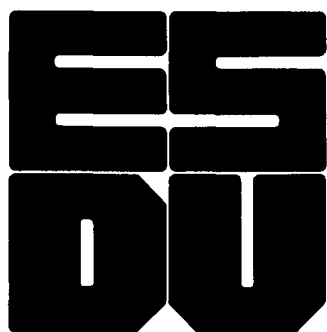




Engineering Sciences Data
Item Number

85016

Approved for Issue
July 1985

85016

With Amendment A
July 1986

Vapour pressures and critical points of liquids

Part 2B: C₇ to C₁₆ alkenes

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85016

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The work on this Item was carried out in the Internal Flow and Physical Properties Group of the Engineering Sciences Data Unit. The member of staff who undertook the initial assessment of the available information and the construction and subsequent development of the Item was

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VAPOUR PRESSURES AND CRITICAL POINTS OF LIQUIDS

PART 2B: C₇ TO C₁₆ ALKENES

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VAPOUR PRESSURES AND CRITICAL POINTS OF LIQUIDS

PART 2B: C₇ TO C₁₆ ALKENES

1. INTRODUCTION

This Data Item presents saturated vapour pressures of the C₇ to C₁₆ alkenes listed, with alternative names if any, in Table 1 (page 2).

The values of vapour pressure given in the Tables have been obtained by evaluating, for each compound, a Wagner equation of the form

$$\ln p = \ln p_c + (T_c/T)(b_1q + b_2q^{3/2} + b_3q^3 + b_4q^6), \quad (1)$$

where T is the temperature in kelvins ($T = 273.15 +$ the Celsius temperature) on the International Practical Temperature Scale, 1968 (IPTS 68), p is the vapour pressure in kPa, T_c , p_c are the critical temperature and critical pressure respectively and $q = 1 - T/T_c$.

Equation (1) was fitted to the experimental and calculated data that had been selected and weighted in accordance with a critical assessment of all the data. Note that estimated values of T_c are rounded to the nearest degree Celsius and that values in other units are obtained by exact conversion.

Table 2 is an index to Tables 5 onward. Table 3 gives T_c , p_c and the coefficients b_1 , b_2 , b_3 and b_4 for each compound that, when used in Equation (1), give p in kPa for T in kelvins. Table 4 shows for each compound, the normal boiling point in kelvins, degrees Celsius and degrees Fahrenheit, the value of dp/dT at the normal boiling point and the acentric factor.

Tables 5 to 10 present values of vapour pressure, in kPa, at 5 K intervals of temperature down to a temperature just above the freezing point, T_f , or an arbitrary lower limit where the freezing point is not known.

Tables 5(C) to 10(C) present the vapour pressures, in atm or mmHg, at intervals of 5 degrees C and Tables 5(F) to 10(F) give the values, in psia, at intervals of 10 degrees F. In Tables 5(C) to 10(C) the units of pressure change from atm to mmHg at approximately 2 atm.

The sources of experimental and calculated data for each compound, on which the tabulated values are based, are detailed in Appendix A. The uncertainties in the tabulated values of vapour pressure that the user should allow for are discussed and tabulated in Appendix B.

A full explanation of the correlation procedure used to derive the tabulated values of vapour pressure together with notation and units, conversion factors and References is given in the introductory Data Item, Reference 1.

2. REFERENCE

1. ESDU

Vapour pressures and critical points of liquids. Introduction to Data Items issued after September 1984. Item No. 84021, ESDU International, 1984.

