

COMPONENTS:		ORIGINAL MEASUREMENTS:	
1. Hydrogen sulfide; H <sub>2</sub> S; [7783-06-4] 2. Methanol; CH <sub>4</sub> O; [67-56-1]		Bezdel, L.S.; Teodorovich, V.P. <i>Gazovaya Prom.</i> <u>1958</u> , No.8, 38 - 43.	
VARIABLES:		PREPARED BY:	
Temperature, pressure		P.G.T. Fogg	
EXPERIMENTAL VALUES:			
T/K	P <sub>H<sub>2</sub>S</sub> /mmHg	Volume of H <sub>2</sub> S, corrected to 273.15 K and 760 mmHg, dissolved by 1 kg methanol / dm <sup>3</sup>	Mole fraction of H <sub>2</sub> S in liquid phase* x <sub>H<sub>2</sub>S</sub>
223.2	15.80	5.67	0.00814
	48.70	15.50	0.02194
243.2	1.8	0.27	0.00039
	3.16	0.37	0.00054
	12.45	1.57	0.00227
	11.20	1.84	0.00266
	16.50	2.60	0.00375
	17.50	2.56	0.00369
	47.50	7.07	0.01013
	49.20	7.17	0.01027
303.2	60.25	9.13	0.01304
	13.90	0.30	0.00043
	40.30	0.79	0.00114
	41.70	0.79	0.00114
* calculated by the compiler.      760 mmHg = 1 atm = 1.013 bar.			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Pre-cooled mixtures of H <sub>2</sub> & H <sub>2</sub> S were bubbled through CH <sub>3</sub> OH in a thermostatted absorption vessel of volume 200 cm <sup>3</sup> . Temperatures were controlled manually by addition of solid CO <sub>2</sub> to butyl alcohol in the thermostat and measured by a pentane thermometer. After 6 - 8 h, 3 - 4 samples of the liquid phase were withdrawn at 30 min intervals. These, together with gas samples, were analysed by iodimetry. The concentration at equilibrium was unaffected by the presence of an initial excess of H <sub>2</sub> S in the solution.		1. dried with CaCl <sub>2</sub> .	
		ESTIMATED ERROR:	
		$\delta T/K = \pm 0.5$ (authors)	
		REFERENCES:	

COMPONENTS:			ORIGINAL MEASUREMENTS:	
1. Hydrogen sulfide; H <sub>2</sub> S; [7783-06-4]			Yorizane, M.; Sadamoto, S.;	
2. Methanol; CH <sub>4</sub> O; [67-56-1]			Masuoka, H.; Eto, Y. <i>Kogyo Kagaku Zasshi</i> <u>1969</u> , <i>72</i> , 2174-7.	
VARIABLES:			PREPARED BY:	
Temperature, pressure			C. L. Young	
EXPERIMENTAL VALUES:				
T/K	P/atm	P/MPa	Mole fraction of hydrogen sulfide in liquid, $x_{\text{H}_2\text{S}}$	
273.15	2.0	0.20	0.092	
	4.0	0.41	0.199	
	6.0	0.61	0.329	
	7.5	0.76	0.453	
	8.0	0.81	0.484	
	9.1	0.92	0.608	
	9.8	0.99	0.743	
	10.0	1.01	0.840	
	258.15	2.0	0.20	0.165
		3.0	0.30	0.231
3.4		0.34	0.298	
4.2		0.43	0.367	
4.4		0.45	0.403	
5.0		0.51	0.490	
5.4		0.55	0.585	
5.8		0.59	0.662	
248.15	2.0	0.20	0.203	
	2.5	0.25	0.290	
	3.0	0.30	0.327	
	3.4	0.34	0.465	
	4.0	0.40	0.582	
	4.3	0.43	0.733	
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:		
Vapor-liquid equilibrium cell. Diagram given in source. (Original in Japanese.)		1. Purity 99.0 mole per cent.		
		ESTIMATED ERROR: $\delta T/K = \pm 0.1$ ; $\delta x_{\text{H}_2\text{S}} = \pm 0.001$ (estimated by compiler).		
		REFERENCES:		

