Physical Properties of the Coexisting Phases and Thermochemical Properties of the H_2O Component in Boiling NaCl Solutions

GEOLOGICAL SURVEY BULLETIN 1421-A

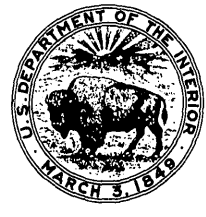
Physical Properties of the Coexisting Phases and Thermochemical Properties of the H_2O Component in Boiling NaCl Solutions

By JOHN L. HAAS, JR.

PRELIMINARY STEAM TABLES FOR NaCl SOLUTIONS

GEOLOGICAL SURVEY BULLETIN 1421-A

Tables giving the temperature-vapor pressure-density-specific volume relations for the coexisting liquid and gas and the partial molal volume, enthalpy, and entropy of the H_2O component in the coexisting phases between 80° and 325° C up to saturation in halite



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METRIC-ENGLISH EQUIVALENTS

Metric unit		English equivalent	
Length			
millimetre (mm)	=	0.03937	inch (in)
metre (m)	=	3.28	feet (ft)
kilometre (km)	=	.62	mile (mi)
Area			
square metre (m^2)	=	10.76	square feet (ft^2)
square kilometre (km^2)	=	.386	square mile (mi^2)
hectare (ha)	=	2.47	acres
Volume			
cubic centimetre (cm^3)	=	0.061	cubic inch (in^3)
litre (l)	=	61.03	cubic inches
cubic metre (m^3)	=	35.31	cubic feet (ft^3)
cubic metre	=	.00081	acre-foot (acre-ft)
cubic hectometre (hm^3)	=	810.7	acre-feet
litre	=	2.113	pints (pt)
litre	=	1.06	quarts (qt)
litre	=	.26	gallon (gal)
cubic metre	=	.00026	million gallons (Mgal or 10^6 gal)
cubic metre	=	6.290	barrels (bbl) (1 bbl=42 gal)
Weight			
gram (g)	=	0.035	ounce, avoirdupois (oz avdp)
gram	=	.0022	pound, avoirdupois (lb avdp)
tonne (t)	=	1.1	tons, short (2,000 lb)
tonne	=	.98	ton, long (2,240 lb)
Specific combinations			
kilogram per square centimetre (kg/cm^2)	=	0.96	atmosphere (atm)
kilogram per square centimetre	=	.98	bar (0.9869 atm)
cubic metre per second (m^3/s)	=	35.3	cubic feet per second (ft^3/s)

Metric unit		English equivalent	
Specific combinations—Continued			
litre per second (l/s)	=	.0353	cubic foot per second
cubic metre per second per square kilometre [$(m^3/s)/km^2$]	=	91.47	cubic feet per second per square mile [$(ft^3/s)/mi^2$]
metre per day (m/d)	=	3.28	feet per day (hydraulic conductivity) (ft/d)
metre per kilometre (m/km)	=	5.28	feet per mile (ft/mi)
kilometre per hour (km/h)	=	.9113	foot per second (ft/s)
metre per second (m/s)	=	3.28	feet per second
metre squared per day (m^2/d)	=	10.764	feet squared per day (ft^2/d) (transmissivity)
cubic metre per second (m^3/s)	=	22.826	million gallons per day (Mgal/d)
cubic metre per minute (m^3/min)	=	264.2	gallons per minute (gal/min)
litre per second (l/s)	=	15.85	gallons per minute
litre per second per metre [(l/s)/m]	=	4.83	gallons per minute per foot [(gal/min)/ft]
kilometre per hour (km/h)	=	.62	mile per hour (mi/h)
metre per second (m/s)	=	2.237	miles per hour
gram per cubic centimetre (g/cm^3)	=	62.43	pounds per cubic foot (lb/ft^3)
gram per square centimetre (g/cm^2)	=	2.048	pounds per square foot (lb/ft^2)
gram per square centimetre	=	.0142	pound per square inch (lb/in^2)
Temperature			
degree Celsius (°C)	=	1.8	degrees Fahrenheit (°F)
degrees Celsius (temperature)	=	[(1.8×°C)+32]	degrees Fahrenheit

PHYSICAL PROPERTIES OF THE COEXISTING PHASES AND THERMOCHEMICAL PROPERTIES OF THE H_2O COMPONENT IN BOILING NaCl SOLUTIONS

By JOHN L. HAAS, JR.

ABSTRACT

Preliminary steam tables that contain data on the physical properties of vapor-saturated aqueous sodium chloride solution and the coexisting gas are given for liquid concentrations between 0 mol NaCl/kg H_2O and halite saturation at temperatures between 80° and 325° C. For the same conditions, the tables give the partial molal entropy, enthalpy, and volume of H_2O in the phases. The tables were calculated from parametric equations of state.

INTRODUCTION

The tables assembled contain data for the following physical properties of aqueous, vapor-saturated sodium chloride solution and for the thermochemical properties of H_2O in the solution:

vapor pressure of the liquid
density of the liquid
specific volume of the liquid
specific volume of the coexisting gas
partial molal volume of H_2O in the liquid
partial molal entropy of H_2O in the liquid
difference in the partial molal entropy of H_2O between the gas and the liquid at constant composition of the liquid
partial molal entropy of H_2O in the coexisting gas
partial molal enthalpy of H_2O in the liquid
difference in the partial molal enthalpy of H_2O between the gas and the liquid at constant composition of the liquid
partial molal enthalpy of H_2O in the coexisting gas

The values are tabulated for solution compositions from 0 mol NaCl/kg H_2O to halite saturation at temperatures from 80° to 325° C. The assembled tables are essentially "steam tables" for vapor-saturated H_2O–NaCl solutions.

The tables presented here are preliminary. The functions upon which they are based represent a reasonably complete analysis of the available data through 1971. Final tables should include the energy content of the solution and the partial molal quantities for NaCl in the solution. Because there is an immediate need for the contained data, they have been made available in this preliminary form.

The tables are given as an aid to geochemical and engineering studies related to the geothermal energy program of the United States. They have been prepared in direct response to the suggestions of scientists and engineers at the Conference on Thermodynamics and National Energy Problems (National Academy of Sciences, 1974) and of an Ad Hoc Committee on Geothermal Chemistry (1974) convened by the U.S. Atomic Energy Commission. The research was made possible through the support of the U.S. Office of Saline Water (Agreements No. 14–30–3040) and the geothermal research program of the U.S. Geological Survey.

UNITS, SYMBOLS, AND CONSTANTS

UNITS AND SYMBOLS USED IN TABLES AND TEXT

The chosen units in the tables for measurements of temperature, pressure, specific volume, and density are °C, bars, $cm^3\ g^{-1}$, and $g\ cm^{-3}$, respectively. These units are the same as those used in several widely referenced steam tables (Bain, 1964; Keenan and others, 1969). The partial molal entropy, enthalpy, and volume are given as $J\ mol^{-1}\ K^{-1}$, $J\ mol^{-1}$, and $cm^3\ mol^{-1}$, respectively, because these are the units most used in thermodynamic calculations. Both weight percent and molal (mol NaCl/kg H_2O) scales for units of sodium chloride concentration are widely used in engineering and geochemical research. Both scales are used here to achieve maximum use of the tables.

The quantities, their symbols, and the associated units used in this text and in the tables are as follows:

Quantity	*Symbol*	*Units*
density	d	g cm^{-3}
specific enthalpy	h	J g^{-1}
molal enthalpy	H	J mol^{-1}
Masson's Rule slope in the empirical equation for apparent molal volume	k	$cm^3(kg\ H_2O)^{1/2}/(mol\ NaCl)^{3/2}$
mole fraction of NaCl	N	mol NaCl/(mol NaCl+mol H_2O)
pressure	p	bar ($=1\times10^5$ pascals)
molar gas constant	R	J $mol^{-1}K^{-1}$
specific entropy	s	J $g^{-1}K^{-1}$
molal entropy	S	J $mol^{-1}K^{-1}$
temperature	t	degrees Celsius, °C
	T	kelvins, K
specific volume	v	$cm^3\ g^{-1}$
molal volume	V	$cm^3\ mol^{-1}$
molecular weight	W	g mol^{-1}
concentration of NaCl in the liquid	x	mol NaCl/kg H_2O (molal)
	w	wt percent NaCl
apparent molal volume of NaCl in the liquid	ϕ	$cm^3\ mol^{-1}$
limiting apparent molal volume of NaCl in the liquid as derived from Masson's Rule	ϕ_*	$cm^3\ mol^{-1}$

In the text and the tables the following superscripts are used:

Superscript symbol	*Connotation*
G	The superscripted quantity is an attribute of the gaseous phase.
L	The superscripted quantity is an attribute of the liquid phase.
$^-$ (bar)	The overscored quantity is a partial molal quantity of the component indicated by the subscript, in the solution.

In the text and the tables the following subscripts are used:

Subscript symbol	*Connotation*
1	The subscripted quantity is a partial quantity for the component H_2O.
2	The subscripted quantity is a partial quantity for the component NaCl.
0	The subscripted quantity is an attribute of the pure substance H_2O.
x	The subscripted quantity is an attribute of a solution of constant but undefined composition in the system NaCl–H_2O.
sat	The subscripted quantity is an attribute of a solution that is saturated in halite.
c	The subscripted quantity is an attribute of the pure substance H_2O at the critical point where the properties of the liquid and the gas are identical.

FUNDAMENTAL CONSTANTS USED IN CALCULATIONS

The Committee on Data for Science and Technology (1973) of the International Council of Scientific Unions gives the molar gas constant R as (8.31441 ± 0.00026) J mol^{-1} K^{-1}.

The Commission on Atomic Weights (1972) gives the following atomic weights:

H	(1.0079 ± 0.0001) g mol^{-1}
O	(15.9994 ± 0.0003) g mol^{-1}
Na	(22.98977 ± 0.00001) g mol^{-1}
Cl	(35.453 ± 0.001) g mol^{-1}

From these atomic weights the molecular weights of the components are:

H_2O	$W_1 = (18.0152 \pm 0.0005)$ g mol^{-1}
NaCl	$W_2 = (58.4428 \pm 0.0010)$ g mol^{-1}

EMPIRICAL CONSTANTS USED IN THE TEXT AND CALCULATIONS

The following list gives the constants for the equations presented in the text. The equation numbers and the constants are as follows:

Equation 4:

$a_1 = 5.93582 \times 10^{-6}$
$a_2 = -5.19386 \times 10^{-5}$
$a_3 = 1.23156 \times 10^{-5}$

Equation 5:

$b_1 = 1.15420 \times 10^{-6}$
$b_2 = 1.41254 \times 10^{-7}$
$b_3 = -1.92476 \times 10^{-8}$
$b_4 = -1.70717 \times 10^{-9}$
$b_5 = 1.05390 \times 10^{-10}$

Equation 6:

$e_0 = 12.50849$
$e_1 = -4.616913 \times 10^{3}$
$e_2 = 3.193455 \times 10^{-4}$
$e_3 = 1.1965 \times 10^{-11}$
$e_4 = -1.013137 \times 10^{-2}$
$e_5 = -5.7148 \times 10^{-3}$
$e_6 = 2.9370 \times 10^{5}$

Equation 9:

$c_0 = -167.219$
$c_1 = 448.55$
$c_2 = -261.07$

Equation 10:

$c_3 = -13.644$
$c_4 = 13.97$
$v_c = 3.1975$

Equation 11:

$v_c = 3.1975$
$c_5 = -0.315154$
$c_6 = -1.203374 \times 10^{-3}$
$c_7 = 7.48908 \times 10^{-13}$
$c_8 = 0.1342489$
$c_9 = -3.946263 \times 10^{-3}$

Equation 17: a_{ij} are as follows:

	$i=0$	$i=1$	$i=2$
$j=0$	0.512004	0.611366	8.44104
1	−1.191807	−3.258346	28.86344
2	2.599832	6.393115	−270.10366
3	−21.433083	−6.447504	624.08835
4	15.281761	3.202128	−675.70455
5	−2.527165	−0.514945	363.16788
6	−2.454047	−0.120192	−79.26405

PHYSICAL PROPERTIES OF THE PHASES AND THERMOCHEMICAL DATA FOR H_2O

SYNOPSIS OF THE THEORETICAL APPROACH

In previous research (Haas, 1970; 1971a, b), empirical expressions were presented for the vapor pressure and density of vapor-saturated sodium chloride solutions. Those results were combined with the expressions for the change of the pressure with temperature for a binary liquid of constant composition (Dalton and Barieau, 1968, p. 56, eq. 398) to prepare tables for the thermophysical properties of H_2O in the coexisting liquid and gas.

$$\left(\frac{\partial p}{\partial T}\right)_x = \frac{(1-N^G)\Delta\bar{S}_1 + N^G\Delta\bar{S}_2}{(1-N^G)\Delta\bar{V}_1 + N^G\Delta\bar{V}_2} \qquad (1)$$

where the symbols are as defined in the previous section. The terms $\Delta\bar{S}$, $\Delta\bar{V}$, and $\Delta\bar{H}$ (eq 2) are the partial molal entropies, volumes, and enthalpies of vaporization of the components indicated by the subscripts. Because the coexisting liquid and gas are at equilibrium, the free-energy difference is zero and equation 1 may be restated:

$$T\left(\frac{\partial p}{\partial T}\right)_x = \frac{(1-N^G)\Delta\bar{H}_1 + N^G\Delta\bar{H}_2}{(1-N^G)\Delta\bar{V}_1 + N^G\Delta\bar{V}_2} \qquad (2)$$

The partial molal entropy and partial molal enthalpy of H_2O in the liquid can be obtained from pressure-temperature-composition and density-temperature-composition functions provided that the products $N^G \cdot \Delta\bar{S}_2$, $N^G \cdot \Delta\bar{H}_2$, and $N^G \cdot \Delta\bar{V}_2$ are small, and provided that the salt content of the vapor is nil. If the salt content of the vapor is nil, the properties of pure gaseous H_2O at the temperature and pressure of the solution may be substituted for the partial molal quantities of H_2O in the gas.

At 350°C and halite saturation, the vapor contains 8×10^{-4} mol percent NaCl (Sourirajan and Kennedy, 1962). (Concentration data at 300° C are unavailable, but it would be less than 350°C.) At 300° and halite saturation, the enthalpy of vaporization of NaCl from the solution is estimated to be 15 kJ mol^{-1} and the product $N^G \cdot \Delta\bar{H}_2$ is less than 0.1 J mol^{-1} (estimated from an analysis of the data in Liu and Lindsay, 1971, and Sourirajan and Kennedy, 1962). The product $N^G \cdot \Delta\bar{S}_2$ is therefore less than 2×10^{-4} J mol^{-1} K^{-1}. The product $N^G \cdot \Delta\bar{V}_2$ could not be estimated.

Granting that the above products are small, equations 1 and 2 may be simplified:

$$\left(\frac{\partial p}{\partial T}\right)_x = \frac{\Delta\bar{S}_1}{\Delta\bar{V}_1} = \frac{\bar{S}_1^G - \bar{S}_1^L}{\bar{V}_1^G - \bar{V}_1^L} \tag{1a}$$

$$T\left(\frac{\partial p}{\partial T}\right)_x = \frac{\Delta\bar{H}_1}{\Delta\bar{V}_1} = \frac{\bar{H}_1^G - \bar{H}_1^L}{\bar{V}_1^G - \bar{V}_1^L} \tag{2a}$$

In equations 1a and 2a, the term $(\partial p/\partial T)_x$ may be evaluated from the functions for the vapor pressure of the solution; the terms $\bar{S}_1^G$, $\bar{H}_1^G$, and $\bar{V}_1^G$ from functions for the gaseous H_2O; and $\bar{V}_1^L$ from the function for the density of the vapor-saturated solution. The remaining terms $\bar{S}_1^L$ and $\bar{H}_1^L$ may be obtained by substitution of the described functions into equations 1a and 2a, respectively, and solving the results.

VAPOR-PRESSURE FUNCTION

Haas (1971a, b) used the reference substance technique as given by Othmer and Yu (1968) and further amplified by Othmer and Chen (1968) to correlate the vapor pressure of solutions of NaCl from 0 molal to halite saturation. From the Clapeyron equations for the vaporization of two liquids, Othmer and coworkers have shown that the temperature of the brine T_x and the temperature

of H_2O liquid T_0 *at the same pressure* are related by the following equation:

$$\ln T_0 = m \ln T_x + c \quad \text{(kelvins, K)} \tag{3}$$

Refer to figure 1 for a graphical description of the relation beween T_x and T_0 at constant pressure. From $-11°$ to 300° C, where precise data are available, the empirical fit was made by setting $c=0$ and $m=(a+bT_x)^{-1}$. The terms a and b are concentration dependent polynomials of order 3 and 5, respectively.

$$a = 1.0 + a_1 x + a_2 x^2 + a_3 x^3 \tag{4}$$

$$b = 0.0 + b_1 x + b_2 x^2 + b_3 x^3 + b_4 x^4 + b_5 x^5 \tag{5}$$

The values of a_i and b_i, revised from those given by Haas (1971a, b) are given in the section entitled "Empirical constants

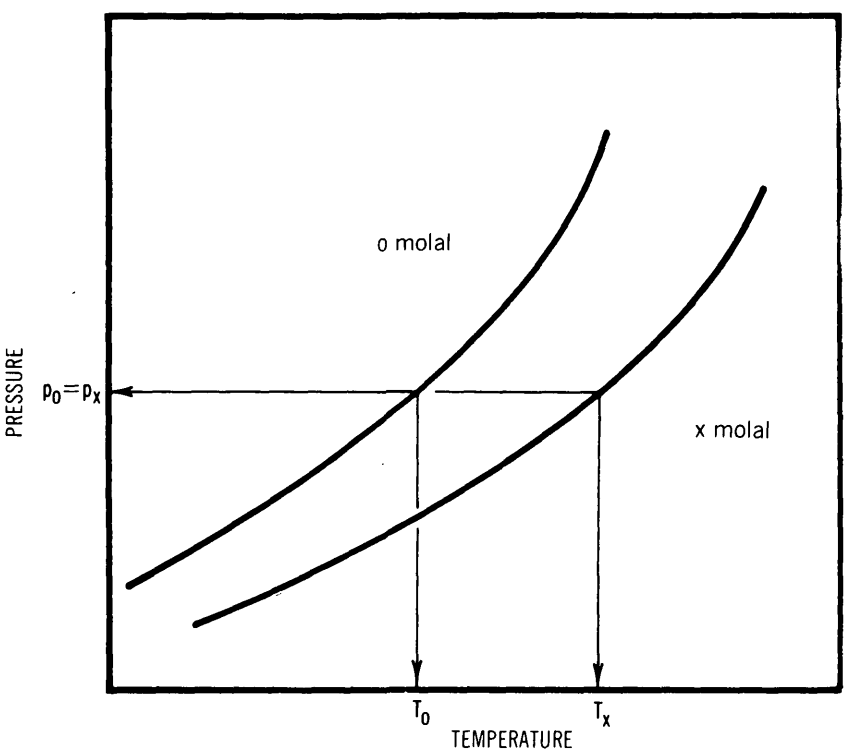

FIGURE 1.—Schematic representation of the relation between T_x and T_0. T_x is the temperature of the brine, x molal, and T_0 is the temperature of H_2O liquid, 0 molal, at the same pressure $p_0=p_x$. The relation between T_x and T_0 is given in the text. The vapor pressure of the brine is equal to the vapor pressure of H_2O liquid at T_0.

used in tables and text." The data from which the constants were obtained by least-squares regression are given in the following references. The range in temperature and composition that were covered by each data set is given in columns 2 and 3, respectively.

Reference	*Temperature (°C)*	*Concentration (molal)*
Smith (1939)	60 to 101	0.05 to 1.0
Smith and Hirtle (1939)	61 to 105	1.5 to 4.0
Robinson and Stokes (1959)	15 to 45	0.1 to 6.0
Gardner and others (1963)	125 to 270	1.0 to 3.0
Lindsay and others (1968)	125 to 300	0.1 to 1.0
Gardner (1969)	140 to 265	0.5 to 1.0
Liu and Lindsay (1971)	75 to 300	3.7 to halite saturation
Momicchioli and others (1970)	0 to −11	0.02 to 3.1
International Critical Tables National Research Council, 1928)	0 to 109	0.0 to halite saturation

The vapor pressure of the brine at T_x was then calculated from the vapor pressure of H_2O liquid at the corresponding temperature T_0 by using equation 6 (modified from Bain, 1964).

$$\ln p = e_0 + \frac{e_1}{z} + \frac{e_2 w}{z} + [10^{(e_3 w^2)} - 1.0] + e_4 10^{(e_5 y^{1.25})} \quad \text{(bars)} \qquad (6)$$

where

$$w = z^2 - e_6$$
$$y = 647.27 - T_0$$
$$z = T_0 + 0.01$$

The constants e_0 through e_6 are given in the section entitled "Empirical constants used in the text and calculations."

By using equations 3 through 6, the standard error of estimate of the vapor pressure of sodium chloride solutions is calculated to be 0.32 percent of the observed pressure.

The vapor pressures of NaCl solutions from 0 wt percent to halite saturation are given in figure 2. The contour interval is 5 wt percent NaCl. The shaded part of the diagram is based on extrapolation of the functions given above.

FUNCTIONS FOR THE VOLUMETRIC PROPERTIES

DENSITY OF THE VAPOR-SATURATED SOLUTION

The density of the vapor-saturated sodium chloride solution is given by equations 7 through 10 below (Haas, 1970).

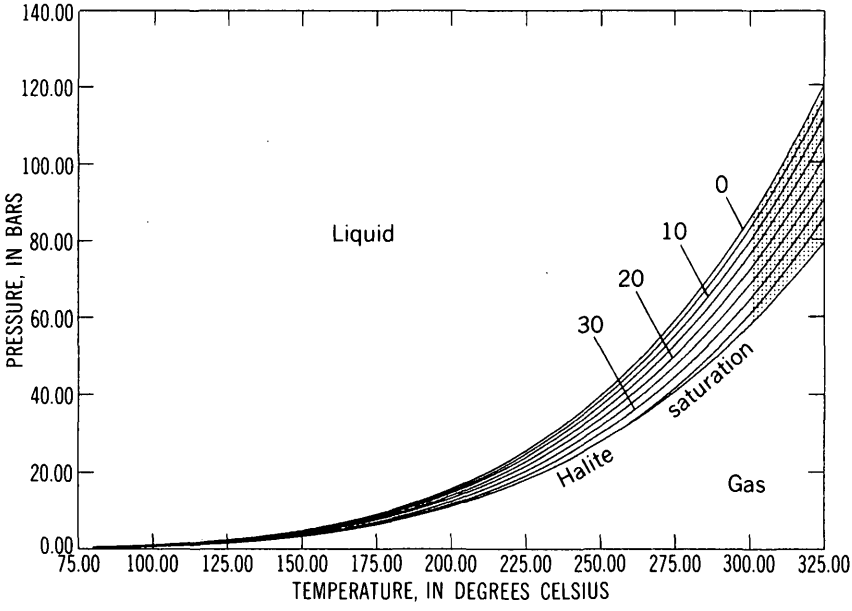

FIGURE 2.—Vapor pressure of NaCl solutions from 0 wt percent to halite saturation at 80° to 325°C. The contour interval is 5 wt percent NaCl contained in the liquid phase. The data in the shaded zone were calculated by extrapolating the functions given in the text.

$$d=\frac{1000+xW_2}{1000v_0+x\phi} \quad (\text{g cm}^{-3}) \tag{7}$$

$$\phi=\phi_*+kx^{0.5} \quad (\text{cm}^3\ \text{mol}^{-1}) \tag{8}$$

$$\phi_*=c_0+c_1v_0+c_2v_0^2\ (\text{cm}^3\ \text{mol}^{-1}) \tag{9}$$

$$k=(c_3+c_4v_0)\,[v_0/(v_c-v_0)]^2\ (\text{cm}^3(\text{kg H}_2\text{O})^{1/2}/(\text{mol NaCl})^{3/2}) \tag{10}$$

where d is the density, W_2 is the molecular weight of sodium chloride, v_0 is the vapor-saturated specific volume of liquid H_2O at T_x, v_c is the specific volume of H_2O at the critical point, ϕ is the apparent molal volume of NaCl in the solution, and ϕ_* is the limiting apparent molal volume of NaCl as the concentration in the liquid goes to 0. The constants c_0 through c_4 are given in the section entitled "Empirical constants used in the text and calculations." As stated in the original article, no significance is to be attached to the forms of equations 9 and 10 except to say that they provide an adequate description of the apparent molal volume data.

The precision with which density may be calculated from these equations is 0.002 g cm^{-3}. R. W. Potter II (oral commun., 1975) reported that the accuracy of the above equations may be as much

as 0.006 g cm^{-3} because of experimental errors in the measured densities used in the regression. These errors are due to corrosion of the pressure vessels and introduction of H_2[aq] and metal ions into the liquid solution by reaction with the vessel. The errors would be most significant at low sodium chloride concentrations and relatively negligible near halite saturation.

The specific volume v_0 of H_2O at T_x is calculated from equation 11, which is modified from that given by Smith and Keyes (1934).

$$v_0 \frac{v_c + c_5\theta^{1/3} + c_6\theta + c^7\theta^4}{1.0 + c_8\theta^{1/3} + c_9\theta} \quad (cm^3\ g^{-1}) \qquad (11)$$

where $\theta = 647.27 - T_x$. The constants v_c and c_5 through c_9 are given in the section entitled "Units, symbols, and constants."

The density and specific volume of vapor-saturated NaCl liquids are given on figures 3 and 4, respectively. The contour interval is 5 wt percent NaCl.

