COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8]	Price, A. R.; Kobayashi, R.
2. Ethane; C_2H_6; [74-84-0]	*J. Chem. Engng. Data*
3. Propane; C_3H_8; [74-98-6]	1959, *4*, 40-52.
VARIABLES:	PREPARED BY:
	C. L. Young

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa	P/psi	Mole fractions in liquid x_{CH_4}	$x_{C_2H_6}$	$x_{C_3H_8}$	in vapor y_{CH_4}	$y_{C_2H_6}$	$y_{C_3H_8}$
283.15	0.689	100	0.0028		0.998	0.057		0.943
(50)			0.0022	0.0080	0.9897	0.0452	0.0280	0.9268
				0.0236	0.9764		0.0720	0.9280
	1.379	200	0.044		0.960	0.471		0.529
			0.044		0.962	0.471		0.529
			0.0396	0.0655	0.8966	0.412	0.112	0.476
			0.0270	0.160	0.811	0.275	0.284	0.441
			0.0128	0.264	0.7193	0.127	0.476	0.397
				0.357	0.643		0.612	0.388
	2.758	400	0.128		0.872	0.685		0.315
			0.110	0.175	0.715	0.557	0.193	0.250
			0.0697	0.500	0.4303	0.306	0.535	0.159
			0.0620	0.553	0.385	0.282	0.570	0.148
			0.0302	0.7578	0.212	0.115	0.7989	0.0861
				0.9066	0.0934		0.9616	0.0384
				0.9108	0.0892		0.9606	0.0394
	4.137	600	0.216		0.784	0.762		0.238
			0.214	0.151	0.635	0.663	0.133	0.204
			0.204	0.178	0.618	0.654	0.150	0.196
			0.178	0.376	0.446	0.521	0.332	0.147
			0.174	0.457	0.369	0.487	0.382	0.131
			0.137	0.647	0.216	0.371	0.5501	0.0789
			0.113	0.768	0.119	0.286	0.6668	0.0472

(cont.)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Recirculating vapor flow apparatus with modified Jerguson sight gauge for equilibrium cell. Vapor recycled with magnetic pump. Pressure measured with Bourdon pressure gauge and temperature measured with thermocouple. Samples of liquid and gas analysed by infra-red spectrometry and gas chromatographic analysis.

SOURCE AND PURITY OF MATERIALS:

1. Phillips Petroleum Co. research grade, purity 99.5 mole per cent.
2. Phillips Petroleum Co. research grade, purity 99.9 mole per cent.
3. Phillips Petroleum Co. pure grade, purity 99.0 mole per cent.

ESTIMATED ERROR:

$\delta T/K = \pm 0.06$; $\delta P/MPa = \pm 1\%$;

δx, $\delta y = \pm 2\%$ (estimated by compiler).

REFERENCES:

COMPONENTS:

1. Methane; CH_4; [74-82-8]
2. Ethane; C_2H_6; [74-84-0]
3. Propane; C_3H_8; [74-98-6]

ORIGINAL MEASUREMENTS:

Price, A. R.; Kobayashi, R.

J. Chem. Engng. Data

1959, *4*, 40-52.

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa	P/psi	Mole fractions in liquid x_{CH_4}	$x_{C_2H_6}$	$x_{C_3H_8}$	in vapor y_{CH_4}	$y_{C_2H_6}$	$y_{C_3H_8}$
283.15	5.516	800	0.300		0.700	0.788		0.212
(50)			0.286	0.121	0.593	0.7224	0.0906	0.187
			0.268	0.359	0.373	0.588	0.282	0.130
			0.255	0.454	0.291	0.534	0.357	0.109
			0.237	0.566	0.197	0.4632	0.455	0.0818
	6.895	1000	0.413		0.587	0.805		0.195
			0.389	0.169	0.442	0.707	0.126	0.167
			0.385	0.225	0.390	0.680	0.164	0.156
			0.373	0.357	0.270	0.600	0.268	0.132
			0.349	0.505	0.146	0.4826	0.431	0.0864
			0.3755	0.5241	0.1004	0.4345	0.490	0.0755
	7.584	1100	0.451		0.549	0.803		0.197
			0.4365	0.0409	0.5226	0.7746	0.0306	0.1948
			0.430	0.110	0.460	0.7341	0.0849	0.181
			0.438	0.192	0.370	0.692	0.143	0.165
			0.438	0.223	0.339	0.665	0.173	0.162
			0.435	0.259	0.306	0.630	0.209	0.161
			0.440	0.376	0.184	0.504	0.351	0.145
	8.274	1200	0.498		0.502	0.784		0.216
			0.4997	0.0375	0.4628	0.7558	0.0302	0.214
			0.504	0.176	0.320	0.673	0.143	0.184
			0.508	0.243	0.249	0.584	0.219	0.197
255.37	0.689	100	0.0358		0.9642	0.573		0.427
(0)			0.0335	0.0174	0.9491	0.5589	0.0336	0.4075
			0.0279	0.1284	0.8437	0.400	0.246	0.354
			0.0210	0.166	0.813	0.325	0.349	0.326
			0.0107	0.272	0.7173	0.159	0.534	0.307
				0.373	0.627		0.692	0.308
	1.379	200	0.0904		0.9096	0.768		0.232
			0.0917	0.0127	0.8956	0.7717	0.0133	0.215
			0.0702	0.250	0.6798	0.560	0.270	0.170
			0.0457	0.4843	0.470	0.359	0.519	0.122
			0.0127	0.8133	0.174	0.0778	0.8746	0.0476
				0.9013	0.0987		0.9717	0.0283
	2.758	400	0.199		0.801	0.862		0.138
			0.159	0.347	0.494	0.6985	0.217	0.0845
			0.1557	0.5293	0.315	0.6003	0.343	0.0567
			0.1364	0.7243	0.1393	0.4869	0.4852	0.0279
	4.137	600	0.311		0.689	0.891		0.109
			0.293	0.266	0.441	0.781	0.1377	0.0813
			0.288	0.343	0.369	0.7514	0.184	0.0646
			0.272	0.481	0.247	0.6896	0.260	0.0504
			0.271	0.6204	0.1086	0.6138	0.361	0.0252
	5.516	800	0.415		0.585	0.899		0.101
			0.391	0.188	0.421	0.8239	0.0939	0.0822
			0.378	0.354	0.268	0.7727	0.1702	0.0517
			0.380	0.418	0.202	0.7318	0.224	0.0442
			0.380	0.5142	0.1058	0.6795	0.296	0.0245
	6.895	1000	0.522		0.478	0.895		0.105
			0.515	0.0780	0.407	0.8623	0.0443	0.0934
			0.512	0.187	0.301	0.8174	0.1027	0.0799
			0.514	0.239	0.247	0.791	0.140	0.0690
			0.5161	0.3378	0.1461	0.7234	0.226	0.0506
			0.5258	0.4467	0.0275	0.6357	0.349	0.0153

(cont.)

COMPONENTS:

1. Methane; CH_4; [74-82-8]
2. Ethane; C_2H_6; [74-84-0]
3. Propane; C_3H_8; [74-98-6]

ORIGINAL MEASUREMENTS:

Price, A. R.; Kobayashi, R.

J. Chem. Engng. Data

1959, *4*, 40-52.

EXPERIMENTAL VALUES:

T/K	P/MPa	P/psi	Mole fractions in liquid			Mole fractions in vapor		
			x_{CH_4}	$x_{C_2H_6}$	$x_{C_3H_8}$	y_{CH_4}	$y_{C_2H_6}$	$y_{C_3H_8}$
255.37	7.584	1100	0.582		0.418	0.888		0.112
(0)			0.5759	0.0581	0.366	0.8619	0.0341	0.104
			0.585	0.107	0.308	0.8377	0.0635	0.0988
			0.584	0.157	0.259	0.8237	0.0928	0.0835
			0.587	0.192	0.221	0.7947	0.1231	0.0822
			0.582	0.228	0.190	0.7707	0.154	0.0753
			0.5917	0.2483	0.1600	0.7545	0.1758	0.0697
			0.6043	0.259	0.1367	0.7484	0.1855	0.0661
			0.604	0.273	0.123	0.7142	0.2177	0.0681
	8.274	1200	0.637		0.363	0.873		0.127
			0.6456	0.0874	0.267	0.8218	0.0625	0.1157
			0.653	0.106	0.241	0.8158	0.0751	0.1091
			0.650	0.118	0.232	0.795	0.089	0.116
			0.693	0.161	0.146	0.721	0.144	0.135
	8.963	1300	0.708		0.292	0.845		0.155
			0.7103	0.0297	0.260	0.8294	0.0246	0.146
			0.7315	0.0345	0.234	0.8086	0.0322	0.1592
			0.7364	0.0396	0.224	0.7978	0.0384	0.1638
235.37	0.689	100	0.0769		0.9231	0.840		0.160
(-50)			0.0614	0.1718	0.7668	0.7195	0.1628	0.1177
			0.0486	0.302	0.6494	0.605	0.292	0.103
			0.0479	0.399	0.5531	0.5287	0.380	0.0913
			0.0467	0.448	0.5053	0.4952	0.425	0.0798
			0.0261	0.7259	0.248	0.280	0.682	0.0380
	1.379	200	0.146		0.854	0.9216		0.0784
			0.125	0.268	0.607	0.804	0.140	0.0560
			0.125	0.368	0.507	0.7478	0.206	0.0462
			0.119	0.627	0.254	0.6383	0.333	0.0287
			0.0968	0.9032		0.505	0.495	
	2.758	400	0.296		0.704	0.9493		0.0507
			0.292	0.126	0.582	0.920	0.0383	0.0417
			0.271	0.289	0.440	0.8791	0.0907	0.0302
			0.274	0.448	0.278	0.8245	0.154	0.0215
			0.270	0.512	0.218	0.8084	0.1742	0.0174
			0.277	0.523	0.200	0.7986	0.1880	0.0134
			0.278	0.571	0.151	0.7901	0.194	0.0159
			0.282	0.718		0.724	0.276	
	4.137	600	0.438		0.562	0.9585		0.0415
			0.440	0.145	0.415	0.9179	0.0485	0.0336
			0.424	0.150	0.426	0.919	0.0446	0.0364
			0.443	0.243	0.314	0.8952	0.0790	0.0258
			0.441	0.366	0.193	0.8637	0.119	0.0173
			0.438	0.562		0.800	0.200	
	5.516	800	0.581		0.419	0.959		0.0410
			0.598	0.109	0.293	0.9275	0.362	0.0363
			0.611	0.249	0.140	0.8901	0.0886	0.0213
			0.622	0.378		0.832	0.168	
	6.895	1000	0.736		0.264	0.9458		0.0542
			0.7609	0.0651	0.174	0.9216	0.0331	0.0453
			0.7662	0.0892	0.1446	0.9026	0.0504	0.0470
			0.7749	0.1261	0.0990	0.8838	0.0758	0.0404
			0.7837	0.1491	0.0672	0.8631	0.1001	0.0368
			0.8332	0.1318	0.0350	0.8363	0.1288	0.0349

(cont.)

COMPONENTS:

1. Methane; CH_4; [74-82-8]
2. Ethane; C_2H_6; [74-84-0]
3. Propane; C_3H_8; [74-98-6]

ORIGINAL MEASUREMENTS:

Price, A. R.; Kobayashi, R.

J. Chem. Engng. Data

1959, *4*, 40-52.

EXPERIMENTAL VALUES:

T/K	P/MPa	P/psi	Mole fractions in liquid			in vapor		
			x_{CH_4}	$x_{C_2H_6}$	$x_{C_3H_8}$	y_{CH_4}	$y_{C_2H_6}$	$y_{C_3H_8}$
199.82	0.689	100	0.125		0.875	0.9591		0.0409
(-100)			0.118	0.144	0.738	0.9186	0.0472	0.0342
			0.110	0.320	0.570	0.8651	0.110	0.0249
			0.110	0.580	0.310	0.7916	0.194	0.0144
			0.101	0.899		0.680	0.320	
	1.379	200	0.222		0.778	0.9792		0.0208
			0.235	0.121	0.644	0.9615	0.0228	0.0157
			0.232	0.435	0.333	0.9070	0.0840	0.00897
			0.236	0.483	0.281	0.8926	0.0983	0.00909
			0.250	0.750		0.814	0.186	
	2.758	400	0.477		0.523	0.9855		
			0.492	0.175	0.333	0.963	0.0266	0.0104
			0.496	0.242	0.262	0.9562	0.0364	0.00741
			0.504	0.308	0.188	0.9446	0.0486	0.00685
			0.5191	0.386	0.0949	0.9321	0.0630	0.00486
			0.528	0.472		0.9165	0.0835	
	4.137	600	0.744		0.256	0.9852		0.0148
			0.745	0.0520	0.203	0.9775	0.0119	0.0106
			0.7647	0.1612	0.0741	0.9583	0.0366	0.00512
			0.784	0.216		0.9498	0.0502	
172.04	0.689	100	0.238		0.762	0.9932		0.0068
(-150)			0.242	0.258	0.500	0.9686	0.0282	0.0032
			0.240	0.275	0.485	0.9653	0.0308	0.0039
			0.249	0.446	0.305	0.9538	0.0433	0.0030
			0.252	0.6762	0.0718	0.9299	0.0682	0.0019
			0.251	0.749		0.9312	0.0688	
	1.379	200	0.502		0.498	0.9955		0.0045
			0.514	0.208	0.278	0.9806	0.0167	0.0027
			0.528	0.319	0.153	0.9742	0.0234	0.0024
			0.5532	0.400	0.0468	0.969	0.0294	0.0016
			0.561	0.439		0.970	0.030	
144.26	0.689	100	0.802		0.198	0.9993		0.0007
(-200)			0.8075	0.0735	0.119	0.9962	0.0021	
			0.8187	0.124	0.0573	0.9961	0.0029	
			0.883	0.167		0.9965	0.0035	

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Ethane; C_2H_6; [74-84-0] 3. Propane; C_3H_8; [74-98-6]	Parikh, J. S.; Bukacek, R. F.; Graham, L.; Leipziger, S. *J. Chem. Eng. Data* 1984, *29*, 300-303.
VARIABLES:	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

Mole fraction of methane = 0.8511 ± 0.0032
Mole fraction of ethane = 0.1007 ± 0.0023
Mole fraction of propane = 0.0480 ± 0.0005

Dew Points		Bubble Points	
T/K	*P*/MPa	T/K	*P*/MPa
210.15	0.6893		
223.26	1.379		
223.71	1.440		
231.04	2.068	144.15	0.7155
236.21	2.757	155.26	1.145
239.87	3.446	166.48	1.747
242.59	4.136	174.82	2.302
244.26	4.825	181.48	2.899
244.43	5.514	183.15	3.000
244.26	5.967	191.48	3.730
243.15	6.465	200.93	4.599
241.87	6.760	205.37	5.162
239.82	6.978	210.93	5.789
237.59	7.134	216.37	6.304
234.15	7.235	219.28	6.494
230.37	7.154	221.98	6.716
227.59	7.037	223.87	6.833
225.37	6.914	224.21[a]	6.850
225.04	6.896		
224.54	6.863		
224.21	6.850		

[a] critical point

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:

Thick-walled Pyrex equilibrium cells used of approximately 29 × 10^{-6} m^3 volume. Cell contents stirred by ball bearing which could be moved by an external magnet. Fluid thermostat used. Dew and bubble points of samples of fixed composition determined visually either by varying pressure at fixed temperature or by varying temperature at fixed pressure. Details in source.

