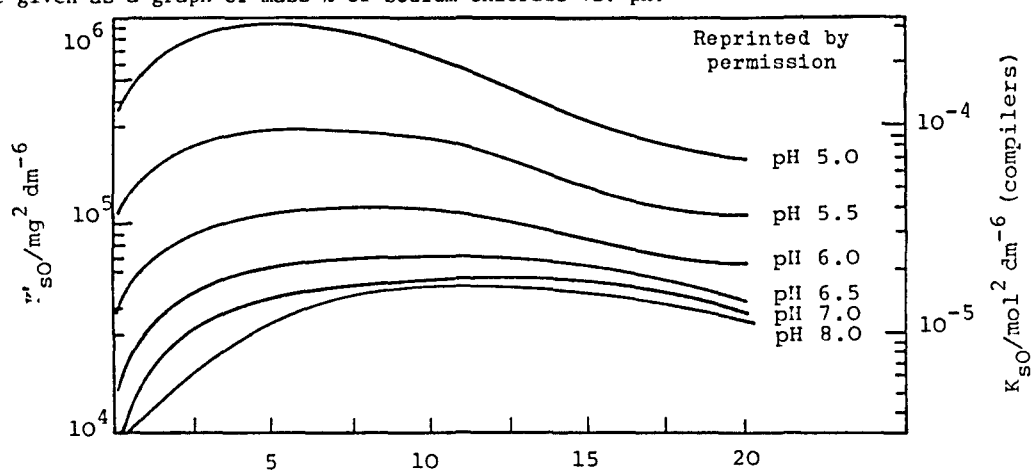


<b>COMPONENTS:</b> 1. Calcium sulfite; $\text{CaSO}_3$ ; [10257-55-3] 2. Calcium sulfate; $\text{CaSO}_4$ ; [7778-18-9] 3. Glucose; $\text{C}_6\text{H}_{12}\text{O}_6$ ; [50-99-7] 4. Sucrose; $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ ; [50-99-7] 5. Water; $\text{H}_2\text{O}$ ; [7732-18-5]	<b>ORIGINAL MEASUREMENTS:</b>  Van der Linden, T.  <i>Arch. Suikerind.Ned.-Indie</i> 1916, 24, 1113-28; <i>Dtsch. Zuckerind.</i> 1916, 41, 815; <i>J. Soc. Chem. Ind., London</i> 1917, 36, 96.																																																																																			
<b>VARIABLES:</b>  Temperature: 303 - 373 K	<b>PREPARED BY:</b>  H.D. Lutz, B. Engelen																																																																																			
<b>EXPERIMENTAL VALUES:</b>  The author reports the solubility of $\text{CaSO}_3 \cdot 2\text{H}_2\text{O}$ [10035-03-7] in water, various aqueous solutions of glucose and sucrose, and in all these solvents saturated with gypsum.  <table border="1" data-bbox="154 623 1229 1022"> <thead> <tr> <th>Content of saccharose (suc) and glucose (glu) (mass %) and of <math>\text{CaSO}_4</math> (saturated solution)</th> <th>30</th> <th>40</th> <th>50</th> <th>60</th> <th>70</th> <th>80</th> <th>90</th> <th>100 °C</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td colspan="5" style="text-align: center;"><math>\text{CaSO}_3 \cdot 2\text{H}_2\text{O}</math></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td colspan="5" style="text-align: center;">mg/kg soln</td> <td></td> </tr> <tr> <td>pure water</td> <td>64</td> <td>63</td> <td>57</td> <td>61</td> <td>45</td> <td>31</td> <td>27</td> <td>11</td> </tr> <tr> <td>15% suc</td> <td>103</td> <td>83</td> <td>73</td> <td>80</td> <td>59</td> <td>41</td> <td>36</td> <td>41</td> </tr> <tr> <td>15% suc and 1.5% glu</td> <td>104</td> <td>81</td> <td>85</td> <td>71</td> <td>60</td> <td>47</td> <td>40</td> <td>29</td> </tr> <tr> <td><math>\text{CaSO}_4</math> (sat.)</td> <td>31</td> <td>29</td> <td>25</td> <td>19</td> <td>12</td> <td>9</td> <td>8</td> <td>6</td> </tr> <tr> <td><math>\text{CaSO}_4</math> (sat.) and 15% suc</td> <td>35</td> <td>32</td> <td>22</td> <td>19</td> <td>21</td> <td>17</td> <td>20</td> <td>21</td> </tr> <tr> <td><math>\text{CaSO}_4</math> (sat.), 15% suc, and 1.5% glu</td> <td>32</td> <td>27</td> <td>22</td> <td>20</td> <td>19</td> <td>19</td> <td>19</td> <td>23</td> </tr> </tbody> </table> (continued on next page)		Content of saccharose (suc) and glucose (glu) (mass %) and of $\text{CaSO}_4$ (saturated solution)	30	40	50	60	70	80	90	100 °C					$\text{CaSO}_3 \cdot 2\text{H}_2\text{O}$										mg/kg soln						pure water	64	63	57	61	45	31	27	11	15% suc	103	83	73	80	59	41	36	41	15% suc and 1.5% glu	104	81	85	71	60	47	40	29	$\text{CaSO}_4$ (sat.)	31	29	25	19	12	9	8	6	$\text{CaSO}_4$ (sat.) and 15% suc	35	32	22	19	21	17	20	21	$\text{CaSO}_4$ (sat.), 15% suc, and 1.5% glu	32	27	22	20	19	19	19	23
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<b>METHOD APPARATUS/PROCEDURE:</b> Equilibrium was established by stirring the solvents with excess of solid calcium sulfite under nitrogen in a thermostatically controlled vessel for 10 - 36 hr. After filtering at the given temperature sulfite was determined iodometrically. Calcium was determined as $\text{CaO}$ after precipitation as $\text{CaCO}_3$ and sulfate as $\text{BaSO}_4$ . The values given are means of 2 - 13 measurements which differ by up to 10%.	<b>SOURCE AND PURITY OF MATERIALS:</b> Calcium sulfite was precipitated from calcium chloride or calcium acetate solutions with a freshly prepared solution of $\text{NaHSO}_3$ . Calcium sulfate was the commercial pure salt. Sucrose was precipitated from aqueous solutions with ethanol and washed with ether. Glucose was the chemically pure product of Merck.  <b>ESTIMATED ERROR:</b>  <b>REFERENCES:</b>																																																																																			

