

COMPONENTS:				ORIGINAL MEASUREMENTS:				
1. Potassium sulfite; K_2SO_3 ; [10117-38-1]				Klebanov, G.S.; Ostapkevich, N.A.				
2. Ethanol; C_2H_5OH ; [64-17-5]				Zh. Neorg. Khim. 1960, 5, 2329-2333;				
3. Water; H_2O ; [7732-18-5]				Russ. J. Inorg. Chem. (Eng. Transl.) 1960, 5, 1128-9.				
VARIABLES:				PREPARED BY:				
Two temperatures: 293 - 323 K				Mary R. Masson				
Concentrations of the components								
EXPERIMENTAL VALUES:								
<u>Composition of equilibrium solutions</u>								
Lower phase				Upper phase				Initial
K_2SO_3	C_2H_5OH	$K_2SO_3^a$	$C_2H_5OH^a$	K_2SO_3	C_2H_5OH	$K_2SO_3^a$	$C_2H_5OH^a$	C_2H_5OH
mass %	mass %	mol/kg	mol/kg	mass %	mass %	mol/kg	mol/kg	mass %
Temperature = 20°C								
51.22	0.0	6.635	0.	-	-	-	-	0.0
41.20	3.82	4.735	1.508	-	-	-	-	10.0
41.20	3.80	4.733	1.500	0.26	76.30	0.070	70.656	30.0
41.10	3.85	4.718	1.518	0.27	76.30	0.073	70.686	50.0
41.12	3.85	4.722	1.519	0.26	76.25	0.070	70.459	60.0
41.20	3.83	4.736	1.512	0.26	76.30	0.070	70.656	70.0
-	-	-	-	0.07	78.90	0.021	81.437	80.0
-	-	-	-	0.02	84.40	0.008	117.586	90.0
Temperature = 50°C								
51.79	0.0	6.788	0.	-	-	-	-	0.0
42.70	3.75	5.038	1.520	-	-	-	-	10.0
42.70	3.75	5.038	1.520	0.35	77.10	0.098	74.215	30.0
42.72	3.73	5.041	1.512	0.36	77.20	0.101	74.675	40.0
42.75	3.72	5.046	1.508	0.35	77.30	0.099	75.073	50.0
42.70	3.73	5.037	1.511	0.36	77.30	0.102	75.107	60.0
42.72	3.70	5.038	1.499	0.35	77.20	0.099	74.642	70.0
-	-	-	-	0.06	84.71	0.025	120.730	90.0
a Molalities calculated by the compiler.								
AUXILIARY INFORMATION								
METHOD APPARATUS/PROCEDURE:				SOURCE AND PURITY OF MATERIALS:				
The isothermal method was used; the vessels were glass test-tubes fitted with mercury seals at 20°C, and with reflux condensers at 50°C.				"Chemically pure" salts were used. Ethanol and water were redistilled twice.				
Two liquid phases formed for ethanol concentrations between 3.8 and 76.3% at 20°C, and between 3.75 and 77.3% at 50°C. At both temperatures the solid phase was anhydrous potassium sulfite.								
Alcohol was distilled off and determined iodometrically.								
				ESTIMATED ERROR:				
				Temperature: ± 0.1 K				
				Analyses: no estimate possible.				
				REFERENCES.				