SOURCE AND PURITY OF MATERIALS:

1. Purity 99.99 moles per cent.
2. Purity 99.90 moles per cent.
3. Purity 99.99 moles per cent.

ESTIMATED ERROR:

$\delta T/K$ = ±0.05; $\delta P/P$ = ±0.001.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Ethane; C_2H_6; [74-84-0] 3. Pentane; C_5H_{12}; [109-66-0]	Billman, G. W.; Sage, B. H.; Lacey, W. N. *Trans. Am. Inst. Mech. Min. Engnrs.* 1948, *174*, 13-24.
VARIABLES:	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa (P/psi)	Mole fractions in liquid x_{CH_4}	$x_{C_2H_6}$	$x_{C_5H_{12}}$	in vapor y_{CH_4}	$y_{C_2H_6}$	$y_{C_5H_{12}}$
310.93	3.45	0.154	0.0284	0.818	0.904	0.0377	0.0583
(100)	(500)	0.115	0.223	0.662	0.652	0.297	0.0519
		0.0947	0.327	0.578	0.517	0.431	0.0511
		0.0550	0.514	0.431	0.275	0.681	0.0440
		0.0000	0.736	0.264	0.000	0.965	0.0349
	6.89	0.263	0.211	0.526	0.762	0.188	0.0499
	(1000)	0.246	0.314	0.440	0.674	0.282	0.0454
		0.237	0.396	0.368	0.596	0.360	0.0443
		0.224	0.444	0.331	0.548	0.405	0.0468
		0.214	0.515	0.271	0.483	0.473	0.0438
		0.198	0.602	0.200	0.394	0.562	0.0441
		0.196	0.759	0.0451	0.196	0.758	0.0450
	10.34	0.420	0.152	0.428	0.814	0.125	0.0608
	(1500)	0.412	0.291	0.297	0.689	0.244	0.0670
		0.413	0.378	0.209	0.588	0.334	0.0779
		0.462	0.443	0.0948	0.461	0.443	0.0953
	13.79	0.580	0.0217	0.399	0.899	0.0173	0.0833
	(2000)	0.587	0.116	0.297	0.801	0.0981	0.101
		0.599	0.140	0.261	0.763	0.121	0.116

(cont.)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Static equilibrium cell, agitated mechanically. Samples withdrawn so as not to disturb equilibrium. Pressure measured with pressure balance. Samples analysed by low temperature fractionation.

SOURCE AND PURITY OF MATERIALS:

1. Commercial sample of about 99.65 mole per cent purity; carbon dioxide about 0.3 mole per cent and 0.04 mole per cent heavier hydrocarbon.
2. Carbide and Carbon Chemicals Corp. sample, fractionated; final purity about 99.8 mole per cent.
3. Phillips Petroleum Co. sample, purity 99.5 mole per cent.

ESTIMATED ERROR:

$\delta T/K = \pm 0.12$; $\delta P/MPa = \pm 0.015$;

δx, $\delta y = \pm 0.002$.

REFERENCES:

COMPONENTS:

1. Methane; CH_4; [74-82-8]
2. Ethane; C_2H_6; [74-84-0]
3. Pentane; C_5H_{12}; [109-66-0]

ORIGINAL MEASUREMENTS:

Billman, G. W.; Sage, B. H.; Lacey, W. N.
Trans. Am. Inst. Mech. Min. Engnrs. 1948, *174*, 13-24.

EXPERIMENTAL VALUES:

Smoothed Data

T/K (T/°F)	P/MPa (P/psi)	c[a]	Mole fractions in liquid x_{CH_4}	$x_{C_2H_6}$	$x_{C_5H_{12}}$	in vapor y_{CH_4}	$y_{C_2H_6}$	$y_{C_5H_{12}}$
310.93 (100)	3.45 (500)	0.0	0.160	0.000	0.840	0.940	0.000	0.0603
		0.2	0.124	0.1752	0.701	0.712	0.233	0.0547
		0.4	0.0868	0.365	0.548	0.469	0.482	0.0490
		0.6	0.0417	0.575	0.383	0.200	0.759	0.0414
	6.89 (1000)	0.0	0.308	0.000	0.693	0.9471	0.0000	0.0530
		0.2	0.276	0.145	0.579	0.8225	0.128	0.0497
		0.4	0.247	0.301	0.452	0.6834	0.270	0.0461
		0.6	0.220	0.468	0.312	0.5265	0.428	0.0459
		0.8	0.188	0.650	0.163	0.3472	0.612	0.0406
	10.34 (1500)	0.0	0.440	0.000	0.560	0.9412	0.0000	0.0588
		0.2	0.423	0.115	0.462	0.8460	0.0942	0.0601
		0.4	0.415	0.234	0.351	0.7428	0.194	0.0636
		0.6	0.414	0.352	0.235	0.6204	0.306	0.0739
	13.79 (2000)	0.0	0.579	0.000	0.421	0.9205	0.0000	0.0796
		0.2	0.582	0.0836	0.334	0.8381	0.0690	0.0930
		0.4	0.607	0.157	0.236	0.7347	0.1379	0.1272

[a] $c = \dfrac{\text{mole fraction of ethane}}{\text{mole fraction of ethane + mole fraction of pentane}}$

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Ethane; C_2H_6; [74-84-0] 3. Heptane; C_7H_{16}; [142-82-5]	Van Horn, L. D.; Kobayashi, R. *J. Chem. Engng. Data* 1967, *12*, 294-303.
VARIABLES:	PREPARED BY:
Temperature, pressure	C. L. Young

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa (P/psi)	Mole fractions in liquid x_{CH_4}	$x_{C_2H_6}$	$x_{C_7H_{16}}$	in vapor y_{CH_4}	$y_{C_2H_6}$
244.26	0.689	0.042	0.132	0.826	0.786	0.214
(-20)	(100)	0.032	0.252	0.716	0.595	0.405
	1.38	0.084	0.235	0.681	0.786	0.214
	(200)	0.067	0.453	0.480	0.595	0.405
	2.76	0.179	0.203	0.618	0.891	0.109
	(400)	0.165	0.390	0.445	0.786	0.214
	4.14	0.254	0.248	0.498	0.891	0.109
	(600)	0.250	0.474	0.276	0.786	0.214
	5.52	0.331	0.138	0.531	0.9456	0.0544
	(800)	0.342	0.264	0.394	0.891	0.109
	6.89	0.396	0.141	0.463	0.9456	0.0544
	(1000)	0.393	0.268	0.339	0.891	0.109
233.15	0.689	0.047	0.172	0.781	0.786	0.214
(-40)	(100)	0.037	0.328	0.635	0.595	0.405
	1.38	0.094	0.316	0.590	0.786	0.214
	(200)	0.082	0.605	0.313	0.595	0.405
	2.76	0.197	0.262	0.541	0.891	0.109
	(400)	0.194	0.513	0.293	0.786	0.214
	4.14	0.298	0.157	0.545	0.9456	0.0544
	(600)	0.296	0.312	0.392	0.891	0.109
	5.52	0.380	0.163	0.457	0.9456	0.0544
	(800)	0.391	0.317	0.292	0.891	0.109

(cont.)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The solubilities were determined by measurement of retention volumes using gas chromatography. The method uses methane as a carrier gas, ethane as an injected sample and heptane as the stationary phase. The technique is described in the source and ref. (1).

SOURCE AND PURITY OF MATERIALS:

1 and 2. Major impurity nitrogen. Total impurities less than 0.05 mole per cent.

3. Research grade.

ESTIMATED ERROR:

$\delta T/K = \pm 0.05$; $\delta P/psi = \pm 1$, $P \leq 1{,}000$ psia, ± 2, $P \geq 1{,}000$ psia; δx, $\delta y = \pm 1.5\%$.

REFERENCES:

1. Koonce, K. T.
Ph.D. thesis, Rice University, Houston, 1963.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-83-8]	Van Horn, L. D.; Kobayashi, R.
2. Ethane; C_2H_6; [74-84-0]	*J. Chem. Engng. Data*
3. Heptane; C_7H_{16}; [142-82-5]	1967, *12*, 294-303.

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa (P/psi)	Mole fractions in liquid x_{CH_4}	$x_{C_2H_6}$	$x_{C_7H_{16}}$	in vapor y_{CH_4}	$y_{C_2H_6}$
233.15 (-40)	6.89 (1000)	0.453	0.155	0.392	0.9456	0.0544
222.04 (-60)	0.689 (100)	0.055	0.243	0.702	0.786	0.214
	1.38 (200)	0.044	0.471	0.485	0.595	0.405
	2.76 (400)	0.120	0.222	0.658	0.891	0.109
	4.14 (600)	0.112	0.437	0.451	0.786	0.214
	5.52 (800	0.243	0.175	0.582	0.9456	0.0544
		0.240	0.348	0.412	0.891	0.109
		0.346	0.200	0.454	0.9456	0.0544
		0.352	0.390	0.258	0.891	0.109
		0.440	0.197	0.363	0.9456	0.0544

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Propane; C_3H_8; [74-98-6] 3. Butane; C_4H_{10}; [106-97-8]	Wiese, H. C.; Jacobs, J.; Sage, B. H. *J. Chem. Eng. Data* 1970, *15*, 82-91.
VARIABLES: Temperature, pressure liquid phase composition	**PREPARED BY:** C. L. Young

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa (P/psia)	†Composition factor	Mole fraction in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_4H_{10}}$	in vapor y_{CH_4}	$y_{C_3H_8}$	$y_{C_4H_{10}}$
277.6	1.38	0.0	0.0808	0	0.9192	0.8888	0	0.1112
(40)	(200)	0.2	0.0762	0.1848	0.7390	0.8273	0.0819	0.0909
		0.4	0.0710	0.3716	0.5574	0.7636	0.1659	0.0705
		0.6	0.0662	0.5603	0.3735	0.6990	0.2524	0.0486
		0.8	0.0609	0.7513	0.1878	0.6327	0.3422	0.0251
		1.0	0.0549	0.9451	0	0.5627	0.4373	0
	3.45	0.0	0.1913	0	0.8087	0.9369	0	0.0631
	(500)	0.2	0.1996	0.1601	0.6403	0.9102	0.0391	0.0507
		0.4	0.2001	0.3200	0.4799	0.8825	0.0788	0.0387
		0.6	0.1987	0.4808	0.3205	0.8523	0.1215	0.0263
		0.8	0.1962	0.6431	0.1608	0.8180	0.1685	0.0135
		1.0	0.1923	0.8077	0	0.7819	0.2181	0
	6.89	0.0	0.3651	0	0.6349	0.9461	0	0.0539
	(1000)	0.2	0.3949	0.1210	0.4841	0.9275	0.0281	0.0444
		0.4	0.4030	0.2388	0.3582	0.9068	0.0574	0.0358
		0.6	0.4071	0.3557	0.2371	0.8835	0.0904	0.0261
		0.8	0.4119	0.4705	0.1176	0.8567	0.1289	0.0144
		1.0	0.4226	0.4774	0	0.8208	0.1792	0
	8.62	0.0	0.4513	0	0.5487	0.9407	0	0.0593
	(1250)	0.2	0.4918	0.1016	0.4066	0.9203	0.0276	0.0521
		0.4	0.5070	0.1972	0.2958	0.9004	0.0571	0.0426
		0.6	0.5154	0.2908	0.1939	0.8749	0.0923	0.0329
		0.8	0.5278	0.3778	0.0944	0.8470	0.1335	0.0195
		1.0	0.5492	0.4508	0	0.8222	0.1778	0

(cont.)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
PVT cell charged with mixture of known composition. Pressure measured with pressure balance and temperature measured using a platinum resistance thermometer. Details in ref. (1). Samples of coexisting phases analysed by GC. Details in source.	1. Texaco sample, passed over calcium chloride, activated charcoal. Ascarite and anhydrous calcium sulfate at pressures in excess of 3 MPa, purity 99.99 mole per cent. 2 and 3. Phillips Petroleum Co. samples, degassed, purities 99.99 and 99.95 mole per cent, respectively.
	ESTIMATED ERROR: $\delta T/K = \pm 0.01$; $\delta P/MPa = \pm 0.1\%$; δx_{CH_4}, $\delta y_{CH_4} = \pm 0.005$ or better.
	REFERENCES: 1. Sage, B. H.; Lacey, W. W. *Trans. Am. Inst. Mining Met. Engnrs.* 1940, *136*, 136.

COMPONENTS:

1. Methane; CH_4; [74-82-8]
2. Propane; C_3H_8; [74-98-6]
3. Butane; C_4H_{10}; [106-97-8]

ORIGINAL MEASUREMENTS:

Wiese, H. C.; Jacobs, J.; Sage, B. H.

J. Chem. Eng. Data 1970, *15*, 82-91.

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa (P/psia)	†Composition factor	Mole fraction in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_4H_{10}}$	Mole fraction in vapor y_{CH_4}	$y_{C_3H_8}$	$y_{C_4H_{10}}$
277.6	10.34	0.0	0.5390	0	0.4610	0.9262	0	0.0738
(40)	(1500)	0.2	0.5970	0.0806	0.3224	0.9035	0.0297	0.0668
		0.4	0.6157	0.1537	0.2306	0.8747	0.0645	0.0608
		0.6	0.6391	0.2165	0.1444	0.8360	0.1114	0.0526
	11.72	0.0	0.6194	0	0.3806	0.9044	0	0.0956
	(1700)	0.2	0.7017	0.0597	0.2387	0.8585	0.0348	0.1067
310.9	1.38	0.0	0.0530	0	0.9470	0.7027	0.	0.2974
(100)	(200)	0.2	0.0452	0.1910	0.7638	0.5742	0.1833	0.2425
		0.4	0.0368	0.3853	0.5779	0.4447	0.3689	0.1864
		0.6	0.0272	0.5837	0.3891	0.3130	0.5574	0.1296
		0.8	0.0165	0.7868	0.1967	0.1823	0.7498	0.0679
		1.0	0.0049	0.9951	0	0.0521	0.9479	0
	3.45	0.0	0.1556	0	0.8444	0.8473	0	0.1527
	(500)	0.2	0.1514	0.1697	0.6789	0.7902	0.0831	0.1267
		0.4	0.1459	0.3417	0.5125	0.7316	0.1700	0.0984
		0.6	0.1386	0.5168	0.3446	0.6653	0.2641	0.0706
		0.8	0.1304	0.6957	0.1739	0.5953	0.3669	0.0378
		1.0	0.1235	0.8765	0	0.5209	0.4791	0
	6.89	0.0	0.3171	0	0.6829	0.8809	0	0.1191
	(1000)	0.2	0.3201	0.1360	0.5440	0.8430	0.0545	0.1025
		0.4	0.3209	0.2717	0.4075	0.8036	0.1132	0.0833
		0.6	0.3191	0.4086	0.2724	0.7582	0.1798	0.0621
		0.8	0.3217	0.5426	0.1357	0.7122	0.2525	0.0353
		1.0	0.3271	0.6729	0	0.6635	0.3365	0
	8.62	0.0	0.3974	0	0.6026	0.8786	0	0.1214
	(1250)	0.2	0.4051	0.1190	0.4760	0.8425	0.0506	0.1069
		0.4	0.4111	0.2356	0.3533	0.8038	0.1055	0.0907
		0.6	0.4181	0.3492	0.2328	0.7604	0.1688	0.0708
		0.8	0.4276	0.4579	0.1145	0.7143	0.2427	0.0430
		1.0	0.4511	0.5489	0	0.6766	0.3234	0
	10.34	0.0	0.4799	0	0.5201	0.8665	0	0.1335
	(1500)	0.2	0.4966	0.1007	0.4028	0.8249	0.0505	0.1246
		0.4	0.5152	0.1939	0.2909	0.7783	0.1087	0.1130
		0.6	0.5403	0.2758	0.1839	0.7103	0.1904	0.0993
	11.72	0.0	0.5586	0	0.4414	0.8440	0	0.1560
	(1700)	0.2	0.5910	0.0818	0.3272	0.7801	0.0540	0.1659
344.3	1.38	0.0	0.0256	0	0.9744	0.3517	0	0.6483
(220)	(200)	0.2	0.0091	0.1982	0.7929	0.1171	0.3439	0.5391
	3.45	0.0	0.1201	0	0.8799	0.6796	0	0.3204
	(500)	0.2	0.1086	0.1783	0.7131	0.5771	0.1477	0.2753
		0.4	0.0955	0.3618	0.5427	0.4754	0.3032	0.2214
		0.6	0.0803	0.5518	0.3679	0.3702	0.4702	0.1597
		0.8	0.0634	0.7493	0.1873	0.2650	0.6481	0.0869
		1.0	0.0433	0.9567	0	0.1550	0.8450	0
	6.89	0.0	0.2717	0	0.7283	0.7567	0	0.2433
	(1000)	0.2	0.2669	0.1466	0.5865	0.6944	0.0933	0.2123
		0.4	0.2622	0.2951	0.4427	0.6285	0.1954	0.1761
		0.6	0.2625	0.4463	0.2975	0.5527	0.3131	0.1342
		0.8	0.2556	0.5955	0.1489	0.4640	0.4547	0.0814
		1.0	0.2800	0.7200	0	0.3558	0.6442	0
	8.62	0.0	0.3482	0	0.6518	0.7588	0	0.2412
	(1250)	0.2	0.3549	0.1290	0.5161	0.6992	0.0842	0.2166
		0.4	0.3598	0.2561	0.3842	0.6314	0.1795	0.1891
		0.6	0.3718	0.3769	0.2513	0.5377	0.3006	0.1617
	10.34	0.0	0.4329	0	0.5671	0.7439	0	0.2561
	(1500)	0.2	0.4692	0.1062	0.4246	0.6610	0.0814	0.2576
	11.72	0.0	0.5103	0	0.4897	0.7036	0	0.2964
	(1700)							

