.10
6.500					-4.870	0.098	-4.76	0.11	-4.84	0.11
6.600							-4.73	0.12	-4.82	0.12
6.416	-5.440	0.062	-5.124	0.082	-4.86	0.11	-4.70	0.13	-4.73	0.15
SAT										
6.498										
SAT										
6.587										
SAT										
6.680										
SAT										

TABLE 31-B PARTIAL MOLAL RELATIVE HEAT CAPACITY OF WATER, J_1 (J/MOL.K)

WEIGHT %	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	-0.001	0.000	-0.001	0.000	-0.001	0.000	-0.001	0.000	-0.001	0.000
0.200	-0.003	0.000	-0.003	0.000	-0.005	0.000	-0.004	0.000	-0.002	0.000
0.300	-0.007	0.000	-0.006	0.000	-0.005	0.000	-0.004	0.000	-0.004	0.000
0.400	-0.011	0.000	-0.010	0.000	-0.008	0.000	-0.007	0.000	-0.006	0.000
0.500	-0.017	0.000	-0.014	0.000	-0.012	0.000	-0.011	0.000	-0.009	0.000
0.600	-0.023	0.000	-0.020	0.000	-0.017	0.000	-0.014	0.000	-0.013	0.000
0.700	-0.030	0.000	-0.026	0.000	-0.022	0.000	-0.019	0.000	-0.017	0.000
0.800	-0.038	0.001	-0.032	0.000	-0.028	0.000	-0.024	0.000	-0.021	0.000
0.900	-0.047	0.001	-0.040	0.000	-0.034	0.000	-0.029	0.000	-0.026	0.000
1.000	-0.057	0.001	-0.048	0.001	-0.040	0.000	-0.035	0.000	-0.031	0.000
1.200	-0.078	0.001	-0.065	0.001	-0.056	0.000	-0.048	0.000	-0.042	0.000
1.400	-0.101	0.001	-0.085	0.001	-0.072	0.001	-0.062	0.000	-0.055	0.000
1.600	-0.127	0.001	-0.107	0.001	-0.091	0.001	-0.079	0.000	-0.069	0.000
1.800	-0.155	0.002	-0.131	0.001	-0.112	0.001	-0.096	0.001	-0.084	0.000
2.000	-0.186	0.002	-0.157	0.001	-0.134	0.001	-0.116	0.001	-0.101	0.000
2.500	-0.271	0.002	-0.230	0.002	-0.197	0.001	-0.170	0.001	-0.149	0.000
3.000	-0.367	0.003	-0.313	0.002	-0.268	0.001	-0.232	0.001	-0.204	0.001
3.500	-0.474	0.003	-0.405	0.002	-0.349	0.002	-0.303	0.001	-0.266	0.001
4.000	-0.590	0.004	-0.506	0.003	-0.437	0.002	-0.380	0.001	-0.335	0.001
4.500	-0.715	0.005	-0.615	0.003	-0.532	0.002	-0.465	0.001	-0.410	0.001
5.000	-0.848	0.005	-0.732	0.003	-0.635	0.002	-0.555	0.002	-0.491	0.001
6.000	-1.136	0.007	-0.984	0.004	-0.858	0.003	-0.754	0.002	-0.669	0.002
7.000	-1.447	0.008	-1.260	0.006	-1.103	0.004	-0.973	0.003	-0.866	0.002
8.000	-1.778	0.010	-1.554	0.007	-1.366	0.005	-1.210	0.004	-1.080	0.003
9.000	-2.123	0.012	-1.864	0.008	-1.644	0.006	-1.461	0.004	-1.309	0.003
10.000	-2.480	0.014	-2.184	0.010	-1.935	0.007	-1.725	0.005	-1.551	0.004
11.000	-2.843	0.016	-2.514	0.011	-2.234	0.008	-1.999	0.006	-1.804	0.004
12.000	-3.209	0.018	-2.848	0.013	-2.541	0.009	-2.282	0.007	-2.066	0.005
13.000	-3.575	0.020	-3.185	0.015	-2.852	0.011	-2.572	0.008	-2.337	0.006
14.000	-3.938	0.022	-3.522	0.017	-3.167	0.012	-2.867	0.009	-2.615	0.007
15.000	-4.296	0.025	-3.858	0.019	-3.484	0.014	-3.166	0.011	-2.900	0.008
16.000	-4.646	0.028	-4.191	0.022	-3.801	0.017	-3.471	0.013	-3.193	0.010
17.000	-4.988	0.033	-4.521	0.026	-4.121	0.020	-3.780	0.015	-3.494	0.012
18.000	-5.322	0.038	-4.848	0.030	-4.442	0.023	-4.096	0.018	-3.804	0.014
19.000	-5.648	0.044	-5.174	0.035	-4.767	0.027	-4.419	0.021	-4.125	0.016
20.000	-5.968	0.052	-5.501	0.041	-5.098	0.031	-4.753	0.024	-4.460	0.018
21.000	-6.285	0.062	-5.831	0.048	-5.438	0.036	-5.100	0.027	-4.812	0.020
22.000	-6.604	0.074	-6.170	0.057	-5.793	0.042	-5.466	0.030	-5.185	0.022
23.000	-6.931	0.092	-6.524	0.069	-6.167	0.054	-5.855	0.036	-5.583	0.026
24.000	-7.27	0.12	-6.900	0.087	-6.568	0.064	-6.274	0.046	-6.013	0.034
25.000	-7.64	0.15	-7.31	0.11	-7.004	0.085	-6.729	0.063	-6.479	0.048
26.000	-8.05	0.20	-7.76	0.15	-7.48	0.12	-7.229	0.089	-6.988	0.070
26.268	-8.17	0.21	-7.89	0.16						
SAT 26.278					-7.64	0.13	-7.41	0.10	-7.192	0.081
SAT 26.300										
SAT 26.334										
SAT 26.378										

TABLE 31 B (CONT.) PARTIAL MOLAL RELATIVE HEAT CAPACITY OF WATER, J^1 (J/MOL.K)

