COMPONENTS:	EVALUATOR:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. Alkanolamines	Peter G.T. Fogg, Department of Applied Chemistry and Life Sciences, Polytechnic of North London, Holloway, London N7 8DB, U.K. February 1987

CRITICAL EVALUATION:

Systems containing hydrogen sulfide, water and alkanolamines have been extensively studied during the recent years because aqueous solutions of alkanolamines are widely used to remove hydrogen sulfide from industrial gas mixtures. Much of this work has been carried out by Mather and his co-workers. Several models of the behaviour of alkanolamine/water systems in the presence of hydrogen sulfide and/or carbon dioxide have been published (1-10). Some sets of measurements (10-14) have been partially correlated with the model developed by Kent and Eisenberg (8). Improved models have been published by Deshmukh and Mather (9), and by Dingman *et al.* (10). Predictions based upon models are still subject to some uncertainty.

Three component systems containing hydrogen sulfide, water and alkanolamines.

In all hydrogen sulfide/alkanolamine/water systems which have been investigated the mole ratio of hydrogen sulfide to alkanolamine increases with partial pressure of hydrogen sulfide and decreases with increase in temperature and concentration of alkanolamine.

2-Aminoethanol (*monoethanolamine*); C_2H_7NO; [141-43-5]

Data published by eight groups (1, 15-21) have been compiled. The measurements were made over a range of concentrations of MEA (monoethanolamine) from 0.6 to 5 mol dm^{-3}, pressures of hydrogen sulfide from 7×10^{-7} to 42 bar and temperatures from 288 to 413 K. The different sets of measurements tend to complement each other and, where there is overlap, there is little evidence of inconsistency between one set and another. Lawson and Garst (20) have shown that their data for absorption in 15 wt% solution of MEA (2.5 mol dm^{-3}) is in good agreement under most conditions with unpublished data communicated to them by J.P. Bocard and with that published by Muhlbauer and Monaghan (17), Leibush and Shneerson (16), and, Jones *et al.* (18). However they have shown that there is disagreement with the measurements by Muhlbauer and Monaghan at 373 K and pressures below 0.12 bar and with measurements by Leibush and Shneerson at 323 K at partial pressures below 0.0014 bar. The evaluator has noted a discrepancy between the two measurements in each of the following pairs of measurements:

Authors	Concentration of MEA / mol dm^{-3}	T/K	P_{H_2S} /bar	Mole ratio H_2S / MEA
Riegger *et al.* (15)	5	318.15	0.033	0.453
Lee *et al.* (19)	5	313.15	0.042	0.435
Jones *et al.* (18)	2.4 (15.3 wt%)	373.15	0.0089	0.066
Lawson & Garst (20)	2.4 (15.2 wt%)	373.15	0.0075	0.0793
Lawson & Garst (20)	2.4 (15.2%)	373.15	0.00041	0.0143
Isaacs *et al.* (21)	2.5	373.15	0.00031	0.0210

In the case of the last pair of measurements the difference is too great to be due solely to the slight difference in concentrations of MEA.

2,2'-Iminobisethanol (*diethanolamine*); $C_4H_{11}NO_2$; [111-42-2]

Five sets of measurements on this system have been compiled (1, 11, 16, 20, 22). Data reported by Bottoms (23) were in graphical form and have not been compiled. Concentrations of DEA (diethanolamine) range from 0.5 to 5 mol dm^{-3}, temperatures from 288 to 422 K and partial pressures of hydrogen sulfide from 1.5×10^{-5} bar to 37 bar. The general pattern of data is very similar to that for the monoethanolamine system. Different sets of measurements tend to complement each other and there is usually good agreement when measurements overlap. Lawson and Garst (20) have compared their measurements of solubilities

COMPONENTS:	EVALUATOR:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. Alkanolamines	Peter G.T. Fogg, Department of Applied Chemistry and Life Sciences, Polytechnic of North London, Holloway, London N7 8DB, U.K. February 1987

CRITICAL EVALUATION:

in a 25 wt% solution of DEA and demonstrated that they are consistent with data for 298 K to 333 K given by Atwood *et al.* (1), Lee *et al.* (31) and also hitherto unpublished data in a private communication from J.P. Bocard. Lal *et al.* (11) have shown that their measurements of solubilities in DEA solution of concentration 2.0 mol dm^{-3} at 313 K are compatible with those of Lawson and Garst in a solution of concentration 2.45 mol dm^{-3} at 311 K. The compiler has noted the following discrepancy between other published data:

Authors	Concentration of DEA / mol dm^{-3}	T/K	P_{H_2S} /bar	Mole ratio H_2S / MEA
Atwood *et al.* (1)	4.9 (50 wt%)	322	0.0476	0.153
Lee *et al.* (22)	5.0	323.15	0.0432	0.205

2-(2-Aminoethoxy)ethanol (*diglycolamine*); $C_4H_{11}NO_2$; [929-06-6]

Martin *et al.* (24) have reported measurements of the absorption of hydrogen sulfide by 60 wt% aqueous solutions of diglycolamine at temperatures from 323 to 373 K and partial pressures of 0.04 to 17.3 bar. Dingman *et al.* (10) have reported measurements by 65 wt% solutions at temperatures from 311 to 355 K and partial pressures from 3 x 10^{-5} to 1.8 bar. The two sets of measurements are consistent with each other in the pressure range over which measurements overlap i.e. 0.04 to 1.8 bar. There is some scatter of measurements at very low pressures close to the minimum pressure.

1,1'-Iminobis-2-propanol (*diisopropanolamine*); $C_6H_{15}NO_2$; [110-97-4]

Absorption in aqueous solutions of diisopropanolamine of concentration 2.5 mol dm^{-3} at 313 and 373 K and pressures from 0.02 to 32 bar was measured by Isaacs *et al.* (25). No other measurements on this system are available for comparison but there is no reason to doubt the reliability of this set of measurements. These authors have also measured absorption in solutions containing tetrahydrothiophene, 1,1-dioxide (*sulfolane*) (26) in addition to diisopropanolamine. These measurements also appear to be reliable but again no other sets of measurements are available for comparison.

2,2'-(Methylimino)bisethanol (*methyldiethanolamine*); $C_5H_{13}NO_2$; [105-59-9]

Jou *et al.* (12) measured absorption in solutions of methyldiethanolamine at concentrations from 1.0 to 4.3 mol dm^{-3} at 298 to 393 K and 2.1 x 10^{-5} to 19.6 bar. A consistent set of data was obtained and there is no reason to doubt the reliability of these measurements. No other measurements are available for comparison.

2,2',2"-Nitrilotrisethanol (*triethanolamine*); $C_6H_{15}NO_3$; [102-71-6]

Atwood *et al.* (1) measured absorption of hydrogen sulfide by 1 to 3.5 mol dm^{-3} (15 to 50 wt%) aqueous solutions of TEA (triethanolamine) at temperatures from 300 to 333 K and pressures from 4 x 10^{-6} to 0.92 bar. Jou *et al.* (13) measured absorption by solutions containing from 2 to 5 mol dm^{-3} of TEA at temperatures from 298 to 398 K and partial pressures from 1.2 x 10^{-4} to 62.7 bar. In the range of conditions in which the measurements overlap there is a good correlation between the two sets of measurements except for the following discrepancy:

COMPONENTS:	EVALUATOR:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. Alkanolamines	Peter G.T. Fogg, Department of Applied Chemistry and Life Sciences, Polytechnic of North London, Holloway, London N7 8DB, U.K. February 1987

CRITICAL EVALUATION:

Authors	Concentration of TEA / mol dm^{-3}	T/K	P_{H_2S} /bar	Mole ratio H_2S / MEA
Atwood *et al.* (1)	2 (30 wt%)	310.9	0.000757	0.0124
Jou *et al.* (13)	2	323.2	0.000683	0.0133

Four component systems of hydrogen sulfide, carbon dioxide, water and alkanolamine.

These systems were briefly investigated by Leibush & Schneerson (16). The first detailed study was by Muhlbauer & Monaghan in 1957 (17). In each system there is the possibility of varying the partial pressure of each gas, the temperature and the concentration of alkanolamine. Measurements by different workers tend to complement each other with different groups having measured absorption under different sets of conditions. Direct comparison of one set of measurements with another is, in many cases, not possible. In all cases the mole ratio in solution of hydrogen sulfide to alkanolamine increases with partial pressure of hydrogen sulfide. It decreases with increase in temperature and concentration of alkanolamine and also with partial pressure of carbon dioxide. In the same way the mole ratio of carbon dioxide to alkanolamine increases with partial pressure of carbon dioxide and decreases with increase in temperature, concentration of alkanolamine and partial pressure of hydrogen sulfide.

2-Aminoethanol (*monoethanolamine*); C_2H_7NO; [141-43-5]

Authors	Range of measurements			
	Conc. of MEA /mol dm^{-3}	T/K	P_{H_2S}/bar	P_{CO_2}/bar
Muhlbauer & Monaghan (17)	2.4 - 2.6	298-373	0.0001 - 1.3	0 - 1.7
Jones *et al.* (18)	2.5 (15.3 wt%)	313-393	0.0015 - 2.0	0.0019 - 4.7
Lee *et al.* (27)	5.0	313-373	0 - 34.2	0 - 55.6
Lawson & Garst (20)	2.5 - 5 (15.2; 30 wt%)	298-393	0 - 2.9	0 - 2.3
Lee *et al.* (14)	2.5	313-373	0 - 60	0 - 70
Nasir & Mather (28)	5.0	373	0.00013 - 0.042	0.00002 - 0.030
Isaacs *et al.* (26)	2.5	373	0 - 0.034	0.00003 - 0.014

Lee *et al.* (14) have compared their own measurements with those of Muhlbauer and Monaghan and those of Jones *et al.* for a concentration of MEA of 2.5 mol dm^{-3}, a temperature of 373.15 K, partial pressures of hydrogen sulfide of 0.005 to 0.18 bar and partial pressures of carbon dioxide of 0.0009 to 0.17 bar. Agreement is within 10% under some conditions but there are wide differences under other conditions. This may be seen in the following examples given by Lee *et al.*:

COMPONENTS:	EVALUATOR:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. Alkanolamines	Peter G.T. Fogg, Department of Applied Chemistry and Life Sciences, Polytechnic of North London, Holloway, London N7 8DB, U.K. February 1987

CRITICAL EVALUATION:

Mole ratio in solution		P_{H_2S}/bar			P_{CO_2}/bar		
CO_2/MEA	H_2S/MEA	ref (14),	(17),	(18)	ref(14),	(17)	(18)
0.1	0.1	0.044	0.051	0.037	0.007		0.0075
0.2	0.3	0.62	0.57		0.19	0.22	
0.3	0.1	0.15	0.15	0.14	0.20	0.25	0.23
0.4	0.2	1.02		0.60	1.30		0.80

Lawson and Garst contrasted their measurements for 2.4 mol dm^{-3} (15 wt%) at 373 K with those of Muhlbauer and Monaghan. They noted that Muhlbauer and Monaghan's measurements of the partial pressures of hydrogen sulfide and carbon dioxide tend to be higher than their own values and than those of Jones *et al.* for similar concentrations of gases in solution. They pointed out that this discrepancy was greater at low gas concentrations than at higher concentrations.

2,2'-Iminobis-ethanol (*diethanolamine*); $C_4H_{11}NO_2$; [111-42-2]

Authors	Conc. of DEA /mol dm^{-3}	T/K	P_{H_2S}/bar	P_{CO_2}/bar
Lee *et al.* (29)	2.0 - 3.5	323-373	0.006 -16.5	0.002 - 57.6
Lawson & Garst (20)	2.4 (25 wt%) - 4.9 (50 wt%)	311-394	0.00013 -22.0	0 - 22.9
Lal *et al.* (11)	2.0	313-373	0.0006 - 0.048	0 - 0.065

Lal *et al.* showed that the solubilities at 313 K, in the absence of carbon dioxide, were consistent with data given by Lawson and Garst. In the presence of carbon dioxide there was poor correlation with predictions from the model published by Kent and Eisenberg (8).

1,1'-Iminobis-2-propanol (*diisopropanolamine*); $C_6H_{15}NO_2$; [110-97-4]

This system was investigated by Isaacs *et al.* (30) and tables of smoothed data have been prepared. No other measurements on this system are available for comparison but there is no reason to doubt the reliability of this smoothed data.

2-(2-Aminoethoxy)ethanol (*diglycolamine*); $C_4H_{11}NO_2$; [929-06-6]

This system was investigated by Dingman *et al.* (10). No other measurements of the four component system are available for comparison. However the data for the system when one or other of the gases is at zero concentration are consistent with data for the three component systems published by Martin *et al.* (24).

References

1. Atwood, K.; Arnold, M.R.; Kindrick, R.C. *Ind. Eng. Chem.* 1957, *49*, 1439-44.

2. Astarita, G.; Gioia, F.; Balzano, C. *Chem. Eng. Sci.* 1965, *20*, 1101-5.

3. Astarita, G.; Savage, D.W. *Chem. Eng. Sci.* 1982, *37*, 677-86.

4. Danckwerts, P.V.; McNeil, K.M. *Trans. Inst. Chem. Eng.* 1967, *45*, T32-T49.

COMPONENTS:	EVALUATOR:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. Alkanolamines	Peter G.T. Fogg, Department of Applied Chemistry and Life Sciences, Polytechnic of North London, Holloway, London N7 8DB, U.K. February 1987

CRITICAL EVALUATION:

5. Klyamer, S.D. *Gazov. Prom.* 1971, *16 (9)*, 38-42.

6. Klyamer, S.D.; Kolesnikova, T.L. *Zhur. Fiz. Khim.* 1972, *46*, 1056.

7. Klyamer, S.D.; Kolesnikova, T.L.; Rodin, Yu.A. *Gazov. Prom.*, 1973, *18 (2)*, 44-48.

8. Kent, R.L.; Eisenberg, B. *Hydrocarbon Processing* 1976, *55 (2)*, 87-90.

9. Deshmukh, R.D.; Mather, A.E. *Chem. Eng. Sci.* 1981, *36*, 355-362.

10. Dingman, J.C.; Jackson, J.L.; Moore, T.F. *Proc. 62nd Annual Convention of the Gas Processors Association* 1983, 256-68.

11. Lal, D.; Otto, F.D.; Mather, A.E. *Can. J. Chem. Eng.* 1985, *63*, 681-5.

12. Jou, F-Y.; Mather, A.E.; Otto, F.D. *Ind. Eng. Chem. Process Des. Dev.* 1982, *21*, 539-44.

13. Jou, F-Y.; Mather, A.E.; Otto, F.D. *Can. J. Chem. Eng.* 1985, *63*, 122-5.

14. Lee, J.I.; Otto, F.D.; Mather, A.E. *Can. J. Chem. Eng.* 1976, *54*, 214-9.

15. Riegger, E.; Tartar, H.V.; Lingafelter, E.C. *J. Amer. Chem. Soc.* 1944, *66*, 2024-7.

16. Leibush, A.G.; Shneerson, A.L. *J. Applied Chem. USSR* 1950, *23*, 149-57.

17. Muhlbauer, H.G.; Monaghan, P.R. *Oil & Gas J.* 1957, *55 (17)*, 139-45.

18. Jones, J.H.; Froning, H.R.; Claytor, E.E. Jr. *J. Chem. Eng. Data* 1959, *4*, 85-92.

19. Lee, J.I.; Otto, F.D.; Mather, A.E. *Can. J. Chem. Eng.* 1974, *52*, 803-805.

20. Lawson, J.D.; Garst, A.W. *J. Chem. Eng. Data* 1976, *21*, 20-30.

21. Isaacs, E.E.; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data* 1980, *25*, 118-120.

22. Lee, J.I.; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data* 1973, *18*, 71-3,420

23. Bottoms, R.R. *Ind. Eng. Chem.* 1931, *23*, 501-4.

24. Martin, J.L.; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data* 1978, *23*, 163-4.

25. Isaacs, E.E.; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data* 1977, *22*, 71-3.

26. Isaacs, E.E.; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data* 1977, *22*, 317-9.

27. Lee, J.I.; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data* 1975, *20*, 161-3.

28. Nasir, P.; Mather, A.E. *Can. J. Chem. Eng.* 1977, *55*, 715-7.

29. Lee, J.I.; Otto, F.D.; Mather, A.E. *Can. J. Chem. Eng.* 1974, *52*, 125-7.

30. Isaacs, E.E.; Otto, F.D.; Mather, A.E. *Can. J. Chem. Eng.* 1977, *55*, 210-2.

31. Lee, J.I.; Otto, F.D.; Mather, A.E. *Can. Gas J.* 1972, *(May-June)*, 34-39.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. 2-Aminoethanol, (Monoethanolamine); C_2H_7NO; [141-43-5] 3. Water; H_2O; [7732-18-5]	Riegger, E.; Tartar, H.V.; Lingafelter, E.C. *J. Amer. Chem. Soc.* 1944, *66*, 2024-7.
VARIABLES: Temperature, pressure, composition	PREPARED BY: C.L. Young

EXPERIMENTAL VALUES:

p^+/mmHg	Molality of amine	α^* Temperature 298.15K	318.15K	333.15K
700	0.6	1.148	1.124	1.083
	1.0	1.086	1.051	1.040
	1.5	1.050	1.011	0.998
	2.0	1.033	0.988	0.968
	3.0	1.011	0.958	0.934
	4.0	0.998	0.940	0.909
	5.0	0.991	0.927	0.891
600	0.6	1.126	1.097	1.056
	1.0	1.072	1.033	1.011
	1.5	1.041	0.996	0.970
	2.0	1.025	0.975	0.944
	3.0	1.004	0.948	0.910
	4.0	0.991	0.928	0.884
	5.0	0.984	0.914	0.865
500	0.6	1.101	1.070	1.027
	1.0	1.058	1.012	0.984
	1.5	1.032	0.980	0.945
	2.0	1.016	0.960	0.916
	3.0	0.996	0.934	0.880
	4.0	0.980	0.913	0.858
	5.0	0.974	0.899	0.837

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Samples of liquid saturated with hydrogen sulfide. Liquid samples added to standard iodine soln., and excess back titrated with sodium thiosulfate.

SOURCE AND PURITY OF MATERIALS:

1. Commercial sample.
2. Carbide and Carbon Chemicals Corp. sample distilled, b.p. 170.1°C.
3. No details given.

ESTIMATED ERROR:

$\delta T/K = \pm 0.1$;
$\delta\alpha = 0.8\%$.
(estimated by compiler).

REFERENCES:

COMPONENTS	ORIGINAL MEASUREMENTS
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. 2-Aminoethanol, (Monoethanolamine); C_2H_7NO: [141-43-5] 3. Water; H_2O; [7732-18-5]	Riegger, E.; Tartar, H.V. Lingafelter, E.C. *J. Amer. Chem. Soc.* 1944, *66*, 2024-7.

EXPERIMENTAL VALUES:

p^+/mmHg	Molality of amine	α* Temperature 298.15K	318.15K	333.15K
400	0.6	1.080	1.045	0.995
	1.0	1.042	0.993	0.952
	1.5	1.020	0.961	0.912
	2.0	1.006	0.943	0.885
	3.0	0.985	0.918	0.848
	4.0	0.971	0.897	0.821
	5.0	0.963	0.880	0.801
300	0.6	1.053	1.011	0.960
	1.0	1.022	0.967	0.916
	1.5	1.002	0.939	0.876
	2.0	0.990	0.921	0.847
	3.0	0.970	0.891	0.810
	4.0	0.955	0.869	0.778
	5.0	0.945	0.850	0.753
200	0.6	1.027	0.971	0.908
	1.0	0.998	0.929	0.863
	1.5	0.979	0.900	0.822
	2.0	0.966	0.880	0.793
	3.0	0.946	0.846	0.751
	4.0	0.931	0.819	0.714
	5.0	0.918	0.800	0.683
100	0.6	0.986	0.908	0.811
	1.0	0.956	0.864	0.757
	1.5	0.934	0.826	0.708
	2.0	0.919	0.795	0.674
	3.0	0.893	0.748	0.624
	4.0	0.870	0.714	0.581
	5.0	0.852	0.684	0.547
50	0.6	0.934	0.826	0.694
	1.0	0.902	0.782	0.634
	1.5	0.876	0.742	0.576
	2.0	0.856	0.706	0.532
	3.0	0.819	0.648	0.474
	4.0	0.784	0.601	0.425
	5.0	0.758	0.564	0.386
25	0.6	0.866	0.731	0.551
	1.0	0.833	0.686	0.490
	1.5	0.802	0.631	0.433
	2.0	0.777	0.601	0.388
	3.0	0.730	0.533	0.331
	4.0	0.687	0.487	0.291
	5.0	0.643	0.453	0.285

\+ partial pressure of hydrogen sulfide

* Mole of hydrogen sulfide per mole of amine.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. 2-Aminoethanol, (*monoethanolamine*); C_2H_7NO; [141-43-5]	Leibush, A.G.; Shneerson, A.L. *Zhur. Prik. Khim.* 1950, *23*, 145-152. *J. Applied Chem. USSR* 1950, *23*, 149-157.
VARIABLES:	PREPARED BY:
Temperature, pressure, composition	P.G.T. Fogg

EXPERIMENTAL VALUES:

Conc.of MEA /mol dm^{-3}	T/K	P_{H_2S}/mmHg	P_{H_2S}/bar*	Mole ratio H_2S/MEA
0.93	288.2	0.050	0.000067	0.068
		1.53	0.00204	0.243
		1.85	0.00247	0.454
		8.6	0.0115	0.714
	298.2	0.100	0.000133	0.068
		0.87	0.00116	0.243
		3.14	0.00419	0.454
		17.2	0.0229	0.714
	323.2	0.378	0.000504	0.068
		3.38	0.00451	0.243
		13.4	0.0179	0.454
		65.6	0.0875	0.714
2.5	288.2	0.098	0.000131	0.061
		0.264	0.000352	0.119
		1.06	0.00141	0.250
		4.25	0.00567	0.450
		11.0	0.0147	0.614
		16.4	0.0219	0.688
		57.5	0.0767	0.846

*calculated by compiler. MEA is 2-aminoethanol (monoethanolamine)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

N_2 or a mixture of N_2 & H_2S was passed successively through two absorbers containing H_2S dissolved in an aqueous solution of MEA. The H_2S in the emerging gas was passed into cadmium or zinc acetate solution and the precipitated sulfides estimated by iodimetry. Hydrogen sulfide in the MEA solutions was also determined by iodimetry. CO_2 in the MEA solutions was estimated by reaction with 30% H_2SO_4 and absorption of CO_2 evolved in standard baryta.

SOURCE AND PURITY OF MATERIALS:

1. From H_2SO_4 & Na_2S; no SO_2 detected.
3. Contained 3% of impurities including 0.6 to 1.5 volumes of CO_2 per unit volume of solution.

ESTIMATED ERROR:

P_{H_2S} likely to be 5 to 15% too high because of CO_2 content. (authors)

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. 2-Aminoethanol, (*monoethanolamine*); C_2H_7NO; [141-43-5]	Leibush, A.G.; Shneerson, A.L. *Zhur. Prik. Khim.* 1950, *23*, 145-152. *J. Applied Chem. USSR* 1950, *23*, 149-157.

EXPERIMENTAL VALUES:

Conc.of MEA /mol dm^{-3}	T/K	P_{H_2S}/mmHg	P_{H_2S}/bar*	Mole ratio H_2S/MEA
2.5	298.2	0.160	0.000213	0.061
		0.452	0.000603	0.110
		0.45	0.00060	0.119
		1.14	0.00152	0.192
		1.71	0.00228	0.250
		2.53	0.00337	0.303
		4.0	0.0053	0.373
		7.15	0.00953	0.450
		20.4	0.0272	0.614
		31.4	0.0419	0.688
		104	0.139	0.846
		124	0.165	0.854
	323.	0.134	0.000179	0.022
		0.64	0.00085	0.061
		1.84	0.00245	0.119
		7.25	0.00967	0.250
		30.6	0.0408	0.450
		121	0.161	0.688
		348	0.464	0.846

*calculated by compiler.

MEA is 2-aminoethanol (monoethanolamine)

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. 2-Aminoethanol (Monoethanolamine); C_2H_7NO; [141-43-5] 3. Water; H_2O; [7732-18-5]	Atwood, K.; Arnold, M. R.; Kindrick, R. C. *Ind. Eng. Chem.* 1957, *49*, 1439-44.
VARIABLES:	PREPARED BY:
Temperature, pressure, composition	C. L. Young

EXPERIMENTAL VALUES:

T/K	t/°F	Wt-% amine	P/mmHg	P/kPa	Conc. H_2S /mol ℓ^{-1}	Mole ratio†
299.8	80	5	0.000626	8.35×10^{-5}	0.00275	0.00336
			0.0518	0.00691	0.0483	0.0591
			73.0	9.7	0.758	0.945
310.9	100		0.0414	0.00552	0.0307	0.0376
			0.123	0.0164	0.0542	0.0664
			283	37.7	0.806	1.00
333.1	140		0.00804	0.00107	0.00476	0.00582
			106	14.1	0.578	0.714
310.9	100	15	0.0137	0.00183	0.0245	0.00995
			2.24	0.299	0.464	0.190
			275	36.7	2.116	0.895
322.0	120		0.0439	0.00585	0.0384	0.0156
			60.8	8.11	1.458	0.609
322.0	120	20	3370	449.3	-	0.999
			5850	779.9	-	1.102
344.3	160		5720	762.6	-	1.055
299.8	80	30	0.000525	0.0000700	0.00600	0.00121
			0.00465	0.000620	0.0276	0.00557
			1.50	0.200	0.757	0.155
			57.5	7.67	3.26	0.699
			289	38.5	4.16	0.908
322.0	120		0.0266	0.00355	0.0376	0.00758
			5.92	0.789	0.653	0.133
			264	35.2	3.41	0.733

† Moles of hydrogen sulfide per mole of amine.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Gas saturation method was used in which a known quantity of hydrogen was passed through a series of saturators containing a solution of known hydrogen sulfide concentration. At partial pressures of H_2S greater than 100 mmHg, solution saturation method was used. H_2S in soln. determined by iodimetry. Details in source.