COMPONENTS:		ORIGINAL MEASUREMENTS:				
1. Hydrogen sulfide; H <sub>2</sub> S; [7783-06-4] 2. Hydrogen; H <sub>2</sub> ; [1333-74-0] 3. Methanol; CH <sub>4</sub> O; [67-56-1]		Yorizane, M.; Sadamoto, S.; Masuoka, H.; Eto, Y.  <i>Kogyo Kagaku Zasshi</i> <u>1969</u> , 72, 2174 - 2177.				
VARIABLES:		PREPARED BY:				
Temperature, pressure, composition:		P.G.T. Fogg				
EXPERIMENTAL VALUES:						
T/K	Total pressure /atm	Mole fraction of H <sub>2</sub> in liquid	Mole fraction of H <sub>2</sub> S in liquid	Mole fraction of H <sub>2</sub> in gas	Mole fraction of H <sub>2</sub> S in gas	
243.2	10	0.003	0.397	0.813	0.187	
		0.010	0.668	0.692	0.308	
		0.004	0.721	0.702	0.298	
		0.006	0.776	0.655	0.345	
	30	0.006	0.397	0.813	0.187	
		0.005	0.652	0.896	0.104	
		0.006	0.704	0.971	0.030	
	50	0.010	0.333	0.977	0.023	
		0.013	0.621	0.941	0.059	
		0.012	0.813	0.929	0.071	
	273.2	10	0.003	0.043	0.925	0.075
			0.006	0.107	0.813	0.187
0.002			0.205	0.702	0.298	
0.003			0.379	0.400	0.600	
0.002			0.617	0.237	0.763	
0.002			0.688	0.163	0.837	
30		0.007	0.043	0.974	0.026	
		0.007	0.161	0.928	0.072	
		0.007	0.195	0.924	0.076	
		0.009	0.197	0.904	0.096	
		0.007	0.327	0.781	0.219	
		0.009	0.409	0.760	0.240	
50		0.010	0.685	0.672	0.327	
		0.012	0.050	0.988	0.012	
		0.014	0.149	0.962	0.038	
		0.014	0.194	0.945	0.055	
		0.010	0.221	0.945	0.055	
		0.013	0.353	0.868	0.132	
		0.015	0.401	0.854	0.146	
		0.018	0.675	0.796	0.204	
AUXILIARY INFORMATION						
METHOD/APPARATUS/PROCEDURE			SOURCE AND PURITY OF MATERIALS			
Vapor-liquid equilibrium cell.  Diagram given in source.  (Original in Japanese)			1. Purity 99.0 mol%.			
			ESTIMATED ERROR			
			REFERENCES			

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Hydrogen sulfide; H <sub>2</sub> S; [7783-06-4]		Short, I.; Sahgal, A.; Hayduk, W.	
(2) Methanol; CH <sub>4</sub> O; [67-56-1]		<i>J. Chem. Eng. Data</i> <u>1983</u> , 28, 63-66.	
VARIABLES:		PREPARED BY:	
T/K: 263.15, 298.15 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> 10 <sup>4</sup> x <sub>1</sub>
263.15	40.2	41.73	689
298.15	26.93	24.67	276
<sup>1</sup> Original data <sup>2</sup> Calculated by compiler 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: $\Delta G^\circ/\text{J mol}^{-1} = -RT \ln x_1 = 858.98 T - 168276$ $\ln x_1 = 2050.8/T - 10.468$			
T/K	10 <sup>-4</sup> ΔG°/J mol <sup>-1</sup>	10 <sup>4</sup> x <sub>1</sub>	
263.15	5.776	689.0	
273.15	6.635	518.0	
283.15	7.494	397.3	
293.15	8.353	310.4	
298.15	8.783	276.0	
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
<p>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.</p> <p>Degassing was accomplished using a two stage vacuum process described by Clever et al. (1).</p>		<p>1. Liquid Carbonic. Specified minimum purity 99.5 per cent.</p> <p>2. Canlab. Specified as absolute methanol of minimum purity 99.5 per cent.</p>	
		ESTIMATED ERROR:	
		$\delta T/K = 0.1$ $\delta x_1/x_1 = 0.01$	
		REFERENCES:	
		<p>1. Clever, H.L.; Battino, R.; Saylor, J.H.; Gross, P.M. <i>J. Phys. Chem.</i> <u>1957</u>, 61, 1078.</p>	

