COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Sulfur dioxide; SO_2; [7446-09-5] 3. Water; H_2O; [7732-18-5]	Kuz'minykh, I.N.; Babushkina, M.D. *Zh. Prikl. Khim.* 1956, 29, 1488-93; *J. Appl. Chem. USSR (Eng. Transl.)* 1956, 29, 1607-11.

VARIABLES:	PREPARED BY:
Five temperatures: 278 - 333 K Partial pressure of SO_2	H.D. Lutz, B. Engelen

EXPERIMENTAL VALUES:

Solubility data of calcium sulfite in aqueous sulfurous acid solutions at different pressures of sulfur dioxide given by the authors are:

t/°C	P_{SO_2}[a] mm Hg	P_{SO_2}[a,b] 10^{-3} bar	g SO_2/100 g H_2O total	combined[c]	$CaSO_3$[d] g/kg H_2O	$m(CaSO_3)$[d] mol kg^{-1}
4.5	28.5 43.2 47.2 155.5	38.0 57.6 62.9 207.3	5.49 6.76 7.0 11.78	2.4 2.92 3.0 4.46	45.0 54.7 56.3 83.6	0.375 0.456 0.468 0.696
15	19.2 30.3 75.7 103.75 155.5 227	25.6 40.4 100.9 138.3 207.3 302.6	3.51 4.36 6.8 7.81 9.61 11.55	1.6 1.95 2.92 3.3 3.92 4.67	30.0 36.6 54.8 61.9 73.5 87.6	0.250 0.304 0.456 0.515 0.612 0.729

[a] Corrected for P_{H_2O} by the authors.

[b] Calculated by the compilers.

[c] SO_2 required to form the monosulfite.

[d] Calculated from the amount of combined SO_2 by the compilers.

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Aqueous solutions of sulfurous acid were kept over a calcium sulfite precipitate for several days. The equilibrium pressure of SO_2 was determined dynamically in a special apparatus (1) by passing oxygen-free N_2 gas through the solution-precipitate mixture, and analysing the moist inert gas for SO_2 with iodine. Gas volume was measured in an aspirator. The solution was analysed for total SO_2 and calcium content (1). The results are the means of several measurements. The authors report good agreement.	Not given.
	ESTIMATED ERROR: Not given.
	REFERENCES: 1. Kuz'minykh, I.N.; Kuznetsova, A.G. *Zh. Prikl. Khim.* 1954, 27, 816.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3]	Kuz'minykh, I.N.; Babushkina, M.D.
2. Sulfur dioxide; SO_2; [7446-09-5]	*Zh. Prikl. Khim.* 1956, 29, 1488-93; **J. Appl. Chem. USSR (Eng. Transl.)* 1956, 29,
3. Water; H_2O; [7732-18-5]	1607-11.

EXPERIMENTAL VALUES (continued):

t/°C	p_{SO_2}[a] mm Hg	p_{SO_2}[a,b] 10^{-3}bar	g SO_2/100 g H_2O total	combined[c]	$CaSO_3$[d] g/kg H_2O	$m(CaSO_3)$[d] mol kg^{-1}
	31	41.3	3.64	1.68	31.5	0.262
	49.3	65.7	4.55	2.08	39.0	0.325
	102.5	136.6	6.19	2.68	50.3	0.418
25	121	161.3	6.74	2.88	54.0	0.450
	136.5	182.0	7.18	3.05	57.2	0.476
	159	212.0	7.81	3.29	61.7	0.514
	73.4	97.9	3.3	1.5	28.1	0.234
	74.9	99.9	3.41	1.55	29.1	0.242
50	165.2	220.2	5.15	2.3	43.1	0.359
	319	425.3	6.6	2.91	54.6	0.454
	39.3	52.4	2.15	1.01	18.9	0.158
	71.1	94.8	2.75	1.28	24.0	0.200
60	81.8	109.1	3.04	1.4	26.3	0.219
	88.9	118.5	3.11	1.43	26.8	0.223
	123	164.0	3.6	1.66	31.1	0.259
	182	242.6	4.6	2.13	39.9	0.332
	308	410.6	5.47	2.54	47.6	0.396

[a] Corrected for p_{H_2O} by the authors.

[b] Calculated by the compilers.

[c] SO_2 required to form the monosulfite.

[d] Calculated from the amount of combined SO_2 by the compilers.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3]	Marusawa, T.
2. Sulfur dioxide; SO_2; [7446-09-5]	*Kogyo Kagaku Zasshi* 1917, 20, 287-301.
3. Water; H_2O; [7732-18-5]	

VARIABLES:	PREPARED BY:
One temperature: 291 K Concentration of sulfur dioxide	B. Engelen

EXPERIMENTAL VALUES:

The author reports the composition of aqueous sulfurous acid solutions saturated with calcium sulfite at 18°C.

Composition of the saturated solution (mol dm^{-3})

$10^2 x$	$10^2 x$	$10^2 x$	$10^2 x$	$10^5 x$	$10^3 x$		
$c(Ca(HSO_3)_2)$	$c(H_2SO_3)$	$c(Ca^{2+})$	$c(HSO_3^-)$	$c(SO_3^{2-})$	$c(H^+)$	$c(\text{total } SO_2{}^a)$	$c(CaSO_3)^b$
2.07	1.07	1.525	2.41	3.16	3.56	0.0762	0.036
15.25	5.06	8.39	17.3	10.9	5.25	0.5286	0.2364
18.23	5.74	9.70	19.9	13.1	5.22	0.6210	0.2793
28.43	8.58	13.50	27.5	15.7	5.95	0.9294	0.4193
42.15	11.9	17.5	35.6	18.4	6.40	1.3180	0.5965

a   Calculated as $2[Ca(HSO_3)_2] + [H_2SO_3] + [HSO_3^-] + [SO_3^{2-}]$ by the compiler.

b   Calculated as $[Ca^{2+}] + [Ca(HSO_3)_2]$ by the compiler.