COMPONENTS:		ORIGINAL MEASUREMENTS:							
1. Calcium sulfite; $\text{CaSO}_3$ ; [10257-55-3]		Van der Linden, T.  <i>Arch. Suikerind.Ned.-Indie</i> <u>1916</u> , 24, 1113-28; <i>Dtsch. Zuckerind.</i> <u>1916</u> , 41, 815; <i>J. Soc. Chem. Ind., London</i> <u>1917</u> , 36, 96.							
2. Calcium sulfate; $\text{CaSO}_4$ ; [7778-18-9]									
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4. Sucrose; $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ ; [50-99-7]									
5. Water; $\text{H}_2\text{O}$ ; [7732-18-5]									
EXPERIMENTAL VALUES (continued):									
Content of saccharose (suc) and glucose (glu) (mass %) and of $\text{CaSO}_4$ (saturated solution)		30	40	50	60	70	80	90	100 °C
		$\text{CaSO}_3^a$							
		mg/kg soln							
pure water		49	48	44	47	35	24	21	8
15% suc		79	64	56	62	45	32	28	32
15% suc and 1.5% glu		80	62	65	55	46	36	31	22
		$\text{CaSO}_3^a$							
		$10^{-4}$ mole/kg soln							
pure water		4.10	4.03	3.65	3.91	2.88	1.99	1.73	0.70
15% suc		6.60	5.31	4.67	5.12	3.78	2.63	2.31	2.63
15% suc and 1.5% glu		6.66	5.19	5.44	4.55	3.84	3.01	2.56	1.86
		$\text{CaSO}_4$ (sat.)							
		1.99	1.86	1.60	1.22	0.77	0.58	0.51	0.38
		$\text{CaSO}_4$ (sat.) and 15% suc							
		2.24	2.05	1.41	1.22	1.34	1.09	1.28	1.34
		$\text{CaSO}_4$ (sat.), 15% suc, and 1.5% glu							
		2.05	1.73	1.41	1.28	1.22	1.22	1.22	1.47
<sup>a</sup> Calculated by the compilers.									

<p>COMPONENTS:</p> <ol style="list-style-type: none"> <li>1. Calcium sulfite; <math>\text{CaSO}_3</math>; [10257-55-3]</li> <li>2. Calcium sulfate; <math>\text{CaSO}_4</math>; [7778-18-9]</li> <li>3. Sodium perchlorate; <math>\text{NaClO}_4</math>; [7601-89-0]</li> <li>4. Water; <math>\text{H}_2\text{O}</math>; [7732-18-5]</li> </ol>	<p>ORIGINAL MEASUREMENTS:</p> <p>Rengemo, T.; Brune, U.; Sillén, L.G. <i>Acta Chem. Scand.</i> <u>1958</u>, 12, 873.</p>
<p>VARIABLES:</p> <p>Temperature: 298, 308 and 348 K Concentration of <math>\text{NaClO}_4</math></p>	<p>PREPARED BY:</p> <p>H.D. Lutz, B. Engelen</p>
<p>EXPERIMENTAL VALUES:</p> <p>The authors studied the equilibrium</p> $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}(\text{s}) + \text{SO}_3^{2-} \rightleftharpoons \text{CaSO}_3 \cdot 1/2\text{H}_2\text{O}(\text{s}) + \text{SO}_4^{2-} + 3/2\text{H}_2\text{O}$ <p>in aqueous solutions of <math>\text{NaClO}_4</math>. From the equilibrium constants obtained</p> $K = [\text{SO}_4^{2-}]/[\text{SO}_3^{2-}] = 76, 91, \text{ and } 170 \text{ at } 25, 35, \text{ and } 75^\circ\text{C}, \text{ respectively, and the}$ <p>solubility product of gypsum [10101-41-4], given by Latimer <i>et al.</i> (1).</p> $K_{\text{SO}}(\text{CaSO}_4 \cdot 2\text{H}_2\text{O}) = 10^{-4.63} \text{ [mol}^2 \text{ dm}^{-6}\text{]}$ <p>the activity solubility product of calcium sulfite at <math>25^\circ\text{C}</math>.</p> $K_{\text{SO}}(\text{CaSO}_3 \cdot 1/2\text{H}_2\text{O}) = a_{\text{Ca}^{2+}} \times a_{\text{SO}_3^{2-}}$ <p>was determined by the authors<sup>a</sup> to be</p> $10^{-6.51} (= 3.1 \times 10^{-7}) \text{ mol}^2 \text{ dm}^{-6}.$ <p>From this value the solubility of <math>\text{CaSO}_3 \cdot 1/2\text{H}_2\text{O}</math> in pure water at <math>25^\circ\text{C}</math> is estimated by the authors to be</p> $91 \text{ mg CaSO}_3/\text{dm}^3 \text{ or } 7.6 \times 10^{-4} \text{ mol dm}^{-3}.$ <p><sup>a</sup> On the assumption that the activity coefficients of <math>\text{SO}_4^{2-}</math> and <math>\text{SO}_3^{2-}</math> are equal.</p>	
<p>AUXILIARY INFORMATION</p>	
<p>METHOD APPARATUS/PROCEDURE:</p> <p>Equilibrium was studied under nitrogen in solutions which contained <math>\text{NaClO}_4</math> as ionic medium, <math>m_{\text{Na}^+} = 1</math> and <math>3.5 \text{ mol kg}^{-1}</math>, respectively. The solutions were made by adding an excess of <math>\text{CaSO}_4 \cdot 2\text{H}_2\text{O}</math> to a solution of <math>\text{Na}_2\text{SO}_3 + \text{NaClO}_4</math>. Equilibrium was established after 5 - 38 days. Sulfite was determined iodometrically and sulfate acidimetrically after precipitation as <math>\text{BaSO}_4</math> and conversion into <math>\text{BaCO}_3</math>.</p>	<p>SOURCE AND PURITY OF MATERIALS:</p> <p><math>\text{NaClO}_4</math> was prepared from <math>\text{Na}_2\text{CO}_3</math> and <math>\text{HClO}_4</math>. <math>\text{HClO}_4</math>, <math>\text{Na}_2\text{CO}_3</math>, <math>\text{Na}_2\text{SO}_3</math>, and <math>\text{CaSO}_4 \cdot 2\text{H}_2\text{O}</math> were all commercial products of p.a. quality. <math>\text{N}_2</math> was purified by Meyer and Ronge's method (2).</p> <p>ESTIMATED ERROR:</p> <p>Temperature: <math>\pm 0.1 \text{ K}</math>. <math>\text{Log } K_{\text{S}}</math>: <math>\pm 0.2</math> (authors)</p> <p>REFERENCES:</p> <ol style="list-style-type: none"> <li>1. Latimer, W.M.; Hicks, J.F.G.; Schutz, P.W. <i>J. Chem. Phys.</i> <u>1933</u>, 1, 620.</li> <li>2. Meyer, F.R.; Ronge, G. <i>Angew. Chem.</i> <u>1939</u>, 52, 637.</li> </ol>