(cont.)

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8]	Wiese, H. C.; Jacobs, J.;
2. Propane; C_3H_8; [74-98-6]	Sage, B. H.
3. Butane; C_4H_{10}; [106-97-8]	*J. Chem. Eng. Data*
	1970, *15*, 82-91.

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa (P/psia)	†Composition factor	Mole fraction in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_4H_{10}}$	Mole fraction in vapor y_{CH_4}	$y_{C_3H_8}$	$y_{C_4H_{10}}$
377.6	3.45	0.0	0.0783	0	0.9217	0.4200	0	0.5800
(220)	(500)	0.2	0.0554	0.1889	0.7557	0.2628	0.2233	0.5139
		0.4	0.0328	0.3869	0.5803	0.1342	0.4573	0.4085
		0.6	0.0042	0.5975	0.3983	0.0142	0.7062	0.2796
	6.89	0.0	0.2361	0	0.7639	0.5630	0	0.4370
	(1000)	0.2	0.2311	0.1538	0.6151	0.4615	0.1375	0.4010
		0.4	0.2316	0.3074	0.4610	0.3560	0.2876	0.3564
	8.62	0.0	0.3200	0	0.6800	0.5338	0	0.4662
	(1250)							

$$^{\dagger}\text{Composition factor} = \frac{\text{Moles of propane in liquid}}{\text{Moles of propane in liquid + Moles of butane in liquid}}$$

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Propane; C_3H_8; [74-98-6] 3. Pentane; C_5H_{12}; [109-66-0]	Carter, R. T.; Sage, B. H. Lacey, W. N. *Trans. Am. Inst. Met. Min. Engnrs.* 1941, *142*, 170-177.
VARIABLES:	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa (P/psi)	Mole fraction in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_5H_{12}}$	Mole fraction in vapor y_{CH_4}	$y_{C_3H_8}$	$y_{C_5H_{12}}$
310.9	3.45	0.139	0.446	0.415	0.755	0.218	0.027
(100)	(500)	0.136	0.743	0.121	0.607	0.374	0.019
		0.147	0.324	0.529	0.796	0.164	0.040
		0.156	0.105	0.739	0.895	0.054	0.051
	6.89	0.306	0.589	0.105	0.716	0.262	0.023
	(1000)	0.311	0.548	0.141	0.723	0.257	0.020
		0.302	0.220	0.478	0.871	0.088	0.041
		0.311	0.087	0.602	0.922	0.036	0.042
	10.34	0.469	0.289	0.242	0.812	0.145	0.043
	(1500)	0.468	0.299	0.233	0.811	0.145	0.044
		0.470	0.301	0.229	0.808	0.148	0.044
		0.493	0.364	0.143	0.754	0.203	0.042
		0.454	0.187	0.359	0.862	0.085	0.053
		0.446	0.068	0.486	0.918	0.030	0.052
	13.79	0.820	0.103	0.077	0.818	0.104	0.078
	(2000)	0.668	0.151	0.181	0.669	0.151	0.180
		0.609	0.096	0.295	0.856	0.057	0.087
		0.631	0.149	0.220	0.798	0.097	0.105
		0.600	0.066	0.334	0.875	0.042	0.083

(cont.)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Static equilibrium cell, agitated mechanically. Samples withdrawn so as not to disturb equilibrium. Pressure measured with pressure balance. Samples analysed by low temperature fractionation.	1. Commercial sample, dried and carbon dioxide removed. Purity better than 99.9 mole per cent. 2. Phillips Petroleum Co. sample, purity better than 99.95 mole per cent. 3. Phillips Petroleum Co. sample, purity about 99.5 mole per cent, major impurity 2-methylbutane.
	ESTIMATED ERROR: $\delta T/K = \pm 0.06$; $\delta P/MPa = \pm 0.015$; $\delta x, \delta y = \pm 0.001$.
	REFERENCES:

COMPONENTS:

1. Methane; CH_4; [74-82-8]
2. Propane; C_3H_8; [74-98-6]
3. Pentane; C_5H_{12}; [109-66-0]

ORIGINAL MEASUREMENTS:

Carter, R. T.; Sage, B. H.; Lacey, W. N.
Trans. Am. Inst. Met. Min. Engnrs. 1941, *142*, 170-177.

EXPERIMENTAL VALUES:

Smoothed Data

T/K (T/°F)	P/MPa (P/psi)	Composition[a] parameter, C	Mole fraction in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_5H_{12}}$	Mole fraction in vapor y_{CH_4}	$y_{C_3H_8}$	$y_{C_5H_{12}}$
310.9	3.45	0	0.160	0.0	0.840	0.940	0.0	0.060
(100)	(500)	0.2	0.152	0.170	0.678	0.866	0.085	0.049
		0.4	0.143	0.343	0.514	0.788	0.173	0.039
		0.6	0.135	0.519	0.346	0.708	0.262	0.030
		0.8	0.126	0.699	0.175	0.613	0.365	0.022
		1.0	0.118	0.882	0	0.516	0.484	0.0
	6.89	0	0.308	0.0	0.692	0.947	0.00	0.053
	(1000)	0.2	0.306	0.139	0.555	0.901	0.056	0.043
		0.4	0.304	0.278	0.418	0.853	0.112	0.035
		0.6	0.302	0.419	0.279	0.799	0.174	0.027
		0.8	0.304	0.557	0.139	0.723	0.255	0.022
		1.0	0.321	0.679	0	0.64	0.36	0
	10.34	0	0.941	0.0	0.059	0.941	0	0.059
	(1500)	0.2	0.900	0.049	0.051	0.900	0.049	0.051
		0.4	0.853	0.099	0.048	0.853	0.099	0.048
		0.6	0.794	0.160	0.046	0.794	0.160	0.046
		0.8	0.711	0.246	0.043	0.711	0.246	0.043
	13.79	0	0.914	0	0.086	0.914	0	0.086
	(2000)	0.2	0.871	0.046	0.083	0.871	0.046	0.083
		0.4	0.801	0.096	0.103	0.801	0.096	0.103

[a] $C = \dfrac{\text{Mole fraction of propane}}{\text{Mole fraction of propane + Mole fraction of pentane}}$

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Propane; C_3H_8; [74-98-6] 3. Pentane; C_5H_{12}; [109-66-0]	Dourson, R. H.; Sage, B. H.; Lacey, W. N. *Trans. Am. Inst. Met. Min. Engnrs.* 1943, *151*, 206-215.
VARIABLES:	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa (P/psi)	Mole fraction in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_5H_{12}}$	Mole fraction in vapor y_{CH_4}	$y_{C_3H_8}$	$y_{C_5H_{12}}$
344.3	3.45	0.119	0.141	0.740	0.768	0.106	0.126
(160)	(500)	0.121	0.175	0.704	0.736	0.152	0.112
		0.116	0.259	0.625	0.661	0.238	0.101
		0.107	0.421	0.472	0.563	0.350	0.087
		0.103	0.474	0.423	0.524	0.406	0.070
		0.098	0.522	0.380	0.485	0.439	0.076
		0.075	0.693	0.232	0.352	0.595	0.053
	6.89	0.261	0.124	0.615	0.840	0.068	0.093
	(1000)	0.272	0.287	0.441	0.761	0.157	0.082
		0.247	0.399	0.354	0.678	0.249	0.073
		0.248	0.491	0.261	0.613	0.324	0.063
		0.246	0.583	0.171	0.543	0.406	0.051
	10.34	0.401	0.181	0.418	0.798	0.105	0.097
	(1500)	0.414	0.321	0.265	0.679	0.223	0.098
		0.434	0.357	0.209	0.634	0.272	0.094
	13.79	0.538	0.056	0.406	0.820	0.038	0.142
	(2000)	0.540	0.140	0.320	0.770	0.076	0.154
377.6	3.45	0.091	0.160	0.749	0.571	0.190	0.239
(220)	(500)	0.062	0.377	0.561	0.345	0.451	0.204
		0.061	0.389	0.550	0.329	0.472	0.199
		0.043	0.570	0.387	0.170	0.666	0.164
		0.010	0.697	0.293	0.059	0.809	0.132

(cont.)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Static equilibrium cell, agitated mechanically. Samples withdrawn so as not to disturb equilibrium. Pressure measured with pressure balance. Samples analysed by low temperature fractionation.	1. Commercial sample, dried and carbon dioxide removed. Purity better than 99.9 mole per cent. 2. Phillips Petroleum Co. sample, purity better than 99.5 mole per cent. 3. Phillips Petroleum Co. sample, about 99.5 mole per cent; major impurity 2-methylbutane.
	ESTIMATED ERROR: $\delta T/K = \pm 0.06$; $\delta P/MPa = \pm 0.015$; δx, $\delta y = \pm 0.001$.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8]	Dourson, R. H.; Sage, B. H.; Lacey, W. N.
2. Propane; C_3H_8; [74-98-6]	*Trans. Am. Inst. Met. Min. Engnrs.*
3. Pentane; C_5H_{12}; [109-66-0]	1943, *151*, 206-215.

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa (P/psi)	Mole fraction in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_5H_{12}}$	Mole fraction in vapor y_{CH_4}	$y_{C_3H_8}$	$y_{C_5H_{12}}$
377.6	6.89	0.228	0.138	0.634	0.714	0.106	0.180
(220)	(1000)	0.223	0.192	0.585	0.669	0.155	0.176
		0.214	0.306	0.480	0.566	0.264	0.170
		0.208	0.370	0.421	0.521	0.318	0.161
		0.197	0.516	0.287	0.397	0.463	0.140
	10.34	0.390	0.133	0.477	0.689	0.108	0.203
	(1500)	0.388	0.228	0.384	0.598	0.194	0.388
		0.422	0.262	0.316	0.542	0.239	0.219

Smoothed Data

T/K (T/°F)	P/MPa (P/psi)	C^a	Mole fraction in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_5H_{12}}$	in vapor y_{CH_4}	$y_{C_3H_8}$	$y_{C_5H_{12}}$
344.3	3.45	0.0	0.136	0.000	0.864	0.867	0.000	0.133
(160)	(500)	0.2	0.124	0.175	0.701	0.743	0.145	0.112
		0.4	0.112	0.355	0.533	0.612	0.297	0.091
		0.6	0.095	0.543	0.362	0.472	0.461	0.067
		0.8	0.074	0.741	0.185	0.322	0.639	0.039
		1.0	0.043	0.957	0.000	0.159	0.841	0.000
	6.89	0.0	0.274	0.000	0.726	0.893	0.000	0.107
	(1000)	0.2	0.266	0.147	0.587	0.826	0.080	0.094
		0.4	0.261	0.296	0.443	0.752	0.168	0.080
		0.6	0.255	0.447	0.298	0.657	0.277	0.066
		0.8	0.245	0.604	0.151	0.512	0.439	0.049
		1.0	0.297	0.703	0.000	0.361	0.639	0.000
	10.34	0.0	0.398	0.000	0.602	0.885	0.000	0.115
	(1500)	0.2	0.397	0.121	0.482	0.829	0.068	0.103
		0.4	0.400	0.240	0.360	0.758	0.147	0.095
		0.6	0.412	0.353	0.235	0.645	0.258	0.097
	13.79	0.0	0.545	0.000	0.455	0.855	0.000	0.145
	(2000)	0.2	0.546	0.091	0.363	0.789	0.073	0.138
377.6	3.45	0.0	0.115	0.000	0.885	0.728	0.000	0.272
	(500)	0.2	0.088	0.182	0.730	0.547	0.215	0.238
		0.4	0.065	0.374	0.561	0.359	0.441	0.200
		0.6	0.039	0.577	0.384	0.167	0.680	0.153
	6.89	0.0	0.251	0.000	0.749	0.798	0.000	0.202
	(1000)	0.2	0.230	0.154	0.616	0.698	0.122	0.181
		0.4	0.213	0.315	0.472	0.577	0.260	0.163
		0.6	0.208	0.475	0.317	0.436	0.420	0.144
	10.34	0.0	0.382	0.000	0.618	0.794	0.000	0.206
	(1500)	0.2	0.374	0.125	0.501	0.695	0.099	0.206
	0.4	0.4	0.385	0.246	0.369	0.577	0.207	0.216

[a] $C = \dfrac{\text{mole fraction of propane}}{\text{mole fraction of propane + mole fraction of pentane}}$

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Propane; C_3H_8; [74-98-6] 3. Heptane; C_7H_{16}; [142-82-5]	Van Horn, L. D.; Kobayashi, R. *J. Chem. Engng. Data* 1967, *12*, 294-303.
VARIABLES:	PREPARED BY:
Temperature, pressure	C. L. Young

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa (P/psi)	Mole fractions in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_7H_{16}}$	in vapor y_{CH_4}	$y_{C_3H_8}$
244.26	0.689	0.048	0.132	0.820	0.9595	0.0405
(-20)	(100)	0.050	0.255	0.695	0.9233	0.0767
		0.047	0.428	0.525	0.8691	0.1309
	1.38	0.100	0.127	0.773	0.9784	0.0216
	(200)	0.098	0.236	0.666	0.9595	0.0405
		0.102	0.450	0.448	0.9233	0.0767
	2.76	0.190	0.178	0.632	0.9800	0.0200
	(400)	0.197	0.362	0.441	0.9595	0.0405
	4.14	0.264	0.199	0.537	0.9800	0.0200
	(600)	0.268	0.198	0.534	0.9784	0.0216
		0.273	0.404	0.323	0.9595	0.0405
	5.52	0.361	0.193	0.446	0.9784	0.0216
	(800)	0.405	0.353	0.242	0.9595	0.0405
	6.89	0.426	0.172	0.402	0.9784	0.0216
	(1000)					
233.15	0.689	0.056	0.101	0.843	0.9800	0.0200
(-40)	(100)	0.057	0.205	0.738	0.9595	0.0405
		0.056	0.397	0.547	0.9233	0.0767
	1.38	0.112	0.180	0.708	0.9800	0.0200
	(200)	0.116	0.360	0.524	0.9595	0.0405

(cont.)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The solubilities were determined by measurement of retention volumes using gas chromatography. The method uses methane as a carrier gas, propane as an injected solute and heptane as the stationary phase. The technique is described in the source and in ref. (1).

