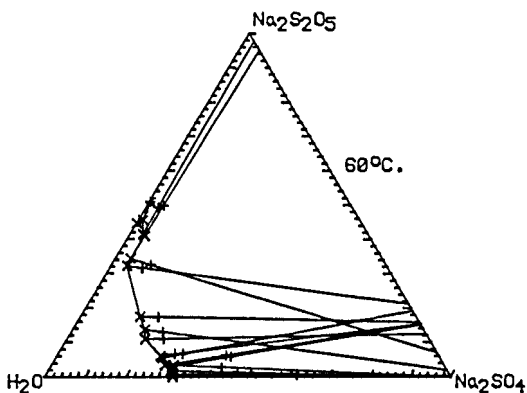
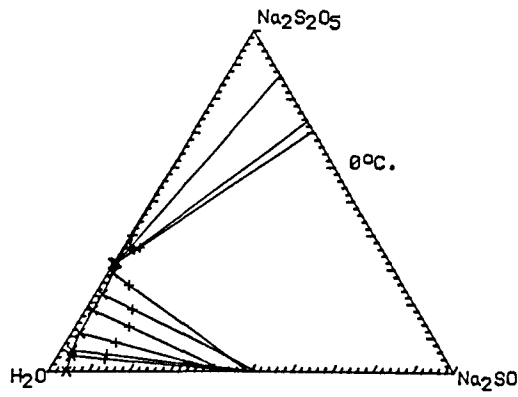
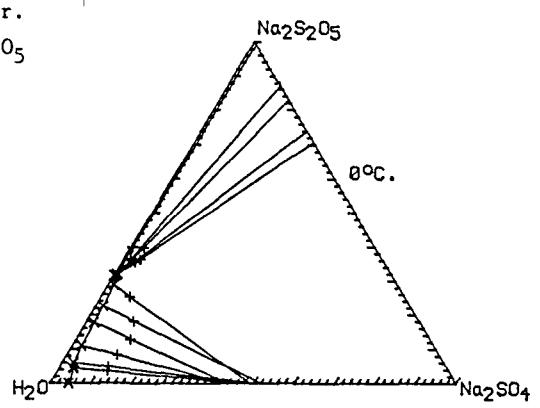


COMPONENTS: 1. Sodium pyrosulfite; $\text{Na}_2\text{S}_2\text{O}_5$; [7681-57-4] 2. Sodium sulfate; Na_2SO_4 ; [7757-82-6] 3. Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Sotova, N.N.; Torocheshnikov, N.S.; Kuznetsova, A.G.; Sokolova, E.I. <i>Khimiya i Tekhnol. Mineral'n. Solei i Galurgichesk. Pr.-v, Varnaul 1978, 53-59.</i>				
VARIABLES: One temperature: 373 K Concentrations of the components	PREPARED BY: Mary R. Masson				
EXPERIMENTAL VALUES:					
<u>Composition of equilibrium solutions at 100°C</u>					
Na_2SO_4 mass %	NaHSO_3^a mass %	$\text{Na}_2\text{S}_2\text{O}_5$ mass %	Na_2SO_4^a mol/kg	$\text{Na}_2\text{S}_2\text{O}_5^a$ mol/kg	Solid ^b phase
-	53.8	49.15	0.	5.082	B
0.89	53.19	48.59	0.124	5.059	B
1.99	53.5	48.9	0.285	5.238	B + C
2.25	52.1	47.57	0.316	4.987	C
2.7	43.75	39.96	0.332	3.666	C
4.4	38.04	35.57	0.516	3.117	C
10.0	27.02	24.7	1.078	1.990	C
12.9	23.3	21.3	1.380	1.703	C
18.1	15.2	14.2	1.882	1.103	C
21.1	12.6	11.5	2.204	0.898	C
22.9	11.82	10.8	2.432	0.857	C
22.3	12.0	10.96	2.352	0.864	C + D
22.2	11.58	10.78	2.332	0.846	D
25.6	6.27	5.85	2.629	0.449	D
28.1	2.14	1.96	2.829	0.147	D
29.0	0.79	0.72	2.905	0.054	D
29.6	-	-	2.960	0.	D
^a Molalities calculated by the compiler.					
^b Solid phases: B - $\text{Na}_2\text{S}_2\text{O}_5$, C - $\text{Na}_2\text{S}_2\text{O}_5 \cdot 8\text{Na}_2\text{SO}_4$, D - Na_2SO_4					
AUXILIARY INFORMATION					
METHOD APPARATUS/PROCEDURE: An isothermal method was used. <div style="text-align: center;"> </div>			SOURCE AND PURITY OF MATERIALS:		
			ESTIMATED ERROR: No estimates possible.		
			REFERENCES:		

