COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2] 2. Sulfur dioxide; SO_2; [7446-09-5] 3. Water; H_2O; [7732-18-5]	Conrad, F.H.; Brice, D.B. *J. Am. Chem. Soc.* 1948, *70*, 2179-82.
VARIABLES: Three temperatures: 288, 298 and 308 K Partial pressure of SO_2	PREPARED BY: B. Engelen, H.D. Lutz

EXPERIMENTAL VALUES:

The authors report the solubility of $MgSO_3.6H_2O$ [13446-29-2] in aqueous sulfurous acid solutions for various SO_2 vapour pressures at 15, 25, and 35°C on the basis of equilibrium studies of the system $MgO-SO_2-H_2O$.

t/°C	P_{total}	P_{SO_2}[a]	g SO_2 in 100 g H_2O		$MgSO_3$	$m(MgSO_3)$[c]
	mm Hg	10^{-3} bar	total	combined[b]	g/kg H_2O[c]	mol kg^{-1}
15	75.5	83.6	30.4	15.7	256	2.45
	87.5	99.6	28.05	14.75	240.3	2.302
	110.7	130.5	29.65	15.05	245.2	2.349
	156.8	192.0	32.9	16.9	275	2.64
	162.3	199.3	31.4	16.55	269.6	2.583
	245.5	310.3	39.9	21.0	342	3.28
	419.3	541.9	46.9	23.55	383.7	2.676
	448.7	581.1	44.8	22.4	365	3.50
	726.8	951.9	54.6	27.8	453	4.34
	730.3	956.6	53.3	26.75	435.8	4.176

a,b,c See the following page.

(continued on next page)

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:

Saturation method. Saturation was approached from both the supersaturated and the unsaturated state. Total pressure (SO_2 and H_2O) was measured with a mercury manometer. The amounts of total and combined SO_2 were determined by a combination of acidimetric and iodometric titration (1).

SOURCE AND PURITY OF MATERIALS:

MgO was of p.a. quality. Amounts of sulfate and CaO were negligible. SO_2 used was free from SO_3. The amount of inert or non-absorbable gases was about 0.15%.

ESTIMATED ERROR:

Not given.

REFERENCES:

1. Birchard, W.H. *Pap. Ind.* 1926, *8*, 793.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2]	Conrad, F.H.; Brice, D.B.
2. Sulfur dioxide; SO_2; [7446-09-5]	*J. Am. Chem. Soc.* 1948, *70*, 2179-82.
3. Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES (continued):

t/°C	p_{total}	p_{SO_2}[a]	g SO_2 in 100 g H_2O		$MgSO_3$	$m(MgSO_3)$[c]
	mm Hg	10^{-3} bar	total	combined[b]	g/kg H_2O[c]	mol kg^{-1}
25	130.2	141.9	28.2	14.2	231	2.22
	154.4	174.2	28.0	14.85	241.9	2.318
	213.2	252.6	35.6	18.2	297	2.84
	264.3	320.7	35.2	17.9	292	2.79
	288.0	352.3	37.5	18.75	305.5	2.927
	326.5	403.6	40.7	20.35	331.6	3.177
	410.9	516.1	42.1	21.3	347	3.32
	560.7	715.9	50.3	25.4	414	3.96
	638.4	819.4	51.6	26.3	428	4.11
	726.8	937.3	50.7	25.85	421.2	4.035
	728.4	939.4	52.0	26.2	427	4.09
35	728.7	915.3	50.1	25.7	419	4.01

[a] Corrected for p_{H_2O} and converted to bar by compilers.