SOURCE AND PURITY OF MATERIALS:

1. Stated purity 99.7 mole per cent.
2. Analytical grade.
3. No details.

ESTIMATED ERROR:

$\delta T/K = \pm 0.12$; $\delta p/kPa = \pm 2\%$;

δ(Mole ratio) = ±3% (estimated by compiler).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. 2-Aminoethanol (monoethanolamine); C_2H_7NO ; [141-43-5] 3. Water; H_2O; [7732-18-5]	Jones, J. H.; Froning, H. R.; Claytor, E. E. Jr. *J. Chem. Engng. Data* 1959, *4*, 85-92.
VARIABLES: Temperature, pressure	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K	$P^{\S}$/10^5Pa	Conc of MEA /Wt-%	$\alpha^{\dagger}$	T/K	$P^{\S}$/10^5Pa	Conc of MEA /Wt-%	$\alpha^{\dagger}$
313.15	0.0013	15.3	0.125	353.15	0.0089	15.3	0.119
	0.0040		0.208		0.0428		0.251
	0.0121		0.362		0.118		0.403
	0.0575		0.643		0.304		0.569
	0.0796		0.729		0.687		0.711
	0.141		0.814	373.15	0.0028		0.041
	0.191		0.842		0.0089		0.066
	0.251		0.884		0.0640		0.199
	0.348		0.920		0.307		0.396
	0.545		0.948		0.959		0.612
	0.800		0.965	393.15	0.0068		0.036
333.15	0.0095		0.202		0.0295		0.088
	0.0149		0.251		0.173		0.206
	0.0484		0.419		0.684		0.394
	0.167		0.636	413.15	0.0065		0.025
	0.577		0.849		0.0460		0.077
	0.581		0.842		0.395		0.197
	1.13		0.952				

$P^{\S}$ partial pressure of hydrogen sulfide

$\alpha^{\dagger}$ mole ratio in liquid, moles of hydrogen sulfide/ moles of monoethanolamine

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Rocking static equilibrium cell fitted with liquid and gas sampling ports. Pressure measured with Bourdon gauge. Concentration of hydrogen sulfide in gas phase determined by mass spectrometry. Concentration of hydrogen sulfide in liquid determined by adding to excess of acidified iodine solution and back titrating with standard thiosulfate solution. Details in source.	1. Purity 99.9 mole per cent. Mass spectrometry showed trace amounts of methyl mercaptan, carbon disulfide and carbon dioxide. 2. Purity 99.2 mole per cent. 3. Distilled.
	ESTIMATED ERROR: δT/K = ±0.1 at 313.15 K, ±0.5 at 413.15 K; δP/kPa = ±1%; $\delta\alpha$ = ±3% (estimated by compiler).
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. 2-Aminoethanol, (Monoethanolamine); C_2H_7NO: [141-43-5] 3. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto, F.D.; Mather, A.E. *Can. J. Chem. Engng.* 1974, *52*, 803-5.
VARIABLES: Temperature, pressure, composition	PREPARED BY: C.L. Young

EXPERIMENTAL VALUES:

T/K	Conc of MEA /mol dm^{-3}	p_{H_2S}/kPa	α
313.15	2.5	2252.5	1.505
		2049.1	1.49
		1323.1	1.23
		1304.5	1.28
		1257.6	1.27
		1213.5	1.26
		1046.6	1.19
		1020.4	1.22
		968.7	1.21
		959.7	1.19
		439.9	1.04
		428.2	1.01
		154.4	0.93
		18.4	0.78
		16.0	0.81
		15.7	0.781
373.15	2.5	4247.1	1.44
		4205.8	1.55
		4192.0	1.47
		3412.9	1.41
		2778.5	1.31
		2140.8	1.18
		1896.0	1.145
		1379.6	1.04
		730.8	0.965

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Recirculating vapor flow apparatus with Jerguson liquid level gauge cell with magnetic pump. Nitrogen added to vapor to increase pressure to at least 200 kPa. Vapor analysed by gas chromatography. Partial pressure of hydrogen sulfide estimated from knowledge of pressure and vapor pressure of monoethanolamine. Liquid samples passed into sulfuric acid and displaced hydrogen sulfide collected in buret.

SOURCE AND PURITY OF MATERIALS:

1. Matheson C.P. grade purity 99.91 mole per cent.
2. Fisher Scientific sample, purity 99.95 mole per cent.
3. Distilled Nitrogen used as carrier, purity 99.997 mole per cent.

ESTIMATED ERROR:

$\delta T/K = \pm 0.5$; $\delta p/kPa = \pm 1\%$
$\delta \alpha = \pm 3\text{-}5\%$

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4]	Lee, J.I.; Otto, F.D.; Mather, A.E.
2. 2-Aminoethanol, (Monoethanolamine); C_2H_7NO: [141-43-5]	*Can. J. Chem. Engng.* 1974, *52*, 803-5.
3. Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES:

T/K	Conc of MEA / mol dm^{-3}	p_{H_2S}/kPa	α
373.15	2.5	726.0	0.957
		546.1	0.936
		410.2	0.884
		283.4	0.805
		194.3	0.751
		148.2	0.694
		127.5	0.602
		122.7	0.62
		103.4	0.56
		84.8	0.53
313.15	5.0	2220.1	1.322
		915.6	1.025
		723.9	0.974
		497.8	0.900
		402.6	0.840
		146.2	0.865
		144.8	0.895
		128.2	0.855
		115.1	0.767
		30.7	0.677
		4.21	0.435
		2.55	0.376
		1.63	0.278
373.15	5.0	3176.4	1.032
		1983.6	0.895
		679.1	0.785
		430.9	0.700
		282.7	0.615
		221.3	0.580
		194.4	0.515
		51.9	0.344
		42.1	0.288
		7.24	0.123

α = Mole ratio in liquid phase, H_2S/Monoethanolamine.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. 2-Aminoethanol, (Monoethanolamine); C_2H_7NO; [141-43-5]	Lawson, J.D.;Garst, A.W. *J. Chem. Engng. Data*, 1976, *21*, 20-30.
VARIABLES: Temperature, pressure	PREPARED BY: C.L. Young

EXPERIMENTAL VALUES:

T/K	P/bar	Conc of MEA /wt%	Liquid comp. mol H_2S/mol amine	Mole fraction of hydrogen sulfide in liquid, x_{H_2S}
313.15	0.000016	15.2	0.0140	0.000702
	0.000019		0.0147	0.000737
	0.00011		0.0329	0.00165
	0.00025		0.0396	0.00198
	0.00041		0.0590	0.00295
	0.00036		0.0591	0.00296
	0.00073		0.0789	0.00394
	0.00065		0.0795	0.00397
	0.015		0.373	0.0184
	0.012		0.380	0.0187
	2.558		1.026	0.0490
	2.398		1.049	0.0500
	5.675		1.099	0.0523
	5.782		1.116	0.0530
	24.78		1.633	0.0757
333.15	0.000012	15.2	0.0052	0.000261
	0.000099		0.0141	0.000707
	0.00037		0.0339	0.00170
	0.00059		0.0406	0.00203
	0.00099		0.0593	0.00297
	0.0015		0.0805	0.00402
	0.045		0.384	0.0189
	0.047		0.392	0.0193

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Rocking equilibrium cell fitted with liquid and vapor sampling valves. Pressure measured with Bourdon gauge. Cell charged with amine then hydrogen sulfide and methane added as an inert gas to "achieve the desired total pressure". Vapor phases analysed by mass spectrometry. Liquid samples analysed by electrometric titration, details in source. Additional analytical methods were used for some samples.	1. Purity 99.5 mole per cent. 2. Distilled. 3. Commercial sample purity better than 99 mole per cent as determined by acid titration.
	ESTIMATED ERROR: $\delta T/K = \pm 0.15$ at 300K increasing to ± 0.6 at 413K; $\delta P/bar = \pm 0.5\%$; $\delta x_{H_2S} = \pm 3\%$.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. 2-Aminoethanol, (Monoethanolamine); C_2H_7NO; [141-43-5]	Lawson, J.D.; Garst, A.W. *J. Chem. Engng. Data*, 1976, *21*, 20-30.

EXPERIMENTAL VALUES:

T/K	P/bar	Conc of MEA /wt%	Liquid comp mol H_2S/mol amine	Mole fraction of hydrogen sulfide in liquid, x_{H_2S}
333.15	3.450	15.2	0.997	0.0476
	5.995		1.114	0.0529
	32.64		1.526	0.0711
353.15	0.000037		0.0055	0.000276
	0.00013		0.0143	0.000717
	0.00099		0.0349	0.00175
	0.00155		0.0418	0.00209
	0.113		0.382	0.0188
	0.120		0.385	0.0190
	4.663		0.993	0.0475
	8.660		1.028	0.0490
	32.37		1.468	0.0686
373.13	0.000063		0.0058	0.00029
	0.00041		0.0143	0.00072
	0.0063		0.0633	0.00317
	0.0075		0.0793	0.00396
	0.0184		0.121	0.00603
	0.306		0.376	0.0185
	0.306		0.384	0.0189
	9.299		0.952	0.0456
	10.10		1.015	0.0485
	38.50		1.358	0.0638
393.15	0.023		0.0653	0.00327
	0.024		0.0812	0.00406
	0.043		0.122	0.00608
	0.639		0.383	0.0189
	0.673		0.386	0.0190
	0.986		0.923	0.0443
	1.239		0.939	0.0450
	38.24		1.36	0.0639
413.15	0.045		0.0610	0.00305
	0.053		0.0749	0.00374
299.81	0.00076	30	0.081	0.00900
	0.0052		0.231	0.0252
	0.0092		0.311	0.0337
	0.017		0.406	0.0435
310.93	0.00001		0.0083	0.000930
	0.00083		0.048	0.00535
	0.0075		0.199	0.0218
	0.107		0.616	0.0646
366.48	0.00036		0.0089	0.000997
	0.0013		0.0509	0.00568
	0.142		0.207	0.0227
	1.667		0.570	0.0601

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. 2-Aminoethanol (Monoethanolamine); C_2H_7NO; [141-43-5]	Isaacs, E. E.; Otto, F. D.; Mather, A. E. *J. Chem. Eng. Data* 1980, *25*, 118-120.
VARIABLES: Pressure	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K	Partial pressure of hydrogen sulfide /kPa	Mole ratio H_2S/C_2H_7NO in liquid
373.2	0.0090	0.016
	0.0310	0.0210
	0.140	0.0300
	0.354	0.0430
	1.67	0.090
	1.50	0.092

Concentration of 2-Aminoethanol was 2.5 kmol m^{-3} (soln.).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Nitrogen passed through three 250 ml vessels in series which contained amine solution with a certain amount of dissolved carbon dioxide and hydrogen sulfide. Emerging gas from last vessel analysed by GC. Liquid sample taken from last vessel. Hydrogen sulfide content determined by iodine-thiosulfate titration.	No details given.
	ESTIMATED ERROR: $\delta T/K = \pm 0.5$; $\delta x = \pm 6\%$ (estimated by compiler)
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. Ethanol, 2,2'-iminobis-, (*diethanolamine*); $C_4H_{11}NO_2$; [111-42-2]	Leibush, A.G.; Shneerson, A.L. *Zhur. Prik. Khim.* 1950, *23*, 145-152. *J. Applied Chem. USSR* 1950, *23*, 149-157.
VARIABLES: Temperature, pressure, composition of liquid phase	PREPARED BY: P.G.T. Fogg

EXPERIMENTAL VALUES:

Conc.of DEA /mol dm^{-3}	T/K	P_{H_2S}/mmHg	P_{H_2S}/bar*	Mole ratio H_2S/DEA
0.97	288.2	0.076	0.000101	0.040
		0.29	0.00039	0.091
		1.27	0.00169	0.194
		5.73	0.00764	0.420
		24.0	0.0320	0.670
		43.0	0.0573	0.734
		94.5	0.1260	0.838
	298.2	0.147	0.000196	0.040
		0.50	0.00067	0.091
		1.97	0.00263	0.194
		7.92	0.01056	0.420
		38.0	0.0507	0.670
		70.8	0.0944	0.734
		145	0.193	0.838

*calculated by compiler. DEA = diethanolamine

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

N_2 or a mixture of N_2 & H_2S was passed successively through two absorbers containing H_2S dissolved in an aqueous solution of DEA. The H_2S in the emerging gas was passed into cadmium or zinc acetate solution and the precipitated sulfides estimated by iodimetry. Hydrogen sulfide in the DEA solutions was also determined by iodimetry.

SOURCE AND PURITY OF MATERIALS:

1. From H_2SO_4 & Na_2S: no SO_2 detected

3. Contained 0.2 to 0.6 volumes of CO_2 per unit volume of solution; less than 1% by weight of total impurities.

ESTIMATED ERROR:

$\delta T/K = \pm 0.1$ (authors)
P_{H_2S} likely to be 5 to 15% too high because of CO_2 content. (authors)

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. Ethanol, 2,2'-iminobis-, (*diethanolamine*); $C_4H_{11}NO_2$; [111-42-2]	Leibush, A.G.; Shneerson, A.L. *Zhur. Prik. Khim.* 1950, *23*, 145-152. *J. Applied Chem. USSR* 1950, *23*, 149-157.

EXPERIMENTAL VALUES:

Conc.of DEA /mol dm^{-3}	T/K	P_{H_2S}/mmHg	P_{H_2S}/bar*	Mole ratio H_2S/DEA
0.97	323.2	0.34	0.00045	0.040
		1.59	0.00212	0.091
		6.17	0.00823	0.194
		32.7	0.0436	0.420
		143	0.191	0.670
		197	0.263	0.734
		312	0.416	0.838
2.0	288.2	0.319	0.000425	0.073
		3.0	0.0040	0.221
		6.9	0.0092	0.342
		14.6	0.0195	0.465
		40.5	0.0540	0.624
		99	0.132	0.780
	298.2	0.167	0.000223	0.035
		0.71	0.00095	0.073
		3.3	0.0044	0.175
		5.1	0.0068	0.221
		12.1	0.0161	0.342
		12.5	0.0167	0.353
		13.5	0.0180	0.368
		23.7	0.0316	0.465
		68.5	0.0913	0.624
		219	0.292	0.780
	323.2	0.048	0.000064	0.006
		0.276	0.000368	0.022
		0.565	0.000753	0.035
		11.3	0.0151	0.175
		15.1	0.0201	0.221
		40.8	0.0544	0.342
		86.5	0.1153	0.465

*calculated by compiler. DEA = diethanolamine

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. 2,2'-Iminobisethanol (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2] 3. Water; H_2O; [7732-18-5]	Atwood, K.; Arnold, M. R.; Kindrick, R. C. *Ind. Eng. Chem.* 1957, *49*, 1439-44.
VARIABLES: Temperature, pressure, composition	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K	t/°F	Wt-% amine	P/mmHg	P/kPa	Conc. H_2S /mol ℓ^{-1}	Mole ratio†
310.9	100	10	0.346	0.0462	0.0520	0.0543
			712	94.9	0.939	0.997
333.1	140		0.587	0.0783	0.0337	0.352
			178	23.7	0.675	0.713
299.8	80	25	0.00870	0.001160	0.0123	0.00505
			2.89	0.385	0.316	0.130
			320	42.7	2.024	0.862
322.0	120		0.131	0.0175	0.0327	0.0134
			682	90.9	2.002	0.852
310.9	100	50	0.0566	0.00755	0.0281	0.00560
			63.1	8.42	1.915	0.394
			422	56.3	3.54	0.751
322.0	140		0.135	0.0180	0.0281	0.00559
			35.7	4.76	0.757	0.153
			646	86.1	3.11	0.653

† Moles of hydrogen sulfide per mole of amine.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Gas saturation method was used in which a known quantity of hydrogen was passed through a series of saturators containing a solution of known hydrogen sulfide concentration. At partial pressures of H_2S greater than 100 mmHg, solution saturation method was used. H_2S in soln. determined by iodimetry. Details in source.

SOURCE AND PURITY OF MATERIALS:

1. Stated purity 99.7 mole per cent.
2. Analytical grade.
3. No details.

ESTIMATED ERROR:

$\delta T/K = \pm 0.12$; $\delta p/kPa = \pm 2\%$;
δ(Mole ratio) = ±3% (estimated by compiler).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. 2,2′-Iminobisethanol (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2] 3. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data*, 1973, *18*, 71-3, 420.
VARIABLES:	PREPARED BY:
Temperature, pressure, composition	C. L. Young

EXPERIMENTAL VALUES:

T/K	Conc of 2 /mol dm^{-3}	p/kPa	α
298.15	2.0	2.45	0.440
		22.1	0.731
		27.5	0.761
		99.8	0.888
		222.0	0.944
		282.0	0.994
		362.9	1.005
		459.5	1.087
		516.4	1.111
		651.5	1.140
		703.3	1.188
		899.8	1.256
		937.7	1.326
		1267.2	1.398
		1421.7	1.467
		1525.1	1.547
323.15	2.0	5.41	0.331
		21.9	0.542
		32.4	0.635
		34.0	0.641
		42.6	0.646
		65.9	0.724
		186.1	0.842
		300.6	0.910

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Recirculating vapor flow apparatus with Jerguson liquid level gauge cell and magnetic pump. Nitrogen added to vapor to increase pressure to at least 200 kPa. Vapor analysed by gas chromatography. Partial pressure of hydrogen sulfide estimated from knowledge of pressure and vapor pressure of diethanolamine. Liquid samples passed into sulfuric acid and displaced hydrogen sulfide collected in buret.	1. Matheson, C.P. grade purity 99.91 mole per cent. 2. Purity 99.8 mole per cent. 3. (Nitrogen used as carrier, purity 99.997 mole per cent.)
	ESTIMATED ERROR: δT/K = ±0.5; δp/kPa = ±1%; $\delta\alpha$ = ±3-5%.
	REFERENCES:

T/K	Conc. of 2/mol dm^{-3}	p/kPa	α
323.15	2.0	614.0	0.978
		903.2	1.028
		910.1	1.030
		1001.1	1.023
		1138.3	1.180
		1332.7	1.255
		1373.4	1.227
		1655.4	1.310
		1728.5	1.275
		1892.6	1.347
348.15	2.0	3.25	0.159
		7.72	0.226
		13.4	0.316
		15.1	0.354
		37.2	0.445
		63.0	0.530
		128.1	0.639
		228.9	0.783
		476.4	0.905
		710.1	0.938
		974.2	1.012
		1139.7	1.079
		1152.1	1.080
		1365.1	1.062
		1475.5	1.117
		1778.8	1.200
		2000.1	1.274
373.15	2.0	11.0	0.150
		57.6	0.314
		176.5	0.506
		429.2	0.694
		889.4	0.873
		1434.8	1.053
		1896.0	1.127
		1968.4	1.131
393.15	2.0	25.2	0.162
		74.5	0.256
		342.0	0.521
		688.8	0.680
		1042.5	0.812
		1516.8	0.975
		1916.7	1.062
		1925.7	1.070
298.15	3.5	0.834	0.201
		3.89	0.352
		6.76	0.449
		16.9	0.613
		35.8	0.681
		48.5	0.711
		100.0	0.785
		111.0	0.790
		266.1	0.875
		389.7	0.948
		732.9	1.020
		1037.0	1.103
		1357.0	1.120
		1756.1	1.206
323.15	3.5	0.738	0.064
		5.07	0.200
		21.8	0.387
		66.8	0.616
		123.4	0.713
		219.9	0.776
		392.3	0.858
		672.2	0.918
		935.6	0.975
		1385.8	1.039
		1985.7	1.097

T/K	Conc of 2./mol dm^{-3}	p/kPa	α
348.15	3.5	2.36	0.072
		12.8	0.198
		59.4	0.396
		166.8	0.614
		307.5	0.723
		589.5	0.831
		871.5	0.855
		1441.0	0.945
		2104.9	1.042
373.15	3.5	5.47	0.069
		33.9	0.193
		139.3	0.391
		226.1	0.478
		357.1	0.582
		512.3	0.675
		601.2	0.688
		921.1	0.762
		1362.4	0.830
		2076.0	0.927
393.15	3.5	13.3	0.069
		78.2	0.187
		253.0	0.365
		361.3	0.440
		677.7	0.618
		750.1	0.625
		1238.3	0.725
		2003.6	0.836

α = mole ratio in liquid phase H_2S/Diethanolamine

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. 2,2'-iminobisethanol, (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2] 3. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data.* 1973, *18*, 71-3, 420. Some data taken from Amer. Chem. Soc. deposited document.
VARIABLES:	PREPARED BY:
Temperature, pressure, composition	C.L. Young.

EXPERIMENTAL VALUES:

T/K	Conc.of DEA/mol dm^{-3}	P/kPa	α
298.15	0.5	0.119	0.2080
		0.390	0.2965
		1.76	0.4028
		15.2	0.6506
		71.7	0.8642
		161.7	1.015
		201.0	1.034
		275.4	1.194
		464.0	1.493
		647.8	1.896
		658.4	1.813
		1034.2	2.567
		1272.1	2.893
		1561.6	3.293
323.15	0.5	0.0779	0.0946
		0.883	0.208
		19.2	0.549
		70.2	0.7242
		70.3	0.7471
		102.0	0.8296
		244.1	1.015
		315.8	1.048
		414.4	1.196
		589.5	1.380
		775.6	1.581

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Recirculating vapor flow apparatus with Jerguson liquid level gauge cell and magnetic pump. Nitrogen added to vapor to increase pressure to at least 200 kPa. Vapor analysed by gas chromatography. Partial pressure of hydrogen sulfide estimated from knowledge of pressure and vapor pressure of diethanolamine. Liquid samples passed into sulfuric acid and displaced hydrogen sulfide collected in buret.

System contained a trace of carbon dioxide.

SOURCE AND PURITY OF MATERIALS:

1. Matheson C.P. grade purity 99.91 mole per cent.
2. Purity 99.8 mole per cent.
3. Distilled nitrogen used as carrier, purity 99.997 mole per cent.

ESTIMATED ERROR:

$\delta T/K = \pm 0.5$; $\delta P/kPa = \pm 1\%$; $\delta\alpha = \pm 3\text{-}5\%$.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS
1. Hydrogen sulfide; H_2S: [7783-06-4] 2. 2,2'-iminobisethanol, (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2] 3. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data.* 1973, *18*, 71-3,420.

EXPERIMENTAL VALUES:

T/K	Conc of DEA/mol dm^{-3}	*P*/kPa	α
323.15	0.5	1132.8	2.0492
		1521.0	2.431
348.15	0.5	0.800	0.0960
		2.46	0.1691
		4.73	0.2491
		33.3	0.5094
		88.2	0.642
		311.6	0.980
		353.7	0.9753
		854.2	1.3702
		1081.1	1.588
		1622.3	1.932
373.15	0.5	2.66	0.105
		9.60	0.202
		35.6	0.368
		74.5	0.486
		191.5	0.6858
		552.3	1.068
		1125.2	1.455
		1603.0	1.682
393.15	0.5	4.96	0.105
		17.1	0.202
		36.9	0.2876
		206.3	0.6252
		518.5	0.8714
		978.4	1.256
		1425.1	1.5412
		1585.8	1.662
298.15	5.0	0.476	0.1156
		0.820	0.1605
		1.10	0.2028
		2.72	0.3172
		14.6	0.5418
		18.0	0.5894
		19.0	0.5821
		42.7	0.7166
		76.2	0.789
		262.0	0.879
		559.2	0.942
		755.7	0.998
		868.7	1.085
		1104.5	1.102
		1671.9	1.160
323.15	5.0	0.896	0.0852
		4.32	0.205
		14.9	0.329
		46.2	0.506
		131.3	0.6845
		273.9	0.820
		343.4	0.8322
		930.8	0.901
		1246.8	0.992
		1635.4	1.043

COMPONENTS	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. 2,2'-iminobisethanol, (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2] 3. Water; H_2O: [7732-18-5]	Lee, J.I.; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data.* 1973, *18*, 71-3,420

EXPERIMENTAL VALUES:

T/K	Conc. of DEA /mol dm^{-3}	P/kPa	α
348.15	5.0	0.618	0.0223
		1.43	0.0511
		8.96	0.1226
		17.8	0.187
		53.6	0.3385
		77.2	0.386
		144.8	0.4974
		274.4	0.661
		354.0	0.6963
		620.5	0.7922
		1173.5	0.9181
		1359.6	0.942
		1776.1	0.9729
373.15	5.0	5.82	0.0484
		48.9	0.1869
		124.1	0.3167
		219.2	0.415
		384.5	0.5827
		819.1	0.7412
		1542.3	0.8241
393.15	5.0	14.9	0.0489
		71.8	0.1408
		248.2	0.3284
		400.2	0.438
		495.0	0.5111
		761.2	0.5559
		971.5	0.6126
		1338.9	0.6623
		1661.6	0.7274

α = Mole ratio in liquid, H_2S/Diethanolamine

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. 2,2'-iminobisethanol, Diethanolamine; $C_4H_{11}NO_2$; [111-42-2]	Lawson, J.D. and Garst, A.W. *J. Chem. Engng. Data.* 1976, *21*, 20-30.
VARIABLES: Temperature, pressure	PREPARED BY: C.L. Young

EXPERIMENTAL VALUES:

T/K	P_{H_2S}/bar	Conc. of DEA Wt. %	Liquid comp. mol H_2S /mol amine.	Mole fraction of hydrogen sulfide in liquid, x_{H_2S}
310.93	0.000015	25	0.0038	0.00021
	0.000009		0.0043	0.00023
	0.000012		0.0044	0.00024
	0.000097		0.0112	0.00060
	0.000071		0.0157	0.00085
	0.0011		0.0526	0.00283
	0.0017		0.0755	0.00406
	0.0044		0.133	0.00712
	0.0087		0.177	0.00946
	0.0095		0.196	0.0105
	0.0160		0.197	0.0106
	0.0180		0.217	0.0116
	0.0205		0.230	0.0123
	0.0184		0.230	0.0123
	0.0153		0.234	0.0125
	0.0145		0.258	0.0137
	0.0289		0.319	0.0169
	0.0786		0.457	0.0241
	0.0919		0.481	0.0253
	0.213		0.652	0.0340
	1.013		0.855	0.0441
	1.070		0.830	0.0429
	2.944		0.975	0.0500

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Rocking equilibrium cell fitted with liquid and vapor sampling valves. Pressure measured with Bourdon gauge.