PARTIAL MOLAL VOLUME OF H_2O IN THE LIQUID

The partial molal volume of H_2O in the binary liquid system is given by equation 12:

$$\overline{V}_1^L = V^L - N^L \frac{\partial V^L}{\partial N^L} \qquad (cm^3\ mol^{-1}) \qquad (12)$$

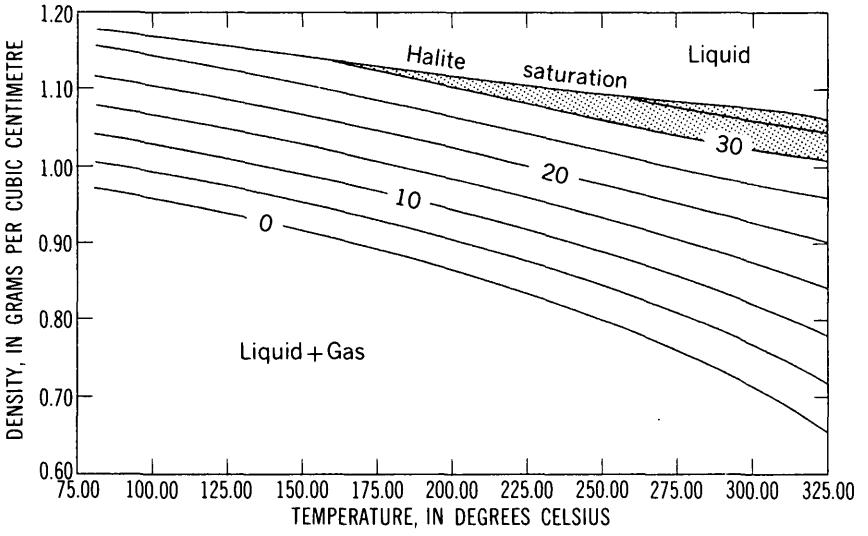

FIGURE 3.—Density of the liquid phase for vapor-saturated NaCl solutions from 0 wt percent to halite saturation at 80° to 325° C. Contour interval is 5 wt percent NaCl. The shaded zone was calculated by extrapolating the functions given in the text.

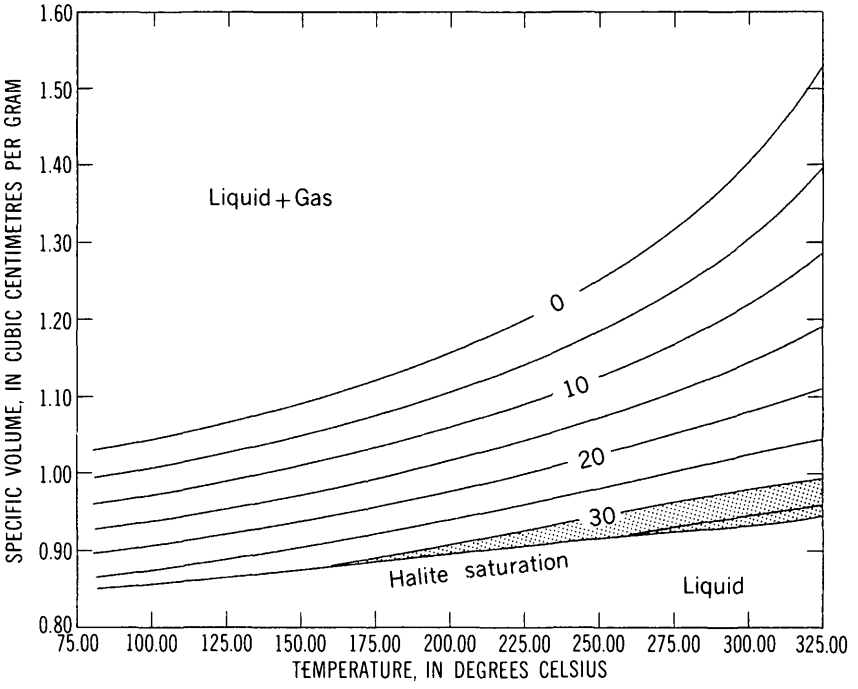

FIGURE 4.—Specific volume of the liquid phase for vapor-saturated NaCl solutions from 0 wt percent to halite saturation at 80° to 325° C. The contour interval is 5 wt percent NaCl. The shaded zone was calculated by extrapolation of the functions given in the text.

where V^L is the volume of the liquid containing a total of one mole of molecules. The term N^L is the mole fraction of NaCl in the liquid and is given by equation 13 in terms of x, the molality of the solution.

$$N^L = \frac{x}{1000/W_1 + x} \tag{13}$$

W_1 is the molecular weight of H_2O. The molal volume of an x molal solution of density d is given by equation 14.

$$V^L = \frac{1}{d} \cdot \frac{1000 + xW_2}{1000/W_1 + x} \quad (\text{cm}^3\ \text{mol}^{-1}) \tag{14}$$

By substitution of equation 7 into equation 14,

$$V^L = \frac{1000\, v_0 + x\phi}{1000/W_1 + x} \quad (\text{cm}^3\ \text{mol}^{-1}) \tag{15}$$

Equation 12 was solved for the partial molal volume $\overline{V}_i^L$ by using equations 13, 15, and 8 through 10 and standard analytical techniques.

The partial molal volume of H_2O in the liquid phase for vapor-saturated NaCl solutions from 0 wt percent to halite saturation is shown on figure 5. The contour interval is 5 wt percent NaCl.

PARTIAL MOLAL VOLUME OF H_2O IN THE GAS

The partial molal volume of H_2O in the gas is assumed to be the same as the molal volume of pure gaseous H_2O at the temperature and pressure of the liquid. The specific volume of pure gaseous H_2O was obtained from equation 16, which is attributed to Juza (1962) and given by Bain (1964, equation 41, p. 13):

$$v_0^G = \frac{RT_x}{p} + \alpha_0(\tau) + p\tau^6\alpha_1(\tau) + (p\tau^6)^4\alpha_2(\tau) \qquad (\mathrm{cm^3\ g^{-1}}) \qquad (16)$$

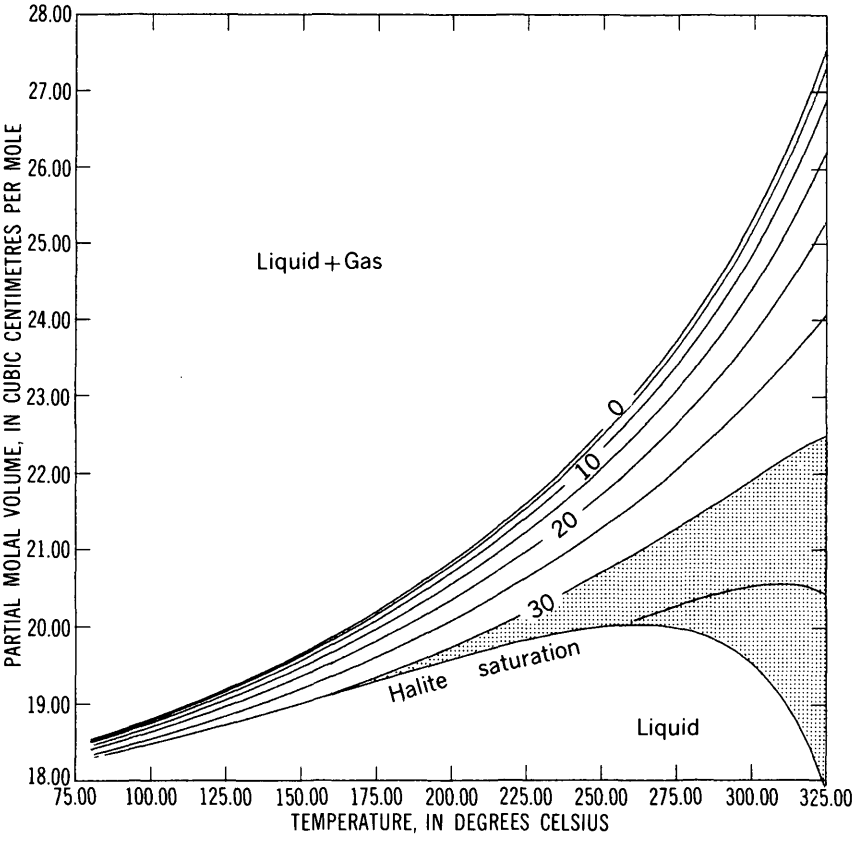

FIGURE 5.—The partial molal volume of H_2O in the liquid phase for vapor-saturated NaCl solutions from 0 wt percent to halite saturation at 80° to 325° C. The contour interval is 5 wt percent NaCl. The shaded zone was calculated by extrapolation of the functions given in the text.

where $\tau = 500/T_x$ and the functions $\alpha_1(\tau)$ are given by summations of the form:

$$\alpha_i(\tau) = \sum_{j=0}^{6} \alpha_{ij}\tau^j \qquad (17)$$

The constants α_{ij} are given in the foregoing section entitled "Empirical constants used in the text and calculations."

The molal volume of the gas was obtained by multiplying the specific volume v_0^G by the molecular weight of H_2O:

$$\overline{V}_1^G = W_1 v_0^G \qquad (\text{cm}^3\ \text{mol}^{-1}) \qquad (18)$$

The specific volume of the gas phase for vapor-saturated NaCl solutions from 0 wt percent to halite saturation is given on figure 6. The contour interval is for 5 wt percent NaCl contained in the coexisting liquid.

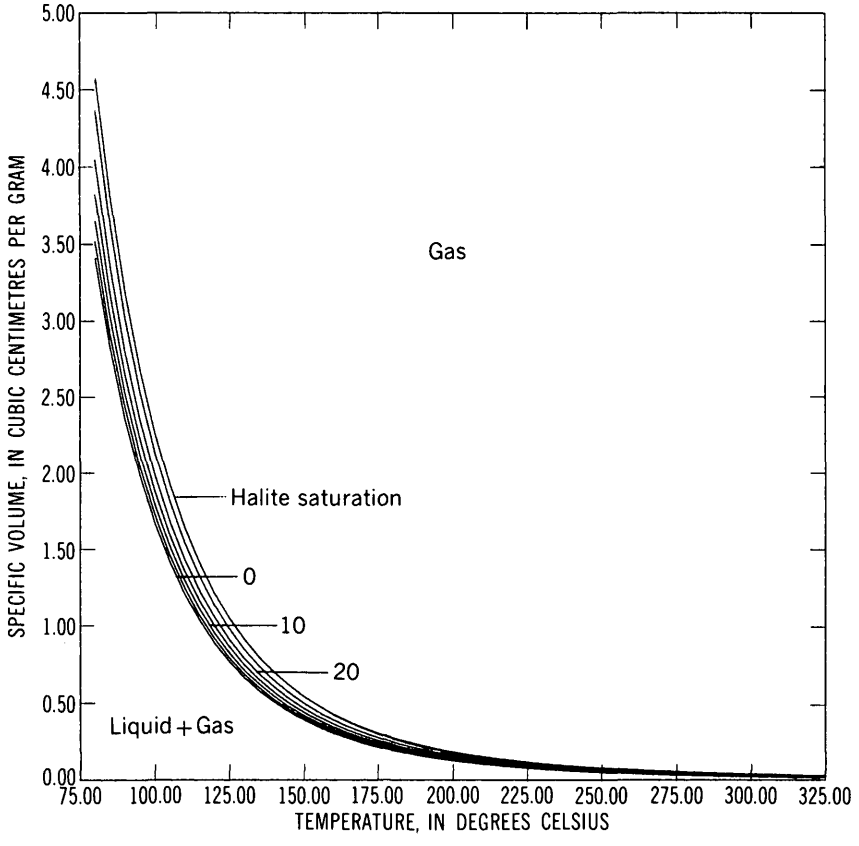

FIGURE 6.—The specific volume of the gas phase for liquid-saturated NaCl solutions from 0 wt percent to halite saturation at 80° to 325° C. The contour interval is 5 percent NaCl contained in the coexisting liquid.

ENTHALPY FUNCTIONS

PARTIAL MOLAL ENTHALPY OF H_2O IN THE GAS

The partial molal enthalpy of H_2O in the gas is assumed to be the same as the molal enthalpy of pure H_2O gas at the temperature and pressure of the liquid solution. Bain (1964) derived the specific enthalpy function for gaseous H_2O, equation 20, from equation 16 by using the relation given by equation 19.

$$\left(\frac{\partial h}{\partial p}\right)_T = v - T\left(\frac{\partial v}{\partial T}\right)_p \tag{19}$$

$$h_0^G - h_\bullet^G = \frac{1}{10}\left[p\left[\alpha_0 + \tau\frac{d\alpha_0}{d\tau}\right] + \frac{1}{2}p^2\tau^6\left[\alpha_1 + \tau\frac{d\alpha_1}{d\tau}\right] + \frac{1}{5}p^5\tau^{24}\left[\alpha_2 + \tau\frac{d\alpha_2}{d\tau}\right]\right] \quad (\text{J g}^{-1}) \tag{20}$$

where

$$h_\bullet^G = 1809.25 + 1.48286\,T + 3.79025\times10^{-4}T^2 + 46.147 \ln T \quad (\text{J g}^{-1}) \tag{21}$$

Because the gas is assumed to be H_2O only, the partial molal enthalpy of H_2O is:

$$\bar{H}_1^G = W_1 h_0^G \quad (\text{J mol}^{-1}) \tag{22}$$

ENTHALPY DIFFERENCE BETWEEN THE GAS AND THE LIQUID AT CONSTANT LIQUID COMPOSITION

From equation 2a the enthalpy difference, ΔH_1 may be derived:

$$\Delta\bar{H}_1 = (\bar{H}_1^G - \bar{H}_1^L) = (\bar{V}_1^G - \bar{V}_1^L)\,T_x\left(\frac{\partial p}{\partial T_x}\right)_x (\text{J mol}^{-1}) \tag{23}$$

$\bar{V}_1^G$ and $\bar{V}_1^L$ are calculated by using equations 18 and 12, respectively. The following identity enables one to evaluate the partial derivative $(\partial p/\partial T_x)_x$:

$$\left(\frac{\partial p}{\partial T_x}\right)_x = \frac{\partial p}{\partial T_0}\cdot\frac{\partial T_0}{\partial T_x} \tag{24}$$

Equation 6 gives the relation between pressure and temperature for H_2O. The derivative $(\partial p/\partial T_0)$ was obtained analytically from equation 6. Equation 3a, which is given below and which was derived from equation 3 by inserting the appropriate substitutions, gives the relation between the temperature of the solution T_x and the temperature of the reference substance T_0 at the same pressure:

$$\ln T_0 = \frac{1}{a + bT_x} \ln T_x \qquad \text{(kelvins, K)} \qquad (3a)$$

The partial derivative $(\partial T_0/\partial T_x)$ was derived analytically from equation 3a. The partial molal enthalpy difference $\Delta\overline{H}_1$ was calculated by inserting the appropriate functions into equation 23.

PARTIAL MOLAL ENTHALPY OF H_2O IN THE LIQUID AT CONSTANT COMPOSITION

The partial molal enthalpy of H_2O in the liquid was obtained by subtracting the enthalpy of vaporization from the partial molal enthalpy of H_2O in the gas:

$$\overline{H}_1^L = \overline{H}_1^G - \Delta\overline{H}_1 \qquad (\text{J mol}^{-1}) \qquad (25)$$

Figure 7 shows the partial molal enthalpy of H_2O in the liquid (lower curves) and the gas (upper curves) for vapor-saturated NaCl solutions from 0 wt percent to halite saturation. The contour interval is 5 wt percent NaCl contained in the liquid phase.

ENTROPY FUNCTIONS

PARTIAL MOLAL ENTROPY OF H_2O IN THE GAS

Bain (1964), using the relation given in equation 26, derived the entropy of pure gaseous H_2O, equation 27, from equation 16, above.

$$\left(\frac{\partial s}{\partial p}\right)_T = -\left(\frac{\partial v}{\partial T}\right)_p \qquad (26)$$

$$\left[s_0^G + \frac{R}{10}\ln p\right] - \left[s_0 + \frac{R}{10}\ln p\right] = \frac{\tau}{5000}\left[p\tau\frac{d\alpha_0}{d\tau} + \frac{1}{2}p^2\tau^6\left[6\alpha_1 + \tau\frac{d\alpha_1}{d\tau}\right] + \frac{1}{5}p^6\tau^{24}\left[24\alpha_2 + \tau\frac{d\alpha_2}{d\tau}\right]\right] (\text{J g}^{-1}\text{K}^{-1}) \qquad (27)$$

where

$$\left[s_0^G + \frac{R}{10}\ln p\right]_x = -1.5535 + 1.48286 \ln T + 7.85050\times10^{-4}T - 46.147/T \qquad (\text{J g}^{-1}\text{K}^{-1}) \qquad (28)$$

Because the gas is assumed to be H_2O only, the partial molal entropy of H_2O is:

$$\overline{S}_1^G = W_1 s_0^G \qquad (\text{J mol}^{-1}\text{K}^{-1}) \qquad (29)$$

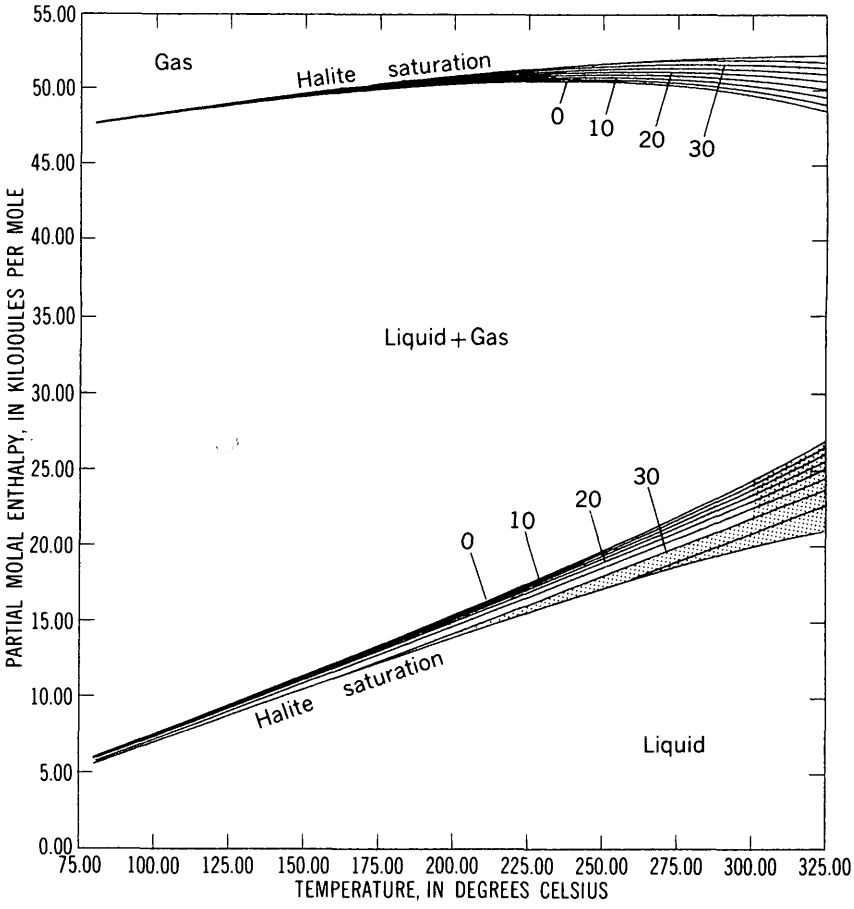

FIGURE 7.—The partial molal enthalpy of H_2O in the liquid (lower curves) and the gas (upper curves) for vapor-saturated NaCl solutions from 0 wt percent to halite saturation at 80° to 325° C. The contour interval is 5 wt percent NaCl contained in the liquid. The shaded zone was calculated by extrapolation of the density and vapor pressure functions given in the text.

ENTROPY DIFFERENCE BETWEEN THE GAS AND THE LIQUID AT CONSTANT LIQUID COMPOSITION

At equilibrium between the gas and the liquid, the free-energy difference is zero. Therefore, the entropy difference was calculated from:

$$\Delta\bar{S}_1 = \frac{\Delta\bar{H}_1}{T_x} \qquad (\text{J mol}^{-1}\text{K}^{-1}) \qquad (30)$$

PARTIAL MOLAL ENTROPY OF H_2O IN THE LIQUID AT CONSTANT COMPOSITION

Similar to the calculation of the partial molal enthalpy of H_2O in the liquid, which is given above, the partial molal entropy of H_2O in the liquid was calculated from the following relation:

$$\bar{S}_1^L = \bar{S}_1^G - \Delta\bar{S}_1 \qquad (\text{J mol}^{-1}\text{K}^{-1}) \qquad (31)$$

Figure 8 shows the partial molal entropy of H_2O in the liquid (lower curve) and the gas (upper curve) for vapor-saturated NaCl solutions. The contour interval is 5 wt percent NaCl contained in the liquid phase.

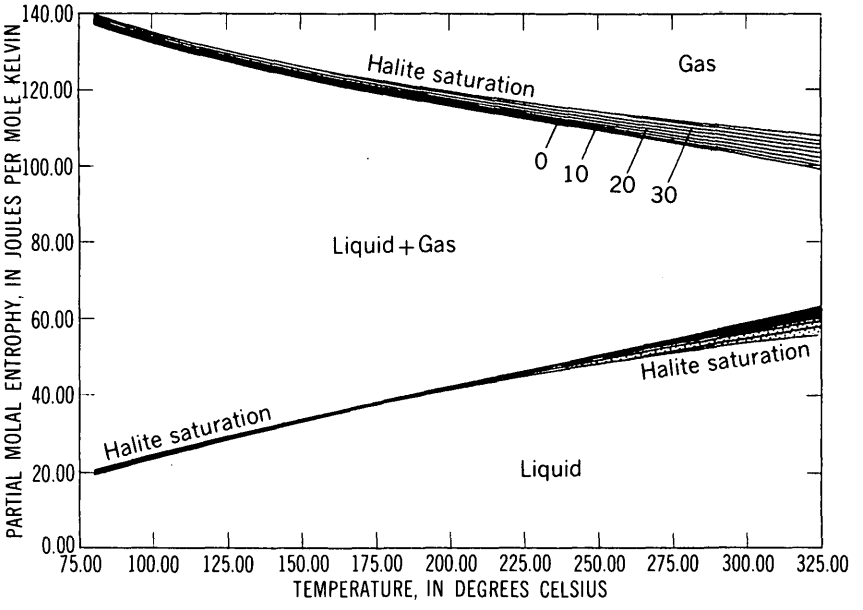

FIGURE 8.—The partial molal entropy of H_2O in the liquid (lower curves) and the gas (upper curves) for vapor-saturated NaCl solutions from 0 wt percent to halite saturation at 80° to 325° C. The contour interval is 5 wt percent NaCl contained in the liquid. The shaded zone (temperatures greater than 300° C or concentration greater than 30 wt percent) on the lower curves was calculated by extrapolation of the density and vapor pressure functions given in the text. In the gas phase, the partial molal entropy increases with NaCl concentration. In the liquid phase, the contours cross over so that at low temperature the halite-saturated liquid has the highest partial molal entropy, whereas at high temperatures, the H_2O-rich liquid has the highest partial molal entropy. For details, the reader is referred to the data given in the tables.

COMPOSITION OF THE LIQUID AT HALITE SATURATION

R. W. Potter, II (written commun., 1975) kindly supplied the following function for the concentration of a solution that is both vapor and halite saturated. The analysis is based upon published data between 0° and 455° C and Potter's recent measurements between 150° and 273° C. The standard error of estimate is 0.16 wt percent.

$$w_{sat} = 26.218 + 7.2 \times 10^{-3} t + 1.06 \times 10^{-4} t^2 \text{ (wt percent NaCl)} \quad (32)$$

THE REFERENCE STATE FOR ENTHALPY AND ENTROPY

In the foregoing functions and in all calculations, the reference state was that of the liquid phase for H_2O at 0 mol NaCl/kg H_2O at the ice-liquid-vapor triple point of 0.01° C. The entropy and enthalpy of liquid H_2O was 0.0 by definition.

TABLES FOR NaCl SOLUTIONS

Tables 1 through 28 give the temperature, pressure, density of the liquid, and the specific volumes of the liquid and the gas at constant composition and 5° intervals between 80° C (or at the 5° interval just above halite saturation) and 325° C. The partial molal quantities of entropy and enthalpy for H_2O in the gas and the liquid and of the volume for H_2O in the liquid are also presented. Concentrations are given in both mol NaCl/kg H_2O (molal NaCl) and weight percent NaCl. Tables 3, 6, 10, 13, 17, 21, and 26 give the data at 5, 10, 15, 20, 25, 30, and 35 wt percent NaCl, respectively. The other tables give the data at intervals of 0.5 mol NaCl/kg H_2O.

Tables 29 and 30 give the same data but at the given concentration on the halite saturation equilibrium between 80° and 325° C. Table 29 is in concentration units of wt percent NaCl and table 30 in mol NaCl/kg H_2O.

The tables were calculated using the functions that are given in the preceding section. Data contained within parentheses were calculated by extrapolation of the functions beyond their range.

A detailed analysis of the accuracy and precision of the tabulated data is not possible in this preliminary report. Seven semitheoretical or empirical equations were used to prepare the tables:

Equation	*Property*	*Source*
(6)	p_0	Bain (1964)
(3)	T_x at $p_x = p_0$	This report
(11)	v_0^L ($=1/d_0^L$)	Smith and Keyes (1934)
(7)	d^L	Haas (1970)
(16)	v_0^a	Juza (1962, cited in Bain, 1964)

Equation	*Property*	*Source*
(21)	$\overset{o}{h_0}$ (at $p_0=0$)	Bain (1964)
(28)	$[\overset{o}{s_0}-(R/10)\ln p]$*	Bain (1964)

For the pure H_2O component, Bain (1964) gave no estimate for either the precision or accuracy of equations 6, 16, 21, and 28, except that the equations reproduce very closely the International Skeleton Tables of the Thermodynamic Properties of Water Substance, 1963 (Meyer and others, 1967). In the temperature range of this report, 80° to 325° C, the value for the accuracy of the International Skelton Tables is less than or equal to the percentages tabulated below:

pressure	0.05 percent
volume of the liquid	0.05 percent
volume of the gas	0.2 percent
enthalpy of the liquid	0.08 percent
enthalpy of the gas	0.2 percent

Smith and Keyes (1934) reported the accuracy of equation 11 as one part in 2,000 which is consistent with the above tabulation.

For the liquids in the H_2O-NaCl system, the density of the solution is calculated using equation 7 with an accuracy of about 0.006 g/cm^3, and the vapor pressure with an estimated accuracy of 0.6 percent. No accuracy for the partial molal quantities for H_2O in the liquid ($\overline{V}_1^L$, $\overline{H}_1^L$, and $\overline{S}_1^L$) can be estimated because these properties were calculated in part by the partial differentiation of equations 3 and 7.

In the tables, data are given with as many as six digits. This is particularly true for data for entropy and enthalpy, where most of the value represents the relative difference in the property between T and 0.01°C and only a minor part of the value is due to change in concentration. The number of digits reported in the tables is governed by the need to have a reasonable resolution in the property when small changes in concentration or temperature are considered.