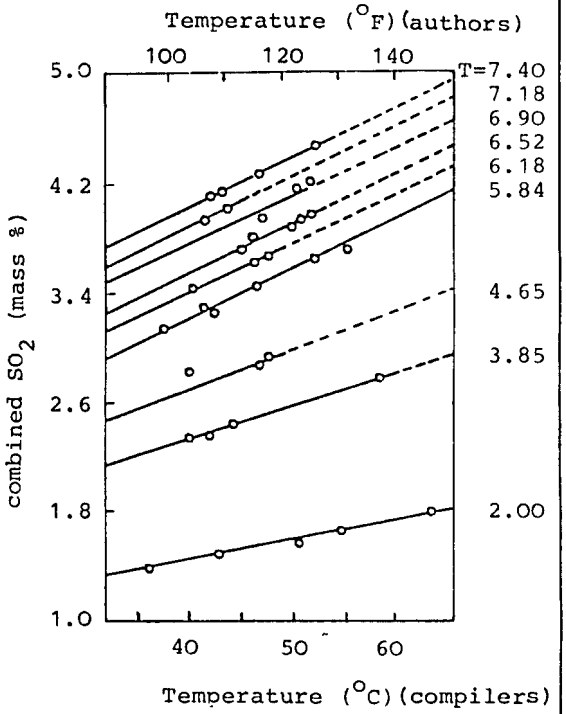
[b] SO_2 required to form the monosulfite.

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

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2] 2. Sulfur dioxide; SO_2; [7446-09-5] 3. Water; H_2O; [7732-18-5]	Markant, H.P.; Phillips, N.D. Shah, I.S. *Tappi* 1965, *48*, 648-53.
VARIABLES: Temperature: 305 - 338 K Concentration of SO_2	**PREPARED BY:** B. Engelen, H.D. Lutz

EXPERIMENTAL VALUES:

The authors report the solubility of magnesium sulfite in aqueous sulfurous acid solutions for various values of temperature and total amount of SO_2. Experimental data are given in a graph of amount of combined SO_2 (mass %), i.e. SO_2 required to form the monosulfite *vs.* temperature (in °F) for several amounts of total SO_2 (mass %), shown on the Figure as T. A scale in °C has been added by the compilers.



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AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturation limits were determined by turbidimetric measurements during cooling solutions of $Mg(HSO_3)_2$ + $MgSO_3$ of known compositions. The first precipitation temperature was determined as the point of intersection of the two straight line portions of the "cooling curves".	The $Mg(HSO_3)_2$ solutions were prepared in closed containers under nitrogen by adding SO_2 to a slurry of MgO in distilled water.
	ESTIMATED ERROR: Not given.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2] 2. Magnesium hydrogen sulfite; $Mg(HSO_3)_2$ [13774-25-9] 3. Water; H_2O; [7732-18-5]	Hagisawa, H. *Sci. Rep. Tohoku Imp. Univ., Ser. 1* 1934, *23*, 182-92; *Bull. Inst. Phys. Chem. Res., Tokyo* 1933, *12*, 976-83.
VARIABLES:	PREPARED BY:
One temperature: 298 K	B. Engelen, H.D. Lutz

EXPERIMENTAL VALUES:

For 25°C the author reports the solubility of $MgSO_3.6H_2O$ [13446-29-2] in solutions containing various amounts of magnesium hydrogen sulfite.

$Mg(HSO_3)_2$	pSO_2	pSO_2[a]	$MgSO_3$[b]	$MgSO_3$[c]	
mass %	mm Hg	10^{-3} bar	mass %[d]	mass %[d]	m/mol kg^{-1}[a]
0.73	-	-	0.70	1.11	0.108
2.26	-	-	0.67	1.94	0.191
2.44	-	-	0.64	2.00	0.198
4.80	-	-	0.68	3.37	0.340
7.45	-	-	0.66	4.84	0.500
13.14	-	-	0.68	8.03	0.880
13.21	-	-	0.65	8.05	0.882
14.00	-	-	0.69	8.53	0.943
18.57	-	-	0.66	11.06	1.283
19.01	-	-	0.67	11.31	1.319
19.30	8.6	11.4	0.65	11.45	1.340
22.15	14.2	18.9	0.60	13.00	1.569
23.54	-	-	0.52	13.69	1.678
23.58	-	-	0.55	13.75	1.686
25.66	25.7	34.3	0.50	14.87	1.866
26.87	31.9	42.5	0.52	15.56	1.982
28.26	-	-	0.36	16.18	2.092
28.76	-	-	0.31	16.41	2.133
30.13	55.7	74.2	0.50	17.37	2.302
30.93	65.4	87.2	0.38	17.70	2.365
32.67	-	-	0.13	18.42	2.508
34.50	116.2	154.9	0.15	19.46	2.715
35.72	-	-	0.14	20.14	2.854

