

<p>COMPONENTS:</p> <p>1. Propane; <math>C_3H_8</math>; [74-98-6]  or Butane; <math>C_4H_{10}</math>; [106-97-8]  or 2-Methylpropane; <math>C_4H_{10}</math>; [75-28-5]</p> <p>2. Organohalides</p>	<p>EVALUATOR:</p> <p>Colin L. Young,  Department of Physical Chemistry,  University of Melbourne,  Parkville, Victoria 3052,  Australia.</p> <p>December 1984</p>
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## CRITICAL EVALUATION:

In general data for these systems can only be evaluated by comparison of techniques and estimation of the reliability of a particular worker's data in general by comparisons on other systems rather than the system being evaluated. Very few systems in the title group have been studied by more than one worker.

Trichloromethane;  $CHCl_3$ ; [67-66-3]

The solubility of the three gases in trichloromethane has been studied by Lebeau (1,2,3). The data of this worker for the solubility of propane, butane and 2-methylpropane in water are significantly different from the recommended values and hence data for the present systems are classified as doubtful.

Tetrachloromethane;  $CCl_4$ ; [56-23-5]

The solubility of propane and butane in tetrachloromethane has been investigated by Hayduk and coworkers (4,5) and by Jadot (6). The system 2-methylpropane + tetrachloromethane has also been studied by Blais and Hayduk (5). The values of Jadot (6) were determined at very low partial pressures using gas chromatography. Extrapolation of the data to pressures of 101.3 kPa involves assuming Henry's law is obeyed between zero and 101.3 kPa and such an extrapolation would be expected to give values at 101.3 kPa which are slightly too large. In fact values at 101.3 kPa calculated from Jadot results are somewhat higher than the values of Hayduk and coworkers and therefore both sets of data are classified as tentative but the values of Jadot should be taken as applying to very low partial pressures.

Chlorobenzene;  $C_6H_5Cl$ ; [108-90-7]

The solubility of the three gases in chlorobenzene have been studied by Hayduk and coworkers (5,7) using a well established volumetric method. The data appear to be of good precision and are classified as tentative.

Fluorocarbons

Fleury and Hayduk (4) and Thomsen and Gjaldbaek (8) studied the solubility of propane in tetradecafluorohexane and hexadecafluoroheptane, respectively. The mole fraction solubilities at 298.15 K differ by only about 5% being greater in hexadecafluoroheptane. This is consistent with trends of the solubility of simple hydrocarbon gases in alkanes. Both sets of values are classified as tentative.

Data of Gerrard

Gerrard (9,10) studied the solubilities of the three gases in several organohalides. These systems have not been studied by other workers. In view of the fact that the temperature dependence of the solubilities do not appear anomalous and that Gerrard's data on other systems are of, at least, moderate accuracy, his data for the current system are classified as tentative.

Data of Berlin *et al.*

The data of Berlin *et al.* are rejected since they do not appear to correspond to gas solubility, the maximum pressure studied being considerably greater than the vapor pressure of propane, butane or 2-methylpropane at the experimental temperature. It is possible that the data refer to liquid-liquid equilibrium although not indicated as such in the original.

(cont.)

<p>COMPONENTS:</p> <p>1. Propane; <math>C_3H_8</math>; [74-98-6] or Butane; <math>C_4H_{10}</math>; [106-97-8] or 2-Methylpropane; <math>C_4H_{10}</math>; [75-28-5]</p> <p>2. Organohalides</p>	<p>EVALUATOR:</p> <p>Colin L. Young, Department of Physical Chemistry, University of Melbourne, Parkville, Victoria 3052, Australia.</p> <p>December 1984</p>
<p>CRITICAL EVALUATION:</p> <p><u>References</u></p> <ol style="list-style-type: none"><li>1. Lebeau, P. <i>Bull. Acad. Roy. Belg.</i> <u>1908</u>, 300.</li><li>2. Lebeau, P. <i>Comp. Rend.</i> <u>1905</u>, 140, 1454 and 1572.</li><li>3. Lebeau, P. <i>Bull. Soc. Chim.</i> [3] <u>1905</u>, 33, 1137.</li><li>4. Fleury, D.; Hayduk, W. <i>Can. J. Chem. Eng.</i> <u>1975</u>, 53, 195.</li><li>5. Blais, C.; Hayduk, W. <i>J. Chem. Eng. Data</i> <u>1983</u>, 28, 181.</li><li>6. Jadot, R. <i>J. Chim. Phys.</i> <u>1972</u>, 69, 1036.</li><li>7. Hayduk, W.; Castaneda, R. <i>Can. J. Chem. Eng.</i> <u>1973</u>, 51, 353.</li><li>8. Thomsen, E. S.; Gjaldbaek, J. C. <i>Acta Chem. Scand.</i> <u>1963</u>, 17, 134.</li><li>9. Gerrard, W. <i>Solubility of Gases and Liquids</i>, Plenum, New York, <u>1976</u>, Chapter 12.</li><li>10. Gerrard, W. <i>J. Appl. Chem. Biotechnol.</i> <u>1973</u>, 23, 1.</li><li>11. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. <i>Zh. Fiz. Khim.</i> <u>1977</u>, 51, 767.</li></ol>	

COMPONENTS:	ORIGINAL MEASUREMENTS:																																																								
(1) Propane; C <sub>3</sub> H <sub>8</sub> ; [74-98-6]	Lebeau, P.																																																								
(2) Water, Benzene, Ethanol, Diethylether, Chloroform, Turpentine	Compt. Rend. 1905, 140, 1454-6 and 1572.																																																								
	Bull. Soc. Chim. [3] 1905, 33, 1137-9.																																																								
VARIABLES:	PREPARED BY:																																																								
T/K = 290.8 - 294.8 p/kPa = 100.4 - 100.9	H. L. Clever																																																								
EXPERIMENTAL VALUES:																																																									
<table><tr><th colspan="2">Temperature</th><th>Pressure<sup>a</sup></th><th>Solubility</th></tr><tr><th>t/°C</th><th>T/K</th><th>p/mmHg</th><th>Volume propane/100 Volumes Solvent</th></tr><tr><td colspan="4">Water; H<sub>2</sub>O; [7732-18-5]</td></tr><tr><td>17.8</td><td>291.0</td><td>753</td><td>6.5</td></tr><tr><td colspan="4">Benzene; C<sub>6</sub>H<sub>6</sub>O; [71-43-2]</td></tr><tr><td>21.5</td><td>294.7</td><td>757</td><td>1452</td></tr><tr><td colspan="4">Ethanol; C<sub>2</sub>H<sub>6</sub>O; [64-17-5]</td></tr><tr><td>16.6</td><td>290.8</td><td>754</td><td>790</td></tr><tr><td colspan="4">1,1'-Oxybisethane or diethylether; C<sub>4</sub>H<sub>10</sub>O; [60-29-7]</td></tr><tr><td>16.6</td><td>290.8</td><td>757</td><td>926</td></tr><tr><td colspan="4">Chloroform or trichloromethane; CHCl<sub>3</sub>; [67-66-3]</td></tr><tr><td>21.6</td><td>294.8</td><td>757</td><td>1299</td></tr><tr><td colspan="4">Oil of turpentine</td></tr><tr><td>17.7</td><td>290.9</td><td>757</td><td>1587</td></tr></table>		Temperature		Pressure <sup>a</sup>	Solubility	t/°C	T/K	p/mmHg	Volume propane/100 Volumes Solvent	Water; H <sub>2</sub> O; [7732-18-5]				17.8	291.0	753	6.5	Benzene; C <sub>6</sub> H <sub>6</sub> O; [71-43-2]				21.5	294.7	757	1452	Ethanol; C <sub>2</sub> H <sub>6</sub> O; [64-17-5]				16.6	290.8	754	790	1,1'-Oxybisethane or diethylether; C <sub>4</sub> H <sub>10</sub> O; [60-29-7]				16.6	290.8	757	926	Chloroform or trichloromethane; CHCl <sub>3</sub> ; [67-66-3]				21.6	294.8	757	1299	Oil of turpentine				17.7	290.9	757	1587
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<sup>a</sup> Not clear whether this is total pressure or propane partial pressure. It is probably total pressure.																																																									
AUXILIARY INFORMATION																																																									
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:																																																								
Details not given.	(1) Propane. Prepared by author from carefully purified propyl iodide by reaction with sodium in liquid ammonia. Melting point/°C = -195 Boiling point/°C = -44.5 Critical temperature/°C = 102.																																																								
The data are reported in both papers.	(2) Solvents. No information.																																																								
	ESTIMATED ERROR:																																																								
	REFERENCES:																																																								

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Propane; C <sub>3</sub> H <sub>8</sub> ; [74-98-6]  (2) Tetrachloromethane; CCl <sub>4</sub> ; [56-23-5]		Jadot, R.  <i>J. Chim. Phys.</i> <u>1972</u> , <i>69</i> , 1036-40	
VARIABLES:		PREPARED BY:	
T/K: 298.15 P/kPa: 101.3		C.L. Young	
EXPERIMENTAL VALUES:			
T/K	Henry's Law Constant, H/atm	Mole fraction <sup>+</sup> at partial pressure of 101.3 kPa, x <sub>C<sub>3</sub>H<sub>8</sub></sub>	#ΔH <sup>∞</sup> /cal mol <sup>-1</sup> (/J mol <sup>-1</sup> )
298.15	11.648	0.08585	501 (2096)
+ Calculated by compiler assuming x <sub>C<sub>3</sub>H<sub>8</sub></sub> = 1/H.			
# Excess partial molar enthalpy of solution at infinite dilution.			
AUXILIARY INFORMATION			
METHOD APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
The conventional gas chromatographic technique was used. The carrier gas was helium. The value of Henry's law constant was calculated from the retention time. The value applies to very low partial pressures of gas and there may be a substantial difference from that measured at 1 atm. pressure. There is also considerable uncertainty in the value of Henry's constant since no allowance was made for surface adsorption.		No details given	
		ESTIMATED ERROR:	
		δT/K = ±0.05; δH = ±2%	
		REFERENCES:	

