

<p>COMPONENTS:</p> <p>(1) Bromobenzene; C₆H₅Br; [108-86-1]</p> <p>(2) Water; H₂O; [7732-18-5]</p>	<p>EVALUATOR:</p> <p>A. L. Horvath, Imperial Chemical Industries Limited, Runcorn, England.</p> <p>January 1983.</p>
<p>CRITICAL EVALUATION:</p> <p>The solubility of bromobenzene in water has been reported in eight published sets of data (1-6,14,15). The solubility behavior as a function of temperature is illustrated in Figure 1. Some rather serious discrepancies between the various solubility measurements are evident in the figure.</p> <p>The solubility of water in bromobenzene has been measured by several investigators between 1932 and 1963 and reported in five published sets of data (7-10,14). As shown in Figure 2, which gives the solubility behavior relative to Absolute temperature, the agreement among experimental values is reasonable.</p> <p>Of the more recent works, that of Nelson and Smit (4) reported the solubility data for temperatures in the range between 278 and 318 K. However, despite the equilibration period of 24 hours (which might not have been long enough), the solubility values obtained are substantially lower than those found by the earlier investigators. It is not possible to establish any shortcomings of their experimental procedure from the very brief description. No information was provided on the source and purity of materials used. Also, it was not indicated whether or not a water stripper had been employed for the analysis of the very dilute aqueous solutions by gas chromatography, or whether or not an internal standard had been used for the calibration of the gas chromatograph which employed a flame ionization detector. However, the authors agreed to re-examine their raw data in order to verify the reported values (13). Consequently, for the present evaluation, their results have not been considered for inclusion in the selected solubility values.</p> <p>The reported solubility value of Yalkowsky et al. is too low. This could be due to an insufficient time allowed for saturation equilibrium. According to the authors, the accuracy of the experimental determination was ± 10 percent (11). The remaining reported data, that of Andrews and Keefer (1), Gross and Saylor (2), Hine et al. (3), and Vesala (5,15), have been correlated against Absolute temperature using a normal polynomial equation of second degree. In the regression, twice as much weight was assigned to the data of Vesala as was assigned to the remaining data. The equation below represents the solubility of bromobenzene in water between 283 and 308 K:</p> $S_1(g(1)/kg) = 1.8293 - 1.35675 \times 10^{-2} T + 2.99322 \times 10^{-5} T^2 \quad [1]$ <p>The values calculated from equation [1] for the saturation of bromobenzene in water in the range of temperatures between 283 and 313 K together with corresponding molarities and mole fractions are given in Table 1. Also, the solubility values calculated from equation [1] are shown in Figure 1 as a solid line along with the measured values.</p> <p>The solubility of water in bromobenzene has been reported in the temperature range between 288 and 308 K in five investigations. The original report from Columbia University by Hutchinson and Lyon (8) has been lost, and all details reported here on that work have been taken from a secondary source (12). The single value from Hutchinson and Lyon is too high in relation to other reported determinations at the same temperature so it was not included in the correlation of the data against temperature. On the other hand, the solubility reported by Donahue and Bartell (14) appears too low and this value also was not used in the correlation. The reported values of Bell (7), Jones and Monk (9), and Wing and Johnston (10) are represented by the equation:</p> $\log_{10}x(2) = 2.43149 - 1514.54/T \quad [2]$ <p>In this equation, $x(2)$ is the mole fraction solubility of water in the water-bromobenzene system and T is the Absolute temperature. The calculated solubility values in the 283 to 308 K range are shown in Figure 2 as a solid line along with the reported values.</p> <p>The calculated mole fraction values for the solubility of water in bromobenzene from equation [2] are included in Table 2 together with the corresponding molarities and $g(2)/kg$ values in the temperature range between 283 and 313 K.</p>	

COMPONENTS:	EVALUATOR:
(1) Bromobenzene; C ₆ H ₅ Br; [108-86-1]	A. L. Horvath, Imperial Chemical Industries Limited, Runcorn, England.
(2) Water; H ₂ O; [7732-18-5]	January 1983.

CRITICAL EVALUATION: (Continued)

Table 1. Solubility of Bromobenzene in Water.

T/K	10 ³ mol(1)/dm ³	10g(1)/kg	10 ⁵ x(1)
283.15	2.47	3.87	4.45
288.15	2.58	4.05	4.65
293.15	2.70	4.24	4.87
298.15	2.83	4.45	5.11
303.15	2.96	4.67	5.36
308.15	3.11	4.91	5.63
313.15	3.26	5.16	5.92

Table 2. Solubility of Water in Bromobenzene.