<b>COMPONENTS:</b> 1. Calcium sulfite; $\text{CaSO}_3$ ; [10257-55-3] 2. Calcium sulfate; $\text{CaSO}_4$ ; [7778-18-9] 3. Water; $\text{H}_2\text{O}$ ; [7732-18-5] 4. Sea-water	<b>ORIGINAL MEASUREMENTS:</b>  Kurota, O.; Takahashi, S.; Nakaoka, A. <i>Japan. Koka</i> <u>1977</u> , 52-89561, 287-8.																												
<b>VARIABLES:</b>  pH value; composition	<b>PREPARED BY:</b>  B. Engelen, H.D. Lutz																												
<b>EXPERIMENTAL VALUES:</b> The authors report the calcium content of saturated calcium sulfite solutions containing 0.125 mass % (compilers) of sulfate (saturated gypsum) or sea-water of various pH values, at room temperature. <table border="1" data-bbox="246 564 1070 806" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th rowspan="3">Solvent</th> <th rowspan="3">pH</th> <th colspan="2">Composition of saturated solutions</th> </tr> <tr> <th><math>\text{Ca}^{2+a}</math></th> <th><math>\text{CaSO}_3</math></th> </tr> <tr> <th>ppm</th> <th><math>10^{-3}</math> mole/kg soln</th> </tr> </thead> <tbody> <tr> <td>1 (sat. gypsum)</td> <td>6.5</td> <td>120</td> <td>2.99</td> </tr> <tr> <td>1 (sat. gypsum)</td> <td>8</td> <td>90</td> <td>2.25</td> </tr> <tr> <td>1 (sat. gypsum)</td> <td>9</td> <td>80</td> <td>2.00</td> </tr> <tr> <td>2 (sea-water)</td> <td>8.2</td> <td>110</td> <td>2.74</td> </tr> <tr> <td>3 (sea-water)</td> <td>9</td> <td>85</td> <td>2.12</td> </tr> </tbody> </table> <p data-bbox="111 846 480 876"><sup>a</sup> - Calculated by the compiler.</p>		Solvent	pH	Composition of saturated solutions		$\text{Ca}^{2+a}$	$\text{CaSO}_3$	ppm	$10^{-3}$ mole/kg soln	1 (sat. gypsum)	6.5	120	2.99	1 (sat. gypsum)	8	90	2.25	1 (sat. gypsum)	9	80	2.00	2 (sea-water)	8.2	110	2.74	3 (sea-water)	9	85	2.12
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<b>AUXILIARY INFORMATION</b>																													
<b>METHOD APPARATUS/PROCEDURE:</b> 1. 1.6 g $\text{Na}_2\text{SO}_3$ was added to 1 dm <sup>3</sup> of a saturated solution of gypsum containing 520 ppm $\text{Ca}^{2+}$ after adjusting the pH with NaOH to 6.5, 8, or 9, respectively. 2. 2.6 g $\text{Na}_2\text{SO}_3$ was added to 1 dm <sup>3</sup> of concentrated sea-water containing 820 ppm $\text{Ca}^{2+}$ . 3. 4.6 dm <sup>3</sup> gaseous $\text{SO}_2$ was added to 10 dm <sup>3</sup> of concentrated sea-water containing 820 ppm $\text{Ca}^{+}$ after adjusting the pH value with NaOH to 9.	<b>SOURCE AND PURITY OF MATERIALS:</b> Not given.  <b>ESTIMATED ERROR:</b>  <b>REFERENCES:</b>																												

<p>COMPONENTS:</p> <ol style="list-style-type: none"> <li>1. Calcium sulfite; <math>\text{CaSO}_3</math>; [10257-55-3]</li> <li>2. Hydrochloric acid; <math>\text{HCl}</math>; [7647-01-0]</li> <li>3. Sodium chloride; <math>\text{NaCl}</math>; [7647-14-5]</li> <li>4. Water; <math>\text{H}_2\text{O}</math>; [7732-18-5]</li> </ol>	<p>ORIGINAL MEASUREMENTS:</p> <p>Templeton, C.C.; Rushing, S.S.; Rodgers, J.C.</p> <p><i>Mater. Prot.</i> <u>1963</u>, 2, 42-7.</p>
<p>VARIABLES:</p> <p>Concentration of <math>\text{NaCl}</math> at 298 K pH: range 5 to 8</p>	<p>PREPARED BY:</p> <p>H.D. Lutz, B. Engelen</p>
<p>EXPERIMENTAL VALUES:</p> <p>The authors report the concentration solubility product of calcium sulfite for various concentrations of sodium chloride (0.2 - 20 mass %) over a pH range from 5.0 to 8.0 at 25°C. The "analytical solubility product" has been defined by the authors as <math>K'_{\text{SO}} = (\text{mg analytical Ca}^{2+}/\text{dm}^3 \text{ soln}) \times (\text{mg analytical sulfite}/\text{dm}^3 \text{ soln})^a</math>. These <math>K'_{\text{SO}}</math>-values were given as a graph of mass % of sodium chloride vs. pH.</p>  <p><sup>a</sup> See the following page. <span style="float: right;">(continued on next page)</span></p>	
<p>AUXILIARY INFORMATION</p>	
<p>METHOD APPARATUS/PROCEDURE:</p> <p>Equilibrium was established by stirring the precipitate-brine mixture, acidified with <math>\text{HCl}</math>, for 48 hr. Calcium was determined by titration with EDTA, total dissolved sulfite (<math>\text{SO}_3^{2-}</math>, <math>\text{HSO}_3^-</math>, "<math>\text{H}_2\text{SO}_3</math>") iodometrically. The final pH was measured with glass and calomel electrodes.</p>	<p>SOURCE AND PURITY OF MATERIALS:</p> <p>Purity of <math>\text{CaSO}_3 \cdot 1/2\text{H}_2\text{O}</math> is said to be 95 - 99%. No further details are reported.</p> <p>ESTIMATED ERROR:</p> <p>Not given.</p> <p>REFERENCES:</p>

COMPONENTS:								ORIGINAL MEASUREMENTS:							
1. Calcium sulfite; CaSO <sub>3</sub> ; [10257-55-3]								Templeton, C.C.; Rushing, S.S.; Rodgers, J.C.  <i>Mater. Prot.</i> <u>1963</u> , 2, 42-7.							
2. Hydrochloric acid; HCl; [7647-01-0]															
3. Sodium chloride; NaCl; [7647-14-5]															
4. Water; H <sub>2</sub> O; [7732-18-5]															
EXPERIMENTAL VALUES (continued):															
The following data have been estimated from the graph (by compilers).															
NaCl	$K'_{SO}/10^4 \text{ mg}^2 \text{ dm}^{-6}$							$K_{SO}/10^{-5} \text{ mol}^2 \text{ dm}^{-6}$							pH
mass %	5.0	5.5	6.0	6.5	7.0	8.0	5.0	5.5	6.0	6.5	7.0	8.0			
2.5	81	25	9.2	5.1	3.1	2.0	25	7.8	2.9	1.6	1.0	0.6			
5	90	30	11	6.2	4.3	3.3	38	9.3	3.4	1.9	1.3	1.0			
7.5	87	28	12	6.9	5.1	4.5	27	8.7	3.7	2.2	1.6	1.4			
10	65	26	12	7.0	5.3	5.0	20	8.1	3.7	2.2	1.7	1.6			
12.5	45	20	11	6.9	5.4	5.0	14	6.2	3.4	2.2	1.7	1.6			
15	31	14	8.8	6.6	5.3	4.8	9.7	4.4	2.7	2.1	1.7	1.5			
17.5	24	12	7.2	5.4	5.0	4.2	7.5	3.7	2.2	1.7	1.6	1.3			
20	21	11	7.0	4.3	3.9	3.7	6.5	3.4	2.2	1.3	1.2	1.2			
<p><sup>a</sup> [SO<sub>3</sub><sup>2-</sup>] + [HSO<sub>3</sub><sup>-</sup>] + ["H<sub>2</sub>SO<sub>3</sub>"], calculated as SO<sub>3</sub><sup>2-</sup> by the authors.</p>															