COMPONENTS: 1. Sodium pyrosulfite; $\text{Na}_2\text{S}_2\text{O}_5$; [7681-57-4] 2. Sodium sulfate; Na_2SO_4 ; [7757-82-6] 3. Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Sotova, N.N.; Torocheshnikov, N.S.; Kuznetsova, A.G.; Poroshkova, M.A.; <i>Khimiya i Tekhnol. Mineral'n. Solei i Galurgichesk. Pr.-v, Varnaul 1978, 65-69.</i>																																																																																										
VARIABLES: One temperature: 333 K Concentrations of the components	PREPARED BY: Mary R. Masson																																																																																										
EXPERIMENTAL VALUES: <p style="text-align: center;"><u>Composition of equilibrium solutions at 60°C</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Na_2SO_4 mass %</th> <th style="text-align: center;">$\text{Na}_2\text{S}_2\text{O}_5$ mass %</th> <th style="text-align: center;">Na_2SO_4^a mol/kg</th> <th style="text-align: center;">$\text{Na}_2\text{S}_2\text{O}_5^a$ mol/kg</th> <th style="text-align: center;">Solid^b phase</th> </tr> </thead> <tbody> <tr><td>31.5</td><td>0.0</td><td>3.237</td><td>0.</td><td>A</td></tr> <tr><td>31.2</td><td>0.73</td><td>3.227</td><td>0.056</td><td>A</td></tr> <tr><td>30</td><td>1.8</td><td>3.097</td><td>0.139</td><td>A</td></tr> <tr><td>29.6</td><td>3.0</td><td>3.092</td><td>0.234</td><td>A</td></tr> <tr><td>29.9</td><td>3.4</td><td>3.156</td><td>0.268</td><td>A + B</td></tr> <tr><td>27.8</td><td>3.5</td><td>2.849</td><td>0.268</td><td>B</td></tr> <tr><td>26.2</td><td>5.5</td><td>2.701</td><td>0.424</td><td>B</td></tr> <tr><td>25.4</td><td>6.1</td><td>2.611</td><td>0.468</td><td>B</td></tr> <tr><td>19.1</td><td>10.9</td><td>1.921</td><td>0.819</td><td>B</td></tr> <tr><td>17.6</td><td>13.7</td><td>1.804</td><td>1.049</td><td>B</td></tr> <tr><td>14.6</td><td>17.4</td><td>1.512</td><td>1.346</td><td>B</td></tr> <tr><td>3.8</td><td>32.2</td><td>0.418</td><td>2.647</td><td>B</td></tr> <tr><td>3.6</td><td>34.3</td><td>0.408</td><td>2.905</td><td>B</td></tr> <tr><td>3.8</td><td>40.8</td><td>0.483</td><td>3.874</td><td>B + C</td></tr> <tr><td>3.0</td><td>41.5</td><td>0.381</td><td>3.933</td><td>C</td></tr> <tr><td>1.0</td><td>45.5</td><td>0.132</td><td>4.474</td><td>C</td></tr> <tr><td>0.0</td><td>44.5</td><td>0.</td><td>4.218</td><td>C</td></tr> </tbody> </table> <p>^a Molalities calculated by the compiler. ^b Solid phases: A - Na_2SO_4, B - $\text{Na}_2\text{S}_2\text{O}_5 \cdot 8\text{Na}_2\text{SO}_4$, C - $\text{Na}_2\text{S}_2\text{O}_5$</p>		Na_2SO_4 mass %	$\text{Na}_2\text{S}_2\text{O}_5$ mass %	Na_2SO_4^a mol/kg	$\text{Na}_2\text{S}_2\text{O}_5^a$ mol/kg	Solid ^b phase	31.5	0.0	3.237	0.	A	31.2	0.73	3.227	0.056	A	30	1.8	3.097	0.139	A	29.6	3.0	3.092	0.234	A	29.9	3.4	3.156	0.268	A + B	27.8	3.5	2.849	0.268	B	26.2	5.5	2.701	0.424	B	25.4	6.1	2.611	0.468	B	19.1	10.9	1.921	0.819	B	17.6	13.7	1.804	1.049	B	14.6	17.4	1.512	1.346	B	3.8	32.2	0.418	2.647	B	3.6	34.3	0.408	2.905	B	3.8	40.8	0.483	3.874	B + C	3.0	41.5	0.381	3.933	C	1.0	45.5	0.132	4.474	C	0.0	44.5	0.	4.218	C
Na_2SO_4 mass %	$\text{Na}_2\text{S}_2\text{O}_5$ mass %	Na_2SO_4^a mol/kg	$\text{Na}_2\text{S}_2\text{O}_5^a$ mol/kg	Solid ^b phase																																																																																							
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METHOD APPARATUS/PROCEDURE: The isothermal method was used. Note: Na_2SO_3 appears erroneously in the table-heading in the original, in place of Na_2SO_4 .	SOURCE AND PURITY OF MATERIALS: ESTIMATED ERROR: Temperature: ± 0.1 K Analyses: no estimate possible. REFERENCES:																																																																																										

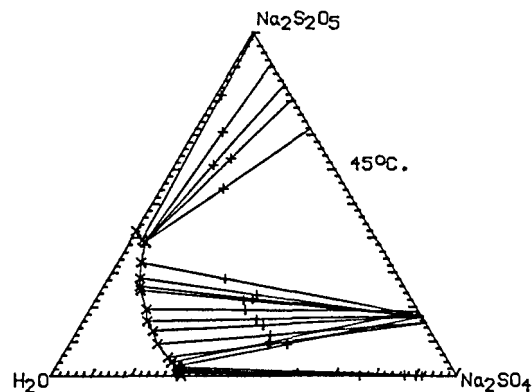
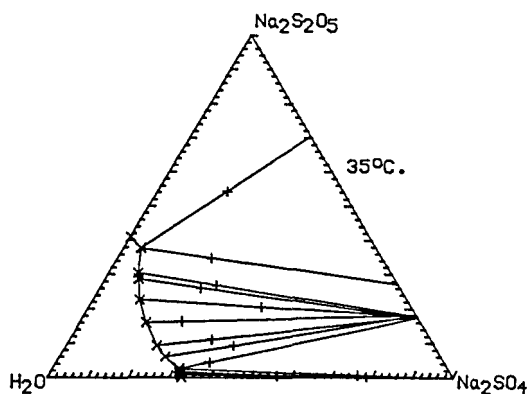
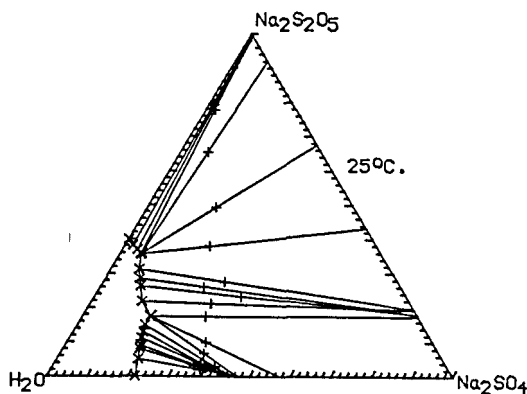