SOURCE AND PURITY OF MATERIALS:

1 and 2. Major impurities were carbon dioxide and nitrogen amount to about 0.2 mole per cent.

3. Research grade.

ESTIMATED ERROR:

$\delta T/K = \pm 0.05$; δP/psi = ±1, $P \leq$ 1,000 psia, ±2, $P \geq$ 1,000 psia; δx, δy = ±1.5%.

REFERENCES:

1. Koonce, K. T.
Ph.D. thesis, Rice University, Houston, 1963.

COMPONENTS:

1. Methane; CH_4; [74-82-8]
2. Propane; C_3H_8; [74-98-6]
3. Heptane; C_7H_{16}; [142-82-5]

ORIGINAL MEASUREMENTS:

Van Horn, L. D.; Kobayashi, R.
J. Chem. Engng. Data
1967, *12*, 294-303.

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa (P/psi)	Mole fractions in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_7H_{16}}$	in vapor y_{CH_4}	$y_{C_3H_8}$
233.15	2.76	0.211	0.128	0.661	0.9902	0.0098
	(400)	0.218	0.259	0.523	0.9800	0.0200
		0.224	0.373	0.403	0.9713	0.0287
		0.233	0.524	0.243	0.9595	0.0405
	4.14	0.307	0.143	0.550	0.9894	0.0106
	(600)	0.333	0.383	0.284	0.9713	0.0287
	5.52	0.385	0.132	0.483	0.9894	0.0106
	(800)	0.414	0.332	0.254	0.9713	0.0287
	6.89	0.454	0.109	0.437	0.9894	0.0106
	(1000)	0.501	0.193	0.306	0.9784	0.0216
222.04	0.689	0.065	0.080	0.855	0.9902	0.0098
(-60)	(100)	0.065	0.158	0.776	0.9800	0.0200
		0.065	0.235	0.700	0.9713	0.0287
		0.067	0.331	0.602	0.9595	0.0405
		0.070	0.651	0.279	0.9233	0.0767
	1.38	0.131	0.275	0.594	0.9800	0.0200
	(200)	0.134	0.402	0.464	0.9713	0.0287
	2.76	0.239	0.184	0.577	0.9902	0.0098
	(400)	0.244	0.204	0.552	0.9894	0.0106
		0.242	0.388	0.370	0.9800	0.0200
	4.14	0.353	0.195	0.452	0.9894	0.0106
	(600)	0.390	0.362	0.248	0.9800	0.0200
	5.52	0.459	0.156	0.385	0.9894	0.0106
	(800)					
210.93	0.689	0.076	0.134	0.790	0.9902	0.0098
(-80)	(100)	0.078	0.282	0.640	0.9800	0.0200
		0.079	0.411	0.510	0.9713	0.0287
	1.38	0.145	0.224	0.631	0.9902	0.0098
	(200)	0.166	0.455	0.379	0.9800	0.0200
	2.76	0.298	0.290	0.412	0.9902	0.0098
	(400)					
	4.14	0.432	0.241	0.327	0.9902	0.0098
	(600)					
199.82	0.689	0.095	0.248	0.657	0.9902	0.0098
(-100)	(100)	0.104	0.498	0.398	0.9800	0.0200
	1.38	0.197	0.386	0.417	0.9902	0.0098
	(200)					
	2.76	0.396	0.398	0.206	0.9902	0.0098
	(400)					

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Propane; C_3H_8; [74-98-6] 3. Heptane; C_7H_{16}; [142-82-5]	Koonce, K. T.; Kobayashi, R. *J. Chem. Eng. Data* 1964, *9*, 494-501.
VARIABLES: Temperature, pressure	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K (T/°F)	P/psi	P/MPa	Mole fractions in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_7H_{16}}$	in vapor y_{CH_4}	$y_{C_3H_8}$
233.15	97	0.67	0.0662	0.0959	0.8379	0.9792	0.0208
(-40)	201	1.39	0.118	0.175	0.707	0.9792	0.0208
	400	2.76	0.239	0.249	0.512	0.9792	0.0208
	605	4.17	0.338	0.261	0.401	0.9792	0.0208
	791	5.45	0.453	0.277	0.320	0.9792	0.0208
	991	6.83	0.560	0.176	0.264	0.9792	0.0208
244.26	107	0.74	0.0560	0.147	0.797	0.9569	0.0431
(-20)	240	1.65	0.111	0.275	0.614	0.9569	0.0431
	422	2.91	0.195	0.375	0.430	0.9569	0.0431
	603	4.16	0.304	0.378	0.318	0.9569	0.0431
	795	5.48	0.414	0.339	0.247	0.9569	0.0431
	993	6.85	0.517	0.275	0.208	0.9569	0.0431

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The solubilities were determined by measurement of retention volumes using gas chromatography. The method uses methane as a carrier gas, propane as an injected solute and heptane as the stationary phase. The technique is described in the source and ref. (1).

SOURCE AND PURITY OF MATERIALS:

1. Sample dried; purity 99.7 mole per cent, 0.2 mole per cent nitrogen and 0.1 mole per cent ethane.
2. Phillips Petroleum Co. sample, purity 99.5 mole per cent.
3. Phillips Petroleum Co. research grade sample, purity 99.90 mole per cent.

ESTIMATED ERROR:

$\delta T/K = \pm 0.1$; $\delta P/MPa = \pm 2\%$;

δx, $\delta y = \pm 6\%$ (estimated by compiler).

REFERENCES:

1. Koonce, K. T.
Ph.D. Thesis
Rice University, Houston, 1963.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Propane; C_3H_8; [74-98-6] 3. Octane; C_8H_{18}; [111-65-9]	Hottovy, J. D.; Kohn, J. P.; Luks, K. D. *J. Chem. Eng. Data* 1982, *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 $x_{C_3H_8}$	Mole fractions $x_{C_8H_{18}}$	Molar volume /cm^{3}mol^{-1}
K(L_1-L_2=V)	213.07	67.7	6.86	0.078	0.0083	73.7
	210.65	65.1	6.60	0.065	0.0048	75.4
	206.83	60.9	6.17	0.050	0.0039	78.3
	205.72	59.5	6.03	0.044	0.0036	80.3
	204.72	58.7	5.95	0.039	0.0026	83.8
	201.92	56.0	5.67	0.028	0.0016	88.4
Q(S-L_1-L_2-V)	199.70	53.8	5.45	0.027	0.0022	77.8
	199.61	53.5	5.42	0.029	0.0026	73.7
	199.05	52.3	5.30	0.039	0.0051	68.6
	198.90	51.7	5.24	0.043	0.0061	66.5
	198.58	51.1	5.18	0.047	0.0073	64.8
	198.49	50.8	5.15	0.051	0.0091	64.3
	198.03	49.5	5.02	0.061	0.0125	61.1
	197.90	49.8	5.05	0.063	0.0134	61.8
	197.86	49.1	4.98	0.066	0.0146	61.3
	197.61	49.0	4.98	0.069	0.0158	60.8
	197.31	48.3	4.89	0.076	0.0190	59.7
	197.25	47.8	4.84	0.079	0.0212	59.1
	196.81	47.0	4.76	0.107	0.0385	58.9
LCST(L_1=L_2-V)	211.06	64.8	6.57	0.123	0.0316	62.9
	210.53	64.1	6.49	0.120	0.0319	61.4

(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 compute liquid phase compositions and molar volumes. Details in ref. 1 and source.

SOURCE AND PURITY OF MATERIALS:

1. Linde Ultrapure grade, purity 99.97 mole per cent.
2. Linde Instrument grade, purity 99.5 mole per cent.
3. Humphrey-Wilkinson grade, purity 99 mole per cent.

ESTIMATED ERROR:

δT/K = ±0.03; δP/MPa = ±0.07; $\delta x_{C_3H_8}$ = ±3.5%; $\delta x_{C_8H_{18}}$ = ±2% (octane rich phase); $x\delta_{C_8H_{18}}$ = ±8% (octane lean phase).

REFERENCES:

1. Kohn, J. P.
Am. Inst. Chem. Engnrs. J.
1961, *7*, 514.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8]	Hottovy, J. D.; Kohn, J. P.;
2. Propane; C_3H_8; [74-98-6]	Luks, K. D.
3. Octane; C_8H_{18}; [111-65-0]	*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 $x_{C_3H_8}$	Mole fractions $x_{C_8H_{18}}$	Molar volume^{-1} /cm^{3}mol^{-1}
LCST(L_1=L_2-V)	205.99	58.4	5.92	0.134	0.0519	61.4
	204.93	57.1	5.79	0.130	0.0503	61.4
	203.96	55.8	5.65	0.128	0.0493	60.6
	201.11	52.3	5.30	0.131	0.0619	60.8
	199.71	50.4	5.11	0.126	0.0594	60.1
	197.82	48.2	4.88	0.121	0.0567	59.9
L_1-L_2-V	209.54	63.5	6.43	0.075	0.0083	59.9
	208.79	61.0	6.18	0.111	0.0283	61.1
	207.79	61.7	6.25	0.069	0.0073	64.5
	207.04	59.0	5.98	0.106	0.0268	61.5
	205.31	56.9	5.77	0.101	0.0257	62.0
	204.00	57.6	5.84	0.050	0.0057	72.5
	204.00	57.3	5.81	0.055	0.0070	68.4
	204.00	57.2	5.80	0.059	0.0071	66.3
	204.00	56.0	5.67	0.087	0.0022	61.4
	203.47	55.3	5.60	0.088	0.0024	60.0
	203.20	56.2	5.69	0.059	0.0090	63.1
	203.20	56.8	5.76	0.049	0.0550	70.8
	202.74	56.5	5.72	0.039	0.0045	76.4
	202.23	55.2	5.59	0.052	0.0072	64.2
	202.00	54.9	5.56	0.054	0.0081	67.2
	202.00	54.7	5.54	0.059	0.0097	65.8
	202.00	54.3	5.50	0.066	0.0111	64.6
	202.00	54.0	5.47	0.073	0.0129	62.9
	202.00	53.3	5.40	0.089	0.0243	60.5
	202.00	55.2	5.59	0.049	0.0070	69.3
	201.57	54.6	5.53	0.041	0.0050	66.7
	201.04	54.2	5.49	0.048	0.0069	68.2
	200.70	51.8	5.25	0.090	0.0247	59.5
	200.09	54.1	5.48	0.028	0.0023	76.7
	200.10	53.6	5.43	0.038	0.0044	71.1
	200.12	53.2	5.39	0.043	0.0054	68.6
	200.11	53.1	5.38	0.046	0.0062	67.5
	200.10	52.9	5.36	0.049	0.0770	67.1
	200.10	52.2	5.29	0.060	0.0114	63.5
	200.10	51.9	5.26	0.066	0.0134	63.1
	200.10	51.4	5.21	0.076	0.0169	61.4
	200.09	51.0	5.17	0.092	0.0255	60.0
	200.03	53.2	5.39	0.064	0.0134	63.2
	199.99	53.1	5.38	0.044	0.0065	65.1
	199.94	53.3	5.40	0.039	0.0052	67.6
	199.03	50.1	5.08	0.084	0.0226	59.3
	198.42	49.3	4.00	0.085	0.0230	59.3
	198.40	49.7	5.04	0.074	0.0209	60.4
	198.00	49.3	5.00	0.065	0.0143	61.5
	198.00	48.9	4.95	0.079	0.0197	60.6
	198.00	48.4	4.90	0.094	0.0285	60.6

(cont.)

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8]	Hottovy, J. K.; Kohn, J. P.;
2. Propane; C_3H_8; [74-98-6]	Luks, K. D.
3. Octane; C_8H_{18}; [111-65-9]	*J. Chem. Eng. Data*
	1982, *27*, 298-302.

EXPERIMENTAL VALUES:

Data for octane-rich liquid phase.

Type of data	T/K	P/atm	P/MPa	Mole fractions $x_{C_3H_8}$	Mole fractions $x_{C_8H_{18}}$	Molar volume /cm^{3}mol^{-1}
K(L_1-L_2=V)	212.96	67.6	6.85	0.150	0.052	62.8
	210.40	64.2	6.51	0.165	0.092	64.5
	208.91	63.2	6.40	0.164	0.107	68.1
	205.54	59.5	6.03	0.160	0.153	69.4
	202.86	56.8	5.76	0.144	0.194	71.1
	201.50	55.7	5.64	0.136	0.205	70.1
	200.98	55.2	5.59	0.132	0.217	71.6
Q(S-L_1-L_2-V)	199.17	52.5	5.32	0.129	0.218	71.6
	199.05	52.1	5.28	0.130	0.212	70.5
	198.71	51.5	5.22	0.133	0.198	69.3
	198.69	51.4	5.21	0.135	0.197	69.9
	198.35	50.3	5.10	0.135	0.180	66.5
	197.69	48.7	4.93	0.142	0.146	65.0
	197.06	47.4	4.80	0.141	0.091	61.2
L_1-L_2-V	208.35	61.5	6.23	0.141	0.055	60.8
	207.04	59.9	6.07	0.137	0.053	61.0
	206.52	59.2	6.00	0.135	0.052	61.0
	206.82	59.8	6.06	0.154	0.085	62.5
	205.30	57.6	5.84	0.141	0.068	60.2
	204.47	58.6	5.94	0.147	0.151	63.6
	204.09	58.0	5.88	0.151	0.157	66.6
	204.00	56.8	5.76	0.154	0.132	64.1
	204.00	56.7	5.75	0.152	0.126	63.3
	204.00	56.5	5.72	0.151	0.116	62.3
	205.93	54.5	5.52	0.147	0.091	61.4
	202.88	54.4	5.51	0.135	0.064	60.2
	202.35	55.9	5.66	0.134	0.1690	63.6
	202.00	56.0	5.67	0.141	0.2000	70.4
	202.00	55.9	5.66	0.139	0.1940	68.6
	202.00	55.7	5.64	0.139	0.1890	68.1
	202.00	54.5	5.52	0.152	0.1490	65.5
	202.00	54.0	5.47	0.151	0.1300	63.5
	202.00	53.7	5.44	0.148	0.1140	62.4
	201.65	52.8	5.35	0.144	0.0890	61.4
	201.65	55.8	5.65	0.132	0.1980	68.0
	200.48	53.9	5.46	0.133	0.1980	68.9
	200.48	54.0	5.47	0.133	0.2000	68.9
	200.30	51.0	5.17	0.141	0.0870	61.2
	200.08	53.8	5.45	0.130	0.2180	71.5
	200.08	53.8	5.45	0.130	0.2160	71.2
	200.07	53.7	5.44	0.131	0.2130	70.7
	200.10	53.3	5.40	0.135	0.2020	70.0
	200.10	53.2	5.39	0.136	0.1960	69.0
	200.10	52.8	5.35	0.138	0.1850	68.0
	200.07	52.3	5.30	0.148	0.1620	66.0
	200.07	52.1	5.28	0.149	0.1520	65.2
	200.07	51.9	5.26	0.149	0.1420	64.4
	200.10	51.4	5.21	0.147	0.1260	62.9
	200.10	51.0	5.17	0.141	0.1030	60.3
	199.37	50.9	5.16	0.143	0.1480	65.4
	199.33	49.9	5.06	0.138	0.0850	61.2
	199.25	49.7	5.04	0.129	0.0700	59.8
	198.00	49.0	4.96	0.144	0.145	64.7
	198.00	48.7	4.93	0.146	0.126	63.6
	198.00	48.3	4.89	0.142	0.102	62.5
	198.14	48.1	4.87	0.135	0.083	60.8