<b>COMPONENTS:</b> 1. Hydrogen sulfide; H <sub>2</sub> S; [7783-06-4] 2. Ethanol; C <sub>2</sub> H <sub>6</sub> O; [64-17-5]		<b>ORIGINAL MEASUREMENTS:</b> Gerrard, W.  <i>J. Appl. Chem. Biotechnol.</i> , <u>1972</u> , <i>22</i> , 623-650		
<b>VARIABLES:</b> Temperature		<b>PREPARED BY:</b> C.L. Young		
<b>EXPERIMENTAL VALUES:</b>				
T/K	P*/mmHg	P*/kPa	Mole ratio	Mole fraction <sup>†</sup> of hydrogen sulfide in liquid, $x_{\text{H}_2\text{S}}$
265.15	769	102.5	0.078	0.072
267.15	769	102.5	0.0725	0.0676
273.15	769	102.5	0.054	0.051
283.15	769	102.5	0.033	0.032
293.15	769	102.5	0.018	0.018
<sup>†</sup> calculated by compiler *total pressure				
<b>AUXILIARY INFORMATION</b>				
<b>METHOD/APPARATUS/PROCEDURE:</b> Hydrogen sulfide was bubbled into a weighed amount of component 2. in a bubbler tube as described in detail in the source. The amount of gas absorbed at equilibrium and at the observed temperature and pressure was determined by weighing. Pressure was measured with a mercury manometer. The amount of gas absorbed at successively lower pressures was measured. Eventually the pressure was reduced to the vapor pressure of component 2. The refractive index and infrared spectrum of the liquid showed it to be essentially pure component 2.		<b>SOURCE AND PURITY OF MATERIALS:</b> 1 and 2. Components were purified and attested by conventional methods.		
		<b>ESTIMATED ERROR:</b> $\delta T/K = \pm 0.2$ ; $\delta x_{\text{H}_2\text{S}} = \pm 4\%$		
		<b>REFERENCES:</b>		

COMPONENTS:			ORIGINAL MEASUREMENTS:		
(1) Hydrogen sulfide; H <sub>2</sub> S; [7783-06-4]			Short, I.; Sahgal, A.; Hayduk, W.		
(2) 1-Butanol; C <sub>4</sub> H <sub>10</sub> O; [71-36-3]			<i>J. Chem. Eng. Data</i> <u>1983</u> , 28, 63-66.		
VARIABLES:			PREPARED BY:		
T/K: 263.15-333.15			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>		
263.15	22.8	23.67	0.0873 (0.0875) <sup>3</sup>		
298.15	8.58	7.86	0.0315 (0.0314)		
333.15	3.65	2.99	0.0126 (0.0126)		
<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> - 673.32 T ln T - 3552.3 T					
ln x <sub>1</sub> = 43.291 - 8.2056 ln T					
Std. deviation for ΔG° = 63 J mol <sup>-1</sup>					
T/K	10 <sup>-4</sup> ΔG°/J mol <sup>-1</sup>	x <sub>1</sub>	T/K	10 <sup>-4</sup> ΔG°/J mol <sup>-1</sup>	x <sub>1</sub>
263.15	5.261	0.0875	303.15	8.949	0.0274
273.15	6.147	0.0644	313.15	9.929	0.0210
283.15	7.058	0.0480	323.15	10.93	0.0162
293.15	7.992	0.0361	333.15	11.95	0.0126
298.15	8.468	0.0314			
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. Specified minimum purity 99.5 per cent.		
			2. Canlab. Specified minimum purity 99.0 per cent.		
			ESTIMATED ERROR:		
			δT/K = 0.1		
			δx <sub>1</sub> /x <sub>1</sub> = 0.01		
			REFERENCES:		
Degassing was accomplished using a two stage vacuum process described by Clever et al. (1).			1. Clever, H.L.; Battino, R.; Saylor, J.H.; Gross, P.M. <i>J. Phys. Chem.</i> <u>1957</u> , 61, 1078.		