a,b,c,d See the following page. (continued on next page)

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:

Method as for binary system. Total pressure (SO_2 + H_2O) was measured with a mercury manometer, and vapour pressure of water was determined by the dynamic method.

SOURCE AND PURITY OF MATERIALS:

As for binary system. When partial pressure of SO_2 was determined, $MgCO_3$-free MgO was used instead of $MgCO_3$.

ESTIMATED ERROR:

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2] 2. Magnesium hydrogen sulfite; $Mg(HSO_3)_2$ [13774-25-9] 3. Water; H_2O; [7732-18-5]	Hagisawa, H. *Sci. Rep. Tohoku Imp. Univ., Ser. 1* 1934, *23*, 182-92; *Bull. Inst. Phys. Chem. Res., Tokyo* 1933, *12*, 976-83.

EXPERIMENTAL VALUES (continued):

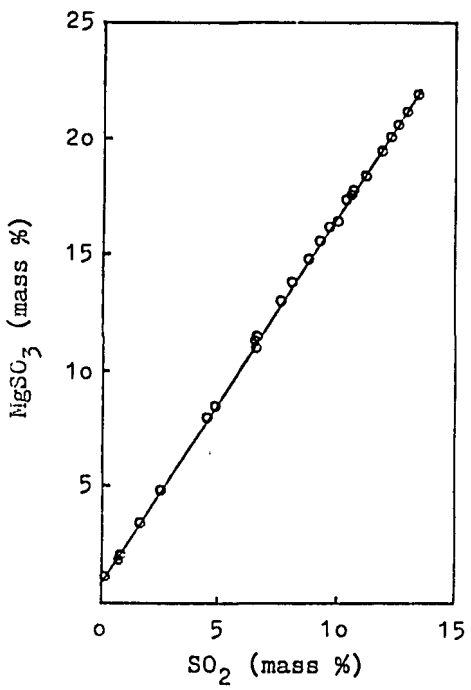
$Mg(HSO_3)_2$	p_{SO_2}	p_{SO_2}[a]	$MgSO_3$[b]	$MgSO_3$[c]	
mass %	mm Hg	10^{-3} bar	mass %[d]	mass %[d]	m/mol kg^{-1}[a]
36.52	166.6	222.1	0.10	20.54	2.942
37.45	199.0	265.3	-	20.97	3.036
37.73	-	-	0.05	21.17	3.080
39.04	-	-	-	21.85	3.235

[a] Calculated by the compilers.

[b] $MgSO_3$ in addition to the bisulfate.

[c] Total magnesium sulfite ($MgSO_3$ + $Mg(HSO_3)_2$ as $MgSO_3$).

[d] g/100 g soln, author.



COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2] 2. Magnesium hydrogen sulfite; $Mg(HSO_3)_2$; [13774-25-9] 3. Water; H_2O; [7732-18-5]	Yakimets, E.M.; Arkhipova, M.S. *Tr. Ural. Nauchno-Issled. Khim. Inst.* 1954, No. 1, 112-8.
VARIABLES:	PREPARED BY:
Temperature: 294 - 296 K Concentration of $Mg(HSO_3)_2$	B. Engelen

EXPERIMENTAL VALUES:

The authors report the solubility of magnesium sulfite in water and in $Mg(HSO_3)_2$ solutions at 21-23°C.

t/°C	$Mg(HSO_3)_2$	$MgSO_3$	$MgSO_3$[b]	
	mass %[a]	mass %	mass %	m/mol kg^{-1}
23	-	0.615	-	0.059
23	1.298	0.630	1.356	0.132
22	7.307	1.117	5.207	0.541
22	18.231	1.308	11.513	1.342
21	30.881	1.539	18.825	2.556

[a] Calculated by the compiler from g/dm^3 and the density of the solutions, both given by the authors.