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Propane; C_3H_8; [74-98-6] 3. Decane; $C_{10}H_{22}$; [124-18-5]	Koonce, K. T.; Kobayashi, R. *J. Chem. Eng. Data* 1964, *9*, 494-501.
VARIABLES: Temperature, pressure	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa	Mole fractions in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_{10}H_{22}}$	in vapor y_{CH_4}	$y_{C_3H_8}$
224.26 (-20)	0.134	0.0100	0.0	0.9900	1.0	0.0
	0.252	0.0185	0.0	0.9815	1.0	0.0
	0.445	0.0315	0.0	0.9685	1.0	0.0
	0.689	0.0481	0.0	0.9519	1.0	0.0
	1.04	0.0719	0.0	0.9281	1.0	0.0
	1.64	0.114	0.0	0.886	1.0	0.0
	2.41	0.162	0.0	0.838	1.0	0.0
	3.11	0.203	0.0	0.797	1.0	0.0
	4.42	0.269	0.0	0.731	1.0	0.0
	5.84	0.330	0.0	0.670	1.0	0.0
	6.78	0.364	0.0	0.636	1.0	0.0
	0.310	0.0216	0.0363	0.9421	0.9792	0.0208
	0.710	0.0487	0.0765	0.8748	0.9792	0.0208
	1.39	0.0942	0.128	0.7778	0.9792	0.0208
	2.08	0.139	0.165	0.696	0.9792	0.0208
	2.76	0.182	0.182	0.636	0.9792	0.0208
	4.05	0.251	0.202	0.547	0.9792	0.0208
	5.52	0.322	0.193	0.485	0.9792	0.0208
	6.89	0.383	0.170	0.447	0.9792	0.0208
	0.569	0.0383	0.124	0.838	0.9569	0.0431
	1.28	0.0847	0.241	0.674	0.9569	0.0431
	1.95	0.125	0.315	0.560	0.9569	0.0431

(cont.)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The solubilities were determined by measurement of retention volumes using gas chromatography. The method uses methane as a carrier gas, propane as an injected solute and decane as the stationary phase. The technique is described in the source and ref. (1).	1. Sample dried, purity 99.7 mole per cent, 0.2 mole per cent nitrogen and 0.1 mole per cent ethane. 2. Phillips Petroleum sample, purity 99.5 mole per cent. 3. Phillips Petroleum research grade sample, purity 99.35 mole per cent.
	ESTIMATED ERROR: $\delta T/K = \pm 0.1$; $\delta P/MPa = \pm 2\%$; δx, $\delta y = \pm 6\%$ (estimated by compiler).
	REFERENCES: 1. Koonce, K. T. *Ph.D. Thesis* Rice University, Houston, 1963.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8]	Koonce, K. T.; Kobayashi, R.
2. Propane; C_3H_8; [74-98-6]	*J. Chem. Eng. Data*
3. Decane; $C_{10}H_{22}$; [124-18-5]	1964, *9*, 494-501.

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa	Mole fractions in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_{10}H_{22}}$	in vapor y_{CH_4}	$y_{C_3H_8}$
244.26	2.63	0.177	0.359	0.464	0.9569	0.0431
(-20)	4.01	0.259	0.395	0.346	0.9569	0.0431
	5.41	0.352	0.365	0.283	0.9569	0.0431
	6.95	0.429	0.306	0.265	0.9569	0.0431
	0.362	0.0239	0.131	0.845	0.9310	0.0690
	0.793	0.0517	0.268	0.680	0.9310	0.0690
	1.36	0.0870	0.379	0.534	0.9310	0.0690
	2.17	0.149	0.519	0.332	0.9310	0.0690
	2.81	0.198	0.585	0.217	0.9310	0.0690
255.37	0.141	0.0100	0.0	0.9900	1.0	0.0
(0)	0.201	0.0140	0.0	0.9860	1.0	0.0
	0.343	0.0213	0.0	0.9787	1.0	0.0
	0.545	0.0351	0.0	0.9649	1.0	0.0
	0.910	0.0578	0.0	0.9422	1.0	0.0
	1.73	0.108	0.0	0.892	1.0	0.0
	2.63	0.161	0.0	0.839	1.0	0.0
	3.12	0.188	0.0	0.812	1.0	0.0
	3.76	0.219	0.0	0.781	1.0	0.0
	4.80	0.270	0.0	0.730	1.0	0.0
	6.16	0.322	0.0	0.678	1.0	0.0
	0.234	0.0151	0.0184	0.9665	0.9792	0.0208
	0.434	0.0275	0.0339	0.9386	0.9792	0.0208
	0.710	0.0447	0.0516	0.9037	0.9792	0.0208
	1.39	0.0851	0.0897	0.8252	0.9792	0.0208
	2.05	0.126	0.116	0.758	0.9792	0.0208
	2.74	0.163	0.135	0.702	0.9792	0.0208
	4.21	0.245	0.152	0.603	0.9792	0.0208
	5.47	0.297	0.154	0.549	0.9792	0.0208
	6.96	0.346	0.144	0.510	0.9792	0.0208
	0.372	0.0232	0.0588	0.9180	0.9569	0.0431
	0.738	0.0454	0.111	0.844	0.9569	0.0431
	1.40	0.0839	0.184	0.732	0.9569	0.0431
	2.08	0.125	0.238	0.637	0.9569	0.0431
	2.77	0.165	0.275	0.560	0.9569	0.0431
	4.17	0.245	0.304	0.451	0.9569	0.0431
	5.48	0.306	0.304	0.390	0.9569	0.0431
	6.86	0.361	0.276	0.363	0.9569	0.0431
	0.431	0.0261	0.109	0.865	0.9310	0.0690
	0.807	0.0480	0.192	0.760	0.9310	0.0690
	1.39	0.0817	0.289	0.629	0.9310	0.0690
	2.08	0.122	0.373	0.505	0.9310	0.0690
	2.73	0.168	0.421	0.411	0.9310	0.0690
	4.05	0.248	0.466	0.286	0.9310	0.0690
	5.59	0.336	0.448	0.216	0.9310	0.0690
	6.89	0.394	0.404	0.202	0.9310	0.0690
	0.558	0.0327	0.187	0.780	0.9056	0.0994
	0.896	0.0517	0.281	0.667	0.9056	0.0944
	1.46	0.0831	0.400	0.517	0.9056	0.0944
	2.09	0.128	0.502	0.370	0.9056	0.0944
	2.76	0.178	0.569	0.253	0.9056	0.0944
277.59	0.154	0.0091	0.0	0.9909	1.0	0.0
(40)	0.203	0.0118	0.0	0.9882	1.0	0.0
	0.343	0.0203	0.0	0.9797	1.0	0.0
	0.565	0.0331	0.0	0.9669	1.0	0.0
	0.883	0.0508	0.0	0.9492	1.0	0.0
	1.24	0.0699	0.0	0.9301	1.0	0.0
	1.24	0.0962	0.0	0.9038	1.0	0.0
	2.41	0.129	0.0	0.871	1.0	0.0

(cont.)

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8]	Koonce, K. T.; Kobayashi, R.
2. Propane; C_3H_8; [74-98-6]	*J. Chem. Eng. Data*
3. Decane; $C_{10}H_{22}$; [124-18-5]	1964, *9*, 494-501.

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa	Mole fractions in liquid			in vapor	
		x_{CH_4}	$x_{C_3H_8}$	$x_{C_{10}H_{22}}$	y_{CH_4}	$y_{C_3H_8}$
277.59	3.44	0.178	0.0	0.822	1.0	0.0
(40)	4.81	0.237	0.0	0.763	1.0	0.0
	5.61	0.265	0.0	0.735	1.0	0.0
	6.12	0.282	0.0	0.718	1.0	0.0
	6.79	0.303	0.0	0.697	1.0	0.0
	0.345	0.0200	0.0137	0.9663	0.9792	0.0208
	0.710	0.0406	0.0276	0.9318	0.9792	0.0208
	1.39	0.0759	0.0484	0.8757	0.9792	0.0208
	2.05	0.110	0.0646	0.825	0.9792	0.0208
	2.73	0.144	0.0773	0.779	0.9792	0.0208
	4.13	0.206	0.0929	0.701	0.9792	0.0208
	5.44	0.265	0.0981	0.637	0.9792	0.0208
	7.05	0.322	0.100	0.578	0.9792	0.0208
	0.317	0.0180	0.0268	0.9552	0.9569	0.0431
	0.703	0.0391	0.0555	0.9054	0.9569	0.0431
	1.37	0.0730	0.0980	0.8290	0.9569	0.0431
	2.07	0.108	0.133	0.759	0.9569	0.0431
	2.74	0.143	0.156	0.701	0.9569	0.0431
	4.06	0.204	0.188	0.608	0.9569	0.0431
	5.42	0.259	0.199	0.542	0.9569	0.0431
	6.91	0.309	0.200	0.491	0.9569	0.0431
	0.341	0.0188	0.0437	0.9375	0.9569	0.0431
	0.779	0.0421	0.0965	0.8614	0.9569	0.0431
	1.39	0.0727	0.156	0.771	0.9310	0.0690
	2.08	0.106	0.207	0.687	0.9310	0.0690
	2.76	0.141	0.246	0.613	0.9310	0.0690
	4.09	0.202	0.289	0.509	0.9310	0.0690
	5.43	0.258	0.307	0.435	0.9310	0.0690
	6.82	0.307	0.300	0.393	0.9310	0.0690
	0.290	0.0156	0.0539	0.9305	0.9056	0.0944
	0.663	0.0348	0.114	0.851	0.9056	0.0944
	1.35	0.0686	0.208	0.723	0.9056	0.0944
	2.03	0.100	0.277	0.623	0.9056	0.0944
	2.72	0.138	0.327	0.535	0.9056	0.0944
	4.05	0.199	0.385	0.416	0.9056	0.0944
	5.47	0.260	0.405	0.335	0.9056	0.0944
	6.19	0.287	0.410	0.303	0.9056	0.0944
	6.91	0.312	0.400	0.288	0.9056	0.0944
	0.303	0.0156	0.0748	0.9096	0.8691	0.1309
	0.512	0.0261	0.121	0.853	0.8691	0.1309
	0.717	0.0362	0.169	0.795	0.8691	0.1309
	1.39	0.0674	0.286	0.647	0.8691	0.1309
	2.05	0.0973	0.375	0.528	0.8691	0.1309
	2.76	0.136	0.442	0.422	0.8691	0.1309
	4.12	0.204	0.513	0.283	0.8691	0.1309
	4.76	0.234	0.530	0.236	0.8691	0.1309
	5.52	0.267	0.530	0.203	0.8691	0.1309
	6.21	0.293	0.528	0.180	0.8691	0.1309
	6.89	0.312	0.498	0.190	0.8691	0.1309
	0.290	0.0144	0.0830	0.9026	0.8373	0.1627
	0.493	0.0242	0.148	0.828	0.8373	0.1627
	0.703	0.0342	0.204	0.762	0.8373	0.1627
	1.38	0.0644	0.355	0.581	0.8373	0.1627
	2.07	0.0949	0.464	0.441	0.8373	0.1627
	2.77	0.135	0.548	0.317	0.8373	0.1627
	4.13	0.209	0.623	0.168	0.8373	0.1627
294.26	0.214	0.0119	0.0	0.9881	1.0	0.0
(70)	0.355	0.0195	0.0	0.9805	1.0	0.0

(cont.)

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8]	Koonce, K. T.; Kobayashi, R.
2. Propane; C_3H_8; [74-98-6]	*J. Chem. Eng. Data*
3. Decane; $C_{10}H_{22}$; [124-18-5]	1964, *9*, 494-501.

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa	Mole fractions in liquid			in vapor	
		x_{CH_4}	$x_{C_3H_8}$	$x_{C_{10}H_{22}}$	y_{CH_4}	$y_{C_3H_8}$
294.26	0.372	0.0203	0.0	0.9797	1.0	0.0
(70)	0.634	0.0339	0.0	0.9661	1.0	0.0
	1.71	0.0862	0.0	0.9138	1.0	0.0
	2.63	0.130	0.0	0.870	1.0	0.0
	3.54	0.172	0.0	0.828	1.0	0.0
	4.81	0.217	0.0	0.783	1.0	0.0
	6.28	0.265	0.0	0.735	1.0	0.0
	0.283	0.0153	0.0076	0.9771	0.9792	0.0208
	0.485	0.0258	0.0130	0.9612	0.9792	0.0208
	0.710	0.0370	0.0173	0.9457	0.9792	0.0208
	1.39	0.0704	0.0319	0.8977	0.9792	0.0208
	2.07	0.102	0.0441	0.854	0.9792	0.0208
	2.74	0.132	0.0535	0.815	0.9792	0.0208
	4.12	0.191	0.0658	0.743	0.9792	0.0208
	5.52	0.243	0.0746	0.682	0.9792	0.0208
	6.86	0.280	0.0806	0.743	0.9792	0.0208
	0.290	0.0153	0.0165	0.682	0.9792	0.0208
	0.486	0.0253	0.0263	0.9484	0.9569	0.0431
	0.703	0.0360	0.0362	0.9278	0.9569	0.0431
	1.39	0.0684	0.0664	0.8652	0.9569	0.0431
	2.08	0.0999	0.0902	0.8099	0.9569	0.0431
	2.90	0.137	0.113	0.750	0.9569	0.0431
	4.13	0.191	0.136	0.673	0.9569	0.0431
	5.34	0.236	0.150	0.614	0.9569	0.0431
	6.74	0.275	0.157	0.568	0.9310	0.0690
	0.303	0.0155	0.0260	0.9585	0.9310	0.0690
	0.510	0.0257	0.0426	0.9317	0.9310	0.0690
	0.758	0.0378	0.0627	0.8995	0.9310	0.0690
	1.32	0.0638	0.101	0.835	0.9310	0.0690
	2.01	0.0940	0.140	0.766	0.9310	0.0690
	2.79	0.129	0.174	0.697	0.9310	0.0690
	4.11	0.186	0.209	0.605	0.9310	0.0690
	5.47	0.234	0.233	0.533	0.9310	0.0690
	6.83	0.274	0.242	0.484	0.9310	0.0690
	3.62	0.0179	0.0427	0.9394	0.9056	0.0944
	7.45	0.0359	0.0874	0.8767	0.9056	0.0944
	1.39	0.0647	0.143	0.792	0.9056	0.0944
	2.07	0.0941	0.196	0.710	0.9056	0.0944
	2.77	0.128	0.234	0.638	0.9056	0.0944
	4.10	0.184	0.283	0.533	0.9056	0.0944
	5.52	0.234	0.318	0.448	0.9056	0.0944
	6.87	0.274	0.323	0.403	0.9056	0.0944
	0.331	0.0158	0.0545	0.9297	0.8691	0.1309
	0.689	0.0320	0.109	0.859	0.8691	0.1309
	1.34	0.0599	0.196	0.744	0.8691	0.1309
	2.07	0.0905	0.269	0.641	0.8691	0.1309
	2.73	0.124	0.317	0.559	0.8691	0.1309
	4.09	0.179	0.376	0.445	0.8691	0.1309
	5.54	0.231	0.408	0.361	0.8691	0.1309
	6.85	0.268	0.422	0.310	0.8691	0.1309
	0.414	0.0189	0.0847	0.8969	0.8373	0.1627
	0.752	0.0334	0.148	0.819	0.8373	0.1627
	1.38	0.0598	0.242	0.698	0.8373	0.1627
	2.08	0.0881	0.329	0.583	0.8373	0.1627
	2.81	0.122	0.390	0.488	0.8373	0.1627
	4.19	0.182	0.462	0.356	0.8373	0.1627
	5.47	0.225	0.496	0.279	0.8373	0.1627
	6.88	0.268	0.507	0.225	0.8373	0.1627