COMPONENTS:		ORIGINAL MEASUREMENTS:			
1. Potassium sulfite; K_2SO_3 ; [10431-47-7] 2. Potassium nitrate; KNO_3 ; [7757-79-1] 3. Water; H_2O ; [7732-18-5]		Babenko, A.M.; Andrianov, A.M. <i>Zh. Priklad. Khim.</i> <u>1979</u> , 52, 2237-2240; <i>J. Appl. Chem. USSR (Eng. Transl.)</i> <u>1979</u> , 52, 2114-17.			
VARIABLES:		PREPARED BY:			
Concentrations of the components Temperature: 228 - 283 K		Mary R. Masson			
EXPERIMENTAL VALUES: <u>Solubility at various temperatures and compositions</u>					
t/°C	KNO_3 mass %	K_2SO_3 mass %	KNO_3^a mol/kg	$K_2SO_3^a$ mol/kg	Solid ^b phase
- 2.9	10.0	-	1.099	0.	A + B
- 5.4	7.5	9.25	0.891	0.702	A + B
- 9.2	4.5	19.1	0.583	1.580	A + B
-14.6	2.0	29.4	0.288	2.708	A + B
-25.0	1.0	39.6	0.167	4.212	A + B
-35.0	1.0	43.56	0.178	4.965	A + B
+ 1.0	0.7	50.643	0.142	6.577	B + C
-45.5	-	51.0	0.	6.577	A + C
-38.0	0.9	51.75	0.188	6.906	A,B,C
-10.0	-	24.4	0.	2.039	
-10.0	2.0	39.2	0.336	4.212	
-10.0	2.5	42.9	0.453	4.965	
-10.0	-	51.8	0.	6.791	
0.0	11.6	-	1.298	0.	
0.0	9.0	9.1	1.087	0.702	
0.0	6.0	18.8	0.789	1.580	
0.0	3.8	28.86	0.558	2.708	
0.0	2.4	39.04	0.405	4.212	
0.0	3.1	42.635	0.565	4.964	
0.0	-	52.0	0.	6.845	
(continued on next page)					
AUXILIARY INFORMATION					
METHOD APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:		
A polythermal technique was used (1).			Potassium nitrate was twice recrystallized from a chemically or analytically pure grade of reagent. "Pure" potassium sulfite was further purified (2). A 51% solution of potassium sulfite was prepared.		
			ESTIMATED ERROR:		
			Temperature: ± 0.4 K Sulfite analyses: $\pm 1-3\%$		
			REFERENCES:		
			1. Éraizer, L.N.; Kaganskii, I.M. <i>Zavod. Lab.</i> <u>1967</u> , 33, 119.		
			2. Klebanov, G.S.; Ostapkevich, N.A. <i>Zh. Neorg. Khim.</i> <u>1960</u> , 5, 2331.		

COMPONENTS:

1. Potassium sulfite; K_2SO_3 ; [10431-47-7]
2. Potassium nitrate; KNO_3 ; [7757-79-1]
3. Water; H_2O ; [7732-18-5]

ORIGINAL MEASUREMENTS:

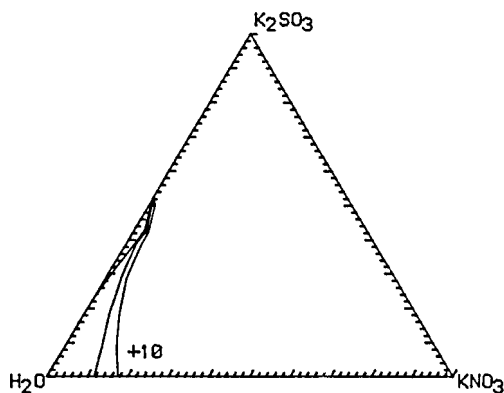
Babenko, A.M.; Andrianov, A.M.
Zh. Priklad. Khim. 1979, *52*, 2237-2240;
J. Appl. Chem. USSR (Eng. Transl.) 1979,
52, 2114-17.

EXPERIMENTAL VALUES (continued):

t/°C	KNO_3 mass %	K_2SO_3 mass %	KNO_3^a mol/kg	$K_2SO_3^a$ mol/kg
+10.0	17.5	-	2.098	0.
+10.0	12.8	8.72	1.613	0.702
+10.0	8.6	18.28	1.163	1.580
+10.0	5.2	28.44	0.775	2.708
+10.0	3.8	38.48	0.651	4.212
+10.0	3.7	42.372	0.679	4.965
+10.0	1.4	50.286	0.287	6.577
+10.0	-	52.2	0.	6.900

^a Molalities calculated by the compiler.