T/K	10 ² mol(2)/dm ³	10g(2)/kg	10 ³ x(2)
283.15	1.16	1.39	1.21
288.15	1.43	1.72	1.50
293.15	1.76	2.12	1.84
298.15	2.13	2.58	2.25
303.15	2.58	3.14	2.73
308.15	3.09	3.78	3.29
313.15	3.69	4.53	3.94

REFERENCES

- Andrews, L. J.; Keefer, R. M. *J. Am. Chem. Soc.* 1950, *72*(7), 3113-6.
- Gross, P. M.; Saylor, J. H. *J. Am. Chem. Soc.* 1931, *53*(5), 1744-51.
- Hine, J.; Haworth, H. W.; Ramsay, O. B. *J. Am. Chem. Soc.* 1963, *85*(10), 1473-6.
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- Bell, R. P. *J. Chem. Soc.* 1932, *Part II*, 2905-11.
- Hutchinson, C. A.; Lyon, A. M. Columbia University Report A-745, July 1, 1943.
- Jones, J. R.; Monk, C. B. *J. Chem. Soc.* 1963, *Part III*, 2633-5.
- Wing, J.; Johnston, W. H. *J. Am. Chem. Soc.* 1957, *79*(4), 864-5.
- Yalkowsky, S. H., Personal Communication, 1979.
- Eidinoff, M. L. In "Production of Heavy Water", National Nuclear Energy Series Division III-Vol. 4F, Murphy, G. M.; Urey, H. C.; Kirshenbaum, I., Eds.; McGraw-Hill: New York, 1955; Part II, Chapter 7, pp 129-44.

<p>COMPONENTS:</p> <p>(1) Bromobenzene; C_6H_5Br; [108-86-1]</p> <p>(2) Water; H_2O; [7732-18-5]</p>	<p>EVALUATOR:</p> <p>A. L. Horvath, Imperial Chemical Industries Limited, Runcorn, England.</p> <p>January 1983.</p>
<p>CRITICAL EVALUATION: (Continued)</p> <p>13. Nelson, H. D., Personal Communication, <u>1979</u>.</p> <p>14. Donahue, D. J.; Bartell, F. E. <i>J. Phys. Chem.</i> <u>1952</u>, <i>56</i>(4), 480-4.</p> <p>15. Vesala, A., Ph.D. Dissertation, University of Turku, Turku, <u>1973</u>.</p>	

COMPONENTS:

(1) Bromobenzene; C_6H_5Br ; [108-86-1](2) Water; H_2O ; [7732-18-5]

EVALUATOR:

A. L. Horvath, Imperial Chemical Industries Limited, Runcorn, England.

May 1979.

CRITICAL EVALUATION: (Continued)

