

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8]	Kremers, P.
(2) Water; H ₂ O; [7732-18-5]	Ann. Phys. Chem. 1856, 99, 25-63; Ann. Phys. Chem. 1858, 103, 57-8.
VARIABLES:	PREPARED BY:
T/K = 273-444	M. Ferriol

EXPERIMENTAL DATA:

t/°C	mass ratio H ₂ O/LiCl	100 mass H ₂ O /mol LiCl ^a	mass % (compiler)	solid phase (compiler)
0	1.57	0.66	38.9	LiCl·2H ₂ O
20	1.24	0.52	44.7	LiCl·H ₂ O
40		0.46	47.7	"
60		0.41	50.0	"
65	0.96		51.0	"
80	0.87	0.36	53.5	"
95	0.77		56.5	LiCl
96	0.78	0.31	56.2	"
100			58.3	"
140	0.72		58.1	"
160	0.69		59.2	"
171				LiCl ^b

^a Atomic weights Li = 6.5, Cl = 35.5 according to author.^b boiling point of saturated solution

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
After complete dissolution at a higher temperature, the mixture was stirred for 1 h at the desired temperature. The solution was then drawn off, but was not filtered because of its high viscosity. The composition was determined at 95, 140 and 160°C by evaporation and weighing. At 20 and 65°C, LiCl was transformed into Li ₂ SO ₄ , which was weighed after filtration and calcination.	LiCl was prepared from a hot solution of lithium carbonate and hydrochloric acid.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium Chloride; LiCl; [7447-41-8]	Gerlach, Th. G. <i>Spezifische Gewichte der gebrauchlichsten Salzlösungen bei Verschiedenen Concentrationsgraden.</i> J.G. Engelhardt. Freiberg. 1859. pp. 1-7, 10.
(2) Water; H ₂ O; [7732-18-5]	
VARIABLES:	PREPARED BY:
T/K = 288	J.W. Lorimer

EXPERIMENTAL VALUES:

t = 15°C	mass %	relative density, d ₁₅ ¹⁵
	10	1.0580
	20	1.1172
	30	1.1819
	40	1.2557
satd sln		1.2827 solid phase: LiCl·2H ₂ O (compiler)

The author found the solubility from graphical extrapolation. The compiler found that the density could be represented by the equation $(d_{15}^{15} - 1)/100w_1 = A_1 + A_2(100w_1) + A_3(100w_1)^2$ where w_1 is the mass fraction of the salt, with least-square coefficients:

$$\begin{aligned} A_1 &= 5.87 \times 10^{-3} & s(A_1) &= 6.2 \times 10^{-6} \\ A_2 &= 1.40 \times 10^{-5} & s(A_2) &= 5.7 \times 10^{-7} \\ A_3 &= 6.75 \times 10^{-7} & s(A_3) &= 1.1 \times 10^{-8} \end{aligned}$$

and overall estimated std dev. 2.2×10^{-6} . Solution of this equation gave the solubility as: 43.30 mass %.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Solutions were made up by mass, using calibrated weights and vacuum corrections. Densities were measured by hydrostatic weighing, using a glass sinker attached to a balance. The method of saturation is not given.	Completely dried or lightly ignited LiCl was used.
ESTIMATED ERROR:	Temperature: precision ± 0.1 K. Solubility: no estimates possible.
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8]	Arrhenius, S.
(2) Water; H ₂ O; [7732-18-5]	Z. Phys. Chem., Stoichiometrie Verwandtschaftsl. 1888, 2, 491-505; K. Svensk. Vetenskapsakad. Hand., Bihang 1888, 14(1), no. 9, 1-24.

VARIABLES:	PREPARED BY:
T/K = 271-273	J.W. Lorimer

EXPERIMENTAL VALUES:																					
<table> <thead> <tr> <th>t/°C</th> <th>g/100 cm³ water</th> <th>mass % (compiler)^a</th> <th>solid phase</th> </tr> </thead> <tbody> <tr> <td>-0.363</td> <td>0.419</td> <td>0.418</td> <td>ice</td> </tr> <tr> <td>-0.606</td> <td>0.698</td> <td>0.694</td> <td>ice</td> </tr> <tr> <td>-1.019</td> <td>1.167</td> <td>1.154</td> <td>ice</td> </tr> <tr> <td>-1.729</td> <td>1.945</td> <td>1.911</td> <td>ice</td> </tr> </tbody> </table>	t/°C	g/100 cm ³ water	mass % (compiler) ^a	solid phase	-0.363	0.419	0.418	ice	-0.606	0.698	0.694	ice	-1.019	1.167	1.154	ice	-1.729	1.945	1.911	ice	
t/°C	g/100 cm ³ water	mass % (compiler) ^a	solid phase																		
-0.363	0.419	0.418	ice																		
-0.606	0.698	0.694	ice																		
-1.019	1.167	1.154	ice																		
-1.729	1.945	1.911	ice																		

^a Calculated using densities of water from (1).

COMMENTS: It appears that solutions were made using anhydrous LiCl (compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
A double-walled freezing point apparatus was used, with a thermometer that could be read to 0.002 K. The apparatus was filled with solution, then cooled to about 0.1 K below the f.p. with a mixture of salt, water and ice at about 2 K below the f.p. Addition of an ice crystal caused a rise in temperature, which attained a constant value for several minutes. This value was taken to be the freezing point. The concentration of the solution was determined by titration.	The salts were "chosen by Prof. van't Hoff with special consideration as to their purity".
	ESTIMATED ERROR:
	Precision in f.p. within ±0.005 K above -2°C, 0.005-0.1 K below -2°C.
	REFERENCES:
	1. International Critical Tables. McGraw-Hill. New York. 1928. Vol. III, p. 26.

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Lithium chloride; LiCl; [7447-41-8]		Bogorodskij, A.Ya.		
(2) Water; H ₂ O; [7732-18-51]		Zh. Russ. Fiz.-Khim. O-va, <u>1893</u> , 25, 316-42.		
VARIABLES:		PREPARED BY:		
T/K = 256 - 271		J.W. Lorimer		
EXPERIMENTAL VALUES:				
t/°C	mass %	solid phases		
-17 to -18	44.04	peritectic LiCl·2H ₂ O ^a —→ LiCl·3H ₂ O		
21.5	47.98	peritectic LiCl·H ₂ O —→ LiCl·2H ₂ O		
96 to 98	17.7	peritectic LiCl —→ LiCl·H ₂ O		
^a Composition 8.69 mass % Li, 45 mass % Cl; theoretical for LiCl·2H ₂ O, 8.85 mass % Li, 45.21 mass % Cl (compiler).				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
No details given; presumably the isothermal saturation method was used. Analyses: gravimetric, for Cl as AgCl; for Li as Li ₂ SO ₄ .	LiCl: (a) from commercial Li ₂ CO ₃ by dissolving in HCl + NH ₃ , then precipitating with (NH ₄) ₂ CO ₃ , washing with water; (b) from pure Li ₂ CO ₃ by dissolving in pure HCl and recrystallizing on a water bath. Purity checked spectroscopically.			
ESTIMATED ERROR:				
No estimates possible.				
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Lithium chloride; LiCl; [7447-41-8]		Rivett, A.C.D.		
(2) Water; H ₂ O; [7732-18-5]		K. Sven. Vetenskapsakad. Medd., Nobel-inst. <u>1911</u> , 2(9), 1-32.		
VARIABLES:		PREPARED BY:		
T/K = 268-273		M. Ferriol		
EXPERIMENTAL VALUES:				
t/°C	mass %	solid phase		
-0.381	0.451	ice		
-0.701	0.836	"		
-1.439	1.679	"		
-2.216	2.511	"		
-3.120	3.402	"		
-3.849	4.085	"		
-4.699	4.832	"		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
The mixture was supercooled in a bath 4 K below the freezing point until a large quantity of ice separated out, which was thawed until only a very small amount remained. The solution was placed in an air jacket and stirred until the temperature was stationary. Supercooling for 0.01-0.02 K was allowed and hand stirring continued until the temperature rose to its maximum.	Salt from Kemista Fabriken Ion.			
ESTIMATED ERROR				
Temperature (mean of five readings): ± 0.003 K.				
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Lithium chloride; LiCl; [7447-41-8]		Piña de Rubies, S. An. Soc. Esp. Fis. Quim. 1913, 11, 422-435; An. Soc. Esp. Fis. Quim. 1914, 12, 343-349; Arch. Sci. Phys. Nat. Ser. 4 1914, 38, 414-422 (same data in all papers)	
(2) Water; H ₂ O; [7732-18-5]			
VARIABLES:		PREPARED BY:	
T/K = 298		J.W. Lorimer	
EXPERIMENTAL VALUES:			
t/°C	mass %	mole fraction (compiler)	solid phase
25	44.90	0.2572	LiCl·H ₂ O
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS: LiCl: Merck; "pure" by analysis, no residue on volatilization. desiccator. Dried at 250°C, stored in a desiccator.		
The isothermal saturation method was used, with samples in sealed flasks in a thermostat. Equilibrium was reached in 5 h, then shaking was continued for another 5 h. Samples filtered at the temperature of the thermostat were analyzed for Cl by Mohr titration.	ESTIMATED ERROR: Temperature: precision ±0.05 K. Solubility: No estimates possible.		
	REFERENCES:		

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Lithium chloride; LiCl; [7447-41-8]		Rodebush, W.H.	
(2) Water; H ₂ O; [7732-18-5]		J. Am. Chem. Soc. 1918, 40, 1204-13.	
VARIABLES:		PREPARED BY:	
T/K = 248-268		M. Ferriol	
EXPERIMENTAL VALUES:			
t/°C	100x mass ratio LiCl/H ₂ O	mass % (compiler)	solid phase
- 5.11	5.48	5.19	ice
-12.22	10.68	9.65	"
-18.75	15.04	13.07	"
-25.44	18.58	15.67	"
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:		
The method consisted of a direct measurement of the freezing-point lowerings by means of a Cu-constantan thermocouple connected to a potentiometer. The saturation point was taken as the point where the temperature stopped falling and began to rise slowly. The composition of the saturated solution was determined by conductivity measurements. The reference temperature for the thermocouple was maintained to within ±0.001 K.	Commercial LiCl was recrystallized, and checked for purity by determining the salt-ice eutectic before and after recrystallization.		
ESTIMATED ERROR:		Temperature: precision ±0.01 to ±0.02 K.	
REFERENCES:			

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Lithium chloride; LiCl; [7447-41-8]		Hüttig, G.F.; Reuscher, F.						
(2) Water; H ₂ O; [7732-18-5]		Z. Anorg. Allg. Chem. 1924, 137, 155-80.						
VARIABLES:		PREPARED BY:						
T/K = 257-433 p = vapor pressure of solution		M. Ferriol						
EXPERIMENTAL VALUES:								
t/°C	100x mass ratio LiCl/H ₂ O	mass % (compiler)	vapor pressure p/mmHg	solid phase				
-16.5			0.8	LiCl·3H ₂ O + LiCl·2H ₂ O				
0	63.7	38.9	0.8.	LiCl·2H ₂ O				
10	72	41.9	1.0	"				
12.5			2	LiCl·2H ₂ O + LiCl·H ₂ O				
20	80.7	44.7	2.2	LiCl·H ₂ O				
30	85	45.9	3.6	"				
40.5	90	47	6.2	"				
50	95	48.7	10.2	"				
65	104.2	51.0		"				
80	115	53.5		"				
96	129	56.3		"				
100.5	130	56.5	90	LiCl·H ₂ O + LiCl				
140	139	58.2		LiCl				
160	145	59.2		"				
The solid phases are in equilibrium with saturated solution and vapor.								
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
The method is described in other publications (1, 2).	Very pure Kahlbaum lithium chloride hydrate was used, whose purity was found to be at least 99.2% by analysis for Cl (as AgCl) and Li (as Li ₂ SO ₄).							
ESTIMATED ERROR:								
No estimates possible.								
REFERENCES:								
1. Hüttig, G.F.; Reuscher, F. Z. Anorg. Allg. Chem. 1920, 114, 162; 1922, 121, 245; 1922, 122, 46; 1922, 124, 326; 1923, 126, 168. 2. Zsigmondy, R. Kolloidchemie, 4th ed., Leipzig, 1922, pp. 110 ff.								

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8] (2) Water; H ₂ O; [7732-18-5]		Smits, A.; Elgersma, J.; Hardenberg, M.E. <i>Recl. Trav. Chim. Pays-Bas</i> <u>1924</u> , 43, 671-6.
VARIABLES:		PREPARED BY:
T/K = 298		M. Ferriol
EXPERIMENTAL VALUES:		
t/°C		mass %
25		solid phase (compiler)
45.8		LiCl·H ₂ O
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE The authors investigated the ternary system LiCl-NaCl-H ₂ O at 25°C. Saturated solutions were prepared in an apparatus described by Meyer (1), filtered, and in the case of binary mixtures, analyzed by evaporation of water.	SOURCE AND PURITY OF MATERIALS: Not stated.	
		ESTIMATED ERROR: No estimates possible.
		REFERENCES: 1. Meyer, G. <i>Recl. Trav. Chim. Pays-Bas</i> <u>1923</u> , 42, 301.

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Lithium chloride; LiCl; [7447-41-8]		Benrath, H.				
(2) Water; H ₂ O; [7732-18-5]		Z. Anorg. Allg. Chem. 1927, 163, 396-404; 1932, 205, 417-24.				
VARIABLES:		PREPARED BY:				
T/K = 273-373		M. Ferriol; J.W. Lorimer				
EXPERIMENTAL VALUES:						
<i>t</i> /°C	mass %	solid phase	remarks			
0	41.47	LiCl·2H ₂ O				
0	40.51	"				
13.3	43.07	"				
17.5	44.48	"				
17.5	44.61	"				
20	45.28	LiCl·2H ₂ O + LiCl·H ₂ O	peritectic point			
25	45.18 ^a	LiCl·H ₂ O				
25	45.90	"				
40.5	47.27	"				
50	48.18	"				
70	51.04	"				
80	52.88	"				
90	54.21	"				
99.5	55.84	LiCl				
^a Original data from 1927 paper: mol H ₂ O/mol Li ₂ Cl ₂ = 5.71.						
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Isothermal method (compiler).	Analysis of LiCl·2H ₂ O crystals isolated at 17.5°C: 52.68, 52.05, 52.73 mass% Li; calc. 54.05 mass%.					
ESTIMATED ERROR:						
No estimates possible.						
REFERENCES:						

COMPONENTS:	ORIGINAL MEASUREMENTS:		
(1) Lithium chloride; LiCl; [7447-41-8]	Deacon, G.E.R. <i>J. Chem. Soc.</i> <u>1927</u> , 2063-5.		
(2) Water; H ₂ O; [7732-18-5]			
VARIABLES:	PREPARED BY:		
T/K = 298	J.W. Lorimer		
EXPERIMENTAL VALUES:			
t/°C 25	g/kg H ₂ O 83.05	mass % (compiler) 45.37	solid phase LiCl·H ₂ O
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE The isothermal saturation method was used. Chloride was determined gravimetrically as AgCl.	SOURCE AND PURITY OF MATERIALS: No information given.		
	ESTIMATED ERROR: Temperature: precision probably within ±0.1 K (compiler). Solubility: No estimates possible.		
	REFERENCES:		

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Lithium chloride; LiCl; [7447-41-8]		Hüttig, G.F.; Steudemann, W. <i>Z. Phys. Chem., Stoechiom.</i> <i>Verwandtschaftsl.</i> 1927, 126, 105-17; Steudemann, W. <i>Die thermische Analyse der Systeme des Wassers mit den Alkalihalogeniden.</i> Jena. 1927.	
(2) Water; H ₂ O; [7732-18-5]			
VARIABLES:		PREPARED BY:	
T/K = 193-374		M. Ferriol	
EXPERIMENTAL VALUES:			
<i>t</i> /°C	100X mass ratio	mass %	solid phase
	LiCl/H ₂ O		remarks
-10.8	to -11	9.87	ice
-22.5		14.93	"
-43.4		19.86	"
-57.2		22.23	"
-58		22.5	"
-63.6		23.21	"
-69.2		24.20	"
-75.7		25.20	"
-80	33.9	25.3 ^a	ice + LiCl·5H ₂ O eutectic point
-73.9		26.05	LiCl·5H ₂ O
-70		27.57	"
-66		30.90	" metastable point
-68	40.3	28.7 ^a	LiCl·5H ₂ O + LiCl·3H ₂ O peritectic point
-61		29.52	LiCl·3H ₂ O
-50.6		30.90	"
-42.2		32.14	"
-27.7		34.61	"
-23.7		35.85	"
-20	58.4	58.4 ^a	LiCl·3H ₂ O + LiCl·2H ₂ O peritectic point
-35.5		35.77	LiCl·2H ₂ O metastable point
-20 (about)		37.0	"
-11.7		38.32	"
-5.3		39.25	"
12.5	68	40.5 ^a	LiCl·2H ₂ O + LiCl·H ₂ O peritectic point
100.5	130	56.5 ^a	LiCl·H ₂ O + LiCl peritectic point

^a Hüttig and Steudemann, from intersections of solubility curves;
all data are given by Steudemann.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Measurements were performed by thermal analysis in a tight apparatus fitted with a rotating stirrer. On account of small thermal effects, a check by visual observation was necessary. To avoid supersaturation, crystallization was induced by seeding with a crystal.	No information given.
	ESTIMATED ERROR: Temperature: ±1 K
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8]	Palitzsch, S. <i>Z. Phys. Chem., Abt. A</i> 1928, 138, 379-98; <i>Studier over Oplosnigers Overfladespaending.</i> Habilitation Thesis. Levin & Munksgaards Forlag. Copenhagen 1927.
(2) Water; H ₂ O; [7732-18-5]	

VARIABLES:	PREPARED BY:
T/K = 298	R. Tenu; J.W. Lorimer

EXPERIMENTAL VALUES:

t/°C	molality mol kg ⁻¹	mass %	relative density d ₄ ²⁵	solid phase
25	19.91	45.77	1.29699	LiCl·H ₂ O

COMMENTS AND ADDITIONAL DATA: Solubilities were measured in connection with studies of surface tensions. The experimental molalities and densities are given on pp. 386-95 of the paper. In the Thesis, the primary data are mass of solution and titer of 0.1 mol dm⁻³ AgNO₃. The compiler has calculated molalities and mass fractions from these data, which differ in the last figure from the values given by the author. The primary data follow.

mass of sln/g	titer/cm ³	molality/mol kg ⁻¹	mass %
0.5132	55.41	19.91	45.77
0.4901	52.92	19.91	45.77

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Solution and solid were rotated in sealed flasks in a thermostat. After saturation, which was continued up to 15 h, the mixture was filtered through cotton wool. Cl was determined by titration with AgNO ₃ . densities were measured by pycnometer.	LiCl (Kahlbaum or Merck) was recrystallized and checked by analysis. Chloride was determined volumetrically. Water was redistilled over alkaline permanganate.
ESTIMATED ERROR:	Temperature: precision to 0.02 K. Solubility: precision within 0.05 mass %, from data in thesis. Density: precision 1-10 x 10 ⁻⁵ .
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8]	Friend, J.A.N.; Colley, A.T.W. <i>J. Chem. Soc.</i> 1931, 3148-9.
(2) Water; H ₂ O; [7732-18-5]	
VARIABLES:	PREPARED BY:

T/K = 273-361

M. Ferriol

EXPERIMENTAL VALUES:

t /°C	mass % LiCl	solid phases
0	40.85	LiCl·2H ₂ O
8.0	42.38	"
10.2	42.75	"
13.0	43.32	"
13.8	43.50	"
14.2	43.86	"
16.2	44.60	"
16.4	44.23	"
18.0	45.31	LiCl·H ₂ O
19.0	45.22	"
21.2	45.47	"
24.6	45.89	"
29.0	46.32	"
34.5	46.67	"
41.0	47.47	"
47.0	48.23	"
61.6	50.05	"
72.0	51.71	"
81.6	53.37	"
86.6	54.60	"
88.0	54.54	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Saturated solutions at various temperatures were prepared in an apparatus described previously in (1). The mixture was stirred vigorously for a few hours and the solution taken off by means of a filtering pipet. A weighed quantity of the filtered solution was evaporated and dried in an electric oven at 150-180°C and then heated with a gas flame to ensure complete removal of water. The residue was weighed, and the composition was deduced.	LiCl, prepared by dissolution of pure carbonate in dilute acid, was recrystallized twice. Analysis for Cl gave differences between found and calc. LiCl within 0.2%.
	ESTIMATED ERROR:
	No estimates possible.
	REFERENCES:
	1. Friend, J.A.N. <i>J. Chem. Soc.</i> 1930, 1633.

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8]		Bassett, H.; Sanderson, I.
(2) Water; H ₂ O; [7732-18-5]		J. Chem. Soc. 1932, 1855-64.
VARIABLES:	PREPARED BY:	
T/K = 273-353	M. Ferriol	
EXPERIMENTAL VALUES:		
t/°C	mass % LiCl	solid phase
0	40.87	LiCl·2H ₂ O
25	45.85	LiCl·H ₂ O
	45.98a	"
40	47.47	"
80	52.71	"
a Analysis by evaporation, conversion to sulfate, and weighing. Other analyses by gravimetric AgCl method.		
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:	
The mixtures were prepared in hard-glass bottles closed by corks. The solid was dissolved by heating and the mixtures were allowed to crystallize at the experimental temperature. The bottles were frequently shaken by hand. Equilibrium was attained quickly and the saturated solutions were filtered in a jacketed filter tube.	Anhydrous LiCl was used.	
The composition of the saturated solutions was determined gravimetrically as AgCl or by evaporation followed by conversion to sulfate and weighing.	ESTIMATED ERROR: Solubility: precision within ±0.2 mass%.	
	REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Lithium chloride; LiCl; [7447-41-8]		Scatchard, G.; Prentiss, S.S. <i>J. Am. Chem. Soc.</i> <u>1933</u> , 55, 4355-62.	
(2) Water; H ₂ O; [7732-18-5]			
VARIABLES:		PREPARED BY:	
T/K = 268-273		M. Ferriol	
EXPERIMENTAL VALUES:			
t/°C	molality /mol kg ⁻¹	mass %	solid phase
-0.0030	0.000815	0.00345	ice
-0.0036	0.001000	0.00424	ice
-0.0050	0.001388	0.00588	ice
-0.0069	0.001889	0.00801	ice
-0.0121	0.003350	0.01420	ice
-0.0135	0.003706	0.01571	ice
-0.0216	0.005982	0.02535	ice
-0.0388	0.010810	0.04580	ice
-0.0611	0.017113	0.07249	ice
-0.1024	0.028830	0.12207	ice
-0.1483	0.041929	0.17743	ice
-0.2192	0.062321	0.26350	ice
-0.2925	0.083317	0.35195	ice
-0.3786	0.10807	0.45604	ice
-0.4663	0.13317	0.56137	ice
-0.5355	0.15304	0.64459	ice
-0.6660	0.19001	0.79905	ice
-0.7892	0.22480	0.94398	ice
-0.8997	0.25602	1.0737	ice
-1.0333	0.29320	1.2277	ice
-1.2395	0.35012	1.4625	ice
-1.4051	0.39572	1.6499	ice
-1.5559	0.43607	1.8150	ice
-1.7634	0.49181	2.0423	ice
-1.9549	0.54212	2.2465	ice
-2.1771	0.60053	2.4826	ice
-2.4310	0.66599	2.7457	ice
-2.7692	0.75093	3.0851	ice
-3.0618	0.82305	3.3714	ice
-3.4354	0.91361	3.7286	ice
-3.8212	1.0050	4.0863	ice
-4.3144	1.1196	4.5312	ice
-4.8798	1.2458	5.0163	ice
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:		
Freezing points were measured by "equilibrium method" and concs. were determined by conductivity, as in (1,2). Nitrogen was precooled and saturated in an ice-water mixture, then bubbled through the solution to stir it.	LiCl (C.P.) in aq. sln. was pptd. by ammonium carbonate satd. with ammonia. The ppt. was diss. in HCl and again pptd. as above. This ppt. was washed, dried at 270°C, and fused. A stock sln. was made by titrating an HCl sln. of the ppt. to pH 6.6 and boiling to expel CO ₂ . Its conc. was detd. by evaporation and conversion to Li ₂ SO ₄ .		
REFERENCES:	ESTIMATED ERROR: Temperature: precision ±3 × 10 ⁻⁵ K for slns. more dilute than 0.01 M.		
1. Scatchard, G.; Prentiss, S.S.; Jones, P.T. <i>J. Am. Chem. Soc.</i> <u>1932</u> , 54, 2690.			
2. Scatchard, G.; Prentiss, S.S. <i>J. Am. Chem. Soc.</i> <u>1932</u> , 54, 2696.			

COMPONENTS:		ORIGINAL MEASUREMENTS:					
(1) Lithium chloride; LiCl; [7447-41-8]		Applebey, M.P.; Crawford, F.H.; Gordon, K.					
(2) Water, H ₂ O; [7732-18-5]		J. Chem. Soc. <u>1934</u> , 1665-71.					
VARIABLES:		PREPARED BY:					
T/K = 274-429		M. Ferriol					
EXPERIMENTAL VALUES:							
t/°C	mass % LiCl	d ₄ ^t	solid phase remarks				
1.05	40.90	1.2678	LiCl·2H ₂ O				
10.05	42.71	1.2789	"				
15.70	44.06	1.2875	"				
18.25	44.86	1.2926	"				
19.10 ±0.25			LiCl·2H ₂ O + peritectic LiCl·H ₂ O point				
24.15	45.47	1.2962	LiCl·H ₂ O				
40.05	47.09	1.3034	"				
50.20	48.23	1.3080	"				
64.95	50.26	1.3173	"				
80.85	52.94	1.3372	"				
89.55	54.82	1.3418	"				
93.5 ±0.5			LiCl·H ₂ O + peritectic LiCl point				
95.15	55.83	1.3471	LiCl				
100.2	56.3	1.347	"				
120.2	56.9	1.344	"				
140.3	57.6	1.339	"				
155.6	58.3	1.338	"				
d ₄ ^t = density relative to water at 4°C.							
Vapor pressures of saturated solutions							
t/°C	p/mmHg	t/°C	p/mmHg	t/°C	p/mmHg	t/°C	p/mmHg
60.45	14.9	85.15	46.0	99.95	80.0	150.15	446.3
61.35	15.9	90.10	51.2	109.75	115.6	160.30	615.4
70.00	26.6	91.00	53.5	119.85	173.9	170.20	799.0
70.45	26.2	95.25	62.2	130.20	242.7	180.20	1035.8
80.15	37.9	100.30	78.3	140.05	334.4		
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:						
Densities and solubilities were determined in pipets specially designed for this work as described previously (1). The salt and solution were stirred together for periods varying from 12 to 24 h before the pipet was introduced with a glass wool filter attached. After a further four hours' stirring the solid was allowed to settle and the pipet was filled. After weighing, the saturated solution was analyzed for chloride by titration with silver nitrate. Three determinations of solubility were made at each temperature.	LiCl from Kahlbaum and Harrington was used as the monohydrate after three recrystallizations.						
ESTIMATED ERROR:							
Solubility: precision ±0.05 mass % Density: precision ±0.0005							
REFERENCES:							
1. Farrow, M. J. Chem. Soc. <u>1926</u> , 49.							

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Lithium chloride; LiCl; [7447-41-8] (2) Water, H ₂ O; [7732-18-5]		Lannung, A. <i>Z. Phys. Chem., Abt. A</i> <u>1934</u> , 170, 134-44.						
VARIABLES:		PREPARED BY:						
T/K = 291 p/kPa = 1.4		J.J. Counioux						
EXPERIMENTAL VALUES:								
t/°C	p/mmHg	molality m ₁ /mol kg ⁻¹	mass %	solid phase				
18	1.71	19.55	45.32	LiCl·H ₂ O				
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
The vapor pressure of the solution was plotted against the concentration. The solubility was deduced from the break in this curve.	The purity of the salt has been described in a previous paper (1).							
ESTIMATED ERROR:								
Temperature: precision ±0.003 K Pressure: ±7 Pa								
REFERENCES:								
1. Lannung, A. <i>Z. Phys. Chem., Abt. A</i> <u>1932</u> , 161, 255.								

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Lithium chloride; LiCl; [7447-41-8] (2) Water; H ₂ O; [7732-18-5]		Simmons, J.P.; Freimuth, H.; Russell, H. <i>J. Am. Chem. Soc.</i> <u>1936</u> , 58, 1692-1695.						
VARIABLES:		PREPARED BY:						
T/K = 623, 673		J.W. Lorimer						
EXPERIMENTAL VALUES:								
t/°C	molality m ₁ /mol kg ⁻¹ (compiler)	mass %	solid phase					
25	20.05	45.94	LiCl·H ₂ O					
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
Salt and water were equilibrated in solubility tubes at const. temp. Cl was determined by Mohr titration of weighed aliquots of solution. Solid phase compositions were detd. by initial complex modification of the wet residue method (1).	LiCl: 3x recryst. hydrate treated with abs. ethanol, filtered to remove LiOH, filtrate evap. to dryness, giving 99.90% pure salt.							
ESTIMATED ERROR:								
Temperature: precision ±0.02 K.								
REFERENCES:								
1. Hill, A.E.; Ricci, J.E. <i>J. Am. Chem. Soc.</i> <u>1931</u> , 53, 4305.								

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium chloride: LiCl: [7447-41-8]	Friend, J.N.; Hale, R.W.; Ryder, S.B.A.
(2) Water: H ₂ O: [7732-18-5]	J. Chem. Soc. 1937, 970.

VARIABLES:	PREPARED BY:
T/K = 345-427	M. Ferriol

EXPERIMENTAL VALUES:

t / °C	mass % LiCl	solid phases
71.5	51.61	LiCl·H ₂ O
81.6	53.37	"
87.0	54.46	"
92.0	55.27	"
94.6	55.84	"
95.3	56.01	"
95.5	55.99	"
96.2	56.57 ^a	"
97.1	56.60 ^a	"
98.2	57.55 ^a	"
101.8	56.40	LiCl
107.6	56.52	"
115.4	56.95	"
117.0	57.00	"
123.0	57.28	"
130.5	57.58	"
140.5	57.90	"
143.6	57.98	"
154.0	58.46	"

^a metastable points

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Mixtures of anhydrous salt and water were heated in sealed tubes in an oil bath with repeated shaking until the solid phase disappeared, the mean temperature after repeated trials being measured. The concentration of LiCl was determined by evaporation followed by momentary heating to render the salt anhydrous or by titration with silver nitrate solution.	Not stated.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Lithium chloride; LiCl; [7447-41-8] (2) Water; H ₂ O; [7732-18-5]	Robinson, R.A. Trans. Faraday Soc. 1945, 41, 756-8.	
VARIABLES:	PREPARED BY:	
T/K = 298	M. Ferriol	
EXPERIMENTAL VALUES:		
t/°C 25	mass % 45.83	solid phase (compiler) LiCl·H ₂ O
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:	
Isopiestic method. A saturated solution of LiCl was found to be in equilibrium with 17.822 mol dm ⁻³ H ₂ SO ₄ solution.	Lithium chloride was made by neutralization of Eimer and Amend's lithium hydrate (LiCl·2H ₂ O, compiler) followed by four recrystallizations.	
	ESTIMATED ERROR:	
	No estimates possible.	
	REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Lithium chloride; LiCl; [7447-41-8] (2) Water; H ₂ O; [7732-18-5]	Garrett, A.B.; Woodruff, S.A. J. Phys. Coll. Chem. 1951, 55, 477-90.	
VARIABLES:	PREPARED BY:	
T/K = 200	R. Cohen-Adad	
EXPERIMENTAL VALUES:		
t/°C -73	mass % 24.85	solid phase ^a ice + LiCl·5H ₂ O
^a compiler		
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:	
The test solution was cooled with stirring until copious amounts of crystals formed. The temperature was then raised slowly until the last crystal disappeared. The eutectic point was found by extrapolation of graphical data.	No information available.	
	ESTIMATED ERROR:	
	No estimates possible.	
	REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8]		Blidin, V.P.
(2) Water; H ₂ O; [7732-18-5]		Izv. Akad. Nauk. SSSR, Ser. Khim. <u>1953</u> , (5), 814-9; Dokl. Akad. Nauk SSSR <u>1953</u> , 88, 457-9..
VARIABLES:		PREPARED BY:
T/K = 298-313		M. Ferriol
EXPERIMENTAL VALUES:		
t/°C	mass %	solid phase
25	45.95	LiCl·H ₂ O (1st.ref.)
30	45.48	" (2nd. ref.)
40	47.98	" (1st. ref.)
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE Isothermal method. Saturation was obtained by addition of small quantities of salt. A sample of clear solution was weighed and analyzed. The remaining salt was weighed.	SOURCE AND PURITY OF MATERIALS: LiCl was prepared by dissolution of Li ₂ CO ₃ in distilled water and precipitation with hydrochloric acid. LiCl was dissolved in alcohol and dried.	
		ESTIMATED ERROR: Temperature: ±0.1 K
		REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:		
(1) Lithium chloride; LiCl; [7447-41-8] (2) Water; H ₂ O; [7732-18-5]	Campbell, A.N.; Kartzmark, E.M. Can. J. Chem. <u>1956</u> , 34, 672-78.		
VARIABLES: T/K = 298	PREPARED BY: J.W. Lorimer		

EXPERIMENTAL VALUES:	t/°C	mass %	mole fraction (compiler)	solid phase
	25	45.4	0.2611	LiCl·H ₂ O

AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS: LiCl: Merck "reagent" or BDH "Analalor", with no further purification.
The isothermal saturation method was used, with samples in sealed flasks in a thermostat. Equilibrium was reached in 5 h, then shaking was continued for another 5 h. Samples filtered at the temperature of the thermostat were analyzed for Cl by Mohr titration.	ESTIMATED ERROR: Temperature: precision ±0.05 K. Solubility: No estimates possible.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:		
(1) Lithium chloride; LiCl; [7447-41-8] (2) Water; H ₂ O; [7732-18-5]	Campbell, A.N.; Griffiths, J.E. Can. J. Chem. <u>1956</u> , 34, 1647-60.		
VARIABLES: T/K = 276 - 298	PREPARED BY: J.W. Lorimer		

EXPERIMENTAL VALUES:	t/°C	mass %	mole fraction (compiler)	solid phase
	3.0	41.0	0.2280	LiCl·2H ₂ O
	6.0	41.1	0.2287	"
	8.5	42.7	0.2405	"
	25.0	45.5	0.2619	LiCl·H ₂ O

Thermal analysis gave 12.5 ± 0.1 °C for the transition temperature for $\text{LiCl} \cdot 2\text{H}_2\text{O}$ (s) = $\text{LiCl} \cdot \text{H}_2\text{O}$ (s) + H_2O (l)

AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS: LiCl: no information given.
Isothermal saturation method was used, with equilibrium approached from both directions. Equilibrium time was 2-3 d up to 10 % LiCl, 5-6 5-6 d at higher mass %. Solids determined by the wet residue method in the system $\text{LiClO}_3 \cdot \text{LiCl} \cdot \text{H}_2\text{O}$. ClO_3 detd. by iodometry, Cl by titration with AgNO_3 or gravimetrically.	ESTIMATED ERROR: Temperature: precision ±0.05 K. Solubility: analyses for ClO_3 , 10.4 %
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7747-41-8]	Plyushchnev, V.E.; Kuznetsova, G.P.; Stepina, S.B.
(2) Water; H ₂ O; [7732-18-5]	Zh. Neorg. Khim. 1959, 4, 1449-53; *Russ. J. Inorg. Chem. (Engl. Transl.) 1959, 4, 652-4.
VARIABLES: $T/K = 273-348$	PREPARED BY: R. Cohen-Adad

EXPERIMENTAL VALUES:

$t/^\circ\text{C}$	mass %	solid phase
0	40.89	LiCl·2H ₂ O
10	45.85	"
50	49.06	LiCl·H ₂ O
75	52.18	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE Isothermal method: equilibrium was reached in 4 d by stirring solid in contact with satd solution. Cl in satd solution was determined as AgCl.	SOURCE AND PURITY OF MATERIALS: Not stated.
	ESTIMATED ERROR: Temperatures above 0°C: ±0.1 K
	REFERENCES:

COMPONENTS:

- (1) Lithium chloride; LiCl;
[7447-41-8]
(2) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:

Schimmel, F.A.

J. Chem. Eng. Data 1960, 5,
519-20.

VARIABLES:

T/K = 189-292

PREPARED BY:

M. Ferriol

EXPERIMENTAL VALUES:

t/°C	mass % LiCl	solid phase	remarks
0	0	ice	
-18.75	13.0	"	
-39.0	18.8	"	
-48.5	21.2	"	
-55.0	22.2	"	
-64.0	23.6	"	
-65.0	23.8	"	
-68.0	24.2	"	
-84.0	25.2	ice + LiCl·5H ₂ O	eutectic point ^b
-78.5	25.9	LiCl·5H ₂ O	
-73.0	27.2	"	
-70.0	28.2	"	
-67.0	29.5 ^a	"	
-65.0	30.8 ^a	"	
-67.2	29.3	LiCl·5H ₂ O + LiCl·3H ₂ O	peritectic point
-67.5	29.2	LiCl·3H ₂ O ^a	
-60.0	30.0	"	
-54.5	30.6	"	
-51.0	30.8	"	
-49.5	31.4	"	
-41.0	32.45	"	
-36.0	33.5	"	
-34.5	34.1	"	
-29.0	35.0	"	
-27.0	35.5	"	
-26.0	35.8	"	
-25.5	36.15	"	
-20.0	37.3	"	
-19.0	38.0	LiCl·3H ₂ O + LiCl·2H ₂ O	peritectic point
-25.2	37.3 ^a	LiCl·2H ₂ O	
-15.0	38.3	"	
-12.0	38.6	"	
-8.5	38.9	"	
3.0	41.2	"	
12.1	43.2	"	
19.0	45.2	LiCl·2H ₂ O + LiCl·H ₂ O	peritectic point
25	45.8	LiCl·H ₂ O	

^a metastable points; ^b eutectic point: see METHOD section.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE

A quantity of solution was crystallized quickly by cooling to low temperature. The temperature of the system was then raised slowly (about 1 K per 15 minutes) and the solubility was found by determining the temperature at which the solid phase disappeared. Seeding with the proper hydrates was necessary, because otherwise the entire system turned into a glass-like mass which was not crystallized. The eutectic temperature was found by thermal analysis and by graphical interpolation of solubility curves.

SOURCE AND PURITY OF MATERIALS:

Commercial product purified by several recrystallizations until free from sulfate and amount of Ca + Ba < 0.001%.

ESTIMATED ERROR:

Temperatures given to a precision ±0.25 K for the medium range and ±0.5 K for the very low range.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8]	Vuillard, G; Kessis, J.J. <i>Bull. Soc. Chim. Fr.</i> 1960, 2063-7.
(2) Water; H ₂ O; [7732-18-5]	
VARIABLES:	PREPARED BY:

T/K = 198

M. Ferriol

EXPERIMENTAL VALUES:

t / °C	mass % LiCl	solid phase	remark
-74.75	25	ice + LiCl·5H ₂ O	eutectic point

ADDITIONAL DATA

The following equilibrium temperatures were determined by thermal analysis:

LiCl·5H ₂ O + LiCl·3H ₂ O + satd sln	-65.4°C	(eutectic)
LiCl·3H ₂ O + LiCl·2H ₂ O + satd sln	-20.5°C	(peritectic)
LiCl·5H ₂ O + satd sln	-62.9°C	(congruent m.p.)
Limiting glass transition temperature (extrapolated to zero mass %)	-132.5°C	

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The composition of samples was determined by titration or evaporation to dryness.	LiCl, Prolabo, was purified by recrystallization of the monohydrate.
The stoichiometry of solid phases was deduced from Tammann's diagrams; i.e., from the duration of invariant halts in temperature-time heating curves, or from the areas of triangles constructed on DTA curves (1).	ESTIMATED ERROR:
	Temperature: precision within ±0.3 K.
	REFERENCES: 1. Vuillard, G. <i>Thèse</i> , Paris, 1957; <i>Ann. Chim.</i> 1957, 2, 233.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8]	Voskresenskaya, N.K.; Yanat'eva, O.K.
(2) Water; H ₂ O; [7732-18-5]	Izv. Akad. Nauk. SSSR, Otd. Mat. Nauk, Ser. Khim. 1937, 97-121; Izv. Sekt. Fiz.-Khim. Anal., Inst. Neorg. Khim., Akad. Nauk SSSR 1936, 9, 291-3.
VARIABLES:	PREPARED BY:
T/K = 242-271	M. Ferriol

EXPERIMENTAL VALUES:

t / °C	mass % LiCl	solid phases
-2.4	4	ice
9.0	8	"
-23.0	14.0	"
36.0	18.0	"
50.0	21.0	"
62	24.0	"
-66	24.4	ice + LiCl·5H ₂ O
-63	26.4	LiCl·5H ₂ O
-60.4	28.2	"
-58.0	29.6	"
-57.0	30.4	LiCl·5H ₂ O + LiCl·3H ₂ O
-54.0	30.5	LiCl·3H ₂ O
-50	31.0	"
-48.0	30.8	"
-30	34.4	"
-31.0	33.4	"
-19.2	36.4	"
-15.6	37.2	LiCl·3H ₂ O + LiCl·2H ₂ O
0	38.8	LiCl·2H ₂ O
0	38.9	"
4.8	40	"
14.0	43	"
14.2	43.86	"
20.5	45.6	LiCl·2H ₂ O + LiCl·H ₂ O
25	45.65 ^a	LiCl·H ₂ O
25.0	46.0	"
25.0	45.8	"
30.0	46.2	"
30.0	46.1	"
70	51.2	"
102	56.9	LiCl

a This is the only value reported in the second (and earlier) paper.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The authors investigated the ternary system NH ₄ Cl-LiCl-H ₂ O. Mixtures were stirred in a thermostat for 24 h. Saturated solution was removed and analyzed for Cl gravimetrically.	Anhydrous LiCl (Kahlbaum) was recrystallized.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Lithium chloride; LiCl; [7447-41-8]		Kessis, J.J.						
(2) Water; H ₂ O; [7732-18-5]		Bull. Soc. Chim. Fr. 1961, 1503-4.						
VARIABLES:		PREPARED BY:						
T/K = 208-333		M. Ferriol						
EXPERIMENTAL VALUES:								
t/°C	mass %	solid phase	method	remarks				
-65.4	29.15	LiCl·5H ₂ O + LiCl·3H ₂ O	E	peritectic point				
-64.5	29.25	LiCl·3H ₂ O	S.M.	"				
-60.0	29.78	"	"	"				
-55.0	30.48	"	"	"				
-50.0	31.21	"	"	"				
-45.0	32.03	"	"	"				
-41.2	32.66	"	"	"				
-35.1	34.00	"	"	"				
-29.8	35.14	"	"	"				
-25.0	36.21	"	"	"				
-20.5	37.80	LiCl·3H ₂ O + LiCl·2H ₂ O	E	peritectic point				
-19.05	37.95	LiCl·2H ₂ O	S.M.	"				
-10.0	39.08	"	"	"				
0.0	40.20	"	"	"				
10.0	42.14	"	"	"				
15.0	43.77	"	"	"				
19.4	45.15	LiCl·2H ₂ O + LiCl·H ₂ O	E	peritectic point				
20.0	45.20	LiCl·H ₂ O	S.M.	"				
25.0	45.70	"	"	"				
30.0	46.24	"	"	"				
35.05	46.70	"	"	"				
40.0	47.14	"	"	"				
50.0	48.31	"	"	"				
60.0	49.76	"	"	"				
S.M. = Solubility measurement E = Estimated from previously-determined invariant temperatures (1) and solubility curves.								
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
The samples were set into tight test tubes provided with helicoidal glass stirrers and kept in a thermostat. The saturated solution was removed through a filter pipet. The composition was deduced from chloride titration by Mohr's method. Data were the mean of three experiments. The peritectic points were determined by thermal analysis (1).	"Prolabo" reagent purified by recrystallization of monohydrate.							
ESTIMATED ERROR:								
Temperature: ±0.1 K Solubility: highest variation with respect to average: 0.07%								
REFERENCES:								
1. Vuillard, G.; Kessis, J.J. Bull. Soc. Chim. Fr. 1960, 2063.								

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Lithium chloride; LiCl; [7447-41-8]		Akopov, E.K.	
(2) Water; H ₂ O; [7732-18-5]		Zh. Neorg. Khim. 1962, 7, 385-9; *Russ. J. Inorg. Chem. (Engl. Transl.) 1962, 7, 195-8.	
VARIABLES:		PREPARED BY:	
T/K = 198-371		M. Ferriol	
EXPERIMENTAL VALUES:			
t/°C	mass %	solid phase	remark
-75.0	24.8	ice + LiCl·5H ₂ O	eutectic point
-64.5	31.2	LiCl·5H ₂ O + LiCl·3H ₂ O	peritectic point
-18.0	38.5	LiCl·3H ₂ O + LiCl·2H ₂ O	peritectic point
0	42.2	LiCl·2H ₂ O	
10	46.5	LiCl·2H ₂ O	
18.5	45.0	LiCl·2H ₂ O + LiCl·H ₂ O	peritectic point
20	48.0	LiCl·H ₂ O	
25	48.5	LiCl·H ₂ O	
98	56.7	LiCl·H ₂ O + LiCl	peritectic point
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:		
Solubility was determined by visual observation of the temperature at which the first crystals appeared on cooling (or the last crystals disappeared on heating). A test tube provided with a glass stirrer and a thermometer was used. The temperature difference between appearance of the first and disappearance of the last crystals was 0.2-0.3 K. The observation was repeated until the interval between these temperatures was a minimum and then the mean of the two values was taken.	"Chemically pure" grade LiCl was twice recrystallized and dehydrated by evaporating a solution to dryness in a flow of HCl. Doubly-distilled water was used.		
ESTIMATED ERROR:		Temperature: ±0.2-0.3 K	
REFERENCES:			

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl: [7447-41-8]	Ravich, M.I.; Yastrebova, L.F.
(2) Water; H ₂ O: [7732-18-5]	Zh. Neorg. Khim. 1963, 8, 202-7; *Russ. J. Inorg. Chem. (Engl. Transl.) 1963, 8, 102-5.
VARIABLES:	PREPARED BY:
T/K = 523-829 p = vapor pressure of solution	M. Ferriol

EXPERIMENTAL VALUES:

t/°C	mass % LiCl	vapor pressure kg cm ⁻²	solid phase	apparatus
250	62.7	6.1	LiCl	a
250	63.3	6.3	"	a
300	66.3	12.5	"	a
350	70.3	24	"	b
350	70.4	23.5	"	a
400	75.3	34	"	a
400	76.0	34.5	"	a
450	81.3	41.5	"	a
450	81.5	42	"	b
500	86.7	44	"	a
556	93.5	33.5	"	b

a = rocking autoclave

b = autoclave with stirrer

Vapor pressures above 450°C are approximate because of uncertain errors arising from gas evolution.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The solubility was deduced from pressure vs concentration curves at constant temperature and sometimes from pressure vs temperature curves. Most results were obtained with a rocking autoclave and the others with an autoclave with a stirrer, described previously (1).	Anhydrous LiCl was obtained from twice-recrystallized "chemically pure" grade LiCl by heating samples gradually up to 160°C.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	<ol style="list-style-type: none"> 1. Ravich, M.I.; Borovaya, F.E. Zh. Neorg. Khim. 1959, 4, 2100; Russ. J. Inorg. Chem. (Engl. Transl.) 1959, 4, 951.

COMPONENTS:		ORIGINAL MEASUREMENTS:								
(1) Lithium chloride; LiCl; [7447-41-8]		Belyaev, I.N.; Le T'yuk Zh. Neorg. Khim. 1966, 11, 1919-25; Russ. J. Inorg. Chem. 1966, 11, 1025-8.								
(2) Water; H ₂ O; [7732-18-5]										
VARIABLES:		PREPARED BY:								
T/K = 298		M. Ferriol								
EXPERIMENTAL VALUES:										
t/°C	mass %	viscosity mPa s	density g cm ⁻³	electrical conductivity S cm ⁻¹	solid phase					
25	45.62	10.7280	1.291	0.058	LiCl·H ₂ O					
AUXILIARY INFORMATION										
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:									
The method was described in earlier publications (1,2). Solubility, electrical conductivity, viscosity and density were determined.	"Analytical reagent" grade lithium chloride was recrystallized twice before use.									
ESTIMATED ERROR:										
Temperature: ±0.1 K.										
REFERENCES:										
<ol style="list-style-type: none"> Belyaev, I.N.; Le T'yuk Zh. Neorg. Khim. 1965, 10, 1229; Russ. J. Inorg. Chem. (Engl. Transl.) 1965, 10, 664. Belyaev, I.N.; Le T'yuk. Zhur. Neorg. Khim. 1965, 10, 2355; Russ. J. Inorg. Chem. (Engl. Transl.) 1965, 10, 1279. 										

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8]		Sheveleva, A.D.
(2) Water; H ₂ O; [7732-18-5]		Uch. Zap. Permsk. Univ. im. A.M. Gor'kogo 1966, No. 159, 3-14.
VARIABLES:		PREPARED BY:
$T/K = 293, 323$		T. Mioduski
EXPERIMENTAL VALUES:		
$t/^\circ C$	mass %	solid phase
20	45.95	$\text{LiCl}\cdot\text{H}_2\text{O}$
50	45.48	"
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE The isothermal saturation method was used. Equilibrium was checked by constancy of the refractive index. The compositions of saturated solutions were found from inflection points on plots of refractive index vs composition.	SOURCE AND PURITY OF MATERIALS: $\text{LiCl}\cdot\text{H}_2\text{O}$: pure grade, recrystallized before use; contained 29.8 mass % H ₂ O (theoretical: 29.82 mass %), presumably found from weight loss on heating.	ESTIMATED ERROR: No estimates possible.
REFERENCES:		

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8]	Momicchioli, F.; Devoto, O.; Grandi, G.; Cocco, G.
(2) Water; H ₂ O; [7732-18-5]	Atti Soc. Nat. Modena 1968, 99, 226-32; Ber. Bunsen-Ges. Phys. Chem. 1970, 74, 59-66.
VARIABLES:	PREPARED BY:
T/K = 264-273	R. Cohen-Adad

EXPERIMENTAL VALUES:

t/°C (compiler)	molality /mol kg ⁻¹	ΔT/m /K kg mol ⁻¹	mass % (compiler)	solid phase
-0.0508	0.01408	3.608	0.060	ice
-0.1050	0.02949	3.561	0.125	ice
-0.2134	0.06058	3.523	0.256	ice
-0.3138	0.08939	3.512	0.378	ice
-0.4302	0.12309	3.495	0.519	ice
-0.5847	0.16716	3.498	0.704	ice
-0.7098	0.20258	3.504	0.851	ice
-1.1071	0.31344	3.332	1.311	ice
-1.4271	0.40120	3.557	1.672	ice
-1.7394	0.48463	3.589	2.013	ice
-2.3016	0.63129	3.646	2.606	ice
-3.4643	0.91969	3.767	3.752	ice
-4.0100	1.04811	3.826	4.254	ice
-5.0875	1.28896	3.947	5.181	ice
-6.0055	1.48615	4.041	5.927	ice
-9.0134	2.07077	4.353	8.070	ice
-9.8933	2.22707	4.422	8.627	ice
-11.8729	2.55732	4.643	9.781	ice
-15.4496	3.10058	4.983	11.617	ice
-18.7540	3.54711	5.287	13.071	ice
-20.9583	3.82164	5.484	13.942	ice
-21.5387	3.89463	5.530	14.174	ice

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
A precision apparatus for measuring freezing point depressions by the equilibrium method was used, as described in (1). Temperatures were measured by a Pt resistance thermometer and Mueller bridge. Efficient stirring was accomplished by a high-quality air-driven stirrer. Concentrations were determined by a Hilger-Rayleigh interferometer.	Not stated; probably Merck "Suprapur", cat. no. 4438.
ESTIMATED ERROR:	Temperature: precision $\pm 3 \times 10^{-4}$ K. Composition: Absolute error almost independent of molality, and about $4-5 \times 10^{-5}$ mol kg ⁻¹ .
REFERENCES:	(1) Chiorboli, P.; Momicchioli, F.; Grandi, G. Boll. Sci. Fac. Chim. Ind. Bologna 1966, 24, 133.

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Lithium chloride; LiCl; [7447-41-8]		Vilcu, R.; Irenei, F.				
(2) Water; H ₂ O; [7732-18-5]		An. Univ. Bucuresti, Chim. 1971, 20(2), 103-11.				
VARIABLES:		PREPARED BY:				
T/K = 258-267		M. Ferriol				
EXPERIMENTAL VALUES:						
t / °C	molality of LiCl/mol kg ⁻¹	mass %	solid phase			
- 6.0655	1.5000	5.9786	ice			
- 6.5450	1.6000	6.3519	"			
- 7.5752	1.8000	7.0896	"			
- 8.5932	2.0000	7.8157	"			
-11.8020	2.5000	9.5825	"			
-14.9302	3.0000	11.2827	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Cryometric measurements. The method is described in a previous publication (1).	Not stated.					
ESTIMATED ERROR:						
No estimates possible.						
REFERENCES:						
1. Vilcu, R.; Irenei, F. Rev. Roum. Chim. 1968, 13, 258.						