WEIGHT %	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	-0.001	0.000	-0.001	0.000	-0.001	0.000	-0.001	0.000	-0.001	0.000
0.200	-0.002	0.000	-0.002	0.000	-0.003	0.000	-0.003	0.000	-0.003	0.000
0.300	-0.004	0.000	-0.004	0.000	-0.004	0.000	-0.005	0.000	-0.005	0.000
0.400	-0.006	0.000	-0.006	0.000	-0.007	0.000	-0.007	0.000	-0.007	0.000
0.500	-0.008	0.000	-0.009	0.000	-0.009	0.000	-0.009	0.000	-0.010	0.000
0.600	-0.011	0.000	-0.011	0.000	-0.012	0.000	-0.012	0.000	-0.013	0.000
0.700	-0.013	0.000	-0.014	0.000	-0.014	0.000	-0.015	0.000	-0.016	0.000
0.800	-0.016	0.000	-0.017	0.000	-0.017	0.000	-0.021	0.000	-0.019	0.000
0.900	-0.020	0.000	-0.020	0.000	-0.020	0.000	-0.024	0.000	-0.022	0.000
1.000	-0.023	0.000	-0.023	0.000	-0.024	0.000	-0.024	0.000	-0.025	0.000
1.200	-0.030	0.000	-0.030	0.000	-0.031	0.000	-0.031	0.000	-0.033	0.000
1.400	-0.038	0.000	-0.038	0.000	-0.038	0.000	-0.039	0.000	-0.041	0.000
1.600	-0.046	0.000	-0.047	0.000	-0.047	0.000	-0.047	0.000	-0.049	0.001
1.800	-0.056	0.000	-0.056	0.000	-0.056	0.000	-0.056	0.000	-0.058	0.001
2.000	-0.066	0.000	-0.065	0.000	-0.065	0.000	-0.065	0.001	-0.068	0.001
2.500	-0.093	0.000	-0.092	0.000	-0.092	0.000	-0.092	0.001	-0.095	0.001
3.000	-0.125	0.000	-0.123	0.000	-0.123	0.001	-0.122	0.001	-0.125	0.001
3.500	-0.160	0.000	-0.158	0.000	-0.156	0.001	-0.156	0.001	-0.160	0.001
4.000	-0.199	0.000	-0.196	0.000	-0.194	0.001	-0.194	0.001	-0.198	0.002
4.500	-0.242	0.001	-0.238	0.001	-0.236	0.001	-0.235	0.001	-0.240	0.002
5.000	-0.289	0.001	-0.284	0.001	-0.281	0.001	-0.280	0.002	-0.286	0.002
6.000	-0.392	0.001	-0.386	0.001	-0.382	0.001	-0.382	0.002	-0.390	0.003
7.000	-0.510	0.001	-0.501	0.001	-0.497	0.002	-0.498	0.002	-0.509	0.003
8.000	-0.640	0.001	-0.631	0.001	-0.627	0.002	-0.630	0.003	-0.642	0.003
9.000	-0.785	0.001	-0.774	0.002	-0.771	0.002	-0.775	0.003	-0.791	0.004
10.000	-0.942	0.002	-0.931	0.002	-0.929	0.003	-0.936	0.004	-0.955	0.004
11.000	-1.113	0.002	-1.101	0.002	-1.101	0.003	-1.110	0.004	-1.133	0.005
12.000	-1.298	0.002	-1.285	0.003	-1.287	0.004	-1.300	0.005	-1.326	0.005
13.000	-1.496	0.003	-1.484	0.003	-1.488	0.004	-1.504	0.005	-1.534	0.006
14.000	-1.709	0.003	-1.697	0.004	-1.703	0.005	-1.722	0.006	-1.756	0.006
15.000	-1.936	0.003	-1.924	0.004	-1.932	0.005	-1.955	0.006	-1.993	0.007
16.000	-2.178	0.004	-2.166	0.005	-2.175	0.006	-2.201	0.007	-2.244	0.007
17.000	-2.435	0.005	-2.422	0.005	-2.432	0.006	-2.460	0.007	-2.507	0.008
18.000	-2.708	0.005	-2.691	0.006	-2.700	0.007	-2.730	0.008	-2.782	0.009
19.000	-2.994	0.006	-2.973	0.007	-2.979	0.008	-3.010	0.010	-3.066	0.010
20.000	-3.295	0.006	-3.265	0.008	-3.266	0.010	-3.295	0.012	-3.356	0.012
21.000	-3.606	0.007	-3.564	0.009	-3.556	0.013	-3.582	0.016	-3.647	0.016
22.000	-3.926	0.008	-3.866	0.012	-3.845	0.017	-3.864	0.021	-3.933	0.021
23.000	-4.249	0.010	-4.164	0.016	-4.123	0.023	-4.133	0.028	-4.205	0.028
24.000	-4.568	0.015	-4.448	0.022	-4.381	0.031	-4.376	0.037	-4.452	0.038
25.000	-4.874	0.023	-4.708	0.032	-4.604	0.043	-4.580	0.050	-4.658	0.052
26.000	-5.153	0.036	-4.925	0.047	-4.773	0.059	-4.722	0.068	-4.803	0.070
27.000	-5.387	0.056	-5.078	0.068	-4.864	0.082	-4.778	0.082	-4.861	0.086
28.000	-5.440	0.062	-5.124	0.082	-4.864	0.082	-4.771	0.13	-4.80	0.13
SAT 27.272					-4.86	0.11				
SAT 27.525							-4.70	0.13		
SAT 27.795									-4.73	0.15
SAT 28.079										
SAT 28.373										

TABLE 32 A PARTIAL MOLAL REL. HEAT CAPACITY OF SODIUM CHLORIDE, J₂ (J/MOL. K)