COMPONENTS: 1. Sodium pyrosulfite; $\text{Na}_2\text{S}_2\text{O}_5$; [7681-57-4] 2. Sodium sulfate; Na_2SO_4 ; [7757-82-6] 3. Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Sotova, N.N.; Kuznetsova, A.G.; Torocheshnikov, N.S. <i>Zh. Priklad. Khim.</i> 1978, 51, 779-84; <i>J. Appl. Chem. USSR (Eng. Transl.)</i> 1978, 51, 760-4.																																																																																																																								
VARIABLES: One temperature: 273 K Concentrations of the components	PREPARED BY: Mary R. Masson																																																																																																																								
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Na_2SO_4	' NaHSO_3 '	$\text{Na}_2\text{S}_2\text{O}_5$	Na_2SO_4^a	' NaHSO_3 ' ^a	Na_2SO_4^a	$\text{Na}_2\text{S}_2\text{O}_5^a$	Solid ^b																																																																																																																		
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METHOD/APPARATUS/PROCEDURE: The isothermal method was used. p-Phenylenediamine was used as anti-oxidant. Total sulfite was determined iodometrically. Bisulfite was titrated with alkali as bisulfate after oxidation with peroxide. Sodium sulfate was then weighed to obtain total sulfate.	SOURCE AND PURITY OF MATERIALS: Sodium sulfate and sodium pyrosulfite were of analytical grade.																																																																																																																								
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VARIABLES: One temperature: 273 K Concentration of the components	PREPARED BY: Mary R. Masson																																																																																																																								
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<table border="1"> <thead> <tr> <th>Na_2SO_4</th> <th>'NaHSO_3'</th> <th>Na_2SO_4^a</th> <th>NaHSO_3^a</th> <th>$\text{Na}_2\text{S}_2\text{O}_5^b$</th> <th>$\text{Na}_2\text{SO}_3^a$</th> <th>$\text{Na}_2\text{S}_2\text{O}_5^a$</th> <th>Solid^c</th> </tr> <tr> <th>mass %</th> <th>mass %</th> <th>mol/kg</th> <th>mol/kg</th> <th>mass %</th> <th>mol/kg</th> <th>mol/kg</th> <th>phase</th> </tr> </thead> <tbody> <tr><td>4.50</td><td>0.0</td><td>0.332</td><td>0.</td><td>0.</td><td>0.332</td><td>0.</td><td>A</td></tr> <tr><td>3.28</td><td>4.86</td><td>0.251</td><td>0.508</td><td>4.44</td><td>0.250</td><td>0.253</td><td>A</td></tr> <tr><td>2.75</td><td>6.50</td><td>0.213</td><td>0.688</td><td>5.94</td><td>0.212</td><td>0.342</td><td>A</td></tr> <tr><td>2.09</td><td>12.05</td><td>0.171</td><td>1.349</td><td>11.01</td><td>0.169</td><td>0.666</td><td>A</td></tr> <tr><td>1.65</td><td>19.40</td><td>0.165</td><td>2.367</td><td>17.72</td><td>0.162</td><td>1.159</td><td>A</td></tr> <tr><td>1.83</td><td>24.56</td><td>0.175</td><td>3.206</td><td>22.43</td><td>0.170</td><td>1.558</td><td>A</td></tr> <tr><td>1.31</td><td>31.42</td><td>0.137</td><td>4.488</td><td>28.70</td><td>0.132</td><td>2.157</td><td>A</td></tr> <tr><td>0.64</td><td>34.65</td><td>0.070</td><td>5.146</td><td>31.65</td><td>0.067</td><td>2.459</td><td>A + C</td></tr> <tr><td>0.58</td><td>34.60</td><td>0.063</td><td>5.130</td><td>31.60</td><td>0.060</td><td>2.451</td><td>A + C</td></tr> <tr><td>0.66</td><td>34.57</td><td>0.072</td><td>5.129</td><td>31.58</td><td>0.069</td><td>2.452</td><td>A + C</td></tr> <tr><td>0.65</td><td>34.62</td><td>0.071</td><td>5.140</td><td>31.62</td><td>0.068</td><td>2.456</td><td>A + C</td></tr> <tr><td>0.32</td><td>34.23</td><td>0.034</td><td>5.026</td><td>31.27</td><td>0.033</td><td>2.405</td><td>C</td></tr> <tr><td>0.0</td><td>34.31</td><td>0.</td><td>5.019</td><td>31.34</td><td>0.</td><td>2.401</td><td>C</td></tr> </tbody> </table>		Na_2SO_4	' NaHSO_3 '	Na_2SO_4^a	NaHSO_3^a	$\text{Na}_2\text{S}_2\text{O}_5^b$	Na_2SO_3^a	$\text{Na}_2\text{S}_2\text{O}_5^a$	Solid ^c	mass %	mass %	mol/kg	mol/kg	mass %	mol/kg	mol/kg	phase	4.50	0.0	0.332	0.	0.	0.332	0.	A	3.28	4.86	0.251	0.508	4.44	0.250	0.253	A	2.75	6.50	0.213	0.688	5.94	0.212	0.342	A	2.09	12.05	0.171	1.349	11.01	0.169	0.666	A	1.65	19.40	0.165	2.367	17.72	0.162	1.159	A	1.83	24.56	0.175	3.206	22.43	0.170	1.558	A	1.31	31.42	0.137	4.488	28.70	0.132	2.157	A	0.64	34.65	0.070	5.146	31.65	0.067	2.459	A + C	0.58	34.60	0.063	5.130	31.60	0.060	2.451	A + C	0.66	34.57	0.072	5.129	31.58	0.069	2.452	A + C	0.65	34.62	0.071	5.140	31.62	0.068	2.456	A + C	0.32	34.23	0.034	5.026	31.27	0.033	2.405	C	0.0	34.31	0.	5.019	31.34	0.	2.401	C
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COMPONENTS: 1. Sodium pyrosulfite; $\text{Na}_2\text{S}_2\text{O}_5$; [7681-57-4] 2. Sodium sulfate; Na_2SO_4 ; [7757-82-6] 3. Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Jäger, L.; Rejlek, M.; Klimeček, R.; Machala, J. <i>Chem. Prům.</i> <u>1960</u> , 10, 518-20.																																																												
VARIABLES: Four temperatures: 288 - 318 K Concentrations of the components	PREPARED BY: Mary R. Masson																																																												
EXPERIMENTAL VALUES: <u>Composition of equilibrium solutions</u> <table border="1" data-bbox="122 521 686 848"> <thead> <tr> <th>Na_2SO_4</th> <th>$\text{Na}_2\text{S}_2\text{O}_5$</th> <th>$\text{Na}_2\text{SO}_4^a$</th> <th>$\text{Na}_2\text{S}_2\text{O}_5^a$</th> <th>Solid^b</th> </tr> <tr> <th>mass %</th> <th>mass %</th> <th>mol/kg</th> <th>mol/kg</th> <th>phase</th> </tr> </thead> <tbody> <tr> <td colspan="5"><u>Temperature = 15°C</u></td> </tr> <tr> <td>11.8</td> <td>-</td> <td>0.942</td> <td>0.</td> <td>A</td> </tr> <tr> <td>10.4</td> <td>4.7</td> <td>0.862</td> <td>0.291</td> <td>A</td> </tr> <tr> <td>8.4</td> <td>11.1</td> <td>0.735</td> <td>0.725</td> <td>A</td> </tr> <tr> <td>7.1</td> <td>16.9</td> <td>0.658</td> <td>1.170</td> <td>A</td> </tr> <tr> <td>6.1</td> <td>25.3</td> <td>0.626</td> <td>1.940</td> <td>A</td> </tr> <tr> <td>5.7</td> <td>34.2</td> <td>0.668</td> <td>2.993</td> <td>A</td> </tr> <tr> <td>5.7</td> <td>34.1</td> <td>0.667</td> <td>2.980</td> <td>A + B</td> </tr> <tr> <td>3.6</td> <td>35.5</td> <td>0.416</td> <td>3.066</td> <td>B</td> </tr> <tr> <td>-</td> <td>37.9</td> <td>0.</td> <td>3.210</td> <td>B</td> </tr> </tbody> </table> <div data-bbox="709 772 1233 1160" style="text-align: right;"> </div> <p>(continued on next page)</p>		Na_2SO_4	$\text{Na}_2\text{S}_2\text{O}_5$	Na_2SO_4^a	$\text{Na}_2\text{S}_2\text{O}_5^a$	Solid ^b	mass %	mass %	mol/kg	mol/kg	phase	<u>Temperature = 15°C</u>					11.8	-	0.942	0.	A	10.4	4.7	0.862	0.291	A	8.4	11.1	0.735	0.725	A	7.1	16.9	0.658	1.170	A	6.1	25.3	0.626	1.940	A	5.7	34.2	0.668	2.993	A	5.7	34.1	0.667	2.980	A + B	3.6	35.5	0.416	3.066	B	-	37.9	0.	3.210	B
Na_2SO_4	$\text{Na}_2\text{S}_2\text{O}_5$	Na_2SO_4^a	$\text{Na}_2\text{S}_2\text{O}_5^a$	Solid ^b																																																									
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METHOD APPARATUS/PROCEDURE: An isothermal method. The hydrogen sulfite ion was masked with formaldehyde to allow sulfate to be determined as barium sulfate. Solid phases were identified by Schreinemakers' method, and by microscopy and X-ray diffraction.	SOURCE AND PURITY OF MATERIALS: Sodium sulfate was of analytical grade. ESTIMATED ERROR: Temperature: ± 0.1 K Analyses: no estimate possible. REFERENCES.																																																												