<b>COMPONENTS:</b> 1. Calcium sulfite; $\text{CaSO}_3$ ; [10257-55-3] 2. Sodium chloride; $\text{NaCl}$ ; [7647-14-5] 3. Water; $\text{H}_2\text{O}$ ; [7732-18-5] 4. Sea-water	<b>ORIGINAL MEASUREMENTS:</b> Cohen, A.; Zangen, M.; Koenigsbuch, M.; Goldschmidt, J.M.E. <i>Desalination</i> 1982, 41, 215-32.																																							
<b>VARIABLES:</b> Four temperatures: 298 - 348 K pH values: 7.5 and 8.5 Time of stirring	<b>PREPARED BY:</b> H.D. Lutz																																							
<b>EXPERIMENTAL VALUES:</b> The authors report the solubility of different samples of hydrated calcium sulfite, probably $\text{CaSO}_3 \cdot 1/2\text{H}_2\text{O}$ [29501-28-8], in pure water and in sea-water at various pH values, temperatures, and stirring times.  Solubility <sup>a</sup> of hydrated calcium sulfite, in a large excess, in pure water at 25°C and pH 7.5.  <table border="1" data-bbox="141 752 1268 1011"> <thead> <tr> <th rowspan="2">Stirring time</th> <th colspan="4">Sample</th> </tr> <tr> <th>I</th> <th>II</th> <th>III</th> <th>IV</th> </tr> <tr> <td></td> <td><math>10^{-3}</math> mol kg<sup>-1a</sup></td> <td><math>10^{-3}</math> mol kg<sup>-1a</sup></td> <td><math>10^{-3}</math> mol kg<sup>-1a</sup></td> <td><math>10^{-3}</math> mol kg<sup>-1a</sup></td> </tr> </thead> <tbody> <tr> <td>5 min</td> <td>0.81 ± 0.01</td> <td>1.08 ± 0.02</td> <td>1.03 ± 0.02</td> <td>0.80 ± 0.01</td> </tr> <tr> <td>1 hr</td> <td>-</td> <td>1.05 ± 0.02</td> <td>1.06 ± 0.02</td> <td>-</td> </tr> <tr> <td>24 hr</td> <td>0.69 ± 0.01</td> <td>1.02 ± 0.02</td> <td>1.02 ± 0.02</td> <td>0.70 ± 0.01</td> </tr> <tr> <td>3 days</td> <td>0.68 ± 0.01</td> <td>1.00 ± 0.02</td> <td>0.94 ± 0.02</td> <td>-</td> </tr> <tr> <td>2 months</td> <td>-</td> <td>0.90 ± 0.02</td> <td>-</td> <td>0.58 ± 0.01</td> </tr> </tbody> </table> <p data-bbox="141 1052 1268 1134"> <sup>a</sup> mmolal total sulfite (<math>10^3 \text{m}(\text{CaSO}_3)/\text{mol kg}^{-1}</math>), determined by iodometry.            (continued on next page)         </p>		Stirring time	Sample				I	II	III	IV		$10^{-3}$ mol kg <sup>-1a</sup>	$10^{-3}$ mol kg <sup>-1a</sup>	$10^{-3}$ mol kg <sup>-1a</sup>	$10^{-3}$ mol kg <sup>-1a</sup>	5 min	0.81 ± 0.01	1.08 ± 0.02	1.03 ± 0.02	0.80 ± 0.01	1 hr	-	1.05 ± 0.02	1.06 ± 0.02	-	24 hr	0.69 ± 0.01	1.02 ± 0.02	1.02 ± 0.02	0.70 ± 0.01	3 days	0.68 ± 0.01	1.00 ± 0.02	0.94 ± 0.02	-	2 months	-	0.90 ± 0.02	-	0.58 ± 0.01
Stirring time	Sample																																							
	I	II	III	IV																																				
	$10^{-3}$ mol kg <sup>-1a</sup>	$10^{-3}$ mol kg <sup>-1a</sup>	$10^{-3}$ mol kg <sup>-1a</sup>	$10^{-3}$ mol kg <sup>-1a</sup>																																				
5 min	0.81 ± 0.01	1.08 ± 0.02	1.03 ± 0.02	0.80 ± 0.01																																				
1 hr	-	1.05 ± 0.02	1.06 ± 0.02	-																																				
24 hr	0.69 ± 0.01	1.02 ± 0.02	1.02 ± 0.02	0.70 ± 0.01																																				
3 days	0.68 ± 0.01	1.00 ± 0.02	0.94 ± 0.02	-																																				
2 months	-	0.90 ± 0.02	-	0.58 ± 0.01																																				
<b>AUXILIARY INFORMATION</b>																																								
<b>METHOD APPARATUS/PROCEDURE:</b> 500 cm <sup>3</sup> of solvent (pure water or sea-water) of preadjusted pH were introduced into a thermostatically controlled glass vessel. Sulfite oxidation was prevented by addition of 1 cm <sup>3</sup> benzyl alcohol/dm <sup>3</sup> solvent. The solvent was brought to the required temperature, with stirring and under a continuous stream of nitrogen, and then a large excess (100 times the solubility in pure water) or a small excess (10 times the solubility) of the calcium sulfite sample was added. Stirring and passage of nitrogen were continued and, at fixed intervals, samples of solution were pumped out through a sintered-glass filter, weighed, analysed for sulfite and calcium, and the pH was determined. Sulfite was determined iodometrically, calcium complexometrically.	<b>SOURCE AND PURITY OF MATERIALS:</b> Different samples of calcium sulfite were prepared at ambient temperature by the following methods: 1) By mixing equivalent amounts of aqueous $\text{Na}_2\text{SO}_3$ and $\text{CaCl}_2$ solutions at concentrations of 0.05 (samples I), 0.4 (samples II), and 2.5 mol dm <sup>-3</sup> (samples III). 2) By passing $\text{SO}_2$ through suspensions of $\text{CaCO}_3$ in water, until $\text{CO}_2$ was completely removed (samples IV). Commercial analytical purity reagents were used. The calcium sulfite samples were washed with oxygen-free distilled water and characterized, both before and after the solubility determinations, by chemical, thermal, and X-ray powder diffraction analyses. The sea-water was taken from the Mediterranean Sea near Yavne, Israel. The sea-water was first filtered to remove solids, and then refluxed with HCl in a nitrogen atmosphere to decompose carbonates so as to avoid precipitation of $\text{CaSO}_3$ on heating.																																							
<b>ESTIMATED ERROR:</b> Temperature: ± 0.1 K pH-value ± 0.05 (authors)																																								

## COMPONENTS:

1. Calcium sulfite;  $\text{CaSO}_3$ ; [10257-55-3]
2. Sodium chloride;  $\text{NaCl}$ ; [7647-14-5]
3. Water;  $\text{H}_2\text{O}$ ; [7732-18-5]
4. Sea-water

## ORIGINAL MEASUREMENTS:

Cohen, A.; Zangen, M.; Koenigsbuch, M.; Goldschmidt, J.M.E.

*Desalination* 1982, 41, 215-32.