MOLALITY	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.001	1.108	0.007	1.106	0.006	1.121	0.004	1.153	0.003	1.200	0.002
0.002	1.718	0.015	1.676	0.011	1.668	0.008	1.689	0.006	1.736	0.004
0.005	3.168	0.035	2.991	0.026	2.888	0.019	2.848	0.014	2.864	0.010
0.010	5.156	0.065	4.743	0.049	4.464	0.036	4.301	0.027	4.239	0.019
0.020	8.54	0.12	7.664	0.090	7.028	0.066	6.603	0.048	6.359	0.035
0.050	16.94	0.25	14.78	0.19	13.14	0.14	11.95	0.10	11.145	0.073
0.100	28.49	0.42	24.48	0.31	21.37	0.22	19.05	0.16	17.38	0.12
0.200	47.47	0.64	40.45	0.46	34.93	0.33	30.68	0.24	27.53	0.17
0.300	63.42	0.77	53.97	0.56	46.46	0.39	40.62	0.28	36.21	0.19
0.400	77.46	0.86	65.95	0.62	56.74	0.43	49.53	0.30	44.02	0.21
0.500	90.10	0.92	76.80	0.65	66.12	0.45	57.69	0.31	51.20	0.21
0.600	101.65	0.97	86.77	0.68	74.77	0.46	65.26	0.31	57.89	0.21
0.700	112.3	1.0	96.00	0.69	82.82	0.47	72.33	0.31	64.16	0.21
0.800	122.2	1.0	104.61	0.70	90.36	0.47	78.98	0.31	70.07	0.21
0.900	131.4	1.0	112.66	0.71	97.44	0.47	85.24	0.31	75.66	0.21
1.000	140.0	1.0	120.23	0.71	104.11	0.47	91.17	0.30	80.97	0.20
1.200	155.7	1.1	134.08	0.71	116.39	0.46	102.12	0.30	90.80	0.20
1.400	169.6	1.1	146.44	0.71	127.44	0.46	112.01	0.29	99.74	0.19
1.500	176.0	1.1	152.14	0.71	132.52	0.45	116.61	0.28	103.91	0.19
1.600	182.0	1.1	157.54	0.71	137.37	0.45	120.99	0.28	107.89	0.19
1.800	193.2	1.1	167.53	0.71	146.38	0.45	129.16	0.28	115.36	0.18
2.000	203.1	1.1	176.53	0.71	154.55	0.44	136.62	0.27	122.20	0.18
2.200	212.1	1.1	184.67	0.71	161.98	0.44	143.44	0.27	128.51	0.18
2.400	220.1	1.1	192.03	0.72	168.75	0.44	149.70	0.27	134.33	0.18
2.500	227.4	1.1	198.70	0.72	174.91	0.44	152.63	0.27	137.07	0.18
2.600	233.9	1.1	204.74	0.73	179.93	0.44	155.45	0.28	139.71	0.19
2.800	239.7	1.1	210.24	0.74	185.75	0.47	160.75	0.29	144.72	0.20
3.000	245.0	1.1	215.25	0.76	190.53	0.49	165.66	0.30	149.39	0.21
3.200	249.8	1.2	219.83	0.78	194.93	0.51	170.22	0.32	153.76	0.23
3.400	252.0	1.2	221.97	0.79	197.01	0.52	174.47	0.34	157.68	0.25
3.500	254.1	1.2	224.03	0.80	199.02	0.54	176.50	0.35	159.85	0.26
3.800	258.0	1.2	227.90	0.83	202.84	0.56	178.46	0.37	161.78	0.27
4.000	261.6	1.3	231.50	0.86	206.43	0.59	180.23	0.39	165.49	0.29
4.200	264.9	1.3	234.86	0.90	209.82	0.62	182.33	0.41	169.04	0.31
4.400	268.0	1.3	238.02	0.93	213.06	0.65	185.80	0.44	172.46	0.32
4.500	269.4	1.4	239.54	0.95	214.63	0.66	189.21	0.46	175.78	0.33
4.600	270.8	1.4	241.02	0.97	216.17	0.68	192.50	0.46	177.41	0.34
4.800	273.6	1.4	243.9	1.0	219.19	0.71	195.99	0.47	179.02	0.35
5.000	276.1	1.5	246.7	1.1	222.14	0.75	198.81	0.49	182.19	0.36
5.200	278.7	1.6	249.4	1.2	225.05	0.80	201.87	0.52	185.33	0.37
5.400	281.1	1.7	252.2	1.2	227.95	0.87	204.90	0.55	188.44	0.39
5.500	282.4	1.8	253.5	1.3	229.40	0.91	207.92	0.60	191.54	0.43
5.600	283.6	1.9	254.9	1.4	230.85	0.96	209.43	0.63	193.09	0.45
5.800	286.1	2.1	257.6	1.5	233.85	1.1	210.95	0.67	194.64	0.49
6.000	288.6	2.3	260.4	1.7	236.7	1.3	214.00	0.78	197.75	0.58
6.086	289.8	2.4	261.8	1.8	238.3	1.4	217.08	0.92	200.89	0.70
SAT										
SAT					238.3	1.4	218.9	1.0	202.94	0.79
SAT										
SAT										
SAT										

THEMODYNAMIC FUNCTIONS FOR AQUEOUS SODIUM CHLORIDE

TABLE 32 A (CONT.) PARTIAL MOLAL REL. HEAT CAPACITY OF SODIUM CHLORIDE, J2 (J/MOL.K)