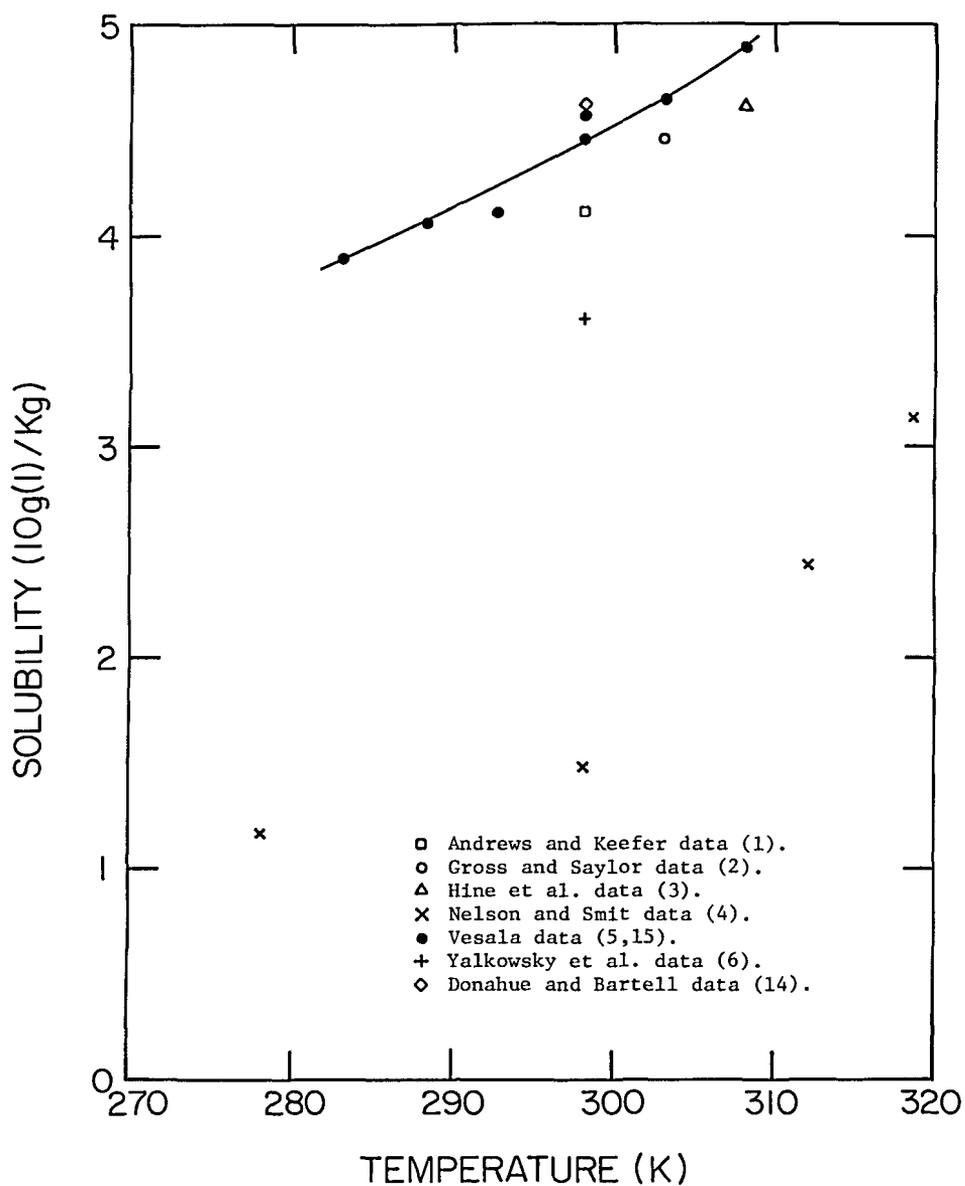


Figure 1. Solubility of bromobenzene in water versus Absolute temperature, reported and calculated values.

COMPONENTS:

- (1) Water; H_2O ; [7732-18-5]
 (2) Bromobenzene; C_6H_5Br ; [108-86-1]

EVALUATOR:

A. L. Horvath, Imperial Chemical Industries
 Limited, Runcorn, England.

May 1979.

CRITICAL EVALUATION: (Continued)