## EXPERIMENTAL VALUES (continued):

Solubility<sup>a</sup> of hydrated calcium sulfite, sample II in large excess, in natural sea-water at various temperatures and pH 7.5.

Stirring time	35°C		45°C		75°C
	total sulfite <sup>b</sup>	total calcium <sup>c</sup>	total sulfite <sup>b</sup>	total calcium <sup>c</sup>	total sulfite <sup>b</sup>
	10 <sup>-3</sup> mol kg <sup>-1a</sup>		10 <sup>-3</sup> mol kg <sup>-1a</sup>		10 <sup>-3</sup> mol kg <sup>-1a</sup>
20 min	2.39	12.6	2.63	12.3	-
1 hr	2.31	-	2.10	11.8	1.21
2 hr	2.17	-	2.05	11.7	-
3 hr	2.14	12.3	1.94	-	1.00
5 hr	2.09	-	1.90	-	-
24 hr	2.00	12.1	1.81	11.4	-
3 days	-	-	-	-	0.91

<sup>a</sup> mmolal total sulfite (10<sup>3</sup>m(CaSO<sub>3</sub>)/mol kg<sup>-1</sup>) or total calcium.

<sup>b</sup> Includes  $\text{SO}_3^{2-}$ ,  $\text{HSO}_3^-$  and associated sulfite species. Values accurate to  $\pm 0.02$ .

<sup>c</sup> Includes the amount originally present in sea-water. Values accurate to  $\pm 0.1$ .

Sulfite concentration<sup>a</sup> in natural sea-water<sup>b</sup>, after addition of  $5 \times 10^{-3}$  mole  $\text{Na}_2\text{SO}_3/\text{dm}^3$  sea-water at 25°C and pH 8.1.

Stirring time	Without addition of	With addition of
	solid calcium sulfite	solid calcium sulfite
	10 <sup>-3</sup> mol kg <sup>-1a</sup>	10 <sup>-3</sup> mol kg <sup>-1a</sup>
2 hr	4.72	4.49
3 hr	4.74	4.22
5 hr	4.72	4.09
7 hr	4.70	4.02
9 hr	4.65	3.92
24 hr	4.43	3.08
4 days	-	2.52
11 days	-	2.04

<sup>a</sup> mmolal total sulfite ( $=10^3\text{m}(\text{CaSO}_3)/\text{mol kg}^{-1}$ ) (error  $\pm 0.02$ , authors).

<sup>b</sup> Containing  $11.7 \times 10^{-3}$  mol  $\text{dm}^{-3}$  calcium (molarity).

(continued on next page)

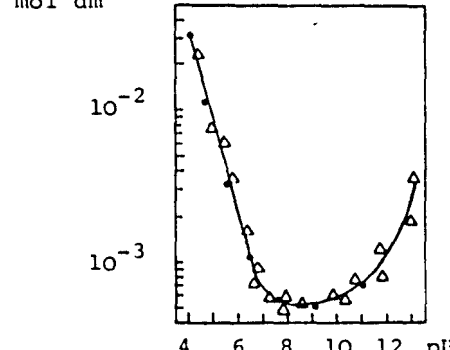


COMPONENTS:		ORIGINAL MEASUREMENTS:				
1. Calcium sulfite; $\text{CaSO}_3$ ; [10257-55-3]		Cohen, A.; Zangen, M.; Koenigsbuch, M.; Goldschmidt, J.M.E.				
2. Sodium chloride; $\text{NaCl}$ ; [7647-14-5]		<i>Desalination</i> <u>1982</u> , 41, 215-32.				
3. Water; $\text{H}_2\text{O}$ ; [7732-18-5]						
4. Sea-water						
EXPERIMENTAL VALUES (continued):						
Solubility <sup>a</sup> of hydrated calcium sulfite, sample II, in sea-water at 25°C.						
Stirring time	Sea-water natural			Sea-water synthetic <sup>d</sup> concentrated <sup>e</sup>		
	pH 7.5 <sup>b</sup>		pH 8.5 <sup>b</sup>		pH 7.5 <sup>b</sup>	
	$10^{-3}$ mol kg <sup>-1a</sup>	$10^{-3}$ mol kg <sup>-1a</sup>	$10^{-3}$ mol kg <sup>-1a</sup>	$10^{-3}$ mol kg <sup>-1a</sup>	$10^{-3}$ mol kg <sup>-1a</sup>	$10^{-3}$ mol kg <sup>-1a</sup>
20 min	2.93 <sup>f</sup>	2.22	2.93	3.90	2.64	
1 hr	2.72	2.12	2.67	3.71	2.91	
2 hr	2.57	2.10	2.54	-	2.78	
3 hr	2.51	2.05	2.47	-	2.69	
5 hr	2.44	2.00	2.33	-	2.51	
24 hr	2.24	1.83	2.18	3.46	2.17	
2 days	2.17	1.68	-	3.36	-	
6 days	-	1.48	-	-	-	
3 weeks	-	-	-	2.94	-	
4 months	1.52	-	-	2.74	-	
Solubility <sup>a</sup> of hydrated calcium sulfite, sample II after equilibration with sea-water at room temperature, in pure water at 25°C.						
Stirring time	Equilibration with					
	natural sea-water			synthetic sea-water <sup>d</sup>		
	for 3 weeks			for 48 hr		for 3 weeks
	$10^{-3}$ mol kg <sup>-1a</sup>			$10^{-3}$ mol kg <sup>-1a</sup>		$10^{-3}$ mol kg <sup>-1a</sup>
5 min	0.78 <sup>g</sup>			0.82		-
1 hr	0.81			0.82		-
2 hr	0.76			-		0.64
24 hr	0.67			-		-
5 days	0.65			0.65		-
12 days	-			0.60		-
<p>a mmolal total sulfite (<math>= 10^3 m(\text{CaSO}_3)/\text{mol kg}^{-1}</math>), determined by iodometry.</p> <p>b Solid calcium sulfite in large excess.</p> <p>c Solid calcium sulfite in small excess.</p> <p>d Synthetic sea-water, i.e. solution containing <math>0.7 \text{ mol dm}^{-3}</math> <math>\text{NaCl}</math>.</p> <p>e Double-concentration natural sea-water, prepared by evaporating the decarbonated natural sea-water to half its volume.</p> <p>f Error in the data <math>\pm 0.02</math> (authors).</p> <p>g Error in the data <math>\pm 0.01</math> (authors).</p>						