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TABLES 1–30

Table 1. NaCl concentration: 0.0000 mol/kg H_2O 0.00 wt percent 0.000 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.474	0.972	1.029	3410.009	18.54	19.296	117.814	137.110	6017.	41606.	47624.
85.	0.578	0.969	1.032	2829.681	18.60	20.356	115.534	135.890	6395.	41378.	47773.
90.	0.701	0.965	1.036	2362.110	18.66	21.405	113.307	134.712	6773.	41148.	47921.
95.	0.845	0.962	1.040	1982.993	18.73	22.443	111.131	133.574	7153.	40913.	48066.
100.	1.013	0.958	1.043	1673.840	18.80	23.465	109.010	132.475	7532.	40677.	48209.
105.	1.208	0.955	1.047	1420.061	18.87	24.480	106.931	131.411	7914.	40436.	48349.
110.	1.433	0.951	1.052	1210.662	18.94	25.479	104.901	130.381	8294.	40193.	48487.
115.	1.691	0.947	1.056	1036.958	19.02	26.467	102.915	129.382	8676.	39947.	48622.
120.	1.985	0.943	1.060	892.126	19.10	27.444	100.971	128.414	9058.	39697.	48754.
125.	2.321	0.939	1.065	770.773	19.19	28.409	99.065	127.474	9441.	39443.	48883.
130.	2.701	0.935	1.070	668.616	19.27	29.365	97.196	126.561	9824.	39185.	49009.
135.	3.131	0.931	1.075	582.229	19.36	30.311	95.362	125.674	10209.	38922.	49131.
140.	3.614	0.926	1.080	508.861	19.45	31.248	93.561	124.809	10595.	38655.	49249.
145.	4.155	0.922	1.085	446.292	19.55	32.177	91.791	123.967	10982.	38382.	49364.
150.	4.760	0.917	1.091	392.719	19.65	33.097	90.049	123.146	11370.	38104.	49474.
155.	5.433	0.912	1.096	346.673	19.75	34.009	88.336	122.345	11759.	37821.	49580.
160.	6.180	0.907	1.102	306.950	19.85	34.914	86.648	121.561	12150.	37531.	49682.
165.	7.008	0.902	1.108	272.561	19.96	35.811	84.984	120.795	12543.	37236.	49779.
170.	7.920	0.897	1.114	242.689	20.08	36.703	83.342	120.045	12938.	36933.	49871.
175.	8.925	0.892	1.121	216.655	20.19	37.587	81.722	119.310	13334.	36624.	49958.
180.	10.027	0.887	1.127	193.894	20.31	38.466	80.122	118.588	13732.	36307.	50040.
185.	11.234	0.882	1.134	173.934	20.44	39.340	78.539	117.879	14133.	35983.	50116.
190.	12.552	0.876	1.141	156.380	20.56	40.208	76.974	117.182	14536.	35651.	50186.
195.	13.989	0.870	1.149	140.897	20.70	41.072	75.424	116.496	14941.	35310.	50250.

200.	15.551	0.865	1.157	127.205	20.83	41.931	73.888	115.819	15348.	34960.	50309.
205.	17.245	0.859	1.164	115.063	20.98	42.786	72.366	115.152	15758.	34602.	50360.
210.	19.080	0.853	1.173	104.270	21.13	43.637	70.854	114.492	16171.	34233.	50405.
215.	21.063	0.847	1.181	94.651	21.28	44.485	69.354	113.839	16587.	33855.	50442.
220.	23.201	0.840	1.190	86.059	21.44	45.330	67.862	113.192	17006.	33466.	50473.
225.	25.504	0.834	1.199	78.365	21.60	46.172	66.378	112.549	17429.	33066.	50495.
230.	27.979	0.827	1.209	71.461	21.78	47.011	64.900	111.911	17854.	32655.	50509.
235.	30.635	0.821	1.219	65.252	21.95	47.848	63.428	111.276	18284.	32231.	50514.
240.	33.480	0.814	1.229	59.656	22.14	48.684	61.959	110.643	18717.	31794.	50511.
245.	36.524	0.807	1.240	54.602	22.34	49.518	60.492	110.011	19153.	31344.	50497.
250.	39.776	0.799	1.251	50.028	22.54	50.352	59.027	109.378	19595.	30880.	50474.
255.	43.245	0.792	1.263	45.881	22.75	51.184	57.560	108.744	20040.	30400.	50440.
260.	46.940	0.784	1.275	42.113	22.98	52.016	56.092	108.108	20490.	29905.	50395.
265.	50.872	0.776	1.289	38.684	23.21	52.849	54.620	107.469	20945.	29394.	50339.
270.	55.051	0.768	1.302	35.557	23.46	53.682	53.142	106.824	21405.	28864.	50269.
275.	59.487	0.759	1.317	32.701	23.72	54.516	51.658	106.174	21871.	28316.	50187.
280.	64.192	0.751	1.332	30.087	24.00	55.352	50.165	105.516	22342.	27749.	50091.
285.	69.175	0.742	1.348	27.692	24.29	56.189	48.661	104.850	22820.	27160.	49980.
290.	74.449	0.732	1.365	25.493	24.60	57.030	47.145	104.175	23304.	26550.	49854.
295.	80.025	0.723	1.384	23.471	24.93	57.874	45.615	103.488	23795.	25916.	49711.
300.	85.917	0.712	1.404	21.609	25.28	58.722	44.067	102.790	24294.	25257.	49551.
305.	(92.136)	0.702	1.425	(19.892)	25.67	(59.576)	(42.501)	(102.077)	(24801.)	(24572.)	(49373.)
310.	(98.697)	0.691	1.447	(18.306)	26.08	(60.436)	(40.914)	(101.350)	(25318.)	(23859.)	(49177.)
315.	(105.612)	0.679	1.472	(16.839)	26.52	(61.304)	(39.303)	(100.607)	(25844.)	(23116.)	(48960.)
320.	(112.899)	0.667	1.499	(15.481)	27.01	(62.181)	(37.664)	(99.846)	(26382.)	(22341.)	(48723.)
325.	(120.571)	0.654	1.529	(14.222)	27.54	(63.070)	(35.995)	(99.066)	(26932.)	(21531.)	(48463.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 2. NaCl concentration: 0.5000 mol/kg H_2O 2.84 wt percent 0.893 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.465	0.991	1.009	3470.353	18.53	19.415	117.846	137.260	6009.	41617.	47626.
85.	0.568	0.988	1.012	2879.771	18.59	20.472	115.568	136.041	6385.	41391.	47776.
90.	0.689	0.985	1.015	2403.942	18.66	21.519	113.345	134.863	6763.	41161.	47924.
95.	0.831	0.981	1.019	2018.133	18.72	22.554	111.172	133.726	7142.	40928.	48070.
100.	0.996	0.978	1.023	1703.413	18.79	23.580	109.047	132.627	7522.	40691.	48213.
105.	1.187	0.974	1.026	1445.272	18.86	24.587	106.978	131.565	7901.	40454.	48354.
110.	1.408	0.971	1.030	1232.184	18.94	25.584	104.952	130.536	8280.	40212.	48493.
115.	1.662	0.967	1.034	1055.421	19.01	26.569	102.970	129.539	8661.	39968.	48629.
120.	1.951	0.963	1.038	908.040	19.09	27.542	101.030	128.572	9042.	39720.	48762.
125.	2.281	0.959	1.043	784.553	19.18	28.505	99.128	127.634	9423.	39468.	48891.
130.	2.655	0.955	1.047	680.599	19.26	29.458	97.264	126.722	9806.	39212.	49018.
135.	3.077	0.951	1.052	592.693	19.35	30.401	95.435	125.836	10189.	38952.	49141.
140.	3.552	0.947	1.056	518.036	19.44	31.335	93.639	124.974	10573.	38687.	49260.
145.	4.084	0.942	1.061	454.367	19.54	32.259	91.874	124.134	10959.	38417.	49376.
150.	4.679	0.938	1.066	399.853	19.64	33.176	90.139	123.315	11345.	38142.	49488.
155.	5.341	0.933	1.072	352.998	19.74	34.084	88.431	122.515	11733.	37862.	49595.
160.	6.076	0.928	1.077	312.577	19.84	34.985	86.750	121.735	12123.	37576.	49698.
165.	6.889	0.924	1.083	277.584	19.95	35.878	85.093	120.971	12514.	37283.	49797.
170.	7.786	0.919	1.088	247.187	20.06	36.765	83.459	120.224	12906.	36985.	49891.
175.	8.773	0.914	1.094	220.695	20.18	37.645	81.846	119.492	13300.	36679.	49980.
180.	9.857	0.909	1.100	197.534	20.30	38.519	80.254	118.773	13696.	36367.	50064.
185.	11.044	0.904	1.107	177.224	20.42	39.388	78.680	118.068	14095.	36047.	50142.
190.	12.340	0.898	1.113	159.361	20.55	40.251	77.124	117.375	14495.	35720.	50215.
195.	13.752	0.893	1.120	143.606	20.68	41.109	75.584	116.693	14897.	35384.	50282.

200.	15.287	0.887	1.127	129.673	20.82	41.962	74.058	116.020	15302.	35041.	50343.
205.	16.953	0.882	1.134	117.318	20.96	42.811	72.546	115.357	15709.	34688.	50397.
210.	18.756	0.876	1.142	106.335	21.10	43.656	71.046	114.702	16119.	34326.	50445.
215.	20.705	0.870	1.149	96.547	21.26	44.497	69.557	114.055	16532.	33954.	50486.
220.	22.808	0.864	1.157	87.804	21.41	45.335	68.078	113.413	16947.	33573.	50520.
225.	25.071	0.858	1.166	79.976	21.58	46.170	66.607	112.777	17366.	33180.	50546.
230.	27.504	0.852	1.174	72.950	21.75	47.002	65.144	112.145	17788.	32777.	50565.
235.	30.114	0.845	1.183	66.633	21.93	47.831	63.686	111.517	18213.	32362.	50575.
240.	32.911	0.839	1.192	60.939	22.11	48.658	62.233	110.892	18641.	31935.	50576.
245.	35.902	0.832	1.202	55.796	22.31	49.484	60.784	110.268	19074.	31495.	50569.
250.	39.098	0.825	1.212	51.143	22.51	50.308	59.336	109.644	19510.	31042.	50552.
255.	42.507	0.818	1.223	46.924	22.72	51.130	57.889	109.020	19950.	30574.	50524.
260.	46.138	0.811	1.234	43.092	22.94	51.953	56.441	108.394	20395.	30092.	50486.
265.	50.002	0.803	1.245	39.604	23.17	52.774	54.991	107.765	20844.	29593.	50437.
270.	54.108	0.795	1.257	36.423	23.42	53.596	53.537	107.133	21297.	29079.	50376.
275.	58.466	0.787	1.270	33.519	23.68	54.418	52.078	106.496	21756.	28546.	50303.
280.	63.088	0.779	1.283	30.862	23.95	55.241	50.611	105.852	22220.	27996.	50216.
285.	67.983	0.771	1.297	28.426	24.24	56.065	49.136	105.202	22690.	27425.	50116.
290.	73.163	0.762	1.312	26.191	24.55	56.892	47.651	104.542	23166.	26834.	50001.
295.	78.640	0.753	1.328	24.136	24.87	57.721	46.153	103.874	23649.	26222.	49871.
300.	84.426	0.744	1.345	22.244	25.22	58.554	44.641	103.194	24138.	25586.	49724.
305.	(90.533)	0.734	1.363	(20.499)	25.60	(59.391)	(43.112)	(102.503)	(24636.)	(24925.)	(49561.)
310.	(96.974)	0.723	1.382	(18.889)	26.01	(60.233)	(41.564)	(101.798)	(25142.)	(24238.)	(49380.)
315.	(103.763)	0.713	1.403	(17.399)	26.45	(61.083)	(39.996)	(101.078)	(25657.)	(23524.)	(49180.)
320.	(110.914)	0.701	1.426	(16.020)	26.93	(61.940)	(38.403)	(100.343)	(26183.)	(22779.)	(48961.)
325.	(118.444)	0.689	1.451	(14.742)	27.45	(62.808)	(36.783)	(99.591)	(26720.)	(22002.)	(48722.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 3. NaCl concentration: 0.9006 mol/kg H_2O 5.00 wt percent 1.597 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.459	1.006	0.994	3520.028	18.52	19.520	117.862	137.382	6005.	41623.	47628.
85.	0.560	1.003	0.997	2921.048	18.58	20.575	115.587	136.163	6381.	41398.	47778.
90.	0.679	1.000	1.000	2438.449	18.65	21.620	113.367	134.986	6757.	41169.	47927.
95.	0.819	0.996	1.004	2047.148	18.71	22.654	111.197	133.850	7136.	40937.	48073.
100.	0.982	0.993	1.007	1727.946	18.78	23.677	109.075	132.752	7516.	40701.	48217.
105.	1.171	0.989	1.011	1466.129	18.85	24.682	107.008	131.690	7893.	40465.	48358.
110.	1.388	0.986	1.014	1250.004	18.93	25.677	104.985	130.662	8272.	40225.	48497.
115.	1.638	0.982	1.018	1070.722	19.00	26.660	103.007	129.666	8652.	39982.	48634.
120.	1.924	0.978	1.022	921.239	19.08	27.631	101.070	128.701	9032.	39735.	48767.
125.	2.249	0.974	1.026	795.990	19.16	28.592	99.172	127.764	9412.	39485.	48898.
130.	2.618	0.970	1.030	690.553	19.25	29.542	97.311	126.853	9794.	39231.	49025.
135.	3.034	0.966	1.035	601.392	19.34	30.482	95.486	125.969	10176.	38973.	49149.
140.	3.502	0.962	1.039	525.669	19.43	31.413	93.695	125.108	10559.	38710.	49269.
145.	4.027	0.958	1.044	461.090	19.52	32.335	91.935	124.270	10943.	38442.	49386.
150.	4.613	0.953	1.049	405.796	19.62	33.248	90.204	123.452	11329.	38170.	49499.
155.	5.266	0.949	1.054	358.271	19.72	34.153	88.502	122.655	11715.	37892.	49607.
160.	5.991	0.944	1.059	317.272	19.82	35.051	86.826	121.876	12103.	37609.	49712.
165.	6.792	0.940	1.064	281.778	19.93	35.941	85.174	121.115	12492.	37319.	49812.
170.	7.677	0.935	1.070	250.944	20.04	36.824	83.547	120.370	12883.	37024.	49907.
175.	8.651	0.930	1.075	224.073	20.15	37.700	81.940	119.641	13276.	36722.	49997.
180.	9.719	0.925	1.081	200.579	20.27	38.570	80.355	118.925	13670.	36413.	50083.
185.	10.889	0.920	1.087	179.977	20.39	39.435	78.788	118.223	14066.	36097.	50163.
190.	12.167	0.915	1.093	161.857	20.52	40.293	77.239	117.533	14464.	35773.	50238.
195.	13.559	0.910	1.099	145.876	20.65	41.147	75.707	116.854	14865.	35442.	50307.

200.	15.073	0.904	1.106	131.742	20.79	41.995	74.190	116.185	15267.	35103.	50370.
205.	16.715	0.899	1.112	119.209	20.93	42.839	72.686	115.526	15672.	34755.	50427.
210.	18.493	0.893	1.119	108.068	21.07	43.679	71.196	114.875	16079.	34398.	50478.
215.	20.415	0.888	1.127	98.139	21.22	44.515	69.717	114.231	16489.	34032.	50522.
220.	22.487	0.882	1.134	89.269	21.38	45.347	68.248	113.595	16902.	33656.	50558.
225.	24.718	0.876	1.142	81.328	21.54	46.175	66.788	112.963	17318.	33270.	50588.
230.	27.116	0.870	1.150	74.202	21.71	47.001	65.336	112.337	17736.	32874.	50610.
235.	29.689	0.864	1.158	67.793	21.89	47.824	63.891	111.715	18158.	32466.	50624.
240.	32.446	0.857	1.166	62.017	22.07	48.644	62.451	111.095	18583.	32047.	50629.
245.	35.395	0.851	1.175	56.801	22.26	49.462	61.016	110.478	19011.	31615.	50626.
250.	38.544	0.844	1.184	52.081	22.46	50.278	59.583	109.861	19443.	31171.	50614.
255.	41.904	0.837	1.194	47.802	22.67	51.093	58.151	109.245	19879.	30713.	50592.
260.	45.483	0.830	1.204	43.914	22.89	51.907	56.720	108.627	20319.	30240.	50559.
265.	49.290	0.823	1.215	40.377	23.12	52.720	55.288	108.007	20763.	29753.	50516.
270.	53.336	0.816	1.226	37.152	23.36	53.532	53.853	107.385	21211.	29250.	50462.
275.	57.631	0.808	1.237	34.207	23.62	54.344	52.414	106.758	21665.	28731.	50395.
280.	62.184	0.801	1.249	31.512	23.88	55.157	50.969	106.126	22123.	28193.	50316.
285.	67.007	0.793	1.262	29.043	24.17	55.970	49.517	105.487	22587.	27638.	50224.
290.	72.110	0.784	1.275	26.777	24.47	56.785	48.056	104.841	23056.	27063.	50119.
295.	77.505	0.776	1.289	24.694	24.79	57.602	46.585	104.186	23531.	26467.	49998.
300.	83.203	0.767	1.304	22.777	25.14	58.421	45.101	103.522	24013.	25849.	49862.
305.	(89.218)	0.757	1.320	(21.009)	25.51	(59.244)	(43.602)	(102.847)	(24502.)	(25209.)	(49711.)
310.	(95.561)	0.748	1.337	(19.377)	25.91	(60.072)	(42.087)	(102.159)	(24999.)	(24543.)	(49542.)
315.	(102.245)	0.738	1.356	(17.868)	26.34	(60.906)	(40.553)	(101.459)	(25505.)	(23851.)	(49356.)
320.	(109.286)	0.727	1.375	(16.472)	26.81	(61.747)	(38.997)	(100.744)	(26020.)	(23131.)	(49152.)
325.	(116.697)	0.716	1.397	(15.178)	27.33	(62.597)	(37.417)	(100.014)	(26547.)	(22381.)	(48928.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 4. NaCl concentration: 1.0000 mol/kg H_2O 5.52 wt percent 1.770 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.457	1.010	0.991	3532.610	18.52	19.547	117.866	137.413	6004.	41624.	47629.
85.	0.558	1.006	0.994	2931.507	18.58	20.602	115.591	136.194	6380.	41399.	47779.
90.	0.677	1.003	0.997	2447.195	18.64	21.646	113.371	135.017	6756.	41171.	47927.
95.	0.816	1.000	1.000	2054.505	18.71	22.679	111.202	133.881	7134.	40939.	48073.
100.	0.979	0.997	1.003	1734.168	18.78	23.703	109.081	132.783	7514.	40703.	48218.
105.	1.167	0.993	1.007	1471.420	18.85	24.707	107.015	131.722	7892.	40468.	48359.
110.	1.384	0.990	1.011	1254.527	18.92	25.701	104.993	130.694	8270.	40228.	48498.
115.	1.633	0.986	1.014	1074.606	19.00	26.683	103.015	129.698	8650.	39985.	48635.
120.	1.917	0.982	1.018	924.591	19.08	27.654	101.079	128.733	9029.	39739.	48769.
125.	2.241	0.978	1.022	798.896	19.16	28.614	99.182	127.796	9410.	39489.	48899.
130.	2.609	0.974	1.027	693.082	19.25	29.564	97.323	126.886	9791.	39236.	49027.
135.	3.024	0.970	1.031	603.603	19.33	30.503	95.499	126.002	10173.	38978.	49151.
140.	3.490	0.966	1.035	527.609	19.42	31.434	93.708	125.142	10556.	38715.	49271.
145.	4.013	0.962	1.040	462.800	19.52	32.355	91.949	124.304	10940.	38449.	49388.
150.	4.597	0.957	1.045	407.308	19.61	33.267	90.220	123.487	11325.	38177.	49501.
155.	5.248	0.953	1.050	359.612	19.71	34.171	88.519	122.690	11711.	37899.	49610.
160.	5.969	0.948	1.055	318.466	19.82	35.068	86.844	121.912	12098.	37617.	49715.
165.	6.768	0.944	1.060	282.845	19.92	35.957	85.194	121.151	12487.	37328.	49815.
170.	7.650	0.939	1.065	251.901	20.03	36.839	83.568	120.407	12878.	37033.	49911.
175.	8.620	0.934	1.071	224.932	20.15	37.715	81.963	119.678	13270.	36732.	50002.
180.	9.685	0.929	1.076	201.355	20.27	38.584	80.379	118.963	13664.	36424.	50088.
185.	10.850	0.924	1.082	180.678	20.39	39.447	78.815	118.262	14059.	36109.	50168.
190.	12.124	0.919	1.088	162.493	20.51	40.305	77.268	117.572	14457.	35786.	50244.
195.	13.511	0.914	1.094	146.454	20.64	41.157	75.737	116.894	14857.	35456.	50313.

200.	15.019	0.909	1.101	132.269	20.78	42.004	74.222	116.226	15259.	35118.	50377.
205.	16.655	0.903	1.107	119.691	20.92	42.847	72.721	115.568	15663.	34771.	50434.
210.	18.427	0.898	1.114	108.509	21.06	43.686	71.233	114.918	16070.	34416.	50486.
215.	20.342	0.892	1.121	98.544	21.21	44.520	69.756	114.276	16479.	34051.	50530.
220.	22.407	0.886	1.128	89.643	21.37	45.350	68.290	113.640	16891.	33677.	50568.
225.	24.630	0.880	1.136	81.673	21.53	46.178	66.833	113.010	17306.	33293.	50598.
230.	27.019	0.874	1.144	74.521	21.70	47.002	65.384	112.385	17723.	32898.	50621.
235.	29.583	0.868	1.152	68.088	21.88	47.823	63.942	111.764	18144.	32492.	50636.
240.	32.329	0.862	1.160	62.292	22.06	48.641	62.505	111.146	18568.	32075.	50643.
245.	35.267	0.855	1.169	57.057	22.25	49.458	61.073	110.531	18996.	31645.	50641.
250.	38.405	0.849	1.178	52.320	22.45	50.272	59.644	109.916	19427.	31203.	50629.
255.	41.752	0.842	1.187	48.025	22.66	51.085	58.216	109.301	19861.	30747.	50608.
260.	45.318	0.835	1.197	44.124	22.87	51.896	56.789	108.686	20300.	30277.	50577.
265.	49.111	0.828	1.207	40.574	23.10	52.707	55.361	108.068	20743.	29793.	50536.
270.	53.142	0.821	1.218	37.338	23.34	53.517	53.931	107.448	21190.	29293.	50483.
275.	57.421	0.813	1.229	34.382	23.60	54.326	52.497	106.823	21642.	28776.	50418.
280.	61.957	0.806	1.241	31.678	23.87	55.136	51.058	106.194	22099.	28243.	50341.
285.	66.762	0.798	1.253	29.201	24.15	55.947	49.611	105.558	22561.	27691.	50251.
290.	71.845	0.790	1.267	26.927	24.45	56.759	48.157	104.915	23028.	27119.	50148.
295.	77.220	0.781	1.280	24.837	24.77	57.572	46.692	104.264	23502.	26528.	50030.
300.	82.896	0.772	1.295	22.913	25.11	58.389	45.215	103.604	23982.	25915.	49897.
305.	(88.887)	0.763	1.310	(21.139)	25.48	(59.208)	(43.724)	(102.932)	(24469.)	(25279.)	(49748.)
310.	(95.206)	0.754	1.327	(19.501)	25.88	(60.033)	(42.217)	(102.249)	(24964.)	(24619.)	(49582.)
315.	(101.864)	0.744	1.345	(17.988)	26.31	(60.862)	(40.691)	(101.554)	(25467.)	(23933.)	(49400.)
320.	(108.877)	0.733	1.364	(16.587)	26.77	(61.699)	(39.145)	(100.844)	(25980.)	(23219.)	(49199.)
325.	(116.259)	0.722	1.385	(15.288)	27.29	(62.545)	(37.574)	(100.119)	(26504.)	(22475.)	(48979.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 5. NaCl concentration: 1.5000 mol/kg H_2O 8.06 wt percent 2.631 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.449	1.027	0.973	3597.751	18.51	19.688	117.881	137.569	6001.	41630.	47631.
85.	0.548	1.024	0.976	2985.664	18.57	20.741	115.610	136.351	6376.	41406.	47782.
90.	0.665	1.021	0.979	2492.494	18.63	21.782	113.393	135.175	6752.	41179.	47931.
95.	0.802	1.018	0.982	2092.613	18.70	22.813	111.227	134.040	7129.	40948.	48077.
100.	0.961	1.015	0.986	1766.405	18.76	23.833	109.110	132.944	7507.	40714.	48222.
105.	1.146	1.011	0.989	1498.839	18.83	24.836	107.047	131.883	7884.	40480.	48364.
110.	1.359	1.008	0.992	1277.965	18.91	25.827	105.030	130.857	8262.	40242.	48504.
115.	1.603	1.004	0.996	1094.739	18.98	26.807	103.056	129.863	8640.	40001.	48641.
120.	1.883	1.000	1.000	941.966	19.06	27.775	101.124	128.899	9019.	39757.	48776.
125.	2.201	0.996	1.004	813.958	19.14	28.732	99.232	127.964	9398.	39509.	48907.
130.	2.562	0.992	1.008	706.197	19.22	29.678	97.378	127.056	9778.	39258.	49036.
135.	2.969	0.988	1.012	615.068	19.31	30.614	95.559	126.173	10158.	39002.	49161.
140.	3.427	0.984	1.016	537.673	19.40	31.541	93.774	125.315	10540.	38743.	49282.
145.	3.941	0.980	1.020	471.667	19.49	32.458	92.021	124.479	10922.	38479.	49401.
150.	4.514	0.976	1.025	415.150	19.59	33.367	90.298	123.665	11305.	38210.	49515.
155.	5.153	0.972	1.029	366.572	19.68	34.267	88.603	122.870	11690.	37936.	49625.
160.	5.862	0.967	1.034	324.664	19.79	35.159	86.936	122.095	12075.	37656.	49732.
165.	6.646	0.963	1.039	288.382	19.89	36.044	85.293	121.337	12462.	37371.	49834.
170.	7.512	0.958	1.044	256.865	20.00	36.921	83.675	120.596	12851.	37080.	49931.
175.	8.464	0.953	1.049	229.395	20.11	37.792	82.078	119.870	13241.	36783.	50024.
180.	9.510	0.949	1.054	205.379	20.23	38.656	80.503	119.159	13632.	36480.	50112.
185.	10.654	0.944	1.060	184.318	20.35	39.514	78.947	118.461	14025.	36170.	50195.
190.	11.904	0.939	1.065	165.794	20.47	40.366	77.409	117.775	14420.	35852.	50273.
195.	13.266	0.934	1.071	149.455	20.60	41.212	75.889	117.101	14817.	35527.	50345.