TABLE 1
LIST of COMPOUNDS

The empirical formula, name and alternative names, if any, of each compound considered in this Data Item are as follows:

No.	Emp. Form.	Name	Alternative Names
C ₇ ALKENES			
1	C ₇ H ₁₄	Hept-1-ene	1-Heptene
2		cis-Hept-2-ene	cis-2-Heptene
3		trans-Hept-2-ene	trans-2-Heptene
4		cis-Hept-3-ene	cis-3-Heptene
5		trans-Hept-3-ene	trans-3-Heptene
6		3-Methyl-cis-hex-3-ene	3-Methyl-cis-3-hexene
7		3-Methyl-trans-hex-3-ene	3-Methyl-trans-3-hexene
8		2,4-Dimethylpent-1-ene	2,4-Dimethyl-1-pentene
9		4,4-Dimethylpent-1-ene	4,4-Dimethyl-1-pentene
10		2,4-Dimethylpent-2-ene	2,4-Dimethyl-2-pentene
11		4,4-Dimethyl-cis-pent-2-ene	4,4-Dimethyl-cis-2-pentene
12		4,4-Dimethyl-trans-pent-2-ene	4,4-Dimethyl-trans-2-pentene
13		3-Methyl-2-ethylbut-1-ene	3-Methyl-2-ethyl-1-butene
14		2,3,3-Trimethylbut-1-ene	2,3,3-Trimethyl-1-butene
C ₈ ALKENES			
15	C ₈ H ₁₆	Oct-1-ene	1-Octene
16		cis-Oct-2-ene	cis-2-Octene
17		trans-Oct-2-ene	trans-2-Octene
18		3-Methylhept-3-ene	3-Methyl-3-heptene
19		2-Ethylhex-1-ene	2-Ethyl-1-hexene
20		2,2-Dimethyl-cis-hex-3-ene	2,2-Dimethyl-cis-3-hexene
21		2,2-Dimethyl-trans-hex-3-ene	2,2-Dimethyl-trans-3-hexene
22		2-Methyl-3-ethylpent-1-ene	2-Methyl-3-ethyl-1-pentene
23		2,4,4-Trimethylpent-1-ene	2,4,4-Trimethyl-1-pentene
24		2,4,4-Trimethylpent-2-ene	2,4,4-Trimethyl-2-pentene
C ₉ to C ₁₂ ALKENES			
25	C ₉ H ₁₈	Non-1-ene	1-Nonene
26	C ₁₀ H ₂₀	Dec-1-ene	1-Decene
27	C ₁₁ H ₂₂	Undec-1-ene	1-Undecene
28	C ₁₂ H ₂₄	Dodec-1-ene	1-Dodecene
C ₁₃ to C ₁₆ ALKENES			
29	C ₁₃ H ₂₆	Tridec-1-ene	1-Tridecene
30	C ₁₄ H ₂₈	Tetradec-1-ene	1-Tetradecene
31	C ₁₅ H ₃₀	Pentadec-1-ene	1-Pentadecene
32	C ₁₆ H ₃₂	Hexadec-1-ene	1-Hexadecene

TABLE 2
INDEX to MAIN TABLES

The locations of the Tables giving vapour pressures in various units are as follows:-