COMPONENTS:				ORIGINAL MEASUREMENTS:
1. Sodium pyrosulfite; $\text{Na}_2\text{S}_2\text{O}_5$ [7681-57-4]	Jäger, L.; Rejlek, M.; Klimeček, R.; Machala, J.			
2. Sodium sulfate; Na_2SO_4 ; [7757-82-6]	Chem. Prům. 1960, 10, 518-20.			
3. Water; H_2O ; [7732-18-5]				
EXPERIMENTAL VALUES (continued):				
Composition of equilibrium solutions				
Na_2SO_4	$\text{Na}_2\text{S}_2\text{O}_5$	Na_2SO_4^a	$\text{Na}_2\text{S}_2\text{O}_5^a$	Solid ^b
mass %	mass %	mol/kg	mol/kg	phase
Temperature = 25°C				
21.7	-	1.951	0.	A
20.0	5.0	1.877	0.351	A
18.8	8.1	1.811	0.583	A
18.5	9.1	1.799	0.661	A
17.7	11.1	1.750	0.820	A
17.3	12.9	1.745	0.972	A
16.6	14.9	1.706	1.144	A
16.7	17.4	1.784	1.389	A + D
12.4	21.7	1.325	1.732	D
9.7	26.2	1.065	2.150	D
8.4	28.4	0.936	2.364	D
7.0	31.1	0.796	2.643	D
5.2	35.6	0.618	3.163	B + D
5.1	35.7	0.607	3.172	B
3.6	36.9	0.426	3.262	B
1.9	38.1	0.223	3.340	B
-	39.8	0.	3.478	B
Temperature = 35°C				
33.0	-	3.468	0.	C
32.3	0.8	3.384	0.063	C
31.7	1.6	3.346	0.126	C
31.2	2.5	3.313	0.198	C + D
26.0	6.0	2.692	0.464	D
22.2	9.3	2.282	0.714	D
16.3	16.0	1.695	1.243	D
11.4	22.6	1.216	1.801	D
8.2	28.6	0.913	2.380	D
7.3	30.3	0.824	2.554	D
4.3	37.7	0.522	3.419	B + D
-	41.1	0.	3.671	B
Temperature = 45°C				
32.2	-	3.344	0.	C
31.6	0.8	3.291	0.062	C
30.8	1.2	3.189	0.093	C
30.9	1.7	3.228	0.133	C
30.0	2.5	3.129	0.195	C
29.6	2.7	3.078	0.210	D
27.8	3.8	2.861	0.292	D
26.3	5.3	2.707	0.408	D
21.7	9.2	2.211	0.700	D
18.6	13.0	1.914	1.000	D
15.8	15.8	1.626	1.215	D
13.9	19.3	1.465	1.520	D
9.7	24.8	1.043	1.992	D
9.0	25.9	0.973	2.093	D
7.8	28.3	0.859	2.330	D
5.7	32.9	0.654	2.819	D
3.8	38.8	0.466	3.556	B + D
2.8	39.4	0.341	3.586	B
-	42.0	0.	3.809	B



^a Molalities calculated by the compiler.