200.	14.746	0.929	1.077	135.006	20.73	42.054	74.384	116.438	15216.	35195.	50411.
205.	16.353	0.923	1.083	122.192	20.87	42.890	72.894	115.784	15618.	34854.	50472.
210.	18.092	0.918	1.089	110.802	21.01	43.722	71.418	115.140	16021.	34506.	50527.
215.	19.971	0.913	1.096	100.650	21.16	44.549	69.954	114.503	16427.	34148.	50575.
220.	21.998	0.907	1.103	91.582	21.31	45.372	68.501	113.873	16835.	33781.	50616.
225.	24.180	0.901	1.109	83.463	21.47	46.192	67.058	113.249	17246.	33405.	50651.
230.	26.525	0.896	1.117	76.176	21.64	47.008	65.623	112.631	17659.	33018.	50678.
235.	29.041	0.890	1.124	69.624	21.81	47.821	64.197	112.017	18076.	32622.	50697.
240.	31.737	0.884	1.132	63.719	21.99	48.630	62.777	111.407	18495.	32214.	50709.
245.	34.620	0.878	1.139	58.386	22.17	49.438	61.362	110.799	18918.	31795.	50712.
250.	37.699	0.871	1.148	53.561	22.37	50.242	59.951	110.193	19344.	31363.	50707.
255.	40.983	0.865	1.156	49.186	22.57	51.045	58.543	109.588	19773.	30920.	50693.
260.	44.481	0.858	1.165	45.213	22.79	51.846	57.137	108.983	20206.	30463.	50668.
265.	48.203	0.852	1.174	41.597	23.01	52.645	55.731	108.376	20642.	29992.	50634.
270.	52.157	0.845	1.184	38.301	23.25	53.443	54.325	107.768	21083.	29507.	50590.
275.	56.354	0.838	1.193	35.291	23.49	54.240	52.916	107.156	21528.	29006.	50534.
280.	60.803	0.831	1.204	32.537	23.76	55.037	51.504	106.540	21977.	28489.	50466.
285.	65.515	0.823	1.215	30.015	24.03	55.834	50.086	105.920	22431.	27956.	50387.
290.	70.500	0.816	1.226	27.700	24.33	56.631	48.662	105.293	22890.	27404.	50294.
295.	75.770	0.808	1.238	25.573	24.64	57.429	47.230	104.659	23354.	26834.	50188.
300.	81.335	0.800	1.251	23.615	24.97	58.229	45.788	104.016	23825.	26243.	50068.
305.	(87.208)	0.791	1.264	(21.810)	25.33	(59.031)	(44.334)	(103.365)	(24301.)	(25632.)	(49933.)
310.	(93.401)	0.782	1.278	(20.144)	25.71	(59.836)	(42.867)	(102.703)	(24785.)	(24998.)	(49783.)
315.	(99.926)	0.773	1.293	(18.604)	26.13	(60.646)	(41.384)	(102.031)	(25276.)	(24340.)	(49616.)
320.	(106.797)	0.764	1.310	(17.179)	26.58	(61.462)	(39.883)	(101.346)	(25776.)	(23657.)	(49433.)
325.	(114.029)	0.754	1.327	(15.859)	27.07	(62.285)	(38.362)	(100.647)	(26286.)	(22946.)	(49232.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 6. NaCl concentration: 1.9012 mol/kg H_2O 10.00 wt percent 3.312 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.442	1.041	0.960	3652.683	18.50	19.805	117.894	137.699	5999.	41634.	47633.
85.	0.540	1.038	0.963	3031.329	18.56	20.856	115.626	136.481	6373.	41411.	47784.
90.	0.655	1.035	0.966	2530.685	18.62	21.895	113.412	135.306	6748.	41185.	47933.
95.	0.790	1.032	0.969	2124.739	18.68	22.923	111.249	134.172	7124.	40956.	48080.
100.	0.947	1.029	0.972	1793.579	18.75	23.941	109.135	133.076	7502.	40724.	48225.
105.	1.129	1.025	0.975	1521.949	18.82	24.942	107.075	132.017	7878.	40490.	48368.
110.	1.338	1.022	0.979	1297.718	18.89	25.931	105.060	130.992	8255.	40254.	48509.
115.	1.579	1.018	0.982	1111.705	18.96	26.909	103.090	129.998	8632.	40014.	48646.
120.	1.855	1.014	0.986	956.607	19.04	27.874	101.162	129.036	9010.	39772.	48782.
125.	2.168	1.011	0.990	826.649	19.12	28.828	99.273	128.102	9388.	39526.	48914.
130.	2.524	1.007	0.993	717.245	19.20	29.772	97.423	127.195	9767.	39276.	49043.
135.	2.925	1.003	0.997	624.726	19.29	30.706	95.609	126.314	10146.	39023.	49169.
140.	3.376	0.999	1.001	546.149	19.38	31.629	93.828	125.458	10526.	38765.	49292.
145.	3.882	0.995	1.006	479.135	19.47	32.544	92.080	124.624	10907.	38503.	49411.
150.	4.447	0.990	1.010	421.754	19.56	33.449	90.362	123.811	11289.	38237.	49526.
155.	5.076	0.986	1.014	372.432	19.66	34.346	88.673	123.019	11672.	37965.	49638.
160.	5.774	0.982	1.019	329.882	19.76	35.235	87.011	122.246	12057.	37689.	49745.
165.	6.547	0.977	1.023	293.044	19.86	36.116	85.374	121.490	12442.	37407.	49849.
170.	7.399	0.973	1.028	261.043	19.97	36.990	83.762	120.751	12829.	37119.	49948.
175.	8.337	0.968	1.033	233.151	20.08	37.856	82.172	120.028	13217.	36825.	50042.
180.	9.367	0.963	1.038	208.766	20.19	38.716	80.603	119.320	13606.	36525.	50132.
185.	10.494	0.959	1.043	187.380	20.31	39.570	79.055	118.625	13998.	36219.	50216.
190.	11.725	0.954	1.048	168.571	20.43	40.417	77.525	117.942	14390.	35906.	50296.
195.	13.066	0.949	1.054	151.981	20.56	41.259	76.013	117.272	14785.	35585.	50370.

200.	14.524	0.944	1.059	137.308	20.69	42.096	74.516	116.612	15182.	35257.	50439.
205.	16.106	0.939	1.065	124.296	20.82	42.927	73.035	115.962	15581.	34922.	50502.
210.	17.819	0.934	1.071	112.729	20.96	43.753	71.568	115.322	15981.	34578.	50560.
215.	19.670	0.928	1.077	102.421	21.11	44.575	70.114	114.689	16384.	34226.	50610.
220.	21.665	0.923	1.083	93.212	21.26	45.392	68.671	114.064	16790.	33865.	50655.
225.	23.814	0.918	1.090	84.967	21.42	46.206	67.239	113.445	17197.	33495.	50693.
230.	26.123	0.912	1.097	77.568	21.58	47.015	65.817	112.832	17608.	33116.	50723.
235.	28.601	0.906	1.103	70.914	21.75	47.821	64.402	112.224	18021.	32726.	50747.
240.	31.254	0.901	1.110	64.917	21.92	48.624	62.995	111.620	18436.	32326.	50762.
245.	34.093	0.895	1.118	59.502	22.11	49.424	61.595	111.018	18855.	31915.	50770.
250.	37.124	0.889	1.125	54.602	22.30	50.221	60.199	110.419	19277.	31493.	50769.
255.	40.357	0.882	1.133	50.160	22.50	51.015	58.806	109.822	19701.	31059.	50760.
260.	43.801	0.876	1.141	46.125	22.71	51.808	57.417	109.224	20130.	30612.	50741.
265.	47.464	0.870	1.150	42.454	22.92	52.598	56.029	108.627	20561.	30152.	50713.
270.	51.356	0.863	1.158	39.107	23.15	53.386	54.641	108.027	20997.	29678.	50675.
275.	55.487	0.857	1.167	36.052	23.40	54.174	53.252	107.426	21436.	29190.	50626.
280.	59.865	0.850	1.177	33.257	23.65	54.960	51.861	106.821	21879.	28687.	50566.
285.	64.502	0.843	1.187	30.696	23.92	55.746	50.466	106.211	22327.	28167.	50494.
290.	69.407	0.835	1.197	28.347	24.21	56.531	49.066	105.597	22779.	27631.	50410.
295.	74.592	0.828	1.208	26.187	24.51	57.317	47.659	104.976	23236.	27078.	50313.
300.	80.067	0.820	1.219	24.200	24.84	58.103	46.245	104.348	23698.	26505.	50203.
305.	(85.844)	0.812	1.231	(22.369)	25.18	(58.892)	(44.820)	(103.712)	(24166.)	(25913.)	(50079.)
310.	(91.935)	0.804	1.243	(20.679)	25.56	(59.683)	(43.384)	(103.067)	(24641.)	(25300.)	(49941.)
315.	(98.352)	0.796	1.257	(19.117)	25.96	(60.477)	(41.935)	(102.412)	(25123.)	(24664.)	(49787.)
320.	(105.108)	0.787	1.271	(17.672)	26.40	(61.276)	(40.470)	(101.746)	(25612.)	(24005.)	(49617.)
325.	(112.218)	0.778	1.286	(16.333)	26.87	(62.081)	(38.988)	(101.068)	(26111.)	(23320.)	(49431.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 7. NaCl concentration: 2.0000 mol/kg H_2O 10.47 wt percent 3.478 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.441	1.045	0.957	3666.627	18.50	19.833	117.898	137.731	5998.	41636.	47634.
85.	0.538	1.042	0.960	3042.918	18.55	20.884	115.630	136.514	6372.	41413.	47785.
90.	0.653	1.038	0.963	2540.375	18.61	21.923	113.417	135.339	6747.	41187.	47934.
95.	0.787	1.035	0.966	2132.888	18.68	22.950	111.255	134.205	7123.	40959.	48081.
100.	0.943	1.032	0.969	1800.470	18.74	23.968	109.142	133.110	7500.	40726.	48226.
105.	1.124	1.029	0.972	1527.808	18.81	24.969	107.082	132.051	7876.	40493.	48369.
110.	1.333	1.025	0.976	1302.725	18.88	25.957	105.068	131.025	8253.	40257.	48510.
115.	1.573	1.021	0.979	1116.005	18.96	26.934	103.099	130.033	8630.	40018.	48648.
120.	1.848	1.018	0.983	960.316	19.04	27.899	101.172	129.070	9007.	39776.	48783.
125.	2.160	1.014	0.986	829.864	19.11	28.852	99.284	128.137	9385.	39530.	48915.
130.	2.514	1.010	0.990	720.043	19.20	29.795	97.435	127.230	9764.	39281.	49045.
135.	2.914	1.006	0.994	627.172	19.28	30.728	95.622	126.350	10143.	39028.	49171.
140.	3.363	1.002	0.998	548.295	19.37	31.651	93.842	125.493	10523.	38771.	49294.
145.	3.867	0.998	1.002	481.025	19.46	32.565	92.095	124.660	10904.	38510.	49413.
150.	4.430	0.994	1.006	423.425	19.55	33.470	90.378	123.848	11285.	38244.	49529.
155.	5.057	0.990	1.011	373.915	19.65	34.366	88.690	123.056	11668.	37973.	49641.
160.	5.752	0.985	1.015	331.203	19.75	35.254	87.030	122.283	12052.	37697.	49749.
165.	6.522	0.981	1.020	294.224	19.85	36.134	85.395	121.528	12437.	37416.	49852.
170.	7.371	0.976	1.024	262.099	19.96	37.007	83.784	120.790	12823.	37129.	49952.
175.	8.306	0.972	1.029	234.101	20.07	37.872	82.195	120.068	13211.	36836.	50046.
180.	9.331	0.967	1.034	209.622	20.18	38.731	80.629	119.360	13600.	36537.	50137.
185.	10.454	0.962	1.039	188.154	20.30	39.584	79.082	118.666	13990.	36231.	50222.
190.	11.681	0.957	1.044	169.273	20.42	40.430	77.554	117.984	14383.	35919.	50302.
195.	13.017	0.953	1.050	152.619	20.55	41.271	76.043	117.314	14777.	35600.	50377.

200.	14.469	0.948	1.055	137.889	20.68	42.106	74.549	116.655	15173.	35273.	50446.
205.	16.045	0.943	1.061	124.828	20.81	42.936	73.071	116.007	15571.	34939.	50510.
210.	17.751	0.937	1.067	113.216	20.95	43.761	71.606	115.367	15971.	34596.	50568.
215.	19.595	0.932	1.073	102.868	21.10	44.581	70.154	114.735	16374.	34246.	50619.
220.	21.583	0.927	1.079	93.624	21.25	45.398	68.714	114.111	16778.	33886.	50664.
225.	23.723	0.921	1.085	85.347	21.40	46.209	67.285	113.494	17185.	33518.	50703.
230.	26.024	0.916	1.092	77.919	21.56	47.017	65.865	112.882	17595.	33140.	50734.
235.	28.491	0.910	1.099	71.239	21.73	47.822	64.454	112.275	18007.	32752.	50759.
240.	31.135	0.905	1.106	65.219	21.90	48.623	63.050	111.673	18422.	32354.	50775.
245.	33.962	0.899	1.113	59.783	22.09	49.421	61.652	111.073	18839.	31945.	50784.
250.	36.982	0.893	1.120	54.865	22.28	50.216	60.260	110.476	19260.	31525.	50785.
255.	40.202	0.887	1.128	50.405	22.48	51.008	58.871	109.880	19684.	31093.	50777.
260.	43.633	0.880	1.136	46.355	22.68	51.798	57.486	109.284	20111.	30649.	50759.
265.	47.281	0.874	1.144	42.670	22.90	52.586	56.102	108.688	20541.	30191.	50732.
270.	51.158	0.868	1.153	39.311	23.13	53.373	54.719	108.091	20975.	29720.	50696.
275.	55.272	0.861	1.161	36.243	23.37	54.158	53.335	107.492	21413.	29235.	50648.
280.	59.633	0.854	1.171	33.438	23.63	54.941	51.948	106.890	21855.	28735.	50590.
285.	64.251	0.847	1.180	30.867	23.89	55.724	50.559	106.283	22301.	28220.	50520.
290.	69.137	0.840	1.190	28.509	24.18	56.507	49.165	105.672	22751.	27687.	50438.
295.	74.300	0.833	1.201	26.342	24.48	57.290	47.765	105.054	23207.	27137.	50344.
300.	79.753	0.825	1.212	24.347	24.80	58.073	46.357	104.430	23667.	26569.	50236.
305.	(85.506)	0.818	1.223	(22.509)	25.15	(58.858)	(44.939)	(103.797)	(24133.)	(25982.)	(50115.)
310.	(91.572)	0.810	1.235	(20.813)	25.52	(59.645)	(43.511)	(103.156)	(24606.)	(25374.)	(49979.)
315.	(97.963)	0.801	1.248	(19.245)	25.92	(60.436)	(42.070)	(102.506)	(25085.)	(24744.)	(49829.)
320.	(104.691)	0.793	1.262	(17.795)	26.35	(61.230)	(40.614)	(101.844)	(25572.)	(24090.)	(49662.)
325.	(111.771)	0.783	1.276	(16.452)	26.82	(62.031)	(39.140)	(101.171)	(26068.)	(23412.)	(49480.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 8. NaCl concentration: 2.5000 mol/kg H_2O 12.75 wt percent 4.310 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.432	1.061	0.942	3740.002	18.48	19.977	117.923	137.901	5992.	41645.	47636.
85.	0.528	1.058	0.945	3103.867	18.54	21.025	115.659	136.684	6365.	41423.	47788.
90.	0.640	1.055	0.948	2591.311	18.60	22.061	113.449	135.510	6738.	41199.	47937.
95.	0.771	1.052	0.951	2175.704	18.66	23.086	111.291	134.377	7113.	40972.	48085.
100.	0.925	1.049	0.954	1836.660	18.72	24.101	109.181	133.282	7490.	40741.	48231.
105.	1.102	1.045	0.957	1558.565	18.79	25.100	107.125	132.225	7865.	40509.	48374.
110.	1.307	1.042	0.960	1328.995	18.86	26.085	105.115	131.201	8241.	40275.	48516.
115.	1.543	1.038	0.963	1138.554	18.93	27.059	103.150	130.209	8617.	40038.	48654.
120.	1.812	1.035	0.967	979.763	19.01	28.021	101.227	129.248	8993.	39797.	48790.
125.	2.118	1.031	0.970	846.710	19.09	28.972	99.344	128.316	9370.	39554.	48924.
130.	2.465	1.027	0.974	734.700	19.17	29.912	97.500	127.411	9747.	39307.	49054.
135.	2.857	1.023	0.977	639.977	19.25	30.841	95.692	126.533	10125.	39057.	49181.
140.	3.298	1.019	0.981	559.528	19.34	31.760	93.918	125.678	10503.	38802.	49305.
145.	3.792	1.015	0.985	490.916	19.42	32.670	92.176	124.847	10882.	38544.	49426.
150.	4.344	1.011	0.989	432.166	19.52	33.571	90.466	124.037	11262.	38281.	49543.
155.	4.959	1.007	0.993	381.668	19.61	34.463	88.785	123.248	11643.	38013.	49656.
160.	5.641	1.002	0.998	338.102	19.71	35.347	87.131	122.478	12025.	37741.	49766.
165.	6.396	0.998	1.002	300.385	19.81	36.223	85.503	121.725	12408.	37463.	49871.
170.	7.229	0.994	1.006	267.618	19.91	37.091	83.900	120.990	12792.	37180.	49972.
175.	8.145	0.989	1.011	239.060	20.02	37.951	82.319	120.271	13178.	36891.	50069.
180.	9.151	0.985	1.016	214.091	20.13	38.805	80.761	119.566	13564.	36597.	50161.
185.	10.252	0.980	1.020	192.193	20.25	39.653	79.223	118.876	13953.	36296.	50249.
190.	11.454	0.975	1.025	172.933	20.37	40.493	77.705	118.198	14342.	35989.	50331.
195.	12.765	0.971	1.030	155.945	20.49	41.328	76.204	117.532	14734.	35675.	50409.

200.	14.189	0.966	1.035	140.920	20.62	42.158	74.720	116.878	15127.	35354.	50481.
205.	15.734	0.961	1.041	127.597	20.75	42.981	73.252	116.234	15522.	35026.	50548.
210.	17.407	0.956	1.046	115.752	20.88	43.800	71.799	115.599	15919.	34690.	50609.
215.	19.215	0.951	1.052	105.196	21.02	44.613	70.359	114.973	16318.	34346.	50664.
220.	21.164	0.946	1.058	95.766	21.17	45.422	68.932	114.354	16719.	33994.	50713.
225.	23.262	0.940	1.063	87.322	21.32	46.226	67.516	113.743	17122.	33633.	50755.
230.	25.517	0.935	1.069	79.745	21.48	47.027	66.111	113.137	17527.	33264.	50791.
235.	27.936	0.930	1.076	72.931	21.64	47.823	64.715	112.537	17935.	32885.	50820.
240.	30.528	0.924	1.082	66.790	21.81	48.615	63.327	111.942	18345.	32496.	50841.
245.	33.299	0.919	1.089	61.245	21.99	49.404	61.946	111.350	18758.	32097.	50856.
250.	36.259	0.913	1.095	56.228	22.17	50.190	60.571	110.761	19174.	31688.	50862.
255.	39.416	0.907	1.102	51.679	22.37	50.972	59.202	110.174	19592.	31267.	50860.
260.	42.777	0.901	1.109	47.548	22.57	51.752	57.836	109.588	20014.	30835.	50849.
265.	46.353	0.895	1.117	43.790	22.78	52.529	56.474	109.003	20438.	30391.	50829.
270.	50.152	0.889	1.125	40.364	23.00	53.304	55.113	108.417	20866.	29934.	50800.
275.	54.183	0.883	1.132	37.235	23.23	54.077	53.753	107.829	21297.	29464.	50761.
280.	58.456	0.877	1.141	34.375	23.48	54.848	52.392	107.240	21731.	28981.	50712.
285.	62.980	0.870	1.149	31.754	23.74	55.617	51.030	106.647	22169.	28482.	50651.
290.	67.766	0.864	1.158	29.349	24.01	56.386	49.664	106.050	22612.	27968.	50580.
295.	72.823	0.857	1.167	27.140	24.30	57.153	48.295	105.448	23058.	27439.	50497.
300.	78.163	0.850	1.177	25.107	24.61	57.921	46.920	104.841	23509.	26892.	50401.
305.	(83.797)	0.843	1.187	(23.234)	24.94	(58.689)	(45.537)	(104.226)	(23965.)	(26327.)	(50293.)
310.	(89.736)	0.835	1.197	(21.505)	25.29	(59.458)	(44.146)	(103.605)	(24427.)	(25744.)	(50171.)
315.	(95.992)	0.828	1.208	(19.908)	25.68	(60.230)	(42.745)	(102.975)	(24894.)	(25141.)	(50035.)
320.	(102.578)	0.820	1.219	(18.431)	26.09	(61.004)	(41.332)	(102.336)	(25369.)	(24516.)	(49885.)
325.	(109.506)	0.812	1.232	(17.062)	26.53	(61.782)	(39.904)	(101.687)	(25851.)	(23869.)	(49719.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 9. NaCl concentration: 3.0000 mol/kg H_2O 14.92 wt percent 5.127 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	$\Delta\bar{H}_1$	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.423	1.077	0.928	3818.591	18.46	20.114	117.964	138.078	5980.	41659.	47639.
85.	0.517	1.074	0.931	3169.069	18.52	21.160	115.703	136.862	6352.	41439.	47791.
90.	0.627	1.071	0.933	2645.737	18.58	22.193	113.496	135.689	6725.	41216.	47941.
95.	0.756	1.068	0.936	2221.400	18.64	23.216	111.341	134.557	7099.	40990.	48089.
100.	0.906	1.065	0.939	1875.242	18.70	24.227	109.235	133.463	7474.	40761.	48235.
105.	1.080	1.061	0.942	1591.319	18.77	25.224	107.182	132.406	7849.	40531.	48380.
110.	1.281	1.058	0.945	1356.943	18.83	26.207	105.176	131.383	8223.	40298.	48521.
115.	1.512	1.054	0.948	1162.518	18.91	27.178	103.215	130.392	8598.	40063.	48661.
120.	1.775	1.051	0.952	1000.408	18.98	28.137	101.296	129.433	8973.	39824.	48798.
125.	2.076	1.047	0.955	864.578	19.06	29.084	99.418	128.502	9349.	39583.	48932.
130.	2.416	1.043	0.959	750.230	19.13	30.021	97.578	127.599	9725.	39339.	49063.
135.	2.800	1.039	0.962	653.533	19.22	30.947	95.775	126.722	10101.	39090.	49192.
140.	3.232	1.035	0.966	571.407	19.30	31.863	94.006	125.869	10478.	38839.	49317.
145.	3.716	1.031	0.969	501.366	19.39	32.769	92.271	125.040	10856.	38583.	49439.
150.	4.257	1.027	0.973	441.394	19.48	33.666	90.566	124.232	11234.	38323.	49557.
155.	4.860	1.023	0.977	389.845	19.57	34.554	88.891	123.445	11613.	38059.	49672.
160.	5.528	1.019	0.981	345.374	19.66	35.434	87.244	122.677	11993.	37790.	49783.
165.	6.268	1.015	0.985	306.872	19.76	36.305	85.623	121.928	12374.	37516.	49890.
170.	7.084	1.010	0.990	273.425	19.86	37.169	84.027	121.195	12756.	37236.	49993.
175.	7.983	1.006	0.994	244.273	19.97	38.025	82.454	120.479	13140.	36952.	50092.
180.	8.968	1.002	0.998	218.785	20.08	38.874	80.904	119.778	13524.	36662.	50186.
185.	10.048	0.997	1.003	196.433	20.19	39.716	79.375	119.091	13910.	36366.	50276.
190.	11.226	0.992	1.008	176.773	20.30	40.551	77.865	118.417	14297.	36063.	50361.
195.	12.510	0.988	1.012	159.432	20.42	41.380	76.374	117.755	14686.	35755.	50441.