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8]	Ennan, A.A.; Lapshin, V.A.
(2) Water; H ₂ O; [7732-18-5]	Zh. Strukt. Khim. 1973, 14, 21-9; ^a J. Struct. Chem. (Engl. Transl.) 1973, 14, 18-25.
VARIABLES:	PREPARED BY:
T/k = 206	M. Ferriol; J.W. Lorimer

EXPERIMENTAL VALUES:

t/°C	LiCl mol/kg solution	mass % (compiler)	solid phase
-67.0	5.65	24.0	eutectic point ^a LiCl·5H ₂ O + ice

^acompiler's interpretation

COMMENTS: The authors also give the value 4.65 mol/kg solution in their Table 1, which appears to be a typographical error.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The method was described in a previous publication (1). The experiments were carried out in a cryostat designed to prevent supercooling of the substance and to observe visually the formation of the first crystals. The cooling was carried out after preliminary crystallization and melting. A mixture of dry ice and heptane was used as cooling agent. The freezing point was determined with totally immersed mercury and alcohol thermometers.	C.P. grade LiCl and doubly-distilled water were used.
	ESTIMATED ERROR: No estimates possible.
	REFERENCES: 1. Ennan, A.A.; Lapshin, V.A. Zh. Strukt. Khim. 1972, 13, 596.

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Lithium chloride; LiCl; [7447-41-8]		Skvortsov, V.G.						
(2) Water; H ₂ O; [1132-18-5]		Zh. Neorg. Khim. 1975, 20, 3149-51; *Russ. J. Inorg. Chem. (Engl. Transl.) 1975, 20, 1743-4.						
VARIABLES:		PREPARED BY:						
T/K = 298, 303		M. Ferriol						
EXPERIMENTAL VALUES:								
t/°C	mass % LiCl	density g cm ⁻³	solid phase	viscosity η /mPa s				
20	45.41	1.203	LiCl·H ₂ O	11.429				
30	46.21	1.224	"	16.232				
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
The solubility was studied by the method of isothermal saturation (1). Equilibrium was reached after 24 hours. The chloride ion concentration was determined by argentimetry.	"Analytical reagent" grade LiCl was recrystallized and used.							
ESTIMATED ERROR:								
No estimates possible.								
REFERENCES:								
1. Skvortsov, V.G. Zh. Neorg. Khim. 1973, 18, 243; Russ. J. Inorg. Chem. (Engl. Transl.) 1973, 18, 127.								

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8] (2) Water; H ₂ O; [7732-18-5]	Filippov, V.K.; Mikehl'son, K.N. Zh. Neorg. Khim. 1977, 22, 1689-94; * Russ. J. Inorg. Chem. (Engl. Transl.) 1977, 22, 915-9.
VARIABLES: T/K = 298, 308	PREPARED BY: M. Ferriol

EXPERIMENTAL VALUES:

t/°C	mass % LiCl	molality mol kg ⁻¹	solid phase
25	45.50	19.69	LiCl·H ₂ O
35	46.97	20.74	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The solubility was studied by the method of isothermal saturation. The mixtures were analyzed by evaporation of the saturated solution and heating to constant mass at 350-400°C.	Not stated.
ESTIMATED ERROR:	Relative error in the determination of the concentration did not exceed 0.2%.
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8] (2) Water; H ₂ O; [7732-18-5]	Kartzmark, E.M. Can. J. Chem. 1977, 55, 2792-8.
VARIABLES:	PREPARED BY:
T/K = 298	R. Tenu; J.W. Lorimer

EXPERIMENTAL VALUES:

t/°C	mass % LiCl	molality mol kg ⁻¹	solid phase
25.00	45.40	19.61	LiCl·H ₂ O

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The isothermal method was used. The mixture was equilibrated by stirring at 25.00°C for 2 or 3 days. The phases were separated by filtration through sintered glass and were analyzed for chloride by precipitation as AgCl.	Not stated.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8]		Vaisfel'd, M.I.; Onishchenko, M.K.; Shevchuk, V.G.
(2) Water; H ₂ O; [7732-18-5]		Zh. Neorg. Khim. 1977, 22, 1994-8; Russ. J. Inorg. Chem. 1977, 22, 1082-4.
VARIABLES:		PREPARED BY:
T/K = 298		T. Mioduski
EXPERIMENTAL VALUES:		
t/°C	mass %	solid phase (compiler)
25	44.90	LiCl·H ₂ O

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The isothermal saturation method was used. A mixture of salt and water was equilibrated with stirring for 5-7 days. The chloride content of saturated solutions was found by Mohr titration with 0.1 mol dm ⁻³ AgNO ₃ .	LiCl·H ₂ O: "analytical reagent", or "chemically pure" grade, twice recrystallized.
	ESTIMATED ERROR: No estimates possible.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Lithium chloride; LiCl; [7447-41-8]	Sharina, A.S.; Tyutina, S.N.; Chernykh, L.V.	
(2) Water; H ₂ O; [7732-18-5]	Zh. Neorg. Khim. 1983, 28, 3171-3; Russ. J. Inorg. Chem. (Engl. Transl.) 1983, 28, 1797-9.	
VARIABLES:	PREPARED BY:	
T/K = 273	T. Mioduski	
EXPERIMENTAL VALUES:		
t/°C	mass %	solid phase ^a
0	40.85	LiCl·2H ₂ O

^a erroneously reported as LiCl·H₂O (compiler) in the Russian original, but correct in the translation.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The isothermal saturation method was used. Equilibrium was reached within 6-8 hours. LiCl was determined as chloride by titration with AgNO ₃ solution.	No information available.
	ESTIMATED ERROR: No estimates possible.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7447-41-8]		Lazorenko, N.M.; Kiesel', N.N.; Storozhenko, D.A.; Shevchuk, V.G. <i>Zh. Neorg. Khim.</i> 1982, 27, 1575-7; * <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> 1982, 27, 888-90.
(2) Water; H ₂ O; [7732-18-5]		
VARIABLES:		PREPARED BY:
T/K = 298, 323, 348, 473		T. Mioduski
EXPERIMENTAL VALUES:		
<i>t</i> /°C	mass %	solid phase
25	45.79	LiCl·H ₂ O
50	47.69	"
75	52.53	"
100	55.84	LiCl
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS: LiCl: C.P. grade; recrystallized.	
The isothermal saturation method was used. Equilibrium was reached with continuous stirring within 15-20 hours. Compositions of saturated solutions and solid phases were determined by analysis for chloride by the Volhard method.	ESTIMATED ERROR: Temperature: ±0.1 K	
	REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium chloride; LiCl; [7747-41-8] (2) Water; H ₂ O; [7732-18-5]	Claudy, P.; Létoffe, J.M.; Couniou, J.J.; Cohen-Adad, R. <i>J. Therm. Anal.</i> <u>1984</u> , 29, 423-31.
VARIABLES: T/K = 203-258	PREPARED BY: R. Cohen-Adad

EXPERIMENTAL VALUES:

t/°C	mass %	mole fraction <i>x</i> ,	solid phase
-15	13.05	0.06	ice
-24	16.08	0.0753	"
-27	17.01	0.0801	"
-34	18.35	0.0872	"
-38	19.36	0.0926	"
-44	20.73	0.10	"
-53	22.46	0.1096	"
-62	23.35	0.1146	"
-68	24.22	0.1196	"
-70	25.18	0.1251	"
-90	26.17	0.1309	ice ^a
-91	26.34	0.1319	"
-94	26.49	0.1328	"
-99.0	26.64	0.1337	"
-118.4	26.94	0.1355	"
-123.6	27.20	0.1370	"
-125.4	27.36	0.1380	"
-126	27.61	0.1395	"
-73, -74			ice + LiCl·5H ₂ O ^b
-62, -64			LiCl·3H ₂ O + LiCl·5H ₂ O ^b

^a Calculated from ΔC_p ; metastable equilibrium (compiler).^b determined by DTA.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The sample (40-50 mg) was placed in a small sealed Al crucible, then quenched in liquid N ₂ and placed in a differential scanning calorimeter (Mettler 2000) previously cooled to -150°C. DSC scan rate: 2 K min ⁻¹ . A glass was observed at all temps. ($T_g = -135$ to -133°C). In the 0.1354 < <i>x</i> < 0.149 the samples did not crystallize. In the remaining composition range, crystallization occurred between -126 and 90°C.	LiCl: Merck Suprapur, heated for 24 h at 130°C before use.
	ESTIMATED ERROR: No estimates possible.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]		Gay-Lussac, M.	
(2) Water; H ₂ O; [7732-18-5]		Ann. Chim. Phys. [2] <u>1819</u> , 11, 296-315.	
VARIABLES:		PREPARED BY:	
T/K = 287-383		J.-J. Counioux	
EXPERIMENTAL VALUES:			
t/°C	100 x mass ratio NaCl/H ₂ O	mass % (compiler)	solid phase
13.89	35.81	26.37	NaCl
16.90	35.88	26.41	"
59.93	37.14	27.08	"
109.73	40.38	28.76	"
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Isothermal method. Samples were analyzed by heating to dryness.		Not stated.	
		ESTIMATED ERROR:	
		No estimates possible.	
		REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]		Michel, A.; Krafft, L.	
(2) Water; H ₂ O; [7732-18-5]		Ann. Chim. Phys. [3] <u>1854</u> , 41, 471-83.	
VARIABLES:		PREPARED BY:	
T/K = 288		J.-J. Counioux	
EXPERIMENTAL VALUES:			
t/°C	NaCl g dm ⁻³	mass %	relative density, d ₁₅ solid phase
15	318.479	26.38	1.207148 NaCl
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Mixtures of water and salt in excess were maintained for one month in the range 14-16°C and stirred frequently. After one day at 15°C, samples of solution were drawn off and analyzed by evaporation to dryness and weighing.		The pure salt was dried at 100°C.	
		ESTIMATED ERROR:	
		No estimates possible.	
		REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]		Unger, U.	
(2) Water; H ₂ O; [7732-18-5]		J. Prakt. Chem. 1836, 8, 285-304.	

VARIABLES:	PREPARED BY:
T/K = 271-378	J.-J. Couniouux

EXPERIMENTAL VALUES:					
t/ ^o Re ^a	t/ ^o C	100(mass ratio NaCl/H ₂ O) ^b	20(mass ratio NaCl/solution)	mass % (compiler)	solid phases (compiler)
-2	-2.5	34.0482	-	25.4000	NaCl·2H ₂ O
-2	-2.5	-	5.165	25.825	"
0	0	-	5.275	26.375	NaCl
0	0	-	5.320	26.60	"
0	0	-	5.199	25.995	"
0	0	-	5.144	25.72	"
0	0	-	5.232	26.16	26.27d
1	1.25	35.2722	-	27.0750	"
1	1.25	-	5.269	26.345	"
1	1.25	-	5.248	26.24	"
1	1.25	-	5.265	26.325	"
1	1.25	-	5.245	26.225	"
1	1.25	-	5.307c	26.535	26.29d
15	18.75	35.9619	-	26.4500	"
15	18.75	-	5.410	27.05	26.75d
17	21.25	-	5.319c	26.595	"
30	37.5	-	5.390	26.95	"
30	37.5	-	5.337	26.685	26.83d
32	40	36.7521	-	26.8750	"
40	50	-	5.454	27.27	"
43	53.75	-	5.461c	27.305	"
45	56.25	37.4098	-	27.2250	"
50	62.5	-	5.520	27.60	"
60	75	38.6000	-	27.8499	"
80	100	39.6966	-	28.4163	"
84	105	-	5.655	28.275	"
normal b.p.	-	-	5.305	26.525	"
"	-	-	5.344	26.72	"
"	-	-	5.040	25.20	"
"	-	-	5.349	26.745	"
"	-	-	5.329	26.645	"
"	-	-	5.645c	28.225	"

^a Réaumur temperature = 0.8 x Celsius temperature.

^b Chemically pure salt prep. from NaOH and HCl used without purification.

^c Analysis for Cl by titration with AgNO₃.

^d Average value at the given temperature.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Mixtures of salt and water were heated to the b.p., then cooled. Samples of clear, satd. sln. were removed, and analyzed by evap. to dryness and weighing.	NaCl: prep. from NaOH and HCl. Sulfate removed by ppt. with BaCl ₂ , then pptd. with excess (NH ₄) ₂ CO ₃ , to remove excess Ba. Final sln. was evap. to dryness, residue calcined.
ESTIMATED ERROR:	See table for reproducibility.
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]		Poggiale, M.	
(2) Water; H ₂ O; [7732-18-5]		<i>Ann. Chim. Phys.</i> [3], 1843, 8, 463-78.	
VARIABLES:		PREPARED BY:	
T/K = 258-383		J.-J. Cournioux	
EXPERIMENTAL VALUES:			
<i>t</i> /°C	mass ratio NaCl/H ₂ O	mass %	solid phase (compiler)
- 15	0.3273	24.66	NaCl·2H ₂ O
- 10	0.3349	25.09	"
- 5	0.3422	25.49	"
0	0.3552	26.21	NaCl·2H ₂ O + NaCl
5	0.3563	26.27	NaCl
9	0.3574	26.33	"
14	0.3587	26.40	"
25	0.3613	26.54	"
40	0.3664	26.81	"
50	0.3698	27.00	"
60	0.3725	27.14	"
70	0.3788	27.47	"
80	0.3822	27.65	"
90	0.3887	27.99	"
100	0.3961	28.37	"
109.7	0.4035	28.75	"
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:		
The mixtures were heated to above the equilibrium temperature, then cooled. Samples of clear saturated solution were removed and analyzed gravimetrically.	Not stated.		
	ESTIMATED ERROR:		
	No estimates possible.		
	REFERENCES:		

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5] (2) Water; H ₂ O; [7732-18-5]	Fehling, H. Justus Liebigs Ann. Chem. <u>1851</u> , 77, 382-4.
VARIABLES: T/K = 285, 373	PREPARED BY: J.-J. Couniouux

EXPERIMENTAL VALUES:

t/°C	mass % NaCl	solid phase
12	26.489	NaCl
12	26.500	"
12	26.337	"
12	26.463	"
12	26.411	"
12	26.338	"
100	28.643	"
100	28.452	"
100	28.524	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Saturated solutions were prepared by evaporation of dilute solutions. Their composition was determined by evaporation to dryness at 100°C and heating at 250°C.	Pure rock salt containing less than 0.01% impurity by weight or sodium chloride prepared from sodium carbonate and hydrochloric acid were used.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Sodium chloride; NaCl; [7647-14-8]		Kremers, P.						
(2) Water; H ₂ O; [7732-18-5]		<i>Ann. Phys. Chem.</i> <u>1856</u> , 99, 25-63.						
VARIABLES:		PREPARED BY:						
T/K = 273-382		J.-J. Cournioux						
EXPERIMENTAL VALUES:								
t/°C	100 mass H ₂ O/mol NaCl ^a	mass % (compiler)	solid phase					
0	1.65	26.2	NaCl					
20	1.62	26.5	"					
40	1.60	26.8	"					
60	1.57	27.1	"					
80	1.53	27.7	"					
100	1.48	28.3	"					
109 ^b								
^a Na = 23, Cl = 35.5, according to the author. ^b boiling point of saturated solution								
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
After complete dissolution at higher temperature, the mixture was stirred for 1 h at the desired temperature. Then the saturated solution was drawn off but not filtered because of its high viscosity. At 95, 140 and 160°C the composition was determined by evaporation and weighing.	Not stated.							
ESTIMATED ERROR:								
No estimates possible.								
REFERENCES:								

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]	Gerlach, Th. G. <i>Spezifische Gewichte der Gebrauchlichsten Salzlösungen bei verschiedenen Concentrationsgraden.</i> J.G. Engelhardt. Freiberg. 1859. pp. 9-10.
(2) Water; H ₂ O; [7732-18-5]	
VARIABLES:	PREPARED BY:
T/K = 288	J.W. Lorimer

EXPERIMENTAL VALUES:

t = 15°C mass %	relative density, d _r = d(15°C)/d(H ₂ O, 15°C)	solid phase
5	1.03624	
10	1.07335	
15	1.11146	
20	1.15107	
satd sln	1.20433	NaCl

COMMENTS AND ADDITIONAL DATA:

The author found the solubility from graphical interpolation. The compiler found that the density could be represented by the equation $(d_r - 1)/100w_1 = A_1 + A_2(100w_1) + A_3(100w_1)^2$ where w_1 is the mass fraction of the salt, with least-square coefficients:

$$\begin{aligned} A_1 &= 7.18 \times 10^{-3} & s(A_1) &= 6.1 \times 10^{-6} \\ A_2 &= 1.12 \times 10^{-5} & s(A_2) &= 2.8 \times 10^{-6} \\ A_3 &= 3.63 \times 10^{-7} & s(A_3) &= 3.0 \times 10^{-8} \end{aligned}$$

and standard error of estimate 2.8×10^{-6} . Solution of this equation gave the solubility as: 26.42 mass %.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Solutions were made up by mass, using calibrated weights and vacuum corrections. Densities were measured by hydrostatic weighing, using a glass sinker attached to a balance. The method of saturation is not given.	NaCl: purified by chemical precipitation of impurities, recrystallized twice, then melted to remove all water.
ESTIMATED ERROR:	Temperature: precision ± 0.1 K Solubility: no estimates possible.
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium Chloride; NaCl; [7647-14-5]		Schiff, H.	
(2) Water; H ₂ O; [7732-18-5]		Justus Liebigs Ann. Chem. 1859, 109, 325-32.	
VARIABLES:		PREPARED BY:	
T/K = 293		J.-J. Cournioux	
EXPERIMENTAL VALUES:			
t/°C	mass % NaCl	relative density	solid phase
20	26.4	1.2021	NaCl
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
The variation of volume during the dissolution of salt was calculated. The method is described in a previous paper (1).		Not stated.	
		ESTIMATED ERROR:	
		No estimates possible.	
		REFERENCES:	
		1. Schiff, H. Justus Liebigs Ann. Chem. 1858, 108, 324.	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]		Nordenskjold, A.E.	
(2) Water; H ₂ O; [7732-18-5]		Ann. Phys. Chem. 1869, 136, 309-17.	
VARIABLES:		PREPARED BY:	
T/K = 275-382		J.-J. Cournioux	
EXPERIMENTAL VALUES:			
t/°C	mass ratio NaCl/H ₂ O	mass % NaCl	solid phase
1.5	0.336	25.14	NaCl
13.75	0.358	26.36	"
70.0	0.381	27.59	"
108.5	0.394	28.26	"
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Saturated solutions were prepared in a thermostat. The amount of solute was estimated by silver nitrate titration.		Not stated.	
		ESTIMATED ERROR:	
		No estimates possible.	
		REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Sodium Chloride, NaCl; [7647-14-5]		Rudorff, F.				
(2) Water; H ₂ O; [7732-18-5]		Ann. Phys. Chem. [2] 1861, 114, 63-81.				
VARIABLES:		PREPARED BY:				
T/K = 272-281		J. J. Cournioux				
EXPERIMENTAL VALUES:						
<i>t</i> /°C	mass ratio NaCl/H ₂ O	mass %	solid phase			
- 0.6	0.01	0.99	ice			
- 1.2	0.02	1.96	"			
- 2.4	0.04	3.85	"			
- 3.6	0.06	5.66	"			
- 4.8	0.08	7.41	"			
- 6.0	0.10	9.09	"			
- 7.2	0.12	10.71	"			
- 8.4	0.14	12.28	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
The freezing points of solutions of known composition were measured.	Pure salt was recrystallized several times.					
ESTIMATED ERROR:						
Temperature: precision within ±0.1 K						
REFERENCES:						

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Sodium chloride; NaCl; [7647-14-5]		Moller, K. <i>Ann. Phys. Chem.</i> <u>1862</u> , 117, 386-416.				
(2) Water; H ₂ O; [7732-18-5]						
VARIABLES:		PREPARED BY:				
<i>T/K</i> = 273-303 <i>p/MPa</i> = 0.1-4		J.-J. Counioux				
EXPERIMENTAL VALUES:						
<i>t/°C</i>	<i>p/atm</i>	mass %	solid phase			
0	1	26.25	NaCl			
0	20	26.36	"			
0	20	26.34	"			
0	40	26.40	"			
0	40	26.48	"			
9.0	1	26.31	"			
9.0	20	26.33	"			
9.0	20	26.38	"			
12.0	1	26.34	"			
12.0	1	26.35	"			
15.0	1	26.32	"			
15.0	1	26.28	"			
15.0	1	26.34	"			
15.0	1	26.27	"			
15.0	1	26.30	average value at 15°C, 1 atm.			
15.0	20	26.38	NaCl			
15.0	20	26.39	"			
15.0	40	26.40	"			
20.0	1	26.34	"			
20.0	1	26.36	"			
20.0	20	26.36	"			
20.0	20	26.38	"			
25.0	1	26.38	"			
25.0	1	26.36	"			
25.0	20	26.44	"			
25.0	20	26.49	"			
30.0	1	26.47	"			
30.0	20	26.53	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Mixtures of salt and water were kept in a U-yube for 5-18 h under constant temperature and pressure. A small sample of saturated sln. was removed and analyzed by evaporation to dryness, calcining at 300°C, and weighing.	NaCl: C.P. salt recrystallized.					
ESTIMATED ERROR:						
Solubility: precision within ±0.05 mass %.						
REFERENCES:						

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5] (2) Water; H ₂ O; [7732-18-5]	Mulder, G.J. Scheikundige Verhandelingen en Onderzoeken. Part 3, vol. 3. Bijdragen tot de Geschiedenis van het Scheikundig Gebonden Water. H.A. Kramers. Rotterdam. <u>1864</u> . pp. 51-6.
VARIABLES: T/K = 273-318	PREPARED BY: J.W. Lorimer

EXPERIMENTAL VALUES:

t/°C	100x mass ratio NH ₄ Cl/H ₂ O	mass %	solid phase
0	35.7	26.3	NaCl
25.5	36.1	26.5	"
44.5	36.2	26.6	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The method of isothermal saturation was used. Ice baths, cool cellars and heated water baths were used to control temperature. mixtures of salt and water were shaken for at least 7 d. The saturated solution was weighed and evaporated, and the residue was dried at 100°C, then weighed.	No information given.
	ESTIMATED ERROR:
	Temperature: ±0.1 K at 0°C, ±1 K at other temperatures.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Sodium chloride; NaCl; [7647-14-5]		de Coppet, L.C. <i>Ann. Chim. Phys.</i> <u>1872</u> , 25, 502-27; <i>C. R. Hebd. Séances Acad. Sci.</i> <u>1872</u> , 124, 328; <i>Bull. Soc.</i> <i>Vaudoise Sci. Nat.</i> <u>1871</u> , 11, 7-126.				
(2) Water; H ₂ O; [7732-18-5]						
VARIABLES:		PREPARED BY:				
T/K = 249-273		J.-J. Couniouux				
EXPERIMENTAL VALUES:						
<i>t</i> /°C	100 x mass ratio NaCl/H ₂ O	mass %	solid phase			
-2.9	5	3.33	ice			
-6.1	10	9.09	"			
-9.7	15	13.04	"			
-11.45	17.5	14.89	"			
-13.6	20	16.67	"			
-15.05	21.87	17.95	"			
-21.4	29.16	22.58	"			
-23.6	31.24 ^a	23.80	"			
-14.0	32.5	24.5	NaCl·2H ₂ O			
0.0	35.7	26.3	"			
^a metastable equilibrium						
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
The method is described in a previous paper (1). A sample of known composition was cooled in a mixture of ice and NaCl (or CaCl ₂) maintained at some degrees below the freezing point. A small piece of ice was added to the sample when its temperature was a few tenths K below the freezing point.	No information given.					
ESTIMATED ERROR:						
Temperature: precision ±0.1 K						
REFERENCES:						
1. de Coppet, L.C. <i>Ann. Chim. Phys.</i> <u>1871</u> , 23, 366.						

COMPONENTS:		ORIGINAL MEASUREMENTS:							
(1) Sodium chloride; NaCl; [7647-14-5]		Page, D.; Keightley, A.							
(2) Water; H ₂ O; [7732-18-5]		J. Chem. Soc. <u>1872</u> , 25, 566-70.							
VARIABLES:									
T/K = 289		PREPARED BY:							
J.-J. Cournioux									
EXPERIMENTAL VALUES:									
t/°C	100 x mass ratio NaCl/H ₂ O	mass %	density	method	solid phase				
15.6	35.76	26.34	1.20419, 1.20403	a	NaCl				
15.6	36.26	26.61	1.21148, 1.20693	b	"				

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The isothermal method was used. Solutions were prepared in two different ways: (a) digestion of the salt in distilled water at a constantly maintained temperature of 15.6°C; (b) saturation with the salt of distilled water at 100°C and subsequent cooling to 15.6°C.	Chemically pure salt was used.
ESTIMATED ERROR:	Temperature: precision within ±0.1 K
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:		
(1) Sodium chloride; NaCl; [7647-14-5]	Raoult, F.M.		
(2) Water; H ₂ O; [7732-18-5]	C. R. Hebd. Séances Acad. Sci. <u>1878</u> , 87, 167-9.		
VARIABLES:			
T/K = 273	PREPARED BY:		
	J.-J. Cournioux		
EXPERIMENTAL VALUES:			
t/°C	mass ratio NaCl/H ₂ O	mass % NaCl (compiler)	solid phase
-0.270	0.0045	0.448	ice

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Cryoscopic method.	Not stated.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:																																																																								
(1) Sodium chloride; NaCl; [7647-14-5]		Guthrie, F.																																																																								
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METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:																																																																									
The freezing points of brines were measured for increasing concentrations up to the eutectic point. The liquidus of the sodium chloride dihydrate was determined by solubility measurements. The mixture was kept at constant temperature for an hour. The vessel was constantly shaken during crystallization. Samples of saturated solution were evaporated, heated to about 300°C and weighed.	Extremely pure rock salt, washed in distilled water, and free from K, Li, Mg or H ₂ SO ₄ was used.																																																																									
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COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Sodium chloride; NaCl; [7647-14-5]		Guthrie, F.		
(2) Water; H ₂ O; [7732-18-5]		Philos. Mag. 1876, 5, 354-59.		
VARIABLES:		PREPARED BY:		
T/K = 251-273		J.-J. Couniouux		
EXPERIMENTAL VALUES:				
t/°C	mass % NaCl	solid phases		
- 0.3	1	ice		
- 0.9	2	"		
- 1.5	3	"		
- 2.2	4	"		
- 4.2	7	"		
- 6.6	10	"		
- 9.1	13	"		
-11.0	15	"		
-11.9	16	"		
-15.5	19	"		
-17.0	20	"		
-20.0	22	"		
-22.0	23.6	ice + NaCl·2H ₂ O		
-12.0	25	NaCl·2H ₂ O		
0.0	26.27	NaCl + NaCl·2H ₂ O		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
The salt solution was cooled in a test tube until some ice formed; this was very nearly completely remelted under constant stirring with the thermometer and then the tube was plunged momentarily into a freezing mixture. The minute spicula of ice so formed were again nearly remelted. The mean of four or five readings of the thermometer when the minute quantity of ice began to increase was taken as the true freezing point. For the determination of the temperature above 0°C at which salt and hydrate separate, a given weight of salt and water was warmed in a stoppered bottle.	Not stated.			
ESTIMATED ERROR:				
No estimates possible.				
REFERENCES:				

COMPONENTS:	ORIGINAL MEASUREMENTS:																																												
(1) Sodium chloride; NaCl; [7647-14-5]	Precht, H.; Wittjen, B.																																												
(2) Water; H ₂ O; [7732-18-5]	Ber. Dtsch. Chem. Ges. <u>1881</u> , 14, 1667-75.																																												
VARIABLES:	PREPARED BY:																																												
T/K = 283-373	J.-J. Counioux																																												
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50	27.7	21.7	"																																										
60	27.2	21.4	"																																										
70	26.8	21.1	"																																										
80	26.4	20.9	"																																										
90	26.1	20.7	"																																										
100	25.8	20.5	"																																										
AUXILIARY INFORMATION																																													
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:																																												
Isothermal method. A sample of saturated solution was filtered and the solution analyzed.	Not stated.																																												
ESTIMATED ERROR:																																													
No estimates possible.																																													
REFERENCES:																																													

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Sodium chloride, NaCl; [7647-14-5]		de Coppet, L.C.				
(2) Water; H ₂ O; [7732-18-5]		Ann. Chim. Phys. 1883, 30, 411-29.				
VARIABLES:		PREPARED BY:				
T/K = 259-375		J.-J. Cournioux				
EXPERIMENTAL VALUES:						
t/°C	mass ratio NaCl/H ₂ O	mass % NaCl	solid phases			
-14.0	0.364	24.69	NaCl·2H ₂ O			
-14.0	0.325	24.53	"			
-13.8	0.3215	24.30	"			
-6.25	0.3422	25.53	"			
-5.95	0.3417	25.47	"			
0.0	0.3550	26.20	NaCl·2H ₂ O + NaCl			
0.0	0.3571	26.31	"			
3.6	0.3579	26.36	NaCl			
5.3	0.3594	26.44	"			
14.45	0.3594	26.44	"			
20.85	0.3563	26.27	"			
25.45	0.3590	26.42	"			
38.55	0.3652	26.75	"			
44.75	0.3664	26.81	"			
52.5	0.3704	27.03	"			
55.0	0.3699	27.00	"			
59.75	0.3731	27.17	"			
71.3	0.3796	27.52	"			
74.45	0.3796	27.52	"			
82.05	0.3841	27.75	"			
86.7	0.3847	27.78	"			
93.65	0.3890	28.01	"			
101.7	0.4076	28.96	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:					
Salt and water were introduced into glass test tubes. Low temperatures were obtained using different eutectic mixtures. In the other cases, the tube was placed in a thermostat. Samples were removed from the saturated solution and analyzed.	Not stated.					
ESTIMATED ERROR:						
Temperature: up to 20°C, precision ±0.1K						
REFERENCES:						

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Sodium chloride; NaCl; [7647-14-5]		Andreeae, J.L.						
(2) Water; H ₂ O; [7732-18-5]		J. Prakt. Chem. 1884, 29, 456-77.						
VARIABLES:		PREPARED BY:						
T/K = 273-354		J.-J. Counioux						
EXPERIMENTAL VALUES:								
t/°C	100 x mass ratio NaCl/H ₂ O	mass %	method	NaCl				
0.0	35.633	26.272	a	c				
0.1	35.624	26.267	a	c				
3.78	35.625	26.267	a	c				
4.6	35.645	26.278	b	r				
4.8	35.622	26.266	b	c				
10.1	35.712	26.315	b	r				
10.2	35.677	26.296	a	c				
10.2	35.680	26.297	a	r				
10.8	35.682	26.298	b	c				
21.7	35.840	26.384	a	r				
22.0	35.865	26.398	b	r				
28.85	36.008	26.475	a	r				
28.9	35.986	26.463	b	r				
30.8	36.060	26.503	b	r				
39.6	36.320	26.643	b	r				
40.0	36.325	26.646	b	r				
40.3	36.303	26.634	a	r				
40.3	36.323	26.645	a	c				
49.6	36.633	26.811	a	r				
49.64	36.670	26.831	b	r				
59.1	37.010	27.013	a	c				
60.02	37.072	27.046	a	r				
60.07	37.046	27.032	b	r				
72.0	37.593	27.322	a	r				
72.05	37.598	27.325	b	r				
80.9	38.050	27.562	b	r				
a heating; b cooling; c preparation by neutralization with sodium carbonate; r rock salt								
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:							
Two methods were used: (1) Heating method: the mixture of salt and water was stirred at constant temperature for 1 - 1.5 h. (2) Cooling method: the mixture was previously heated above the temperature of equilibrium. A sample of saturated solution was analyzed by evaporation to dryness and weighing.	Sodium chloride was prepared by neutralization of pure HCl solution with Na ₂ CO ₃ . Rock salt was recrystallized several times.							
ESTIMATED ERROR:								
Temperature: precision within ±0.01 K 100 x mass ratio: precision within ±0.0003								
REFERENCES:								

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride, NaCl; [7647-14-5]	Etard, A..
(2) Water; H ₂ O; [7732-18-5]	C.R. Hebd. Séances Acad. Sci. Fr. <u>1884</u> , 98, 1276-9.
VARIABLES:	PREPARED BY:
T/K = 393-433	J.-J. Couniouux

EXPERIMENTAL VALUES:

t /°C	mass % NaCl	solid phase
120	29.38	NaCl
140	29.87	"
160	30.37	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Mixtures of salt and water were sealed in a tube which was bent in the middle and placed in an oil thermostat. Part of the saturated solution was collected at one end of the tube, from where it was removed and analyzed gravimetrically.	No information given.
	ESTIMATED ERROR: No estimates possible.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Sodium chloride; NaCl; [7647-14-5]		Tilden, W.A., Shenstone, W.A. <i>Philos. Trans. R. Soc. London</i> <u>1884</u> , 175, 23-36.				
(2) Water; H ₂ O; [7732-18-5]						
VARIABLES:		PREPARED BY:				
T/K = 391-453		J.-J. Cournioux				
EXPERIMENTAL VALUES:						
<i>t/°C</i>	100 x mass ratio NaCl/H ₂ O	mass % NaCl	solid phase			
118	39.8	28.5	NaCl			
140	42.1	29.6	"			
160	43.6	30.4	"			
180	44.9	31.0	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:					
Water and salt were placed at one end of a tube divided in two parts screwed together and separated by a disk of platinum gauze. The tube was made of gun metal, electroplated with silver, and could be turned around its longitudinal axis. After heating in a paraffin bath at a steady temperature for 5 h, the end containing the sample was raised and the other depressed. The tube was cooled and opened. Then the saturated solution was weighed, evaporated to dryness and weighed again. The part of the tube not occupied by solution was filled by water vapor which condensed on cooling. By ascertaining the volume of this vapor, approximate correction of the results were made with the aid of tables of vapor pressures of salt solutions (1).	Not stated.					
ESTIMATED ERROR:						
No estimates possible.						
REFERENCES:						
1. Wullner, A. <i>Ann. Phys. Chem.</i> <u>1860</u> , 110, 564.						

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Sodium chloride; NaCl; [7647-14-5]		Bodlander, G.		
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Stoechiom. Verwandtschaftsl. <u>1891</u> , 7, 358-61.		
VARIABLES:		PREPARED BY:		
T/K = 289		J.-J. Counioux		
EXPERIMENTAL VALUES:				
t/°C	concentration g dm ⁻³	mass % (compiler)	relative density	solid phase
15.5	317.8	26.43	1.2025	NaCl
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:		
The mixture of water and finely powdered salt was stirred at constant temperature during 24 h at least. A sample of saturated solution was evaporated to dryness and weighed.		Not stated.		
		ESTIMATED ERROR:		
		No estimates possible.		
		REFERENCES:		

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Sodium chloride; NaCl; [7647-14-5]		Von Stackelberg, E.F.				
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Stoechiom. Verwandtschaftsl. <u>1896</u> , 20, 337-58.				
VARIABLES:		PREPARED BY:				
T/K = 292 p/MPa = 0, 50		J.-J. Counioux				
EXPERIMENTAL VALUES:						
t/°C	p/atm	mass %	solid phase			
18.5	0 500	26.4 27.0	NaCl "			
The solubilities are the means of several values obtained with mixtures initially at higher or lower temperature than the thermostat.						
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:				
The salt-water mixture was confined in a steel bomb containing mercury. The selected pressure was obtained by means of a Cailletet pump and the temperature was controlled by a thermostat. The solution was stirred with a magnetic stirrer. Analysis was for Cl by titration with AgNO ₃ .		Kahlbaum's salt was purified by recrystallization.				
		ESTIMATED ERROR:				
		Pressure: precision within 1% Temperature and solubility: precision within 1%.				
		REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Sodium chloride; NaCl; [7647-14-5]		Etard, A.		
(2) Water; H ₂ O; [7732-18-5]		Ann. Chim. Phys. [7] <u>1894</u> , 2, 503-55.		
VARIABLES:		PREPARED BY:		
T/K = 252-488		J.-J. Cournioux		
EXPERIMENTAL VALUES:				
t/°C	mass % NaCl	solid phase (compiler)		
-21	23.7	NaCl·2H ₂ O		
-21	23.4	"		
-21	23.4	"		
-18	23.5	"		
-17	23.3	"		
-7	25.5	"		
0	25.8	NaCl		
15	26.7	"		
55	26.8	"		
77	28.0	"		
90	28.2	"		
115	29.1	"		
135	28.9	"		
140	28.8	"		
150	29.6	"		
180	30.2	"		
215	31.6	"		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Below 40°C: Salt and water were cooled in a test tube and stirred constantly. 40 - 90°C: As above, but a thermostat was used. Above 100°C: Salt and water were placed in one end of an inverted U-tube, and the tube was sealed. After equilibration (time or method not stated), some saturated solution was transferred to the other end of the tube. The tube was cooled and opened. The temperature at which the last crystal of NaCl disappeared was also observed. Analyses were for Cl by titration with AgNO ₃ solution.	Not stated.			
ESTIMATED ERROR:				
Temperature: no estimates possible. Solubility: precision within ±0.01 mass %.				
REFERENCES:				

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]	Bathrick, H.A. <i>J. Phys. Chem.</i> <u>1896</u> -7, 1, 157-69.	
(2) Water; H ₂ O; [7732-18-5]		
VARIABLES:	PREPARED BY:	
T/K = 303, 313	J.W. Lorimer	
EXPERIMENTAL VALUES:		
t/°C	mass %	solid phase
30	26.6	NaCl
40	26.9	NaCl
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE Excess salt and water were placed in stoppered flasks and left for 24 h in a thermostat. Solutions were analyzed by evaporation.	SOURCE AND PURITY OF MATERIALS: No information given.	
	ESTIMATED ERROR: Temperature: precision probably within ±0.1 K (compiler). Solubility: probably ±1 %.	
	REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]		de Coppet, L.C.	
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Stoechiom. Verwandtschaftsl. 1897, 22, 239-40.	
VARIABLES:		PREPARED BY:	
T/K = 251		J.-J. Counioux	
EXPERIMENTAL VALUES:			
t/°C	100 x mass ratio NaCl/H ₂ O	mass % NaCl	solid phase
-21.85	29.6	22.84	NaCl·2H ₂ O + ice
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:		
Previously described (1).	Not stated.		
REFERENCES:	ESTIMATED ERROR:		
1. de Coppet, L.C. Bull. Soc. Vaudoise Sci. Nat. 1871, 11(2), 1.	No estimates possible.		

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]		Raoult, F.-M.	
(2) Water; H ₂ O; [7732-18-5]		Ann. Chim. Phys. 1899, 162, 162-220.	
VARIABLES:		PREPARED BY:	
T/K = 234-273		J.-J. Counioux	
EXPERIMENTAL VALUES:			
t/°C	mass ratio NaCl/H ₂ O	mass % (compiler)	solid phase
-0.1098	0.00176	0.176	ice
-0.2073	0.00341	0.340	"
-0.4077	0.00690	0.685	"
-0.8211	0.01400	1.381	"
-1.6754	0.02859	2.780	"
-3.4237	0.05850	5.527	"
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:		
Cryoscopic method. The mixture of salt 125 mL of water was stirred slowly and cooled to 0.5 K below the freezing point. Then the temperature of the thermostat was increased to 0.1 K below the estimated freezing point. A small crystal of ice was added to the sample, and the temperature was read every 2 or 3 min. Equilibrium was reached when the temperature variations were smaller than 0.002-0.003 K over 15 min.	Not stated.		
ESTIMATED ERROR:		Temperature: precision within ±0.001 K	
REFERENCES:			

COMPONENTS:		ORIGINAL MEASUREMENTS:									
(1) Sodium chloride; NaCl; [7647-14-5]		van't Hoff, J.H.; Meyerhoffer, W.; Smith, N.									
(2) Water; H ₂ O; [7732-18-5]		<i>Sitzungsber. K. Preuss. Akad. Wiss.</i> <i>II 1901, 1033-44 (part xxii);</i>									
		van't Hoff, J.H. <i>Untersuchungen über die Bildungsverhältnisse der ozeanischen Salzablagerungen.</i> H. Precht, E. Cohen, eds. Akademische Verlagsges. Leipzig. <u>1912.</u> pp. 173-182.									
EXPERIMENTAL VALUES:											
<table> <thead> <tr> <th>t/°C</th><th>mol Na₂Cl₂ /1000 mol H₂O</th><th>mass % NaCl (compiler)</th><th>solid phase</th></tr> </thead> <tbody> <tr> <td>25</td><td>55.5</td><td>26.5</td><td>NaCl</td></tr> </tbody> </table>				t/°C	mol Na ₂ Cl ₂ /1000 mol H ₂ O	mass % NaCl (compiler)	solid phase	25	55.5	26.5	NaCl
t/°C	mol Na ₂ Cl ₂ /1000 mol H ₂ O	mass % NaCl (compiler)	solid phase								
25	55.5	26.5	NaCl								
AUXILIARY INFORMATION											
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:										
Presumably the method of isothermal saturation was used. The authors have rounded solubilities to the nearest $\frac{1}{2}$ mol per 1000 mol H ₂ O.	Not given.										
ESTIMATED ERROR:											
No estimates possible.											
REFERENCES:											

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Sodium chloride; NaCl; [7647-14-5]		Seidell, A. Am. Chem. J. <u>1902</u> , 27, 52-62.						
(2) Water; H ₂ O; [7732-18-5]								
VARIABLES:		PREPARED BY:						
T/K = 295, 308		J.W. Lorimer						
EXPERIMENTAL VALUES:								
t / °C	mass/g of 100 cm ³ sln	g NaCl /100 cm ³ sln	mass % NaCl (compiler)	solid phase (compiler)				
21.5	119.72	31.34	26.18	NaCl				
35	119.30	31.34	26.27	"				
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
Salt and water were placed in stoppered bottles, and were rotated in a thermostat for 18-24 h. The bottles were then left upright until solids had settled, after which a sample was pipetted into a weighing bottle and weighed. This sample was then washed into a larger flask, and aliquots were analyzed by titration with M/10 AgNO ₃ .	Not given.							
ESTIMATED ERROR:								
No estimates possible.								
REFERENCES:								

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]	Jones, H.C.; Getman, F.H.
(2) Water; H ₂ O; [7732-18-5]	Z. Phys. Chem., Stoechiom. Verwandtschaftsl. 1903, 46, 244-86.
VARIABLES:	PREPARED BY:

T/K = 261-271

J.W. Lorimer

EXPERIMENTAL VALUES:

t/°C	concentration mol dm ⁻³	mass % (compiler ^a)	solid phase
-1.760	0.5	2.859	ice
-3.550	1.0	5.603	"
-7.470	2.0	10.77	"
-12.225	3.0	15.56	"

COMMENTS: The compiler's calculations of mass % uses densities taken from the Critical Evaluation in this volume for solutions of NaCl saturated with ice.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS: NaCl: made by ppt with HCl gas from a conc. sln. The salt was washed with water, then dried at 120°C. Water: redistilled, conductivity $2.0 \times 10^{-6} \text{ S cm}^{-1}$.
	ESTIMATED ERROR: Temperature: precision probably within $\pm 0.1 \text{ K}$ (compiler). Solubility: estimated precision $\pm 1 \%$.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Sodium chloride; NaCl; [7647-14-5]		Berkeley, Earl of <i>Phil. Trans. R. Soc. London A</i> <u>1904</u> , 203, 189-214.						
(2) Water; H ₂ O; [7732-18-5]								
VARIABLES:		PREPARED BY:						
T/K = 273-380		J.-J. Cournioux						
EXPERIMENTAL VALUES:								
<i>t</i> /°C	100 x mass ratio NaCl/H ₂ O	mass % (compiler)	relative density	solid phase				
0.35	35.75	26.34	1.2090	NaCl				
15.20	35.84	26.38	1.2020	"				
30.05	36.20	26.58	1.1956	"				
45.40	36.60	26.79	1.1891	"				
61.70	37.28	27.16	1.1823	"				
75.65	37.82	27.44	1.1764	"				
90.50	38.53	27.81	1.1701	"				
107.0 a	39.65	28.39	1.1631	"				
<hr/>								
a boiling point								
<hr/>								
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
The salt-water mixture was stirred at the appropriate temperature and the density followed by pycnometric measurement until its value remained constant. Solubilities were determined by evaporation to dryness of the saturated solution in platinum crucibles, except at the boiling point, where evaporation was done in Jena glass bulbs. Different temperature control systems were used.	The purest NaCl from Merck was used and the purity controlled by chloride titration.							
<hr/>								
ESTIMATED ERROR:								
Temperature: accuracy ±0.01 K referred to hydrogen scale Solubility: precision at least 0.16 %								
<hr/>								
REFERENCES:								

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]	Van't Hoff, J.H.; Sachs, H.; Biach, O. <i>Ber. Berl. Akad.</i> <u>1904</u> , 576-86.	
(2) Water; H ₂ O; [7732-18-5]		
VARIABLES:	PREPARED BY:	
T/K = 356	P. Vallée	
EXPERIMENTAL VALUES:		
<i>t</i> /°C 83	mass % 27.68	solid phase NaCl
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE Presumably the isothermal saturation method was used. No other information given.	SOURCE AND PURITY OF MATERIALS: No information given.	
	ESTIMATED ERROR:	
	REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:																																																									
(1) Sodium Chloride; NaCl; [7647-14-5]		Jahn, H.																																																									
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Stoichiom. Verwandtschaftsl. <u>1905</u> , 50, 129-68.																																																									
VARIABLES:		PREPARED BY:																																																									
T/K: 272-273		J.-J. Cournioux																																																									
EXPERIMENTAL VALUES:																																																											
<table> <thead> <tr> <th>t/°C</th> <th>mass %</th> <th>solid phase</th> </tr> </thead> <tbody> <tr><td>- 0.0890</td><td>0.1472</td><td>ice</td></tr> <tr><td>- 0.0900</td><td>0.1472</td><td>"</td></tr> <tr><td>- 0.1345</td><td>0.2216</td><td>"</td></tr> <tr><td>- 0.1355</td><td>0.2224</td><td>"</td></tr> <tr><td>- 0.1757</td><td>0.2938</td><td>"</td></tr> <tr><td>- 0.1765</td><td>0.2935</td><td>"</td></tr> <tr><td>- 0.2646</td><td>0.4414</td><td>"</td></tr> <tr><td>- 0.2650</td><td>0.4417</td><td>"</td></tr> <tr><td>- 0.3475</td><td>0.5837</td><td>"</td></tr> <tr><td>- 0.3492</td><td>0.5836</td><td>"</td></tr> <tr><td>- 0.5165</td><td>0.8735</td><td>"</td></tr> <tr><td>- 0.5172</td><td>0.8724</td><td>"</td></tr> <tr><td>- 0.6883</td><td>1.1592</td><td>"</td></tr> <tr><td>- 0.6906</td><td>1.1662</td><td>"</td></tr> <tr><td>- 0.8598</td><td>1.4561</td><td>"</td></tr> <tr><td>- 0.8626</td><td>1.4579</td><td>"</td></tr> <tr><td>- 1.0207</td><td>1.7237</td><td>"</td></tr> <tr><td>- 1.0209</td><td>1.7374</td><td>"</td></tr> </tbody> </table>			t/°C	mass %	solid phase	- 0.0890	0.1472	ice	- 0.0900	0.1472	"	- 0.1345	0.2216	"	- 0.1355	0.2224	"	- 0.1757	0.2938	"	- 0.1765	0.2935	"	- 0.2646	0.4414	"	- 0.2650	0.4417	"	- 0.3475	0.5837	"	- 0.3492	0.5836	"	- 0.5165	0.8735	"	- 0.5172	0.8724	"	- 0.6883	1.1592	"	- 0.6906	1.1662	"	- 0.8598	1.4561	"	- 0.8626	1.4579	"	- 1.0207	1.7237	"	- 1.0209	1.7374	"
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- 1.0207	1.7237	"																																																									
- 1.0209	1.7374	"																																																									
AUXILIARY INFORMATION																																																											
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:																																																										
Freezing points were determined by cryoscopy. The solution was under-cooled to about 1.5K below the crystallization temperature and then seeded by a small piece of ice. The temperature became stable at less than a few thousands of a Kelvin for about 40 minutes.	The salt was purified by different methods: recrystallization from hydrochloric solution, then evaporation under vacuum; washing with a mixture of water and alcohol, then evaporation to dryness.																																																										
ESTIMATED ERROR:																																																											
Temperature: ±0.001K																																																											
REFERENCES:																																																											

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Sodium chloride, NaCl; [7647-14-5]		Matignon, C.				
(2) Water; H ₂ O; [7732-18-5]		C. R. Hebd. Séances Acad. Sci. <u>1909</u> , 9, 550-3.				
VARIABLES:		PREPARED BY:				
T/K = 252-267		J.-J. Couniou				
EXPERIMENTAL VALUES:						
<i>t</i> /°C	mass ratio NaCl/H ₂ O	mass % (compiler)	solid phase			
- 6.6	0.11	9.9	ice			
- 9.25	0.15	13.0	"			
-12.7	0.20	16.7	"			
-16.67	0.25	20	"			
-21.3	0.307	23.5	ice + NaCl·2H ₂ O			
-12.25	0.329	24.8	NaCl·2H ₂ O			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Saturation was obtained at a fixed temperature. A part of the clear solution was removed and analyzed. The temperature of the eutectic point was determined by thermal analysis.	Not stated.					
ESTIMATED ERROR:						
Eutectic point: Temperature: ±0.1 K Composition: ±0.5 % in mass ratio						
REFERENCES:						

COMPONENTS:		ORIGINAL MEASUREMENTS:					
(1) Sodium chloride; NaCl; [7647-14-5]		Armstrong, H.E.; Eyre, J.V.					
(2) Water; H ₂ O; [7732-18-5]		Proc. R. Soc. London, A <u>1910-11</u> , 84, 123-36.					
VARIABLES:		PREPARED BY:					
T/K = 273, 298		J.-J. Courniou					
EXPERIMENTAL VALUES:							
t/°C		100 x mass ratio NaCl/H ₂ O	mass % (compiler)	solid phase			
A		B	A	B			
0		35.775	26.35	NaCl			
25		35.83	35.71	"			
25		35.78	35.77	"			
The values given in columns A and B represent results obtained with two samples. B was withdrawn one hour after A.							
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:				
The method was described in a previous communication (1). At 0°C the mixture was constantly stirred in a bath of crushed ice and water. the temperature was easily kept constant for several hours. For measurements at 25°C, see (1).			"Pure" salt was recrystallized 2X.				
			ESTIMATED ERROR:				
			Mass ratio: precision about 0.2% (compiler)				
			REFERENCES:				
			1. Armstrong, H.E.; Eyre, J.V. Proc. R. Soc. London, A <u>1907</u> , 79, 564.				

COMPONENTS:		ORIGINAL MEASUREMENTS:					
(1) Sodium chloride; NaCl; [7647-14-5]		Berkeley, Earl of; Appleby, M.P.					
(2) Water; H ₂ O; [7732-18-5]		Proc. R. Soc. London, A <u>1911</u> , 85, 489-505.					
VARIABLES:		PREPARED BY:					
T/K = 381, 382 p/kPa = 58, 100		J.-J. Courniou					
EXPERIMENTAL VALUES:							
pressure mmHg	t/°C (boiling point)	NaCl concentration mol dm ⁻³	mass % (compiler) ^b	solid phase			
745	108.096			NaCl			
760	108.668 ^a	5.648	28.379	"			
^a corrected to standard conditions			^b density from (1)				
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:				
Described in previous paper (1).			Kahlbaum's purest NaCl was used.				
REFERENCE:			ESTIMATED ERROR:				
1. Berkeley, Earl of; Phil. Trans. R. Soc. London, A <u>1904</u> , 203, 189.			Temperature: ±0.005 K				

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Sodium chloride, NaCl; [7647-14-5]		Cohen, E.; Inouye, K.; Euwen, C.						
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Stoichiometry. Verwandtschaftsl. <u>1910</u> , 75, 257-93.						
VARIABLES:		PREPARED BY:						
T/K = 252-267 p/MPa = 0.1 - 150		J.-J. Counioux						
EXPERIMENTAL VALUES:								
t/°C	p/atm	mass ratio NaCl/H ₂ O	mass % (average; compiler)	solid phase				
24.05	1	0.3590	26.42	NaCl				
	1	0.3589	"	"				
250		0.3623	26.61	"				
250		0.3627	"	"				
500		0.3655	26.77	"				
500		0.3655	"	"				
1 000		0.3701	27.02	"				
1 000		0.3704	"	"				
1 500		0.3736	27.20	"				
1 500		0.3737	"	"				
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
A mixture of salt and water was confined in a steel bomb and stirred by a magnetic stirrer. The bomb was kept in a thermostat; see (1). Samples of saturated solution were analyzed after removal by evaporation to dryness, calcining at 300°C, and weighing.	NaCl: Kahlbaum, purified by pptn from sln with HCl, recrystallized. Neutral to Congo Red indicator. The product was dried and calcined.							
ESTIMATED ERROR:								
Temperature: precision ±0.03 K. Solubility: precision ±0.02 in mass ratio.								
REFERENCES:								
1. Cohen, E.; Sinnige, L.R. Z. Phys. Chem., Stoichiometry. Verwandtschaftsl. <u>1909</u> , 67, 513.								