[b] Total amount of dissolved magnesium sulfite ($MgSO_3$ + $Mg(HSO_3)_2$, given as $MgSO_3$), calculated by the compiler.

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturation method. Equilibrium was established after 1-4 hr. Saturated solutions were analysed for Mg^{2+} SO_3^{2-}, and SO_4^{2-} content. Method not given.	A slurry of chemical pure MgO was dissolved by passing in SO_2. The obtained solution then was saturated with magnesium sulfite. The solutions contained 2-6 g/dm^3 SO_4^{-2} (authors).
	ESTIMATED ERROR:
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2] 2. Magnesium hydrogen sulfite; $Mg(HSO_3)_2$; [13774-25-9] 3. Water; H_2O; [7732-18-5]	Semishin, V.I.; Abramov, I.I; Vorotnitskaya, L.T. *Izv. Vyssh. Uchebn. Zaved., Khim. Khim. Technol.* 1959, 2, 834-9.
VARIABLES: Temperature: 308 - 343 K Concentration of $Mg(HSO_3)_2$ pH: 4 - 9	PREPARED BY: B. Engelen

EXPERIMENTAL VALUES:

The authors report the solubility of magnesium sulfite in aqueous solutions containing 0.5 - 4.7 mass % of $Mg(HSO_3)_2$, and in solutions of 0.4 - 4.4 mass % of $Mg(HSO_3)_2$ and 10 mass % of $MgSO_4$ at various temperatures from 35 to 70°C. The pH values of the saturated solutions are also given.

t/°C	pH[a]	$Mg(HSO_3)_2$[b] mass %	$MgSO_3$[c] mass % without $MgSO_4$	$MgSO_3$[d] mass %	$m(MgSO_3)$[d] mol kg^{-1}
35	6.00	0.53	0.595	0.89	0.086
	5.38	1.03	0.470	1.05	0.102
	5.20	2.09	0.448	1.62	0.159
	5.18	3.06	0.437	2.15	0.213
	4.80	3.88	0.417	2.59	0.259
	4.67	4.71	0.411	3.05	0.308
40	6.40	0.53	0.752	1.05	0.102
	5.89	1.03	0.659	1.24	0.120
	5.00	2.09	0.561	1.73	0.170
	5.20	3.06	0.538	2.25	0.224
	4.93	3.88	0.504	2.68	0.268
	4.72	4.71	0.463	3.10	0.313

a,b,c,d See the following page. (continued on next page)

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturation method. Equilibrium was established after 1.5 hr in a thermostatically controlled flask. Amounts of HSO_3^- and SO_3^{2-} were determined by a combination of iodometric and acidimetric titration. pH was determined potentiometrically.	Magnesium sulfite was prepared by bubbling SO_2 through a suspension of MgO in water. The precipitated $MgSO_3.6H_2O$ was analysed for Mg^{2+}, SO_3^{2-}, and SO_4^{2-} content. $Mg(HSO_3)_2$ solutions were obtained and analysed in the same way as above.
	ESTIMATED ERROR: Deviations in temperature and pH, (authors) are ±0.01 K and ±0.2-0.4, respectively.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2] 2. Magnesium hydrogen sulfite; $Mg(HSO_3)_2$; [13774-25-9] 3. Water; H_2O; [7732-18-5]	Semishin, V.I.; Abramov, I.I; Vorotnitskaya, L.T. *Izv. Vyssh. Uchebn. Zaved., Khim. Khim. Technol.* 1959, 2, 834-9.