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturation method. Time for establishing equilibrium not given. Calcium was determined manganometrically after precipitation as calcium oxalate. Sulfite was determined iodometrically. The amount of sulfate formed by oxidation of the sulfite was calculated from the difference between the calcium and sulfite concentrations.	Calcium sulfite was precipitated by passing SO_2 through a suspension of $CaCO_3$ in water, and analysed for calcium and sulfate.
	ESTIMATED ERROR:
	REFERENCES: 1. Melcher, A.C. *J. Am. Chem. Soc.* 1910, 32, 50.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Sulfur dioxide; SO_2; [7446-09-5] 3. Water; H_2O; [7732-18-5]	Schwarz, R.; Müller-Clemm, H. Z. *Anorg. Allg. Chem.* 1921, *34*, 272-5.

VARIABLES:	PREPARED BY:
Temperature: 275 - 306 K Concentration of sulfur dioxide	B. Engelen

EXPERIMENTAL VALUES:
The authors report the solubility of calcium sulfite in aqueous sulfurous acid solutions at various temperatures.

t/°C	SO_2/mass %		$m(SO_2 total)^a$	$m(CaSO_3)^a$
	total	combined[b]	mol kg^{-1}	mol kg^{-1}
2	7.90	5.4	1.374	0.47
11	6.75	4.56	1.155	0.390
22	6.47	4.33	1.102	0.369
23	6.48	4.34	1.104	0.370
24	6.49	4.35	1.106	0.371
24	6.58	4.40	1.123	0.375
24	7.24	4.80	1.247	0.413
24	7.96	5.17	1.384	0.449
24	10.23	6.56	1.838	0.589
24	10.74	6.86	1.944	0.621
25	6.70	4.51	1.145	0.385
26	6.75	4.55	1.155	0.389
26	9.0	6.6	1.594	0.585

[a] Calculated from combined[b] SO_2 by the compiler.

[b] Amount required to form $Ca(HSO_3)_2$.

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Aqueous sulfurous acid solutions were saturated with calcium sulfite within 30 - 48 hr, with exclusion of oxygen. After stirring the solution-precipitate mixture, the solid phase was allowed to settle under the SO_2 equilibrium pressure of the solution for 12 hr. The supernatant solution was analysed for total and combined SO_2 by iodometric and acidimetric titration, for calcium manganometrically after precipitation of calcium as oxalate, and for sulfate gravimetrically.	Calcium sulfite was Merck "pure" grade. Sulfur dioxide was taken from a gas cylinder.
	ESTIMATED ERROR:
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3]	Schwarz, R.; Müller-Clemm, H.
2. Sulfur dioxide; SO_2; [7446-09-5]	*Z. Anorg. Allg. Chem.* <u>1921</u>, *34*, 272-5.
3. Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES (continued):

t/°C	SO_2/mass %		$m(SO_2 total)$[a] mol kg^{-1}	$m(CaSO_3)$[a] mol kg^{-1}
	total	combined[b]		
27	6.69	4.50	1.143	0.385
29	6.32	4.22	1.074	0.359
29	6.65	4.50	1.136	0.384
29	10.32	6.76	1.858	0.608
30	6.65	4.44	1.136	0.379
33	6.53	4.42	1.114	0.377
33	8.30	5.52	1.451	0.483
33	9.25	6.12	1.639	0.542
33	9.90	6.49	1.771	0.580

[a] Calculated from combined[b] SO_2 by the compiler.

[b] Amount required to form $Ca(HSO_3)_2$.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Sulfur dioxide; SO_2; [7446-09-5] 3. Water; H_2O; [7732-18-5]	Humm, W. *Untersuchungen an Sulfitlaugenturmen,* *Diss.,* ETH Zürich, 1929 Guntter-Staib Verlag, Biberach-Riß, 1929.
VARIABLES: Temperature: 273 - 313 K	PREPARED BY: H.D. Lutz, B. Engelen

EXPERIMENTAL VALUES:

The author reports the composition of aqueous CaO solutions saturated with SO_2 at 1 and
0.1 Atm (1.013 and 0.1013 bar, $p_{SO_2} + p_{H_2O}$, compilers) pressure.

p/bar	t/°C	total SO_2 mass %	free $SO_2{}^a$ mass %	CaO mass %	m(SO_2 total)[b] mol kg^{-1}	m($CaSO_3$)[b] mol kg^{-1}
0.1013	0	14.94	1.52	5.87	2.945	1.322
0.1013	5	14.34	1.27	5.72	2.800	1.276
0.1013	10	13.87	1.08	5.59	2.688	1.238
0.1013	15	12.91	0.90	5.25	2.462	1.144
0.1013	20	12.06	0.78	4.92	2.268	1.057
0.1013	22	11.73	0.74	4.81	2.194	1.028
0.1013	24	11.51	0.72	4.72	2.145	1.005
0.1013	26	11.32	0.70	4.64	2.103	0.985
0.1013	28	11.10	0.68	4.56	2.054	0.964
0.1013	30	10.87	0.66	4.47	2.004	0.942
1.013	0	24.21	8.47	6.89	5.485	1.783
1.013	6	21.73	6.56	6.64	4.736	1.653
1.013	10	20.58	5.67	6.52	4.407	1.595
1.013	20	18.76	4.11	6.41	3.913	1.528
1.013	30	16.31	2.37	6.10	3.281	1.402
1.013	40	14.69	1.54	5.76	2.883	1.291

[a] Excess over the amount necessary to form $Ca(HSO_3)_2$.

[b] Calculated from total SO_2 and CaO content, respectively, by the compilers.