Cell charged with amine then hydrogen sulfide and methane added as an inert gas to "achieve the desired total pressure"

Vapor phases analysed by mass spectrometry. Liquid samples analysed by electrometric titration, details in source. Additional analytical methods were used for some samples.

SOURCE AND PURITY OF MATERIALS:

1. Purity 99.5 mole per cent.
2. Distilled.
3. Commercial sample purity better than 99 mole per cent as determined by acid titration.

ESTIMATED ERROR:

$\delta T/K$ = ±0.15 at 310 K increasing to ±0.6 at 422 K;
δx_{H_2S} = ±10% increasing to ±16% at low pressures

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4]	Lawson, J.D. and Garst, A.W.
2. Water; H_2O; [7732-18-5]	*J. Chem. Engng. Data.* 1976, *21*, 20-30.
3. 2,2'-iminobisethanol, Diethanolamine; $C_4H_{11}NO_2$; [111-42-2]	

EXPERIMENTAL VALUES:

T/K	P_{H_2S}/bar	Conc of DEA Wt. %	Liquid comp. mol H_2S/mol amine	Mole fraction of hydrogen sulfide in liquid, x_{H_2S}
310.93	2.758	25	1.082	0.0552
	2.678		1.043	0.0533
	13.988		1.107	0.0564
	20.783		1.395	0.0700
	22.781		1.412	0.0708
	26.645		1.582	0.0787
324.82	0.0165		0.180	0.00962
	0.0560		0.317	0.0168
	0.264		0.588	0.0308
	2.558		0.958	0.0492
	17.852		1.241	0.0628
338.71	0.00011		0.0045	0.00024
	0.00008		0.0069	0.00037
	0.00013		0.0092	0.00050
	0.00035		0.0100	0.00054
	0.00028		0.0151	0.00081
	0.00160		0.0301	0.00162
	0.00214		0.0488	0.00263
	0.0262		0.124	0.00665
	0.0274		0.143	0.00766
	0.0362		0.179	0.00957
	0.0617		0.205	0.0109
	0.0610		0.207	0.0111
	0.0857		0.252	0.0134
	0.0763		0.255	0.0136
	0.0508		0.256	0.0137
	0.0719		0.257	0.0137
	0.0466		0.264	0.0141
	0.113		0.318	0.0169
	0.280		0.446	0.0235
	0.261		0.462	0.0243
	0.402		0.515	0.0271
	0.477		0.591	0.0309
	0.666		0.644	0.0336
	2.545		0.894	0.0460
	5.276		0.942	0.0484
	3.997		0.991	0.0508
	18.651		1.230	0.0623
	23.847		1.25	0.0632
	26.831		1.315	0.0663
	31.441		1.432	0.0718
352.59	0.075	25	0.180	0.00962
	0.204		0.314	0.0167
	1.047		0.582	0.0304
	4.570		0.918	0.0472
	19.580		1.212	0.0614
366.48	0.00013		0.0039	0.00021
	0.0015		0.0153	0.00083
	0.0023		0.0208	0.00112
	0.0043		0.0319	0.00172
	0.087		0.132	0.00708
	0.124		0.178	0.00952
	0.181		0.201	0.0107

COMPONENTS:	ORIGINAL MEASUREMENTS
1. Hydrogen sulfide; H_2S; [7783-06-4]	Lawson, J.D. and Garst, A.W.
2. Water; H_2O; [7732-18-5]	*J. Chem. Engng. Data.* 1976, *21*, 20-30.
3. 2,2'-iminobisethanol, Diethanolamine; $C_4H_{11}NO_2$; [111-42-2]	

T/K	P_{H_2S}/bar	Conc.of DEA Wt. %	Liquid comp. mol H_2S/mol amine.	Mole fraction of hydrogen sulfide in liquid, x_{H_2S}
366.48	0.217	25	0.211	0.0123
	0.175		0.212	0.0113
	0.366		0.315	0.0167
	1.412		0.565	0.0296
	5.928		0.894	0.0460
	6.128		0.896	0.0462
	23.847		1.116	0.0568
	35.038		1.295	0.0653
380.37	0.222		0.169	0.00904
	0.580		0.306	0.0163
	1.932		0.563	0.0295
	7.354		0.856	0.0442
	25.712		1.134	0.0577
394.25	0.0045		0.0143	0.000771
	0.0041		0.0151	0.000815
	0.396		0.169	0.00904
	0.465		0.192	0.0103
	0.493		0.202	0.0108
	0.986		0.295	0.0157
	3.304		0.531	0.0279
	5.023		0.600	0.0314
	8.420		0.768	0.0398
	8.260		0.841	0.0434
	28.110		1.095	0.0558
	37.036		1.241	0.0628
408.15	0.613		0.162	0.00867
	4.476		0.496	0.0261
	10.112		0.766	0.0397
422.04	1.092		0.151	0.00809
	4.983		0.455	0.0240
	10.698		0.587	0.0307
310.93	0.00012	50	0.0111	0.00162
	0.0039		0.0522	0.00757
	0.032		0.212	0.0301
	0.253		0.553	0.0748
333.15	0.00009	54.5	0.0053	0.000774
	0.044		0.124	0.0178
	0.866		0.587	0.0790
366.48	0.0045	50	0.011	0.00161
	0.041		0.055	0.00798
	0.386		0.211	0.0299
	2.758		0.566	0.0764

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. Ethanol, 2,2'-iminobis- (*diethanolamine*); $C_4H_{11}NO_2$; [111-42-2]	Lal, D.; Otto, F.D.; Mather, A.E. *Can.J.Chem.Eng.* 1985, *63*, 681-685.
VARIABLES:	PREPARED BY:
Temperature, pressure	P.G.T. Fogg

EXPERIMENTAL VALUES:

T/K	P_{H_2S}/kPa	Mole ratio in liquid, H_2S/DEA	T/K	P_{H_2S}/kPa	Mole ratio in liquid, H_2S/DEA
313.15	0.042	0.043	373.15	0.0075	0.0071
	0.051	0.051		0.011	0.0085
	0.053	0.057		0.012	0.0081
	0.053	0.051		0.016	0.0098
	0.064	0.054		0.025	0.0094
	0.106	0.063		0.044	0.0109
	0.149	0.083		0.061	0.0138
	0.162	0.081		0.092	0.0134
	0.190	0.087		0.137	0.0179
	0.216	0.097		0.195	0.0208
	0.245	0.102		0.238	0.0194
	0.276	0.117		0.405	0.0327
	0.384	0.141		0.653	0.041
	0.551	0.189		0.752	0.042
	1.355	0.219		0.895	0.048
				1.293	0.057
				1.407	0.064
				3.181	0.102

Concentration of diethanolamine = 2.0 kmol m^{-3} (2.0 mol dm^{-3})

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Apparatus described in ref. (1) was used. Nitrogen was passed through three 500 cm^3 stainless steel vessels in series. These contained amine solution and dissolved H_2S. Temperatures were controlled to ± 0.5 K by an oil-bath. The gas emerging from the last vessel was analysed by gas chromatography. Samples of liquid from this vessel were analysed for H_2S by iodine-thiosulfate titration.

SOURCE AND PURITY OF MATERIALS:

3. supplied by Dow chemicals.

ESTIMATED ERROR:

$\delta T/K$ = ± 0.5 (authors)
$\delta P/P$ = ± 0.15 at P_{H_2S} > 0.05 kPa; larger at lower partial pressures (authors).

REFERENCES:

1. Isaacs, E.E.; Otto, F.D.; Mather, A.E. *J.Chem.Eng.Data* 1980, 25, 118.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Ethanol, 2- (2-aminoethoxy)- (Diglycolamine); $C_4H_{11}NO_2$; [929-06-6] 3. Water; H_2O; [7732-18-5]	Martin, J.L.; Otto, F.D.; Mather, A.E. *J. Chem. Engng. Data.* 1978, *23*, 163-4.
VARIABLES:	PREPARED BY:
Temperature, pressure	C.L. Young

EXPERIMENTAL VALUES:

T/K	$P^{\S}$/kPa	Conc of DGA /Wt%	$\alpha^{\dagger}$	T/K	$P^{\S}$/kPa	Conc of DGA /Wt%	$\alpha^{\dagger}$
323.15	1730	60.0	1.091	323.15	2.52	60.0	0.221
	1490		1.068				
	1730		1.052	373.15	1890	60.0	0.909
	1480		1.043		1660		0.849
	1140		1.001		1460		0.806
	679		0.929		987		0.712
	414		0.877		662		0.640
	217		0.778		620		0.639
	121		0.711		509		0.571
	121		0.699		396		0.522
	86.1		0.657		273		0.456
	72.9		0.654		126		0.316
	63.1		0.608		65.3		0.217
	46.2		0.577		55.1		0.210
	53.1		0.543		48.2		0.182
	28.3		0.508		17.5		0.116
	18.9		0.452		16.5		0.100
	11.5		0.381		13.4		0.095
	8.87		0.344		9.29		0.071
	5.36		0.291		4.87		0.057
	3.91		0.262				

$P^{\S}$ partial pressure of hydrogen sulfide

$\alpha^{\dagger}$ mole ratio in liquid, hydrogen sulfide/diglycolamine

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Recirculating vapor flow apparatus with Jerguson liquid level gauge cell and magnetic pump. Nitrogen added to vapor to increase pressure to at least 350 kPa. Vapor analyzed by gas chromatography. Partial pressure of hydrogen sulfide estimated from knowledge of pressure and vapor pressure of diethanolamine. Liquid samples passed into sulfuric acid and displaced carbon dioxide collected in buret.	1. No details given. 2. Jefferson Chemical Co. sample 3. No details given.
	ESTIMATED ERROR: $\delta T/K = \pm 0.5$; $\delta P/bar = \pm 1.0\%$; $\delta\alpha_{H_2S} = \pm 0.02$ or $\pm 4\%$ (whichever is greater).
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. 2,2'-(Methylimino)bisethanol (*methyldiethanolamine*); $C_5H_{13}NO_2$; [105-59-9]	Jou, F-Y.; Mather, A.E.; Otto, F.D. *Ind.Eng.Chem.Process Des.Dev.* 1982, *21*, 539 - 544.
VARIABLES:	PREPARED BY:
Temperature, pressure, composition.	P.G.T. Fogg

EXPERIMENTAL VALUES:

Concentration of methyldiethanolamine (MDEA) = 1.0 kmol m^{-3} (1.0 mol dm^{-3})

T/K	P_{H_2S}/kPa	Mole ratio in liquid H_2S/MDEA	T/K	P_{H_2S}/kPa	Mole ratio in liquid H_2S/MDEA
298.2	0.00674	0.0293	313.2	1.99	0.297
	0.0273	0.0539		10.9	0.604
	0.170	0.137		43.3	0.866
	1.10	0.315		102.0	0.994
	8.37	0.658		417.0	1.308
	38.9	0.911		1290.0	1.917
	182.0	1.183		1800.0	2.250
	413.0	1.424		2730.0	2.902
	830.0	1.850	343.2	0.00210	0.00540
	1380.0	2.364		0.00336	0.00661
	1960.0	2.935		0.00810	0.0109
313.2	0.00230	0.0111		0.0110	0.0130
	0.00409	0.0144		0.0232	0.0183
	0.0109	0.0225		0.0391	0.0225
	0.0910	0.0613		0.0836	0.0300
	0.513	0.149		0.269	0.0537

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
An equilibrium cell consisted of a Jerguson gage with a 250 cm^3 tubular gas reservoir mounted at the top. Gas was circulated with a magnetic pump. Temperatures were measured by thermopiles and controlled to ±0.5 °C by an air-bath. Pressures were measured by a Heise bourdon tube gage. The cell was charged with MDEA and H_2S to the appropriate pressure. Nitrogen was added, where necessary, to ensure that the total pressure was above atmospheric. Gases were circulated for at least 8 h. The gas phase was analysed by gas chromatography. H_2S in the liquid phase was determined by iodimetry and amine by titration with H_2SO_4. Solubilities at partial pressures less than 100 kPa were measured by a flow method.	1. of high purity from Linde & Matheson. 3. from Aldrich Chemical Co.; purity > 99% ESTIMATED ERROR: $\delta T/K$ = ±0.5 (authors) REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. 2,2'-(Methylimino)bisethanol (*methyldiethanolamine*); $C_5H_{13}NO_2$; [105-59-9]	Jou, F-Y.; Mather, A.E.; Otto, F.D. *Ind.Eng.Chem.Process Des.Dev.* 1982, *21*, 539 - 544.

EXPERIMENTAL VALUES:

Concentration of methyldiethanolamine (MDEA) = 1.0 kmol m^{-3} (1.0 mol dm^{-3})

T/K	P_{H_2S}/kPa	Mole ratio in liquid H_2S/MDEA	T/K	P_{H_2S}/kPa	Mole ratio in liquid H_2S/MDEA
343.2	11.0	0.354	373.2	994.0	1.251
	14.3	0.384		2090.0	1.641
	146.0	0.886		2930.0	2.298
	511.0	1.185		4920.0	2.665
	925.0	1.405		5890.0	3.000
	1650.0	1.751	393.2	0.050	0.0098
	2420.0	2.085		0.52	0.0324
	3690.0	2.591		1.70	0.0566
	5030.0	3.229		11.5	0.145
373.2	0.090	0.0179		129.0	0.495
	0.236	0.0283		496.0	0.871
	1.03	0.0561		1290.0	1.233
	4.22	0.118		2710.0	1.750
	35.8	0.358		3730.0	2.078
	113.0	0.593		5230.0	2.627
	414.0	0.936			
Concentration of methyldiethanolamine = 2.0 kmol m^{-3} (2.0 mol dm^{-3})					
313.2	0.00260	0.00725	313.2	1010.0	1.489
	0.00871	0.0127		2260.0	1.906
	0.0308	0.0238	373.2	0.745	0.029
	0.171	0.0576		16.43	0.156
	0.370	0.0871		29.07	0.203
	1.20	0.162		72.53	0.357
	5.76	0.368		146.9	0.474
	8.98	0.443		266.3	0.660
	27.3	0.674		483.3	0.846
	107.0	0.965		1020	1.076
	258.0	1.063		1550	1.256
Concentration of methyldiethanolamine = 4.28 kmol m^{-3} (4.28 mol dm^{-3})					
298.2	0.00593	0.000960	298.2	296.0	1.088
	0.0180	0.0171		476.0	1.173
	0.114	0.0446		765.0	1.273
	0.195	0.0611		1060.0	1.373
	0.464	0.0972		1370.0	1.506
	0.603	0.106		1670.0	1.588
	36.9	0.780		1830.0	1.686
	88.8	0.921		1960.0	1.699

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. 2,2'-(Methylimino)bisethanol (*methyldiethanolamine*); $C_5H_{13}NO_2$; [105-59-9]	Jou, F-Y.; Mather, A.E.; Otto, F.D. *Ind.Eng.Chem.Process Des.Dev.* 1982, *21*, 539 - 544.

EXPERIMENTAL VALUES:

Concentration of methyldiethanolamine (MDEA) = 4.28 kmol m^{-3} (4.28 mol dm^{-3})

T/K	P_{H_2S}/kPa	Mole ratio in liquid H_2S/MDEA	T/K	P_{H_2S}/kPa	Mole ratio in liquid H_2S/MDEA
313.2	0.00314	0.00508	343.2	1420.0	1.163
	0.00502	0.00580		2530.0	1.355
	0.00714	0.00734		3460.0	1.521
	0.0102	0.00805		4120.0	1.616
	0.0387	0.0165		4990.0*	1.727
	0.271	0.0446	373.2	0.0417	0.00434
	1.42	0.103		0.133	0.00763
	8.71	0.268		0.383	0.0142
	28.5	0.499		1.66	0.0305
	107.0	0.849		26.1	0.130
	500.0	1.083		240.0	0.435
	949.0	1.210		765.0	0.763
	1540.0	1.369		1690.0	1.004
	2140.0	1.520		2300.0	1.104
	2360.0	1.576		3630.0	1.272
	2800.0*	1.723		4720.0	1.409
343.3	0.00130	0.00129		5680.0	1.518
	0.00274	0.00177	393.2	0.342	0.00950
	0.00451	0.00258		25.1	0.0895
	0.00714	0.00311		252.0	0.303
	0.00985	0.00367		1130.0	0.677
	0.353	0.0253		2510.0	0.969
	16.8	0.188		3400.0	1.084
	23.7	0.233		4690.0	1.221
	132.0	0.549		5390.0	1.285
	528.0	0.953		5840.0	1.328

* Liquid H_2S phase present.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. 2,2',2''-Nitrilotrisethanol, (Triethanolamine); $C_6H_{15}NO_3$; [102-71-6] 3. Water; H_2O; [7732-18-5]	Atwood, K.; Arnold, M. R.; Kindrick, R. C. *Ind. Eng. Chem.* 1957, *49*, 1439-44.
VARIABLES: Temperature, pressure, composition	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K	t/°F	Wt-% amine	P/mmHg	P/kPa	Conc. H_2S /mol ℓ^{-1}	Mole ratio†
299.8	80	15	1.31	0.175	0.0404	0.0395
			241	32.1	0.539	0.531
322.0	120		0.00424	0.000565	0.000795	0.000776
			4.19	0.559	0.0396	0.0387
			115	15.3	0.264	0.259
333.1	140	20	5.66	0.755	0.0446	0.0324
			624	83.2	0.562	0.412
310.9	100	30	0.568	0.0757	0.0261	0.0124
			55.3	7.373	0.315	0.151
333.1	140		0.0222	0.00296	0.00224	0.00107
			624	83.2	0.714	0.345
299.8	80	50	0.655	0.0873	0.0381	0.0106
			22.9	3.05	0.265	0.0739
			242	32.3	1.105	0.313
322.0	120		0.00295	0.000393	0.000976	0.000271
			57.2	7.63	0.297	0.0829
			693	92.4	1.179	0.334

† Mole of hydrogen sulfide per mole of amine.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Gas saturation method was used in which a known quantity of hydrogen was passed through a series of saturators containing a solution of known hydrogen sulfide concentration. At partial pressures of H_2S greater than 100 mmHg, solution saturation was used. H_2S in soln. determined by iodimetry. Details in source.

SOURCE AND PURITY OF MATERIALS:

1. Stated purity 99.7 mole per cent.
2. Analytical grade.
3. No details.

ESTIMATED ERROR:

$\delta T/K = \pm 0.12$; $\delta p/kPa = \pm 2\%$;

δ(Mole ratio) = ±3% (estimated by compiler).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. 2,2',2"-Nitrilotrisethanol, (*triethanolamine*); $C_6H_{15}NO_3$; [102-71-6]	Jou, F-Y.; Mather, A.E.; Otto, F.D. *Can.J.Chem.Eng.* 1985, *63*, 122-125. (Numerical data deposited in the Depository for Unpublished Data, Ottawa, Canada)*
VARIABLES: Temperature, pressure, composition of liquid phase.	PREPARED BY: P.G.T. Fogg

EXPERIMENTAL VALUES:

Conc. of TEA /mol dm^{-3}	T/K	P_{H_2S} /kPa	Total pressure /kPa	Mole ratio in liquid H_2S/TEA
2.0	298.2	0.0267	403	0.0164
		0.184	303	0.0412
		1.10	348	0.102
		4.81	438	0.208
		42.2	752	0.526
		263	266	0.995
		720	723	1.350
		1480	1485	1.751
		1980	2030	1.989
2.0	323.2	0.0683	483	0.0133
		0.275	417	0.0284
		22.6	542	0.258
		340	352	0.836
		885	901	1.164
		1810	1838	1.527
		2700	2720	1.828
		3420	3431	1.993

TEA = triethanolamine

*Depository for Unpublished Data, CISTI, National Research Council of Canada, Ottawa, Ontario, K1A 0S2, Canada.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The equilibrium cell consisted of a Jerguson gauge (Model 19-T-20) with a 250 cm^3 tubular gas reservoir mounted at the top. Gas was circulated with a magnetic pump (1) Temperatures were measured by thermopiles and controlled to ± 0.5 K by a air-bath. Pressures were measured by a Heise bourdon tube gauge. The cell was charged with TEA solution and H_2S to the desired pressure. If necessary nitrogen was added to ensure that the total pressure was above atmospheric. Gases were circulated for at least 8 h. The gas phase was analysed by gas chromatography. H_2S in the liquid phase was determined by iodimetry and amine by titration with H_2SO_4.

SOURCE AND PURITY OF MATERIALS:

1. from Linde & Matheson; purity > 99%
2. distilled.
3. from Fisher Scientific; purity 99.4%

ESTIMATED ERROR:

$\delta T/K$ = ± 0.5 (authors)

REFERENCES:

1. Ruska, W.E.A.; Hurt, L.J.; Kobayashi, R. *Rev.Sci.Instrum.* 1970, *41*, 1444.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. 2,2',2"-Nitrilotrisethanol (*triethanolamine*); $C_6H_{15}NO_3$; [102-71-6]	Jou, F-Y.; Mather, A.E.; Otto, F.D. *Can.J.Chem.Eng.* 1985, *63*, 122-125.

EXPERIMENTAL VALUES:

Conc. of TEA /mol dm^{-3}	T/K	P_{H_2S} /kPa	Total pressure /kPa	Mole ratio in liquid H_2S/TEA
2.0	348.2	0.0238	480	0.00402
		0.821	442	0.0237
		8.54	487	0.0813
		197	233	0.431
		1010	1045	0.960
		2250	2286	1.361
		4110	4162	1.776
		5500	5562	2.076
2.0	373.2	0.0172	387	0.00205
		0.0585	343	0.00328
		0.590	528	0.0125
		1.35	425	0.0193
		4.88	490	0.0401
		72.7	410	0.176
		708	800	0.620
		3120	3231	1.334
		4940	5052	1.651
		6160	6272	1.912
2.0	398.2	0.0466	492	0.00174
		0.095	490	0.00220
		0.383	501	0.00464
		1.45	452	0.0114
		11.4	480	0.036
		165	391	0.203
		1730	1955	0.760
		3550	3775	1.153
		5190	5417	1.465
		6270	6505	1.627
3.5	298.2	0.0124	334	0.0070
		0.219	478	0.0256
		16.0	287	0.242
		299	320	0.881
		729	732	1.161
		1500	1504	1.493
		1984	1988	1.670
3.5	323.2	0.00832	349	0.00236
		0.33	358	0.0163
		3.40	314	0.0638
		35.2	499	0.224
		466	478	0.780
		1740	1759	1.229
		2500	2508	1.404
		3430	3436	1.641
3.5	348.2	0.0281	344	0.00241
		0.372	473	0.0107
		12.5	409	0.0746
		57.8	485	0.172
		494.0	528	0.509
		2000	2042	1.022
		3270	3306	1.281
		4290	4329	1.506
		5530	5568	1.714

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Water; H_2O; [7732-18-5] 3. 2,2',2"-Nitrilotrisethanol, (*triethanolamine*); $C_6H_{15}NO_3$; [102-71-6]	Jou, F-Y.; Mather, A.E.; Otto, F.D. *Can.J.Chem.Eng.* 1985, *63*, 122-125.

EXPERIMENTAL VALUES:

Conc. of TEA /mol dm^{-3}	T/K	P_{H_2S} /kPa	Total pressure /kPa	Mole ratio in liquid H_2S/TEA
3.5	373.2	0.0418	442	0.00154
		1.09	452	0.00975
		19.1	489	0.0485
		329	412	0.274
		1730	1811	0.710
		3020	3122	0.992
		4690	4797	1.224
		5910	6024	1.382
3.5	398.2	0.0183	453	0.00545
		0.886	511	0.00498
		10.3	652	0.0224
		137	344	0.101
		1190	1402	0.416
		3570	3786	0.844
		5440	5648	1.098
5.0	298.2	0.0171	349	0.00514
		0.201	452	0.0202
		2.30	509	0.0739
		66.8	473	0.406
		312.0	314	0.798
		1090.0	1100	1.285
		1580.0	1579	1.440
		1990.0	1997	1.600
5.0	323.2	0.0315	344	0.00376
		0.995	479	0.0243
		9.97	427	0.0842
		361.0	369	0.567
		1660.0	1686	1.135
		2760.0	2769	1.432
		3430.0	3444	1.587
5.0	348.2	0.0152	290	0.00099
		0.158	492	0.00386
		2.13	321	0.0167
		73.9	325	0.133
		279.0	693	0.296
		1340.0	1370	0.701
		4060.0	4092	1.290
		5490.0	5526	1.566
5.0	373.2	0.0269	403	0.00069
		0.381	487	0.00298
		6.07	476	0.0160
		324.0	393	0.178
		1100.0	1170	0.421
		4050.0	4126	0.922
		5450.0	5519	1.097
5.0	398.2	0.0872	438	0.00074
		1.84	496	0.00456
		45.7	513	0.0354
		296.0	469	0.128
		2480.0	2657	0.483
		5450.0	5622	0.782

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. 1,1'-Iminobis-2-Propanol, (Diisopropanolamine); $C_6H_{15}NO_2$; [110-97-4] 3. Water; H_2O; [7732-18-5]	Isaacs, E.E.; Otto, F.D. Mather, A.E. *J. Chem. Engng. Data.* 1977, *22*, 71-3.
VARIABLES:	PREPARED BY:
Temperature, pressure, composition	C.L. Young.