MOLALITY	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.001	1.259	0.002	1.330	0.001	1.501	0.001	1.702	0.001	1.928	0.001
0.002	1.805	0.003	1.893	0.002	2.118	0.002	2.392	0.002	2.702	0.002
0.005	2.928	0.008	3.033	0.006	3.339	0.005	3.740	0.005	4.202	0.005
0.010	4.262	0.014	4.357	0.011	4.715	0.008	5.231	0.009	5.842	0.009
0.020	6.269	0.026	6.306	0.020	6.673	0.015	7.307	0.016	8.091	0.017
0.050	10.668	0.053	10.460	0.041	10.653	0.032	11.383	0.033	12.394	0.034
0.100	16.274	0.085	15.628	0.065	15.375	0.051	16.028	0.053	17.141	0.056
0.200	25.30	0.12	23.830	0.092	22.608	0.073	22.886	0.078	23.925	0.082
0.300	33.00	0.14	30.79	0.11	28.635	0.085	28.460	0.093	29.308	0.097
0.400	39.95	0.15	37.07	0.11	34.026	0.091	33.39	0.10	34.00	0.11
0.500	46.35	0.15	42.86	0.12	38.989	0.094	37.89	0.11	38.26	0.11
0.600	52.33	0.15	48.28	0.12	43.626	0.096	42.08	0.11	42.21	0.12
0.700	57.95	0.15	53.38	0.12	47.997	0.096	46.02	0.11	45.91	0.12
0.800	63.26	0.15	58.21	0.12	52.142	0.097	49.76	0.11	49.41	0.12
0.900	68.30	0.15	62.79	0.12	56.088	0.096	53.31	0.11	52.75	0.13
1.000	73.09	0.15	67.17	0.12	59.856	0.096	56.71	0.11	55.93	0.13
1.200	82.01	0.15	75.33	0.12	66.921	0.096	63.09	0.11	61.92	0.13
1.400	90.15	0.14	82.81	0.12	73.438	0.096	69.01	0.11	67.49	0.13
1.500	93.96	0.14	86.33	0.12	76.515	0.097	71.81	0.11	70.13	0.14
1.600	97.61	0.14	89.70	0.12	79.482	0.097	74.52	0.11	72.70	0.14
1.800	104.47	0.14	96.07	0.12	85.114	0.099	79.69	0.11	77.60	0.14
2.000	110.81	0.14	101.98	0.13	90.39	0.10	84.56	0.12	82.24	0.14
2.200	116.67	0.15	107.48	0.13	95.34	0.10	89.17	0.12	86.66	0.14
2.400	122.12	0.15	112.61	0.13	100.01	0.11	93.55	0.12	90.88	0.15
2.500	124.70	0.15	115.06	0.14	102.26	0.11	95.66	0.12	92.92	0.15
2.600	127.20	0.16	117.43	0.14	104.44	0.11	97.73	0.12	94.92	0.15
2.800	131.95	0.16	121.97	0.14	108.66	0.11	101.74	0.12	98.82	0.15
3.000	136.42	0.18	126.26	0.15	112.69	0.11	105.60	0.13	102.58	0.16
3.200	140.63	0.19	130.34	0.16	116.55	0.12	109.32	0.13	106.21	0.16
3.400	144.63	0.20	134.24	0.17	120.28	0.12	112.93	0.13	109.74	0.16
3.500	146.56	0.21	136.13	0.17	122.10	0.12	114.70	0.13	111.47	0.16
3.600	148.44	0.22	137.98	0.18	123.89	0.12	116.44	0.13	113.17	0.16
3.800	152.10	0.23	141.58	0.19	127.40	0.13	119.85	0.13	116.51	0.17
4.000	155.63	0.24	145.07	0.19	130.81	0.13	123.18	0.14	119.76	0.17
4.200	159.04	0.25	148.47	0.20	134.15	0.14	126.44	0.15	122.92	0.17
4.400	162.37	0.26	151.80	0.20	137.42	0.15	129.62	0.15	126.00	0.18
4.500	164.01	0.26	153.44	0.21	139.04	0.15	131.19	0.16	127.50	0.18
4.600	165.63	0.26	155.06	0.21	140.64	0.16	132.74	0.17	128.98	0.18
4.800	168.84	0.27	158.28	0.22	143.80	0.18	135.78	0.18	131.87	0.19
5.000	172.02	0.28	161.46	0.23	146.92	0.21	138.76	0.21	134.65	0.19
5.200	175.16	0.30	164.61	0.26	149.98	0.24	141.65	0.23	137.33	0.21
5.400	178.30	0.33	167.73	0.29	153.00	0.28	144.47	0.27	139.88	0.23
5.500	179.86	0.35	169.29	0.32	154.49	0.31	145.84	0.29	141.11	0.24
5.600	181.42	0.39	170.84	0.35	155.97	0.34	147.19	0.31	142.30	0.26
5.800	184.55	0.47	173.94	0.42	158.88	0.40	149.81	0.37	144.56	0.31
6.000	187.68	0.57	177.01	0.52	161.73	0.49	152.61	0.44	146.66	0.38
6.200	189.99	0.67	179.58	0.62	164.51	0.59	154.69	0.53	148.56	0.46
SAT 6.148										
SAT 6.216					164.73	0.59	155.54	0.56	149.78	0.53
SAT 6.274										
SAT 6.341										

