

<p>COMPONENTS:</p> <p>1. Potassium sulfite; K_2SO_3; [10117-38-1]</p> <p>2. Water; H_2O; [7732-18-5]</p>	<p>ORIGINAL MEASUREMENTS:</p> <p>Foerster, F.; Brosche, A.; Norberg-Schutz, Chr.</p> <p><i>Z. Phys. Chem.</i> <u>1924</u>, <i>10</i>, 435-96.</p>																																																			
<p>VARIABLES:</p> <p>Temperature: 228 - 370 K</p>	<p>PREPARED BY:</p> <p>Mary R. Masson</p>																																																			
<p>EXPERIMENTAL VALUES:</p> <table border="1" data-bbox="116 493 673 987"> <thead> <tr> <th>t/°C</th> <th>K_2SO_3 mass %</th> <th>$K_2SO_3^a$ mol/kg</th> </tr> </thead> <tbody> <tr><td>-30.0</td><td>51.0</td><td>6.577</td></tr> <tr><td>-15.0</td><td>51.30</td><td>6.656</td></tr> <tr><td>- 6.7</td><td>51.45^b</td><td>6.696</td></tr> <tr><td>- 5.8</td><td>51.80</td><td>6.791</td></tr> <tr><td>- 3.9</td><td>51.35</td><td>6.669</td></tr> <tr><td>+ 0.1</td><td>51.40</td><td>6.683</td></tr> <tr><td>0.7</td><td>51.29</td><td>6.653</td></tr> <tr><td>24.0</td><td>51.37</td><td>6.675</td></tr> <tr><td>30.0</td><td>51.76</td><td>6.780</td></tr> <tr><td>31.2</td><td>51.90</td><td>6.818</td></tr> <tr><td>54.4</td><td>51.90</td><td>6.818</td></tr> <tr><td>55.4</td><td>52.18</td><td>6.895</td></tr> <tr><td>55.8</td><td>52.02</td><td>6.851</td></tr> <tr><td>96.6</td><td>53.01</td><td>7.128</td></tr> <tr><td>97.2</td><td>53.22</td><td>7.189</td></tr> <tr><td>97.2</td><td>52.88</td><td>7.091</td></tr> </tbody> </table> <p style="text-align: right;">Solid phase: K_2SO_3</p> <p style="text-align: right;">^b Result considered particularly reliable by the authors.</p> <p style="text-align: center;">(continued on next page)</p>		t/°C	K_2SO_3 mass %	$K_2SO_3^a$ mol/kg	-30.0	51.0	6.577	-15.0	51.30	6.656	- 6.7	51.45 ^b	6.696	- 5.8	51.80	6.791	- 3.9	51.35	6.669	+ 0.1	51.40	6.683	0.7	51.29	6.653	24.0	51.37	6.675	30.0	51.76	6.780	31.2	51.90	6.818	54.4	51.90	6.818	55.4	52.18	6.895	55.8	52.02	6.851	96.6	53.01	7.128	97.2	53.22	7.189	97.2	52.88	7.091
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<p>METHOD APPARATUS/PROCEDURE:</p> <p>Solids were equilibrated with solution under a hydrogen atmosphere, in a vessel maintained in a thermostat. Samples for analysis were withdrawn through a tube plugged with cotton wool.</p> <p>Samples were reacted with excess of standard iodine solution, and the excess was back-titrated with thiosulfate.</p> <p>A Beckman apparatus (1) was used for the determination of freezing points.</p>	<p>SOURCE AND PURITY OF MATERIALS:</p> <p>Potassium hydroxide (100 g) was dissolved in 200 g of nitrogen-flushed water, then the solution was saturated with sulfur dioxide. Another 100 g of potassium hydroxide was dissolved in the minimum of water, and added. The solution was evaporated under nitrogen to obtain crystals of potassium sulfite.</p> <p>ESTIMATED ERROR:</p> <p>Temperature: ± 0.1 K</p> <p>Analyses: no accurate estimate possible.</p> <p>REFERENCES:</p> <p>1. Ostwald, W.; Luther, R. <i>Hand-und Hilfsbuch zur Ausfuhrung physicochemischer Messungen</i> 5th Ed., Akademische Verlag., Leipzig, 1931.</p>																																																			

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EXPERIMENTAL VALUES (continued):			
t/°C	K_2SO_3 mass %	$K_2SO_3^a$ mol/kg	
- 1.69	5.78	0.388	
- 2.71	9.20	0.640	
- 4.10	13.37	0.975	Solid phase: ice
- 5.27	16.47	1.246	
- 5.74	17.57	1.347	
- 6.59	19.51	1.532	
- 6.84	20.02	1.582	
-10.88	26.70	2.302	
-14.06	30.6	2.786	
-31.0	44.0	4.96	
-45.0	50.8	6.52	
<p>^a Molalities calculated by the compiler.</p>			