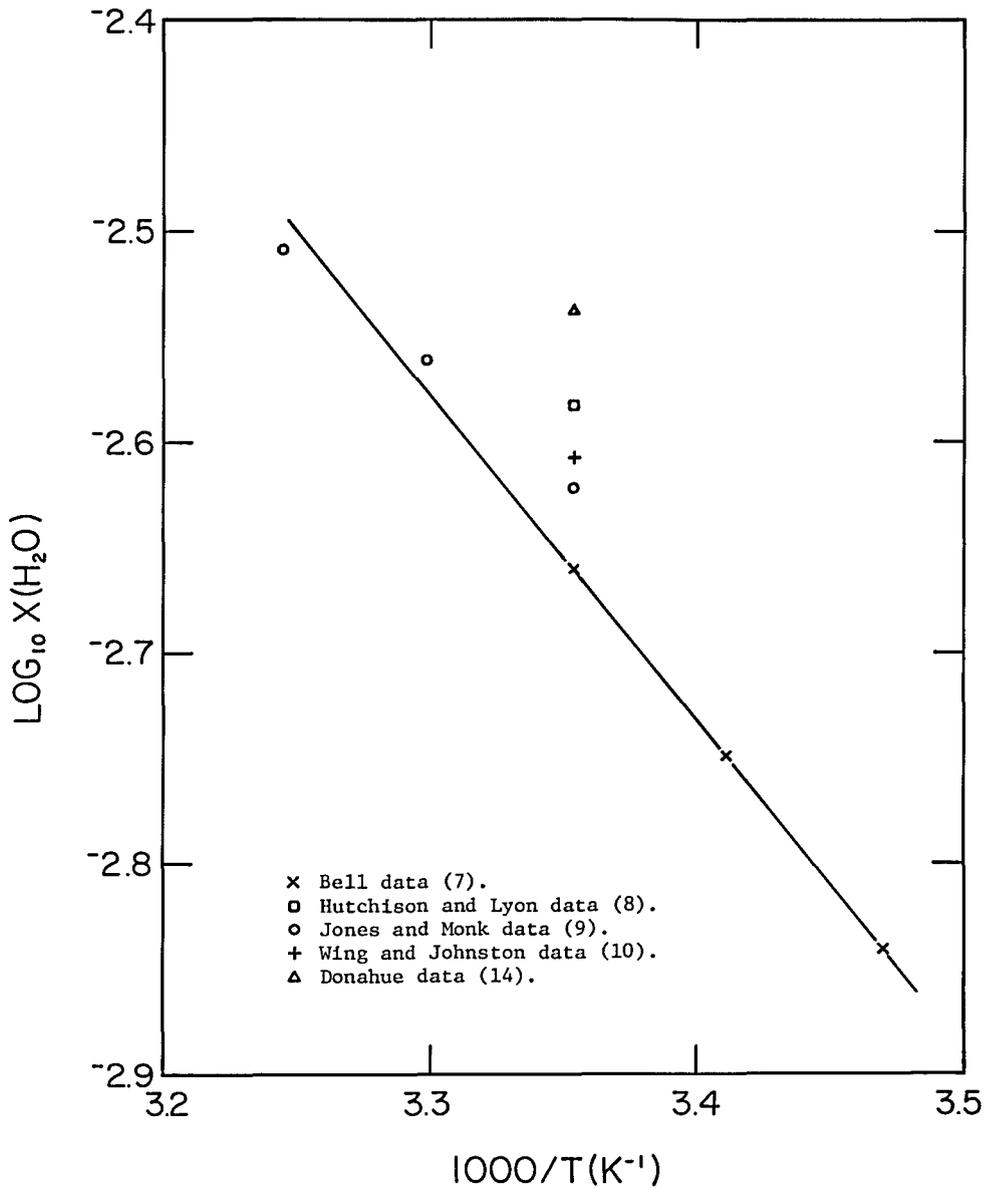


Figure 2. Logarithm of mole fraction solubility of water in bromobenzene versus reciprocal of Absolute temperature, reported and calculated values.

COMPONENTS: (1) Bromobenzene; C_6H_5Br ; [108-86-1] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Gross, P. M.; Saylor, J. H. <i>J. Am. Chem. Soc.</i> <u>1931</u> , 53(5), 1744-51.								
VARIABLES: One temperature	PREPARED BY: A. L. Horvath								
EXPERIMENTAL VALUES: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">$t/^\circ C$</th> <th style="text-align: center;">$10g(1)/kg(2)^a$</th> <th style="text-align: center;">$10^3 mol(1)/kg^b$</th> <th style="text-align: center;">$10^5 x(1)^c$</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">30</td> <td style="text-align: center;">4.46</td> <td style="text-align: center;">2.839</td> <td style="text-align: center;">5.117</td> </tr> </tbody> </table> <p> a. Reported. b. Calculated by F. W. Getzen. c. Calculated by compiler. </p>		$t/^\circ C$	$10g(1)/kg(2)^a$	$10^3 mol(1)/kg^b$	$10^5 x(1)^c$	30	4.46	2.839	5.117
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30	4.46	2.839	5.117						
AUXILIARY INFORMATION									
METHOD/APPARATUS/PROCEDURE: An excess of bromobenzene in 500 g water was shaken for 12 hrs. in a thermostat bath. Samples were then withdrawn and read against water in an interferometer made by Zeiss (1). A detailed description of the complete procedure is given in a Ph.D. dissertation (2).	SOURCE AND PURITY OF MATERIALS: C_6H_5Br : Eastman Kodak Co., was purified by fractional distillation before use. H_2O : Distilled. ESTIMATED ERROR: Solubility: $\pm 2\%$. Temperature: ± 0.02 K. REFERENCES: 1. Gross, P. M. <i>J. Am. Chem. Soc.</i> <u>1929</u> , 51(8), 2362-6. 2. Saylor, J. H., Ph.D. Dissertation, Duke University, Durham, <u>1930</u> .								

<p>COMPONENTS:</p> <p>(1) Water; H₂O; [7732-18-5]</p> <p>(2) Bromobenzene; C₆H₅Br; [108-86-1]</p>	<p>ORIGINAL MEASUREMENTS:</p> <p>Bell, R. P. <i>J. Chem. Soc.</i> <u>1932</u>, Part II, 2905-11.</p>																
<p>VARIABLES:</p> <p>Temperature</p>	<p>PREPARED BY:</p> <p>A. L. Horvath</p>																
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<p>AUXILIARY INFORMATION</p>																	
<p>METHOD/APPARATUS/PROCEDURE:</p> <p>About 1 to 5 ratio solute/solvent mixtures were rotated in a thermostat bath for 12 hrs. After equilibrium was established, samples were taken and filtered through cottonwool. The determination of the water content was based on the reaction with α-naphthoxydichlorophosphine. The evolved HCl was absorbed in water and titrated with NaOH solution (1). Successive (2-4) determinations were carried out with the solvent.</p>	<p>SOURCE AND PURITY OF MATERIALS:</p> <p>H₂O: Distilled (compiler). C₆H₅Br: Merck reagent, analytical grade, redistilled before use.</p> <p>ESTIMATED ERROR: Solubility: ±2.6%. Temperature: ±0.02 K.</p> <p>REFERENCES:</p> <p>1. Bell, R. P. <i>J. Chem. Soc.</i> <u>1932</u>, Part II, 2903-5.</p>																