^b Solid phases: A - ice, B - KNO_3 , C - K_2SO_3



COMPONENTS: 1. Potassium sulfite; K_2SO_3 ; [10117-38-1] 2. Potassium nitrite; KNO_2 ; [7758-09-0] 3. Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Babenko, A.M.; Andrianov, A.M. <i>Zh. Priklad. Khim.</i> <u>1979</u> , 52, 2483-6; <i>J. Appl. Chem. USSR (Eng. Transl.)</i> <u>1979</u> , 52, 2351-4.																																																																																																						
VARIABLES: Temperature: 228-283 K Concentrations of the components	PREPARED BY: Mary R. Masson																																																																																																						
EXPERIMENTAL VALUES: <div style="text-align: center;"><u>Composition of liquid phases</u></div> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>KNO_2 mass %</th> <th>K_2SO_3 mass %</th> <th>KNO_2^a mol/kg</th> <th>$K_2SO_3^a$ mol/kg</th> <th>Cryst. temp. °C</th> <th>Solid^b phase</th> </tr> </thead> <tbody> <tr><td>46.0</td><td>0.0</td><td>10.010</td><td>0.</td><td>-22.5</td><td>A,B</td></tr> <tr><td>41.0</td><td>5.9</td><td>9.073</td><td>0.702</td><td>-23.4</td><td>A,B</td></tr> <tr><td>32.0</td><td>13.6</td><td>6.912</td><td>1.580</td><td>-27.6</td><td>A,B</td></tr> <tr><td>24.0</td><td>22.8</td><td>5.301</td><td>2.708</td><td>-34.0</td><td>A,B</td></tr> <tr><td>16.4</td><td>33.4</td><td>3.839</td><td>4.204</td><td>-40.0</td><td>A,B</td></tr> <tr><td>9.0</td><td>40.04</td><td>2.075</td><td>4.965</td><td>-44.2</td><td>A,B</td></tr> <tr><td>0.0</td><td>51.0</td><td>0.</td><td>6.577</td><td>-45.5</td><td>A,C</td></tr> <tr><td>73.0</td><td>0.0</td><td>31.771</td><td>0.</td><td>- 3.0</td><td>B,C</td></tr> <tr><td>59.8</td><td>4.02</td><td>19.422</td><td>0.702</td><td>- 6.4</td><td>B,C</td></tr> <tr><td>49.0</td><td>10.2</td><td>14.113</td><td>1.580</td><td>- 2.2</td><td>B,C</td></tr> <tr><td>38.0</td><td>18.6</td><td>10.289</td><td>2.708</td><td>0.0</td><td>B,C</td></tr> <tr><td>27.0</td><td>29.2</td><td>7.244</td><td>4.212</td><td>-11.4</td><td>B,C</td></tr> <tr><td>18.4</td><td>35.904</td><td>4.732</td><td>4.965</td><td>-14.0</td><td>B,C</td></tr> <tr><td>2.6</td><td>49.674</td><td>0.640</td><td>6.577</td><td>-44.8</td><td>A,B,C</td></tr> <tr><td>5.0</td><td>45.6</td><td>1.189</td><td>5.833</td><td>-32.0</td><td>B,C,D</td></tr> <tr><td>1.0</td><td>53.5</td><td>0.258</td><td>7.430</td><td>+ 1.0</td><td>C,D</td></tr> </tbody> </table> <p>^a Molalities calculated by the compiler.</p> <p>^b Solid phases: A - ice, B - $NaNO_2 \cdot \frac{1}{2}H_2O$, C - K_2SO_3, D - $NaNO_2$</p> <p style="text-align: right;">(continued on next page)</p>		KNO_2 mass %	K_2SO_3 mass %	KNO_2^a mol/kg	$K_2SO_3^a$ mol/kg	Cryst. temp. °C	Solid ^b phase	46.0	0.0	10.010	0.	-22.5	A,B	41.0	5.9	9.073	0.702	-23.4	A,B	32.0	13.6	6.912	1.580	-27.6	A,B	24.0	22.8	5.301	2.708	-34.0	A,B	16.4	33.4	3.839	4.204	-40.0	A,B	9.0	40.04	2.075	4.965	-44.2	A,B	0.0	51.0	0.	6.577	-45.5	A,C	73.0	0.0	31.771	0.	- 3.0	B,C	59.8	4.02	19.422	0.702	- 6.4	B,C	49.0	10.2	14.113	1.580	- 2.2	B,C	38.0	18.6	10.289	2.708	0.0	B,C	27.0	29.2	7.244	4.212	-11.4	B,C	18.4	35.904	4.732	4.965	-14.0	B,C	2.6	49.674	0.640	6.577	-44.8	A,B,C	5.0	45.6	1.189	5.833	-32.0	B,C,D	1.0	53.5	0.258	7.430	+ 1.0	C,D
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METHOD APPARATUS/PROCEDURE: An improved polythermal technique was used (1). Potassium sulfite was determined by an iodometric method. <div style="text-align: center; margin-top: 20px;"> </div>	SOURCE AND PURITY OF MATERIALS: Pure grade potassium sulfite was purified as in (2). Potassium nitrite was recrystallized twice from the general-purpose or analytical grade reagent, keeping the temperature above 0°C to avoid obtaining the hydrate $KNO_2 \cdot \frac{1}{2}H_2O$. <hr/> ESTIMATED ERROR: Crystallization temperatures: ± 0.4 K Analyses: 1 - 3% relative <hr/> REFERENCES: 1. Éraizer, L.N.; Kaganskii, N.M. <i>Zavod. Lab.</i> <u>1967</u> , 33, 119. 2. Klebanov, G.S.; Ostapkevich, N.A. <i>Zh. Neorg. Khim.</i> <u>1960</u> , 5(10), 2331.																																																																																																						