COMPONENTS:			ORIGINAL MEASUREMENTS:		
(1) Propane; C <sub>3</sub> H <sub>8</sub> ; [74-98-6]  (2) Tetrachloromethane (carbon tetrachloride); CCl <sub>4</sub> ; [56-23-5]			Fleury, D.; Hayduk, W.  Can. J. Chem. Eng. <u>1975</u> , 53, 195-199.		
VARIABLES:  T/K: 258.15-323.15 P/kPa: 101.325			PREPARED BY:  W. Hayduk		
EXPERIMENTAL VALUES:					
T/K	Ostwald Coefficient <sup>1</sup> L/cm <sup>3</sup> cm <sup>-3</sup>	Bunsen Coefficient <sup>2</sup> α/cm <sup>3</sup> (STP) cm <sup>-3</sup> atm <sup>-1</sup>	Mole Fraction <sup>1</sup> x <sub>1</sub>		
258.15	76.0	80.4	0.254 (0.2536) <sup>3</sup>		
273.15	42.5	42.5	0.155 (0.1554)		
298.15	21.9	20.1	0.0813 (0.0811)		
323.15	13.6	11.5	0.0497 (0.0497)		
<sup>1</sup> Original data.					
<sup>2</sup> Calculated by compiler.					
<sup>3</sup> The mole fraction solubility of the original data was used to determine the following equations for ΔG° and ln x <sub>1</sub> and table of smoothed values: ΔG°/J mol <sup>-1</sup> = -RT ln x <sub>1</sub> = 597.65 T - 77.797 T ln T - 39807 ln x <sub>1</sub> = 4787.9/T + 9.3573 ln T - 71.885 Std. deviation for ΔG° = 4.6 J mol <sup>-1</sup>					
T/K	ΔG°/J mol <sup>-1</sup>	x <sub>1</sub>	T/K	ΔG°/J mol <sup>-1</sup>	x <sub>1</sub>
258.15	2944	0.2536	298.15	6227	0.0811
273.15	4228	0.1554	303.15	6607	0.0727
283.15	5048	0.1171	313.15	7347	0.0595
293.15	5841	0.0910	323.15	8063	0.0497
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:		
A volumetric method using a glass apparatus was employed. Degassed solvent contacted the gas while flowing as a thin film, at a constant rate, through an absorption spiral into a solution buret. A constant solvent flow was obtained by means of a calibrated syringe pump. The solution at the end of the spiral was considered saturated. Dry gas was maintained at atmospheric pressure in a gas buret by mechanically raising the mercury level in the buret at an adjustable rate. The solubility was calculated from the constant slope of volume of gas dissolved and volume of solvent injected.			1. Matheson Co. Specified as instrument grade of minimum purity 99.5 per cent.		
Degassing was accomplished using a two stage vacuum process described by Clever et al. (1).			2. Fisher Scientific. Specified minimum purity 99.0 per cent.		
			ESTIMATED ERROR:		
			δT/K = 0.1		
			δx <sub>1</sub> /x <sub>1</sub> = 0.01		
			REFERENCES:		
			1. Clever, H.L.; Battino, R.; Saylor, J.H.; Gross, P.M. J. Phys. Chem. <u>1971</u> , 61, 1078.		

<b>COMPONENTS:</b>  (1) Propane; $C_3H_8$ ; [74-98-6]  (2) 1,1'-Oxybis, 2-Chloroethane (Chlorex); $C_4H_8Cl_2O$ ; [111-44-4]	<b>ORIGINAL MEASUREMENTS:</b>  Ezheleva, A.E.; Zorin, A.D. <i>Tr. Khim. Khim. Tech. (Gorkii)</i> <u>1961</u> , 1, 37-40.																								
<b>VARIABLES:</b>  $T/K$ : 303.15-343.15 $P/kPa$ : 101.325 and above	<b>PREPARED BY:</b>  W. Hayduk																								
<b>EXPERIMENTAL VALUES:</b>																									
<table> <tr> <th><math>T/K</math></th><th>Ostwald Coefficient<sup>2</sup> <math>L/cm^3 cm^{-3}</math></th></tr> <tr><td>303.15</td><td>8.42</td></tr> <tr><td>313.15</td><td>7.03</td></tr> <tr><td>323.15</td><td>5.82</td></tr> <tr><td>333.15</td><td>4.78</td></tr> <tr><td>343.15</td><td>3.89</td></tr> </table>	$T/K$	Ostwald Coefficient <sup>2</sup> $L/cm^3 cm^{-3}$	303.15	8.42	313.15	7.03	323.15	5.82	333.15	4.78	343.15	3.89	<table> <tr> <th>Bunsen Coefficient<sup>2</sup> <math>\alpha/cm^3 (STP) cm^{-3} atm^{-1}</math></th><th>Mole Fraction<sup>1</sup> <math>x_1</math></th></tr> <tr><td>7.54</td><td>0.039 (0.0398)<sup>3</sup></td></tr> <tr><td>6.09</td><td>0.032 (0.0316)</td></tr> <tr><td>4.88</td><td>0.026 (0.0254)</td></tr> <tr><td>3.88</td><td>0.021 (0.0208)</td></tr> <tr><td>3.07</td><td>0.0168 (0.0172)</td></tr> </table>	Bunsen Coefficient <sup>2</sup> $\alpha/cm^3 (STP) cm^{-3} atm^{-1}$	Mole Fraction <sup>1</sup> $x_1$	7.54	0.039 (0.0398) <sup>3</sup>	6.09	0.032 (0.0316)	4.88	0.026 (0.0254)	3.88	0.021 (0.0208)	3.07	0.0168 (0.0172)
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<p><sup>1</sup>Original data given as the inverse of Henry's constant which is equivalent to mole fraction at a gas partial pressure of 101.325 kPa.</p> <p><sup>2</sup>Ostwald and Bunsen coefficients calculated by compiler using authors' assumption that solvent is non-volatile.</p> <p><sup>3</sup>From equation of smoothed data:</p> $\ln x_1 = 2186.8/T - 10.437$ <p>Correlation coefficient = 0.9982</p>																									
<b>AUXILIARY INFORMATION</b>																									
<b>METHOD/APPARATUS/PROCEDURE:</b>  <p>The apparatus consisted of a two-chamber, rocking device with separate gas and liquid chambers joined by two tubes and microvalves. The gas chamber was equipped with a pressure gauge. After evacuation, gas and deaerated solvent were separately charged, and then contacted by opening the microvalves and by rocking. The solubility was calculated from a knowledge of the volume of the solvent charged, and the initial and final gas pressures.</p> <p>The solvent was considered non-volatile and the gas pressure was considered to be the total pressure.</p>	<b>SOURCE AND PURITY OF MATERIALS:</b>  <ol style="list-style-type: none"> <li>Source and purity not given. Gas purified by low temperature fractionation and analyzed by gas chromatography.</li> <li>Source and purity not given. Refractive index measured:  <math>n_D^{20} = 1.4535</math> </li> </ol> <b>ESTIMATED ERROR:</b> $\delta T/K = 0.05$ $\delta x_1/x_1 = 0.05$ (estimated by compiler)																								
	<b>REFERENCES:</b>																								

COMPONENTS:			ORIGINAL MEASUREMENTS:		
(1) Propane; C <sub>3</sub> H <sub>8</sub> ; [74-98-6]  (2) Chlorobenzene; C <sub>6</sub> H <sub>5</sub> Cl; [108-90-7]			Hayduk, W.; Castañeda, R.  Can. J. Chem. Eng. <u>1973</u> , 51, 353-358.		
VARIABLES:  T/K: 273.15-323.15  P/kPa: 101.325			PREPARED BY:  W. Hayduk		
EXPERIMENTAL VALUES:					
T/K	Ostwald Coefficient <sup>1</sup> L/cm <sup>3</sup> cm <sup>-3</sup>	Bunsen Coefficient <sup>2</sup> α/cm <sup>3</sup> (STP)cm <sup>-3</sup> atm <sup>-1</sup>	Mole Fraction <sup>1</sup> x <sub>1</sub>		
273.15	25.4	25.4	0.1034 (0.1029) <sup>3</sup>		
298.15	14.16	12.97	0.0570 (0.0575)		
323.15	9.12	7.71	0.3053 (0.0352)		
<sup>1</sup> Original data.					
<sup>2</sup> Calculated by compiler.					
<sup>3</sup> The mole fraction solubility of the original data was used to determine the following equations for ΔG° and ln x <sub>1</sub> and table of smoothed values: ΔG°/J mol <sup>-1</sup> = -RT ln x <sub>1</sub> = 76.625 T - 15766 ln x <sub>1</sub> = 1896.3/T - 9.2167 Std. deviation for ΔG° = 18.8 J mol <sup>-1</sup> ; Correlation coefficient = 0.9999					
T/K	ΔG°/J mol <sup>-1</sup>	x <sub>1</sub>	T/K	ΔG°/J mol <sup>-1</sup>	x <sub>1</sub>
273.15	5164	0.1029	303.15	7463	0.0518
283.15	5930	0.0805	313.15	8229	0.0424
293.15	6697	0.0641	323.15	8995	0.0352
298.15	7080	0.0575			
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:		
A volumetric method using a glass apparatus was employed. Degassed solvent contacted the gas while flowing as a thin film, at a constant rate, through an absorption spiral into a solution buret. A constant solvent flow was obtained by means of a calibrated syringe pump. The solution at the end of the spiral was considered saturated. Dry gas was maintained at atmospheric pressure in a gas buret by mechanically raising the mercury level in the buret at an adjustable rate. The solubility was calculated from the constant slope of volume of gas dissolved and volume of solvent injected.  Degassing was accomplished using a two stage vacuum process described by Clever et al. (1).			1. Matheson Co. Specified as instrument grade of minimum purity 99.5 per cent.		
			2. Fisher. Fisher Certified Reagent grade of specified purity 99.7 per cent.		
			ESTIMATED ERROR:  δT/K = 0.1  δx <sub>1</sub> /x <sub>1</sub> = 0.01		
			REFERENCES:		
			1. Clever, H.L.; Battino, R.; Saylor, J.H.; Gross, P.M.  J. Phys. Chem. <u>1971</u> , 61, 1078.		