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]		Rivett, A.C.D.
(2) Water; H ₂ O; [7732-18-5]		<i>K. Sven. vetenskapsakad. Medd., Nobel-inst. 1911, 2(9), 1-32.</i>
VARIABLES:		PREPARED BY:
$T/K = 269-273$		J.-J. Counioux
EXPERIMENTAL VALUES:		
$t/^\circ\text{C}$	mass %	solid phase
-0.518	0.873	ice
-1.042	1.747	"
-1.584	2.650	"
-2.086	3.466	"
-2.618	4.319	"
-3.174	5.182	"
-3.708	5.984	"
-4.210	6.712	"
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:	
The mixture was supercooled in a bath 4 K below the f.p. until a large amount of ice separated out, which was thawed until only a very small amount remained. The soln. was placed in an air jacket and stirred until the temp. was steady. Supercooling for 0.01 to 0.02 K was allowed and hand stirring continued until the temp. rose to a maximum.	NaCl: Kemista Fabriken Ion.	
	ESTIMATED ERROR:	
	Temperature: ± 0.003 K (mean of 5 readings)	
REFERENCES:		

COMPONENTS:	ORIGINAL MEASUREMENTS:			
(1) Sodium chloride; NaCl; [7647-14-5]	Bronsted, J.N. <i>Z. Phys. Chem., Stoechiom.</i> <i>Verwandtschaftsl.</i> <u>1913</u> , 82, 632-40.			
(2) Water; H ₂ O; [7732-18-5]				
VARIABLES:	PREPARED BY:			
T/K = 373	J.-J. Counioux			

EXPERIMENTAL VALUES:

t/°C	mass ratio NaCl/H ₂ O	mass % (compiler)	vapor pressure /mmHg	solid phase
100	0.3922	28.17	561.5	NaCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturated solution was obtained by agitating an excess of salt with water. Solubility was calculated from the relation: $S = (S_1 - r_1)/w_1$, where S_1 = mass of salt, r_1 = mass of residue and w_1 = mass of water.	Purest salt of Kahlbaum.
	ESTIMATED ERROR:
	Temperature: ±0.01 K

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]	Amadori, M.
(2) Water; H ₂ O; [7732-18-5]	<i>Atti Ist. Veneto Sci., Lett. Arti</i> <u>1919</u> , 79, 293-320.
VARIABLES:	PREPARED BY:

T/K = 298

J.-J. Counioux

EXPERIMENTAL VALUES:

t/°C	100 x mass ratio NaCl/H ₂ O	mass %	solid phase
25	35.98	26.46	NaCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Solubility was determined by the isothermal method. A sample of clear solution was weighed and evaporated to dryness. The residue was analyzed.	Not stated.
	ESTIMATED ERROR:
	No estimates possible.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]	Grunewald, W. Zur Kenntnis der ozeanischen Salzablagerungen. Inaugural-Dissertation. Erlangen. K.B. Hof- u. Universitäts- buchdruckerei v. Junge & Sohn. Erlangen. 1913.
(2) Water; H ₂ O; [7732-18-5]	
VARIABLES:	PREPARED BY:
T/K = 298, 356 K	J.W. Lorimer

EXPERIMENTAL VALUES:

t/°C	equilibration time/h	analytical data	mass satd sln/g	mass % NaCl	source of salt
25	8	19.75 cm ³ (a)	0.44083	26.18	O
	14	0.8655 g (b)	1.33456	26.45	O
	8	14.9 cm ³ (a)	0.32964	26.42	K
	12	6.1 cm ³ (a)	0.13454	26.50	K
	15	0.4297 g (b)	0.65928	26.58	K
			Average: 26.43		
			Std dev.: 0.15		
83	6	6.62 cm ³ (a)	0.1400	27.64	K
	7	0.2907 g (b)	0.4281	27.69	K
	7	0.1185 g (c)	0.4281	27.68	K
			Average: 27.67		
			Std dev.: 0.03		

The solid phase is NaCl for all entries. Mass % NaCl calc. by compiler.

Analytical methods: (a) titration with 0.1 mol dm⁻³ AgNO₃

(b) gravimetric as AgCl

(c) gravimetric as NaCl

Source of salt: O - own preparation

K - Kahlbaum "NaCl zur Analyse mit Garantieschein"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The method of isothermal saturation was used. Water and salt were stirred in thermostatted, closed flasks. Samples were analyzed to show equilibrium had been reached. Weighed samples were obtained using prewarmed pipets fitted with cotton wool filters. Analyses: Cl by Volhard titration or gravimetric as AgCl; total salt by evaporation and weighing as NaCl.	Recrystallized "relatively pure" sample, or Kahlbaum "NaCl zur Analyse mit Garantieschein". Found: Cl, 60.51; calc: 60.66.
ESTIMATED ERROR:	Temperature: not given. Solubility: std dev. within 0.15 mass %, from data given above.
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride, NaCl; [7647-14-5] (2) Water; H ₂ O; [7732-18-5]	Leather, J.W.; Mukerji, J.N. Mem. Dep. Agri. India, Chem. Ser. <u>1914</u> , 3(7), 177-204.
VARIABLES: T/K = 293-364	PREPARED BY: J.-J. Cournioux

EXPERIMENTAL VALUES:

t/°C	mass ratio NaCl/H ₂ O	mass % NaCl	density g cm ⁻³	solid phase (compiler)
(compiler)				
20	35.63	26.27	1.193	NaCl
30	36.32	26.59	1.202	"
40	36.53	26.76	1.197	"
91	38.72	27.91	1.189	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The method has been described by Meyerhoffer and Saunders (1). Water and salt were weighed in a glass tube. The mixture was first heated to a temperature above that at which equilibrium was expected. It was then stirred at a fixed temperature for about 20 h. Samples of the clear solution were then withdrawn and analyzed.	Not stated.
	ESTIMATED ERROR: Temperature: ±0.2 K
	REFERENCES: 1. Meyerhoffer, W.; Saunders, A.P. Z. Phys. Chem., Stoichiomet. Verwandtschaftsl. <u>1899</u> , 28, 451.

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride, NaCl; [7647-14-5]		Reinders, W.	
(2) Water; H ₂ O; [7732-18-5]		Z. Anorg. Chem. 1915, 93, 202-12.	
VARIABLES:		PREPARED BY:	
T/K = 278-373		J.-J. Counioux	
EXPERIMENTAL VALUES:			
t/°C	100 x mass ratio NaCl/H ₂ O	mass % (compiler)	solid phase
5	35.74	26.33	NaCl
25	36.04	26.49	"
50	36.72	26.86	"
100	39.2	28.2	"
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:	
Not given, but probably isothermal method with analysis of saturated solution (compiler).		Not stated.	
		ESTIMATED ERROR:	
		Not stated.	
		REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride, NaCl; [7647-14-5]		Sill, H.F.	
(2) Water; H ₂ O; [7732-18-5]		J. Am. Chem. Soc. <u>1916</u> , 38, 2632-43.	
VARIABLES:		PREPARED BY:	
T/K = 298 p/MPa = 0.1-75		J.-J. Counioux	
EXPERIMENTAL VALUES:			
t/°C	pressure kg cm ⁻²	mass % NaCl	solid phase
25	1	26.44	NaCl
	1	26.44	"
250		26.58	"
250		26.58	"
500		26.76	"
500		26.68	"
750		26.82	"
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:		
The pressure bomb was a U-tube, made from Shelby steel tubing. One branch was the "reaction chamber" and the second the "mercury chamber". Connections with a Cailletet pump and between the chambers were effected by means of capillary steel tubing. The bomb was supported in a thermostat and could be rotated freely through an angle of more than 90°. The calibration of the pressure gauge of the pump has already been described in (1). The thermal regulation and the stirring of the bath were connected in the manner described by Richards (2). Analysis of the saturated solution was made by evaporation to dryness and weighing.	C.P. NaCl was reprecipitated from a saturated solution by HCl gas. The salt was washed several times, dried and heated for 1 h at 350°C.		
ESTIMATED ERROR:		Temperature: ±0.003 K	
REFERENCES:		<ol style="list-style-type: none"> 1. Stahler, A. <i>Handbuch der Arbeitsmethoden in der Anorganischen Chemie</i>. Veit. Leipzig. <u>1913-4</u>. vol. 3, p. 259. 2. Richards, T.W.; Stull, W.N.; Matthews, J.H.; Speyers, C.L. <i>J. Am. Chem. Soc.</i> <u>1912</u>, 34, 972. 	

COMPONENTS:		ORIGINAL MEASUREMENTS:																																																					
(1) Sodium chloride, NaCl; [7647-14-5]		Rodebush, W.H.																																																					
(2) Water; H ₂ O; [7732-18-5]		J. Am. Chem. Soc. <u>1918</u> , 40, 1204-13.																																																					
VARIABLES:		PREPARED BY:																																																					
T/K = 252-270		J.-J. Counioux																																																					
EXPERIMENTAL VALUES:																																																							
<table> <thead> <tr> <th>t/°C</th> <th>100 x mass ratio NaCl/H₂O</th> <th>mass % (compiler)</th> <th>solid phases</th> </tr> </thead> <tbody> <tr><td>- 3.48</td><td>6.11</td><td>5.76</td><td>ice</td></tr> <tr><td>- 5.17</td><td>8.92</td><td>8.19</td><td>"</td></tr> <tr><td>- 6.32</td><td>10.77</td><td>9.72</td><td>"</td></tr> <tr><td>- 8.52</td><td>14.20</td><td>12.43</td><td>"</td></tr> <tr><td>- 9.41</td><td>15.46</td><td>13.39</td><td>"</td></tr> <tr><td>-11.04</td><td>17.87</td><td>15.16</td><td>"</td></tr> <tr><td>-14.33</td><td>22.25</td><td>18.20</td><td>"</td></tr> <tr><td>-14.77</td><td>22.99</td><td>18.69</td><td>"</td></tr> <tr><td>-16.21</td><td>24.75</td><td>19.84</td><td>"</td></tr> <tr><td>-18.73</td><td>27.70</td><td>21.69</td><td>"</td></tr> <tr><td>-20.56</td><td>29.70</td><td>22.90</td><td>"</td></tr> <tr><td>-21.12</td><td>30.4</td><td>23.3</td><td>ice + NaCl·2H₂O</td></tr> </tbody> </table>				t/°C	100 x mass ratio NaCl/H ₂ O	mass % (compiler)	solid phases	- 3.48	6.11	5.76	ice	- 5.17	8.92	8.19	"	- 6.32	10.77	9.72	"	- 8.52	14.20	12.43	"	- 9.41	15.46	13.39	"	-11.04	17.87	15.16	"	-14.33	22.25	18.20	"	-14.77	22.99	18.69	"	-16.21	24.75	19.84	"	-18.73	27.70	21.69	"	-20.56	29.70	22.90	"	-21.12	30.4	23.3	ice + NaCl·2H ₂ O
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METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:																																																						
Freezing point lowerings were measured directly by means of a Cu-constantan thermocouple connected to a potentiometer. The saturation point was taken as the point at which the temperature stopped falling and began to rise slowly. The composition of the saturated solution was determined by conductivity measurements. For the determination of the eutectic temperature, salt and ice were mixed, frozen to a solid mass, broken up into small pieces and placed in a Dewar. The mixture warmed up rapidly to a definite temperature and then remained constant within 0.01 K for 20 to 30 min.	The salt was the purest commercially obtainable. It was recrystallized and its purity determined by Lewis' equation (1).																																																						
ESTIMATED ERROR:																																																							
Temperature: ±0.01 to 0.02 K Solubility: ±0.1%																																																							
REFERENCES:																																																							
1. Lewis, G.N. Proc. Am. Acad. <u>1907</u> , 43, 284.																																																							

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]		Denecke, W.
(2) Water; H ₂ O; [7732-18-5]		Z. Anorg. Allg. Chem. <u>1919</u> , 108, 1-43.
VARIABLES:		PREPARED BY:
T/K = 238-248 p/MPa: 57 - 255		J.-J. Counioux
EXPERIMENTAL VALUES:		
<i>t</i> /°C	<i>p</i> /kg cm ⁻²	solid phases
-25.7	583	ice I + NaCl·2H ₂ O
-29.4	1037	"
-33.9	1617	"
-36.9	2110	"
-38.5	2248	ice III' + NaCl·2H ₂ O
-35.5	2550	"
-35.0	2602	"
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:	
Water and sodium salt were confined in a steel bomb with pentane for transmitting pressure. The bomb was immersed in an ethanol-carbonic acid bath. The temperature was increased at about 0.4 K/min, and solid-liquid equilibrium points were found from a plot of temperature against pressure.	Not stated.	
	ESTIMATED ERROR:	
	Temperature: ±0.1 K.	
	REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:													
(1) Sodium Chloride, NaCl; [7647-14-5]		Kurnakov, N.S.; Zhemchuzhnii, S.R. <i>Zh. Russ. Fiz.-Khim. O-va, Chast Khim. 1920, 51, 1-59.</i>													
(2) Water; H ₂ O; [7732-18-5]															
VARIABLES:		PREPARED BY:													
T/K: 273, 298		J.W. Lorimer													
EXPERIMENTAL VALUES:															
<table> <thead> <tr> <th>t/°C</th> <th>100 x mol ratio Na₂Cl/H₂O</th> <th>mass % (compiler)</th> <th>solid phase</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>54.9</td> <td>26.3</td> <td>NaCl</td> </tr> <tr> <td>25</td> <td>55.5</td> <td>26.5</td> <td>"</td> </tr> </tbody> </table>				t/°C	100 x mol ratio Na ₂ Cl/H ₂ O	mass % (compiler)	solid phase	0	54.9	26.3	NaCl	25	55.5	26.5	"
t/°C	100 x mol ratio Na ₂ Cl/H ₂ O	mass % (compiler)	solid phase												
0	54.9	26.3	NaCl												
25	55.5	26.5	"												
AUXILIARY INFORMATION															
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:														
Salt and water were stirred in glass vessels immersed in a thermostat. Equilibrium was reached in 1-2 days, after which the solid phase was allowed to settle, and a sample was removed via a pipet equipped with a filter tip. The sample was analyzed for Cl, presumably by gravimetric determination as AgCl (compiler).	No information given.														
ESTIMATED ERROR:															
Temperature: ±0.05-0.1K															
REFERENCES:															

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]	Sborgi, U.; Franco, C.
(2) Water; H ₂ O; [7732-18-5]	Gazz. Chim. Ital. 1921, 51, 33-8.
VARIABLES:	PREPARED BY:
T/K = 273 - 298	J.-J. Counioux

EXPERIMENTAL VALUES:

t /°C	1000 mol ratio NaCl/H ₂ O	mass % (compiler)	solid phase
0	109.34	26.18	NaCl
10	109.99	26.30	"
25	110.64	26.41	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The isothermal method was used.	Not stated.
	ESTIMATED ERROR:
	No estimates possible.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Sodium Chloride; NaCl; [7647-14-5]	Takegami, S.	
(2) Water; H ₂ O; [7732-18-5]	Mem. Fac. Sci., Univ. Kyoto <u>1921</u> , 4, 317-42.	
VARIABLES:	PREPARED BY:	
T/K: 298	J.W. Lorimer	
EXPERIMENTAL VALUES:		
	t/°C	mass %
	25.0	solid phase (compiler)
		NaCl
		"
	26.52	
	26.46	
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:	
Mixtures of salt and water were rotated in a thermostat for at least 24 h, after which the solid phase was allowed to settle. Samples were removed via a pipet fitted with a cotton filter into weighing bottles. Analysis was for Cl by titration with AgNO ₃ .	No information given.	
	ESTIMATED ERROR:	
	Temperature: ±0.1K (compiler) Solubility: precision within 0.1 mass % (from data)	
	REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:			
(1) Sodium chloride; NaCl; [7647-14-5]	Mondain-Monval, P.			
(2) Water; H ₂ O; [7732-18-5]	C. R. Hebd. Séances Acad. Sci. <u>1922</u> , 175, 162-4; <u>1922</u> , 174, 1014-7.			
VARIABLES:	PREPARED BY:			
T/K = 273-288	J.-J. Cournioux			
EXPERIMENTAL VALUES:				
t/°C	100 x mass ratio NaCl/H ₂ O	mass % (compiler)	solid phase	reference
0	35.6	26.25	NaCl	paper 1
15	35.7	26.3	"	paper 2

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturated solution was obtained by stirring the mixture of salt and water during about 4 h. A sample of saturated solution was removed and analyzed.	Not stated.
	ESTIMATED ERROR:
	No estimates possible.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:			
(1) Sodium chloride; NaCl; [7647-14-5]	Toporescu, E.			
(2) Water; H ₂ O; [7732-18-5]	C. R. Hebd. Séances Acad. Sci. <u>1922</u> , 174, 870-3; <u>1922</u> , 175, 268-70.			
VARIABLES:	PREPARED BY:			
T/K = 288-323	J.-J. Cournioux			
EXPERIMENTAL VALUES:				
t/°C	100 x mass ratio NaCl/H ₂ O	mass % (compiler)	solid phase	reference
15	35.7	26.3	NaCl	paper 1
35	36.18	26.57	"	paper 2
50	36.67	26.83	"	paper 2

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Salt water mixtures were stirred for 3 to 6 h in a thermostat. Samples of clear solution were weighed and analyzed.	Not stated.
	ESTIMATED ERROR:
	Temperature: ±1 K
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]	Smits, A.; Elgersma, J.; Hardenburg, M.E.	
(2) Water; H ₂ O; [7732-18-5]	Recl. Trav. Chim. Pays-Bas <u>1924</u> , 43, 671-6.	
VARIABLES:	PREPARED BY:	
T/K = 298	J.-J. Counioux	

EXPERIMENTAL VALUES:

t/°C	mass % NaCl	solid phase (compiler)
25	26.4	NaCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The authors investigated the ternary system LiCl-NaCl-H ₂ O at 25°C. Saturated solutions were prepared in an apparatus described by Meyer (1), filtered and, in the case of binary mixtures, analyzed by evaporation of water.	Not stated.
	ESTIMATED ERROR:
	No estimates possible.
	REFERENCES:
	1. Meyer, G. Recl. Trav. Chim. Pays-Bas <u>1923</u> , 42, 301.

COMPONENTS:

- (1) Sodium chloride; NaCl;
[7647-14-5]
- (2) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:

Benrath, A.
Z. Anorg. Allg. Chem. 1927,
163, 396-404.

VARIABLES:

$$T/K = 371$$

PREPARED BY:

J.-J. Counioux

EXPERIMENTAL VALUES:

t/°C	mol ratio H ₂ O/NaCl	mass % (compiler)	solid phase
98	8.33	28.03	NaCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Not stated; probably isothermal method.	Not stated.
	ESTIMATED ERROR:
	No estimates possible.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Sodium chloride; NaCl; [7647-14-5]		Deacon, G.E.R. <i>J. Chem. Soc.</i> <u>1927</u> , 2063-5.		
(2) Water; H ₂ O; [7732-18-5]				
VARIABLES:		PREPARED BY:		
T/K = 298		J.W. Lorimer		
EXPERIMENTAL VALUES:				
t/°C	mass %	solid phase NaCl		
25	35.96			
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE The isothermal saturation method was used. Chloride was determined gravimetrically as AgCl.	SOURCE AND PURITY OF MATERIALS: No information given.			
ESTIMATED ERROR: Temperature: precision probably within ±0.1 K (compiler). Solubility: No estimates possible.				
REFERENCES:				

COMPONENTS:	ORIGINAL MEASUREMENTS:							
(1) Sodium chloride; NaCl; [7647-14-5]	Foote, H.W. Am. J. Sci. 1927, 5, 158-66.							
(2) Water; H ₂ O; [7732-18-5]								
VARIABLES:	PREPARED BY:							
T/K = 298	J.-J. Cournioux							
EXPERIMENTAL VALUES:								
t/°C	mass % NaCl	solid phase						
25	26.50	NaCl						
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:							
Saturated solutions were prepared by shaking the components in small glass-stoppered bottles in a thermostat. Samples were drawn off for analysis through a small filter of glass wool directly into a weighing bottle.	NaCl was purified by "usual methods".							
ESTIMATED ERROR:								
No estimates possible.								
REFERENCES:								

COMPONENTS:	ORIGINAL MEASUREMENTS:					
(1) Sodium chloride; NaCl; [7647-14-5]	Holluta, J.; Mautner, S. Z. Phys. Chem., Stoechiom. Verwandtschaftsl. 1927, 127, 455-75.					
(2) Water; H ₂ O; [7732-18-5]						
VARIABLES:	PREPARED BY:					
T/K = 292	J.-J. Cournioux					
EXPERIMENTAL VALUES:						
t/°C	conc. of NaCl g dm ⁻³	mass % (compiler)	relative density			
18.5	316.30	26.31	1.2019			
solid phase (compiler)						
NaCl						
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:					
The mixture of salt and water was heated at 60°C for 1 h, then stirred in a thermostat. Solid-liquid equilibrium was obtained after about 12 h. Samples of clear solution were removed and analyzed by evaporation and drying the solid to constant weight at 120°C.	Not stated.					
ESTIMATED ERROR:						
No estimates possible.						
REFERENCES:						

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Sodium Chloride, NaCl; [7647-14-5]		Kupper, A.				
(2) Water; H ₂ O; [7732-18-5]		Caliche 1927, 8, 467-87.				
VARIABLES:		PREPARED BY:				
T/K: 273-356		J.W. Lorimer				
EXPERIMENTAL VALUES:						
t/°C	1000 x mol ratio Na ₂ Cl ₂ /H ₂ O	mass % (compiler)	solid phase			
0	54.8	26.23	NaCl·2H ₂ O			
5	54.87	26.26	NaCl			
15.3	55.08	26.33	"			
17.9	55.13	26.35	"			
20.6	55.18	26.37	"			
25	55.33	26.42	"			
27	55.40	26.44	"			
31	55.55	26.50	"			
35.5	55.76	26.57	"			
49	56.44	26.81	"			
55	56.80	26.93	"			
57	56.96	26.99	"			
59	57.06	27.02	"			
61	57.16	27.06	"			
64	57.37	27.13	"			
71	57.88	27.30	"			
83	58.75	27.60	"			
COMMENTS: The author's tabulated conversions of mole ratios to mass % are not consistent with any values of atomic weights in use between 1894 and 1925, but are consistently 0.03 mass % too high. The compiler's calculations use 1925 atomic weights.						
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Not given; presumably isothermal saturation was used.	No information given.					
ESTIMATED ERROR:						
No estimates possible.						
REFERENCES:						

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]		Palitzsch, S.	
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Abt. A 1928, 138, 379-98; Studier over Oplosingers Overfladespaending. Habilitation Thesis. Levin & Munksgaards Forlag. Copenhagen 1927.	
VARIABLES:		PREPARED BY:	
T/K = 298		R. Tenu; J.W. Lorimer	
EXPERIMENTAL VALUES:			
t/°C	molality mol kg ⁻¹	mass %	relative density d_4^{25}
25	6.12	26.32	1.19814
			NaCl
COMMENTS AND ADDITIONAL DATA: Solubilities were measured in connection with studies of surface tensions. The experimental molalities and densities are given on pp. 386-95 of the paper. In the Thesis, the primary data are mass of solution and titer of 0.1 mol dm ⁻³ AgNO ₃ . The compiler has calculated molalities and mass fractions from these data, which differ in the last figure from the values given by the author. The primary data follow.			
mass of sln/g	titration/cm ³	molality/mol kg ⁻¹	mass %
0.7702	34.69	6.128	26.32
0.7702	34.70	6.115	26.33
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:		
Solution and solid were rotated in sealed flasks in a thermostat. After saturation, which was continued up to 15 h, the mixture was filtered through cotton wool. Cl was determined by titration with AgNO ₃ . Densities were measured by pycnometer.	NaCl (Kahlbaum or Merck) was recrystallized and checked by analysis. Chloride was determined volumetrically. Water was redistilled over alkaline permanganate.		
ESTIMATED ERROR:		Temperature: precision to 0.02 K. Solubility: precision within 0.05 mass %, from data in thesis. Density: precision 1-10 x 10 ⁻⁵ .	
REFERENCES:			

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5] (2) Water; H ₂ O; [7732-18-5]	Scott, A.F.; Frazier, W.R. <i>J. Phys. Chem.</i> <u>1927</u> , 31, 459-63.
VARIABLES: T/K = 298	PREPARED BY: J.-J. Counioux

EXPERIMENTAL VALUES:

t = 25.000°C	Solid phase: NaCl (compiler)			solubility /mass % (compiler)	
mass sln/g in vacuum	vol. sln /cm ³	density/H ₂ O /g cm ⁻³	mass sample in vacuum/g	mass AgCl in vacuum/g	/mass %
30.4406	25.4105	1.19795	7.9637	5.1567	26.404
29.4303	24.5669	1.19797	8.2454	5.3387	26.402
30.4395	25.4105	1.19791			
30.4416	25.4105	1.19799			
averages			1.19796		26.403

COMMENTS: The primary data given above are the mass and volume of solutions, the mass of an aliquot of each solution, and the mass of AgCl from titration. The authors' solubility values are given erroneously as g salt/100 g water. The compilers' values have been calculated using 1975 atomic weights.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The isothermal method was used. About 80 cm ³ of mixture were prepared in a 250 cm ³ glass bottle. The bottle was placed in a rotating device in a thermostat and stirred for 1 h. It was then allowed to stand in the bath for 1 h. These operations were repeated several times. Saturated solution was transferred into a weighing flask. Solubility was obtained by titration for chloride.	Preparation and purification of the materials were as described in (1).
	ESTIMATED ERROR: Temperature: ±0.01 K.
	REFERENCES: 1. Baxter, G.P.; Wallace, C.C. <i>J. Am. Chem. Soc.</i> <u>1916</u> , 38, 70.

COMPONENTS:	ORIGINAL MEASUREMENTS:				
(1) Sodium chloride; NaCl; [7647-14-5]	Wright, R.				
(2) Water; H ₂ O; [7732-18-5]	<i>J. Chem. Soc.</i> <u>1927</u> , 130, 1334-7.				
VARIABLES:	PREPARED BY:				
T/K = 293,373	J.-J. Counioux				
EXPERIMENTAL VALUES:					
	t/°C	100 x mass ratio NaCl/H ₂ O	mass % (compiler)		
	20	36.0	solid phase (compiler) NaCl		
	100	39.1	26.5 28.1 "		
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:				
The composition of saturated solutions was determined at constant temperature by titration or evaporation to dryness.	Not stated.				
	ESTIMATED ERROR: No estimates possible.				
	REFERENCES:				

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5] (2) Water; H ₂ O; [7732-18-5]	Flottmann, F. Z. Anal. Chem. <u>1928</u> , 73, 1-39.
VARIABLES: T/K = 288-298	PREPARED BY: J.-J. Counioux

EXPERIMENTAL VALUES:

t/°C	mass %	density g cm ⁻³	solid phase	remarks
15	26.348	1.2024	NaCl	a
	26.348		"	b
	26.332		"	b
20	26.406	1.2001	"	a
	26.400		"	b
	26.404		"	b
25	26.484	1.1979	"	a
	26.450		"	a
	26.511		"	a
	26.475		"	b
	26.442		"	b

a - analysis by evaporation to dryness

b - analysis of solution by precipitation of AgCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The mixture was introduced into a Jena bottle and stirred for 10 h. A part of the clear solution was removed and analyzed. The composition of the saturated solution was determined by evaporation to dryness and weighing of the residue or by precipitation of chloride as silver chloride. AgCl was dried at 130°C and weighed (1).	Distilled water and the purest Kahlbaum NaCl were used.
	ESTIMATED ERROR:
	Temperature: ±0.02 K Density: ±0.0002 g cm ⁻³
	REFERENCES:
	1. Treadwell, F.P. Kurzes Lehrbuch der analytischen Chemie. <u>1923</u> , 2, 11.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride, NaCl; [7647-14-5]	Chrétien, A.
(2) Water; H ₂ O; [7732-18-5]	Ann. Chim. (Paris) 1929, 12, 9-155.
VARIABLES:	PREPARED BY:

T/K = 262-378

J.-J. Counioux

EXPERIMENTAL VALUES:

t/°C	mass %	relative density	solid phases
- 10.6	13.8		ice
- 21.6	22.9		ice + NaCl·2H ₂ O
- 10.6	24.7		NaCl·2H ₂ O
0.2	26.29	1.209	NaCl·2H ₂ O + NaCl
6.5	26.28		NaCl
10.2	26.3		"
15	26.36		"
17.5	26.4		"
20	26.4		"
25	26.6	1.198	"
35	26.6		"
50	26.9	1.185	"
75	27.4	1.175	"
100	28.6	1.164	"
105	28.3	1.162	"

COMMENTS: Tables of data are on pp. 129-45 of paper.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The isothermal method was used. A sample of clear solution was removed and analyzed for chloride by titration with silver nitrate. The temperatures of the eutectic and peritectic points were determined by thermal analysis.	Pure salt was crystallized several times in distilled water.
	ESTIMATED ERROR:
	Temperature: precision within ± 0.05 K between 0 and 35°C; < 0.1 K above 35°C.

REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Sodium chloride; NaCl; [7647-14-5]		Froelich, W.						
(2) Water; H ₂ O; [7732-18-5]		Mitt. Kali-Forsch. Anst. 1929, 37-66.						
VARIABLES:		PREPARED BY:						
T/K = 415 - 478 p/MPa = 0.2 - 4.2		J.W. Lorimer						
EXPERIMENTAL VALUES:								
t/°C	mass %	pressure /atm	stirring time/h	solid phase				
142	29.7	2.1	2	NaCl				
181	31.1	6.5	2	"				
205	31.8	12	2	"				
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
Salt and water were stirred at 25 rev/min in an autoclave heated by an oil bath. The autoclave was fitted with thermometers and a manometer. Samples were removed via a sampling tube fitted with a linen filter. Dead space was at a minimum in the autoclave, so compressed air or CO ₂ was used to force out samples, which were collected in a closed bomb and then cooled. Analyses were by the "usual methods used in the potash industry".	No information given.							
ESTIMATED ERROR:								
Temperature: precision ±1 K. Solubility: precision within ±0.2 mass %, from data in table.								
REFERENCES:								

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Sodium chloride, NaCl; [7647-14-5]		Gerassimow, I.		
(2) Water; H ₂ O; [7732-18-5]		Z. Anorg. Allg. Chem. <u>1930</u> , 187, 321-33.		
VARIABLES:		PREPARED BY:		
T/K = 273 - 348		J.-J. Counioux		
EXPERIMENTAL VALUES:				
t/°C	mass %	solid phase		
0	26.00	NaCl		
20	26.43	"		
50	26.91	"		
75	27.45	"		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
The apparatus was described by Meyerhoffer and Saunders (1). Experiments were carried out in an ice thermostat at 0°C and in an Ostwald thermostat between 20 and 75°C. The mixtures were stirred for many hours. Sodium chloride was determined gravimetrically as AgCl. The thermometer was standardized.	Not stated.			
ESTIMATED ERROR:				
No estimates possible.				
REFERENCES:				
1. Meyerhoffer, W.; Saunders, A.P. Z. Phys. Chem., Stoechiom. Verwandtschaftsl. <u>1899</u> , 28, 453.				

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride, NaCl; [7647-14-5]	Adams, L.H.; Hall, R.E.
(2) Water; H ₂ O; [7732-18-5]	J. Wash. Acad. Sci. <u>1931</u> , 21, 183-94.

VARIABLES:	PREPARED BY:
T/K = 303 p/MPa = 0.1-190	J.-J. Counioux

EXPERIMENTAL VALUES:	
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t/°C	p/bar	mass %	solid phase
29.93	1	26.47	NaCl
	293	26.73	"
	307	26.73	"
	412	26.79	"
	812	26.98	"
	877	27.00	"
	1258	27.15	"
	1266	27.15	"
	1218	27.07	"
	1293	27.15	"
	1437	27.22	"
	1429	27.22	"
	1419	27.22	"
	1911	27.48	"
30.00	1	26.470 ^a	"

^a Saturated solution analyzed by evaporation to dryness.

AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Saturation was obtained by using a cell in which convection currents produced complete equilibrium between solid and liquid. The concentration was determined by measuring the electric resistance of the solution. The conductivity cell, surrounded by sulfur-free oil, was subjected to pressure in a steel bomb which was placed in a thermostat.	Not stated.
	ESTIMATED ERROR:
	Temperature and pressure: no estimates possible Solubility: av. dev. at p = 1 atm is 0.004 mass %
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5] (2) Water; H ₂ O; [7732-18-5]	Il'inskii, V.P.; Sagaidachnuii, A.F. Zh. Obshch. Khim. 1931, 1, 584-8.
VARIABLES:	PREPARED BY:

T/K = 258 - 273

J.-J. Counioux

EXPERIMENTAL VALUES:

t/°C	mass %	solid phases
0	26.30	NaCl
-5	25.50	NaCl·2H ₂ O
-10	24.60	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The isothermal method was used.	Not stated.
	ESTIMATED ERROR:
	No estimates possible.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5] (2) Water; H ₂ O; [7732-18-5]	Lannung, A. Z. Phys. Chem., Abt. A. 1934, 170, 134-44.
VARIABLES:	PREPARED BY:

T/K = 291
p/kPa = 1.5

J.-J. Counioux

EXPERIMENTAL VALUES:

t/°C	p/mmHg	molality, m ₁ /mol kg ⁻¹	mass % (compiler)	solid phase
18	11.71	5.64	24.8	NaCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The vapor pressure of the sln was plotted against concentration. The solubility was calculated from the discontinuity in this plot.	NaCl: see (1).
	ESTIMATED ERROR: Temperature: ±0.003 K. Pressure: ± 7 Pa.
	REFERENCES: 1. Lannung, A. Z. Phys. Chem., Abt. A 1932, 161, 255.

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Sodium chloride; NaCl; [7647-14-5]		Akhumov, E.; Vasiliev, B.V.; Zh. Obshch. Khim. 1932, 2, 271-89;						
(2) Water; H ₂ O; [7732-18-5]		Izv. Sekt. Fiz.-Khim. Anal., Inst. Obshch. Neorg. Khim., Akad. Nauk SSSR 1936, 9, 295-315.						
VARIABLES:		PREPARED BY:						
T/K = 373-673		J.-J. Counioux						
EXPERIMENTAL VALUES:								
t/°C	mass ratio NaCl/H ₂ O	mass %	density g cm ⁻³	solid phase				
100	0.396	28.37	1.167	NaCl				
110	0.402	28.67		"				
120	0.408	28.98		"				
130	0.414	29.28	1.161	"				
140	0.420	29.58		"				
150	0.426	29.87	1.155	"				
160	0.432	30.17		"				
170	0.438	30.46	1.152	"				
180	0.446	30.84		"				
190	0.454	31.22		"				
200	0.462	31.60	1.148	"				
220	0.473	32.11		"				
230	0.482	32.52		"				
250	0.497	33.20		"				
270	0.520	34.21		"				
280	0.526	34.47		"				
300	0.540	35.06		"				
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
Three methods were used: (1) Visual. The temperature at which the last crystal disappears was noted. (2) Isothermal. Water and salt were introduced into a U-tube which was sealed and placed in a thermostat. When equilibrium was attained, part of the saturated solution was separated from the mixture and collected in one side of the tube. After cooling, the tube was cut and the solution was analyzed. (3) Conductimetric. Conductivity was plotted against concentration, and a break was observed in the curve at the saturation composition.	Not stated.							
ESTIMATED ERROR:								
No estimates possible.								
REFERENCES:								

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Sodium chloride; NaCl; [7647-14-5]		Cornec, E.; Krombach, H.						
(2) Water; H ₂ O; [7732-18-5]		Ann. Chim. (Paris) 1932, 18, 5-31.						
VARIABLES:		PREPARED BY:						
T/K = 252-463		J.-J. Cournioux						
EXPERIMENTAL VALUES:								
t/°C	100 x mass ratio NaCl/H ₂ O	mass %	relative density	solid phases				
- 21.1	30.0	23.07	.	ice + NaCl·2H ₂ O				
- 10.0	32.8	24.70		NaCl·2H ₂ O				
0	35.6	26.25	1.209	NaCl				
0.1	35.6	26.27		NaCl + NaCl·2H ₂ O				
10	35.8	26.34	1.201	NaCl				
40	36.3	26.64	1.192	"				
60	37.0	27.03	1.184	"				
100	38.9	28.00	1.166	"				
108.7 ^a	39.4	28.30	1.162	"				
120	40.0	28.60		"				
140	41.4	29.30		"				
169.5	44.1	30.62		"				
189.6	45.9	31.45		"				
<hr/>								
a boiling point								
<hr/>								
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
Saturated solution was stirred at constant temperature for several h. A sample of clear solution was then removed and analyzed. When the temperature of saturation was higher than the boiling point at atmospheric pressure, saturated solutions were prepared in a bomb placed in a thermostated oil bath. After several h, the bomb was turned in order to separate clear solution, which was removed after cooling and analyzed.	Not stated.							
<hr/>								
ESTIMATED ERROR:								
Temperature: ±0.2 K								
<hr/>								
REFERENCES:								
<hr/>								

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5] (2) Water; H ₂ O; [7732-18-5]	Osokoreva, N.A.; Opikhtina, M.A.; Shioket, A.N.; Plaksina, E.F.; Zaslavskii, A.I.; with Kurnakov, N.S.; Manoev, D.P. <i>Tr. Gos. Inst. Prikl. Khim.</i> <u>1932</u> , no. 16, 24-47.
VARIABLES: $T/K = 283 - 373$	PREPARED BY: T. Mioduski

EXPERIMENTAL VALUES:

$t/^\circ\text{C}$	Solubility of NaCl		
	mass % 100W,	mole fraction ^a x ,	solid phase
10	26.33	0.09924	NaCl
20	26.37	0.09942	"
25	26.48	0.09993	"
40	26.76	0.1012	"
50	26.93	0.1020	"
60	27.02	0.1024	"
70	27.36	0.1040	"
100	28.29	0.1084	"

^a Mole fractions calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS: No information available.
The isothermal saturation method was used. Samples were agitated in a water thermostat below 333 K and in an oil thermostat at higher temperatures. Equilibrium was established in 1-2 d, or sooner at higher temperatures, as confirmed by constancy of density to $2-3 \times 10^{-4} \text{ g cm}^{-3}$. Samples were taken at the same temperature as the thermostat. Solid phases were not analyzed. Solutions were analyzed gravimetrically for Cl as AgCl.	ESTIMATED ERROR: Temperature: precision within $\pm 0.1 \text{ K}$.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Sodium Chloride; NaCl; [7647-14-5]		Scatchard, G.; Prentiss, S.S. <i>J. Am. Chem. Soc.</i> <u>1933</u> , 55, 4355-62.						
(2) Water, H ₂ O; [7732-18-5]								
VARIABLES:		PREPARED BY:						
T/K: 269-273		J.-J. Cournioux						
EXPERIMENTAL VALUES:								
j	t/°C	molality NaCl mol kg ⁻¹	mass % (compiler)	solid phase				
-0.0092	-0.0031	0.000819	0.00479	ice				
0.0092	-0.0069	0.001866	0.01090	"				
0.0192	-0.0187	0.005120	0.02991	"				
0.0265	-0.0311	0.008605	0.05026	"				
0.0334	-0.0486	0.013540	0.07907	"				
0.0445	-0.0804	0.022648	0.13218					
0.0468	-0.1186	0.033489	0.19533	"				
0.0553	-0.1928	0.054924	0.31996	"				
0.0628	-0.2746	0.078838	0.45863	"				
0.0668	-0.3596	0.10371	0.60245	"				
0.0710	-0.4342	0.12579	0.72978	"				
0.0743	-0.5423	0.15765	0.91293	"				
0.0775	-0.6411	0.18703	1.0812	"				
0.0803	-0.7627	0.22318	1.2875	"				
0.0831	-0.9334	0.27394	1.5757	"				
0.0863	-1.2051	0.35492	2.0321	"				
0.0881	-1.40797	0.41547	2.3705	"				
0.0884	-1.4692	0.43370	2.4720	"				
0.0892	-1.6447	0.48597	2.7617	"				
0.0899	-1.7947	0.53070	3.0082	"				
0.0902	-2.0000	0.59159	3.3418	"				
0.0908	-2.1912	0.64857	3.6520	"				
0.0907	-2.4503	0.72518	4.0658	"				
0.0907	-2.7072	0.80120	4.4729	"				
0.0894	-3.0499	0.90133	5.0040	"				
0.0884	-3.3825	0.99853	5.5138	"				
0.0862	-3.9186	1.1540	6.3181	"				
0.0845	-4.3457	1.2774	6.9468	"				
COMMENTS: The Lewis and Randall function j is defined as: j = 1 - ($\Delta T/K$)/3.716(m/mol kg ⁻¹), where ΔT is the freezing point depression and m the molality.								
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
The freezing points were measured by the "equilibrium method" and the concentration was determined by conductance as described in previous papers (1) and (2), except that nitrogen was always passed through an ice-water mixture to cool it before it was bubbled through the solution.	NaCl (C.P.) was dissolved in water, precipitated by HCl gas, washed, dried at 200°C and melted. The water used was distilled from a new Kraus type still.							
ESTIMATED ERROR:								
For more dilute solutions than 0.01 mol kg ⁻¹ , average deviation corresponds to about 0.00003K.								
REFERENCES:								
1. Scatchard, G.; Jones, P.T.; Prentiss, S.S. <i>J. Am. Chem. Soc.</i> <u>1932</u> , 54, 2690.								
2. Scatchard, G.; Prentiss, S.S. <i>J. Am. Chem. Soc.</i> <u>1932</u> , 54, 2696.								

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]		Taylor, H.S.; Caley, E.R.; Eyring, H.	
(2) Water; H ₂ O; [7732-18-5]		J. Am. Chem. Soc. 1933, 55, 4334.	
VARIABLES:		PREPARED BY:	
T/K = 298		J.W. Lorimer	
EXPERIMENTAL VALUES:			
t/°C 25	mass ratio NaCl/H ₂ O 0.359	mass % (compiler) 26.4	solid phase NaCl
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE The isothermal saturation method was used. Analysis was by evaporation of a weighed sample to dryness.	SOURCE AND PURITY OF MATERIALS: No information available.		
		ESTIMATED ERROR: Temperature: precision probably within ±0.1 K (compiler). Solubility: precision > 1 % (authors).	
		REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium Chloride; NaCl; [7647-14-5]		Akhumov, E.I.; Golovkov, M.P.	
(2) Water; H ₂ O; [7732-18-5]		<i>Zh. Obshch. Khim.</i> <u>1935</u> , 5(4), 500-9.	
VARIABLES:		PREPARED BY:	
T/K = 288		J.-J. Counioux	
EXPERIMENTAL VALUES:			
t/°C	mass % NaCl	refractive index	solid phase
15	26.35	1.3826	NaCl
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
The solubility was determined by the synthetic method. The refractive indexes of solutions were plotted vs concentration. A sample of saturated solution was also analyzed.		Not stated.	
ESTIMATED ERROR:		No estimates possible.	
REFERENCES:			
COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]		Akerlof, G.; Turck, H.E.	
(2) Water; H ₂ O; [7732-18-5]		<i>J. Amer. Chem. Soc.</i> <u>1935</u> , 57, 1746-50.	
VARIABLES:		PREPARED BY:	
T/K = 298		J.-J. Counioux	
EXPERIMENTAL VALUES:			
t/°C	molality mol/kg	mass %	solid phase
25	6.162 ^a	26.477	NaCl
^a mean of 2 determinations			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Water and salt were introduced into glass-stoppered Pyrex bottles and the mixture was stirred over a period of 20 h. Samples of saturated solution were weighed, evaporated to dryness and the residue of pure salt was weighed.		The "analyzed" NaCl was recrystallized and dried.	
ESTIMATED ERROR:		Temperature: ±0.01K	
REFERENCES:			

COMPONENTS:		ORIGINAL MEASUREMENTS:									
(1) Sodium chloride; NaCl; [7647-14-5]		Obukhov, A.P.; Mikhailova, M.N. <i>Zh. Prikl. Khim.</i> <u>1935</u> , 8, 1148-51.									
(2) Water; H ₂ O; [7732-18-5]											
VARIABLES:		PREPARED BY:									
$T/K = 298, 378$		R. Cohen-Adad									
EXPERIMENTAL VALUES:											
<table> <thead> <tr> <th>$t/^\circ C$</th><th>mass %</th><th>solid phase</th></tr> </thead> <tbody> <tr> <td>25</td><td>26.40</td><td>NaCl</td></tr> <tr> <td>105</td><td>28.25</td><td>NaCl</td></tr> </tbody> </table>			$t/^\circ C$	mass %	solid phase	25	26.40	NaCl	105	28.25	NaCl
$t/^\circ C$	mass %	solid phase									
25	26.40	NaCl									
105	28.25	NaCl									
AUXILIARY INFORMATION											
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:										
Isothermal method. Equilibrium was reached in 2-3 h at 25°C and in 30 min. at 105°C. At 105°C, samples were drawn into glass tubes and allowed to solidify. The tubes were then washed out and the contents analyzed for Cl by Volhard titration. Solid phases in the system Na ₃ PO ₄ -NaCl-H ₂ O were determined by the wet residue method.	No information given.										
	ESTIMATED ERROR:										
	No estimates possible.										
	REFERENCES:										

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Sodium chloride, NaCl; [7647-14-5]		Schroeder, W.C.; Gabriel, A.; Partridge, E.P.				
(2) Water; H ₂ O; [7732-18-5]		J. Am. Chem. Soc. <u>1935</u> , 57, 1539-46.				
VARIABLES:		PREPARED BY:				
T/K = 423-623		J.-J. Counioux				
EXPERIMENTAL VALUES:						
t/°C	mass ratio NaCl/H ₂ O	mass % (compiler)	solid phase			
150	0.420	29.6	NaCl			
173	0.436	30.4	"			
200	0.462	31.6	"			
225	0.497	33.2	"			
250	0.520	34.2	"			
300	0.649 ^a	39.4	"			
300	0.609	37.8	"			
350	0.724	42.0	"			
^a value high (authors)						
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Solubility determinations were made in nickel bombs which were rotated end over end in an air thermostat. The bombs were of the type developed and used by Waldeck et al. (1). The bomb containing the mixture was placed in the thermostat and rotated at the desired temperature for 12 to 48 h. Before sampling the bomb was allowed to stand upright for at least 30 min to settle out the suspended solid. Chloride was determined by titration with silver nitrate using potassium chromate as indicator.	NaCl: Baker C.P. Analyzed					
ESTIMATED ERROR:						
Temperature: precision within ±2 K						
REFERENCES:						
1. Waldeck, W.F.; Lynn, G.; Hill, A.E. J. Am. Chem. Soc. <u>1932</u> , 54, 928; <u>1934</u> , 56, 43.						

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]	Yarluikov, M.M.
(2) Water; H ₂ O; [7732-18-5]	Zhur. Prikl. Khim. (Leningrad) <u>1935</u> , 7, 902-5.

VARIABLES:	PREPARED BY:
T/K = 263-353	J.-J. Couniouux

EXPERIMENTAL VALUES:																																														
<table> <thead> <tr> <th>t/°C</th> <th>100 x mass ratio NaCl/H₂O</th> <th>mass %</th> <th>relative density</th> <th>solid phase</th> </tr> </thead> <tbody> <tr> <td>-10</td> <td>33.09</td> <td>24.86</td> <td>1.1898</td> <td>NaCl·2H₂O^a</td> </tr> <tr> <td>0</td> <td>35.17</td> <td>26.02</td> <td>1.2020</td> <td>NaCl</td> </tr> <tr> <td>10</td> <td>35.36</td> <td>26.12</td> <td>1.1994</td> <td>"</td> </tr> <tr> <td>20</td> <td>35.50</td> <td>26.20</td> <td>1.201</td> <td>"</td> </tr> <tr> <td>35</td> <td>36.16</td> <td>26.56</td> <td>1.1910</td> <td>"</td> </tr> <tr> <td>50</td> <td>36.75</td> <td>26.87</td> <td>1.1900</td> <td>"</td> </tr> <tr> <td>65</td> <td>37.03</td> <td>27.02</td> <td>1.1920</td> <td>"</td> </tr> <tr> <td>80</td> <td>37.42</td> <td>27.23</td> <td>1.1926</td> <td>"</td> </tr> </tbody> </table>	t/°C	100 x mass ratio NaCl/H ₂ O	mass %	relative density	solid phase	-10	33.09	24.86	1.1898	NaCl·2H ₂ O ^a	0	35.17	26.02	1.2020	NaCl	10	35.36	26.12	1.1994	"	20	35.50	26.20	1.201	"	35	36.16	26.56	1.1910	"	50	36.75	26.87	1.1900	"	65	37.03	27.02	1.1920	"	80	37.42	27.23	1.1926	"	
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^a compiler

AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Isothermal method.	Not stated.
	<p>ESTIMATED ERROR:</p> <p>Temperature: ±0.1 K</p> <p>REFERENCES:</p>

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]	Benrath, A.; Gjedebo, F.; Schiffers, B.; Wunderlich, H.
(2) Water; H ₂ O; [7732-18-5]	Z. Anorg. Allg. Chem. <u>1937</u> , 231, 285-97.
VARIABLES:	PREPARED BY:

T/K = 558-728

J.-J. Couniouux

EXPERIMENTAL VALUES:

t/°C	mass %	SOLID PHASE
285	36.1	NaCl
301	37.3	"
334	40.6	"
356	42.6	"
364	43.3	"
384	45.1	"
388	45.6	"
409	47.5	"
430	49.1	"
455	51.3	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Salt and water were introduced into a small diameter glass tube which was stirred during heating. The temperature was read when the last crystal disappeared.	Not stated.
	ESTIMATED ERROR:
	No estimates possible.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]		Restaino, S.
(2) Water; H ₂ O; [7732-18-5]		<i>Int. Congr. Pure Appl. Chem.</i> [Proc.], 10th <u>1938</u> , 2, 761-6.
VARIABLES:		PREPARED BY:
T/K = 298-373		J.-J. Counioux
EXPERIMENTAL VALUES:		
<i>t/°C</i>	mass %	solid phase
25	26.44	NaCl
50	26.90	"
100	28.23	"
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:	
The method of Noyes (1) was used at 25 and 50°C, and the method of Meyerhoffer and Saunders (2) at 100°C.	Not stated.	
Mixtures were introduced into Jena glass bottles and stirred in a thermostat for many days. Samples of saturated solution were removed and chloride was determined by Volhard's method.	ESTIMATED ERROR:	
	Temperature: ±0.1 K	
	REFERENCES:	
	1. Noyes, A.A. <i>Z. Phys. Chem., Stoechiom. Verwandtschaftsl.</i> <u>1892</u> , 10, 603.	
	2. Meyerhoffer, W.; Saunders, A.P. <i>Z. Phys. Chem., Stoechiom. Verwandtschaftsl.</i> <u>1899</u> , 28, 451.	

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]	Zaslavskii, A.I.; Sinani, S.S.; Sokolova, L.A.	
(2) Water; H ₂ O; [7732-18-5]	Izv. Akad. Nauk SSSR, Otdel. Khim. Nauk 1938, 47, 68.	
VARIABLES:	PREPARED BY:	
T/K = 268	J.-J. Counioux	
EXPERIMENTAL VALUES:		
t/°C	mass %	solid phase
-5	17.83	$\text{NaCl} \cdot 2\text{H}_2\text{O}$
-5	24.60	"
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS: Not stated.	
	ESTIMATED ERROR: No estimates possible.	
	REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:												
(1) Sodium chloride; NaCl; [7647-14-5]		Eddy, R.D.; Menzies, A.W.C. <i>J. Phys. Chem.</i> <u>1940</u> , 44, 207-35.												
(2) Water; H ₂ O; [7732-18-5]														
VARIABLES:		PREPARED BY:												
T/K = 375, 442		J.W. Lorimer												
EXPERIMENTAL VALUES:														
<table> <thead> <tr> <th>t/°C</th> <th>molality m./mol kg⁻¹</th> <th>mass % (compiler)</th> <th>solid phase</th> </tr> </thead> <tbody> <tr> <td>101.9</td> <td>6.69</td> <td>28.1</td> <td>NaCl</td> </tr> <tr> <td>168.3</td> <td>7.54</td> <td>30.6</td> <td>"</td> </tr> </tbody> </table>			t/°C	molality m./mol kg ⁻¹	mass % (compiler)	solid phase	101.9	6.69	28.1	NaCl	168.3	7.54	30.6	"
t/°C	molality m./mol kg ⁻¹	mass % (compiler)	solid phase											
101.9	6.69	28.1	NaCl											
168.3	7.54	30.6	"											
AUXILIARY INFORMATION														
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:													
The synthetic method, in the form used by Menzies (1), was used. The apparatus consists of a sealed tube containing salt and water, with the water contained in a calibrated side-arm which can be sealed off from the rest of the apparatus by a trap containing a sealant which can be melted. Correction is made for the mass of solvent in the vapor phase.	NaCl: made by ppt. with HCl (Grasselli reagent) from a sln of Na ₂ CO ₃ , then 2x recryst., dried by heating to incipient fusion for 20 min. Water: redistilled, air-free, conductivity 5.3×10^{-6} S cm ⁻¹ .													
ESTIMATED ERROR:														
Temperature: precision probably within ± 0.2 K (compiler). Solubility: estimated precision ± 1 %; similar accuracy claimed.														
REFERENCES:														
1. Menzies, A.W.C. <i>J. Am. Chem. Soc.</i> <u>1936</u> , 58, 934.														

