

COMPONENTS:			ORIGINAL MEASUREMENTS:		
1. Methane; CH <sub>4</sub> ; [74-82-8] 2. Nitrogen; N <sub>2</sub> ; [7727-37-9] 3. Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8]			Merrill, R. C. Jr.; Luks, K. D.; Kohn, J. P. <i>Adv. Cryog. Eng.</i> , <u>1984</u> , <i>29</i> , 949-955.		
VARIABLES:			PREPARED BY:		
Temperature, pressure			C. L. Young		
EXPERIMENTAL VALUES:					
Raw data for the Butane rich liquid phase					
type	T/K	p/bar	$x_{C_4H_{10}}$	$x_{N_2}$	molar volume v/cm mol <sup>1</sup>
K	141.29	42.30	0.555	0.1002	58.1
	142.79	43.12	0.613	0.1216	67.6
	149.54	47.46	0.485	0.1517	59.1
	174.56	62.02	0.154	0.1961	64.3
	175.38	62.57	0.129	0.1897	57.3
Q	117.15	10.30	0.349	0.0948	51.1
	118.06	11.20	0.393	0.0930	53.5
	119.15	12.58	0.424	0.1005	54.7
	120.22	14.09	0.469	0.1029	55.9
	121.46	16.36	0.542	0.1086	60.0
	124.57	22.10	0.567	0.1050	56.1
	124.57	22.44	0.670	0.1244	67.3
UCST	120.31	11.34	0.117	0.2469	43.5
	127.82	15.96	0.108	0.2658	44.4
	130.74	18.24	0.0941	0.2844	45.1
	139.38	24.91	0.118	0.2668	46.7
LCST	141.58	26.92	0.128	0.2595	47.5
	150.45	35.33	0.129	0.2591	49.2
	157.61	42.71	0.142	0.2452	50.9
	158.98	44.03	0.116	0.2563	51.0
	161.79	47.20	0.122	0.2530	51.5
	168.83	54.78	0.128	0.2386	53.9
	174.50	60.85	0.086	0.2527	54.6
AUXILIARY INFORMATION					
METHOD APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:		
Glass equilibrium cell. Temperature measured with platinum resistance thermometer and pressure with Bourdon gauge. Stoichiometry and volumetric measurements were used to obtain liquid phase compositions and molar volumes. Molar volume data in source. Details of apparatus in ref (1). and source.			1. Linde Ultra pure sample, stated purity of 99.97 mole per cent.		
			2. Linde high purity sample, stated purity 99.99 mole per cent.		
			3. Linde Instrument grade, stated purity 99.5 mole per cent.		
			ESTIMATED ERROR:		
			REFERENCES:		
			1. Hottovy, J. D.; Kohn, J. P.; Luks, K. D. <i>J. Chem. Eng. Data</i> , <u>1981</u> , <i>26</i> , 135.		

## COMPONENTS:

1. Methane;  $\text{CH}_4$ ; [74-82-8]
2. Nitrogen;  $\text{N}_2$ ; [7727-37-9]
3. Butane;  $\text{C}_4\text{H}_{10}$ ; [106-97-8]

## ORIGINAL MEASUREMENTS:

Merrill, R. C. Jr.; Luks, K. D.;  
Kohn, J. P.  
*Adv. Cryog. Eng.*, 1984, *29*, 949-955

## EXPERIMENTAL VALUES:

Raw data for the Butane rich liquid phase

type	T/K	p/bar	$x_{\text{C}_4\text{H}_{10}}$	$x_{\text{N}_2}$	molar volume $v/\text{cm mol}^{-1}$
L-L-G	128.65	17.12	0.266	0.1607	48.3
	128.65	17.13	0.281	0.1472	51.1
	128.65	18.03	0.331	0.1375	51.6
	128.65	18.29	0.356	0.1344	52.5
	128.65	18.44	0.346	0.1458	50.7
	128.65	19.34	0.399	0.1259	54.5
	128.65	20.30	0.444	0.1247	55.7
	128.65	20.64	0.452	0.1218	55.8
	128.65	22.36	0.527	0.1203	60.2
	128.65	26.23	0.570	0.0910	57.2
	128.65	26.51	0.674	0.1058	68.8
	138.97	25.12	0.245	0.1781	50.0
	138.97	25.47	0.268	0.1740	50.1
	138.97	26.79	0.326	0.1540	52.7
	138.97	27.05	0.341	0.1481	53.0
	138.97	27.05	0.331	0.1612	51.6
	138.97	27.60	0.361	0.1463	53.7
	138.97	28.17	0.377	0.1442	54.8
	138.97	30.02	0.429	0.1378	56.4
	138.97	31.53	0.461	0.1308	57.3
	138.97	33.12	0.512	0.1310	60.7
	138.97	37.74	0.614	0.1232	66.8
	138.97	38.99	0.543	0.1160	56.4
	138.97	39.06	0.622	0.1402	66.4
	149.27	34.37	0.208	0.1949	50.0
	149.27	36.15	0.277	0.1739	51.5
	149.27	37.19	0.306	0.1680	52.5
	149.27	37.34	0.316	0.1621	53.7
	149.27	38.02	0.326	0.1646	52.6
	149.27	38.84	0.352	0.1534	54.6
	149.27	45.67	0.466	0.1431	58.3
	149.27	47.05	0.497	0.1445	60.6
	159.52	49.12	0.297	0.1770	53.7
	159.52	50.36	0.312	0.1629	54.0
	159.52	52.08	0.353	0.1558	56.1
	169.72	56.15	0.197	0.2700	64.8

Raw data for the butane lean liquid phase

K	135.36	38.72	0.0110	0.8158	69.0
	139.67	41.67	0.0053	0.7861	85.1
	142.94	43.27	0.0021	0.7599	99.3
	143.08	43.60	0.0052	0.7402	75.2
	145.15	44.85	0.0035	0.7247	82.2
	152.05	47.40	0.0100	0.6666	108.5
	163.25	52.36	0.0095	0.6035	119.2
	167.93	57.88	0.0160	0.4401	77.6
	168.13	56.70	0.0267	0.4873	95.8
	170.51	59.32	0.0309	0.4294	78.6
	171.42	59.40	0.0375	0.4290	84.9
	174.36	61.94	0.0406	0.3627	73.8
Q	121.24	16.15	0.0189	0.5457	43.1
	121.83	16.78	0.0201	0.5615	43.8
	121.84	17.19	0.0221	0.5726	43.8
	127.88	29.96	0.0106	0.8386	54.2

## COMPONENTS:

1. Methane;  $\text{CH}_4$ ; [74-82-8]
2. Nitrogen;  $\text{N}_2$ ; [7727-37-9]
3. Butane;  $\text{C}_4\text{H}_{10}$ ; [106-97-8]

## ORIGINAL MEASUREMENTS:

Merrill, R. C. Jr.; Luks, K. D.;  
Kohn, J. P.  
*Adv. Cryog. Eng.*, 1984, 29, 949-955.

## EXPERIMENTAL VALUES:

Raw data for the Butane lean liquid phase

type	T/K	p/bar	$x_{\text{C}_4\text{H}_{10}}$	$x_{\text{N}_2}$	molar volume $v/\text{cm mol}^{-1}$
L	128.65	16.58	0.1203	0.2657	45.2
	128.65	16.78	0.0965	0.2983	45.1
	128.65	16.79	0.0944	0.2959	44.3
	128.65	16.85	0.0906	0.2901	45.0
	128.65	19.95	0.0294	0.4569	44.7
	128.65	21.27	0.0197	0.5186	45.0
	128.65	22.22	0.0163	0.5485	45.3
	128.65	22.50	0.0186	0.5668	45.9
	128.65	22.98	0.0166	0.5805	45.9
	128.65	30.51	0.0177	0.8232	54.1
	128.65	30.92	0.0172	0.8361	55.1
	138.97	24.64	0.1118	0.2744	46.9
	138.97	24.78	0.1018	0.2779	46.8
	138.97	25.54	0.0698	0.3285	46.3
	138.97	26.10	0.1011	0.2817	46.2
	138.97	28.43	0.0303	0.4370	47.6
	138.97	30.63	0.0222	0.4961	48.4
	138.97	31.20	0.0188	0.5200	49.0
	138.97	31.89	0.0167	0.5411	50.1
	138.97	32.42	0.0165	0.5509	49.9
	149.27	34.37	0.0907	0.2901	49.0
	149.27	34.44	0.0958	0.2918	48.3
	149.27	34.64	0.0821	0.3035	48.9
	149.27	34.78	0.0765	0.3079	48.9
	149.27	37.54	0.0400	0.4025	50.7
	149.27	38.02	0.0375	0.4034	50.8
	149.27	39.46	0.0270	0.4432	51.7
	149.27	42.28	0.0138	0.5118	55.1
	159.52	45.54	0.1071	0.3241	54.8
	159.52	46.22	0.0576	0.3375	52.5
	159.52	52.01	0.0188	0.4785	63.7
	169.72	56.01	0.0659	0.2905	54.8

COMPONENTS:			ORIGINAL MEASUREMENTS:			
1. Methane; CH <sub>4</sub> ; [74-82-8] 2. Nitrogen; N <sub>2</sub> ; [7727-37-9] 3. Pentane; C <sub>5</sub> H <sub>12</sub> ; [109-66-0]			Merrill, R. C.; Luks, K. D.; Kohn, J. P. <i>J. Chem. Eng. Data</i> <u>1984</u> , <i>29</i> , 272-276.			
VARIABLES:			PREPARED BY:			
			C. L. Young			
EXPERIMENTAL VALUES:						
Phases in equilibrium	T/K	P/atm	P/MPa	Mole fractions Pentane, $x_{C_5H_{12}}$	Nitrogen, $x_{N_2}$	
<u>Composition of L<sub>1</sub>, Pentane rich phase</u>						
L <sub>1</sub> , L <sub>2</sub> = V	149.10	34.73	3.519	0.5679	0.0342	
	152.68	38.13	3.864	0.5368	0.0524	
	158.96	49.29	4.994	0.5220	0.1088	
	163.05	50.79	5.146	0.4407	0.0944	
	166.51	50.11	5.077	0.4198	0.0815	
	171.98	53.51	5.422	0.3553	0.0924	
	176.82	54.60	5.532	0.3134	0.0876	
	177.36	54.40	5.512	0.3422	0.0583	
	178.81	54.19	5.491	0.2760	0.0794	
	180.96	55.83	5.657	0.2664	0.0758	
	182.80	56.16	5.690	0.2589	0.0738	
	190.61	58.42	5.919	0.1767	0.0646	
	S, L <sub>1</sub> , L <sub>2</sub> , V	133.79	16.22	1.643	0.3975	0.0875
		134.32	18.88	1.913	0.4569	0.0838
134.95		19.96	2.022	0.5178	0.0876	
L <sub>1</sub> = L <sub>2</sub> , V	153.08	25.55	2.589	0.1519	0.1238	
	162.19	33.51	3.395	0.1946	0.0965	
	169.78	39.29	3.981	0.1344	0.1123	
	172.88	41.94	4.250	0.1474	0.1043	
	174.09	43.04	4.361	0.1472	0.1005	
(cont.)						
AUXILIARY INFORMATION						
METHOD APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:			
Glass equilibrium cell. Temperature measured with platinum resistance thermometer and pressure with Bourdon gauge. Stoichiometry and volumetric measurements were used to obtain liquid phase compositions and molar volumes. Molar volume data in source. Details of apparatus in refs. (1) and (2).			1. Linde "Ultra Pure" grade, purity 99.97 mole per cent.			
			2. Linde "High Purity" grade, purity 99.99 mole per cent.			
			3. Humphrey Chemical Co. sample, Purity 99 mole per cent.			
			ESTIMATED ERROR: $\delta T/K = \pm 0.03$ ; $\delta P/MPa = \pm 0.07$ ; $\delta x/x < 0.036$ .			
			REFERENCES: 1. Hottovy, J. D.; Kohn, J. P.; Luks, K. D. <i>J. Chem. Eng. Data</i> <u>1981</u> , <i>26</i> , 135. 2. Hottovy, J. D.; Kohn, J. P.; Luks, K. D. <i>J. Chem. Eng. Data</i> <u>1982</u> , <i>27</i> , 298.			