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturated solutions were prepared in a special tube (1) by bubbling SO_2 through a suspension of $CaCO_3$ in water at 0°C. The solutions were slowly heated under a continuous stream of SO_2 and analysed at the temperatures given. Total SO_2 was determined iodometrically, free SO_2 acidimetrically and Ca gravimetrically.	SO_2 was obtained by decomposition of $Na_2S_2O_5$ with HCl. The quality of the materials is said to be "pure". No other details are given.
	ESTIMATED ERROR:
	REFERENCES: 1. Schwarz, R.; Müller-Clemm, H. Z. *Angew. Chem.* <u>1921</u>, *34*, 272.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Sulfur dioxide; SO_2; [7446-09-5] 3. Water; H_2O; [7732-18-5]	Conrad, F.H.; Beuschlein, W.L. *J. Am. Chem. Soc.* <u>1934</u>, 56, 2554-62.

VARIABLES:	PREPARED BY:
Three temperatures: 288, 298 and 308 K Pressure of SO_2	H.D. Lutz, B. Engelen

EXPERIMENTAL VALUES:
The authors report the solubility of calcium sulfite in aqueous sulfurous acid solutions at 15, 25, and 35°C for various SO_2 vapour pressures, from equilibrium studies of the system $CaO-SO_2-H_2O$.

t/°C	P_{total} mm Hg	P_{SO_2}[a] 10^{-3}bar	SO_2 g/100 g H_2O		CaO g/100 g H_2O		$CaSO_3$ g/kg H_2O	$m(CaSO_3)$ mol kg^{-1}
			total	combined[b]	total[c]	calc.[d]	(compilers)	(compilers)
	22	12	1.83	0.89	0.78	0.78	16.7	0.139
	49	49	3.99	1.85	1.65	1.62	34.7	0.289
	115	137	7.47	3.12	2.79	2.73	58.5	0.487
	154	198	8.72	3.51	3.15	3.07	65.8	0.547
15	263	334	11.00	4.23	3.82	3.70	79.3	0.660
	408	528	13.76	4.78	4.22	4.19	89.8	0.747
	517	673	15.92	5.47	4.81	4.79	102.6	0.854
	761	999	19.25	5.95	5.23	5.21	111.6	0.929
	40	22	1.91	0.91	0.84	0.80	17.1	0.143
	52	38	2.81	1.33	1.12	1.16	24.9	0.207
	136	150	5.55	2.43	2.04	2.13	45.6	0.380
	254	308	8.37	3.14	2.79	2.75	58.9	0.490
25	461	584	11.52	4.06	3.59	3.55	76.1	0.633
	594	762	13.28	4.59	4.10	4.02	86.1	0.717
	756	978	15.38	5.12	4.46	4.48	96.0	0.799
	763	987	15.16	4.88	4.26	4.27	91.5	0.761
35	761	961	12.02	4.03	3.53	3.53	75.6	0.629

[a] Corrected for P_{H_2O} and converted to bar by the compilers.
[b] SO_2 required to form the monosulfite.
[c] Gravimetric determination of calcium.
[d] CaO equivalent to combined SO_2 in $CaSO_3$, calculated by the authors.

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Equilibrium between CaO, SO_2 and H_2O, which was established after more than 12 hr, was studied in a special flask with connections to a weighing pipette for analysing the solutions saturated with calcium sulfite, and to a mercury manometer to measure the pressure of the gas (sulfur dioxide and water vapour) over the solution. Calcium was determined by precipitation as oxalate and ignition of the precipitate to calcium oxide. Total, free and combined SO_2 were determined by acidimetric and iodometric titration (1). By extrapolation of the experimental results, equilibrium data are ascertained for the temperatures 5, 35, 50, and 60°C (2).	CaO was prepared by heating calcium oxalate monohydrate of p.a. quality to constant weight. The sulfate and MgO content was negligible. The SO_2 used was SO_3-free. The amount of inert or non-absorbable gases was about 0.15%.
	ESTIMATED ERROR: Agreement between duplicate determinations: 0.1%
	REFERENCES: 1. Birchard, W.H. *Pap. Ind.* <u>1926</u>, 8, 793. 2. Conrad, F.H.; Beuschlein, W.L. *Pap. Trade J.* <u>1937</u>, 4, 105.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3]	Gishler, P.E.; Maass, O.
2. Sulfur dioxide; SO_2; [7446-09-5]	*Can. J. Res., Sect. B* 1935, *13*, 370-9.
3. Water; H_2O; [7732-18-5]	

VARIABLES:	PREPARED BY:
Concentration of calcium sulfite Concentration of sulfur dioxide	B. Engelen

EXPERIMENTAL VALUES:

The authors report the precipitation temperatures, i.e. the temperatures at which the first precipitation appeared or disappeared, of aqueous calcium sulfite/sulfurous acid solutions of known composition.

Precipit. temp./°C	H_2O cm^3	CaO g	SO_2 g	$m(total\ SO_2)^a$ $mol\ kg^{-1}$	$m(CaSO_3)^a$ $mol\ kg^{-1}$
45.0	25	0.500	0.965	0.603	0.357
50.5	50	0.600	0.966	0.302	0.214
57[b]	88.29	2.06	5.30	0.937	0.416
60.4[c]	88.29	2.061	6.845	1.210	0.4162
65[b]	88.29	2.06	6.80	1.202	0.416
75.7	25	0.500	1.091	0.681	0.357
93.0	25	0.500	1.411	0.881	0.357
95[b]	84.26	0.99	2.70	0.500	0.210
95.5[b]	25	0.498	1.192	0.744	0.355
97.0	25	0.300	0.814	0.508	0.214

a,b,c,d   See the following page.