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Sodium chloride; NaCl; [7647-14-5]		Keevil, N.B.						
(2) Water; H ₂ O; [7732-18-5]		J. Am. Chem. Soc. <u>1942</u> , 64, 841-50.						
VARIABLES:		PREPARED BY:						
T/K = 456-919 p/MPa = 0.7 - 37		J.-J. Counioux						
EXPERIMENTAL VALUES:								
t/°C	vapor pressure /atm	NaCl mol fraction	mass % (compiler)	method				
183.0	7.27	0.120	30.7	h				
205.1	11.76	0.124	31.5	c				
230.2	19.29	0.130	32.6	h				
246.7	25.08	0.135	33.6	c				
254.6	27.51	0.138	34.2	h				
299.3	56.03	0.155	37.3	h				
327.3	78.50	0.169	39.7	c				
344.4	96.29	0.178	41.3	h				
354.3	106.4	0.183	42.1	c				
385.7	145.0	0.205	45.6	c				
410.0	178.9	0.217	47.3	h				
442.5	230.1	0.238	50.3	c				
467.5	269.0	0.251	52.1	h				
485.5	294.4	0.270	54.5	c				
514.2	335.1	0.285	56.4	h				
550.5	370.1	0.335	62.0	h				
600.0	388.7	0.411	69.4	h				
646.2	368.5	0.505	76.8	h				
c - temperature was reached by cooling h - " " " " heating								
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
The experimental system was described by Benedict (1,2). Salt and water were confined in a steel bomb by means of mercury. Foreign gases were removed previously by boiling and pumping. Temperature was measured by means of a Pt:Pt-10% Rh thermocouple sealed in Pyrex glass. Pressure measurements were made with a dead-weight piston gauge of the Bridgman type (3) standardized against the vapor pressure of carbon dioxide at 0°C and 34.4009 atm. The procedure consisted of making a series of pressure-volume measurements at each of several temperatures. The volume of the salt-water system in the bomb was controlled by means of mercury and a screw-compressor. When the solid phase disappeared before the boiling point was reached, a discontinuity in slope was observed. This change at the disappearance of salt gave the solubility.	Sodium chloride, Mallinckrodt analytical reagent, was dissolved in distilled water and precipitated with washed dry HCl. After filtering and pressing between filter paper, the crystals were dried for 24 h at 450°C.							
ESTIMATED ERROR:								
No estimates possible.								
REFERENCES:								
1. Benedict, M. J. Geol. <u>1939</u> , 47, 252. 2. Benedict, M. Rev. Sci. Inst. <u>1937</u> , 8, 252. 3. Bridgman, P.W. Proc. Am. Acad. Arts Sci. <u>1909</u> , 44, 201.								

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Sodium Chloride; NaCl; [7647-14-5]		Gehlen, H.; Dieter, H.		
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem. (Leipzig) 1950, 196, 258-77.		
VARIABLES:		PREPARED BY:		
p/MPa = 0-1000		J.-J. Couniouux		
EXPERIMENTAL VALUES:				
t/°C		p/atm	mass %	solid phase
			a b	
25		1	26.42	NaCl
		1000	27.2	"
		2000	27.8	"
		3000	28.8	"
		4000	29.4	"
		5000	30.1	"
		6000	30.5	"
		7000	31.1	"
		8000	31.9	"
		9000	32.2	"
		10000	32.7	"
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:		
Solubilities under pressure were calculated from density and vapor pressure data under atmospheric pressure using Tamman's assumption (1) on the coincidence pressure and the compressibility coefficient of solid chloride.		Not stated.		
		ESTIMATED ERROR:		
		No estimates possible.		
		REFERENCES:		
		1. Tammann, G. Über die Beziehungen zwischen den inneren Kräften und Eigenschaften der Lösungen. Leopold Voss. Hamburg, Leipzig. 1907.		

COMPONENTS:										ORIGINAL MEASUREMENTS:									
(1) Sodium chloride; NaCl; [7647-14-5]										Olander, A.; Liander, H. Acta Chim. Scand. 1950, 4, 1437-45.									
(2) Water; H ₂ O; [7732-18-5]																			
VARIABLES:										PREPARED BY:									
T/K = 623-748 p/bar = 170-400										J.W. Lorimer									
EXPERIMENTAL VALUES:																			
Pressures (kg cm ⁻²) at which a phase exists containing the amount of salt (mass %, 100w ₁) shown in the first column. The critical pressures (p _c /kg cm ⁻²) are given on the second line, and the line through the table indicates the location of the critical states.																			
t/°C	350	360	370	380	390	400	410	420	430	440	450	460	470	475					
p _c /kg cm ⁻²				240	262	286	313	343	373	405	436								
0	169	194	215																
0.005		149	154	159	163	166	169	171											
0.01		172	178	184	190	194	198	202	205	208									
0.02		193	199	206	213	220	226	231	236	241									
0.03		206	211	218	227	234	241	248	254	259	267								
0.05		220	226	234	243	252	261	269	277	285	296								
0.1		234	242	253	264	275	286	297	308	318	334								
0.2		240	254	268	283 ^a	297	311	325	338	352	372								
0.5	167	189	213	240	260	280	301	321	341	361	379	396							
1.0	166	187	211	236	262	284	309	333	358	382									
2.0	163	184	208	234	262	286	313	340	368	396									
5.0	157	178	201	226	254	283	313	343	373	403									
10	148	169	192	216	244	284	305	338	371	405									
15	140	161	184	208	233	261	291	324	369	395									
20	133	154	176	199	222	248	277	309	341	376									
25	127	147	168	189	211	235	260	289	321	356									
satd	113	127	141	155	169	183	198	213	227	243	258	273	297						

^a Authors give 233, which is clearly a typographical error (compiler).

COMMENTS AND ADDITIONAL DATA: The above data have been smoothed from the basic data for salt content of the upper phase as a function of pressure at a given temperature. Plots of these data also gave the critical curve (not given here). The compiler finds that $\ln(100w_1)$ is linear (higher temps.) or quadratic (lower temps.) in p for each temp., and the pressures of the satd. slns. from the table then give, with least-square fits, the compositions of the vapor (mass % NaCl, u_1) in the three-phase S-L-G system, as follows:

t/°C	380	390	400	410	420	430	440	450	460	475
100u ₁	0.0060	0.0076	0.0098	0.013	0.017	0.021	0.027	0.033	0.039	0.051
p/bar	155	165	180	195	210	225	239	253	268	288

Similar calculations were made by Bischoff et al. (1), who, however, do not explain their method clearly, and give only graphical results.

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Sodium chloride; NaCl; [7647-14-5]		Blidin, V.P.		
(2) Water; H ₂ O; [7732-18-5]		Dokl. Akad. Nauk SSSR <u>1953</u> , 88, 451-9.		
VARIABLES:		PREPARED BY:		
$T/K = 313$		M. Ferriol		
EXPERIMENTAL VALUES:				
$t/^\circ C$	mass %	solid phase		
40	26.65	NaCl		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Isothermal method. Saturation was obtained by adding weighed amounts of salt to unsaturated solution. A sample of clear solution was weighed and analyzed.	No information given.			
ESTIMATED ERROR:				
REFERENCES:				

COMPONENTS:	ORIGINAL MEASUREMENTS:										
(1) Sodium chloride; NaCl; [7647-14-5] (2) Water; H ₂ O; [7732-18-5]	Labash, J.A.; Lusby, G.R. Can. J. Chem. 1955, 33, 774-86.										
VARIABLES: T/K = 293, 333	PREPARED BY: J.-J. Cournioux										
EXPERIMENTAL VALUES:											
<table> <thead> <tr> <th>t/°C</th> <th>mass %</th> <th>solid phase</th> </tr> </thead> <tbody> <tr> <td>20</td> <td>26.36</td> <td>NaCl</td> </tr> <tr> <td>60</td> <td>27.03</td> <td>"</td> </tr> </tbody> </table>			t/°C	mass %	solid phase	20	26.36	NaCl	60	27.03	"
t/°C	mass %	solid phase									
20	26.36	NaCl									
60	27.03	"									
AUXILIARY INFORMATION											
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:										
The isothermal method was used. Solutions were sampled by allowing salts to settle and then quickly drawing a sample into a pipet heated above room temperature. A short length of glass tubing containing a wad of absorbent cotton was attached by a rubber tube to the lower end of the pipet. Chloride was analyzed volumetrically using AgNO ₃ in excess and back titrating. Na was determined by converting to the sulphate and heating to constant weight.	NaCl: A.R. grade										
ESTIMATED ERROR:											
Temperature: ±0.1 K Solubility: ±0.004 mass %											
REFERENCES:											

COMPONENTS:	ORIGINAL MEASUREMENTS:							
(1) Sodium chloride; NaCl; [7647-14-5] (2) Water; H ₂ O; [7732-18-5]	Blidin, W.P. Zh. Obshch. Khim. 1956, 26, 1281-5; *J. Gen. Chem. USSR (Engl. Transl.) 1956, 26, 1449-52.							
VARIABLES: T/K = 298	PREPARED BY: M.-T. Saugier							
EXPERIMENTAL VALUES:								
<table> <thead> <tr> <th>t/°C</th> <th>mass %</th> <th>solid phase</th> </tr> </thead> <tbody> <tr> <td>25</td> <td>26.50</td> <td>NaCl</td> </tr> </tbody> </table>			t/°C	mass %	solid phase	25	26.50	NaCl
t/°C	mass %	solid phase						
25	26.50	NaCl						
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:							
The isothermal method was used. The solution with excess solid phase was placed in a reaction vessel with an oil seal and stirred until equilibrium had been achieved. Chloride ion was determined gravimetrically in saturated solution.	C.P. grade salt, 2x recrystallized, was used.							
ESTIMATED ERROR:								
Temperature: ±0.1 K								
REFERENCES:								

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Sodium chloride; NaCl; [7647-14-5]		Nallet, A. Thesis. Lyon (France). no. 209 <u>1955.</u>						
(2) Water; H ₂ O; [7732-18-5]		Nallet, A.; Paris, R.A. Bull. Soc. Chim. Fr. <u>1955</u> , 94, 488-97.						
VARIABLES:		PREPARED BY:						
T/K = 252-373		J.-J. Couniouux						
EXPERIMENTAL VALUES:								
t/°C	mass %	100 x mass ratio NaCl/H ₂ O	relative density	solid phases				
-21.25	23.19	30.19	1.191	ice + NaCl·2H ₂ O ^a				
-19.2	21.8	27.88	1.179	ice				
-19.2	23.42	30.58	1.193	NaCl·2H ₂ O				
-9.8	13.73	15.92	1.1075	ice				
-9.8	24.86	33.08	1.2015	NaCl·2H ₂ O				
0	26.26	35.6	1.209	NaCl + NaCl·2H ₂ O ^b				
10	26.35	35.78	1.2047	NaCl				
30	26.53	36.11	1.1957	"				
50	26.84	36.69	1.187	"				
70	27.28	37.51	1.178	"				
100	28.13	39.14	1.168	"				
<hr/>								
a eutectic point								
b peritectic point								
COMMENTS: Only graphical data are given in the paper in Bull. Soc. Chim. Fr.								
<hr/>								
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
Solubility was measured at fixed temperatures. The salt was previously dissolved by heating the mixture. The mixtures were stirred in a thermostat for 36 h above 70°C and for 4 d at -20°C. A sample of clear solution was removed and analyzed for chloride by potentiometric titration with AgNO ₃ . Densities were measured with a pyknometer. Eutectic and peritectic temperatures were determined by thermal analysis.	Na ₂ CO ₃ , 2x recrystallized, was neutralized by very pure HCl. The NaCl was precipitated from solution by means of HCl gas, then washed and dried at 120°C. Impurities were lower than 0.1%.							
<hr/>								
ESTIMATED ERROR:								
Temperature: ±0.02 K in the range 10 to 40°C; ±0.05 K below 10°C or above 40°C								
Cl ⁻ : 0.2 to 0.3% (potentiometric titration)								
K ⁺ : 0.5 to 1% according to the method (chemical analysis or spectrophotometry)								
<hr/>								
REFERENCES:								
<hr/>								

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Sodium chloride; NaCl; [7647-14-5]		Akhumov, E.I.; Pylkova, E.V.		
(2) Water; H ₂ O; [7732-18-5]		Ber. Akad. Wiss. USSR 1956, 108, 857-60; Freiberger Forsch. 1959, 123(A), 251-6.		
VARIABLES:		PREPARED BY:		
T/K = 299-509		J.-J. Counioux		
EXPERIMENTAL VALUES:				
<i>t</i> /°C	mass % NaCl	solid phase		
26	26.46	NaCl		
48	26.75	"		
73	27.35	"		
100	28.20	"		
106	28.39	"		
121	28.88	"		
132	29.23	"		
145	29.65	"		
149	29.78	"		
163	30.27	"		
179	30.85	"		
208	32.01	"		
218	33.39	"		
236	33.17	"		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Synthetic method: a solution with an excess of salt was placed in a sealed tube. The temperature of disappearance of the last crystal on heating and of appearance on cooling (supersaturated solution) were observed.	Chemically pure salt was recrystallized 3x and dried to constant weight.			
ESTIMATED ERROR:				
Temperature: ±0.5 to 1 K.				
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Sodium Chloride; NaCl; [7647-14-5]		Magdin, W.M.; Swales, D.A.		
(2) Water; H ₂ O; [7732-18-5]		<i>J. Appl. Chem.</i> <u>1956</u> , 6, 482-7.		
VARIABLES:		PREPARED BY:		
T/K: 298, 308		J.W. Lorimer		
EXPERIMENTAL VALUES:				
<i>t</i> /°C	100 x mass ratio NaCl/H ₂ O	mass % (compiler)	density g cm ⁻³	solid phase
25	35.96	26.45	1.1984	NaCl
35	36.02	26.48	1.1935	"
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Salt and water were rotated in sealed sample bottles in a thermostat. Equilibrium was reached, according to density measurements, within 60 hours. Samples of saturated solution were removed in calibrated pipets fitted with sintered glass filters. Analyses were for Cl by Mohr titration.	NaCl: Analar grade			
	ESTIMATED ERROR:			
	Temperature: ±0.01K			
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]		Makin, A.V. <i>Zh. Neorg. Khim.</i> <u>1957</u> , 2, 2794-6; <i>J. Inorg. Chem., USSR (Engl. Transl.)</i> <u>1957</u> , 2 [12], 182-6.
VARIABLES:		PREPARED BY:
$T/K = 298$		R. Cohen-Adad
EXPERIMENTAL VALUES:		
$t/^\circ C$	mass %	solid phase
25	26.42	NaCl
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:
Isothermal method. Gravimetric analyses. No further information given.		No information given.
		ESTIMATED ERROR:
		No estimates possible.
		REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]		Karnaughov, A.S.
(2) Water; H ₂ O; [7732-18-5]		<i>Izv. Vyssh. Uch. Zav. Khim. Khim. Tekhnol.</i> <u>1958</u> , 3, 34-9.
VARIABLES:		PREPARED BY:
$T/K = 293$		R. Cohen-Adad
EXPERIMENTAL VALUES:		
$t/^\circ C$	mass %	solid phase
20	26.50	NaCl
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:
Isothermal method. Equilibrium was reached in 2 d. Na was detd. by Mohr titration.		NaCl: C.P. salt recryst. 2X; purity 99.4-99.6%.
		ESTIMATED ERROR:
		No estimates possible.
		REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium Chloride; NaCl; [7647-14-5]	Plyushchnev, V.E.; Tulinova, V.B.; Kuznetsova, G.P.; Korovin, S.S.; Shipetina, N.S.
(2) Water; H ₂ O; [7732-18-5]	Zh. Neorg. Khim. 1957, 2, 2654-60; *Russ. J. Inorg. Chem. (Engl. Transl.) 1957, 2, 267-75.
VARIABLES:	PREPARED BY:
T/K = 298 - 348	J.-J. Couniouux

EXPERIMENTAL VALUES:

t/°C	mass %	relative density
25	26.58	1.199
50	26.77	1.181
75	27.24	1.181

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The isothermal method was used. It was found that equilibrium was established at 25°C in 12 d, at 50°C in 7 d, and at 75°C in 5 d. Samples were removed by a pipet, the end of which was fitted with a cotton filter. The concentrations of salts in the solution were calculated from chemical analysis.	Chemically pure, 2x crystallized NaCl was used.
ESTIMATED ERROR:	Temperature: ±0.1K
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]	(2) Water; H ₂ O; [7732-18-5]	Lepeshkov, I.N.; Fradkina, Kh.B. <i>Zh. Neorg. Khim.</i> 1959, 4, 2803-11; * <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> 1959, 4, 1297-1401.
VARIABLES:		PREPARED BY:
T/K = 308		J.W. Lorimer
EXPERIMENTAL VALUES:		
t/°C	mass %	solid phase
35	26.76	NaCl
ADDITIONAL DATA: By differential thermal analysis, the authors found the melting point of NaCl to be 801°C.		
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	Samples were equilibrated in a thermostat. Equilibrium times were 25-35 d. Equilibrium liquids were sampled using a heated pipet fitted with a cotton wool filter tip. Cl was determined by Volhard titration of both the solution phase and the residue. Compositions of solid phases were confirmed by optical methods and by differential thermal analysis.	SOURCE AND PURITY OF MATERIALS: NaCl was recrystallized twice.
		ESTIMATED ERROR: Temperature: precision within ±0.05 K.
		REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium Chloride; NaCl; [7647-14-5]	Slovinskaya, W.M.; Mukimov, S.M.
(2) Water; H ₂ O; [7732-18-5]	Uzb. Khim. Zh. 1959, 2, 12-20.
VARIABLES:	PREPARED BY:

T/K = 298 - 348

J.-J. Counioux

EXPERIMENTAL VALUES:

t/°C	100 mass ratio NaCl/H ₂ O	mass %	relative density	solid phase
0	34.23	26.25	1.2090	NaCl
25	35.30	26.60	1.2053	"
50	36.74	26.87	1.1928	"
75	37.93	27.50	1.1936	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The method is described in (1,2).	Not stated.
	ESTIMATED ERROR:
	No estimates possible.
	REFERENCES:
	1. Mukimov, S.M.; Bodaghina, V.M. Uzb. Khim. Zh. 1948, 3.
	2. Slovinskaya, W.M.; Mukimov, S.M. Uzb. Khim. Zh. 1956, 11.

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Sodium chloride; NaCl; [7647-14-5]		Zhuravlev, E.F.; Bychkova, M.N.		
(2) Water; H ₂ O; [7732-18-5]		Zh. Neorg. Khim. 1959, 4, 2367-75; *Russ. J. Inorg. Chem. (Engl. Transl.) 1959, 4, 1082-7.		
VARIABLES:		PREPARED BY:		
T/K = 278-323		J.-J. Counioux		
EXPERIMENTAL VALUES:				
t/°C	mass %	solid phase		
5	26.2	NaCl		
25	26.5	"		
50	26.9	"		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Solubility was determined by use of the graphical method known as the isothermal method of sections and used in the investigation of individual phase equilibria (1,2). Its application to water-salt systems was demonstrated by Merts- lin and Krupatkin (3).	NaCl was recrystallized and dried over anhydrous CaCl ₂ .			
ESTIMATED ERROR:				
No estimates possible.				
REFERENCES:				
1. Mertslin, R.V. Izv. Nauch. Issled. Inst. Perm. Gos. Univ. 1937, 11 (1,2), 1; Uchen. Zap. Perm. Univ. 1939, 3 (4), 37. 2. Mochalov, K.I. Zh. Obshch. Khim. 1939, 9, 1701. 3. Mertslin, R.V.; Krupatkin, I.L. Zh. Obshch. Khim. 1940, 10, 22.				

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]	Akhumov, E.I.; Pylkova, E.V.
(2) Water; H ₂ O; [7732-18-5]	Zh. Neorg. Khim. 1960, 5, 1819-27; *Russ. J. Inorg. Chem. (Engl. Transl.) 1960, 5, 882-6.
VARIABLES:	PREPARED BY:
T/K = 323-373	J.-J. Counioux

EXPERIMENTAL VALUES:

t/°C	mass %		solid phase
	a	b	
50	26.80	29.00	NaCl
75	27.45	29.80	"
100	28.20	30.70	"

^a stable solution^b metastable solution

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Solutions containing particular ratios of components were heated or cooled in sealed glass tubes.	NaCl: 3X recrystallized H ₂ O: freshly distilled
	ESTIMATED ERROR: Temperature: precision within ±0.5-1 K
	REFERENCES:

COMPONENTS:			ORIGINAL MEASUREMENTS:																																																																																																
(1) Sodium chloride; NaCl; [7647-14-5]			Sourirajan, S.; Kennedy, G.C. <i>Am. J. Science</i> 1962, 260, 115-41.																																																																																																
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$T/K = 493-982$			J.W. Lorimer																																																																																																
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I. Vapor pressures of solutions saturated with solid NaCl <table> <thead> <tr> <th>$t/^\circ C$</th> <th>vapor pressure p/bar</th> <th>$t/^\circ C$</th> <th>vapor pressure p/bar</th> <th>$t/^\circ C$</th> <th>vapor pressure p/bar</th> </tr> </thead> <tbody> <tr><td>707.0</td><td>269.5</td><td>425.8</td><td>222.0</td><td>313.2</td><td>75.6</td></tr> <tr><td>668.1</td><td>335.5</td><td>405.3</td><td>190.6</td><td>343.5</td><td>105.8</td></tr> <tr><td>609.3</td><td>389.5</td><td>386.2</td><td>161.6</td><td>375.0</td><td>146.5</td></tr> <tr><td>600.0</td><td>392.0</td><td>384.6</td><td>160.6</td><td>406.8</td><td>191.9</td></tr> <tr><td>577.5</td><td>390.0</td><td>363.5</td><td>131.2</td><td>438.8</td><td>240.0</td></tr> <tr><td>558.6</td><td>384.0</td><td>343.5</td><td>106.0</td><td>470.0</td><td>288.0</td></tr> <tr><td>555.3</td><td>381.5</td><td>323.0</td><td>84.8</td><td>501.9</td><td>332.2</td></tr> <tr><td>527.8</td><td>360.0</td><td>300.8</td><td>66.6</td><td>525.0</td><td>358.2</td></tr> <tr><td>504.4</td><td>334.5</td><td>279.3</td><td>52.0</td><td>560.0</td><td>384.0</td></tr> <tr><td>502.6</td><td>333.5</td><td>259.8</td><td>38.8</td><td>604.3</td><td>391.0</td></tr> <tr><td>488.9</td><td>314.5</td><td>219.5</td><td>21.5</td><td>610.0</td><td>388.0</td></tr> <tr><td>466.9</td><td>283.0</td><td>249.5</td><td>33.5</td><td>633.9</td><td>373.5</td></tr> <tr><td>465.0</td><td>281.0</td><td>280.0</td><td>51.0</td><td>675.0</td><td>326.2</td></tr> <tr><td>446.6</td><td>253.0</td><td>312.2</td><td>75.1</td><td>708.5</td><td>269.0</td></tr> <tr><td>444.3</td><td>250.5</td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	$t/^\circ C$	vapor pressure p/bar	$t/^\circ C$	vapor pressure p/bar	$t/^\circ C$	vapor pressure p/bar	707.0	269.5	425.8	222.0	313.2	75.6	668.1	335.5	405.3	190.6	343.5	105.8	609.3	389.5	386.2	161.6	375.0	146.5	600.0	392.0	384.6	160.6	406.8	191.9	577.5	390.0	363.5	131.2	438.8	240.0	558.6	384.0	343.5	106.0	470.0	288.0	555.3	381.5	323.0	84.8	501.9	332.2	527.8	360.0	300.8	66.6	525.0	358.2	504.4	334.5	279.3	52.0	560.0	384.0	502.6	333.5	259.8	38.8	604.3	391.0	488.9	314.5	219.5	21.5	610.0	388.0	466.9	283.0	249.5	33.5	633.9	373.5	465.0	281.0	280.0	51.0	675.0	326.2	446.6	253.0	312.2	75.1	708.5	269.0	444.3	250.5							
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II. Solubility of NaCl in the gas phase of the three-phase S-L-G system (From Tables 2 and 3 of the original paper; data on two-phase equilibria not compiled.)																																																																																																			
<table> <thead> <tr> <th>$t/^\circ C$</th> <th>p/bar</th> <th>mass % 100u,</th> <th>$t/^\circ C$</th> <th>p/bar</th> <th>mass % 100u,</th> </tr> </thead> <tbody> <tr><td>350</td><td>114</td><td>0.0026</td><td>500</td><td>330</td><td>0.0243</td></tr> <tr><td>360</td><td>127</td><td>0.0035</td><td>525</td><td>359</td><td>0.0292</td></tr> <tr><td>370</td><td>140</td><td>0.0046</td><td>550</td><td>379</td><td>0.0343^a</td></tr> <tr><td>380</td><td>153</td><td>0.0056</td><td>575</td><td>389</td><td>0.0380</td></tr> <tr><td>390</td><td>167</td><td>0.0068</td><td>600</td><td>392</td><td>0.0414</td></tr> <tr><td>400</td><td>182</td><td>0.0080</td><td>625</td><td>379</td><td>0.0744</td></tr> <tr><td>425</td><td>220</td><td>0.0115</td><td>650</td><td>356</td><td>0.1600</td></tr> <tr><td>450</td><td>259</td><td>0.0157</td><td>675</td><td>326</td><td>0.3815</td></tr> <tr><td>475</td><td>296</td><td>0.0200</td><td>700</td><td>287</td><td>0.9416</td></tr> </tbody> </table>						$t/^\circ C$	p/bar	mass % 100u,	$t/^\circ C$	p/bar	mass % 100u,	350	114	0.0026	500	330	0.0243	360	127	0.0035	525	359	0.0292	370	140	0.0046	550	379	0.0343 ^a	380	153	0.0056	575	389	0.0380	390	167	0.0068	600	392	0.0414	400	182	0.0080	625	379	0.0744	425	220	0.0115	650	356	0.1600	450	259	0.0157	675	326	0.3815	475	296	0.0200	700	287	0.9416																																		
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<u>General:</u> Equilibria were studied in a stellite bomb furnished with filling and sampling tubes and connected to a pressure system. Temperatures were measured with thermocouples calibrated to NBS standards, pressures with Bourdon gauges calibrated with free piston gauges. Compositions of samples withdrawn from the bomb were detd. by flame photometry or titration.	NaCl: analytical grade. H ₂ O: conductivity grade.																																																																																																		
ESTIMATED ERROR:	Temperature: precision $\pm 0.1 K$. Pressure: precision $\pm 2 \text{ bar}$ Composition: no estimates possible.																																																																																																		
REFERENCES:																																																																																																			
<u>I. V.P. of solutions saturated with solid NaCl.</u> Solid was placed in the bomb, then water was added in increments until further additions did not change the pressure, indicating 3-phase equilibrium. Eqm. times about 2 h, 6 h allowed, with at least 3 consistent readings at each T and p. <u>II. Solubility of NaCl in the 3-phase S-L-G system.</u> As above, but a sample was withdrawn after flushing the sampling tube. The pressure drop during sampling was $< 2 \text{ bar}$. At least two samples were taken.																																																																																																			

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Sodium chloride; NaCl; [7647-14-5]		Belyaev, I.N.; Le T'yuk <i>Zh. Neorg. Khim.</i> 1965, 10, 2355-8;			
(2) Water; H ₂ O; [7732-18-5]		[*] <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> 1965, 10, 1279-81.			
VARIABLES:		PREPARED BY:			
T/K = 298		J.-J. Counioux			
EXPERIMENTAL VALUES:					
t/°C	mass %	relative density	viscosity mPa s	conductivity S cm ⁻¹	solid phase
25	26.49	1.196	1.5766	0.159	NaCl
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:			
Isothermal method. With continuous mixing, equilibrium between solid and liquid phases was established in 8-10 h. Chlorine in saturated solution was determined by Volhard's volumetric method.		"Chemically pure" grade NaCl was recrystallized 2x from aqueous solution.			
		ESTIMATED ERROR:			
		Temperature: precision ±0.1 K			
		REFERENCES:			

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Sodium chloride; NaCl; [7647-14-5]		Belyaev, I.N.; Lobas, L.M. <i>Zh. Neorg. Khim.</i> 1965, 10, 946-9;			
(2) Water; H ₂ O; [7732-18-5]		[*] <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> 1965, 10, 512-4.			
VARIABLES:		PREPARED BY:			
T/K = 298		R. Tenu			
EXPERIMENTAL VALUES:					
t/°C	mass %	relative density	viscosity /mPa s	electrical conductivity S cm ⁻¹	solid phase
25	26.71	1.195	1.7099	0.133	NaCl
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:			
The solubility was determined by the isothermal method. Equilibrium between the liquid and solid phases was reached by continuous stirring for 8-10 h. Total chlorine was determined volumetrically by Volhard's method. The electrical conductivity of saturated solution was measured with a bridge, the viscosity in an Ostwald viscometer, and the density in a 5 ml pycnometer.		"Chemically pure" grade NaCl was recrystallized from aqueous solution.			
		ESTIMATED ERROR:			
		Temperature: precision within ±0.1K			
		REFERENCES:			

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Sodium Chloride, NaCl; [7647-14-5]		Zen, E-An <i>J. Petrol.</i> <u>1965</u> , 6, 124-64.						
(2) Water; H ₂ O; [7732-18-5]								
VARIABLES:		PREPARED BY:						
T/K: 308, 323		J.W. Lorimer						
EXPERIMENTAL VALUES:								
t/°C	100 x mass ratio NaCl/H ₂ O	mass % (compiler)	solid phase	method ^a				
35	362.01 362.18	26.579 26.588	NaCl "	u s				
50	363.70 365.00	26.670 26.740	"	u s				
^a from undersaturation ^b from supersaturation								
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
(a) From supersaturation. Unsaturated solutions were allowed to evaporate while being stirred in a thermostat. Equilibrium times were at least 3 weeks at 50°C and 2-3 months at 35°C. (b) From undersaturation. As above, but excess salt and water were stirred together. Samples were removed by gentle suction through a fritted filter dish into a Pyrex crucible. Analyses were by evaporation and final heating at 400°C.	NaCl: Baker Reagent Grade							
ESTIMATED ERROR:								
Temperature: ±0.5K; traceable to NBS standards. Solubility: precision ±0.5% on mass ratio (authors).								
REFERENCES:								

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5] (2) Water; H ₂ O; [7732-18-5]	Karnaikhov, A.S.; Kudryakova, S.A. <i>Uch. Zap. Yarosl. Gos. Ped. Inst.</i> <u>1966</u> , 59, 119-36.	
VARIABLES:	PREPARED BY:	
T/K = 298	R. Cohen-Adad	
EXPERIMENTAL VALUES:		
t/°C 25	mass % 26.45	solid phase NaCl
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE Isothermal method. Equilibrium was reached in 20-70 h. Na was detd. gravimetrically as NaZn uranyl acetate, Cl mercurimetrically.	SOURCE AND PURITY OF MATERIALS: NaCl: recryst. 2X; purity 95.6-99.8%	
	ESTIMATED ERROR: Temperature: precision ± 0.1 K.	
	REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5] (2) Water; H ₂ O; [7732-18-5]	Karnaikhov, A.S.; Troitskii, E.N. <i>Uch. Zap. Yarosl. Gos. Ped. Inst.</i> <u>1966</u> , 59, 8-21.	
VARIABLES:	PREPARED BY:	
T/K = 363	R. Cohen-Adad	
EXPERIMENTAL VALUES:		
t/°C 90	mass % 27.80	solid phase NaCl
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE Isothermal method. Na was detd. gravimetrically as NaZn uranyl acetate, Cl mercurimetrically.	SOURCE AND PURITY OF MATERIALS: No information given.	
	ESTIMATED ERROR: No estimates possible.	
	REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Sodium Chloride; NaCl; [7647-14-5]		Momicchioli, F.; Devoto, O.; Grandi, G.; Cocco, G.						
(2) Water; H ₂ O; [7732-18-5]		Atti Soc. Nat. Mat. Modena <u>1968</u> , 99, 226-32; Ber. Bunsen-Ges. Phys. Chem. <u>1970</u> , 74, 59-66.						
VARIABLES:		PREPARED BY:						
T/K: 262-273		J.-J. Couniou						
EXPERIMENTAL VALUES:								
t/°C (compiler)	molality m/mol kg ⁻¹	(ΔT/m) /K kg mol ⁻¹	mass % (compiler)	solid phase				
-0.0652	0.01781	3.66	0.104	ice				
-0.0872	0.02429	3.59	0.142	"				
-0.1431	0.04055	3.53	0.236	"				
-0.2048	0.05865	3.492	0.342	"				
-0.3415	0.09803	3.484	0.570	"				
-0.4508	0.13098	3.442	0.760	"				
-0.6093	0.17727	3.437	1.025	"				
-0.7812	0.22896	3.412	1.320	"				
-1.1193	0.32941	3.398	1.889	"				
-1.4549	0.42855	3.395	2.443	"				
-1.7319	0.51212	3.3818	2.906	"				
-2.0506	0.60816	0.60816	3.432	"				
-2.5638	0.75925	3.3767	4.249	"				
-3.2429	0.95847	3.3834	5.304	"				
-3.9058	1.15208	3.3902	6.308	"				
-5.0356	1.47439	3.4154	7.933	"				
-5.8682	1.70527	3.4412	9.063	"				
-7.0582	2.02904	3.4786	10.601	"				
-8.4987	2.40614	3.5321	12.328	"				
-10.1341	2.81542	3.5995	14.129	"				
-11.2064	3.07361	3.6460	15.228	"				
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
A precision apparatus for measuring freezing point depressions using the equilibrium method was set up as described in a previous paper (1). Temperatures were measured by a platinum resistance thermometer coupled with a Mueller bridge. A pneumatic stirrer was used. The concentration was determined by a Hilger-Rayleigh interferometer.	Merck "Suprapur" reagent, Cat. No. 6406.							
ESTIMATED ERROR:								
Temperature: ±3.10 ⁻⁴ K Molality: the absolute error was almost independent of concentration and was about 4-5.10 ⁻⁵ mol kg ⁻¹ .								
REFERENCES:								
1. Chiorboli, P.; Momicchioli, F.; Grandi, G. <i>Boll. sci. Fac. Chim. ind. Bologna</i> <u>1966</u> , 24, 133.								

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Sodium chloride; NaCl; [7647-14-5]		Urusova, M.A.; Ravich, M.I. <i>Zh. Neorg. Khim.</i> <u>1971</u> , <u>16</u> , 2881-3; <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> <u>1971</u> , <u>16</u> , 1534-5.			
(2) Water; H ₂ O; [7732-18-5]					
VARIABLES:		PREPARED BY:			
T/K = 623, 673		J.W. Lorimer			
EXPERIMENTAL VALUES:					
t/°C	vapor pressure ^a p/kgf cm ⁻² p/bar	solubility of NaCl mass % 100w,	mole fraction ^b x,	solid phase	
350	107.5	41.6	0.180	NaCl	
400	176	46.5	0.211	NaCl	
^a 1 kgf cm ⁻² = 0.980665 bar					
^b Mole fractions calculated by compiler.					
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS: No information available.				
Vapor pressures were measured in an autoclave with mercury seal by the method of P-V curves (1,2). Corrections were made for the salt dissolved in the vapor phase. The solubility was found from the break in the temperature-composition curve, where measurements extended into the three-phase region.	ESTIMATED ERROR: No estimates possible.				
	REFERENCES:				
	1. Urusova, M.A.; Ravich, M.I. <i>Zh. Neorg. Khim.</i> <u>1964</u> , <u>9</u> , 952; <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> <u>1964</u> , <u>9</u> , 353. 2. Ravich, M.I.; Borovaya, F.E.; Smirnova, E.G. <i>Zh. Neorg. Khim.</i> <u>1968</u> , <u>19</u> , <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> <u>1968</u> , <u>19</u> , 1000.				

COMPONENTS:		ORIGINAL MEASUREMENTS:									
(1) Sodium chloride; NaCl; [7647-14-5]		Ennan, A.A.; Lapshin, V.A. <i>Zh. Strukt. Khim.</i> <u>1973</u> , 14, 21-9; * <i>J. Chem. Struct. (Engl. Transl.)</i> <u>1973</u> , 14, 16-25.									
(2) Water; H ₂ O; [7732-18-5]											
VARIABLES:		PREPARED BY:									
T/K = 252		J.-J. Couniouux									
EXPERIMENTAL VALUES:											
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 25%;">t/°C</th> <th style="text-align: left; width: 25%;">molality $m_1/\text{mol kg}^{-1}$</th> <th style="text-align: left; width: 25%;">mass % (compiler)</th> <th style="text-align: left; width: 25%;">solid phase</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">-21.2</td> <td style="text-align: center;">3.93</td> <td style="text-align: center;">22.97</td> <td style="text-align: center;">eutectic: NaCl·2H₂O + ice</td> </tr> </tbody> </table>				t/°C	molality $m_1/\text{mol kg}^{-1}$	mass % (compiler)	solid phase	-21.2	3.93	22.97	eutectic: NaCl·2H ₂ O + ice
t/°C	molality $m_1/\text{mol kg}^{-1}$	mass % (compiler)	solid phase								
-21.2	3.93	22.97	eutectic: NaCl·2H ₂ O + ice								
AUXILIARY INFORMATION											
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:									
<p>The method is described in (1). Expts. were carried out in a cryostat designed to prevent supercooling and to permit visual observation of the formation of the first crystals. After preliminary heating and cooling, final cooling was carried out, using dry ice-heptane as coolant. Freezing points were detd. using totally-immersed Hg and alcohol thermometers.</p>		<p>NaCl: c.p. grade. Water: doubly-distilled.</p>									
		ESTIMATED ERROR:									
		No estimates possible.									
		REFERENCES:									
		(1) Ennan, A.A.; Lapshin, V.A. <i>Zh. Strukt. Khim.</i> <u>1972</u> , 13, 596.									

COMPONENTS:		ORIGINAL MEASUREMENTS:									
(1) Sodium chloride; NaCl; [7647-14-5]		Balarev, Kh.; Ketenev, D.H. <i>Dokl. Bolg. Akad. Nauk</i> <u>1975</u> , 28, 221-3.									
(2) Water; H ₂ O; [7732-18-5]											
VARIABLES:		PREPARED BY:									
T/K = 298		M. Ferricci									
EXPERIMENTAL VALUES:											
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 25%;">t/°C</th> <th style="text-align: left; width: 25%;">mass %</th> <th style="text-align: left; width: 25%;">solid phase</th> <th style="text-align: left; width: 25%;"></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">25</td> <td style="text-align: center;">26.47</td> <td style="text-align: center;">NaCl</td> <td style="text-align: center;"></td> </tr> </tbody> </table>				t/°C	mass %	solid phase		25	26.47	NaCl	
t/°C	mass %	solid phase									
25	26.47	NaCl									
AUXILIARY INFORMATION											
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:									
<p>The Khlopin method (isothermal decrease of supersaturation) was used. a series of almost-satd. slns. was prepared at a temp. higher than 25°C. These were placed in a thermostat and stirred at 25°C. Equilibrium was reached in 12-15 d. The liquid phase was analyzed for Cl by Mohr titration.</p>		<p>NaCl: A.R. reagent.</p>									
		ESTIMATED ERROR:									
		Temperature: precision ± 0.1 K.									
		REFERENCES:									

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride, NaCl; [7647-14-5]		Gibbard, Jr., H.F.; Gossmann, A.F. <i>J. Solution Chem.</i> <u>1974</u> , 3, 385-93.	
(2) Water; H ₂ O; [7732-18-5]			

VARIABLES:	PREPARED BY:
T/K = 273-287	J.W. Lorimer

EXPERIMENTAL VALUES:

Solid phase: ice

t/°C m/mol kg ⁻¹	mass % NaCl	t/°C m/mol kg ⁻¹	mass % NaCl
-0.4728 ^a	0.1368	0.7932	7.526
-0.6770 ^a	0.1979	1.143	8.127
-0.7998	0.2352	1.356	8.185
-0.9026 ^a	0.2646	1.523	9.196
-1.1301 ^a	0.3325	1.906	9.323
-1.3759	0.4060	2.318	9.788
-1.6095 ^a	0.4744	2.698	10.205
-1.9736 ^a	0.5828	3.294	12.071
-2.3088 ^a	0.6826	3.836	12.658
-2.7018 ^a	0.7985	4.459	13.654
-3.1983	0.9459	5.239	13.680
-3.3149	0.9788	5.411	14.163
-3.6984 ^a	1.0907	5.992	14.203
-3.8040	1.12085	6.147	15.279
-4.3827	1.2893	7.007	16.165
-4.4409 ^a	1.3034	7.078	17.488

^a Results of Gibbard and Fong (1).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Freezing point depressions were measured directly by measuring the difference in temperature between two identical containers, one filled with water and finely-divided ice, the other with solution and finely-divided ice. The solution was circulated over the ice by means of a lift pump. The difference in temperature was measured by a quartz differential thermometer. Solutions were analyzed for chloride gravimetrically. Data of Gibbard and Fong (1) used a Pt resistance thermometer and resistance bridge.	NaCl: analytical reagent, dried at 393 K. H ₂ O: distilled, doubly deionized.
ESTIMATED ERROR: Temperature: precision ±0.0002 K. Composition: precision ±0.05 %.	
REFERENCES: 1. Gibbard, H.F.; Fong, S.L. <i>Freezing Points of Aqueous Two-salt Mixtures of Sodium, Magnesium, Calcium and Barium Chlorides.</i> 163rd National Meeting, ACS. Boston. 1972.	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5] (2) Water; H ₂ O; [7732-18-5]	Urusova, M.A. <i>Zh. Neorg. Khim.</i> <u>1974</u> , <u>19</u> , 828-33; <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> <u>1974</u> , <u>19</u> , 450-4.
VARIABLES: T/K = 623, 673	PREPARED BY: J.W. Lorimer

EXPERIMENTAL VALUES:

t/°C	vapor pressure ^a p/kgf cm ⁻² p/bar	solubility of NaCl		
		mass % 100W,	mole fraction ^b x, 100W	solid phase
450	251	246	52.0	NaCl
500	332	326	59.5	"
550	388	380	65.2	"

^a Average values calculated by compiler; av. dev. 0.5 - 1 kg cm⁻².
1 kgf cm⁻² = 0.990665 bar.

^b Mole fractions calc. by compiler; author's values incorrect.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS: No information available.
Vapor pressures were measured in an autoclave with mercury seal by the method of P-v curves (1,2). Corrections were made for the salt dissolved in the vapor phase. The solubility was found from the break in the temperature-composition curve, where measurements extended into the three-phase region.	ESTIMATED ERROR: No estimates possible.
	REFERENCES: 1. Urusova, M.A.; Ravich, M.I. <i>Zh. Neorg. Khim.</i> <u>1964</u> , <u>9</u> , 952; <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> <u>1964</u> , <u>9</u> , 353. 2. Ravich, M.I.; Borovaya, F.E.; Smirnova, E.G. <i>Zh. Neorg. Khim.</i> <u>1968</u> , <u>19</u> , <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> <u>1968</u> , <u>19</u> , 1000.

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Sodium chloride; NaCl; [7647-14-5]		Potter II, R.W.; Babcock, R.S.; Brown, D.L.				
(2) Water; H ₂ O; [7732-18-5]		EOS Trans. Am. Geophys. Union <u>1975</u> , 56, 12.				
VARIABLES:		PREPARED BY:				
T/K = 273 - 473		J.-J. Cournioux				
EXPERIMENTAL VALUES:						
t/°C	molality m ₁ /mol kg ⁻¹	mass % (compiler)	solid phase (compiler)			
0.0	6.096	26.268	NaCl			
10.0	6.111	26.316	"			
20.0	6.128	26.370	"			
30.0	6.166	26.490	"			
40.0	6.216	26.647	"			
50.0	6.274	26.829	"			
60.0	6.342	27.041	"			
70.0	6.417	27.274	"			
80.0	6.501	27.533	"			
90.0	6.590	27.805	"			
100.0	6.680	28.078	"			
110.0	6.670	28.618	"			
120.0	6.860	28.618	"			
130.0	6.970	28.944	"			
140.0	7.090	29.296	"			
150.0	7.200	29.616	"			
160.0	7.350	30.048	"			
170.0	7.495	30.460	"			
180.0	7.668	30.946	"			
190.0	7.836	31.411	"			
200.0	8.013	31.984	"			
COMMENTS: The authors give the fitting equation: 100w ₁ = 26.218 + 0.0072 T/K + 0.000106 (T/K) ² , range 100-300°C.						
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Solutions of known composition were heated in Pt-lined bombs until the solid dissolved completely, as shown by a discontinuity in (dp/dT) _{x,V} . The authors remark that many older data are in error because of some or all of: corrosion of the stainless steel pressure vessel; chemical reaction between solution and mercury pressure media; re-equilibration during quenching.	No information given.					
ESTIMATED ERROR:						
Equation fits data with an uncertainty of ±0.5 mass %. Other errors presumably as in (1).						
REFERENCES:						
1. Potter II, R.W.; Babcock, R.S.; Brown, D.L. J. Res. U.S. Geol. Surv. <u>1977</u> , 5, 389.						

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride, NaCl; [7647-14-5]		Bouchacourt, M.; Saugier, M.-T.; Cohen-Adad, R.	
(2) Water; H ₂ O; [7732-18-5]		Bull. Soc. Chim. Fr. <u>1977</u> , 9-10, 842.	
VARIABLES:		PREPARED BY:	
T/K: 300		J.-J. Counioux	
EXPERIMENTAL VALUES:			
t/°C	mass %	mol ratio H ₂ O/NaCl	solid phase
27	26.52	17.98	NaCl
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:		
At constant temperature, small quantities of water were added to the anhydrous salt. The conductivity of the solution was plotted against the volume of water introduced. A break was observed in the curve when the saturation point was reached.	NaCl was Merck's "for analysis" or Prolabo RP. Water was 2x distilled.		
ESTIMATED ERROR:		No estimates possible.	
REFERENCES:			

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]	Potter II, R.W.; Babcock, R.S.; Brown, D.L.	
(2) Water; H ₂ O; [7732-18-5]	J. Res. U.S. Geol. Surv. <u>1977</u> , 5, 389-95.	
VARIABLES:	PREPARED BY:	
T/K = 442-698	J.W. Lorimer	
EXPERIMENTAL VALUES:		
t/°C	mass %	solid phase (compiler)
148.7	29.62	NaCl
148.6	29.62	"
148.2	29.62	"
149.0	29.62	"
148.4	29.62	"
148.8	29.62	"
149.2	29.62	"
161.0	30.08	"
172.4	30.61	"
202.3	32.05	"
214.5	32.66	"
272.9	36.01	"
329.4	40.07	"
424.8	48.42	"
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:	
Salt, saturated solution and vapor were heated in a Pt-lined stainless steel bomb. The curve of pressure vs temperature was measured, and showed a break (located by least-squares analysis of the data) at the temperature at which the last crystal of salt disappeared. The same values were obtained for heating rates between 0.17 and 0.44 K/min.	No information given.	
ESTIMATED ERROR:		
Temperature: ±0.1 K accuracy, traceable to NBS standards.		
Pressure: ±10 kPa		
Solubility: fits quadratic eqn to ±2s = 0.05 mass %		
REFERENCES:		

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Sodium chloride; NaCl; [7647-14-5]		Potter II, R.W.; Clynne, M.A.; Brown, D.L.		
(2) Water; H ₂ O; [7732-18-5]		Econ. Geol. 1978, 73, 284-5.		
VARIABLES:		PREPARED BY:		
T/K = 242-270		M.-T. Saugier; J.W. Lorimer		
EXPERIMENTAL VALUES:				
t/°C	mass %	solid phase		
-3.05	5	ice		
-6.60	10	"		
-10.97	15	"		
-16.48	20	"		
-20.81	23.225	ice + NaCl·2H ₂ O (eutectic)		
COMMENTS AND ADDITIONAL DATA: No direct experimental data are given. The data given above were calculated from the authors' fitting equation: $100 w_1 = 0.00 + 1.76958(\theta/K) - 4.2384 \times 10^2(\theta/K)^2 + 5.2778 \times 10^4(\theta/K)^3$, uncertainty = ±0.028 mass % where w_1 is the mass fraction of NaCl and θ is the depression of the freezing point.				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Solution (15-20 g) was placed in a Pyrex tube, which was sealed with a rubber stopper holding a stirrer and a Pt resistance thermometer. The solution was frozen, then warmed in an insulated container while being stirred vigorously. The temperature at which the last ice crystal melted was observed visually.	No information given.			
ESTIMATED ERROR:				
Temperature of melting of last ice crystal reproducible to ±0.03 K.				
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Sodium chloride; NaCl; [7647-14-5]		Potter II, R.W.; Clyne, M.A. <i>J. Res. U.S. Geol. Surv.</i> <u>1978</u> , 6, 701-5.		
(2) Water; H ₂ O; [7732-18-5]				
VARIABLES:		PREPARED BY:		
T/K = 291-373		J.W. Lorimer		
EXPERIMENTAL VALUES:				
t/°C	mass %	solid phase (compiler)		
17.62	26.18	NaCl		
28.64	26.34	"		
28.64	26.36	"		
28.77	26.40	"		
28.86	26.40	"		
35.09	26.48	"		
39.90	26.59	"		
53.00	26.79	"		
59.78	27.01	"		
72.33	27.24	"		
80.87	27.49	"		
99.99	28.00	"		
COMMENTS AND ADDITIONAL DATA:				
Special equilibration experiments at 26.48 mass % NaCl showed that the data of Berkeley (1) appear to be too high, possibly because either: (a) fluid inclusions remained in the solids after analysis by evaporating to dryness; (b) small crystals were present after the vigorous stirring used to overcome density stratification.				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
The visual method was used. Weighed amounts of salt and water were placed in a tube fitted with a stirrer and sealed with a layer of silicone oil. The tube was heated slowly and incrementally in a thermostat until the last crystal of salt had dissolved. It was found that 1 mg of salt could be seen easily, using a 20 g-sample of salt.	No information given.			
ESTIMATED ERROR:				
Temperature: accuracy ± 0.01 K (Pt resistance thermometer); repeatability of dissolution temp. ± 0.05 to ± 0.15 K.				
Solubility: est. precision 0.03-0.05 mass %.				
REFERENCES:				
1. Berkeley, Earl of Philos. <i>Trans. R. Soc. London, A</i> <u>1904</u> , 203, 189.				

COMPONENTS:		ORIGINAL MEASUREMENTS:									
(1) Sodium chloride; NaCl; [7647-14-5]		Girich, T.E.; Gulyamov, Yu. M.; Ganz, S.N.									
(2) Water; H ₂ O; [7732-18-5]		Vopr. Khim. Khim. Tekhnol. <u>1979</u> , 57, 58-61.									
VARIABLES:		PREPARED BY:									
$T/K = 298, 323$		R. Cohen-Adad									
EXPERIMENTAL VALUES:											
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 20%;">t/°C</th> <th style="text-align: left; width: 20%;">mass %</th> <th style="text-align: left;">solid phase</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">25</td> <td style="text-align: left;">26.23</td> <td style="text-align: left;">NaCl</td> </tr> <tr> <td style="text-align: left;">50</td> <td style="text-align: left;">26.99</td> <td style="text-align: left;">NaCl</td> </tr> </tbody> </table>			t/°C	mass %	solid phase	25	26.23	NaCl	50	26.99	NaCl
t/°C	mass %	solid phase									
25	26.23	NaCl									
50	26.99	NaCl									
AUXILIARY INFORMATION											
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:										
Isothermal method. Equilibrium was reached in 20-70 h. Na was detd. gravimetrically as NaZn uranyl acetate, Cl mercurimetrically.	NaCl: recryst. 2X; purity 95.6-99.8%										
ESTIMATED ERROR:											
Temperature: precision ± 0.1 K.											
REFERENCES:											

COMPONENTS:		ORIGINAL MEASUREMENTS:													
(1) Sodium chloride, NaCl; [7647-14-5]		Rard, J.A.; Miller, D.G.													
(2) Water; H ₂ O; [7732-18-5]		J. Chem. Eng. Data <u>1981</u> , 26, 38-43.													
VARIABLES:		PREPARED BY:													
T/K: 298		J.-J. Couniouux; R. Cohen-Adad													
EXPERIMENTAL VALUES:															
<table> <thead> <tr> <th>t/°C</th> <th>molality mol kg⁻¹</th> <th>mass % (compiler)</th> <th>solid phase</th> </tr> </thead> <tbody> <tr> <td>25.00</td> <td>6.1580 ± 0.0050^a</td> <td>26.47 ± 0.02</td> <td>NaCl</td> </tr> <tr> <td>25.00</td> <td>6.1589 ± 0.0041^b</td> <td>26.47 ± 0.02</td> <td>"</td> </tr> </tbody> </table>				t/°C	molality mol kg ⁻¹	mass % (compiler)	solid phase	25.00	6.1580 ± 0.0050 ^a	26.47 ± 0.02	NaCl	25.00	6.1589 ± 0.0041 ^b	26.47 ± 0.02	"
t/°C	molality mol kg ⁻¹	mass % (compiler)	solid phase												
25.00	6.1580 ± 0.0050 ^a	26.47 ± 0.02	NaCl												
25.00	6.1589 ± 0.0041 ^b	26.47 ± 0.02	"												
^a mean of three measurements obtained with 4-7 days equilibration for samples from Stock 1. ^b 5 and 6 day equilibration of Stock 2 samples.															
AUXILIARY INFORMATION															
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:														
Isopiestic method. Experimental details were described elsewhere (1). Two NaCl solutions (Stock 1 and 2) were prepared by mass from separate lots of reagent.	Mallinckrodt analytical reagent. Water was first deionized and then distilled. Analysis was performed in triplicate by dehydration and in quadruplicate by mass titration using AgNO ₃ (dichlorofluorescein end point indicator, dextrin colloid stabilizer).														
ESTIMATED ERROR:															
Temperature: ±0.005 K (IPTS - 68) Mass %: ±0.02															
REFERENCES:															
1. Spedding, F.H.; Weber, H.O.; Saeger, V.W.; Petheram, H.H.; Rard, J.A.; Habenschuss, A. J. Chem. Eng. Data <u>1977</u> , 21, 341.															