COMPONENTS:		ORIGINAL MEASUREMENTS:			
1. Methane; CH <sub>4</sub> ; [74-82-8]		Merrill, R. C.; Luks, K. D.;			
2. Nitrogen; N <sub>2</sub> ; [7727-37-9]		Kohn, J. P.			
3. Pentane; C <sub>5</sub> H <sub>12</sub> ; [109-66-0]		<i>J. Chem. Eng. Data</i>			
		<u>1984</u> , 29, 272-276.			
EXPERIMENTAL VALUES:					
Phases in equilibrium	T/K	P/atm	P/MPa	Mole fractions Pentane, $x_{C_5H_{12}}$	Nitrogen, $x_{N_2}$
L <sub>1</sub> = L <sub>2</sub> ,V	177.06	45.49	4.609	0.1064	0.1118
	180.04	47.94	4.858	0.1049	0.1081
	180.04	48.01	4.865	0.1096	0.1022
	181.71	49.30	4.995	0.0900	0.1064
	183.11	50.59	5.126	0.0780	0.1043
	184.09	51.21	5.189	0.1160	0.0989
	187.13	53.52	5.422	0.1181	0.0896
	189.09	56.31	5.706	0.1586	0.0705
	140.00	19.56	1.982	0.3532	0.0785
	140.00	20.44	2.071	0.3813	0.0848
	140.00	21.94	2.223	0.4191	0.0784
	140.00	23.43	2.374	0.4442	0.0806
	140.00	24.32	2.464	0.5076	0.0866
	140.00	25.54	2.588	0.5295	0.0907
	150.00	28.20	2.857	0.3550	0.0847
	150.00	28.61	2.899	0.3617	0.0913
	150.00	31.87	3.229	0.4215	0.0817
	150.00	32.69	3.312	0.4304	0.0852
	150.00	35.14	3.561	0.5042	0.0945
	150.00	35.48	3.595	0.5150	0.0940
	150.00	37.72	3.822	0.5510	0.1002
	160.00	32.02	3.244	0.2201	0.0935
	160.00	32.22	3.265	0.2318	0.0964
	160.00	32.41	3.284	0.2321	0.0953
	160.00	32.62	3.305	0.2409	0.0935
	160.00	33.37	3.381	0.2614	0.0926
	160.00	33.50	3.394	0.2662	0.0885
	160.00	35.01	3.547	0.2950	0.1477
	160.00	36.43	3.691	0.3234	0.0928
	160.00	44.32	4.491	0.4931	0.0972
	160.00	46.71	4.733	0.4631	0.0859
	165.00	36.23	3.671	0.2088	0.0928
	165.00	36.44	3.692	0.2203	0.0932
	165.00	37.05	3.754	0.2339	0.0979
	165.00	37.11	3.760	0.2532	0.0892
	165.00	37.72	3.822	0.2553	0.0908
	165.00	38.27	3.878	0.2644	0.0926
	165.00	39.08	3.960	0.2795	0.0879
	165.00	40.44	4.098	0.3097	0.0962
	165.00	41.60	4.215	0.3236	0.0938
	165.00	44.46	4.505	0.3658	0.0843
	165.00	48.34	4.898	0.4100	0.0904
	165.00	48.34	4.898	0.4113	0.0826
	170.00	41.07	4.161	0.2182	0.0900
	170.00	41.75	4.230	0.2389	0.0839
	170.00	42.22	4.278	0.2499	0.0922
	170.00	42.28	4.284	0.2478	0.0911
	170.00	43.23	4.380	0.2649	0.0875
	170.00	43.64	4.422	0.2701	0.0866
	170.00	45.07	4.567	0.2929	0.0830
	170.00	46.16	4.677	0.3131	0.0924
	170.00	47.52	4.815	0.3318	0.0896
	170.00	50.92	5.159	0.3694	0.0945
	170.00	52.01	5.270	0.3817	0.0902
	175.00	43.92	4.450	0.1511	0.1019
	175.00	44.12	4.470	0.1634	0.1049
	175.00	46.44	4.706	0.2333	0.0843
	175.00	47.04	4.766	0.2426	0.0874

(cont.)

COMPONENTS:			ORIGINAL MEASUREMENTS:		
1. Methane; CH <sub>4</sub> ; [74-82-8]			Merrill, R. C.; Luks, K. D.;		
2. Nitrogen; N <sub>2</sub> ; [7727-37-9]			Kohn, J. P.		
3. Pentane; C <sub>5</sub> H <sub>12</sub> ; [109-66-0]			<i>J. Chem. Eng. Data</i>		
			1984, 29, 272-276.		
EXPERIMENTAL VALUES:					
Phases in equilibrium	T/K	P/atm	P/MPa	Mole fractions Pentane, $x_{C_5H_{12}}$	Nitrogen, $x_{N_2}$
L <sub>1</sub> = L <sub>2</sub> , V	175.00	48.07	4.871	0.2611	0.0828
	175.00	48.14	4.878	0.2632	0.0751
	175.00	49.15	4.980	0.2756	0.0839
	175.00	49.97	5.063	0.2865	0.0826
	175.00	50.99	5.167	0.2993	0.0856
	175.00	52.28	5.297	0.3087	0.0942
	180.00	48.27	4.891	0.1584	0.0913
	180.00	48.75	4.940	0.1751	0.0856
	180.00	52.57	5.327	0.2448	0.0802
	180.00	52.62	5.332	0.2550	0.0837
	180.00	54.54	5.526	0.2822	0.0830
<u>Composition of L<sub>2</sub>, Pentane lean phase</u>					
L <sub>1</sub> , L <sub>2</sub> = V	153.83	46.84	4.746	0.0090	0.6232
	171.77	53.31	5.402	0.0042	0.3762
	173.07	53.85	5.456	0.0063	0.3436
	174.15	53.72	5.443	0.0045	0.3578
	174.49	54.19	5.491	0.0081	0.3040
	174.85	54.60	5.532	0.0043	0.3414
	175.41	53.79	5.450	0.0117	0.3387
	176.02	54.60	5.532	0.0081	0.2979
	177.44	55.01	5.574	0.0059	0.3000
	179.19	55.29	5.602	0.0164	0.2468
	183.03	56.03	5.677	0.0253	0.2230
	187.19	57.25	5.801	0.0127	0.1779
	187.75	57.59	5.835	0.0167	0.1576
	188.26	57.66	5.842	0.0100	0.1655
	188.83	57.72	5.848	0.0098	0.1576
	188.86	58.00	5.877	0.0165	0.1457
	192.18	58.27	5.904	0.0028	0.1344
S, L <sub>1</sub> , L <sub>2</sub> , V	132.28	12.01	1.217	0.1206	0.1835
	132.64	12.62	1.279	0.0718	0.1612
	133.26	14.05	1.424	0.0508	0.1943
	135.67	22.76	2.306	0.0052	0.4194
L <sub>1</sub> , L <sub>2</sub> , V	140.00	16.98	1.720	0.0744	0.1626
	140.00	18.34	1.858	0.0551	0.1966
	140.00	18.88	1.913	0.0488	0.2140
	140.00	24.39	2.471	0.0093	0.3591
	140.00	26.63	2.698	0.0004	0.4265
	150.00	24.53	2.486	0.0614	0.1632
	150.00	26.57	2.692	0.0427	0.2180
	150.00	26.98	2.734	0.0368	0.2211
	150.00	35.48	3.595	0.0101	0.3912
	150.00	36.91	3.740	0.0042	0.4290
	160.00	34.32	3.477	0.0469	0.1987
	160.00	36.57	3.705	0.0322	0.2378
	160.00	37.32	3.781	0.0287	0.2545
	160.00	40.66	4.120	0.0186	0.3066
	165.00	39.77	4.030	0.0373	0.2135
	165.00	43.03	4.360	0.0239	0.2607
	165.00	43.38	4.395	0.0224	0.2677
	165.00	48.61	4.925	0.0104	0.3564
	170.00	42.35	4.291	0.0458	0.1787
	170.00	44.73	4.532	0.0325	0.2124
	170.00	45.35	4.595	0.0297	0.2221
	170.00	48.07	4.871	0.0188	0.2609

(cont.)

COMPONENTS:			ORIGINAL MEASUREMENTS:		
1. Methane; CH <sub>4</sub> ; [74-82-8]			Merrill, R. C.; Luks, K. D.;		
2. Nitrogen; N <sub>2</sub> ; [7727-37-9]			Kohn, J. P.		
3. Pentane; C <sub>5</sub> H <sub>12</sub> ; [109-66-0]			<i>J. Chem. Eng. Data</i> <u>1984</u> , 29, 272-276.		
EXPERIMENTAL VALUES:					
Phases in equilibrium	T/K	P/atm	P/MPa	Mole fractions	
				Pentane, x <sub>C<sub>5</sub>H<sub>12</sub></sub>	Nitrogen, x <sub>N<sub>2</sub></sub>
L <sub>1</sub> ,L <sub>2</sub> ,V	170.00	48.48	4.912	0.0189	0.2694
	170.00	50.58	5.125	0.0170	0.2791
	170.00	51.27	5.195	0.0117	0.3195
	175.00	47.25	4.788	0.0384	0.1773
	175.00	48.14	4.878	0.0330	0.1909
	175.00	48.48	4.912	0.0320	0.1913
	175.00	50.38	5.105	0.0226	0.2214
	175.00	51.06	5.174	0.0197	0.2355
	175.00	51.68	5.236	0.0182	0.2428
	175.00	51.74	5.243	0.0178	0.2404
	180.00	49.70	5.036	0.0467	0.1414
	180.00	51.00	5.168	0.0364	0.1644
	180.00	51.20	5.188	0.0364	0.1611
	180.00	53.03	5.373	0.0245	0.1929
	180.00	53.04	5.374	0.0264	0.1900
	180.00	53.10	5.380	0.0249	0.1878

COMPONENTS:		ORIGINAL MEASUREMENTS:					
1. Methane; CH <sub>4</sub> ; [74-82-8]		Poston, R. S.; McKetta, J. J.					
2. Nitrogen; N <sub>2</sub> ; [7727-37-9]		<i>Am. Inst. Chem. Engrs. J.</i>					
3. Hexane; C <sub>6</sub> H <sub>14</sub> ; [110-54-3]		<u>1965</u> , 11, 917-920.					
VARIABLES:		PREPARED BY:					
		C. L. Young					
EXPERIMENTAL VALUES:							
T/K (T/°F)	P/MPa (P/psi)	in liquid			Mole fraction in vapor		
		x <sub>CH<sub>4</sub></sub>	x <sub>N<sub>2</sub></sub>	x <sub>C<sub>6</sub>H<sub>14</sub></sub>	y <sub>CH<sub>4</sub></sub>	y <sub>N<sub>2</sub></sub>	y <sub>C<sub>6</sub>H<sub>14</sub></sub>
310.9 (100)	3.45 (500)	0.110	0.020	0.870	0.610	0.374	0.016
	6.89 (1000)	0.044	0.080	0.876	0.308	0.674	0.018
	10.34 (1500)	0.265	0.009	0.726	0.909	0.071	0.020
		0.083	0.113	0.804	0.202	0.787	0.011
		0.132	0.097	0.771	0.302	0.685	0.013
		0.162	0.084	0.754	0.385	0.603	0.012
	13.79 (2000)	0.371	0.016	0.613	0.913	0.066	0.021
		0.324	0.078	0.598	0.617	0.361	0.022
		0.338	0.074	0.588	0.649	0.335	0.016
		0.461	0.020	0.519	0.385	0.066	0.021
		0.461	0.020	0.519	0.913	0.066	0.021
	17.24 (2500)	0.229	0.105	0.666	0.408	0.578	0.014
		0.490	0.061	0.449	0.757	0.223	0.020
		0.390	0.099	0.511	0.608	0.376	0.016
		0.294	0.124	0.582	0.498	0.486	0.016
		0.759	0.145	0.614	0.402	0.580	0.018
	20.68 (3000)	0.172	0.199	0.629	0.242	0.740	0.018
		0.140	0.202	0.658	0.202	0.780	0.018
		0.094	0.216	0.690	0.135	0.852	0.013
		0.587	0.071	0.342	0.821	0.159	0.020
		0.681	0.062	0.257	0.843	0.127	0.030
		0.646	0.044	0.310	0.872	0.109	0.019
		0.806	0.060	0.134	0.886	0.094	0.020
	(cont.)	0.720	0.058	0.222	0.863	0.118	0.019
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE:				SOURCE AND PURITY OF MATERIALS:			
Stainless steel glass windowed cell. Vapor recycled using high pressure magnetic pump. Pressure measured using Bourdon gauge and temperature measured using thermocouples. Samples of both phases withdrawn at constant pressure and analysed by gas chromatography. Details of apparatus in source and ref. (1).				1 and 3. Phillips Petroleum Co. research grade.			
				2. Research grade.			
				ESTIMATED ERROR:			
				δT/K = ±0.1; δP/MPa = ±0.015;			
				δx <sub>CH<sub>4</sub></sub> , δy <sub>CH<sub>4</sub></sub> = ±0.002.			
				REFERENCES:			
				1. Roberts, L. R.; McKetta, J. J.			
				<i>Am. Inst. Chem. Engrs. J.</i>			
				<u>1961</u> , 7, 173.			