		kPa v K		atm or mmHg v deg.C		psia v deg.F	
No.	Name	Table	Pages	Table	Pages	Table	Pages
C ₇ ALKENES							
1	Hept-1-ene	5	6, 7	5(C)	18,19	5(F)	30,31
2	cis-Hept-2-ene	5	6, 7	5(C)	18,19	5(F)	30,31
3	trans-Hept-2-ene	5	6, 7	5(C)	18,19	5(F)	30,31
4	cis-Hept-3-ene	5	6, 7	5(C)	18,19	5(F)	30,31
5	trans-Hept-3-ene	5	6, 7	5(C)	18,19	5(F)	30,31
6	3-Methyl-cis-Hex-3-ene	5	6, 7	5(C)	18,19	5(F)	30,31
7	3-Methyl-trans-Hex-3-ene	5	6, 7	5(C)	18,19	5(F)	30,31
8	2,4-Dimethylpent-1-ene	6	8, 9	6(C)	20,21	6(F)	32,33
9	4,4-Dimethylpent-1-ene	6	8, 9	6(C)	20,21	6(F)	32,33
10	2,4-Dimethylpent-2-ene	6	8, 9	6(C)	20,21	6(F)	32,33
11	4,4-Dimethyl-cis-pent-2-ene	6	8, 9	6(C)	20,21	6(F)	32,33
12	4,4-Dimethyl-trans-pent-2-ene	6	8, 9	6(C)	20,21	6(F)	32,33
13	3-Methyl-2-ethylbut-1-ene	6	8, 9	6(C)	20,21	6(F)	32,33
14	2,3,3-Trimethylbut-1-ene	6	8, 9	6(C)	20,21	6(F)	32,33
C ₈ ALKENES							
15	Oct-1-ene	7	10,11	7(C)	22,23	7(F)	34,35
16	cis-Oct-2-ene	7	10,11	7(C)	22,23	7(F)	34,35
17	trans-Oct-2-ene	7	10,11	7(C)	22,23	7(F)	34,35
18	3-Methylhept-3-ene	7	10,11	7(C)	22,23	7(F)	34,35
19	2-Ethylhex-1-ene	7	10,11	7(C)	22,23	7(F)	34,35
20	2,2-Dimethyl-cis-hex-3-ene	8	12,13	8(C)	24,25	8(F)	36,37
21	2,2-Dimethyl-trans-hex-3-ene	8	12,13	8(C)	24,25	8(F)	36,37
22	2-Methyl-3-ethylpent-1-ene	8	12,13	8(C)	24,25	8(F)	36,37
23	2,4,4-Trimethylpent-1-ene	8	12,13	8(C)	24,25	8(F)	36,37
24	2,4,4-Trimethylpent-2-ene	8	12,13	8(C)	24,25	8(F)	36,37
C ₉ TO C ₁₂ ALKENES							
25	Non-1-ene	9	14,15	9(C)	26,27	9(F)	38,39
26	Dec-1-ene	9	14,15	9(C)	26,27	9(F)	38,39
27	Undec-1-ene	9	14,15	9(C)	26,27	9(F)	38,39
28	Dodec-1-ene	9	14,15	9(C)	26,27	9(F)	38,39
C ₁₃ TO C ₁₆ ALKENES							
29	Tridec-1-ene	10	16,17	10(C)	28,29	10(F)	40,41
30	Tetradec-1-ene	10	16,17	10(C)	28,29	10(F)	40,41
31	Pentadec-1-ene	10	16,17	10(C)	28,29	10(F)	40,41
32	Hexadec-1-ene	10	16,17	10(C)	28,29	10(F)	40,41

TABLE 3
CONSTANTS in EQUATION (1)

This Table lists the constants for each compound that, when used in the equation

$$\ln p = \ln p_c + (T_c/T)(b_1q + b_2q^{3/2} + b_3q^3 + b_4q^6), \quad \text{where } q = 1 - T/T_c,$$

give p in kPa for T in kelvins.