EXPERIMENTAL VALUES (continued):

t/°C	pH[a]	$Mg(HSO_3)_2$[b] mass %	$MgSO_3$[c] mass % without $MgSO_4$	$MgSO_3$[d] mass %	$m(MgSO_3)$[d] mol kg^{-1}
45	6.60	0.53	0.939	1.24	0.120
	6.00	1.03	0.838	1.41	0.138
	5.37	2.09	0.796	1.97	0.194
	5.30	3.06	0.651	2.36	0.235
	5.00	3.88	0.612	2.78	0.279
	4.80	4.71	0.581	3.22	0.326
50	7.05	0.53	1.060	1.36	0.132
	6.27	1.03	0.976	1.55	0.152
	5.60	2.09	0.940	2.11	0.208
	5.40	3.06	0.800	2.51	0.250
	5.03	3.88	0.736	2.91	0.292
	5.00	4.71	0.724	3.36	0.341
55	7.81	0.53	1.418	1.71	0.168
	6.29	1.03	1.307	1.88	0.185
	6.18	2.09	1.246	2.42	0.239
	5.50	3.06	1.199	2.91	0.291
	5.20	3.88	1.084	3.26	0.328
	5.08	4.71	0.978	3.61	0.367
60	8.20	0.53	1.825	2.12	0.208
	6.40	1.03	1.535	2.11	0.208
	6.20	2.09	1.391	2.56	0.254
	5.54	3.06	1.368	3.08	0.309
	5.26	3.88	1.289	3.46	0.350
	5.20	4.71	1.154	3.79	0.386
70	8.45	0.53	1.968	2.26	0.223
	6.61	1.03	1.891	2.47	0.244
	6.40	2.09	1.844	3.01	0.301
	5.60	3.06	1.549	3.26	0.328
	5.32	3.88	1.538	3.71	0.376
	5.26	4.71	1.512	4.15	0.424

[a] pH determined 20-25°C.

[b] Concentration of the solution in which solid magnesium sulfite has been dissolved.

[c] Determined analytically as the amount of SO_3^{2-} present in addition to HSO_3^- after establishing equilibrium.

[d] Total amount of dissolved magnesium sulfite ($MgSO_3$ + $Mg(HSO_3)_2$ as $MgSO_3$), calculated by the compiler.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2] 2. Magnesium sulfate; $MgSO_4$; [7487-88-9] 3. Water; H_2O; [7732-18-5]	Kovachev, Ts.; Bakalov, V.; Trendafelov, D. *Khim. Ind. (Sofia)* 1970, 42, 209-11.
VARIABLES: Four temperatures: 288 - 348 K Amount of $MgSO_4$	PREPARED BY: B. Engelen

EXPERIMENTAL VALUES:

The authors report the solubility of $MgSO_3.6H_2O$ [13446-29-2] at 15 and 35°C and of $MgSO_3.3H_2O$ [19086-20-5] at 55 and 75°C in water and in solutions with various amounts of $MgSO_4$.

t/°C	$MgSO_4$ mass %	$MgSO_3$ mass %	m($MgSO_3$) mol kg^{-1} [a]	Solid phase
15	0.0	0.30	0.029	$MgSO_3.6H_2O$
	3.39	0.40	0.040	"
	5.73	0.57	0.058	"
	9.48	0.62	0.066	"
	13.00	0.63	0.070	"
	17.38	0.63	0.074	"
	20.93	0.61	0.074	"
	24.26	0.55	0.070	"
	24.70	0.55	0.070	$MgSO_3.6H_2O$ + $MgSO_4.7H_2O$
35	0.0	0.66	0.064	$MgSO_3.6H_2O$
	6.16	1.06	0.109	"
	10.50	1.20	0.130	"
	13.90	1.27	0.143	"
	18.80	1.27	0.152	"
	22.36	1.19	0.149	"
	26.95	1.13	0.151	"
	28.80	0.92	0.125	$MgSO_3.6H_2O$ + $MgSO_4.7H_2O$

[a] Calculated by the compiler.