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Propane; C <sub>3</sub> H <sub>8</sub> ; [74-98-6] (2) Iodobenzene; C <sub>6</sub> H <sub>5</sub> I; [591-50-4]		Gerrard, W. J. Appl. Chem. Biotechnol. <u>1973</u> , 23, 1-17.	
VARIABLES: T/K: 268.2-298.2 P/kPa: 101.3		PREPARED BY:  C. L. Young	
EXPERIMENTAL VALUES:			
Total pressure = 101.3 kPa.			
T/K	Mole ratio	Mole fraction of propane <sup>#</sup>	
268.2	0.214	0.176	
273.2	0.186	0.157	
278.2	0.162	0.139	
283.2	0.141	0.124	
293.2	0.116	0.104	
298.2	0.106	0.0958	
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <			



COMPONENTS:			ORIGINAL MEASUREMENTS:		
(1) Propane; C <sub>3</sub> H <sub>8</sub> ; [74-98-6]			Fleury, D.; Hayduk, W.		
(2) Tetradecafluorohexane (perfluorohexane); C <sub>6</sub> F <sub>14</sub> ; [355-42-0]			Can. J. Chem. Eng. 1975, 53, 195-199.		
VARIABLES:			PREPARED BY:		
T/K: 258.15-323.15			W. Hayduk		
P/kPa: 101.325					
EXPERIMENTAL VALUES:					
T/K	Ostwald Coefficient <sup>1</sup> L/cm <sup>3</sup> cm <sup>-3</sup>	Bunsen Coefficient <sup>2</sup> α/cm <sup>3</sup> (STP) cm <sup>-3</sup> atm <sup>-1</sup>	Mole Fraction <sup>1</sup> x <sub>1</sub>		
258.15	15.5	16.4	0.124 (0.124) <sup>3</sup>		
278.15	9.03	8.87	0.0731 (0.0734)		
298.15	5.90	5.41	0.0480 (0.0478)		
323.15	3.99	3.37	0.0308 (0.0308)		
<sup>1</sup> Original data.					
<sup>2</sup> Calculated compiler.					
<sup>3</sup> The mole fraction solubility of the original data was used to determine the following equations for ΔG° and ln x <sub>1</sub> and table of smoothed values: ΔG°/J mol <sup>-1</sup> = -RT ln x <sub>1</sub> = 321.95 T - 37.053 T ln T - 25507 ln x <sub>1</sub> = 3067.9/T - 38.724 + 4.4567 ln T Std. deviation for ΔG° = 10.1 J mol <sup>-1</sup>					
T/K	ΔG°/J mol <sup>-1</sup>	x <sub>1</sub>	T/K	ΔG°/J mol <sup>-1</sup>	x <sub>1</sub>
258.15	4484	0.1238	298.15	7539	0.04775
273.15	5655	0.0829	303.15	7907	0.0434
278.15	6039	0.0734	313.15	8633	0.0363
293.15	7169	0.0528	323.15	9347	0.03084
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:		
A volumetric method using a glass apparatus was employed. Degassed solvent contacted the gas while flowing as a thin film, at a constant rate, through an absorption spiral into a solution buret. A constant solvent flow was obtained by means of a calibrated syringe pump. The solution at the end of the spiral was considered saturated. Dry gas was maintained at atmospheric pressure in a gas buret by mechanically raising the mercury level in the buret at an adjustable rate. The solubility was calculated from the constant slope of volume of gas dissolved and volume of solvent injected.  Degassing was accomplished using a two stage vacuum process described by Clever et al. (1).			1. Matheson Co. Specified as instrument grade of minimum purity 99.5 per cent.		
			2. PCR Inc. Specified minimum purity 99.0 per cent.		
			ESTIMATED ERROR: δT/K = 0.1 δx <sub>1</sub> /x <sub>1</sub> = 0.01		
			REFERENCES:		
			1. Clever, H.L.; Battino, R.; Saylor, J.H.; Gross, P.M. J. Phys. Chem. 1971, 61, 1078.		

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Propane; C <sub>3</sub> H <sub>8</sub> ; [74-98-6] (2) 1-Bromo-3-methylbenzene ( <i>m</i> -bromotoluene); C <sub>7</sub> H <sub>7</sub> Br; [591-17-3]		Gerrard, W. <i>J. Appl. Chem. Biotechnol.</i> <u>1973</u> , 23, 1-17.	
VARIABLES: T/K: 268.2-293.2 P/kPa: 101.3		PREPARED BY: C. L. Young	
EXPERIMENTAL VALUES:  Total pressure = 101.3 kPa			
T/K	Mole ratio	Mole fraction of propane <sup>#</sup>	
268.2	0.150	0.130	
273.2	0.132	0.117	
278.2	0.116	0.104	
283.2	0.103	0.0937	
293.2	0.083	0.0766	

COMPONENTS:	ORIGINAL MEASUREMENTS:								
(1) Propane; C <sub>3</sub> H <sub>8</sub> ; [74-98-6]  (2) Hexadecafluoroheptane (Perfluoroheptane); C <sub>7</sub> F <sub>16</sub> ; [335-57-9]	Thomsen, E.S.; Gjaldbaek, J.C. <i>Acta Chem. Scand.</i> <u>1963</u> , 17, 134-138.								
VARIABLES:  T/K: 298.15  P/kPa: 101.325	PREPARED BY:  E.S. Thomsen, W. Hayduk								
EXPERIMENTAL VALUES:									
<table><tr><td>T/K</td><td>Ostwald Coefficient<sup>2</sup> L/cm<sup>3</sup> cm<sup>-3</sup></td><td>Bunsen Coefficient<sup>1</sup> α/cm<sup>3</sup> (STP) cm<sup>-3</sup> atm<sup>-1</sup></td><td>Mole Fraction<sup>2</sup> x<sub>1</sub></td></tr><tr><td>298.15</td><td>5.67</td><td>5.17</td><td>0.0505</td></tr></table>		T/K	Ostwald Coefficient <sup>2</sup> L/cm <sup>3</sup> cm <sup>-3</sup>	Bunsen Coefficient <sup>1</sup> α/cm <sup>3</sup> (STP) cm <sup>-3</sup> atm <sup>-1</sup>	Mole Fraction <sup>2</sup> x <sub>1</sub>	298.15	5.67	5.17	0.0505
T/K	Ostwald Coefficient <sup>2</sup> L/cm <sup>3</sup> cm <sup>-3</sup>	Bunsen Coefficient <sup>1</sup> α/cm <sup>3</sup> (STP) cm <sup>-3</sup> atm <sup>-1</sup>	Mole Fraction <sup>2</sup> x <sub>1</sub>						
298.15	5.67	5.17	0.0505						
<sup>1</sup> Original data.									
<sup>2</sup> Calculated by compilers using a real gas molar volume.									
AUXILIARY INFORMATION									
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:								
The method utilizes a combined glass manometer and bulb enclosed in an air thermostat which is shaken until equilibrium is established. Mercury is used for calibrating the volumes and as the confining liquid. Details in reference 1.  The absorbed gas volume is calculated from the initial dry gas, and final solvent vapor-saturated gas volume. The amount of solvent is determined by measuring the mass of mercury displaced.	1. Phillips Petroleum Co. Specified as research grade and GC analysis indicated 0.1 per cent air and 0.03 per cent ethane impurities.  2. Source not given. Fractionated to yield boiling point t/°C 82.55-82.56.								
	ESTIMATED ERROR:  δT/K = 0.05  δx <sub>1</sub> /x <sub>1</sub> = 0.015								
	REFERENCES:  1. Gjaldbaek, J.C. <i>Acta Chem. Scand.</i> <u>1952</u> , 6, 623.								

COMPONENTS:  (1) Propane; C <sub>3</sub> H <sub>8</sub> ; [74-98-6] (2) 1-Iodooctane; C <sub>8</sub> H <sub>17</sub> I; [629-27-6]	ORIGINAL MEASUREMENTS:  Gerrard, W. J. Appl. Chem. Biotechnol. 1973, 23, 1-17.																		
VARIABLES: T/K: 268.2-293.2 P/kPa: 101.3	PREPARED BY:  C. L. Young																		
EXPERIMENTAL VALUES:  Total pressure = 101.3 kPa																			
<table><tr><td>T/K</td><td>Mole ratio</td><td>Mole fraction of propane<sup>#</sup></td></tr><tr><td>268.2</td><td>0.261</td><td>0.207</td></tr><tr><td>273.2</td><td>0.229</td><td>0.186</td></tr><tr><td>278.2</td><td>0.198</td><td>0.165</td></tr><tr><td>283.2</td><td>0.172</td><td>0.147</td></tr><tr><td>293.2</td><td>0.129</td><td>0.114</td></tr></table>		T/K	Mole ratio	Mole fraction of propane <sup>#</sup>	268.2	0.261	0.207	273.2	0.229	0.186	278.2	0.198	0.165	283.2	0.172	0.147	293.2	0.129	0.114
T/K	Mole ratio	Mole fraction of propane <sup>#</sup>																	
268.2	0.261	0.207																	
273.2	0.229	0.186																	
278.2	0.198	0.165																	
283.2	0.172	0.147																	
293.2	0.129	0.114																	
<div># Calculated by compiler.</div>																			
AUXILIARY INFORMATION																			
METHOD/APPARATUS/PROCEDURE:  Gas was passed into a known weight of pure liquid in a bubbler tube at a total pressure measured using a manometer assembly. The amount of absorbed gas was estimated by weighing. The temperature was controlled to within 0.2 K. The apparatus and procedure are described by Gerrard, ref. (1).	SOURCE AND PURITY OF MATERIALS:  No details given except that "all compounds were purified by conventional procedures".  ESTIMATED ERROR: δT/K = ±0.1; δx/x = ±3% (estimated by compiler).  REFERENCES:  1. Gerrard, W. J. Appl. Chem. Biotechnol. 1972, 22, 623.																		