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride, NaCl; [7647-14-5]	Langer, H.; Offermann, H.
(2) Water; H ₂ O; [7732-18-5]	J. Cryst. Growth 1982, 60, 389-92.
VARIABLES:	PREPARED BY:

T/K = 293.346

J. J. Couniou

EXPERIMENTAL VALUES:

t / °C	mass ratio NaCl/H ₂ O	mass % (compiler)	solid phase
20.0	0.3591	26.42	NaCl
24.0	0.3593	26.43	"
34.0	0.3616	26.56	"
41.5	0.3643	26.70	"
44.5	0.3656	26.77	"
48.1	0.3661	26.80	"
53.25	0.3673	26.86	"
55.5	0.3686	26.93	"
57.0	0.3695	26.98	"
67.6	0.3730	27.17	"
68.0	0.3750	27.27	"
73.25	0.3771	27.38	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
A device for the measurement of rates of crystal growth of freely suspended crystals was used (1,2). The saturation temperatures were defined as the points at which neither growth nor dissolution occurred. The NaCl concentration of each solution was calculated from chemical analyses of different solution samples.	NaCl used was a PA reagent (Merck) which had a purity of about 99.4%.
	ESTIMATED ERROR:
	Maximum error in concentration is estimated to be ±0.07 g NaCl/100 g H ₂ O.
	REFERENCES:
	<ol style="list-style-type: none"> Offermann, H.; Ulrich, J. Ger. Chem Eng. 1980, 3, 139. Offermann, H.; Langer, H. Industrial Crystallization 81. Eds. E.J. de Jong, S.J. Jančić. North-Holland, Amsterdam, 1982, 297-8.

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Sodium chloride; NaCl; [7647-14-5]		Gunter, W.D.; Chou, I.-M.; Girsperger, S. <i>Geochim. Cosmochim. Acta</i> <u>1983</u> , 47 , 863-73; Chou, I.-M. <i>Geochim. Cosmochim. Acta</i> <u>1987</u> , 51 , 1965-75.	
(2) Water; H ₂ O; [7732-18-5]			
VARIABLES:		PREPARED BY:	
T/K = 720-984		J.W. Lorimer	
EXPERIMENTAL VALUES:			
t/°C	mass % 100w,	mole fraction x, (compiler)	solid phase
447	53.54	0.2621	NaCl
507	62.44	0.3388	"
604	76.17	0.4963	"
604	76.56	0.5017	"
619	78.29	0.5264	"
646	82.26	0.5884	"
677	86.47	0.6633	"
711	90.47	0.7453	"
COMMENTS AND ADDITIONAL DATA: Chou, in the second paper listed, analyzed the data from the first paper. Anomalous splitting of DTA peaks and a sharp change in slope of the p-T curves near the three-phase region were attributed to initial (precooling) separation of the fluid into NaCl-poor gas and NaCl-rich liquid that did not become homogeneous during a DTA experiment. Solubilities were found by extrapolation of the linear portions of the p-T curves to intersect the known three-phase p-T curve.			
Previous work (1) was shown to be unreliable because of temperature gradients in the vertical furnace used.			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS: No information given.		
Differential thermal analysis was performed in two ways: (1) the signal between two thermocouples was used (DTA mode); (2) one thermocouple was used (TA mode). A sample of NaCl and water was placed in a gold tube along with an inconel-sheathed chromel-alumel thermocouple. The tube was welded shut, sealed in a pressure vessel, pressurized under Ar, and placed in a horizontal tube furnace. Cooling rates (2-10 K/min) and heating rates (10 K/min) were computer controlled. Thermocouples were calibrated against standard thermocouples. Pressures were measured by transducer, calibrated by a Bourdon tube gauge. Sample temperatures were recorded 25 times per K. Temp. gradients were < 5 K over a 10-cm sample.	ESTIMATED ERROR: Temperature: ± 3 K (cooling expts.); ± 5 K (heating); ± 6 K (overall). Pressure: ± 5 bar. Composition: ± 0.1 mass %.		
DTA scans were analyzed by computer. No sharp peak was observed on heating. Nucleation occurred on cooling, giving a sharp peak whose position was measured at different cooling rates, and extrapolated to zero rate.	REFERENCES: 1. Chou, I.-M.; Eugster, H.P. <i>EOS, Trans., Am. Geophys. Union</i> (abstract) <u>1981</u> , 62 , 410. 2. Chou, I.-M. <i>Geochim. Cosmochim. Acta</i> <u>1982</u> , 46 , 1957.		

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Sodium chloride; NaCl; [7647-14-5]		Bischoff, J.L.; Rosenbauer, R.J.; Pitzer, K.S. <i>Geochim. Cosmochim. Acta</i> <u>1986</u> , 50, 1437-44.				
(2) Water; H ₂ O; [7732-18-5]						
VARIABLES:		PREPARED BY:				
T/K = 576-777 p/bar = 58-328		J.W. Lorimer				
EXPERIMENTAL VALUES:						
Temperatures, pressures and vapor compositions for three-phase S-L-G equilibria.						
t/°C	p/bar	vapor composition mass % 10 ⁴ x mole fraction 100u, 10 ⁴ y, (compiler)	solid phase			
300.3	57.6	- -	NaCl			
323.7	78.8	0.0071 0.22	"			
348.5	105.3	0.0014 0.043	"			
375.1	137.4	0.0032 0.099	"			
375.5	138.4	0.0026 0.080	"			
400.2	172.7	0.0065 0.20	"			
427.0	214.1	0.013 0.40	"			
450.5	251.5	0.027 0.83	"			
451.8	253.5	0.031 0.96	"			
475.9	288.8	0.046 1.42	"			
477.0	291.9	0.049 1.51	"			
502.5	327.2	0.070 2.16	"			
503.4	328.0	0.075 2.31	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
The titanium pressure vessel, vol. 26 mL, was held vertically in a fluidized bed furnace. Openings at top and bottom were connected via capillary tubes to sampling valve blocks and pressure transducers (calibrated at 11 points by a dead weight gauge). Temperature was measured with calibrated type K chromel-alumel thermocouples. The vessel was filled about 2/3 full with saturated sln. and excess solid, and heated to the desired temp., which stabilized in about 2 h, after which 3 samples (0.3 g each) were taken from the top opening. Three phases were present if the pressure remained constant during sampling. This procedure was then repeated at intervals of 25 K up to 500°C. Analysis for Cl was by ion chromatography with a conductivity detector. The pH of all samples was neutral.	NaCl: reagent-grade H ₂ O: deionized					
ESTIMATED ERROR:						
Temperature: ± 0.5 K. Pressure: ± 0.7 bar						
REFERENCES:						
1. Bischoff, J.L.; Rosenbauer, R.J. <i>Earth Plan. Sci. Lett.</i> <u>1989</u> , 68, 172.						

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5] (2) Water; H ₂ O; [7732-18-5]	Hall, D.L.; Sterner, S.M.; Bodnar, R.J. <i>Econ. Geol.</i> <u>1988</u> , 83, 197-202.
VARIABLES: $T/K = 252 \text{ to } 273$	PREPARED BY: J.W. Lorimer

EXPERIMENTAL VALUES:

mass %	mole fraction (compiler)	freezing point <i>t/°C</i>	solid phase
0.00	0.0000	0.00	ice
3.00	0.0095	-1.72	"
4.19	0.0137	-2.50	"
4.95	0.0164	-3.01	"
6.41	0.0215	-4.00	"
7.84	0.0264	-5.00	"
9.21	0.0311	-6.00	"
10.50	0.0356	-7.00	"
11.72	0.0400	-8.00	"
12.86	0.0442	-9.00	"
14.00	0.0484	-10.03	"
14.98	0.0522	-11.00	"
15.96	0.0561	-12.00	"
16.93	0.0600	-13.05	"
17.77	0.0635	-14.00	"
18.62	0.0671	-15.00	"
20.22	0.0741	-17.01	"
21.17	0.0782	-18.24	"
21.68	0.0807	-19.00	"
22.37	0.0839	-20.00	"
23.04	0.0871	-21.00	"
23.20	0.0878	-21.21	"

COMMENTS: The fitting equation given in this paper has also been given in a published abstract (1), but without the experimental data.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
A 20 mass % sln. of salt was diluted to 3 mass % and placed in a 1-L Erlenmeyer flask fitted with ports for sampling and thermocouple (type K, measured with potentiometer, calibrated at f.p. of water and Hg). Sln. was initially undercooled ~ 1 K below f.p., then was nucleated with a seed crystal and cooled slowly at 3-4 K/h. Samples of equilibrated brine were removed by pipet, then were weighed, dried at 110°C, then dried at 350°C.	NaCl: reagent grade. H ₂ O: distilled and deionized.
	ESTIMATED ERROR: Temperature: ±0.05 K (from potentiometer precision). Composition: ±0.02 mass % (from known samples).
	REFERENCES: 1. Hall, D.L.; Sterner, S.M.; Bodnar, R.J. <i>EOS, Trans., Am. Geophys. Union</i> <u>1987</u> , 68, 450.

COMPONENTS:		ORIGINAL MEASUREMENTS:																									
(1) Potassium chloride; KCl; [7447-40-7]		Gay-Lussac, M.																									
(2) Water; H ₂ O; [7732-18-5]		Ann. Chim. Phys. 1819, 11, 296-315.																									
VARIABLES:		PREPARED BY:																									
T/K = 273-383		M.-T. Saugier-Cohen Adad																									
EXPERIMENTAL VALUES:																											
<table> <thead> <tr> <th>t/°C</th> <th>100 x mass ratio KCl/H₂O</th> <th>mass % (compiler)</th> <th>solid phase</th> </tr> </thead> <tbody> <tr> <td>0.00</td> <td>29.21</td> <td>22.61</td> <td>KCl</td> </tr> <tr> <td>19.35</td> <td>34.53</td> <td>25.67</td> <td>"</td> </tr> <tr> <td>52.39</td> <td>43.59</td> <td>30.36</td> <td>"</td> </tr> <tr> <td>79.58</td> <td>50.93</td> <td>33.74</td> <td>"</td> </tr> <tr> <td>109.60</td> <td>59.26</td> <td>37.21</td> <td>"</td> </tr> </tbody> </table>				t/°C	100 x mass ratio KCl/H ₂ O	mass % (compiler)	solid phase	0.00	29.21	22.61	KCl	19.35	34.53	25.67	"	52.39	43.59	30.36	"	79.58	50.93	33.74	"	109.60	59.26	37.21	"
t/°C	100 x mass ratio KCl/H ₂ O	mass % (compiler)	solid phase																								
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AUXILIARY INFORMATION																											
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:																									
Isothermal method. A sample of saturated solution was analyzed to dryness.		Not stated.																									
ESTIMATED ERROR:																											
No estimates possible.																											
REFERENCES:																											

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]		Michel, A.; Krafft, L.		
(2) Water; H ₂ O; [7732-18-5]		Ann. Chim. Phys. [3] <u>1854</u> , 41, 471-83.		
VARIABLES:		PREPARED BY:		
T/K = 288		M.-T. Saugier-Cohen Adad		
EXPERIMENTAL VALUES:				
t/°C	concentration g dm ⁻³	mass %	relative density at 15°C	solid phase
15	308.794	26.15	1.180949	KCl
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:		
Mixtures of water and salt in excess were maintained for 1 month in the range 14-16°C and stirred often. After 1 day at 15°C, samples of solution were drawn off and analyzed by evaporation to dryness and weighing.		The pure salt was previously dried at 100°C.		
		ESTIMATED ERROR:		
		No estimates possible.		
		REFERENCES:		

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]		Schiff, H.		
(2) Water; H ₂ O; [7732-18-5]		Justus Liebigs Ann. Chem. <u>1859</u> , 109, 325-32.		
VARIABLES:		PREPARED BY:		
T/K = 291		M.-T. Saugier-Cohen Adad		
EXPERIMENTAL VALUES:				
t/°C	mass % KCl	100 x mass ratio KCl/H ₂ O	relative density	solid phase
17.5	24.8	33.0	1.1729	KCl
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:		
The variation of volume during the dissolution of salt was calculated. The method is described in (1).		Not stated.		
		ESTIMATED ERROR:		
		No estimates possible.		
		REFERENCES:		
		1. Schiff, H. Justus Liebigs Ann. Chem. <u>1858</u> , 108, 326.		

COMPONENTS:		ORIGINAL MEASUREMENTS:																																	
(1) Potassium chloride; KCl; [7447-40-7]		Kremers, P.																																	
(2) Water; H ₂ O; [7732-18-5]		Ann. Phys. Chem. <u>1856</u> , 99, 25-63.																																	
VARIABLES:		PREPARED BY:																																	
T/K = 273-383		M.-T. Saugier-Cohen Adad																																	
EXPERIMENTAL VALUES:																																			
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t/°C	100 mass H ₂ O/mol KCl ^a	mass % (compiler)	solid phase																																
0	2.56	22.6	KCl																																
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100	1.32	36.1	"																																
110 ^b			"																																
a Atomic weights K = 39.2, Cl = 35.5 according to the author.																																			
b Boiling point of saturated solution																																			
AUXILIARY INFORMATION																																			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:																																		
After complete dissolution at higher temperature, the mixture was stirred for 1 hour at the desired temperature. Then the saturated solution was drawn off but not filtered because of its viscosity. At 95, 140 and 160°C, the composition was determined by evaporation and weighing.	Not stated.																																		
ESTIMATED ERROR:																																			
No estimates possible.																																			
REFERENCES:																																			

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]	Gerlach, Th. G.
(2) Water; H ₂ O; [7732-18-5]	<i>Spezifische Gewichte der Gebräuchlichsten Salzlösungen bei verschiedenen Concentrationsgraden. J.G. Engelhardt. Freiberg. 1859. pp. 9-10.</i>
VARIABLES:	PREPARED BY:
T/K = 288	J.W. Lorimer

EXPERIMENTAL VALUES:

$t = 15^\circ\text{C}$	mass %	relative density, $d_r = \frac{d(15^\circ\text{C})}{d(\text{H}_2\text{O}, 15^\circ\text{C})}$	solid phase
5		1.03250	
10		1.06580	
15		1.10036	
20		1.13608	
satd sln		1.20433	KCl

COMMENTS AND ADDITIONAL DATA:

The author found the solubility from graphical interpolation. The compiler found that the density could be represented by the equation $(d_r - 1)/100w_1 = A_1 + A_2(100w_1) + A_3(100w_1)^2$ where w_1 is the mass fraction of the salt, with least-square coefficients:

$$\begin{aligned} A_1 &= 6.43 \times 10^{-3} & S(A_1) &= 1.8 \times 10^{-5} \\ A_2 &= 1.22 \times 10^{-5} & S(A_2) &= 3.3 \times 10^{-6} \\ A_3 &= 3.30 \times 10^{-7} & S(A_3) &= 1.3 \times 10^{-7} \end{aligned}$$

and standard error of estimate 6.5×10^{-6} . Solution of this equation gave the solubility as: 24.85 mass %.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Solutions were made up by mass, using calibrated weights and vacuum corrections. Densities were measured by hydrostatic weighing, using a glass sinker attached to a balance. The method of saturation is not given.	KCl: pure, decrepitated salt.
ESTIMATED ERROR:	Temperature: precision $\pm 0.1 \text{ K}$ Solubility: no estimates possible.
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:																																	
(1) Potassium chloride; KCl; [7447-40-7]		Rudorff, F.																																	
(2) Water; H ₂ O; [7732-18-5]		Ann. Phys. Chem. <u>1861</u> , 114, 63-81.																																	
VARIABLES:		PREPARED BY:																																	
T/K = 268-273		M.-T. Saugier-Cohen Adad																																	
EXPERIMENTAL VALUES:																																			
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AUXILIARY INFORMATION																																			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:																																		
The freezing points of solutions of known composition were measured.	Pure salt was recrystallized several times.																																		
ESTIMATED ERROR:																																			
Temperature: 0.1 K																																			
REFERENCES:																																			

COMPONENTS:		ORIGINAL MEASUREMENTS:																																
(1) Potassium chloride; KCl; [7447-40-7]		Mulder, G.J. Scheikundige Verhandelingen en Onderzoeken. Part 3, vol. 3. Bijdragen tot de Geschiedenis van het Scheikundig Gebonden Water. H.A. Kramers. Rotterdam. <u>1864</u> . pp. 51-6.																																
(2) Water; H ₂ O; [7732-18-5]																																		
VARIABLES:		PREPARED BY:																																
T/K = 273-318		J.W. Lorimer																																
EXPERIMENTAL VALUES:																																		
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AUXILIARY INFORMATION																																		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:																																	
The method of isothermal saturation was used. Ice baths, cool cellars and heated water baths were used to control temperature. mixtures of salt and water were shaken for at least 7 d. The saturated solution was weighed and evaporated, and the residue was dried at 160°C, then weighed.	No information given.																																	
	ESTIMATED ERROR:																																	
	Temperature: ±0.1 K at 0°C, ±1 K at other temperatures.																																	
	REFERENCES:																																	

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Potassium chloride; KCl; [7447-40-7]		Gerardin, A.			
(2) Water; H ₂ O; [7732-18-5]		Ann. Chim. Phys. 1865, 5, 129-60.			
VARIABLES:		PREPARED BY:			
T/K = 286-330		M.-T. Saugier-Cohen Adad			
EXPERIMENTAL VALUES:					
<i>t</i> /°C	mass ratio KCl/H ₂ O	mass % (compiler)	solid phase		
13	0.336	25.1	KCl		
30	0.378	27.4	"		
40	0.401	28.6	"		
57	0.450	31.0	"		
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:			
Isothermal method. A sample of saturated solution was analyzed for salt by evaporation to dryness.		Not stated.			
ESTIMATED ERROR:					
No estimates possible.					
REFERENCES:					

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7] (2) Water; H ₂ O; [7732-18-5]	de Coppet, L.C. <i>Ann. Chim. Phys.</i> [4] <u>1872</u> , 25, 502-27; <i>Bull. Soc. Vaudoise Sci. Nat.</i> <u>1871</u> , 11, 7-126.
VARIABLES:	PREPARED BY:
T/K = 262-270	M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C	100 x mass ratio KCl/H ₂ O	mass % (compiler)	solid phase
- 2.85	6.37	5.99	ice
- 2.9	6.37	5.99	"
- 4.8	10.6	9.58	"
- 5.85	12.74	11.30	"
- 7.75	16.94	14.49	"
- 9.7	21.23	17.51	"
- 9.7	21.23	17.51	"
-11.5a	25.48	20.31	"

a metastable equilibrium

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The method was described in a previous paper (1). A sample of known composition was cooled in a mixture of ice and NaCl (or CaCl ₂) maintained at a few kelvins below the freezing point. A small piece of ice was added to the sample when its temperature was lower than the freezing point by some tenths of a degree.	Not stated.
	ESTIMATED ERROR: Temperature: ±0.1 K
	REFERENCES: 1. de Coppet, L.C. <i>Ann. Chim. Phys.</i> <u>1871</u> , 23, 366.

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Potassium chloride; KCl; [7447-40-7]		Page, D.; Keightley, A.D. J. Chem. Soc. <u>1872</u> , 25, 566-70.			
(2) Water; H ₂ O; [7732-18-5]					
VARIABLES:					
T/K = 289		PREPARED BY: M.-T. Saugier-Cohen Adad			
EXPERIMENTAL VALUES:					
t/°C	100 x mass ratio KCl/H ₂ O	mass %	density	method	solid phase
15.6	32.88	24.74	1.17172, 1.17145	a	KCl
15.6	33.06	24.84	1.17194, 1.17171	b	"
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:			
Isothermal method. Solutions were prepared in 2 different ways: (a) digestion of the salt in distilled water at a constantly maintained temperature of 15.6°C; (b) saturation of distilled water with the salt at 100°C and subsequent cooling to 15.6°C.		Chemically pure salt was used.			
		ESTIMATED ERROR:			
		Temperature: precision within ±0.1 K.			
		REFERENCES:			

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Potassium chloride; KCl; [7447-40-7]		Raoult, F.M.						
(2) Water; H ₂ O; [7732-18-5]		C. R. Hebd. Séances Acad. Sc. <u>1878</u> , 87, 167-9.						
VARIABLES:								
T/K = 273		PREPARED BY: M.-T. Saugier-Cohen Adad						
EXPERIMENTAL VALUES:								
t/°C	mass ratio	mass % (compiler)	solid phase					
-0.201	0.0045	0.448	ice					
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:						
Cryoscopic method.		Not stated.						
		ESTIMATED ERROR:						
		No estimates possible.						
		REFERENCES:						

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7] (2) Water; H ₂ O; [7732-18-5]	de Coppet, L.C. Ann. Chim. Phys. 1883, 30, 411-29.
VARIABLES: T/K = 262-365	PREPARED BY: M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C	100 x mass ratio KCl/H ₂ O	mass % (compiler)	solid phase
-11.0 ^a	24.48	19.66	KCl
-11.0 ^a	24.44	19.64	"
-6.4 ^b	25.78	20.50	"
0.0	27.94	21.84	"
0.0	27.85	21.78	"
3.9	29.37	22.70	"
9.4	30.84	23.57	"
11.4	32.12	24.35	"
14.95 ^b	32.66	24.62	"
19.0 ^b	34.32	25.55	"
25.7	36.10	26.52	"
29.25	37.31	27.17	"
38.0	39.71	28.42	"
41.45	40.67	28.91	"
46.15	42.34	29.75	"
48.8	42.86	30.00	"
55.1	44.51	30.80	"
60.55	45.90	31.46	"
64.95	47.17	32.05	"
71.65	48.76	32.32	"
74.25	49.27	33.01	"
80.75	51.24	33.88	"
86.6	52.53	34.44	"
91.4	53.49	34.85	"

^a freezing point of saturated solution^b mean of 2 observations

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Salt and water were introduced into glass test tubes. Low temperatures were obtained using different eutectic mixtures. In the other cases, the tube was placed in a thermostat. Samples were removed from the saturated solution and analyzed.	Not stated.
	ESTIMATED ERROR:
	Temperature: ±0.1 K
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]	Andreae, J.L.
(2) Water; H ₂ O; [7732-18-5]	J. Prakt. Chem. 1884, 29, 456-77.
VARIABLES:	PREPARED BY:
T/K = 273-333	M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C	100 x mass % KCl/H ₂ O	mass %	method
0.00	27.986	21.866	b
0.05	27.988	21.868	a
5.52	29.851	22.989	b
7.00	30.314	23.262	a
10.50	31.406	23.900	a
10.62	31.454	23.928	b
14.25	32.547	24.555	b
34.42	38.525	27.811	b
59.17	45.264	31.160	a
59.92	45.473	31.259	b

a = heating

b = cooling

Solid phase: KCl throughout

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Two methods were used: (1) Heating method: the mixture of salt and water was stirred at constant temperature for 1-1.5 hours. (2) Cooling method: the mixture was previously heated above the temperature of equilibrium. A sample of saturated solution was analyzed by evaporation to dryness and weighing.	Commercial KClO ₃ was recrystallized, dried and slowly decomposed in a platinum crucible. The resulting KCl was melted, recrystallized and dried.
ESTIMATED ERROR:	Temperature: ±0.1 K Mass ratio: ±0.0003
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7] (2) Water; H ₂ O; [7732-18-5]	Tilden, W.A.; Shenstone, W.A. Philos. Trans. R. Soc. London <u>1884</u> , 175, 23-36.		
VARIABLES:	PREPARED BY:		
T/K = 398-1007	M.-T. Saugier-Cohen Adad		
EXPERIMENTAL VALUES:			
$t/^\circ\text{C}$	100 x mass ratio KCl/H ₂ O	mass %	solid phase
125	59.6	36.3	KCl
133	69.3	40.9	"
144	70.8	41.5	"
175	75.2	42.9	"
180	77.5	43.7	"
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:		
<p>Water and salt were placed at one end of a tube. One type of tube consisted of two parts made of gun metal electroplated with silver. The two parts screwed together, were separated by a disk of Pt gauze, and could be turned around the longitudinal axis. The other type was of glass, either bent in the middle to an angle of 130-140°, or straight and divided in the middle by a Pt gauze strainer. After heating in a paraffin bath at a steady temperature for 5 hours, the end containing the sample was raised and the other depressed. The tube was cooled and opened. Then the saturated solution was weighed, evaporated to dryness, and weighed again. The part of the tube not occupied by solution was filled by water vapor which condensed on cooling. By ascertaining the volume of this vapor, approximate corrections to the results were made with the aid of tables of vapor pressures os salt solutions (1).</p>	<p>Not stated.</p>		
ESTIMATED ERROR:			
<p>No estimates possible.</p>			
REFERENCES:			
<p>1. Wullner, A. Ann. Phys. Chem. <u>1860</u>, 110, 564.</p>			

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Potassium chloride; KCl; [7447-40-7]		Ponsot, A.			
(2) Water; H ₂ O; [7732-18-5]		C. R. Hebd. Séances Acad. Sci. <u>1889</u> , 129, 98-100.			
VARIABLES:		PREPARED BY:			
T/K = 263		M.-T. Saugier-Cohen Adad			
EXPERIMENTAL VALUES:					
$t/^\circ\text{C}$ mass % solid phase -10.64 19.58 ice + KCl					
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:			
Saturated solution was prepared at room temperature and cooled slowly. The depression of the freezing point was measured. The temperature became constant to within 0.003 K when the eutectic was reached. The saturated solution was analyzed.		KCl was purified by several recrystallizations.			
ESTIMATED ERROR:		No estimates possible.			
REFERENCES:					

COMPONENTS:		ORIGINAL MEASUREMENTS:					
(1) Potassium chloride; KCl; [7447-40-7]		Bodländer, G.					
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Stoechiom. Verwandtschaftsl. <u>1891</u> , 7, 358-61.					
VARIABLES:		PREPARED BY:					
T/K = 291		M.-T. Saugier-Cohen Adad					
EXPERIMENTAL VALUES:							
$t/^\circ\text{C}$ conc. g dm ⁻³ mass % (compiler) relative density solid phase 17.5 293.9 25.06 1.1730 KCl							
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:					
The mixture of water and finely powdered salt was stirred at constant temperature for at least 24 hours. A sample of saturated solution was analyzed by evaporation to dryness and weighing.		Not stated.					
ESTIMATED ERROR:		No estimates possible.					
REFERENCES:							

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]	Etard, A.
(2) Water; H ₂ O; [7732-18-5]	Ann. Chim Phys. [7] 1894, 2, 503-74.
VARIABLES:	PREPARED BY:

T/K = 415-1005

M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C	mass %	solid phase (compiler)
142	38.6	KCl
150	38.8	"
175	41.2	"
180	41.8	"
190	43.2	"
200	42.9	"
242	47.6	"
732	100	

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Salt and water were placed in one end of an inverted U-tube, and the tube was sealed. After equilibration (time or method not stated) some saturated solution was transferred to the other end of the tube. The tube was cooled and opened. The temperature at which the last crystal of KCl disappeared was also observed. Analyses were for Cl by titration with AgNO ₃ solution.	Not stated.
	ESTIMATED ERROR: Temperature: no estimates possible. Solubility: precision within ±0.01 mass %.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]		Roloff, M. <i>Z. Phys. Chem., Stoichiom. Verwandtschaftsl.</i> 1895, 18, 578-84.		
(2) Water; H ₂ O; [7732-18-5]				
VARIABLES:		PREPARED BY:		
T/K = 262-272		M.-T. Saugier-Cohen Adad		
EXPERIMENTAL VALUES:				
<i>t</i> /°C	concentration <i>c</i> ,/mol dm ⁻³	mass %	density <i>d/g cm</i> ⁻³	solid phase
-0.384	0.141	0.829	1.007	ice
-0.827	0.241	1.778	1.011	"
-1.389	0.409	2.992	1.019	"
-1.409 ^a	0.409	2.992	1.019	"
-2.721	0.804	5.779	1.038	"
-3.437	1.018	7.243	1.048	"
-3.437 ^a	1.018	7.243	1.050	"
-4.696	1.387	9.70	1.066	"
-4.835 ^a	1.387	9.70	1.065	"
-6.37	1.851	12.69	1.088	"
-7.34	2.126	14.41	1.100	"
-8.66	2.490	16.62	1.118	"
-8.91 ^a	2.490	16.62	1.118	"
-10.04	2.872	18.86	1.136	"
-10.04	2.872	18.86	1.134	"
-10.46	2.975	19.45	1.141	"
-10.75 ^a	3.026	19.76	1.143	"
^a Individual observations; remaining values are averages of 4-5 measurements.				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Solutions in stoppered flasks were vigorously shaken at constant temperatures achieved by baths containing eutectic mixtures of various salts and water. Calibrated thermometers were used. Samples were removed via a cooled calibrated pipet, weighed, and analyzed. Equilibrium was confirmed by analysis. Method of analysis not given.	Not stated.			
	ESTIMATED ERROR:			
	Temperature: over 267 K: ≈ 0.01 K under 267 K: ≈ 0.1 K			
REFERENCES:				

COMPONENTS:	ORIGINAL MEASUREMENTS:					
(1) Potassium chloride; KCl; [7447-40-7]	Bruni, G.					
(2) Water; H ₂ O; [7732-18-5]	Gazz. Chim. Ital. <u>1897</u> , 27, 537-61.					
VARIABLES:	PREPARED BY:					
T/K = 262	M.-T. Saugier-Cohen Adad					
EXPERIMENTAL VALUES:						
t/°C	mass ratio KCl/H ₂ O	mass %	solid phase			
-10.8	24.9	19.95	ice + KCl			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:					
Cryoscopic method. To prevent supersaturation the eutectic temperature was measured on heating. A slightly hypereutectic solution maintained at the eutectic temperature was then seeded with ice and KCl, and the composition of the saturated solution was determined by analysis. Baudin's thermometers were used.	KCl: Merck reagent (puriss. grade for analysis)					
ESTIMATED ERROR:						
Temperature: ±0.03 K						
REFERENCES:						

COMPONENTS:	ORIGINAL MEASUREMENTS:					
(1) Potassium chloride; KCl; [7447-40-7]	de Coppet, L.C.					
(2) Water; H ₂ O; [7732-18-5]	Z. Phys. Chem., Stoechiom. Verwandtschaftsl. <u>1897</u> , 22, 239-40.					
VARIABLES:	PREPARED BY:					
T/K = 262	M.-T. Saugier-Cohen Adad					
EXPERIMENTAL VALUES:						
t/°C	100 x mass ratio KCl/H ₂ O	mass % (compiler)	solid phase			
-11.1	24.6	19.74	KCl + ice			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:					
Previously described (1).	Not stated.					
ESTIMATED ERROR:						
No estimates possible.						
REFERENCES:						
1. de Coppet, L.C. Bull. Soc. Vaudoise Sci. Nat. <u>1871</u> , 11, 1.						

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Raoult, F.M.	
(2) Water; H ₂ O; [7732-18-5]		Ann. Chim. Phys. [7] 1899, 16, 162-220.	
VARIABLES:		PREPARED BY:	
T/K = 270-273		J.-J. Counioux	
EXPERIMENTAL VALUES:			
<i>t</i> /°C	mass ratio KCl/H ₂ O	mass % (compiler)	solid phase
-0.0509	0.001080	0.1079	ice
-0.1031	0.002171	0.2166	"
-0.2026	0.00436	0.434	"
-0.4007	0.00875	0.867	"
-0.7992	0.01766	1.735	"
-1.6012	0.03590	3.466	"
-3.2864	0.07460	6.942	"
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:		
Cryoscopic method. The mixture of salt and water (125 mL) was stirred slowly and cooled to 0.5 K below the freezing point. Then the temperature of the thermostat was increased to 0.1 K below the estimated freezing point. A small crystal of ice was added to the sample, and the temperature was read every 2 or 3 min. Equilibrium was reached when the temperature variations were smaller than 0.002-0.003 K over 15 min.	Not stated.		
ESTIMATED ERROR:		Temperature: precision within ± 0.001 K.	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]	Jones, H.C.; Getman, F.H. <i>Z. Phys. Chem., Stoechiom. Verwandtschaftsl.</i> <u>1903</u> , 46, 244-86.
(2) Water; H ₂ O; [7732-18-5]	
VARIABLES:	PREPARED BY:

T/K = 262-273

J.W. Lorimer

EXPERIMENTAL VALUES:

t/°C	concentration mol dm ⁻³	mass % (compiler ^a)	solid phase
-0.685	0.2	0.0148	ice
-1.692 ^a	0.5	0.0365	"
-3.400	1.0	0.0713	"
-6.944	2.0	0.1365	"
-11.062	3.0	0.1964	"

^a Given erroneously as -0.692 by the authors.

COMMENTS: The compiler's calculations of mass % uses densities taken from the Critical Evaluation in this volume for solutions of KCl saturated with ice.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS: KCl: a "fairly pure" sample was recrystallized repeatedly, then dried at 110°C for several d and stored over CaCl ₂ . Water: redistilled, conductivity 2.0x10 ⁻⁶ S cm ⁻¹ .
	ESTIMATED ERROR: Temperature: precision probably within ±0.1 K (compiler). Solubility: estimated precision ±1 %.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Potassium chloride; KCl; [7447-40-7]		Berkeley (Earl of)						
(2) Water; H ₂ O; [7732-18-5]		Phil. Trans. R. Soc. London, A <u>1904</u> , 203, 189-214.						
VARIABLES:		PREPARED BY:						
$T/K = 274-381$								
EXPERIMENTAL VALUES:								
t/°C	100 x mass ratio KCl/H ₂ O	mass % (compiler)	relative density	solid phase				
0.70	28.29	22.05	1.1540	KCl				
19.55	34.37	25.58	1.1738	"				
32.80	38.32	27.70	1.1839	"				
59.85	45.84	31.43	1.1980	"				
74.80	49.58	33.15	1.2032	"				
89.45	53.38	34.80	1.2069	"				
108.0 a	58.11	36.75	1.2118	"				
a boiling point								
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
The salt-water mixture was stirred at the appropriate temperature and the density followed by pycnometric measurement until its value remained constant. Solubilities were determined by evaporation to dryness of the saturated solution in platinum crucibles, except at the boiling point, where evaporation were done in Jena glass bulbs. Different temperature control systems were used.	KCl: Merck's purest grade; purity checked by chloride titration.							
ESTIMATED ERROR:								
Temperature: accuracy ± 0.01 K referred to hydrogen scale. Solubility: precision at least 0.16%								
REFERENCES:								

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]		Jahn, H.Z. <i>Z. Phys. Chem., Stoechiom. Verwandtschaftsl.</i> <u>1905</u> , 50, 129-68.		
(2) Water; H ₂ O; [7732-18-5]				
VARIABLES:		PREPARED BY:		
T/K = 272-273		M.-T. Saugier-Cohen Adad		
EXPERIMENTAL VALUES:				
<i>t</i> /°C	mass %	solid phase (compiler)		
-0.0900	0.1884	ice		
-0.0905	0.1900	"		
-0.1340	0.2807	"		
-0.1340	0.2813	"		
-0.1760	0.3744	"		
-0.1770	0.3752	"		
-0.2640	0.5614	"		
-0.2640	0.5625	"		
-0.3465	0.7421	"		
-0.3478	0.7423	"		
-0.5130	1.1088	"		
-0.5145	1.1114	"		
-0.6795	1.4766	"		
-0.6800	1.4749	"		
-0.8709	1.8927	"		
-0.8711	1.8924	"		
-1.1292	2.4575	"		
-1.1330	2.4704	"		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Cryoscopic method. The solution was cooled to about 1.5 K under the crystallization temperature, then seeded by a small piece of ice. Temperature was stable at less than some thousandths K for about 40 min. Solutions were analyzed for Cl by the Volhard method.	The salt was purified from KBr by dissolution in hydrochloric acid after addition of Cl ₂ , followed by several recrystallizations.			
ESTIMATED ERROR:				
No estimates possible.				
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Potassium chloride; KCl; [7447-40-7]		Meusser, A.				
(2) Water; H ₂ O; [7732-18-5]		Z. Anorg. Allg. Chem. 1905, 44, 79-80.				
VARIABLES:		PREPARED BY:				
T/K = 268-292		M.-T. Saugier-Cohen Adad				
EXPERIMENTAL VALUES:						
t/°C	100 x mass ratio KCl/H ₂ O	mass %	solid phase (compiler)			
18.5	33.3	25.0	KCl			
11.5	31.2	23.8	"			
10	30.8	23.5	"			
7.5	29.8	23.0	"			
2.5	28.4	22.2	"			
0	27.5	21.6	"			
- 1	27.2	21.4	"			
- 4.5	25.9	20.6	"			
- 9	23.9	19.3	ice			
- 8.5	21.5	17.7	"			
- 8	20.0	16.7	"			
- 7	17.5	14.9	"			
- 6	15.7	13.6	"			
- 5.5	14.3	12.5	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Thermometric method.	Not stated.					
ESTIMATED ERROR:						
No estimates possible.						
REFERENCES:						

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7] (2) Water; H ₂ O; [7732-18-5]	Buchanan, J.Y. Am. J. Sci. 1906, 21, 25-40.
VARIABLES: T/K = 297	PREPARED BY: M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C	molality mol kg ⁻¹	mass % a	relative density	solid phase
23.4	4.7619	26.21	1.1798	KCl

a KCl molar mass = 74.6 g mol⁻¹, according to the author.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
25 g of distilled water were weighed into a suitable vessel and the salt was gradually added until a small quantity remained undissolved. This quantity was such that a further rise in temperature of 1 K caused all salt to disappear. The salt content was determined by titration with AgNO ₃ .	KCl: Merck's purest reagent..
	ESTIMATED ERROR:
	Temperature: ±0.1 K
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7] (2) Water; H ₂ O; [7732-18-5]	Kernot, G.; D'Agostino, E.; Pellegrino, M. Gazz. Chim. Ital. 1906, 38, 532-54.
VARIABLES: T/K = 323	PREPARED BY: M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C	mass %	solid phase
50	42.7800	KCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Isothermal method. KCl in saturated solution was determined by evaporation to dryness at 150°C.	KCl: from neutralization of KOH by a solution of HCl (puriss. grade); product recrystallized several times. Distilled water prepared by method of Hulett.
	ESTIMATED ERROR:
	No estimates possible.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:																																	
(1) Potassium chloride; KCl; [7447-40-7]		Armstrong, H.E.; Eyre, J.V.																																	
(2) Water; H ₂ O; [7732-18-5]		Proc. R. Soc. London, A <u>1910-11</u> , 84, 123-36.																																	
VARIABLES:		PREPARED BY:																																	
T/K = 273, 298		M.-T. Saugier-Cohen Adad																																	
EXPERIMENTAL VALUES:																																			
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 15%;">t/°C</th> <th colspan="2" style="text-align: center;">100 x mass ratio KCl/H₂O</th> <th colspan="2" style="text-align: center;">mass % (compiler)</th> <th style="text-align: right;">solid phase</th> </tr> <tr> <th></th> <th style="text-align: center;">A</th> <th style="text-align: center;">B</th> <th style="text-align: center;">A</th> <th style="text-align: center;">B</th> <th></th> </tr> </thead> <tbody> <tr> <td>0</td> <td style="text-align: center;">28.355</td> <td></td> <td style="text-align: center;">22.09</td> <td></td> <td style="text-align: right;">KCl</td> </tr> <tr> <td>25</td> <td style="text-align: center;">36.43</td> <td style="text-align: center;">36.40</td> <td style="text-align: center;">26.70</td> <td style="text-align: center;">26.69</td> <td style="text-align: right;">"</td> </tr> <tr> <td>25</td> <td style="text-align: center;">36.44</td> <td style="text-align: center;">36.37</td> <td style="text-align: center;">26.71</td> <td style="text-align: center;">26.67</td> <td style="text-align: right;">"</td> </tr> </tbody> </table>						t/°C	100 x mass ratio KCl/H ₂ O		mass % (compiler)		solid phase		A	B	A	B		0	28.355		22.09		KCl	25	36.43	36.40	26.70	26.69	"	25	36.44	36.37	26.71	26.67	"
t/°C	100 x mass ratio KCl/H ₂ O		mass % (compiler)		solid phase																														
	A	B	A	B																															
0	28.355		22.09		KCl																														
25	36.43	36.40	26.70	26.69	"																														
25	36.44	36.37	26.71	26.67	"																														
<p>The values given in columns A and B represent results obtained with two samples. B was withdrawn one hour after A.</p>																																			

AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:				
The method was described in a previous communication (1). At 0°C the mixture was constantly stirred in a bath of crushed ice and water. The temperature was easily kept constant for several hours. For measurements at 25°C, see (1).	"Pure" salt was recrystallized 2X.				
ESTIMATED ERROR:	Mass ratio: precision about 0.1% (compiler)				
REFERENCES:	1. Armstrong, H.E.; Eyre, J.V. Proc. R. Soc. London, A <u>1907</u> , 79, 564.				

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Potassium chloride; KCl; [7447-40-7]		Berkeley (Earl of); Appleby, M.P.			
(2) Water; H ₂ O; [7732-18-5]		Proc. R. Soc. London, A <u>1911</u> , 85, 489-505.			
VARIABLES:	PREPARED BY:				
p/mmHg: 750 - 760	M.-T. Saugier-Cohen Adad				
EXPERIMENTAL VALUES:					
pressure mmHg	t/°C (boiling point)	KCl concentration mol dm ⁻³	mass % (compiler) ^b	solid phase	
750	108.205			KCl	
760	108.599 ^a	5.985	36.82	"	
a corrected to standard conditions			b density from (1)		

AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:				
Described in previous paper (1).	Merck's "guaranteed" salt was used.				
REFERENCE:	ESTIMATED ERROR:				
1. Berkeley, (Earl of); Phil. Trans. R. Soc. London, A <u>1904</u> , 203, 189.	Temperature: precision within ±0.005 K				

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]		Rivett, A.C.D.
(2) Water; H ₂ O; [7732-18-5]		K. Sven. Vetenskapsakad. Medd., Nobel-inst. <u>1911</u> , 2(9), 1-32.
VARIABLES:		PREPARED BY:
T/K = 270-273		M.-T. Saugier-Cohen Adad
EXPERIMENTAL VALUES:		
<i>t/°C</i>	mass %	solid phase
-0.482	1.057	ice
-1.004	2.210	"
-1.474	3.217	"
-1.972	4.271	"
-2.475	5.328	"
-2.955	6.336	"
-3.461	7.358	"
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:	
	Salt from Kemista Fabriken Ion.	
The mixture was supercooled in a bath 4 K below the freezing point until a large quantity of ice separated out, which was thawed until only a very small amount remained. The solution was placed in an air jacket and stirred until the temperature was stationary. Supercooling for 1 or 2 hundredths K was allowed and hand stirring continued until the temperature rose to its maximum.	ESTIMATED ERROR:	
	Temperature (mean of 5 readings): ±0.003 K	
	REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:					
(1) Potassium chloride; KCl; [7447-40-7]		Brönsted, J.N.					
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Stoichiom. Ver- wandtschaftsl. <u>1913</u> , 82, 632-40.					
VARIABLES:		PREPARED BY:					
T/K = 373		M.-T. Saugier-Cohen Adad					
EXPERIMENTAL VALUES:							
t/°C	mass ratio KCl/H₂O	mass % (compiler)	vapor pressure /mm Hg	solid phase			
100	0.5605	35.92	567.8	KCl			
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:					
Saturated solution was obtained by agitating an excess of salt with water. Solubility was calculated from the relation:		Purest salt of Kahlbaum.					
$r = (m_1 - r_1)m_2$ r = mole ratio m_1 = mass of salt r_1 = mass of residue m_2 = mass of water							
ESTIMATED ERROR:							
Temperature: ±0.01 K							
REFERENCES:							

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Corne, E.	
(2) Water; H ₂ O; [7732-18-5]		Ann. Chim. Phys. 1913, 29, 491-529.	
VARIABLES:		PREPARED BY:	
T/K = 271-273		M.-T. Saugier-Cohen Adad	
EXPERIMENTAL VALUES:			
t/°C	mass ratio KCl/H ₂ O	mass %	solid phase
-0.169	0.003538	0.3526	ice
-0.260	0.005515	0.5485	"
-0.454	0.009869	0.9773	"
-0.892	0.019618	1.9241	"
-1.760	0.039603	3.9226	"
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:		
Raoult's cryoscopic method (1). The test tube containing about 100 cm ³ of the sample was cooled in a bath of carbon disulfide main- tained at 2 or 3 K below the freezing point. The temperature was read on Baudin thermometers graduated in 0.02 K or Beckmann thermometers (0.01 K). The super- cooling observed was about 0.3 to 0.4 K.	Not stated.		
	ESTIMATED ERROR:		
	Temperature: about ±0.005 K		
	REFERENCES:		
1. Raoult, F.M. Ann. Chim. Phys. <u>1899</u> , 16, 162.			

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]	Grünwald, W.
(2) Water; H ₂ O; [7732-18-5]	Zur Kenntnis der ozeanischen Salzablagerungen. Inaugural- Dissertation. Erlangen. Junge & Sohn. Erlangen. 1913.
VARIABLES:	PREPARED BY:
T/K = 298	J. W. Lorimer

EXPERIMENTAL VALUES:

t/°C	mass sln /g	vol 0.1 mol dm ⁻³ AgNO ₃ /cm ³	mass AgCl/g	mass % KCl (compiler)	stirring time/h	source of salt
25	0.3427	12.24	-	26.63	8	a
	0.1268	4.53	-	26.66	8	a
	0.11195	4.0	-	26.64	8	a
	0.84732	30.28	-	26.64	8	a
	0.84732	-	0.4335	26.61	8	a
	0.84732	30.30	-	26.66	8	a
	0.84732	30.29	-	26.65	8	a
	0.84732	-	0.2259a	26.66	8	a
	0.84732	-	0.2650b	26.76	8	a
	0.4500	16.12	-	26.71	14	b
<hr/>						
average 26.66 s = 0.04						

a mass KCl on drying; b mass $\frac{1}{4}$ K₂SO₄ after evaporating with H₂SO₄.

Solid phase: KCl throughout

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
<p>Salt and water were stirred in a flask in a thermostat. The stirrer shaft passed through a seal to minimize evaporation. Samples were removed through a cotton wool filter into a pipet warmed to the temperature of the solution, and transferred to weighing flasks. KCl was determined by titration with AgNO₃, gravimetrically as AgCl, by evaporation, or by evaporating with H₂SO₄ and weighing as K₂SO₄.</p>	<p>a - 5x recrystallized KCl precipitated as tartrate, decomposed to carbonate, converted to chloride, 5x recrystallized, dried at 150°C, fused. Contained 47.54, 47.62 % Cl (theor. 47.56%).</p> <p>b - Kahlbaum "zur Analyse mit Garantieschein"</p>
ESTIMATED ERROR:	<p>Temperature: ± 0.1 K (compiler)</p> <p>Solubility: s = 0.04 mass %, from data.</p>
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7] (2) Water; H ₂ O; [7732-18-5]	Leather, J.W.; Mukerji, J.N. Mem. Dep. Agri. India, Chem. Ser. <u>1914</u> , 3(7), 177-204.
VARIABLES: T/K = 293-364	PREPARED BY: M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:			
t/°C	100 x mass ratio KCl/H ₂ O	mass %	relative density
20	34.61	25.71	1.176
30	37.58	27.32	1.186
40	40.60	28.88	1.194
91	53.58	34.89	1.222

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The method has been described by Meyerhofer and Saunders (1). Water and salt were weighed in a glass tube. The mixture was first heated to a temperature above that at which equilibrium was expected. It was then stirred at a fixed temperature for about 20 hours. Samples of the clear solution were then withdrawn and analyzed.	Not stated.
	ESTIMATED ERROR: Temperature: up to 40°C, ±0.2 K. Relative density: at 91°C, ±0.005.
	REFERENCES: 1. Meyerhofer, W.; Saunders, A.P. Z. Phys. Chem., Stoichiom. Verwandtschaftsl. <u>1899</u> , 28, 451.

COMPONENTS:	ORIGINAL MEASUREMENTS:					
(1) Potassium chloride; KCl; [7447-40-7] (2) Water; H ₂ O; [7732-18-5]	Reinders, W.	Z. Anorg. Allg. Chem. 1915, 93, 202-12.				
VARIABLES:	PREPARED BY:					
T/K = 278-373	M.-T. Saugier-Cohen Adad					
EXPERIMENTAL VALUES:						
t/°C	100 x mass ratio KCl/H ₂ O	mass % (compiler)	solid phase			
5	29.76	22.93	KCl			
25	35.98	26.46	"			
50	42.80	29.97	"			
100	56.0	35.9	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Not given, but probably isothermal method with analysis of saturated solution (compiler).	Not stated.					
ESTIMATED ERROR:						
No estimates possible.						
REFERENCES:						

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Potassium chloride; KCl; [7447-40-7]		Rodebush, W.H.				
(2) Water; H ₂ O; [7732-18-5]		J. Am. Chem. Soc. 1918, 40, 1204-13.				
VARIABLES:		PREPARED BY:				
T/K = 262-270		M.-T. Saugier-Cohen Adad				
EXPERIMENTAL VALUES:						
<i>t</i> /°C	100 x mass ratio KCl/H ₂ O	mass % (compiler)	solid phase			
- 3.07	7.09	6.62	ice			
- 4.66	10.77	9.72	"			
- 7.51	17.38	14.81	"			
- 9.84	22.69	18.49	"			
-10.34	23.80	19.22	"			
-10.66	24.60	19.74	ice + KCl			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Freezing point lowerings were measured directly by means of a Cu-constantan thermocouple connected to a potentiometer. The saturation point was taken as the point at which the temperature stopped falling and began to rise slowly. The composition of the saturated solution was determined by conductivity measurements. For the determination of the eutectic temperature, salt and ice were mixed, frozen to a solid mass, broken into small pieces and placed in a Dewar. The mixture warmed up rapidly to a definite temperature and then remained constant within 0.01 K for 20-30 minutes.	The salt was the purest commercially obtainable. It was recrystallized and its purity was determined by Lewis' equation (1).					
ESTIMATED ERROR:						
Temperature: ±0.01 to 0.02 K Solubility: ±0.1%						
REFERENCES:						
1. Lewis, G.N. Proc. Am. Acad. <u>1907</u> , 43, 284.						

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Amadori, M.	
(2) Water; H ₂ O; [7732-18-5]		<i>Atti Ist. Veneto Sci., Lett. Arti</i> <u>1919, 79, 293-320.</u>	
VARIABLES:		PREPARED BY:	
T/K = 298		M.-T. Saugier-Cohen Adad	
EXPERIMENTAL VALUES:			
t/°C	100 x mass ratio KCl/H ₂ O	mass %	solid phase
25	36.00	26.47	KCl
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:	
Solubilities were determined by the isothermal method. A sample of clear solution was weighed and evaporated to dryness. The residue was analyzed.		Not stated.	
		ESTIMATED ERROR:	
		No estimates possible.	
		REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:																		
(1) Potassium chloride; KCl; [7447-40-7]		Denecke, W.																		
(2) Water; H ₂ O; [7732-18-5]		Z. Anorg. Allg. Chem. <u>1919</u> , 108, 1-43.																		
VARIABLES:		PREPARED BY:																		
T/K = 243-250 p/MPa: 133-302		M.-T. Saugier-Cohen Adad																		
EXPERIMENTAL VALUES:																				
<table> <thead> <tr> <th>t/°C</th> <th>p/kg cm⁻²</th> <th>solid phases</th> </tr> </thead> <tbody> <tr> <td>-23.7</td> <td>11326</td> <td>ice I + KCl</td> </tr> <tr> <td>-31.6</td> <td>1948</td> <td>"</td> </tr> <tr> <td>-31.7</td> <td>2815</td> <td>ice III' + KCl</td> </tr> <tr> <td>-30.7</td> <td>3007</td> <td>"</td> </tr> <tr> <td>-30.6</td> <td>3015</td> <td>"</td> </tr> </tbody> </table>			t/°C	p/kg cm ⁻²	solid phases	-23.7	11326	ice I + KCl	-31.6	1948	"	-31.7	2815	ice III' + KCl	-30.7	3007	"	-30.6	3015	"
t/°C	p/kg cm ⁻²	solid phases																		
-23.7	11326	ice I + KCl																		
-31.6	1948	"																		
-31.7	2815	ice III' + KCl																		
-30.7	3007	"																		
-30.6	3015	"																		
AUXILIARY INFORMATION																				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:																			
Water and KCl were confined in a steel bomb with pentane for transmitting pressure. The bomb was immersed in an ethanol-carbonic acid bath. The temperature was increased at about 0.4 K/min, and solid-liquid equilibrium points were found from a plot of temperature against pressure.	Not stated.																			
	ESTIMATED ERROR:																			
	Temperature: ±0.01 K																			
	REFERENCES:																			

COMPONENTS:	ORIGINAL MEASUREMENTS:					
(1) Potassium chloride; KCl; [7447-40-7] (2) Water; H ₂ O; [7732-18-5]	Tourneux, C. Ann. Chim. <u>1919</u> , 11, 230-65.					
VARIABLES:	PREPARED BY:					
T/K = 307-373	M.-T. Saugier-Cohen Adad					
EXPERIMENTAL VALUES:						
t/°C	mass %	density g cm ⁻³	solid phase			
34	27.8	-	KCl			
56	30.4	1.196	"			
80	33.6	1.194	"			
100	36.2	-	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Isothermal method. Crystals were separated from saturated solution by centrifugation. The solution was analyzed by a gravimetric method.	KCl: pure grade reagent					
ESTIMATED ERROR:						
Temperature: ±0.2 K Mass %: ±0.01						
REFERENCES:						

COMPONENTS:	ORIGINAL MEASUREMENTS:				
(1) Potassium chloride; KCl; [7447-40-7]	Barbaudy, J.				
(2) Water; H ₂ O; [7732-18-5]	Recl. Trav. Chim. Pays-Bas <u>1923</u> , 42, 638-42.				
VARIABLES:	PREPARED BY:				
T/K = 303	M.-T. Saugier-Cohen Adad				
EXPERIMENTAL VALUES:					
t/°C	mass %	solid phase			
30	27.2	KCl			
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:				
Isothermal method.	Not stated.				
	ESTIMATED ERROR:				
	No estimates possible.				
	REFERENCES:				

COMPONENTS:	ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]	Mondain-Monval, P.		
(2) Water; H ₂ O; [7732-18-5]	C. R. Hebd. Séances Acad. Sci. <u>1923</u> , 176, 1313-7.		
VARIABLES:	PREPARED BY:		
T/K = 263	M.-T. Saugier-Cohen Adad		
EXPERIMENTAL VALUES:			
t/°C	100 x mass ratio KCl/H ₂ O	mass % (compiler)	solid phases
-10.64	24.34	19.58	ice + KCl
			eutectic point
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:		
The method was described in a previous paper (1).	Not stated.		
	ESTIMATED ERROR:		
	No estimates possible.		
	REFERENCES:		
	1. Mondain-Monval, P. C. R. Hebd. Séances Acad. Sci. <u>1923</u> , 176, 889.		