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2. Potassium nitrite; KNO_2 ; [7758-09-0]		<i>Zh. Priklad. Khim.</i> 1979, 52, 2483-6; <i>J. Appl. Chem. USSR (Eng. Transl.)</i> 1979, 52, 2351-4.	
3. Water; H_2O ; [7732-18-5]			
EXPERIMENTAL VALUES (continued):			
KNO_2	K_2SO_3	KNO_2^a	$K_2SO_3^a$
mass %	mass %	mol/kg	mol/kg
Temperature = -40°C			
16.4	33.44	3.842	4.212
16.2	33.52	3.786	4.212
9.4	39.86	2.177	4.964
4.0	42.24	0.874	4.965
0.0	48.4	0.	5.927
0.0	51.2	0.	6.629
Temperature = -30°C			
24.0	22.8	5.301	2.708
19.0	32.4	4.594	4.212
18.8	24.36	3.887	2.708
12.0	38.72	2.861	4.965
6.6	37.36	1.384	4.212
5.4	45.408	1.290	5.833
0.0	43.1	0.	4.786
0.0	51.4	0.	6.683
Temperature = -20°C			
49.0	0.0	11.290	0.
42.0	0.0	8.509	0.
41.2	5.88	9.148	0.702
36.4	6.36	7.473	0.702
33.4	13.32	7.366	1.580
26.8	21.96	6.146	2.708
23.0	30.8	5.850	4.212
22.0	15.6	4.143	1.580
15.7	37.09	3.908	4.964
8.4	27.4	1.537	2.697
6.8	44.736	1.649	5.833
0.0	51.6	0.	6.736
0.0	36.4	0.	3.616
Temperature = -10°C			
62.0	0.0	19.172	0.
47.0	5.3	11.578	0.702
39.4	12.13	9.552	1.581
31.4	20.58	7.684	2.708
27.2	29.12	7.317	4.212
20.6	7.94	3.387	0.702
19.0	35.64	4.922	4.965
8.0	44.16	1.965	5.833
4.2	19.6	0.648	1.625
0.0	24.4	0.	2.039
0.0	51.8	0.	6.791
Temperature = 0°C			
73.0	0.0	31.771	0.
60.6	3.94	20.082	0.702
49.4	10.12	14.340	1.580
38.0	18.6	10.289	2.708
20.2	35.112	5.312	4.965
9.4	43.48	2.344	5.831
0.0	52.0	0.	6.845
Temperature = +10°C			
74.0	0.0	33.445	0.
62.0	3.8	21.303	0.702
51.0	9.8	15.288	1.580
39.1	18.27	10.778	2.708
29.4	28.24	8.156	4.212
21.6	34.496	5.781	4.965
10.8	42.72	2.730	5.808
3.6	49.164	0.896	6.577
0.0	52.0	0.	6.845