EXPERIMENTAL VALUES:

T/K	Conc. of 2 /mol dm^{-3}	*P*/kPa	α
313.15	2.5	2152.5	1.414
		1199.6	1.215
		903.2	1.092
		450.9	0.962
		179.9	0.824
		97.2	0.750
		73.7	0.728
		72.3	0.706
		47.5	0.671
		27.5	0.562
		22.7	0.473
		15.8	0.409
		9.6	0.349
		6.8	0.289
		2.0	0.132
373.15	2.5	3207.4	1.249
		2209.7	1.100
		880.4	0.849
		462.6	0.651
		211.6	0.478
		155.8	0.388
		82.7	0.300
		50.4	0.221
		31.6	0.176
		38.1	0.167
		12.1	0.098

α = mole ratio in liquid phase H_2S/ Diisopropanolamine.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Recirculating vapor flow apparatus with Jerguson liquid level gauge cell and magnetic pump. Nitrogen added to vapor to increase pressure to at least 600 kPa. Vapor analysed by gas chromatography. Partial pressure of hydrogen sulfide calculated from pressure and composition. Liquid samples passed into sulfuric acid. Hydrogen sulfide collected in buret.	No details given.
	ESTIMATED ERROR: $\delta T/K = \pm 0.5$; $\delta P/kPa = \pm 1\%$; $\delta\alpha = \pm 4\%$ or ±0.02 whichever is greater.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-86-4] 2. Water; H_2O; [7732-18-5] 3. 1,1'-iminobis-2-propanol, (*diisopropanolamine*); $C_6H_{15}NO_2$; [110-97-4] 4. Tetrahydrothiophene, 1,1-dioxide, (*sulfolane*); $C_4H_8O_2S$; [126-33-0]	Isaacs, E.E; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data* 1977, 22, 317-319.
VARIABLES:	PREPARED BY:
Temperature, concentration	P.G.T. Fogg

EXPERIMENTAL VALUES:

The solvent consisted of 40 wt% of diisopropanolamine (DIPA), 40 wt% of sulfolane and 20 wt% of water. The authors indicated that this is a typical *Sulfinol* solution as used in the *Sulfinol* process patented by Shell.

T/K	P_{H_2S}/kPa	Mole ratio in liquid H_2S/DIPA	T/K	P_{H_2S}/kPa	Mole ratio in liquid H_2S/DIPA
313.2	4.6	0.152	373.2	63.7	0.074
	5.2	0.175		76.4	0.083
	13.8	0.297		71.7	0.119
	20.3	0.308		165.0	0.150
	25.3	0.424		262.1	0.243
	55.9	0.582		419.5	0.352
	277.6	0.901		658.7	0.510
	502.3	1.091		1122.6	0.733
	585.3	1.173		1748.8	0.929
	865.6	1.492		2405.9	1.283
	1081.9	1.598		3862.3	1.988
	1410.3	2.022			
	2051.2	3.339			
	2291.3	4.429			

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The equilibrium cell consisted of a Jerguson gage with a 250 cm^3 tubular gas reservoir mounted at the top. Gas was circulated with a magnetic pump (1). Temperatures were measured by thermopiles and controlled to ± 0.5 °C by an air-bath. Pressures were measured by a Heise bourdon tube gage. The cell was purged with nitrogen and charged with 50-150 cm^3 of *Sulfinol* solution. An appropriate quantity of hydrogen sulfide was then added. Nitrogen was added, when necessary, to ensure that the total pressure was above 350 kPa. Gases were circulated for at least 8 h. The gas phase was analysed by gas chromatography and the liquid phase by treating samples with H_2SO_4 (2.5 mol dm-3), recording P-V-T data for the gases evolved and analysing them by gas chromatography.	3. minimum purity 97% 4. minimum purity 99% ESTIMATED ERROR: δT/K = ± 0.5 δmole ratio = ± 0.02 or ± 4% whichever is the larger. (authors) REFERENCES: 1. Ruska, W.E.A.; Hurt, L.J.; Kobayashi, R. *Rev. Sci. Instrum.* 1979, *41*, 1444.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-Aminoethanol; (*monoethanolamine*); C_2H_7NO; [141-43-5]	Leibush, A.G.; Shneerson, A.L. *Zhur. Prik. Khim.* 1950, *23*, 145-152. *J. Applied Chem. USSR* 1950, *23*, 149-157.
VARIABLES:	PREPARED BY:
Temperature, pressure, composition of liquid phase	P.G.T. Fogg

EXPERIMENTAL VALUES:

Concentration of monoethanolamine (MEA) = 2.5 mol dm^{-3}; T/K = 298.2

P_{H_2S}/mmHg	P_{CO_2}/mmHg	Mole ratios in liquid phase H_2S/MEA	CO_2/MEA
1.94	0.00	0.265	0.025
2.78	0.00	0.265	0.092
4.1	0.00	0.270	0.155
7.15	0.26	0.268	0.255
20.2	1.77	0.262	0.311
70.4	75	0.262	0.385
0.69	0.00	0.145	0.029
2.08	0.00	0.145	0.216
3.62	0.26	0.145	0.300
19.8	4.57	0.145	0.416

760 mmHg = 1 atm = 1.01325 bar

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

N_2 or a mixture of N_2 & H_2S was passed successively through two absorbers containing H_2S & CO_2 dissolved in an aqueous solution of MEA. The H_2S in the emerging gas was passed into cadmium or zinc acetate solution and the precipitated sulfides estimated by iodimetry. Hydrogen sulfide in the MEA solutions was also determined by iodimetry. CO_2 in the gas phase was absorbed in standard baryta solution after removal of H_2S by acidified potassium permanganate solution. CO_2 in the liquid phase was estimated by reaction with 30% H_2SO_4, removal of evolved H_2S by permanganate and absorption of evolved CO_2 in standard baryta solution.

SOURCE AND PURITY OF MATERIALS:

1. From H_2SO_4 & Na_2S: no SO_2 detected

4. Contained 0.6 to 1.5 volumes of CO_2 per unit volume of solution; less than 1% by weight of total impurities.

ESTIMATED ERROR:

$\delta T/K = \pm 0.1$ (authors)

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-Aminoethanol, (*monoethanolamine*); C_2H_7NO; [141-43-5]	Muhlbauer, H.G.; Monaghan, P.R. *Oil & Gas J.* 1957, *55(17)*, 139-145.
VARIABLES: Temperature, pressure, composition of liquid phase.	PREPARED BY: P.G.T. Fogg

EXPERIMENTAL VALUES:

T/K	Conc. of MEA /mol dm^{-3}	P_{H_2S} /mmHg	P_{CO_2} /mmHg	Mole ratio in liquid H_2S/MEA	CO_2/MEA
298.15	2.52	0.09	0.16	0.112	0.100
	2.60	0.48	0.52	0.022	0.333
	2.56	0.82	0.24	0.038	0.309
	2.50	0.99	0	0.196	0
	2.53	1.18	0.10	0.114	0.174
	2.49	1.26	0	0.272	0
	2.62	1.27	0.40	0.043	0.347
	2.55	1.81	0.36	0.074	0.304
	2.63	1.88	0.70	0.066	0.348
	2.53	1.94	0.21	0.146	0.174
	2.51	2.23	0	0.308	0
	2.53	2.49	0.16	0.226	0.100
	2.50	3.37	0	0.323	0
	2.59	3.38	13.0	0.019	0.487
	2.54	4.15	0.47	0.120	0.302
	2.53	4.23	0.23	0.220	0.175

MEA = monoethanolamine

760 mmHg = 1 atm = 1.01325 bar

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Data for 25 °C were obtained by passing a mixture of N_2, CO_2 & H_2S through two thermostatted wash-bottles in series containing monoethanolamine plus dissolved CO_2 & H_2S. After 4 h liquid samples were analysed by chemical methods and gas samples by chromatography. Data for 100 °C were obtained by agitating gas and liquid samples in a thermostatted steel bomb for about 1 h before analysis of the two phases.

SOURCE AND PURITY OF MATERIALS:

ESTIMATED ERROR:

$\delta T/K$ = ± 0.02 (authors)

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-Aminoethanol, (*monoethanolamine*); C_2H_7NO; [141-43-5]	Muhlbauer, H.G.; Monaghan, P.R. *Oil & Gas J.* 1957, *55(17)*, 139-145.

EXPERIMENTAL VALUES:

T/K	Conc. of MEA /mol dm^{-3}	P_{H_2S} /mmHg	P_{CO_2} /mmHg	Mole ratio in liquid H_2S/MEA	Mole ratio in liquid CO_2/MEA
298.15	2.52	4.40	0.15	0.280	0.104
	2.62	4.80	1.06	0.090	0.356
	2.60	6.0	0.60	0.155	0.286
	2.53	7.41	0.31	0.372	0.108
	2.47	7.67	0	0.450	0
	2.53	7.8	0.34	0.284	0.172
	2.63	8.3	1.70	0.112	0.352
	2.59	9.28	19.5	0.036	0.472
	2.55	10.9	0.78	0.185	0.296
	2.51	11.4	0.27	0.449	0.105
	2.62	13.9	2.6	0.134	0.346
	2.44	16.5	0	0.597	0
	2.59	17.3	24.4	0.057	0.445
	2.52	17.4	0.29	0.384	0.165
	2.51	27.0	0.46	0.543	0.098
	2.58	28.0	33.5	0.075	0.447
	2.53	29.2	2.27	0.256	0.290
	2.54	30.4	7.50	0.171	0.357
	2.46	31.0	0	0.706	0
	2.52	36.0	1.06	0.451	0.180
	2.63	38.7	49.2	0.092	0.464
	2.58	47.6	47.5	0.098	0.430
	2.51	52.2	1.13	0.488	0.172
	2.50	52.8	0.82	0.614	0.112
	2.45	53.2	0	0.786	0
	2.53	55.6	13.8	0.214	0.358
	2.56	59.5	34.1	0.142	0.410
	2.62	65.2	66.8	0.117	0.471
	2.52	68.6	8.61	0.289	0.307
	2.53	92.7	32.4	0.234	0.364
	2.52	93.8	11.4	0.336	0.292
	2.61	109.4	104	0.138	0.460
	2.42	111	0	0.866	0
	2.49	140	2.76	0.684	0.112
	2.53	142	19.9	0.364	0.286
	2.49	163	9.31	0.556	0.181
	2.42	165.2	0	0.913	0
	2.52	166.2	55.4	0.266	0.357
	2.61	172	157	0.170	0.456
	2.56	230	83.8	0.300	0.350
	2.42	306	0	0.934	0
	2.52	330	62.4	0.403	0.280
	2.53	340	94.2	0.383	0.317
	2.49	342	19.6	0.614	0.167
	2.49	443	16.0	0.742	0.104
	2.47	711	20.4	0.820	0.108
	2.41	720	0	0.939	0

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-Aminoethanol, (*monoethanolamine*); C_2H_7NO; [141-43-5]	Muhlbauer, H.G.; Monaghan, P.R. *Oil & Gas J.* 1957, *55(17)*, 139-145.

EXPERIMENTAL VALUES:

T/K	Conc. of MEA /mol dm^{-3}	P_{H_2S} /mmHg	P_{CO_2} /mmHg	Mole ratio in liquid H_2S/MEA	Mole ratio in liquid CO_2/MEA
373.15	2.45	9.2	0	0.060	0
	2.44	22.6	9.1	0.075	0.076
	2.44	24.8	0	0.102	0
	2.47	34.4	462	0.023	0.424
	2.43	50.7	14.2	0.127	0.072
	2.45	52.5	22.8	0.108	0.155
	2.45	60.9	26.1	0.113	0.156
	2.44	75.3	90.7	0.093	0.251
	2.45	76.3	500	0.043	0.413
	2.44	85.3	30.3	0.146	0.158
	2.44	87	10.3	0.188	0.076
	2.45	90	0	0.248	0
	2.44	111	289	0.079	0.344
	2.39	118	18.1	0.224	0.084
	2.43	123.8	0	0.294	0
	2.40	129	49.2	0.177	0.167
	2.44	136	104.5	0.141	0.244
	2.43	139	37.7	0.196	0.153
	2.42	151	14.5	0.262	0.074
	2.44	170	566	0.081	0.385
	2.44	195	0	0.372	0
	2.43	204	690	0.090	0.398
	2.44	219	125	0.187	0.230
	2.39	224	24.5	0.299	0.075
	2.40	228	74.9	0.236	0.168
	2.44	239	388	0.139	0.325
	2.43	241	451	0.126	0.351
	2.42	260	924	0.099	0.408
	2.44	263	0	0.420	0
	2.43	269	428	0.144	0.331
	2.39	316	28.6	0.381	0.073
	2.39	319	84.5	0.286	0.171
	2.42	324	1290	0.106	0.422
	2.43	360	179	0.252	0.229
	2.43	373	565	0.169	0.328
	2.43	397	568	0.177	0.321
	2.40	403	42.4	0.412	0.081
	2.39	410	109.0	0.326	0.172
	2.42	420	0	0.491	0
	2.42	447	0	0.511	0
	2.42	466	237	0.275	0.234
	2.42	470	643	0.191	0.324
	2.42	518	0	0.546	0
	2.42	525	740	0.198	0.333
	2.40	540	52.6	0.453	0.082
	2.42	545	829	0.193	0.339
	2.39	564	155	0.375	0.169
	2.40	632	57.1	0.489	0.083
	2.42	638	312	0.306	0.239
	2.41	644	0	0.578	0
	2.41	700	385	0.308	0.246
	2.37	742	63	0.532	0.073
	2.39	760	169	0.422	0.156
	2.40	804	0	0.639	0
	2.40	833	168	0.444	0.146
	2.40	899	0	0.649	0
	2.38	947	77.0	0.549	0.076
	2.39	952	0	0.660	0
	2.40	964	551	0.342	0.241

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. 2-Aminoethanol (Monoethanolamine); $C_2H_7NO_2$; [141-43-5] 4. Water; H_2O; [7732-18-5]	Jones, J. H.; Froning, H. R.; Claytor, E. E. Jr. *J. Chem. Engng. Data* 1959, *4*, 85-92.
VARIABLES: Temperature, pressure	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K	$P^{\S}_{H_2S}/10^5$Pa	$P^{\S}_{CO_2}/10^5$Pa	Conc. of MEA /wt%	$\alpha^{\dagger}_{H_2S}$	$\alpha^{\dagger}_{CO_2}$
313.15	0.0015	0.0019	15.3	0.0164	0.387
	0.0028	0.0041		0.0214	0.424
	0.0029	0.0025		0.0282	0.400
	0.0069	0.0179		0.0248	0.480
	0.0072	0.0177		0.0272	0.472
	0.0076	0.0033		0.0612	0.392
	0.0077	0.0072		0.0436	0.436
	0.0101	0.0019		0.101	0.349
	0.0116	0.579		0.0056	0.652
	0.0117	0.0576		0.0199	0.527
	0.0203	0.0349		0.0488	0.488
	0.0224	0.0100		0.106	0.412
	0.0261	0.607		0.0123	0.658
	0.0573	0.0237		0.149	0.424
	0.0744	0.0040		0.361	0.200
	0.1019	0.0104		0.351	0.293
	0.144	0.0247		0.314	0.335
	0.156	0.0608		0.235	0.415

(cont.)

$^{\S}P_{H_2S}$ partial pressure of hydrogen sulfide

$^{\S}P_{CO_2}$ partial pressure of carbon dioxide

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Rocking static equilibrium cell fitted with liquid and gas sampling ports. Pressure measured with Bourdon gauge. Concentration of carbon dioxide and hydrogen sulfide in gas phase determined by mass spectrometry. Concentration of hydrogen sulfide in liquid determined by iodimetry and concentration of carbon dioxide in liquid determined by precipitation as barium carbonate or by stripping out carbon dioxide and reabsorbing on a solid absorbent. Details in source.

SOURCE AND PURITY OF MATERIALS:

1. Bone dry sample.
2. Purity 99.9 mole per cent. Mass spectrometry showed trace amounts of methyl mercaptan, carbon disulfide and carbon dioxide.
3. Purity 99.3 mole per cent.
4. Distilled.

ESTIMATED ERROR:

$\delta T/K = \pm 0.1$ at 313.15 K, ± 0.5 at 413.15 K; $\delta P/kPa = \pm 1\%$; $\delta\alpha = \pm 3\%$ (estimated by compiler).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. 2-Aminoethanol (Monoethanolamine); $C_2H_7NO_2$; [141-43-5] 4. Water; H_2O; [7732-18-5]	Jones, J. H.; Froning, H. R.; Claytor, E. E. Jr. *J. Chem. Engng. Data* 1959, *4*, 85-92.

EXPERIMENTAL VALUES:

T/K	$P^{\S}_{H_2S}/10^5$Pa	$P^{\S}_{CO_2}/10^5$Pa	Conc. of MEA /wt%	$\alpha^{\dagger}_{H_2S}$	$\alpha^{\dagger}_{CO_2}$
313.15	0.171	0.696	15.3	0.0712	0.620
	0.175	0.709		0.0716	0.620
	0.449	0.197		0.327	0.414
	1.123	0.470		0.425	0.406
	1.879	0.771		0.495	0.398
333.15	0.0013	0.0143		0.0074	0.406
	0.0069	0.0037		0.0597	0.290
	0.0079	0.0011		0.107	0.166
	0.0136	0.580		0.0070	0.594
	0.0192	0.173		0.0200	0.529
	0.0292	0.0559		0.0569	0.452
	0.0309	0.0189		0.0878	0.381
	0.0953	0.0128		0.255	0.274
	0.1069	1.004		0.0396	0.606
	0.528	0.499		0.238	0.460
	1.995	4.672		0.235	0.570
373.15	0.0037	0.0765		0.0053	0.293
	0.0069	0.429		0.0050	0.420
	0.0093	0.0173		0.0272	0.171
	0.0205	0.375		0.0140	0.412
	0.0341	0.0791		0.0460	0.272
	0.0500	0.760		0.0245	0.456
	0.0765	0.0403		0.112	0.180
	0.199	0.1033		0.178	0.238
	0.373	0.853		0.140	0.405
	0.623	0.131		0.366	0.175
393.15	0.0088	0.437		0.0059	0.322
	0.0135	0.010		0.0405	0.0393
	0.0197	0.0385		0.0344	0.106
	0.0204	0.0884		0.0264	0.178
	0.0524	0.381		0.0361	0.298
	0.0972	0.188		0.104	0.202
	0.1033	0.205		0.104	0.200
	0.144	0.421		0.0940	0.280

$\alpha^{\dagger}_{H_2S}$ = mole H_2S/mole 2-Aminoethanol

$\alpha^{\dagger}_{CO_2}$ = mole CO_2/mole 2-Aminoethanol

MEA = 2-Aminoethanol (monoethanolamine)

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9]	Jones, J. H.; Froning, H. R.;
2. Hydrogen sulfide; H_2S; [7783-06-4]	Claytor, E. E. Jr.
3. 2-Aminoethanol (Monoethanolamine); $C_2H_7NO_2$; [141-43-5]	*J. Chem. Engng. Data*
4. Water; H_2O; [7732-18-5]	1959, *4*, 85-92.

EXPERIMENTAL VALUES: Smoothed data for 15.3 wt% of MEA

$P^{\S}_{H_2S}$ /mmHg	Moles H_2S per Mole MEA					
	R_L* = 0.01	R_L = 0.05	R_L = 0.10	R_L = 0.50	R_L = 1.0	R_L = ∞
			T/K = 313.15			
1	0.0047	0.0190	0.0327	0.0863	0.1140	0.128
3	0.0055	0.0225	0.0395	0.1160	0.1630	0.212
10	0.0066	0.0263	0.0468	0.1510	0.2220	0.374
30	0.0077	0.0301	0.0540	0.1820	0.2720	0.579
100	0.0092	0.0351	0.0619	0.2120	0.3260	0.802
300	-	0.0399	0.0710	0.2350	0.3720	0.931
1000	-	0.0464	0.0830	0.2700	0.4250	1.00
			T/K = 333.15			
1	0.0037	0.0145	0.0237	0.0650	0.0775	0.085
3	0.0046	0.0184	0.0304	0.0845	0.1130	0.137
10	0.0059	0.0234	0.0396	0.1125	0.1600	0.240
30	0.0074	0.0288	0.0492	0.1450	0.2120	0.386
100	0.0092	0.0355	0.0605	0.1840	0.2750	0.600
300	-	0.0431	0.0730	0.2190	0.3230	0.790
1000	-	-	0.0910	0.2620	0.3840	0.970
			T/K = 373.15			
1	0.0024	0.0067	0.0103	0.0220	0.0247	0.029
3	0.0036	0.0101	0.0155	0.0340	0.0407	0.050
10	0.0056	0.0155	0.0239	0.0540	0.0675	0.091
30	0.0082	0.0228	0.0349	0.0810	0.1040	0.160
100	-	0.0343	0.0524	0.1250	0.1650	0.279
300	-	0.0503	0.0762	0.1800	0.2430	0.439
1000	-	-	-	0.2480	0.3340	0.680
			T/K = 413.15			
1	0.0016	0.0031	0.0040	0.0072	0.0088	0.012
3	0.0030	0.0059	0.0078	0.0146	0.0184	0.025
10	0.0059	0.0120	0.0163	0.0312	0.0393	0.056
30	0.0110	0.0228	0.0308	0.0590	0.0750	0.101
100	-	0.0424	0.0558	0.1075	0.1400	0.182
300	-	-	0.0935	0.1800	0.2325	0.312
1000	-	-	-	0.3120	0.4050	0.520

R_L* moles H_2S/mole CO_2

§P_{H_2S} partial pressure of hydrogen sulfide

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9]	Jones, J. H.; Froning, H. R.;
2. Hydrogen sulfide; H_2S; [7783-06-4]	Claytor, E. E. Jr.
3. 2-Aminoethanol (Monoethanolamine); $C_2H_7NO_2$; [141-43-5]	*J. Chem. Engng. Data*
4. Water; H_2O; [7732-18-5]	1959, *4*, 85-92.

EXPERIMENTAL VALUES: Smoothed data for 15.3 wt% of MEA

$p^{\S}_{H_2S}$ /mmHg	Moles H_2S per Mole MEA						
	R_V* = 0.01	R_V = 0.05	R_V = 0.10	R_V = 0.50	R_V = 1.0	R_V = 10	R_V = ∞
			T/K = 313.15				
1	0.0013	0.0035	0.0050	0.0120	0.0178	0.0500	0.128
3	0.0022	0.0057	0.0084	0.0208	0.0300	0.0825	0.212
10	0.0039	0.0100	0.0149	0.0380	0.0540	0.1450	0.374
30	0.0064	0.0166	0.0250	0.0630	0.0910	0.2400	0.579
100	0.0107	0.0279	0.0415	0.1050	0.1510	0.3900	0.802
300	0.0167	0.0430	0.0638	0.1550	0.2200	0.5500	0.931
1000	-	0.0625	0.0920	0.2170	0.3050	0.7300	1.00
			T/K = 333.15				
1	0.0019	0.0049	0.0070	0.0172	0.0239	0.0643	0.085
3	0.0029	0.0074	0.0108	0.0260	0.0363	0.0940	0.137
10	0.0044	0.0115	0.0172	0.0414	0.0565	0.1420	0.240
30	0.0066	0.0175	0.0260	0.0621	0.0850	0.2080	0.386
100	0.0102	0.0272	0.0405	0.0980	0.1360	0.3140	0.600
300	-	0.0410	0.0610	0.1480	0.2040	0.4320	0.790
1000	-	-	0.0940	0.2170	0.2900	0.5500	0.970
			T/K = 373.15				
1	0.0017	0.0034	0.0046	0.0095	0.0118	0.0224	0.029
3	0.0030	0.0061	0.0082	0.0163	0.0207	0.0390	0.050
10	0.0056	0.0114	0.0155	0.0301	0.0381	0.0720	0.091
30	0.0098	0.0200	0.0270	0.0525	0.0665	0.1260	0.160
100	0.0176	0.0360	0.0483	0.0945	0.1200	0.2250	0.270
300	-	0.0585	0.0780	0.1510	0.1910	0.3700	0.439
1000	-	-	-	0.2250	0.2880	0.5820	0.680
			T/K = 413.15				
1	0.0013	0.0024	0.0031	0.0058	0.0078	0.0115	0.012
3	0.0026	0.0050	0.0065	0.0122	0.0160	0.0245	0.025
10	0.0056	0.0107	0.0140	0.0265	0.0352	0.0520	0.056
30	0.0110	0.0210	0.0278	0.0535	0.0705	0.0980	0.101
100	-	0.0429	0.0573	0.1110	0.1380	0.1800	0.182
300	-	-	0.1010	0.1850	0.2250	0.3020	0.312
1000	-	-	-	0.3000	0.3630	0.5000	0.520

$^{\S}P_{H_2S}$ partial pressure of hydrogen sulfide

$^{\S}P_{CO_2}$ partial pressure of carbon dioxide

R_V* P_{H_2S}/P_{CO_2}

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. 2-Aminoethanol, (Monoethanolamine); C_2H_7NO; [141-43-5] 4. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data*, 1975, *20*, 161-163.
VARIABLES:	PREPARED BY:
Temperature, pressure, composition	C.L. Young

EXPERIMENTAL VALUES: Solubility of H_2S-CO_2 Mixtures in 5.0 mol dm^{-3} Monoethanolamine

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	H_2S/MEA	CO_2/MEA[a]
313.15	622.8	3.1	0.962	0.014
	588.4	3.0	0.923	0.014
	757.0	20.5	0.887	0.0459
	883.9	46.2	0.801	0.0868
	961.8	92.4	0.758	0.134
	1064.5	137.9	0.729	0.164
	1150.7	179.3	0.716	0.194
	1254.8	246.1	0.680	0.236
	1423.7	470.2	0.631	0.302
	1611.3	710.1	0.584	0.366
	1634.0	1213.5	0.505	0.430
	1730.6	1729.9	0.438	0.522
	1489.3	3564.6	0.276	0.749
	1372.0	4226.4	0.215	0.799
	384.0	952.2	0.150	0.640
	418.5	1200.4	0.139	0.670
	457.1	1402.4	0.128	0.688
	589.5	1890.5	0.110	0.715
	456.4	5332.4	0.052	0.894
	180.6	189.6	0.259	0.431
	379.9	193.7	0.243	0.492
	451.6	337.2	0.220	0.535
	324.0	297.9	0.157	0.602
	157.2	568.1	0.077	0.680
	168.2	857.7	0.068	0.698

[a] α

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Recirculating vapor flow apparatus with Jerguson liquid level gauge and magnetic pump, nitrogen added to vapor to increase pressure to at least 200 kPa. Vapor analysed by gas chromatography. Partial pressure of carbon dioxide and hydrogen sulfide calculated from pressure and vapor pressure of monoethanolamine. Liquid samples passed into sulfuric acid. Carbon dioxide and hydrogen sulfide collected in buret and then analysed by gas chromatography.