COMPONENTS:		ORIGINAL MEASUREMENTS:					
1. Methane; CH <sub>4</sub> ;	[74-82-8]	Poston, R. S.; McKetta, J. J.					
2. Nitrogen; N <sub>2</sub> ;	[7727-37-9]	<i>Am. Inst. Chem. Engrs. J.</i>					
3. Hexane; C <sub>6</sub> H <sub>14</sub> ;	[110-54-3]	<u>1965</u> , 11, 917-920.					
EXPERIMENTAL VALUES:							
T/K (T/°F)	P/MPa (P/psi)	Mole fraction					
		in liquid			in vapor		
		x <sub>CH<sub>4</sub></sub>	x <sub>N<sub>2</sub></sub>	x <sub>C<sub>6</sub>H<sub>14</sub></sub>	y <sub>CH<sub>4</sub></sub>	y <sub>N<sub>2</sub></sub>	y <sub>C<sub>6</sub>H<sub>14</sub></sub>
310.9 (100)	20.68 (3000)	Single phase			0.108	0.075	0.033
	24.13 (3500)	0.398	0.160	0.442	0.524	0.450	0.026
		0.378	0.165	0.457	0.536	0.434	0.030
		0.460	0.151	0.389	0.616	0.340	0.044
		0.507	0.133	0.360	0.679	0.283	0.038
		0.603	0.132	0.265	0.715	0.246	0.039
		0.591	0.118	0.291	0.726	0.248	0.026
		0.664	0.104	0.232	0.782	0.160	0.058
		0.675	0.104	0.221	0.783	0.142	0.075
		Single phase			0.787	0.110	0.103
	27.58 (4000)	0.552	0.168	0.280	0.652	0.293	0.055
		0.571	0.158	0.271	0.672	0.272	0.056
		0.507	0.184	0.309	0.609	0.349	0.042
		0.591	0.160	0.249	0.690	0.256	0.054
		0.222	0.239	0.539	0.312	0.670	0.018
		0.364	0.218	0.418	0.443	0.522	0.035
		Single phase			0.715	0.203	0.082
	31.03 (4500)	0.499	0.238	0.263	0.576	0.372	0.052
		0.519	0.235	0.246	0.401	0.334	0.067
		0.304	0.257	0.439	0.388	0.579	0.033
		0.230	0.270	0.500	0.293	0.689	0.018
		Single phase			0.597	0.308	0.095
	34.47 (5000)	0.458	0.296	0.246	0.516	0.400	0.084
		0.383	0.268	0.349	0.459	0.495	0.046
		0.330	0.293	0.377	0.395	0.568	0.037
		0.254	0.304	0.442	0.308	0.671	0.021
		0.474	0.295	0.231	0.501	0.400	0.099
		0.141	0.331	0.528	0.169	0.811	0.020
		Single phase			0.515	0.372	0.113
344.3 (160)	3.45 (500)	0.096	0.013	0.891	0.698	0.241	0.061
	6.89 (1000)	0.034	0.041	0.925	0.186	0.757	0.057
	10.34 (1500)	0.157	0.042	0.801	0.725	0.228	0.047
	13.79 (2000)	0.050	0.080	0.870	0.162	0.796	0.042
		0.209	0.070	0.721	0.555	0.406	0.039
		0.084	0.114	0.802	0.248	0.719	0.033
		0.371	0.047	0.582	0.768	0.182	0.050
		0.221	0.103	0.676	0.374	0.586	0.040
		0.102	0.146	0.752	0.216	0.753	0.031
	17.24 (2500)	0.418	0.072	0.510	0.727	0.216	0.057
		0.280	0.114	0.606	0.507	0.449	0.044
		0.170	0.158	0.672	0.319	0.640	0.041
		0.112	0.175	0.713	0.200	0.763	0.037
		0.067	0.194	0.739	0.152	0.804	0.044
	20.68 (3000)	0.675	0.039	0.286	0.818	0.056	0.126
		0.629	0.052	0.319	0.830	0.087	0.083
		0.640	0.041	0.319	0.181	0.072	0.109
		0.597	0.064	0.339	0.818	0.100	0.082
		0.563	0.071	0.366	0.790	0.127	0.083
310.9 (100)	20.68 (3000)	0.422	0.112	0.466	0.656	0.277	0.067
		0.237	0.175	0.588	0.507	0.438	0.055
		0.041	0.232	0.727	0.061	0.896	0.043
		Single phase			0.806	0.050	0.144

(cont.)

COMPONENTS:		ORIGINAL MEASUREMENTS:						
1. Methane; CH <sub>4</sub> ; [74-82-8]		Poston, R. S.; McKetta, J. J.						
2. Nitrogen; N <sub>2</sub> ; [7727-37-9]		<i>Am. Inst. Chem. Engrs. J.</i>						
3. Hexane; C <sub>6</sub> H <sub>14</sub> ; [110-54-3]		<u>1965</u> , 11, 917-920.						
EXPERIMENTAL VALUES:								
T/K (T/°F)	P/MPa (P/psi)	Mole fraction						
		in liquid			in vapor			
		x <sub>CH<sub>4</sub></sub>	x <sub>N<sub>2</sub></sub>	x <sub>C<sub>6</sub>H<sub>14</sub></sub>	y <sub>CH<sub>4</sub></sub>	y <sub>N<sub>2</sub></sub>	y <sub>C<sub>6</sub>H<sub>14</sub></sub>	
310.9 (100)	24.13 (3500)	0.105	0.249	0.646	0.177	0.777	0.046	
		0.301	0.190	0.509	0.388	0.556	0.056	
		0.401	0.166	0.433	0.570	0.362	0.068	
		0.460	0.149	0.391	0.606	0.343	0.051	
		0.521	0.151	0.328	0.656	0.278	0.066	
		0.563	0.138	0.299	0.691	0.220	0.089	
			Single phase			0.689	0.174	0.137
		27.58 (4000)	0.154	0.273	0.573	0.213	0.740	0.047
			0.283	0.236	0.481	0.396	0.540	0.064
			0.369	0.217	0.414	0.492	0.413	0.095
			0.477	0.222	0.301	0.551	0.297	0.152
			Single phase			0.549	0.255	0.196
		31.03 (4500)	0.148	0.313	0.539	0.198	0.740	0.062
			0.347	0.289	0.364	0.409	0.477	0.114
			0.366	0.293	0.341	0.420	0.454	0.126
			Single phase			0.443	0.360	0.197
		34.47 (5000)	0.025	0.375	0.600	0.043	0.908	0.049
			0.118	0.373	0.509	0.143	0.794	0.060
			0.258	0.350	0.392	0.319	0.576	0.105
			0.304	0.363	0.333	0.346	0.517	0.137
	0.304		0.364	0.332	0.347	0.516	0.137	
		Single phase			0.340	0.429	0.221	
377.6 (220)	3.45 (500)	0.049	0.025	0.926	0.384	0.491	0.125	
		0.161	0.034	0.805	0.646	0.264	0.090	
	6.89 (1000)	0.090	0.056	0.854	0.383	0.528	0.089	
		0.041	0.118	0.841	0.116	0.811	0.073	
	10.34 (1500)	0.121	0.086	0.793	0.377	0.544	0.079	
		0.224	0.049	0.727	0.639	0.269	0.092	
		0.372	0.045	0.583	0.744	0.160	0.096	
	13.79 (2000)	0.252	0.086	0.662	0.537	0.378	0.085	
		0.146	0.121	0.733	0.332	0.592	0.076	
		0.079	0.162	0.759	0.178	0.748	0.074	
		0.454	0.058	0.488	0.741	0.158	0.101	
	17.24 (2500)	0.331	0.106	0.563	0.579	0.319	0.102	
		0.287	0.129	0.584	0.511	0.393	0.096	
		0.189	0.159	0.652	0.337	0.573	0.090	
		0.101	0.187	0.712	0.204	0.719	0.077	
		0.072	0.208	0.720	0.140	0.786	0.074	
	20.68 (3000)	0.070	0.260	0.670	0.124	0.796	0.080	
		0.439	0.198	0.561	0.393	0.509	0.098	
		0.369	0.150	0.481	0.605	0.288	0.107	
		0.462	0.124	0.414	0.640	0.219	0.141	
0.514		0.107	0.379	0.669	0.185	0.146		
0.540		0.103	0.357	0.684	0.173	0.143		
			Single phase			0.681	0.143	0.176
24.13 (3500)	0.300	0.224	0.476	0.429	0.437	0.134		
	0.304	0.220	0.436	0.441	0.412	0.147		
	0.375	0.226	0.399	0.489	0.358	0.153		
	0.482	0.319	0.199	0.437	0.233	0.330		
	0.230	0.255	0.515	0.330	0.556	0.114		
		0.015	0.338	0.647	0.061	0.854	0.085	
		Single phase			0.485	0.300	0.215	
27.58 (4000)	0.190	0.337	0.473	0.259	0.618	0.123		
	0.222	0.326	0.452	0.290	0.577	0.133		

(cont.)

COMPONENTS:			ORIGINAL MEASUREMENTS:				
1. Methane; CH <sub>4</sub> ;	[74-82-8]		Poston, R. S.; McKetta, J. J.				
2. Nitrogen; N <sub>2</sub> ;	[7727-37-9]		<i>Am. Inst. Chem. Engrs. J.</i>				
3. Hexane; C <sub>6</sub> H <sub>14</sub> ;	[110-54-3]		1965, 11, 917-920.				
EXPERIMENTAL VALUES:							
T/K (T/°F)	P/MPa (P/psi)	Mole fraction					
		in liquid			in vapor		
		x <sub>CH<sub>4</sub></sub>	x <sub>N<sub>2</sub></sub>	x <sub>C<sub>6</sub>H<sub>14</sub></sub>	y <sub>CH<sub>4</sub></sub>	y <sub>N<sub>2</sub></sub>	y <sub>C<sub>6</sub>H<sub>14</sub></sub>
377.6 (220)	27.58 (4000)	0.263	0.324	0.413	0.324	0.503	0.173
		0.286	0.327	0.387	0.342	0.485	0.173
		0.328	0.336	0.336	0.367	0.427	0.206
		0.231	0.338	0.431	0.297	0.563	0.140
		Single phase			0.371	0.367	0.262
	31.03 (4500)	0.130	0.413	0.457	0.166	0.699	0.135
		0.186	0.423	0.391	0.228	0.611	0.161
		0.202	0.419	0.379	0.228	0.599	0.173
		0.163	0.408	0.429	0.210	0.639	0.151
		0.201	0.414	0.385	0.227	0.568	0.205
	34.47 (5000)	Single phase			0.207	0.549	0.244
		0.088	0.488	0.424	0.097	0.760	0.143
		0.127	0.516	0.357	0.144	0.695	0.161
		0.135	0.524	0.341	0.142	0.670	0.188
		Single phase			0.166	0.640	0.194
410.9 (280)	3.45 (500)	0.044	0.027	0.929	0.335	0.417	0.248
		0.131	0.039	0.830	0.539	0.293	0.168
		0.080	0.061	0.859	0.332	0.500	0.168
	6.89 (1000)	0.055	0.147	0.798	0.140	0.715	0.145
		0.134	0.088	0.778	0.379	0.474	0.147
		0.199	0.064	0.737	0.551	0.298	0.151
	10.34 (1500)	0.393	0.038	0.569	0.721	0.098	0.181
		0.157	0.129	0.714	0.324	0.520	0.156
		0.086	0.173	0.741	0.184	0.670	0.146
	13.79 (2000)	0.066	0.181	0.753	0.141	0.720	0.139
		0.076	0.239	0.685	0.148	0.696	0.156
		0.152	0.215	0.633	0.267	0.570	0.163
	17.24 (2500)	0.326	0.143	0.531	0.511	0.295	0.194
		0.372	0.118	0.510	0.565	0.218	0.217
		0.410	0.102	0.488	0.596	0.173	0.231
	20.68 (3000)	0.429	0.098	0.473	0.598	0.164	0.238
		0.462	0.095	0.443	0.613	0.138	0.249
		Single phase			0.599	0.116	0.285
	24.13 (3500)	0.072	0.317	0.611	0.106	0.741	0.153
		0.122	0.289	0.589	0.196	0.636	0.168
		0.210	0.271	0.519	0.309	0.492	0.199
	27.58 (4000)	0.239	0.246	0.515	0.338	0.450	0.212
		0.279	0.246	0.475	0.369	0.400	0.231
		0.326	0.252	0.422	0.375	0.370	0.255
	27.58 (4000)	Single phase			0.387	0.334	0.279
0.165		0.370	0.465	0.213	0.550	0.237	
0.189		0.387	0.424	0.221	0.535	0.240	
27.58 (4000)	0.191	0.380	0.429	0.232	0.524	0.244	
	0.147	0.373	0.480	0.190	0.584	0.226	
	0.079	0.385	0.536	0.106	0.705	0.189	
27.58 (4000)	0.223	0.418	0.359	0.233	0.460	0.307	
	0.010	0.489	0.501	0.013	0.775	0.212	
	0.043	0.495	0.462	0.047	0.711	0.242	
27.58 (4000)	0.043	0.484	0.473	0.052	0.716	0.232	
	0.064	0.507	0.429	0.076	0.650	0.274	
	Single phase			0.095	0.589	0.319	

(cont.)

