

COMPONENTS: (1) Mercury(II) oxide; HgO; [21908-53-2] (2) Lithium chloride; LiCl; [7447-41-8] (3) Sodium chloride; NaCl; [7647-14-5] (4) Potassium chloride; KCl; [7447-40-7] (5) Water; H ₂ O; [7732-18-5]	ORIGINAL MEASUREMENTS: Herz, W.; Hiebenthal, F. Z. <i>anorg. u. allgem. Chem.</i> <u>1928</u> , 177, 363-80																																																																					
VARIABLES: Concentration of alkali halides at 25°C.	PREPARED BY: T. P. Dirkse																																																																					
EXPERIMENTAL VALUES: The solubility in water is given as 2.51×10^{-4} mol dm ⁻³ Solubility of red HgO in alkali solutions <table border="1" data-bbox="95 561 1204 1038"> <thead> <tr> <th>mol LiCl dm⁻³</th> <th>normality of HgO</th> <th>mol HgO dm⁻³^a</th> <th>mol KCl dm⁻³</th> <th>normality of HgO</th> <th>mol HgO dm⁻³^a</th> </tr> </thead> <tbody> <tr><td>0.35</td><td>0.0008</td><td>0.0004</td><td>0.35</td><td>0.0008</td><td>0.0004</td></tr> <tr><td>0.51</td><td>0.0011</td><td>0.0006</td><td>0.70</td><td>0.0011</td><td>0.0006</td></tr> <tr><td>0.74</td><td>0.0014</td><td>0.0007</td><td>0.85</td><td>0.0013</td><td>0.0007</td></tr> <tr><td>0.99</td><td>0.0020</td><td>0.0010</td><td>1.49</td><td>0.0023</td><td>0.0012</td></tr> <tr><td>2.15</td><td>0.0053</td><td>0.0027</td><td>2.35</td><td>0.0038</td><td>0.0019</td></tr> <tr><td>2.47</td><td>0.0061</td><td>0.0031</td><td>2.40</td><td>0.0040</td><td>0.0020</td></tr> <tr><td></td><td></td><td></td><td>3.13</td><td>0.0054</td><td>0.0027</td></tr> </tbody> </table> <table border="1" data-bbox="95 820 592 1038"> <thead> <tr> <th>Mol NaCl dm⁻³</th> <th>normality of HgO</th> <th>mol HgO dm⁻³^a</th> </tr> </thead> <tbody> <tr><td>1.05</td><td>0.0026</td><td>0.0013</td></tr> <tr><td>1.55</td><td>0.0036</td><td>0.0018</td></tr> <tr><td>2.12</td><td>0.0046</td><td>0.0023</td></tr> <tr><td>3.13</td><td>0.0074</td><td>0.0037</td></tr> <tr><td>4.22</td><td>0.0091</td><td>0.0046</td></tr> <tr><td>5.45</td><td>0.0158</td><td>0.0079</td></tr> </tbody> </table> <p>^acalculated by compiler</p>		mol LiCl dm ⁻³	normality of HgO	mol HgO dm ⁻³ ^a	mol KCl dm ⁻³	normality of HgO	mol HgO dm ⁻³ ^a	0.35	0.0008	0.0004	0.35	0.0008	0.0004	0.51	0.0011	0.0006	0.70	0.0011	0.0006	0.74	0.0014	0.0007	0.85	0.0013	0.0007	0.99	0.0020	0.0010	1.49	0.0023	0.0012	2.15	0.0053	0.0027	2.35	0.0038	0.0019	2.47	0.0061	0.0031	2.40	0.0040	0.0020				3.13	0.0054	0.0027	Mol NaCl dm ⁻³	normality of HgO	mol HgO dm ⁻³ ^a	1.05	0.0026	0.0013	1.55	0.0036	0.0018	2.12	0.0046	0.0023	3.13	0.0074	0.0037	4.22	0.0091	0.0046	5.45	0.0158	0.0079
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METHOD/APPARATUS/PROCEDURE: Red HgO was shaken with the solvents at 25°C. Mercury was analyzed by titration and halide content was determined argimetrically. No references are given. Equilibrium was approached only from undersaturation.	SOURCE AND PURITY OF MATERIALS: Commercially available materials were used. ESTIMATED ERROR: Impossible to determine from the information given. REFERENCES:																																																																					

COMPONENTS: (1) Mercury(II) oxide; HgO; [21908-53-2] (2) Sodium hydroxide; NaOH; [1310-73-2] (3) Sodium sulfate; Na ₂ SO ₄ ; [7757-82-6] (4) Water; H ₂ O; [7732-18-5]	ORIGINAL MEASUREMENTS: Garrett, A. B.; Hirschler, A. E. <i>J. Am. Chem. Soc.</i> <u>1938</u> , <i>60</i> , 299-306																				