TABLE 32 A (CONT.) PARTIAL MOLAL REL. HEAT CAPACITY OF SODIUM CHLORIDE, J2 (J/MOL.K)

MOLALITY	70.000 DEG C			80.000 DEG C			90.000 DEG C			100.000 DEG C			110.000 DEG C		
	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.	VALUE	S.E.	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.001	2.173	0.001	0.001	2.436	0.001	0.001	2.716	0.001	0.001	3.016	0.002	0.002	3.341	0.002	0.002
0.002	3.039	0.002	0.002	3.399	0.002	0.002	3.781	0.003	0.003	4.190	0.004	0.004	4.636	0.005	0.005
0.005	4.704	0.005	0.005	5.236	0.005	0.005	5.798	0.007	0.007	6.402	0.009	0.009	7.068	0.011	0.011
0.010	6.507	0.009	0.010	7.206	0.010	0.010	7.939	0.013	0.013	8.729	0.018	0.018	9.613	0.020	0.020
0.020	8.947	0.016	0.020	9.837	0.018	0.018	10.761	0.024	0.024	11.759	0.032	0.032	12.908	0.038	0.038
0.050	13.515	0.033	0.050	14.658	0.037	0.037	15.823	0.050	0.050	17.092	0.069	0.069	18.635	0.081	0.081
0.100	18.414	0.053	0.100	19.693	0.059	0.059	20.971	0.083	0.083	22.39	0.12	0.12	24.23	0.14	0.14
0.200	25.223	0.077	0.200	26.519	0.084	0.084	27.79	0.12	0.12	29.25	0.18	0.18	31.35	0.22	0.22
0.300	30.520	0.090	0.300	31.746	0.098	0.098	32.94	0.15	0.15	34.37	0.22	0.22	36.60	0.27	0.27
0.400	35.093	0.098	0.400	36.23	0.10	0.10	37.35	0.17	0.17	38.74	0.25	0.25	41.06	0.31	0.31
0.500	39.22	0.10	0.500	40.27	0.11	0.11	41.31	0.18	0.18	42.68	0.27	0.27	45.07	0.34	0.34
0.600	43.03	0.11	0.600	43.99	0.11	0.11	44.98	0.19	0.19	46.32	0.29	0.29	48.78	0.36	0.36
0.700	46.60	0.11	0.700	47.48	0.11	0.11	48.42	0.19	0.19	49.75	0.30	0.30	52.27	0.38	0.38
0.800	49.97	0.11	0.800	50.79	0.11	0.11	51.69	0.19	0.19	53.02	0.31	0.31	55.59	0.40	0.40
0.900	53.19	0.11	0.900	53.93	0.11	0.11	54.81	0.20	0.20	56.14	0.32	0.32	58.77	0.41	0.41
1.000	56.26	0.11	1.000	56.95	0.11	0.11	57.81	0.20	0.20	59.15	0.33	0.33	61.84	0.42	0.42
1.200	62.04	0.12	1.200	62.65	0.11	0.11	63.48	0.20	0.20	64.87	0.34	0.34	67.66	0.44	0.44
1.400	67.43	0.12	1.400	67.97	0.11	0.11	68.81	0.20	0.20	70.24	0.35	0.35	73.15	0.45	0.45
1.500	70.00	0.12	1.500	70.51	0.11	0.11	71.36	0.20	0.20	72.82	0.35	0.35	75.78	0.45	0.45
1.600	72.49	0.12	1.600	72.98	0.11	0.11	73.84	0.21	0.21	75.34	0.35	0.35	78.34	0.46	0.46
1.800	77.27	0.13	1.800	77.74	0.11	0.11	78.63	0.21	0.21	80.19	0.36	0.36	83.29	0.46	0.46
2.000	81.82	0.13	2.000	82.26	0.12	0.12	83.19	0.21	0.21	84.82	0.36	0.36	88.02	0.47	0.47
2.200	86.15	0.13	2.200	86.59	0.12	0.12	87.56	0.21	0.21	89.26	0.36	0.36	92.54	0.47	0.47
2.400	90.30	0.14	2.400	90.74	0.12	0.12	91.75	0.22	0.22	93.53	0.37	0.37	96.89	0.48	0.48
2.500	92.32	0.14	2.500	92.75	0.13	0.13	93.79	0.22	0.22	95.60	0.37	0.37	99.00	0.48	0.48
2.600	94.29	0.14	2.600	94.73	0.13	0.13	95.79	0.22	0.22	97.63	0.37	0.37	101.07	0.48	0.48
2.800	98.14	0.14	2.800	98.58	0.13	0.13	99.67	0.22	0.22	101.58	0.37	0.37	105.09	0.48	0.48
3.000	101.85	0.15	3.000	102.30	0.14	0.14	103.42	0.22	0.22	105.38	0.37	0.37	108.97	0.48	0.48
3.200	105.45	0.15	3.200	105.89	0.14	0.14	107.04	0.22	0.22	109.04	0.37	0.37	112.69	0.48	0.48
3.400	108.94	0.16	3.400	109.36	0.14	0.14	110.52	0.23	0.23	112.56	0.37	0.37	116.28	0.49	0.49
3.500	110.64	0.16	3.500	111.05	0.15	0.15	112.21	0.23	0.23	114.27	0.37	0.37	118.01	0.49	0.49
3.600	112.32	0.16	3.600	112.72	0.15	0.15	113.88	0.23	0.23	115.94	0.38	0.38	119.71	0.49	0.49
3.800	115.59	0.16	3.800	115.95	0.15	0.15	117.10	0.23	0.23	119.18	0.38	0.38	123.01	0.49	0.49
4.000	118.77	0.17	4.000	119.07	0.15	0.15	120.18	0.24	0.24	122.27	0.38	0.38	126.15	0.50	0.50
4.200	121.84	0.17	4.200	122.06	0.16	0.16	123.13	0.24	0.24	125.21	0.39	0.39	129.13	0.50	0.50
4.400	124.80	0.17	4.400	124.92	0.16	0.16	125.92	0.25	0.25	127.98	0.40	0.40	131.93	0.51	0.51
4.500	126.23	0.17	4.500	126.30	0.16	0.16	127.25	0.26	0.26	129.29	0.41	0.41	133.27	0.52	0.52
4.600	127.64	0.17	4.600	127.64	0.17	0.17	128.54	0.27	0.27	130.57	0.42	0.42	134.56	0.53	0.53
4.800	130.36	0.17	4.800	130.21	0.18	0.18	130.98	0.29	0.29	132.96	0.45	0.45	136.99	0.55	0.55
5.000	132.95	0.17	5.000	132.60	0.19	0.19	133.25	0.32	0.32	135.15	0.48	0.48	139.21	0.58	0.58
5.200	135.38	0.18	5.200	134.82	0.22	0.22	135.29	0.36	0.36	137.10	0.52	0.52	141.19	0.62	0.62
5.400	137.65	0.20	5.400	136.83	0.26	0.26	137.11	0.41	0.41	138.81	0.57	0.57	142.92	0.66	0.66
5.500	138.72	0.21	5.500	137.76	0.28	0.28	137.92	0.44	0.44	139.56	0.60	0.60	143.68	0.69	0.69
5.600	139.75	0.23	5.600	138.62	0.31	0.31	138.66	0.47	0.47	140.24	0.64	0.64	144.37	0.73	0.73
5.800	141.64	0.29	5.800	140.17	0.38	0.38	141.38	0.55	0.55	141.38	0.72	0.72	145.53	0.80	0.80
6.000	143.31	0.36	6.000	141.45	0.47	0.47	140.92	0.65	0.65	142.19	0.82	0.82	146.35	0.90	0.90
6.200	144.73	0.46	6.200	142.44	0.58	0.58	141.57	0.76	0.76	142.64	0.93	0.93	146.8	1.0	1.0
6.400	145.89	0.58	6.400	143.10	0.71	0.71	141.85	0.90	0.90	142.7	1.1	1.1	146.9	1.2	1.2
6.500			6.500			141.84			142.6	1.1	1.1	146.8	1.2	1.2	
6.600			6.600						142.4	1.2	1.2				
6.416	145.97	0.59	6.416	143.30	0.78	0.78			142.1	1.3	1.3	145.8	1.5	1.5	
SAT			SAT												
SAT			SAT												
SAT			SAT												
SAT			SAT												
SAT			SAT												

TABLE 32 B PARTIAL MOLAL REL. HEAT CAPACITY OF SODIUM CHLORIDE, J2 (J/MOL.K)