200.	13.907	0.983	1.017	144.095	20.55	42.204	74.901	117.105	15076.	35439.	50516.
205.	15.421	0.978	1.022	130.494	20.67	43.021	73.443	116.465	15468.	35117.	50585.
210.	17.061	0.973	1.027	118.403	20.81	43.833	72.001	115.835	15862.	34787.	50650.
215.	18.832	0.968	1.033	107.628	20.94	44.640	70.573	115.214	16258.	34450.	50708.
220.	20.742	0.964	1.038	98.002	21.08	45.442	69.158	114.600	16655.	34105.	50761.
225.	22.799	0.958	1.043	89.383	21.23	46.239	67.755	113.995	17055.	33752.	50807.
230.	25.009	0.953	1.049	81.649	21.38	47.032	66.364	113.395	17456.	33391.	50847.
235.	27.380	0.948	1.055	74.694	21.54	47.820	64.982	112.802	17860.	33021.	50880.
240.	29.919	0.943	1.061	68.426	21.71	48.604	63.609	112.213	18266.	32641.	50907.
245.	32.635	0.938	1.067	62.766	21.88	49.384	62.244	111.629	18674.	32252.	50926.
250.	35.535	0.932	1.073	57.645	22.06	50.161	60.887	111.048	19085.	31853.	50938.
255.	38.628	0.927	1.079	53.002	22.24	50.934	59.535	110.469	19498.	31444.	50941.
260.	41.922	0.921	1.086	48.786	22.44	51.704	58.189	109.893	19914.	31023.	50937.
265.	45.425	0.915	1.092	44.950	22.64	52.470	56.847	109.317	20332.	30592.	50924.
270.	49.147	0.910	1.099	41.454	22.85	53.234	55.507	108.741	20753.	30149.	50902.
275.	53.096	0.904	1.106	38.262	23.08	53.995	54.170	108.165	21178.	29693.	50871.
280.	57.281	0.898	1.114	35.343	23.31	54.754	52.833	107.587	21605.	29225.	50830.
285.	61.712	0.892	1.121	32.669	23.56	55.511	51.497	107.007	22036.	28743.	50779.
290.	66.399	0.886	1.129	30.216	23.83	56.265	50.159	106.424	22470.	28247.	50718.
295.	71.352	0.879	1.137	27.962	24.10	57.019	48.819	105.837	22909.	27736.	50645.
300.	76.581	0.873	1.145	25.889	24.40	57.771	47.474	105.246	23351.	27210.	50561.
305.	(82.096)	0.867	1.154	(23.978)	24.71	(58.523)	(46.125)	(104.649)	(23797.)	(26667.)	(50464.)
310.	(87.910)	0.860	1.163	(22.216)	25.05	(59.275)	(44.770)	(104.045)	(24248.)	(26108.)	(50356.)
315.	(94.034)	0.853	1.172	(20.587)	25.41	(60.028)	(43.406)	(103.435)	(24705.)	(25529.)	(50234.)
320.	(100.479)	0.846	1.182	(19.081)	25.80	(60.783)	(42.034)	(102.816)	(25167.)	(24932.)	(50099.)
325.	(107.258)	0.839	1.192	(17.686)	26.22	(61.540)	(40.649)	(102.189)	(25635.)	(24314.)	(49950.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 10. NaCl concentration: 3.0195 mol/kg H_2O 15.00 wt percent 5.159 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.423	1.078	0.928	3821.778	18.46	20.119	117.966	138.085	5979.	41660.	47639.
85.	0.516	1.075	0.930	3171.711	18.52	21.165	115.705	136.869	6351.	41440.	47791.
90.	0.626	1.072	0.933	2647.941	18.58	22.198	113.498	135.696	6724.	41217.	47941.
95.	0.755	1.069	0.936	2223.249	18.64	23.220	111.344	134.564	7098.	40991.	48089.
100.	0.905	1.065	0.939	1876.802	18.70	24.232	109.238	133.470	7474.	40762.	48236.
105.	1.079	1.062	0.942	1592.642	18.77	25.228	107.185	132.413	7848.	40532.	48380.
110.	1.280	1.059	0.945	1358.071	18.83	26.212	105.179	131.390	8223.	40299.	48522.
115.	1.511	1.055	0.948	1163.485	18.90	27.182	103.217	130.400	8597.	40064.	48661.
120.	1.774	1.051	0.951	1001.241	18.98	28.141	101.299	129.440	8972.	39826.	48798.
125.	2.074	1.048	0.954	865.298	19.05	29.089	99.421	128.510	9348.	39584.	48932.
130.	2.414	1.044	0.958	750.855	19.13	30.025	97.581	127.607	9724.	39340.	49064.
135.	2.798	1.040	0.962	654.078	19.21	30.951	95.778	126.730	10100.	39092.	49192.
140.	3.229	1.036	0.965	571.885	19.30	31.867	94.010	125.877	10477.	38840.	49317.
145.	3.713	1.032	0.969	501.786	19.38	32.773	92.275	125.048	10854.	38585.	49439.
150.	4.254	1.028	0.973	441.765	19.47	33.670	90.570	124.240	11233.	38325.	49558.
155.	4.856	1.024	0.977	390.174	19.57	34.558	88.895	123.453	11612.	38061.	49672.
160.	5.524	1.020	0.981	345.666	19.66	35.437	87.248	122.685	11992.	37792.	49783.
165.	6.263	1.015	0.985	307.132	19.76	36.308	85.628	121.936	12373.	37518.	49891.
170.	7.079	1.011	0.989	273.657	19.86	37.172	84.032	121.204	12755.	37239.	49994.
175.	7.976	1.007	0.993	244.482	19.97	38.027	82.460	120.487	13138.	36954.	50092.
180.	8.961	1.002	0.998	218.973	20.07	38.876	80.910	119.786	13523.	36664.	50187.
185.	10.040	0.998	1.002	196.602	20.19	39.718	79.381	119.099	13908.	36368.	50277.
190.	11.217	0.993	1.007	176.926	20.30	40.553	77.872	118.425	14295.	36066.	50362.
195.	12.501	0.988	1.012	159.571	20.42	41.382	76.381	117.764	14684.	35758.	50442.

200.	13.895	0.984	1.017	144.222	20.54	42.205	74.908	117.113	15074.	35443.	50517.
205.	15.409	0.979	1.022	130.610	20.67	43.023	73.451	116.474	15466.	35121.	50587.
210.	17.047	0.974	1.027	118.509	20.80	43.835	72.009	115.844	15860.	34791.	50651.
215.	18.817	0.969	1.032	107.725	20.94	44.641	70.582	115.223	16255.	34455.	50710.
220.	20.726	0.964	1.037	98.091	21.08	45.443	69.167	114.610	16653.	34110.	50762.
225.	22.781	0.959	1.043	89.465	21.23	46.240	67.765	114.005	17052.	33757.	50809.
230.	24.989	0.954	1.048	81.725	21.38	47.032	66.374	113.405	17453.	33396.	50849.
235.	27.358	0.949	1.054	74.764	21.54	47.820	64.992	112.812	17857.	33026.	50883.
240.	29.895	0.944	1.060	68.491	21.70	48.604	63.620	112.224	18262.	32647.	50909.
245.	32.609	0.938	1.066	62.826	21.87	49.383	62.256	111.640	18670.	32258.	50929.
250.	35.507	0.933	1.072	57.701	22.05	50.160	60.899	111.059	19081.	31859.	50940.
255.	38.597	0.927	1.078	53.055	22.24	50.932	59.549	110.481	19494.	31451.	50944.
260.	41.889	0.922	1.085	48.835	22.43	51.702	58.203	109.904	19910.	31031.	50940.
265.	45.389	0.916	1.091	44.996	22.64	52.468	56.861	109.329	20328.	30600.	50928.
270.	49.108	0.910	1.098	41.497	22.85	53.231	55.523	108.754	20749.	30157.	50906.
275.	53.053	0.905	1.105	38.302	23.07	53.992	54.186	108.178	21173.	29702.	50875.
280.	57.235	0.899	1.113	35.381	23.31	54.750	52.851	107.601	21600.	29234.	50835.
285.	61.663	0.893	1.120	32.705	23.56	55.506	51.515	107.021	22031.	28753.	50784.
290.	66.346	0.887	1.128	30.250	23.82	56.261	50.178	106.439	22465.	28258.	50723.
295.	71.295	0.880	1.136	27.995	24.10	57.014	48.839	105.852	22903.	27748.	50651.
300.	76.519	0.874	1.144	25.920	24.39	57.765	47.496	105.261	23344.	27222.	50567.
305.	(82.030)	0.868	1.153	(24.008)	24.70	(58.517)	(46.148)	(104.665)	(23790.)	(26681.)	(50471.)
310.	(87.839)	0.861	1.162	(22.244)	25.04	(59.268)	(44.794)	(104.062)	(24241.)	(26122.)	(50363.)
315.	(93.958)	0.854	1.171	(20.614)	25.40	(60.020)	(43.432)	(103.452)	(24697.)	(25544.)	(50242.)
320.	(100.397)	0.847	1.180	(19.107)	25.79	(60.774)	(42.061)	(102.835)	(25159.)	(24948.)	(50107.)
325.	(107.171)	0.840	1.191	(17.711)	26.20	(61.531)	(40.678)	(102.209)	(25627.)	(24332.)	(49959.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 11. NaCl concentration: 3.5000 mol/kg H_2O 16.98 wt percent 5.931 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	($g\ cm^{-3}$)	($cm^3\ g^{-1}$)		($cm^3\ mol^{-1}$)	($J\ mol^{-1}\ K^{-1}$)			($J\ mol^{-1}$)		
80.	0.414	1.093	0.915	3903.104	18.44	20.238	118.027	138.265	5961.	41681.	47642.
85.	0.506	1.090	0.917	3239.071	18.50	21.281	115.768	137.049	6332.	41462.	47794.
90.	0.613	1.087	0.920	2704.077	18.55	22.312	113.564	135.877	6704.	41241.	47945.
95.	0.740	1.084	0.923	2270.307	18.61	23.332	111.413	134.745	7077.	41017.	48093.
100.	0.887	1.080	0.926	1916.473	18.68	24.341	109.310	133.651	7451.	40789.	48240.
105.	1.057	1.077	0.928	1626.269	18.74	25.336	107.259	132.595	7825.	40560.	48385.
110.	1.254	1.074	0.931	1386.721	18.81	26.316	105.257	131.573	8198.	40329.	48527.
115.	1.480	1.070	0.935	1188.016	18.88	27.284	103.299	130.583	8572.	40095.	48668.
120.	1.738	1.066	0.938	1022.345	18.95	28.240	101.384	129.625	8946.	39859.	48805.
125.	2.032	1.063	0.941	883.537	19.02	29.185	99.510	128.695	9320.	39620.	48940.
130.	2.365	1.059	0.944	766.688	19.10	30.119	97.675	127.793	9695.	39378.	49073.
135.	2.742	1.055	0.948	667.879	19.18	31.041	95.876	126.918	10070.	39132.	49202.
140.	3.165	1.051	0.951	583.963	19.26	31.954	94.113	126.067	10446.	38883.	49328.
145.	3.639	1.047	0.955	512.399	19.34	32.857	92.382	125.239	10822.	38630.	49451.
150.	4.169	1.043	0.959	451.124	19.43	33.750	90.683	124.433	11199.	38373.	49571.
155.	4.759	1.039	0.962	398.458	19.52	34.634	89.014	123.648	11576.	38111.	49687.
160.	5.414	1.035	0.966	353.023	19.61	35.510	87.373	122.883	11954.	37846.	49800.
165.	6.139	1.031	0.970	313.689	19.71	36.377	85.759	122.135	12334.	37575.	49909.
170.	6.939	1.026	0.974	279.519	19.81	37.236	84.170	121.406	12714.	37300.	50014.
175.	7.819	1.022	0.978	249.739	19.91	38.087	82.605	120.692	13095.	37019.	50114.
180.	8.785	1.018	0.983	223.702	20.02	38.931	81.062	119.994	13477.	36733.	50211.
185.	9.842	1.013	0.987	200.868	20.12	39.768	79.541	119.310	13861.	36442.	50303.
190.	10.997	1.009	0.991	180.785	20.24	40.599	78.040	118.639	14246.	36144.	50390.
195.	12.256	1.004	0.996	163.071	20.35	41.423	76.558	117.981	14632.	35841.	50473.

200.	13.624	1.000	1.000	147.405	20.47	42.240	75.094	117.334	15019.	35531.	50550.
205.	15.108	0.995	1.005	133.513	20.59	43.052	73.647	116.699	15409.	35214.	50623.
210.	16.714	0.990	1.010	121.163	20.72	43.858	72.215	116.073	15799.	34891.	50690.
215.	18.450	0.985	1.015	110.156	20.85	44.658	70.798	115.457	16192.	34560.	50752.
220.	20.322	0.981	1.020	100.325	20.99	45.454	69.395	114.849	16586.	34222.	50808.
225.	22.337	0.976	1.025	91.522	21.13	46.244	68.004	114.248	16982.	33876.	50858.
230.	24.502	0.971	1.030	83.622	21.28	47.029	66.626	113.655	17379.	33523.	50902.
235.	26.825	0.966	1.036	76.518	21.43	47.810	65.257	113.067	17779.	33161.	50940.
240.	29.314	0.961	1.041	70.117	21.59	48.586	63.899	112.485	18181.	32790.	50971.
245.	31.975	0.955	1.047	64.337	21.76	49.358	62.550	111.908	18585.	32410.	50995.
250.	34.816	0.950	1.052	59.107	21.93	50.126	61.208	111.334	18991.	32021.	51012.
255.	37.846	0.945	1.058	54.366	22.11	50.890	59.874	110.763	19399.	31622.	51021.
260.	41.073	0.940	1.064	50.061	22.30	51.650	58.545	110.195	19809.	31213.	51023.
265.	44.505	0.934	1.070	46.144	22.49	52.407	57.222	109.629	20222.	30794.	51016.
270.	48.151	0.929	1.076	42.574	22.70	53.160	55.903	109.063	20638.	30364.	51001.
275.	52.019	0.924	1.083	39.315	22.91	53.910	54.587	108.497	21056.	29922.	50978.
280.	56.119	0.918	1.089	36.335	23.14	54.657	53.273	107.930	21477.	29468.	50945.
285.	60.459	0.912	1.096	33.606	23.37	55.402	51.961	107.362	21901.	29002.	50903.
290.	65.049	0.907	1.103	31.102	23.62	56.144	50.648	106.792	22328.	28523.	50850.
295.	69.900	0.901	1.110	28.802	23.89	56.884	49.335	106.219	22758.	28030.	50787.
300.	75.020	0.895	1.117	26.686	24.17	57.622	48.020	105.642	23191.	27523.	50714.
305.	(80.420)	0.889	1.125	(24.737)	24.46	(58.359)	(46.702)	(105.060)	(23628.)	(27001.)	(50629.)
310.	(86.112)	0.883	1.132	(22.938)	24.78	(59.094)	(45.379)	(104.474)	(24070.)	(26463.)	(50532.)
315.	(92.106)	0.877	1.140	(21.277)	25.12	(59.830)	(44.051)	(103.881)	(24515.)	(25909.)	(50424.)
320.	(98.415)	0.871	1.148	(19.741)	25.48	(60.566)	(42.716)	(103.282)	(24966.)	(25337.)	(50303.)
325.	(105.049)	0.864	1.157	(18.318)	25.87	(61.303)	(41.372)	(102.675)	(25422.)	(24747.)	(50169.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 12. NaCl concentration: 4.0000 mol/kg H_2O 18.95 wt percent 6.722 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.405	1.108	0.902	3994.293	18.42	20.344	118.118	138.462	5931.	41713.	47645.
85.	0.494	1.105	0.905	3314.453	18.48	21.385	115.861	137.246	6302.	41496.	47797.
90.	0.600	1.102	0.907	2766.779	18.53	22.413	113.660	136.074	6673.	41276.	47948.
95.	0.723	1.099	0.910	2322.771	18.59	23.431	111.511	134.942	7045.	41053.	48098.
100.	0.867	1.096	0.913	1960.619	18.65	24.437	109.412	133.848	7418.	40827.	48245.
105.	1.034	1.092	0.916	1663.621	18.71	25.429	107.363	132.793	7791.	40599.	48390.
110.	1.226	1.089	0.918	1418.489	18.78	26.407	105.363	131.771	8164.	40370.	48534.
115.	1.448	1.085	0.921	1215.170	18.84	27.373	103.409	130.782	8536.	40138.	48675.
120.	1.700	1.082	0.925	1045.666	18.91	28.326	101.497	129.824	8909.	39904.	48813.
125.	1.988	1.078	0.928	903.659	18.99	29.268	99.627	128.895	9282.	39666.	48949.
130.	2.314	1.074	0.931	784.126	19.06	30.199	97.796	127.994	9656.	39426.	49082.
135.	2.682	1.070	0.934	683.056	19.14	31.118	96.001	127.120	10030.	39183.	49213.
140.	3.097	1.066	0.938	597.226	19.22	32.028	94.242	126.270	10404.	38936.	49340.
145.	3.561	1.062	0.941	524.034	19.30	32.927	92.517	125.444	10779.	38686.	49464.
150.	4.080	1.058	0.945	461.370	19.38	33.817	90.823	124.639	11154.	38432.	49585.
155.	4.658	1.054	0.948	407.513	19.47	34.697	89.159	123.856	11530.	38173.	49703.
160.	5.300	1.050	0.952	361.054	19.56	35.569	87.524	123.092	11906.	37911.	49817.
165.	6.009	1.046	0.956	320.835	19.65	36.432	85.915	122.347	12284.	37644.	49928.
170.	6.793	1.042	0.960	285.899	19.75	37.287	84.333	121.620	12662.	37372.	50034.
175.	7.655	1.037	0.964	255.452	19.85	38.134	82.775	120.909	13041.	37095.	50137.
180.	8.601	1.033	0.968	228.834	19.95	38.974	81.239	120.213	13421.	36814.	50235.
185.	9.637	1.029	0.972	205.491	20.05	39.806	79.726	119.532	13803.	36526.	50329.
190.	10.768	1.024	0.976	184.962	20.16	40.631	78.233	118.864	14185.	36234.	50419.
195.	12.001	1.020	0.981	166.855	20.27	41.450	76.759	118.209	14569.	35935.	50504.

200.	13.341	1.015	0.985	150.842	20.39	42.262	75.304	117.567	14954.	35630.	50584.
205.	14.795	1.011	0.989	136.643	20.51	43.069	73.866	116.935	15341.	35319.	50660.
210.	16.369	1.006	0.994	124.020	20.63	43.869	72.444	116.313	15728.	35001.	50730.
215.	18.070	1.001	0.999	112.772	20.76	44.663	71.038	115.701	16118.	34677.	50795.
220.	19.904	0.997	1.003	102.724	20.89	45.452	69.645	115.097	16509.	34346.	50854.
225.	21.879	0.992	1.008	93.728	21.03	46.236	68.266	114.502	16901.	34007.	50908.
230.	24.001	0.987	1.013	85.655	21.17	47.014	66.899	113.913	17295.	33660.	50956.
235.	26.277	0.982	1.018	78.396	21.32	47.788	65.544	113.332	17691.	33306.	50997.
240.	28.715	0.977	1.023	71.855	21.47	48.557	64.199	112.755	18089.	32944.	51033.
245.	31.323	0.972	1.028	65.949	21.63	49.321	62.863	112.184	18489.	32573.	51062.
250.	34.107	0.967	1.034	60.606	21.79	50.081	61.537	111.618	18890.	32193.	51084.
255.	37.076	0.962	1.039	55.762	21.97	50.836	60.218	111.054	19294.	31804.	51098.
260.	40.238	0.957	1.044	51.364	22.15	51.587	58.906	110.494	19700.	31406.	51106.
265.	43.601	0.952	1.050	47.363	22.33	52.335	57.601	109.936	20108.	30998.	51105.
270.	47.173	0.947	1.056	43.716	22.53	53.079	56.300	109.379	20518.	30579.	51097.
275.	50.963	0.942	1.061	40.388	22.73	53.818	55.004	108.822	20930.	30150.	51080.
280.	54.980	0.937	1.067	37.344	22.95	54.555	53.711	108.266	21345.	29710.	51055.
285.	59.232	0.932	1.073	34.557	23.17	55.288	52.421	107.709	21762.	29259.	51021.
290.	63.729	0.926	1.079	32.000	23.41	56.018	51.132	107.150	22182.	28795.	50977.
295.	68.480	0.921	1.086	29.652	23.66	56.745	49.844	106.590	22604.	28319.	50923.
300.	73.495	0.916	1.092	27.492	23.92	57.470	48.556	106.026	23030.	27830.	50860.
305.	(78.785)	0.910	1.098	(25.502)	24.20	(58.193)	(47.266)	(105.459)	(23458.)	(27327.)	(50785.)
310.	(84.359)	0.905	1.105	(23.666)	24.49	(58.913)	(45.974)	(104.887)	(23890.)	(26810.)	(50700.)
315.	(90.229)	0.900	1.112	(21.971)	24.81	(59.633)	(44.678)	(104.311)	(24326.)	(26277.)	(50604.)
320.	(96.406)	0.894	1.119	(20.403)	25.14	(60.351)	(43.378)	(103.729)	(24766.)	(25729.)	(50495.)
325.	(102.901)	0.888	1.126	(18.951)	25.50	(61.069)	(42.071)	(103.140)	(25210.)	(25165.)	(50375.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 13. NaCl concentration: 4.2777 mol/kg H_2O 20.00 wt percent 7.155 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.400	1.116	0.896	4048.129	18.41	20.393	118.183	138.576	5910.	41736.	47646.
85.	0.488	1.113	0.898	3358.879	18.46	21.432	115.928	137.360	6280.	41520.	47799.
90.	0.592	1.110	0.901	2803.668	18.52	22.460	113.728	136.187	6650.	41300.	47950.
95.	0.714	1.107	0.903	2353.585	18.57	23.475	111.580	135.055	7022.	41078.	48100.
100.	0.856	1.104	0.906	1986.505	18.63	24.480	109.482	133.962	7395.	40853.	48248.
105.	1.021	1.100	0.909	1685.489	18.69	25.472	107.434	132.906	7767.	40626.	48393.
110.	1.211	1.097	0.912	1437.058	18.76	26.448	105.436	131.884	8139.	40398.	48537.
115.	1.429	1.093	0.915	1231.017	18.82	27.412	103.483	130.895	8511.	40167.	48678.
120.	1.679	1.090	0.918	1059.256	18.89	28.364	101.573	129.938	8884.	39934.	48817.
125.	1.963	1.086	0.921	915.366	18.96	29.305	99.705	129.009	9256.	39697.	48954.
130.	2.285	1.082	0.924	794.257	19.04	30.234	97.875	128.109	9629.	39458.	49088.
135.	2.649	1.078	0.927	691.860	19.11	31.152	96.083	127.235	10002.	39216.	49219.
140.	3.059	1.075	0.931	604.909	19.19	32.059	94.326	126.386	10376.	38971.	49347.
145.	3.518	1.071	0.934	530.764	19.27	32.957	92.603	125.560	10750.	38722.	49472.
150.	4.031	1.067	0.938	467.288	19.35	33.845	90.912	124.756	11124.	38469.	49593.
155.	4.602	1.062	0.941	412.736	19.44	34.723	89.251	123.974	11499.	38213.	49712.
160.	5.236	1.058	0.945	365.680	19.53	35.593	87.618	123.211	11875.	37952.	49827.
165.	5.937	1.054	0.949	324.947	19.62	36.454	86.013	122.467	12251.	37687.	49938.
170.	6.712	1.050	0.952	289.565	19.71	37.307	84.434	121.740	12629.	37417.	50046.
175.	7.564	1.046	0.956	258.731	19.81	38.151	82.879	121.031	13007.	37142.	50149.
180.	8.499	1.041	0.960	231.775	19.91	38.989	81.348	120.336	13386.	36863.	50249.
185.	9.523	1.037	0.964	208.138	20.01	39.818	79.838	119.656	13766.	36578.	50344.
190.	10.642	1.033	0.968	187.350	20.12	40.641	78.349	118.990	14147.	36287.	50435.
195.	11.861	1.028	0.973	169.016	20.23	41.457	76.880	118.337	14530.	35991.	50521.

200.	13.186	1.024	0.977	152.803	20.34	42.267	75.429	117.696	14914.	35689.	50603.
205.	14.623	1.019	0.981	138.426	20.46	43.070	73.996	117.066	15299.	35381.	50680.
210.	16.179	1.015	0.986	125.646	20.58	43.867	72.579	116.446	15685.	35067.	50752.
215.	17.861	1.010	0.990	114.258	20.71	44.659	71.178	115.836	16073.	34745.	50818.
220.	19.675	1.005	0.995	104.086	20.84	45.444	69.791	115.235	16462.	34417.	50879.
225.	21.627	1.001	0.999	94.978	20.97	46.224	68.418	114.642	16853.	34082.	50935.
230.	23.725	0.996	1.004	86.807	21.11	46.999	67.057	114.057	17245.	33740.	50985.
235.	25.976	0.991	1.009	79.458	21.25	47.769	65.708	113.478	17639.	33390.	51029.
240.	28.387	0.986	1.014	72.837	21.40	48.534	64.370	112.904	18035.	33032.	51067.
245.	30.966	0.981	1.019	66.859	21.56	49.294	63.042	112.337	18432.	32665.	51098.
250.	33.719	0.977	1.024	61.450	21.72	50.050	61.723	111.773	18832.	32291.	51122.
255.	36.655	0.972	1.029	56.548	21.88	50.801	60.413	111.214	19233.	31907.	51140.
260.	39.782	0.967	1.034	52.097	22.06	51.548	59.110	110.657	19636.	31514.	51150.
265.	43.108	0.962	1.040	48.047	22.24	52.290	57.813	110.103	20041.	31112.	51153.
270.	46.640	0.957	1.045	44.357	22.43	53.029	56.522	109.551	20448.	30700.	51148.
275.	50.388	0.952	1.051	40.989	22.63	53.763	55.236	109.000	20858.	30278.	51135.
280.	54.360	0.947	1.056	37.909	22.83	54.494	53.954	108.449	21269.	29845.	51114.
285.	58.565	0.942	1.062	35.088	23.05	55.222	52.675	107.897	21683.	29401.	51084.
290.	63.012	0.937	1.067	32.502	23.28	55.946	51.399	107.344	22099.	28945.	51044.
295.	67.710	0.932	1.073	30.126	23.52	56.666	50.124	106.790	22518.	28478.	50996.
300.	72.669	0.927	1.079	27.940	23.78	57.384	48.849	106.233	22939.	27998.	50937.
305.	(77.899)	0.922	1.085	(25.927)	24.04	(58.099)	(47.574)	(105.673)	(23363.)	(27505.)	(50868.)
310.	(83.411)	0.916	1.091	(24.070)	24.33	(58.812)	(46.298)	(105.109)	(23790.)	(26998.)	(50789.)
315.	(89.214)	0.911	1.097	(22.355)	24.63	(59.523)	(45.018)	(104.541)	(24221.)	(26478.)	(50699.)
320.	(95.321)	0.906	1.103	(20.770)	24.95	(60.232)	(43.736)	(103.968)	(24655.)	(25942.)	(50597.)
325.	(101.742)	0.901	1.110	(19.301)	25.29	(60.940)	(42.449)	(103.389)	(25093.)	(25391.)	(50484.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 14. NaCl concentration: 4.5000 mol/kg H_2O 20.82 wt percent 7.499 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.395	1.123	0.890	4093.013	18.40	20.426	118.244	138.670	5889.	41758.	47647.
85.	0.483	1.120	0.893	3395.873	18.45	21.464	115.989	137.454	6259.	41542.	47801.
90.	0.586	1.117	0.895	2834.350	18.51	22.491	113.790	136.281	6629.	41323.	47952.
95.	0.706	1.114	0.898	2379.183	18.56	23.505	111.643	135.148	7001.	41101.	48102.
100.	0.847	1.110	0.901	2007.985	18.62	24.509	109.546	134.055	7373.	40877.	48250.
105.	1.010	1.107	0.903	1703.502	18.68	25.502	107.496	132.998	7746.	40650.	48396.
110.	1.198	1.103	0.906	1452.431	18.74	26.475	105.502	131.977	8117.	40423.	48540.
115.	1.414	1.100	0.909	1244.122	18.81	27.438	103.550	130.988	8489.	40193.	48681.
120.	1.662	1.096	0.912	1070.482	18.88	28.389	101.641	130.031	8860.	39960.	48821.
125.	1.943	1.092	0.915	925.028	18.95	29.328	99.774	129.102	9233.	39725.	48958.
130.	2.262	1.089	0.919	802.609	19.02	30.256	97.946	128.202	9605.	39487.	49092.
135.	2.623	1.085	0.922	699.111	19.09	31.173	96.156	127.328	9977.	39246.	49223.
140.	3.028	1.081	0.925	611.229	19.17	32.079	94.400	126.479	10350.	39002.	49352.
145.	3.483	1.077	0.929	536.296	19.25	32.975	92.679	125.654	10724.	38754.	49477.
150.	3.991	1.073	0.932	472.148	19.33	33.861	90.990	124.851	11098.	38502.	49600.
155.	4.557	1.069	0.936	417.021	19.42	34.739	89.330	124.069	11472.	38247.	49719.
160.	5.185	1.065	0.939	369.472	19.50	35.607	87.700	123.307	11847.	37987.	49834.
165.	5.880	1.061	0.943	328.313	19.59	36.466	86.098	122.564	12223.	37724.	49946.
170.	6.647	1.056	0.947	292.563	19.69	37.317	84.521	121.838	12599.	37455.	50055.
175.	7.491	1.052	0.950	261.410	19.78	38.160	82.969	121.129	12977.	37182.	50159.
180.	8.418	1.048	0.954	234.176	19.88	38.995	81.440	120.435	13355.	36904.	50259.
185.	9.432	1.044	0.958	210.297	19.98	39.823	79.933	119.757	13734.	36621.	50356.
190.	10.541	1.039	0.962	189.296	20.09	40.644	78.447	119.092	14115.	36333.	50447.
195.	11.748	1.035	0.966	170.775	20.19	41.458	76.982	118.440	14496.	36039.	50535.