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Propane; C_3H_8; [74-98-6] 3. Decane; $C_{10}H_{22}$; [124-18-5]	Wiese, H. C.; Reamer, H. H.; Sage, B. H. *J. Chem. Eng. Data* 1970, *15*, 75-82.
VARIABLES: Temperature, pressure, liquid phase composition	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa (P/psia)	†Composition factor	Mole fraction in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_{10}H_{22}}$	Mole fraction in vapor y_{CH_4}	$y_{C_3H_8}$	$y_{C_{10}H_{22}}$
277.6	2.76	0.0	0.1350	0	0.8650	0.9997	0	0.0003
(40)	(400)	0.2	0.1352	0.1730	0.6919	0.9497	0.0500	0.0003
		0.4	0.1364	0.3454	0.5181	0.8998	0.0999	0.0003
		0.6	0.1380	0.5172	0.3448	0.8485	0.1513	0.0002
		0.8	0.1411	0.6871	0.1718	0.7971	0.2027	0.0002
		1.0	0.1471	0.8529	0	0.7505	0.2495	0
	6.89	0.0	0.2845	0	0.7115	0.9994	0	0.0006
	(1000)	0.2	0.3017	0.1397	0.5586	0.9692	0.0303	0.0005
		0.4	0.3110	0.2756	0.4154	0.9378	0.0617	0.0005
		0.6	0.3245	0.4053	0.2702	0.9022	0.0973	0.0005
		0.8	0.3466	0.5227	0.1307	0.8579	0.1417	0.0004
		1.0	0.4226	0.4774	0	0.8208	0.1792	0
	13.79	0.0	0.4851	0	0.5149	0.9985	0	0.0015
	(2000)	0.2	0.4940	0.1012	0.4048	0.9671	0.0312	0.0017
		0.4	0.5109	0.1956	0.2935	0.9299	0.0682	0.0020
		0.6	0.5473	0.2716	0.1811	0.8853	0.1116	0.0030
		0.8	0.6181	0.3055	0.0764	0.8190	0.1734	0.0076
	20.68	0.0	0.6115	0	0.3885	0.9948	0	0.0051
	(3000)	0.2	0.6182	0.0764	0.3054	0.9599	0.0338	0.0064
		0.4	0.6455	0.1418	0.2127	0.9160	0.0735	0.0105
		0.6	0.7100	0.1740	0.1160	0.8485	0.1270	0.0245
	27.58	0.0	0.7015	0	0.2985	0.9863	0	0.0137
	(4000)	0.2	0.7181	0.0564	0.2255	0.9389	0.0353	0.0239
		0.4	0.7797	0.0881	0.1322	0.8820	0.0694	0.0485

(cont.)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

PVT cell charged with mixture of known composition. Pressure measured with pressure balance and temperature measured using a platinum resistance thermometer. Details in ref. (1). Samples of coexisting phases analysed by G.C. Details in source.

SOURCE AND PURITY OF MATERIALS:

1. Texaco sample, purified by passage over drying agents charcoal and CO removed, final purity 99.77 mole per cent.
2. Phillips Petroleum Co. sample, purity 99.99 mole per cent.
3. Phillips Petroleum Co. sample, purity 99.49 mole per cent.

ESTIMATED ERROR:

$\delta T/K = \pm 0.01$; $\delta P/MPa = \pm 0.1\%$;

δx_{CH_4}, $\delta y_{CH_4} = \pm 0.005$ or better.

REFERENCES:

1. Sage, B. H.; Lacey, W. W. *Trans. Am. Inst. Mining Met. Engnrs.* 1940, *136*, 136.

COMPONENTS:

1. Methane; CH_4; [74-82-8]
2. Propane; C_3H_8; [74-98-6]
3. Decane; $C_{10}H_{22}$; [124-18-5]

ORIGINAL MEASUREMENTS:

Wiese, H. C.; Reamer, H. H.; Sage, B. H.
J. Chem. Eng. Data
1970, *15*, 75-82.

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa (P/psia)	†Composition factor	Mole fraction in liquid x_{CH_4}	$x_{C_3H_8}$	$x_{C_{10}H_{22}}$	Mole fraction in vapor y_{CH_4}	$y_{C_3H_8}$	$y_{C_{10}H_{22}}$
310.9	2.76	0.0	0.1251	0	0.8749	0.9994	0	0.0006
(100)	(400)	0.2	0.1113	0.1777	0.7110	0.8950	0.1044	0.0006
		0.4	0.0994	0.3603	0.5404	0.7850	0.2144	0.0006
		0.6	0.0918	0.5449	0.3633	0.6724	0.3270	0.0006
		0.8	0.0862	0.7310	0.1828	0.5573	0.4423	0.0004
		1.0	0.0845	0.9155	0	0.4472	0.5528	0
	6.89	0.0	0.2679	0	0.7321	0.9993	0	0.0007
	(1000)	0.2	0.2579	0.1484	0.5937	0.9466	0.0527	0.0008
		0.4	0.2533	0.2987	0.4480	0.8910	0.1081	0.0008
		0.6	0.2558	0.4465	0.2977	0.8200	0.1791	0.0009
		0.8	0.2634	0.5893	0.1473	0.7351	0.2640	0.0009
		1.0	0.3231	0.6769	0	0.6635	0.3365	0
	13.79	0.0	0.4469	0	0.5541	0.9981	0	0.0019
	(2000)	0.2	0.4437	0.1113	0.4450	0.9552	0.0427	0.0021
		0.4	0.4463	0.2215	0.3322	0.9038	0.0936	0.0026
		0.6	0.4619	0.3229	0.2153	0.8395	0.1568	0.0038
		0.8	0.5168	0.3865	0.0966	0.7457	0.2453	0.0090
	20.68	0.0	0.5827	0	0.4173	0.9942	0	0.0058
	(3000)	0.2	0.5824	0.0835	0.3340	0.9533	0.0394	0.0073
		0.4	0.5944	0.1622	0.2434	0.8989	0.0892	0.0119
		0.6	0.6344	0.2193	0.1462	0.8244	0.1528	0.0228
	27.58	0.0	0.6870	0	0.3130	0.9837	0	0.0163
	(4000)	0.2	0.6950	0.0610	0.2440	0.9383	0.0367	0.0250
		0.4	0.7283	0.1087	0.1630	0.8677	0.0819	0.0504
410.9	2.76	0.0	0.0974	0	0.9026	0.9798	0	0.0202
(280)	(400)	0.2	0.0632	0.1874	0.7494	0.5872	0.3925	0.0203
		0.4	0.0251	0.3900	0.5850	0.2081	0.7702	0.0217
	6.89	0.0	0.2256	0	0.7744	0.9870	0	0.0130
	(1000)	0.2	0.1941	0.1612	0.6447	0.7973	0.1881	0.0146
		0.4	0.1591	0.3363	0.5045	0.5992	0.3844	0.0164
		0.6	0.1209	0.5274	0.3516	0.3930	0.5881	0.0189
		0.8	0.0791	0.7367	0.1842	0.1808	0.7883	0.0309
	13.79	0.0	0.4028	0	0.5972	0.9845	0	0.0155
	(2000)	0.2	0.3791	0.1242	0.4967	0.8871	0.0942	0.0187
		0.4	0.3588	0.2565	0.3847	0.7715	0.2056	0.0230
		0.6	0.3472	0.3917	0.2611	0.6311	0.3333	0.0356
	20.68	0.0	0.5476	0	0.4524	0.9715	0	0.0285
	(3000)	0.2	0.5381	0.0924	0.3695	0.8971	0.0676	0.0353
		0.4	0.5397	0.1841	0.2762	0.8032	0.1456	0.0512
		0.6	0.5950	0.2425	0.1625	0.6915	0.2205	0.0880
	27.58	0.0	0.6912	0	0.3088	0.9430	0	0.0570
	(4000)	0.2	0.7116	0.0577	0.2308	0.8690	0.0476	0.0834
477.6	2.76	0.0	0.0926	0	0.9074	0.8851	0	0.1149
(400)	(400)	0.2	0.0364	0.1927	0.7709	0.3090	0.5782	0.1128
	6.89	0.0	0.2258	0	0.7742	0.9358	0	0.0642
	(1000)	0.2	0.1768	0.1646	0.6586	0.6717	0.2580	0.0703
		0.4	0.1228	0.3509	0.5263	0.4010	0.5193	0.0797
		0.6	0.0579	0.5653	0.3767	0.1409	0.7524	0.1067
	13.79	0.0	0.4119	0	0.5811	0.9351	0	0.0649
	(2000)	0.2	0.3815	0.1237	0.4948	0.7963	0.1274	0.0763
		0.4	0.3571	0.2572	0.3857	0.6375	0.2638	0.0987
		0.6	0.3485	0.3909	0.2606	0.4425	0.3968	0.1607
	20.68	0.0	0.5912	0	0.4088	0.9030	0	0.0970
	(3000	0.2	0.5984	0.0803	0.3213	0.7843	0.0745	0.1413
510.9	2.76	0.0	0.0937	0	0.9063	0.7928	0	0.2072
(460)	(400)	0.2	0.0223	0.1955	0.7822	0.1626	0.6184	0.2190
	6.89	0.0	0.2378	0	0.7622	0.8803	0	0.1197
	(1000)	0.2	0.1759	0.1648	0.6593	0.5935	0.2687	0.1378

(cont.)

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8]	Wiese, H. C.; Reamer, H. H.;
2. Propane; C_3H_8; [74-98-6]	Sage, B. H.
3. Decane; $C_{10}H_{22}$; [124-18-5]	*J. Chem. Eng. Data*
	1970, *15*, 75-82.

EXPERIMENTAL VALUES:

			Mole fraction in liquid			Mole fraction in vapor		
T/K	*P*/MPa (*P*/psia)	†Composition factor	x_{CH_4}	$x_{C_3H_8}$	$x_{C_{10}H_{22}}$	y_{CH_4}	$y_{C_3H_8}$	$y_{C_{10}H_{22}}$
510.9	6.89	0.4	0.1080	0.3568	0.5352	0.2947	0.5406	0.1647
(460)	(1000)	0.6	0.0333	0.5800	0.3867	0.0583	0.7192	0.2225
	13.79	0.0	0.4280	0	0.5720	0.8815	0	0.1185
	(2000)	0.2	0.4062	0.1188	0.4751	0.7230	0.1282	0.1489
		0.4	0.3899	0.2440	0.3661	0.5396	0.2536	0.2068

$$\text{†Composition factor} = \frac{\text{Mole fraction of propane in liquid}}{\text{Mole fraction of propane in liquid + Mole fraction of decane in liquid}}$$

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Butane; C_4H_{10}; [106-97-8] 3. Octane; C_8H_{18}; [111-65-9]	Hottovy, J. D.; Kohn, J. P.; Luks, K. D. *J. Chem. Eng. Data* 1982, *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 $x_{C_4H_{10}}$	Mole fractions $x_{C_8H_{18}}$	Molar volume /cm^{3}mol^{-1}
K(L_1-L_2=V)	206.44	63.2	6.40	0.045	0.0046	72.9
	204.28	60.3	6.11	0.029	0.0025	79.5
	203.28	59.3	6.01	0.023	0.0029	82.6
	202.09	57.4	5.82	0.020	0.0019	86.3
	201.77	57.2	5.80	0.022	0.0230	83.5
	197.96	53.0	5.37	0.012	0.0017	90.5
Q(S-L_1-L_2-V)	197.57	52.6	5.33	0.012	0.0017	87.0
	197.45	52.3	5.30	0.017	0.0031	72.8
	197.02	51.5	5.22	0.022	0.0039	70.6
	196.78	50.9	5.16	0.025	0.0046	68.9
	196.25	49.9	5.06	0.031	0.0060	67.6
	196.20	50.0	5.07	0.029	0.0059	65.9
	195.84	49.2	4.99	0.037	0.0075	67.3
	195.65	49.0	4.96	0.036	0.0075	64.4
	195.59	48.9	4.95	0.040	0.0081	64.5
	195.39	48.6	4.92	0.042	0.0089	62.8
	195.07	47.9	4.85	0.047	0.1030	62.4
	194.85	47.5	4.81	0.052	0.0097	62.5
	194.07	46.1	4.67	0.061	0.0170	59.4
	193.83	45.7	4.63	0.068	0.0202	59.1
	193.49	45.1	4.57	0.088	0.0314	59.7

(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. Linde Instrument grade, purity 99.5 mole per cent. 3. Humphrey-Wilkinson grade, purity 99 mole per cent.
	ESTIMATED ERROR: δT/K = ±0.03; δP/MPa = ±0.07; $\delta x_{C_4H_{10}}$ = ±3.5%; $\delta x_{C_8H_{18}}$ = ±2% (octane rich phase); $\delta x_{C_8H_{18}}$ = ±8% (octane lean phase).
	REFERENCES: 1. Kohn, J. P. *Am. Inst. Chem. Engnrs. J.* 1961, *7*, 514.