COMPONENTS:		ORIGINAL MEASUREMENTS:									
(1) Potassium chloride; KCl; [7447-40-7]		Valeton, J.J.P.; Frömel, W.									
(2) Water; H ₂ O; [7732-18-5]		Z. Anorg. Allg. Chem. 1924, 137, 91-100.									
VARIABLES:		PREPARED BY:									
T/K = 298		M.-T. Saugier-Cohen Adad									
EXPERIMENTAL VALUES:											
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">t/°C</th> <th style="text-align: center;">mol %</th> <th style="text-align: center;">mass % (compiler)</th> <th style="text-align: center;">solid phase</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">25</td> <td style="text-align: center;">8.0</td> <td style="text-align: center;">26</td> <td style="text-align: center;">KCl</td> </tr> </tbody> </table>				t/°C	mol %	mass % (compiler)	solid phase	25	8.0	26	KCl
t/°C	mol %	mass % (compiler)	solid phase								
25	8.0	26	KCl								
AUXILIARY INFORMATION											
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:									
Isothermal method. A saturated solution was prepared. When equilibrium was obtained, a sample of solution was analyzed.		Not stated.									
		ESTIMATED ERROR:									
		No estimates possible.									
		REFERENCES:									

COMPONENTS:		ORIGINAL MEASUREMENTS:													
(1) Potassium chloride; KCl; [7447-40-7]		Zeitlin, S.M.													
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Stoechiom. Verwandtschaftsl. 1926, 121, 39-44.													
VARIABLES:		PREPARED BY:													
T/K = 283, 293		M.-T. Saugier													
EXPERIMENTAL VALUES:															
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">t/°C</th> <th style="text-align: center;">solubility mol dm⁻³</th> <th style="text-align: center;">mass % (compiler)</th> <th style="text-align: center;">solid phase (compiler)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">10.2</td> <td style="text-align: center;">3.712</td> <td style="text-align: center;">23.70</td> <td style="text-align: center;">KCl</td> </tr> <tr> <td style="text-align: center;">10.9</td> <td style="text-align: center;">3.903</td> <td style="text-align: center;">24.90</td> <td style="text-align: center;">"</td> </tr> </tbody> </table>				t/°C	solubility mol dm ⁻³	mass % (compiler)	solid phase (compiler)	10.2	3.712	23.70	KCl	10.9	3.903	24.90	"
t/°C	solubility mol dm ⁻³	mass % (compiler)	solid phase (compiler)												
10.2	3.712	23.70	KCl												
10.9	3.903	24.90	"												
AUXILIARY INFORMATION															
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:													
The solubility was studied by isothermal saturation. The compositions of saturated solutions were deduced from chloride titration by Mohr's method.		KCl was recrystallized several times.													
		ESTIMATED ERROR:													
		Temperature: ±0.1 K													
		REFERENCES:													

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]		Cor nec, E.; Hering, H. Caliche, <u>1926</u> -7, 8, 52-9;		
(2) Water; H ₂ O; [7732-18-5]		Hering, H. Thèse, Université Strasbourg 1926; Ann. Chim. <u>1936</u> , 5, 483-586.		
VARIABLES:		PREPARED BY:		
T/K = 273-373		M.-T. Saugier-Cohen Adad		
EXPERIMENTAL VALUES:				
<i>t</i> /°C	100 x mass ratio KCl/H ₂ O	mass %	density g cm ⁻³	solid phase
0	27.92	21.83	-	KCl
25	35.93	26.43	1.179	"
50	43.00	30.07	1.194	"
75	49.63	33.16	1.203	"
100	55.52	35.70	1.211	"
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Isothermal method. Saturated solution was analyzed by evaporation to dryness.	Commercial KCl was recrystallized.			
	ESTIMATED ERROR:			
	Temperature: ±0.05 K			
	Density: ±0.001 g cm ⁻³			
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Benrath, A.	
(2) Water; H ₂ O; [7732-18-5]		Z. Anorg. Allg. Chem. 1927, 163, 396-404.	
VARIABLES:		PREPARED BY:	
T/K = 298		M.-T. Saugier-Cohen Adad	
EXPERIMENTAL VALUES:			
t/°C	mol ratio H ₂ O/KCl	mass % (compiler)	solid phase
25	12.58	24.75	KCl
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Not stated; probably isothermal method.		Not stated.	
		ESTIMATED ERROR:	
		No estimates possible.	
		REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Foote, H.W.	
(2) Water; H ₂ O; [7732-18-5]		Am. J. Sci. 1927, 158-66.	
VARIABLES:		PREPARED BY:	
T/K = 298		M.-T. Saugier-Cohen Adad	
EXPERIMENTAL VALUES:			
t/°C	mass %	solid phase	
25	26.46	KCl	
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Saturated solutions were prepared by shaking the components in small glass-stoppered bottles in a thermostat. Samples were drawn off for analysis through a small filter of glass wool directly into a weighing bottle.		KCl was purified by "usual methods".	
		ESTIMATED ERROR:	
		No estimates possible.	
		REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Potassium chloride; KCl; [7447-40-7]		Holluta, J.; Mautner, S.						
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Stoechiom. Ver- wandtschaftsl. <u>1927</u> , 127, 455-75.						
VARIABLES:		PREPARED BY:						
T/K = 292		M.-T. Saugier-Cohen Adad						
EXPERIMENTAL VALUES:								
t/°C	KCl g dm ⁻³	mass % (compiler)	density	solid phase				
18.5	298.50	25.43	1.1738	KCl				
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
A mixture of salt and water was heated at 60°C for 1 hour, then placed in a thermostat and stirred. Solid-liquid equilibrium was obtained after about 12 hours. Samples of clear solution were removed and analyzed by evaporating the solution and drying the residue at 120°C to constant weight.	Not stated.							
ESTIMATED ERROR:								
No estimates possible.								
REFERENCES:								

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Potassium chloride; KCl; [7447-40-7]		Jones, F.R.; Bury, C.R. <i>Philos. Mag.</i> 1927, 3, 1032-7.				
(2) Water; H ₂ O; [7732-18-5]						
VARIABLES:		PREPARED BY:				
T/K = 271-273		M. Ferriol				
EXPERIMENTAL VALUES:						
t/°C	molality mol/kg	mass % (compiler)	solid phase			
-0.340	0.0988	0.7312	ice			
-0.412	0.1205	0.8904	"			
-0.425	0.1246	0.9204	"			
-0.616	0.1816	1.3359	"			
-0.803	0.2381	1.7442	"			
-0.913	0.2710	1.9805	"			
-1.007	0.2998	2.1863	"			
-1.347	0.4042	2.9254	"			
-1.511	0.4549	3.2803	"			
-1.723	0.5204	3.7350	"			
-1.992	0.6047	4.3140	"			
-2.303	0.7013	4.9689	"			
-2.577	0.7856	5.5331	"			
-2.719	0.8303	5.8296	"			
-3.001	0.9182	6.4072	"			
-3.328	1.020	7.0674	"			
-3.618	1.112	7.6560	"			
-3.960	1.220	8.3376	"			
-4.230	1.304	8.8608	"			
-4.528	1.397	9.4331	"			
-4.804	1.484	9.9620	"			
-5.208	1.608	10.705	"			
-5.223	1.615	10.747	"			
-5.519	1.704	11.272	"			
-5.757	1.778	11.705	"			
-5.882	1.818	11.937	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
The apparatus consisted of a Dewar flask of 400 cm ³ capacity closed by a rubber stopper through which passed a thermometer, a stirrer and a closed tube holding a pipet. The flask was placed in a vigorously stirred brine bath, the temperature of which was kept within 0.1°C of that inside the flask. Temperatures were measured by Beckmann thermometers standardized to 0.005 K. Saturated solution was analysed by titration for Cl ⁻ .	KCl was recrystallized 4 times.					
ESTIMATED ERROR:						
Temperature: ±0.005 K. Molality: ±0.001 mol kg ⁻¹						
REFERENCES:						

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]	Malquori, G.
(2) Water; H ₂ O; [7732-18-5]	Atti. Accad. Naz. Lincei, Cl. Sci. Fis., Mat. Nat., Rend. [5] 1927, 5, 510-11; 1928, 7, 749-50; 1928, 8, 738-9; Gazz. Chim Ital. 1928, 58, 891-8.
VARIABLES:	PREPARED BY:

T/K = 273-353

M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C	mass %	solid phase	reference
0	21.60	KCl	1928 papers 1, 3
25	26.31	"	1927 paper
25	26.02	"	1928 paper 3
35	27.80	"	" " 3
40	28.06	"	" " 2
40	28.60	"	" " 1
60	31.30	"	1927; 1928 papers 1, 2
80	33.80	"	1928 paper 2

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Isothermal method.	Not stated.
	ESTIMATED ERROR:
	No estimates possible.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Palitzsch, S.	
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Abt. A 1928, 138, 379-98; Studier over Oplosingers Overfladespaending. Habilitation Thesis. Levin & Munksgaards Forlag. Copenhagen 1927.	
VARIABLES:		PREPARED BY:	
T/K = 298		M.-T. Saugier-Cohen Adad	
EXPERIMENTAL VALUES:			
t/°C	molality mol kg ⁻¹	mass %	relative density d_t^4
25	4.828	26.46	1.17813
			KCl
COMMENTS AND ADDITIONAL DATA: Solubilities were measured in connection with studies of surface tensions. The experimental molalities and densities are given on pp. 386-95 of the paper. In the Thesis, the primary data are mass of solution and titer of 0.1 mol dm ⁻³ AgNO ₃ . The compiler has calculated molalities and mass fractions from these data, which differ in the last figure from the values given by the author. The primary data follow.			
mass of sln/g	titer/cm ³	molality/mol kg ⁻¹	mass %
1.1962	42.40	4.818	26.42
1.0069	35.80	4.838	26.51
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:		
Solution and solid were rotated in sealed flasks in a thermostat. After saturation, which was continued up to 15 h, the mixture was filtered through cotton wool. Cl was determined by titration with AgNO ₃ . Densities were measured by pycnometer.	KCl (Kahlbaum or Merck) was recrystallized and checked by analysis. Chloride was determined volumetrically. Water was redistilled over alkaline permanganate.		
ESTIMATED ERROR:		Temperature: precision to 0.02 K. Solubility: precision within 0.05 mass %, from data in thesis. Density: precision 1-10 x 10 ⁻⁵ .	
REFERENCES:			

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]	Scott, A.P.; Frazier, W.R. <i>J. Phys. Chem.</i> 1927, 31, 459-63.
(2) Water; H ₂ O; [7732-18-5]	
VARIABLES:	PREPARED BY:
T/K = 298	M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C	mass sln/g	vol. /cm ³	density g cm ⁻³	mass sample/g	mass AgCl/g	mass salt/g	mass salt/g	mass % (compiler)
25	29.9301	25.4105	1.17786	7.7042	3.9070	2.0322	26.375	
	28.9362	24.5669	1.17785	6.4209	3.2547	1.6929	26.355	
				7.5590	3.8351	1.9948	26.389	
			1.17786				26.376	
							s = 0.012	

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE

The isothermal method was used. About 80 cm³ of mixture were prepared in a 250 cm³ glass bottle. The bottle was placed in a rotating device in a thermostat and stirred for 1 hour. It was then allowed to stand in the bath for 1 hour. These operations were repeated several times. Saturated solution was transferred into a weighing flask. Solubility was obtained by titration for chloride. All masses given above have been corrected to vacuum.

SOURCE AND PURITY OF MATERIALS:

Preparation and purification of the materials were described elsewhere (1).

ESTIMATED ERROR:

Temperature: +0.01 K

REFERENCES:

1. Baxter, G.P.; Wallace, C.C.
J. Am. Chem. Soc. 1916, 38, 70.

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]	(2) Water; H ₂ O; [7732-18-5]	Wright, R.	J. Chem. Soc. 1927, 1334-7.
VARIABLES:		PREPARED BY:	
T/K = 293, 373		M.-T. Saugier-Cohen Adad	
EXPERIMENTAL VALUES:			
	t/°C	100 x mass ratio	mass %
	20	34.3 34.3	25.5 25.5
	100	56.5 56.0	36.1 35.9
			KCl " " "
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:		
Solid and solution were mixed in a container in a thermostat at 20°C. At 100°C, solid and solution were mixed in a sealed tube furnished with a sidearm. After rocking the tube for 4 h, the crystals were transferred into the sidearm, and the solution was cooled and analyzed by titration or evaporation to dryness.	Not stated.		
	ESTIMATED ERROR:		
	No estimates possible.		
	REFERENCES:		

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Potassium chloride; KCl; [7447-40-7]		Flöttmann, F.			
(2) Water; H ₂ O; [7732-18-5]		Z. Anal. Chem. 1928, 73, 1-39.			
VARIABLES:		PREPARED BY:			
T/K = 288-298		M.-T. Saugier-Cohen Adad			
EXPERIMENTAL VALUES:					
t/°C	mass %	density g cm ⁻³	refractive index	solid phase	remarks
15	24.720	1.0055	1.33478	KCl	b
	24.747		"	"	b
	24.714		"	"	a
20	25.576	1.0045	1.33439	"	b
	25.578		"	"	b
	25.598		"	"	b
25	26.450	1.0033	1.33385	"	b
	26.453		"	"	b
	26.450		"	"	a
	26.469		"	"	a
<hr/>					
a analysis by evaporation to dryness					
b analysis by precipitation of AgCl.					
<hr/>					
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:				
The mixture was introduced into a Jena bottle and stirred for 10 h. A part of the clear solution was removed and analyzed by evaporation to dryness and weighing of the residue or by precipitation of chloride as AgCl.	Not stated.				
	ESTIMATED ERROR:				
	Temperature: ±0.02 K				
	Density: ±0.0002 g cm ⁻³				
	REFERENCES:				
	<hr/>				
	<hr/>				

COMPONENTS:	ORIGINAL MEASUREMENTS:			
(1) Potassium chloride; KCl; [7447-40-7]	Froelich, W.			
(2) Water; H ₂ O; [7732-18-5]	Mitt. Kali-Forsch. Anst. <u>1929</u> , 37-66.			
VARIABLES:	PREPARED BY:			
T/K = 415-478	J.W. Lorimer			
EXPERIMENTAL VALUES:				
t/°C	mass %	pressure /atm	stirring time/h	solid phase
130	38.3	1.0	1	KCl
130	38.4	1.2	2	"
131	40.2	1.3	1½	"
133	40.8	1.3	2½	"
150	41.1	1.7	1½	"
178	43.2	6.9	1½	"
180	43.3	7.2	1	"
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Salt and water were stirred at 25 rev/min in an autoclave heated by an oil bath. The autoclave was fitted with thermometers and a manometer. Samples were removed via a sampling tube fitted with a linen filter. Dead space was at a minimum in the autoclave, so compressed air or CO ₂ was used to force out samples, which were collected in a closed bomb and then cooled. Analyses were by the "usual methods used in the potash industry".	No information given.			
ESTIMATED ERROR:				
Temperature: precision ±1 K. Solubility: precision within ±0.2 mass %, from data in table.				
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Askenazy, P.; Nessler, F. <i>Z. Anorg. Allg. Chem.</i> <u>1930</u> , 189, 305-28.	
(2) Water; H ₂ O; [7732-18-5]			
VARIABLES:		PREPARED BY:	
$T/K = 273$		T. Mioduski	
EXPERIMENTAL VALUES:			
$t/^\circ C$	mole ratio H ₂ O/KCl	mass % (compiler)	solid phase
0	14.40	20.32	KCl
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:		
No experimental details given, but presumably isothermal saturation method was used. The saturated solution was analyzed for chloride and for KCl by evaporation.	Not stated.		
ESTIMATED ERROR:		No estimates possible.	
REFERENCES:			

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Potassium chloride; KCl; [7447-40-7]		Barnes, W.H.; Maass, O.						
(2) Water; H ₂ O; [7732-18-5]		Can. J. Res. 1930, 2, 218-29.						
VARIABLES:		PREPARED BY:						
T/K = 263-298		M.-T. Saugier-Cohen Adad						
EXPERIMENTAL VALUES:								
<i>t</i> /°C (mean)	<i>t_c</i> /°C	<i>t_w</i> /°C	mass %	solid phase				
- 2.24	- 2.34	- 2.13	. 4.95	ice				
- 4.60	- 4.84	- 4.35	9.48	"				
- 6.88	- 7.11	- 6.65	13.70	"				
- 9.48	- 9.87	- 9.09	17.85	"				
		- 9.78	18.94	"				
-10.31	-10.68	- 9.93	19.02	ice + KCl				
		-10.36	19.49	" "				
25.22			26.41	KCl				
<i>t_c</i> = appearance of first crystal on cooling <i>t_w</i> = disappearance of last crystal on warming								
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
The solubility was determined by the visual method (appearance of first crystal on cooling; disappearance on warming). The temperature of solutions was allowed to fall at a rate of less than 1 K per minute and to rise at a rate of about 1 K per 5 minutes.	Kahlbaum's KCl was recrystallized several times and was finally kept at dull red heat in a Pt crucible for 2-3 hours.							
ESTIMATED ERROR:								
Temperature: ±0.1 K below 25°C. Mass %: ±0.1% over a range including eutectic.								
REFERENCES:								

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Potassium chloride; KCl; [7447-40-7]		Karagunis, B.; Hawkinson, A.; Damköhler, G.				
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Abt. A <u>1930</u> , 151, 433-66.				
VARIABLES:		PREPARED BY:				
T/K = 272-273		M.-T. Saugier-Cohen Adad				
EXPERIMENTAL VALUES:						
<i>t</i> /°C	molality mol kg ⁻¹	mass % (compiler)	solid phase			
-0.1077 ₅	0.0298	0.222	ice			
-0.1614 ₉	0.0450	0.334	"			
-0.3229	0.0926	0.686	"			
-0.3836	0.1116	0.825	"			
-0.4776	0.1398	1.032	"			
-0.7164	0.2124	1.559	"			
-0.974 ₃	0.2920	2.131	"			
-1.3978	0.4221	3.050	"			
-1.649	0.5008	3.599	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Cryoscopic method. The difference between the melting points of ice and solution was measured with a thermocouple. Concentrations of solution were determined using a Haber-Lowe interferometer.	Guaranteed pure grade de Haen reagent was used.					
ESTIMATED ERROR:						
$\Delta(t/m) = 0.2\%$						
REFERENCES:						

COMPONENTS:	ORIGINAL MEASUREMENTS:																				
(1) Potassium chloride; KCl; [7447-40-7]	Scott, A.F.; Durham, E.J. <i>J. Phys. Chem.</i> <u>1930</u> , 34, 1424-38.																				
(2) Water; H ₂ O; [7732-18-5]																					
VARIABLES:	PREPARED BY:																				
T/K = 323-365	J.W. Lorimer																				
EXPERIMENTAL VALUES:																					
<table> <thead> <tr> <th>t/°C</th> <th>density g cm⁻³</th> <th>molality mol kg⁻¹</th> <th>mass % (compiler)</th> <th>solid phase</th> </tr> </thead> <tbody> <tr> <td>50.21</td> <td>1.1930</td> <td>5.74</td> <td>30.0</td> <td>KCl</td> </tr> <tr> <td>67.91</td> <td>1.2006</td> <td>6.38</td> <td>32.2</td> <td>"</td> </tr> <tr> <td>92.23</td> <td>1.2076</td> <td>7.20</td> <td>34.9</td> <td>"</td> </tr> </tbody> </table>		t/°C	density g cm ⁻³	molality mol kg ⁻¹	mass % (compiler)	solid phase	50.21	1.1930	5.74	30.0	KCl	67.91	1.2006	6.38	32.2	"	92.23	1.2076	7.20	34.9	"
t/°C	density g cm ⁻³	molality mol kg ⁻¹	mass % (compiler)	solid phase																	
50.21	1.1930	5.74	30.0	KCl																	
67.91	1.2006	6.38	32.2	"																	
92.23	1.2076	7.20	34.9	"																	
AUXILIARY INFORMATION																					
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:																				
Saturation was carried out by stirring salt and water in closed tubes. After saturation, the stirrer and stopper were replaced with a stopper carrying two holders with the calibrated solubility and density flasks, which were pre-warmed to 50 K above the temp. of the satd solution. The flasks were equilibrated in the space above the sln, then immersed in it and filled by inserting a capillary. The flasks were removed, dried and weighed. The contents of the solubility flask were analyzed by gravimetric determination of Cl as AgCl.	Not stated.																				
ESTIMATED ERROR:																					
<p>Temperature: ± 0.01 K at 50°C; ± 0.04 K at 92°C. Thermometers calibrated by NBS.</p> <p>Density: av. dev. 9×10^{-5} g cm⁻³ at 50°C; 13×10^{-5} g cm⁻³ at 92°C.</p> <p>Solubility: no estimates possible.</p>																					
REFERENCES:																					

COMPONENTS:	ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]	Aronova, S.I.; Lunskaya, S.N. <i>Zh. Khim. Prom-sti</i> 1931, 8, 23-7.		
(2) Water; H ₂ O; [7732-18-5]			
VARIABLES:	PREPARED BY:		
T/K = 382	M.-T. Saugier-Cohen Adad; A.M. Szafranski		
EXPERIMENTAL VALUES:			
t/°C	mass %	pressure p/mmHg	solid phase
108.7	38.01	756.0	KCl ^a
a boiling point of saturated solution			

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The boiling point was measured in an open vessel thermostatted in an oil bath. The sample was stirred and Hg thermometers reading to 1 K were used. Saturation was checked by sampling and analyzing the liquid phase.	Not stated.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]	Hill, A.E.; Ricci, J.E. <i>J. Am. Chem. Soc.</i> 1931, 53, 4305-15.		
(2) Water; H ₂ O; [7732-18-5]			
VARIABLES:	PREPARED BY:		
T/K = 278-323	M.-T. Saugier-Cohen Adad		
EXPERIMENTAL VALUES:			
t/°C	mass %	density d/g cm ⁻³	solid phase
5	22.84	1.155	KCl
25	26.36	1.179	"
50	30.03	-	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Isothermal method. Sampling showed that equilibrium was attained in 2-3 days (higher temperatures, compiler) or in 2 weeks. Saturated solutions were analyzed by evaporation to dryness for water content.	Not stated.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]	Akhumov, E.I.; Vasiliev, B.V.
(2) Water; H ₂ O; [7732-18-5]	Zh. Obshch. Khim. 1932, 2, 271-89; Izv. Sekt. Fiz.-Khim. Anal., Inst. Obshch. Neorg. Khim., Akad. Nauk SSSR 1936, 9, 295-315.
VARIABLES:	PREPARED BY:
T/K = 383-573	M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C	100 x mass ratio KCl/H ₂ O	mass % (compiler)	density g cm ⁻³
100	56.0	35.90	1.215
110	58.0	36.71	
120	60.4	37.66	
130	62.9	38.61	1.235
140	65.8	39.69	
150	68.0	40.48	1.254
160	70.6	41.38	
170	73.4	42.33	1.276
180	75.6	43.05	
190	78.4	43.95	
200	81.4	44.87	1.317
210	83.2	45.41	
220	87.0	46.52	
230	89.8	47.31	
240	92.4	48.02	
250	95.3	48.80	
260	98.0	49.49	
270	100.8	50.20	
280	103.6	50.88	
290	106.4	51.55	
300	109.4	52.24	

Solid phase: KCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Three methods were used. (1) Visual: the temperature at which the last crystal disappeared was noted. (2) Isothermal: water and salt were introduced into a sealed U-tube which was placed in a thermostat. When equilibrium was obtained, a part of the saturated solution was separated from the mixture and collected in one side of the tube. After cooling the tube was cut and the solution was analyzed. (3) Conductimetric: conductivity was plotted vs concentration. At the saturation point, a break was observed in the curve.	Not stated.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Potassium chloride; KCl; [7447-40-7]		Cornec, E.; Krombach, N.						
(2) Water; H ₂ O; [7732-18-5]		Ann. Chim. (Paris) 1932, 18, 5-31.						
VARIABLES:		PREPARED BY:						
T/K = 263-463		M.-T. Saugier-Cohen Adad						
EXPERIMENTAL VALUES:								
t/°C	100 x mass ratio KCl/H ₂ O	mass %	density	solid phases				
- 10.7	24.3	19.54	-	ice + KCl				
0	28.1	21.92	1.154	KCl				
10	34.3	25.57	1.174	"				
40	40.2	28.65	1.189	"				
60	45.5	31.29	1.199	"				
80	50.6	33.59	1.205	"				
100	55.5	35.69	1.209	"				
108.5 ^a	57.6	36.50	1.209	"				
120	60.4	37.65	-	"				
140	65.6	39.60	-	"				
169.5	73.7	42.42	-	"				
189.6	79.7	44.34	-	"				
a boiling point								
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
Saturated solution was stirred at constant temperature for several hours. A sample of clear solution was then removed and analyzed. When the temperature of saturation was higher than the boiling point at atmospheric pressure, saturated solutions were prepared in a bomb placed in a thermostatted oil bath. After several hours, the bomb was turned in order to separate clear solution, which was removed after cooling and analyzed.	Not stated.							
ESTIMATED ERROR:								
Temperature: ±0.2 K								
REFERENCES:								

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]	Osokoreva, N.A.; Opikhtina, M.A.; Shioket, A.N.; Plaksina, E.F.; Zaslavskii, A.I.; with Kurnakov, N.S.; Manoev, D.P.
(2) Water; H ₂ O; [7732-18-5]	Tr. Gos. Inst. Prikl. Khim. 1932, no. 16, 24-47.
VARIABLES:	PREPARED BY:
T/K = 283 - 373	T. Mioduski

EXPERIMENTAL VALUES:

t/°C	Solubility of KCl		
	mass % 100w,	mole fraction ^a <i>x</i> ,	solid phase
10	23.84	0.07032	KCl
20	25.68	0.07706	"
25	26.52	0.08022	"
40	28.80	0.08904	"
50	30.06	0.09409	"
60	31.37	0.09947	"
70	32.52	0.1043	"
100	36.03	0.1198	"

^a Mole fractions calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The isothermal saturation method was used. Samples were agitated in a water thermostat below 333 K and in an oil thermostat at higher temperatures. Equilibrium was established in 1-2 d, or sooner at higher temperatures, as confirmed by constancy of density to 2-3 x 10 ⁻⁵ g cm ⁻³ . Samples were taken at the same temperature as the thermostat. Solid phases were not analyzed. Solutions were analyzed gravimetrically for Cl as AgCl.	No information available.
	ESTIMATED ERROR: Temperature: precision within ±0.1 K.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Scatchard, G.; Prentiss, S.S. J. Am. Chem. Soc. <u>1933</u> , 55, 4355-62.	
(2) Water; H ₂ O; [7732-18-5]			
VARIABLES:		PREPARED BY:	
T/K = 269-273		M.-T. Saugier-Cohen Adad	
EXPERIMENTAL VALUES:			
t/°C	molality /mol kg ⁻¹	mass %	solid phase
-0.0051	0.001389	0.01035	ice
-0.0102	0.002865	0.02136	ice
-0.0234	0.006449	0.04806	ice
-0.0399	0.011136	0.08296	ice
-0.0580	0.016217	0.12076	ice
-0.0957	0.027000	0.20089	ice
-0.1342	0.038173	0.28379	ice
-0.1966	0.056239	0.41754	ice
-0.2659	0.076739	0.56887	ice
-0.3663	0.10646	0.78746	ice
-0.4638	0.13558	1.0007	ice
-0.5754	0.16926	1.2462	ice
-0.6865	0.20277	1.4892	ice
-0.7805	0.23141	1.6960	ice
-0.9603	0.28624	2.0895	ice
-1.1721	0.35110	2.5509	ice
-1.3498	0.40548	2.93443	ice
-1.6101	0.48560	3.4939	ice
-1.6928	0.51103	3.67015	ice
-1.8532	0.56055	4.0115	ice
-2.0667	0.62645	4.4621	ice
-2.2515	0.68415	4.8531	ice
-2.5545	0.77852	5.4858	ice
-2.8692	0.87671	6.1353	ice
-3.2055	0.98203	6.8220	ice
-3.7817	1.1624	7.9751	ice
-4.0479	1.2455	8.4968	ice
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:		
Freezing points were measured by "equilibrium method" and concs. were determined by conductivity, as in (1,2). Nitrogen was precooled and saturated in an ice-water mixture, then bubbled through the solution to stir it.	A C.P. product was twice recrystallized from conductivity water and dried for 10 hours at 250°C. The stock solution was made up by weighing this salt.		
REFERENCES:			
1. Scatchard, G.; Jones, P.T.; Prentiss, S.S. J. Am. Chem. Soc. <u>1932</u> , 54, 2696. 2. Scatchard, G.; Prentiss, S.S. J. Am. Chem. Soc. <u>1932</u> , 54, 2696.	ESTIMATED ERROR: Temperature: precision $\pm 3 \times 10^{-5}$ K for solutions more dilute than 0.01 mol dm ⁻³ .		

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Potassium chloride; KCl; [7447-40-5]		Lannung, A.						
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Abt. A <u>1934</u> , 170, 134-44.						
VARIABLES:		PREPARED BY:						
T/K = 255 p/kPa = 1.4		R. Cohen-Adad						
EXPERIMENTAL VALUES:								
t/°C	p/mmHg	molality mol kg ⁻¹	mass % (compiler)	solid phase				
18	13.2	4.53	0.253	KCl				
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
The vapor pressure of the solution was plotted against the concentration. The solubility was found from the discontinuity in this curve.	The purity of the salt has been described in a previous paper (1).							
ESTIMATED ERROR:								
Temperature: precision ±0.003 K Pressure: ±7 Pa								
REFERENCES:								
1. Lannung, A. Z. Phys. Chem., Abt. A <u>1932</u> , 161, 255.								

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Akhumov, F.I.; Golovkov, M.P.	
(2) Water; H ₂ O; [7732-18-5]		Zh. Obshch. Khim. 1935, 5, 500-9.	
VARIABLES:		PREPARED BY:	
T/K = 2.88		M.-T. Saugier-Cohen Adad	
EXPERIMENTAL VALUES:			
t/°C	mass %	refractive index	solid phase
15	24.76	1.3706	KCl
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:		
The solubility was determined by a synthetic method where refractive indices of solutions were plotted vs concentration. A sample of saturated solution was also analyzed.	Not stated.		
ESTIMATED ERROR:		No estimates possible.	
REFERENCES:			

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Potassium chloride; KCl; [7447-40-7]		Akerlöf, G.; Turck, H.E.			
(2) Water; H ₂ O; [7732-18-5]		J. Am. Chem. Soc. 1935, 57, 1746-50.			
VARIABLES:	PREPARED BY:				
T/K = 2.98	M.-T. Saugier-Cohen Adad				
EXPERIMENTAL VALUES:					
t/°C	molality mol/kg	mass % (compiler)	solid phase		
25	4.826	26.46	KCl		
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:				
Water and salt were introduced into glass-stoppered Pyrex bottles and the mixture was stirred over a period of about 20 hours. Samples of saturated solution were analyzed by evaporation to dryness.	The "analyzed" salt was recrystallized and dried.				
ESTIMATED ERROR:		Temperature: ±0.01 K			
REFERENCES:					

COMPONENTS:		ORIGINAL MEASUREMENTS:					
(1) Potassium chloride; KCl; [7447-40-7]		Yarluikov, M.M. <i>Zh. Prikl. Khim. (Leningrad)</i> <u>1935</u> , 7, 902.					
(2) Water; H ₂ O; [7732-18-5]							
VARIABLES:		PREPARED BY:					
T/K = 273-363		M.-T. Saugier-Cohen Adad					
EXPERIMENTAL VALUES:							
<i>t</i> /°C	100 x mass ratio KCl/H ₂ O	mass % (compiler)	density g cm ⁻³	solid phase			
0	28.10	21.94	1.1642	KCl			
25	35.26	26.07	1.1775	"			
45	41.13	29.14	1.1956	"			
65	46.87	31.91	1.209	"			
90	52.49	34.42	1.2184	"			
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:					
Isothermal method.		Not stated.					
ESTIMATED ERROR:							
Temperature: ±0.1 K							
REFERENCES:							

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-5]		Benrath, A.; Gjedebo, F.; Schiffers, R.; Wunderlich, H.
(2) Water; H ₂ O; [7732-18-5]		Z. Anorg. Allg. Chem. 1937, 231, 285-97.
VARIABLES:		PREPARED BY:
T/K = 383-1041		M.-T. Saugier-Cohen Adad
EXPERIMENTAL VALUES:		
t/°C	mass %	solid phase
110	36.4	KCl
129	38.2	"
141	39.3	"
161	41.2	"
199	44.7	"
230	47.5	"
251	49.5	"
273	51.5	"
295	53.5	"
328	56.7	"
362	60.0	"
391	62.6	"
409	64.4	"
454	69.0	"
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:	
Salt and water were introduced into a small diameter glass tube which was stirred while being heated. The temperature was read when the last crystal disappeared.	Not stated.	
	ESTIMATED ERROR:	
	No estimates possible.	
	REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:																																													
(1) Potassium chloride; KCl; [7447-40-7]		Shearman, R.W.; Menzies, A.W.C. <i>J. Am. Chem. Soc.</i> <u>1937</u> , 59, 185-6.																																													
(2) Water; H ₂ O; [7732-18-5]																																															
VARIABLES:		PREPARED BY:																																													
T/K = 281-449		M.-T. Saugier-Cohen Adad																																													
EXPERIMENTAL VALUES:																																															
<table> <thead> <tr> <th>t/°C</th> <th>molality /mol kg⁻¹</th> <th>mass % (compiler)</th> <th>solid phase</th> </tr> </thead> <tbody> <tr><td>7.5</td><td>4.08</td><td>23.32</td><td>KCl</td></tr> <tr><td>18.2</td><td>4.56</td><td>25.37</td><td>"</td></tr> <tr><td>21.2</td><td>4.64</td><td>25.70</td><td>"</td></tr> <tr><td>28.5</td><td>4.94</td><td>26.91</td><td>"</td></tr> <tr><td>58.6</td><td>6.04</td><td>31.05</td><td>"</td></tr> <tr><td>62.7</td><td>6.18</td><td>31.54</td><td>"</td></tr> <tr><td>96.0</td><td>7.32</td><td>35.31</td><td>"</td></tr> <tr><td>127.1</td><td>8.41</td><td>38.54</td><td>"</td></tr> <tr><td>147.2</td><td>9.16</td><td>40.58</td><td>"</td></tr> <tr><td>175.6</td><td>10.12</td><td>43.00</td><td>"</td></tr> </tbody> </table>				t/°C	molality /mol kg ⁻¹	mass % (compiler)	solid phase	7.5	4.08	23.32	KCl	18.2	4.56	25.37	"	21.2	4.64	25.70	"	28.5	4.94	26.91	"	58.6	6.04	31.05	"	62.7	6.18	31.54	"	96.0	7.32	35.31	"	127.1	8.41	38.54	"	147.2	9.16	40.58	"	175.6	10.12	43.00	"
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AUXILIARY INFORMATION																																															
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:																																														
One form of the synthetic method of solubility measurement was used. Known weights of solvent and solute were sealed in a glass tube. This was slowly heated until the last crystal disappeared. Details of the experimental technique are given in (1).	KCl was of highest purity. The authors estimated that the impurity other than water was less than 0.05 %.																																														
ESTIMATED ERROR:																																															
No estimates possible.																																															
REFERENCES:																																															
1. Menzies, A.W.C. <i>J. Am. Chem. Soc.</i> <u>1936</u> , 58, 934.																																															

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Bergman, A.G.	
(2) Water; H ₂ O; [7732-18-5]		Izv. Akad. Nauk SSSR, Otd. Mat. Estest. Nauk 1938, 1, 203-16.	
VARIABLES:		PREPARED BY:	
T/K = 264-303		B. Russer	
EXPERIMENTAL VALUES:			
t/°C	mass %	solid phase	method
- 9.5	18.0	ice	a
-10	21.6	KCl	b
10	23.4	"	b
20	25	"	b
30	26.8	"	b
<hr/>			
a polythermal method			
b isothermal method			
<hr/>			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:		
Method a: polythermal method, in which the temperatures of appearance and disappearance of crystals were noted (compiler; no details given). Method b: isothermal saturation method, with no details given.	Not stated.		
	ESTIMATED ERROR:		
	Temperature: precision ±0.5 K for appearance of crystals; ±0.2 K for appearance of ice crystals.		
	REFERENCES:		

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]		Zaslavskij, A.I.; Sinani, S.S.; Sokolova, L.A.		
(2) Water; H ₂ O; [7732-18-5]		Izv. Akad. Nauk. SSSR, Otd. Mat. Estest. Nauk, Ser. Khim. <u>1938</u> , (1), 203-16.		
VARIABLES:		PREPARED BY:		
T/K = 268		M.-T. Saugier-Cohen Adad		
EXPERIMENTAL VALUES:				
t/°C	mass %	solid phase		
- 5	10.39	ice		
- 5	20.96	KCl		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
The isothermal method was used. The solubility was determined through chloride titration.	Not stated.			
ESTIMATED ERROR:				
No estimates possible.				
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:								
(1) Potassium chloride; KCl; [7447-40-7]		Benedict, M.								
(2) Water; H ₂ O; [7732-18-5]		J. Geol. 1939, 47, 252-76.								
VARIABLES:		PREPARED BY:								
T/K = 523-1043 p/MPa = 2.5-22		M.-T. Saugier-Cohen Adad								
EXPERIMENTAL VALUES:										
t/°C	mass %	p/atm	specific volume cm ³ g ⁻¹	density g cm ⁻³ (compiler)	solid phase					
250	49.3	24.42	0.817	1.224	KCl					
300	54.0	48.65	0.813	1.230	"					
350	58.7	82.96	0.805	1.242	"					
		83.07			"					
400	63.4	125.59	0.797	1.255	"					
450	68.2	168.84	0.786	1.272	"					
500	73.0	204.86	0.772	1.295	"					
550	77.9	223.74	0.758	1.319	"					
		223.75			"					
600	82.9	220			"					
AUXILIARY INFORMATION										
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:									
Weighed amounts of salt and water were confined over mercury in a stainless steel bomb. The temperature of the bomb was maintained constant by a thermostatted copper block. Pressure was measured by means of a dead weight piston gauge.	C.p. salt was recrystallized 3X from conductivity water, then dried and fused. Distilled water was deaerated, then distilled under vacuum into the bomb.									
ESTIMATED ERROR:										
Temperature: ±0.5 K below 450°C, ±1 K above 450°C. Pressure: <2 % Specific vol.: 1-2- %										
REFERENCES:										

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]		Polosin, V.A.; Shakharonov, M.I.		
(2) Water; H ₂ O; [7732-18-5]		Zh. Fiz. Khim. 1939, 13, 541-6.		
VARIABLES:		PREPARED BY:		
T/K = 263-308		M.-T. Saugier-Cohen Adad		
EXPERIMENTAL VALUES:				
<i>t</i> /°C	mass %	solid phases		
-10.6	20.09	ice		
-10.4	19.80	ice + KCl		
0	21.65	α-KCl		
10	23.50	"		
22.2	26.20	α-KCl + β-KCl		
25	26.50	β-KCl		
35	27.70	"		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
The temperature when the first crystal appeared on cooling, or when the last crystal disappeared on heating was noted. A sample of eutectic solution was analyzed.	Not stated.			
ESTIMATED ERROR:				
No estimates possible.				
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]		Bergman, A.G.; Vlasov, N.A.
(2) Water; H ₂ O; [7732-18-5]		Dokl. Akad. Nauk. SSSR 1942, 36, 64-8.
VARIABLES:		PREPARED BY:
T/K = 263-303		M.-T. Saugier-Cohen Adad
EXPERIMENTAL VALUES:		
t/°C	mass %	solid phase (compiler)
- 5	12	ice
-10	19.0	"
-10	20.2	KCl
- 5	20.8	"
0	21.8	"
5	22.6	"
10	23.4	"
15	24.2	"
20	25.0	"
30	26.6	"
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE The temperature was noted at which the last crystal disappeared on heating, or at which the first crystal appeared on cooling.	SOURCE AND PURITY OF MATERIALS: Not stated.	
ESTIMATED ERROR: No estimates possible.		
REFERENCES:		

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]	Keevil, N.B. <i>J. Am. Chem. Soc.</i> <u>1942</u> , 64, 841-50.
(2) Water; H ₂ O; [7732-18-5]	
VARIABLES:	PREPARED BY:
T/K = 463-918	M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:	t/°C	vapor pressure p/atm	mole fraction KCl	mass % KCl (compiler)	method	solid phases
	190	8.58	0.160	44.08	h	NaCl
	213	14.5	0.168	44.52	h	"
	237.2	19.45	0.180	47.60	c	"
	237.6	19.81	0.180	47.60	h	"
	269.2	32.33	0.198	50.54	h	"
	298	47.8	0.216	53.28	h	"
	298.1	48.26	-	53.28	c	"
	330	68.40	0.238	56.38	h	"
	342.2	unsaturated	0.247	57.58	c	"
	349.4	82.80	0.252	58.23	h	"
	371	100.5	0.270	60.48	h	"
	372.5	101.8	0.272	60.73	h	"
	375	unsaturated	0.274	60.97	c	"
	375	102.2	0.274	60.97	h	"
	388	unsaturated	0.287	62.49	c	"
	397.3	121.8	0.293	63.17	h	"
	400	unsaturated	0.295	63.39	c	"
	427.2	151	0.322	66.28	h	"
	428.6	150.7	0.323	66.38	c	"
	439.5	160.4	0.335	67.58	h	"
	457.2	187	0.354	69.40	h	"
	472	185.0	0.370	70.85	h	"
	480.4	190.7	0.377	71.46	h	"
	485.8	194.0	0.381	71.81	c	"
	493.8	200.1	0.393	72.82	h	"
	497.2	202.0	0.395	72.99	c	"
	516.1	214±1	0.416	74.67	c	"
	526.4	218.5±1	0.427	75.51	c	"
	529.7	217.1±1	0.432	75.89	h	"
	538.9	218±3	0.444	76.77	h	"
	548.7	218±5	0.458	77.76	h	"
	584.5	220±5	0.509	81.10	h	"
	645	197±5	0.624	87.30	h	"

c: temperature reached by cooling

h: temperature reached by heating

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Salt and water were confined in a steel bomb by means of mercury, as described in (1), after removal of foreign gases by boiling and pumping. Temp. was measured by a Pt to Pt-10% Rh thermocouple sealed in Pyrex. Pressure was measured with a dead-weight Bridgman gauge (2) standardized against the v.p. of CO ₂ at 0°C and 34.400 g atm. A series of p-V measurements were made at each of several temps. The vol. of the salt-water mixture in the bomb was controlled by mercury and a screw compressor. When the solid phase disappeared before the b.p. was reached, a discontinuity in the p-V slope gave an approx. solubility.	Not stated.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	<ol style="list-style-type: none"> Benedict, M. <i>J. Geol.</i> <u>1939</u>, 47, 252; <i>Rev. Sci. Inst.</i> <u>1937</u>, 8, 252. Bridgman, P.W. <i>Proc. Am. Acad. Arts Sci.</i> <u>1909</u>, 64, 201.

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Potassium chloride; KCl; [7447-40-7]		Platt, R.; Burkhardt, G.				
(2) Water; H ₂ O; [7732-18-5]		<i>Helv. Chim. Acta</i> 1944, 27, 1605-10.				
VARIABLES:		PREPARED BY:				
T/K = 298		M.-T. Saugier-Cohen Adad				
EXPERIMENTAL VALUES:						
t/°C	mol ratio H ₂ O/KCl	mass % (compiler)	solid phase			
25	11.40	26.63	KCl			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Described in previous paper (1).	Not stated.					
ESTIMATED ERROR:						
No estimates possible.						
REFERENCES:						
1. Burkhardt, G. Untersuchungen über ternäre Mischkristall- bildung; Das System NH ₄ ⁺ -Cl- Br--H ₂ O bei 25°. Dissertation. Bern 1942.						

COMPONENTS:		ORIGINAL MEASUREMENTS:							
(1) Potassium chloride; KCl; [7447-40-7]		Dolique, R.; Pauc, M. <i>Trav. Soc. Pharm. Montpellier</i> <u>1946-7</u> , 6, 86-9; <u>1948</u> , 8, 30-1.							
(2) Water; H ₂ O; [7732-18-5]									
VARIABLES:		PREPARED BY:							
T/K = 293, 303		M.-T. Saugier-Cohen Adad							
EXPERIMENTAL VALUES:									
<i>t/°C</i>	<i>100 x mass ratio KCl/H₂O</i>	<i>mass % (compiler)</i>	<i>density g cm⁻³</i>	<i>solid phase</i>	<i>paper (year)</i>				
2.0	34.39	25.59	1.173 ₅	KCl	1946-7				
30	38.10	27.53	1.182 ₁	"	1948				
AUXILIARY INFORMATION									
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:							
Isothermal method. The operative technique was described in an earlier publication (1). Chloride was analyzed by titration using the Charpentier-Volhard method.		Not stated.							
ESTIMATED ERROR:									
Temperature: ±0.05 K									
REFERENCES:									
1. Dolique, R. <i>Trav. Soc. Pharm. Montpellier</i> <u>1944</u> , 3, 55-62.									

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Potassium chloride; KCl; [7447-40-7]		Chang, T.-L.; Heieh, Y.-Y.						
(2) Water; H ₂ O; [7732-18-5]		J. Chinese Chem. Soc. (Peking) <u>1949</u> , 16, 10-13.						
VARIABLES:		PREPARED BY:						
T/K = 298		J.W. Lorimer						
EXPERIMENTAL VALUES:								
t/°C	molality mol kg ⁻¹	mass % (compiler)	method (see METHOD)	solid phase				
25	4.741 4.797	21.90 21.70	(a) (b)	KCl KCl				
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
Presumably the method of isothermal saturation was used. The authors give results for: (a) initial heating at 60°C for 1 h, final heating at 25°C for 5 h; (b) initial heating at 80°C for 1 h, final heating at 25°C for 3 h.	No information given.							
ESTIMATED ERROR:								
No estimates possible.								
REFERENCES:								

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]		Lepeshkov, I.N.; Bodaleva, N.V. <i>Izv. Sekt. Fiz.-Khim. Anal., Inst.</i> <i>Obshch. Neorg. Khim., Akad. Nauk</i> <i>SSSR</i> <u>1949</u> , 17, 338-45.		
(2) Water; H ₂ O; [7732-18-5]				
VARIABLES:		PREPARED BY:		
T/K = 308		J.W. Lorimer		
EXPERIMENTAL VALUES:				
t/°C	mass %	solid phase (compiler)		
35	28.09	. KCl		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Salt and water were stirred together in a thermostat. No other details are given.	Not stated.			
ESTIMATED ERROR:				
No estimates possible.				
REFERENCES:				

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]	Gehlen, H.; Dieter, H.
(2) Water; H ₂ O; [7732-18-5]	Z. Phys. Chem. (Leipzig) 1950, 196, 258-77.
VARIABLES:	PREPARED BY:

p/MPa = 0-100

M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C	p/atm	mass %		solid phase
		a	b	
25	0	26.3	26.3	KCl
	1000	27.6	27.4	"
	2000	28.7	28.5	"
	3000	29.7	29.6	"
	4000	30.6	30.6	"
	5000	31.5	31.2	"
	6000	32.4	32.2	"
	7000	33.2	33.2	"
	8000	33.8	33.7	"
	9000	34.5	35.7	"
	10000	35.1	37.2	"

a- first approximation; b- second approximation; see Method.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Solubilities under pressure were calculated from density and vapor pressure data under atmospheric pressure using Tamman's assumption (1) concerning the coincidence pressure and the compressibility of solid KCl.	Not stated.
	ESTIMATED ERROR:
	No estimates possible.
	REFERENCES:
	1. Tamman, G. Über die Beziehungen zwischen den inneren Kräften und Eigenschaften der Lösungen. Leopold Voss. Hamburg und Leipzig. 1907.

