

COMPONENTS: (1) Rubidium bromate; RbBrO_3 ; [13446-70-3] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Buell, H.D.; McCrosky, C.R. <i>J. Am. Chem. Soc.</i> <u>1923</u> , 43, 2031-4.																																															
VARIABLES: T/K = 298, 303, 308 and 313	PREPARED BY: Hiroshi Miyamoto and Mark Salomon																																															
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of RbBrO_3</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">$t/^\circ\text{C}$</th> <th style="text-align: center;">g/100g H_2O</th> <th style="text-align: center;">mol kg^{-1} (compiler)</th> </tr> </thead> <tbody> <tr> <td rowspan="5" style="text-align: center; vertical-align: middle;">25</td> <td style="text-align: center;">2.994</td> <td style="text-align: center;">0.1403</td> </tr> <tr> <td style="text-align: center;">2.895</td> <td style="text-align: center;">0.1357</td> </tr> <tr> <td style="text-align: center;">2.917</td> <td style="text-align: center;">0.1367</td> </tr> <tr> <td style="text-align: center;">2.917</td> <td style="text-align: center;">0.1367</td> </tr> <tr> <td style="text-align: center;">(Av) 2.93 ($\sigma = 0.04$)</td> <td style="text-align: center;">0.137</td> </tr> <tr> <td rowspan="5" style="text-align: center; vertical-align: middle;">30</td> <td style="text-align: center;">3.584</td> <td style="text-align: center;">0.1680</td> </tr> <tr> <td style="text-align: center;">3.578</td> <td style="text-align: center;">0.1677</td> </tr> <tr> <td style="text-align: center;">3.509</td> <td style="text-align: center;">0.1645</td> </tr> <tr> <td style="text-align: center;">3.559</td> <td style="text-align: center;">0.1667</td> </tr> <tr> <td style="text-align: center;">(Av) 3.56 ($\sigma = 0.03$)</td> <td style="text-align: center;">0.166</td> </tr> <tr> <td rowspan="5" style="text-align: center; vertical-align: middle;">35</td> <td style="text-align: center;">4.310</td> <td style="text-align: center;">0.2020</td> </tr> <tr> <td style="text-align: center;">4.247</td> <td style="text-align: center;">0.1990</td> </tr> <tr> <td style="text-align: center;">4.295</td> <td style="text-align: center;">0.2013</td> </tr> <tr> <td style="text-align: center;">4.269</td> <td style="text-align: center;">0.2001</td> </tr> <tr> <td style="text-align: center;">(Av) 4.28 ($\sigma = 0.03$)</td> <td style="text-align: center;">0.201</td> </tr> <tr> <td rowspan="5" style="text-align: center; vertical-align: middle;">40</td> <td style="text-align: center;">5.104</td> <td style="text-align: center;">0.2392</td> </tr> <tr> <td style="text-align: center;">5.116</td> <td style="text-align: center;">0.2398</td> </tr> <tr> <td style="text-align: center;">5.021</td> <td style="text-align: center;">0.2353</td> </tr> <tr> <td style="text-align: center;">5.092</td> <td style="text-align: center;">0.2386</td> </tr> <tr> <td style="text-align: center;">(Av) 5.08 ($\sigma = 0.02$)</td> <td style="text-align: center;">0.238</td> </tr> </tbody> </table>		$t/^\circ\text{C}$	g/100g H_2O	mol kg^{-1} (compiler)	25	2.994	0.1403	2.895	0.1357	2.917	0.1367	2.917	0.1367	(Av) 2.93 ($\sigma = 0.04$)	0.137	30	3.584	0.1680	3.578	0.1677	3.509	0.1645	3.559	0.1667	(Av) 3.56 ($\sigma = 0.03$)	0.166	35	4.310	0.2020	4.247	0.1990	4.295	0.2013	4.269	0.2001	(Av) 4.28 ($\sigma = 0.03$)	0.201	40	5.104	0.2392	5.116	0.2398	5.021	0.2353	5.092	0.2386	(Av) 5.08 ($\sigma = 0.02$)	0.238
$t/^\circ\text{C}$	g/100g H_2O	mol kg^{-1} (compiler)																																														
25	2.994	0.1403																																														
	2.895	0.1357																																														
	2.917	0.1367																																														
	2.917	0.1367																																														
	(Av) 2.93 ($\sigma = 0.04$)	0.137																																														
30	3.584	0.1680																																														
	3.578	0.1677																																														
	3.509	0.1645																																														
	3.559	0.1667																																														
	(Av) 3.56 ($\sigma = 0.03$)	0.166																																														
35	4.310	0.2020																																														
	4.247	0.1990																																														
	4.295	0.2013																																														
	4.269	0.2001																																														
	(Av) 4.28 ($\sigma = 0.03$)	0.201																																														
40	5.104	0.2392																																														
	5.116	0.2398																																														
	5.021	0.2353																																														
	5.092	0.2386																																														
	(Av) 5.08 ($\sigma = 0.02$)	0.238																																														
AUXILIARY INFORMATION																																																