VARIABLES: Solvent composition at 25°C.	PREPARED BY: T. P. Dirkse																				
EXPERIMENTAL VALUES: Solubility of yellow HgO in Na ₂ SO ₄ -NaOH solutions at 25°C. <table border="1" data-bbox="203 617 1211 880"> <thead> <tr> <th data-bbox="203 638 389 679">mol NaOH/kg H₂O</th> <th data-bbox="459 617 655 679">(mol HgO/kg H₂O) × 10⁵</th> <th data-bbox="743 638 963 679">mol Na₂SO₄/kg H₂O</th> <th data-bbox="1061 617 1211 679">Total ionic strength</th> </tr> </thead> <tbody> <tr> <td data-bbox="277 700 347 725">0.1433</td> <td data-bbox="529 700 585 725">30.1</td> <td data-bbox="809 700 893 725">0.5863</td> <td data-bbox="1089 700 1159 725">1.902</td> </tr> <tr> <td data-bbox="277 745 347 770">0.1380</td> <td data-bbox="529 745 585 770">34.7</td> <td data-bbox="809 745 893 770">1.145</td> <td data-bbox="1089 745 1159 770">3.573</td> </tr> <tr> <td data-bbox="277 791 347 816">0.1649</td> <td data-bbox="529 791 585 816">37.0</td> <td data-bbox="809 791 893 816">1.668</td> <td data-bbox="1089 791 1159 816">5.169</td> </tr> <tr> <td data-bbox="277 837 347 861">0.1454</td> <td data-bbox="529 837 585 861">39.0</td> <td data-bbox="809 837 893 861">2.137</td> <td data-bbox="1089 837 1159 861">6.556</td> </tr> </tbody> </table>		mol NaOH/kg H ₂ O	(mol HgO/kg H ₂ O) × 10 ⁵	mol Na ₂ SO ₄ /kg H ₂ O	Total ionic strength	0.1433	30.1	0.5863	1.902	0.1380	34.7	1.145	3.573	0.1649	37.0	1.668	5.169	0.1454	39.0	2.137	6.556
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COMPONENTS: (1) Mercury(II) oxide; HgO; [21908-53-2] (2) Sodium nitrate; NaNO ₃ ; [7631-99-4] (3) Sodium hydroxide; NaOH; [1310-73-2] (4) Water; H ₂ O; [7732-18-5]	ORIGINAL MEASUREMENTS: Garrett, A. B.; Hirschler, A. E. <i>J. Am. Chem. Soc.</i> <u>1938</u> , <i>60</i> , 299-306																
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COMPONENTS: (1) Mercury(II) oxide; HgO; [21908-53-2] (2) Acetic acid; C ₂ H ₄ O ₂ ; [64-19-7] (3) Sodium acetate; NaC ₂ H ₃ O ₂ ; [127-09-3] (4) Water; H ₂ O; [7732-18-5]			ORIGINAL MEASUREMENTS: Mahapatra, P.; Aditya, S.; Prasad, B. <i>J. Indian Chem. Soc.</i> <u>1953</u> , <i>30</i> , 509-513.		
VARIABLES: Concentration of acetic acid and sodium acetate at 35°C.			PREPARED BY: T. P. Dirkse		
EXPERIMENTAL VALUES:					
NaC ₂ H ₃ O ₂ mol dm ⁻³	C ₂ H ₄ O ₂ mol dm ⁻³	HgO mol dm ⁻³	NaC ₂ H ₃ O ₂ mol dm ⁻³	C ₂ H ₄ O ₂ mol dm ⁻³	HgO mol dm ⁻³
0.10	1.00	0.0287	0.04	0.08	0.0192
0.50	0.50	0.1864	0.02	0.08	0.0200
1.00	0.5	0.2054	0.01	0.08	0.0198
0.04	0.32	0.0081	0.0625	0.0625	0.01636
0.50	0.25	0.08095	0.125	0.062	0.0162
0.25	0.25	0.0800	0.50	0.05	0.0098
0.0625	0.25	0.0690	0.25	0.05	0.01104
0.10	0.20	0.0674	0.100	0.05	0.00968
0.05	0.20	0.0663	0.05	0.05	0.01227
0.04	0.16	0.0488	0.04	0.04	0.0089
0.02	0.16	0.0481	0.02	0.04	0.0084
0.625	0.125	0.03757	0.01	0.04	0.0083
0.25	0.125	0.0357	0.0625	0.03125	0.00628
0.125	0.125	0.03757	0.25	0.025	0.00296
0.50	0.100	0.0266	0.125	0.025	0.005065
0.10	0.10	0.0283	0.05	0.0250	0.005095
0.05	0.10	0.0277	0.10	0.020	0.003863
			0.01	0.020	0.0034
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE: Excess red HgO was shaken with 100 ml of known acetic acid-sodium acetate concentration for 5 days at 25-30°C and then for 5 days at 35°C. Mercury was determined by the iodate method.			SOURCE AND PURITY OF MATERIALS: Reagent grade materials were used.		