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8]  (2) Water; H <sub>2</sub> O; [7732-18-5] Ethanol; C <sub>2</sub> H <sub>6</sub> O; [64-17-5] Diethylether; C <sub>4</sub> H <sub>10</sub> O; [60-29-7] Chloroform; CHCl <sub>3</sub> ; [67-66-3]		Lebeau, P.  <i>Bull. Acad. Roy. Belg.</i> <u>1908</u> , 300-4.	
VARIABLES:		PREPARED BY:	
$T/K = 290, 291$ $p/kPa = 102.9 - 104.8$		H. L. Clever	
EXPERIMENTAL VALUES:			
Temperature		Pressure <sup>a</sup>	Solubility
$t/^{\circ}C$	$T/K$	$p/mmHg$	Volume Butane/Volume Solvent
Water			
17	290	772	0.15
Ethanol			
17	290	775	18.83
Diethylether or 1'1'-oxybisethane			
18	291	773	29.8
Chloroform or trichloromethane			
17	290	786	32.5
<sup>a</sup> Not clear whether this is total pressure or butane partial pressure. It is probably the total pressure.			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Details not given.		(1) Butane. Prepared by author by the reaction of sodium in liquid ammonia on butyl iodide. The normal boiling point is 0.5 °C, and the critical temperature is 151-2 °C.  (2) Solvents. No information.	
		ESTIMATED ERROR:	
		REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:																
(1) Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8]  (2) Tetrachloromethane (carbon tetrachloride); CCl <sub>4</sub> ; [56-23-5]		Blais, C.; Hayduk, W.  <i>J. Chem. Eng. Data</i> <u>1983</u> , 28, 181-184.																
VARIABLES:		PREPARED BY:																
T/K: 298.15,323.15  P/kPa: 101.325		W. Hayduk																
EXPERIMENTAL VALUES:																		
T/K	Ostwald Coefficient <sup>1</sup> L/cm <sup>3</sup> cm <sup>-3</sup>	Bunsen Coefficient <sup>2</sup> α/cm <sup>3</sup> (STP) cm <sup>-3</sup> atm <sup>-1</sup>	Mole Fraction <sup>1</sup> x <sub>1</sub>															
298.15	122.7	112.4	0.339 (0.3390) <sup>3</sup>															
323.15	52.0	43.95	0.167 (0.1670)															
<sup>1</sup> Original data. <sup>2</sup> Calculated by compiler. <sup>3</sup> The mole fraction solubility of the original data was used to determine the following equations for ΔG° and ln x <sub>1</sub> and table of smoothed values: $\Delta G^\circ/\text{J mol}^{-1} = -RT \ln x_1 = 721.51 T \ln T - 4022.1 T$ $\ln x_1 = 49.0169 - 8.79294 \ln T$ <table><tr><td>T/K</td><td>10<sup>-4</sup> ΔG°/J mol<sup>-1</sup></td><td>x<sub>1</sub></td></tr><tr><td>298.15</td><td>2.646</td><td>0.3390</td></tr><tr><td>303.15</td><td>3.055</td><td>0.2929</td></tr><tr><td>313.15</td><td>3.889</td><td>0.2202</td></tr><tr><td>323.15</td><td>4.746</td><td>0.1670</td></tr></table>				T/K	10 <sup>-4</sup> ΔG°/J mol <sup>-1</sup>	x <sub>1</sub>	298.15	2.646	0.3390	303.15	3.055	0.2929	313.15	3.889	0.2202	323.15	4.746	0.1670
T/K	10 <sup>-4</sup> ΔG°/J mol <sup>-1</sup>	x <sub>1</sub>																
298.15	2.646	0.3390																
303.15	3.055	0.2929																
313.15	3.889	0.2202																
323.15	4.746	0.1670																
AUXILIARY INFORMATION																		
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:																
A volumetric method using a glass apparatus was employed. Degassed solvent contacted the gas while flowing as a thin film, at a constant rate, through an absorption spiral into a solution buret. A constant solvent flow was obtained by means of a calibrated syringe pump. The solution at the end of the spiral was considered saturated. Dry gas was maintained at atmospheric pressure in a gas buret by mechanically raising the mercury level in the buret at an adjustable rate. The solubility was calculated from the constant slope of volume of gas dissolved and volume of solvent injected.  Degassing was accomplished using a two stage vacuum process described by Clever et al. (1).		1. Liquid Carbonic. Pure grade of minimum purity 99.0 per cent.  2. Canlab (J.T. Baker Company). Spectrophotometric grade of minimum specified purity 99.9 per cent.																
		ESTIMATED ERROR: δT/K = 0.1 δx <sub>1</sub> /x <sub>1</sub> = 0.01																
		REFERENCES:  1. Clever, H.L.; Battino, R.; Saylor, J.H.; Gross, P.M. <i>J. Phys. Chem.</i> <u>1957</u> , 61, 1078.																

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8]		Jadot, R.	
(2) Tetrachloromethane; CCl <sub>4</sub> ; [54-23-5]		J. Chim. Phys. <u>1972</u> , 69, 1036-40	
VARIABLES:		PREPARED BY:	
T/K: 298.15		C.L. Young	
P/kPa: 101.3			
EXPERIMENTAL VALUES:			
T/K	Henry's Law Constant, H/atm	Mole fraction <sup>+</sup> at partial pressure of 101.3 kPa, x <sub>C<sub>4</sub>H<sub>10</sub></sub>	#ΔH <sup>∞</sup> /cal mol <sup>-1</sup> (/J mol <sup>-1</sup> )
298.15	2.785	0.3591	602 (2519)
+ Calculated by compiler assuming x <sub>C<sub>4</sub>H<sub>10</sub></sub> = 1/H.			
# Excess partial molar enthalpy of solution at infinite dilution.			

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8]	Gerrard, W.	
(2) 2,2,2-Trichloroethanol; C <sub>2</sub> H <sub>3</sub> Cl <sub>3</sub> O; [115-20-8]	J. Appl. Chem. Biotechnol.	
Dichloroacetic acid; C <sub>2</sub> H <sub>2</sub> Cl <sub>2</sub> O <sub>2</sub> ; [79-43-6]	1973, 23, 1-17.	
1,2-Dibromoethane; C <sub>2</sub> H <sub>4</sub> Br <sub>2</sub> ; [106-93-4]		
VARIABLES:	PREPARED BY:	
T/K: 278.2-298.2	C. L. Young	
P/kPa: 101.3		
EXPERIMENTAL VALUES:		
Total pressure = 101.3 kPa		
T/K	Mole ratio	Mole fraction of butane <sup>#</sup>
2,2,2-Trichloroethanol; C <sub>2</sub> H <sub>3</sub> Cl <sub>3</sub> O; [115-20-8]		
278.2	0.370	0.270
283.2	0.250	0.200
293.2	0.115	0.103
298.2	0.100	0.0909
Dichloroacetic acid; C <sub>2</sub> H <sub>2</sub> Cl <sub>2</sub> O <sub>2</sub> ; [79-43-6]		
298.2	0.0667	0.0625
1,2-Dibromoethane; C <sub>2</sub> H <sub>4</sub> Br <sub>2</sub> ; [106-93-4]		
278.2	1.81	0.644
<sup>#</sup> Calculated by compiler.		
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:	
Gas was passed into a known weight of pure liquid in a bubbler tube at a total pressure measured using a manometer assembly. The amount of absorbed gas was estimated by weighing. The temperature was controlled to within 0.2 K. The apparatus and procedure are described by Gerrard, ref. (1).	No details given except that "all compounds were purified by conventional procedures".	
	ESTIMATED ERROR:	
	δT/K = ±0.1; δx/x = ±3% (estimated by compiler).	
	REFERENCES:	
	1. Gerrard, W. J. Appl. Chem. Biotechnol. 1972, 22, 623.	



COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8]  (2) Chlorobenzene; C <sub>6</sub> H <sub>5</sub> Cl; [108-90-7]		Blais, C.; Hayduk, W.  J. Chem. Eng. Data <u>1983</u> , 28, 181-184.	
VARIABLES:  T/K: 298.15,323.15  P/kPa: 101.325		PREPARED BY:  W. Hayduk	
EXPERIMENTAL VALUES:			
T/K	Ostwald Coefficient <sup>1</sup> L/cm <sup>3</sup> cm <sup>-3</sup>	Bunsen Coefficient <sup>2</sup> α/cm <sup>3</sup> (STP)cm <sup>-3</sup> atm <sup>-1</sup>	Mole Fraction <sup>1</sup> x <sub>1</sub>
298.15	85.4	78.24	0.269 (0.2690) <sup>3</sup>
323.15	37.3	31.53	0.131 (0.1310)
<sup>1</sup> Original data. <sup>2</sup> Calculated by compiler. <sup>3</sup> The mole fraction solubility of the original data was used to determine the following equations for ΔG° and ln x <sub>1</sub> and table of smoothed values: ΔG°/J mol <sup>-1</sup> = -RT ln x <sub>1</sub> = 733.24 T ln T - 4070.0 T ln x <sub>1</sub> = 49.5998 - 8.93585 ln T			
T/K	10 <sup>-4</sup> ΔG°/J mol <sup>-1</sup>	x <sub>1</sub>	
298.15	3.212	0.2690	
303.15	3.636	0.2319	
313.15	4.501	0.1735	
323.15	5.390	0.1310	
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
A volumetric method using a glass apparatus was employed. Degassed solvent contacted the gas while flowing as a thin film, at a constant rate, through an absorption spiral into a solution buret. A constant solvent flow was obtained by means of a calibrated syringe pump. The solution at the end of the spiral was considered saturated. Dry gas was maintained at atmospheric pressure in a gas buret by mechanically raising the mercury level in the buret at an adjustable rate. The solubility was calculated from the constant slope of volume of gas dissolved and volume of solvent injected.		1. Liquid Carbonic. Pure grade of minimum purity 99.0 per cent.  2. Canlab (Matheson, Coleman and Bell). Specified minimum purity 98.0 per cent.	
Degassing was accomplished using a two stage vacuum process described by Clever et al. (1).		ESTIMATED ERROR: δT/K = 0.1 δx <sub>1</sub> /x <sub>1</sub> = 0.01	
		REFERENCES:  1. Clever, H.L.; Battino, R.; Saylor, J.H.: Gross, P.M. J. Phys. Chem. <u>1957</u> , 61, 1078.	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8] (2) Iodobenzene; C <sub>6</sub> H <sub>5</sub> I; [591-50-4]		Gerrard, W. J. Appl. Chem. Biotechnol. <u>1973</u> , 23, 1-17.	
VARIABLES:		PREPARED BY:	
T/K: 278.2-293.2 P/kPa: 101.3		C. L. Young	
EXPERIMENTAL VALUES:			
Total pressure = 101.3 kPa			
T/K	Mole ratio	Mole fraction of propane <sup>#</sup>	
278.2	3.55	0.780	
283.2	0.612	0.380	
293.2	0.280	0.219	
<sup>#</sup> Calculated by compiler.			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Gas was passed into a known weight of pure liquid in a bubbler tube at a total pressure measured using a manometer assembly. The amount of absorbed gas was estimated by weighing. The temperature was controlled to within 0.2 K. The apparatus and procedure are described by Gerrard, ref. (1).		No details given except that "all compounds were purified by conventional procedures".	
		ESTIMATED ERROR:	
		$\delta T/K = \pm 0.1$ ; $\delta x/x = \pm 3\%$ (estimated by compiler).	
		REFERENCES:	
		1. Gerrard, W. J. Appl. Chem. Biotechnol. <u>1972</u> , 22, 623.	

