

COMPONENTS: (1) Cumene; C ₉ H ₁₂ ; [98-82-8] (2) Water; H ₂ O; [7732-18-5]	EVALUATOR: G.T. Hefter, School of Mathematical and Physical Sciences, Murdoch University, Perth, W.A., Australia. January 1986.
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CRITICAL EVALUATION:

Quantitative solubility studies of the cumene (1) - water (2) system have been reported in the publications listed in Table 1.

TABLE 1: Quantitative Solubility Studies of
the Cumene (1) - Water (2) System

Reference	T/K	Solubility	Method
Stearns <i>et al.</i> (ref 1)	298	(1) in (2)	turbidimetric
Andrews and Keefer (ref 2)	298	(1) in (2)	spectrophotometric
Glew and Robertson (ref 3)	298-354	(1) in (2)	spectrophotometric
McAuliffe (ref 4)	298	(1) in (2)	GLC
Englin <i>et al.</i> (ref 5)	273-323	(2) in (1)	analytical
McAuliffe (ref 6)	298	(1) in (2)	GLC
Sutton and Calder (ref 7)	298	(1) in (2)	GLC
Price (ref 8)	298	(1) in (2)	GLC
Krzyzanowska and Szeliga (ref 9)	298	(1) in (2)	GLC
Sanemasa <i>et al.</i> (ref 10)	288-318	(1) in (2)	spectrophotometric

The original data in all of these publications are compiled in the Data Sheets immediately following this Critical Evaluation. For convenience further discussion of this system will be in two parts.

1. THE SOLUBILITY OF CUMENE (1) IN WATER (2)

With the exception of the rejected values referred to below and the datum of Krzyzanowska and Szeliga (ref 9) which does not appear to be independent of that of Price (ref 8) all the available data on the solubility of cumene in water are summarized in Table 2.

At 298K where the most data are available, agreement is only fair. The values of Stearns *et al.* (ref 1), Andrews and Keefer (ref 2) and Glew and Robertson (ref 3) are much higher than other studies (ref 4,6,7,8,10) and are rejected.

At other temperatures the values of Glew and Robertson are again in only fair agreement with those of Sanemasa *et al.* (ref 10), but in the absence of confirmatory studies it is not possible to express a preference for either data set, and the averaged "Best" values should be regarded as Tentative. Selected data are also plotted in Figure 1

(continued next page)

COMPONENTS: (1) Cumene; C ₉ H ₁₂ ; [98-82-8] (2) Water; H ₂ O; [7732-18-5]	EVALUATOR: G.T. Hefter, School of Mathematical and Physical Sciences, Murdoch University, Perth, W.A., Australia. January 1986.
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CRITICAL EVALUATION: (continued)

TABLE 2: Tentative Values of the Solubility of
Cumene (1) in Water (2)

T/K	Solubility values		
	Reported values ^a 10 ³ g(1)/100g sln	"Best" values (± σ _n) ^b 10 ³ g(1)/100g sln	10 ⁵ α ₁
288	5.95 (ref 10)	6.0	0.90
298	5.3 (ref 4), 5.0 (ref 6), 6.53 (ref 7), 4.83 (ref 8), 6.15 (ref 10)	5.6 ± 0.7	0.84
303	8.3* (ref 3), 6.5* (ref 10)	7.4 ± 0.9	1.11
313	9.0* (ref 3), 7.3* (ref 10)	8.2 ± 0.9	1.23
323	10.0* (ref 3), 8.0* (ref 10)	9 ± 1	1.3
333	11.5* (ref 3)	12	1.8
343	13.5* (ref 3)	14	2.1
353	16.1* (ref 3)	16	2.4

^a Values marked with an asterisk (*) have been obtained by the Evaluator by graphical interpolation of the authors' original data.

^b Obtained by averaging where appropriate; σ_n has no statistical significance.