(continued on next page)

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
a) Sealed pyrex glass bombs of about 95 cm^3, filled with known amounts of calcium oxide, water, and sulfur dioxide, were heated up or cooled down several times at a rate of about 2°C/hr with shaking until a precipitate formed or disappeared. b) In one experiment precipitation temperature was determined by extrapolation from vapour pressure measurements over a solution first in the supersaturated and then in the saturated state at various temperatures. c) Specific conductivity measurements were made of solutions with known concentration of calcium oxide, water and sulfur dioxide in the unsaturated and saturated state at various temperatures. Precipitation temperature was then determined by extrapolation. Further details are given in ref. (1).	CaO was prepared by subjecting ground crystals of Iceland spar ($CaCO_3$) to a temperature of 1000°C for a week under air, free from carbon dioxide and water vapour. SO_2 was distilled for purification (1).
	ESTIMATED ERROR: Not given.
	REFERENCES: 1. Gurd, G.W.; Gishler, P.E.; Maass, O. *Can. J. Res., Sect. B* 1935, *13*, 209.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3]	Gishler, P.E.; Maass, O.
2. Sulfur dioxide; SO_2; [7446-09-5]	*Can. J. Res., Sect. B* 1935, *13*, 370-9.
3. Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES (continued):

Precipit. temp./°C	H_2O cm^3	CaO g	SO_2 g	m(total SO_2)[a] mol kg^{-1}	m($CaSO_3$)[a] mol kg^{-1}
100.0	25	0.151	0.311	0.194	0.108
103.5	25	0.499	1.644	1.027	0.356
107.5	25	0.495	1.802	1.125	0.353
116.0	25	0.150	0.352	0.220	0.107
117.0	50	0.600	2.282	0.712	0.214
117.0	50	0.600	2.531	0.790	0.214
117.8[d]	25	0.501	1.330	0.830	0.357
130.0	25	0.150	0.377	0.235	0.107
135.0	25	0.300	1.558	0.973	0.214
137.0	25	0.300	1.822	1.138	0.214

[a] Calculated on the assumption that 1 cm^3 of H_2O = 1 g of H_2O, by the compiler.

[b] Results from conductivity measurements.

[c] Results from SO_2 vapour pressure measurements, P_{SO_2} = 93.2 mm Hg.

[d] Solutions contain 0.5 mass % of a peptizing reagent.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Sulfur dioxide; SO_2; [7446-09-5] 3. Water; H_2O; [7732-18-5]	Otuka, Y. *J. Soc. Chem. Ind. Jpn.* 1939, 42, 205-9.

VARIABLES:	PREPARED BY:
Concentration of calcium sulfite Concentration of sulfur dioxide Temperature: 370 - 433 K	B. Engelen

EXPERIMENTAL VALUES:
The author reports precipitation temperatures of aqueous solutions with known concentrations of calcium sulfite and sulfurous acid.

Precipitation temperature/°C	total SO_2 mol dm^{-3}	$CaSO_3$ mol dm^{-3}
96.7	0.5002	0.1513
112.0	0.6784	0.1454
115.0	0.3393	0.0746
117.8	0.6649	0.2054
119.4	0.6294	0.1513
121.8	0.5096	0.1502
124.3	0.7248	0.1454
125.6	0.6922	0.1518
128.3	0.8066	0.2054
129.5	0.3798	0.0727
133.0	0.6638	0.1518
134.6	0.9091	0.2054
136.0	0.7835	0.1508

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Solutions of known concentration of H_2SO_3 and $Ca(HSO_3)_2$ were heated slowly in a sealed glass bulb (heating rate not given) and the temperature at which the solid phase (calcium sulfite) appeared or disappeared from the solution was determined. The volume ratio of the liquid to free space in the bulb was about 1:1, 3:1, and 6:1, respectively. No further details are given.	Not given.
	ESTIMATED ERROR: Not given.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3]	Otuka, Y.
2. Sulfur dioxide; SO_2; [7446-09-5]	*J. Soc. Chem. Ind. Jpn.* 1939, 42, 205-9.
3. Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES (continued):

Precipitation temperature/°C	total SO_2 mol dm^{-3}	$CaSO_3$ mol dm^{-3}
137.0	0.8277	0.1454
139.4	1.0000	0.2054
141.2	0.7503	0.1498
142.8	0.9196	0.1515
143.5	1.0966	0.2054
145.2	0.9431	0.1472
145.3	0.8785	0.1471
146.5	0.4785	0.0746
147.7	1.1905	0.2054
149.5	0.5212	0.0746
151.2	0.9273	0.1471
160.0	0.6099	0.0723

Precipitation temperatures of solutions containing wood powder and wood chips in addition to the calcium sulfite-sulfurous acid mixtures are also given by the author.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Sodium perchlorate; $NaClO_4$; [7601-89-0] 3. Sulfur dioxide; SO_2; [7446-09-5] 4. Water; H_2O; [7732-18-5]	Nilsson, G.; Rengemo, T.; Sillén, L.G. *Acta Chem. Scand.* 1958, *12*, 868-72.

VARIABLES:	PREPARED BY:
Three temperatures: 298, 308 and 348 K Concentration of $NaClO_4$ (ionic strength)	H.D. Lutz, B. Engelen

EXPERIMENTAL VALUES:

The authors determined the solubility of calcium sulfite in aqueous sulfurous acid solutions from equilibrium studies of the reaction

$$CaSO_3(s) + SO_2(g) + H_2O \rightleftharpoons Ca^{2+} + 2HSO_3^-$$

at 25, 35, and 75°C, and a SO_2 vapour pressure of 1 atm (1.013 bar, compilers). $NaClO_4$ solutions were used as ionic medium, with ionic strengths of 1 and 3.5 mole Na^+/kg H_2O. From the obtained data the equilibrium constants

$$K = [Ca^{2+}] \times [HSO_3^-]^2/P_{SO_2} = 4 \ m_{Ca}^3 \ ^{2+}/P_{SO_2} \ [mol^3 kg^{-3} Atm^{-1}],$$

given as log K, were calculated by the authors.