COMPONENTS:	ORIGINAL MEASUREMENTS:	
(1) Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8] (2) 1-Bromo-3-methylbenzene ( <i>m</i> -bromotoluene); C <sub>7</sub> H <sub>7</sub> Br; [591-17-3]	Gerrard, W. <i>J. Appl. Chem. Biotechnol.</i> <u>1973</u> , 23, 1-17.	
VARIABLES:	PREPARED BY:	
T/K: 283.2, 293.2 P/kPa: 101.3	C. L. Young	
EXPERIMENTAL VALUES:		
Total pressure = 101.3 kPa		
T/K	Mole ratio	Mole fraction of butane <sup>#</sup>
283.2	0.952	0.488
293.2	0.431	0.301
<sup>#</sup> Calculated by compiler.		
AUXILIARY INFORMATION		
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:	
Gas was passed into a known weight of pure liquid in a bubbler tube at a total pressure measured using a manometer assembly. The amount of absorbed gas was estimated by weighing. The temperature was controlled to within 0.2 K. The apparatus and procedure are described by Gerrard, ref. (1).	No details given except that "all compounds were purified by conventional procedures".	
	ESTIMATED ERROR:	
	δT/K = ±0.1; δx/x = ±3% (estimated by compiler).	
	REFERENCES:	
	1. Gerrard, W. <i>J. Appl. Chem. Biotechnol.</i> <u>1972</u> , 22, 623.	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8] (2) 1-Iodooctane; C <sub>8</sub> H <sub>17</sub> I; [629-27-6]		Gerrard, W. J. Appl. Chem. Biotechnol. <u>1973</u> , 23, 1-17.	
VARIABLES: T/K: 278.2-293.2 P/kPa: 101.3		PREPARED BY:  C. L. Young	
EXPERIMENTAL VALUES: Total pressure = 101.3 kPa			
T/K	Mole ratio	Mole fraction of butane <sup>#</sup>	
278.2	3.88	0.795	
283.2	1.64	0.621	
293.2	0.74	0.425	
<sup>#</sup> Calculated by compiler.			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Gas was passed into a known weight of pure liquid in a bubbler tube at a total pressure measured using a manometer assembly. The amount of absorbed gas was estimated by weighing. The temperature was controlled to within 0.2 K. The apparatus and procedure are described by Gerrard, ref. (1).		No details given except that "all compounds were purified by conventional procedures".	
		ESTIMATED ERROR: δT/K = ±0.1; δx/x = ±3% (estimated by compiler).	
		REFERENCES:  1. Gerrard, W. J. Appl. Chem. Biotechnol. <u>1972</u> , 22, 623.	

COMPONENTS:			ORIGINAL MEASUREMENTS:																																									
(1) 2-Methylpropane or isobutane; C <sub>4</sub> H <sub>10</sub> ; [75-28-5]			Lebeau, P.																																									
(2) Water; H <sub>2</sub> O; [7732-18-5] Ethanol; C <sub>2</sub> H <sub>6</sub> O; [64-17-5] Diethylether; C <sub>4</sub> H <sub>10</sub> O; [60-29-7] Chloroform; CHCl <sub>3</sub> ; [67-66-3]			Bull. Acad. Roy. Belg. 1908, 300-4.																																									
VARIABLES:			PREPARED BY:																																									
T/K = 290, 291 p/kPa = 102.9 - 104.8			H. L. Clever																																									
EXPERIMENTAL VALUES:																																												
<table><tr><th colspan="2">Temperature</th><th>Pressure<sup>a</sup></th><th>Solubility</th></tr><tr><th>t/°C</th><th>T /K</th><th>p /mmHg</th><th>Volume Isobutane/Volume Solvent</th></tr><tr><td colspan="4">Water</td></tr><tr><td>17</td><td>290</td><td>772</td><td>0.13</td></tr><tr><td colspan="4">Ethanol</td></tr><tr><td>17</td><td>290</td><td>775</td><td>13.2</td></tr><tr><td colspan="4">Diethylether or 1'1'-oxybisethane</td></tr><tr><td>18</td><td>291</td><td>773</td><td>27.9</td></tr><tr><td colspan="4">Chloroform or trichloromethane</td></tr><tr><td>17</td><td>290</td><td>786</td><td>39.5</td></tr></table>					Temperature		Pressure <sup>a</sup>	Solubility	t/°C	T /K	p /mmHg	Volume Isobutane/Volume Solvent	Water				17	290	772	0.13	Ethanol				17	290	775	13.2	Diethylether or 1'1'-oxybisethane				18	291	773	27.9	Chloroform or trichloromethane				17	290	786	39.5
Temperature		Pressure <sup>a</sup>	Solubility																																									
t/°C	T /K	p /mmHg	Volume Isobutane/Volume Solvent																																									
Water																																												
17	290	772	0.13																																									
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Diethylether or 1'1'-oxybisethane																																												
18	291	773	27.9																																									
Chloroform or trichloromethane																																												
17	290	786	39.5																																									
<sup>a</sup> Not clear whether this is total pressure or isobutane partial pressure. It is probably the total pressure.																																												
AUXILIARY INFORMATION																																												
METHOD/APPARATUS/PROCEDURE: Details not given.			SOURCE AND PURITY OF MATERIALS: (1) Isobutane. Prepared by the author by the reaction of sodium or calcium in liquid ammonia on isobutyl chloride. The normal boiling point is -10.5 °C and the critical temperature is 134-5 °C. (2) Solvents. No information.																																									
			ESTIMATED ERROR:																																									
			REFERENCES:																																									

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) 2-Methylpropane (isobutane); C <sub>4</sub> H <sub>10</sub> ; [75-28-5]  (2) Tetrachloromethane (carbon tetrachloride); CCl <sub>4</sub> ; [56-23-5]		Blais, C.; Hayduk, W.  J. Chem. Eng. Data <u>1983</u> , 28, 181-184.	
VARIABLES:  T/K: 298.15,323.15  P/kPa: 101.325		PREPARED BY:  W. Hayduk	
EXPERIMENTAL VALUES:			
T/K	Ostwald Coefficient <sup>1</sup> L/cm <sup>3</sup> cm <sup>-3</sup>	Bunsen Coefficient <sup>2</sup> α/cm <sup>3</sup> (STP)cm <sup>-3</sup> atm <sup>-1</sup>	Mole Fraction <sup>1</sup> x <sub>1</sub>
298.15	76.5	70.09	0.231 (0.2310) <sup>3</sup>
323.15	39.9	33.73	0.132 (0.1320)
<sup>1</sup> Original data.			
<sup>2</sup> Calculated by compiler.			
<sup>3</sup> The mole fraction solubility of the original data was used to determine the following equations for ΔG° and ln x <sub>1</sub> and table of smoothed values: ΔG°/J mol <sup>-1</sup> = -RT ln x <sub>1</sub> = 600.71 T ln T - 3304.8 T ln x <sub>1</sub> = 40.2754 - 7.32078 ln T			
		T/K	10 <sup>-4</sup> ΔG°/J mol <sup>-1</sup>
		298.15	3.512
		303.15	3.874
		313.15	4.612
		323.15	5.369
		x <sub>1</sub>	
		0.2380	
		0.2107	
		0.1662	
		0.1320	
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
A volumetric method using a glass apparatus was employed. Degassed solvent contacted the gas while flowing as a thin film, at a constant rate, through an absorption spiral into a solution buret. A constant solvent flow was obtained by means of a calibrated syringe pump. The solution at the end of the spiral was considered saturated. Dry gas was maintained at atmospheric pressure in a gas buret by mechanically raising the mercury level in the buret at an adjustable rate. The solubility was calculated from the constant slope of volume of gas dissolved and volume of solvent injected.		1. Liquid Carbonic. Pure grade of minimum purity 99.0 per cent.  2. Canlab (J.T. Baker Company). Spectrophotometric grade of minimum specified purity 99.9 per cent.	
Degassing was accomplished using a two stage vacuum process described by Clever et al. (1).		ESTIMATED ERROR: δT/K = 0.1 δx <sub>1</sub> /x <sub>1</sub> = 0.01	
		REFERENCES:  1. Clever, H.L.; Battino, R.; Saylor, J.H.; Gross, P.M. J. Phys. Chem. <u>1957</u> , 61, 1078.	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) 2-Methylpropane (isobutane); C <sub>4</sub> H <sub>10</sub> ; [75-28-5]  (2) 1,1'-Oxybis, 2-Chloroethane (Chlorex); C <sub>4</sub> H <sub>8</sub> Cl <sub>2</sub> O; [111-44-4]		Ezheleva, A.E.; Zorin, A.D. <i>Tr. Khim. Khim. Tech. (Gorkii)</i> 1961, 1, 37-40.	
VARIABLES:  T/K: 303.15-343.15  P/kPa: 101.325 and above		PREPARED BY:  W. Hayduk	
EXPERIMENTAL VALUES:			
T/K	Ostwald Coefficient <sup>2</sup> L/cm <sup>3</sup> cm <sup>-3</sup>	Bunsen Coefficient <sup>2</sup> α/cm <sup>3</sup> (STP)cm <sup>-3</sup> atm <sup>-1</sup>	Mole Fraction <sup>1</sup> x <sub>1</sub>
303.15	13.3	11.8	0.0610(0.0607) <sup>3</sup>
313.15	11.6	9.95	0.0522 <sup>4</sup> (0.0520)
323.15	10.1	8.38	0.0447(0.0448)
333.15	8.61	6.92	0.0375(0.0387)
343.15	8.08	6.29	0.0345(0.0337)
 <sup>1</sup> Original data given as the inverse of Henry's constant which is equivalent to mole fraction at a gas partial pressure of 101.325 kPa.  <sup>2</sup> Ostwald and Bunsen coefficients calculated by compiler using author's assumption that solvent is non-volatile.  <sup>3</sup> From equation of smoothed data:  ln x <sub>1</sub> = 24.349 - 4.7515 ln T  Correlation coefficient = 0.9961  <sup>4</sup> Value corrected to read as shown; original value of x <sub>1</sub> = 0.0022 appears to be a misprint.			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
The apparatus consisted of a two-chamber, rocking device with separate gas and liquid chambers joined by two tubes and microvalves. The gas chamber was equipped with a pressure gauge. After evacuation, gas and deaerated solvent were separately charged, and then contacted by opening the microvalves and by rocking. The solubility was calculated from a knowledge of the volume of the solvent charged, and the initial and final gas pressures.  The solvent was considered non-volatile and the gas pressure was considered to be the total pressure.		1. Source and purity not given. Gas purified by low temperature fractionation and analyzed by gas chromatography.  2. Source and purity not given. Refractive index measured:  n <sub>D</sub> <sup>20</sup> = 1.4535	
		ESTIMATED ERROR:  δT/K = 0.05  δx <sub>1</sub> /x <sub>1</sub> = 0.05 (estimated by compiler)	
		REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) 2-Methylpropane (isobutane); C <sub>4</sub> H <sub>10</sub> ; [75-28-5]  (2) Chlorobenzene; C <sub>6</sub> H <sub>5</sub> Cl; [108-90-7]		Blais, C.; Hayduk, W. <i>J. Chem. Eng. Data</i> <u>1983</u> , 28, 181-184.	
VARIABLES:  T/K: 298.15, 323.15  P/kPa: 101.325		PREPARED BY:  W. Hayduk	
EXPERIMENTAL VALUES:			
T/K	Ostwald Coefficient <sup>1</sup> L/cm <sup>3</sup> cm <sup>-3</sup>	Bunsen Coefficient <sup>2</sup> α/cm <sup>3</sup> (STP) cm <sup>-3</sup> atm <sup>-1</sup>	Mole Fraction <sup>1</sup> x <sub>1</sub>
298.15	45.1	41.32	0.162 (0.1620) <sup>3</sup>
323.15	23.1	19.53	0.0853 (0.0853)
<sup>1</sup> Original data.			
<sup>2</sup> Calculated by compiler.			
<sup>3</sup> The mole fraction solubility of the original data was used to determine the following equations for ΔG° and ln x <sub>1</sub> and table of smoothed values: ΔG°/J mol <sup>-1</sup> = -RT ln x <sub>1</sub> = 653.658 T ln T - 3574.93 T ln x <sub>1</sub> = 43.5669 - 7.9660 ln T			
	T/K	10 <sup>-4</sup> ΔG°/J mol <sup>-1</sup>	x <sub>1</sub>
	298.15	4.453	0.1620
	303.15	4.857	0.1419
	313.15	5.682	0.1096
	323.15	6.527	0.08530
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
A volumetric method using a glass apparatus was employed. Degassed solvent contacted the gas while flowing as a thin film, at a constant rate, through an absorption spiral into a solution buret. A constant solvent flow was obtained by means of a calibrated syringe pump. The solution at the end of the spiral was considered saturated. Dry gas was maintained at atmospheric pressure in a gas buret by mechanically raising the mercury level in the buret at an adjustable rate. The solubility was calculated from the constant slope of volume of gas dissolved and volume of solvent injected.		1. Liquid Carbonic. Pure grade of minimum purity 99.0 per cent.  2. Canlab (Matheson, Coleman and Bell). Specified minimum purity 98.0 per cent.	
Degassing was accomplished using a two stage vacuum process described by Clever et al. (1).		ESTIMATED ERROR:  δT/K = 0.1 δx <sub>1</sub> /x <sub>1</sub> = 0.01	
		REFERENCES:  1. Clever, H.L.; Battino, R.; Saylor, J.H.; Gross, P.M. <i>J. Phys. Chem.</i> <u>1957</u> 61, 1078.	



COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) 2-Methylpropane, ( <i>isobutane</i> ); C <sub>4</sub> H <sub>10</sub> ; [75-28-5]  (2) Bromobenzene; C <sub>6</sub> H <sub>5</sub> Br; [108-86-1]		Gerrard, W.  <i>Solubility of Gases and Liquids</i> , <i>Plenum, New York, 1976</i> , Chapter 12.	
VARIABLES:		PREPARED BY:	
T/K: 273.15  P/kPa: 13.3-101.3		C.L. Young	
EXPERIMENTAL VALUES:			
T/K	P/mmHg	P/kPa	Mole fraction of 2-methylpropane in liquid, $x_{C_4H_{10}}$
275.13	100	13.3	0.033
	200	26.7	0.068
	300	40.0	0.108
	400	53.3	0.154
	500	66.7	0.208
	600	80.0	0.270
	700	93.3	0.360
	760	101.3	0.435
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Gas was passed into a known weight of pure liquid in a bubbler tube at a total pressure measured by a manometer assembly. The amount of absorbed gas was estimated by weighing. The temperature was manually controlled to within 0.2K. The apparatus and procedure are described by Gerrard (1, 2).		No details given.	
		ESTIMATED ERROR:	
		$\delta T/K = \pm 0.1$ ; $\delta x/x = \pm 3\%$ (estimated by compiler)	
		REFERENCES:	
		1. Gerrard, W. <i>J. Appl. Chem. Biotechnol.</i> <u>1972</u> , 22, 623-650. 2. Gerrard, W. <i>Solubility of Gases and Liquids</i> , Plenum Press, New York, <u>1976</u> , Chapter 1.	

COMPONENTS:			ORIGINAL MEASUREMENTS:		
(1) 2-Methylpropane, (isobutane); C <sub>4</sub> H <sub>10</sub> ; [75-28-5]			Gerrard, W.		
(2) 1-Bromooctane; C <sub>8</sub> H <sub>17</sub> Br; [111-83-1]			Solubility of Gases and Liquids Plenum, New York, 1976, Chapter 12.		
VARIABLES:			PREPARED BY:		
T/K: 273.15 P/kPa: 13.3-101.3			C.L. Young		
EXPERIMENTAL VALUES:					
T/K	P/mmHg	P/kPa	Mole fraction of 2-methylpropane in liquids, <i>x</i> <sub>C<sub>4</sub>H<sub>10</sub></sub>		
273.15	100	13.3	0.070		
	200	26.7	0.138		
	300	40.0	0.208		
	400	53.3	0.282		
	500	66.7	0.355		
	600	80.0	0.430		
	700	93.3	0.516		
	760	101.3	0.580		
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:		
Gas was passed into a known weight of pure liquid in a bubbler tube at a total pressure measured by a manometer assembly. The amount of absorbed gas was estimated by weighing. The temperature was manually controlled to within 0.2K. The apparatus and procedure are described by Gerrard (1,2).			No details given.		
			ESTIMATED ERROR:		
			δT/K = ±0.1; δ <i>x</i> / <i>x</i> = ±3% (estimated by compiler)		
			REFERENCES:		
			1. Gerrard, W. <i>J. Appl. Chem. Biotechnol.</i> 1972 22, 623-650.		
			2. Gerrard, W. <i>Solubility of Gases and Liquids</i> , Plenum Press, New York, 1976, Chapter 1.		

<b>COMPONENTS:</b>  (1) Propane; $C_3H_8$ ; [74-98-6]  (2) Chlorobenzene; $C_6H_5Cl$ ; [108-90-7]	<b>ORIGINAL MEASUREMENTS:</b>  Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. E.; Vasil'eva, N. A.; Tsybnevskii, A. M. <i>Zh. Prikl. Khim.</i> <u>1980</u> , 53, 1661-3.
<b>VARIABLES:</b>  $T/K$ : 293.2 $P/MPa$ : 1.0-6.0	<b>PREPARED BY:</b>  C. L. Young
<b>EXPERIMENTAL VALUES:</b>	
$T/K$	$P/MPa$
$T/K$	$P/MPa$
$T/K$	$P/MPa$
$T/K$	$P/MPa$
$T/K$	$P/MPa$
$T/K$	$P/MPa$
$T/K$	$P/MPa$
$T/K$	$P/MPa$
$T/K$	$P/MPa$
$T/K$	$P/MPa$
$T/K$	$P/MPa$

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Propane; C <sub>3</sub> H <sub>8</sub> ; [74-98-6]		Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. E.; Vasil'eva, N. A.; Tsybnlevskii, A. M. <i>Zh. Prikl. Khim.</i> <u>1980</u> , 53, 1661-3.	
(2) 1-Chloro-4-methylbenzene; C <sub>7</sub> H <sub>7</sub> Cl; [106-43-4]			
VARIABLES:		PREPARED BY:	
T/K: 293.2 P/MPa: 1.0-6.0		C.L. Young	
EXPERIMENTAL VALUES:			
T/K	P/MPa	$\alpha^a$	Mole fraction of propane <sup>b</sup> $x_{C_3H_8}$
293.2	1.0	324.50	0.6194
	6.0	1115.10	0.8483
<sup>a</sup> Volume of propane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.			
<sup>b</sup> Calculated by compiler assuming molar volume of propane at 293.2 K and 1 atmosphere is 23.4 L.			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
A gas chromatographic method. No details given except ref. (1) which contains little additional information.		1. Purity about 99.6-99.8 mole per cent.  2. Purified; final purity checked by refractive index measurements.	
		ESTIMATED ERROR:	
		REFERENCES: 1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. <i>Zh. Fiz. Khim.</i> <u>1977</u> , 51, 767.	