			ESTIMATED ERROR: No information is given as to precision of temperature control nor of the analyses.		
			REFERENCES:		

COMPONENTS: (1) Mercury(II) oxide; HgO; [21908-53-2] (2) Carbon dioxide; CO ₂ ; [124-38-9] (3) Sodium chloride; NaCl; [7647-14-5] (4) Water; H ₂ O; [7732-18-5]	ORIGINAL MEASUREMENTS: Shlyapnikov, D. S.; Shtern, E. K. <i>Dokl. Akad. Nauk SSSR</i> 1975, 225, 428-31; <i>Dokl. Acad. Sci. USSR, Earth Sci. Sect. (Engl. transl.)</i> 1975, 225, 185-8.												
VARIABLES: Sodium chloride concentration and pressure of carbon dioxide.	PREPARED BY: T. P. Dirkse												
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of HgO at 293 K in aqueous solutions under a carbon dioxide pressure of 50 atm.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">$C_{\text{NaCl}}/\text{mol dm}^{-3}$</th> <th style="text-align: center;">$C_{\text{HgO}}/\text{g dm}^{-3}$</th> <th style="text-align: center;">$C_{\text{HgO}}/\text{mol dm}^{-3}{}^a$</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">0.22</td> <td style="text-align: center;">0.0010</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">32.4</td> <td style="text-align: center;">0.150</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">68.00</td> <td style="text-align: center;">0.314</td> </tr> </tbody> </table> <p>^aCalculated by the compiler</p>		$C_{\text{NaCl}}/\text{mol dm}^{-3}$	$C_{\text{HgO}}/\text{g dm}^{-3}$	$C_{\text{HgO}}/\text{mol dm}^{-3}{}^a$	0	0.22	0.0010	1	32.4	0.150	4	68.00	0.314
$C_{\text{NaCl}}/\text{mol dm}^{-3}$	$C_{\text{HgO}}/\text{g dm}^{-3}$	$C_{\text{HgO}}/\text{mol dm}^{-3}{}^a$											
0	0.22	0.0010											
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4	68.00	0.314											
AUXILIARY INFORMATION													
METHOD/APPARATUS/PROCEDURE: Solution and solid HgO were shaken in an autoclave at the prescribed temperature for 24 hours. CO ₂ was introduced as a solid. Metal analysis was done compleximetrically and spectrophotometrically. No further details are given.	SOURCE AND PURITY OF MATERIALS: No information is given.												
	ESTIMATED ERROR: Cannot be determined from the information given in the paper.												
	REFERENCES:												

COMPONENTS:	ORIGINAL MEASUREMENTS:					
(1) Mercury(II) oxide; HgO; [21908-53-2] (2) Carbon dioxide; CO ₂ ; [124-38-9] (3) Sodium chloride; NaCl; [7647-14-5] (4) Water; H ₂ O; [7732-18-5]	Shlyapnikov, D. S.; Shtern, E. K. <i>Dokl. Akad. Nauk SSSR, Ser. Geol.</i> <u>1979, 249, 457-61; Russ.;</u> <i>Dokl. Acad. Sci. USSR, Earth Sci. Sect.</i> (Engl. transl.) <u>1979, 249, 173-6.</u>					
VARIABLES:	PREPARED BY:					
Pressure of carbon dioxide, and concentration of NaCl at 20°C.	T. P. Dirkse					
EXPERIMENTAL VALUES:						
Solubility and composition of solid phases						
in the system HgO-NaCl-H ₂ O-CO ₂ at 20°C.						
P _{CO₂}	Starting solution ₃ mol NaCl dm ³	Filtrate ₃ g Hg dm ³	Solid phase		%Cl	Solid phase composition ^a
			%Hg	%CO ₂		
1 atm	0	0.18	89.2	0.0	0.0	A
"	0.2	14.0	87.6	0.0	1.4	A+B
"	1.0	39.8	84.8	0.0	9.7	B
"	2.0	97.4	82.1	2.7	9.04	B
"	4.0	145.0	0.0	44.8	0.0	C
50 atm	0	0.21	86.8	5.4	0.0	D
"	0.2	12.9	86.0	5.7	2.4	B+D
"	1.0	32.6	85.7	2.5	4.4	B
"	2.0	92.0	82.0	4.9	7.8	B+C
"	4.0	138.0	0.12	49.2	0.22	C
^a Identity of the solid phases:						
A- HgO						
B- HgCl ₂ ·nHgO						
C- NaHCO ₃						
D- HgCO ₃ ·2HgO						
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:					
Samples of yellow HgO and solvent were mixed in a rocking autoclave. The CO ₂ atmosphere was produced by bubbling CO ₂ through the mixture or by adding solid CO ₂ . Cl ⁻ was determined by titration with AgNO ₃ , CO ₂ was determined by gas absorption. The mercury content was determined by precipitation as the sulfide. The identity of the solid phases was confirmed by means of X-ray diffraction patterns.	The HgO was prepared from reagent grade chemicals. No information is given about the other materials that were used.					