<b>COMPONENTS:</b> 1. Hydrogen sulfide; H <sub>2</sub> S; [7783-06-4] 2. 1-Octanol; C <sub>8</sub> H <sub>18</sub> O; [111-87-5]		<b>ORIGINAL MEASUREMENTS:</b> Gerrard, W.  <i>J. Appl. Chem. Biotechnol.</i> , <u>1972</u> , <u>22</u> , 623-650		
<b>VARIABLES:</b> Temperature		<b>PREPARED BY:</b> C.L. Young		
<b>EXPERIMENTAL VALUES:</b>				
T/K	P*/mmHg	P*/kPa	Mole ratio	Mole fraction <sup>+</sup> of hydrogen sulfide in liquid, $x_{\text{H}_2\text{S}}$
265.15	755	100.7	0.105	0.095
267.15	755	100.7	0.097	0.091
273.15	755	100.7	0.080	0.074
283.15	755	100.7	0.064	0.060
293.15	755	100.7	0.054	0.051
<sup>+</sup> calculated by compiler *total pressure				
<b>AUXILIARY INFORMATION</b>				
<b>METHOD/APPARATUS/PROCEDURE:</b> Hydrogen sulfide was bubbled into a weighed amount of component 2. in a bubbler tube as described in detail in the source. The amount of gas absorbed at equilibrium and at the observed temperature and pressure was determined by weighing. Pressure was measured with a mercury manometer. The amount of gas absorbed at successively lower pressures was measured. Eventually the pressure was reduced to the vapor pressure of component 2. The refractive index and infrared spectrum of the liquid showed it to be essentially pure component 2.			<b>SOURCE AND PURITY OF MATERIALS:</b> 1 and 2. Components were purified and attested by conventional methods.	
			<b>ESTIMATED ERROR:</b> $\delta T/K = \pm 0.2$ ; $\delta x_{\text{H}_2\text{S}} = \pm 4\%$	
			<b>REFERENCES:</b>	