WEIGHT %	0.000 DEG C		5.000 DEG C		10.000 DEG C		15.000 DEG C		20.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	7.62	0.10	6.874	0.079	6.339	0.058	5.990	0.043	5.800	0.031
0.200	12.76	0.19	11.25	0.14	10.12	0.10	9.327	0.075	8.815	0.055
0.300	17.32	0.26	15.09	0.19	13.41	0.14	12.18	0.10	11.352	0.074
0.400	21.52	0.32	18.62	0.24	16.41	0.17	14.77	0.13	13.637	0.091
0.500	25.45	0.38	21.93	0.28	19.21	0.20	17.19	0.15	15.75	0.11
0.600	29.19	0.43	25.07	0.32	21.87	0.23	19.47	0.17	17.75	0.12
0.700	32.76	0.47	28.06	0.35	24.41	0.25	21.65	0.18	19.66	0.13
0.800	36.18	0.51	30.94	0.38	26.85	0.27	23.75	0.20	21.48	0.14
0.900	39.49	0.55	33.73	0.40	29.21	0.29	25.77	0.21	23.25	0.15
1.000	42.69	0.59	36.42	0.43	31.50	0.31	27.74	0.22	24.96	0.16
1.200	48.81	0.65	41.58	0.47	35.89	0.34	31.51	0.24	28.25	0.17
1.400	54.61	0.70	46.49	0.51	40.06	0.36	35.10	0.26	31.39	0.18
1.600	60.14	0.75	51.18	0.54	44.07	0.38	38.56	0.27	34.41	0.19
1.800	65.44	0.79	55.68	0.57	47.93	0.40	41.89	0.28	37.32	0.20
2.000	70.53	0.82	60.03	0.59	51.65	0.42	45.11	0.29	40.14	0.20
2.500	82.51	0.89	70.27	0.63	60.47	0.44	52.77	0.30	46.87	0.21
3.000	93.58	0.94	79.80	0.66	68.71	0.46	58.96	0.31	53.20	0.21
3.500	103.91	0.97	88.73	0.68	76.47	0.46	66.75	0.31	59.21	0.21
4.000	113.6	1.0	97.15	0.69	83.82	0.47	73.22	0.31	64.94	0.21
4.500	122.8	1.0	105.13	0.70	90.81	0.47	79.38	0.31	70.43	0.21
5.000	131.4	1.0	112.70	0.71	97.48	0.47	85.28	0.31	75.69	0.21
6.000	147.5	1.1	126.81	0.71	109.94	0.46	96.36	0.30	85.62	0.20
7.000	162.0	1.1	139.68	0.71	121.38	0.46	106.59	0.29	94.84	0.19
8.000	175.3	1.1	151.47	0.71	131.92	0.45	116.07	0.28	103.41	0.19
9.000	187.3	1.1	162.28	0.71	141.64	0.45	124.86	0.28	111.42	0.18
10.000	198.3	1.1	172.20	0.71	150.61	0.44	133.02	0.27	118.89	0.18
11.000	208.4	1.1	181.31	0.71	158.90	0.44	140.61	0.27	125.89	0.18
12.000	217.5	1.1	189.66	0.71	166.56	0.44	147.67	0.27	132.44	0.18
13.000	225.9	1.1	197.31	0.72	173.64	0.45	154.25	0.27	138.58	0.19
14.000	233.4	1.1	204.32	0.73	180.18	0.46	160.38	0.28	144.37	0.20
15.000	240.3	1.1	210.75	0.74	186.24	0.47	166.12	0.30	149.83	0.22
16.000	246.5	1.2	216.65	0.76	191.86	0.49	171.51	0.33	155.01	0.24
17.000	252.1	1.2	222.07	0.79	197.11	0.52	176.59	0.35	159.94	0.26
18.000	257.2	1.2	227.08	0.83	202.02	0.56	181.41	0.39	164.69	0.29
19.000	261.8	1.3	231.73	0.87	206.67	0.59	186.04	0.42	169.28	0.31
20.000	266.1	1.3	236.11	0.91	211.10	0.63	190.51	0.44	173.76	0.33
21.000	270.1	1.4	240.26	0.96	215.38	0.67	194.88	0.47	178.19	0.34
22.000	273.9	1.5	244.3	1.0	219.58	0.71	199.21	0.50	182.61	0.35
23.000	277.5	1.6	248.2	1.1	223.76	0.78	203.55	0.53	187.06	0.38
24.000	281.2	1.7	252.2	1.2	228.00	0.87	207.97	0.60	191.59	0.43
25.000	284.9	2.0	256.3	1.4	232.4	1.0	212.52	0.72	196.25	0.53
26.000	288.7	2.3	260.5	1.7	236.9	1.3	217.26	0.93	201.07	0.70
26.268	289.8	2.4	261.8	1.8						
SAT 26.278					238.3	1.4	218.9	1.0	202.94	0.79
SAT 26.300										
SAT 26.334										
SAT 26.378										

TABLE 32 B (CONT.) PARTIAL MOLAL REL. HEAT CAPACITY OF SODIUM CHLORIDE, J₂ (J/MOL.K)

WEIGHT %	25.000 DEG C		30.000 DEG C		40.000 DEG C		50.000 DEG C		60.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	5.744	0.023	5.801	0.017	6.173	0.014	6.781	0.014	7.525	0.015
0.200	8.542	0.040	8.468	0.031	8.772	0.024	9.479	0.025	10.401	0.026
0.300	10.856	0.054	10.635	0.042	10.816	0.032	11.547	0.034	12.564	0.035
0.400	12.919	0.067	12.546	0.051	12.582	0.040	13.302	0.042	14.374	0.043
0.500	14.820	0.077	14.296	0.059	14.174	0.046	14.863	0.049	15.965	0.050
0.600	16.606	0.086	15.931	0.066	15.646	0.052	16.290	0.055	17.405	0.057
0.700	18.303	0.094	17.480	0.072	17.029	0.056	17.678	0.060	18.735	0.062
0.800	19.93	0.10	18.961	0.077	18.341	0.061	18.870	0.065	19.979	0.067
0.900	21.50	0.11	20.387	0.082	19.597	0.065	20.060	0.069	21.155	0.072
1.000	23.02	0.11	21.765	0.086	20.806	0.068	21.199	0.073	22.275	0.076
1.200	25.94	0.12	24.408	0.093	23.111	0.074	23.355	0.080	24.381	0.083
1.400	28.72	0.13	26.928	0.099	25.296	0.079	25.384	0.086	26.348	0.089
1.600	31.40	0.14	29.35	0.10	27.387	0.083	27.314	0.090	28.207	0.095
1.800	33.99	0.14	31.68	0.11	29.401	0.086	29.163	0.094	29.981	0.099
2.000	36.50	0.14	33.95	0.11	31.350	0.088	30.946	0.097	31.68	0.10
2.500	42.49	0.15	39.36	0.11	35.992	0.093	35.17	0.10	35.70	0.11
3.000	48.14	0.15	44.48	0.12	40.373	0.095	39.14	0.11	39.44	0.12
3.500	53.51	0.15	49.35	0.12	44.546	0.096	42.91	0.11	42.99	0.12
4.000	58.65	0.15	54.02	0.12	48.546	0.096	46.52	0.11	45.38	0.12
4.500	63.58	0.15	58.50	0.12	52.395	0.097	49.98	0.11	49.63	0.12
5.000	68.33	0.15	62.82	0.12	56.110	0.096	53.33	0.11	52.77	0.13
6.000	77.30	0.15	71.02	0.12	63.186	0.096	59.72	0.11	58.75	0.13
7.000	85.67	0.14	78.70	0.12	69.848	0.096	65.75	0.11	64.42	0.13
8.000	93.50	0.14	85.91	0.12	76.148	0.097	71.48	0.11	69.82	0.14
9.000	100.85	0.14	92.70	0.12	82.129	0.098	76.94	0.11	75.00	0.14
10.000	107.74	0.14	99.11	0.13	87.82	0.10	82.19	0.12	79.98	0.14
11.000	114.23	0.14	105.18	0.13	93.26	0.10	87.23	0.12	84.81	0.14
12.000	120.35	0.15	110.94	0.13	98.48	0.11	92.11	0.12	89.49	0.15
13.000	126.13	0.15	116.42	0.14	103.50	0.11	96.84	0.12	94.06	0.15
14.000	131.62	0.16	121.65	0.14	108.36	0.11	101.45	0.12	98.54	0.15
15.000	136.84	0.16	126.67	0.15	113.07	0.12	105.97	0.13	102.94	0.16
16.000	141.84	0.19	131.51	0.16	117.67	0.12	110.40	0.13	107.27	0.16
17.000	146.65	0.21	136.21	0.17	122.18	0.12	114.78	0.13	111.55	0.16
18.000	151.31	0.23	140.80	0.18	126.63	0.13	119.11	0.13	115.79	0.17
19.000	155.86	0.24	145.31	0.19	131.04	0.13	123.41	0.14	119.98	0.17
20.000	160.34	0.25	149.77	0.20	135.43	0.14	127.68	0.15	124.13	0.17
21.000	164.80	0.26	154.22	0.21	139.82	0.16	131.94	0.16	128.22	0.18
22.000	169.26	0.27	158.69	0.22	144.21	0.18	136.17	0.19	132.24	0.19
23.000	173.76	0.29	163.21	0.24	148.63	0.22	140.37	0.22	136.15	0.20
24.000	178.35	0.33	167.79	0.29	153.05	0.28	144.51	0.27	139.92	0.23
25.000	183.04	0.42	172.45	0.38	157.49	0.37	148.56	0.34	143.49	0.29
26.000	187.87	0.58	177.20	0.53	161.90	0.49	152.46	0.45	146.78	0.38
27.000	189.99	0.67	179.58	0.62	164.73	0.59	155.54	0.56	149.78	0.53
SAT 26.432										
SAT 26.495										
SAT 26.547										
SAT 26.830										
SAT 27.039										