METHOD/APPARATUS/PROCEDURE: <p>The method for determining the solubility is similar to that described in ref 1. Mixtures of rubidium bromate and water were shaken in a thermostat. About 5 hours were required to attain equilibrium. Two methods of analysis were used. In the first method, aliquots of the saturated solutions were weighed, carefully evaporated to dryness, and dried at 115°C to constant weight. In the second method, the iodometric method was used to determine the bromate concentration. Both methods were of equal precision.</p>	SOURCE AND PURITY OF MATERIALS: <p>RbCl of "doubtful purity" was converted to the alum, recrystallized, and digested with excess BaCO_3 on a hot plate. The sln was filtered, treated with Ba(OH)_2 and CO_2, and filtered again. The salt was then treated with excess "pure" bromic acid and allowed to crystallize. The resulting RbBrO_3 was recrystallized three times.</p> <p>Source and purity of water not specified.</p> ESTIMATED ERROR: Soly: precision in analyses about $\pm 0.3\%$ (compilers), standard deviations for solubility measurements given in table calculated by the compilers. Temp: nothing specified.																																															
REFERENCES: 1. McCrosky, C.R.; Buell, H.D. <i>J. Am. Chem. Soc.</i> <u>1920</u> , 42, 1786.																																																

COMPONENTS: (1) Rubidium bromate; RbBrO_3 ; [13446-70-3] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Breusov, O.N.; Kashina, N.I.; Revzina, T.V.; Sobolevskaya, N.G. <i>Zh. Neorg. Khim.</i> 1967, 12, 2240-3; <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> 1967, 12, 1179-81.																																																							
VARIABLES: T/K = 273 to 373	PREPARED BY: Hiroshi Miyamoto																																																							
EXPERIMENTAL VALUES: <table data-bbox="130 514 692 897" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">t/°C</th> <th colspan="3">Solubility of RbBrO_3^a</th> </tr> <tr> <th>mass %</th> <th>mol %</th> <th>mol kg⁻¹ (compiler)</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.98</td><td>0.0835</td><td>0.0464</td></tr> <tr><td>10</td><td>1.53</td><td>0.131</td><td>0.0728</td></tr> <tr><td>20</td><td>2.37</td><td>0.205</td><td>0.1138</td></tr> <tr><td>25</td><td>2.93</td><td>0.254</td><td>0.1415</td></tr> <tr><td>30</td><td>3.45</td><td>0.301</td><td>0.1675</td></tr> <tr><td>40</td><td>4.92</td><td>0.435</td><td>0.2425</td></tr> <tr><td>50</td><td>6.72</td><td>0.608</td><td>0.3376</td></tr> <tr><td>60</td><td>8.90</td><td>0.818</td><td>0.4579</td></tr> <tr><td>70</td><td>11.17</td><td>1.051</td><td>0.5893</td></tr> <tr><td>80</td><td>14.06</td><td>1.367</td><td>0.7667</td></tr> <tr><td>90</td><td>17.15</td><td>1.718</td><td>0.9701</td></tr> <tr><td>100</td><td>20.96</td><td>2.177</td><td>1.243</td></tr> </tbody> </table> <div data-bbox="884 514 1104 997" style="text-align: center;"> </div> <p data-bbox="836 1028 1138 1058" style="text-align: center;">High temp. apparatus</p> <p data-bbox="89 927 699 957"> ^a The nature of the solid phase was not specified. </p>		t/°C	Solubility of RbBrO_3^a			mass %	mol %	mol kg ⁻¹ (compiler)	0	0.98	0.0835	0.0464	10	1.53	0.131	0.0728	20	2.37	0.205	0.1138	25	2.93	0.254	0.1415	30	3.45	0.301	0.1675	40	4.92	0.435	0.2425	50	6.72	0.608	0.3376	60	8.90	0.818	0.4579	70	11.17	1.051	0.5893	80	14.06	1.367	0.7667	90	17.15	1.718	0.9701	100	20.96	2.177	1.243
t/°C	Solubility of RbBrO_3^a																																																							
	mass %	mol %	mol kg ⁻¹ (compiler)																																																					
0	0.98	0.0835	0.0464																																																					
10	1.53	0.131	0.0728																																																					
20	2.37	0.205	0.1138																																																					
25	2.93	0.254	0.1415																																																					
30	3.45	0.301	0.1675																																																					
40	4.92	0.435	0.2425																																																					
50	6.72	0.608	0.3376																																																					
60	8.90	0.818	0.4579																																																					
70	11.17	1.051	0.5893																																																					
80	14.06	1.367	0.7667																																																					
90	17.15	1.718	0.9701																																																					
100	20.96	2.177	1.243																																																					
AUXILIARY INFORMATION																																																								
METHOD/APPARATUS/PROCEDURE: Isothermal method. Equilibrium reached in 4-5 h. From 90-100°C, soly detd in apparatus shown in figure. At equilibrium, the apparatus was tilted to allow saturated solution to filter through connecting tube into weighed test tubes. The test tube was closed with a stopper, withdrawn, and weighed. Condensation on the walls of the apparatus and loss of water by evaporation was thus prevented. At the lower temperatures, ordinary soly vessels were used, and pipets with glass filters were used for sampling (no other details given). Above 50°C, the pipets were preheated in the thermostat. Bromate was determined iodometrically.	SOURCE AND PURITY OF MATERIALS: Results of analysis of RbBrO_3 ; Content of RbBrO_3 = 98.6 %. Impurities (mass %): K 0.12; Cs 0.1; Na 0.014; SO_4 0.1; Fe < 0.0025. ESTIMATED ERROR: Soly: nothing specified. Temp: precision ± 0.1 K. REFERENCES:																																																							