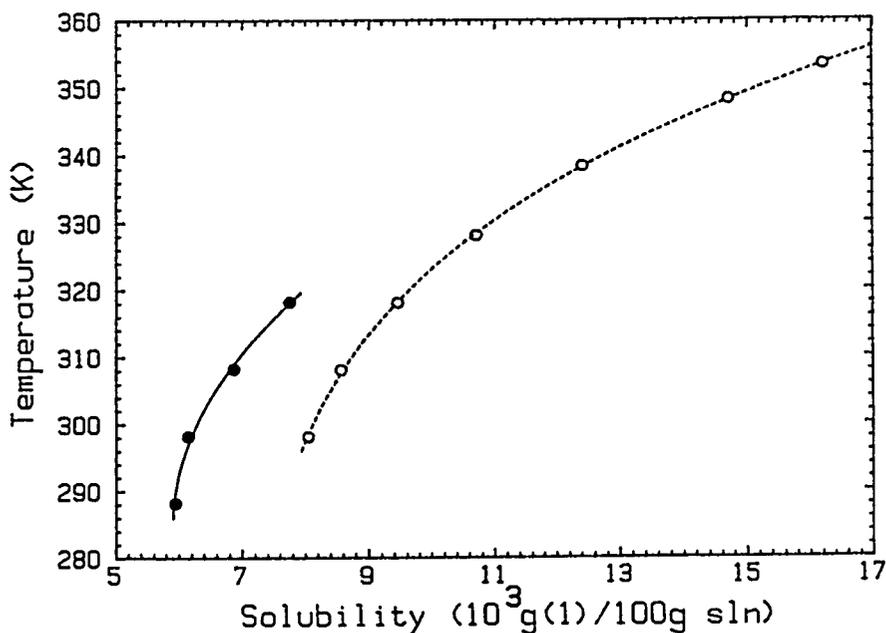


FIGURE 1. Solubility of cumene in water, selected data: ref 3(o); ref 10 (●).

(continued next page)

COMPONENTS: (1) Cumene; C ₉ H ₁₂ ; [98-82-8] (2) Water; H ₂ O; [7732-18-5]	EVALUATOR: G.T. Hefter, School of Mathematical and Physical Sciences, Murdoch University, Perth, W.A., Australia. January 1986.
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CRITICAL EVALUATION: (continued)

Interestingly, application of the van't Hoff equation to both data sets gives values of $\Delta H_{sln} = 3.5$ (ref 3) and 5.1 (ref 10) kJ mol^{-1} and $\Delta C_{p,sln} = 291$ (ref 3) and 382 (ref 10) $\text{J K}^{-1} \text{mol}^{-1}$. Comparison of these values with those of related systems suggests both solubility data sets are reasonable.

2. THE SOLUBILITY OF WATER (2) IN CUMENE (1)

Quantitative solubilities of water in cumene have been reported only in the study of Englin *et al.* (ref 5) and thus no Critical Evaluation is possible. The interested user is referred to the relevant Data Sheet following this Critical Evaluation for the experimental values. However, it may be noted that for other hydrocarbon systems studied by these authors, the data of Englin *et al.* are generally reliable at $T < 300\text{K}$ but higher than Recommended values at higher temperatures.

REFERENCES

1. Stearns, R.S.; Oppenheimer, H.; Simon, E.; Harkin, L.D. *J. Chem. Phys.* 1947, *15*, 496-507.
2. Andrews, L.J.; Keefer, R.M. *J. Am. Chem. Soc.* 1950, *72*, 5034-7.
3. Glew, D.N.; Robertson, R.E. *J. Phys. Chem.* 1956, *60*, 332-7.
4. McAuliffe, C. *Nature* 1963, *200*, 1092-3.
5. Englin, B.A.; Plate, A.F.; Tugolukov, V.M.; Pyranishnikova, M.A. *Khim. Tekhnol. Topl. Maseł* 1966, *10*, 1267-75.
6. McAuliffe, C. *J. Phys. Chem.* 1966, *70*, 1267-75.
7. Sutton, C.; Calder, J.A. *J. Chem. Eng. Data* 1975, *20*, 320-2.
8. Price, L.C. *Am. Assoc. Petrol. Geol. Bull.* 1976, *60*, 213-44.
9. Krzyzanowska, T.; Szeliga, J. *Nafta (Katowice)* 1978, *34*, 413-7.
10. Sanemasa, I.; Araki, M.; Deguchi, T.; Nagai, H. *Bull. Chem. Soc. Jpn.* 1982, *55*, 1054-62.