COMPONENTS: 1. Potassium sulfite; K_2SO_3 ; [10117-38-1] 2. Urea; $CO(NH_2)_2$; [57-13-6] 3. Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Babenko, A.M.; Andrianov, A.M. Deineka, G.F. <i>Zh. Priklad. Khim.</i> <u>1979</u> , 52, 572-6; <i>J. Appl. Chem. USSR (Eng. Transl.)</i> <u>1979</u> , 52, 533-7.																																																																								
VARIABLES: Temperature: 228-283 K Concentrations of the components	PREPARED BY: Mary R. Masson																																																																								
EXPERIMENTAL VALUES: <p style="text-align: center;"><u>Composition of liquid phases</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>urea</th> <th>K_2SO_3</th> <th>urea^a</th> <th>$K_2SO_3^a$</th> <th>Cryst. temp.</th> <th>Solid^b</th> </tr> <tr> <th>mass %</th> <th>mass %</th> <th>mol/kg</th> <th>mol/kg</th> <th>°C</th> <th>phase</th> </tr> </thead> <tbody> <tr><td>33.0</td><td>0.0</td><td>8.201</td><td>0.</td><td>-10.6</td><td>A,B</td></tr> <tr><td>31.6</td><td>6.84</td><td>8.547</td><td>0.702</td><td>-12.8</td><td>A,B</td></tr> <tr><td>25.2</td><td>14.96</td><td>7.012</td><td>1.580</td><td>-17.4</td><td>A,B</td></tr> <tr><td>15.80</td><td>25.26</td><td>4.463</td><td>2.708</td><td>-20.6</td><td>A,B</td></tr> <tr><td>7.0</td><td>37.2</td><td>2.089</td><td>4.212</td><td>-29.4</td><td>A,B</td></tr> <tr><td>3.2</td><td>42.592</td><td>0.983</td><td>4.965</td><td>-39.6</td><td>A,B</td></tr> <tr><td>4.4</td><td>43.976</td><td>1.419</td><td>5.383</td><td>-33.4</td><td>A,B</td></tr> <tr><td>2.0</td><td>50.0</td><td>0.694</td><td>6.582</td><td>-46.0</td><td>A,B,C</td></tr> <tr><td>0.0</td><td>51.0</td><td>0.</td><td>6.577</td><td>-45.5</td><td>A,C</td></tr> <tr><td>3.0</td><td>49.47</td><td>1.051</td><td>6.577</td><td>+ 1.0</td><td>B,C</td></tr> </tbody> </table> <p>^a Molalities calculated by the compiler.</p> <p>^b Solid phases: A - ice, B - urea, D - potassium sulfite</p> <p style="text-align: right;">(continued on next page)</p>		urea	K_2SO_3	urea ^a	$K_2SO_3^a$	Cryst. temp.	Solid ^b	mass %	mass %	mol/kg	mol/kg	°C	phase	33.0	0.0	8.201	0.	-10.6	A,B	31.6	6.84	8.547	0.702	-12.8	A,B	25.2	14.96	7.012	1.580	-17.4	A,B	15.80	25.26	4.463	2.708	-20.6	A,B	7.0	37.2	2.089	4.212	-29.4	A,B	3.2	42.592	0.983	4.965	-39.6	A,B	4.4	43.976	1.419	5.383	-33.4	A,B	2.0	50.0	0.694	6.582	-46.0	A,B,C	0.0	51.0	0.	6.577	-45.5	A,C	3.0	49.47	1.051	6.577	+ 1.0	B,C
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4.4	43.976	1.419	5.383	-33.4	A,B																																																																				
2.0	50.0	0.694	6.582	-46.0	A,B,C																																																																				
0.0	51.0	0.	6.577	-45.5	A,C																																																																				
3.0	49.47	1.051	6.577	+ 1.0	B,C																																																																				
AUXILIARY INFORMATION																																																																									
METHOD APPARATUS/PROCEDURE: An improved polythermal technique was used (1). Potassium sulfite was determined by an iodometric method.	SOURCE AND PURITY OF MATERIALS: Analytical grade urea was recrystallized twice and dried at 60°C. Pure grade potassium sulfite was purified as in (2).																																																																								
	ESTIMATED ERROR: Crystallization temperatures: ± 0.4 K Analyses: 1 - 3% relative																																																																								
	REFERENCES: 1. Éraizer, L.N.; Kaganskii, N.M. <i>Zavod. Lab.</i> <u>1967</u> , 33(1), 119. 2. Klebanov, G.S.; Ostapkevich, N.A. <i>Zh. Neorg. Khim.</i> <u>1960</u> , 5(10), 2331.																																																																								

COMPONENTS: 1. Potassium sulfite; K_2SO_3 ; [10117-38-1] 2. Urea; $CO(NH_2)_2$; [57-13-6] 3. Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Babenko, A.M.; Andrianov, A.M. Deineka, G.F. <i>Zh. Priklad. Khim.</i> <u>1979</u> , 52, 572-6; <i>J. Appl. Chem. USSR (Eng. Transl.)</i> <u>1979</u> , 52, 533-7.
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EXPERIMENTAL VALUES (continued):

urea mass %	K_2SO_3 mass %	urea ^a mol/kg	$K_2SO_3^a$ mol/kg
<u>Temperature = -20°C</u>			
14.0	25.8	3.872	2.708
16.0	25.2	4.531	2.708
0.0	36.4	0.	3.616
11.6	35.36	3.641	4.212
9.4	39.86	3.085	4.964
8.0	42.92	2.714	5.526
0.0	51.6	0.	6.736
<u>Temperature = -10°C</u>			
5.0	19.0	1.095	1.580
34.0	6.58	9.527	0.700
21.4	23.58	6.476	2.708
29.0	14.2	8.501	1.580
16.4	33.44	5.444	4.212
12.6	38.45	4.286	4.963
11.0	40.94	3.811	5.383
0.0	51.8	0.	6.791
<u>Temperature = -5°C</u>			
36.8	6.32	10.772	0.702
31.6	13.68	9.615	1.580
19.0	32.4	6.509	4.212
24.0	22.8	7.511	2.708
14.4	37.66	5.001	4.964
12.4	40.30	4.365	5.384
0.0	51.9	0.	6.818
<u>Temperature = 0°C</u>			
39.4	6.06	12.028	0.702
34.2	13.16	10.817	1.580
21.4	31.44	7.555	4.212
26.6	22.02	8.620	2.708
16.0	36.96	5.663	4.965
13.8	39.65	4.936	5.382
0.0	52.0	0.	6.845
<u>Temperature = +10°C</u>			
44.8	5.52	15.015	0.702
41.2	11.76	14.583	1.580
26.2	29.52	9.852	4.212
31.8	20.46	11.091	2.708
19.4	38.10	7.600	5.665
16.6	38.36	6.137	5.382
5.2	48.34	1.864	6.574
0.0	52.0	0.	6.845

^a Molalities calculated by the compiler.