<b>COMPONENTS:</b> 1. Hydrogen sulfide; H <sub>2</sub> S; [7783-06-4] 2. Benzenemethanol (Benzyl alcohol); C <sub>7</sub> H <sub>8</sub> O; [100-51-6]	<b>ORIGINAL MEASUREMENTS:</b> Lenoir, J-Y.; Renault, P.; Renon, H. <i>J. Chem. Eng. Data</i> , <u>1971</u> , 16, 340-2.						
<b>VARIABLES:</b>	<b>PREPARED BY:</b> C. L. Young						
<b>EXPERIMENTAL VALUES:</b>  <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">T/K</th> <th style="text-align: center;">Henry's constant <math>H_{\text{H}_2\text{S}}/\text{atm}</math></th> <th style="text-align: center;">Mole fraction at 1 atm* <math>x_{\text{H}_2\text{S}}</math></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">298.2</td> <td style="text-align: center;">24.0</td> <td style="text-align: center;">0.0417</td> </tr> </tbody> </table> <p>* Calculated by compiler assuming a linear function of <math>P_{\text{H}_2\text{S}}</math> vs <math>x_{\text{H}_2\text{S}}</math>, i.e.,  <math>x_{\text{H}_2\text{S}}(1 \text{ atm}) = 1/H_{\text{H}_2\text{S}}</math></p>		T/K	Henry's constant $H_{\text{H}_2\text{S}}/\text{atm}$	Mole fraction at 1 atm* $x_{\text{H}_2\text{S}}$	298.2	24.0	0.0417
T/K	Henry's constant $H_{\text{H}_2\text{S}}/\text{atm}$	Mole fraction at 1 atm* $x_{\text{H}_2\text{S}}$					
298.2	24.0	0.0417					
<b>AUXILIARY INFORMATION</b>							
<b>METHOD/APPARATUS/PROCEDURE:</b> A conventional gas-liquid chromatographic unit fitted with a thermal conductivity detector 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 surface adsorption was not allowed for although its possible existence was noted.	<b>SOURCE AND PURITY OF MATERIALS:</b> (1) L'Air Liquide sample, minimum purity 99.9 mole per cent. (2) Touzart and Matignon or Serlabo sample, purity 99 mole per cent.  <b>ESTIMATED ERROR:</b> $\delta T/K = \pm 0.1$ ; $\delta H/\text{atm} = \pm 6\%$ (estimated by compiler).  <b>REFERENCES:</b>						



<b>COMPONENTS:</b> 1. Hydrogen sulfide; H <sub>2</sub> S; [7783-06-4] 2. 1,2-Ethanediol, (Ethylene glycol); C <sub>2</sub> H <sub>6</sub> O <sub>2</sub> ; [107-21-1]	<b>ORIGINAL MEASUREMENTS:</b> Lenoir, J-Y.; Renault, P.; Renon, H. <i>J. Chem. Eng. Data</i> , <u>1971</u> , 16, 340-2						
<b>VARIABLES:</b>	<b>PREPARED BY:</b> C. L. Young						
<b>EXPERIMENTAL VALUES:</b> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th style="text-align: left;">T/K</th> <th style="text-align: center;">Henry's constant <math>H_{H_2S}/\text{atm}</math></th> <th style="text-align: center;">Mole fraction at 1 atm* <math>x_{H_2S}</math></th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">298.2</td> <td style="text-align: center;">52.9</td> <td style="text-align: center;">0.0189</td> </tr> </tbody> </table> <p>* Calculated by compiler assuming a linear function of <math>P_{H_2S}</math> vs <math>x_{H_2S}</math>, i.e.,  <math>x_{H_2S}(1 \text{ atm}) = 1/H_{H_2S}</math></p>		T/K	Henry's constant $H_{H_2S}/\text{atm}$	Mole fraction at 1 atm* $x_{H_2S}$	298.2	52.9	0.0189
T/K	Henry's constant $H_{H_2S}/\text{atm}$	Mole fraction at 1 atm* $x_{H_2S}$					
298.2	52.9	0.0189					
<b>AUXILIARY INFORMATION</b>							
<b>METHOD/APPARATUS/PROCEDURE:</b> A conventional gas-liquid chromatographic unit fitted with a thermal conductivity detector 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 surface adsorption was not allowed for although its possible existence was noted.	<b>SOURCE AND PURITY OF MATERIALS:</b> (1) L'Air Liquide sample, minimum purity 99.9 mole per cent. (2) Touzart and Matignon or Serlabo sample, purity 99 mole per cent. <b>ESTIMATED ERROR:</b> $\delta T/K = \pm 0.1$ ; $\delta H/\text{atm} = \pm 6\%$ (estimated by compiler). <b>REFERENCES:</b>						

