

COMPONENTS:		ORIGINAL MEASUREMENTS:	
1. Hydrogen sulfide; H ₂ S; [7783-06-4] 2. Sulfur; S; [7704-34-9]		Fanelli, R. <i>Ind. Eng. Chem.</i> <u>1949</u> , <i>41</i> , 2031-2033.	
VARIABLES:		PREPARED BY:	
Temperature		P.G.T. Fogg	
EXPERIMENTAL VALUES:			
T/K	Wt. of H ₂ S × 100 / wt of sulfur	T/K	Wt. of H ₂ S × 100 / wt of sulfur
399.2	0.057	632.2	0.186
414.2	0.067	642.2	0.188
423.2	0.088	644.2	0.189
431.2	0.117	646.2	0.186
440.2	0.133	661.2	0.182
448.2	0.139	671.2	0.173
475.2	0.160	673.2	0.171
506.2	0.177	700.2	0.141
546.2	0.179	710.2	0.116
573.2	0.190	713.2	0.098
595.2	0.189	717.2	0.065
611.2	0.187	717.8	0.049
623.2	0.189		
The total pressure was equal to barometric pressure (unspecified).			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Hydrogen sulfide from a cylinder was bubbled through 50-60 g of molten sulfur in a glass vessel of capacity 40 cm ³ for a period of 16 to 90 hr. Temperatures were measured by a thermocouple in a well inside the vessel. An electric furnace controlled by Fenwall thermostats was used for heating. The amount of absorbed hydrogen sulfide was found by connecting the vessel to a Schiff gas burette and collecting and measuring the gas evolved as the sulfur cooled. The gas remaining in the solid sulfur was found from the increase in weight of vessel and contents.		1. from a cylinder; filtered by glass wool.	
		ESTIMATED ERROR:	
		REFERENCES:	

COMPONENTS: 1. Hydrogen sulfide; H ₂ S; [7783-06-4] 2. Carbon disulfide; CS ₂ ; [75-15-0]	ORIGINAL MEASUREMENTS: Gattow, G.; Krebs, B. <i>Z. anorg. allgem. Chem.</i> <u>1963</u> , 325, 15-25																																																
VARIABLES: Temperature, concentration	PREPARED BY: P.G.T. Fogg																																																
EXPERIMENTAL VALUES: <p>The total pressure was given by:</p> $\log_{10} (P/\text{mmHg}) = - \frac{A}{T/K} + B$ <p>The vapor pressure of pure CS₂ is very small at the temperatures of measurement. e.g. at 195 K it is 0.63 mmHg. The total pressure was therefore close to the partial pressure of H₂S.</p> <table border="1" data-bbox="192 725 1070 1098"> <thead> <tr> <th>Mol % H₂S in liquid</th> <th>Temperature range /K</th> <th>A</th> <th>B</th> </tr> </thead> <tbody> <tr><td>5</td><td>153-195</td><td>540</td><td>3.56</td></tr> <tr><td>10</td><td>153-195</td><td>729</td><td>5.605</td></tr> <tr><td>20</td><td>158-195</td><td>850</td><td>6.545</td></tr> <tr><td>30</td><td>163-195</td><td>942</td><td>7.11</td></tr> <tr><td>40</td><td>170-195</td><td>944</td><td>7.16</td></tr> <tr><td>50</td><td>171-195</td><td>974</td><td>7.34</td></tr> <tr><td>60</td><td>173-195</td><td>975</td><td>7.37</td></tr> <tr><td>70</td><td>178-195</td><td>976</td><td>7.38</td></tr> <tr><td>80</td><td>180-195</td><td>979</td><td>7.41</td></tr> <tr><td>90</td><td>183-195</td><td>980</td><td>7.44</td></tr> <tr><td>100</td><td>188-213</td><td>1017</td><td>7.66</td></tr> </tbody> </table>		Mol % H ₂ S in liquid	Temperature range /K	A	B	5	153-195	540	3.56	10	153-195	729	5.605	20	158-195	850	6.545	30	163-195	942	7.11	40	170-195	944	7.16	50	171-195	974	7.34	60	173-195	975	7.37	70	178-195	976	7.38	80	180-195	979	7.41	90	183-195	980	7.44	100	188-213	1017	7.66
Mol % H ₂ S in liquid	Temperature range /K	A	B																																														
5	153-195	540	3.56																																														
10	153-195	729	5.605																																														
20	158-195	850	6.545																																														
30	163-195	942	7.11																																														
40	170-195	944	7.16																																														
50	171-195	974	7.34																																														
60	173-195	975	7.37																																														
70	178-195	976	7.38																																														
80	180-195	979	7.41																																														
90	183-195	980	7.44																																														
100	188-213	1017	7.66																																														
AUXILIARY INFORMATION																																																	
METHOD/APPARATUS/PROCEDURE: <p>Vapor pressures were measured by a mercury manometer in an apparatus connected to a high-vacuum system. Temperatures were controlled by a petroleum ether bath cooled by a cold-finger containing liquid air. Quantities of liquid H₂S were measured out by volume at - 78 °C. Required volumes had been calculated using the density given in (1). Measured quantities of CS₂ were introduced into the apparatus and frozen in liquid air. H₂S was vacuum distilled into the vessel containing CS₂. Mixtures were brought to the temperature of measurement, magnetically stirred and vapor pressures recorded.</p>	SOURCE AND PURITY OF MATERIALS: 1. purified by vacuum sublimation. 2. dried over P ₂ O ₅ . ESTIMATED ERROR: $\delta T/K = \pm 0.1$ (authors) REFERENCES: 1. Steele, B.D.; McIntosh, D.; Archibald, E.H. <i>Z. physik. Chem.</i> <u>1906</u> , 55, 129.																																																