THERMODYNAMIC FUNCTIONS FOR AQUEOUS SODIUM CHLORIDE

TABLE 32 B (CONT.) PARTIAL MOLAL REL. HEAT CAPACITY OF SODIUM CHLORIDE, J₂ (J/MOL.K)

WEIGHT %	70.000 DEG C		80.000 DEG C		90.000 DEG C		100.000 DEG C		110.000 DEG C	
	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.	VALUE	S.E.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	8.336	0.014	9.182	0.016	10.063	0.021	11.012	0.028	12.099	0.033
0.200	11.415	0.025	12.459	0.028	13.531	0.038	14.684	0.051	16.071	0.060
0.300	13.693	0.034	14.843	0.037	16.014	0.052	17.291	0.071	18.847	0.083
0.400	15.574	0.042	16.790	0.046	18.018	0.064	19.365	0.088	21.05	0.10
0.500	17.212	0.049	18.469	0.053	19.730	0.075	21.12	0.10	22.90	0.12
0.600	18.683	0.054	19.966	0.060	21.246	0.084	22.67	0.12	24.52	0.14
0.700	20.032	0.060	21.330	0.065	22.619	0.093	24.06	0.13	25.97	0.16
0.800	21.286	0.064	22.592	0.070	23.88	0.10	25.33	0.14	27.30	0.17
0.900	22.466	0.068	23.774	0.075	25.06	0.11	26.52	0.15	28.53	0.18
1.000	23.584	0.072	24.890	0.079	26.17	0.12	27.63	0.16	29.68	0.20
1.200	25.676	0.079	26.968	0.086	28.23	0.13	29.68	0.18	31.80	0.22
1.400	27.617	0.084	28.887	0.091	30.13	0.14	31.58	0.20	33.74	0.24
1.600	29.443	0.088	30.687	0.096	31.90	0.15	33.34	0.21	35.55	0.26
1.800	31.178	0.092	32.392	0.099	33.58	0.15	35.00	0.23	37.25	0.28
2.000	32.838	0.095	34.102	0.10	35.18	0.16	36.59	0.24	38.87	0.29
2.500	36.73	0.10	37.84	0.11	38.93	0.17	40.31	0.26	42.66	0.32
3.000	40.36	0.10	41.38	0.11	42.41	0.18	43.77	0.28	46.18	0.35
3.500	43.78	0.11	44.73	0.11	45.70	0.19	47.04	0.29	49.51	0.37
4.000	47.05	0.11	47.92	0.11	48.85	0.19	50.18	0.31	52.71	0.39
4.500	50.18	0.11	50.99	0.11	51.89	0.19	53.22	0.31	55.80	0.40
5.000	53.20	0.11	53.95	0.11	54.83	0.20	56.16	0.32	58.79	0.41
6.000	58.98	0.12	59.63	0.11	60.47	0.20	61.83	0.33	64.57	0.43
7.000	64.46	0.12	65.03	0.11	65.86	0.20	67.27	0.34	70.11	0.44
8.000	69.69	0.12	70.21	0.11	71.06	0.20	72.52	0.35	75.46	0.45
9.000	74.73	0.12	75.21	0.11	76.08	0.21	77.61	0.35	80.65	0.46
10.000	79.60	0.13	80.05	0.11	80.96	0.21	82.56	0.36	85.71	0.47
11.000	84.33	0.13	84.77	0.12	85.72	0.21	87.40	0.36	90.64	0.47
12.000	88.94	0.14	89.37	0.12	90.37	0.21	92.12	0.37	95.46	0.48
13.000	93.44	0.14	93.88	0.13	94.93	0.22	96.75	0.37	100.18	0.48
14.000	97.86	0.14	98.31	0.13	99.39	0.22	101.29	0.37	104.81	0.48
15.000	102.21	0.15	102.65	0.14	103.78	0.22	105.74	0.37	109.34	0.48
16.000	106.49	0.15	106.93	0.14	108.08	0.22	110.10	0.37	113.77	0.49
17.000	110.72	0.16	111.13	0.15	112.29	0.23	114.35	0.37	118.09	0.49
18.000	114.88	0.16	115.25	0.15	116.40	0.23	118.48	0.38	122.30	0.49
19.000	118.98	0.17	119.28	0.15	120.39	0.24	122.48	0.38	126.35	0.50
20.000	123.00	0.17	123.19	0.16	124.23	0.25	126.30	0.40	130.24	0.51
21.000	126.92	0.17	126.95	0.16	127.88	0.26	129.92	0.42	133.90	0.53
22.000	130.71	0.17	130.53	0.18	131.30	0.29	133.26	0.45	137.29	0.55
23.000	134.32	0.17	133.86	0.21	134.41	0.34	136.26	0.50	140.34	0.60
24.000	137.69	0.20	136.86	0.26	137.13	0.41	138.84	0.57	142.95	0.66
25.000	140.75	0.26	139.46	0.35	139.36	0.58	140.87	0.76	145.01	0.76
26.000	143.40	0.37	141.52	0.48	140.97	0.66	142.22	0.82	146.39	0.91
27.000	145.51	0.53	142.90	0.66	141.79	0.85	142.7	1.0	146.9	1.1
28.000	145.97	0.59	143.30	0.78	141.8	1.0	142.2	1.3	146.4	1.4
SAT 27.272										
SAT 27.525										
SAT 27.795										
SAT 28.079										
SAT 28.373										