SOURCE AND PURITY OF MATERIALS:

1. Purity 99.7 mole per cent.
2. Purity 99.9 mole per cent.
3. Purity 99.5 mole per cent.
4. Distilled.

Nitrogen used as carrier, purity 99.99 mole per cent.

ESTIMATED ERROR:

$\delta T/K = \pm 0.5$; $\delta P/kPa = \pm 1\%$;

$\delta\alpha = \pm 3\text{-}5\%$.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon Dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. 2-Aminoethanol, (Monoethanolamine); C_2H_7NO; [141-43-5] 4. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data.* 1975,*20*,161-163

EXPERIMENTAL VALUES: Solubility of H_2S-CO_2 Mixtures in 5.0 mol dm^{-3} Monoethanolamine

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	α H_2S/MEA	α CO_2/MEA
313.15	184.1	1206.6	0.057	0.740
	243.4	2582.8	0.043	0.817
	290.3	3473.6	0.037	0.857
	261.3	4239.6	0.029	0.902
	216.5	5359.3	0.024	0.941
	9.9	437.1	0.0044	0.674
	21.9	638.4	0.0036	0.746
	25.2	890.1	0.0027	0.746
	153.1	27.2	0.348	0.294
	233.7	65.8	0.356	0.317
	278.5	97.9	0.341	0.332
	146.2	39.3	0.304	0.326
	157.9	43.8	0.290	0.334
	104.1	26.2	0.263	0.327
	69.6	19.1	0.272	0.339
	75.8	17.6	0.249	0.336
	65.1	14.2	0.325	0.245
	69.6	12.3	0.259	0.319
	167.0	15.2	0.354	0.283
	26.0	3.1	0.366	0.196
	24.8	0.35	0.556	0.053
	46.4	0.62	0.631	0.043
	69.3	0.74	0.693	0.037
	144.8	1.2	0.764	0.034
	152.4	1.3	0.710	0.040
	280.6	7.0	0.716	0.088
	516.4	56.2	0.653	0.167
	229.6	6.3	0.664	0.101
	433.7	27.9	0.687	0.138
	307.5	9.2	0.733	0.067
	313.7	29.3	0.599	0.141
	418.5	68.3	0.522	0.245
	617.1	215.8	0.473	0.322
	917.0	937.0	0.348	0.517
	2104.3	994.2	0.595	0.398
	2525.5	1399.6	0.439	0.528
	2054.6	3397.0	0.340	0.680
	2633.8	3176.4	0.416	0.601
	1390.7	64.1	0.900	0.090
	2755.8	89.6	1.015	0.080
	2922.7	1219.0	0.900	0.250
	70.3	1.9	0.595	0.111
	255.8	27.4	0.537	0.181
	314.4	56.9	0.507	0.283
	383.3	126.2	0.398	0.338
	5.8	0.9	0.312	0.199
	4.9	0.65	0.216	0.256
	8.4	0.76	0.203	0.302
	15.9	2.0	0.215	0.325
	26.8	5.0	0.213	0.343
	48.3	15.5	0.209	0.376
	58.7	21.9	0.214	0.410
	45.1	21.2	0.220	0.365
	3.3	2.6	0.073	0.419
	10.0	11.2	0.049	0.478
	1.1	0.13	0.121	0.239
	1.4	0.33	0.116	0.281
	2.9	0.6	0.122	0.322
	0.0	0.06	0.000	0.218
	6.1	1.5	0.097	0.388

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. 2-Aminoethanol, (Monoethanolamine); C_2H_7NO; [141-43-5] 4. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data.* 1975,*20*, 161-163.

EXPERIMENTAL VALUES: Solubility of H_2S-CO_2 Mixtures in 5.0 mol dm^{-3} Monoethanolamine.

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	α H_2S/MEA	α CO_2/MEA
373.15	31.1	89.3	0.048	0.408
	31.6	123.3	0.039	0.427
	22.1	103.2	0.030	0.422
	192.4	345.4	0.147	0.417
	251.7	421.3	0.152	0.433
	238.6	812.9	0.125	0.474
	211.0	1392.0	0.086	0.532
	241.3	2444.2	0.067	0.588
	241.3	5564.0	0.040	0.686
	271.0	32.5	0.375	0.194
	479.9	416.4	0.294	0.371
	618.4	1605.1	0.183	0.494
	613.6	3230.2	0.127	0.599
	553.6	5137.9	0.124	0.611
	527.4	68.9	0.472	0.173
	1114.9	1246.6	0.358	0.412
	1030.8	4433.3	0.158	0.587
	1438.2	75.5	0.734	0.079
	1477.5	332.3	0.623	0.187
	1565.1	1320.3	0.402	0.333
	1406.5	5360.6	0.227	0.517
	2277.3	187.5	0.753	0.091
	2118.0	1058.3	0.571	0.252
	2096.0	1954.6	0.483	0.352
	2020.1	3802.4	0.350	0.460
	3301.9	62.1	0.884	0.029
	3501.1	639.1	0.808	0.133
	3416.3	1978.8	0.544	0.330
	55.4	0.6	0.297	0.028
	48.7	1.1	0.289	0.035
	49.0	1.3	0.276	0.044
	66.3	4.4	0.274	0.118
	107.6	19.3	0.276	0.218
	8.0	7.7	0.064	0.242
	12.1	10.6	0.059	0.287
	40.3	70.9	0.063	0.398
	141.7	262.7	0.115	0.439
	trace	0.04	0.006	0.027
	20.3	5.0	0.127	0.180

α = Mole ratio in liquid phase.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. Water; H_2O; [7732-18-5] 4. 2-Aminoethanol, (Monoethanolamine) C_2H_7NO; [141-43-5]	Lawson, J.D.; Garst, A.W. *J. Chem. Engng. Data*, 1976, *21*, 20-30.
VARIABLES:	PREPARED BY:
Temperature, pressure	C.L. Young

EXPERIMENTAL VALUES:

T/K	$P^{\dagger}_{H_2S}$/bar	$P^{\dagger}_{CO_2}$/bar	Conc. of MEA /wt%	Liquid comp. mol/mol amine H_2S	Liquid comp. mol/mol amine CO_2
298.15	0.0068	-	15.2	0.155	0.413
	0.193	0.031		0.303	0.398
	0.125	-		0.431	0.321
	1.592	0.469		0.533	0.505
313.15	0.000055	-		0.0059	0.174
	0.00015	-		0.0135	0.191
	0.053	-		0.367	0.233
	1.985	-		0.493	0.394
333.15	0.00023	-		0.0057	0.176
	0.0032	-		0.0064	0.386
	0.00071	-		0.0130	0.191
	1.212	1.985		0.244	0.595
373.15	0.011	0.289		0.0054	0.389
	0.00081	-		0.0057	0.167
	0.00028	0.020		0.0073	0.186
	0.00017	-		0.0131	0.194
	0.023	0.040		0.0411	0.233
	0.033	-		0.0757	0.082
393.15	0.037	0.016		0.0545	0.0675
	0.334	0.340		0.133	0.166

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Rocking equilibrium cell fitted with liquid and vapor sampling valves. Pressure measured with Bourdon gauge. Cell charged with amine then gases and methane added as an inert gas to "achieve the desired total pressure". Vapor phases analysed by mass spectrometry. Liquid samples analysed by electrometric titration, details in source. Additional analytical methods were used for some samples.

SOURCE AND PURITY OF MATERIALS:

1. Purity 99.99 mole per cent.
2. Purity 99.5 mole per cent.
3. Distilled.
4. Commercial sample purity better than 99 mole per cent as determined by acid titration.

ESTIMATED ERROR:

$\delta T/K = \pm 0.15$ at 293K increasing to ± 0.5 at 393K; $\delta P/bar = \pm 0.5\%$ (liquid comp) = $\pm 3\%$.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. Water; H_2O; [7732-18-5] 4. 2-Aminoethanol, (Monoethanolamine); C_2H_7NO; [141-43-5]	Lawson, J.D. and Garst, A.W. *J. Chem. Engng. Data*, 1976, *21*, 20-30.

EXPERIMENTAL VALUES:

T/K	$P^+_{H_2S}$/bar	$P^+_{CO_2}$/bar	Conc. of MEA /wt%	Liquid comp. mol/mol amine H_2S	Liquid comp. mol/mol amine CO_2
310.93	0.00005	-	30	0.0128	0.119
	0.086	-		0.197	0.331
	0.826	0.233		0.277	0.405
338.71	0.00017	-		0.0128	0.113
	0.213	-		0.205	0.324
	1.732	0.826		0.291	0.403
366.48	0.0043	-		0.0130	0.116
	0.626	-		0.196	0.304
	2.891	2.291		0.280	0.392

† partial pressure

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-Aminoethanol (*monoethanolamine*) C_2H_7NO ; [141-43-5]	Lee, J.I.; Otto, F.D.; Mather,A.E. *Can. J. Chem. Eng.* 1976, *54*, 214-219. (Original data deposited in the National Depository of Unpublished Data, Ottawa, Canada)*
VARIABLES:	PREPARED BY:
Temperature, pressure, composition	P.G.T. Fogg

EXPERIMENTAL VALUES:

Concentration of monoethanolamine (MEA) = 2.5 kmol m^{-3} (2.5 mol dm^{-3})

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	Mole ratio in the liquid H_2S/MEA	CO_2/MEA
313.2	234	117	0.347	0.453
	740	234	0.689	0.339
	1372	4385	0.253	1.030
	276	126.9	0.392	0.428
	1241	2013	0.429	0.731
	760	4985	0.128	1.080
	14.1	176.5	0.018	0.731
	1193	373.3	0.795	0.315
	1207	1882	0.502	0.673
	712	5102	0.150	1.090
	636	5205	0.123	1.117
	256	2096	0.062	0.978
	122	241.3	0.140	0.655
	327	135.8	0.498	0.374
	97.9	92.87	0.233	0.507
	37.7	29.85	0.170	0.494
	4.18	4.25	0.061	0.473
	46.5	27.30	0.216	0.440
	131.7	18.27	0.539	0.216
	215.1	30.27	0.615	0.197
	4.30	0.067	0.436	0.053
	12.76	0.096	0.570	0.046
	59.85	0.539	0.687	0.036
	110.3	0.082	0.815	0.004
	97.0	141.0	0.191	0.552
	80.7	137.9	0.181	0.562
	191.7	115.8	0.349	0.420
	242.7	98.6	0.468	0.355
	1.81	0.070	0.380	0.045
	0.335	0.000	0.181	0.021
	8.20	0.000	0.550	0.043
	7.39	0.000	0.552	0.049
	45.9	0.296	0.715	0.039

* National Depository of Unpublished Data, National Science Library, National Research Council, Ottawa, K1A OS2, Canada.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE	SOURCE AND PURITY OF MATERIALS
A windowed equilibrium cell was charged with the solution under test. CO_2 and H_2S were added to give appropriate pressures as measured by a bourdon gage. The vapor phase was circulated through the liquid by a magnetic pump. When equilibrium was reached samples of the liquid and gas phases were withdrawn and analysed as indicated in refs. (1) - (3).	3. distilled. 4. commercial sample; purity 99.95%
	ESTIMATED ERROR: $\delta T/K = \pm 0.5$ $\delta(CO_2/MEA)$; $\delta(H_2S/MEA) = \pm 0.02$ or $\pm 4\%$, whichever is the larger (authors)
	REFERENCES: 1. Lee, J.I.; Otto, F.D.; Mather, A.E. *J. Chem. Eng. Data* 1972, *17*, 465. 2. *id. ib.* 1973, *18*, 71. 3. *id. Can. J. Chem. Eng.* 1974, *52*, 125

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-Aminoethanol (*monoethanolamine*) C_2H_7NO; [141-43-5]	Lee, J.I.; Otto, F.D.; Mather,A.E. *Can. J. Chem. Eng.* 1976, *54*, 214-219. (Original data deposited in the National Depository of Unpublished Data, Ottawa, Canada)*

EXPERIMENTAL VALUES:

Concentration of monoethanolamine (MEA) = 2.5 kmol m^{-3} (2.5 mol dm^{-3})

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	Mole ratio in the liquid H_2S/MEA	CO_2/MEA
313.2	66.9	0.215	0.780	0.015
	56.6	0.096	0.780	0.011
	25.5	0.000	0.711	0.011
	276.1	145.1	0.486	0.349
	57.5	21.9	0.313	0.372
	54.6	7.45	0.443	0.255
	14.1	1.13	0.358	0.249
	7.65	0.548	0.317	0.248
	5.25	0.679	0.273	0.255
	4.11	1.12	0.161	0.361
	57.2	12.7	0.366	0.306
	0.333	0.000	0.147	0.112
	1.06	0.180	0.144	0.258
	3.47	1.81	0.135	0.384
	6.45	6.62	0.091	0.464
	3.79	17.0	0.038	0.549
	1.90	8.81	0.025	0.537
	0.000	16.1	0.000	0.569
	0.000	9.38	0.000	0.537
	0.000	5.14	0.000	0.522
	0.000	0.413	0.000	0.381
	0.000	0.379	0.000	0.388
	904.6	7.653	1.084	0.026
	213.0	0.916	0.863	0.012
	29.03	0.000	0.769	0.011
	4.16	0.000	0.538	0.011
	2.84	0.000	0.432	0.011
	0.261	0.000	0.162	0.005
	0.060	0.000	0.077	0.003
	16.3	0.413	0.545	0.121
	10.0	0.274	0.494	0.132
	12.3	0.792	0.429	0.193
	15.24	2.58	0.306	0.312
	4.41	0.528	0.212	0.323
	3.25	0.979	0.128	0.408
	2.07	1.83	0.090	0.437
	5.21	0.623	0.237	0.294
	3.45	0.548	0.226	0.284
	0.537	0.210	0.151	0.237
	0.723	0.137	0.146	0.238
	2024	1.24	1.366	0.001
	2035	1.24	1.351	0.001
	2565	1.24	1.493	0.001
	2551	0.785	1.441	0.001
	2413	0.000	1.482	0.000
	1620	0.000	1.320	0.000
	779.1	0.000	1.096	0.000
	758.4	0.000	1.119	0.000
	451.6	0.000	0.994	0.000
	444.7	0.000	0.994	0.000
	173.7	0.000	0.912	0.000
	172.4	0.000	0.930	0.000
	589.5	621.9	0.399	0.569
	568.8	1193	0.227	0.779
	452.3	5219	0.015	1.162
	404.0	191.0	0.440	0.409
	377.1	189.6	0.455	0.415
	643.3	912.2	0.314	0.658
	717.0	4830	0.095	1.095
	761.9	4702	0.115	1.096

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4]	Lee, J.I.; Otto, F.D.; Mather,A.E.
2. Carbon dioxide; CO_2; [124-38-9]	*Can. J. Chem. Eng.* 1976, *54*, 214-219.
3. Water; H_2O; [7732-18-5]	(Original data deposited in the National Depository of Unpublished Data, Ottawa, Canada)*
4. 2-Aminoethanol (*monoethanolamine*) C_2H_7NO; [141-43-5]	

EXPERIMENTAL VALUES:

Concentration of monoethanolamine (MEA) = 2.5 kmol m^{-3} (2.5 mol dm^{-3})

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	Mole ratio in the liquid H_2S/MEA	CO_2/MEA
313.2	1265	268.9	0.853	0.238
	1583	1520	0.621	0.595
	1578	1489	0.597	0.612
	1559	1453	0.550	0.626
	207.5	10.48	0.716	0.110
	208.9	34.47	0.594	0.214
	1460	164.8	1.003	0.131
	1433	1846	0.453	0.725
	113.8	221	0.110	0.660
	489.5	312	0.450	0.460
	66.2	228	0.061	0.694
	78.6	779	0.029	0.838
	972.1	804	0.564	0.504
	388.2	1868	0.119	0.905
	832.9	1887	0.285	0.833
	1470	4169	0.325	0.950
	1394	120.0	1.037	0.102
	1442	2306	0.494	0.721
	1222	4539	0.214	1.031
	2523	124	1.227	0.075
	2621	3285	0.604	0.761
	0.461	0.071	0.122	0.217
	0.551	0.048	0.120	0.220
	3.12	1.15	0.120	0.369
	31.7	64.8	0.086	0.569
	42.4	6.01	0.390	0.262
	65.4	13.6	0.404	0.280
	461.3	53.1	0.748	0.144
	814.3	77.91	0.876	0.117
	146.5	7.31	0.662	0.112
	132.6	2.22	0.741	0.046
	21.7	0.079	0.652	0.032
	3.72	0.000	0.477	0.003
	3.10	0.000	0.464	0.003
	0.620	0.000	0.269	0.002
	0.641	0.000	0.283	0.002
	1.44	0.000	0.382	0.002
	22.1	0.000	0.785	0.002
	12.0	0.000	0.700	0.002
	8.27	0.000	0.610	0.002
	4.96	0.000	0.573	0.002
	0.827	0.000	0.276	0.001
	0.758	0.000	0.299	0.001
	10.5	5.24	0.558	0.038
	66.6	9.17	0.496	0.241
	134.4	50.3	0.457	0.366
	102.7	7.03	0.579	0.178
	182.7	24.0	0.619	0.208
	81.4	7.93	0.482	0.208
	108.2	16.4	0.535	0.251
	38.3	5.58	0.350	0.328
	4.62	0.000	0.420	0.039
373.2	215.5	56.9	0.387	0.243
	277.2	319.2	0.309	0.401
	304.1	696.4	0.251	0.493
	304.1	1020	0.226	0.568
	437.8	2017	0.177	0.675
	472.3	5092	0.079	0.902

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4]	Lee, J.I.; Otto, F.D.; Mather,A.E.
2. Carbon dioxide; CO_2; [124-38-9]	*Can. J. Chem. Eng.* 1976, *54*, 214-219.
3. Water; H_2O; [7732-18-5]	(Original data deposited in the National Depository of Unpublished Data, Ottawa, Canada)*
4. 2-Aminoethanol (*monoethanolamine*) C_2H_7NO; [141-43-5]	

EXPERIMENTAL VALUES:

Concentration of monoethanolamine (MEA) = 2.5 kmol m^{-3} (2.5 mol dm^{-3})

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	Mole ratio in the liquid H_2S/MEA	CO_2/MEA
373.2	185.5	126.9	0.330	0.332
	233.0	256.5	0.305	0.405
	226.1	197.2	0.331	0.389
	366.8	224.8	0.434	0.334
	402.6	422.6	0.364	0.430
	425.4	1136	0.323	0.537
	52.05	15.7	0.236	0.235
	108.9	101.4	0.224	0.348
	211.7	912.4	0.162	0.567
	244.8	1893	0.119	0.700
	599.8	1076	0.365	0.481
	671.5	2679	0.252	0.653
	556.4	5109	0.156	0.815
	1129	339.9	0.685	0.216
	1270	1150	0.589	0.380
	3779	54.3	1.432	0.009
	682.9	41.2	0.783	0.036
	1751	2166	0.345	0.591
	1160	4385	0.228	0.774
	12.9	243.4	0.013	0.550
	102.7	82.7	0.176	0.411
	175.1	186.8	0.294	0.365
	248.9	224.8	0.296	0.378
	283.4	795.6	0.220	0.510
	3603	18.55	1.425	0.004
	3157	157.2	1.160	0.032
	3098	134.4	1.117	0.027
	3414	660.5	1.083	0.097
	3027	1339	0.936	0.222
	130.3	7.10	0.560	0.078
	113.8	20.4	0.396	0.159
	244.8	33.2	0.539	0.129
	299.2	28.8	0.636	0.096
	418.5	167.5	0.505	0.227
	3.03	1877	0.000	0.732
	136.5	2849	0.043	0.777
	385.4	13.9	0.764	0.031
	1084	38.6	0.935	0.029
	1004	38.4	0.864	0.028
	376.4	0.496	0.688	0.002
	244.8	0.296	0.689	0.002
	580.5	0.861	0.846	0.002
	544.7	0.785	0.836	0.002
	1842	0.958	1.088	0.000
	2744	1.406	1.144	0.000
	410.2	0.172	0.734	0.000
	403.3	0.137	0.743	0.000
	355.8	0.206	0.738	0.002
	5.63	2963	0.030	0.759
	0.000	467.5	0.000	0.611
	0.000	1993	0.000	0.773
	0.000	1965	0.000	0.779
	0.000	5616	0.000	0.943
	0.000	5523	0.000	0.944
	33.4	5634	0.003	0.930
	295.1	13.8	0.678	0.023
	180.0	0.372	0.630	0.004
	616.4	1.30	0.848	0.004
	354.4	0.220	0.740	0.001

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4]	Lee, J.I.; Otto, F.D.; Mather,A.E.
2. Carbon dioxide; CO_2; [124-38-9]	*Can. J. Chem. Eng.* 1976, *54*, 214-219.
3. Water; H_2O; [7732-18-5]	(Original data deposited in the National Depository of Unpublished Data, Ottawa, Canada)*
4. 2-Aminoethanol (*monoethanolamine*) C_2H_7NO; [141-43-5]	

EXPERIMENTAL VALUES:

Concentration of monoethanolamine (MEA) = 2.5 kmol m^{-3} (2.5 mol dm^{-3})

The tables below, given in the paper, contain smoothed values of the mole ratio H_2S/MEA in the liquid phase for various partial pressures of H_2S in the gas phase and mole ratios CO_2/MEA in the liquid phase.

Mole ratio CO_2/MEA		0.000	0.100	0.200	0.300	0.400	0.500	0.600
T/K	P_{H_2S}/kPa							
313.2	0.1	0.102	0.072	0.050	0.026	0.010		
	0.316	0.202	0.150	0.111	0.073	0.043	0.013	
	1.00	0.333	0.247	0.187	0.133	0.082	0.038	0.010
	3.16	0.527	0.373	0.281	0.202	0.128	0.053	0.022
	10.0	0.730	0.510	0.388	0.283	0.182	0.097	0.047
	31.6	0.866	0.633	0.483	0.360	0.250	0.155	0.086
	100	0.966	0.752	0.578	0.453	0.342	0.243	0.161
	316	1.056	0.892	0.713	0.590	0.470	0.371	0.290
	1000	1.227	1.078	0.891	0.767	0.662	0.570	0.500
	3000	1.620	1.325	1.106	0.968	0.883	0.817	0.750

Mole ratio CO_2/MEA		0.700	0.800	0.900	1.000	1.100	1.200
T/K	P_{H_2S}/kPa						
313.2	10.0	0.021					
	31.6	0.041	0.019				
	100	0.090	0.054	0.032	0.018	0.008	
	316	0.200	0.137	0.103	0.072	0.050	0.031
	1000	0.410	0.315	0.243	0.187	0.150	0.110
	3000	0.683	0.600	0.510	0.420	0.322	0.250*

Mole ratio CO_2/MEA		0.000	0.100	0.200	0.300	0.400
T/K	P_{H_2S}/kPa					
373.2	0.1	0.028	0.017	0.010		
	0.316	0.041	0.023	0.011	0.004	
	1.0	0.065	0.042	0.023	0.015	0.003
	3.16	0.118	0.080	0.053	0.037	0.022
	10.0	0.227	0.162	0.117	0.078	0.051
	31.6	0.400	0.293	0.225	0.158	0.100
	100	0.615	0.455	0.360	0.274	0.197
	316	0.853	0.637	0.520	0.420	0.333
	1000	0.990	0.835	0.710	0.600	0.502
	3000	1.336	1.110	0.942	0.822	0.707
	6000	1.770	1.410	1.132	0.993*	0.870*

Mole ratio CO_2/MEA		0.500	0.600	0.700	0.800	0.900
T/K	P_{H_2S}/kPa					
373.2	10.0	0.027	0.010			
	31.6	0.066	0.037	0.020		
	100.0	0.142	0.097	0.060	0.037	0.017
	316	0.252	0.185	0.133	0.095	0.058
	1000	0.405	0.307	0.241	0.187	0.133
	3000	0.585	0.470	0.379	0.303	0.236
	6000	0.740*	0.600*	0.487*	0.392*	0.316*

* extrapolated values given by the authors.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-Aminoethanol, (Monoethanolamine) C_2H_7NO; [141-43-5]	Nasir, P.; Mather, A.E. *Can. J. Chem. Eng.* 1977,*55*, 715-717.
VARIABLES: Pressure	PREPARED BY: C.L. Young

EXPERIMENTAL VALUES: T/K = 373.15

Conc. of monoethanolamine = 5.0 mol dm^{-3}

P_{H_2S}/kPa	P_{CO_2}/kPa	$\alpha^{\dagger}_{H_2S}$	$\alpha^{\dagger}_{CO_2}$
0.0131	0.0103	0.013	0.0405
0.0152	0.0200	0.0083	0.0475
0.0455	0.0607	0.010	0.072
0.179	0.00214	0.0264	0.009
0.324	0.0165	0.025	0.026
0.372	0.0262	0.0463	0.023
0.531	0.490	0.0133	0.096
0.586	0.669	0.013	0.119
0.669	0.0145	0.036	0.012
0.703	0.331	0.018	0.078
0.814	1.131	0.011	0.116
0.896	0.434	0.021	0.082
1.03	0.0648	0.032	0.028
1.10	0.00896	0.042	0.006
1.22	0.607	0.027	0.083
1.36	0.386	0.033	0.06
1.76	0.0244	0.053	0.012
2.10	1.21	0.022	0.14
3.03	0.0138	0.06	0.004
3.17	0.896	0.035	0.199
3.24	0.193	0.053	0.038
3.38	0.848	0.046	0.092
3.84	0.793	0.037	0.103
4.14	0.0276	0.084	0.004
4.20	0.227	0.066	0.037

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Nitrogen passes through three 250 ml vessels in series which contained amine solution with a certain amount of dissolved hydrogen sulfide and carbon dioxide. Emerging gas from last vessel analysed by GC. Hydrogen sulfide content determined by iodine-thiosulfate titration and carbon dioxide by barium carbonate precipitation.	No details given.
	ESTIMATED ERROR: $\delta T/K = \pm 0.5$; $\delta\alpha = \pm 6\%$ (estimated by compiler).
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-Aminoethanol, (Monoethanolamine); C_2H_7NO; [141-43-5]	Nasir, P.; Mather, A.E. *Can. J. Chem. Eng.* 1977, *55*, 715-717.