ACKNOWLEDGEMENT

The Evaluator thanks Dr Brian Clare for graphics and regression analyses.

COMPONENTS: (1) Cumene; C_9H_{12} ; [98-82-8] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Stearns, R.S.; Oppenheimer, H.; Simon, E.; Harkins, W.D. <i>J. Chem. Phys.</i> <u>1947</u> , 15, 496-507.
VARIABLES: Temperature: 25°C	PREPARED BY: A. Maczynski and D. Shaw
EXPERIMENTAL VALUES: <p>The solubility of cumene in water at 25°C was reported to be 0.017 g(1)/100 g sln.</p> <p>The corresponding mole fraction, x_1, calculated by the compiler is 2.5×10^{-5}.</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Mixtures of (1) in (2) of known composition were shaken for at least 48 hours. The turbidity was then measured with a photometer. Turbidities of several mixture compositions were plotted and the sharp break point taken as the solubility.	SOURCE AND PURITY OF MATERIALS: (1) not specified. (2) not specified. <hr/> ESTIMATED ERROR: temp. $\pm 3^\circ C$. <hr/> REFERENCES:

COMPONENTS: (1) Cumene; C ₉ H ₁₂ ; [98-82-8] (2) Water; H ₂ O; [7732-18-5]	ORIGINAL MEASUREMENTS: Andrews, L.J.; Keefer, R.M. <i>J. Am. Chem. Soc.</i> <u>1950</u> , 72, 5034-7.
VARIABLES: One temperature: 25°C	PREPARED BY: A. Maczynski and Z. Maczynska
EXPERIMENTAL VALUES: The solubility of cumene in water at 25°C was reported to be 0.0073 g(l)/100 g sln. The corresponding mole fraction, x_1 , calculated by the compilers is 1.09×10^{-5} .	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: A mixture of (1) and (2) was rotated for twenty hours in a constant temperature bath at 25°C. A sample (5-20 mL) of the aqueous phase was withdrawn and extracted with a measured volume of hexane (10-50 mL) by shaking in a glass-stoppered Erlenmeyer flask. Next, the absorbance of the hexane phase was measured against a hexane blank on the Beckman spectrophotometer.	SOURCE AND PURITY OF MATERIALS: (1) Eastman Kodak Co. white label; fractionally distilled; b.p. range 151.5-152.0°C. (2) not specified. ESTIMATED ERROR: not specified. REFERENCES:

COMPONENTS: (1) Cumene; C ₉ H ₁₂ ; [98-82-8] (2) Water; H ₂ O; [7732-18-5]	ORIGINAL MEASUREMENTS: Glew, D.N.; Robertson, R.E. <i>J. Phys. Chem.</i> <u>1956</u> , 60, 332-7.																																							
VARIABLES: Temperature: 298-353 K	PREPARED BY: A. Maczynski and Z. Maczynska																																							
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of cumene in water</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;"><u>T/K</u></th> <th style="text-align: center;"><u>10⁵ x₁</u></th> <th style="text-align: center;"><u>g(1)/100 g sln (compiler)</u></th> </tr> </thead> <tbody> <tr><td>298.086</td><td>1.2050</td><td>0.00804</td></tr> <tr><td>303.134</td><td>1.2416</td><td>0.00829</td></tr> <tr><td>308.068</td><td>1.2825</td><td>0.00856</td></tr> <tr><td>313.108</td><td>1.3446</td><td>0.00897</td></tr> <tr><td>318.055</td><td>1.4162</td><td>0.00945</td></tr> <tr><td>323.052</td><td>1.5037</td><td>0.01004</td></tr> <tr><td>328.066</td><td>1.6011</td><td>0.01069</td></tr> <tr><td>333.133</td><td>1.7221</td><td>0.01149</td></tr> <tr><td>338.315</td><td>1.8624</td><td>0.01243</td></tr> <tr><td>343.470</td><td>2.0302</td><td>0.01355</td></tr> <tr><td>348.247</td><td>2.2064</td><td>0.01472</td></tr> <tr><td>353.359</td><td>2.4212</td><td>0.01616</td></tr> </tbody> </table>		<u>T/K</u>	<u>10⁵ x₁</u>	<u>g(1)/100 g sln (compiler)</u>	298.086	1.2050	0.00804	303.134	1.2416	0.00829	308.068	1.2825	0.00856	313.108	1.3446	0.00897	318.055	1.4162	0.00945	323.052	1.5037	0.01004	328.066	1.6011	0.01069	333.133	1.7221	0.01149	338.315	1.8624	0.01243	343.470	2.0302	0.01355	348.247	2.2064	0.01472	353.359	2.4212	0.01616
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AUXILIARY INFORMATION																																								
METHOD/APPARATUS/PROCEDURE: Component (1) was floated on the surface of the main body of the water and the aqueous solution was pumped steadily in a closed circuit through the quartz absorption cell where its absorbance was measured. From these values the solubility of (1) in (2) was calculated.	SOURCE AND PURITY OF MATERIALS: (1) Eastman Kodak Co. White Label; distilled in an atmosphere of nitrogen; b.p.range 0.2°C, passed repeatedly through a fresh column of Fisher activated alumina, (2) distilled; passed through a demineralizing column. ESTIMATED ERROR: temp. ± 0.002 K soly. ± 1.00% at 25°C and ± 1.25% at 80°C (standard error) REFERENCES:																																							

COMPONENTS: (1) Cumene; C ₉ H ₁₂ ; [98-82-8] (2) Water; H ₂ O; [7732-18-5]	ORIGINAL MEASUREMENTS: McAuliffe, C. <i>Nature (London)</i> <u>1963</u> , 200, 1092-3.
VARIABLES: One temperature: 25°C	PREPARED BY: A. Maczynski and Z. Maczynska
EXPERIMENTAL VALUES: The solubility of cumene in water at 25°C was reported to be 0.0053 g(l)/100 g sln. The corresponding mole fraction, x_1 , calculated by the compilers is 7.9×10^{-6} .	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: The saturated solution of (1) in (2) was prepared by either shaking vigorously on a reciprocal shaker or stirring for several days with a magnetic stirrer. A 0.05 mL or 0.10 mL sample of the hydrocarbon-saturated water was injected directly into a gas liquid chromatograph.	SOURCE AND PURITY OF MATERIALS: (1) Phillips Petroleum Co.; 99+%; used as received. (2) distilled. ESTIMATED ERROR: temp. $\pm 1.5^\circ\text{C}$ soly. 0.0005 (standard deviation of mean) REFERENCES:

COMPONENTS: (1) Cumene; C_9H_{12} ; [98-82-8] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Englin, B.A.; Plate, A.F.; Tugolukov, V.M.; Pryanishnikova, M.A. <i>Khim. Tekhnol. Topl. Masel</i> <u>1965</u> , 10, 42-6.																					
VARIABLES: Temperature: 0-50°C	PREPARED BY: A. Maczynski and Z. Maczynska																					
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of Water in Cumene</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">$t/^\circ C$</th> <th style="text-align: center;">$g(2)/100\ g\ sln$</th> <th style="text-align: center;">$10^3\ x_2$ (compiler)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">0.0156</td> <td style="text-align: center;">1.04</td> </tr> <tr> <td style="text-align: center;">10</td> <td style="text-align: center;">0.0219</td> <td style="text-align: center;">1.46</td> </tr> <tr> <td style="text-align: center;">20</td> <td style="text-align: center;">0.0303</td> <td style="text-align: center;">2.02</td> </tr> <tr> <td style="text-align: center;">30</td> <td style="text-align: center;">0.0407</td> <td style="text-align: center;">2.71</td> </tr> <tr> <td style="text-align: center;">40</td> <td style="text-align: center;">0.0550</td> <td style="text-align: center;">3.66</td> </tr> <tr> <td style="text-align: center;">50</td> <td style="text-align: center;">0.0710</td> <td style="text-align: center;">4.72</td> </tr> </tbody> </table>		$t/^\circ C$	$g(2)/100\ g\ sln$	$10^3\ x_2$ (compiler)	0	0.0156	1.04	10	0.0219	1.46	20	0.0303	2.02	30	0.0407	2.71	40	0.0550	3.66	50	0.0710	4.72
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AUXILIARY INFORMATION																						
METHOD/APPARATUS/PROCEDURE: Component (1) was introduced into a thermostatted flask and saturated for 5 hr. with (2). Next, calcium hydride was added and the evolving hydrogen volume measured and hence the concentration of (2) in (1) was evaluated.	SOURCE AND PURITY OF MATERIALS: (1) Not specified. (2) Not specified. ESTIMATED ERROR: Not specified. REFERENCES:																					

COMPONENTS: (1) Cumene; C_9H_{12} ; [98-82-8] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: McAuliffe, C. <i>J. Phys. Chem.</i> <u>1966</u> , <i>70</i> , 1267-75.
VARIABLES: One temperature: 25°C	PREPARED BY: A. Maczynski, Z. Maczynska, and A. Szafranski
EXPERIMENTAL VALUES: The solubility of cumene in water at 25°C was reported to be $50 \text{ g(1)}/10^6 \text{ g(2)}$. The corresponding mass percent and mole fraction, x_1 , calculated by the compilers are $0.0050 \text{ g(1)}/100 \text{ g sln}$ and 7.5×10^{-6} .	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: In a 250-mL bottle, 10-20 mL of (1) was vigorously shaken for 1 hr, or magnetically stirred for 1 day, with 200 mL of (2) at 25°C. The bottle was set aside for 2 days to allow droplets of undissolved (1) to separate. Absence of emulsion was checked microscopically. A sample of the hydrocarbon-saturated water was withdrawn with a Hamilton syringe and gas liquid chromatographed in conjunction with a flame-ionization detector.	SOURCE AND PURITY OF MATERIALS: (1) Phillips Petroleum or Columbia Chemical; used as received. (2) distilled. ESTIMATED ERROR: temp. $\pm 1.5^\circ\text{C}$ soly. $5 \text{ g(1)}/10^6 \text{ g(2)}$ (standard deviation of mean) REFERENCES:

COMPONENTS: (1) Cumene; C ₉ H ₁₂ ; [98-82-8] (2) Water; H ₂ O; [7732-18-5]	ORIGINAL MEASUREMENTS: Sutton, C.; Calder, J.A. <i>J. Chem. Eng. Data</i> 1975, 20, 320-2.
VARIABLES: One temperature: 25°C	PREPARED BY: A. Maczynski and Z. Maczynska
EXPERIMENTAL VALUES: The solubility of cumene in water at 25°C was reported to be 65.3 mg(1)/kg(2). The corresponding mass percent and mole fraction, x_1 , calculated by the compilers are 0.00653 g(1)/100 g sln and 9.78×10^{-6} .	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: The concentration of (1) in (2) was determined by gas chromatography.	SOURCE AND PURITY OF MATERIALS: (1) Aldrich Chemical Co. or Matheson Coleman and Bell 99+%. (2) distilled. ESTIMATED ERROR: temp. $\pm 0.1^\circ\text{C}$ soly. 0.8 (the standard deviation of the mean for six replicates) REFERENCES:

COMPONENTS: (1) Cumene; C_9H_{12} ; [98-82-8] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Price, L.C. <i>Am. Assoc. Petrol. Geol. Bull.</i> <u>1976</u> , 60, 213-44.
VARIABLES: One temperature: 25°C	PREPARED BY: M.C. Haulait-Pirson
EXPERIMENTAL VALUES: The solubility of cumene in water at 25°C and at system pressure was reported to be 48.3 mg(1)/kg(2). The corresponding mass percent and mole fraction, x_1 , calculated by the compiler are 0.00483 g(1)/100 g sln and 7.23×10^{-6} .	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: The solubility was determined at laboratory temperatures by use of screw-cap test tubes. The (1) phase floated on top of the water and insured saturation of the (2) phase in 2 to 4 days. Analyses were carried out by GLC using a Hewlett-Packard model 5751 gas chromatograph with dual-flame ionization detectors. Many details are given in the paper.	SOURCE AND PURITY OF MATERIALS: (1) Phillips Petroleum Company; Chemical Samples Company or Aldrich Chemical Company; 99+%. (2) distilled. ESTIMATED ERROR: temp. $\pm 1^\circ C$ soly. ± 1.2 mg(1)/kg(2) REFERENCES:

COMPONENTS: (1) Cumene; C ₉ H ₁₂ ; [98-82-8] (2) Water; H ₂ O; [7732-18-5]	ORIGINAL MEASUREMENTS: Krzyzanowska, T.; Szeliga, J. <i>Nafta (Katowice)</i> , <u>1978</u> , 12, 413-7.
VARIABLES: One temperature: 25°C	PREPARED BY: M.C. Haulait-Pirson
EXPERIMENTAL VALUES: <p>The solubility of cumene in water at 25°C was reported to be 48.3 mg(1)/kg(2).</p> <p>The corresponding mass percent and mole fraction, x_1, calculated by compiler are 0.00483 g(1)/100 g sln and 7.24×10^{-6}.</p> <p>Editor's Note: Based on the results for this and other hydrocarbon-water systems, uncertainty exists about whether the datum compiled here is independent of that of Price for the same system (see previous page).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: The saturated solutions of (1) in (2) were prepared in two ways. First, 200 μ L of (1) was injected into 20 mL of (2) and thermostatted at 25°C. Second, the mixture of (1) and (2) as above was thermostatted at 70°C and then cooled to 25°C. The time required to obtain equilibrium was three weeks. The solubility of (1) in (2) was measured by glc. A Perkin-Elmer model F-11 gas chromatograph equipped with a 100-150 mesh Porasil column (70°C) and a flame ionization detector was used. Saturated solutions of heptane in (2) were used as standard solutions.	SOURCE AND PURITY OF MATERIALS: (1) not specified. (2) not specified. ESTIMATED ERROR: soly. 1.44 mg(1)/kg(2) (standard deviation from 7-9 determinations). REFERENCES:

COMPONENTS: (1) Cumene (Isopropylbenzene); C ₉ H ₁₂ ; [98-82-8] (2) Water; H ₂ O; [7732-18-5]	ORIGINAL MEASUREMENTS: Sanemasa, I.; Araki, M.; Deguchi, T.; Nagai, H. <i>Bull. Chem. Soc. Jpn.</i> <u>1982</u> , <i>55</i> , 1054-62.																				
VARIABLES: Temperature: 15-45°C	PREPARED BY: G.T. Hefter																				
EXPERIMENTAL VALUES: <p style="text-align: center;">The solubility of isopropylbenzene in water</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;">$10^4 \text{ mol(1)/dm}^3 \text{ sln}$</th> <th style="text-align: center;">$10^3 \text{ g(1)/100 g sln}$ (compiler)^a</th> <th style="text-align: center;">$10^6 x_1$ (compiler)^a</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">15</td> <td style="text-align: center;">4.95 ± 0.28</td> <td style="text-align: center;">5.95</td> <td style="text-align: center;">8.92</td> </tr> <tr> <td style="text-align: center;">25</td> <td style="text-align: center;">5.10 ± 0.45</td> <td style="text-align: center;">6.15</td> <td style="text-align: center;">9.22</td> </tr> <tr> <td style="text-align: center;">35</td> <td style="text-align: center;">5.68 ± 0.22</td> <td style="text-align: center;">6.87</td> <td style="text-align: center;">10.3</td> </tr> <tr> <td style="text-align: center;">45</td> <td style="text-align: center;">6.38 ± 0.24</td> <td style="text-align: center;">7.75</td> <td style="text-align: center;">11.6</td> </tr> </tbody> </table> <p>^a Assuming solution densities to be the same as those of pure water at the same temperature (ref 1).</p>		$t / ^\circ\text{C}$	$10^4 \text{ mol(1)/dm}^3 \text{ sln}$	$10^3 \text{ g(1)/100 g sln}$ (compiler) ^a	$10^6 x_1$ (compiler) ^a	15	4.95 ± 0.28	5.95	8.92	25	5.10 ± 0.45	6.15	9.22	35	5.68 ± 0.22	6.87	10.3	45	6.38 ± 0.24	7.75	11.6
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45	6.38 ± 0.24	7.75	11.6																		
AUXILIARY INFORMATION																					
METHOD/APPARATUS/PROCEDURE: The apparatus is similar to an earlier design (ref 2) and is described in detail in the paper. 100-200 cm ³ of (2) and 10-20 cm ³ of liquid (1) were placed in separate but connected thermostatted flasks. After thermal equilibrium was established a recirculating stream of air was used to vaporize liquid (1) and to transport the vapor to the flask containing (2). Five 10 cm ³ aliquots were withdrawn into separatory funnels. The concentration of (1) in (2) was then determined by extraction into chloroform followed by UV-spectrophotometry. Standards for the spectrophotometry were prepared by weight from pure liquid solutes.	SOURCE AND PURITY OF MATERIALS: (1) Analytical reagent grade (Wako Pure Chemical Ind. Ltd.), stated purity 98.0%, used without further purification. (2) Redistilled; no further details given. ESTIMATED ERROR: soly. see table, type of error not specified. temp. ± 0.01°C. REFERENCES: 1. Kell, G.S. <i>J. Chem. Eng. Data</i> <u>1975</u> , <i>20</i> , 97. 2. Sanemasa, I.; Araki, M.; Deguchi, Y.; Nagai, H. <i>Chem. Lett.</i> <u>1981</u> , 225-8.																				

COMPONENTS: (1) Cumene; C ₉ H ₁₂ ; [98-82-8] (2) Artificial seawater (ref 1)	ORIGINAL MEASUREMENTS: Sutton, C.; Calder, J.A. <i>J. Chem. Eng. Data</i> <u>1975</u> , 20, 320-2.
VARIABLES: One temperature: 25.0°C One salinity: 34.5 g salts/kg sln	PREPARED BY: M. Kleinschmidt
EXPERIMENTAL VALUES: The solubility of cumene (isopropylbenzene) in artificial seawater is reported to be 42.5 mg(1)/kg sln. The corresponding mass percent and mole fraction, x_1 calculated by the compiler are 4.25×10^{-3} g(1)/100 g sln and 6.54×10^{-6} assuming the artificial seawater composition of ref 1.	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: A test tube containing (1) was placed in a flask containing (2) thus allowing for equilibration through the vapor phase. The saturated solution was extracted with hexane and analyzed by gas chromatography.	SOURCE AND PURITY OF MATERIALS: (1) from either Aldrich Chemical Co. or Matheson Coleman and Bell, 99+% pure. (2) made from doubly distilled water and salts 99+% pure. ESTIMATED ERROR: temp. $\pm 0.1^\circ\text{C}$ soly. 0.2 (std. dev.) REFERENCES: 1. Lyman, J.; Fleming, R.H.; <i>J. Mar. Res.</i> <u>1940</u> , 3, 135.