^b Solid phases: A - $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$, B - $\text{Na}_2\text{S}_2\text{O}_5$,
C - Na_2SO_4 , D - $\text{Na}_2\text{S}_2\text{O}_5 \cdot 6\text{Na}_2\text{SO}_4$

COMPONENTS:				ORIGINAL MEASUREMENTS:			
1. Sodium pyrosulfite; $\text{Na}_2\text{S}_2\text{O}_5$; [7681-57-4]				Navrátil, J.; Nývlt, J.			
2. Ethanol; $\text{C}_2\text{H}_5\text{OH}$; [64-17-5]				Chem. Prům. 1968, 18, 612-4.			
3. Water; H_2O ; [7732-18-5]							
VARIABLES:				PREPARED BY:			
Temperature: 276-308 K Ethanol concentration				Mary R. Masson			
EXPERIMENTAL VALUES:							
Solubility in water				Solubility in 20% ethanol			
t/°C	Atmos- phere	$\text{Na}_2\text{S}_2\text{O}_5$ mass %	$\text{Na}_2\text{S}_2\text{O}_5^a$ mol/kg	t/°C	Atmos- phere	$\text{Na}_2\text{S}_2\text{O}_5$ mass %	$\text{Na}_2\text{S}_2\text{O}_5^a$ mol/kg
26.5	air	40.0	3.507	2.6	N_2	21.5	1.441
42.5	air	42.8	3.936	6.0	N_2	22.5	1.527
43.8	air	42.5	3.888	10.1	N_2	23.2	1.589
				11.5	N_2	23.7	1.634
24.1	N_2	40.5	3.581	13.8	N_2	24.3	1.689
25.3	N_2	40.6	3.595	16.1	N_2	24.9	1.744
34.5	N_2	41.4	3.716	18.5	N_2	25.5	1.801
35.1	N_2	41.4	3.716	21.9	N_2	26.1	1.858
Solubility in 10% ethanol				24.9	N_2	26.6	1.906
3.0	air	25.4	1.791	27.2	N_2	26.8	1.926
9.1	air	27.1	1.956	27.8	N_2	27.2	1.965
16.5	air	29.7	2.222	29.1	N_2	27.1	2.066
22.5	air	30.7	2.330	32.1	N_2	28.2	2.180
27.5	air	32.4	2.521	34.2	N_2	29.3	2.180
Solubility in 30% ethanol							
9.4	air	16.7	1.055	6.5	air	24.1	1.670
11.1	air	18.1	1.163	9.5	air	24.5	1.707
16.6	air	20.0	1.315	15.5	air	25.5	1.801
19.0	air	20.8	1.382	16.5	air	25.8	1.829
22.8	air	21.3	1.424	19.0	air	26.5	1.897
26.0	air	21.9	1.475	21.1	air	27.0	1.946
				25.5	air	27.8	2.025
				30.5	air	28.6	2.107
				33.3	air	30.0	2.254
				35.4	air	29.8	2.233
^a Molalities calculated by the compiler.							
AUXILIARY INFORMATION							
METHOD APPARATUS/PROCEDURE:				SOURCE AND PURITY OF MATERIALS:			
A simple isothermal procedure.				Analytical grade $\text{Na}_2\text{S}_2\text{O}_5$ was obtained from Carlo Erba, Milan.			
				ESTIMATED ERROR:			
				No estimates possible.			
				REFERENCES:			

COMPONENTS: 1. Sodium hydrogen sulfite; NaHSO_3 ; [7631-90-5] 2. Sodium dithionite; $\text{Na}_2\text{S}_2\text{O}_4$; [7775-14-6] 3. Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Iijima, T.; Kageyama, T. <i>Kanto Gakuin Daigaku Kogakubu Kenkyu Hokoku 1972, 16, 69-74.</i>
VARIABLES: Concentrations of the components One temperature: 278 K	PREPARED BY: Mary R. Masson
EXPERIMENTAL VALUES: Extreme points: $\text{Na}_2\text{S}_2\text{O}_4$ = 13.0 g/100 g of solution (0.858 ^a mol/kg) NaHSO_3 = 69.3 g/100 g of solution (21.693 ^a mol/kg) ^a Molalities calculated by the compiler. <div style="text-align: center; margin-top: 20px;"> </div>	
AUXILIARY INFORMATION	
METHOD APPARATUS/PROCEDURE: Experiments were done in a nitrogen atmosphere of 0.5 kg/cm ² .	SOURCE AND PURITY OF MATERIALS: Not stated. ESTIMATED ERROR: Temperature: ±0.5 K REFERENCES:

COMPONENTS: 1. Sodium pyrosulfite; $\text{Na}_2\text{S}_2\text{O}_5$; [7681-57-4] 2. Sodium chloride; NaCl ; [7647-14-5] 3. Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Yavorskii, V.T.; Perekupko, T.V.; Matsyk, L.V. <i>Zh. Priklad. Khim.</i> 1984, 57, 3-7; <i>J. Appl. Chem. USSR (Eng. Transl.)</i> 1984, 57, 1-4.																																																																																															
VARIABLES: Temperature: 298 K Composition	PREPARED BY: Mary R. Masson																																																																																															
EXPERIMENTAL VALUES: <u>Composition of saturated solutions</u> <table border="1" data-bbox="122 547 690 1071"> <thead> <tr> <th>NaCl</th> <th>$\text{Na}_2\text{S}_2\text{O}_5$</th> <th>$\text{NaCl}^a$</th> <th>$\text{Na}_2\text{S}_2\text{O}_5^a$</th> <th>Solid^b</th> </tr> <tr> <th>mass %</th> <th>mass %</th> <th>mol/kg</th> <th>mol/kg</th> <th>phase</th> </tr> </thead> <tbody> <tr><td>26.60</td><td>-</td><td>6.201</td><td>0.0</td><td>A</td></tr> <tr><td>24.92</td><td>1.81</td><td>5.820</td><td>0.130</td><td>A</td></tr> <tr><td>24.87</td><td>3.46</td><td>5.938</td><td>0.254</td><td>A</td></tr> <tr><td>24.49</td><td>4.05</td><td>5.864</td><td>0.298</td><td>A</td></tr> <tr><td>22.39</td><td>4.82</td><td>5.263</td><td>0.348</td><td>A</td></tr> <tr><td>22.09</td><td>5.50</td><td>5.220</td><td>0.400</td><td>A</td></tr> <tr><td>20.62</td><td>6.35</td><td>4.831</td><td>0.457</td><td>A</td></tr> <tr><td>20.33</td><td>9.22</td><td>4.938</td><td>0.688</td><td>A</td></tr> <tr><td>18.77</td><td>13.40</td><td>4.735</td><td>1.039</td><td>A</td></tr> <tr><td>16.35</td><td>20.91</td><td>4.459</td><td>1.753</td><td>A + B</td></tr> <tr><td>16.45</td><td>20.06</td><td>4.434</td><td>1.662</td><td>A + B</td></tr> <tr><td>15.71</td><td>20.06</td><td>4.185</td><td>1.643</td><td>B</td></tr> <tr><td>10.09</td><td>26.83</td><td>2.737</td><td>2.237</td><td>B</td></tr> <tr><td>4.84</td><td>32.79</td><td>1.328</td><td>2.766</td><td>C</td></tr> <tr><td>2.01</td><td>37.08</td><td>0.565</td><td>3.202</td><td>C</td></tr> <tr><td>0.63</td><td>39.37</td><td>0.180</td><td>3.452</td><td>C</td></tr> <tr><td>0.00</td><td>40.34</td><td>0.0</td><td>3.557</td><td>C</td></tr> </tbody> </table> <div data-bbox="723 731 1220 1120" style="text-align: right;"> </div> <p data-bbox="122 1107 615 1136">a Molality calculated by the compiler.</p> <p data-bbox="122 1152 861 1187">b Solid phases: A - NaCl, B - $\text{Na}_2\text{S}_2\text{O}_5$, C - $\text{Na}_2\text{S}_2\text{O}_5 \cdot 7\text{H}_2\text{O}$</p>		NaCl	$\text{Na}_2\text{S}_2\text{O}_5$	NaCl^a	$\text{Na}_2\text{S}_2\text{O}_5^a$	Solid ^b	mass %	mass %	mol/kg	mol/kg	phase	26.60	-	6.201	0.0	A	24.92	1.81	5.820	0.130	A	24.87	3.46	5.938	0.254	A	24.49	4.05	5.864	0.298	A	22.39	4.82	5.263	0.348	A	22.09	5.50	5.220	0.400	A	20.62	6.35	4.831	0.457	A	20.33	9.22	4.938	0.688	A	18.77	13.40	4.735	1.039	A	16.35	20.91	4.459	1.753	A + B	16.45	20.06	4.434	1.662	A + B	15.71	20.06	4.185	1.643	B	10.09	26.83	2.737	2.237	B	4.84	32.79	1.328	2.766	C	2.01	37.08	0.565	3.202	C	0.63	39.37	0.180	3.452	C	0.00	40.34	0.0	3.557	C
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METHOD APPARATUS/PROCEDURE: Isothermal method. Compositions of saturated solutions and solid phases were determined by chemical analysis, and solid-phase compositions were established by Schreinemakers' method. Prevention of oxidation by use of an inert gas or an anti-oxidant is not mentioned.	SOURCE AND PURITY OF MATERIALS: "Pure" grade salts and distilled water were used.																																																																																															
	ESTIMATED ERROR: Temperature: ± 0.1 K Analyses: nothing stated.																																																																																															
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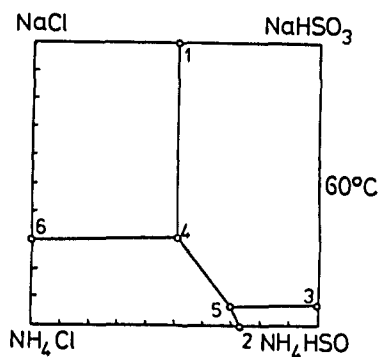
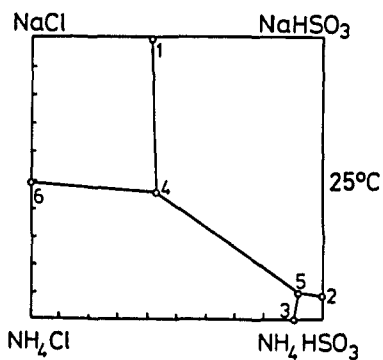
COMPONENTS: 1. Sodium pyrosulfite; $\text{Na}_2\text{S}_2\text{O}_5$; [7681-57-4] 2. Ammonium pyrosulfite; $(\text{NH}_4)_2\text{S}_2\text{O}_5$; [32736-64-4] 3. Sodium chloride; NaCl ; [7647-14-5] 4. Ammonium chloride; NH_4Cl ; [12125-02-9] 5. Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Zil'berman, Ya.I.; Ivanov, P.T. <i>Zh. Priklad. Khim.</i> 1941, 14, 939-946.																																																																																																																								
VARIABLES: Two temperatures: 298 and 333 K Concentrations of the components	PREPARED BY: Mary R. Masson																																																																																																																								
EXPERIMENTAL VALUES: <p style="text-align: center;"><u>Composition of equilibrium solutions, expressed as mass %</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>HSO_3^-</th> <th>Cl^-</th> <th>NH_4^+</th> <th>NaHSO_3</th> <th>NH_4HSO_3</th> <th>NaCl</th> <th>NH_4Cl</th> <th>Solid^a phase</th> </tr> </thead> <tbody> <tr> <td colspan="8"><u>Temperature = 60°C</u></td> </tr> <tr> <td>21.20</td> <td>9.37</td> <td>-</td> <td>27.56</td> <td>-</td> <td>15.44</td> <td>-</td> <td>C,E</td> </tr> <tr> <td>50.42</td> <td>7.45</td> <td>-</td> <td>-</td> <td>61.80</td> <td>-</td> <td>12.28</td> <td>D,F</td> </tr> <tr> <td>64.80</td> <td>-</td> <td>13.54</td> <td>6.34</td> <td>74.50</td> <td>-</td> <td>-</td> <td>E,F</td> </tr> <tr> <td>30.05</td> <td>12.87</td> <td>9.16</td> <td>23.34</td> <td>14.40</td> <td>-</td> <td>19.41</td> <td>C,D,E</td> </tr> <tr> <td>45.30</td> <td>8.37</td> <td>13.38</td> <td>5.43</td> <td>50.19</td> <td>-</td> <td>12.62</td> <td>D,E,F</td> </tr> <tr> <td>-</td> <td>24.02</td> <td>8.52</td> <td>-</td> <td>-</td> <td>11.96</td> <td>25.30</td> <td>C,D</td> </tr> <tr> <td colspan="8"><u>Temperature = 25°C</u></td> </tr> <tr> <td>16.44</td> <td>10.28</td> <td>-</td> <td>21.10</td> <td>-</td> <td>16.94</td> <td>-</td> <td>C,E</td> </tr> <tr> <td>58.67</td> <td>-</td> <td>11.92</td> <td>6.43</td> <td>65.57</td> <td>-</td> <td>-</td> <td>E,F</td> </tr> <tr> <td>55.05</td> <td>2.52</td> <td>-</td> <td>-</td> <td>67.47</td> <td>-</td> <td>3.81</td> <td>D,F</td> </tr> <tr> <td>21.35</td> <td>12.58</td> <td>6.00</td> <td>27.48</td> <td>-</td> <td>1.24</td> <td>17.84</td> <td>C,D,E</td> </tr> <tr> <td>56.69</td> <td>1.98</td> <td>12.28</td> <td>7.61</td> <td>62.04</td> <td>-</td> <td>2.98</td> <td>D,E,F</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>16.82</td> <td>16.16</td> <td>C,D ()</td> </tr> </tbody> </table> <p>^a Solid phases: C - NaCl, D - NH_4Cl, E - "NaHSO_3", F - "NH_4HSO_3"</p> <p style="text-align: center;">(continued on next page)</p>		HSO_3^-	Cl^-	NH_4^+	NaHSO_3	NH_4HSO_3	NaCl	NH_4Cl	Solid ^a phase	<u>Temperature = 60°C</u>								21.20	9.37	-	27.56	-	15.44	-	C,E	50.42	7.45	-	-	61.80	-	12.28	D,F	64.80	-	13.54	6.34	74.50	-	-	E,F	30.05	12.87	9.16	23.34	14.40	-	19.41	C,D,E	45.30	8.37	13.38	5.43	50.19	-	12.62	D,E,F	-	24.02	8.52	-	-	11.96	25.30	C,D	<u>Temperature = 25°C</u>								16.44	10.28	-	21.10	-	16.94	-	C,E	58.67	-	11.92	6.43	65.57	-	-	E,F	55.05	2.52	-	-	67.47	-	3.81	D,F	21.35	12.58	6.00	27.48	-	1.24	17.84	C,D,E	56.69	1.98	12.28	7.61	62.04	-	2.98	D,E,F	-	-	-	-	-	16.82	16.16	C,D ()
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METHOD APPARATUS/PROCEDURE: <p>Solutions were equilibrated in glass test tubes fitted with spiral stirrers supplied with mercury seals. Freshly made salts were always used for each filling of a test tube. The anti-oxidant <i>p</i>-phenylenediamine was added to all solutions, and the work was done in an atmosphere of nitrogen, but experiments still had to be repeated often because of the formation of unacceptably high concentrations of sulfate.</p> <p>Bisulfate was determined by reaction with iodine solution, ammonia was volatilized by reaction with alkali, and collected in acid, the excess of which was titrated, sodium was weighed as sodium sulfate, total sulfur was weighed as barium sulfate, and chloride was titrated by the Volhard method.</p> <p>If too much ammonia was found to have been lost, the experiment had to be repeated.</p>	SOURCE AND PURITY OF MATERIALS: <p>Ammonium chloride and sodium chloride were commercial reagents.</p> <p>Sodium pyrosulfite was made by saturating soda with sulfur dioxide, and ammonium pyrosulfite by saturating aqueous ammonia with sulfur dioxide, both in the presence of <i>p</i>-phenylenediamine as anti-oxidant.</p> ESTIMATED ERROR: <p>Analyses: 0.2% relative Temperature: no estimate given (toluene and mercury thermoregulators).</p> REFERENCES: 1. <i>Techn. Enc.</i> VI.																																																																																																																								