ESTIMATED ERROR:						
The article contains no information about control of temperature and pressure nor about the reproducibility of the analytical methods.						
REFERENCES:						

COMPONENTS: (1) Mercury(II) oxide; HgO; [21908-53-2] (2) Sodium carbonate; Na ₂ CO ₃ ; [497-19-8] (3) Sodium perchlorate; NaClO ₄ ; [7601-89-0] (4) Water; H ₂ O; [7732-18-5]	ORIGINAL MEASUREMENTS: Bilinski, H.; Markovic, M.; Gessner, M. <i>Inorg. Chem.</i> <u>1980</u> , <i>19</i> , 3440-3.																																
VARIABLES: Concentration of sodium carbonate at 25°C.	PREPARED BY: T. P. Dirkse																																
EXPERIMENTAL VALUES: <p style="text-align: center;">Equilibrium Composition of Mercury (II)-Carbonate System at 25°C.</p> <p style="text-align: center;">Total ionic strength is 0.5 mol dm⁻³ Precipitate was "aged" for 30 days.</p> <p style="text-align: center;">Solution</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Total CO₃²⁻ mol dm⁻³</th> <th style="text-align: center;">pH</th> <th style="text-align: center;">mol Hg(II) dm⁻³</th> <th style="text-align: center;">Solid phase^a</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0.04</td> <td style="text-align: center;">10.19</td> <td style="text-align: center;">4.70 x 10⁻⁴</td> <td style="text-align: center;">HgO</td> </tr> <tr> <td style="text-align: center;">0.05</td> <td style="text-align: center;">9.80</td> <td style="text-align: center;">4.55 x 10⁻⁴</td> <td style="text-align: center;">"</td> </tr> <tr> <td style="text-align: center;">0.06</td> <td style="text-align: center;">10.35</td> <td style="text-align: center;">5.13 x 10⁻⁴</td> <td style="text-align: center;">"</td> </tr> <tr> <td style="text-align: center;">0.08</td> <td style="text-align: center;">10.4</td> <td style="text-align: center;">4.70 x 10⁻⁴</td> <td style="text-align: center;">"</td> </tr> <tr> <td style="text-align: center;">0.10</td> <td style="text-align: center;">10.1</td> <td style="text-align: center;">4.45 x 10⁻⁴</td> <td style="text-align: center;">"</td> </tr> <tr> <td style="text-align: center;">0.14</td> <td style="text-align: center;">10.5</td> <td style="text-align: center;">4.67 x 10⁻⁴</td> <td style="text-align: center;">"</td> </tr> <tr> <td style="text-align: center;">0.20</td> <td style="text-align: center;">10.7</td> <td style="text-align: center;">4.31 x 10⁻⁴</td> <td style="text-align: center;">"</td> </tr> </tbody> </table> <p>^a determined by X-ray diffraction.</p>		Total CO ₃ ²⁻ mol dm ⁻³	pH	mol Hg(II) dm ⁻³	Solid phase ^a	0.04	10.19	4.70 x 10 ⁻⁴	HgO	0.05	9.80	4.55 x 10 ⁻⁴	"	0.06	10.35	5.13 x 10 ⁻⁴	"	0.08	10.4	4.70 x 10 ⁻⁴	"	0.10	10.1	4.45 x 10 ⁻⁴	"	0.14	10.5	4.67 x 10 ⁻⁴	"	0.20	10.7	4.31 x 10 ⁻⁴	"
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METHOD/APPARATUS/PROCEDURE: Solid HgCO ₃ ·2HgO was equilibrated with the solution for 30 days. Dissolved mercury content was determined polarographically (1) or complexometrically(2). Hydrogen ion concentration was measured with a glass electrode. The ionic strength of the solutions was kept at 0.5 mol dm ⁻³ by the addition of NaClO ₄ .	SOURCE AND PURITY OF MATERIALS: Bidistilled water and commercially available chemicals were used.																																
ESTIMATED ERROR: This cannot be estimated from the information in the paper.																																	
REFERENCES: 1. Heyrovky, J.; Kuta, J. <i>Principles of Polarography</i> , Czech. Acad. Sci, Prague, <u>1966</u> , p. 167. 2. <i>Komplexometrische Bestimmungsmethoden mit Titriplex</i> , AG-Darmstadt, West Germany, <u>1961</u> .																																	