COMPONENTS:		ORIGINAL MEASUREMENTS:				
1. Potassium sulfite; K_2SO_3 ; [10117-38-1] 2. Potassium hydroxide; KOH; [1310-58-3] 3. Water; H_2O ; [7732-18-5]		Hölzl, F. Z. <i>Electrochem.</i> <u>1937</u> , 43, 302-4.				
VARIABLES:		PREPARED BY:				
Temperature: 273 - 373 K Concentrations of the components		Mary R. Masson				
EXPERIMENTAL VALUES:		<u>Composition of equilibrium solutions</u>				
t/°C	K_2O mass %	K_2SO_3 mass %	K_2O^a mol/kg	$K_2SO_3^a$ mol/kg	Solid ^b phase	
0.0	41.01	0.00	7.380	0.000	A	^a Molalities calculated by the compiler.
	40.71	0.43	7.342	0.046	A,D	
	0.00	47.52	0.000	5.721	D	
11.5	42.87	0.00	7.966	0.000	A	^b Solid phases:
	42.41	0.48	7.883	0.053	A,D	
	0.00	48.06	0.	5.847	D	
25.0	45.51	0.00	8.866	0.	A	A - $KOH \cdot 2H_2O$, B - $KOH \cdot 1\frac{1}{2}H_2O$,
	45.03	0.47	8.771	0.054	A,D	
	0.00	49.01	0.	6.073	D	
33.0	48.29	0.00	9.914	0.	A,C	C - $KOH \cdot H_2O$, D - K_2SO_3
	48.16	0.00	9.862	0.	B,C	
	47.81	0.37	9.794	0.045	C,D	
	0.00	49.99	0.	6.316	D	
40.0	48.71	0.00	10.082	0.	C	
	48.32	0.40	10.003	0.049	C,D	
	0.00	50.37	0.	6.413	D	
65.3	50.65	0.00	10.895	0.	C	
	50.14	0.45	10.773	0.058	C,D	
	0.00	52.27	0.	6.920	D	
80.0	51.81	0.00	11.413	0.	C	
	51.50	0.39	11.364	0.051	C,D	
	0.00	53.15	0.	7.168	D	
100.0	54.67	0.00	12.803	0.	C	
	54.29	0.40	12.720	0.056	C,D	
	0.00	55.53	0.	7.890	D	
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE: All work was done under oxygen-free nitrogen, and in sealed vessels whenever possible. Sulfite was determined titrimetrically by a method involving iodate and a Landolt reaction. K_2O was determined gravimetrically as KCl or K_2SO_4 .			SOURCE AND PURITY OF MATERIALS: Potassium sulfite was prepared by saturation of a potassium hydroxide solution with sulfur dioxide. The water was free from dissolved oxygen and carbon dioxide.			
			ESTIMATED ERROR: No estimates possible.			
			REFERENCES.			

COMPONENTS:		ORIGINAL MEASUREMENTS:				
1. Potassium sulfite; K_2SO_3 ; [10117-38-1] 2. Sulfurous acid; H_2SO_3 ; [7782-99-2] 3. Water; H_2O ; [7732-18-5]		H81z1, F. Z. <i>Electrochem.</i> <u>1937</u> , 43, 302-4.				
VARIABLES:		PREPARED BY:				
Temperature: 273 - 373 K Concentrations of the components		Mary R. Masson				
EXPERIMENTAL VALUES:		<u>Composition of equilibrium solutions</u>				
		K_2SO_3	H_2SO_3	K_2SO_3	H_2SO_3	Solid
t/°C		mass %	mass %	mol/kg	mol/kg	phase
0.0		47.52	0.0	5.722	0.	A
		50.36	0.44	6.468	1.109	A,B
		14.06	7.49	1.132	1.163	B
11.5		48.06	0.0	5.847	0.	A
		50.96	1.11	6.718	0.282	A,C
25.0		49.01	0.0	6.073	0.	A
		51.92	1.83	7.093	0.482	A,C
40.0		50.37	0.0	6.413	0.	A
		53.01	2.64	7.553	0.725	A,C
65.3		52.27	0.0	6.920	0.	A
		55.12	4.37	8.598	1.314	A,C
80.0		53.15	0.0	7.168	0.	A
		55.82	5.48	9.114	1.725	A,C
100.0		55.53	0.0	7.890	0.	A
		56.60	7.0	9.825	2.343	A,C
a Molalities calculated by the compiler. b Solid phases: A - K_2SO_3 , B - $K_2S_2O_5 \cdot 2/3H_2O$, C - $K_2S_2O_5$						
AUXILIARY INFORMATION						
METHOD APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:			
All work was done under oxygen-free nitrogen, and in sealed vessels whenever possible. Sulfite was determined titrimetrically by a method involving iodate and a Landolt reaction. K_2O was determined gravimetrically as KCl or K_2SO_4 .			Potassium sulfite was prepared by saturation of potassium hydroxide solution with sulfur dioxide. The water used was free from dissolved oxygen and carbon dioxide.			
			ESTIMATED ERROR:			
			No estimates given.			
			REFERENCES:			