(continued on next page)

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturation method. Equilibrium was established by stirring the given solutions with excess of magnesium sulfite under N_2. Time not given, but is assumed to be the same (4 - 8 hr) as in a second paper by the authors (1). Mg^{2+} was determined complexometrically, SO_3^{2-} iodometrically. From these two figures the amounts of $MgSO_3$ and $MgSO_4$ were calculated by the authors.	Not given.
	ESTIMATED ERROR: Not given.
	REFERENCES: 1. Trendafelov, D.; Kovachev, Ts.; Bakalov, V. *Izv. Otd. Khim. Nauki, Bulg. Akad. Nauk.* 1971, 4, 643.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2] 2. Magnesium sulfate; $MgSO_4$; [7487-88-9] 3. Water; H_2O; [7732-18-5]	Kovachev, Ts.; Bakalov, V.; Trendafelov, D. *Khim. Ind. (Sofia)* 1970, 42, 209-11.

EXPERIMENTAL VALUES (continued):

t/°C	$MgSO_4$ mass %	$MgSO_3$ mass %	m($MgSO_3$) mol kg^{-1} [a]	Solid phase
55	0.0	0.81	0.078	$MgSO_3.3H_2O$
	9.43	1.23	0.132	"
	14.45	1.27	0.144	"
	19.27	1.24	0.149	"
	23.63	1.10	0.140	"
	28.30	0.90	0.122	"
	33.36	0.66	0.096	"
	33.92	0.65	0.095	$MgSO_3.3H_2O$ + $MgSO_4.6H_2O$
75	0.0	0.66	0.064	$MgSO_3.3H_2O$
	10.95	1.25	0.136	"
	17.50	1.34	0.158	"
	23.18	1.26	0.160	"
	28.50	1.07	0.146	"
	32.86	0.85	0.123	"
	36.73	0.69	0.106	"
	36.88	0.67	0.103	$MgSO_3.3H_2O$ + $MgSO_4.H_2O$

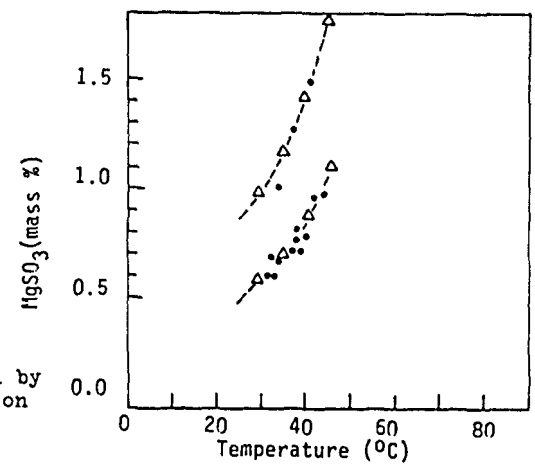
[a] Calculated by the compiler.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2] 2. Magnesium sulfate; $MgSO_4$; [7487-88-9] 3. Water; H_2O; [7732-18-5]	Nývlt, J.; Rychlý, R.; Kričková, J. *Chem. Prům.* 1977, 27, 552-6.
VARIABLES: Temperature: 303 - 318 K Concentration of $MgSO_4$	**PREPARED BY:** B. Engelen

EXPERIMENTAL VALUES:

The authors report the solubility of $MgSO_3.6H_2O$ [13446-29-2] in water and in a solution containing 10 mass % of $MgSO_4$. The experimental data are given only in a graph, from which the following figures are estimated by the compiler.

t/°C	$MgSO_3$ mass %	$m(MgSO_3)$ mol kg^{-1}
	pure water	
31.0	0.599	0.058
32.1	0.681	0.065
32.6	0.597	0.058
33.6	0.662	0.064
36.8	0.714	0.069
37.7	0.768	0.074
37.9	0.810	0.078
38.4	0.706	0.068
39.8	0.776	0.075
41.4	0.950	0.092
43.7	0.965	0.093
	with 10 mass % $MgSO_4$	
33.60	1.007	0.108
37.10	1.266	0.137
41.10	1.484	0.161