<b>COMPONENTS:</b> 1. Calcium sulfite; $\text{CaSO}_3$ ; [10257-55-3] 2. Calcium hydroxide phosphate 3. Phosphorus pentoxide; $\text{P}_2\text{O}_5$ ; [1314-56-3] 4. Sulfur dioxide; $\text{SO}_2$ ; [7446-09-5] 5. Water; $\text{H}_2\text{O}$ ; [7732-18-5]	<b>ORIGINAL MEASUREMENTS:</b>  Mebane, W.M.; Dobbins, J.T.; Cameron, F.K.  <i>J. Phys. Chem.</i> <u>1929</u> , 33, 961-9.																																																																						
<b>VARIABLES:</b>  Two temperatures: 273 and 298 K Composition	<b>PREPARED BY:</b>  H.D. Lutz																																																																						
<b>EXPERIMENTAL VALUES:</b> The authors report the solubility of calcium sulfite and of mixtures of calcium sulfite and basic calcium phosphate solid solutions as solid phases in solutions containing various amounts of phosphorous pentoxide and saturated with gaseous sulfur dioxide at 0 and 25°C.  Composition of saturated solutions <span style="float: right;">Solid phase</span> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"><math>\text{P}_2\text{O}_5</math></th> <th colspan="2">CaO</th> <th colspan="2"><math>\text{SO}_2</math></th> <th></th> </tr> <tr> <th>mass %</th> <th>mass %</th> <th>mole/kg soln<sup>a</sup></th> <th>mass %</th> <th>mole/kg soln<sup>a</sup></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td colspan="7"><u>Temperature = 0°C</u></td> </tr> <tr> <td>-</td> <td>0.03</td> <td>0.0053</td> <td>4.03</td> <td>0.629</td> <td></td> <td>calcium sulfite?</td> </tr> <tr> <td>0.67</td> <td>1.42</td> <td>0.253</td> <td>0.43</td> <td>0.067</td> <td></td> <td>sulfite phosphate mixture<sup>b</sup></td> </tr> <tr> <td>1.23</td> <td>1.72</td> <td>0.307</td> <td>1.22</td> <td>0.190</td> <td></td> <td>"</td> </tr> <tr> <td>1.58</td> <td>2.31</td> <td>0.412</td> <td>2.09</td> <td>0.326</td> <td></td> <td>"</td> </tr> <tr> <td>1.63</td> <td>2.40</td> <td>0.428</td> <td>2.36</td> <td>0.368</td> <td></td> <td>"</td> </tr> <tr> <td>1.91</td> <td>2.50</td> <td>0.446</td> <td>2.75</td> <td>0.429</td> <td></td> <td>"</td> </tr> <tr> <td>3.29</td> <td>4.85</td> <td>0.865</td> <td>7.00</td> <td>1.093</td> <td></td> <td>"</td> </tr> </tbody> </table> <p><sup>a</sup> Calculated by the compiler.  <sup>b</sup> Mixture of calcium sulfite and calcium hydroxide phosphate solid solution.</p> <p style="text-align: center;">(continued on next page)</p>		$\text{P}_2\text{O}_5$		CaO		$\text{SO}_2$			mass %	mass %	mole/kg soln <sup>a</sup>	mass %	mole/kg soln <sup>a</sup>			<u>Temperature = 0°C</u>							-	0.03	0.0053	4.03	0.629		calcium sulfite?	0.67	1.42	0.253	0.43	0.067		sulfite phosphate mixture <sup>b</sup>	1.23	1.72	0.307	1.22	0.190		"	1.58	2.31	0.412	2.09	0.326		"	1.63	2.40	0.428	2.36	0.368		"	1.91	2.50	0.446	2.75	0.429		"	3.29	4.85	0.865	7.00	1.093		"
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<b>METHOD APPARATUS/PROCEDURE:</b> Aqueous solutions of phosphoric acid were placed in wide-mouthed bottles fitted with rubber stoppers carrying inlet and outlet tubes of glass. Solid mixtures of calcium phosphate and calcium carbonate were added to the solutions until a solid persisted after saturation with gaseous sulfur dioxide. Equilibrium was established after 14 days. Samples of the supernatant solutions were analysed for calcium, sulfur dioxide, and phosphoric acid. Calcium was determined manometrically after precipitation as the oxalate, sulfur dioxide iodometrically, and phosphoric acid acidimetrically after precipitation as ammonium phosphomolybdate.	<b>SOURCE AND PURITY OF MATERIALS:</b> Not given.  <b>ESTIMATED ERROR:</b>  <b>REFERENCES:</b>																																																																						

COMPONENTS:					ORIGINAL MEASUREMENTS:	
1. Calcium sulfite; $\text{CaSO}_3$ ; [10257-55-3] 2. Calcium hydroxide phosphate 3. Phosphorus pentoxide; $\text{P}_2\text{O}_5$ ; [1314-56-3] 4. Sulfur dioxide; $\text{SO}_2$ ; [7446-09-5] 5. Water; $\text{H}_2\text{O}$ ; [7732-18-5]					Mebane, W.M.; Dobbins, J.T.; Cameron, F.K.  <i>J. Phys. Chem.</i> <u>1929</u> , 33, 961-9.	
EXPERIMENTAL VALUES (continued):						
Composition of saturated solutions					Solid phase	
$\text{P}_2\text{O}_5$		CaO		$\text{SO}_2$		
mass %	mass %	mole/kg soln <sup>a</sup>	mass %	mole/kg soln <sup>a</sup>		
Temperature = 25°C						
-	1.92	0.342	4.57	0.713		calcium sulfite
1.30	1.27	0.226	1.60	0.250		sulfite phosphate mixture <sup>b</sup>
1.80	1.54	0.275	2.36	0.368		"
1.63	1.57	0.280	2.83	0.442		"
1.53	1.63	0.291	2.65	0.414		"
3.28	2.11	0.376	1.66	0.259		"
3.45	2.30	0.410	1.92	0.300		"
4.10	2.62	0.467	2.18	0.340		"
4.38	2.73	0.487	2.57	0.401		"
3.80	3.00	0.535	4.45	0.695		"
4.33	3.52	0.628	6.18	0.965		"
5.94	4.34	0.774	7.18	1.121		"
6.11	4.80	0.856	4.32	0.674		"
6.11	5.40	0.963	2.75	0.429		"
5.86	5.57	0.993	4.00	0.624		"
<sup>a</sup> Calculated by the compiler.						
<sup>b</sup> Mixture of calcium sulfite and calcium hydroxide phosphate solid solution.						