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Solutions were prepared isothermally by bubbling SO_2 through solutions of $NaClO_4$ with an excess of solid calcium sulfite. Time for establishing equilibrium is not given, but seems to be the same as given in a second paper by these authors (1), namely 5 - 38 days. Calcium was precipitated as the oxalate and titrated with $KMnO_4$ after dissolving in sulfuric acid. Total content of SO_2 was determined iodometrically.	$CaCO_3$ was precipitated from a solution of calcium chloride with Na_2SO_3, washed, then sucked dry, all under a nitrogen atmosphere. SO_2 was taken from a gas cylinder, washed with water and then with a $NaClO_4$ solution of desired concentration and temperature. $NaClO_4$ was prepared from Na_2CO_3 and $HClO_4$. $CaCl_2$, Na_2SO_3, Na_2CO_3, and $HClO_4$ were all of p.a. purity.

ESTIMATED ERROR:
Temperature: $\pm 0.1K$ for 25 and 35°C, ± 1 K for 75°C. Log K: ± 0.01 (authors).

REFERENCES:

1. Rengemo, T.; Brune, U.; Sillén, L.G. *Acta Chem. Scand.* 1958, *12*, 873.
2. Jones, J.H. *J. Phys. Colloid. Chem.* 1947, *51*, 516.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3]	Nilsson, G.; Rengemo, T.; Sillén, L.G.
2. Sodium perchlorate; $NaClO_4$; [7601-89-0]	Acta Chem. Scand. 1958, 12, 868-72.
3. Sulfur dioxide; SO_2; [7446-09-5]	
4. Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES (continued):

$m(NaClO_4)$/mol kg^{-1}	1			3.5		
t/°C	25	35	75	25	35	75
partial pressure of SO_2/Atm[a]	0.970	0.947	0.632	0.973	0.951	0.664
mol Ca^{2+}/kg soln.	0.497	0.395	0.168	0.260	0.198	0.0877
$m(Ca^{2+})$/mol kg^{-1}[b]	0.667	0.507	0.198	0.417	0.308	0.129
10^3 $w(Ca^{2+})$[c] (compilers)	19.92	15.83	6.73	10.42	7.94	3.515
log K	0.09	-0.26	-1.30	-0.52	-0.91	-1.89
K/mol^3 kg^{-3} Atm^{-1} (compilers)	1.224	0.550	0.049	0.298	0.123	0.013

[a] Calculated (by compilers) from total pressure (1.013 bar) and some additional data given by the authors. The data are the equilibrium vapour pressure of water and the activity of water in the solutions, calculated (by the authors) from Jones's (2) osmotic coefficients.

[b] Calculated from the original analytical data by the authors.

[c] w(mass fraction).

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Sodium perchlorate; $NaClO_4$; [7601-98-0] 3. Sulfur dioxide; SO_2; [7446-09-5] 4. Water; H_2O; [7732-18-5]	Frydman, M.; Nilsson, G.; Rengemo,T.; Sillén, L.G. *Acta Chem. Scand.* 1958, *12*, 878-84.

VARIABLES:	PREPARED BY:
Three temperatures: 298, 308 and 348 K	B. Engelen, H.D. Lutz

EXPERIMENTAL VALUES:
The authors report the solubility products

$$K_{sO_a} = [Ca^{2+}] \times [SO_3^{2-}] \text{ and } K_{sO_b} = [Ca^{2+}] \times [HSO_3^-]^2/[H_2SO_3]$$

in aqueous solutions of $NaClO_4$ with ionic strengths of 1 and 3.5 mol/kg of Na^+ in H_2O at 25, 35, and 75°C. The data were calculated by combining the equilibrium constants of the following reactions

$$CaSO_4(s) \rightleftharpoons Ca^{2+} + SO_4^{2-} \qquad (1)$$
$$CaSO_4(s) + SO_3^{2-} \rightleftharpoons CaSO_3(s) + SO_4^{2-} \qquad (2)$$
$$SO_2(g) + H_2O \rightleftharpoons H_2SO_3 \qquad (3)$$
$$CaSO_3(s) + SO_2(g) + H_2O \rightleftharpoons Ca^{2+} + 2HSO_3^- \qquad (4)$$

The equilibrium studies are fully described in two other papers by the authors (1,2).

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The equilibrium was studied in $NaClO_4$ solutions of the given ionic strengths. The time to establish equilibrium is not given, but seems to be 5 - 38 days as described in ref. (2). Equilibrium 4 was studied under nitrogen with solutions containing 0.3 cm^3 of benzyl alcohol per dm^3 to avoid oxidation of the sulfite. The composition of the saturated solutions was determined as in ref. (1). Calcium was determined oxidimetrically with $KMnO_4$ after precipitating as oxalate and dissolving in sulfuric acid, total amount of SO_2 iodometrically, and sulfate gravimetrically as $BaSO_4$.	Calcium sulfite was precipitated from a solution of calcium chloride with Na_2SO_3, washed, and sucked dry, all under a N_2 atmosphere. SO_2 was taken from a gas cylinder, washed first with water, and then with an $NaClO_4$ solution of desired concentrations and temperature. $NaClO_4$ was prepared from Na_2CO_3 and $HClO_4$. $CaCl_2$, $CaSO_4$, Na_2SO_3, and $HClO_4$ were all of p.a. quality. N_2 was purified by Meyer and Ronge's method (3).
	ESTIMATED ERROR: Temperature: ± 0.1 K for 25 and 35°C, ± 1 K for 75°C. Log K: 0.01 for equilibrium 1 and 3, 0.02 for equilibrium 4 and 0.1 for equilibrium 2 (authors).
	REFERENCES: 1. Nilsson, G.; Rengemo, T.; Sillén, L.G. *Acta Chem. Scand.* 1958, *12*, 868. 2. Rengemo, T.; Brune, U.; Sillén, L.G. *Acta Chem. Scand.* 1958, *12*, 873. 3. Meyer, F.R.; Ronge, G. *Angew. Chem.* 1939, *52*, 637.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Sodium perchlorate; $NaClO_4$; [7601-98-0] 3. Sulfur dioxide; SO_2; [7446-09-5] 4. Water; H_2O; [7732-18-5]	Frydman, M.; Nilsson, G.; Rengemo,T.; Sillén, L.G. *Acta Chem. Scand.* <u>1958</u>, *12*, 878-84.