<b>COMPONENTS:</b> (1) Propane; $C_3H_8$ ; [74-98-6]  (2) 1-Chlorooctane; $C_8H_{17}Cl$ ; [111-85-3]	<b>ORIGINAL MEASUREMENTS:</b> Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. F.; Vasil'eva, N. A.; Tsybnlevskii, A. M. <i>Zh. Prikl. Khim.</i> <u>1980</u> , <i>53</i> , 1661-3.
<b>VARIABLES:</b>  $T/K$ : 293.2 $P/MPa$ : 1.0-6.0	<b>PREPARED BY:</b>  C. L. Young
<b>EXPERIMENTAL VALUES:</b>	
$T/K$	$P/MPa$
293.2	$\alpha^a$
	Mole fraction of propane <sup>b</sup> $x_{C_3H_8}$
	0.6772
	0.7811
	0.8621
	0.9134
<sup>a</sup> Volume of propane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.	
<sup>b</sup> Calculated by compiler assuming molar volume of propane at 293.2 K and 1 atmosphere is 23.4 L.	
<b>AUXILIARY INFORMATION</b>	
<b>METHOD/APPARATUS/PROCEDURE:</b>  A gas chromatographic method. No details given except ref. (1) which contains little additional information.	<b>SOURCE AND PURITY OF MATERIALS:</b>  1. Purity about 99.6-99.8 mole per cent.  2. Purified; final purity checked by refractive index measurements.
<b>ESTIMATED ERROR:</b>	
<b>REFERENCES:</b> 1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. <i>Zh. Fiz. Khim.</i> <u>1977</u> , <i>51</i> , 767.	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Propane; C <sub>3</sub> H <sub>8</sub> ; [74-98-6]		Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. F.; Vasil'eva, N. A.; Tsybnlevskii, A. M. <i>Zh. Prikl. Khim.</i> <u>1980</u> , 53, 1661-3.	
(2) 1-Iodooctane; C <sub>8</sub> H <sub>17</sub> I; [629-27-6]			
VARIABLES:		PREPARED BY:	
T/K: 293.2 P/MPa: 1.0-6.0		C. L. Young	
EXPERIMENTAL VALUES:			
T/K	P/MPa	$\alpha^a$	Mole fraction of propane <sup>b</sup> $x_{C_3H_8}$
293.2	1.0	138.2	0.5140
	2.0	269.8	0.6737
	3.5	458.3	0.7781
	6.0	664.2	0.8356
<sup>a</sup> Volume of propane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.			
<sup>b</sup> Calculated by compiler assuming molar volume of propane at 293.2 K and 1 atmosphere is 23.4 L.			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
A gas chromatographic method. No details given except ref. (1) which contains little additional information.		1. Purity about 99.6-99.8 mole per cent.  2. Purified; final purity checked by refractive index measurements.	
		ESTIMATED ERROR:	
		REFERENCES:	
		1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. <i>Zh. Fiz. Khim.</i> <u>1977</u> , 51, 767.	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Propane; C <sub>3</sub> H <sub>8</sub> ; [74-98-6]		Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. F.; Vasil'eva, N. A.; Tsybnlevskii, A. M.	
(2) 2-Iodooctane; C <sub>8</sub> H <sub>17</sub> I; [557-36-8]		Zh. Prikl. Khim. 1980, 53, 1661-3.	
VARIABLES:		PREPARED BY:	
T/K: 293.2 P/MPa: 1.0-6.0		C. L. Young	
EXPERIMENTAL VALUES:			
T/K	P/MPa	$\alpha^a$	Mole fraction of propane <sup>b</sup> $x_{C_3H_8}$
293.2	1.0	149.9	0.5351
	2.0	292.9	0.6922
	3.5	497.2	0.7924
	6.0	720.5	0.8469
<sup>a</sup> Volume of propane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.			
<sup>b</sup> Calculated by compiler assuming molar volume of propane at 293.2 K and 1 atmosphere is 23.4 L.			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
A gas chromatographic method. No details given except ref. (1) which contains little additional information.		1. Purity about 99.6-99.8 mole per cent.	
		2. Purified; final purity checked by refractive index measurements.	
		ESTIMATED ERROR:	
		REFERENCES:	
		1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. Zh. Fiz. Khim. 1977, 51, 767.	

<b>COMPONENTS:</b>  (1) Propane; $C_3H_8$ ; [74-98-6]  (2) (1-Chloroethyl)-benzene; $C_8H_9Cl$ ; [672-65-1]	<b>ORIGINAL MEASUREMENTS:</b>  Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. F.; Vasil'eva, N. A.; Tsybnlevskii, A. M. <i>Zh. Prikl. Khim.</i> <u>1980</u> , 53, 1661-3.
<b>VARIABLES:</b>  $T/K$ : 293.2 $P/MPa$ : 1.0-6.0	<b>PREPARED BY:</b>  C. L. Young
<b>EXPERIMENTAL VALUES:</b>	
$T/K$	$P/MPa$
$293.2$  $293.2$	$1.0$ $6.0$  $1.0$ $6.0$
<sup>a</sup> Volume of propane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.  <sup>b</sup> Calculated by compiler assuming molar volume of propane at 293.2 K and 1 atmosphere is 23.4 L.	
<b>AUXILIARY INFORMATION</b>	
<b>METHOD APPARATUS/PROCEDURE:</b>  A gas chromatographic method. No details given except ref. (1) which contains little additional information.	<b>SOURCE AND PURITY OF MATERIALS:</b>  1. Purity about 99.6-99.8 mole per cent.  2. Purified; final purity checked by refractive index measurements.  <b>ESTIMATED ERROR:</b>  <b>REFERENCES:</b> 1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. <i>Zh. Fiz. Khim.</i> <u>1977</u> , 51, 767.



COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Propane; C <sub>3</sub> H <sub>8</sub> ; [74-98-6]		Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. F.; Vasil'eva, N. A.; Tsybnlevskii, A. M. <i>Zh. Prikl. Khim.</i> <u>1980</u> , 53, 1661-3.	
(2) 1-Chloronaphthalene; C <sub>10</sub> H <sub>7</sub> Cl; [90-13-1]			
VARIABLES:		PREPARED BY:	
T/K: 293.2 P/MPa: 1.0-6.0		C. L. Young	
EXPERIMENTAL VALUES:			
T/K	P/MPa	$\alpha^a$	Mole fraction of propane <sup>b</sup> $x_{C_3H_8}$
293.2	1.0	91.03	0.3454
	6.0	529.17	0.7549
<sup>a</sup> Volume of propane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.			
<sup>b</sup> Calculated by compiler assuming molar volume of propane at 293.2 K and 1 atmosphere is 23.4 L.			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
A gas chromatographic method. No details given except ref. (1) which contains little additional information.		1. Purity about 99.6-99.8 mole per cent.	
		2. Purified; final purity checked by refractive index measurements.	
		ESTIMATED ERROR:	
		REFERENCES:	
		1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. <i>Zh. Fiz. Khim.</i> <u>1977</u> , 51, 767.	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Propane; C <sub>3</sub> H <sub>8</sub> ; [74-98-6]		Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. F.; Vasil'eva, N. A.; Tsybnlevskii, A. M. Zh. Prikl. Khim. 1980, 53, 1661-3.	
(2) 1-Bromooctane; C <sub>8</sub> H <sub>17</sub> Br; [111-83-1]			
VARIABLES:		PREPARED BY:	
T/K: 293.2		C. L. Young	
P/MPa: 1.0-6.0			
EXPERIMENTAL VALUES:			
T/K	P/MPa	$\alpha^a$	Mole fraction of propane <sup>b</sup> $x_{C_3H_8}$
293.2	1.0	220.0	0.6181
	2.0	454.5	0.7698
	3.5	724.1	0.8420
	6.0	1092.1	0.8893
<p><sup>a</sup> Volume of propane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.</p> <p><sup>b</sup> Calculated by compiler assuming molar volume of propane at 293.2 K and 1 atmosphere is 23.4 L.</p>			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
A gas chromatographic method. No details given except ref. (1) which contains little additional information.		1. Purity about 99.6-99.8 mole per cent.	
		2. Purified; final purity checked by refractive index measurements.	
		ESTIMATED ERROR:	
		REFERENCES:	
		1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. Zh. Fiz. Khim. 1977, 51, 767.	

<b>COMPONENTS:</b> (1) 2-Methylpropane; $C_4H_{10}$ ; [75-28-5] (2) Chlorobenzene; $C_6H_5Cl$ ; [108-90-7]	<b>ORIGINAL MEASUREMENTS:</b> Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. F.; Vasil'eva, N. A.; Tsybnlevskii, A. M. <i>Zh. Prikl. Khim.</i> 1980, 53, 1661-3.
<b>VARIABLES:</b> $T/K$ : 293.2 $P/MPa$ : 1.0-6.0	<b>PREPARED BY:</b> C. L. Young
<b>EXPERIMENTAL VALUES:</b>	
$T/K$	$P/MPa$
$\alpha^a$	Mole fraction of 2-methylpropane <sup>b</sup> $x_{C_4H_{10}}$
293.2	1.0 6.0
121.14 1180.60	0.3460 0.8375
<sup>a</sup> Volume of 2-methylpropane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.  <sup>b</sup> Calculated by compiler assuming molar volume of 2-methylpropane at 293.2 K and 1 atmosphere is 23.3 L.	
<b>AUXILIARY INFORMATION</b>	
<b>METHOD/APPARATUS/PROCEDURE:</b>  A gas chromatographic method. No details given except ref. (1) which contains little additional information.	<b>SOURCE AND PURITY OF MATERIALS:</b>  1. Purity about 99.6-99.8 mole per cent.  2. Purified; final purity checked by refractive index measurements.  <b>ESTIMATED ERROR:</b>  <b>REFERENCES:</b> 1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. <i>Zh. Fiz. Khim.</i> 1977, 51, 767.