EXPERIMENTAL VALUES:

P_{H_2S}/kPa	P_{CO_2}/kPa	$\alpha^{\dagger}_{H_2S}$	$\alpha^{\dagger}_{CO_2}$
4.41	0.262	0.063	0.042
4.41	0.0690	0.08	0.0124
4.50	0.103	0.0796	0.02
4.94	0.0910	0.081	0.0164
5.24	0.276	0.069	0.043
6.41	1.10	0.071	0.115
6.81	0.483	0.071	0.051
7.17	1.17	0.069	0.116
7.28	0.476	0.083	0.057
7.65	0.0413	0.119	0.006
8.89	0.0565	0.128	0.006
9.31	2.96	0.064	0.175

† α_i = Mole of species i/mole of monoethanolamine.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-Aminoethanol (MEA), (Monoethanolamine); C_2H_7NO; [141-43-5]	Isaacs, E. E.; Otto, F. D.; Mather, A. E. *J. Chem. Eng. Data* 1980, *25*, 118-120.
VARIABLES: Pressure	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K	Conc. MEA /kmol m^{-3}	P/kPa		$\alpha^{\dagger}$	
		H_2S	CO_2	H_2S/MEA	CO_2/MEA
373.15	2.5	trace	0.886	trace	0.149
		trace	0.0337	0.0067	0.0600
		0.0353	0.00714	0.0181	0.0182
		0.0590	0.0198	0.0187	0.0357
		0.0842	0.0297	0.0205	0.0310
		0.0601	0.0140	0.0213	0.0217
		0.0242	0.0408	0.0219	0.0347
		0.138	0.0490	0.0231	0.0312
		0.149	0.0453	0.0232	0.0295
		0.120	0.0331	0.0238	0.0261
		0.121	0.0242	0.0239	0.0197
		0.102	0.0214	0.0247	0.0227
		0.140	0.0163	0.0248	0.0210
		0.211	0.0511	0.0263	0.0297
		0.499	0.565	0.0265	0.108
		0.237	0.0834	0.0269	0.0467
		0.138	0.0270	0.0272	0.0213
		0.133	0.0222	0.0277	0.0211
		0.131	0.0067	0.0325	0.0100
		0.314	0.0568	0.0326	0.0310
		0.583	0.244	0.0338	0.0791
		0.432	0.155	0.0340	0.0492
		0.544	0.246	0.0365	0.0718

(cont.)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Nitrogen passed through three 250 ml vessels in series which contained amine solution with a certain amount of dissolved carbon dioxide and hydrogen sulfide. Emerging gas from last vessel analysed by GC. Liquid sample taken from last vessel. Hydrogen sulfide content determined by iodine-thiosulfate titration and carbon dioxide by barium carbonate precipitation.	No details given.
	ESTIMATED ERROR: $\delta T/K = \pm 0.5$; $\delta\alpha = \pm 6\%$ (estimated by compiler).
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-Aminoethanol (MEA), (Monoethanolamine); C_2H_7NO; [141-43-5]	Isaacs, E. E.; Otto, F. D.; Mather, A. E. *J. Chem. Eng. Data* 1980, *25*, 118-120.

EXPERIMENTAL VALUES:

T/K	Conc. MEA /kmol m^{-3}	P/kPa		$\alpha^{\dagger}$	
		H_2S	CO_2	H_2S/MEA	CO_2/MEA
373.15	2.5	0.329	0.0714	0.0369	0.0375
		0.424	0.0906	0.0382	0.0357
		0.260	0.0780	0.0388	0.0406
		0.476	0.0962	0.0400	0.0400
		0.548	0.140	0.0400	0.0492
		0.620	0.137	0.0409	0.0485
		0.458	0.0545	0.0418	0.0254
		0.561	0.126	0.0420	0.0462
		0.778	0.135	0.0425	0.0457
		0.391	0.0048	0.0459	0.0085
		0.823	0.220	0.0504	0.0593
		0.752	0.211	0.0507	0.0610
		0.949	0.242	0.0518	0.0711
		0.928	0.206	0.0536	0.0606
		0.851	0.204	0.0537	0.0516
		1.28	0.438	0.0555	0.0851
		0.932	0.248	0.0567	0.0545
		1.18	0.239	0.0570	0.0686
		0.966	0.116	0.0612	0.0332
		1.84	0.523	0.0654	0.0941
		1.24	0.132	0.0735	0.0333
		2.56	0.838	0.0748	0.115
		1.21	0.0027	0.0755	0.0062
		1.63	0.164	0.0846	0.0327
		2.10	0.195	0.0872	0.0401
		2.03	0.169	0.0924	0.0363
		3.92	1.36	0.0954	0.141
		2.81	0.355	0.122	0.0407
		3.36	0.0800	0.136	0.0062

† Mole ratio

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. Ethanol, 2,2'-iminobis-, (*diethanolamine*); $C_4H_{11}NO_2$; [111-42-2]	Leibush, A.G.; Shneerson, A.L. *Zhur. Prik. Khim.* 1950, *23*, 145-152. *J. Applied Chem. USSR* 1950, *23*, 149-157.
VARIABLES: Temperature, pressure, composition of liquid phase	PREPARED BY: P.G.T. Fogg

EXPERIMENTAL VALUES:

Concentration of diethanolamine (DEA) = 2.0 mol dm^{-3}; T/K = 298.2

P_{H_2S}/mmHg	P_{CO_2}/mmHg	Mole ratios in liquid phase H_2S/DEA	CO_2/DEA
1.72	0.00	0.126	0.016
5.13	1.17	0.126	0.198
18.7	12.4	0.128	0.342
23.6	25.0	0.123	0.406
0.77	-	0.027	0.186
6.0	0.8	0.149	0.186
23.0	2.6	0.302	0.186
67.5	5.4	0.425	0.189
92	12.0	0.517	0.195
141	18.5	0.556	0.203
1.3	4.5	0.017	0.363
6.1	6.8	0.067	0.363
37	14.4	0.206	0.355
61	24.6	0.277	0.363
145	56	0.404	0.324
240	80	0.491	0.270

760 mmHg = 1 atm = 1.01325 bar

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

N_2 or a mixture of N_2 & H_2S was passed successively through two absorbers containing H_2S & CO_2 dissolved in an aqueous solution of DEA. The H_2S in the emerging gas was passed into cadmium or zinc acetate solution and the precipitated sulfides estimated by iodimetry. Hydrogen sulfide in the DEA solutions was also determined by iodimetry. CO_2 in the gas phase was absorbed in standard baryta solution after removal of H_2S by acidified potassium permanganate solution. CO_2 in the liquid phase was estimated by reaction with 30% H_2SO_4, removal of evolved H_2S by permanganate and absorption of evolved CO_2 in standard baryta solution.

SOURCE AND PURITY OF MATERIALS:

1. From H_2SO_4 & Na_2S: no SO_2 detected

4. Contained 0.2 to 0.6 volumes of CO_2 per unit volume of solution; less than 1% by weight of total impurities.

ESTIMATED ERROR:

$\delta T/K = \pm 0.1$ (authors)

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. 2,2'-Iminobisethanol, (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2] 4. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto F.D.; Mather, A.E. *Can. J. Chem. Engng.* 1974, *52*, 125-7 (Complete data in the Centre for Unpublished Data, National Science NRC, Ottawa, Ontario, K1A 0S2, Canada)
VARIABLES: Temperature, pressure, concentration	PREPARED BY: C.L. Young

EXPERIMENTAL VALUES: Solubility of H_2S-CO_2 Mixtures in 2.0 mol dm^{-3} DEA

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	α H_2S/DEA	α CO_2/DEA
323.15	1505.80	144.51	1.006	0.106
	1081.08	2800.62	0.447	0.693
	732.90	843.22	0.570	0.433
	703.94	2149.76	0.381	0.719
	682.57	404.02	0.703	0.308
	675.68	5135.17	0.188	0.994
	632.24	274.40	0.784	0.239
	629.48	33.57	0.989	0.048
	600.52	167.54	0.826	0.170
	508.13	67.56	0.881	0.094
	488.83	3433.56	0.173	0.977
	415.75	5343.39	0.125	1.140
	399.89	1292.75	0.294	0.704
	359.90	29.16	0.851	0.063
	340.59	71.01	0.785	0.125
	299.91	1974.64	0.176	0.902
	298.54	152.37	0.604	0.285
	289.23	18.13	0.831	0.053
	274.40	384.72	0.515	0.447
	242.69	92.38	0.634	0.250
	194.43	277.16	0.361	0.477
	178.57	1951.20	0.108	0.962
	158.57	1067.98	0.154	0.856
	151.68	658.44	0.189	0.742
	142.72	880.45	0.133	0.812

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Recirculating vapor flow apparatus with Jerguson liquid level gauge cell and magnetic pump. Nitrogen added to vapor to increase pressure to at least 200 kPa. Vapor analysed by gas chromatography. Partial pressure of carbon dioxide and hydrogen sulfide calculated from pressure and vapor pressure of diethanolamine. Liquid samples passed into sulfuric acid. Carbon dioxide and hydrogen sulfide collected in buret and then analysed by gas chromatography.

SOURCE AND PURITY OF MATERIALS:

1. Liquid Air sample, purity 99.9 mole per cent.
2. Matheson sample, purity 99.5 mole per cent.
3. Purity 99.8 mole per cent.
4. Distilled.

Nitrogen used as carrier, purity 99.99 mole per cent.

ESTIMATED ERROR:

$\delta T/K = \pm 0.5$; $\delta P/bar = \pm 1\%$; $\delta\alpha = \pm 3\text{-}5\%$.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. 2,2'-Iminobisethanol, (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2] 4. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto, F.D.; Mather, A.E. *Can. J. Chem. Engng.* 1974, *52*, 125-7.

EXPERIMENTAL VALUES: Solubility of H_2S-CO_2 Mixtures in 2.0 mol dm^{-3} DEA

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	α H_2S/DEA	α CO_2/DEA
323.15	129.62	5764.65	0.041	1.221
	93.07	7.21	0.653	0.074
	91.35	17.92	0.557	0.146
	88.25	144.78	0.256	0.521
	80.80	71.15	0.385	0.352
	80.66	422.64	0.129	0.742
	79.63	82.94	0.332	0.424
	72.39	33.23	0.434	0.277
	65.70	47.02	0.380	0.345
	49.15	5.23	0.512	0.120
	47.47	5.51	0.525	0.094
	39.71	26.40	0.331	0.328
	38.19	1.47	0.564	0.040
	36.81	152.02	0.129	0.628
	36.26	16.82	0.367	0.238
	34.54	59.36	0.213	0.475
	24.75	423.33	0.045	0.785
	21.71	14.89	0.236	0.323
	14.40	704.63	0.012	0.865
	12.68	11.30	0.197	0.318
	10.79	0.85	0.382	0.078
	10.13	9.43	0.199	0.273
	10.06	0.89	0.370	0.067
	7.65	451.46	0.024	0.815
	7.37	27.09	0.092	0.490
	6.61	0.55	0.304	0.079
	6.41	109.62	0.029	0.662
	4.51	1.39	0.208	0.158
	4.13	9.37	0.092	0.400
	3.85	1.12	0.210	0.155
	3.06	3.47	0.128	0.296
	1.57	0.30	0.178	0.086
	0.88	0.21	0.117	0.076
373.15	1654.72	141.34	1.072	0.033
	1378.94	1678.85	0.713	0.336
	1027.31	1130.73	0.665	0.317
	985.94	277.85	0.820	0.106
	983.87	2772.35	0.504	0.516
	916.99	482.62	0.726	0.176
	889.41	2488.98	0.475	0.516
	872.17	4709.08	0.360	0.700
	848.04	290.95	0.749	0.115
	686.71	4863.52	0.300	0.800
	618.45	98.59	0.695	0.071
	537.78	4907.64	0.220	0.820
	479.87	444.01	0.525	0.250
	417.12	1534.07	0.327	0.545
	399.89	916.99	0.362	0.443
	395.06	1011.45	0.356	0.439
	348.18	3151.56	0.216	0.733
	344.73	37.57	0.634	0.039
	339.21	162.71	0.554	0.146
	317.84	539.85	0.405	0.356
	293.71	5129.65	0.126	0.885
	283.37	760.48	0.318	0.412
	278.54	382.65	0.406	0.317
	237.17	2009.11	0.094	0.782
	217.87	375.07	0.328	0.328
	202.70	1500.28	0.188	0.628

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. 2,2'-Iminobisethanol, (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2] 4. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto F.D.; Mather, A.E. *Can. J. Chem. Engng.* 1974, *52*, 125-7.

EXPERIMENTAL VALUES: Solubility of H_2S-CO_2 Mixtures in 2.0 mol dm^{-3} DEA

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	α H_2S/DEA	α CO_2/DEA
373.15	181.33	48.67	0.451	0.088
	179.26	3160.53	0.107	0.788
	177.88	119.96	0.424	0.170
	170.29	35.16	0.429	0.090
	159.95	5112.42	0.060	0.940
	153.75	577.08	0.226	0.461
	135.82	1571.99	0.123	0.643
	128.24	235.79	0.273	0.321
	115.14	5543.33	0.046	0.897
	113.76	777.72	0.143	0.526
	105.48	2491.05	0.058	0.782
	97.21	502.62	0.143	0.473
	81.08	35.43	0.287	0.098
	79.97	5453.70	0.029	0.962
	75.84	990.76	0.111	0.585
	63.15	65.98	0.233	0.192
	62.05	390.92	0.114	0.462
	56.74	39.23	0.215	0.127
	48.53	186.84	0.140	0.364
	35.71	17.99	0.200	0.092
	27.57	7.51	0.199	0.050
	20.68	5650.20	0.003	1.000
	19.30	9.03	0.151	0.067
	18.27	1545.10	0.015	0.682
	14.75	22.40	0.102	0.152
	13.51	529.51	0.022	0.565
	11.44	170.98	0.038	0.419
	10.13	14.96	0.091	0.117
	9.65	57.70	0.060	0.269
	4.66	5.87	0.049	0.079
	3.26	1.29	0.044	0.017
	0.56	13.61	0.010	0.148
Solubility of H_2S-CO_2 Mixtures in 3.5 mol dm^{-3} DEA				
323.13	1509.93	1606.46	0.652	0.448
	1450.64	59.01	1.028	0.026
	1071.43	1134.17	0.545	0.465
	1026.62	455.05	0.706	0.264
	952.84	4578.08	0.284	0.824
	625.34	1114.87	0.396	0.550
	413.68	279.92	0.525	0.327
	392.30	59.22	0.727	0.110
	338.52	97.21	0.632	0.199
	307.50	21.02	0.757	0.064
	291.64	153.06	0.511	0.309
	281.30	3069.52	0.095	0.925
	279.23	1141.07	0.157	0.728
	259.93	5228.25	0.060	1.000
	259.24	175.12	0.435	0.357
	244.07	70.32	0.592	0.205
	233.73	62.46	0.486	0.281
	225.45	229.59	0.358	0.419
	187.53	521.92	0.102	0.704
	141.34	293.02	0.200	0.563
	129.48	16.54	0.554	0.151

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. 2,2'-Iminobisethanol, (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2] 4. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto, F.D.; Mather, A.E. *Can. J. Chem. Engng.* 1974, *52*, 125-7

EXPERIMENTAL VALUES: Solubility of H_2S-CO_2 Mixtures in 3.5 mol dm^{-3} DEA

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	α H_2S/DEA	α CO_2/DEA
323.15	125.13	14.06	0.56	0.130
	119.96	1434.78	0.070	0.815
	111.14	35.43	0.451	0.238
	95.14	477.11	0.096	0.684
	89.28	5.13	0.585	0.074
	84.80	79.28	0.364	0.346
	73.77	1159.68	0.053	0.799
	68.60	258.20	0.107	0.602
	63.43	33.23	0.308	0.302
	60.81	87.01	0.200	0.454
	50.81	55.70	0.196	0.425
	45.50	430.22	0.057	0.693
	39.71	12.54	0.317	0.253
	36.33	18.82	0.227	0.338
	33.78	438.50	0.048	0.708
	30.68	46.53	0.163	0.446
	25.99	32.68	0.171	0.392
	21.71	20.33	0.150	0.385
	17.99	3.92	0.310	0.140
	17.09	128.37	0.053	0.595
	16.96	74.53	0.071	0.520
	14.75	22.47	0.125	0.400
	12.27	5.90	0.191	0.259
	9.37	1.34	0.283	0.083
	8.54	31.85	0.066	0.455
	7.79	8.61	0.106	0.317
	6.09	6.83	0.127	0.272
	5.97	11.03	0.072	0.368
	5.03	6.37	0.074	0.354
	4.70	1.51	0.151	0.179
	4.55	0.82	0.159	0.142
	4.51	60.74	0.021	0.541
	2.39	3.48	0.078	0.270
	0.90	0.60	0.085	0.148
373.15	1622.32	1566.47	0.604	0.243
	1585.78	250.96	0.801	0.059
	1416.17	1868.46	0.590	0.293
	1380.31	415.75	0.728	0.083
	1316.88	1533.38	0.566	0.279
	1275.51	361.28	0.716	0.106
	1130.73	4498.79	0.314	0.537
	1064.54	4591.87	0.296	0.596
	1061.78	4525.68	0.356	0.506
	993.52	287.50	0.689	0.099
	754.96	1840.88	0.350	0.405
	703.25	4919.36	0.216	0.594
	670.16	48.95	0.703	0.027
	665.33	923.88	0.410	0.318
	501.93	102.04	0.591	0.071
	495.03	5024.16	0.153	0.681
	485.38	683.26	0.410	0.304
	474.35	1235.53	0.322	0.398
	466.77	340.59	0.480	0.181
	458.49	1875.35	0.243	0.487
	383.69	94.11	0.515	0.086
	375.07	230.97	0.433	0.173

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. 2,2'-Iminobisethanol, (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2] 4. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto, F.D.;Mather, A.E. *Can. J. Chem. Engng.* 1974, *52*, 125-7 (Complete data in the Centre for Unpublished Data, National Science NRC, Ottawa, Ontario, K1A 0S2, Canada)

EXPERIMENTAL VALUES: Solubility of H_2S-CO_2 Mixtures in 3.5 mol dm^{-3} DEA

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	α H_2S/DEA	α CO_2/DEA
373.15	337.84	5388.20	0.067	0.755
	320.60	654.99	0.278	0.332
	307.50	6.17	0.545	0.005
	285.44	82.04	0.445	0.091
	258.55	2571.72	0.127	0.626
	255.10	2369.01	0.132	0.639
	222.00	4607.03	0.082	0.725
	203.39	723.94	0.204	0.416
	199.94	575.70	0.221	0.374
	195.12	891.48	0.160	0.472
	131.68	5.53	0.386	0.016
	117.89	151.68	0.227	0.238
	111.55	1.65	0.342	0.006
	108.93	48.67	0.278	0.124
	96.52	49.09	0.228	0.129
	85.90	81.15	0.190	0.192
	66.25	11.58	0.239	0.045
	61.43	31.23	0.210	0.118
	59.29	1625.77	0.043	0.602
	56.19	619.14	0.072	0.470
	52.88	919.75	0.056	0.550
	49.64	181.33	0.103	0.325
	43.78	266.13	0.078	0.387
	37.71	32.12	0.148	0.136
	30.61	193.74	0.070	0.364
	24.20	0.82	0.142	0.006
	15.03	53.77	0.072	0.226
	11.85	1.44	0.102	0.007
	9.23	9.28	0.065	0.088
	6.41	3.61	0.066	0.040

α = Mole ratio in liquid phase.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. 2,2'-iminobisethanol; (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2] 4. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto, F.D.; Mather, A.E. *Can.J.Chem.Eng.*, 1974, *52*, 125 - 127. (Complete data in the Centre for Unpublished Data, National Science Library, National Research Council, Ottawa, Ontario K1A 0S2, Canada)

EXPERIMENTAL VALUES:

The tables give smoothed values of the mole ratio H_2S/DEA in the liquid phase for various partial pressures of H_2S in the gas phase and mole ratios CO_2/DEA in the liquid phase.

Concentration of diethanolamine (DEA) = 2.0 mol dm^{-3}

T/K	P_{H_2S} /psia	P_{H_2S} /kPa**	Mole ratio CO_2/DEA 0.000	0.100	0.200	0.300	0.400	0.500	0.600
323.2	0.0100	0.0689	0.028	0.021*	0.011*	0.0054*	0.0021*	0.0009*	0.00042*
	0.0316	0.218	0.068	0.050*	0.028*	0.016*	0.0073*	0.0034*	0.0016*
	0.100	0.689	0.136	0.097*	0.062*	0.036*	0.021*	0.011*	0.0056*
	0.316	2.18	0.230	0.172	0.120	0.079	0.052	0.033*	0.019*
	1.00	6.89	0.382	0.290	0.225	0.153	0.120	0.080	0.050
	3.16	21.8	0.562	0.455	0.353	0.266	0.208	0.151	0.107
	10.0	68.9	0.730	0.612	0.501	0.406	0.327	0.254	0.195
	31.6	218	0.875	0.760	0.654	0.555	0.464	0.378	0.310
	100	689	1.002	0.906	0.815	0.707	0.625	0.530	0.450
	200	1379	1.215	1.005	0.910	0.808	0.720	0.632	0.546

T/K	P_{H_2S} /psia	P_{H_2S} /kPa**	Mole ratio CO_2/DEA 0.700	0.800	0.900	1.000	1.100	1.200
323.2	0.0100	0.0689	0.00021*					
	0.0316	0.218	0.00088*					
	0.100	0.689	0.00275*	0.0013*				
	0.316	2.18	0.0090 *	0.0044*	0.0019*			
	1.00	6.89	0.028	0.015	0.0070*			
	3.16	21.8	0.065	0.040	0.023			
	10.0	68.9	0.145	0.096	0.061	0.041	0.029	0.021
	31.6	218	0.246	0.189	0.136	0.100	0.073	0.056
	100	689	0.380	0.315	0.250	0.198	0.154	0.118*
	200	1379	0.473	0.410	0.340*	0.280*	0.223*	0.179*

T/K	P_{H_2S} /psia	P_{H_2S} /kPa**	Mole ratio CO_2/DEA 0.000	0.100	0.200	0.300	0.400	0.500	0.600
373.2	0.0100	0.0689	0.0026*	0.0017*	0.0011*				
	0.0316	0.218	0.0084*	0.0067*	0.0037*	0.023*	0.0014*	0.0008*	
	0.100	0.689	0.023	0.0165*	0.0108*	0.0069*	0.0044*	0.0025*	0.0014*
	0.316	2.18	0.055	0.038*	0.027*	0.0176*	0.0117*	0.0068*	0.0040*
	1.00	6.89	0.120	0.082	0.060	0.042	0.029	0.018	0.011
	3.16	21.8	0.208	0.158	0.122	0.092	0.068	0.047	0.029
	10.0	68.9	0.348	0.286	0.237	0.197	0.158	0.122	0.088
	31.6	218	0.535	0.471	0.412	0.358	0.300	0.250	0.200
	100	689	0.808	0.726	0.650	0.579	0.507	0.443	0.380
	316	2180	1.200	1.040	0.950	0.870	0.792	0.725	0.650

** * extrapolated values given by the authors.
calculated by the compiler.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. 2,2'-Iminobisethanol; (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2] 4. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto, F.D.; Mather, A.E. *Can.J.Chem.Eng.*, 1974, *52*, 125 - 127. (Complete data in the Centre for Unpublished Data, National Science Library, National Research Council, Ottawa, Ontario K1A 0S2, Canada)

EXPERIMENTAL VALUES:

The tables give smoothed values of the mole ratio H_2S/DEA in the liquid phase for various partial pressures of H_2S in the gas phase and mole ratios CO_2/DEA in the liquid phase.

Concentration of diethanolamine (DEA) = 2.0 mol dm^{-3}

Mole ratio CO_2/DEA			0.700	0.800	0.900	1.000	1.100	1.200
T/K	P_{H_2S} /psia	P_{H_2S} /kPa**						
373.2	0.100	0.0689	0.0007*					
	0.316	2.18	0.0021*	0.0011*				
	1.00	6.89	0.0060	0.0034				
	3.16	21.8	0.017	0.011	0.006	0.003*		
	10.0	68.9	0.057	0.039	0.028	0.017*	0.0108*	0.0065*
	31.6	218	0.150	0.115	0.086	0.060*	0.044*	0.032*
	100	689	0.322	0.270	0.220	0.171*	0.139*	0.109*
	316	2180	0.573	0.511	0.450*	0.383*	0.323*	0.276*

Concentration of diethanolamine (DEA) = 3.5 mol dm^{-3}

Mole ratio CO_2/DEA			0.000	0.100	0.200	0.300	0.400	0.500	0.600
T/K	P_{H_2S} /psia	P_{H_2S} /kPa**							
323.2	0.0100	0.0689	0.012*	0.0072*	0.0040*	0.0021*			
	0.0316	0.218	0.040*	0.023	0.0135*	0.0078*	0.0044*	0.0024*	0.00102*
	0.100	0.689	0.087	0.058	0.036	0.024	0.013*	0.0073*	0.0037*
	0.316	2.18	0.160	0.123	0.088	0.054	0.035	0.0190	0.0105
	1.00	6.89	0.278	0.218	0.164	0.110	0.073	0.045	0.029
	3.16	21.8	0.422	0.348	0.272	0.205	0.145	0.095	0.060
	10.0	68.9	0.520	0.510	0.420	0.328	0.245	0.170	0.120
	31.6	218	0.782	0.673	0.572	0.472	0.376	0.288	0.215
	100	689	0.920	0.825	0.726	0.632	0.532	0.434	0.345
	316	2180	1.144	1.007	0.907	0.804	0.710	0.605	0.520

Mole ratio CO_2/DEA			0.700	0.800	0.900	1.000	1.100	1.200
T/K	P_{H_2S} /psia	P_{H_2S} /kPa**						
323.2	0.0316	0.218	0.0006*	0.00034*				
	0.100	0.689	0.0019*	0.0010*				
	0.316	2.18	0.0056*	0.0030*	0.00145*			
	1.00	6.89	0.0155	0.0086*	0.0041*	0.0021*		
	3.16	21.8	0.038	0.023	0.0120	0.0065*	0.0035*	
	10.0	68.9	0.080	0.055	0.0335	0.0195	0.0120*	0.0070*
	31.6	218	0.150	0.110	0.076	0.050	0.0340*	0.0230*
	100	689	0.273	0.210	0.155	0.120*	0.090*	0.065*
	316	2180	0.440	0.360	0.296*	0.244*	0.200*	0.160*

** * extrapolated values given by the authors.
calculated by the compiler.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. 2,2'-Iminobisethanol; (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2] 4. Water; H_2O; [7732-18-5]	Lee, J.I.; Otto, F.D.; Mather, A.E. *Can.J.Chem.Eng.*, 1974, 52, 125 - 127. (Complete data in the Centre for Unpublished Data, National Science Library, National Research Council, Ottawa, Ontario K1A 0S2, Canada)

EXPERIMENTAL VALUES:

The tables give smoothed values of the mole ratio H_2S/DEA in the liquid phase for various partial pressures of H_2S in the gas phase and mole ratios CO_2/DEA in the liquid phase.