EXPERIMENTAL VALUES (continued):

m($NaClO_4$)mol kg^{-1}		1			3.5	
t/°C	25	35	75	25	35	75
No. Equilibrium			log K (measured)			
1 $[Ca^{2+}]$ x $[SO_4^{2-}]$[a]	-2.92	-2.91	-2.94	-3.16	-3.09	-3.34
2 $[SO_4^{2-}]/[SO_3^{2-}]$[b]	1.88	1.96	2.23	1.88	1.96	2.23
3 $[H_2SO_3]/P_{SO_2}$[c]	0.03	-0.13	-0.53	0.06	-0.09	-0.50
4 $[Ca^{2+}]$ x $[HSO_3^-]^2/P_{SO_2}$[d]	0.09	-0.26	-1.30	-0.52	-0.91	-1.89
			log K (derived)			
1-2 $[Ca^{2+}]$ x $[SO_3^{2-}]$[e]	-4.80	-4.87	-5.17	-5.04	-5.05	-5.57
3-4 $[Ca^{2+}]$ x $[HSO_3^-]^2/[H_2SO_3]$[f]	-0.06	-0.13	-0.77	-0.58	-0.82	-1.39

[a] $K_1 = m_{Ca^{2+}}$ x $m_{SO_4^{2-}}$ $[mol^2 kg^{-2}]$

[b] $K_2 = m_{SO_4^{2-}}/m_{SO_3^{2-}}$

[c] $K_3 = m_{H_2SO_3}/P_{SO_2}$ $[mol\ kg^{-1}\ Atm^{-1}]$

[d] $K_4 = m_{Ca^{2+}}$ x $m_{HSO_3^-}^2/P_{SO_2}$ $[mol^3\ kg^{-3}\ Atm^{-1}]$

[e] $K_{1-2} = K_{sO_a} = m_{Ca^{2+}}$ x $m_{SO_3^{2-}}$ $[mol^2\ kg^{-2}]$

[f] $K_{3-4} = K_{sO_b} = m_{Ca^{2+}}$ x $m_{HSO_3^-}^2/m_{H_2SO_3}$ $[mol^2\ kg^{-2}]$

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Sulfur dioxide; SO_2; [7446-09-5] 3. Water; H_2O; [7732-18-5]	Engelhardt, G. *Zellst. Pap.* 1962, 43-50.
VARIABLES: Temperature: 291 - 403 K Concentration of SO_2	PREPARED BY: B. Engelen, H.D. Lutz

EXPERIMENTAL VALUES:
The author reports the solubility of calcium sulfite in aqueous sulfurous acid solutions at various temperatures.

t/°C	SO_2 g/100 cm^3		CaO g/100 cm^3	$CaSO_3$[a] c/mol dm^{-3}
	total	combined[b]		
18	1.024	0.480	0.420	0.0749
18	1.523	0.777	0.682	0.1213
18	2.402	1.265	1.110	0.1975
18	2.930	1.450	1.270	0.2264
18	4.627	2.307	2.019	0.3601
40	7.96	3.660	3.206	0.5713
55	7.30	3.17	2.814	0.495
60	2.80	1.260	1.106	0.1967
75	4.0	1.6		0.250
93	4.0	1.33		0.208
108	6.0	1.7		0.265
115	6.0	1.5		0.234
115	3.0	0.75		0.117
130	5.0	1.0		0.156

[a] Calculated by the compilers from combined SO_2.
[b] SO_2 required to form the monosulfite.

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
a) Temperature range 18 - 60°C: solutions of sulfur dioxide were saturated with calcium sulfite. b) Temperature range 75 - 130°C: calcium hydrogen sulfite solutions of known composition were slowly heated under their equilibrium pressures in a thermostatically controlled flask until the first precipitation of calcium sulfite was observed. No further details are given.	Not given.
	ESTIMATED ERROR:
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Calcium sulfate; $CaSO_4$; [7778-18-9] 3. Water; H_2O; [7732-18-5]	Bichowsky, F.R. *J. Am. Chem. Soc.* 1923, *45*, 2225-35.

VARIABLES:	PREPARED BY:
One temperature: 298 K	H.D. Lutz, B. Engelen

EXPERIMENTAL VALUES:

The author reports the solubility of calcium sulfite in water and in saturated solutions of calcium sulfite at 25°C for samples of calcium sulfite prepared by different methods.

Sample[a]	Composition of saturated solutions $10^5 c(CaSO_3)/mol\ dm^{-3}$	
	in water	in sat. $CaSO_4$ soln.
1	20.2	3.71
2	10.7	–
3	8.7	3.67
4	–	3.72

   [a] $CaSO_3$ samples 1, 2, 3, and 4 were prepared as given under source.

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturation method. Sulfite was determined iodometrically.	Calcium sulfite was obtained: 1) by precipitation from $CaCl_2$ solutions with SO_2 and NaOH, 2) by dissolving commercial sulfite in sulfurous acid and precipitating by boiling off the SO_2 in a vacuum, 3) by washing the commercial salt with air-free distilled water, 4) commercial salt.
	ESTIMATED ERROR: Not given.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Calcium sulfate; $CaSO_4$; [7778-18-9] 3. Water; H_2O; [7732-18-5]	Marusawa, T. *Kogyo Kagaku Zasshi* 1917, 20, 287-301. Marusawa, T.; Naito, D.-I.; Uchida, J.I. *Mem. Ryojun Coll. Eng.* 1929, 1, 351-93.
VARIABLES: One temperature: 291 K Concentration of sulfate	PREPARED BY: B. Engelen, H.D.Lutz

EXPERIMENTAL VALUES:

The author determined both the solubility of $CaSO_3.2H_2O$ [10035-03-7] in solutions containing different amounts of calcium sulfate, and the solubility product $K_{s0}(CaSO_3) = c_{Ca}^{2+} \times c_{SO3}^{2-}$, of this compound at 18°C.