<p>COMPONENTS:</p> <p>(1) 2-Methylpropane; <math>C_4H_{10}</math>; [75-28-5]</p> <p>(2) 1-Chloro-4-methylbenzene; <math>C_7H_7Cl</math>; [106-43-4]</p>	<p>ORIGINAL MEASUREMENTS:</p> <p>Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. F.; Vasil'eva, N. A.; Tsybnlevskii, A. M. <i>Zh. Prikl. Khim.</i> <u>1980</u>, 53, 1661-3.</p>
<p>VARIABLES:</p> <p><math>T/K</math>: 293.2</p> <p><math>P/MPa</math>: 1.0-6.0</p>	<p>PREPARED BY:</p> <p>C. L. Young</p>
EXPERIMENTAL VALUES:	
<p><math>T/K</math></p>	<p><math>P/MPa</math></p> <p><math>\alpha^a</math></p> <p>Mole fraction of 2-methylpropane<sup>b</sup> <math>x_{C_4H_{10}}</math></p>
<p>293.2</p>	<p>1.0</p> <p>6.0</p> <p>467.70</p> <p>2894.30</p> <p>0.6565</p> <p>0.9220</p>
<p><sup>a</sup> Volume of 2-methylpropane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.</p> <p><sup>b</sup> Calculated by compiler assuming molar volume of 2-methylpropane at 293.2 K and 1 atmosphere is 23.3 L.</p>	
AUXILIARY INFORMATION	
<p>METHOD APPARATUS/PROCEDURE:</p> <p>A gas chromatographic method. No details given except ref. (1) which contains little additional information.</p>	<p>SOURCE AND PURITY OF MATERIALS:</p> <p>1. Purity about 99.6-99.8 mole per cent.</p> <p>2. Purified; final purity checked by refractive index measurements.</p> <p>ESTIMATED ERROR:</p> <p>REFERENCES:</p> <p>1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. <i>Zh. Fiz. Khim.</i> <u>1977</u>, 51, 767.</p>

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) 2-Methylpropane; C <sub>4</sub> H <sub>10</sub> ; [75-28-5]		Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. F.; Vasil'eva, N. A.; Tsybnlevskii, A. M. <i>Zh. Prikl. Khim.</i> <u>1980</u> , 53, 1661-3.	
(2) 1-Chlorooctane; C <sub>8</sub> H <sub>17</sub> Cl; [111-85-3]			
VARIABLES:		PREPARED BY:	
T/K: 293.2 P/MPa: 1.0-6.0		C. L. Young	
EXPERIMENTAL VALUES:			
T/K	P/MPa	$\alpha^a$	Mole fraction of 2-methylpropane <sup>b</sup> $x_{C_4H_{10}}$
293.2	1.0 2.0 3.5 6.0	665.5 1207.9 2101.6 3623.2	0.8294 0.8982 0.9388 0.9636
<sup>a</sup> Volume of 2-methylpropane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.			
<sup>b</sup> Calculated by compiler assuming molar volume of 2-methylpropane at 293.2 K and 1 atmosphere is 23.3 L.			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
A gas chromatographic method. No details given except ref. (1) which contains little additional information.		1. Purity about 99.6-99.8 mole per cent.  2. Purified; final purity checked by refractive index measurements.	
		ESTIMATED ERROR:	
		REFERENCES:	
		1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. <i>Zh. Fiz. Khim.</i> <u>1977</u> , 51, 767.	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) 2-Methylpropane; C <sub>4</sub> H <sub>10</sub> ; [75-28-5]		Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. F.; Vasil'eva, N. A.; Tsybnlevskii, A.M. <i>Zh. Prikl. Khim.</i> <u>1980</u> , 53, 1661-3.	
(2) 1-Bromooctane; C <sub>8</sub> H <sub>17</sub> Br; [111-83-1]			
VARIABLES: T/K: 293.2 P/MPa: 1.0-6.0		PREPARED BY:  C. L. Young	
EXPERIMENTAL VALUES:			
T/K	P/MPa	$\alpha^a$	Mole fraction of 2 methylpropane <sup>b</sup> $x_{C_4H_{10}}$
293.2	1.0	559.5	0.8066
	2.0	1131.4	0.8940
	3.5	1791.7	0.9303
	6.0	2592.1	0.9508
<p><sup>a</sup> volume of 2-methylpropane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.</p> <p><sup>b</sup> Calculated by compiler assuming molar volume of 2-methylpropane at 293.2 K and 1 atmosphere is 23.3 L.</p>			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
A gas chromatographic method. No details given except ref. (1) which contains little additional information.		1. Purity about 99.6-99.8 mole per cent.	
		2. Purified; final purity checked by refractive index measurements.	
		ESTIMATED ERROR:	
		REFERENCES:	
		1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. <i>Zh. Fiz. Khim.</i> <u>1977</u> , 51, 767.	

<b>COMPONENTS:</b>  (1) 2-Methylpropane; $C_4H_{10}$ ; [75-28-5]  (2) 1-Iodooctane; $C_8H_{17}I$ ; [629-27-6]	<b>ORIGINAL MEASUREMENTS:</b>  Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. F.; Vasil'eva, N. A.; Tsybnlevskii, A. M. <i>Zh. Prikl. Khim.</i> <u>1980, 53, 1661-3.</u>
<b>VARIABLES:</b> <i>T</i> /K: 293.2 <i>P</i> /MPa: 1.0-6.0	<b>PREPARED BY:</b>  C. L. Young
<b>EXPERIMENTAL VALUES:</b>	
<div><i>T</i>/K</div> <div><i>P</i>/MPa</div> <div><math>\alpha^a</math></div>	<div>Mole fraction of 2-methylpropane<sup>b</sup> <math>x_{C_4H_{10}}</math></div> <div>           293.2            1.0            323.1            0.7146                             2.0            638.6            0.8319                             3.5            1104.0           0.8954                             6.0            1668.7           0.9282         </div>
<p><sup>a</sup> Volume of 2-methylpropane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.</p> <p><sup>b</sup> Calculated by compiler assuming molar volume of 2-methylpropane at 293.2 K and 1 atmosphere is 23.3 L.</p>	
<b>AUXILIARY INFORMATION</b>	
<b>METHOD/APPARATUS/PROCEDURE:</b>  A gas chromatographic method. No details given except ref. (1) which contains little additional information.	<b>SOURCE AND PURITY OF MATERIALS:</b>  1. Purity about 99.6-99.8 mole per cent.  2. Purified; final purity checked by refractive index measurements.  <b>ESTIMATED ERROR:</b>  <b>REFERENCES:</b> 1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. <i>Zh. Fiz. Khim.</i> <u>1977, 51, 767.</u>

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) 2-Methylpropane; C <sub>4</sub> H <sub>10</sub> ; [75-28-5]		Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. F.; Vasil'eva, N. A.; Tsybnlevskii, A. M. <i>Zh. Prikl. Khim.</i> <u>1980</u> , 53, 1661-3.	
(2) 2-Iodooctane; C <sub>8</sub> H <sub>17</sub> I; [557-36-8]			
VARIABLES: T/K: 293.2 P/MPa: 1.0-6.0		PREPARED BY:  C. L. Young	
EXPERIMENTAL VALUES:			
T/K	P/MPa	$\alpha^a$	Mole fraction of 2-methylpropane <sup>b</sup> $x_{C_4H_{10}}$
293.2	1.0	348.7	0.7306
	2.0	689.3	0.8428
	3.5	1191.6	0.9026
	6.0	1801.0	0.9334
<sup>a</sup> Volume of 2-methylpropane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.			
<sup>b</sup> Calculated by compiler assuming molar volume of 2-methylpropane at 293.2 K and 1 atmosphere is 23.3 L.			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
A gas chromatographic method. No details given except ref. (1) which contains little additional information.		1. Purity about 99.6-99.8 mole per cent.	
		2. Purified; final purity checked by refractive index measurements.	
		ESTIMATED ERROR:	
		REFERENCES:	
		1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. <i>Zh. Fiz. Khim.</i> <u>1977</u> , 51, 767.	



<b>COMPONENTS:</b> (1) 2-Methylpropane; $C_4H_{10}$ ; [75-28-5] (2) (1-Chloroethyl)-benzene; $C_8H_9Cl$ ; [672-65-1]	<b>ORIGINAL MEASUREMENTS:</b> Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. F.; Vasil'eva, N. A.; Tsybnlevskii, A. M. <i>Zh. Prikl. Khim.</i> 1980, 53, 1661-3.
<b>VARIABLES:</b>  T/K: 293.2 P/MPa: 1.0-6.0	<b>PREPARED BY:</b>  C. L. Young
<b>EXPERIMENTAL VALUES:</b>	
T/K	Mole fraction of 2-methylpropane <sup>b</sup> $x_{C_4H_{10}}$
P/MPa	$\alpha^a$
293.2	0.5803
1.0 6.0	1207.40 0.8727
<p><sup>a</sup> Volume of 2-methylpropane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.</p> <p><sup>b</sup> Calculated by compiler assuming molar volume of 2-methylpropane at 293.2 K and 1 atmosphere is 23.3 L.</p>	
<b>AUXILIARY INFORMATION</b>	
<b>METHOD/APPARATUS/PROCEDURE:</b>  A gas chromatographic method. No details given except ref. (1) which contains little additional information.	<b>SOURCE AND PURITY OF MATERIALS:</b>  1. Purity about 99.6-99.8 mole per cent. 2. Purified; final purity checked by refractive index measurements.  <b>ESTIMATED ERROR:</b>  <b>REFERENCES:</b> 1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. <i>Zh. Fiz. Khim.</i> 1977, 51, 767.

<b>COMPONENTS:</b> (1) 2-Methylpropane; $C_4H_{10}$ ; [75-28-5] (2) 1-Chloronaphthalene; $C_{10}H_7Cl$ ; [90-13-1]	<b>ORIGINAL MEASUREMENTS:</b> Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Potapov, V. F.; Vasil'eva, N. A.; Tsybnlevskii, A. M. <i>Zh. Prikl. Khim.</i> 1980, 53, 1661-3.
<b>VARIABLES:</b> $T/K$ : 293.2 $P/MPa$ : 1.0-6.0	<b>PREPARED BY:</b> C. L. Young
<b>EXPERIMENTAL VALUES:</b>	
$T/K$	$P/MPa$
$\alpha^a$	Mole fraction of 2-methylpropane <sup>b</sup> $x_{C_4H_{10}}$
293.2	1.0 6.0
198.56 1214.82	0.5372 0.8766
<p><sup>a</sup> Volume of 2-methylpropane measured at 293.2 K and 1 atmosphere pressure dissolved by unit volume of liquid.</p> <p><sup>b</sup> Calculated by compiler assuming molar volume of 2-methylpropane at 293.2 K and 1 atmosphere is 23.3 L.</p>	
<b>AUXILIARY INFORMATION</b>	
<b>METHOD/APPARATUS/PROCEDURE:</b> <p>A gas chromatographic method. No details given except ref. (1) which contains little additional information.</p>	<b>SOURCE AND PURITY OF MATERIALS:</b> 1. Purity about 99.6-99.8 mole per cent. 2. Purified; final purity checked by refractive index measurements. <b>ESTIMATED ERROR:</b> <b>REFERENCES:</b> 1. Berlin, M. A.; Pluzhnikova, M. F.; Stepanova, I. N.; Tsybnlevskii, A. M. <i>Zh. Fiz. Khim.</i> 1977, 51, 767.