Concentration of diethanolamine (DEA) = 3.5 mol dm^{-3}

T/K	P_{H_2S} /psia	P_{H_2S} /kPa**	Mole ratio CO_2/DEA 0.000	0.100	0.200	0.300	0.400	0.500	0.600
373.2	0.0100	0.0689	0.0019*	0.0011*	0.0007*				
	0.0316	0.218	0.0062*	0.0039*	0.0024*	0.0014*	0.0007*	0.0003*	
	0.100	0.689	0.020	0.0110*	0.0070*	0.0040*	0.0022*	0.0010*	
	0.316	2.18	0.038	0.0275*	0.0185	0.0113*	0.0066*	0.0034*	0.0016*
	1.00	6.89	0.078	0.060	0.045	0.032	0.019*	0.010*	0.0052*
	3.16	21.8	0.155	0.120	0.092	0.070	0.049	0.034	0.017
	10.0	68.9	0.282	0.230	0.185	0.144	0.109	0.081	0.053
	31.6	218	0.475	0.393	0.324	0.262	0.212	0.161	0.119
	100	689	0.712	0.605	0.518	0.434	0.363	0.297	0.226
	316	2180	0.942	0.815	0.711	0.630	0.547	0.470	0.388

T/K	P_{H_2S} /psia	P_{H_2S} /kPa**	Mole ratio CO_2/DEA 0.700	0.800	0.900	1.000	1.100	1.200
373.3	1.00	6.89	0.0025*	0.0010*				
	3.16	21.8	0.0093*	0.0037*				
	10.0	68.9	0.031	0.013	0.0080*	0.0040*	0.0022*	0.0011*
	31.6	218	0.082	0.046	0.0290*	0.0185*	0.0118*	0.0066*
	100	689	0.165	0.116	0.082*	0.060*	0.043*	0.030*
	316	2180	0.313*	0.248*	0.195*	0.150*	0.122*	0.096*

** * extrapolated values given by the authors.
** calculated by the compiler.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. Water; H_2O; [7732-18-5] 4. 2,2'-Iminobisethanol, (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2]	Lawson, J.D. and Garst, A.W. *J. Chem. Engng. Data*, 1976, *21*, 20-30.
VARIABLES: Temperature, pressure	PREPARED BY: C.L. Young

EXPERIMENTAL VALUES:

T/K	$P^+_{H_2S}$/bar	$P^+_{CO_2}$/bar	Conc.of DEA /wt%	Liquid comp mol/mol amine H_2S	CO_2
310.93	0.00013	-	25	0.0042	0.0676
	0.00017	-		0.0045	0.0990
	0.00025	-		0.0074	0.130
	0.00027	-		0.0077	0.081
	0.00073	-		0.0095	0.212
	0.00052	-		0.0125	0.113
	0.0013	-		0.0122	0.230
	0.0071	-		0.058	0.221
	0.0055	-		0.059	0.214
	0.0033	-		0.062	0.109
	1.29	3.24		0.106	0.734
	3.56	1.72		0.111	0.715
	0.084	0.136		0.120	0.478
	0.031	-		0.124	0.211
	0.021	0.023		0.124	0.227
	0.013	-		0.127	0.118
	0.217	0.541		0.152	0.605
	3.33	12.66		0.220	0.930
	0.092	0.033		0.237	0.310
	0.373	0.493		0.239	0.527
	0.036	-		0.251	0.160
	2.31	3.18		0.384	0.630
	0.115	-		0.442	0.112
	0.222	0.077		0.442	0.216
	0.885	0.613		0.441	0.410

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Rocking equilibrium cell fitted with liquid and vapour sampling valves. Pressure measured with Bourdon gauge. Cell charged with amine then gases and methane added as an inert gas to achieve the desired total pressure. Vapour phases analysed by mass spectrometry. Liquid samples analysed by electrometric titration, details in source. Additional analytical methods were used for some samples.	1. Purity 99.99 mole per cent. 2. Purity 99.5 mole per cent. 3. Distilled. 4. Commercial sample purity better than 99 mole per cent as determined by acid titration.
	ESTIMATED ERROR: $\delta T/K = \pm 0.15$ at 310 K increasing to ± 0.6 at 422 K; $\delta P/bar = \pm 0.5\%$; $\delta x_{CO_2} = \pm 3\%$.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Carbon dioxide; CO_2; [124-38-9] 2. Hydrogen sulfide; H_2S; [7783-06-4] 3. Water; H_2O; [7732-18-5] 4. 2,2'-Iminobisethanol, (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2]	Lawson, J.D. and Garst, A.W. *J.Chem.Engng. Data.* 1976, *21*, 20-30.

EXPERIMENTAL VALUES:

T/K	$P^+_{H_2S}$/bar	$P^+_{CO_2}$/bar	Conc. of DEA /wt%	Liquid comp mol/mol amine H_2S	Liquid comp mol/mol amine CO_2
310.93	3.80	4.20	25	0.523	0.600
	2.12	1.08		0.585	0.381
	0.813	0.220		0.607	0.281
	1.41	0.200		0.631	0.258
	0.440	0.0346		0.635	0.114
	12.18	4.010		0.861	0.264
	19.98	15.32		0.966	0.688
	8.53	1.35		1.020	0.119
324.82	3.40	14.12		0.250	0.890
	11.32	5.20		0.997	0.277
	9.99	1.93		1.050	0.161
338.71	0.00065	-		0.0040	0.065
	0.00087	-		0.0041	0.080
	0.0021	-		0.0097	0.109
	0.0015	-		0.0099	0.062
	0.0012	-		0.0126	0.107
	0.0043	-		0.0128	0.238
	0.0045	-		0.0291	0.074
	0.0051	-		0.0294	0.127
	0.0160	0.040		0.0512	0.233
	0.0065	-		0.0594	0.115
	0.480	3.930		0.105	0.654
	0.193	0.600		0.113	0.457
	0.164	0.500		0.114	0.495
	0.063	0.067		0.118	0.215
	0.043	0.0147		0.120	0.108
	0.413	1.57		0.147	0.596
	0.600	1.03		0.209	0.452
	1.57	6.05		0.214	0.666
	0.285	0.157		0.252	0.285
	3.33	18.65		0.256	0.842
	0.143	0.0031		0.257	0.129
	2.398	4.796		0.375	0.567
	1.359	1.33		0.413	0.410
	0.586	0.244		0.437	0.207
	0.428	0.060		0.443	0.116
	3.797	5.063		0.510	0.506
	1.665	0.746		0.526	0.252
	2.145	1.226		0.576	0.298
	0.973	0.115		0.624	0.114
	1.372	0.426		0.636	0.218
	8.660	4.450		0.855	0.156
	21.98	21.18		0.924	0.547
	11.78	2.585		0.990	0.118
	13.59	5.462		0.976	0.272
	11.99	2.651		1.010	0.140
352.59	3.064	1.865		0.255	0.770
	14.00	6.928		0.920	0.238
	12.66	2.731		0.920	0.139
366.48	0.0081	0.229		0.0113	0.214
	0.0061	-		0.0125	0.109
	0.0035	-		0.0314	0.054
	0.0095	0.040		0.0327	0.085
	0.0091	-		0.0334	0.063
	0.053	0.085		0.0710	0.122

COMPONENTS:	ORIGINAL MEASUREMENTS:
1.Carbon dioxide; CO_2; [124-38-9] 2.Hydrogen sulfide; H_2S; [7783-06-4] 3.Water; H_2O; [7732-18-5] 4.2,2'-Iminobisethanol, (Diethanolamine); $C_4H_{11}NO_2$; [111-42-2]	Lawson, J.D. and Garst, A.W. *J. Chem. Engng. Data*, 1976, *21*, 20-30.

EXPERIMENTAL VALUES:

T/K	$P^+_{H_2S}$/bar	$P^+_{CO_2}$/bar	Conc. of DEA /wt%	Liquid comp mol/mol amine H_2S	CO_2
366.48	0.593	5.262	25	0.107	0.543
	0.293	1.172		0.114	0.353
	0.135	0.156		0.129	0.123
	0.560	3.784		0.129	0.533
	0.746	3.664		0.156	0.474
	0.608	1.625		0.183	0.354
	0.382	0.520		0.196	0.245
	0.306	0.203		0.196	0.117
	2.931	17.99		0.255	0.710
	2.664	1.972		0.496	0.207
	21.85	21.98		0.881	0.395
	13.86	3.504		0.915	0.123
	15.05	7.594		0.935	0.230
380.37	2.000	19.32		0.172	0.730
	14.25	4.276		0.870	0.127
	16.39	8.393		0.922	0.210
	0.0085	0.906		0.0056	0.185
394.26	0.0135	-		0.0135	0.107
	0.310	4.130		0.0391	0.349
	0.228	4.503		0.0472	0.378
	0.373	6.328		0.0532	0.448
	0.280	1.223		0.0627	0.197
	0.246	1.892		0.0736	0.238
	0.866	19.58		0.0874	0.650
	0.441	1.199		0.124	0.282
	0.786	3.144		0.126	0.273
	0.693	0.999		0.157	0.132
	0.759	0.426		0.176	0.070
	4.54	4.25		0.488	0.218
	14.65	4.66		0.825	0.117
	16.52	9.59		0.840	0.210
	20.12	22.91		0.822	0.405
310.93	0.00016	-	50	0.0026	0.111
	0.693	0.600		0.260	0.438
338.71	0.0011	-		0.0030	0.114
366.48	0.0035	0.085		0.0028	0.116
	2.398	5.595		0.233	0.390

$^+$ partial pressure calculated by compiler using 1 bar = 750.062 mmHg

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. Ethanol, 2,2'-iminobis- (*diethanolamine*); $C_4H_{11}NO_2$; [111-42-2]	Lal, D.; Otto, F.D.; Mather, A.E. *Can.J.Chem.Eng.* 1985, *63*, 681 - 685.
VARIABLES:	PREPARED BY:
Temperature, pressure	P.G.T. Fogg

EXPERIMENTAL VALUES:

Concentration of diethanolamine = 2.0 kmol m^{-3} (2.0 mol dm^{-3})

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	Mole ratio in liquid, H_2S/DEA	Mole ratio in liquid, CO_2/DEA
313.2	0.060	0.165	0.0182	0.173
	0.069	0.068	0.0352	0.103
	0.127	0.057	0.053	0.083
	0.329	0.224	0.055	0.178
	0.431	0.250	0.061	0.182
	0.187	0.070	0.064	0.093
	0.188	0.075	0.073	0.101
	0.410	0.070	0.083	0.101
	0.573	0.133	0.090	0.130
	0.784	0.470	0.090	0.226
	0.625	0.252	0.091	0.180
	0.782	0.369	0.092	0.207
	0.387	0.033	0.101	0.058
	0.524	0.057	0.105	0.077
	1.057	0.270	0.119	0.165

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Apparatus described in ref. (1) was used. Nitrogen was passed through three 500 cm^3 stainless steel vessels in series. These contained amine solution, dissolved H_2S and CO_2. Temperatures were controlled to ± 0.5 K by an oil-bath. The gas emerging from the last vessel was analysed by gas chromatography. Samples of liquid from this vessel were analysed for H_2S by iodine-thiosulfate titration and for CO_2 by precipitation as barium carbonate and then titration with hydrochloric acid.

SOURCE AND PURITY OF MATERIALS:

4. supplied by Dow chemicals.

ESTIMATED ERROR:

$\delta T/K$ = ± 0.5 (authors)
$\delta P/P$ = ± 0.15 at P_{H_2S} > 0.05 kPa; larger at lower partial pressures (authors).

REFERENCES:

1. Isaacs, E.E.; Otto, F.D.; Mather, A.E. *J.Chem.Eng.Data* 1980, 25, 118.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. Ethanol, 2,2'-iminobis- (*diethanolamine*); $C_4H_{11}NO_2$; [111-42-2]	Lal, D.; Otto, F.D.; Mather, A.E. *Can.J.Chem.Eng.* 1985, *63*, 681 - 685.

EXPERIMENTAL VALUES:

Concentration of diethanolamine = 2.0 kmol m^{-3} (2.0 mol dm^{-3})

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	Mole ratio in liquid, H_2S/DEA	Mole ratio in liquid, CO_2/DEA
313.2	0.633	0.099	0.120	0.095
	0.700	0.048	0.131	0.062
	0.881	0.090	0.134	0.093
	1.452	0.292	0.141	0.072
	0.930	0.062	0.153	0.170
	0.897	0.114	0.154	0.107
	1.001	0.041	0.155	0.045
	1.039	0.215	0.172	0.146
	1.390	0.283	0.172	0.148
	1.190	0.254	0.174	0.149
	1.108	0.116	0.177	0.090
	1.344	0.063	0.185	0.068
	1.243	0.068	0.186	0.067
	2.231	0.450	0.191	0.175
	1.405	0.365	0.198	0.153
	1.004	0.141	0.200	0.087
	3.392	0.549	0.203	0.182
	1.347	0.120	0.208	0.100
	2.286	0.525	0.209	0.188
	3.185	0.332	0.247	0.141
373.2	0.015	0.749	0.0064	0.042
	0.022	4.077	0.0064	0.099
	0.078	3.266	0.0095	0.098
	0.132	4.571	0.0100	0.123
	0.197	1.018	0.0142	0.041
	0.263	1.472	0.0155	0.062
	0.324	1.423	0.0168	0.059
	0.467	1.918	0.020	0.064
	0.651	4.015	0.022	0.104
	0.787	5.015	0.025	0.105
	0.304	0.0057	0.025	0.0048
	0.762	1.998	0.026	0.060
	0.680	4.668	0.027	0.128
	0.685	1.294	0.030	0.050
	1.272	6.026	0.032	0.137
	0.614	4.548	0.033	0.090
	0.541	4.970	0.036	0.100
	1.319	3.409	0.037	0.091
	0.614	0.426	0.037	0.024
	1.460	3.739	0.041	0.087

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. Ethanol, 2,2'-iminobis- (*diethanolamine*); $C_4H_{11}NO_2$; [111-42-2]	Lal, D.; Otto, F.D.; Mather, A.E. *Can.J.Chem.Eng.* 1985, *63*, 681 - 685.

EXPERIMENTAL VALUES:

Concentration of diethanolamine = 2.0 kmol m^{-3} (2.0 mol dm^{-3})

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	Mole ratio in liquid, H_2S/DEA	Mole ratio in liquid, CO_2/DEA
373.2	1.265	1.638	0.043	0.051
	2.101	6.469	0.045	0.106
	1.189	0.752	0.045	0.032
	1.607	1.838	0.047	0.060
	1.914	3.140	0.047	0.065
	1.859	3.568	0.047	0.077
	2.213	4.647	0.047	0.118
	2.295	5.253	0.048	0.115
	2.489	0.393	0.049	0.019
	1.567	1.305	0.050	0.050
	1.740	1.919	0.050	0.051
	1.942	3.526	0.051	0.083
	2.177	1.699	0.056	0.040
	1.623	0.701	0.059	0.027
	3.153	3.547	0.060	0.075
	2.292	4.376	0.062	0.100
	3.203	4.519	0.065	0.085
	2.116	0.312	0.067	0.013
	3.216	4.873	0.069	0.103
	1.940	0.145	0.069	0.0082
	3.035	2.667	0.072	0.072
	2.273	1.843	0.072	0.053
	3.221	2.405	0.074	0.064
	3.598	2.007	0.083	0.055
	3.000	2.874	0.084	0.070
	3.649	1.568	0.084	0.035
	3.646	2.692	0.086	0.064
	3.091	0.243	0.088	0.0076
	3.555	0.105	0.093	0.0048
	3.492	0.121	0.094	0.0077
	4.264	2.048	0.094	0.053
	3.208	0.738	0.096	0.024
	4.793	1.731	0.097	0.041
	4.102	2.093	0.103	0.039
	3.675	0.087	0.103	0.0042
	5.732	5.234	0.103	0.082
	3.868	0.180	0.106	0.0080
	4.832	1.039	0.117	0.031
	5.067	0.834	0.119	0.018
	4.726	0.318	0.124	0.0092

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-(2-Aminoethoxy)ethanol, (*diglycolamine*); $C_4H_{11}NO_2$; [929-06-6]	Dingman, J.C.; Jackson, J.L.; Moore, T.F.; Branson, J.A. *Proc. 62nd Annual Convention of the Gas Processors Association*, 1983, 256-268.
VARIABLES:	PREPARED BY:
Temperature, composition of liquid and gas phases.	P.G.T. Fogg

EXPERIMENTAL VALUES:

Concentration of diglycolamine (DGA) in aqueous solution before addition of gas = 65 wt %

T/°F	T/K*	Mole ratio in liquid phase CO_2/DGA	Mole ratio in liquid phase H_2S/DGA	Partial pressure of CO_2 /psia	Partial pressure of CO_2 /kPa*	Partial pressure of H_2S /psia	Partial pressure of H_2S /kPa*
100	310.9	0.0026	0	0.0000290	0.000200	0.0	0
		0	0.0027	0.0	0	0.0000480	0.000331
		0	0.0029	0.0	0	0.000133	0.000917
		0	0.0039	0.0	0	0.0000580	0.000400
		0	0.0050	0.0	0	0.000232	0.00160
		0	0.0104	0.0	0	0.00116	0.00800
		0	0.0114	0.0	0	0.000812	0.00560
		0.0140	0.0014	0.00029	0.00200	0.000062	0.000427
		0.0145	0.0030	0.00029	0.00200	0.000422	0.00291
		0	0.0205	0.0	0	0.00296	0.0204
		0.0213	0.0022	0.000319	0.00220	0.000319	0.00220
		0.0271	0.0012	-	-	0.0000430	0.000296
		0.0306	0.0010	0.000841	0.00580	0.0000810	0.000558
		0	0.0335	0.0	0	0.00723	0.0498
		0	0.0412	0.0	0	0.00952	0.0656
		0.0440	0.0020	0.0000870	0.000600	0.000319	0.00220
		0.0474	0.0008	0.000232	0.00160	0.0000640	0.000441
		0.0503	0.0031	0.000232	0.00160	0.000841	0.00580
		0.0537	0	0.000232	0.00160	0.0	0
		0.0547	0.0023	-	-	0.000435	0.00300
		0.0624	0	0.000174	0.00120	0.0	0
		0.0643	0.0010	0.000290	0.00200	0.000133	0.000917
		0.0630	0.0054	0.000232	0.00160	0.00263	0.0181
		0.0610	0.0112	0.00104	0.00717	0.00422	0.0291
		0	0.0820	0.0	0	0.0191	0.132
		0.0926	0	0.000890	0.00614	0.0	0

* calculated by the compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Aqueous solution of DGA (600 cm^3) was placed in a stainless steel equilibrium vessel of capacity 1700 cm^3. The space above the was flushed with methane and H_2S and/or CO_2 passed into the vessel to appropriate partial pressures. The total pressure was maintained at 1500 mmHg by addition of methane. The vessel was rocked in a constant temperature bath for 1 - 2 h. The vapor phase was analysed by gas chromatography. CO_2 in the liquid phase was determined by acidification and measurement of the evolved gas. The H_2S in this phase was determined by titration with standard copper(II) nitrate.	No information. ESTIMATED ERROR: REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-(2-Aminoethoxy)ethanol, (*diglycolamine*); $C_4H_{11}NO_2$; [929-06-6]	Dingman, J.C.; Jackson, J.L.; Moore, T.F.; Branson, J.A. *Proc. 62nd Annual Convention of the Gas Processors Association*, 1983, 256-268.

EXPERIMENTAL VALUES:

Concentration of diglycolamine (DGA) in aqueous solution before addition of gas = 65 wt %

T/°F	T/K*	Mole ratio in liquid phase CO_2/DGA	Mole ratio in liquid phase H_2S/DGA	Partial pressure of CO_2 /psia	Partial pressure of CO_2 /kPa*	Partial pressure of H_2S /psia	Partial pressure of H_2S /kPa*
100	310.9	0.0935	0.0016	0.000957	0.00660	0.000725	0.00500
		0.0960	0.0009	0.000580	0.00400	0.000120	0.000827
		0.0922	0.0107	0.000754	0.00520	0.00638	0.0440
		0.1030	0.0	0.000638	0.00440	0.0	0
		0.1000	0.0030	0.00551	0.0380	0.00197	0.0136
		0.1110	0.0004	0.000638	0.00440	0.0000410	0.000283
		0.1150	0.0021	-	-	0.00102	0.00703
		0.0953	0.0235	0.000890	0.00614	0.0119	0.0820
		0.1170	0.0062	0.00174	0.0120	-	-
		0	0.1250	0.0	0	0.0638	0.440
		0.1250	0.0053	0.000609	0.00420	0.00395	0.0272
		0.1350	0.0022	0.00113	0.00779	0.00193	0.0133
		0.1540	0.0011	0.00116	0.00780	0.000870	0.00600
		0.1600	0.0004	0.00122	0.00841	0.0000850	0.000586
		0.0470	0.1170	-	-	0.105	0.724
		0.1650	0.0012	0.00145	0.0100	0.000580	0.00400
		0.1680	0.0026	0.00197	0.0136	0.00317	0.0219
		0	0.1760	0.0	0	0.0544	0.375
		0.0920	0.0880	-	-	0.0302	0.208
		0	0.1940	0.0	0	0.142	0.979
		0	0.2190	0.0	0	0.208	1.43
		0.0900	0.1320	-	-	0.115	0.793
		0.2250	0.0023	0.00308	0.0212	0.00354	0.0244
		0.2280	0.0009	0.00337	0.0232	0.000841	0.00580
		0	0.2300	0.0	0	0.186	1.28
		0.0926	0.1380	0.00180	0.0124	0.185	1.28
		0.2340	0.0004	0.00352	0.0243	0.000240	0.00165
		0.1900	0.0470	-	-	0.0841	0.580
		0.2500	0.0004	0.00575	0.0396	0.000422	0.00291
		0.2660	0.0012	0.00275	0.0190	0.00183	0.0126
		0.0460	0.2220	-	-	0.319	2.20
		0.1890	0.0800	-	-	0.116	0.800
		0.2590	0.0102	0.00516	0.0356	0.0148	0.102
		0.1900	0.0800	-	-	0.128	0.883
		0.2700	0.0020	0.00642	0.0443	0.00379	0.0261
		0.2790	0.0050	0.00279	0.0192	0.00809	0.0558
		0.0930	0.1920	-	-	0.242	1.67
		0	0.2920	0.0	0	0.244	1.68
		0.2920	0	0.0108	0.0745	0.0	0
		0.2910	0.0011	0.00747	0.0515	0.00296	0.0204
		0	0.3000	0.0	0	0.263	1.81
		0.1870	0.1210	0.00967	0.0667	0.171	1.18
		0.3120	0.0009	0.0109	0.0752	0.00255	0.0176
		0.2820	0.0422	0.0151	0.104	0.0468	0.320
		0.0920	0.2380	-	-	0.389	2.68
		0	0.3390	0.0	0	0.422	2.91
		0.0920	0.2550	-	-	0.545	3.76
		0.1840	0.1680	0.0116	0.0800	0.267	1.84
		0.3590	0	0.0511	0.352	0.0	0
		0.3620	0.0003	0.0209	0.144	0.00139	0.00958
		0.2750	0.0882	0.0213	0.147	0.217	1.50
		0.0930	0.2980	-	-	0.696	4.80
		0.0480	0.3450	-	-	0.584	4.03

* calculated by the compiler.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-(2-Aminoethoxy)ethanol, (*diglycolamine*); $C_4H_{11}NO_2$; [929-06-6]	Dingman, J.C.; Jackson, J.L.; Moore, T.F.; Branson, J.A. *Proc. 62nd Annual Convention of the Gas Processors Association*, 1983, 256-268.