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METHOD/APPARATUS/PROCEDURE: A mixture of 1 to 15 volume ratio of solute to solvent was placed in an equilibration flask and then lowered into a thermostat water bath. The assembly was shaken mechanically for about 90 min. at constant temperature. The amount of water in the organic phase was determined by a modified Karl Fisher titration. The determination was done in triplicate. The description of the procedure was taken from a secondary source (1). The original report is no longer available.	SOURCE AND PURITY OF MATERIALS: H ₂ O: Distilled. C ₆ H ₅ Br: Source is not known, purified and dried before use.								
ESTIMATED ERROR: Solubility: ± 1%. Temperature: ± 0.05 K.									
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<p>AUXILIARY INFORMATION</p>									
<p>METHOD/APPARATUS/PROCEDURE:</p> <p>In a constant temperature bath, water was mixed with bromobenzene through rotation in a glass-stoppered Erlenmeyer flask for 30 hrs. The saturated solution was extracted with n-hexane. The optical density of the extract was measured against a n-hexane blank using a Beckman spectrophotometer (1).</p>	<p>SOURCE AND PURITY OF MATERIALS:</p> <p>C_6H_5Br: Eastman Kodak Co., commercial reagent, b.p. $156.3^\circ C$, fractionated before use.</p> <p>H_2O: Not specified.</p> <p>ESTIMATED ERROR:</p> <p>Solubility: $\pm 10\%$ (compiler). Temperature: ± 0.1 K (compiler).</p> <p>REFERENCES:</p> <p>1. Andrews, L. J.; Keefer, R. M. <i>J. Am. Chem. Soc.</i> <u>1949</u>, <i>71</i>, 3644-7.</p>								

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<p>AUXILIARY INFORMATION</p>																	
<p>METHOD/APPARATUS/PROCEDURE:</p> <p>A mixture of water and bromobenzene was placed in a glass stoppered flask and shaken intermittently for at least three days in a constant temperature water bath. The water content of the organic phase was established by the Karl Fisher method and the organic content of the aqueous phase was established interferometrically.</p>	<p>SOURCE AND PURITY OF MATERIALS:</p> <p>C_6H_5Br: Reagent grade, purified by fractional distillation.</p> <p>H_2O: Purified by distillation.</p>																
	<p>ESTIMATED ERROR:</p> <p>Solubility: $\pm 5\%$ (compiler).</p> <p>Temperature: ± 0.1 K.</p>																
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<p>AUXILIARY INFORMATION</p>									
<p>METHOD/APPARATUS/PROCEDURE:</p> <p>Tritiated water was equilibrated with 20 ml bromobenzene by stirring in a flask in a constant temperature water bath for two hrs. The concentration of the tritiated water in the organic phase was determined by isotopic dilution. The tritium activities for the tritiated water samples were determined by the acetylene method (1,2). At least four independent experiments were done.</p> <p>The article describes work reported in a Ph.D. dissertation (2).</p>	<p>SOURCE AND PURITY OF MATERIALS:</p> <p>H₂O: Tracerlab, Inc., tritiated water, used as received.</p> <p>C₆H₅Br: Source not specified, chemical grade, redistilled before use.</p> <p>ESTIMATED ERROR:</p> <p>Solubility: ± 2.3%.</p> <p>Temperature: ± 0.02 K.</p> <p>REFERENCES:</p> <ol style="list-style-type: none"> 1. Wing, J.; Johnston, W. H. <i>Science</i> <u>1955</u>, <i>121</i>, 674-5. 2. Wing, J., Ph.D. Dissertation, Purdue University, Lafayette, IN, <u>1956</u>. 								