<b>COMPONENTS:</b> 1. Hydrogen sulfide; H <sub>2</sub> S; [7783-06-4] 2. 1,2-Ethanediol; C <sub>2</sub> H <sub>6</sub> O <sub>2</sub> ; [107-21-1]		<b>ORIGINAL MEASUREMENTS:</b> Gerrard, W. <i>J. Appl. Chem. Biotechnol.</i> , <u>1972</u> , <i>22</i> , 623-650.		
<b>VARIABLES:</b> Temperature		<b>PREPARED BY:</b> C.L. Young		
<b>EXPERIMENTAL VALUES:</b>				
T/K	P*/mmHg	P*/kPa	Mole ratio	Mole fraction <sup>+</sup> of hydrogen sulfide in liquid, x <sub>H<sub>2</sub>S</sub>
265.15	760	101.3	0.0365	0.0352
267.15	760	101.3	0.033	0.032
273.15	760	101.3	0.024	0.023
283.15	760	101.3	0.017	0.017
293.15	760	101.3	0.013	0.013
<sup>+</sup> calculated by compiler *total pressure				
<b>AUXILIARY INFORMATION</b>				
<b>METHOD/APPARATUS/PROCEDURE:</b> Hydrogen sulfide was bubbled into a weighed amount of component 2. in a bubbler tube as described in detail in the source. The amount of gas absorbed at equilibrium and at the observed temperature and pressure was determined by weighing. Pressure was measured with a mercury manometer. The amount of gas absorbed at successively lower pressures was measured. Eventually the pressure was reduced to the vapor pressure of component 2. The refractive index and infrared spectrum of the liquid showed it to be essentially pure component 2.		<b>SOURCE AND PURITY OF MATERIALS:</b> 1 and 2. Components were purified and attested by conventional methods.		
		<b>ESTIMATED ERROR:</b> $\delta T/K = \pm 0.2$ ; $\delta x_{H_2S} = \pm 4\%$		
		<b>REFERENCES:</b>		

COMPONENTS:		ORIGINAL MEASUREMENTS:			
(1) Hydrogen sulfide; H <sub>2</sub> S; [7783-06-4] (2) 1,2-Ethanediol (ethylene glycol); C <sub>2</sub> H <sub>6</sub> O <sub>2</sub> ; [107-21-1]		Short, I.; Sahgal, A.; Hayduk, W. <i>J. Chem. Eng. Data</i> <u>1983</u> , <i>28</i> , 63-66.			
VARIABLES:		PREPARED BY:			
T/K: 263.15-333.15 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> 10 <sup>4</sup> x <sub>1</sub>		
263.15	13.34	13.85	332 (332.0) <sup>3</sup>		
298.15	5.36	4.91	122 (122.0)		
333.15	3.44	2.82	71.8 (71.8)		
<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: $\Delta G^\circ/\text{J mol}^{-1} = -RT \ln x_1 = 12462 T - 1730.3 T \ln T - 668490$ $\ln x_1 = 8146.8/T + 21.087 \ln T - 151.874$ Std. deviation for ΔG° = 28 J mol <sup>-1</sup>					
T/K	10 <sup>-4</sup> ΔG°/J mol <sup>-1</sup>	10 <sup>4</sup> x <sub>1</sub>	T/K	10 <sup>-4</sup> ΔG°/J mol <sup>-1</sup>	10 <sup>4</sup> x <sub>1</sub>
263.15	7.353	332.0	303.15	11.21	110.4
273.15	8.410	234.7	313.15	12.03	92.8
283.15	9.404	174.7	323.15	12.79	80.50
293.15	10.34	136.1	333.15	13.49	71.80
298.15	10.78	122.0			
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. Specified minimum purity 99.5 per cent. 2. Canlab. Baker Analyzed grade of minimum specified purity 99.8 per cent.		
Degassing was accomplished using a two stage vacuum process described by Clever et al. (1).			ESTIMATED ERROR:		
			$\delta T/K = 0.1$ $\delta x_1/x_1 = 0.01$		
			REFERENCES:		
			1. Clever, H.L.; Battino, R.; Saylor, J.H.; Gross, P.M. <i>J. Phys. Chem</i> <u>1957</u> , <i>61</i> , 1078.		