EXPERIMENTAL VALUES:

Concentration of diglycolamine (DGA) in aqueous solution before addition of gas = 65 wt %

T/°F	T/K*	Mole ratio in liquid phase CO_2/DGA	H_2S/DGA	Partial pressure of CO_2 /psia	/kPa*	Partial pressure of H_2S /psia	/kPa*
100	310.9	0.1740	0.2240	0.0139	0.0958	0.503	3.47
		0.4030	0	0.0607	0.419	0.0	0
		0.2670	0.1360	0.0344	0.237	0.557	3.84
		0.1660	0.2370	-	-	0.754	5.20
		0.3940	0.0109	0.0464	0.320	0.0503	0.347
		0.3880	0.0180	0.0749	0.516	-	-
		0.3900	0.0340	0.0812	0.560	0.166	1.14
		0.0930	0.3370	-	-	0.917	6.32
		0.0830	0.3470	-	-	1.00	6.89
		0	0.4340	0.0	0	0.911	6.28
		0.3730	0.0610	0.125	0.862	0.406	2.80
		0.2450	0.1910	0.0574	0.396	-	-
		0.2720	0.1680	0.0841	0.580	0.737	5.08
		0.0873	0.3580	0.00604	0.0416	1.06	7.31
		0.4500	0.0064	0.348	2.40	0.0656	0.452
		0.4580	0	0.286	1.97	0.0	0
		0.1700	0.2910	-	-	1.31	9.93
		0.2670	0.2000	0.0580	0.340	1.22	8.41
		0.4450	0.0280	0.596	4.11	0.445	3.07
		0.0900	0.3900	-	-	1.08	7.45
		0.3760	0.1180	0.412	2.84	1.64	11.3
		0.5020	0	1.83	12.6	0.0	0
		0.5060	0	1.77	12.2	0.0	0
		0.4990	0.0080	2.03	14.0	0.232	1.60
		0.3670	0.1420	0.758	5.23	2.98	20.5
		0.4850	0.0270	3.75	25.9	1.19	8.20
		0.5000	0.0160	2.36	16.3	0.449	3.10
		0.2640	0.2580	0.145	1.00	2.51	17.3
		0.4310	0.0917	11.4	78.6	8.27	57.0
		0.4600	0.0690	7.95	54.8	4.76	32.8
		0.0890	0.4400	-	-	1.80	12.4
		0.3610	0.1780	2.03	14.0	6.81	47.0
		0.3520	0.1960	4.14	28.5	11.4	78.6
		0.1680	0.3820	-	-	3.09	21.3
		0	0.5520	0.0	0	2.24	15.4
		0.1630	0.3920	0.0841	0.580	3.31	22.8
		0.2490	0.3260	0.828	5.71	9.28	64.0
		0.1680	0.4160	0.0812	0.560	4.80	33.1
		0.0880	0.5030	-	-	3.21	22.1
		0.3480	0.2420	6.73	46.4	17.6	121.3
		0.5900	0	27.0	186.2	0.0	0
		0	0.5920	0.0	0	2.75	19.0
		0.2510	0.3570	1.44	9.93	14.3	98.6
		0.1620	0.4500	0.131	0.903	6.79	46.8
		0.2510	0.3680	2.07	14.3	18.1	124.8
		0.1540	0.5080	0.717	4.94	19.0	131.0
		0.0880	0.5770	-	-	6.42	44.3
		0.0865	0.5830	0.0429	0.296	6.67	46.0
		0	0.6830	0.0	0	5.51	38.0
		0.1800	0.5270	0.841	5.80	21.6	148.9
		0	0.7020	0.0	0	5.80	40.0
		0.0900	0.6130	-	-	8.76	60.4
		0.1610	0.5500	1.31	9.03	27.1	186.8

* calculated by the compiler.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-(2-Aminoethoxy)ethanol, (*diglycolamine*); $C_4H_{11}NO_2$; [929-06-6]	Dingman, J.C.; Jackson, J.L.; Moore, T.F.; Branson, J.A. *Proc. 62nd Annual Convention of the Gas Processors Association*, 1983, 256-268.

EXPERIMENTAL VALUES:

Concentration of diglycolamine (DGA) in aqueous solution before addition of gas = 65 wt %

T/°F	T/K*	Mole ratio in liquid phase CO_2/DGA	Mole ratio in liquid phase H_2S/DGA	Partial pressure of CO_2 /psia	Partial pressure of CO_2 /kPa*	Partial pressure of H_2S /psia	Partial pressure of H_2S /kPa*
100	310.9	0	0.7130	0.0	0	6.32	43.6
		0.0890	0.6300	-	-	12.7	87.6
		0	0.7410	0.0	0	7.76	53.5
		0.0630	0.6830	0.116	0.800	10.3	71.0
		0.0460	0.7050	0.0377	0.260	10.4	71.7
		0.0860	0.6690	0.232	1.60	15.8	108.9
		0.0490	0.7440	0.107	0.738	21.2	146.2
		0	0.8300	0.0	0	20.0	137.9
		0	0.8370	0.0	0	22.2	153.1
		0	0.8510	0.0	0	22.5	155.1
140	333.2	0.0443	0.0466	0.00230	0.0159	0.0754	0.520
		0.1200	0.0095	0.0106	0.0731	0.0117	0.0807
		0.1530	0.0091	0.0253	0.174	0.0263	0.181
		0.1200	0.0878	0.0155	0.107	-	-
		0.2030	0.0094	0.0331	0.228	0.0396	0.273
		0.0443	0.2130	0.00644	0.0444	0.956	6.59
		0.2600	0.0077	0.0557	0.384	0.0451	0.311
		0.0989	0.1950	0.0251	0.173	1.16	8.00
		0.0944	0.2410	0.0391	0.270	1.80	12.4
		0.2500	0.0861	0.0903	0.623	0.621	4.28
		0.0419	0.3040	0.00870	0.0600	2.22	15.3
		0.1420	0.2110	0.0437	0.301	1.73	11.9
		0.1073	0.2850	0.0468	0.323	2.80	19.3
		0.2330	0.1940	0.271	1.87	3.17	21.9
		0.3980	0.0413	1.33	9.17	1.25	8.62
		0.3650	0.0816	1.21	8.34	2.37	16.3
		0.0370	0.4170	-	-	4.41	30.4
		0.1530	0.2970	-	-	4.84	33.3
		0.2910	0.2000	1.13	7.79	6.96	48.0
		0.0228	0.4750	0.0124	0.0855	5.80	40.0
		0.5020	0.0069	12.1	83.4	0.716	4.94
		0.4900	0.0325	23.0	158.6	4.22	29.1
		0.1210	0.4050	0.154	1.06	8.18	56.4
		0.0164	0.5200	0.0173	0.119	8.51	58.7
		0.2830	0.2700	3.71	25.6	19.4	133.8
		0.2040	0.3680	1.46	10.1	19.5	134.4
		0.1080	0.5190	0.321	2.21	17.6	121.3
		0.1030	0.5360	0.627	4.32	26.8	184.8
160	344.3	0.0830	0.2530	0.0609	0.420	3.13	21.6
		0.1780	0.2220	2.46	17.0	22.2	153.1
		0.1020	0.3640	0.201	1.39	8.86	61.1
		0.4200	0.0620	7.14	49.2	4.62	31.9
180	355.4	0	0.0109	0.0	0	0.0110	0.0758
		0	0.0157	0.0	0	0.0464	0.320
		0.0203	0	0.00437	0.0301	0.0	0
		0.0367	0	0.0197	0.136	0.0	0
		0	0.0623	0.0	0	0.271	1.87
		0.0616	0.0145	0.0435	0.300	0.0870	0.600
		0.0689	0.0109	0.0435	0.300	0.0377	0.260
		0.0423	0.0407	0.0250	0.172	0.296	2.04

* calculated by the compiler.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 2-(2-Aminoethoxy)ethanol, (*diglycolamine*); $C_4H_{11}NO_2$; [929-06-6]	Dingman, J.C.; Jackson, J.L.; Moore, T.F.; Branson, J.A. *Proc. 62nd Annual Convention of the Gas Processors Association*, 1983, 256-268.

EXPERIMENTAL VALUES:

Concentration of diglycolamine (DGA) in aqueous solution before addition of gas = 65 wt %

T/°F	T/K*	Mole ratio in liquid phase CO_2/DGA	H_2S/DGA	Partial pressure of CO_2 /psia	/kPa*	Partial pressure of H_2S /psia	/kPa*
180	355.4	0.0976	0.0147	0.0897	0.618	0.125	0.862
		0.1160	0	0.0874	0.603	0.0	0
		0.0372	0.0859	0.0331	0.228	0.824	5.68
		0.1180	0.0113	0.0878	0.605	0.0899	0.620
		0	0.1450	0.0	0	1.57	10.8
		0.1640	0	0.147	1.01	0.0	0
		0.0873	0.0850	0.102	0.703	1.07	7.38
		0.0402	0.1760	0.0449	0.310	3.08	21.2
		0.1480	0.0701	0.230	1.59	1.18	8.14
		0.2230	0.0151	0.418	2.88	0.255	1.76
		0.0820	0.1160	0.126	0.869	3.13	21.6
		0	0.2590	0.0	0	4.53	31.2
		0.2590	0	0.588	4.05	0.0	0
		0.2260	0.0417	0.557	3.84	0.882	6.08
		0.2870	0.0103	0.855	5.90	0.250	1.72
		0.0930	0.2090	0.186	1.28	5.22	36.0
		0.1660	0.1570	0.534	3.68	5.26	36.3
		0	0.3240	0.0	0	7.58	52.3
		0.0368	0.2890	0.0859	0.592	7.54	52.0
		0.3330	0	1.44	9.93	0.0	0
		0.0880	0.2480	0.186	1.28	5.92	40.8
		0.2160	0.1250	0.944	6.51	4.53	31.2
		0.2090	0.1350	0.952	6.56	5.26	36.3
		0.3250	0.0417	1.91	13.2	1.53	10.5
		0.3550	0.0151	2.55	17.6	0.592	4.08
		0.1020	0.3530	0.631	4.35	16.4	113.1
		0.3520	0.1160	12.2	84.1	15.3	105.5
		0.4140	0.0593	14.6	100.7	7.20	49.6
		0.1550	0.3210	2.09	14.4	23.4	161.3
		0.2170	0.2600	3.40	23.4	22.2	153.1
		0.4370	0.0401	19.3	133.1	4.80	33.1
		0.4740	0.0113	23.8	164.1	1.38	9.51
		0.4880	0	26.5	182.7	0.0	0
		0.0966	0.4010	0.807	5.56	24.8	171.0
		0	0.5080	0.0	0	16.4	113.1
		0.0639	0.4610	0.391	2.70	26.5	182.7
		0	0.5270	0.0	0	26.5	182.7
Concentration of DGA before addition of gas = 70 wt %							
140	333.2	0.3230	0.0230	0.184	1.27	0.263	1.81
160	344.3	0.3190	0.0220	0.623	4.30	0.596	4.11
180	355.4	0.3180	0.0230	1.75	12.1	0.971	6.69

* calculated by the compiler.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 1,1'-Iminobis-2-propanol, (*diisopropanolamine*); $C_6H_{15}NO_2$; [110-97-4]	Isaacs, E.E.; Otto, F.D.; Mather,A.E. *Can. J. Chem. Eng.* 1977, 55, 210-212. (Complete data in the Centre for Unpublished Data, National Science Library, National Research Council, Ottawa, Ontario K1A 0S2, Canada.)
VARIABLES: Temperature, pressure, concentration of components in liquid phase.	PREPARED BY: P.G.T. Fogg

EXPERIMENTAL VALUES:

Concentration of DIPA (diisopropanolamine) = 2.5 kmol m^{-3} (2.5 mol dm^{-3})

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	Mole ratios in liquid phase H_2S/DIPA	CO_2/DIPA
313.2	2231.1	201.3	1.316	0.051
	1569.2	104.1	1.213	0.040
	1597.5	188.9	1.174	0.078
	1969.1	481.2	1.130	0.138
	1687.8	403.3	1.128	0.166
	1638.8	328.8	1.079	0.143
	1090.0	85.4	1.057	0.045
	1307.9	268.2	1.021	0.129
	1677.4	758.4	1.010	0.246
	1374.8	406.0	1.001	0.166
	2091.1	432.2	0.994	0.118
	2138.0	1396.8	0.976	0.370
	1119.0	247.5	0.975	0.142
	1855.3	1263.1	0.956	0.392
	683.2	63.4	0.933	0.059
	1113.4	404.7	0.899	0.223
	1300.3	646.7	0.891	0.307
	1654.0	1411.3	0.877	0.399
	776.3	197.1	0.861	0.142

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The equilibrium cell consisted of a Jerguson gauge with a 250 cm^3 tubular gas reservoir mounted at the top. Gas was circulated with a magnetic pump (1). Temperatures were measured by thermopiles and controlled by an air-bath. Pressures were measured by a Heise bourdon tube gauge. The cell was charged with about 150 cm^3 of DIPA solution. H_2S & CO_2 were added to give appropriate pressures. Nitrogen was added when necessary to ensure that the total pressure was above 600 kPa. Gases were circulated for at least 4 h. The gas phase was analysed by gas chromatography and the liquid phase by treating samples with H_2SO_4 (7 mol dm^{-3}), recording P-V-T data for the gases evolved and analysing them by gas chromatography.	No information
	ESTIMATED ERROR: $\delta T/K = \pm 0.5$ $\delta(CO_2/DIPA)$; $\delta(H_2S/DIPA) = \pm 0.02$ or 4%, whichever is the larger (authors)
	REFERENCES: 1. Ruska, W.E.A.; Hurt, L.J.; Kobayashi, R. *Rev. Sci. Inst.* 1979, *41*, 1444.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 1,1'-Iminobis-2-propanol, (*diisopropanolamine*); $C_6H_{15}NO_2$; [110-97-4]	Isaacs, E.E.; Otto, F.D.; Mather,A.E. *Can. J. Chem. Eng.* 1977, 55, 210-212. (Complete data in the Centre for Unpublished Data, National Science Library, National Research Council, Ottawa, Ontario K1A 0S2, Canada.)

EXPERIMENTAL VALUES:

Concentration of DIPA (diisopropanolamine) = 2.5 kmol m^{-3} (2.5 mol dm^{-3})

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	Mole ratios in liquid phase H_2S/DIPA	CO_2/DIPA
313.2	499.8	48.9	0.859	0.063
	1072.1	512.2	0.856	0.291
	914.9	427.4	0.821	0.262
	349.5	35.1	0.811	0.073
	2140.8	2332.4	0.790	0.531
	447.4	121.3	0.722	0.168
	206.1	19.9	0.719	0.079
	505.3	461.2	0.655	0.352
	379.2	192.3	0.651	0.257
	595.7	110.3	0.650	0.091
	888.7	669.4	0.598	0.364
	255.7	109.6	0.594	0.257
	186.1	62.0	0.593	0.190
	85.4	13.0	0.583	0.094
	1958.0	3834.1	0.554	0.756
	144.7	62.0	0.535	0.247
	117.8	32.4	0.500	0.197
	710.1	843.2	0.498	0.536
	44.1	5.5	0.498	0.126
	113.0	28.2	0.498	0.210
	80.6	23.4	0.470	0.198
	2496.5	3810.0	0.437	0.841
	1891.2	4177.4	0.432	0.851
	150.9	133.0	0.418	0.365
	734.9	1227.9	0.417	0.655
	106.1	96.5	0.411	0.322
	40.6	15.1	0.397	0.219
	106.1	84.1	0.387	0.354
	70.3	34.4	0.381	0.291
	41.3	13.0	0.379	0.230
	488.1	922.5	0.377	0.653
	59.2	32.4	0.376	0.283
	99.2	85.4	0.370	0.355
	230.2	336.4	0.367	0.524
	24.1	4.8	0.366	0.168
	39.2	16.5	0.342	0.253
	15.8	2.0	0.341	0.097
	17.9	6.2	0.339	0.168
	1313.4	4489.8	0.329	0.903
	15.8	4.1	0.327	0.175
	275.0	663.2	0.258	0.665
	86.1	164.7	0.254	0.504
	58.6	93.0	0.253	0.429
	46.1	48.2	0.251	0.364
	48.9	82.7	0.251	0.444
	15.8	9.6	0.239	0.261
	118.5	286.8	0.239	0.536
	84.1	159.2	0.236	0.498
	311.6	1027.9	0.233	0.737
	68.2	111.6	0.231	0.464

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 1,1'-Iminobis-2-propanol, (*diisopropanolamine*); $C_6H_{15}NO_2$; [110-97-4]	Isaacs, E.E.; Otto, F.D.; Mather,A.E. *Can. J. Chem. Eng.* 1977, *55*, 210-212. (Complete data in the Centre for Unpublished Data, National Science Library, National Research Council, Ottawa, Ontario K1A 0S2, Canada.)

EXPERIMENTAL VALUES:

Concentration of DIPA (diisopropanolamine) = 2.5 kmol m^{-3} (2.5 mol dm^{-3})

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	Mole ratios in liquid phase H_2S/DIPA	CO_2/DIPA
313.2	894.9	4896.6	0.229	0.970
	99.2	172.3	0.228	0.494
	273.0	1489.9	0.221	0.802
	273.7	911.4	0.216	0.730
	894.9	4833.1	0.191	1.020
	47.5	106.1	0.182	0.492
	204.0	1047.3	0.165	0.777
	28.2	22.7	0.165	0.351
	326.1	3109.5	0.150	0.940
	237.1	1540.9	0.145	0.869
	15.1	42.7	0.124	0.454
	10.3	26.8	0.122	0.410
	31.0	101.3	0.122	0.531
	13.0	25.5	0.121	0.409
	216.4	5282.0	0.115	1.030
	517.7	5276.5	0.115	1.052
	438.5	4555.3	0.111	1.053
	226.8	3224.6	0.098	0.999
	430.9	5391.6	0.076	1.089
	158.5	3678.3	0.071	1.067
	128.2	2625.5	0.047	1.011
	1.3	8.9	0.045	0.365
	1.3	11.0	0.042	0.392
	3.4	22.0	0.041	0.465
	3.4	22.7	0.041	0.452
	6.2	70.3	0.035	0.554
	17.2	318.5	0.031	0.731
	22.0	549.5	0.028	0.791
373.2	4126.4	574.3	1.254	0.059
	1797.4	523.9	0.903	0.079
	1819.5	754.9	0.829	0.117
	2748.9	2475.1	0.824	0.273
	1851.9	1392.7	0.809	0.176
	1107.9	237.1	0.796	0.065
	2137.3	1375.4	0.765	0.234
	1103.1	324.7	0.757	0.083
	1475.4	999.7	0.707	0.202
	2151.1	2273.8	0.653	0.337
	2363.5	3261.1	0.629	0.381
	606.0	212.3	0.617	0.095
	504.6	56.5	0.602	0.039
	2080.1	4123.0	0.591	0.456
	875.6	373.6	0.579	0.150
	617.7	236.4	0.575	0.098
	2002.9	4029.9	0.559	0.476
	2220.0	3727.9	0.551	0.474
	591.5	191.6	0.551	0.084
	774.9	346.1	0.547	0.161
	810.1	894.9	0.516	0.255
	753.5	951.4	0.480	0.278

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 1,1'-Iminobis-2-propanol, (*diisopropanolamine*); $C_6H_{15}NO_2$; [110-97-4]	Isaacs, E.E.; Otto, F.D.; Mather,A.E. *Can. J. Chem. Eng.* 1977, 55, 210-212. (Complete data in the Centre for Unpublished Data, National Science Library, National Research Council, Ottawa, Ontario K1A 0S2, Canada.)

EXPERIMENTAL VALUES:

Concentration of DIPA (diisopropanolamine) = 2.5 kmol m^{-3} (2.5 mol dm^{-3})

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	Mole ratios in liquid phase H_2S/DIPA	CO_2/DIPA
373.2	313.7	62.0	0.467	0.060
	395.7	170.9	0.459	0.115
	332.3	55.8	0.452	0.053
	890.1	1650.5	0.445	0.358
	868.7	1613.3	0.436	0.353
	244.7	35.1	0.435	0.049
	1567.8	4374.6	0.428	0.537
	1109.3	1851.9	0.427	0.380
	708.0	1233.4	0.421	0.309
	434.3	385.4	0.407	0.179
	185.4	48.2	0.385	0.081
	1296.8	3230.8	0.384	0.465
	162.0	37.2	0.371	0.060
	211.6	140.6	0.369	0.139
	218.5	157.1	0.357	0.151
	725.3	1838.8	0.353	0.411
	253.0	261.9	0.347	0.217
	1005.2	2676.5	0.336	0.501
	146.8	26.8	0.335	0.044
	384.0	677.7	0.322	0.285
	219.9	154.4	0.310	0.151
	302.6	427.4	0.306	0.275
	1213.4	4767.6	0.295	0.610
	129.6	68.9	0.293	0.113
	128.2	36.5	0.289	0.079
	150.9	117.2	0.284	0.145
	392.9	1094.8	0.274	0.395
	222.0	288.8	0.257	0.247
	447.4	1272.0	0.256	0.410
	79.2	29.6	0.253	0.074
	80.6	17.2	0.250	0.043
	133.0	175.1	0.241	0.192
	472.9	1990.4	0.239	0.513
	318.5	1074.1	0.230	0.403
	172.3	144.7	0.227	0.195
	203.3	532.9	0.226	0.312
	155.8	257.8	0.216	0.228
	230.9	854.9	0.212	0.361
	53.7	16.5	0.212	0.050
	187.5	451.6	0.210	0.286
	224.7	743.2	0.210	0.387
	48.9	19.3	0.207	0.068
	319.2	1349.2	0.205	0.458
	215.1	741.8	0.204	0.334
	36.5	9.6	0.185	0.050
	68.9	54.4	0.184	0.125
	717.0	5274.4	0.181	0.683
	31.0	11.0	0.156	0.066
	344.7	2031.8	0.154	0.539
	374.3	3219.8	0.145	0.600

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 1,1'-Iminobis-2-propanol, (*diisopropanolamine*); $C_6H_{15}NO_2$; [110-97-4]	Isaacs, E.E.; Otto, F.D.; Mather,A.E. *Can. J. Chem. Eng.* 1977, *55*, 210-212. (Complete data in the Centre for Unpublished Data, National Science Library, National Research Council, Ottawa, Ontario K1A 0S2, Canada.)

EXPERIMENTAL VALUES:

Concentration of DIPA (diisopropanolamine) = 2.5 kmol m^{-3} (2.5 mol dm^{-3})

T/K	P_{H_2S}/kPa	P_{CO_2}/kPa	Mole ratios in liquid phase H_2S/DIPA	CO_2/DIPA
373.2	794.9	4421.5	0.134	0.715
	43.4	63.4	0.133	0.161
	53.7	230.9	0.133	0.258
	25.5	24.1	0.132	0.097
	103.4	437.8	0.131	0.320
	44.8	88.2	0.130	0.186
	61.3	204.7	0.130	0.264
	421.9	3872.0	0.129	0.704
	361.9	3854.1	0.125	0.707
	32.7	44.5	0.124	0.121
	92.3	530.2	0.120	0.387
	94.4	661.2	0.119	0.404
	66.8	276.4	0.117	0.300
	28.9	35.8	0.106	0.106
	107.5	1119.0	0.105	0.467
	196.4	4474.6	0.105	0.699
	24.1	22.0	0.103	0.089
	42.7	88.9	0.101	0.193
	46.8	177.8	0.098	0.258
	144.0	3454.2	0.097	0.609
	312.3	5991.4	0.094	0.762
	42.0	63.4	0.090	0.198
	70.3	424.7	0.090	0.355
	173.0	5239.9	0.087	0.975
	278.5	5543.3	0.082	0.775
	323.3	7391.1	0.080	0.825
	8.2	4.8	0.064	0.036
	6.8	4.1	0.063	0.036
	9.9	22.5	0.054	0.102
	5.5	4.1	0.053	0.037
	11.3	33.8	0.047	0.134
	95.8	5885.3	0.025	0.783
	19.9	5619.1	0.018	0.747
	152.3	5591.6	0.005	0.754
	11.0	3157.7	0.002	0.644

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Hydrogen sulfide; H_2S; [7783-06-4] 2. Carbon dioxide; CO_2; [124-38-9] 3. Water; H_2O; [7732-18-5] 4. 1,1'-Iminobis-2-propanol, (*diisopropanolamine*); $C_6H_{15}NO_2$; [110-97-4]	Isaacs, E.E.; Otto, F.D.; Mather,A.E. *Can. J. Chem. Eng.* 1977, *55*, 210-212. (Complete data in the Centre for Unpublished Data, National Science Library, National Research Council, Ottawa, Ontario K1A 0S2, Canada.)

EXPERIMENTAL VALUES:

The tables give values of the mole ratio H_2S/DIPA in the liquid phase for various partial pressures of H_2S in the gas phase and mole ratios CO_2/DIPA in the liquid phase.

Concentration of DIPA = 2.5 kmol m^{-3} (2.5 mol dm^{-3})

Mole ratio CO_2/DIPA		0.000	0.100	0.200	0.300	0.400	0.500	0.600
T/K	P_{H_2S}/kPa							
313.2	1.0	0.063	0.045*	0.028*	0.015*	0.006*		
	3.16	0.185	0.158*	0.136*	0.108	0.069	0.029*	0.010*
	10.0	0.335	0.290	0.253	0.205	0.133	0.075	0.045
	31.6	0.565	0.458	0.383	0.310	0.213	0.143	0.092
	100	0.752	0.612	0.510	0.429	0.338	0.248	0.170
	316	0.902	0.759	0.670	0.606	0.527	0.440	0.347
	1000	1.126	0.983	0.907	0.838	0.772	0.677	0.570
	3000	1.620	1.458	1.255*	1.165*	1.080*	0.960*	0.850*

Mole ratio CO_2/DIPA		0.700	0.800	0.900	1.000	1.100	1.200
T/K	P_{H_2S}/kPa						
313.2	10.0	0.024					
	31.6	0.063	0.039	0.018	0.005*		
	100	0.133	0.102	0.072	0.047	0.029*	0.018*
	316	0.263	0.202	0.160	0.123	0.088*	0.067*
	1000	0.472	0.370	0.293	0.232	0.185	0.155
	3000	0.720*	0.622*	0.488*	0.405*	0.340*	0.288*

Mole ratio CO_2/DIPA		0.000	0.100	0.200	0.300	0.400	0.500
T/K	P_{H_2S}/kPa						
373.2	3.16	0.025	0.018*	0.010*			
	10.0	0.086	0.052	0.036	0.028	0.020	0.015*
	31.6	0.178	0.138	0.092	0.065	0.053	0.041
	100	0.311	0.245	0.200	0.150	0.120	0.093
	316	0.541	0.423	0.346	0.286	0.239	0.189
	1000	0.880	0.705	0.580	0.490	0.412	0.337
	3000	1.200	1.042	0.880	0.770	0.665	0.552*

Mole ratio CO_2/DIPA		0.600	0.700	0.800	0.900	1.000
T/K	P_{H_2S}/kPa					
373.2	10.0	0.010*				
	31.6	0.023	0.016*			
	100.0	0.073	0.058	0.037	0.024*	0.018*
	316	0.142	0.111	0.080*	0.058*	0.039*
	1000	0.272	0.212	0.163*	0.130*	0.107*
	3000	0.470*	0.397*	0.331*	0.286*	0.250*

* extrapolated values given by the authors.