COMPONENTS:		ORIGINAL MEASUREMENTS:					
1. Methane; CH <sub>4</sub> ;	[74-82-8]	Poston, R. S.; McKetta, J. J.					
2. Nitrogen; N <sub>2</sub> ;	[7727-37-9]	<i>Am. Inst. Chem. Engrs. J.</i>					
3. Hexane; C <sub>6</sub> H <sub>14</sub> ;	[110-54-3]	<u>1965</u> , 11, 917-920.					
EXPERIMENTAL VALUES:							
T/K (T/°F)	P/MPa (P/psi)	Mole fraction					
		in liquid			in vapor		
		x <sub>CH<sub>4</sub></sub>	x <sub>N<sub>2</sub></sub>	x <sub>C<sub>6</sub>H<sub>14</sub></sub>	y <sub>CH<sub>4</sub></sub>	y <sub>N<sub>2</sub></sub>	y <sub>C<sub>6</sub>H<sub>14</sub></sub>
444.3 (340)	3.45 (500)	0.089	0.001	0.910	0.471	0.061	0.468
		0.052	0.008	0.940	0.406	0.136	0.458
6.89 (1000)		0.046	0.021	0.933	0.310	0.256	0.434
		0.194	0.005	0.801	0.642	0.032	0.326
		0.107	0.053	0.840	0.402	0.280	0.318
		0.054	0.080	0.866	0.220	0.483	0.297
		0.052	0.085	0.863	0.160	0.550	0.290
		0.353	0.008	0.639	0.652	0.015	0.333
10.34 (1500)		0.312	0.028	0.660	0.618	0.074	0.308
		0.278	0.049	0.673	0.564	0.137	0.299
		0.217	0.080	0.703	0.468	0.257	0.275
		0.029	0.171	0.800	0.076	0.681	0.243
		0.026	0.188	0.786	0.062	0.698	0.240
		0.126	0.193	0.681	0.219	0.477	0.304
13.79 (2000)		0.272	0.139	0.589	0.409	0.227	0.364
		0.335	0.121	0.544	0.418	0.174	0.408
		Single phase			0.390	0.140	0.470
		0.039	0.328	0.633	0.055	0.628	0.317
17.24 (2500)		0.105	0.333	0.562	0.136	0.488	0.376
		Single phase			0.169	0.409	0.422

COMPONENTS: 1. Methane; CH <sub>4</sub> ; [74-82-8] 2. Nitrogen; N <sub>2</sub> ; [7727-37-9] 3. Hexane; C <sub>6</sub> H <sub>14</sub> ; [110-54-3]		ORIGINAL MEASUREMENTS: Merrill, R. C.; Luks, K. D.; Kohn, J. P. <i>J. Chem. Eng. Data</i> <u>1984</u> , 29, 272-276.				
VARIABLES:		PREPARED BY:  C. L. Young				
EXPERIMENTAL VALUES: <u>Composition of Hexane rich phase</u>						
Phases in equilibrium	T/K	P/atm	P/MPa	Hexane, $x_{C_6H_{14}}$	Nitrogen, $x_{N_2}$	
L <sub>1</sub> , L <sub>2</sub> = V	176.11	51.40	5.208	0.4020	0.0599	
	181.01	50.92	5.159	0.3106	0.2222	
	185.23	51.81	5.250	0.2988	0.0362	
	186.63	51.62	5.230	0.3211	0.0444	
	189.65	51.62	5.230	0.2972	0.0260	
	189.89	51.06	5.174	0.3091	0.0262	
	190.61	51.30	5.198	0.3040	0.0153	
	190.70	51.06	5.174	0.2983	0.0165	
	191.95	50.05	5.071	0.2858	0.0093	
	194.41	51.19	5.187	0.2589	0.0048	
S, L <sub>1</sub> , L <sub>2</sub> , V	164.07	22.11	2.240	0.2005	0.0222	
	164.20	23.16	2.347	0.2224	0.0256	
	164.23	23.51	2.382	0.2259	0.0275	
	164.46	24.39	2.471	0.2521	0.0305	
	164.51	24.67	2.500	0.2557	0.0329	
	164.52	25.34	2.568	0.2643	0.0299	
	164.65	25.95	2.629	0.2818	0.0319	
	165.13	27.94	2.831	0.3019	0.0379	
	166.11	34.18	3.463	0.2917	0.2368	
	166.76	38.15	3.866	0.3995	0.0175	
	167.64	45.68	4.629	0.4726	0.0635	
	(cont.)					
	AUXILIARY INFORMATION					
METHOD APPARATUS/PROCEDURE:  Glass equilibrium cell. Temperature measured with platinum resistance thermometer and pressure with Bourdon gauge. Stoichiometry and volumetric measurements were used to obtain liquid phase compositions and molar volumes. Molar volume data in source. Details of apparatus in refs. (1) and (2).			SOURCE AND PURITY OF MATERIALS:  1. Linde "Ultra Pure" grade, purity 99.97 mole per cent. 2. Linde "High Purity" grade, purity 99.99 mole per cent. 3. Phillips Petroleum Co. sample, purity 99 mole per cent.			
			ESTIMATED ERROR: $\delta T/K = \pm 0.03$ ; $\delta P/MPa = \pm 0.07$ ; $\delta x/x < 0.09$ in L <sub>1</sub> phase; $< 0.03$ in L <sub>2</sub> phase.			
			REFERENCES: 1. Hottovy, J. D.; Kohn, J. P.; Luks, K. D. <i>J. Chem. Eng. Data</i> <u>1981</u> , 26, 135. 2. Hottovy, J. D.; Kohn, J. P.; Luks, K. D. <i>J. Chem. Eng. Data</i> <u>1982</u> , 27, 298.			

COMPONENTS:			ORIGINAL MEASUREMENTS:		
1. Methane; CH <sub>4</sub> ; [74-82-8]			Merrill, R. C.; Luks, K. D.;		
2. Nitrogen; N <sub>2</sub> ; [7727-37-9]			Kohn, J. P.		
3. Hexane; C <sub>6</sub> H <sub>14</sub> ; [110-54-3]			<i>J. Chem. Eng. Data</i> 1984, 29, 272-276.		
EXPERIMENTAL VALUES:					
Phases in equilibrium	T/K	P/atm	P/MPa	Mole fractions Hexane, $x_{C_6H_{14}}$	Nitrogen, $x_{N_2}$
L <sub>1</sub> = L <sub>2</sub> ,V	163.75	21.60	2.189	0.1001	0.0319
	165.12	23.40	2.371	0.2153	0.0246
	165.76	22.76	2.306	0.0930	0.0318
	167.19	22.34	2.264	0.1084	0.0354
	168.86	25.41	2.575	0.1975	0.0207
	170.64	25.95	2.629	0.1097	0.0278
	173.05	27.45	2.781	0.1160	0.0248
	177.27	31.06	3.147	0.1858	0.0143
	182.02	33.37	3.381	0.1195	0.0072
L <sub>1</sub> ,L <sub>2</sub> ,V	165.00 <sup>a</sup>	22.79	2.309	0.1955	0.0226
	165.00	22.99	2.329	0.2076	0.0234
	165.00	23.84	2.416	0.2271	0.0290
	165.00	24.19	2.451	0.2341	0.0312
	165.00	24.80	2.513	0.2513	0.0314
	165.00	25.08	2.541	0.2544	0.0339
	165.00	25.68	2.602	0.2694	0.0301
	165.00	26.36	2.671	0.2791	0.0320
	170.00	26.43	2.678	0.2049	0.0197
	170.00	27.69	2.806	0.2361	0.0241
	170.00	28.41	2.879	0.2488	0.0293
	170.00	28.48	2.886	0.2330	0.0290
	170.00	29.08	2.947	0.2582	0.0301
	170.00	30.37	3.077	0.2787	0.0284
	170.00	30.91	3.132	0.2827	0.0312
	170.00	32.43	3.286	0.3044	0.0639
	170.00	41.62	4.217	0.4162	0.0573
	170.00	48.54	4.918	0.4770	0.0484
	175.00	31.05	3.146	0.2224	0.0200
	175.00	32.38	3.281	0.2499	0.0226
	175.00	32.52	3.295	0.2526	0.0240
	175.00	32.97	3.341	0.2570	0.0287
	175.00	33.52	3.396	0.2636	0.0284
	175.00	33.71	3.416	0.2658	0.0300
	175.00	34.79	3.525	0.2809	0.0291
	175.00	35.47	3.594	0.2907	0.0282
	175.00	43.57	4.415	0.2930	0.0366
	175.00	44.54	4.513	0.3736	0.0539
	175.00	50.85	5.152	0.4213	0.0591
	180.00	33.78	3.423	0.2047	0.0125
	180.00	35.75	3.622	0.2419	0.0183
	180.00	37.76	3.826	0.2663	0.0227
	180.00	37.93	3.843	0.2675	0.0260
	180.00	38.81	3.932	0.2790	0.0290
	180.00	38.82	3.933	0.2777	0.0277
	180.00	39.83	4.036	0.2878	0.0289
	180.00	41.19	4.174	0.3040	0.0278
	180.00	43.05	4.362	0.3215	0.0359
	180.00	48.90	4.955	0.3559	0.0444
	180.00	49.56	5.022	0.3038	0.0416
	185.00	38.47	3.898	0.2245	0.0070
	185.00	41.75	4.230	0.2637	0.0225
	185.00	43.44	4.402	0.2816	0.0265
	185.00	43.68	4.426	0.2849	0.0219
	185.00	44.39	4.498	0.2882	0.0255
	185.00	44.80	4.539	0.2928	0.0252
	185.00	45.08	4.568	0.2910	0.0254
	185.00	47.45	4.808	0.3132	0.0257
	185.00	49.58	5.024	0.3373	0.0309

(cont.)

COMPONENTS:			ORIGINAL MEASUREMENTS:		
1. Methane; CH <sub>4</sub> ; [74-82-8]			Merrill, R. C.; Luks, K. D.;		
2. Nitrogen; N <sub>2</sub> ; [7727-37-9]			Kohn, J. P.		
3. Hexane; C <sub>6</sub> H <sub>14</sub> ; [110-54-3]			<i>J. Chem. Eng. Data</i>		
			<u>1984, 29, 272-276.</u>		
EXPERIMENTAL VALUES:					
Phases in equilibrium	T/K	P/atm	P/MPa	Mole fractions Hexane, $x_{C_6H_{14}}$	Nitrogen, $x_{N_2}$
L <sub>1</sub> ,L <sub>2</sub> ,V	190.00	44.80	4.539	0.2530	0.0071
	190.00	44.94	4.554	0.2503	0.0045
	190.00	45.41	4.601	0.2678	0.0176
	190.00	47.26	4.789	0.2745	0.0192
	190.00	49.50	5.016	0.2903	0.0369
	190.00	50.10	5.076	0.2925	0.0230
	190.00	50.42	5.109	0.2940	0.0316
<sup>a</sup> Compositions at 165 K estimated from cross plots of data for L <sub>1</sub> , L <sub>2</sub> = V and L <sub>1</sub> , L <sub>2</sub> , V in equilibrium.					
<u>Compositions of Hexane lean phase</u>					
L <sub>1</sub> ,L <sub>2</sub> = V	168.48	50.25	5.092	0.0047	0.4119
	169.90	50.80	5.147	0.0037	0.3748
	176.96	51.46	5.214	0.0115	0.2490
	179.67	51.73	5.242	0.0138	0.2203
	181.95	51.80	5.249	0.0148	0.1973
	183.61	51.81	5.250	0.0043	0.1784
	184.25	49.62	5.028	0.0052	0.1707
	185.04	51.73	5.242	0.0187	0.1617
	186.90	51.75	5.244	0.0063	0.1270
	189.01	51.61	5.229	0.0079	0.1005
	190.19	51.61	5.229	0.0212	0.0420
	191.10	51.54	5.222	0.0125	0.0732
S,L <sub>1</sub> ,L <sub>2</sub> ,V	164.25	22.75	2.305	0.0804	0.0446
	164.52	25.34	2.568	0.0528	0.0692
	165.28	29.96	3.036	0.0305	0.1142
	165.35	29.56	2.995	0.0281	0.1079
	165.53	30.37	3.077	0.0319	0.1147
	165.53	30.71	3.112	0.0298	0.1225
	165.65	29.43	2.982	0.0368	0.1054
	165.94	33.50	3.394	0.0193	0.1469
	166.18	35.55	3.602	0.0204	0.1706
L <sub>1</sub> ,L <sub>2</sub> ,V	170.00	31.80	3.222	0.0329	0.0867
	170.00	32.00	3.242	0.0311	0.0923
	170.00	34.05	3.450	0.0258	0.1099
	170.00	34.86	3.532	0.0236	0.1188
	170.00	38.26	3.877	0.0177	0.1495
	170.00	39.43	3.995	0.0157	0.1750
	170.00	40.04	4.057	0.0193	0.1805
	175.00	36.56	3.704	0.0278	0.0891
	175.00	37.04	3.753	0.0264	0.0946
	175.00	39.08	3.960	0.0195	0.1047
	175.00	39.63	4.016	0.0193	0.1180
	175.00	39.76	4.029	0.0193	0.1233
	175.00	40.37	4.090	0.0177	0.1272
	175.00	41.81	4.236	0.0155	0.1412
	175.00	44.05	4.463	0.0124	0.1652
	175.00	45.55	4.615	0.0078	0.1875
	180.00	37.17	3.766	0.0359	0.0459
	180.00	37.24	3.773	0.0356	0.0489
	180.00	45.48	4.608	0.0135	0.1218
	180.00	45.68	4.629	0.0136	0.1272
	180.00	45.76	4.637	0.0154	0.1187
	180.00	45.89	4.650	0.0154	0.1287

(cont.)