<b>COMPONENTS:</b> 1. Calcium sulfite; $\text{CaSO}_3$ ; [10257-55-3] 2. Calcium hydrogen phosphate; $\text{CaHPO}_4$ ; [7757-93-9] 3. Sucrose; $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ ; [471-34-1] 4. Water; $\text{H}_2\text{O}$ ; [7732-18-5]	<b>ORIGINAL MEASUREMENTS:</b> Ramaiah, N.A.; Sharma, J.K. <i>Proc. Ann. Conv. Sugar Technol. Assoc. India</i> 1960, 28, 64-8.																														
<b>VARIABLES:</b> One temperature: 323 K Concentration of sucrose and $\text{CaHPO}_4$	<b>PREPARED BY:</b> B. Engelen and H.D. Lutz																														
<b>EXPERIMENTAL VALUES:</b> The authors report the solubility of calcium sulfite in water and solutions of various sucrose and calcium hydrogen phosphate concentrations at 50°C. The pH-values of the saturated solutions are also given. <table border="1" data-bbox="107 572 1240 838"> <thead> <tr> <th>Solvent</th> <th>pH</th> <th>mg CaO per <math>\text{dm}^3</math> of solution</th> <th>mg <math>\text{CaSO}_3^a</math></th> <th><math>10^3 c(\text{CaSO}_3)^a</math> <math>\text{mol dm}^{-3}</math></th> </tr> </thead> <tbody> <tr> <td>pure water</td> <td>7.5</td> <td>142</td> <td>304.2</td> <td>2.533</td> </tr> <tr> <td>15 mass % sucrose</td> <td>7.6</td> <td>87</td> <td>186.4</td> <td>1.552</td> </tr> <tr> <td>50 <math>\text{cm}^3</math> suc<sup>b</sup> + 5 <math>\text{cm}^3</math> phos<sup>c</sup></td> <td>6.0</td> <td>100</td> <td>214.2</td> <td>1.783</td> </tr> <tr> <td>50 <math>\text{cm}^3</math> suc<sup>b</sup> + 10 <math>\text{cm}^3</math> phos<sup>c</sup></td> <td>5.8</td> <td>123</td> <td>263.5</td> <td>2.194</td> </tr> <tr> <td>50 <math>\text{cm}^3</math> suc<sup>b</sup> + 15 <math>\text{cm}^3</math> phos<sup>c</sup></td> <td>5.7</td> <td>144.6</td> <td>309.8</td> <td>2.579</td> </tr> </tbody> </table> <p> <sup>a</sup> Calculated by the compilers.  <sup>b</sup> 15 mass % sucrose.  <sup>c</sup> <math>\text{CaHPO}_4</math> content was 24 mg Ca per <math>\text{dm}^3</math> of solution.         </p>		Solvent	pH	mg CaO per $\text{dm}^3$ of solution	mg $\text{CaSO}_3^a$	$10^3 c(\text{CaSO}_3)^a$ $\text{mol dm}^{-3}$	pure water	7.5	142	304.2	2.533	15 mass % sucrose	7.6	87	186.4	1.552	50 $\text{cm}^3$ suc <sup>b</sup> + 5 $\text{cm}^3$ phos <sup>c</sup>	6.0	100	214.2	1.783	50 $\text{cm}^3$ suc <sup>b</sup> + 10 $\text{cm}^3$ phos <sup>c</sup>	5.8	123	263.5	2.194	50 $\text{cm}^3$ suc <sup>b</sup> + 15 $\text{cm}^3$ phos <sup>c</sup>	5.7	144.6	309.8	2.579
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<b>AUXILIARY INFORMATION</b>																															
<b>METHOD APPARATUS/PROCEDURE:</b> Water, sucrose solutions containing 15 mass % of sucrose, and the same sucrose solutions with the specified quantities of a solution of $\text{CaHPO}_4$ (triple superphosphate) saturated with lime and neutralized to pH 6.3 were saturated with excess of calcium sulfite. Calcium was determined complexometrically, and in solutions containing $\text{CaHPO}_4$ , polarographically by using sodium zincate as the amperometric indicator and EDTA as the titrant.	<b>SOURCE AND PURITY OF MATERIALS:</b> Reagents of commercial quality were used.  <b>ESTIMATED ERROR:</b>   <b>REFERENCES:</b>																														

<b>COMPONENTS:</b> 1. Calcium sulfite; $\text{CaSO}_3$ ; [10257-55-3] 2. Acetic acid; $\text{C}_2\text{H}_4\text{O}_2$ ; [64-19-7] 3. Sodium hydroxide; $\text{NaOH}$ ; [1310-73-2] 4. Water; $\text{H}_2\text{O}$ ; [7732-18-5]	<b>ORIGINAL MEASUREMENTS:</b>  Sano, H.  <i>Osaka Kogyo Gijutsu Shikensho Kiho</i> <u>1974</u> , 25, 179-82.																																	
<b>VARIABLES:</b>  One temperature: 298 K pH: range 4 to 13	<b>PREPARED BY:</b>  B. Engelen																																	
<b>EXPERIMENTAL VALUES:</b> The author reports the solubility of calcium sulfite in water at 25°C as a function of the pH of the solution. Experimental values are given in the form of a graph of total dissolved sulfite vs. pH. From this graph numerical data were estimated by the compiler. <table border="1" data-bbox="754 592 1234 919" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>pH</th> <th><math>\text{CaSO}_3</math> g/dm<sup>3</sup></th> <th><math>10^3 c(\text{CaSO}_3)</math> mol dm<sup>-3</sup></th> </tr> </thead> <tbody> <tr><td>4</td><td>4.00</td><td>33.3</td></tr> <tr><td>5</td><td>1.01</td><td>8.4</td></tr> <tr><td>6</td><td>0.256</td><td>2.13</td></tr> <tr><td>7</td><td>0.082</td><td>0.685</td></tr> <tr><td>8</td><td>0.063</td><td>0.521</td></tr> <tr><td>9</td><td>0.060</td><td>0.50</td></tr> <tr><td>10</td><td>0.065</td><td>0.545</td></tr> <tr><td>11</td><td>0.084</td><td>0.70</td></tr> <tr><td>12</td><td>0.135</td><td>1.12</td></tr> <tr><td>13</td><td>0.266</td><td>2.21</td></tr> </tbody> </table>  <p style="text-align: center;">Reprinted by permission</p>		pH	$\text{CaSO}_3$ g/dm <sup>3</sup>	$10^3 c(\text{CaSO}_3)$ mol dm <sup>-3</sup>	4	4.00	33.3	5	1.01	8.4	6	0.256	2.13	7	0.082	0.685	8	0.063	0.521	9	0.060	0.50	10	0.065	0.545	11	0.084	0.70	12	0.135	1.12	13	0.266	2.21
pH	$\text{CaSO}_3$ g/dm <sup>3</sup>	$10^3 c(\text{CaSO}_3)$ mol dm <sup>-3</sup>																																
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13	0.266	2.21																																
<b>AUXILIARY INFORMATION</b>																																		
<b>METHOD APPARATUS/PROCEDURE:</b> 1.0 g of $\text{CaSO}_3 \cdot 1/2\text{H}_2\text{O}$ was added to 100 ml of water (pH = 7.9). $\text{CH}_3\text{COOH}$ or $\text{NaOH}$ was used to adjust the pH. After stirring for 1 hr the pH was measured (method not given), then the undissolved calcium sulfite was strained off and the content of $\text{SO}_3^{2-}$ and $\text{HSO}_3^-$ determined iodometrically.	<b>SOURCE AND PURITY OF MATERIALS:</b> 1) Commercial $\text{CaSO}_3 \cdot 1/2\text{H}_2\text{O}$ (purity 90%) was dissolved in dilute $\text{HCl}$ . $\text{NaOH}$ was added to this solution to precipitate $\text{CaSO}_3 \cdot 1/2\text{H}_2\text{O}$ (pH = 6). The precipitate was dispersed and filtered to give a product of 99% purity (triangles in the figure). 2) In a second procedure a mixture of $\text{CaSO}_3 \cdot 1/2\text{H}_2\text{O}$ and $\text{CaCO}_3$ (10:1) was dissolved and precipitated in the same manner (black dots in the figure).  <b>ESTIMATED ERROR:</b>  <b>REFERENCES:</b>																																	