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35.0	4.585	2.92	5.294						
<p>AUXILIARY INFORMATION</p>									
<p>METHOD/APPARATUS/PROCEDURE:</p> <p>An excess of bromobenzene was combined with 4 ml of water in an ampoule and sealed. The sealed ampoule was then rotated in a water bath for a week. The bromobenzene solubility was determined by ultraviolet spectrophotometric measurements using a Beckman DU spectrophotometer.</p>	<p>SOURCE AND PURITY OF MATERIALS:</p> <p>C_6H_5Br: Eastman Kodak Co., redistilled before use.</p> <p>H_2O: Not specified.</p> <p>ESTIMATED ERROR:</p> <p>Solubility: $\pm 2\%$ S.D.</p> <p>Temperature: ± 0.1 K.</p> <p>REFERENCES:</p>								

COMPONENTS: (1) Water; H ₂ O; [7732-18-5] (2) Bromobenzene; C ₆ H ₅ Br; [108-86-1]	ORIGINAL MEASUREMENTS: Jones, J. R.; Monk, C. B. <i>J. Chem. Soc.</i> 1963, Part III, 2633-5.																
VARIABLES: Temperature	PREPARED BY: A. L. Horvath																
EXPERIMENTAL VALUES: <table border="1" data-bbox="188 483 954 666"> <thead> <tr> <th>t/°C</th> <th>10⁴ dm³(1)/dm³(2) ^a</th> <th>10² mol(1)/dm³ ^b</th> <th>10³ x(1) ^c</th> </tr> </thead> <tbody> <tr> <td>25</td> <td>4.1</td> <td>2.27</td> <td>2.39</td> </tr> <tr> <td>30</td> <td>4.7</td> <td>2.60</td> <td>2.75</td> </tr> <tr> <td>35</td> <td>5.3</td> <td>2.92</td> <td>3.10</td> </tr> </tbody> </table> <p data-bbox="188 705 564 782"> a. Reported. b. Calculated by F. W. Getzen. c. Calculated by compiler. </p>		t/°C	10 ⁴ dm ³ (1)/dm ³ (2) ^a	10 ² mol(1)/dm ³ ^b	10 ³ x(1) ^c	25	4.1	2.27	2.39	30	4.7	2.60	2.75	35	5.3	2.92	3.10
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AUXILIARY INFORMATION																	
METHOD/APPARATUS/PROCEDURE: <p data-bbox="127 1265 665 1410"> Tritiated water was shaken with bromobenzene in 1:10 volume ratios for 4 hours in a flask in a water thermostat bath. The water content was determined by tritium assay. The count rates were determined using a typical liquid scintillator solution technique. </p>	SOURCE AND PURITY OF MATERIALS: <p data-bbox="692 1265 1229 1381"> H₂O: Tritiated. C₆H₅Br: Source not known, laboratory grade, dried over CaCl₂ and fractionally distilled before use. </p> ESTIMATED ERROR: <p data-bbox="692 1574 1081 1651"> Solubility: ±5%. Temperature: ±0.5 K (compiler). </p> REFERENCES:																

COMPONENTS: (1) Bromobenzene; C ₆ H ₅ Br; [108-86-1] (2) Water; H ₂ O; [7732-18-5]	ORIGINAL MEASUREMENTS: Vesala, A., Ph.D. Dissertation, University of Turku, Turku, <u>1973</u> .																												
VARIABLES: Temperature	PREPARED BY: A. L. Horvath																												
EXPERIMENTAL VALUES: <table border="1" data-bbox="171 480 855 803"> <thead> <tr> <th>t/°C</th> <th>10g(1)/kg^a</th> <th>10³mol(1)/kg(2)^b</th> <th>10⁵x(1)^a</th> </tr> </thead> <tbody> <tr> <td>10.0</td> <td>3.8957</td> <td>2.482 ± 0.008</td> <td>4.4714</td> </tr> <tr> <td>15.2</td> <td>4.0605</td> <td>2.587 ± 0.020</td> <td>4.6605</td> </tr> <tr> <td>19.6</td> <td>4.1107</td> <td>2.619 ± 0.020</td> <td>4.7182</td> </tr> <tr> <td>25.0</td> <td>4.5719</td> <td>2.913 ± 0.033</td> <td>5.2478</td> </tr> <tr> <td>30.0</td> <td>4.6456</td> <td>2.960 ± 0.040</td> <td>5.3325</td> </tr> <tr> <td>35.0</td> <td>4.8919</td> <td>3.117 ± 0.040</td> <td>5.6153</td> </tr> </tbody> </table> <p data-bbox="171 842 500 891"> a. Calculated by compiler. b. Reported. </p>		t/°C	10g(1)/kg ^a	10 ³ mol(1)/kg(2) ^b	10 ⁵ x(1) ^a	10.0	3.8957	2.482 ± 0.008	4.4714	15.2	4.0605	2.587 ± 0.020	4.6605	19.6	4.1107	2.619 ± 0.020	4.7182	25.0	4.5719	2.913 ± 0.033	5.2478	30.0	4.6456	2.960 ± 0.040	5.3325	35.0	4.8919	3.117 ± 0.040	5.6153
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METHOD/APPARATUS/PROCEDURE: <p>The bromobenzene was mixed with water in a sealed flask (1) with the aid of a magnetic stirrer for 48 hours in a water bath at constant temperature. After the solution was filtered through a glass-wool plug, the solute was extracted with 2,2,4-trimethylpentene. The optical density of each sample was determined spectrophotometrically (2). Mean and standard deviations were calculated from three measurements.</p>	SOURCE AND PURITY OF MATERIALS: C ₆ H ₅ Br: Merck AG., >99% GLC, used as received. H ₂ O: Distilled, deionized, and degassed.																												
ESTIMATED ERROR: Solubility: ±1.35%. Temperature: ±0.05 K.																													
REFERENCES: 1. Franks, F.; Gent, M.; Johnson, H. H. <i>J. Chem. Soc.</i> <u>1963</u> , Part III, 2716-23. 2. Wauchope, R. D.; Getzen, F. W. <i>J. Chem. Eng. Data</i> <u>1972</u> , 17(1), 38-41.																													