200.	13.061	1.030	0.971	154.397	20.30	42.266	75.534	117.800	14879.	35739.	50618.
205.	14.486	1.026	0.975	139.875	20.42	43.067	74.105	117.171	15262.	35433.	50696.
210.	16.028	1.021	0.979	126.967	20.54	43.861	72.692	116.553	15648.	35121.	50769.
215.	17.695	1.017	0.984	115.464	20.66	44.650	71.295	115.945	16034.	34802.	50837.
220.	19.492	1.012	0.988	105.190	20.79	45.433	69.912	115.345	16422.	34477.	50899.
225.	21.427	1.007	0.993	95.991	20.92	46.211	68.543	114.754	16812.	34145.	50956.
230.	23.507	1.003	0.997	87.738	21.05	46.983	67.187	114.171	17203.	33805.	51008.
235.	25.738	0.998	1.002	80.317	21.20	47.750	65.844	113.594	17595.	33458.	51054.
240.	28.128	0.993	1.007	73.631	21.34	48.512	64.511	113.023	17989.	33104.	51093.
245.	30.683	0.989	1.012	67.593	21.49	49.269	63.188	112.458	18385.	32741.	51126.
250.	33.412	0.984	1.017	62.132	21.65	50.022	61.875	111.897	18783.	32370.	51153.
255.	36.323	0.979	1.022	57.182	21.81	50.769	60.571	111.340	19182.	31991.	51173.
260.	39.422	0.974	1.027	52.687	21.98	51.513	59.274	110.787	19583.	31602.	51185.
265.	42.718	0.969	1.032	48.598	22.16	52.251	57.985	110.236	19986.	31204.	51191.
270.	46.220	0.964	1.037	44.872	22.35	52.986	56.701	109.687	20391.	30797.	51189.
275.	49.935	0.960	1.042	41.471	22.54	53.717	55.423	109.139	20798.	30380.	51178.
280.	53.872	0.955	1.047	38.362	22.74	54.443	54.149	108.592	21207.	29953.	51160.
285.	58.040	0.950	1.053	35.515	22.95	55.166	52.879	108.045	21619.	29514.	51133.
290.	62.447	0.945	1.058	32.903	23.18	55.885	51.612	107.497	22032.	29065.	51097.
295.	67.104	0.940	1.064	30.505	23.41	56.601	50.346	106.947	22448.	28604.	51052.
300.	72.020	0.935	1.069	28.299	23.66	57.313	49.082	106.396	22866.	28131.	50997.
305.	(77.203)	0.930	1.075	(26.267)	23.91	(58.023)	(47.818)	(105.841)	(23286.)	(27646.)	(50933.)
310.	(82.666)	0.925	1.081	(24.393)	24.19	(58.730)	(46.553)	(105.283)	(23710.)	(27148.)	(50858.)
315.	(88.418)	0.921	1.086	(22.662)	24.48	(59.434)	(45.287)	(104.721)	(24136.)	(26636.)	(50772.)
320.	(94.470)	0.916	1.092	(21.062)	24.78	(60.136)	(44.018)	(104.154)	(24566.)	(26109.)	(50676.)
325.	(100.834)	0.911	1.098	(19.580)	25.11	(60.837)	(42.746)	(103.583)	(24999.)	(25568.)	(50568.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 15. NaCl concentration: 5.0000 mol/kg H_2O 22.61 wt percent 8.263 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.385	1.137	0.879	4200.277	18.38	20.478	118.413	138.891	5833.	41818.	47651.
85.	0.470	1.134	0.882	3484.117	18.43	21.514	116.159	137.673	6202.	41602.	47804.
90.	0.571	1.131	0.884	2907.401	18.48	22.538	113.961	136.499	6571.	41385.	47956.
95.	0.689	1.128	0.887	2440.022	18.53	23.550	111.815	135.366	6942.	41165.	48106.
100.	0.826	1.124	0.889	2058.943	18.59	24.552	109.720	134.271	7313.	40942.	48255.
105.	0.986	1.121	0.892	1746.420	18.65	25.542	107.672	133.214	7685.	40716.	48402.
110.	1.169	1.117	0.895	1488.773	18.71	26.514	105.679	132.192	8055.	40491.	48546.
115.	1.381	1.114	0.898	1275.050	18.77	27.475	103.729	131.203	8426.	40262.	48689.
120.	1.622	1.110	0.901	1096.930	18.84	28.423	101.822	130.245	8797.	40031.	48829.
125.	1.898	1.106	0.904	947.750	18.91	29.360	99.957	129.317	9168.	39798.	48966.
130.	2.210	1.103	0.907	822.219	18.98	30.285	98.132	128.417	9540.	39562.	49102.
135.	2.562	1.099	0.910	716.107	19.05	31.199	96.344	127.543	9911.	39323.	49234.
140.	2.959	1.095	0.913	626.021	19.12	32.102	94.592	126.695	10283.	39081.	49364.
145.	3.404	1.091	0.917	549.220	19.20	32.996	92.875	125.870	10655.	38835.	49490.
150.	3.901	1.087	0.920	483.484	19.28	33.879	91.189	125.068	11027.	38587.	49614.
155.	4.454	1.083	0.923	427.001	19.36	34.753	89.534	124.287	11400.	38334.	49734.
160.	5.069	1.079	0.927	378.289	19.44	35.618	87.908	123.526	11774.	38077.	49851.
165.	5.750	1.075	0.931	336.129	19.53	36.473	86.310	122.784	12148.	37817.	49965.
170.	6.501	1.070	0.934	299.515	19.62	37.321	84.738	122.059	12523.	37552.	50075.
175.	7.328	1.066	0.938	267.613	19.71	38.160	83.192	121.352	12899.	37282.	50181.
180.	8.235	1.062	0.942	239.728	19.81	38.992	81.668	120.660	13275.	37008.	50283.
185.	9.229	1.058	0.946	215.280	19.90	39.816	80.168	119.983	13653.	36729.	50382.
190.	10.315	1.053	0.949	193.782	20.00	40.632	78.688	119.321	14031.	36444.	50476.
195.	11.498	1.049	0.953	174.825	20.11	41.442	77.229	118.671	14410.	36155.	50565.

200.	12.785	1.044	0.957	158.063	20.21	42.245	75.789	118.034	14791.	35860.	50650.
205.	14.181	1.040	0.962	143.202	20.32	43.041	74.367	117.408	15172.	35559.	50731.
210.	15.692	1.036	0.966	129.993	20.44	43.831	72.962	116.793	15555.	35252.	50807.
215.	17.326	1.031	0.970	118.224	20.56	44.615	71.573	116.188	15939.	34938.	50878.
220.	19.088	1.027	0.974	107.713	20.68	45.393	70.199	115.592	16325.	34619.	50943.
225.	20.985	1.022	0.978	98.304	20.80	46.165	68.840	115.004	16711.	34292.	51004.
230.	23.023	1.017	0.983	89.862	20.93	46.931	67.494	114.425	17099.	33959.	51059.
235.	25.211	1.013	0.987	82.273	21.07	47.692	66.160	113.852	17489.	33619.	51108.
240.	27.554	1.008	0.992	75.434	21.20	48.448	64.838	113.286	17879.	33272.	51151.
245.	30.060	1.004	0.996	69.261	21.35	49.199	63.527	112.726	18272.	32917.	51188.
250.	32.736	0.999	1.001	63.677	21.50	49.944	62.226	112.171	18666.	32554.	51219.
255.	35.590	0.994	1.006	58.616	21.65	50.685	60.935	111.620	19061.	32183.	51244.
260.	38.630	0.990	1.010	54.021	21.81	51.421	59.651	111.072	19458.	31803.	51261.
265.	41.863	0.985	1.015	49.842	21.98	52.152	58.376	110.528	19857.	31415.	51272.
270.	45.297	0.981	1.020	46.033	22.16	52.879	57.107	109.986	20258.	31018.	51275.
275.	48.941	0.976	1.025	42.558	22.34	53.601	55.845	109.446	20660.	30612.	51271.
280.	52.803	0.971	1.029	39.381	22.53	54.319	54.588	108.907	21064.	30196.	51259.
285.	56.891	0.967	1.034	36.472	22.73	55.032	53.336	108.368	21469.	29770.	51239.
290.	61.214	0.962	1.039	33.804	22.93	55.741	52.088	107.830	21877.	29333.	51210.
295.	65.782	0.958	1.044	31.354	23.15	56.447	50.843	107.290	22286.	28887.	51173.
300.	70.603	0.953	1.049	29.101	23.38	57.148	49.601	106.749	22698.	28429.	51126.
305.	(75.688)	0.949	1.054	(27.026)	23.62	(57.846)	(48.360)	(106.205)	(23111.)	(27959.)	(51070.)
310.	(81.046)	0.944	1.059	(25.112)	23.86	(58.540)	(47.120)	(105.659)	(23527.)	(27478.)	(51005.)
315.	(86.687)	0.940	1.064	(23.345)	24.13	(59.230)	(45.880)	(105.110)	(23945.)	(26984.)	(50929.)
320.	(92.622)	0.936	1.069	(21.711)	24.40	(59.918)	(44.639)	(104.557)	(24365.)	(26478.)	(50843.)
325.	(98.863)	0.932	1.073	(20.198)	24.69	(60.602)	(43.397)	(103.999)	(24788.)	(25958.)	(50746.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 16. NaCl concentration: 5.5000 mol/kg H_2O 24.32 wt percent 9.015 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.375	1.151	0.869	4317.348	18.35	20.494	118.630	139.125	5759.	41894.	47654.
85.	0.458	1.148	0.871	3580.166	18.40	21.529	116.376	137.905	6127.	41680.	47808.
90.	0.556	1.145	0.873	2986.700	18.45	22.551	114.178	136.729	6496.	41464.	47960.
95.	0.671	1.142	0.876	2505.886	18.50	23.561	112.034	135.595	6866.	41245.	48111.
100.	0.805	1.138	0.879	2113.966	18.56	24.560	109.939	134.499	7236.	41024.	48260.
105.	0.961	1.135	0.881	1792.640	18.61	25.548	107.893	133.441	7608.	40800.	48407.
110.	1.140	1.131	0.884	1527.811	18.67	26.518	105.899	132.418	7977.	40575.	48553.
115.	1.346	1.128	0.887	1308.186	18.73	27.477	103.951	131.428	8347.	40348.	48696.
120.	1.583	1.124	0.890	1125.195	18.80	28.423	102.046	130.469	8717.	40119.	48837.
125.	1.851	1.120	0.893	971.973	18.86	29.357	100.183	129.540	9087.	39888.	48975.
130.	2.156	1.116	0.896	843.071	18.93	30.280	98.359	128.639	9458.	39654.	49111.
135.	2.501	1.112	0.899	734.136	19.00	31.192	96.574	127.766	9828.	39417.	49245.
140.	2.889	1.108	0.902	641.673	19.07	32.093	94.824	126.917	10199.	39177.	49376.
145.	3.324	1.104	0.905	562.865	19.15	32.983	93.109	126.092	10570.	38934.	49503.
150.	3.810	1.100	0.909	495.423	19.22	33.864	91.426	125.290	10941.	38687.	49628.
155.	4.352	1.096	0.912	437.486	19.30	34.735	89.775	124.509	11313.	38437.	49750.
160.	4.954	1.092	0.916	387.531	19.38	35.597	88.152	123.749	11685.	38183.	49868.
165.	5.620	1.088	0.919	344.302	19.46	36.449	86.558	123.008	12058.	37925.	49984.
170.	6.355	1.084	0.923	306.768	19.55	37.294	84.990	122.284	12432.	37664.	50095.
175.	7.165	1.080	0.926	274.069	19.64	38.130	83.448	121.578	12806.	37397.	50203.
180.	8.054	1.075	0.930	245.493	19.73	38.958	81.930	120.887	13181.	37126.	50307.
185.	9.027	1.071	0.934	220.444	19.82	39.778	80.434	120.212	13556.	36851.	50407.
190.	10.091	1.067	0.937	198.420	19.92	40.591	78.960	119.551	13933.	36570.	50503.
195.	11.251	1.062	0.941	179.003	20.02	41.396	77.507	118.903	14310.	36285.	50595.

200.	12.512	1.058	0.945	161.836	20.12	42.195	76.072	118.268	14689.	35994.	50682.
205.	13.880	1.054	0.949	146.618	20.22	42.987	74.657	117.644	15068.	35697.	50765.
210.	15.362	1.049	0.953	133.095	20.33	43.773	73.259	117.031	15449.	35395.	50844.
215.	16.964	1.045	0.957	121.047	20.44	44.552	71.877	116.429	15831.	35087.	50917.
220.	18.691	1.040	0.961	110.288	20.56	45.325	70.511	115.836	16213.	34772.	50986.
225.	20.552	1.036	0.965	100.659	20.68	46.093	69.159	115.252	16598.	34452.	51049.
230.	22.551	1.031	0.970	92.020	20.80	46.854	67.821	114.675	16983.	34124.	51107.
235.	24.697	1.027	0.974	84.255	20.93	47.610	66.497	114.107	17370.	33790.	51160.
240.	26.996	1.022	0.978	77.259	21.06	48.360	65.184	113.544	17758.	33449.	51207.
245.	29.455	1.018	0.982	70.944	21.20	49.105	63.883	112.988	18147.	33101.	51248.
250.	32.081	1.013	0.987	65.233	21.34	49.845	62.593	112.437	18537.	32745.	51283.
255.	34.882	1.009	0.991	60.058	21.48	50.579	61.312	111.891	18930.	32382.	51312.
260.	37.865	1.005	0.995	55.359	21.64	51.308	60.041	111.349	19323.	32011.	51334.
265.	41.038	1.000	1.000	51.086	21.79	52.033	58.778	110.811	19718.	31631.	51349.
270.	44.409	0.996	1.004	47.193	21.96	52.752	57.523	110.275	20114.	31243.	51358.
275.	47.986	0.991	1.009	43.641	22.13	53.467	56.274	109.741	20512.	30847.	51359.
280.	51.777	0.987	1.013	40.394	22.30	54.177	55.032	109.209	20911.	30441.	51353.
285.	55.791	0.983	1.018	37.421	22.49	54.882	53.796	108.678	21312.	30026.	51338.
290.	60.035	0.978	1.022	34.695	22.68	55.582	52.565	108.147	21715.	29602.	51316.
295.	64.520	0.974	1.026	32.193	22.88	56.278	51.337	107.616	22118.	29167.	51286.
300.	69.254	0.970	1.031	29.891	23.08	56.970	50.114	107.084	22524.	28723.	51247.
305.	(74.246)	0.966	1.035	(27.771)	23.30	(57.657)	(48.893)	(106.550)	(22931.)	(28267.)	(51198.)
310.	(79.507)	0.962	1.039	(25.817)	23.53	(58.340)	(47.674)	(106.014)	(23340.)	(27801.)	(51141.)
315.	(85.046)	0.958	1.044	(24.013)	23.76	(59.018)	(46.458)	(105.476)	(23750.)	(27324.)	(51074.)
320.	(90.874)	0.954	1.048	(22.345)	24.00	(59.692)	(45.242)	(104.934)	(24162.)	(26835.)	(50997.)
325.	(97.002)	0.951	1.052	(20.801)	24.25	(60.361)	(44.027)	(104.389)	(24576.)	(26335.)	(50911.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 17. NaCl concentration: 5.7036 mol/kg H_2O 25.00 wt percent 9.318 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.370	1.157	0.865	4368.176	18.34	20.490	118.734	139.224	5724.	41931.	47655.
85.	0.453	1.154	0.867	3621.785	18.39	21.524	116.480	138.004	6092.	41717.	47809.
90.	0.550	1.150	0.869	3020.993	18.44	22.545	114.282	136.827	6460.	41502.	47962.
95.	0.663	1.147	0.872	2534.315	18.49	23.554	112.138	135.692	6829.	41283.	48113.
100.	0.796	1.144	0.874	2137.669	18.54	24.552	110.043	134.595	7199.	41063.	48262.
105.	0.950	1.140	0.877	1812.513	18.60	25.539	107.997	133.536	7571.	40839.	48410.
110.	1.128	1.137	0.880	1544.563	18.66	26.509	106.004	132.513	7940.	40615.	48555.
115.	1.332	1.133	0.883	1322.379	18.72	27.467	104.055	131.522	8310.	40389.	48699.
120.	1.566	1.129	0.886	1137.279	18.78	28.412	102.150	130.563	8679.	40160.	48840.
125.	1.832	1.125	0.889	982.310	18.85	29.346	100.288	129.633	9049.	39930.	48979.
130.	2.134	1.122	0.892	851.953	18.91	30.268	98.465	128.732	9419.	39696.	49115.
135.	2.476	1.118	0.895	741.801	18.98	31.178	96.680	127.858	9789.	39460.	49249.
140.	2.860	1.114	0.898	648.316	19.05	32.078	94.931	127.009	10160.	39221.	49380.
145.	3.291	1.110	0.901	568.644	19.12	32.968	93.217	126.185	10530.	38979.	49509.
150.	3.773	1.106	0.904	500.471	19.20	33.847	91.535	125.382	10901.	38733.	49634.
155.	4.310	1.102	0.908	441.912	19.27	34.717	89.885	124.602	11272.	38484.	49756.
160.	4.907	1.098	0.911	391.424	19.35	35.578	88.263	123.841	11644.	38231.	49875.
165.	5.567	1.093	0.915	347.740	19.44	36.429	86.671	123.100	12016.	37975.	49991.
170.	6.296	1.089	0.918	309.813	19.52	37.272	85.104	122.377	12389.	37714.	50103.
175.	7.099	1.085	0.922	276.775	19.61	38.107	83.563	121.671	12763.	37449.	50212.
180.	7.980	1.081	0.925	247.906	19.69	38.934	82.047	120.980	13137.	37179.	50316.
185.	8.946	1.076	0.929	222.600	19.79	39.753	80.553	120.306	13512.	36905.	50417.
190.	10.001	1.072	0.933	200.354	19.88	40.564	79.081	119.645	13888.	36626.	50514.
195.	11.151	1.068	0.937	180.741	19.98	41.368	77.629	118.998	14265.	36342.	50607.

200.	12.401	1.063	0.940	163.403	20.08	42.166	76.197	118.363	14643.	36053.	50695.
205.	13.759	1.059	0.944	148.035	20.18	42.956	74.784	117.740	15021.	35758.	50779.
210.	15.229	1.055	0.948	134.379	20.29	43.740	73.388	117.128	15401.	35457.	50858.
215.	16.818	1.050	0.952	122.214	20.40	44.518	72.009	116.527	15782.	35151.	50933.
220.	18.532	1.046	0.956	111.351	20.51	45.289	70.645	115.935	16164.	34839.	51003.
225.	20.378	1.041	0.960	101.629	20.63	46.055	69.297	115.351	16547.	34520.	51067.
230.	22.363	1.037	0.964	92.908	20.75	46.814	67.962	114.776	16931.	34195.	51127.
235.	24.492	1.032	0.969	85.069	20.87	47.568	66.641	114.209	17317.	33863.	51181.
240.	26.773	1.028	0.973	78.007	21.00	48.316	65.332	113.648	17704.	33525.	51229.
245.	29.214	1.024	0.977	71.633	21.13	49.059	64.034	113.093	18092.	33179.	51271.
250.	31.820	1.019	0.981	65.869	21.27	49.796	62.748	112.544	18482.	32826.	51308.
255.	34.601	1.015	0.986	60.645	21.41	50.529	61.471	112.000	18872.	32466.	51338.
260.	37.562	1.010	0.990	55.904	21.56	51.256	60.204	111.460	19264.	32098.	51362.
265.	40.712	1.006	0.994	51.592	21.71	51.978	58.946	110.923	19658.	31722.	51380.
270.	44.058	1.002	0.998	47.664	21.87	52.694	57.695	110.389	20053.	31337.	51390.
275.	47.609	0.997	1.003	44.080	22.04	53.406	56.452	109.858	20449.	30944.	51393.
280.	51.373	0.993	1.007	40.803	22.21	54.113	55.215	109.328	20847.	30542.	51389.
285.	55.357	0.989	1.011	37.804	22.38	54.815	53.985	108.800	21246.	30132.	51377.
290.	59.572	0.985	1.016	35.055	22.57	55.513	52.759	108.272	21646.	29711.	51357.
295.	64.024	0.981	1.020	32.530	22.76	56.205	51.539	107.744	22048.	29282.	51329.
300.	68.725	0.977	1.024	30.208	22.96	56.893	50.322	107.215	22451.	28842.	51293.
305.	(73.682)	0.973	1.028	(28.070)	23.17	(57.576)	(49.109)	(106.684)	(22856.)	(28392.)	(51248.)
310.	(78.905)	0.969	1.032	(26.099)	23.38	(58.254)	(47.898)	(106.152)	(23262.)	(27932.)	(51194.)
315.	(84.405)	0.965	1.036	(24.280)	23.60	(58.928)	(46.690)	(105.618)	(23669.)	(27461.)	(51130.)
320.	(90.192)	0.962	1.040	(22.597)	23.83	(59.597)	(45.483)	(105.080)	(24078.)	(26979.)	(51057.)
325.	(96.277)	0.958	1.044	(21.040)	24.07	(60.261)	(44.279)	(104.539)	(24488.)	(26485.)	(50973.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 18. NaCl concentration: 6.0000 mol/kg H_2O 25.9% wt percent 9.755 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.	0.364	1.165	0.859	4445.820	18.33	20.471	118.903	139.374	5666.	41991.	47657.
85.	0.445	1.161	0.861	3685.266	18.37	21.503	116.649	138.152	6034.	41778.	47811.
90.	0.540	1.158	0.863	3073.226	18.42	22.523	114.451	136.974	6402.	41563.	47964.
95.	0.652	1.155	0.866	2577.553	18.47	23.531	112.306	135.837	6770.	41345.	48116.
100.	0.783	1.151	0.868	2173.669	18.52	24.528	110.211	134.739	7140.	41125.	48265.
105.	0.935	1.148	0.871	1842.653	18.58	25.514	108.165	133.679	7511.	40903.	48413.
110.	1.110	1.144	0.874	1569.934	18.64	26.483	106.171	132.654	7880.	40679.	48559.
115.	1.311	1.141	0.877	1343.844	18.69	27.440	104.223	131.662	8249.	40454.	48703.
120.	1.542	1.137	0.880	1155.529	18.76	28.384	102.318	130.702	8618.	40226.	48845.
125.	1.804	1.133	0.883	997.899	18.82	29.316	100.456	129.772	8988.	39997.	48984.
130.	2.102	1.129	0.886	865.330	18.88	30.237	98.634	128.871	9357.	39764.	49121.
135.	2.439	1.125	0.889	753.329	18.95	31.146	96.849	127.996	9727.	39529.	49256.
140.	2.818	1.121	0.892	658.293	19.02	32.045	95.101	127.146	10096.	39291.	49387.
145.	3.244	1.117	0.895	577.313	19.09	32.933	93.388	126.321	10466.	39050.	49516.
150.	3.719	1.113	0.898	508.032	19.16	33.811	91.707	125.519	10837.	38806.	49643.
155.	4.249	1.109	0.902	448.532	19.24	34.680	90.058	124.738	11207.	38558.	49766.
160.	4.838	1.105	0.905	397.241	19.31	35.539	88.438	123.977	11578.	38307.	49885.
165.	5.490	1.101	0.908	352.869	19.39	36.389	86.847	123.236	11950.	38052.	50002.
170.	6.210	1.097	0.912	314.350	19.48	37.230	85.283	122.513	12322.	37793.	50115.
175.	7.003	1.092	0.915	280.802	19.56	38.063	83.744	121.807	12695.	37530.	50224.
180.	7.873	1.088	0.919	251.490	19.65	38.888	82.229	121.117	13068.	37262.	50330.
185.	8.827	1.084	0.923	225.800	19.74	39.705	80.737	120.442	13442.	36990.	50432.
190.	9.870	1.080	0.926	203.220	19.83	40.515	79.268	119.782	13817.	36713.	50530.
195.	11.006	1.075	0.930	183.315	19.92	41.317	77.819	119.136	14193.	36431.	50624.