COMPONENTS:

1. Methane; CH_4; [74-82-8]
2. Butane; C_4H_{10}; [106-97-8]
3. Octane; C_8H_{18}; [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 $x_{C_4H_{10}}$	Mole fractions $x_{C_8H_{18}}$	Molar volume /$cm^3 mol^{-1}$
LCST(L_1=L_2-V)	204.61	60.2	6.10	0.086	0.0186	60.5
	202.47	57.2	5.80	0.102	0.0278	60.5
	197.16	49.8	5.05	0.106	0.0383	59.5
	195.64	47.8	4.84	0.108	0.0425	60.9
	193.48	45.0	4.56	0.098	0.0384	60.0
L_1-L_2-V	206.00	62.5	6.33	0.053	0.0071	63.9
	204.92	61.0	6.18	0.048	0.0059	69.5
	204.00	59.6	6.04	0.063	0.0077	64.4
	204.00	59.4	6.02	0.070	0.0141	62.9
	206.00	62.5	6.33	0.053	0.0071	63.9
	204.92	61.0	6.18	0.048	0.0059	69.5
	204.00	59.6	6.04	0.063	0.0077	64.4
	204.00	59.4	6.02	0.070	0.0141	62.9
	202.00	57.3	5.81	0.035	0.0048	70.1
	201.95	57.0	5.78	0.026	0.0050	76.3
	202.00	57.0	5.78	0.044	0.0072	64.6
	202.00	56.8	5.76	0.035	0.0082	65.3
	202.00	56.7	5.75	0.073	0.0126	61.6
	202.00	56.5	5.72	0.072	0.0145	62.0
	201.15	56.3	5.70	0.036	0.0097	70.3
	200.00	55.2	5.59	0.022	0.0031	77.3
	200.00	55.0	5.57	0.023	0.0037	73.0
	200.00	54.9	5.56	0.028	0.0041	70.4
	200.00	54.8	5.55	0.030	0.0047	68.3
	200.00	54.6	5.53	0.036	0.0055	67.6
	200.01	54.4	5.51	0.040	0.0064	65.8
	200.00	53.8	5.45	0.087	0.0229	60.0
	198.00	52.6	5.33	0.023	0.0042	71.8
	197.99	52.3	5.30	0.028	0.0054	69.4
	198.00	52.1	5.28	0.033	0.0063	66.8
	198.00	52.0	5.27	0.036	0.0063	65.6
	198.00	51.9	5.26	0.039	0.0072	64.3
	198.00	51.2	5.19	0.069	0.0161	61.0
	196.00	49.3	5.00	0.035	0.0075	63.9
	196.00	49.1	4.98	0.042	0.0091	62.9
	196.00	48.5	4.91	0.075	0.0203	59.2

(cont.)

COMPONENTS:

1. Methane; CH_4; [74-82-8]
2. Butane; C_4H_{10}; [106-97-8]
3. Octane; C_8H_{18}; [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-rich liquid phase.

Type of data	T/K	P/atm	P/MPa	Mole fractions $x_{C_4H_{10}}$	Mole fractions $x_{C_8H_{18}}$	Molar volume /$cm^3 mol^{-1}$
K(L_1-L_2=V)	206.39	63.0	6.38	0.113	0.032	62.6
	205.63	62.2	6.30	0.127	0.039	61.1
	203.90	59.9	6.07	0.145	0.063	59.4
	203.62	59.5	6.03	0.149	0.068	60.3
	203.41	59.3	6.01	0.153	0.072	62.5
	201.45	56.9	5.77	0.159	0.107	64.1
	200.20	55.6	5.63	0.156	0.131	66.0
	198.93	54.1	5.48	0.149	0.161	68.4
Q(S-L_1-L_2-V)	196.31	50.2	5.09	0.145	0.162	68.3
	196.09	49.8	5.05	0.147	0.158	68.1
	195.07	48.1	4.87	0.146	0.128	65.6
	194.85	47.6	4.82	0.148	0.123	65.5
	194.10	46.3	4.69	0.142	0.098	63.2
	193.91	46.0	4.66	0.144	0.097	61.7
L_1-L_2-V	204.00	59.6	6.04	0.109	0.030	59.9
	204.00	59.5	6.03	0.114	0.033	60.1
	203.79	59.1	5.99	0.110	0.030	60.2
	203.00	58.6	5.94	0.150	0.068	61.0
	202.00	57.1	5.79	0.151	0.071	62.1
	202.00	57.0	5.78	0.146	0.067	61.6
	202.00	56.6	5.73	0.130	0.049	60.2
	200.00	55.2	5.59	0.152	0.127	64.4
	200.00	55.2	5.59	0.152	0.128	64.7
	200.00	54.6	5.53	0.151	0.104	63.2
	200.00	54.6	5.53	0.153	0.103	63.8
	200.00	54.0	5.47	0.137	0.064	61.3
	200.00	53.9	5.46	0.139	0.063	61.5
	200.00	53.7	5.44	0.121	0.045	60.3
	198.00	52.7	5.34	0.146	0.161	67.7
	198.00	52.6	5.33	0.147	0.160	68.2
	198.00	52.3	5.30	0.150	0.130	65.2
	198.00	52.2	5.29	0.153	0.127	66.0
	198.00	51.7	5.24	0.146	0.105	63.0
	198.00	51.6	5.23	0.150	0.101	63.6
	198.00	51.6	5.23	0.151	0.100	63.8
	198.00	51.2	5.19	0.137	0.067	61.0
	198.00	51.1	5.18	0.131	0.060	60.2
	196.00	49.4	5.01	0.149	0.129	65.4
	196.00	49.3	5.00	0.149	0.123	64.9
	196.00	48.9	4.95	0.148	0.103	63.5
	196.00	48.8	4.94	0.147	0.098	63.2
	196.00	48.5	4.91	0.127	0.060	59.7
	196.00	48.4	4.90	0.122	0.055	60.4
	195.00	47.1	4.77	0.118	0.054	59.4

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. 2,2-Dimethylpropane (neopentane); C_5H_{12}; [463-82-1] 3. Pentane; C_5H_{12}; [109-66-0]	Prodany, N. W.; Williams, B. *J. Chem. Engng. Data* 1971, *16*, 1-6.
VARIABLES:	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K = 344.26 (T/°F = 160)

P/MPa	p/psi	Mole fractions in liquid			in vapor		
		Comp.1	Comp.2	Comp.3	Comp.1	Comp.2	Comp.3
3.47	503	0.1407	0.2165	0.6429	0.8451	0.0577	0.0972
5.18	751	0.2058	0.1997	0.5945	0.8714	0.0459	0.0827
6.94	1006	0.2781	0.1760	0.5459	0.8787	0.0406	0.0807
8.63	1251	0.3375	0.1641	0.4985	0.8778	0.0404	0.0818
10.38	1505	0.3998	0.1482	0.4520	0.8699	0.0410	0.0891
12.13	1759	0.4607	0.1314	0.4079	0.8546	0.0429	0.1025
13.88	2013	0.5500	0.1112	0.3388	0.8052	0.0536	0.1413
14.62	2120	0.6019	0.0976	0.3005	0.7753	0.0591	0.1655

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Stirred equilibrium cell fitted with vapor and liquid sampling valves. Temperature measured with mercury in glass thermometer. Pressure measured with Bourdon gauge. Cell charged with components and contents equilibrated. Vapor and liquid samples withdrawn through pressure lock systems. Analysed using gas chromatography. Details in source.	1. Phillips Petroleum Co. sample, 99.3 mole per cent (0.6 mole per cent nitrogen, 0.1 mole per cent ethane). 2 and 3. Phillips Petroleum Co. samples, purities 99.8 and 99.9 mole per cent, respectively.
	ESTIMATED ERROR: $\delta T/K = \pm 0.3$; $\delta P/MPa = \pm 0.02$; $\delta x_{CH_4} = \pm 0.75\%$.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. 2-Methylbutane (*isopentane*); C_5H_{12}; [78-78-4] 3. Pentane; C_5H_{12}; [109-66-0]	Prodany, N. W.; Williams, B. *J. Chem. Engng. Data* 1971, *16*, 1-6.
VARIABLES:	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K (T/°F)	P/MPa	p/psi	Mole fractions in liquid Comp.1	Comp.2	Comp.3	in vapor Comp.1	Comp.2	Comp.3
344.26	3.47	504	0.1386	0.2227	0.6387	0.8712	0.0395	0.0892
(160)	5.21	755	0.2114	0.2058	0.5828	0.8939	0.0305	0.0755
	6.92	1003	0.2738	0.1888	0.5374	0.8971	0.0296	0.0733
	10.29	1493	0.4057	0.1536	0.4408	0.8890	0.0307	0.0803
	13.62	1975	0.5038	0.1290	0.3672	0.8488	0.0405	0.1107
	13.76	1995	0.5210	0.1229	0.3561	0.8419	0.0422	0.1159
	15.64	2268	0.5934	0.1039	0.3207	0.7585	0.0632	0.1783
377.59	3.50	507	0.1202	0.2198	0.6599	0.7445	0.0701	0.1854
(220)	5.19	753	0.1867	0.2047	0.6086	0.7878	0.0577	0.1545
	6.86	995	0.2513	0.1876	0.5611	0.8096	0.0510	0.1394
	8.71	1263	0.3191	0.1716	0.5093	0.8100	0.0509	0.1391
	10.47	1519	0.3887	0.1540	0.4573	0.8006	0.0527	0.1466
	12.17	1765	0.4537	0.1391	0.4072	0.7706	0.0613	0.1681
	14.11	2047	0.5552	0.1117	0.3331	0.7470	0.0652	0.1878
410.93	3.72	539	0.0998	0.2196	0.6806	0.5633	0.1162	0.3205
(280)	3.73	541	0.1030	0.2321	0.6649	0.5682	0.1197	0.3120
	5.22	757	0.1642	0.2143	0.6215	0.6292	0.1020	0.2687
	5.24	760	0.1622	0.2017	0.6361	0.6303	0.0967	0.2730
	6.90	1001	0.2311	0.1866	0.5822	0.6623	0.0866	0.2510
	7.11	1031	0.2417	0.1956	0.5628	0.6646	0.0910	0.2444
	8.64	1253	0.3064	0.1644	0.5291	0.6738	0.0809	0.2452
	8.65	1255	0.3042	0.1797	0.5161	0.6745	0.0870	0.2385
	10.79	1565	0.4533	0.1384	0.4083	0.6156	0.0994	0.2850

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Stirred equilibrium cell fitted with vapor and liquid sampling valves. Temperature measured with mercury in glass thermometer. Pressure measured with Bourdon gauge. Cell charged with components and contents equilibrated. Vapor and liquid samples withdrawn through pressure lock systems. Analysed using gas chromatography. Details in source.	1. Phillips Petroleum Co. sample, 99.3 mole per cent (0.6 mole per cent nitrogen, 0.1 mole per cent ethane). 2 and 3. Phillips Petroleum Co. samples, purities both 99.9 mole per cent.
	ESTIMATED ERROR: $\delta T/K = \pm 0.3$; $\delta P/MPa = \pm 0.02$; $\delta x_{CH_4} = \pm 0.75\%$.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Pentane; C_5H_{12}; [109-66-0] 3. Octane; C_8H_{18}; [111-65-9]	Merrill, R. C.; Luks, K. D.; Kohn, J. P. *J. Chem. Eng. Data* 1983, *28*, 210-215.
VARIABLES:	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

Phases in equilibrium	T/K	P/atm	P/MPa	Mole fractions of pentane $x_{C_5H_{12}}$	Mole fractions of octane $x_{C_8H_{18}}$
	Data for octane-lean phase, L_2				
$L_1,L_2 \equiv V$	196.96	52.60	5.330	0.0077	0.0018
	196.97	52.60	5.330	0.0078	0.0019
	197.73	53.08	5.378	0.0090	0.0027
	200.61	57.05	5.781	0.01620	0.0011
	200.71	57.08	5.784	0.01450	0.0019
S,L_1,L_2,V	191.86	44.81	4.540	0.0236	0.0044
	192.15	45.93	4.654	0.0192	0.0027
	192.83	46.37	4.698	0.0179	0.0035
	193.22	47.43	4.806	0.0151	0.0023
L_1,L_2,V	190.00	41.93	4.249	0.0631	0.0091
	192.00	44.93	4.553	0.0310	0.0045
	192.00	45.05	4.565	0.0240	0.0075
	192.00	45.21	4.581	0.0252	0.0048
	194.00	47.84	4.847	0.0191	0.0066
	194.00	47.94	4.858	0.0174	0.0052
	194.00	48.01	4.865	0.0165	0.0050
	194.00	48.51	4.915	0.0132	0.0033
	194.00	48.58	4.922	0.0135	0.0029
	194.00	48.65	4.929	0.0113	0.0026
	194.00	48.72	4.937	0.0122	0.0034
	196.00	50.69	5.136	0.0154 (cont.)	0.0056

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 assumed to be pure methane except for $L_1,L_2 = V$ equilibrium. Molar volume data in source. Details of apparatus in ref. (1).	1. Linde, Ultra Pure grade sample, purity 99.97 moles per cent. 2. Phillips Petroleum Co. sample, purity 99 moles per cent. 3. Humphrey Chemical Co. sample, purity 99 moles per cent.
	ESTIMATED ERROR: $\delta T/K = \pm 0.03$; $\delta P/MPa = \pm 0.007$; $\delta x/x = \pm 0.02$ in L_1 phase, ± 0.08 in L_2 phase.
	REFERENCES: 1. Hottovy, J. D.; Kohn, J. P.; Luks, K. D. *J. Chem. Eng. Data* 1981, *26*, 135.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8]	Merrill, R. C.; Luks, K. D.;
2. Pentane; C_5H_{12}; [109-66-0]	Kohn, J. P.
3. Octane; C_8H_{18}; [111-65-9]	*J. Chem. Eng. Data*
	1983, *28*, 210-215.

EXPERIMENTAL VALUES:

Phases in equilibrium	T/K	P/atm	P/MPa	Mole fractions of pentane $x_{C_5H_{12}}$	Mole fractions of octane $x_{C_8H_{18}}$
L_1,L_2,V	196.00	50.89	5.156	0.0140	0.0043
	196.00	51.23	5.191	0.0099	0.0028
	196.00	51.37	5.205	0.0084	0.0022
	196.00	51.44	5.212	0.0079	0.0020
	198.00	53.14	5.384	0.0366	0.0020
	198.00	53.28	5.399	0.0248	0.0014
	198.00	53.47	5.418	0.0151	0.0009
	200.00	55.75	5.649	0.0399	0.0020
	200.00	55.81	5.655	0.0339	0.0020
	200.00	55.89	5.663	0.0332	0.0013
	200.00	55.96	5.670	0.0306	0.0016
	Data for octane-rich phase, L_1				
$L_1,L_2 \equiv V$	195.95	51.44	5.212	0.176	0.137
	196.31	51.85	5.254	0.220	0.113
	196.67	52.33	5.302	0.189	0.114
	199.84	49.34	4.999	0.172	0.031
	200.35	56.84	5.759	0.104	0.015
	201.28	58.41	5.918	0.135	0.014
S,L_1,L_2,V	189.32	41.71	4.226	0.163	0.081
	190.75	43.62	4.420	0.169	0.104
	191.79	45.11	4.571	0.185	0.096
$L_1 \equiv L_2,V$	193.58	46.97	4.759	0.100	0.018
	193.75	47.10	4.772	0.104	0.019
	196.09	50.12	5.078	0.090	0.013
	196.25	50.41	5.108	0.093	0.014
	197.90	52.72	5.342	0.091	0.010
	199.22	54.55	5.527	0.079	0.007
	199.54	55.07	5.580	0.086	0.008
L_1,L_2,V	190.00	42.27	4.283	0.153	0.058
	190.00	42.37	4.293	0.163	0.071
	192.00	44.89	4.548	0.162	0.061
	192.00	44.97	4.557	0.170	0.074
	192.00	45.25	4.585	0.180	0.109
	192.00	45.39	4.599	0.193	0.096
	192.00	45.45	4.605	0.199	0.103
	194.00	47.43	4.806	0.175	0.061
	194.00	47.64	4.827	0.169	0.064
	194.00	47.82	4.845	0.174	0.076
	194.00	47.97	4.861	0.176	0.107
	194.00	48.31	4.895	0.180	0.090
	194.00	48.38	4.902	0.202	0.105
	194.00	48.38	4.902	0.229	0.118
	196.00	49.92	5.058	0.130	0.024
	196.00	50.12	5.078	0.130	0.023
	196.00	50.56	5.123	0.176	0.061
	196.00	50.64	5.131	0.176	0.067
	196.00	50.83	5.150	0.181	0.079
	196.00	51.17	5.185	0.183	0.091
	196.00	51.27	5.205	0.225	0.116
	198.00	53.07	5.377	0.147	0.028
	198.00	53.69	5.440	0.181	0.063
	198.00	53.89	5.460	0.179	0.068
	200.00	55.78	5.652	0.104	0.0133
	200.00	55.99	5.673	0.121	0.014
	200.00	56.31	5.706	0.129	0.015