COMPONENTS:		ORIGINAL MEASUREMENTS:			
1. Methane; CH <sub>4</sub> ; [74-82-8] .		Merrill, R. C.; Luks, K. D.;			
2. Nitrogen; N <sub>2</sub> ; [7727-37-9]		Kohn, J. P.			
3. Hexane; C <sub>6</sub> H <sub>14</sub> ; [110-54-3]		<i>J. Chem. Eng. Data</i>			
		<u>1984</u> , 29, 272-276.			
EXPERIMENTAL VALUES:					
Phases in equilibrium	T/K	P/atm	P/MPa	Mole fractions	
				Hexane, $x_{C_6H_{14}}$	Nitrogen, $x_{N_2}$
L <sub>1</sub> ,L <sub>2</sub> ,V	180.00	48.82	4.947	0.0109	0.1686
	180.00	49.29	4.994	0.0074	0.1674
	180.00	51.05	5.173	0.0078	0.1963
	185.00	40.51	4.105	0.0352	0.0286
	185.00	42.89	4.346	0.0392	0.0517
	190.00	44.47	4.506	0.0261	0.0176
	190.00	45.83	4.644	0.0248	0.0352
	190.00	49.57	5.023	0.0146	0.0610



COMPONENTS:				ORIGINAL MEASUREMENTS:			
1. Methane; CH <sub>4</sub> ; [74-82-8] 2. Carbon dioxide; CO <sub>2</sub> ; [124-38-9] 3. Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8]				Wang, R. H.; McKetta, J. J. <i>J. Chem. Engng. Data</i> <u>1964</u> , 9, 30-35.			
VARIABLES:				PREPARED BY:			
Temperature, pressure				C. L. Young			
EXPERIMENTAL VALUES:							
T/K (T/°F)	P/MPa (P/psi)	in liquid		Mole fractions in vapor			
		x <sub>CH<sub>4</sub></sub>	x <sub>C<sub>4</sub>H<sub>10</sub></sub>	x <sub>CO<sub>2</sub></sub>	y <sub>CH<sub>4</sub></sub>	y <sub>C<sub>4</sub>H<sub>10</sub></sub>	y <sub>CO<sub>2</sub></sub>
310.93 (100)	2.76 (400)	0.122	0.878	-	0.824	0.176	-
		0.0936	0.8453	0.0611	0.6570	0.1787	0.1643
		0.0858	0.8163	0.0979	0.5612	0.1784	0.2604
		0.0665	0.8031	0.1304	0.4687	0.1727	0.3586
		0.0495	0.7803	0.1702	0.3609	0.1780	0.4611
		0.0332	0.7347	0.2321	0.1926	0.1782	0.6292
	5.52 (800)	0.0221	0.7233	0.2546	0.1247	0.1800	0.6953
		-	0.6996	0.3004	-	0.1814	0.8186
		0.254	0.746	-	0.877	0.123	-
		0.2336	0.6873	0.0791	0.7798	0.1202	0.1000
		0.2045	0.6508	0.1447	0.7156	0.1100	0.1744
		0.1861	0.5718	0.2421	0.5873	0.1062	0.3065
	8.27 (1200)	0.1517	0.5227	0.3256	0.4851	0.1053	0.4096
		0.1002	0.4396	0.4602	0.3271	0.0977	0.5752
		0.0433	0.3263	0.6304	0.1308	0.0892	0.7800
		-	0.2594	0.7406	-	0.0803	0.9197
		0.880	0.120	-	0.381	0.619	-
		0.7887	0.1172	0.0941	0.3554	0.5572	0.0874
0.7008	0.1112	0.1880	0.3206	0.5102	0.1692		
0.5498	0.1150	0.3352	0.2752	0.4246	0.3002		
0.4603	0.1173	0.4224	0.2556	0.3700	0.3744		
0.4383	0.1100	0.4517	0.2430	0.3549	0.4021		
0.3817	0.1087	0.5096	0.2152	0.3287	0.4561		
(cont.)							
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE:				SOURCE AND PURITY OF MATERIALS:			
Stainless steel windowed equilibrium cell with magnetic pump for re-circulating vapor. Samples analysed by gas chromatography and mass spectrometry. Some details given in source and in ref. (1).				1. Phillips Petroleum Co. research grade sample, purity at least 99.9 mole per cent.			
				2. Matheson Co. bone dry grade, purity at least 99.8 mole per cent.			
				3. Phillips Petroleum Co. research grade, purity at least 99.9 mole per cent.			
				ESTIMATED ERROR: δT/K = ±0.03 at 310 K; ±0.3 at 178 K δP/MPa = ±0.2%; δx, δy = ±0.001.			
				REFERENCES: 1. Wang, R. H. <i>Ph.D. thesis, University of Texas, Austin, 1963.</i>			

COMPONENTS:			ORIGINAL MEASUREMENTS:					
1. Methane; CH <sub>4</sub> ; [74-82-8]			Wang, R. H.; McKetta, J. J.					
2. Carbon dioxide; CO <sub>2</sub> ; [124-38-9]			<i>J. Chem. Engrg. Data</i>					
3. Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8]			1964, 9, 30-35.					
EXPERIMENTAL VALUES:			Mole fractions					
T/K (T/°F)	P/MPa (P/psi)	in liquid			in vapor			
		x <sub>CH<sub>4</sub></sub>	x <sub>C<sub>4</sub>H<sub>10</sub></sub>	x <sub>CO<sub>2</sub></sub>	y <sub>CH<sub>4</sub></sub>	y <sub>C<sub>4</sub>H<sub>10</sub></sub>	y <sub>CO<sub>2</sub></sub>	
310.93 (100)	8.27 (1200)	0.3282	0.1118	0.5600	0.1928	0.3052	0.5020	
		0.2191	0.1087	0.6722	0.1496	0.2496	0.6008	
		0.1478	0.1291	0.7231	0.1332	0.2003	0.6665	
	11.72 (1700)	0.599	0.441	-	0.844	0.156	-	
		0.5562	0.4050	0.0388	0.7972	0.1566	0.0462	
		0.5426	0.3636	0.0938	0.7344	0.1589	0.1067	
		0.5308	0.3344	0.1348	0.6798	0.1714	0.1488	
		0.5337	0.2984	0.1679	0.6086	0.2014	0.1900	
	277.59 (40)	2.76 (400)	0.159	0.841	-	0.928	0.072	-
			0.1484	0.8078	0.0438	0.8567	0.0635	0.0798
			0.1310	0.7821	0.0869	0.7963	0.0635	0.1402
			0.1002	0.7146	0.1852	0.6394	0.0706	0.2900
0.0904			0.6942	0.2154	0.5837	0.0739	0.3424	
0.0698			0.6514	0.2788	0.4812	0.0688	0.4500	
5.52 (800)		0.0509	0.5993	0.3498	0.3705	0.0778	0.5517	
		0.0289	0.5248	0.4463	0.2060	0.0748	0.7192	
		0.0157	0.4704	0.5139	0.0912	0.0790	0.8298	
		-	0.4279	0.5721	-	0.0782	0.9218	
		0.296	0.704	-	0.945	0.055	-	
		0.2801	0.6456	0.0743	0.8420	0.0598	0.0982	
		0.2607	0.5932	0.1461	0.7444	0.0560	0.1996	
		0.2480	0.5338	0.2182	0.6648	0.0604	0.2748	
		0.2292	0.4624	0.3084	0.5749	0.0504	0.3747	
		0.2070	0.3932	0.3998	0.5040	0.0638	0.4322	
		0.1886	0.3389	0.4725	0.4674	0.0474	0.4852	
		0.1740	0.2802	0.5458	0.3806	0.0623	0.5571	
8.27 (1200)		0.1723	0.2009	0.6268	0.2864	0.0736	0.6400	
		0.1845	0.1488	0.6667	0.2297	0.0954	0.6749	
		0.426	0.574	-	0.942	0.058	-	
		0.4383	0.4851	0.0762	0.8715	0.0503	0.0782	
		0.4273	0.4430	0.1297	0.8186	0.0502	0.1312	
		0.4309	0.3862	0.1829	0.7611	0.0489	0.1900	
11.72 (1700)	0.4288	0.3152	0.2560	0.6756	0.0506	0.2738		
	0.4208	0.2700	0.3092	0.6197	0.0526	0.3277		
	0.4152	0.2212	0.3636	0.5333	0.0767	0.3900		
	0.4145	0.1833	0.4022	0.4680	0.1042	0.4278		
	0.612	0.388	-	0.899	0.101	-		
	0.6321	0.3376	0.0303	0.8543	0.1094	0.0364		
	0.6468	0.2921	0.0611	0.8100	0.1202	0.0698		
	0.6588	0.2459	0.0953	0.7562	0.1401	0.1037		
	244.26 (-20)	2.76 (400)	0.194	0.806	-	0.973	0.027	-
			0.1777	0.7137	0.1086	0.9276	0.0247	0.0477
			0.1511	0.5887	0.2602	0.8676	0.0226	0.1098
			0.1483	0.4755	0.3762	0.8109	0.0212	0.1679
0.1204			0.3902	0.4894	0.6956	0.0198	0.2846	
0.1100			0.3234	0.5666	0.6128	0.0208	0.3664	
5.52 (800)		0.0755	0.2208	0.7037	0.5343	0.0136	0.4521	
		0.0692	0.0966	0.8342	0.4550	0.0113	0.5337	
		0.0992	0.0546	0.8462	0.2920	0.0102	0.6978	
		0.370	0.630	-	0.975	0.025	-	
		0.3509	0.5779	0.0712	0.9495	0.0201	0.0304	
		0.3349	0.5289	0.1362	0.9223	0.0199	0.0578	
		0.3084	0.4321	0.2595	0.8765	0.0198	0.1037	
		0.2887	0.3411	0.3702	0.8288	0.0174	0.1538	
		0.2995	0.2312	0.4693	0.7920	0.0191	0.1889	
		0.2885	0.2012	0.5103	0.7498	0.0217	0.2285	
		0.2906	0.1439	0.5655	0.7238	0.0281	0.2481	

(cont.)

COMPONENTS:			ORIGINAL MEASUREMENTS:					
1. Methane; CH <sub>4</sub> ; [74-82-8]			Wang, R. H.; McKetta, J. J.					
2. Carbon dioxide; CO <sub>2</sub> ; [124-38-9]			<i>J. Chem. Engng. Data</i>					
3. Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8]			<u>1964</u> , 9, 30-35.					
EXPERIMENTAL VALUES:								
T/K (T/°F)	P/MPa (P/psi)	in liquid			Mole fractions in vapor			
		x <sub>CH<sub>4</sub></sub>	x <sub>C<sub>4</sub>H<sub>10</sub></sub>	x <sub>CO<sub>2</sub></sub>	y <sub>CH<sub>4</sub></sub>	y <sub>C<sub>4</sub>H<sub>10</sub></sub>	y <sub>CO<sub>2</sub></sub>	
244.26 (-20)	5.52 (800)	0.3183	0.0913	0.5904	0.7005	0.0128	0.2867	
	8.27 (1200)	0.534	0.466	-	0.971	0.029	-	
		0.5269	0.3897	0.0834	0.9056	0.0305	0.0639	
		0.5251	0.3241	0.1508	0.8486	0.0292	0.1222	
		0.5271	0.2595	0.2134	0.7980	0.0257	0.1763	
		0.5488	0.1717	0.2795	0.7374	0.0240	0.2386	
		0.5836	0.0966	0.3198	0.6762	0.0296	0.2932	
	11.72 (1700)	0.831	0.169	-	0.902	0.098	-	
	0.8504	0.1282	0.0214	0.8868	0.1000	0.0132		
210.93 (-80)	2.76 (400)	0.335	0.665	-	0.990	0.010	-	
		0.3253	0.6357	0.0393	0.9649	0.0097	0.0254	
		0.3217	0.6188	0.0595	0.9503	0.0096	0.0401	
		0.3181	0.6019	0.0800	0.9400	0.0037	0.0563	
		0.3068	0.5777	0.1155	0.9112	0.0085	0.0803	
		0.2802	0.4606	0.2592	0.8104	0.0084	0.1812	
		0.2700	0.3600	0.3700	0.7277	0.0123	0.2600	
		0.2801	0.1797	0.5402	0.5799	0.0198	0.4003	
		0.3011	0.0856	0.6133	0.5160	0.0204	0.4636	
		5.52 (800)	0.6700	0.3300	-	0.990	0.010	-
			0.6753	0.3055	0.0192	0.9698	0.0146	0.0156
			0.6758	0.2835	0.0407	0.9570	0.0098	0.0332
			0.6848	0.1855	0.1297	0.8760	0.0099	0.1141
			0.6995	0.1209	0.1796	0.8275	0.0102	0.1623
			0.7167	0.0811	0.2022	0.7988	0.0100	0.1912
		6.89 (1000)	0.848	0.152	-	0.970	0.030	-
		0.8674	0.1103	0.0223	0.9582	0.0251	0.0167	
		0.8896	0.0742	0.0362	0.9433	0.0270	0.0297	
177.59 (-140)	2.76 (400)	0.850	0.150	-	0.996	0.004	-	
		0.8389	0.1168	0.0443	0.9802	0.0031	0.0167	
		0.8455	0.0701	0.0844	0.9659	0.0042	0.0299	
		0.8737	0.0207	0.1056	0.9482	0.0056	0.0462	