200.	12.242	1.071	0.934	165.720	20.02	42.112	76.390	118.502	14570.	36144.	50714.
205.	13.584	1.067	0.938	150.127	20.12	42.901	74.979	117.880	14948.	35851.	50799.
210.	15.037	1.062	0.941	136.272	20.22	43.682	73.587	117.269	15326.	35553.	50880.
215.	16.608	1.058	0.945	123.932	20.33	44.458	72.211	116.668	15706.	35250.	50956.
220.	18.303	1.053	0.949	112.913	20.44	45.227	70.851	116.078	16087.	34940.	51027.
225.	20.129	1.049	0.953	103.053	20.55	45.990	69.506	115.496	16469.	34624.	51093.
230.	22.091	1.045	0.957	94.210	20.67	46.747	68.175	114.922	16852.	34302.	51154.
235.	24.198	1.040	0.961	86.261	20.79	47.498	66.858	114.356	17236.	33974.	51210.
240.	26.454	1.036	0.965	79.101	20.91	48.243	65.554	113.797	17621.	33639.	51260.
245.	28.869	1.031	0.970	72.639	21.04	48.983	64.261	113.244	18008.	33297.	51305.
250.	31.448	1.027	0.974	66.796	21.17	49.718	62.979	112.697	18396.	32948.	51344.
255.	34.199	1.023	0.978	61.502	21.31	50.447	61.708	112.155	18785.	32591.	51376.
260.	37.129	1.018	0.982	56.697	21.45	51.171	60.447	111.618	19175.	32227.	51403.
265.	40.246	1.014	0.986	52.327	21.60	51.889	59.194	111.084	19567.	31856.	51422.
270.	43.558	1.010	0.990	48.347	21.75	52.602	57.950	110.553	19960.	31476.	51435.
275.	47.073	1.006	0.994	44.715	21.90	53.311	56.714	110.025	20354.	31088.	51441.
280.	50.798	1.001	0.999	41.396	22.07	54.014	55.485	109.498	20749.	30691.	51440.
285.	54.742	0.997	1.003	38.358	22.23	54.711	54.262	108.973	21146.	30286.	51432.
290.	58.914	0.993	1.007	35.573	22.41	55.404	53.044	108.449	21543.	29872.	51415.
295.	63.322	0.989	1.011	33.016	22.59	56.092	51.832	107.925	21942.	29449.	51391.
300.	67.976	0.986	1.015	30.665	22.78	56.775	50.625	107.400	22342.	29016.	51358.
305.	(72.884)	0.982	1.018	(28.500)	22.97	(57.453)	(49.422)	(106.874)	(22744.)	(28573.)	(51317.)
310.	(78.055)	0.978	1.022	(26.504)	23.17	(58.125)	(48.222)	(106.347)	(23146.)	(28121.)	(51267.)
315.	(83.501)	0.975	1.026	(24.662)	23.37	(58.793)	(47.025)	(105.818)	(23550.)	(27658.)	(51208.)
320.	(89.231)	0.971	1.029	(22.959)	23.58	(59.455)	(45.831)	(105.286)	(23954.)	(27185.)	(51139.)
325.	(95.256)	0.968	1.033	(21.383)	23.79	(60.111)	(44.640)	(104.751)	(24359.)	(26702.)	(51061.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 19. NaCl concentration: 6.5000 mol/kg H_2O 27.53 wt percent 10.482 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
80.											
85.	0.432	1.174	0.851	3801.021	18.34	21.432	116.983	138.416	5918.	41898.	47815.
90.	0.524	1.171	0.854	3168.249	18.39	22.450	114.784	137.234	6285.	41684.	47968.
95.	0.633	1.168	0.856	2656.031	18.44	23.456	112.638	136.094	6653.	41468.	48120.
100.	0.761	1.164	0.859	2238.859	18.49	24.451	110.542	134.994	7022.	41249.	48271.
105.	0.908	1.161	0.862	1897.105	18.54	25.435	108.495	133.930	7392.	41028.	48419.
110.	1.079	1.157	0.864	1615.667	18.60	26.403	106.500	132.903	7760.	40805.	48566.
115.	1.275	1.153	0.867	1382.448	18.65	27.358	104.551	131.909	8129.	40581.	48710.
120.	1.500	1.150	0.870	1188.274	18.71	28.301	102.646	130.947	8498.	40355.	48853.
125.	1.756	1.146	0.873	1025.807	18.77	29.231	100.784	130.015	8866.	40127.	48993.
130.	2.047	1.142	0.876	889.223	18.83	30.150	98.962	129.112	9235.	39896.	49131.
135.	2.376	1.138	0.879	773.874	18.90	31.058	97.178	128.235	9604.	39663.	49267.
140.	2.746	1.134	0.882	676.032	18.96	31.954	95.430	127.384	9972.	39427.	49399.
145.	3.162	1.130	0.885	592.692	19.03	32.840	93.718	126.558	10342.	39188.	49530.
150.	3.627	1.126	0.888	521.417	19.10	33.716	92.038	125.754	10711.	38946.	49657.
155.	4.145	1.122	0.892	460.224	19.17	34.582	90.390	124.973	11081.	38701.	49781.
160.	4.721	1.117	0.895	407.490	19.25	35.439	88.772	124.211	11451.	38452.	49902.
165.	5.359	1.113	0.898	361.885	19.32	36.287	87.183	123.469	11821.	38199.	50020.
170.	6.064	1.109	0.902	322.308	19.40	37.126	85.620	122.746	12192.	37943.	50135.
175.	6.840	1.105	0.905	287.848	19.48	37.956	84.084	122.040	12564.	37682.	50246.
180.	7.693	1.100	0.909	257.749	19.56	38.778	82.572	121.350	12936.	37417.	50353.
185.	8.628	1.096	0.912	231.377	19.65	39.593	81.083	120.676	13309.	37148.	50457.
190.	9.649	1.092	0.916	208.202	19.73	40.399	79.617	120.016	13682.	36874.	50557.
195.	10.764	1.087	0.920	187.779	19.82	41.199	78.171	119.370	14057.	36596.	50653.

200.	11.976	1.083	0.923	169.731	19.91	41.991	76.746	118.737	14432.	36312.	50744.
205.	13.292	1.079	0.927	153.740	20.01	42.776	75.339	118.116	14808.	36024.	50832.
210.	14.718	1.074	0.931	139.535	20.11	43.555	73.951	117.506	15185.	35729.	50915.
215.	16.260	1.070	0.935	126.885	20.21	44.327	72.580	116.907	15563.	35430.	50993.
220.	17.923	1.066	0.938	115.593	20.31	45.092	71.225	116.317	15942.	35125.	51067.
225.	19.716	1.061	0.942	105.491	20.42	45.852	69.885	115.737	16322.	34813.	51136.
230.	21.643	1.057	0.946	96.432	20.52	46.605	68.560	115.165	16703.	34496.	51200.
235.	23.712	1.053	0.950	88.291	20.64	47.352	67.249	114.601	17086.	34173.	51258.
240.	25.929	1.048	0.954	80.961	20.75	48.094	65.951	114.045	17469.	33843.	51312.
245.	28.301	1.044	0.958	74.346	20.87	48.829	64.665	113.495	17853.	33506.	51359.
250.	30.835	1.040	0.962	68.365	21.00	49.559	63.391	112.950	18239.	33163.	51401.
255.	33.540	1.035	0.966	62.948	21.12	50.284	62.127	112.411	18625.	32813.	51438.
260.	36.420	1.031	0.970	58.032	21.25	51.003	60.874	111.877	19013.	32455.	51468.
265.	39.486	1.027	0.974	53.562	21.39	51.716	59.630	111.347	19401.	32090.	51491.
270.	42.743	1.023	0.978	49.491	21.53	52.425	58.395	110.820	19791.	31717.	51509.
275.	46.200	1.019	0.981	45.778	21.67	53.127	57.169	110.296	20182.	31337.	51519.
280.	49.865	1.015	0.985	42.385	21.82	53.824	55.950	109.774	20574.	30949.	51523.
285.	53.746	1.011	0.989	39.280	21.97	54.516	54.738	109.254	20967.	30552.	51519.
290.	57.851	1.007	0.993	36.434	22.13	55.202	53.533	108.735	21361.	30147.	51508.
295.	62.189	1.004	0.996	33.821	22.29	55.883	52.333	108.217	21755.	29733.	51489.
300.	66.769	1.000	1.000	31.419	22.46	56.559	51.140	107.698	22151.	29311.	51462.
305.	(71.600)	0.997	1.003	(29.208)	22.63	(57.228)	(49.951)	(107.179)	(22547.)	(28879.)	(51426.)
310.	(76.692)	0.993	1.007	(27.170)	22.80	(57.892)	(48.767)	(106.659)	(22944.)	(28438.)	(51383.)
315.	(82.053)	0.990	1.010	(25.289)	22.97	(58.550)	(47.587)	(106.137)	(23342.)	(27988.)	(51330.)
320.	(87.695)	0.987	1.013	(23.550)	23.15	(59.201)	(46.412)	(105.613)	(23740.)	(27529.)	(51269.)
325.	(93.628)	0.984	1.016	(21.942)	23.31	(59.845)	(45.241)	(105.086)	(24137.)	(27061.)	(51198.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 20. NaCl concentration: 7.0000 mol/kg H_2O 29.03 wt percent 11.198 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})		(J mol^{-1} K^{-1})			(J mol^{-1})	
135.	2.311	1.150	0.870	796.029	18.84	30.921	97.565	128.486	9457.	39821.	49278.
140.	2.673	1.146	0.873	695.107	18.91	31.816	95.817	127.633	9825.	39587.	49412.
145.	3.079	1.142	0.876	609.180	18.97	32.700	94.104	126.804	10193.	39350.	49543.
150.	3.533	1.138	0.879	535.725	19.04	33.574	92.425	125.999	10562.	39110.	49671.
155.	4.040	1.133	0.882	472.686	19.10	34.439	90.777	125.216	10931.	38866.	49797.
160.	4.603	1.129	0.886	418.385	19.17	35.293	89.160	124.453	11300.	38620.	49919.
165.	5.227	1.125	0.889	371.441	19.25	36.139	87.571	123.710	11669.	38369.	50039.
170.	5.917	1.121	0.892	330.717	19.32	36.976	86.010	122.986	12039.	38115.	50155.
175.	6.677	1.116	0.896	295.273	19.40	37.804	84.475	122.279	12410.	37857.	50267.
180.	7.513	1.112	0.899	264.324	19.47	38.624	82.964	121.588	12781.	37595.	50376.
185.	8.428	1.108	0.903	237.217	19.55	39.436	81.477	120.913	13153.	37329.	50482.
190.	9.430	1.103	0.906	213.404	19.64	40.240	80.013	120.253	13525.	37058.	50583.
195.	10.522	1.099	0.910	192.426	19.72	41.037	78.570	119.607	13899.	36782.	50681.
200.	11.711	1.095	0.913	173.894	19.81	41.827	77.147	118.974	14273.	36502.	50775.
205.	13.002	1.090	0.917	157.478	19.89	42.610	75.743	118.353	14647.	36217.	50864.
210.	14.402	1.086	0.921	142.901	19.99	43.385	74.358	117.743	15023.	35926.	50949.
215.	15.915	1.082	0.925	129.923	20.08	44.155	72.990	117.145	15400.	35630.	51030.
220.	17.549	1.077	0.928	118.342	20.18	44.917	71.639	116.556	15777.	35329.	51106.
225.	19.310	1.073	0.932	107.984	20.28	45.674	70.303	115.977	16156.	35021.	51177.
230.	21.203	1.069	0.936	98.698	20.38	46.424	68.982	115.406	16535.	34708.	51243.
235.	23.237	1.064	0.940	90.355	20.48	47.168	67.675	114.843	16916.	34389.	51305.
240.	25.416	1.060	0.943	82.845	20.59	47.906	66.382	114.288	17297.	34064.	51361.
245.	27.749	1.056	0.947	76.069	20.70	48.639	65.101	113.740	17679.	33732.	51412.
250.	30.242	1.052	0.951	69.945	20.81	49.365	63.832	113.198	18063.	33394.	51457.
255.	32.902	1.047	0.955	64.399	20.93	50.086	62.575	112.661	18447.	33049.	51496.
260.	35.737	1.043	0.959	59.367	21.05	50.801	61.328	112.129	18833.	32697.	51530.
265.	38.754	1.039	0.962	54.793	21.17	51.510	60.091	111.601	19219.	32338.	51557.
270.	41.961	1.035	0.966	50.629	21.30	52.214	58.863	111.077	19606.	31972.	51578.
275.	45.365	1.031	0.970	46.831	21.43	52.912	57.644	110.557	19995.	31598.	51592.
280.	48.974	1.027	0.973	43.362	21.56	53.605	56.434	110.038	20384.	31216.	51600.
285.	52.797	1.024	0.977	40.187	21.70	54.291	55.231	109.522	20773.	30827.	51600.
290.	56.841	1.020	0.980	37.278	21.84	54.972	54.035	109.007	21164.	30430.	51594.
295.	61.116	1.017	0.984	34.608	21.98	55.647	52.846	108.493	21555.	30024.	51580.
300.	65.630	1.013	0.987	32.154	22.12	56.316	51.663	107.979	21947.	29611.	51558.
305.	(70.392)	1.010	0.990	(29.896)	22.27	(56.979)	(50.487)	(107.465)	(22339.)	(29189.)	(51528.)
310.	(75.412)	1.007	0.993	(27.814)	22.41	(57.635)	(49.316)	(106.951)	(22731.)	(28758.)	(51490.)
315.	(80.698)	1.004	0.996	(25.893)	22.56	(58.285)	(48.150)	(106.435)	(23123.)	(28319.)	(51443.)
320.	(86.262)	1.001	0.999	(24.119)	22.69	(58.927)	(46.990)	(105.917)	(23515.)	(27872.)	(51387.)
325.	(92.113)	0.998	1.002	(22.477)	22.82	(59.560)	(45.837)	(105.397)	(23906.)	(27417.)	(51323.)

Table 21. NaCl concentration: 7.3332 mol/kg H_2O 30.00 wt percent 11.670 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
160.	4.523	1.137	0.880	426.073	19.12	35.169	89.451	124.620	11185.	38746.	49931.
165.	5.138	1.133	0.883	378.168	19.19	36.013	87.862	123.875	11554.	38497.	50051.
170.	5.818	1.128	0.886	336.623	19.26	36.849	86.301	123.150	11924.	38244.	50168.
175.	6.568	1.124	0.890	300.474	19.34	37.676	84.766	122.442	12294.	37988.	50282.
180.	7.392	1.120	0.893	268.919	19.41	38.494	83.256	121.750	12664.	37727.	50392.
185.	8.295	1.115	0.897	241.288	19.49	39.305	81.770	121.075	13035.	37463.	50498.
190.	9.283	1.111	0.900	217.022	19.57	40.108	80.306	120.414	13407.	37194.	50601.
195.	10.361	1.107	0.904	195.650	19.65	40.904	78.864	119.767	13780.	36920.	50700.
200.	11.535	1.102	0.907	176.774	19.73	41.692	77.442	119.134	14153.	36642.	50795.
205.	12.810	1.098	0.911	160.058	19.82	42.473	76.039	118.512	14527.	36358.	50885.
210.	14.192	1.093	0.915	145.217	19.90	43.248	74.655	117.903	14902.	36070.	50972.
215.	15.687	1.089	0.918	132.009	19.99	44.015	73.289	117.304	15278.	35776.	51054.
220.	17.302	1.085	0.922	120.224	20.09	44.776	71.939	116.715	15655.	35477.	51131.
225.	19.042	1.080	0.926	109.686	20.18	45.531	70.605	116.136	16032.	35172.	51204.
230.	20.914	1.076	0.929	100.240	20.28	46.280	69.286	115.566	16411.	34861.	51272.
235.	22.925	1.072	0.933	91.757	20.38	47.022	67.982	115.004	16790.	34545.	51335.
240.	25.080	1.067	0.937	84.120	20.48	47.758	66.691	114.449	17171.	34222.	51393.
245.	27.388	1.063	0.941	77.233	20.58	48.489	65.413	113.901	17552.	33894.	51446.
250.	29.855	1.059	0.944	71.009	20.69	49.213	64.147	113.360	17934.	33558.	51493.
255.	32.487	1.055	0.948	65.373	20.80	49.932	62.892	112.824	18318.	33216.	51534.
260.	35.293	1.051	0.952	60.261	20.91	50.645	61.648	112.293	18702.	32868.	51570.
265.	38.280	1.047	0.955	55.615	21.03	51.352	60.415	111.767	19087.	32512.	51599.
270.	41.455	1.043	0.959	51.386	21.14	52.054	59.191	111.244	19473.	32149.	51622.
275.	44.826	1.039	0.963	47.530	21.27	52.749	57.976	110.725	19859.	31780.	51639.
280.	48.401	1.035	0.966	44.008	21.39	53.439	56.770	110.209	20247.	31402.	51649.
285.	52.188	1.032	0.969	40.785	21.51	54.123	55.571	109.694	20635.	31017.	51652.
290.	56.195	1.028	0.973	37.833	21.64	54.801	54.381	109.182	21024.	30625.	51648.
295.	60.431	1.025	0.976	35.124	21.77	55.472	53.197	108.670	21413.	30224.	51637.
300.	64.905	1.021	0.979	32.634	21.90	56.138	52.021	108.158	21802.	29816.	51618.
305.	(69.625)	1.018	0.982	(30.343)	22.02	(56.797)	(50.851)	(107.647)	(22192.)	(29399.)	(51591.)
310.	(74.601)	1.015	0.985	(28.232)	22.15	(57.448)	(49.687)	(107.135)	(22581.)	(28975.)	(51556.)
315.	(79.842)	1.012	0.988	(26.284)	22.27	(58.093)	(48.529)	(106.622)	(22970.)	(28542.)	(51513.)
320.	(85.359)	1.009	0.991	(24.485)	22.38	(58.729)	(47.378)	(106.108)	(23359.)	(28102.)	(51461.)
325.	(91.161)	1.007	0.993	(22.820)	22.48	(59.357)	(46.234)	(105.591)	(23745.)	(27655.)	(51400.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 22. NaCl concentration: 7.5000 mol/kg H_2O 30.47 wt percent 11.903 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	($g\ cm^{-3}$)	($cm^3\ g^{-1}$)		($cm^3\ mol^{-1}$)	($J\ mol^{-1}\ K^{-1}$)			($J\ mol^{-1}$)		
170.	5.768	(1.132)	(0.883)	339.687	(19.24)	(36.776)	(86.457)	123.234	(11861.)	(38314.)	50175.
175.	6.512	(1.128)	(0.887)	303.168	(19.31)	(37.603)	(84.922)	122.525	(12231.)	(38058.)	50289.
180.	7.330	(1.123)	(0.890)	271.295	(19.38)	(38.421)	(83.412)	121.833	(12601.)	(37798.)	50399.
185.	8.227	(1.119)	(0.894)	243.390	(19.46)	(39.231)	(81.926)	121.157	(12972.)	(37534.)	50506.
190.	9.209	(1.115)	(0.897)	218.887	(19.53)	(40.034)	(80.462)	120.496	(13344.)	(37266.)	50610.
195.	10.280	(1.110)	(0.901)	197.309	(19.61)	(40.828)	(79.020)	119.849	(13716.)	(36993.)	50709.
200.	11.446	(1.106)	(0.904)	178.254	(19.69)	(41.616)	(77.599)	119.215	(14089.)	(36716.)	50805.
205.	12.713	(1.101)	(0.908)	161.382	(19.78)	(42.397)	(76.197)	118.593	(14463.)	(36433.)	50896.
210.	14.087	(1.097)	(0.912)	146.404	(19.86)	(43.170)	(74.813)	117.983	(14837.)	(36146.)	50983.
215.	15.573	(1.093)	(0.915)	133.075	(19.95)	(43.937)	(73.447)	117.384	(15213.)	(35853.)	51066.
220.	17.178	(1.088)	(0.919)	121.185	(20.04)	(44.698)	(72.098)	116.796	(15589.)	(35555.)	51144.
225.	18.908	(1.084)	(0.923)	110.553	(20.13)	(45.452)	(70.765)	116.217	(15966.)	(35251.)	51218.
230.	20.770	(1.080)	(0.926)	101.026	(20.23)	(46.200)	(69.447)	115.646	(16344.)	(34942.)	51286.
235.	22.769	(1.075)	(0.930)	92.469	(20.32)	(46.941)	(68.143)	115.084	(16723.)	(34627.)	51350.
240.	24.913	(1.071)	(0.934)	84.768	(20.42)	(47.677)	(66.853)	114.530	(17103.)	(34306.)	51409.
245.	27.209	(1.067)	(0.937)	77.822	(20.52)	(48.407)	(65.576)	113.982	(17484.)	(33978.)	51462.
250.	29.662	(1.063)	(0.941)	71.547	(20.63)	(49.130)	(64.311)	113.441	(17866.)	(33644.)	51510.
255.	32.282	(1.058)	(0.945)	65.865	(20.73)	(49.848)	(63.057)	112.905	(18249.)	(33304.)	51553.
260.	35.074	(1.054)	(0.948)	60.711	(20.84)	(50.560)	(61.815)	112.375	(18633.)	(32957.)	51589.
265.	38.046	(1.050)	(0.952)	56.029	(20.95)	(51.266)	(60.583)	111.849	(19017.)	(32603.)	51620.
270.	41.205	(1.046)	(0.956)	51.766	(21.07)	(51.967)	(59.360)	111.327	(19402.)	(32242.)	51644.
275.	44.560	(1.043)	(0.959)	47.880	(21.18)	(52.661)	(58.147)	110.808	(19788.)	(31873.)	51662.
280.	48.119	(1.039)	(0.963)	44.331	(21.30)	(53.350)	(56.943)	110.293	(20175.)	(31498.)	51673.
285.	51.889	(1.035)	(0.966)	41.084	(21.42)	(54.032)	(55.747)	109.779	(20562.)	(31115.)	51677.
290.	55.878	(1.032)	(0.969)	38.109	(21.54)	(54.709)	(54.558)	109.267	(20950.)	(30724.)	51675.
295.	60.096	(1.028)	(0.972)	35.380	(21.66)	(55.379)	(53.377)	108.756	(21338.)	(30326.)	51665.
300.	64.550	(1.025)	(0.975)	32.872	(21.78)	(56.043)	(52.203)	108.246	(21727.)	(29920.)	51647.
305.	(69.250)	(1.022)	(0.978)	(30.565)	(21.90)	(56.700)	(51.036)	(107.736)	(22115.)	(29506.)	(51622.)
310.	(74.206)	(1.019)	(0.981)	(28.439)	(22.01)	(57.350)	(49.875)	(107.225)	(22504.)	(29085.)	(51588.)
315.	(79.426)	(1.016)	(0.984)	(26.477)	(22.12)	(57.992)	(48.721)	(106.713)	(22891.)	(28655.)	(51547.)
320.	(84.920)	(1.013)	(0.987)	(24.665)	(22.22)	(58.626)	(47.574)	(106.200)	(23278.)	(28219.)	(51496.)
325.	(90.699)	(1.011)	(0.989)	(22.989)	(22.30)	(59.250)	(46.434)	(105.685)	(23663.)	(27775.)	(51438.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 23. NaCl concentration: 8.0000 mol/kg H_2O 31.86 wt percent 12.597 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
200.	11.178	(1.116)	(0.896)	182.877	(19.58)	(41.354)	(78.108)	119.463	(13878.)	(36957.)	50835.
205.	12.421	(1.112)	(0.899)	165.508	(19.65)	(42.133)	(76.707)	118.840	(14251.)	(36677.)	50928.
210.	13.769	(1.107)	(0.903)	150.096	(19.73)	(42.905)	(75.324)	118.229	(14624.)	(36393.)	51017.
215.	15.229	(1.103)	(0.907)	136.386	(19.81)	(43.671)	(73.958)	117.629	(14999.)	(36103.)	51102.
220.	16.806	(1.099)	(0.910)	124.161	(19.90)	(44.429)	(72.610)	117.040	(15374.)	(35808.)	51182.
225.	18.506	(1.094)	(0.914)	113.235	(19.98)	(45.182)	(71.278)	116.460	(15751.)	(35507.)	51258.
230.	20.337	(1.090)	(0.918)	103.447	(20.07)	(45.928)	(69.961)	115.889	(16128.)	(35201.)	51329.
235.	22.304	(1.086)	(0.921)	94.660	(20.16)	(46.668)	(68.659)	115.327	(16506.)	(34889.)	51395.
240.	24.413	(1.081)	(0.925)	86.754	(20.25)	(47.401)	(67.371)	114.772	(16885.)	(34571.)	51456.
245.	26.673	(1.077)	(0.928)	79.627	(20.34)	(48.129)	(66.096)	114.225	(17264.)	(34247.)	51512.
250.	29.090	(1.073)	(0.932)	73.190	(20.43)	(48.851)	(64.833)	113.684	(17645.)	(33917.)	51563.
255.	31.670	(1.069)	(0.936)	67.364	(20.53)	(49.566)	(63.582)	113.148	(18027.)	(33581.)	51608.
260.	34.421	(1.065)	(0.939)	62.081	(20.62)	(50.276)	(62.343)	112.619	(18409.)	(33238.)	51647.
265.	37.351	(1.061)	(0.943)	57.283	(20.72)	(50.980)	(61.114)	112.093	(18792.)	(32888.)	51680.
270.	40.467	(1.057)	(0.946)	52.916	(20.82)	(51.678)	(59.895)	111.572	(19176.)	(32532.)	51708.
275.	43.777	(1.053)	(0.950)	48.936	(20.92)	(52.369)	(58.686)	111.055	(19560.)	(32168.)	51729.
280.	47.289	(1.049)	(0.953)	45.303	(21.02)	(53.055)	(57.485)	110.541	(19945.)	(31798.)	51743.
285.	51.010	(1.046)	(0.956)	41.980	(21.13)	(53.735)	(56.294)	110.028	(20330.)	(31420.)	51751.
290.	54.949	(1.042)	(0.959)	38.937	(21.23)	(54.408)	(55.111)	109.518	(20716.)	(31036.)	51752.
295.	59.114	(1.039)	(0.962)	36.146	(21.33)	(55.074)	(53.935)	109.009	(21102.)	(30643.)	51745.
300.	63.515	(1.036)	(0.965)	33.581	(21.42)	(55.734)	(52.768)	108.501	(21488.)	(30244.)	51732.
305.	(68.160)	(1.033)	(0.968)	(31.223)	(21.52)	(56.386)	(51.607)	(107.994)	(21873.)	(29837.)	(51710.)
310.	(73.058)	(1.030)	(0.971)	(29.050)	(21.60)	(57.031)	(50.455)	(107.486)	(22258.)	(29423.)	(51681.)
315.	(78.219)	(1.027)	(0.973)	(27.046)	(21.68)	(57.667)	(49.310)	(106.977)	(22642.)	(29001.)	(51644.)
320.	(83.653)	(1.025)	(0.976)	(25.195)	(21.73)	(58.294)	(48.173)	(106.467)	(23024.)	(28574.)	(51598.)
325.	(89.369)	(1.022)	(0.979)	(23.484)	(21.77)	(58.911)	(47.044)	(105.955)	(23404.)	(28140.)	(51543.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 24. NaCl concentration: 8.5000 mol/kg H_2O 33.19 wt percent 13.279 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
225.	18.098	(1.104)	(0.906)	116.079	(19.83)	(44.860)	(71.851)	116.710	(15506.)	(35792.)	51298.
230.	19.898	(1.099)	(0.910)	106.007	(19.90)	(45.604)	(70.534)	116.138	(15882.)	(35489.)	51371.
235.	21.833	(1.095)	(0.913)	96.969	(19.98)	(46.343)	(69.232)	115.575	(16260.)	(35180.)	51440.
240.	23.909	(1.091)	(0.917)	88.841	(20.06)	(47.075)	(67.944)	115.019	(16638.)	(34865.)	51503.
245.	26.134	(1.087)	(0.920)	81.517	(20.15)	(47.802)	(66.669)	114.471	(17017.)	(34545.)	51561.
250.	28.514	(1.082)	(0.924)	74.904	(20.23)	(48.522)	(65.408)	113.929	(17396.)	(34218.)	51614.
255.	31.057	(1.078)	(0.927)	68.922	(20.31)	(49.236)	(64.158)	113.394	(17777.)	(33885.)	51662.
260.	33.770	(1.074)	(0.931)	63.500	(20.40)	(49.944)	(62.919)	112.864	(18158.)	(33545.)	51704.
265.	36.660	(1.070)	(0.934)	58.577	(20.48)	(50.647)	(61.692)	112.339	(18540.)	(33200.)	51740.
270.	39.734	(1.066)	(0.938)	54.099	(20.57)	(51.343)	(60.475)	111.818	(18923.)	(32847.)	51770.
275.	43.001	(1.063)	(0.941)	50.019	(20.66)	(52.033)	(59.268)	111.300	(19306.)	(32488.)	51794.
280.	46.468	(1.059)	(0.944)	46.295	(20.74)	(52.716)	(58.070)	110.786	(19690.)	(32121.)	51811.
285.	50.144	(1.055)	(0.947)	42.891	(20.82)	(53.393)	(56.881)	110.275	(20074.)	(31748.)	51822.
290.	54.037	(1.052)	(0.951)	39.775	(20.91)	(54.064)	(55.702)	109.766	(20458.)	(31368.)	51826.
295.	58.154	(1.049)	(0.954)	36.918	(20.98)	(54.728)	(54.530)	109.258	(20842.)	(30981.)	51823.
300.	62.506	(1.046)	(0.956)	34.294	(21.06)	(55.384)	(53.367)	108.751	(21226.)	(30587.)	51813.
305.	(67.100)	(1.043)	(0.959)	(31.881)	(21.12)	(56.033)	(52.211)	(108.244)	(21609.)	(30186.)	(51795.)
310.	(71.947)	(1.040)	(0.962)	(29.659)	(21.18)	(56.673)	(51.064)	(107.738)	(21991.)	(29778.)	(51769.)
315.	(77.055)	(1.037)	(0.964)	(27.610)	(21.21)	(57.305)	(49.926)	(107.231)	(22372.)	(29364.)	(51736.)
320.	(82.435)	(1.034)	(0.967)	(25.718)	(21.23)	(57.926)	(48.796)	(106.722)	(22750.)	(28944.)	(51694.)
325.	(88.096)	(1.031)	(0.970)	(23.970)	(21.22)	(58.535)	(47.677)	(106.213)	(23125.)	(28518.)	(51643.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 25. NaCl concentration: 9.0000 mol/kg H_2O 34.47 wt percent 13.952 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
250.	27.925	(1.091)	(0.916)	76.733	(20.02)	(48.140)	(66.043)	114.184	(17116.)	(34551.)	51667.
255.	30.431	(1.087)	(0.920)	70.579	(20.10)	(48.854)	(64.793)	113.647	(17496.)	(34221.)	51717.
260.	33.105	(1.083)	(0.923)	65.004	(20.17)	(49.561)	(63.555)	113.116	(17877.)	(33884.)	51761.
265.	35.955	(1.079)	(0.927)	59.944	(20.24)	(50.262)	(62.327)	112.590	(18259.)	(33542.)	51800.
270.	38.989	(1.075)	(0.930)	55.344	(20.31)	(50.957)	(61.111)	112.068	(18640.)	(33192.)	51833.
275.	42.215	(1.071)	(0.933)	51.155	(20.38)	(51.646)	(59.904)	111.550	(19023.)	(32837.)	51859.
280.	45.639	(1.068)	(0.937)	47.333	(20.45)	(52.329)	(58.707)	111.036	(19406.)	(32474.)	51880.
285.	49.271	(1.064)	(0.940)	43.841	(20.51)	(53.004)	(57.520)	110.524	(19788.)	(32105.)	51893.
290.	53.119	(1.061)	(0.943)	40.645	(20.58)	(53.673)	(56.342)	110.015	(20171.)	(31729.)	51900.
295.	57.191	(1.057)	(0.946)	37.716	(20.63)	(54.335)	(55.172)	109.507	(20554.)	(31346.)	51900.
300.	61.497	(1.054)	(0.949)	35.027	(20.68)	(54.989)	(54.011)	109.000	(20936.)	(30957.)	51893.
305.	(66.044)	(1.051)	(0.951)	(32.555)	(20.71)	(55.635)	(52.859)	(108.494)	(21318.)	(30561.)	(51878.)
310.	(70.842)	(1.048)	(0.954)	(30.280)	(20.74)	(56.272)	(51.716)	(107.988)	(21697.)	(30158.)	(51856.)
315.	(75.902)	(1.045)	(0.957)	(28.183)	(20.74)	(56.900)	(50.582)	(107.482)	(22075.)	(29750.)	(51825.)
320.	(81.233)	(1.042)	(0.959)	(26.248)	(20.72)	(57.516)	(49.458)	(106.974)	(22450.)	(29336.)	(51787.)
325.	(86.844)	(1.039)	(0.962)	(24.459)	(20.65)	(58.119)	(48.346)	(106.465)	(22821.)	(28918.)	(51740.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 26. NaCl concentration: 9.2135 mol/kg H_2O 35.00 wt percent 14.235 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
260.	32.813	(1.087)	(0.920)	65.683	(20.07)	(49.381)	(63.847)	113.227	(17747.)	(34040.)	51786.
265.	35.646	(1.083)	(0.924)	60.560	(20.13)	(50.082)	(62.619)	112.701	(18128.)	(33698.)	51826.
270.	38.663	(1.079)	(0.927)	55.904	(20.20)	(50.777)	(61.402)	112.179	(18510.)	(33350.)	51860.
275.	41.870	(1.075)	(0.930)	51.664	(20.26)	(51.465)	(60.195)	111.660	(18892.)	(32996.)	51888.
280.	45.277	(1.071)	(0.934)	47.797	(20.32)	(52.147)	(58.998)	111.146	(19274.)	(32635.)	51909.
285.	48.891	(1.068)	(0.937)	44.265	(20.38)	(52.822)	(57.811)	110.634	(19657.)	(32267.)	51924.
290.	52.719	(1.064)	(0.940)	41.033	(20.43)	(53.491)	(56.633)	110.124	(20039.)	(31893.)	51932.
295.	56.772	(1.061)	(0.943)	38.071	(20.48)	(54.152)	(55.464)	109.616	(20422.)	(31512.)	51933.
300.	61.058	(1.058)	(0.946)	35.352	(20.51)	(54.805)	(54.304)	109.109	(20803.)	(31124.)	51927.
305.	(65.586)	(1.054)	(0.948)	(32.854)	(20.54)	(55.450)	(53.152)	(108.603)	(21184.)	(30730.)	(51914.)
310.	(70.365)	(1.051)	(0.951)	(30.555)	(20.55)	(56.086)	(52.010)	(108.097)	(21563.)	(30330.)	(51893.)
315.	(75.404)	(1.048)	(0.954)	(28.436)	(20.53)	(56.712)	(50.878)	(107.590)	(21940.)	(29924.)	(51864.)
320.	(80.715)	(1.045)	(0.957)	(26.480)	(20.49)	(57.327)	(49.756)	(107.083)	(22314.)	(29513.)	(51826.)
325.	(86.306)	(1.042)	(0.960)	(24.673)	(20.41)	(57.927)	(48.646)	(106.574)	(22683.)	(29098.)	(51781.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 27. NaCl concentration: 9.5000 mol/kg H_2O 35.70 wt percent 14.613 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
270.	38.213	(1.083)	(0.923)	56.691	(20.05)	(50.518)	(61.814)	112.331	(18323.)	(33574.)	51897.
275.	41.396	(1.079)	(0.927)	52.380	(20.10)	(51.206)	(60.606)	111.812	(18705.)	(33221.)	51927.
280.	44.778	(1.075)	(0.930)	48.449	(20.15)	(51.888)	(59.409)	111.297	(19087.)	(32862.)	51950.
285.	48.366	(1.072)	(0.933)	44.859	(20.20)	(52.563)	(58.222)	110.784	(19470.)	(32496.)	51966.
290.	52.170	(1.068)	(0.936)	41.575	(20.24)	(53.230)	(57.043)	110.274	(19852.)	(32124.)	51976.
295.	56.197	(1.065)	(0.939)	38.566	(20.27)	(53.891)	(55.874)	109.765	(20233.)	(31745.)	51979.
300.	60.456	(1.062)	(0.942)	35.806	(20.29)	(54.543)	(54.715)	109.258	(20614.)	(31360.)	51974.
305.	(64.957)	(1.059)	(0.945)	(33.270)	(20.30)	(55.187)	(53.564)	(108.752)	(20994.)	(30968.)	(51962.)
310.	(69.710)	(1.056)	(0.947)	(30.936)	(20.29)	(55.822)	(52.423)	(108.245)	(21372.)	(30571.)	(51943.)
315.	(74.722)	(1.052)	(0.950)	(28.786)	(20.25)	(56.446)	(51.292)	(107.738)	(21748.)	(30168.)	(51916.)
320.	(80.006)	(1.049)	(0.953)	(26.803)	(20.18)	(57.058)	(50.173)	(107.231)	(22120.)	(29760.)	(51880.)
325.	(85.570)	(1.046)	(0.956)	(24.970)	(20.07)	(57.656)	(49.066)	(106.722)	(22488.)	(29349.)	(51836.)