Concentration of the saturating solutes			Degree of dissociation[a]	Solubility product[b]
SO_4^{2-}	Ca^{2+}	SO_3^{2-}	γ	
$10^4 c_1$/mol dm^{-3}	$10^4 c_2$/mol dm^{-3}	$10^4 c_3$/mol dm^{-3}		$10^7 K_{s0}$/mol^2 dm^{-6}
1.29	8.59	7.30	0.835	4.37
1.62	8.84	7.22	0.833	4.43
2.22	9.20	6.98	0.830	4.42

From the values obtained for the solubility product, the solubility of calcium sulfite in pure water was calculated (by author) to be 7.91 x 10^{-4} mol dm^{-3}.[c] The solubility at 94°C is said to be 6.6 x 10^{-4} mol dm^{-3}.

[a] Determined by the authors from conductance measurements of calcium sulfate solutions made by Melcher (1) on the assumption that the degree of dissociation (activity, compilers) of $CaSO_4$ and $CaSO_3$ solutions is the same.

[b] Calculated from $c_{Ca}2+$, $c_{CO3}2-$, and γ by the author.

[c] On the same assumptions as stated under[a].

AUXILIARY INFORMATION	
METHOD APPARATUS/PROCEDURE: Saturation method. Time for establishing equilibrium not given. Calcium was determined manganometrically after precipitation as calcium oxalate. Sulfite was determined iodometrically. The amount of sulfate formed by oxidation of the sulfite was calculated from the difference between calcium and sulfite concentrations.	SOURCE AND PURITY OF MATERIALS: Calcium sulfite was precipitated by passing SO_2 through a suspension of $CaCO_3$ in water, and analysed for calcium and sulfate.
	ESTIMATED ERROR:
	REFERENCES: 1. Melcher, A.C. *J. Am. Chem. Soc.* 1910, 32, 50.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3]	Wurz, O.; Swoboda, O.
2. Calcium sulfate; $CaSO_4$; [7778-18-9]	*Text. -Rundsch.* <u>1948</u>, *3*, 201-6.
3. Water; H_2O; [7732-18-5]	

VARIABLES:	PREPARED BY:
Four temperatures: 293 - 353 K	B. Engelen, H.D. Lutz

EXPERIMENTAL VALUES:

The authors report the solubility of calcium sulfite in water and in solutions of various non-saturating solutes at different temperatures.

Solvent	Composition of saturated solutions				
	$CaSO_3$				
	20	40	60	80	t/°C
	mg/100 g soln.				
pure water	9.95	7.27	8.31	5.90	
$CaSO_4$ sat. soln.	2.90	3.28	3.66	4.30	
	10^{-4} mole/kg soln. (compilers)				
pure water	8.28	7.72	6.92	4.91	
$CaSO_4$ sat. soln.	2.41	2.73	3.05	3.58	

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Oxygen-free water or the given solutions were saturated with calcium sulfite. The solutions were stirred for 0.5 hr and kept for 12 hr at the given temperature. An aliquot of the solutions was then analysed for sulfite with iodine or chloramine. The mean of 4 measurements is given.	An oxygen-free slurry of calcium oxide prepared by adding ignited calcium carbonate to oxygen-free water was saturated with sulfur dioxide under nitrogen. After removing excess SO_2 by passing nitrogen through the solution the obtained calcium sulfite slurry was evaporated to dryness. The product contained 2% sulfate.
	ESTIMATED ERROR:
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Ammonium nitrate; NH_4NO_3; [6484-52-2] 3. Water; H_2O; [7732-18-5]	Dubovaya, V.K.; Nabiev, M.N. *Uzb. Khim. Zh.* 1959, 5, 6-12.

VARIABLES:	PREPARED BY:
One temperature: 303 K Concentration of NH_4NO_3	B. Engelen

EXPERIMENTAL VALUES:

The authors report the solubility of calcium sulfite in solutions of various NH_4NO_3 concentration at 30°C.

NH_4NO_3 mass %	CaO g/dm^3	$CaSO_3$ (compiler) g/dm^3	10^2c/mol dm^{-3}
20	1.136	2.433	2.026
40	1.314	2.815	2.343
60	1.058	2.267	1.887

<div align="center">AUXILIARY INFORMATION</div>

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturation method. Equilibrium was tested for analytically. Time and method not given. To avoid oxidation of the sulfite, phenylenediamine was added during the analysis procedure. The type of ions determined and analytical method are not given.	Calcium sulfite was freshly prepared, method not given. NH_4NO_3 of commercial quality was used. Calcium sulfite was contaminated with a small amount of sulfate.
	ESTIMATED ERROR:
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Sucrose; $C_{12}H_{22}O_{11}$; [471-34-1] 3. Water; H_2O; [7732-18-5]	Weisberg, J. *Bull. Soc. Chim. Fr.* <u>1896</u>, *15*, 1247-50.

VARIABLES:	PREPARED BY:
One temperature: 291 K Concentration of sugar	B. Engelen

EXPERIMENTAL VALUES:

The author reports the solubility of calcium sulfite in water and in solutions of sugar at 18°C.

Sucrose mass %	g $CaSO_3/dm^3$	$10^4 c(CaSO_3)/mol\ dm^{-3}$ (compiler)
0	0.043	3.58
10	0.0825	6.87
30	0.0800	6.66

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturation method. Sulfite was determined iodometrically.	$CaSO_3$ was precipitated by passing SO_2 through a suspension of $Ca(OH)_2$ in water. The precipitate was washed and dried over sulfuric acid in a desiccator.
	ESTIMATED ERROR:
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Sucrose; $C_{12}H_{22}O_{11}$; [471-34-1] 3. Water; H_2O; [7732-18-5]	Gupta, S.C.; Ramaiah, N.A.; Kumar, K. *Proc. Ann. Conv. Sugar Technol. Assoc. India*, 1965, *33*, 175-9.

| VARIABLES:
Temperature: 273 - 333 K
Concentration of sucrose
pH | PREPARED BY:

B. Engelen |

EXPERIMENTAL VALUES:
The following data have been estimated by the compiler from a graph given by the authors.