• Experimental values
Δ Values from least squares fit (authors)

(continued on next page)

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturation method. Equilibrium was established after 5 hr. Aliquots of the supernatant solutions were analysed for magnesium sulfite complexometrically, iodometrically, and by formaldehyde titration against HCl.	Not given.
	ESTIMATED ERROR: Not given.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2]	Nývlt, J.; Rychlý, R.; Kricková, J.
2. Magnesium sulfate; $MgSO_4$; [7487-88-9]	*Chem. Prům.* 1977, 27, 552-6.
3. Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES (continued):

The authors report that experimental data can be represented by log $x = A + B/T + C.\log T$ (x = mole fraction; T = temperature in K)[a,b]. The values calculated from this equation by the authors are:

	without $MgSO_4$[a]		with 10 mass % $MgSO_4$[b]	
t/°C	$MgSO_3$ (mass %)	m($MgSO_3$)[c] mol kg^{-1}	$MgSO_3$ (mass %)	m($MgSO_3$)[c] mol kg^{-1}
30	0.595	0.0573	0.976	0.105
31	0.614	0.0591	1.008	0.109
32	0.635	0.0612	1.042	0.112
33	0.657	0.0633	1.079	0.116
34	0.680	0.0655	1.118	0.121
35	0.706	0.0681	1.160	0.125
36	0.733	0.0707	1.206	0.130
37	0.762	0.0735	1.255	0.135
38	0.793	0.0765	1.307	0.141
39	0.827	0.0798	1.363	0.147
40	0.863	0.0834	1.423	0.154
41	0.901	0.0871	1.487	0.161
42	0.943	0.0912	1.556	0.169
43	0.987	0.0955	1.629	0.177
44	1.034	0.1001	1.708	0.185
45	1.085	0.1050	1.793	0.195

[a] A = -411.3726, B = 17342, C = 141.3459 (without $MgSO_4$)

[b] A = -411.0565, B = 17342, C = 141.3459 (with 10 mass % of $MgSO_4$)

[c] Calculated by the compiler.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2] 2. Magnesium chloride; $MgCl_2$; [7786-30-3] 3. Water; H_2O; [7732-18-5]	Bakalov, V.D.; Kovachev, Ts.B.; Trendafelov, D. *Khim. Ind. (Sofia)* 1971, *43*, 351-3.
VARIABLES:	PREPARED BY:
Two temperatures: 348 and 358 K Amount of $MgCl_2$	B. Engelen

EXPERIMENTAL VALUES:

The authors report the solubility of $MgSO_3.3H_2O$ [19086-20-5] in water and in solutions of different $MgCl_2$ concentrations at 75 and 85°C.

t/°C	$MgCl_2$ mass %	$MgSO_3$ mass %	m($MgSO_3$)[a] mol kg^{-1}
75	0.0	0.66	0.064
	10.60	0.52	0.056
	16.53	0.39	0.045
	22.47	0.28	0.035
	28.53	0.17	0.023
	32.07	0.16	0.022
	35.75	0.12	0.018
	37.98	0.10	0.015
85	0.0	0.62	0.060
	12.38	0.55	0.061
	20.62	0.35	0.042
	26.83	0.27	0.035
	33.07	0.17	0.024
	36.56	0.14	0.021
	39.26	0.13	0.021

[a] Calculated by the compiler.