Table 28. NaCl concentration: 10.0000 mol/kg H_2O 36.89 wt percent 15.265 mol percent

t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
290.	51.156	(1.075)	(0.930)	42.604	(19.89)	(52.731)	(57.820)	110.552	(19494.)	(32562.)	52055.
295.	55.136	(1.072)	(0.933)	39.506	(19.89)	(53.391)	(56.651)	110.042	(19875.)	(32186.)	52061.
300.	59.348	(1.068)	(0.936)	36.665	(19.89)	(54.042)	(55.491)	109.533	(20255.)	(31805.)	52060.
305.	(63.801)	(1.065)	(0.939)	(34.055)	(19.87)	(54.685)	(54.341)	(109.026)	(20634.)	(31417.)	(52051.)
310.	(68.505)	(1.062)	(0.942)	(31.656)	(19.82)	(55.317)	(53.201)	(108.519)	(21010.)	(31024.)	(52035.)
315.	(73.469)	(1.058)	(0.945)	(29.446)	(19.75)	(55.939)	(52.072)	(108.011)	(21384.)	(30626.)	(52010.)
320.	(78.704)	(1.055)	(0.948)	(27.408)	(19.64)	(56.547)	(50.956)	(107.503)	(21754.)	(30224.)	(51978.)
325.	(84.220)	(1.051)	(0.952)	(25.527)	(19.47)	(57.140)	(49.853)	(106.993)	(22118.)	(29820.)	(51937.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 29. Halite - saturated NaCl solutions, concentrations in wt percent.

x	t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
wt percent	(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
27.472	80.	0.353	1.177	0.849	4582.148	18.30	20.405	119.226	139.631	5556.	42105.	47660.
27.596	85.	0.431	1.175	0.851	3806.274	18.34	21.428	116.999	138.427	5912.	41903.	47815.
27.725	90.	0.522	1.173	0.853	3181.029	18.39	22.438	114.831	137.269	6268.	41701.	47969.
27.859	95.	0.629	1.171	0.854	2673.933	18.43	23.434	112.718	136.152	6624.	41497.	48121.
27.998	100.	0.754	1.168	0.856	2260.131	18.48	24.418	110.657	135.075	6981.	41292.	48272.
28.143	105.	0.897	1.166	0.858	1920.473	18.53	25.390	108.647	134.036	7337.	41085.	48422.
28.293	110.	1.063	1.163	0.860	1640.210	18.58	26.345	106.689	133.034	7691.	40878.	48569.
28.448	115.	1.253	1.161	0.861	1407.499	18.63	27.286	104.780	132.066	8045.	40670.	48715.
28.608	120.	1.470	1.158	0.863	1213.359	18.68	28.212	102.918	131.130	8397.	40462.	48859.
28.774	125.	1.716	1.156	0.865	1050.590	18.73	29.125	101.100	130.225	8748.	40253.	49001.
28.945	130.	1.994	1.153	0.867	913.471	18.78	30.025	99.325	129.349	9098.	40043.	49141.
29.122	135.	2.308	1.151	0.869	797.432	18.84	30.911	97.590	128.501	9447.	39832.	49278.
29.304	140.	2.659	1.148	0.871	698.800	18.89	31.785	95.895	127.680	9795.	39619.	49414.
29.491	145.	3.053	1.145	0.873	614.610	18.95	32.646	94.238	126.884	10141.	39406.	49547.
29.683	150.	3.491	1.143	0.875	542.457	19.01	33.495	92.617	126.112	10487.	39191.	49678.
29.881	155.	3.978	1.140	0.877	480.377	19.06	34.332	91.031	125.362	10831.	38975.	49806.
30.084	160.	4.516	1.137	0.879	426.766	19.12	35.156	89.478	124.634	11174.	38757.	49932.
30.292	165.	5.111	(1.135)	(0.881)	380.301	(19.18)	(35.970)	(87.957)	123.927	(11516.)	(38539.)	50055.
30.505	170.	5.765	(1.132)	(0.883)	339.890	(19.24)	(36.771)	(86.468)	123.239	(11857.)	(38318.)	50175.
30.724	175.	6.483	(1.130)	(0.885)	304.627	(19.29)	(37.562)	(85.008)	122.570	(12196.)	(38096.)	50293.
30.948	180.	7.268	(1.127)	(0.887)	273.758	(19.35)	(38.341)	(83.577)	121.918	(12534.)	(37873.)	50407.
31.178	185.	8.125	(1.124)	(0.889)	246.652	(19.41)	(39.109)	(82.174)	121.283	(12871.)	(37648.)	50519.
31.413	190.	9.058	(1.122)	(0.892)	222.778	(19.46)	(39.865)	(80.798)	120.664	(13206.)	(37422.)	50628.
31.653	195.	10.072	(1.119)	(0.894)	201.691	(19.52)	(40.611)	(79.449)	120.060	(13539.)	(37194.)	50733.

31.898	200.	11.170	(1.116)	(0.896)	183.015	(19.57)	(41.346)	(78.124)	119.470	(13871.)	(36964.)	50836.
32.149	205.	12.357	(1.114)	(0.898)	166.429	(19.63)	(42.070)	(76.824)	118.894	(14201.)	(36733.)	50935.
32.405	210.	13.639	(1.111)	(0.900)	151.662	(19.68)	(42.783)	(75.548)	118.331	(14530.)	(36501.)	51031.
32.666	215.	15.019	(1.109)	(0.902)	138.481	(19.73)	(43.485)	(74.295)	117.780	(14856.)	(36267.)	51124.
32.932	220.	16.502	(1.106)	(0.904)	126.689	(19.78)	(44.176)	(73.065)	117.241	(15181.)	(36032.)	51213.
33.204	225.	18.093	(1.104)	(0.906)	116.113	(19.83)	(44.856)	(71.858)	116.713	(15503.)	(35796.)	51299.
33.481	230.	19.797	(1.102)	(0.908)	106.608	(19.87)	(45.524)	(70.672)	116.196	(15823.)	(35558.)	51381.
33.764	235.	21.619	(1.099)	(0.910)	98.047	(19.91)	(46.181)	(69.507)	115.688	(16140.)	(35320.)	51460.
34.052	240.	23.564	(1.097)	(0.912)	90.320	(19.94)	(46.827)	(68.363)	115.190	(16455.)	(35081.)	51535.
34.345	245.	25.636	(1.095)	(0.914)	83.332	(19.97)	(47.461)	(67.240)	114.701	(16766.)	(34840.)	51607.
34.643	250.	27.841	(1.092)	(0.915)	77.000	(19.99)	(48.083)	(66.138)	114.220	(17075.)	(34600.)	51674.
34.947	255.	30.183	(1.090)	(0.917)	71.251	(20.01)	(48.692)	(65.055)	113.748	(17380.)	(34359.)	51739.
35.256	260.	32.668	(1.088)	(0.919)	66.023	(20.02)	(49.289)	(63.993)	113.283	(17681.)	(34118.)	51799.
35.570	265.	35.301	(1.086)	(0.921)	61.261	(20.02)	(49.873)	(62.952)	112.825	(17978.)	(33878.)	51855.
35.889	270.	38.086	(1.084)	(0.922)	56.916	(20.00)	(50.443)	(61.931)	112.374	(18270.)	(33638.)	51908.
36.214	275.	41.029	(1.082)	(0.924)	52.945	(19.98)	(51.000)	(60.931)	111.930	(18557.)	(33399.)	51956.
36.544	280.	44.133	(1.081)	(0.925)	49.311	(19.93)	(51.541)	(59.952)	111.493	(18839.)	(33162.)	52001.
36.880	285.	47.404	(1.079)	(0.927)	45.982	(19.87)	(52.067)	(58.995)	111.062	(19114.)	(32928.)	52042.
37.221	290.	50.845	(1.077)	(0.929)	42.927	(19.78)	(52.576)	(58.061)	110.637	(19382.)	(32697.)	52079.
37.567	295.	54.461	(1.075)	(0.930)	40.121	(19.67)	(53.067)	(57.151)	110.218	(19642.)	(32471.)	52113.
37.918	300.	58.253	(1.073)	(0.932)	37.542	(19.52)	(53.539)	(56.267)	109.806	(19893.)	(32250.)	52143.
38.275	305.	(62.226)	(1.071)	(0.933)	(35.168)	(19.33)	(53.990)	(55.411)	(109.401)	(20134.)	(32036.)	(52169.)
38.637	310.	(66.379)	(1.069)	(0.935)	(32.983)	(19.08)	(54.417)	(54.585)	(109.002)	(20361.)	(31831.)	(52193.)
39.004	315.	(70.713)	(1.066)	(0.938)	(30.971)	(18.77)	(54.818)	(53.793)	(108.611)	(20575.)	(31639.)	(52213.)
39.376	320.	(75.227)	(1.063)	(0.941)	(29.118)	(18.37)	(55.189)	(53.041)	(108.229)	(20771.)	(31461.)	(52232.)
39.754	325.	(79.918)	(1.058)	(0.945)	(27.411)	(17.86)	(55.523)	(52.333)	(107.857)	(20945.)	(31303.)	(52249.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.

Table 30. Halite - saturated NaCl solutions, concentrations in mol/kg H_2O (molal).

x	t	p	d	v^L	v^G	$\bar{V}_1^L$	$\bar{S}_1^L$	$\Delta\bar{S}_1$	$\bar{S}_1^G$	$\bar{H}_1^L$	ΔH_1	$\bar{H}_1^G$
(molal)	(°C)	(bars)	(g cm^{-3})	(cm^3 g^{-1})		(cm^3 mol^{-1})	(J mol^{-1} K^{-1})			(J mol^{-1})		
6.481	80.	0.353	1.177	0.849	4582.148	18.30	20.405	119.226	139.631	5556.	42105.	47660.
6.522	85.	0.431	1.175	0.851	3806.274	18.34	21.428	116.999	138.427	5912.	41903.	47815.
6.564	90.	0.522	1.173	0.853	3181.029	18.39	22.438	114.831	137.269	6268.	41701.	47969.
6.608	95.	0.629	1.171	0.854	2673.933	18.43	23.434	112.718	136.152	6624.	41497.	48121.
6.654	100.	0.754	1.168	0.856	2260.131	18.48	24.418	110.657	135.075	6981.	41292.	48272.
6.701	105.	0.897	1.166	0.858	1920.473	18.53	25.390	108.647	134.036	7337.	41085.	48422.
6.751	110.	1.063	1.163	0.860	1640.210	18.58	26.345	106.689	133.034	7691.	40878.	48569.
6.803	115.	1.253	1.161	0.861	1407.499	18.63	27.286	104.780	132.066	8045.	40670.	48715.
6.857	120.	1.470	1.158	0.863	1213.359	18.68	28.212	102.918	131.130	8397.	40462.	48859.
6.913	125.	1.716	1.156	0.865	1050.590	18.73	29.125	101.100	130.225	8748.	40253.	49001.
6.970	130.	1.994	1.153	0.867	913.471	18.78	30.025	99.325	129.349	9098.	40043.	49141.
7.030	135.	2.308	1.151	0.869	797.432	18.84	30.911	97.590	128.501	9447.	39832.	49278.
7.092	140.	2.659	1.148	0.871	698.800	18.89	31.785	95.895	127.680	9795.	39619.	49414.
7.157	145.	3.053	1.145	0.873	614.610	18.95	32.646	94.238	126.884	10141.	39406.	49547.
7.223	150.	3.491	1.143	0.875	542.457	19.01	33.495	92.617	126.112	10487.	39191.	49678.
7.292	155.	3.978	1.140	0.877	480.377	19.06	34.332	91.031	125.362	10831.	38975.	49806.
7.362	160.	4.516	1.137	0.879	426.766	19.12	35.156	89.478	124.634	11174.	38757.	49932.
7.436	165.	5.111	(1.135)	(0.881)	380.301	(19.18)	(35.970)	(87.957)	123.927	(11516.)	(38539.)	50055.
7.511	170.	5.765	(1.132)	(0.883)	339.890	(19.24)	(36.771)	(86.468)	123.239	(11857.)	(38318.)	50175.
7.589	175.	6.483	(1.130)	(0.885)	304.627	(19.29)	(37.562)	(85.008)	122.570	(12196.)	(38096.)	50293.
7.669	180.	7.268	(1.127)	(0.887)	273.758	(19.35)	(38.341)	(83.577)	121.918	(12534.)	(37873.)	50407.
7.752	185.	8.125	(1.124)	(0.889)	246.652	(19.41)	(39.109)	(82.174)	121.283	(12871.)	(37648.)	50519.
7.837	190.	9.058	(1.122)	(0.892)	222.778	(19.46)	(39.865)	(80.798)	120.664	(13206.)	(37422.)	50628.
7.924	195.	10.072	(1.119)	(0.894)	201.691	(19.52)	(40.611)	(79.449)	120.060	(13539.)	(37194.)	50733.

8.014	200.	11.170	(1.116)	(0.896)	183.015	(19.57)	(41.346)	(78.124)	119.470	(13871.)	(36964.)	50836.
8.107	205.	12.357	(1.114)	(0.898)	166.429	(19.63)	(42.070)	(76.824)	118.894	(14201.)	(36733.)	50935.
8.203	210.	13.639	(1.111)	(0.900)	151.662	(19.68)	(42.783)	(75.548)	118.331	(14530.)	(36501.)	51031.
8.301	215.	15.019	(1.109)	(0.902)	138.481	(19.73)	(43.485)	(74.295)	117.780	(14856.)	(36267.)	51124.
8.402	220.	16.502	(1.106)	(0.904)	126.689	(19.78)	(44.176)	(73.065)	117.241	(15181.)	(36032.)	51213.
8.506	225.	18.093	(1.104)	(0.906)	116.113	(19.83)	(44.856)	(71.858)	116.713	(15503.)	(35796.)	51299.
8.613	230.	19.797	(1.102)	(0.908)	106.608	(19.87)	(45.524)	(70.672)	116.196	(15823.)	(35558.)	51381.
8.722	235.	21.619	(1.099)	(0.910)	98.047	(19.91)	(46.181)	(69.507)	115.688	(16140.)	(35320.)	51460.
8.835	240.	23.564	(1.097)	(0.912)	90.320	(19.94)	(46.827)	(68.363)	115.190	(16455.)	(35081.)	51535.
8.951	245.	25.636	(1.095)	(0.914)	83.332	(19.97)	(47.461)	(67.240)	114.701	(16766.)	(34840.)	51607.
9.070	250.	27.841	(1.092)	(0.915)	77.000	(19.99)	(48.083)	(66.138)	114.220	(17075.)	(34600.)	51674.
9.192	255.	30.183	(1.090)	(0.917)	71.251	(20.01)	(48.692)	(65.055)	113.748	(17380.)	(34359.)	51739.
9.317	260.	32.668	(1.088)	(0.919)	66.023	(20.02)	(49.289)	(63.993)	113.283	(17681.)	(34118.)	51799.
9.446	265.	35.301	(1.086)	(0.921)	61.261	(20.02)	(49.873)	(62.952)	112.825	(17978.)	(33878.)	51855.
9.579	270.	38.086	(1.084)	(0.922)	56.916	(20.00)	(50.443)	(61.931)	112.374	(18270.)	(33638.)	51908.
9.715	275.	41.029	(1.082)	(0.924)	52.945	(19.98)	(51.000)	(60.931)	111.930	(18557.)	(33399.)	51956.
9.854	280.	44.133	(1.081)	(0.925)	49.311	(19.93)	(51.541)	(59.952)	111.493	(18839.)	(33162.)	52001.
9.997	285.	47.404	(1.079)	(0.927)	45.982	(19.87)	(52.067)	(58.995)	111.062	(19114.)	(32928.)	52042.
10.145	290.	50.845	(1.077)	(0.929)	42.927	(19.78)	(52.576)	(58.061)	110.637	(19382.)	(32697.)	52079.
10.296	295.	54.461	(1.075)	(0.930)	40.121	(19.67)	(53.067)	(57.151)	110.218	(19642.)	(32471.)	52113.
10.451	300.	58.253	(1.073)	(0.932)	37.542	(19.52)	(53.539)	(56.267)	109.806	(19893.)	(32250.)	52143.
10.610	305.	(62.226)	(1.071)	(0.933)	(35.168)	(19.33)	(53.990)	(55.411)	(109.401)	(20134.)	(32036.)	(52169.)
10.774	310.	(66.379)	(1.069)	(0.935)	(32.983)	(19.08)	(54.417)	(54.585)	(109.002)	(20361.)	(31831.)	(52193.)
10.941	315.	(70.713)	(1.066)	(0.938)	(30.971)	(18.77)	(54.818)	(53.793)	(108.611)	(20575.)	(31639.)	(52213.)
11.114	320.	(75.227)	(1.063)	(0.941)	(29.118)	(18.37)	(55.189)	(53.041)	(108.229)	(20771.)	(31461.)	(52232.)
11.291	325.	(79.918)	(1.058)	(0.945)	(27.411)	(17.86)	(55.523)	(52.333)	(107.857)	(20945.)	(31303.)	(52249.)

NOTE.—Data contained in parentheses were calculated by extrapolation of the functions beyond their range.