T/K (T/°F)		P/MPa (P/psia)	Mole fraction in liquid			Mole fraction in vapor		
			$x_{CH_4}$	$x_{CO_2}$	$x_{C_4H_{10}}$	$y_{CH_4}$	$y_{CO_2}$	$y_{C_4H_{10}}$
310.93 (100)	2.758 (400)	0.070	0.132	0.798	0.472	0.349	0.179	
		0.084	0.099	0.807	0.541	0.281	0.178	
		0.030	0.225	0.745	0.231	0.587	0.182	
		0.122	-	0.878	0.824	-	0.176	
	5.516 (800)	-	0.300	0.700	-	0.820	0.180	
		0.169	0.275	0.556	0.466	0.412	0.122	
		0.224	0.095	0.682	0.713	0.158	0.129	
		0.073	0.549	0.378	0.199	0.694	0.107	
	8.27 (1200)	0.254	-	0.746	0.877	-	0.123	
		-	0.735	0.265	-	0.920	0.080	
		-	-	-	0.464	0.429	0.107	
		0.212	0.445	0.343	0.399	0.487	0.114	
277.59 (40)	2.758 (400)	0.260	0.313	0.427	0.520	0.369	0.111	
		0.152	0.595	0.253	0.237	0.656	0.107	
		0.336	0.122	0.542	0.743	0.140	0.117	
		0.203	0.458	0.339	-	-	-	
		0.381	-	0.619	0.880	-	0.120	
		0.155	0.090	0.755	0.732	0.183	0.085	
		0.117	0.178	0.705	0.571	0.334	0.095	
		0.094	0.297	0.608	0.414	0.487	0.099	
0.029	0.479	0.492	0.175	0.735	0.090			

(cont.)

## AUXILIARY INFORMATION

## METHOD/APPARATUS/PROCEDURE:

Variable volume cell with sample confined between two moveable pistons. Volume varied by mercury injection. Details of design given in source. Cell fitted with windows. Samples of gas and liquid analysed by gas chromatography. Temperature measured with iron-constantan thermocouple. Pressure measured with Bourdon gauge.

## SOURCE AND PURITY OF MATERIALS:

1. Matheson sample, purity varied between 99.3 and 99.7 per cent as determined by gas chromatography.
2. Canadian Liquid Air Co., purity at least 99.5 per cent.
3. Matheson instrument grade, purity 99.5 mole per cent.

## ESTIMATED ERROR:

$\delta T/K = \pm 0.03$ ;  $\delta P/MPa = \pm 0.003$  up to 6 MPa,  $\pm 0.02$  above 6 MPa;

$\delta x, \delta y = \pm 1\%$ .

## REFERENCES:

COMPONENTS:			ORIGINAL MEASUREMENTS:					
1. Methane; CH <sub>4</sub> ; [74-82-8]			Saxena, A. C.; Robinson, D. B.					
2. Carbon dioxide; CO <sub>2</sub> ; [124-38-9]			Can. J. Chem. Engng.					
3. Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8]			1969, 47, 69-75.					
EXPERIMENTAL VALUES:								
T/K (T/°F)	P/MPa (P/psia)	Mole fraction						
		$x_{\text{CH}_4}$	in liquid			in vapor		
			$x_{\text{CO}_2}$	$x_{\text{C}_4\text{H}_{10}}$	$y_{\text{CH}_4}$	$y_{\text{CO}_2}$	$y_{\text{C}_4\text{H}_{10}}$	
277.59 (40)	2.758 (400)	0.198	-	0.802	0.928	-	0.072	
		-	0.568	0.432	-	0.930	0.070	
	5.516 (800)	0.271	0.250	0.479	0.663	0.284	0.053	
		0.331	0.141	0.528	0.777	0.169	0.054	
		0.093	0.827	0.080	0.287	0.699	0.014	
		0.210	0.417	0.373	0.504	0.447	0.049	
		0.407	-	0.593	0.956	-	0.044	
	8.27 (1200)	0.062	0.938	-	0.214	0.786	-	
		0.476	0.166	0.358	0.789	0.157	0.054	
		0.209	0.765	0.026	0.331	0.660	0.009	
		0.328	0.467	0.205	0.553	0.403	0.044	
		0.567	-	0.433	0.950	-	0.050	
	244.26 (-20)	2.758 (400)	0.136	0.590	0.274	-	-	-
			0.043	0.947	0.010	-	-	-
		5.516 (800)	0.122	0.638	0.240	0.518	0.473	0.009
0.159			0.491	0.350	0.578	0.396	0.026	
0.266			0.094	0.640	0.861	0.114	0.025	
0.212			0.278	0.510	0.699	0.277	0.024	
0.0395			0.9605	-	0.419	0.581	-	
0.294			-	0.706	0.957	-	0.043	
8.27			0.335	0.529	0.136	0.682	0.310	0.008
		0.386	0.402	0.232	0.746	0.240	0.014	
		0.410	0.328	0.262	0.780	0.207	0.013	
		0.467	0.112	0.421	0.895	0.091	0.014	
		0.410	0.327	0.263	0.775	0.208	0.017	
8.27		0.188	0.812	-	0.625	0.375	-	
		0.499	-	0.501	0.978	-	0.022	
	0.678	0.059	0.263	0.927	0.047	0.026		
	0.647	0.136	0.217	0.879	0.095	0.026		
	0.624	0.211	0.165	0.837	0.146	0.017		
		0.708	-	0.292	-	0.028		

COMPONENTS:			ORIGINAL MEASUREMENTS:		
1. Methane; CH <sub>4</sub> ; [74-82-8] 2. Carbon dioxide; CO <sub>2</sub> ; [124-38-9] 3. Hexane; C <sub>6</sub> H <sub>14</sub> ; [110-54-3]			Merrill, R. C.; Luks, K. D.; Kohn, J. P. <i>J. Chem. Eng. Data</i> <u>1983</u> , 28, 210-215.		
VARIABLES:			PREPARED BY:		
			C. L. Young		
EXPERIMENTAL VALUES:					
Phases in equilibrium	T/K	P/atm	P/MPa	Mole fractions of hexane $x_{\text{C}_6\text{H}_{14}}$	carbon dioxide $x_{\text{CO}_2}$
Data for hexane-lean phase, L <sub>2</sub>					
L <sub>1</sub> , L <sub>2</sub> , V	204.00	57.46	5.822	0.0331	0.0841
	204.00	57.96	5.873	0.0304	0.0850
	202.00	55.96	5.670	0.0214	0.0083
	200.00	53.45	5.416	0.0310	0.0783
	200.00	53.65	5.436	0.0299	0.0751
	198.00	50.93	5.160	0.0371	0.0791
	198.00	52.02	5.271	0.0233	0.0404
	198.00	52.49	5.319	0.0209	0.0267
	196.00	49.09	4.974	0.0323	0.0436
	196.00	49.30	4.995	0.0284	0.0394
	196.00	49.36	5.001	0.0285	0.0259
	196.00	49.36	5.001	0.0303	0.0263
	196.00	49.43	5.008	0.0256	0.0267
	196.00	50.38	5.105	0.0204	0.0181
	196.00	50.44	5.111	0.0182	0.0251
	196.00	50.59	5.126	0.0206	0.0188
	196.00	50.66	5.133	0.0159	0.0029
	196.00	51.00	5.168	0.0178	0.0022
	194.00	46.17	4.678	0.0437	0.0283
	194.00	46.44	4.706	0.0397	0.0400
	194.00	47.52	4.815	0.0292	0.0238
(cont.)					
AUXILIARY INFORMATION					
METHOD APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:		
Glass equilibrium cell. Temperature measured with platinum resistance thermometer and pressure with Bourdon gauge. Stoichiometry and volumetric measurements were used to obtain liquid phase compositions and molar volumes. Gas phase composition assumed to be the same as in binary (ref. (2)). Molar volume data in source. Details of apparatus in ref. (1).			1. Linde Ultra Pure grade sample, purity 99.97 moles per cent.		
			2. Matheson "Coleman Grade" sample, purity 99.99 moles per cent.		
			3. Humphrey Chemical Co. sample, purity 99 moles per cent.		
			ESTIMATED ERROR:		
			$\delta T/K = \pm 0.03$ ; $\delta P/\text{MPa} = \pm 0.007$ ;		
			$\delta x/x = \pm 0.02$ in L <sub>1</sub> phase, $\pm 0.08$ in L <sub>2</sub> phase.		
			REFERENCES:		
			1. Hottovy, J.D.; Kohn, J.P.; Luks, K.D. <i>J. Chem. Eng. Data</i> <u>1981</u> , 26, 135.		
			2. Mraw, S.C.; Hwang, S.-C.; Kobayashi, R. <i>J. Chem. Eng. Data</i> <u>1978</u> , 23, 135.		

COMPONENTS:			ORIGINAL MEASUREMENTS:		
1. Methane; CH <sub>4</sub> ; [74-82-8]			Merrill, R. C.; Luks, K. D.;		
2. Carbon dioxide; CO <sub>2</sub> ; [124-38-9]			Kohn, J. P.		
3. Hexane; C <sub>6</sub> H <sub>14</sub> ; [110-54-3]			<i>J. Chem. Eng. Data</i> 1983, 28, 210-215.		
EXPERIMENTAL VALUES:					
Phases in equilibrium	T/K	P/atm	P/MPa	Mole fractions of	
				hexane $x_{C_6H_{14}}$	carbon dioxide $x_{CO_2}$
L <sub>1</sub> ,L <sub>2</sub> ,V	194.00	47.73	4.836	0.0210	0.0046
	194.00	47.80	4.843	0.0246	0.0012
	194.00	47.87	4.850	0.0274	0.0000
	192.00	43.85	4.443	0.0551	0.0305
	192.00	44.67	4.526	0.0374	0.0124
	192.00	44.87	4.546	0.0266	0.0047
	192.00	45.15	4.575	0.0361	0.0134
	192.00	45.49	4.609	0.0291	0.0031
	190.00	42.22	4.278	0.0466	0.0139
	190.00	42.43	4.299	0.0387	0.0032
	190.00	42.56	4.312	0.0411	0.0101
	190.00	42.70	4.327	0.0361	0.0035
	188.00	39.37	3.989	0.0623	0.0143
	188.00	39.77	4.030	0.0468	0.0042
	188.00	39.91	4.044	0.0473	0.0039
	188.00	40.11	4.064	0.0455	0.0035
	186.00	37.60	3.810	0.0592	0.0035
	L <sub>1</sub> ,L <sub>2</sub> = V	197.15	52.09	5.278	0.0055
199.80		54.26	5.426	0.0090	0.0255
200.05		55.35	5.608	0.0078	0.0392
200.18		54.53	5.525	0.0073	0.0234
200.19		54.33	5.505	0.0044	0.0194
201.83		55.96	5.670	0.0080	0.0364
202.33		56.37	5.712	0.0104	0.0522
202.91		56.85	5.760	0.0149	0.0628
203.98		57.86	5.863	0.0137	0.0747
<u>Data for hexane-rich phase, L<sub>1</sub></u>					
L <sub>1</sub> ≡ L <sub>2</sub> ,V	184.14	35.41	3.588	0.1305	0.0157
	184.76	35.96	3.644	0.1495	0.0176
	189.61	41.13	4.167	0.1566	0.0310
	189.85	41.39	4.194	0.1698	0.0260
	190.69	42.36	4.292	0.1701	0.0252
	191.13	42.90	4.347	0.1707	0.0338
	193.74	45.36	4.596	0.1306	0.0454
	199.18	51.82	5.251	0.1408	0.0743
	199.34	51.75	5.244	0.1251	0.0674
	202.63	55.70	5.644	0.1161	0.0901
	188.41	39.50	4.002	0.1141	0.0310
	191.17	42.49	4.305	0.0850	0.0323
	L <sub>1</sub> ,L <sub>2</sub> = V	196.89	52.22	5.291	0.2365
197.76		52.28	5.297	0.2304	0.0344
197.92		52.42	5.311	0.2232	0.0428
198.10		52.89	5.359	0.2264	0.0334
198.13		52.90	5.360	0.2334	0.0079
199.87		54.27	5.499	0.2035	0.0883
203.24		57.06	5.782	0.1423	0.1380
203.66		57.67	5.843	0.1482	0.0848
L <sub>1</sub> ,L <sub>2</sub> ,V	204.00	58.07	5.884	0.1152	0.1078
	204.00	58.21	5.898	0.1184	0.1018
	202.00	55.16	5.589	0.1302	0.0807
	202.00	55.36	5.609	0.1261	0.1226
	202.00	55.43	5.616	0.1364	0.0938
	202.00	55.63	5.637	0.1548	0.0664

(cont.)