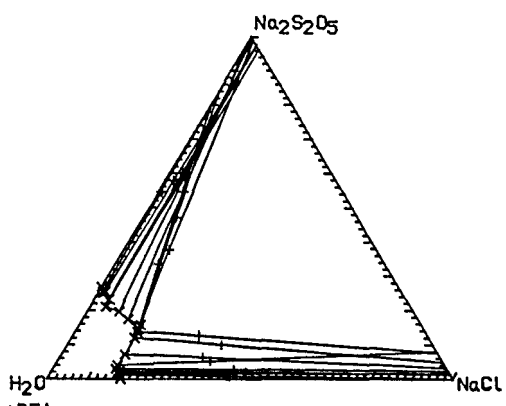
<p>COMPONENTS:</p> <ol style="list-style-type: none"> Sodium pyrosulfite; $\text{Na}_2\text{S}_2\text{O}_5$; [7681-57-4] Ammonium pyrosulfite; $(\text{NH}_4)_2\text{S}_2\text{O}_5$; [32736-64-4] Sodium chloride; NaCl; [7647-14-5] Ammonium chloride; NH_4Cl; [12125-02-9] Water; H_2O; [7732-18-5] 	<p>ORIGINAL MEASUREMENTS:</p> <p>Zil'berman, Ya.I.; Ivanov, P.T. <i>Zh. Priklad. Khim.</i> 1941, 14, 939-946.</p>
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EXPERIMENTAL VALUES (continued):

Compositions of equilibrium solutions expressed as molalities^b, mol/kg

NaHSO_3	NH_4HSO_3	NaCl	NH_4Cl
<u>Temperature = 60°C</u>			
4.646	0.	4.635	0.
0.	24.057	0.	8.857
3.180	39.232	0.	0.
5.234	3.391	0.	8.468
1.643	15.945	0.	7.429
0.	0.	3.262	7.539
<u>Temperature = 25°C</u>			
3.273	0.	4.678	0.
2.207	23.628	0.	0.
0.	23.703	0.	2.480
4.942	0.	0.397	6.241
2.672	22.871	0.	2.035
0.	0.	4.294	4.508

^b Molalities calculated by the compiler.