Sucrose mass %[b]	CaO mg/dm^3					$10^3 c(CaSO_3)^{[a]}$ mol dm^{-3}					
	5	10	30	40	60	5	10	30	40	60	t/°C
-	131	121	103[c]	100	97[c]	2.34	2.14	1.84	1.78	1.73	
10	120	108	100	93	88	2.14	1.93	1.78	1.66	1.57	
20	117	102	97	92	85[c]	2.09	1.82	1.73	1.64	1.52	
30	113	98	90	85	77	2.02	1.75	1.60	1.52	1.37	
40	104	89	83	75	70[c]	1.85	1.59	1.48	1.34	1.25	
50	-	-	80	72	66	-	-	1.43	1.28	1.18	

Sucrose mass %[b]	pH	CaO/mg/dm^{3}[d]	$10^3 c(CaSO_3)^{[a]}$/mol dm^{-3}
10	7	74	1.32
10	7.5	215	3.83
10	8	266	4.74
10	9	306	5.46
10	10	305	5.44
10	11	286	5.10

[a] Calculated by the compiler.

[b] Given as °Brix by the authors.

[c] Numerical data given by the authors.

[d] Temperature not given, but it seems to be room temperature.

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE: Sugar solutions of the given concentrations were saturated with calcium sulfite in a thermostatically controlled vessel. Equilibrium was reached after 6 hr. Calcium was determined complexometrically.	SOURCE AND PURITY OF MATERIALS: Calcium sulfite of p.a. quality was recrystallized in doubly distilled water and dried in a vacuum at 150°C. Sucrose of a purity of 99.9% was used.
	ESTIMATED ERROR: Error in temperature: ±0.2 K for 5 - 10°C: ±0.1 K for 30 - 60°C.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3] 2. Sucrose; $C_{12}H_{22}O_{11}$; [471-34-1] 3. Water; H_2O; [7732-18-5]	Bobrovnik, L.D.; Kotel'nikova, L.P. *Izv. Vyssh. Uchebn. Zaved., Pishch. Tekhnol.* 1974, (4), 155-6.

VARIABLES: Temperature: 323 - 368 K Concentration of sucrose Two pH values: 7.1 and 9.0	PREPARED BY: B. Engelen

EXPERIMENTAL VALUES:

The authors report the solubility of $CaSO_3$ in water and in solutions of various sucrose concentration for two pH values (7.1 and 9.0) at various temperatures.

Composition of the saturated solutions

Sucrose				$CaSO_3$				
	50	60	70	80	85	90	95	t/°C
mass %			$10^6 w$(mass fraction, compiler)[a]					
				pH = 7.1				
0	37	35	31	30	29	27	24	
10	48	44	38	36	33	31	29	
15	41	36	32	31	28	25	21	
25	40	37	30	28	27	26	25	
30	34	33	28	27	26	24	23	
40	31	29	22	21	21	21	21	
50	24	20	17	18	18	19	20	
60	19	18	16	18	18	20	20	

[a] Converted from g/100 g soln, given by the authors.

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturation method. Equilibrium was established by stirring the saturated solution in a thermostatically controlled vessel at the given temperatures, time not given. Calcium was determined complexometrically, sulfite iodometrically. Method of adjusting the pH not given.	Not given.
	ESTIMATED ERROR:
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Calcium sulfite; $CaSO_3$; [10257-55-3]	Bobrovnik, L.D.; Kotel'nikova, L.P.
2. Sucrose; $C_{12}H_{22}O_{11}$; [471-34-1]	*Izv. Vyssh. Uchebn. Zaved., Pishch.*
3. Water; H_2O; [7732-18-5]	*Tekhnol.* <u>1974</u>, (4), 155-6.

EXPERIMENTAL VALUES (continued):

Sucrose				$CaSO_3$				
	50	60	70	80	85	90	95	t/°C
mass %			$10^6 w$(mass fraction, compiler)[a]					
			pH = 9.0					
0	27	23	20	19	17	16	14	
10	34	29	26	22	20	18	15	
15	32	28	26	23	21	18	17	
25	32	28	21	16	14	11	10	
30	28	23	17	12	9	7	4	
40	23	21	16	8	5	3	1	
50	17	9	5	1.6	1.6	1.2	1.2	
60	7	5	3	1.5	1.5	1.5	0.8	
			10^{-5}mole/kg soln (compiler)					
			pH = 7.1					
0	30.8	29.1	25.8	25.0	24.1	22.5	20.0	
10	40.0	36.6	31.6	30.0	27.5	25.8	24.1	
15	34.1	30.0	26.6	25.8	23.3	20.8	17.5	
25	33.3	30.8	25.0	23.3	22.5	21.6	20.8	
30	28.3	27.5	23.3	22.5	21.6	20.0	19.1	
40	25.8	24.1	18.3	17.5	17.5	17.5	17.5	
50	20.0	16.6	14.2	15.0	15.0	15.8	16.6	
60	15.8	15.0	13.3	15.0	15.0	16.6	16.6	
			pH = 9.0					
0	22.5	19.1	16.6	15.8	14.2	13.3	11.7	
10	28.3	24.1	21.6	18.3	16.6	15.0	12.5	
15	26.6	23.3	21.6	19.1	17.5	15.0	14.2	
25	26.6	23.3	17.5	13.3	11.7	9.2	8.3	
30	23.3	19.1	14.2	10.0	7.5	5.8	3.3	
40	19.1	17.5	13.3	6.7	4.2	2.5	0.8	
50	14.2	7.5	4.2	1.33	1.33	1.00	1.00	
60	5.83	4.16	2.50	1.25	1.25	1.25	0.67	

[a] Converted from g/100 g soln, given by the authors.