COMPONENTS:			ORIGINAL MEASUREMENTS:		
1. Methane; CH <sub>4</sub> ;	[74-82-8]		Merrill, R. C.;	Luks, K. D.;	
2. Carbon dioxide; CO <sub>2</sub> ;	[124-38-9]		Kohn, J. P.		
3. Hexane; C <sub>6</sub> H <sub>14</sub> ;	[110-54-3]		<i>J. Chem. Eng. Data</i>		
			1983, 28, 210-215.		
EXPERIMENTAL VALUES:			Mole fractions of		
Phases in equilibrium	T/K	P/atm	P/MPa	hexane $x_{C_6H_{14}}$	carbon dioxide $x_{CO_2}$
L <sub>1</sub> ,L <sub>2</sub> ,V	200.00	52.70	5.340	0.1345	0.0774
	198.00	51.21	5.189	0.1778	0.0609
	198.00	51.34	5.202	0.1740	0.0599
	198.00	52.08	5.277	0.2135	0.0000
	198.00	52.42	5.311	0.2079	0.0249
	198.00	52.68	5.338	0.2332	0.0214
	196.00	48.49	4.913	0.1626	0.0659
	196.00	49.49	5.015	0.1980	0.0419
	196.00	49.96	5.062	0.2179	0.0278
	196.00	50.04	5.070	0.2074	0.0353
	196.00	50.17	5.083	0.2171	0.0279
	196.00	50.38	5.105	0.2285	0.0312
	196.00	50.65	5.132	0.2313	0.0017
	196.00	50.73	5.140	0.2322	0.0171
	194.00	46.30	4.691	0.1820	0.0398
	194.00	46.83	4.745	0.2063	0.0293
	194.00	46.91	4.753	0.2004	0.0377
	194.00	46.97	4.759	0.2098	0.0322
	194.00	46.99	4.761	0.2030	0.0286
	194.00	47.04	4.766	0.2120	0.0317
	194.00	47.46	4.809	0.2151	0.0240
	194.00	47.74	4.837	0.2218	0.0172
	192.00	44.12	4.470	0.1595	0.0330
	192.00	44.20	4.479	0.1845	0.0250
	192.00	44.25	4.484	0.1905	0.0277
	192.00	44.25	4.484	0.1951	0.0291
	192.00	44.27	4.486	0.1847	0.0256
	192.00	44.32	4.491	0.1918	0.0294
	192.00	44.80	4.539	0.2136	0.0075
	192.00	44.95	4.555	0.2082	0.0187
	192.00	45.19	4.579	0.2166	0.0185
	190.00	41.61	4.216	0.1623	0.0244
	190.00	42.23	4.279	0.1936	0.0184
	190.00	42.56	4.312	0.2044	0.0204
	188.00	39.83	4.036	0.1927	0.0228
	188.00	39.83	4.036	0.1934	0.0245
	188.00	39.90	4.043	0.1983	0.0092
	186.00	37.32	3.781	0.1645	0.0059
	186.00	37.45	3.795	0.1534	0.0188
	186.00	37.52	3.802	0.1690	0.0203



COMPONENTS:		ORIGINAL MEASUREMENTS:					
1. Methane; CH <sub>4</sub> ; [74-82-8] 2. Carbon dioxide; CO <sub>2</sub> ; [124-38-9] 3. Octane; C <sub>8</sub> H <sub>18</sub> ; [111-65-9]		Hottovy, J. D.; Kohn, J. P.; Luks, K. D. <i>J. Chem. Engng. Data</i> <u>1982</u> , 27, 298-302.					
VARIABLES:		PREPARED BY:					
		C. L. Young					
EXPERIMENTAL VALUES: Data for octane-lean liquid phase.							
Type of data	T/K	P/atm	P/MPa	Mole fractions		Molar volume	
				x <sub>CO<sub>2</sub></sub>	x <sub>C<sub>8</sub>H<sub>18</sub></sub>	/cm <sup>3</sup> mol <sup>-1</sup>	
K(L <sub>1</sub> -L <sub>2</sub> =V)	219.73	69.7	7.06	0.251	0.0146	67.5	
	217.32	67.0	6.79	0.221	0.0094	73.1	
	214.71	64.3	6.52	0.200	0.0075	74.9	
	212.20	62.0	6.28	0.179	0.0055	78.3	
	211.03	60.9	6.17	0.163	0.0040	82.7	
	207.61	57.9	5.87	0.146	0.0044	79.9	
	204.83	55.7	5.64	0.119	0.0029	84.7	
	204.04	55.0	5.57	0.107	0.0039	89.8	
	Q(S-L <sub>1</sub> -L <sub>2</sub> -V)	202.40	53.7	5.44	0.110	0.0045	77.0
		202.27	53.2	5.39	0.114	0.0056	73.3
202.16		52.6	5.33	0.123	0.0070	69.4	
202.14		52.5	5.32	0.131	0.0072	68.0	
201.98		51.5	5.22	0.146	0.0097	64.3	
201.43		48.9	4.95	0.205	0.0223	56.8	
201.41		48.7	4.93	0.199	0.0297	58.0	
201.38		48.0	4.86	0.227	0.0302	55.9	
LCST(L <sub>1</sub> =L <sub>2</sub> -V)		201.08	47.1	4.77	0.253	0.0515	54.5
		213.54	61.5	6.22	0.298	0.0800	58.1
	218.21	67.3	6.82	0.291	0.0704	58.2	
	215.33	63.7	6.45	0.301	0.0646	57.5	
	211.73	59.2	6.00	0.290	0.0719	58.5	
	210.14	57.5	5.83	0.289	0.0750	57.0	
(cont.)							
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:				
Glass equilibrium cell. Temperature measured with platinum resistance thermometer and pressure with Bourdon gauge. Stoichiometry and volumetric measurements were used to compute liquid phase compositions and molar volumes. Details in ref. 1 and source.			1. Linde Ultrapure grade, purity 99.97 mole per cent. 2. Matheson "Coleman Grade", purity 99.99 mole per cent. 3. Humphrey-Wilkinson grade, purity 99 mole per cent.				
			ESTIMATED ERROR: δT/K = ±0.03; δP/MPa = ±0.07; δx <sub>C<sub>3</sub>H<sub>8</sub></sub> = ±3.5%; δx <sub>C<sub>8</sub>H<sub>18</sub></sub> = ±2% (octane rich phase); δx <sub>C<sub>8</sub>H<sub>18</sub></sub> = ±8% (octane lean phase).				
			REFERENCES: 1. Kohn, J. P. <i>Am. Inst. Chem. Engrs. J.</i> <u>1961</u> , 7, 514.				

## COMPONENTS:

1. Methane; CH<sub>4</sub>; [74-82-8]
2. Carbon dioxide; CO<sub>2</sub>; [124-38-9]
3. Octane; C<sub>8</sub>H<sub>18</sub>; [111-65-9]

## ORIGINAL MEASUREMENTS:

Hottovy, J. D.; Kohn, J. P.;  
 Luks, K. D.  
*J. Chem. Eng. Data*  
1982, 27, 298-302.

## EXPERIMENTAL VALUES: Data for octane-lean liquid phase.

Type of data	T/K	P/atm	P/MPa	Mole fractions		Molar volume /cm <sup>3</sup> mol <sup>-1</sup>
				x <sub>CO<sub>2</sub></sub>	x <sub>C<sub>8</sub>H<sub>18</sub></sub>	
LCST (L <sub>1</sub> =L <sub>2</sub> -V)	206.97	53.5	5.42	0.278	0.0712	56.1
	206.29	52.8	5.35	0.280	0.0848	56.5
	205.69	51.9	5.26	0.275	0.0833	56.3
L <sub>1</sub> -L <sub>2</sub> -V	203.84	50.1	5.08	0.273	0.0817	55.8
	216.00	65.5	6.64	0.237	0.0133	66.3
	216.00	65.3	6.62	0.247	0.0198	62.3
	214.00	63.2	6.40	0.234	0.0157	64.1
	214.00	62.8	6.36	0.246	0.0218	61.6
	214.00	62.5	6.33	0.256	0.0274	60.6
	212.00	60.8	6.16	0.230	0.0173	62.3
	212.00	60.5	6.13	0.241	0.0209	61.2
	212.00	60.1	6.09	0.255	0.0293	60.9
	212.00	59.9	6.07	0.264	0.0335	59.5
	210.00	58.7	5.95	0.228	0.0183	61.0
	210.00	58.5	5.93	0.231	0.0201	59.3
	210.00	57.5	5.83	0.259	0.0355	59.0
	208.00	56.7	5.75	0.208	0.0151	61.6
	208.00	56.1	5.68	0.223	0.0199	59.6
	208.00	55.9	5.66	0.231	0.0232	59.2
	208.00	55.4	5.61	0.244	0.0294	57.8
	208.00	55.3	5.60	0.249	0.0309	57.6
	208.00	55.2	5.59	0.259	0.0363	56.5
	208.00	54.9	5.56	0.272	0.0517	56.0
	206.00	55.9	5.66	0.154	0.0093	69.3
	206.00	54.5	5.52	0.205	0.0167	60.2
	206.00	54.2	5.49	0.212	0.0182	59.4
	206.00	53.6	5.43	0.226	0.0239	57.9
	206.00	53.4	5.41	0.234	0.0265	57.5
	206.00	52.8	5.35	0.252	0.0374	56.7
	206.00	52.7	5.34	0.261	0.0399	55.3
	204.00	54.9	5.56	0.115	0.0037	81.7
	204.00	54.6	5.53	0.130	0.0063	75.4
	204.00	54.5	5.52	0.134	0.0062	71.6
	204.00	54.2	5.49	0.142	0.0080	69.6
	204.00	53.3	5.40	0.160	0.0111	65.2
	204.00	52.0	5.27	0.203	0.0185	58.8
204.00	51.6	5.23	0.214	0.0214	57.7	
204.00	51.4	5.21	0.216	0.0231	57.4	
204.00	51.2	5.19	0.224	0.0253	57.0	
204.00	51.0	5.17	0.235	0.0307	56.3	
204.00	50.6	5.13	0.251	0.0395	55.1	
204.00	50.4	5.11	0.255	0.0445	55.8	
204.00	50.2	5.09	0.265	0.0555	54.9	
202.00	51.6	5.23	0.145	0.0099	65.0	
202.00	49.6	5.03	0.205	0.0212	57.2	
202.00	49.3	5.00	0.212	0.0239	56.4	
202.00	48.8	4.94	0.226	0.0301	56.3	
202.00	48.1	4.87	0.253	0.0472	54.7	
202.00	47.9	4.85	0.255	0.0521	55.0	

(cont.)