COMPONENTS: 1. Hydrogen sulfide; H ₂ S; [7783-06-4] 2. Sulfinylbismethane, (Dimethylsulfoxide); C ₂ H ₆ SO; [67-68-5]	ORIGINAL MEASUREMENTS: Lenoir, J-Y.; Renault, P.; Renon, H. <i>J. Chem. Eng. Data</i> , <u>1971</u> , 16, 340-2						
VARIABLES:	PREPARED BY: C. L. Young						
EXPERIMENTAL VALUES: <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 $H_{\text{H}_2\text{S}}/\text{atm}$</th> <th style="text-align: center;">Mole fraction at 1 atm* $x_{\text{H}_2\text{S}}$</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">298.2</td> <td style="text-align: center;">10.9</td> <td style="text-align: center;">0.0917</td> </tr> </tbody> </table> <p>* Calculated by compiler assuming a linear function of $P_{\text{H}_2\text{S}}$ vs $x_{\text{H}_2\text{S}}$, i.e., $x_{\text{H}_2\text{S}}(1 \text{ atm}) = 1/H_{\text{H}_2\text{S}}$</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	10.9	0.0917
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	10.9	0.0917					
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE: 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.	SOURCE AND PURITY OF MATERIALS: (1) L'Air Liquide sample, minimum purity 99.9 mole per cent. (2) Touzart and Matignon or Serlabo sample, purity 99 mole per cent. ESTIMATED ERROR: $\delta T/K = \pm 0.1$; $\delta H/\text{atm} = \pm 6\%$ (estimated by compiler). REFERENCES:						