COMPONENTS: 1. Sodium pyrosulfite; $\text{Na}_2\text{S}_2\text{O}_5$; [7681-57-4] 2. Sodium chloride; NaCl ; [7647-14-5] 3. Water; H_2O ; [7732-18-5] 4. Diethanolamine; $[\text{CH}_2(\text{OH})\text{CH}_2]_2\text{NH}$; [111-42-2]	ORIGINAL MEASUREMENTS: Yavorskii, V.T.; Perekupko, T.V.; Matsyk, L.V. <i>Zh. Priklad. Khim.</i> <u>1984</u> , 57, 3-7; <i>J. Appl. Chem. USSR (Eng. Transl.)</i> <u>1984</u> , 57, 1-4.																																																																																																									
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EXPERIMENTAL VALUES: Composition of saturated solutions prepared with 30% aqueous diethanolamine (DEA) as the solvent. <table border="1" data-bbox="120 544 683 1078"> <thead> <tr> <th>NaCl</th> <th>$\text{Na}_2\text{S}_2\text{O}_5$</th> <th>$\text{NaCl}^a$</th> <th>$\text{Na}_2\text{S}_2\text{O}_5^a$</th> <th>Solid^b</th> </tr> <tr> <th>mass %</th> <th>mass %</th> <th>mol/kg</th> <th>mol/kg</th> <th>phase</th> </tr> </thead> <tbody> <tr><td>0.</td><td>26.80</td><td>0.</td><td>1.926</td><td>A</td></tr> <tr><td>0.98</td><td>25.58</td><td>0.228</td><td>1.832</td><td>A</td></tr> <tr><td>1.64</td><td>25.43</td><td>0.385</td><td>1.834</td><td>A</td></tr> <tr><td>3.62</td><td>23.09</td><td>0.845</td><td>1.657</td><td>A</td></tr> <tr><td>3.75</td><td>21.00</td><td>0.853</td><td>1.468</td><td>A</td></tr> <tr><td>7.78</td><td>19.62</td><td>1.834</td><td>1.422</td><td>A</td></tr> <tr><td>11.12</td><td>17.35</td><td>2.660</td><td>1.276</td><td>A</td></tr> <tr><td>14.96</td><td>15.75</td><td>3.694</td><td>1.196</td><td>A</td></tr> <tr><td>15.01</td><td>14.60</td><td>3.649</td><td>1.091</td><td>A + B</td></tr> <tr><td>14.88</td><td>14.80</td><td>3.621</td><td>1.107</td><td>A + B</td></tr> <tr><td>15.08</td><td>13.75</td><td>3.626</td><td>1.016</td><td>B</td></tr> <tr><td>15.32</td><td>12.05</td><td>3.609</td><td>0.873</td><td>B</td></tr> <tr><td>15.51</td><td>7.16</td><td>3.432</td><td>0.487</td><td>B</td></tr> <tr><td>15.32</td><td>3.93</td><td>3.246</td><td>0.256</td><td>B</td></tr> <tr><td>15.44</td><td>2.88</td><td>3.235</td><td>0.185</td><td>B</td></tr> <tr><td>16.51</td><td>2.18</td><td>3.475</td><td>0.141</td><td>B</td></tr> <tr><td>16.66</td><td>1.60</td><td>3.488</td><td>0.103</td><td>B</td></tr> <tr><td>17.21</td><td>1.07</td><td>3.604</td><td>0.069</td><td>B</td></tr> <tr><td>18.00</td><td>0.</td><td>3.756</td><td>0.</td><td>B</td></tr> </tbody> </table>  <p>^a Molalities calculated by the compiler. ^b Solid phases: A - $\text{Na}_2\text{S}_2\text{O}_5$, B - NaCl</p>		NaCl	$\text{Na}_2\text{S}_2\text{O}_5$	NaCl^a	$\text{Na}_2\text{S}_2\text{O}_5^a$	Solid ^b	mass %	mass %	mol/kg	mol/kg	phase	0.	26.80	0.	1.926	A	0.98	25.58	0.228	1.832	A	1.64	25.43	0.385	1.834	A	3.62	23.09	0.845	1.657	A	3.75	21.00	0.853	1.468	A	7.78	19.62	1.834	1.422	A	11.12	17.35	2.660	1.276	A	14.96	15.75	3.694	1.196	A	15.01	14.60	3.649	1.091	A + B	14.88	14.80	3.621	1.107	A + B	15.08	13.75	3.626	1.016	B	15.32	12.05	3.609	0.873	B	15.51	7.16	3.432	0.487	B	15.32	3.93	3.246	0.256	B	15.44	2.88	3.235	0.185	B	16.51	2.18	3.475	0.141	B	16.66	1.60	3.488	0.103	B	17.21	1.07	3.604	0.069	B	18.00	0.	3.756	0.	B
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14.88	14.80	3.621	1.107	A + B																																																																																																						
15.08	13.75	3.626	1.016	B																																																																																																						
15.32	12.05	3.609	0.873	B																																																																																																						
15.51	7.16	3.432	0.487	B																																																																																																						
15.32	3.93	3.246	0.256	B																																																																																																						
15.44	2.88	3.235	0.185	B																																																																																																						
16.51	2.18	3.475	0.141	B																																																																																																						
16.66	1.60	3.488	0.103	B																																																																																																						
17.21	1.07	3.604	0.069	B																																																																																																						
18.00	0.	3.756	0.	B																																																																																																						
AUXILIARY INFORMATION																																																																																																										
METHOD APPARATUS/PROCEDURE: Isothermal method. Compositions of saturated solutions and solid phases were determined by chemical analysis, and solid-phase compositions were established by Schreinemakers' method. Prevention of oxidation by use of an inert gas or an anti-oxidant is not mentioned. <u>Additional Data</u> Solubility isotherms ($T/K = 298, 313, 323$) for the system $\text{Na}_2\text{S}_2\text{O}_5$ -DEA- H_2O are given, but only in graphical form.	SOURCE AND PURITY OF MATERIALS: "Pure" grade salts and distilled water were used. Purity of the DEA is not mentioned. ESTIMATED ERROR: Temperature: ± 0.1 K Analyses: nothing stated. REFERENCES.																																																																																																									