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Potassium chloride; KCl; [7447-40-7]		Dejak, C.				
(2) Water; H ₂ O; [7732-18-5]		Gazz. Chim. Ital. 1951, 81, 295-304.				
VARIABLES:		PREPARED BY:				
$T/K = 269-273$		M.-T. Saugier-Cohen Adad				
EXPERIMENTAL VALUES:						
t/°C	molality mol kg ⁻¹	mass % (compiler)	solid phase			
-0.26591	0.076739	0.56887	ice			
-0.36625	0.10646	0.78746	"			
-0.46376	0.13558	1.0007	"			
-0.57544	0.16926	1.2462	"			
-0.68650	0.20277	1.4892	"			
-0.78054	0.23141	1.6960	"			
-0.96027	0.28624	2.0895	"			
-1.17212	0.35110	2.5509	"			
-1.34975	0.40548	2.9343	"			
-1.61013	0.48560	3.4939	"			
-1.69275	0.51103	3.6702	"			
-1.85324	0.56055	4.0115	"			
-2.06669	0.62645	4.4621	"			
-2.25146	0.68415	4.8531	"			
-2.55450	0.77852	5.4858	"			
-2.86918	0.87671	6.1353	"			
-3.19489	0.98203	6.8220	"			
-3.78169	1.1624	7.9751	"			
-4.04788	1.2455	8.4968	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Cryoscopy.	Not stated.					
ESTIMATED ERROR:						
No estimates possible.						
REFERENCES:						

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]		Blidin, V.P. <i>Dokl. Akad. Nauk SSSR, Ser. Khim.</i> <u>1953</u> , 88, 457-9.		
(2) Water; H ₂ O; [7732-18-5]				
VARIABLES:		PREPARED BY:		
$T/K = 303-313$		M. Ferriol; R. Cohen-Adad		
EXPERIMENTAL VALUES:				
$t/^\circ\text{C}$ mass % solid phase				
30 26.78 KCl 40 28.67 "				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Isothermal method. Saturation was obtained by addition of small quantities of salt. A sample of clear solution was weighed and analyzed. The remaining salt was weighed.	Not stated.			
ESTIMATED ERROR:				
Temperature: $\pm 0.1 \text{ K}$				
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Durham, G.S.; Rock, E.J.; Frayn, J.S.	
(2) Water; H ₂ O; [7732-18-5]		J. Am. Chem. Soc. <u>1953</u> , 75, 5792-4.	
VARIABLES:		PREPARED BY:	
T/K = 298		J. W. Lorimer	
EXPERIMENTAL VALUES:			
t/°C	mass %	mole fraction (compiler)	solid phase
25	26.42	0.07984	KCl
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:	
The isothermal saturation method was used, starting from both over- and undersaturation. For the ternary systems investigated, equilibrium was reached in 3-4 weeks. The solubility tubes were rotated in a thermostat, and samples were removed through filter pipets. Analysis was by titration for chloride.		KCl: met ACS purity standards. Recrystallized, centrifuged, dried to const. wt. at 190°C; 99.8% pure by chloride analysis.	
ESTIMATED ERROR:		Temperature: precision within ±0.02 K. Solubility: precision within ±0.1 mass % (compiler).	
REFERENCES:			
COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Campbell, A.N.; Kartzmark, E.M. Can. J. Chem. <u>1956</u> , 34, 672-78.	
(2) Water; H ₂ O; [7732-18-5]			
VARIABLES:		PREPARED BY:	
T/K = 298		J.W. Lorimer	
EXPERIMENTAL VALUES:			
t/°C	mass %	mole fraction (compiler)	solid phase
25	26.99	0.08201	KCl
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:	
The isothermal saturation method was used, with samples in sealed flasks in a thermostat. Equilibrium was reached in 5 h, then shaking was continued for another 5 h. Samples filtered at the temperature of the thermostat were analyzed for Cl by Mohr titration.		KCl: Merck "reagent" or BDH "Analar", with no further purification.	
ESTIMATED ERROR:		Temperature: precision ±0.05 K. Solubility: No estimates possible.	
REFERENCES:			

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7] (2) Water; H ₂ O; [7732-18-5]	Fialkov, G.A.; Tchernogorenko, V.B. Dokl. Akad. Nauk. SSSR 1955, 102, 759-62.
VARIABLES:	PREPARED BY:

T/K = 263-273

M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C freezing point	t/°C eutectic point b	100 x mass ratio KCl/H ₂ O	mass % (compiler)
- 0.21	-10.76	0.47	0.47
- 0.39	-10.76	0.86	0.85
- 0.81	-10.76	1.79	1.76
- 1.60	-10.76	3.62	3.49
- 3.30	-10.76	7.40	6.52
- 3.30 ^a	-10.76	7.40	"
- 3.40	-10.76	7.68	7.13
- 3.40 ^a	- 9.80	7.68	"
- 5.50	-10.76	12.50	11.11
- 5.50 ^a	-10.76	12.50	"
- 5.50 ^a	-10.76	12.50	"
- 6.60 ^a	-10.76	15.28	13.25
- 6.68	-10.76	15.28	"
- 7.85	-10.76	18.0	15.25
- 7.85 ^a	-10.76	18.0	"
- 8.88	-10.76	20.52	17.03
- 9.20 ^a	-10.76	20.52	"
- 9.77	-10.76	22.40	18.30
- 9.80 ^a	-10.76	22.40	"
-10.17	-10.76	23.37	18.94
- 9.80	- 9.80	23.37	"
- 9.80	-10.76	25	20.00

^a solution was frozen at a low cooling rate (0.5 K/min)^b eutectic: ice + KCl^c eutectic: ice + KCl·H₂O

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Direct and differential thermal analysis was used. The solutions were frozen, then the temperature was followed as a function of time at a heating rate of 0.5 K/min.	Pure KCl was recrystallized twice.
	ESTIMATED ERROR:
	Temperature: ±0.01 K in the range 0 to -11°C.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Potassium chloride; KCl; [7447-40-7]		Nallet, A. Thesis. Lyon (France). no. 209 <u>1955.</u>						
(2) Water; H ₂ O; [7732-18-5]		Nallet, A.; Pâris, R.A. Bull. Soc. Chim. Fr. <u>1955</u> , 94, 488-97.						
VARIABLES:		PREPARED BY:						
T/K = 252-373		M.-T. Saugier-Cohen Adad						
EXPERIMENTAL VALUES:								
<i>t</i> /°C	mass %	100 x mass ratio NaCl/H ₂ O	relative density	solid phases				
-10.75	19.48	24.19	1.135	ice + KCl				
-9.8	18.23	22.29	1.128	ice				
-9.8	19.77	24.64	1.1405	KCl				
10	23.8	31.23	1.1646	"				
30	27.18	37.32	1.1815	"				
50	30.06	42.98	1.193	"				
70	32.51	48.17	1.201	"				
100	35.72	55.57	1.211	"				
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
Solubility was measured at fixed temperatures. The salt was previously dissolved by heating the mixture. The mixtures were stirred in a thermostat for 36 h above 70°C and for 4 h at -20°C. A sample of clear solution was removed and analyzed for chloride by potentiometric titration with AgNO ₃ . Densities were measured with a pycnometer.	Twice recrystallized KCl, purity > 99.9 %, was used.							
ESTIMATED ERROR:								
Temperature: ±0.02 K in the range 10 to 40°C; ±0.05 K below 10°C or above 40°C								
Cl ⁻ : 0.2 to 0.3% (potentiometric titration)								
K ⁺ : 0.5 to 1% according to the method (chemical analysis or spectrophotometry)								
REFERENCES:								

COMPONENTS:			ORIGINAL MEASUREMENTS:							
(1) Potassium chloride; KCl; [7447-40-7]			Shul'gina, M.P.; Kharchuck, O.S.; Yanat'eva, G.K.							
(2) Water; H ₂ O; [7732-18-5]			<i>Izv. Sekt. Fiz. Khim. Anal., Inst. Obshch. Neorg. Khim., Akad. Nauk SSSR</i> <u>1955</u> , 26, 198-210.							
VARIABLES:			PREPARED BY:							
T/K = 266-271			M.-T. Saugier-Cohen Adad							
EXPERIMENTAL VALUES:										
t/°C	mass %	solid phases	t/°C	mass %	solid phases					
- 2.3	5.02	ice	- 6.6	20.68	KCl·nH ₂ O + KCl					
- 4.8	10.04	"	- 6.0	20.80	KCl					
- 7.3	14.80	"	- 5.4	20.98	"					
- 9.6	18.00	"	- 2.8	21.30	"					
-10.2	18.90	"	- 1.0	21.70	"					
-10.6	19.70	ice + KCl·nH ₂ O ^a	2.4	22.35	"					
-10.8	19.87	ice + KCl	4.9	22.70	"					
- 9.5	19.99	KCl·nH ₂ O ^a	7.6	23.20	"					
- 9.0	20.05	"	9.6	23.50	"					
- 8.2	20.10	"	12.0	23.97	"					
- 8.0	20.20	"	15.6	24.60	"					
- 7.6	20.29	"	18.6	25.05	"					
- 7.2	20.44	"	22.0	25.65	"					
- 7.0	20.50	"	23.6	26.00	"					
- 6.9	20.60	"								
a value of n = 1 or 1.5										
AUXILIARY INFORMATION										
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:									
Temperature was noted when the last crystal disappeared on heating or when the first crystal appeared on cooling.	Salt was recrystallized twice.									
ESTIMATED ERROR:										
No estimates possible.										
REFERENCES:										

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]	Akhumov, E.I.; Pylkova, E.V.
(2) Water; H ₂ O; [7732-18-5]	Dokl. Akad. Nauk SSSR <u>1956</u> , 108, 857-60; Freiberg. Forschungsh. A <u>1959</u> , 123, 251-6.
VARIABLES:	PREPARED BY:
T/K = 329-523	M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C	mass %	solid phase
56	30.90	KCl
77	33.45	"
79	33.70	"
94	35.30	"
99	35.80	"
101	35.96	"
112	37.10	"
119	37.79	"
125	38.30	"
142	39.95	"
148	40.45	"
168	42.35	"
177	43.12	"
193	44.45	"
195	44.72	"
216	46.50	"
219	46.79	"
250	49.55	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Visual method: solution with an excess of salt was placed in a sealed tube. Temperatures of disappearance of last crystal on heating and of appearance on cooling (supersaturated solution) were observed.	Chemically pure salt was recrystallized 3x and dried to constant weight.
	ESTIMATED ERROR:
	Temperature: ±0.5 to 1 K
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7] (2) Water; H ₂ O; [7732-18-5]	Blidin, W.P. Zh. Obshch. Khim. 1956, 26, 1281-5; J. Gen. Chem. USSR (Engl. Transl.) 1956, 26, 1449-52.	
VARIABLES:	PREPARED BY:	
T/K = 298	M.-T. Saugier-Cohen Adad	
EXPERIMENTAL VALUES:		
t/°C	mass %	solid phase
25	26.48	KCl
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS: C.P. grade salt was recrystallized twice.	
Isothermal method. The solution with excess solid phase was placed in a reaction vessel with an oil seal and stirred until equilibrium had been achieved. The chloride ion was determined in saturated solution gravimetrically. K was determined as the cobaltinitrite.	ESTIMATED ERROR: Temperature: ±0.1 K	
	REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]	Bergman, A.G.; Kuznetsova, A.I.	
(2) Water; H ₂ O; [7732-18-5]	Zh. Neorg. Khim. 1959, 4, 194-204; *Russ. J. Inorg. Chem. (Engl. Transl.) 1959, 4, 80-4.	
VARIABLES:	PREPARED BY:	
T/K = 263-311	M.-T. Saugier-Cohen Adad	
EXPERIMENTAL VALUES:		
<i>t</i> /°C	mass %	solid phases
-10.6	19.60	ice
-10.7	19.80	ice + KCl·nH ₂ O
-10.3	20.00	KCl·nH ₂ O
- 9.1	20.3	"
- 9.7	20.43	"
- 8.0	20.62	"
- 7.0	20.84	"
- 5.8	21.13	KCl·nH ₂ O + KCl
- 4.7	21.54	β-KCl
0	22.10	"
10.0	23.70	"
14.2	24.50	"
24.6	26.00	"
30.1	27.20	α-KCl
38.0	29.06	"
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:	
Polythermic visual method was used.	KCl, commercially pure, was recrystallized.	
ESTIMATED ERROR:		
Temperature: ±0.1 K		
REFERENCES:		

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7]	Plyushchev, V.E.; Kuznetsova, G.P.; Stepina, S.B.
(2) Water; H ₂ O; [7732-18-5]	Zh. Neorg. Khim. 1959, 4, 1449-53; *Russ. J. Inorg. Chem. (Engl. Transl.) 1959, 4, 652-4.
VARIABLES:	PREPARED BY:
T/K = 273-348	M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C	mass %	solid phase
0	21.93	KCl
25	25.95	"
50	30.03	"
75	32.99	"

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Isothermal method. Cl ⁻ in saturated solution was determined as AgCl, KCl by evaporation to dryness.	Not stated.
	ESTIMATED ERROR:
	Temperature: ±0.1 K
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Potassium chloride; KCl; [7447-40-7]		Slovinskaya, W.M.; Mukimov, S.M.						
(2) Water; H ₂ O; [7732-18-5]		Uzb. Khim. Zh. <u>1959</u> , 2, 12-20.						
VARIABLES:		PREPARED BY:						
T/K = 273-323		M.-T. Saugier-Cohen Adad						
EXPERIMENTAL VALUES:								
t/°C	100 x mass ratio KCl/H ₂ O	mass %	density	solid phase				
0	28.68	22.29	1.1528	KCl				
25	36.46	26.72	1.1803	"				
50	42.96	30.05	1.1920	"				
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
The method was described in two previous papers (1,2).	Not stated.							
ESTIMATED ERROR:								
No estimates possible.								
REFERENCES:								
1. Mukimov, S.M.; Bodliaghina, V.M. Uzb. Khim. Zh. <u>1948</u> , 3,								
2. Slovinskaya, W.M.; Mukimov, S.M. Uzb. Khim. Zh. <u>1956</u> , 11,								

COMPONENTS:		ORIGINAL MEASUREMENTS:									
(1) Potassium chloride; KCl; [7447-40-7]		Shevtsova, Z.N.; Zhizhina, L.I.; El'Tsberg, L.E.									
(2) Water; H ₂ O; [7732-18-5]		Izv. Vyssh. Uchebn. Zaved., Khim. Khim. Tekhnol. 1961, 4, 176-8.									
VARIABLES:		PREPARED BY:									
T/K = 298		M.-T. Saugier-Cohen Adad									
EXPERIMENTAL VALUES:											
<table> <thead> <tr> <th>t/°C</th> <th>mass %</th> <th>solid phase</th> </tr> </thead> <tbody> <tr> <td>25</td> <td>26.52</td> <td>KCl</td> </tr> <tr> <td>25</td> <td>26.50</td> <td>"</td> </tr> </tbody> </table>			t/°C	mass %	solid phase	25	26.52	KCl	25	26.50	"
t/°C	mass %	solid phase									
25	26.52	KCl									
25	26.50	"									
AUXILIARY INFORMATION											
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:									
Isothermal method. Phase equilibrium was obtained after 3-4 days. The methods of analysis are not given.		Not stated.									
		ESTIMATED ERROR:									
		No estimates possible.									
		REFERENCES:									

COMPONENTS:		ORIGINAL MEASUREMENTS:									
(1) Potassium chloride; KCl; [7447-40-7]		Shevtsova, Z.N.; Kulichkina, L.I.; El'Tsberg, L.E.									
(2) Water; H ₂ O; [7732-18-5]		Izv. Vyssh. Uchebn. Zaved., Khim. Khim. Tekhnol. 1961, 4, 178-9.									
VARIABLES:		PREPARED BY:									
T/K = 298, 323		M.-T. Saugier-Cohen Adad									
EXPERIMENTAL VALUES:											
<table> <thead> <tr> <th>t/°C</th> <th>mass %</th> <th>solid phase</th> </tr> </thead> <tbody> <tr> <td>25</td> <td>24.75</td> <td>KCl</td> </tr> <tr> <td>50</td> <td>30.00</td> <td>"</td> </tr> </tbody> </table>			t/°C	mass %	solid phase	25	24.75	KCl	50	30.00	"
t/°C	mass %	solid phase									
25	24.75	KCl									
50	30.00	"									
AUXILIARY INFORMATION											
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:									
Isothermal method. Phase equilibrium was obtained after 2-3 days stirring. The methods of analysis are not given.		Not stated.									
		ESTIMATED ERROR:									
		No estimates possible.									
		REFERENCES:									

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]		Akopov, E.K.		
(2) Water; H ₂ O; [7732-18-5]		Zh. Neorg. Khim. 1962, 7, 385; *Russ. J. Inorg. Chem. (Engl. Transl.) 1962, 7, 195-8.		
VARIABLES:		PREPARED BY:		
T/K = 273-298		M.-T. Saugier-Cohen Adad		
EXPERIMENTAL VALUES:				
<i>t</i> /°C	mass %	solid phase		
0	21.5	KCl		
10	23.7	"		
20	25.3	"		
25	26.5	"		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Solubility was determined by visual observation of the temperature at which the first crystals appeared on cooling (or the last crystals disappeared on heating). A test tube provided with a glass stirrer and a thermometer was used. The temperature difference between appearance of the first and disappearance of the last crystals was 0.2-0.3. The observation was repeated until the interval between these temperatures was a minimum and then the mean of the 2 values was taken.	"Chemically pure" grade KCl was twice recrystallized and dehydrated by evaporating a solution to dryness in a flow of HCl. Doubly-distilled water was used.			
ESTIMATED ERROR:				
The temperature difference between appearance of the first crystal and disappearance of the last one was 0.2-0.3 K.				
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:							
(1) Potassium chloride; KCl; [7447-40-7]		Belyaev, I.N.; Lobas, L.M.							
(2) Water; H ₂ O; [7732-18-5]		Zh. Neorg. Khim. 1965, 10, 1279-81; *Russ. J. Inorg. Chem. (Engl. Transl.) 1965, 10, 512-14.							
VARIABLES:		PREPARED BY:							
T/K = 298		M.-T. Saugier-Cohen Adad							
EXPERIMENTAL VALUES:									
t/°C	mass %	density g cm ⁻³	viscosity mPa s	electrical cond. S cm ⁻¹	solid phase				
25	26.80 ^a	1.1775	0.9901	0.163	KCl				
AUXILIARY INFORMATION									
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:							
Isothermal. Equilibrium between liquid and solid phases at a given temperature was reached by continuous stirring for 8-10 hours. The total Cl was determined volumetrically by Volhards' method. The electrical conductivity was measured with an A.C. bridge, the viscosity in an Ostwald viscosimeter and the density in a 5 mL pycnometer.		"Chemically pure" grade KCl was recrystallized from aqueous soln.							
ESTIMATED ERROR:									
Temperature: ±0.1 K									
REFERENCES:									

COMPONENTS:		ORIGINAL MEASUREMENTS:										
(1) Potassium chloride; KCl; [7447-40-7]		Belyaev, I.N.; Le T'yuk										
(2) Water; H ₂ O; [7732-18-5]		Zh. Neorg. Khim. 1965, 10, 2355-8; Russ. J. Inorg. Chem. (Engl. Transl.) 1965, 10, 1279-81.										
VARIABLES:		PREPARED BY:										
T/K = 298		M.-T. Saugier-Cohen Adad										
EXPERIMENTAL VALUES:												
t/°C	mass %	density	solid phase									
25	26.28 ^a	1.192	KCl									
^a Authors give 126.28, evidently in error.												
AUXILIARY INFORMATION												
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:										
Isothermal method. With continuous mixing, equilibrium between solid and liquid phases was established in 8-10 hours. Chlorine in the saturated solution was determined by Volhard's volumetric method.		"Chemically pure" grade KCl doubly recrystallized from aqueous soln.										
ESTIMATED ERROR:												
Temperature: ±0.1 K												
REFERENCES:												

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Chiorboli, P.; Momicchioli, F.; Grandi, G.	
(2) Water; H ₂ O; [7732-18-5]		<i>Boll. Sci. Fac. Chim. Ind. Bologna</i> <u>1966</u> , 24, 133-53.	
VARIABLES:		PREPARED BY:	
T/K = 266-273		P. Vallée	
EXPERIMENTAL VALUES:			
t/°C	molality mol kg ⁻¹	mass %	solid phases (compiler)
-0.0592	0.01648	0.1227	ice
-0.0913	0.02567	0.1910	"
-0.1493	0.04196	0.3119	"
-0.1912	0.05475	0.4065	"
-0.3060	0.08940	0.6621	"
-0.3830	0.11260	0.8325	"
-0.4040	0.11820	0.8735	"
-0.4333	0.12745	0.9413	"
-0.5017	0.14797	1.0912	"
-0.5413	0.16005	1.1792	"
-0.7360	0.21844	1.6025	"
-0.7814	0.23286	1.7065	"
-0.8055	0.23997	1.7577	"
-0.8126	0.24128	1.7671	"
-1.0741	0.32072	2.3353	"
-1.2592	0.37728	2.7359	"
-1.3137	0.39399	2.8536	"
-1.4754	0.44478	3.2096	"
-1.6238	0.48980	3.5231	"
-1.9406	0.58811	4.2005	"
-2.2587	0.68443	4.8550	"
-2.5289	0.77029	5.4310	"
-2.5547	0.77986	5.4948	"
-2.8347	0.86693	6.0710	"
-3.2329	0.99241	6.8892	"
-3.4683	1.06510	7.3567	"
-3.7532	1.15339	7.9782	"
-3.9801	1.22975	8.3984	"
-4.0223	1.23850	8.4531	"
-4.2441	1.30650	8.8760	"
-4.2755	1.31738	8.9433	"
-4.5043	1.38885	9.3830	"
-4.6239	1.42720	9.6172	"
-4.7479	1.46423	9.8421	"
-4.7691	1.47519	9.9085	"
-4.8455	1.49679	10.0390	"
-4.8727	1.50124	10.0659	"
-4.8961	1.50916	10.1136	"
-4.9212	1.51546	10.1515	"
-5.0641	1.56326	10.4383	"
-5.1719	1.59684	10.6387	"
-5.3101	1.69855	11.2401	"
-5.5603	1.71728	11.3500	"
-5.7814	1.78443	11.7417	"
-5.9701	1.84226	12.0759	"
-6.7910	2.09469	13.5075	"
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:		
Cryoscopy using a plastic thermostat regulated by an automatic cryostat was used. Temperature was measured with a Pt resistance thermometer calibrated at fixed primary points. Solution concentrations were measured with a Hilger-Rayleigh Interferometer M154.	Water was distilled from KMnO ₄ .		
ESTIMATED ERROR:		REFERENCES:	
Temperature: $\pm 3 \times 10^{-4}$ K			
Molality: $\pm 0.35 \times 10^{-4}$ to $\pm 0.5 \times 10^{-4}$ mol kg ⁻¹			

COMPONENTS:		ORIGINAL MEASUREMENTS:																																																																	
(1) Potassium chloride; KCl; [7447-40-7]		Cohen-Adad, R.; Said, J. <i>Bull. Soc. Chim. Fr.</i> 1967, 564-9; Said, J. Thesis no. 585, Lyon (France) 1969.																																																																	
(2) Water; H ₂ O; [7732-18-5]																																																																			
VARIABLES:		PREPARED BY:																																																																	
T/K = 262-333		M.-T. Saugier-Cohen Adad																																																																	
EXPERIMENTAL VALUES:																																																																			
<table> <thead> <tr> <th>t/°C</th> <th>mass %</th> <th>method (see below)</th> <th>solid phase</th> </tr> </thead> <tbody> <tr><td>- 3.5</td><td>6.5</td><td>a</td><td>ice</td></tr> <tr><td>- 5.8</td><td>11.4</td><td>a</td><td>"</td></tr> <tr><td>- 9.8</td><td>18.55</td><td>b</td><td>"</td></tr> <tr><td>-10.8</td><td>19.65</td><td>a</td><td>"</td></tr> <tr><td>-10.2</td><td>19.75</td><td>b</td><td>KCl</td></tr> <tr><td>- 8.9</td><td>19.89</td><td>b</td><td>"</td></tr> <tr><td>- 8.6</td><td>20.06</td><td>b</td><td>"</td></tr> <tr><td>- 7.0</td><td>20.46</td><td>b</td><td>"</td></tr> <tr><td>- 5.2</td><td>20.80</td><td>b</td><td>"</td></tr> <tr><td>- 2.9</td><td>21.25</td><td>b</td><td>"</td></tr> <tr><td>- 9.8</td><td>19.8</td><td>b</td><td>"</td></tr> <tr><td>27</td><td>26.27</td><td>b</td><td>"</td></tr> <tr><td>38</td><td>27.9</td><td>b</td><td>"</td></tr> <tr><td>50</td><td>30.0</td><td>b</td><td>"</td></tr> <tr><td>60</td><td>31.3</td><td>b</td><td>"</td></tr> </tbody> </table>				t/°C	mass %	method (see below)	solid phase	- 3.5	6.5	a	ice	- 5.8	11.4	a	"	- 9.8	18.55	b	"	-10.8	19.65	a	"	-10.2	19.75	b	KCl	- 8.9	19.89	b	"	- 8.6	20.06	b	"	- 7.0	20.46	b	"	- 5.2	20.80	b	"	- 2.9	21.25	b	"	- 9.8	19.8	b	"	27	26.27	b	"	38	27.9	b	"	50	30.0	b	"	60	31.3	b	"
t/°C	mass %	method (see below)	solid phase																																																																
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METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:																																																																		
Two experimental methods were used: a: thermal analysis b: isothermal method. A mixture of salt in excess and solution was stirred at constant temperature until equilibrium was reached. Then, a sample of saturated solution was analyzed by evaporation to dryness.	R.P. Prolabo reagent dried at 250°C for 24 hours.																																																																		
	ESTIMATED ERROR:																																																																		
	No estimates possible.																																																																		
	REFERENCES:																																																																		

COMPONENTS:		ORIGINAL MEASUREMENTS:																											
(1) Potassium chloride; KCl; [7447-40-7]		Momicchioli, F.; Devoto, O.; Grandi, G.; Cocco, G.																											
(2) Water; H ₂ O; [7732-18-5]		<i>Atti Soc. Nat. Modena</i> 1968, 99, 226-32; <i>Ber. Bunsen-Ges. Phys. Chem.</i> 1970, 74, 59-66.																											
VARIABLES:		PREPARED BY:																											
T/K = 279-283		M.-T. Saugier-Cohen Adad																											
EXPERIMENTAL VALUES:																													
<table> <thead> <tr> <th>t/°C (compiler)</th><th>molality /mol kg⁻¹</th><th>ΔT/m /K kg mol⁻¹</th><th>mass % (compiler)</th><th>solid phase</th></tr> </thead> <tbody> <tr> <td>-7.8188</td><td>2.40896</td><td>3.2457</td><td>15.226</td><td>ice</td></tr> <tr> <td>-8.1401</td><td>2.50627</td><td>3.2479</td><td>15.744</td><td>ice</td></tr> <tr> <td>-8.7269</td><td>2.68123</td><td>3.2548</td><td>16.660</td><td>ice</td></tr> <tr> <td>-9.8658</td><td>3.02410</td><td>3.2624</td><td>18.398</td><td>ice</td></tr> </tbody> </table>					t/°C (compiler)	molality /mol kg ⁻¹	ΔT/m /K kg mol ⁻¹	mass % (compiler)	solid phase	-7.8188	2.40896	3.2457	15.226	ice	-8.1401	2.50627	3.2479	15.744	ice	-8.7269	2.68123	3.2548	16.660	ice	-9.8658	3.02410	3.2624	18.398	ice
t/°C (compiler)	molality /mol kg ⁻¹	ΔT/m /K kg mol ⁻¹	mass % (compiler)	solid phase																									
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AUXILIARY INFORMATION																													
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:																												
A precision apparatus for measuring freezing point depressions by the equilibrium method was used, as described in (1). Temperatures were measured by a Pt resistance thermometer and Mueller bridge. Efficient stirring was accomplished by a high-quality air-driven stirrer. Concentrations were determined by a Hilger-Rayleigh interferometer.	Merck "Suprapur" reagent, Cat. No. 6406.																												
ESTIMATED ERROR:																													
Temperature: precision $\pm 3 \times 10^{-4}$ K. Composition: absolute error almost independent of molality, and about $4-5 \times 10^{-5}$ mol kg ⁻¹ .																													
REFERENCES:																													
(1) Chiorboli, P.; Momicchioli, F.; Grandi, G. <i>Boll. Sci. Fac. Chim. Ind. Bologna</i> 1966, 24, 133.																													

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Kirgintsev, A.N.; Trushnikova, L.N. <i>Zh. Neorg. Khim.</i> 1968, 13, 2843-7; * <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> 1968, 13, 1462-6.	
(2) Water; H ₂ O; [7732-18-5]			
VARIABLES:		PREPARED BY:	
T/K = 298		R. Tenu; R. Cohen-Adad	
EXPERIMENTAL VALUES:			
t/°C	mass %	solid phase	
25	26.6	KCl	
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:	
Solubility was determined by the isothermal relief of supersaturation. Equilibration time was 7-8 h. Samples of the liquid and solid phases were then withdrawn, transferred quantitatively to measuring flasks and analyzed.		KCl: "chemically pure" and "analytical reagent" grade salts were recryst. from dist. water.	
		ESTIMATED ERROR:	
		Temperature: ±0.1 K	
		REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Potassium chloride; KCl; [7447-40-7]		Merbach, A.; Gonella, J. <i>Helv. Chim. Acta</i> 1969, 52, 69-76.	
(2) Water; H ₂ O; [7732-18-5]			
VARIABLES:		PREPARED BY:	
T/K = 298		M.-T. Saugier-Cohen Adad	
EXPERIMENTAL VALUES:			
t/°C	mole ratio H ₂ O/KCl	mass % (compiler)	solid phase
25	11.40	26.63	KCl
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:	
The Brunisholz saturation method was used (1). Chloride was determined potentiometrically and potassium by atomic absorption.		KCl: Merck "Analytical Reagent" grade was used.	
		ESTIMATED ERROR:	
		Temperature: ±0.1 K	
		REFERENCES:	
		1. Brunisholz, G.; Quinche, J.P. Kalo, A.M. <i>Helv. Chim. Acta</i> 1964, 47, 14.	

COMPONENTS:		ORIGINAL MEASUREMENTS:												
(1) Potassium chloride; KCl; [7447-40-7]		Babenko, A.M.; Kaganskii, I.M. <i>Zh. Prikl. Khim. (Leningrad)</i> <u>1971</u> , 44, 1941-3; <i>J. Appl. Chem. USSR</i> (Engl. Transl.) <u>1971</u> , 44, 1974-6.												
(2) Water; H ₂ O; [7732-18-5]														
VARIABLES:		PREPARED BY:												
T/K = 264-284		M.-T. Saugier-Cohen Adad												
EXPERIMENTAL VALUES:														
<table> <thead> <tr> <th>t / °C</th> <th>mass %</th> <th>solid phase (compiler)</th> </tr> </thead> <tbody> <tr> <td>- 9.0</td> <td>19.9</td> <td>ice + KCl</td> </tr> <tr> <td>0</td> <td>21.4</td> <td>KCl</td> </tr> <tr> <td>10</td> <td>23.2</td> <td>KCl</td> </tr> </tbody> </table>			t / °C	mass %	solid phase (compiler)	- 9.0	19.9	ice + KCl	0	21.4	KCl	10	23.2	KCl
t / °C	mass %	solid phase (compiler)												
- 9.0	19.9	ice + KCl												
0	21.4	KCl												
10	23.2	KCl												
AUXILIARY INFORMATION														
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:													
Solubilities were determined by the method of isothermal saturation (compiler). The apparatus is described in (1).	Potassium chloride: twice recrystallized C.P. or analytical grade reagent.													
ESTIMATED ERROR:														
No estimates possible.														
REFERENCES:														
1. Eraizer, L.N.; Kaganskii, I.M. <i>Zavod. Lab.</i> <u>1967</u> , 33, 119.														

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Potassium chloride; KCl; [7447-40-7]		Bakhoda, B.				
(2) Water; H ₂ O; [7732-18-5]		Thesis. Pars College. 1975.				
VARIABLES:		PREPARED BY:				
T/K = 303		M.-T. Saugier-Cohen Adad				
EXPERIMENTAL VALUES:						
t/°C	molality mol kg ⁻¹	mass % (compiler)	solid phase			
30	5.001 a 5.036 b	27.16 27.30	KCl "			
a from undersaturation; b from supersaturation						
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Isothermal method. Equilibrium was obtained from under- and supersaturation. In the first case, the salt was dissolved in water at 32-33°C. The mixture was stirred for about 30 minutes and cooled to 30°C. Stirring was maintained for 4 days. The solution was filtered and the solid phase transferred to filter paper and wrapped completely. The moist salt was weighed; it was then dried at 95 to 100°C for 6 hours and weighed again. Composition of the saturated solution was deduced from the mass of moist and dry salt.	KCl (Merck's reagent) was dried above 100°C for 5 hours.					
ESTIMATED ERROR:						
Temperature: ± K						
REFERENCES:						

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Potassium chloride; KCl; [7447-40-7]		Sunier, A.A.; Baumbach, J.				
(2) Water; H ₂ O; [7732-18-5]		J. Chem. Eng. Data 1976, 21, 335-6.				
VARIABLES:		PREPARED BY:				
T/K = 188-257		M.-T. Saugier-Cohen Adad				
EXPERIMENTAL VALUES:						
t/°C	molality mol kg ⁻¹	mass %	solid phase			
16.13	4.407	24.73	KCl			
21.97	4.668	25.80	"			
23.50	4.716	26.02	"			
26.32	4.803	26.36	"			
30.80	5.018	27.23	"			
31.59	5.050	27.57	"			
37.62	5.264	28.17	"			
41.00	5.406	28.73	"			
48.12	5.698	29.82	"			
53.27	5.903	30.42	"			
53.82	5.891	30.52	"			
62.88	6.164	31.49	"			
66.23	6.322	32.03	"			
69.12	6.418	32.36	"			
77.07	6.684	33.26	"			
85.26	6.955	34.15	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
The sealed tube method was used which involved introducing weighed quantities of solute and solvent into a tube and sealing. Then the tube was heated slowly with shaking to determine the temperature at which the last small crystal remained. Mercury in glass thermometers were employed.	KCl: best grade of J.T. Baker, twice recrystallized from deionized water and fused.					
ESTIMATED ERROR:						
Temperature: ±0.01 K						
REFERENCES:						

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium chloride; KCl; [7447-40-7] (2) Water; H ₂ O; [7732-18-5]	Kartzmark, E.M. Can. J. Chem. 1977, 55, 2792-8.
VARIABLES: T/K = 298	PREPARED BY: J.W. Lorimer
EXPERIMENTAL VALUES:	
t/°C 25.00	mass % 26.72
solid phase KCl	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: The isothermal method was used. The mixture was equilibrated by stirring at 25.00°C for 2 or 3 days. The phases were separated by filtration through sintered glass and were analyzed for chloride by precipitation as AgCl.	SOURCE AND PURITY OF MATERIALS: KCl: reagent grade was used without further purification.
ESTIMATED ERROR: No estimates possible.	
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]		Potter II, R.W.; Babcock, R.S.; Brown, D.L.		
(2) Water; H ₂ O; [7732-18-5]		J. Res. U.S. Geol. Surv. 1977, 5, 389-95.		
VARIABLES:		PREPARED BY:		
T/K = 442-644		J.W. Lorimer		
EXPERIMENTAL VALUES:				
t/°C	mass %	solid phase (compiler)		
148.6	40.24	KCl		
153.4	40.77	"		
162.8	41.43	"		
173.1	42.49	"		
192.3	44.02	"		
213.5	46.00	"		
256.1	50.00	"		
278.0	52.00	"		
371.0	50.98	"		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Salt, saturated solution and vapor were heated in a Pt-lined stainless steel bomb. The curve of pressure vs temperature was measured, and showed a break (located by least-squares analysis of the data) at the temperature at which the last crystal of salt disappeared. The same values were obtained for heating rates between 0.17 and 0.44 K/min.	No information given.			
ESTIMATED ERROR:				
Temperature: ±0.1 K accuracy, traceable to NBS standards.				
Pressure: ±10 kPa				
Solubility: fits quadratic eqn to ±2s = 0.10 mass %				
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Potassium chloride; KCl; [7447-40-7]		Potter II, R.W.; Clyne, M.A. J. Res. U.S. Geol. Surv. 1978, 6, 701-5.		
(2) Water; H ₂ O; [7732-18-5]				
VARIABLES:		PREPARED BY:		
T/K = 299-367		J.W. Lorimer		
EXPERIMENTAL VALUES:				
t/°C	mass %	solid phase (compiler)		
25.42	26.40	KCl		
29.78	26.96	"		
29.79	26.96	"		
29.88	26.99	"		
30.06	27.03	"		
39.94	25.50	"		
40.98	28.61	"		
50.49	30.00	"		
61.28	31.40	"		
72.44	32.71	"		
83.18	33.91	"		
93.40	34.99	"		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
The visual method was used. Weighed amounts of salt and water were placed in a tube fitted with a stirrer and sealed with a layer of silicone oil. The tube was heated slowly and incrementally in a thermostat until the last crystal of salt had dissolved. It was found that 1 mg of salt could be seen easily, using a 20 g-sample of salt.	No information given.			
ESTIMATED ERROR:				
Temperature: accuracy ±0.01 K (Pt resistance thermometer); repeatability of dissolution temp. ±0.05 to ±0.15 K.				
Solubility: est. precision 0.03-0.05 mass %.				
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:									
(1) Potassium chloride; KCl; [7447-40-7]		Rard, J.A.; Miller, D.G. <i>J. Chem. Eng. Data</i> <u>1981</u> , 26, 38-43.									
(2) Water; H ₂ O; [7732-18-5]											
VARIABLES:		PREPARED BY:									
T/K = 298		M.-T. Saugier-Cohen Adad									
EXPERIMENTAL VALUES:											
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 25%;">t/°C</th> <th style="text-align: left; width: 25%;">molality m/mol kg⁻¹</th> <th style="text-align: left; width: 25%;">mass % (compiler)</th> <th style="text-align: left; width: 25%;">solid phase</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">22</td> <td style="text-align: center;">4.8088 ± 0.0022</td> <td style="text-align: center;">26.390</td> <td style="text-align: center;">KCl</td> </tr> </tbody> </table>				t/°C	molality m/mol kg ⁻¹	mass % (compiler)	solid phase	22	4.8088 ± 0.0022	26.390	KCl
t/°C	molality m/mol kg ⁻¹	mass % (compiler)	solid phase								
22	4.8088 ± 0.0022	26.390	KCl								
AUXILIARY INFORMATION											
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:									
Isopiestic method. Experimental details are described elsewhere (1). 12-14 days equilibration were used.		The preparation and analysis of KCl, H ₂ SO ₄ , and isopiestic standards have been described in (2).									
ESTIMATED ERROR:											
Temperature: $\pm 0.005/K$											
REFERENCES:											
<ol style="list-style-type: none"> 1. Spedding, F.H.; Weber, H.O.; Saeger, V.W.; Peterham, H.H.; Rard, J.A.; Habenschuss, A. <i>J. Chem. Eng. Data</i> <u>1977</u>, 22, 56. 2. Scott, A.F.; Frazier, W.R. <i>J. Phys. Chem.</i> <u>1927</u>, 31, 459. 											

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Potassium chloride; KCl; [7447-40-7]		Hall, D.L.; Sternner, S.M.; Bodnar, R.J.				
(2) Water; H ₂ O; [7732-18-5]		Econ. Geol. 1988, 83, 197-202.				
VARIABLES:		PREPARED BY:				
$T/K = 273-262$		J.W. Lorimer				
EXPERIMENTAL VALUES:						
mass %	mole fraction (compiler)	freezing point $t/^\circ\text{C}$	solid phase			
0.00	0.0000	0.00	ice			
3.18	0.0079	-1.46	"			
4.28	0.0106	-2.00	"			
6.43	0.0163	-3.00	"			
8.38	0.0216	-4.00	"			
10.30	0.0270	-5.00	"			
12.14	0.0323	-6.00	"			
13.81	0.0373	-7.00	"			
15.48	0.0424	-8.00	"			
17.06	0.0474	-9.00	"			
18.59	0.0523	-10.00	"			
19.29	0.0546	-10.50	"			
19.55	0.0555	-10.69	"			
COMMENTS: The fitting equation given in this paper has also been given in a published abstract (1), but without the experimental data.						
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
A 20 mass % sln. of salt was diluted to 3 mass % and placed in a 1-L Erlenmeyer flask fitted with ports for sampling and thermocouple (type K, measured with potentiometer, calibrated at f.p. of water and Hg). Sln. was initially undercooled ≈ 1 K below f.p., then was nucleated with a seed crystal and cooled slowly at 3-4 K/h. Samples of equilibrated brine were removed by pipet, then were weighed, dried at 110°C, then dried at 350°C.	KCl: reagent grade. H ₂ O: distilled and deionized.					
ESTIMATED ERROR:						
Temperature: ± 0.05 K (from potentiometer precision).						
Composition: ± 0.02 mass % (from known samples).						
REFERENCES:						
1. Hall, D.L.; Sternner, S.M.; Bodnar, R.J. EOS, Trans., Am. Geophys. Union 1987, 68, 450.						

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Potassium chloride; KCl; [7447-40-7]		Hovey, J.K.; Pitzer, K.S.; Tanger IV, J.C.; Bischoff, J.I.; Rosenbauer, R.J.			
(2) Water; H ₂ O; [7732-18-5]		<i>J. Phys. Chem.</i> <u>1990</u> , 94, 1175-9.			
VARIABLES:		PREPARED BY:			
T/K = 621-772		J.W. Lorimer			
EXPERIMENTAL VALUES:					
Temperature, pressure and vapor composition along the three-phase S-L-V line.					
<i>t</i> /°C	<i>p</i> /bar	mass % KCl in vapor, <i>u</i> ,	solid phase		
347.5	82.1	-	KCl		
377.5	107.1	-	"		
398.5	125.5	-	"		
398.8 ± 0.2	125.7 ± 0.1	0.0013 ± 0.0005	"		
399.7	126.5	-	"		
419.1	143.9	-	"		
439.4	161.7	-	"		
458.3 ± 0.2	177.5 ± 0.2	0.0053 ± 0.0002	"		
459.8	178.4	-	"		
480.1	193.4	-	"		
498.7 ± 0.2	205.1 ± 0.1	0.0128 ± 0.0020	"		
COMMENTS AND ADDITIONAL DATA:					
The large errors in vapor compositions are attributed to slow kinetics of liquid-vapor equilibration. The authors also give pressure-liquid composition-vapor composition data for two temperatures, 380.1 ± 0.3 and 410.2 ± 0.2 °C. The vapor composition along the three-phase line could be represented by (compiler)					
$\ln(100u_1) = a + b(T/K - 273.15)$ with $a = -15.8$, $b = 0.0229$.					
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:				
Similar to that used in (1, 2): a 26.5 mL pressure vessel (René 41) was suspended vertically in a two-zone Marshall resistance furnace, which was controlled electronically. Openings at top and bottom of the pressure vessel were connected to sampling valve blocks and pressure transducers via Ti and stainless steel capillaries, with 0.2 mL dead volume in each pressure line. A mass of solution sufficient to fill the pressure vessel and to generate, by expansion, a pressure above the critical pressure was placed in the apparatus. Excess fluid was withdrawn to give other pressures. Thermal eqm. was reached reached in 3 h. Samples (0.35 mL) were removed from top and bottom, weighed and analyzed for K by atomic absorption, Cl by automatic chloride titration. The final pressure was also measured. Pressure was measured using transducers calibrated to 0.01 % at 11 points with a dead-weight gauge. Temperature was measured by Pt resistance thermometers calibrated to NBS standards.	KCl: reagent grade. H ₂ O: deionized.				
ESTIMATED ERROR:					
Temperature: total error ±0.02 K variation during expt. ±0.05 K variation between expts. ±0.3 K Pressure: ±0.5 bar Composition: K, Cl: precision 1 % above 0.5 mass %					
REFERENCES:					
1. Rosenbauer, R.J.; Bischoff, J.L. <i>Geochim. Cosmochim. Acta</i> <u>1987</u> , 51, 2349. 2. Bischoff, J.L.; Rosenbauer, R.J. <i>Earth Planet. Sci. Lett.</i> <u>1984</u> , 68, 172.					

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Rubidium chloride; RbCl; [7791-18-5]		Kirchhoff, G.; Bunsen, R.		
(2) Water; H ₂ O; [7732-18-5]		Ann. Phys. Chem. [4] <u>1861</u> , 113, 337-81.		
VARIABLES:		PREPARED BY:		
T/K = 274, 280		J.W. Lorimer		
EXPERIMENTAL VALUES:				
t/°C	mass ratio RbCl/H ₂ O	mass % (compiler)	solid phase	
1	0.7638	43.30	RbCl	
7	0.8289	45.32	RbCl	
COMMENTS:				
These data are found on p. 352 of this paper, and were obtained in connection with the discovery and isolation of rubidium and caesium by the authors; the names of the elements are proposed in the paper, and the derivations of the names are also given. The preparation of RbCl appears to have been very pure; the analytical data given (0.9740 g RbCl gave 1.1541 g AgCl on precipitation) correspond to x = 1.0010 in RbCl _x , or 29.31 % Cl (theory 29.32), when 1984 atomic weights are used (compiler).				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
No details are given; presumably the isothermal saturation method was used.	RbCl was extracted from lepidolite from Saxony. A large sample was freed from lithia and "earths", leaving a residue of about 150 kg. Extraction made use of the lower solubility of RbPtCl ₂ , compared to the chloroplatinates of Na and K. The purity of the product was checked by the emission spectrum.			
ESTIMATED ERROR:				
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:																									
(1) Rubidium chloride; RbCl; [7791-11-9]		Rimbach, E.																									
(2) Water; H ₂ O; [7732-18-5]		Ber. Dtsch. Chem Ges. 1902, 35, 1298-1309.																									
VARIABLES:		PREPARED BY:																									
T/K = 274-388		M. Ferriol																									
EXPERIMENTAL VALUES:																											
<table> <thead> <tr> <th>t/°C</th> <th>mass % from Cl content</th> <th>mass % from dry residue</th> <th>average</th> <th>solid phase</th> </tr> </thead> <tbody> <tr> <td>0.4</td> <td>43.59</td> <td>43.63</td> <td>43.61</td> <td>RbCl</td> </tr> <tr> <td>15.5</td> <td>46.75</td> <td>46.37</td> <td>46.56</td> <td>"</td> </tr> <tr> <td>57.3</td> <td>53.52</td> <td>53.90</td> <td>53.71</td> <td>"</td> </tr> <tr> <td>114.9</td> <td>59.60</td> <td>59.35</td> <td>59.48</td> <td>"</td> </tr> </tbody> </table>			t/°C	mass % from Cl content	mass % from dry residue	average	solid phase	0.4	43.59	43.63	43.61	RbCl	15.5	46.75	46.37	46.56	"	57.3	53.52	53.90	53.71	"	114.9	59.60	59.35	59.48	"
t/°C	mass % from Cl content	mass % from dry residue	average	solid phase																							
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57.3	53.52	53.90	53.71	"																							
114.9	59.60	59.35	59.48	"																							
AUXILIARY INFORMATION																											
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:																										
	No information given.																										
	ESTIMATED ERROR:																										
	Temperature: ±0.1 K Solubility: precision range about 0.2 mass %																										
	REFERENCES:																										

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium chloride; RbCl; [7791-11-9] (2) Water; H ₂ O; [7732-18-5]	Berkeley, Earl of Phil. Trans. R. Soc. London, Ser. A <u>1904</u> , 203, 189-214.
VARIABLES:	PREPARED BY:
T/K = 274-387	M. Ferriol

EXPERIMENTAL VALUES:

t/°C	100 x mass ratio RbCl/H ₂ O	mass %	density g cm ⁻³	solid phase
0.55	77.34	43.61	1.4409	RbCl
18.70	90.32	47.46	1.4865	"
31.50	98.61	49.65	1.5118	"
44.70	106.24	51.51	1.5348	"
60.25	115.63	53.62	1.5558	"
75.15	124.52	55.46	1.5746	"
89.35	132.73	57.03	1.5905	"
114.0 a	146.65	59.46	1.6148	"

a boiling point

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The salt-water mixture was stirred at the appropriate temperature and the density followed by pycnometric measurement until its value remained constant. The solubilities were determined by evaporation to dryness of the saturated solution in platinum crucibles, except at the boiling point where Jena glass bulbs were used. According to the range, different temperature control systems were used. Temperatures were corrected to the hydrogen scale.	Purest product from Merck, checked by chloride titration. The RbCl was tested spectroscopically for the presence of potassium and caesium.
ESTIMATED ERROR:	Temperature: ±0.01 K Solubility: within ±0.16 mass %
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Rubidium chloride; RbCl; [7791-11-9]		Buchanan, J.Y.		
(2) Water; H ₂ O; [7732-18-5]		Am. J. Sci. 1906, 21, 25-40.		
VARIABLES:		PREPARED BY:		
T/K = 296		M. Ferriol		
EXPERIMENTAL VALUES:				
t/°C	molality, mol kg ⁻¹	mass % a	density g cm ⁻³	solid phase
22.9	7.7670	48.45	1.4971	RbCl
^a RbCl molar mass: 121.0 g mol ⁻¹ , according to the author.				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
25 g of distilled water were weighed into a suitable vessel and the salt was gradually added until a small quantity remained undissolved. This quantity was such that a further increase in temperature of 1 K caused all salt to disappear. The salt content was determined by titration with 0.1 M AgNO ₃ .	RbCl: Schuchardt's purest reagent.			
ESTIMATED ERROR:				
Temperature: ±0.1 K				
REFERENCES:				

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium chloride; RbCl; [7791-11-9] (2) Water; H ₂ O; [7732-18-5]	Berkeley, Earl of; Appleby, M.P. Proc. R. Soc. London, A 1911, 85, 489-505.
VARIABLES:	PREPARED BY:

$p/\text{mmHg} = 750, 760$

R. Cohen-Adad

EXPERIMENTAL VALUES:

pressure mm Hg	t/°C (boiling point)	concentration mol dm ⁻³	mass % (compiler) ^b	solid phase
750	113.318			
760	113.710 ^a	7.948	59.618	RbCl

^a corrected to standard conditions

^b density is recorded in previous paper (1)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Described in previous paper (1).	Merck's salt recrystallized 3x.
	ESTIMATED ERROR:
	Temperature: precision within ±0.005 K
	REFERENCES:
	1. Berkeley, Earl of Phil. Trans. R. Soc. London, A 1904, 203, 189-214.

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Rubidium chloride; RbCl; [7791-11-9]		Benrath, A.	
(2) Water; H ₂ O; [7732-18-5]		Z. Anorg. Allg. Chem. 1927, 163, 396-404.	
VARIABLES:		PREPARED BY:	
T/K = 298		M. Ferriol	
EXPERIMENTAL VALUES:			
t/°C	mol ratio H ₂ O/RbCl	mass % (compiler)	solid phase
25	6.87	49.71	RbCl
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Not stated; probably isothermal method.		Not stated.	
		ESTIMATED ERROR:	
		No estimates possible.	
		REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Rubidium chloride; RbCl; [7791-11-9]		Foote, H.W.	
(2) Water; H ₂ O; [7732-18-5]		Am. J. Sci. 1927, [5], 13, 158-66.	
VARIABLES:		PREPARED BY:	
T/K = 298		M. Ferriol	
EXPERIMENTAL VALUES:			
t/°C	mass %	solid phase	
25	48.57	RbCl	
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Saturated solutions were prepared by shaking the components in small glass-stoppered bottles in a therm- ostat. They were drawn off for analysis through a small filter of glass wool directly into a weighing bottle.		RbCl was recrystallized.	
		ESTIMATED ERROR:	
		No estimates possible.	
		REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Rubidium chloride; RbCl; [7791-11-9]		Karagunis, G.; Hawkinson, A.; Damkohler, G.				
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Abt. A <u>1930</u> , 151, 433-56.				
VARIABLES:		PREPARED BY:				
T/K: 264-273		M. Ferriol				
EXPERIMENTAL VALUES:						
t/°C	molality mol kg ⁻¹	mass % (compiler)	solid phase			
-0.06510	0.01780	0.2148	ice			
-0.15115	0.0421	0.5065	"			
-0.21900	0.0622	0.7465	"			
-0.2774	0.07780	0.9320	"			
-0.2738	0.07826	0.9374	"			
-0.4165	0.1215	1.448	"			
-0.5352	0.1581	1.876	"			
-0.6296	0.1873	2.215	"			
-0.7872	0.2368	2.784	"			
-0.8211	0.2468	2.898	"			
-1.194	0.3633	4.208	"			
-1.988	0.6155	6.927	"			
-3.244	1.022	11.00	"			
-3.789	1.199	12.66	"			
-4.128	1.300	13.68	"			
-4.947	1.568	15.94	"			
-5.606	1.774	17.66	"			
-6.388	2.021	19.64	"			
-6.977	2.201	21.02	"			
-7.645	2.415	22.60	"			
-8.672	2.770	25.09	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Cryoscopic method: the difference between melting points of ice and solution was measured with a thermocouple. The concentration of solutions was determined with a Haber-Lowe interferometer.	The purity of RbCl was checked by potentiometric titration of Cl.					
ESTIMATED ERROR:						
$\Delta(t/m) = 0.2\%$						
REFERENCES:						

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium chloride; RbCl; [7791-11-9] (2) Water; H ₂ O; [7732-18-5]	Fajans, K.; Karagunis, G. quoted by Meyer, K.H.; Dunkel, M. <i>Z. Phys. Chem., Bodenstein-Festband 1931, 553-573.</i>
VARIABLES: T/K = 298	PREPARED BY: J.W. Lorimer

EXPERIMENTAL VALUES:

t/°C	molality mol kg ⁻¹	mass % (compiler)	mol%	solid phase
25	7.8	52	13.9	RbCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
No details given.	No details given.
	ESTIMATED ERROR: No estimates possible.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:										
(1) Rubidium chloride; RbCl; [7791-11-9] (2) Water; H ₂ O; [7732-18-5]	Lannung, A. <i>Z. Phys. Chem., Abt. A 1934, 170, 134-44.</i>										
VARIABLES: T/K = 291 p/kPa = 1.6	PREPARED BY: J.J. Counioux										
EXPERIMENTAL VALUES:	<table> <thead> <tr> <th>t/°C</th> <th>p/mmHg</th> <th>molality</th> <th>mass %</th> <th>solid phase</th> </tr> </thead> <tbody> <tr> <td>18</td> <td>11.86</td> <td>7.10</td> <td>47.07</td> <td>RbCl</td> </tr> </tbody> </table>	t/°C	p/mmHg	molality	mass %	solid phase	18	11.86	7.10	47.07	RbCl
t/°C	p/mmHg	molality	mass %	solid phase							
18	11.86	7.10	47.07	RbCl							

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The vapor pressure of the solution was plotted against the concentration. The solubility was deduced from the break in this curve.	The purity of the salt has been described in a previous paper (1).
	ESTIMATED ERROR: Temperature: precision ±0.003 K Pressure: ±7 Pa
	REFERENCES: (1) Lannung, A. <i>Z. Phys. Chem., Abt. A. 1932, 161, 255.</i>

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium chloride; RbCl; [7791-11-9]	Gehlen, H.; Dieter, H.
(2) Water; H ₂ O; [7732-18-5]	Z. Phys. Chem. (Leipzig) 1950, 196, 258-77.
VARIABLES:	PREPARED BY:
p/atm = 0-10 ⁴	M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C	p/atm	mass % RbCl		solid phase
		a	b	
18	0	46.2	46.2	RbCl
	1000	48.0	48.0	"
	2000	49.5	49.5	"
	3000	50.7	51.2	"
	4000	52.0	52.9	"
	5000	53.4	54.7	"
	6000	54.3	56.2	"
	7000	55.2	57.5	"
	8000	56.1	58.9	"
	9000	56.9	59.8	"
	10000	57.9	60.8	"

a: first approximation

b: second approximation

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Solubilities under pressure were calculated from density and vapor pressure data at atmospheric pressure using Tammann's assumption (1) concerning the coincidence pressure and the compressibility of solid RbCl.	Not stated.
	ESTIMATED ERROR:
	No estimates possible.
	REFERENCES:
	1. Tammann, G. Über die Beziehungen zwischen den inneren Kraften und Eigenschaften der Lösungen. Leopold Voss. Hamburg und Leipzig. 1907.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium chloride; RbCl; [7791-11-9]	Blidin, V.P.
(2) Water; H ₂ O; [7732-18-5]	Izv. Akad. Nauk. SSSR 1953, 5, 814-19; Zh. Obshch. Khim. 1956, 26, 1281-5; *J. Gen. Chem. USSR (Engl. Transl.) 1956, 26, 1449-52.
VARIABLES:	PREPARED BY:

T/K = 298, 313

M.-T. Saugier-Cohen Adad

EXPERIMENTAL VALUES:

t/°C	mass %	solid phase
25	48.12 ^a	RbCl
40	49.85	"

^a Given in both 1953 and 1956 papers. Result at 40°C in 1956 paper only.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Isothermal method: saturation was obtained by addition of small quantities of salt. A sample of clear solution was weighed and analyzed. The remaining salt was weighed.	Pure salt twice recrystallized.
ESTIMATED ERROR:	Temperature: ±0.1 K
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium chloride; RbCl; [7791-11-9]	Durham, G.S.; Rock, E.J.; Frayn, J.S.
(2) Water; H ₂ O; [7732-18-5]	J. Am. Chem. Soc. 1953, 75, 5792-4.
VARIABLES:	PREPARED BY:

T/K = 298

J. W. Lorimer

EXPERIMENTAL VALUES:	
t/°C	mass %

25	48.48	solid phase
		RbCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The isothermal saturation method was used, starting from both over- and undersaturation. For the ternary systems investigated, equilibrium was reached in 3-4 weeks. The solubility tubes were rotated in a thermostat, and samples were removed through filter pipets. Analysis was by titration for chloride.	RbCl: A.D. Mackay, c.p. grade, dried to const. wt. at 190°C; gave no test for Br, but contained 0.6% KCl.
ESTIMATED ERROR:	Temperature: precision within ±0.02 K. Solubility: precision within ±0.1 mass % (compiler).
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Rubidium chloride; RbCl; [7791-11-9]		Makarov, L.L.; Evstrop'ev, K.K.; Vlasov, Yu. G.
(2) Water; H ₂ O; [7732-18-5]		Zh. Fiz. Khim. <u>1957</u> , 31, 1621.
VARIABLES:		PREPARED BY:
T/K = 298		P. Vallée
EXPERIMENTAL VALUES:		
t/°C	molality $m_1/\text{mol kg}^{-1}$	mass %
25	7.78	48.47
		solid phase RbCl
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:	
Isopiestic method (compiler).	No information given.	
	ESTIMATED ERROR:	
	No estimates possible.	
	REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:								
(1) Rubidium chloride; RbCl; [7791-11-9]		Belyaev, I.N.; Le T'yuk Zh. Neorg. Khim. 1966, 11, 1919-25; *Russ. J. Inorg. Chem. (Engl. Transl.) 1966, 11, 1025-8.								
(2) Water; H ₂ O; [7732-18-5]										
VARIABLES:		PREPARED BY:								
T/K = 298		M. Ferriol								
EXPERIMENTAL VALUES:										
t/°C	mass %	viscosity mPa s	density g cm ⁻³	electrical conductivity S cm ⁻¹	solid phase					
25	48.50	1.0870	1.455	. 0.212	RbCl					
AUXILIARY INFORMATION										
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:									
The method was described in earlier publications (1,2). The solubility was determined by the isothermal method in vessels with a stirrer and hydrostatic seal. Equilibrium was reached by continuous stirring for 8-10 h. Samples of liquid phase were analyzed for Cl. Electrical conductivity, viscosity and density were also measured.	RbCl was made from "pure" grade carbonate.									
ESTIMATED ERROR:										
Temperature: ±0.1 K.										
REFERENCES:										
1. Belyaev, I.N.; Le T'yuk. Zh. Neorg. Khim. 1965, 10, 1229; Russ. J. Inorg. Chem. (Engl. Transl.) 1965, 10, 664. 2. Belyaev, I.N.; Le T'yuk, Zh. Neorg. Khim. 1965, 10, 235; Russ. J. Inorg. Chem. (Engl. Transl.) 1965, 10, 1279.										