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturation method. Equilibrium was established by stirring the given solutions with excess of magnesium sulfite under N_2. Time not given, but is assumed to be the same (4 - 8 hr) as in a second paper by the authors (1). Mg^{2+} was determined complexometrically, SO_3^{2-} iodometrically. From these two figures the amounts of $MgSO_3$ and $MgCl_2$ were calculated by the authors.	Not given.
	ESTIMATED ERROR: Not given.
	REFERENCES: 1. Trendafelov, D.; Kovachev, Ts.; Bakalov, V. *Izv. Otd. Khim. Nauki, Bulg. Akad. Nauk.* 1971, 4, 643.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2] 2. Sodium sulfite; Na_2SO_3; [7757-83-7] 3. Water; H_2O; [7732-18-5]	Trendafelov, D.; Kovachev, Ts.; Bakalov, V. *Izv. Otd. Khim. Nauki, Bulg. Akad. Nauk.* 1971, *4*, 643-52.
VARIABLES: Three temperatures: 298, 308 and 328 K Amount of Na_2SO_3	PREPARED BY: B. Engelen

EXPERIMENTAL VALUES:

t/°C	Na_2SO_3 mass %	$MgSO_3$ mass %	m($MgSO_3$) mol kg^{-1}a	Solid phase
25	pure water	0.48	0.046	$MgSO_3.6H_2O$
	4.29	0.88	0.089	"
	8.15	1.07	0.113	"
	10.08	1.76	0.191	$MgSO_3.6H_2O.Na_2SO_3.7H_2O$
	12.94	0.45	0.050	"
	16.66	0.31	0.036	"
	19.28	0.24	0.029	"
	21.04	0.16	0.019	"
	21.42	0.15	0.018	$Na_2SO_3.7H_2O$+ $MgSO_3.6H_2O.Na_2SO_3.7H_2O$
35	pure water	0.66	0.064	$MgSO_3.6H_2O$
	4.80	1.20	0.122	"
	8.42	1.47	0.156	"
	10.67	1.61	0.176	$MgSO_3.6H_2O$ + $Na_2SO_3.MgSO_3.3H_2O$
	11.33	1.21	0.133	$Na_2SO_3.MgSO_3.3H_2O$
	14.17	0.64	0.072	"
	17.08	0.43	0.050	"
	19.30	0.24	0.029	"
	21.31	0.17	0.021	"
	23.89	0.09	0.011	"
	25.21	0.06	0.008	"
	27.10	0.04	0.005	$Na_2SO_3.MgSO_3.3H_2O$ + Na_2SO_3

(continued on next page)

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Saturation method. Equilibrium was established after 4 - 8 hr by stirring the given solutions with excess of magnesium sulfite under N_2. Mg^{2+} was determined complexometrically, SO_3^{2-} iodometrically. From these two figures the amounts of $MgSO_3$ and Na_2SO_3 were calculated by the authors.	Not given.
	ESTIMATED ERROR: Not given.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Magnesium sulfite; $MgSO_3$; [7757-88-2] 2. Sodium sulfite; Na_2SO_3; [7757-83-7] 3. Water; H_2O; [7732-18-5]	Trendafelov, D.; Kovachev, Ts.; Bakalov, V. *Izv. Otd. Khim. Nauki, Bulg. Akad. Nauk.* 1971, *4*, 643-52.

EXPERIMENTAL VALUES (continued):

t/°C	Na_2SO_3 mass %	$MgSO_3$ mass %	$m(MgSO_3)$ mol kg^{-1} [a]	Solid phase
55	pure water	0.81	0.078	$MgSO_3.3H_2O$
	4.81	1.09	0.111	$MgSO_3.3H_2O$-type [b]
	9.07	0.80	0.085	"
	12.53	0.38	0.042	Na_2SO_3-type [c]
	15.87	0.23	0.026	"
	19.50	0.15	0.018	"
	21.92	0.11	0.014	"
	24.53	0.05	0.006	"
	26.66	0.04	0.005	"
	27.13	0.03	0.004	"
	27.18	0.02	0.003	"

[a] Calculated by the compiler.

[b] Na_2SO_3-$MgSO_3$ mixed crystals of type $MgSO_3.3H_2O$.

[c] Na_2SO_3-$MgSO_3$ mixed crystals of type Na_2SO_3.