COMPONENTS:		ORIGINAL MEASUREMENTS:					
1. Methane; CH <sub>4</sub> ; [74-82-8]		Hottovy, J. D.; Kohn, J. P.;					
2. Carbon dioxide; CO <sub>2</sub> ; [124-38-9]		Luks, K. D.					
3. Octane; C <sub>8</sub> H <sub>18</sub> ; [111-65-9]		<i>J. Chem. Eng. Data</i> <u>1982</u> , 27, 298-302.					
EXPERIMENTAL VALUES:							
Data for octane-rich liquid phase.							
Type of data	T/K	P/atm	P/MPa	Mole fractions		Molar volume	
				x <sub>CO<sub>2</sub></sub>	x <sub>C<sub>8</sub>H<sub>18</sub></sub>	/cm <sup>3</sup> mol <sup>-1</sup>	
K(L <sub>1</sub> -L <sub>2</sub> =V)	220.78	70.7	7.16	0.322	0.0718	58.5	
	220.08	70.7	7.16	0.323	0.0828	59.0	
	218.99	68.8	6.97	0.316	0.0987	59.5	
	218.28	67.9	6.88	0.312	0.1104	61.0	
	217.43	67.2	6.81	0.209	0.1199	61.0	
	216.97	66.6	6.75	0.302	0.1269	61.0	
	212.93	62.7	6.35	0.268	0.1777	65.2	
	207.18	57.6	5.84	0.208	0.2410	69.8	
	203.01	54.3	5.50	0.158	0.2823	72.7	
	Q(S-L <sub>1</sub> -L <sub>2</sub> -V)	202.32	53.3	5.40	0.156	0.2846	73.4
201.89		51.2	5.19	0.183	0.2528	69.9	
201.87		50.9	5.16	0.192	0.2423	68.6	
201.82		50.3	5.10	0.202	0.2303	67.0	
201.45		48.4	4.90	0.239	0.1830	62.9	
201.36		47.9	4.85	0.254	0.1717	61.6	
201.23		47.5	4.81	0.246	0.1473	60.0	
L <sub>1</sub> -L <sub>2</sub> -V		216.00	65.2	6.61	0.289	0.1213	59.8
		216.00	65.0	6.59	0.297	0.1087	59.1
		216.00	64.7	6.56	0.306	0.0883	58.3
	214.00	62.5	6.33	0.292	0.1185	59.7	
	214.00	62.2	6.30	0.297	0.1006	58.9	
	214.00	62.1	6.29	0.302	0.0894	57.8	
	212.00	61.3	6.21	0.260	0.1729	63.6	
	212.00	60.9	6.17	0.268	0.1619	63.7	
	212.00	60.1	6.09	0.297	0.1198	58.6	
	212.00	59.7	6.05	0.288	0.1094	59.7	
	212.00	59.7	6.05	0.292	0.099	57.7	
	210.00	58.5	5.93	0.259	0.166	63.2	
	210.00	58.1	5.89	0.267	0.157	63.1	
	210.00	58.0	5.88	0.270	0.150	61.6	
	210.00	57.4	5.82	0.286	0.109	58.4	
	208.00	57.0	5.78	0.240	0.197	65.2	
	208.00	55.9	5.66	0.263	0.163	62.1	
	208.00	55.4	5.61	0.272	0.144	60.6	
	208.00	55.5	5.62	0.267	0.151	61.8	
	206.00	55.9	5.66	0.202	0.239	69.4	
	206.00	55.2	5.59	0.214	0.225	68.7	
	206.00	54.3	5.50	0.237	0.193	65.0	
	206.00	53.5	5.42	0.255	0.171	62.5	
	206.00	53.0	5.37	0.264	0.144	60.4	
	206.00	52.9	5.36	0.271	0.136	59.6	
	204.00	53.7	5.44	0.192	0.247	69.5	
	204.00	53.6	5.43	0.237	0.188	63.9	
	204.00	53.2	5.39	0.200	0.236	68.6	
	204.00	50.5	5.12	0.263	0.137	59.7	
	202.00	51.3	5.20	0.183	0.252	69.9	
303.00	51.0	5.17	0.191	0.244	69.2		
202.00	50.5	5.12	0.198	0.233	68.2		
202.00	49.1	4.98	0.236	0.184	63.6		
202.00	48.4	4.90	0.263	0.155	60.8		

T/K (T/°F)		P/MPa (P/psia)	in liquid			in vapor				
			$x_{\text{CH}_4}$	$x_{\text{H}_2\text{S}}$	$x_{\text{C}_4\text{H}_{10}}$	$y_{\text{CH}_4}$	$y_{\text{H}_2\text{S}}$	$y_{\text{C}_4\text{H}_{10}}$		
310.93 (100)	2.758 (400)		0.1220	-	0.8780	0.8240	-	0.1760		
			0.0010	0.9990	-	0.0120	0.988	-		
			0.0738	0.5212	0.4050	0.3992	0.4907	0.1101		
			0.0690	0.6307	0.3003	0.3523	0.5479	0.0998		
			0.1189	0.1411	0.7400	-	-	-		
			0.0745	0.5726	0.3529	-	-	-		
			0.0392	0.7808	0.1800	0.2141	0.7280	0.0579		
			-	-	-	0.4940	0.3809	0.1251		
			-	-	-	0.6751	0.1487	0.1762		
			0.1236	0.0885	0.7878	0.7465	0.0840	0.1695		
			0.1086	0.2692	0.6222	0.5955	0.2543	0.1502		
			0.1401	0.1055	0.7544	-	-	-		
		5.516 (800)			0.2540	-	0.7460	0.8770	-	0.1230
					0.0510	0.9490	-	0.4050	0.5950	-
	0.1053			0.7413	0.1534	-	-	-		
	0.1247			0.6392	0.2361	-	-	-		
	-			-	-	0.5700	0.3400	0.0900		
	0.2155			0.2545	0.5300	-	-	-		
	0.1867			0.4073	0.4060	0.6061	0.3016	0.0923		
	0.2503			0.1569	0.5928	0.7240	0.1530	0.1230		
	0.2442			0.1184	0.6374	0.7926	0.0877	0.1196		
	0.2093			0.3584	0.4323	0.6309	0.2655	0.1035		
(cont.)										
AUXILIARY INFORMATION										
METHOD/APPARATUS/PROCEDURE:  Variable volume cell with sample confined between two moveable pistons. Volume varied by mercury injection. Details of design given in source. Cell fitted with windows. Samples of gas and liquid analysed by gas chromatography. Temperature measured with iron-constantan thermocouple. Pressure measured with Bourdon gauge.					SOURCE AND PURITY OF MATERIALS:					
					1. Matheson sample, purity varied between 99.3 and 99.7 per cent as determined by gas chromatography.					
					2. Matheson C.P. grade, purity 99.5 mole per cent. 3. Matheson instrument grade, purity 99.5 mole per cent.					
					ESTIMATED ERROR:					
					$\delta T/K = \pm 0.03$ ; $\delta P/\text{MPa} = \pm 0.003$ up to 6 MPa, $\pm 0.02$ above 6 MPa; $\delta x, \delta y = \pm 1\%$ .					
					REFERENCES:					

COMPONENTS:

1. Methane;  $\text{CH}_4$ ; [74-82-8]
2. Hydrogen sulfide;  $\text{H}_2\text{S}$ ; [7783-06-4]
3. Butane;  $\text{C}_4\text{H}_{10}$ ; [106-97-8]

ORIGINAL MEASUREMENTS:

Saxena, A. C.; Robinson, D. B.  
*Can. J. Chem. Engng.*  
1969, 47, 69-75.

VARIABLES:

PREPARED BY:

C. L. Young

EXPERIMENTAL VALUES:

Mole fraction

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Variable volume cell with sample confined between two moveable pistons. Volume varied by mercury injection. Details of design given in source. Cell fitted with windows. Samples of gas and liquid analysed by gas chromatography. Temperature measured with iron-constantan thermocouple. Pressure measured with Bourdon gauge.

SOURCE AND PURITY OF MATERIALS:

1. Matheson sample, purity varied between 99.3 and 99.7 per cent as determined by gas chromatography.
2. Matheson C.P. grade, purity 99.5 mole per cent.
3. Matheson instrument grade, purity 99.5 mole per cent.

ESTIMATED ERROR:

$\delta T/K = \pm 0.03$ ;  $\delta P/\text{MPa} = \pm 0.003$  up to 6 MPa,  $\pm 0.02$  above 6 MPa;  $\delta x, \delta y = \pm 1\%$ .

REFERENCES:

COMPONENTS:			ORIGINAL MEASUREMENTS:						
1. Methane; CH <sub>4</sub> ; [74-82-8]			Saxena, A. C.; Robinson, D. B.						
2. Hydrogen sulfide; H <sub>2</sub> S; [7783-06-4]			Can. J. Chem. Engng.						
3. Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8]			1969, 47, 69-75.						
EXPERIMENTAL VALUES:									
T/K (T/°F)	P/MPa (P/psia)	Mole fraction							
		in liquid			in vapor				
		x <sub>CH<sub>4</sub></sub>	x <sub>H<sub>2</sub>S</sub>	x <sub>C<sub>4</sub>H<sub>10</sub></sub>	y <sub>CH<sub>4</sub></sub>	y <sub>H<sub>2</sub>S</sub>	y <sub>C<sub>4</sub>H<sub>10</sub></sub>		
310.93 (100)	8.27 (1200)	0.3810	-	0.6190	0.8800	-	0.1200		
		0.1100	0.8900	-	0.5080	0.4910	-		
		0.3471	0.2599	0.3930	0.7084	0.1834	0.1082		
		0.3022	0.3887	0.3091	0.6450	0.2550	0.1000		
		0.1909	0.7136	0.0955	0.5160	0.4559	0.0281		
		0.2068	0.6826	0.1106	-	-	-		
		0.2810	0.4780	0.2401	0.5720	0.3508	0.0772		
		0.2290	0.6203	0.1502	-	-	-		
		0.3810	0.1463	0.4727	0.7640	0.1170	0.1191		
		277.59 (40)	2.758 (400)	0.1977	-	0.8023	0.9278	-	0.0722
0.0350	0.9650			-	0.5130	0.4870	-		
0.1286	0.4574			0.4140	0.5979	0.3049	0.0972		
0.1663	0.3153			0.5184	0.6932	0.2087	0.0982		
0.1685	0.1900			0.6415	0.7461	0.1436	0.1103		
0.1131	0.6153			0.2716	0.5620	0.3678	0.0702		
0.1688	0.2717			0.5596	0.6962	0.1887	0.1151		
0.1726	0.2653			0.5621	-	-	-		
5.516 (800)	8.27 (1200)			0.4070	-	0.5930	0.9560	-	0.0440
				0.0900	0.9100	-	0.6900	0.3100	-
		0.3002	0.3826	0.3172	0.7610	0.1861	0.0529		
		-	-	-	0.7260	0.2240	0.0500		
		0.2694	0.4781	0.2525	0.7168	0.2321	0.0511		
		0.2576	0.4849	0.2576	-	-	-		
		0.3449	0.2460	0.4092	0.8708	0.0930	0.0362		
		0.3549	0.2368	0.4083	0.8558	0.0933	0.0509		
		0.3688	0.1639	0.4673	0.8870	0.0683	0.0447		
		0.3790	0.1878	0.4332	0.8986	0.0635	0.0379		
8.27 (1200)	5.516 (800)	0.3756	0.1616	0.4629	-	-	-		
		0.3845	0.1402	0.4753	0.9015	0.0543	0.0442		
		0.5670	-	0.4330	0.9496	-	0.0504		
		0.1620	0.8380	-	0.7270	0.2730	-		
		0.4350	0.3588	0.2062	0.7555	0.1793	0.0452		
		0.5145	0.1797	0.3058	0.8706	0.0747	0.0547		
		0.5210	0.1634	0.3156	0.8810	0.0638	0.0550		
		0.5479	0.1482	0.3039	0.9074	0.0526	0.0400		
		-	-	-	0.9110	0.0412	0.0477		
		0.5406	0.1419	0.3175	0.9217	0.0455	0.0328		
244.26 (-20)	2.758 (400)	0.2935	-	0.7065	0.9566	-	0.0434		
		0.0535	0.9465	-	0.7970	0.2030	-		
		0.2305	0.3202	0.4493	0.8808	0.0959	0.0233		
		0.2592	0.1814	0.5594	0.9090	0.0620	0.0290		
		0.1925	0.4635	0.3440	0.8490	0.1255	0.0255		
		0.1589	0.5677	0.2733	0.8365	0.1404	0.0232		
		0.2297	0.3186	0.4516	0.8879	0.0853	0.0268		
		5.516 (800)	8.27 (1200)	0.4991	-	0.5009	0.9783	-	0.0217
				0.1371	0.8629	-	0.8786	0.1214	-
				0.4673	0.1512	0.3815	0.9392	0.0390	0.0218
0.4740	0.1464			0.3796	0.9367	0.0325	0.0308		
0.4215	0.3150			0.2635	0.9070	0.0777	0.0153		
0.3623	0.4739			0.1638	0.8888	0.0963	0.0149		
0.3816	0.4199			0.1985	0.8968	0.0896	0.0135		

(cont.)

COMONENTS:		ORIGINAL MEASUREMENTS:					
1. Methane; CH <sub>4</sub> ; [74-82-8]		Saxena, A. C.; Robinson, D. B.					
2. Hydrogen sulfide; H <sub>2</sub> S; [7783-06-4]		Can. J. Chem. Engng.					
3. Butane; C <sub>4</sub> H <sub>10</sub> ; [106-97-8]		1969, 47, 69-75.					
EXPERIMENTAL VALUES:							
T/K (T/°F)	P/MPa (P/psia)	Mole fraction					
		in liquid			in vapor		
		x <sub>CH<sub>4</sub></sub>	x <sub>H<sub>2</sub>S</sub>	x <sub>C<sub>4</sub>H<sub>10</sub></sub>	y <sub>CH<sub>4</sub></sub>	y <sub>H<sub>2</sub>S</sub>	y <sub>C<sub>4</sub>H<sub>10</sub></sub>
244.26 (-20)	8.27 (1200)	0.7078	-	0.2922	0.9721	-	0.0279
		0.2110	0.7890	-	0.8580	0.1420	-
		0.6029	0.2494	0.1476	-	-	-
		0.6146	0.2232	0.1622	0.9019	0.0749	0.0232
		0.5580	0.3232	0.1188	0.8914	0.0944	0.0142