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Hexane; C_6H_{14}; [110-54-3] 3. Octane; C_8H_{18}; [111-65-9]	Merrill, R. C.; Luks, K. D.; Kohn, J. P. *J. Chem. Eng. Data* 1983, *28*, 210-215.
VARIABLES:	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

Phases in equilibrium	T/K	P/atm	P/MPa	Mole fractions of hexane $x_{C_6H_{14}}$	Mole fractions of octane $x_{C_8H_{18}}$
			Data for octane-lean phase, L_2		
$L_1,L_2 = V$	193.15	48.24	4.892	0.0054	0.0034
	193.20	48.44	4.908	0.0	0.0156
	193.69	48.96	4.961	0.0017	0.0012
	193.85	48.94	4.959	0.0017	0.0021
	194.14	49.37	5.002	0.0098	0.0018
	194.29	49.63	5.029	0.0051	0.0013
S,L_1,L_2,V	181.38	32.76	3.319	0.0349	0.0053
	181.92	33.38	3.382	0.0331	0.0046
	182.61	34.20	3.465	0.0292	0.0042
	182.20	36.16	3.664	0.0185	0.0067
	187.62	40.59	4.113	0.0134	0.0030
	191.94	46.29	4.690	0.0068	0.0029
	192.00	46.65	4.727	0.0059	0.0021
	192.20	46.56	4.718	0.0075	0.0036
L_1,L_2,V	182.00	33.38	3.382	0.0347	0.0034
	182.00	33.38	3.382	0.0335	0.0033
	182.00	33.44	3.388	0.0397	0.0019
	182.00	33.44	3.388	0.0437	0.0037
	182.00	33.45	3.389	0.0313	0.0039
	182.00	33.51	3.395	0.0330	0.0039
	182.00	33.64	3.409	0.0478 (cont.)	0.0022

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 assumed to be pure methane except for $L_1,L_2 = V$ equilibrium. Molar volume data in source. Details of apparatus in ref. (1).	1. Linde Ultra Pure grade sample, purity 99.97 moles per cent. 2. and 3. Humphrey Chemical Co. samples of purity 99 moles per cent.
	ESTIMATED ERROR: $\delta T/K = \pm 0.03$; $\delta P/MPa = \pm 0.007$; $\delta x/x = \pm 0.02$ in L_1 phase ± 0.08 in L_2 phase.
	REFERENCES: 1. Hottovy, J. D.; Kohn, J. P.; Luks, K. D. *J. Chem. Eng. Data* 1981, *26*, 135.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8]	Merrill, R. C.; Luks, K. D.;
2. Hexane; C_6H_{14}; [110-54-3]	Kohn, J. P.
3. Octane; C_8H_{18}; [111-65-9]	*J. Chem. Eng. Data*
	1983, *28*, 210-215.

EXPERIMENTAL VALUES:

Phases in equilibrium	T/K	*P*/atm	*P*/MPa	Mole fractions of hexane $x_{C_6H_{14}}$	Mole fractions of octane $x_{C_8H_{18}}$
L_1,L_2,V	180.00	31.33	3.175	0.0429	0.0053
	180.00	31.33	3.175	0.0405	0.0050
	180.00	31.40	3.182	0.0505	0.0040
	178.00	29.28	2.967	0.0798	0.0038
	178.00	29.29	2.968	0.0449	0.0056
	184.00	35.55	3.602	0.0479	0.0036
	184.00	35.62	3.609	0.0317	0.0043
	184.00	35.62	3.609	0.0395	0.0035
	184.00	35.62	3.609	0.0396	0.0031
	184.00	35.69	3.616	0.0250	0.0069
	184.00	35.69	3.616	0.0278	0.0090
	184.00	35.69	3.616	0.0359	0.0055
	184.00	35.76	3.623	0.0340	0.0034
	184.00	35.82	3.629	0.0379	0.0030
	184.00	35.96	3.644	0.0261	0.0042
	186.00	37.87	3.837	0.0280	0.0036
	186.00	37.93	3.843	0.0335	0.0022
	186.00	38.00	3.850	0.0343	0.0006
	186.00	38.00	3.850	0.0291	0.0022
	186.00	38.07	3.857	0.0312	0.0021
	186.00	38.14	3.865	0.0219	0.0025
	186.00	38.20	3.871	0.0239	0.0027
	186.00	38.20	3.871	0.0307	0.0011
	186.00	38.21	3.872	0.0334	0.0006
	188.00	40.31	4.084	0.0213	0.0037
	188.00	40.31	4.084	0.0286	0.0022
	188.00	40.52	4.106	0.0259	0.0027
	188.00	40.58	4.112	0.0274	0.0020
	188.00	40.59	4.113	0.0191	0.0062
	188.00	40.59	4.113	0.0287	0.0022
	188.00	40.72	4.126	0.0281	0.0019
	188.00	40.93	4.147	0.0119	0.0037
	190.00	42.90	4.347	0.0255	0.0018
	190.00	42.90	4.347	0.0249	0.0018
	190.00	43.17	4.374	0.0188	0.0016
	190.00	43.17	4.374	0.0234	0.0016
	190.00	43.17	4.374	0.0245	0.0017
	190.00	43.52	4.410	0.0108	0.0021
	192.00	45.96	4.657	0.0199	0.0013
	192.00	46.23	4.684	0.0123	0.0037
	192.00	46.30	4.691	0.0089	0.0025
	192.00	46.36	4.697	0.0046	0.0038
	192.00	46.58	4.720	0.0050	0.0027
	194.00	48.68	4.933	0.0149	0.0001
	194.00	49.09	4.974	0.0074	0.0034
	194.00	49.16	4.981	0.0039	0.0011
	Data for octane-rich phase, L_1				
$L_1,L_2 \equiv V$	193.06	48.21	4.885	0.2450	0.2008
	193.35	48.49	4.913	0.2554	0.1446
	193.56	49.00	4.965	0.2045	0.1387
	193.76	49.06	4.971	0.2288	0.1297
	194.24	49.53	5.019	0.2711	0.0201
	194.86	50.24	5.091	0.2119	0.0390
	195.02	50.31	5.098	0.2537	0.0103

(cont.)

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8]	Merrill, R. C.; Luks, K. D.;
2. Hexane; C_6H_{14}; [110-54-3]	Kohn, J. P.
3. Octane; C_8H_{18}; [111-65-9]	*J. Chem. Eng. Data*
	1983, *28*, 210-215.

EXPERIMENTAL VALUES:

Phases in equilibrium	T/K	P/atm	P/MPa	Mole fractions of hexane $x_{C_6H_{14}}$	Mole fractions of octane $x_{C_8H_{18}}$
S,L_1,L_2,V	174.48	25.88	2.622	0.1819	0.0261
	175.16	26.49	2.684	0.1752	0.0265
	176.62	27.99	2.836	0.1997	0.0371
	184.80	36.36	3.684	0.2467	0.0898
	189.96	43.82	4.440	0.2042	0.1368
	190.51	44.60	4.519	0.2126	0.1427
	191.91	46.81	4.743	0.2206	0.1786
	192.36	47.14	4.776	0.2333	0.1977
$L_1 \equiv L_2$,V	174.69	26.23	2.658	0.1247	0.0097
	174.84	26.17	2.652	0.1507	0.0087
	175.94	27.25	2.761	0.1557	0.0121
	177.14	28.39	2.877	0.0999	0.0056
	177.81	28.88	2.926	0.1505	0.0087
	178.29	29.48	2.987	0.1292	0.0063
	178.43	29.62	3.001	0.1411	0.0068
	179.02	29.16	2.955	0.1547	0.0089
L_1,L_2,V Binary mixture	182.91	34.18	3.463	0.1592	0.0
L_1,L_2,V	176.00	27.19	2.755	0.1587	0.0138
	176.00	27.31	2.767	0.1944	0.0264
	178.00	29.02	2.940	0.1491	0.0083
	178.00	29.16	2.955	0.1757	0.0154
	178.00	29.21	2.960	0.1959	0.0270
	178.00	29.28	2.967	0.2014	0.0379
	178.00	29.28	2.967	0.1555	0.0087
	178.00	29.29	2.968	0.1777	0.0139
	180.00	31.14	3.155	0.1881	0.0165
	180.00	31.26	3.167	0.2040	0.0384
	180.00	31.26	3.167	0.2053	0.0278
	180.00	31.33	3.175	0.1770	0.0088
	180.00	31.33	3.175	0.1902	0.0147
	180.00	31.40	3.182	0.1821	0.0103
	180.00	31.46	3.188	0.1861	0.0098
	182.00	33.23	3.367	0.2277	0.0313
	182.00	33.24	3.368	0.2033	0.0117
	182.00	33.25	3.369	0.2105	0.0184
	182.00	33.37	3.381	0.2276	0.0434
	182.00	33.44	3.388	0.2202	0.0171
	184.00	35.54	3.601	0.2451	0.0333
	184.00	35.68	3.615	0.2488	0.0465
	184.00	35.69	3.616	0.2176	0.0125
	184.00	35.75	3.622	0.2232	0.0113
	184.00	35.76	3.623	0.2276	0.0198
	184.00	35.96	3.644	0.2415	0.0188
	184.00	36.02	3.650	0.2414	0.0188
	186.00	37.77	3.827	0.2232	0.0128
	186.00	37.81	3.831	0.2022	0.0173
	186.00	37.92	3.842	0.2392	0.0326
	186.00	38.06	3.856	0.2375	0.0446
	186.00	38.07	3.857	0.2256	0.0114
	186.00	38.13	3.864	0.2380	0.0881
	186.00	38.20	3.871	0.2379	0.0185
	186.00	38.20	3.871	0.2478	0.0847
	188.00	40.25	4.078	0.2508	0.0184
	188.00	40.32	4.085	0.2320	0.0202
	188.00	40.38	4.092	0.2670	0.0359

(cont.)

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8]	Merrill, R. C.; Luks, K. D.;
2. Hexane; C_6H_{14}; [110-54-3]	Kohn, J. P.
3. Octane; C_8H_{18}; [111-65-9]	*J. Chem. Eng. Data*
	1983, *28*, 210-215.

EXPERIMENTAL VALUES:

Phases in equilibrium	T/K	*P*/atm	*P*/MPa	Mole fractions of hexane $x_{C_6H_{14}}$	Mole fractions of octane $x_{C_8H_{18}}$
L_1, L_2, V	188.00	40.44	4.098	0.2349	0.0441
	188.00	40.52	4.106	0.2363	0.0237
	188.00	40.52	4.106	0.2391	0.0186
	188.00	40.65	4.119	0.2402	0.0263
	188.00	40.65	4.119	0.2378	0.0279
	188.00	40.72	4.126	0.2390	0.0220
	188.00	40.75	4.129	0.2301	0.0132
	190.00	42.83	4.340	0.2354	0.0135
	190.00	42.90	4.347	0.2431	0.0224
	190.00	42.91	4.348	0.2384	0.0208
	190.00	42.97	4.354	0.2437	0.0348
	190.00	43.17	4.374	0.2433	0.0244
	190.00	43.17	4.374	0.2445	0.0268
	190.00	43.17	4.374	0.2451	0.0247
	190.00	43.17	4.374	0.2376	0.0444
	190.00	43.23	4.380	0.2271	0.0826
	190.00	43.30	4.387	0.2318	0.0793
	192.00	45.93	4.654	0.2754	0.0236
	192.00	45.96	4.657	0.2605	0.0485
	192.00	45.96	4.657	0.2685	0.0383
	192.00	46.09	4.670	0.2793	0.0260
	192.00	46.16	4.677	0.2898	0.1047
	194.00	48.62	4.926	0.2634	0.0243
	194.00	48.69	4.934	0.2593	0.0370
	194.00	48.81	4.946	0.2586	0.0221
	194.00	48.95	4.960	0.2452	0.0453
	194.00	49.05	4.970	0.2753	0.0224

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Methane; CH_4; [74-82-8] 2. Decane; $C_{10}H_{22}$; [124-18-5] 3. Dotriacontane; $C_{32}H_{66}$; [544-85-4]	Cordeiro, D. J.; Luks, K. D.; Kohn, J. P. *Ind. Eng. Chem. Process. Des. Develop.* 1973, *12*, 47-51.
VARIABLES:	PREPARED BY: C. L. Young

EXPERIMENTAL VALUES:

T/K	P/MPa*	P/atm	Mole fraction of comp. 3 in liquid, $x_{C_{32}H_{66}}$	Mole fraction of comp. 1 in liquid, x_{CH_4}
330	0.0	0	0.3457	0.0
	0.507	5	0.3443	0.0263
	1.01	10	0.3425	0.0515
	2.03	20	0.3383	0.0986
	3.04	30	0.3337	0.1419
	4.05	40	0.3290	0.1817
	5.07	50	0.3241	0.2184
	6.08	60	0.3192	0.2522
	7.09	70	0.3142	0.2835
	8.10	80	0.3093	0.3123
	9.12	90	0.3043	0.3390
	10.13	100	0.2994	0.3638
335	0.0	0	0.5622	0.000
	0.507	5	0.5584	0.0286
	1.01	10	0.5543	0.0559
	2.03	20	0.5455	0.1068
	3.04	30	0.5367	0.1534
	4.05	40	0.5279	0.1961
	5.07	50	0.5192	0.2353
	6.08	60	0.5107	0.2712
	7.09	70	0.5022	0.3042

(cont.)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A known amount of gas was added to a known amount of solvent of known composition in a 10 cm^3 glass equilibrium cell. Liquid phase composition determined from the overall composition and volume of both phases. Details in source.

SOURCE AND PURITY OF MATERIALS:

1. and 2. Phillips Petroleum Co. pure grade samples, purity better than 99 mole per cent.

3. Humphrey Chemical Co. sample, minimum purity 97 mole per cent.

ESTIMATED ERROR:

$\delta T/K = \pm 0.02$; $\delta P/MPa = \pm 0.007$;

$\delta x_{CH_4} = \pm 0.001$ (estimated by compiler).

REFERENCES:

COMPONENTS:

1. Methane; CH_4; [74-82-8]
2. Decane; $C_{10}H_{22}$; [124-18-5]
3. Dotriacontane; $C_{32}H_{66}$; [544-85-4]

ORIGINAL MEASUREMENTS:

Cordeiro, D. J.; Luks, K. D.; Kohn, J. P.
Ind. Eng. Chem. Process. Des. Develop.
1973, *12*, 47-51.

EXPERIMENTAL VALUES:

T/K	P/MPa*	P/atm	Mole fraction of comp. 3 in liquid, $x_{C_{32}H_{66}}$	Mole fraction of comp. 1 in liquid, x_{CH_4}
335	8.10	80	0.4940	0.3346
	9.12	90	0.4859	0.3626
	10.13	100	0.4780	0.3886
340	0.0	0	0.8412	0.000
	0.507	5	0.8362	0.0323
	1.01	10	0.8310	0.0631
	1.52	15	0.8258	0.0926
	2.03	20	0.8206	0.1208
	2.53	25	0.8154	0.1477
	3.04	30	0.8103	0.1734

* calculated by compiler.