COMPONENTS:	ORIGINAL MEASUREMENTS:		
(1) Rubidium chloride; RbCl; [7791-11-9]	Sheveleva, A.D.		
(2) Water; H ₂ O; [7732-18-5]	Uch. Zap. Permsk. Gos. Univ. im. A.M. Gor'kogo 1966, No. 159, 3-14.		
VARIABLES: T/K = 293, 323	PREPARED BY: T. Mioduski		

EXPERIMENTAL VALUES:

t/°C	mass%	molality mol kg ⁻¹	solid phase
20	47.7	7.54	RbCl
50	52.2	9.03	RbCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The isothermal saturation method was used, with refractometric analysis (1). Known amounts of solid and water were equilibrated until their refractive indices became constant. The compositions of saturated solutions were found from discontinuities in the refractive index-composition plots. The refractometer was thermostated at 50°C.	RbCl: Analytical grade was presumably used as received.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	<p>1. Zhuravlev, E.F.; Sheveleva, A.D.; Zh. Neorg. Khim. 1960, 5, 2630; Russ. J. Inorg. Chem. (Engl. Transl.) 1960, 5, 1270.</p>

COMPONENTS:	ORIGINAL MEASUREMENTS:		
(1) Rubidium chloride; RbCl; [7791-11-9]	Sheveleva, A.D.; Mochalov, K.I.; Khurtorski, E.N.; Torgashina, N.A.		
(2) Water; H ₂ O; [7732-18-5]	Uch. Zap. Permsk. Gos. Univ. im. A.M. Gor'kogo 1973, No. 289, 3-8.		
VARIABLES: T/K = 323	PREPARED BY: T. Mioduski		

EXPERIMENTAL VALUES:

t/°C	mass%	molality mol kg ⁻¹	solid phase
50	51.2	8.68	RbCl
50	52.5	9.14	RbCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The isothermal saturation method was used, with refractometric analysis (1). Known amounts of solid and water were equilibrated until their refractive indices became constant. The compositions of saturated solutions were found from discontinuities in the refractive index-composition plots. The refractometer was thermostated at 50°C.	RbCl: Analytical grade was presumably used as received.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	<p>1. Zhuravlev, E.F.; Sheveleva, A.D.; Zh. Neorg. Khim. 1960, 5, 2630; Russ. J. Inorg. Chem. (Engl. Transl.) 1960, 5, 1270.</p>

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Rubidium chloride; RbCl; [7791-11-9]		Arkhipov, S.M.; Kashina, N.I.; Rezvina, T.V.
(2) Water; H ₂ O; [7732-18-5]		Zh. Neorg. Khim. 1968, 13, 587-8; Russ. J. Inorg. Chem. (Engl. Transl.) 1968, 13, 304.
VARIABLES:	PREPARED BY:	
T/K = 273, 298, 323	P. Vallée	

EXPERIMENTAL VALUES:

t/°C	mass %	solid phase
0	43.48	RbCl
25	48.60	RbCl
50	52.30	RbCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The isothermal saturation method was used with prolonged stirring of the solid phase and solution. At 0°C, glass vessels with oil seals were immersed in melting ice; at 25 and 50°C, test tubes were placed in a thermostat and stirred. Equilibrium was reached in 10 h. The composition of the saturated solution was found by titration with AgNO ₃ and K ₂ CrO ₄ indicator.	RbCl: purity 99.9%.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium chloride; RbCl; [7791-11-9]	Bykova, I.N.; Kuznetzova, G.P.; Kolotilova, V.Ya.; Stepin, B.D.
(2) Water; H ₂ O; [7732-18-5]	Zh. Neorg. Khim. 1968, 13, 540-4; Russ. J. Inorg. Chem. (Engl. Transl.) 1968, 13, 282-4.
VARIABLES:	PREPARED BY:

T/K = 298

t/°C	mass %	solid phase
25	48.29	RbCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The isothermal saturation method was used with prolonged stirring of the solid phase and solution. Equilibrium was reached within 15 d. Analysis: gravimetric, with Rb as the tetrphenylborate, Cl as AgCl.	RbCl: "pure" grade, heated to 400 °C to remove organic impurities, then recryst. from water, dried at 120°C.
ESTIMATED ERROR:	Temperature: precision within ±0.1 K.
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Rubidium chloride; RbCl; [7791-11-9]		Belyaev, I.N.; Lobas, L.M.			
(2) Water; H ₂ O; [7732-18-5]		Zh. Neorg. Khim. 1968, 13, 1149-55; *Russ. J. Inorg. Chem. (Engl. Transl.) 1968, 13, 601-4.			
VARIABLES:		PREPARED BY:			
T/K = 298		M. Ferriol			
EXPERIMENTAL VALUES:					
t/°C	mass %	density g cm ⁻³	viscosity mPa s	conductivity S cm ⁻¹	solid phase
25	48.50	1.487	1.0741	0.165	RbCl
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:			
The isothermal method was used. Viscosity, electrical conductivity and density were measured.		RbCl: recrystallized "chemically pure" grade reagent.			
		ESTIMATED ERROR:			
		No estimates possible.			
		REFERENCES:			

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Rubidium chloride; RbCl; [7791-11-9]		Merbach, A.; Gonella, J.			
(2) Water; H ₂ O; [7732-18-5]		Helv. Chim. Acta 1969, 52, 69-76.			
VARIABLES:		PREPARED BY:			
T/K = 298		M. Ferriol			
EXPERIMENTAL VALUES:					
t/°C	100 x mole ratio H ₂ O/RbCl	mass % (compiler)		solid phase	
25	708	48.67		RbCl	
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:			
The Brunisholz' saturation method was used (1). Chloride was determined potentiometrically.		RbCl: Merck "analytical reagent" grade was used.			
		ESTIMATED ERROR:			
		Temperature: ±0.1 K			
		REFERENCES:			
		1. Brunisholz, G.; Quinche, J.P.; Kalo, A.M. Helv. Chim. Acta 1964, 47, 14.			

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Rubidium chloride; RbCl; [7791-18-5]		Momicchioli, F.; Devoto, O.; Grandi, G.; Cocco, G.						
(2) Water; H ₂ O; [7732-18-5]		Atti Soc. Nat. Modena 1968, 99, 226; Ber. Bunsen-Ges. Phys. Chem. 1970, 74, 59-65.						
VARIABLES:		PREPARED BY:						
T/K = 264-273		R. Cohen-Adad						
EXPERIMENTAL VALUES:								
t/°C (compiler)	molality /mol kg ⁻¹	ΔT/m /K kg mol ⁻¹	mass % (compiler)	solid phase				
-0.0473	0.01286	3.67	0.155.	ice				
-0.0771	0.02145	3.59	0.259	ice				
-0.0949	0.02650	3.58	0.319	ice				
-0.1423	0.04055	3.509	0.488	ice				
-0.1935	0.05522	3.504	0.663	ice				
-0.2147	0.06160	3.485	0.739	ice				
-0.2708	0.07826	3.460	0.937	ice				
-0.4152	0.12177	3.410	1.451	ice				
-0.5504	0.16232	3.391	1.925	ice				
-0.6713	0.19974	3.361	2.358	ice				
-0.8102	0.24222	3.345	2.846	ice				
-1.0067	0.30323	3.320	3.537	ice				
-1.1690	0.35372	3.305	4.102	ice				
-1.4139	0.43005	3.2878	4.943	ice				
-1.9758	0.60827	3.2482	6.851	ice				
-2.7314	0.84910	3.2168	9.312	ice				
-3.4660	1.08422	3.1968	11.591	ice				
-4.0967	1.28646	3.1845	13.462	ice				
-5.0217	1.58444	3.1694	16.079	ice				
-6.2937	1.99072	3.1615	19.402	ice				
-7.6634	2.42520	3.1599	22.676	ice				
-10.4356	3.30440	3.1581	28.550	ice				
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
A precision apparatus for measuring freezing point depressions by the equilibrium method was used, as described in (1). Temperatures were measured by a Pt resistance thermometer and Mueller bridge. Efficient stirring was accomplished by a high-quality air-driven stirrer. Concentrations were determined by a Hilger-Rayleigh interferometer.	Merck "Suprapur" reagent, Cat. No. 7622.							
ESTIMATED ERROR:								
Temperature: precision $\pm 3 \times 10^{-4}$ K. Composition: Absolute error almost independent of molality, and about $4-5 \times 10^{-5}$ mol kg ⁻¹ .								
REFERENCES:								
(1) Chiorboli, P.; Momicchioli, F.; Grandi, G. Boll. Sci. Fac. Chim. Ind. Bologna 1966, 24, 133.								

COMPONENTS:		ORIGINAL MEASUREMENTS:									
(1) Rubidium chloride; RbCl; [7791-11-9]		Fedorova, O.N.; Serebrennikova, G.M.; Stepin, B.D. Zh. Neorg. Khim. 1971, 16, 2808-13; *Russ. J. Inorg. Chem. (Engl. Transl.) 1971, 16, 1495-7.									
(2) Water; H ₂ O; [7732-18-5]											
VARIABLES:		PREPARED BY:									
T/K = 298		M. Ferriol									
EXPERIMENTAL VALUES:											
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 25%;">t/°C</th> <th style="text-align: left; width: 25%;">mass %</th> <th style="text-align: left; width: 25%;">solid phase</th> <th style="text-align: left; width: 25%;"> </th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">25</td> <td style="text-align: center;">48.54</td> <td style="text-align: center;">RbCl</td> <td></td> </tr> </tbody> </table>				t/°C	mass %	solid phase		25	48.54	RbCl	
t/°C	mass %	solid phase									
25	48.54	RbCl									
AUXILIARY INFORMATION											
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:									
The isothermal saturation method was used. Equilibrium was reached in 14 d. Samples of the liquid phase were analyzed for Cl by a gravimetric method.		RbCl: Chemically pure grade was used.									
		ESTIMATED ERROR: Temperature: precision ±0.1 K.									
		REFERENCES:									

COMPONENTS:		ORIGINAL MEASUREMENTS:									
(1) Rubidium chloride; RbCl; [7791-11-9]		Arkhipov, S.M.; Kashina, N.I.; Kuzina, V.A. Zh. Neorg. Khim. 1974, 19, 2858-62; *Russ. J. Inorg. Chem. (Engl. Transl.) 1974, 19, 1562-4.									
(2) Water; H ₂ O; [7732-18-5]											
VARIABLES:		PREPARED BY:									
T/K = 298		P. Vallée									
EXPERIMENTAL VALUES:											
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 25%;">t/°C</th> <th style="text-align: left; width: 25%;">mass %</th> <th style="text-align: left; width: 25%;">solid phase</th> <th style="text-align: left; width: 25%;"> </th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">25</td> <td style="text-align: center;">48.21</td> <td style="text-align: center;">RbCl</td> <td></td> </tr> </tbody> </table>				t/°C	mass %	solid phase		25	48.21	RbCl	
t/°C	mass %	solid phase									
25	48.21	RbCl									
AUXILIARY INFORMATION											
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:									
The isothermal method was used. Equilibrium was reached within 30-36 h. The liquid phase was analyzed for Rb by precipitation with Na tetraphenylborate (1), and for Cl by titration with AgNO ₃ .		RbCl: purity greater than 99.5%.									
		ESTIMATED ERROR: Temperature: precision ±0.1 K.									
		REFERENCES: 1. Yanson, E.Yu.; Ievinysh, A.F. Usp. Khim. 1959, 28, 980.									

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Rubidium chloride; RbCl; [7791-11-9]	Filippov, V.K.; Agafonova, K.A.; Yakimov, M.A. <i>Zh. Neorg. Khim.</i> 1974, 19, 3150-2; * <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> 1974, 19, 1723-4.	
(2) Water; H ₂ O; [7732-18-5]		
VARIABLES:	PREPARED BY:	
T/K ~ 298	P. Vallée	
EXPERIMENTAL VALUES:		
t/°C 25	mass % 48.58	solid phase RbCl
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:	
The isothermal saturation method was used (1). Analysis was by evaporation of a sample of solution followed by heating to constant mass between 240 and 260°C.	No information given.	
	ESTIMATED ERROR:	
	No estimates possible.	
	REFERENCES:	
	1. Shchukarev, S.A.; Yakimov, M.A.; Mishin, V.Ya. <i>Zh. Neorg. Khim.</i> 1958, 3, 1661.	

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Rubidium chloride; RbCl; [7791-11-9]	Balarev, Kh.; Ketenev, D.N...; <i>Dokl. Bolg. Akad. Nauk</i> 1975, 28, 221-3.	
(2) Water; H ₂ O; [7732-18-5]		
VARIABLES:	PREPARED BY:	
T/K ~ 298	M. Ferriol	

EXPERIMENTAL VALUES:		
t/°C 25	mass % 48.51	solid phase RbCl
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:	
The Khlopin method (isothermal decrease of supersaturation) was used. A series of almost saturated solutions was prepared at a temperature higher than 25°C. These were then placed in a thermostat at 25°C with stirring. Equilibrium was reached within 12-15 d. The liquid phase was analyzed for Cl by the Mohr method.	RbCl: A.R. reagent was used.	
	ESTIMATED ERROR:	
	Temperature: precision ±0.1 K.	
	REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium chloride; RbCl; [7791-11-9]	Kartzmark, E.M.
(2) Water; H ₂ O; [7732-18-5]	Can. J. Chem. 1977, 55, 2792-8.
VARIABLES:	PREPARED BY:
T/K = 298	J.W. Lorimer

EXPERIMENTAL VALUES:

t/°C	mass %	solid phase
25.00	47.92	RbCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The isothermal method was used. The mixture was equilibrated by stirring at 25.00°C for 2 or 3 days. The phases were separated by filtration through sintered glass and were analyzed for chloride by precipitation as AgCl.	RbCl: reagent grade was used without further purification.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium chloride; RbCl; [7791-11-9]	Shirai, Yu.V.; Shevchuk, V.G.
(2) Water; H ₂ O; [7732-18-5]	Zh. Neorg. Khim. 1981, 26, 1940-3; Russ. J. Inorg. Chem. (Engl. Transl.) 1981, 26, 2046-8.
VARIABLES:	PREPARED BY:
T/K = 298	T. Mioduski

EXPERIMENTAL VALUES:

t/°C	mass %	molality mol kg ⁻¹	refractive index	solid phase
25	48.74	3.881	1.3854	RbCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The isothermal method was used. The mixture was equilibrated by stirring in a thermostat, and equilibrium was reached within several days. Analysis was for Cl by the Volhard method.	RbCl: C.P. grade was probably used as received.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Rubidium chloride; RbCl; [7791-11-9]		Rard, J.A. J. Chem. Eng. Data <u>1984</u> , 29, 443-50.				
(2) Water; H ₂ O; [7732-18-5]						
VARIABLES:		PREPARED BY:				
T/K = 298		J.W. Lorimer				
EXPERIMENTAL VALUES:						
t/°C	molality mol kg ⁻¹	mass % (compiler)	solid phase			
25	7.7832 ± 0.0071	48.484 ± 0.044	RbCl			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:					
Isopiestic equilibrations were made at 25.00 ± 0.005°C (IPTS-68) with aqueous NaCl and CaCl ₂ solns as reference slns. Equilibration times were 4 d or longer. All weights were corrected to vacuum. Inert cups of Ta metal were used as containers. The standard slns have been described elsewhere (1), and were analyzed carefully. The RbCl stock conc. was detd. by both mass titration with AgNO ₃ and by dehydration. The titration results and the water content from dehydration were used to obtain a stock conc. that was independent of any assumptions about impurities. Corrections were made for impurities by estimates of their effect on the osmotic coefficient, plus measurements of osmotic coefficients in presence of added KCl.	RbCl: Alfa "99.9 %" was found to contain 0.577 mol % KCl, 0.053 mol % NaCl, 0.059 mol % CsCl.					
ESTIMATED ERROR:						
Temperature: accuracy ± 0.005 K. Solubility: precision ± 0.0071 mol kg ⁻¹ .						
REFERENCES:						
1. Rard, J.A.; Miller, D.G. Chem. Eng. Data <u>1981</u> , 26, 38.						

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Caesium chloride; CsCl; [7647-17-8]		Setterberg, C.			
(2) Water; H ₂ O; [7732-18-5]		Oefvers. Akad. Stockholm <u>1882</u> , 6, 23-31.			
VARIABLES:		PREPARED BY:			
T/K = 288		R. Tenu			
EXPERIMENTAL VALUES:					
t/°C	mass ratio CsCl/H ₂ O	mass % (compiler)	solid phase		
15	1.794	64.2	CsCl		
15	1.80	64.3	"		
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:			
Not stated.		Not stated.			
ESTIMATED ERROR:					
No estimates possible.					
REFERENCES:					

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Caesium chloride; CsCl; [7647-17-8]		Foote, H.W.			
(2) Water; H ₂ O; [7732-18-5]		Am. Chem J. <u>1903</u> , 30, 339; Am. J. Sci. <u>1927</u> [5], 13, 158-66 (same data in both papers).			
VARIABLES:		PREPARED BY:			
T/K = 298		R. Tenu			
EXPERIMENTAL VALUES:					
t/°C	mass %	solid phase			
25	65.61	CsCl			
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:			
Saturated solutions were prepared by shaking the components in small glass-stoppered bottles in a thermostat. Samples were drawn off for analysis through a small filter of glass wool directly into a weighing bottle.		CsCl was prepared by igniting an exceedingly pure caesium perhalide (CsCl ₂ I) prepared by H.L. Wells.			
ESTIMATED ERROR:					
No estimates possible.					
REFERENCES:					

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Caesium chloride; CsCl; [7647-17-8] (2) Water; H ₂ O; [7732-18-5]	Berkeley, Earl of Phil. Trans. R. Soc. London, A 1904, 203, 189-214.
VARIABLES: T/K = 274-393	PREPARED BY: R. Tenu

EXPERIMENTAL VALUES:

t/°C	100 x mass ratio CsCl/H ₂ O	mass % (compiler)	density g cm ⁻³	solid phase
0.70	162.29	61.87	1.8458	CsCl
16.20	182.24	64.57	1.8984	"
29.85	197.17	66.35	1.9359	"
45.55	213.45	68.10	1.9702	"
60.20	229.41	69.64	2.0012	"
76.10	245.76	71.08	2.0286	"
89.50	259.56	72.19	2.0500	"
119.4 a	289.98	74.36	2.0859	"

a boiling point

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
The salt-water mixture was stirred at the appropriate temperature and the density followed by pycnometric measurement until its value remained constant. The solubilities were determined by evaporation to dryness of the saturated solution in Pt crucibles, except at the boiling point where Jena glass bulbs were used. According to the range, different temperature control systems were used. Temperatures were corrected to the hydrogen scale.	CsCl: Merck purest salt, recrystallized.
	ESTIMATED ERROR: Temperature: ±0.01 K Solubility: within ±0.16 mass %
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Caesium chloride; CsCl; [7647-17-8] (2) Water; H ₂ O; [7732-18-5]	Hinrichsen, F.W.; Sachsel, E. Z. Phys. Chem. Stoechiom. Verwandtschaftsl. <u>1904-5</u> , 50, 81-99.	
VARIABLES:	PREPARED BY:	
T/K = 273-313	R. Tenu	
EXPERIMENTAL VALUES:		
t/°C	mass %	solid phase
0.3	61.9	CsCl
10	63.5	"
20	64.9	"
30	66.3	"
40	67.4	"
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:	
Isothermal method: saturated mixtures of salt and water were stirred for many hours in a thermostat. Samples of clear solution were removed and weighed, then evaporated to dryness.	Not stated.	
ESTIMATED ERROR:		
No estimates possible.		
REFERENCES:		

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Caesium chloride; CsCl; [7647-17-8]	Jahn, H.
(2) Water; H ₂ O; [7732-18-5]	Z. Phys. Chem., Stoechiom. Ver- wandtschaftsl. 1905, 50, 129-58.
VARIABLES:	PREPARED BY:

T/K = 272-273

R. Tenu

EXPERIMENTAL VALUES:

t/°C	mass %	molality ^a mol kg ⁻¹	solid phase
-0.0913	0.42793	0.02551	ice
-0.0914	0.43068	0.02568	"
-0.1374	0.65169	0.03894	"
-0.1381	0.65020	0.03885	"
-0.1807	0.86041	0.05152	"
-0.1829	0.87020	0.05211	"
-0.2673	1.2810	0.07703	"
-0.2681	1.2862	0.07735	"
-0.3571	1.7264	0.1043	"
-0.3572	1.7200	0.1039	"
-0.5273	2.5676	0.1564	"
-0.6887	3.3697	0.2070	"
-0.6968	3.3988	0.2089	"

^a molar mass of CsCl adopted by the author was 168.424 g mol⁻¹

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Cryoscopic method.	CsCl: Merck reagent, analyzed by gravimetric titration for Cl (as AgCl) and Cs (as Cs ₂ SO ₄).
	ESTIMATED ERROR:
	No estimates possible.
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:								
(1) Caesium chloride; CsCl; [7647-17-8]		Buchanan, J.Y.								
(2) Water; H ₂ O; [7732-18-5]		Am. J. Sci. <u>1906</u> , 21 (4), 25-40.								
VARIABLES:		PREPARED BY:								
T/K = 296, 298		R. Tenu								
EXPERIMENTAL VALUES:										
t/°C	molality mol kg ⁻¹	100 x mass ratio CsCl/H ₂ O	mass % a	relative density	solid phase					
23.1	12.1563		67.20	1.9104	CsCl					
25		225	69.23		"					
^a CsCl molar mass: 168.5 g mol ⁻¹ , according to the author										
AUXILIARY INFORMATION										
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:									
25 g of distilled water were weighed into a suitable vessel and the salt was gradually added until a small quantity remained undissolved. This quantity was such that a further rise in temperature of 1 K caused all salt to disappear. The salt content was determined by titration with AgNO ₃ .	CsCl: Schuchardt purest salt.									
ESTIMATED ERROR:										
Temperature: ±0.1 K										
REFERENCES:										

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Caesium chloride; CsCl; [7647-17-8]		Berkeley, Earl of; Appleby, M.P. <i>Proc. R. Soc. London</i> <u>1911</u> , 85, 489-505.		
(2) Water; H ₂ O; [7732-18-5]				
VARIABLES:		PREPARED BY:		
p/mmHg = 750, 760		R. Tenu		
EXPERIMENTAL VALUES:				
pressure p/mmHg	t/°C (boiling point)	concentration of CsCl c ₁ /mol dm ⁻³	mass % solid phase (compiler) ^b	
750	119.488	-	-	CsCl
760	119.919 ^a	9.214	74.368	"
a corrected to standard conditions				
b density is recorded in (1)				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:			
Described in previous paper (1).	CsCl: recrystallized from Merck's salt.			
ESTIMATED ERROR:				
Temperature: precision within ± 0.005 K				
REFERENCES:				
1. Berkeley, Earl of <i>Phil. Trans. R. Soc. London</i> , A <u>1904</u> , 203, 189.				

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Caesium chloride; CsCl; [7647-17-8]		Malquori, G.			
(2) Water; H ₂ O; [7732-18-5]		Gazz. Chim. Ital.	1926, 56, 37-41.		
VARIABLES:	T/K = 288	PREPARED BY:			
		R. Tenu			
EXPERIMENTAL VALUES:					
t/°C	mass %	solid phase			
15	64.750	CsCl			
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:				
Isothermal method.	CsCl: Kahlbaum reagent.				
	ESTIMATED ERROR:				
	No estimates possible.				
	REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Caesium chloride; CsCl; [7647-17-8]		Benrath, A.	
(2) Water; H ₂ O; [7732-18-5]		Z. Anorg. Allg. Chem.	1927, 163, 396-404.
VARIABLES:	PREPARED BY:		
T/K = 298	R. Tenu		
EXPERIMENTAL VALUES:			
t/°C	mol ratio H ₂ O/CsCl	mass % (compiler)	solid phase
25	4.79	66.1	CsCl
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:		
Not stated; probably isothermal method.	Not stated.		
	ESTIMATED ERROR:		
	No estimates possible.		
	REFERENCES:		

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Caesium chloride; CsCl; [7647-17-8]		Karagunis, G.; Hawkinson, A.; Damkohler, G.	
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Abt. A <u>1930</u> , 151, 433-66.	
VARIABLES:		PREPARED BY:	
T/K = 267-273		R. Tenu	
EXPERIMENTAL VALUES:			
t/°C	molality mol kg ⁻¹	mass % (compiler)	solid phase
-0.01860	0.00508	0.0855	ice
-0.01851	0.00506	0.0851	"
-0.02701	0.00745	0.1253	"
-0.02673	0.00740	0.1244	"
-0.03905	0.01091	0.1833	"
-0.03990	0.01116	0.1875	"
-0.06770	0.01918	0.3219	"
-0.07604	0.02179	0.3655	"
-0.21873	0.06434	1.072	"
-0.20810	0.06134	1.022	"
-0.32207	0.09550	1.582	"
-0.3966	0.1171	1.929	"
-0.4937	0.1483	2.431	"
-0.4949	0.1483	2.431	"
-0.6547	0.1988	3.232	"
-0.7402	0.2268	3.670	"
-2.707	0.8822	12.907	"
-3.141 ^a	1.021	14.641	"
-3.753	1.236	17.194	"
-5.048	1.673	21.939	"
-6.235	2.051	25.626	"
^a Authors give 2.141, which is a typographical error (compiler).			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:		
Cryoscopic method: the difference between melting points of ice and solution was measured with a thermocouple. The concentration of solutions was determined with a Haber-Löwe interferometer.	The purity of CsCl was checked by potentiometric titration for Cl ⁻ .		
	ESTIMATED ERROR:		
	In quotient (T/273.15 - 1)/m = 0.002		
	REFERENCES:		

COMPONENTS:		ORIGINAL MEASUREMENTS:					
(1) Caesium chloride; CsCl; [7647-17-8]		Fajans, K.; Karagunis, G. quoted by Meyer, K.H.; Dunkel, M.					
(2) Water; H ₂ O; [7732-185]		Z. Phys. Chem., Bodenstein-Festband <u>1931</u> , 553-573.					
VARIABLES:		PREPARED BY:					
T/K = 298		J.W. Lorimer					
EXPERIMENTAL VALUES:							
t/°C	molality mol kg ⁻¹	mass % (compiler)	mol %	solid phase			
25	11.3	66.1	0.169	CsCl			
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:					
No details given.		No details given.					
ESTIMATED ERROR:							
No estimates possible.							
REFERENCES:							

COMPONENTS:		ORIGINAL MEASUREMENTS:					
(1) Caesium chloride; CsCl; [7647-17-8]		Lannung, A.					
(2) Water; H ₂ O; [7732-18-5]		Z. Phys. Chem., Abt. A <u>1934</u> , 170, 134-44.					
VARIABLES:		PREPARED BY:					
T/K = 291 p/kPa = 1.4		J.J. Counioux					
EXPERIMENTAL VALUES:							
t/°C	p/mmHg	molality mol kg ⁻¹	mass %	solid phase			
18	10.43	11.15	65.24	CsCl			
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:					
The vapor pressure of the solution was plotted against the concentration. The solubility was deduced from the break in this curve.		The purity of the salt has been described in a previous paper (1).					
ESTIMATED ERROR:							
Temperature: precision ±0.003 K Pressure: ±7 Pa							
REFERENCES:							
(1) Lannung, A. Z. Phys. Chem., Abt. A. <u>1932</u> , 161, 255.							

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Caesium chloride; CsCl; [7647-17-8]	Gehlen, H.; Dieter, H.
(2) Water; H ₂ O; [7732-18-5]	Z. Phys. Chem. (Leipzig) <u>1950</u> , 196, 258-77.
VARIABLES:	PREPARED BY:

T/K = 291
p/atm = 0-10⁴

R. Tenu

EXPERIMENTAL VALUES:

t/°C	p/atm	mass % CsCl		solid phase
		a	b	
18	0	65.25	65.25	CsCl
	1000	63.8	63.7	"
	2000	62.2	62.2	"
	3000	60.8	61.0	"
	4000	59.4	59.7	"
	5000	57.8	58.3	"
	6000	56.5	57.2	"
	7000	55.2	56.0	"
	8000	54.0	54.5	"
	9000	52.6	53.0	"
	10000	51.5	51.7	"

a: first approximation
b: second approximation

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:
Solubilities under pressure were calculated from density and vapor pressure data at atmospheric pressure using Tammann's assumption (1) concerning the coincidence pressure and the compressibility of solid CsCl.	Not stated.
	ESTIMATED ERROR:
	No estimates possible.
	REFERENCES:
	1. Tammann, G. <i>Über die Beziehungen zwischen den inneren Kräften und Eigenschaften der Lösungen</i> . Leopold Voss. Hamburg und Leipzig. <u>1907</u> .

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Caesium chloride; CsCl; [7647-17-8]	Blidin, V.P.	
(2) Water; H ₂ O; [7732-18-5]	Izv. Akad. Nauk. SSSR, Otdel. Khim. Nauk 1953, (5), 814-9; Zh. Obshch. Khim. 1956, 26, 1281-5; *J. Gen. Chem. USSR (Engl. Transl.) 1956, 26, 1449-52.	
VARIABLES:	PREPARED BY:	
T/K = 298, 313	M.-T. Saugier-Cohen Adad, R. Tenu, J. W. Lorimer	

EXPERIMENTAL VALUES:	AUXILIARY INFORMATION	
t/°C	mass %	solid phase
25 ^a	65.51	CsCl
40	67.40	"
^a Value at 25°C given in both papers; value at 40°C in 1956 paper only.		
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:	
Isothermal method: saturation was obtained by addition of small quantities of salt. A sample of clear solution was weighed and analyzed. The remaining salt was weighed.	Pure salt 2x recrystallized.	
ESTIMATED ERROR:	Temperature: ±0.1 K.	
REFERENCES:		

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Caesium chloride; CsCl; [7647-17-8]	Plyushchev, V.E.; Tulanova, V.B.; Kuznetsova, G.P.; Korovin, S.S.; Shipetina, N.S.	
(2) Water; H ₂ O; [7732-18-5]	Zh. Neorg. Khim. 1957, 2, 2654-60; *Russ. J. Inorg. Chem. (Engl. Transl.) 1957, 2, 267-75.	
T/K = 298-348	R. Tenu	

EXPERIMENTAL VALUES:	AUXILIARY INFORMATION		
t/°C	mass %	density g cm ⁻³	solid phase
25	65.77	1.924	CsCl
50	68.61	1.991	"
75	70.62	2.039	"

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:	
Isothermal method. It was found experimentally that equilibrium was established at 25°C in 12 d, at 50°C in 7 d, and at 75°C in 5 d. The samples were removed by a pipet which was fitted at the end with a cotton filter. The concentration of salts in the solution was calculated by chemical analysis.	CsCl was of a high degree of purity. Negligible impurities were present: Na: 0.0025 mass %; K: 0.0020; Ca: 0.0018; Rb: 0.0014.	
ESTIMATED ERROR:	Temperature: ±0.1 K	
REFERENCES:		

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Caesium chloride; CsCl; [7647-17-8]		Makarov, L.L.; Evstrop'ev, K.K.; Vlasov, Yu. G.
(2) Water; H ₂ O; [7732-18-5]		Zh. Fiz. Khim. 1957, 31, 1621.
VARIABLES:		PREPARED BY:
T/K = 298		P. Vallée
EXPERIMENTAL VALUES:		
t/°C 25	molality $m_1/\text{mol kg}^{-1}$, 11.41	mass % 65.76
		solid phase CsCl
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE Isopiestic method (compiler).	SOURCE AND PURITY OF MATERIALS: No information given.	
	ESTIMATED ERROR: No estimates possible.	
	REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:								
(1) Caesium chloride; CsCl; [7647-17-8]		Belyaev, I.N.; Le T'yuk								
(2) Water; H ₂ O; [7732-18-5]		Zh. Neorg. Khim. 1965, 10, 1229-33; Russ. J. Inorg. Chem. (Engl. Transl.) 1965, 10, 664-6.								
VARIABLES:		PREPARED BY:								
T/K = 298		R. Tenu								
EXPERIMENTAL VALUES:										
t/°C	mass %	viscosity mPa s	density g cm ⁻³	electrical conductivity S cm ⁻¹	solid phase					
25	65.50	1.4874	1.915	0.229	CsCl					
AUXILIARY INFORMATION										
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:									
The solubility was determined in special vessels with a stirrer and mercury seal in a water thermostat. Equilibrium was established after 8-10 h and was checked by analysis of samples of the liquid phase taken every 2 h. Cl was determined by Volhard's volumetric method. Electrical conductivity, viscosity and density of the saturated solutions were determined.	Twice recrystallized "pure" grade CsCl.									
ESTIMATED ERROR:										
Temperature: ±0.1 K										
REFERENCES:										

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Caesium chloride; CsCl; [7647-17-8]	Sheveleva, A.D. <i>Uch. Zap. Permsk. Gos. Univ. im.</i> A.M. Gor'kogo <u>1966</u> , No. 159, 3-14.
(2) Water; H ₂ O; [7732-18-5]	

VARIABLES:	PREPARED BY:
T/K - 293, 323	T. Mioduski

EXPERIMENTAL VALUES:			
t/°C	mass%	molality, mol kg ⁻¹	solid phase
20	65.0	11.03	CsCl
50	68.6	12.98	CsCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The isothermal saturation method was used, with refractometric analysis (1). Known amounts of solid and water were equilibrated until their refractive indices became constant. The compositions of saturated solutions were found from discontinuities in the refractive index-composition plots. The refractometer was thermostated at 50°C.	CsCl: Analar grade was used as received.
	ESTIMATED ERROR: No estimates possible.
	REFERENCES: 1. Zhuravlev, E.F.; Sheveleva, A.D.; <i>Zh. Neorg. Khim.</i> <u>1960</u> , 5, 2630; <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> <u>1960</u> , 5, 1270.

COMPONENTS:		ORIGINAL MEASUREMENTS:					
(1) Caesium chloride; CsCl; [7647-17-8]		Vaisfel'd, M.I.; Shevchuk, V.G. Zh. Neorg. Khim. 1967, 12, 2497-9; *Russ. J. Inorg. Chem. (Engl. Transl.) 1967, 12, 1317-9.					
(2) Water; H ₂ O; [7732-18-5]							
VARIABLES:		PREPARED BY:					
T/K = 298		R. Tenu					
EXPERIMENTAL VALUES:							
t/°C	mass %	refractive index	density g cm ⁻³	solid phase			
25	65.77	1.4193	1.9213	CsCl			
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:					
Isothermal method. Chemical and crystal-optical analyses of the liquid and solid phases were made. Equilibrium was reached in 2 - 5 days. Methods for chemical analysis were as in (1,2,3).		Not stated.					
		ESTIMATED ERROR:					
		No estimates possible.					
REFERENCES:							
1. Shevchuk, V.G.; Vaisfel'd, M.I. Zh. Neorg. Khim. 1964, 9, 2769; Russ. J. Inorg. Chem. (Engl. Transl.) 1964, 9, 1491. 2. Analiz Mineral'nogo Syr'ya (Analysis of Mineral Raw Materials). Eds. N. Knipovich; Yu. Morachevskii. 3rd ed. Goskhimizdat. Leningrad. 1959. 3. Shevchuk, V.G.; Kost', L.L. Zh. Neorg. Khim. 1964, 9, 432; Russ. J. Inorg. Chem. (Engl. Transl.) 1964, 9, 235.							

COMPONENTS:		ORIGINAL MEASUREMENTS:		
(1) Caesium chloride; CsCl; [7647-17-8]		Bykova, I.N.; Kuznetzova, G.P.; Kolotilova, V.Ya.; Stepin, B.D. Zh. Neorg. Khim. 1968, 13, 540-4; Russ. J. Inorg. Chem. (Engl. Transl.) 1968, 13, 282-4.		
(2) Water; H ₂ O; [7732-18-5]				
VARIABLES:		PREPARED BY:		
T/K = 298		J.W. Lorimer		
EXPERIMENTAL VALUES:				
t/°C	mass %	solid phase		
25	65.77	CsCl		
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE		SOURCE AND PURITY OF MATERIALS:		
The isothermal saturation method was used with prolonged stirring of the solid phase and solution. Equilibrium was reached within 15 d. Analysis: gravimetric, with Cl as AgCl.		RbCl: "pure" grade, heated to 400 °C to remove organic impurities, then recryst. from water, dried at 120°C.		
		ESTIMATED ERROR:		
		Temperature: precision within ±0.1 K.		
REFERENCES:				

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Caesium chloride; CsCl; [7647-17-8]		Belyaev, I.N.; Lobas, L.M. Zh. Neorg. Khim. 1968, 13, 1149-55; *Russ. J. Inorg. Chem. (Engl. Transl.) 1968, 13, 601-4.			
(2) Water; H ₂ O; [7732-18-5]					
EXPERIMENTAL VALUES:					
t/°C	mass %	density g cm ⁻³	viscosity mPa s	conductivity S cm ⁻¹	solid phase
25	65.00	1.912	1.2631	0.123	CsCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The isothermal method was used. Viscosity, electrical conductivity and density were measured.	CsCl: recrystallized "chemically pure" grade reagent.
	ESTIMATED ERROR:
	No estimates possible.

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Caesium chloride; CsCl; [7647-17-8]	Kirgintsev, A.N.; Trushnikova, L.N. Zh. Neorg. Khim. 1968, 13, 2843-7; *Russ. J. Inorg. Chem. (Engl. Transl.) 1968, 13, 1462-6.	
(2) Water; H ₂ O; [7732-18-5]		
EXPERIMENTAL VALUES:		
t/°C	mass %	solid phase
25	65.6	CsCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Solubility was determined by the method of isothermal relief of supersaturation. The time of mixing was 7-8 h. Samples of the liquid and solid phases were then withdrawn, transferred quantitatively to measuring flasks and analyzed, presumably for Cs.	"Chemically pure" and "analytical reagent" grade salts recrystallized from distilled water were used.
	ESTIMATED ERROR:
	Temperature: ±0.1 K

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Caesium chloride; CsCl; [7647-17-8]	Mironenko, A.P.; Stepina, S.B. Plyushchev, V.E.; Zotova, L.A.
(2) Water; H ₂ O; [7732-18-5]	Zh. Neorg. Khim. 1968, 13, 2838-43; *Russ. J. Inorg. Chem. (Engl. Transl.) 1968, 13, 1460-2.

VARIABLES:

T/K = 298

PREPARED BY:

R. Tenu

EXPERIMENTAL VALUES:

t/°C	mass %	solid phase
25	65.8	CsCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The solubility was measured at 25°C in special hermetic vessels. Samples of the liquid phase were taken for analysis after the 3 weeks needed to reach equilibrium. Cl ⁻ ion was determined as AgCl and caesium by the tetraphenylborate method.	"Analytical reagent" grade CsCl was twice recrystallized from aqueous solution and dried at room temperature. The product contained less than 0.06 mass % Rb.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Caesium chloride; CsCl; [7647-17-8]	Merbach, A.; Gonella, J.
(2) Water; H ₂ O; [7732-18-5]	Helv. Chim. Acta 1969, 52, 69-76.

VARIABLES:	PREPARED BY:
T/K = 298	R. Tenu

EXPERIMENTAL VALUES:	
t/°C	100 x mol ratio H ₂ O/CsCl

25	487	mass % (compiler)	solid phase
		65.74	CsCl

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The Brunisholz' saturation method was used (1). Chloride was determined potentiometrically.	CsCl: Merck "Analytical reagent" grade was used.
ESTIMATED ERROR:	Temperature: ±0.1 K
REFERENCES:	<ol style="list-style-type: none"> Brunisholz, G.; Quinche, J.P. Kalo, A.M. Helv. Chim. Acta 1964, 47, 14.

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Caesium chloride; CsCl; [7647-17-8]		Momicchioli, F.; Devoto, O.; Grandi, G.; Cocco, G. Atti Soc. Nat. Modena 1968, 99, 226-32; Ber. Bunsen-Ges. Phys. Chem. 1970, 74, 59-66.						
(2) Water; H ₂ O; [7732-18-5]								
VARIABLES:		PREPARED BY:						
T/K ~ 264-273		R. Cohen-Adad						
EXPERIMENTAL VALUES:								
<i>t</i> /°C (compiler)	molality /mol kg ⁻¹	Δ <i>T</i> /m /K kg mol ⁻¹	mass % (compiler)	solid phase				
-0.0480	0.01334	3.60	0.224	ice				
-0.0778	0.02186	3.56	0.367	ice				
-0.1137	0.03258	3.49	0.546	ice				
-0.1783	0.05129	3.476	0.856	ice				
-0.2387	0.06934	3.443	1.154	ice				
-0.3223	0.09464	3.406	1.568	ice				
-0.4707	0.14264	3.363	2.345	ice				
-0.6709	0.20258	3.312	3.298	ice				
-0.8886	0.27115	3.277	4.366	ice				
-1.1488	0.35424	3.243	5.628	ice				
-1.4420	0.44927	3.2097	7.032	ice				
-1.8948	0.59782	3.1695	9.144	ice				
-2.3909	0.76213	3.1371	11.372	ice				
-3.1560	1.01902	3.0971	14.644	ice				
-4.0756	1.32599	3.0736	18.250	ice				
-5.1207	1.67764	3.0523	22.024	ice				
-6.6548	2.19140	3.0368	26.951	ice				
-7.4223	2.45033	3.0291	29.205	ice				
-9.3257	3.08390	3.0240	34.176	ice				
AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:							
A precision apparatus for measuring freezing point depressions by the equilibrium method was used, as described in (1). Temperatures were measured by a Pt resistance thermometer and Mueller bridge. Efficient stirring was accomplished by a high-quality air-driven stirrer. Concentrations were determined by a Hilger-Rayleigh interferometer.	Merck "Suprapur" reagent, Cat. No. 2039.							
ESTIMATED ERROR:								
Temperature: precision $\pm 3 \times 10^{-4}$ K. Composition: Absolute error almost independent of molality, and about $4-5 \times 10^{-5}$ mol kg ⁻¹ .								
REFERENCES:								
(1) Chiorboli, P.; Momicchioli, F.; Grandi, G. Boll. Sci. Fac. Chim. Ind. Bologna 1966, 24, 133.								

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Caesium chloride; CsCl; [7647-17-8]		Arkhipov, S.M.; Kashina, N.I.	
(2) Water; H ₂ O; [7732-18-5]		Zh. Neorg. Khim. 1970, 15, 760-5; *Russ. J. Inorg. Chem. (Engl. Transl.) 1970, 15, 391-2.	
VARIABLES:		PREPARED BY:	
T/K = 298		R. Tenu	
EXPERIMENTAL VALUES:			
t/°C	mass %	solid phase	
25	66.05	CsCl	
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Isothermal method. Samples were analyzed for Cl volumetrically.		Not stated.	
ESTIMATED ERROR:		Temperature: ±0.1 K	
REFERENCES:			

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Caesium chloride; CsCl; [7647-17-8]		Fedorova, O.N.; Serebrennikova, G.M.; Stepin, B.D.	
(2) Water; H ₂ O; [7732-18-5]		*Zh. Neorg. Khim. 1971, 16, 2808-13; Russ. J. Inorg. Chem. (Engl. Transl.) 1971, 16, 1495-7.	
VARIABLES:		PREPARED BY:	
T/K = 298		R. Tenu	
EXPERIMENTAL VALUES:			
t/°C	CsCl mass %	solid phase	
25	65.60	CsCl	
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
The solubility was investigated by an isothermal method in special vessels described previously (1). Equilibrium was established in 14 days, after which samples were analyzed for Cl gravimetrically.		CsCl: "chemically pure" grade, recrystallized.	
ESTIMATED ERROR:		Temperature: ±0.1 K	
REFERENCES:		<ol style="list-style-type: none"> 1. Serebrennikova, G.M.; Sazikova, L.A.; Stepin, B.D. Zh. Neorg. Khim. 1967, 12, 1355; Russ. J. Inorg. Chem. (Engl. Transl.) 1967, 12, no. 5. 	

COMPONENTS:		ORIGINAL MEASUREMENTS:				
(1) Caesium chloride; CsCl; [7647-17-8]		Vilcu, R.; Irenei, F.				
(2) Water; H ₂ O; [7732-18-5]		An. Univ. Bucuresti Chim. 1971, 20(2), 103-11.				
VARIABLES:		PREPARED BY:				
T/K = 263-272		R. Tenu				
EXPERIMENTAL VALUES:						
<i>t</i> /°C	molality, mol/kg H ₂ O	mass %	solid phase			
-1.5743	0.5000	7.7643	ice			
-2.1975	0.7000	10.5426	"			
-3.0540	1.0000	14.4098	"			
-5.3020	1.7000	22.2521	"			
-6.2905	2.0000	25.1898	"			
-8.1375	2.5000	29.6218	"			
-9.8023	3.0000	33.5581	"			
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS:					
Cryometric measurements. The method is described in previous publication (1).	Not stated.					
ESTIMATED ERROR:						
REFERENCES:						
1. Vilcu, R.; Irenei, F. Rev. Roum. Chim. 1968, 13, 258.						

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Caesium chloride; CsCl; [7647-17-8]	Balarev, Kh.; Ketenev, D.N.
(2) Water; H ₂ O; [7732-18-5]	Dokl. Bolg. Akad. Nauk 1975, 28, 221-3.

VARIABLES:	PREPARED BY:
T/K = 298	R. Tenu

EXPERIMENTAL VALUES:		
t/°C	mass %	solid phase
25	65.74	CsCl

AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Isothermal decrease of supersaturation. Almost saturated solutions were prepared at higher temperature. They were placed in a thermostatic bath at 25.0°C and shaken for 12 to 15 days. A sample of saturated solution was analyzed by evaporation to dryness.	"Pure" grade reagent CsCl was used.
ESTIMATED ERROR:	Temperature: ±0.1 K
REFERENCES:	

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Caesium chloride; CsCl; [7647-17-8]	Kartzmark, E.M.
(2) Water; H ₂ O; [7732-18-5]	Can. J. Chem. 1977, 55, 2792-8.

VARIABLES:	PREPARED BY:
T/K = 298	R. Tenu

EXPERIMENTAL VALUES:		
t/°C	mass %	solid phase
25.00	65.67	CsCl

AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The isothermal method was used. The mixture was equilibrated by stirring at 25.00°C for 2 or 3 days. The phases were separated by filtration through sintered glass and were analyzed for chloride by precipitation as AgCl.	CsCl: reagent grade was used without further purification.
ESTIMATED ERROR:	No estimates possible.
REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:
(1) Caesium chloride; CsCl; [7647-17-8]		Rard, J.A.; Miller, D.G. <i>J. Chem. Eng. Data</i> <u>1982</u> , 27, 169-73.
(2) Water; H ₂ O; [7732-18-5]		
VARIABLES:		PREPARED BY:
T/K = 298		R. Cohen-Adad
EXPERIMENTAL VALUES:		
<i>t</i> /°C 25	molality <i>m</i> ,/mol kg ⁻¹ 11.382	mass % 65.709
		solid phase CsCl
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE Isopiestic method, as described in (1).	SOURCE AND PURITY OF MATERIALS: CsCl: analyzed for impurities by DC arc optical emission spectroscopy. Stock solution concentrations determined by drying and by chloride analysis.	
	ESTIMATED ERROR: Solubility: ± 0.008 mol/kg using 10- and 12-day equilibrations.	
	REFERENCES: 1. Spedding, F.H.; Weber, H.O.; Saeger, V.W.; Petheram, H.H.; Rard, J.A.; Habenschuss, A. <i>J. Chem. Eng. Data</i> <u>1977</u> , 21, 341.	

COMPONENTS:		ORIGINAL MEASUREMENTS:																					
(1) Caesium chloride; CsCl; [7647-17-8]		Lazorenko, N.M.; Shevchuk, V.G. <i>Zh. Neorg. Khim.</i> <u>1983</u> , 28, 2675-6; <i>Russ. J. Inorg. Chem.</i> (Engl. Transl.) <u>1983</u> , 28, 1517-8.																					
(2) Water; H ₂ O; [7732-18-5]																							
VARIABLES:		PREPARED BY:																					
T/K = 298, 323, 348, 373		T. Mioduski																					
EXPERIMENTAL VALUES:																							
<table> <thead> <tr> <th>t/°C</th> <th>mass %</th> <th>molality m₁/mol kg⁻¹</th> <th>solid phase</th> </tr> </thead> <tbody> <tr> <td>25</td> <td>66.63</td> <td>11.86</td> <td>CsCl</td> </tr> <tr> <td>50</td> <td>68.55</td> <td>12.95</td> <td>"</td> </tr> <tr> <td>75</td> <td>70.93</td> <td>14.49</td> <td>"</td> </tr> <tr> <td>100</td> <td>72.60</td> <td>15.74</td> <td>"</td> </tr> </tbody> </table>				t/°C	mass %	molality m ₁ /mol kg ⁻¹	solid phase	25	66.63	11.86	CsCl	50	68.55	12.95	"	75	70.93	14.49	"	100	72.60	15.74	"
t/°C	mass %	molality m ₁ /mol kg ⁻¹	solid phase																				
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75	70.93	14.49	"																				
100	72.60	15.74	"																				
AUXILIARY INFORMATION																							
METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS: CsCl: recrystallized.																						
The isothermal saturation method was used. Equilibrium was reached within 24 h. The compositions of saturated solutions were found by standard chemical analyses.	ESTIMATED ERROR: No estimates possible.																						
	REFERENCES:																						