<p>COMPONENTS:</p> <ol style="list-style-type: none"> Hydrogen sulfide; H₂S; [7783-06-4] Tetrahydrothiophene, 1,1-dioxide, (®Sulfolane); C₄H₈O₂S; [126-33-0] 	<p>ORIGINAL MEASUREMENTS:</p> <p>Rivas, O.R.; Prausnitz, J.M.</p> <p><i>Am. Inst. Chem. Engrs. J.</i> <u>1979</u>, 25, 975-984.</p>															
<p>VARIABLES:</p> <p style="text-align: center;">Temperature</p>	<p>PREPARED BY:</p> <p style="text-align: center;">C.L. Young.</p>															
<p>EXPERIMENTAL VALUES:</p> <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, <i>H</i> /MPa</th> <th style="text-align: center;">Mole fraction of ⁺ hydrogen sulfide in liquid, <i>x</i>_{H₂S}</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">303.15</td> <td style="text-align: center;">2.07</td> <td style="text-align: center;">0.0489</td> </tr> <tr> <td style="text-align: center;">323.15</td> <td style="text-align: center;">3.07</td> <td style="text-align: center;">0.0330</td> </tr> <tr> <td style="text-align: center;">348.15</td> <td style="text-align: center;">4.57</td> <td style="text-align: center;">0.0222</td> </tr> <tr> <td style="text-align: center;">373.15</td> <td style="text-align: center;">6.33</td> <td style="text-align: center;">0.0160</td> </tr> </tbody> </table> <p>+ at a partial pressure of 101.3 kPa calculated by compiler assuming Henry's law applies at that pressure.</p>		T/K	Henry's constant, <i>H</i> /MPa	Mole fraction of ⁺ hydrogen sulfide in liquid, <i>x</i> _{H₂S}	303.15	2.07	0.0489	323.15	3.07	0.0330	348.15	4.57	0.0222	373.15	6.33	0.0160
T/K	Henry's constant, <i>H</i> /MPa	Mole fraction of ⁺ hydrogen sulfide in liquid, <i>x</i> _{H₂S}														
303.15	2.07	0.0489														
323.15	3.07	0.0330														
348.15	4.57	0.0222														
373.15	6.33	0.0160														
<p>AUXILIARY INFORMATION</p>																
<p>METHOD/APPARATUS/PROCEDURE:</p> <p>Volumetric apparatus with a fused quartz precision bourdon pressure gauge. Solubility apparatus carefully thermostatted. Solvent degassed <i>in situ</i>. Apparatus described in ref. (1). and modifications given in source.</p>	<p>SOURCE AND PURITY OF MATERIALS:</p> <p>1. and 2. Purity at least 99 mole per cent.</p> <p>ESTIMATED ERROR:</p> <p style="text-align: center;">$\delta T/K = \pm 0.05$; $\delta x_{H_2S} = \pm 1\%$.</p> <p>REFERENCES:</p> <p>1. Cukor, P.M.; Prausnitz, J.M. <i>Ind. Eng. Chem. Fundam.</i> <u>1971</u>, 10, 638.</p>															

COMPONENTS: 1. Hydrogen sulfide; H ₂ S; [7783-06-4] 2. Tetrahydrothiophene, 1,1-dioxide, (®Sulfolane); C ₄ H ₈ O ₂ S; [126-33-0]	ORIGINAL MEASUREMENTS: Byeseda, J.J.; Deetz, J.A.; Manning, W.P. <i>Proc.Laurance Reid Gas Cond.Conf.</i> <u>1985.</u>										
VARIABLES:	PREPARED BY: P.G.T. Fogg										
EXPERIMENTAL VALUES: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">T/K</th> <th style="text-align: center;">P_{H_2S}/psia</th> <th style="text-align: center;">P_{H_2S}/bar^*</th> <th style="text-align: center;">Ostwald coeff. <i>L</i></th> <th style="text-align: center;">Mole fraction in liquid x_{H_2S}</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">297.1</td> <td style="text-align: center;">14.73</td> <td style="text-align: center;">1.016</td> <td style="text-align: center;">15.2</td> <td style="text-align: center;">0.0686</td> </tr> </tbody> </table> <p style="margin-left: 40px;">* calculated by compiler</p>		T/K	P_{H_2S}/psia	P_{H_2S}/bar^*	Ostwald coeff. <i>L</i>	Mole fraction in liquid x_{H_2S}	297.1	14.73	1.016	15.2	0.0686
T/K	P_{H_2S}/psia	P_{H_2S}/bar^*	Ostwald coeff. <i>L</i>	Mole fraction in liquid x_{H_2S}							
297.1	14.73	1.016	15.2	0.0686							
AUXILIARY INFORMATION											
METHOD/APPARATUS/PROCEDURE: The H ₂ S was contained in a thermostatted metal cylinder connected to a pressure gage, vacuum pump and supply of gas. A tight fitting internal piston sealed with an O-ring fitted into the cylinder so that the volume of gas could be changed by controlled movement of the piston. A measured volume of solvent was injected into the cylinder by a syringe. The absorption of gas was found from the movement of the piston which was necessary to maintain constant pressure.	SOURCE AND PURITY OF MATERIALS: ESTIMATED ERROR: REFERENCES:										