TABLE 33 DEVIATION OF STANDARD THERMODYNAMIC FUNCTIONS
FOR SODIUM CHLORIDE FROM VALUES AT 25 DEG C

TEMP. DEG C.	DELTA GO J/MOL	S.E.	DELTA HO J/MOL	S.E.	DELTA CPO J/MOL.K	S.E.	DELTA SO J/MOL.K	S.E.
0.000	3001.66	0.39	3108.87	8.36	-99.85	0.89	10.953	0.030
5.000	2377.83	0.28	2267.16	5.02	-69.97	0.56	7.899	0.018
10.000	1767.89	0.20	1560.12	2.91	-45.84	0.34	5.379	0.010
15.000	1169.45	0.13	961.07	1.56	-26.63	0.18	3.281	0.005
20.000	580.64	0.06	447.38	0.66	-11.58	0.07	1.514	0.002
25.000	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000
30.000	-573.56	0.06	-396.91	0.53	8.70	0.05	-1.320	0.002
35.000	-1140.93	0.13	-756.39	0.97	15.06	0.10	-2.497	0.003
40.000	-1702.68	0.19	-1089.01	1.37	19.52	0.13	-3.568	0.004
45.000	-2259.27	0.26	-1403.23	1.74	22.47	0.16	-4.563	0.006
50.000	-2811.02	0.33	-1705.73	2.10	24.25	0.18	-5.507	0.007
55.000	-3358.15	0.39	-2001.71	2.47	25.12	0.20	-6.415	0.008
60.000	-3900.80	0.46	-2295.16	2.86	25.30	0.21	-7.303	0.009
65.000	-4439.03	0.53	-2589.15	3.24	24.93	0.22	-8.179	0.010
70.000	-4972.91	0.60	-2886.04	3.61	24.15	0.21	-9.050	0.011
75.000	-5502.42	0.67	-3187.77	3.91	23.01	0.20	-9.923	0.012
80.000	-6027.56	0.75	-3496.00	4.10	21.55	0.18	-10.802	0.012
85.000	-6548.27	0.82	-3812.36	4.15	19.75	0.19	-11.692	0.013
90.000	-7064.50	0.90	-4138.57	4.11	17.60	0.23	-12.596	0.012
95.000	-7576.17	0.97	-4476.62	4.19	15.00	0.32	-13.521	0.012
100.000	-8083.14	1.04	-4828.90	4.83	11.89	0.43	-14.471	0.014
105.000	-8585.29	1.12	-5198.30	6.42	8.14	0.56	-15.455	0.018
110.000	-9082.42	1.20	-5588.31	9.01	3.62	0.69	-16.479	0.024

TABLE 34 STANDARD THERMODYNAMIC FUNCTION CHANGES
FOR SODIUM CHLORIDE DISSOLUTION IN WATER

TEMP. DEG C.	DELTA GO SOLN J/MOL	S.E.	DELTA HO SOLN J/MOL	S.E.	DELTA CPO SOLN J/MOL.K	S.E.	DELTA SO SOLN J/MOL.K	S.E.
0.000	-7786.6	3.3	8210.4	8.3	-233.16	0.89	58.565	0.032
5.000	-8069.3	3.4	7121.5	5.1	-203.43	0.58	54.614	0.021
10.000	-8333.7	3.4	6166.5	3.1	-179.45	0.36	51.210	0.016
15.000	-8582.1	3.5	5318.8	2.0	-160.38	0.23	48.242	0.014
20.000	-8816.6	3.5	4555.8	1.5	-145.47	0.16	45.616	0.013
25.000	-9038.7	3.6	3858.4	1.4	-134.03	0.12	43.257	0.013
30.000	-9249.6	3.7	3210.7	1.4	-125.46	0.10	41.103	0.013
35.000	-9450.0	3.7	2599.8	1.5	-119.24	0.09	39.104	0.013
40.000	-9640.8	3.8	2015.2	1.7	-114.91	0.10	37.222	0.013
45.000	-9822.4	3.8	1448.2	1.9	-112.08	0.11	35.425	0.014
50.000	-9995.2	3.9	892.4	2.2	-110.43	0.12	33.692	0.014
55.000	-10159.4	4.0	342.5	2.4	-109.68	0.13	32.003	0.014
60.000	-10315.2	4.0	-205.6	2.8	-109.63	0.13	30.346	0.015
65.000	-10462.9	4.1	-754.7	3.1	-110.11	0.14	28.710	0.015
70.000	-10602.4	4.1	-1307.3	3.5	-111.01	0.13	27.087	0.016
75.000	-10733.8	4.2	-1865.3	3.8	-112.26	0.12	25.473	0.016
80.000	-10857.1	4.3	-2430.4	4.0	-113.83	0.12	23.861	0.017
85.000	-10972.4	4.3	-3004.2	4.0	-115.73	0.15	22.248	0.017
90.000	-11079.6	4.4	-3588.3	4.0	-117.99	0.22	20.629	0.017
95.000	-11178.6	4.5	-4184.8	4.1	-120.68	0.32	18.997	0.017
100.000	-11269.5	4.5	-4796.0	4.8	-123.90	0.44	17.348	0.018
105.000	-11352.1	4.6	-5424.8	6.4	-127.74	0.57	15.674	0.021
110.000	-11426.2	4.7	-6074.7	9.0	-132.36	0.71	13.967	0.027

6. Conclusion

A model of the Pitzer type has been successfully extended to accurately represent the equilibrium Gibbs energy measurements and the calorimetric enthalpy and heat capacity measurements for aqueous sodium chloride below 154 °C. The model parameters have been evaluated by the weighted least-squares technique using a new and objective method to define the statistical weights of the measurements. The fit of the model to the measurements is limited by the disagreement between the various discordant sets of measurements and not by the ability of the model to represent any particular set.

The regression model with 35 parameters (given in Table 5) is found to be optimal and is the unbiased estimator of minimum variance for 2428 brine measurements between -21 and 154 °C. This data set contains most of the pre-eminent and modern thermodynamic measurements for sodium chloride solutions at low pressure published before 1982. Thus the model is probably the most efficient unbiased estimator for the thermodynamic properties of aqueous sodium chloride up to 101.325 kPa pressure over the temperature range -21 to 100 °C.

Model estimates and standard errors have been presented for the thermodynamic properties of sodium chloride brines at low pressure for temperatures up to 110 °C.

7. Acknowledgments

The authors wish to acknowledge discussions with R. H. Wood who kindly provided prepublication data, discussions with the late G. S. Kell, and assistance from C. M. Criss, J. E. Desnoyers, and G. Perron, L. G. Hepler, F. J. Millero, K. S. Pitzer, R. F. Platford, R. W. Potter II, A. H. Truesdell, and W. A. Van Hook. We are indebted to D. M. Young for editorial assistance.

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