COMPONENTS:		ORIGINAL MEASUREMENTS:					
1. Calcium sulfite; $\text{CaSO}_3$ ; [10257-55-3]		Wurz, O.; Swoboda, O.					
2. Acetic acid; $\text{CH}_3\text{COOH}$ ; [64-19-7]		<i>Text.-Rundsch.</i> 1948, 3, 201-6.					
3. Citric acid; $\text{C}_6\text{H}_8\text{O}_7$ ; [77-92-9]							
4. Water; $\text{H}_2\text{O}$ ; [7732-18-5]							
VARIABLES:		PREPARED BY:					
Four temperatures: 293 - 353 K		B. Engelen, H.D. Lutz					
EXPERIMENTAL VALUES:		Composition of saturated solutions					
Non-saturating solutes <sup>a</sup>	pH <sup>b</sup>	pH <sup>c</sup>	CaSO <sub>3</sub>				t/°C
Concentration/mol dm <sup>-3</sup>			20	40	60	80	
			mass % (= g/100 g soln, authors)				
Acetic acid 0.1	3	4.1	0.3	-	-	-	
	5	5.0	0.127	0.142	0.129	0.116	
	7	7.5	0.024	0.021	0.015	0.014	
	9	8.3	0.022	0.019	0.014	0.013	
Citric acid 0.1 ?	3	3.4	0.3	-	-	-	
	4	5.7	0.165	0.205	0.178	0.167	
	7	7.2	0.139	0.133	0.127	0.100	
	9	8.4	0.136	0.127	0.118	0.110	
			10 <sup>-3</sup> mole/kg soln (compilers)				
Acetic acid 0.1	3	4.1	25	-	-	-	
	5	5.0	10.57	11.82	10.74	9.66	
	7	7.5	2.00	1.75	1.25	1.17	
	9	8.3	1.83	1.58	1.17	1.08	
Citric acid 0.1 ?	3	3.4	25	-	-	-	
	4	5.7	13.73	17.06	14.82	13.90	
	7	7.2	11.57	11.07	10.57	9.16	
	9	8.4	11.32	10.57	9.82	9.16	
<sup>a</sup> Adjusted with NaOH to the pH given. <sup>b</sup> pH of the solvent, adjusted with NaOH. <sup>c</sup> pH of the equilibrated solution.							
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 preparation by adding ignited calcium carbonate to oxygen-free water was saturated with sulfur dioxide under nitrogen. After removing excess SO <sub>2</sub> 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; $\text{CaSO}_3$ ; [10257-55-3] 2. Sodium formate; $\text{NaHCO}_2$ ; [141-53-7] 3. Sodium acetate; $\text{NaCH}_3\text{CO}_2$ ; [127-09-3] 4. Sodium phosphate; $\text{Na}_3\text{PO}_4$ ; [7601-54-9] 5. Water; $\text{H}_2\text{O}$ ; [7732-18-5]				Wurz, O.; Swoboda, O.  <i>Text.-Rundsch.</i> <u>1948</u> , 3, 201-6.				
VARIABLES:				PREPARED BY:				
Four temperatures: 293 - 353 K				B. Engelen, H.D. Lutz				
EXPERIMENTAL VALUES:								
Non-saturating solutes		pH <sup>a</sup>		Composition of saturated solutions				
Concentration/mol dm <sup>-3</sup>				CaSO <sub>3</sub>				
				mg/100 cm <sup>3</sup>				
				20	40	60	80	t/°C
$\text{Na}_3\text{PO}_4$	0.033		6.3	47.20	48.75	47.38	46.50	
$\text{NaCH}_3\text{CO}_2$	0.1		6.3	63.80	67.50	65.20	64.70	
$\text{NaHCO}_2$	0.01, $\text{NaCH}_3\text{CO}_2$	0.01	5.3	14.40	16.49	15.49	15.00	
$\text{NaHCO}_2$	0.01, $\text{NaCH}_3\text{CO}_2$	0.01	7.2	9.17	10.61	10.57	10.27	
$\text{NaHCO}_2$	0.01, $\text{NaCH}_3\text{CO}_2$	0.01	8.5	6.40	7.10	6.78	6.36	
				10 <sup>4</sup> c(mol dm <sup>-3</sup> ) (compilers)				
$\text{Na}_3\text{PO}_4$	0.033		6.3	39.29	40.58	39.44	38.70	
$\text{NaCH}_3\text{CO}_2$	0.1		6.3	53.10	56.18	54.27	53.85	
$\text{NaHCO}_2$	0.01, $\text{NaCH}_3\text{CO}_2$	0.01	5.3	11.99	13.73	12.89	12.49	
$\text{NaHCO}_2$	0.01, $\text{NaCH}_3\text{CO}_2$	0.01	7.2	7.63	8.83	8.80	8.55	
$\text{NaHCO}_2$	0.01, $\text{NaCH}_3\text{CO}_2$	0.01	8.5	5.33	5.91	5.64	5.29	
<sup>a</sup> pH was adjusted with NaOH.								
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 $\text{SO}_2$ by passing nitrogen through the solution the obtained calcium sulfite slurry was evaporated to dryness. The product contained 2% sulfate.				
				ESTIMATED ERROR:				
				REFERENCES:				

<b>COMPONENTS:</b> 1. Calcium sulfite; $\text{CaSO}_3$ ; [10257-55-3] 2. Xylose; $\text{C}_5\text{H}_{10}\text{O}_5$ ; [58-86-6] 3. Glucose; $\text{C}_6\text{H}_{12}\text{O}_6$ ; [50-99-7] 4. Lignosulfonic acid; [8062-15-5] 5. Water; $\text{H}_2\text{O}$ ; [7732-18-5]			<b>ORIGINAL MEASUREMENTS:</b>  Wurz, O.; Swoboda, O.  <i>Text.-Rundsch.</i> 1948, 3, 201-6.				
<b>VARIABLES:</b>  Four temperatures: 293 - 353 K			<b>PREPARED BY:</b>  B. Engelen, H.D. Lutz				
<b>EXPERIMENTAL VALUES:</b>							
Non-saturating solutes		pH	Composition of saturated solutions				
Concentration/mass %			CaSO <sub>3</sub>				
			20	40	60	80	t/°C
			mg/100 g soln				
Glucose/Xylose	1	7	9.97	8.81	7.67	6.49	
Lignosulfonic acid	10	7	31	46	39	36 <sup>a</sup>	
Lignosulfonic acid	10 <sup>a</sup>	7.2	42	57	58	60 <sup>a</sup>	
			10 <sup>-4</sup> mole/kg soln (compilers)				
Glucose/Xylose	1	7	8.30	7.33	6.38	5.40	
Lignosulfonic acid	10	7	25.8	38.3	32.5	30.0	
Lignosulfonic acid	10 <sup>a</sup>	7.2	35.0	47.4	48.3	49.9	
<sup>a</sup> Adjusted with $\text{NaHCO}_2$ and $\text{NaCH}_3\text{CO}_2$ .							
<b>AUXILIARY INFORMATION</b>							
<b>METHOD APPARATUS/PROCEDURE:</b> 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 solution was then analysed for sulfite with iodine or chloramine. The mean of 4 measurements is given.			<b>SOURCE AND PURITY OF MATERIALS:</b> 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 $\text{SO}_2$ by passing nitrogen through the solution the obtained calcium sulfite slurry was evaporated to dryness. The product contained 2% sulfate.				
			<b>ESTIMATED ERROR:</b>				
			<b>REFERENCES:</b>				