COMPONENTS:	ORIGINAL MEASUREMENTS:			
1. Potassium sulfite; K_2SO_3 ; [10117-38-1] 2. Potassium sulfate; K_2SO_4 ; [7778-80-5] 3. Water; H_2O ; [7732-18-5]	Bishimbaev, V.K.; Shokin, I.N.; Kuznetsova, A.G. <i>Khim. Khim. Tekhnol. (Alma-Ata)</i> 1971, 12, 203-5.			
VARIABLES:	PREPARED BY:			
Two temperatures: 293 - 333 K Concentrations of the components	Mary R. Masson			
EXPERIMENTAL VALUES:				
<u>Composition of equilibrium solutions at 20°C</u>				
K_2SO_4	K_2SO_3	$K_2SO_4^a$	$K_2SO_3^a$	Solid ^b
mass %	mass %	mol/kg	mol/kg	phase
10.5	0.0	0.673	0.	A
10.5	0.96	0.681	0.069	A
9.5	1.85	0.615	0.132	A
7.25	3.96	0.469	0.282	A
7.52	4.94	0.493	0.357	A
6.42	5.76	0.420	0.414	A
4.64	8.13	0.305	0.589	A
4.46	10.80	0.302	0.805	A
4.32	14.85	0.307	1.161	A
2.85	20.75	0.214	1.716	A
1.45	22.10	0.109	1.827	A
1.83	27.50	0.149	2.459	A
1.45	32.10	0.125	3.052	A
1.43	40.90	0.142	4.481	A + B
(continued on next page)				
AUXILIARY INFORMATION				
METHOD APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:			
A saturation method was used. Sulfite was determined iodometrically, and sulfate (total) was weighed as barium sulfate after conversion of sulfite into sulfate with hydrogen peroxide.				
	ESTIMATED ERROR: Temperature: ± 0.1 K Analyses: no estimate possible.			
	REFERENCES.			

<p>COMPONENTS:</p> <ol style="list-style-type: none"> Potassium sulfite; K_2SO_3; [10117-38-1] Potassium sulfate; K_2SO_4; [7778-80-5] Water; H_2O; [7732-18-5] 	<p>ORIGINAL MEASUREMENTS:</p> <p>Bishimbaev, V.K.; Shokin, I.N.; Kuznetsova, A.G.</p> <p><i>Khim. Khim. Tekhnol. (Alma-Ata) 1971, 12, 203-5.</i></p>
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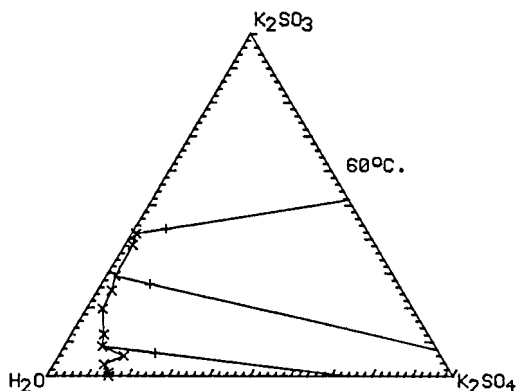
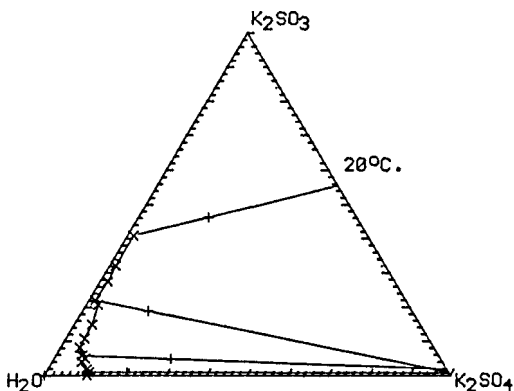
EXPERIMENTAL VALUES (continued):