<p>COMPONENTS:</p> <p>(1) Bromobenzene; C₆H₅Br; [108-86-1]</p> <p>(2) Water; H₂O; [7732-18-5]</p>	<p>ORIGINAL MEASUREMENTS:</p> <p>Vesala, A. <i>Acta Chem. Scand.</i> <u>1974</u>, <i>28A(8)</i>, 839-45.</p>								
<p>VARIABLES:</p> <p>One temperature</p>	<p>PREPARED BY:</p> <p>A. L. Horvath</p>								
<p>EXPERIMENTAL VALUES:</p> <table border="1" data-bbox="181 486 860 578"> <thead> <tr> <th>t/°C</th> <th>10³mol(1)/kg(2)^a</th> <th>10g(1)/kg^b</th> <th>10⁵x(1)^c</th> </tr> </thead> <tbody> <tr> <td>25</td> <td>2.84</td> <td>4.457</td> <td>5.116</td> </tr> </tbody> </table> <p>a. Reported. b. Calculated by F. W. Getzen. c. Calculated by compiler.</p>		t/°C	10 ³ mol(1)/kg(2) ^a	10g(1)/kg ^b	10 ⁵ x(1) ^c	25	2.84	4.457	5.116
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<p>METHOD/APPARATUS/PROCEDURE:</p> <p>Equilibrium was established between the water and the bromobenzene in a sealed flask (1) with the aid of a magnetic stirrer during 48 hours under isothermal conditions. After the sample was filtered through a glass-wool plug, the bromobenzene was extracted with 2,2,4-trimethylpentene. Sample optical densities were determined spectrophotometrically (2). Five parallel determinations were done.</p> <p>The reported work was based upon a Ph.D. dissertation (3).</p>	<p>SOURCE AND PURITY OF MATERIALS:</p> <p>C₆H₅Br: Commercial reagent of analytical grade distilled through a column resulting in a more than 99% pure sample.</p> <p>H₂O: Distilled, deionized, and degassed.</p> <p>ESTIMATED ERROR:</p> <p>Solubility: ±1.1%.</p> <p>Temperature: ±0.05 K.</p> <p>REFERENCES:</p> <ol style="list-style-type: none"> 1. Franks, F.; Gent, M.; Johnson, H. H. <i>J. Chem. Soc.</i> <u>1963</u>, Part III, 2716-23. 2. Wauchope, R. D.; Getzen, F. W. <i>J. Chem. Eng. Data</i> <u>1972</u>, <i>17(1)</i>, 38-41. 3. Vesala, A., Ph.D. Dissertation, University of Turku, Turku, <u>1973</u>. 								

COMPONENTS: (1) Bromobenzene; C ₆ H ₅ Br; [108-86-1] (2) Water; H ₂ O; [7732-18-5]	ORIGINAL MEASUREMENTS: Nelson, H. D.; Smit, J. H. <i>S.-Afr. Tydskr. Chem.</i> <u>1978</u> , 31(2), 76.																				
VARIABLES: Temperature	PREPARED BY: A. L. Horvath																				
EXPERIMENTAL VALUES: <table border="1" data-bbox="181 486 813 715"> <thead> <tr> <th>t/°C</th> <th>10g(1)/kg^a</th> <th>10⁴mol(1)/kg^b</th> <th>10⁵x(1)^c</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>1.168</td> <td>7.438</td> <td>1.34</td> </tr> <tr> <td>25</td> <td>1.48</td> <td>9.44</td> <td>1.7</td> </tr> <tr> <td>39</td> <td>2.44</td> <td>15.5</td> <td>2.8</td> </tr> <tr> <td>45.5</td> <td>3.14</td> <td>20.0</td> <td>3.6</td> </tr> </tbody> </table> <p data-bbox="181 754 552 833"> a. Calculated by compiler. b. Calculated by F. W. Getzen. c. Reported. </p>		t/°C	10g(1)/kg ^a	10 ⁴ mol(1)/kg ^b	10 ⁵ x(1) ^c	5	1.168	7.438	1.34	25	1.48	9.44	1.7	39	2.44	15.5	2.8	45.5	3.14	20.0	3.6
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METHOD/APPARATUS/PROCEDURE: Water was saturated through the vapor phase with bromobenzene in a special flask (1) using a shaker in a thermostat bath for 24 hours. A gas chromatographic analysis of the samples was done by injection into a 5% Apiezon M stainless steel column with Celite as the supporter. The column length was 1.5 m and the temp. was 120°C. The chromatograph was equipped with a flame ionization detector. Three samples were analyzed from each flask.	SOURCE AND PURITY OF MATERIALS: C ₆ H ₅ Br: Not specified. H ₂ O: Not specified. ESTIMATED ERROR: Solubility: ±14.9% (compiler). Temperature: ±0.1 K (compiler). REFERENCES: 1. Nelson, H. D.; de Ligny, C. L. <i>Rec. Trav. Chim.</i> <u>1968</u> , 87, 528-44.																				