Composition of equilibrium solutions at 60°C

K_2SO_4 mass %	K_2SO_3 mass %	$K_2SO_4^a$ mol/kg	$K_2SO_3^a$ mol/kg	Solid ^b phase
15.13	0.0	1.023	0.	A
14.60	1.09	0.994	0.082	A
12.35	3.49	0.842	0.262	A
15.90	5.97	1.168	0.483	A
9.30	8.65	0.650	0.666	A
8.06	12.02	0.579	0.950	A
3.90	19.63	0.293	1.622	A
3.40	25.00	0.273	2.206	A
2.18	29.20	0.182	2.689	A
1.83	38.30	0.175	4.042	A
1.08	41.60	0.108	4.586	A + B

^a Molalities calculated by the compiler.

^b Solid phases: A - K_2SO_4 , B - K_2SO_3



COMPONENTS: 1. Potassium sulfite; K_2SO_3 ; [10117-38-1] 2. Potassium carbonate; K_2CO_3 ; [584-08-7] 3. Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Kuznetsova, A.G.; Trukhanova, E.A. * <i>VINITI Deposited Document</i> 1983, 6890-83.																																																												
VARIABLES: Temperature: 293 K Composition	PREPARED BY: Mary R. Masson																																																												
EXPERIMENTAL VALUES: <p style="text-align: center;"><u>Composition of saturated solutions</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">K_2SO_3 mass %</th> <th style="text-align: center;">K_2CO_3 mass %</th> <th style="text-align: center;">$K_2SO_3^a$ mol/kg</th> <th style="text-align: center;">$K_2CO_3^a$ mol/kg</th> <th style="text-align: center;">Solid^b phase</th> </tr> </thead> <tbody> <tr><td>33.45</td><td>13.15</td><td>3.958</td><td>1.782</td><td>A</td></tr> <tr><td>27.30</td><td>24.90</td><td>3.609</td><td>3.769</td><td>A</td></tr> <tr><td>19.80</td><td>30.00</td><td>2.492</td><td>4.324</td><td>A</td></tr> <tr><td>19.25</td><td>36.20</td><td>2.730</td><td>5.879</td><td>A</td></tr> <tr><td>15.10</td><td>38.00</td><td>2.034</td><td>5.862</td><td>A</td></tr> <tr><td>15.15</td><td>38.80</td><td>2.079</td><td>6.096</td><td>A</td></tr> <tr><td>18.10</td><td>38.40</td><td>2.629</td><td>6.387</td><td>A</td></tr> <tr><td>16.81</td><td>39.50</td><td>2.431</td><td>6.541</td><td>A</td></tr> <tr><td>11.90</td><td>43.87</td><td>1.700</td><td>7.176</td><td>A</td></tr> <tr><td>8.50</td><td>47.70</td><td>1.226</td><td>7.880</td><td>A</td></tr> <tr><td>6.18</td><td>51.00</td><td>0.912</td><td>8.618</td><td>A + B</td></tr> </tbody> </table> <p>^a Molalities calculated by the compiler. ^b Solid phases: A - K_2SO_3, B - $K_2CO_3 \cdot 1.5H_2O$</p>		K_2SO_3 mass %	K_2CO_3 mass %	$K_2SO_3^a$ mol/kg	$K_2CO_3^a$ mol/kg	Solid ^b phase	33.45	13.15	3.958	1.782	A	27.30	24.90	3.609	3.769	A	19.80	30.00	2.492	4.324	A	19.25	36.20	2.730	5.879	A	15.10	38.00	2.034	5.862	A	15.15	38.80	2.079	6.096	A	18.10	38.40	2.629	6.387	A	16.81	39.50	2.431	6.541	A	11.90	43.87	1.700	7.176	A	8.50	47.70	1.226	7.880	A	6.18	51.00	0.912	8.618	A + B
K_2SO_3 mass %	K_2CO_3 mass %	$K_2SO_3^a$ mol/kg	$K_2CO_3^a$ mol/kg	Solid ^b phase																																																									
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AUXILIARY INFORMATION																																																													
METHOD APPARATUS/PROCEDURE: Isothermal method. <div style="text-align: center; margin-top: 20px;"> </div>	SOURCE AND PURITY OF MATERIALS: ESTIMATED ERROR: No estimates possible. REFERENCES:																																																												