COMPONENTS: (1) Bromobenzene; C_6H_5Br ; [108-86-1] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Yalkowsky, S. H.; Orr, R. J.; Valvani, S. C. <i>Ind. Eng. Chem. Fundam.</i> <u>1979</u> , <i>18(4)</i> , 351-3.								
VARIABLES: One temperature	PREPARED BY: A. L. Horvath								
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25	3.596	2.29	4.139						
AUXILIARY INFORMATION									
METHOD/APPARATUS/PROCEDURE: Samples of excess bromobenzene in water were agitated at room temperature for about 24 hours and then filtered. The filtrate was diluted and assayed spectrophotometrically. Determinations were carried out in duplicate.	SOURCE AND PURITY OF MATERIALS: C_6H_5Br : Aldrich commercial grade, used as received. H_2O : Deionized. ESTIMATED ERROR: Solubility: $\pm 10\%$. Temperature: ± 1 K. REFERENCES:								

COMPONENTS: (1) Water-d ₂ ; D ₂ O; [7789-20-0] (2) Bromobenzene; C ₆ H ₅ Br; [108-86-1]	ORIGINAL MEASUREMENTS: Hutchison, C. A.; Lyon, A. M. Columbia University Report A-745, July 1, 1943.								
VARIABLES: One temperature	PREPARED BY: G. Jancso								
EXPERIMENTAL VALUES: <table border="1" data-bbox="181 499 826 588"> <thead> <tr> <th>t/°C</th> <th>10g(1)/kg^a</th> <th>10²mol(1)/kg^b</th> <th>10³x(1)^a</th> </tr> </thead> <tbody> <tr> <td>25.0</td> <td>2.8261</td> <td>1.411</td> <td>2.2113</td> </tr> </tbody> </table> <p>a. Calculated by F. W. Getzen. b. Reported (average of two experimental values).</p>		t/°C	10g(1)/kg ^a	10 ² mol(1)/kg ^b	10 ³ x(1) ^a	25.0	2.8261	1.411	2.2113
t/°C	10g(1)/kg ^a	10 ² mol(1)/kg ^b	10 ³ x(1) ^a						
25.0	2.8261	1.411	2.2113						
AUXILIARY INFORMATION									
METHOD/APPARATUS/PROCEDURE: Between 25 and 100 ml bromobenzene and 1 to 2 ml D ₂ O were placed in a flask and shaken for about 90 min. The thermostat water bath temperature was maintained within ±0.05°C. Then, a sample was removed and the amount of D ₂ O dissolved was determined by a modified Karl Fischer titration (1). The original report was unavailable; however, the method and the results were described in sufficient detail in (1). The solubility of H ₂ O in bromobenzene was also determined and found to be 0.0167 mol(1)/kg. The average deviation for two experiments was ±0.0001 mol(1)/kg.	SOURCE AND PURITY OF MATERIALS: C ₆ H ₅ Br: Carefully purified and dried before use. Source and method not given. 100% D ₂ O: Source not specified. ESTIMATED ERROR: Solubility: ±1 × 10 ⁻⁶ mol (std. dev.) D ₂ O/100 g solution. Temperature: ±0.05 K.								
	REFERENCES: 1. Eidinoff, M. L. In "Production of Heavy Water", National Nuclear Energy Series Division III-Vol. 4F, Murphy, G. M.; Urey, H. C.; Kirshenbaum, I., Eds.; McGraw-Hill: New York, 1955; Part II, Chapter 7, pp 129-44.								