Name	T_c K	p_c kPa	b_1	b_2	b_3	b_4
C₇ ALKENES						
Hept-1-ene	537.3	2836	-7.61117	1.43226	-3.52534	-2.46793
cis-Hept-2-ene	544.15	2880	-7.64913	1.43616	-3.57874	-2.50290
trans-Hept-2-ene	543.15	2877	-7.65843	1.43794	-3.59261	-2.50962
cis-Hept-3-ene	540.15	2879	-7.64185	1.43135	-3.56525	-2.50494
trans-Hept-3-ene	540.15	2891	-7.65774	1.43984	-3.59247	-2.50646
3-Methyl-cis-hex-3-ene	544.15	3090	-7.61079	1.43536	-3.52457	-2.46712
3-Methyl-trans-hex-3-ene	542.15	3055	-7.55773	1.42135	-3.44481	-2.43090
2,4-Dimethylpent-1-ene	526.15	2910	-7.39821	1.39612	-3.20043	-2.32915
4,4-Dimethylpent-1-ene	515.15	2850	-7.26215	1.38001	-3.00954	-2.20591
2,4-Dimethylpent-2-ene	526.15	3015	-7.56757	1.42643	-3.45925	-2.43837
4,4-Dimethyl-cis-pent-2-ene	527.15	2940	-7.31208	1.38314	-3.07105	-2.26882
4,4-Dimethyl-trans-pent-2-ene	521.15	3105	-7.43269	1.39772	-3.25382	-2.35167
3-Methyl-2-ethylbut-1-ene	537.15	3200	-7.42907	1.40130	-3.24602	-2.35393
2,3,3-Trimethylbut-1-ene	531.15	3235	-7.17756	1.29196	-2.72834	-2.47022
C₈ ALKENES						
Oct-1-ene	566.65	2568	-7.81799	1.41998	-3.91974	-2.60268
cis-Oct-2-ene	573.15	2475	-7.69411	1.40339	-3.70723	-2.41283
trans-Oct-2-ene	571.15	2450	-7.69684	1.40805	-3.71524	-2.40679
3-Methylhept-3-ene	572.15	2650	-7.70712	1.41073	-3.73486	-2.41067
2-Ethylhex-1-ene	569.15	2700	-7.72026	1.41070	-3.75528	-2.42698
2,2-Dimethyl-cis-hex-3-ene	548.15	2489	-7.57521	1.38945	-3.54271	-2.43011
2,2-Dimethyl-trans-hex-3-ene	546.15	2800	-7.72954	1.62374	-3.90976	-2.24420
2-Methyl-3-ethylpent-1-ene	561.15	2764	-7.49640	1.37859	-3.42246	-2.37073
2,4,4-Trimethylpent-1-ene	550.15	2650	-7.34856	1.28894	-3.33088	-1.88081
2,4,4-Trimethylpent-2-ene	555.15	2900	-7.59381	1.37084	-3.25041	-3.15502
C₉ to C₁₂ ALKENES						
Non-1-ene	592.15	2332	-8.07658	1.48929	-4.43674	-2.55807
Dec-1-ene	616.15	2160	-8.30709	1.54872	-4.88931	-2.61697
Undec-1-ene	638.15	2017	-8.53678	1.62302	-5.35360	-2.63715
Dodec-1-ene	657.15	1867	-8.77759	1.69764	-5.85012	-2.64646
C₁₃ to C₁₆ ALKENES						
Tridec-1-ene	675.15	1747	-9.00506	1.77622	-6.33146	-2.62313
Tetradec-1-ene	692.15	1647	-9.22264	1.85583	-6.79778	-2.58883
Pentadec-1-ene	707.15	1542	-9.44639	1.94344	-7.29152	-2.52105
Hexadec-1-ene	722.15	1467	-9.65806	2.03200	-7.76449	-2.44380

TABLE 4
NORMAL BOILING POINTS AND ACENTRIC FACTORS

Name	Normal Boiling Point						Acentric
	p= 101.325 kPa		760 mmHg		14.69595 psia		Factor
	T	dT/dp	T	dT/dp	T	dT/dp	
	K	K per kPa	deg.C	deg.C per mmHg	deg.F	deg.F per psia	
C ₇ ALKENES							
Hept-1-ene	366.79	0.3338	93.64	0.04450	200.56	4.142	0.331
cis-Hept-2-ene	371.60	0.3361	98.45	0.04481	209.20	4.171	0.338
trans-Hept-2-ene	371.10	0.3354	97.95	0.04472	208.31	4.162	0.340
cis-Hept-3-ene	368.78	0.3338	95.63	0.04450	204.14	4.142	0.337
trans-Hept-3-ene	368.86	0.3332	95.71	0.04443	204.28	4.136	0.340
3-Methyl-cis-hex-3-ene	368.52	0.3319	95.37	0.04425	203.67	4.119	0.330
3-Methyl-trans-hex-3-ene	366.69	0.3325	93.54	0.04432	200.37	4.126	0.321
2,4-Dimethylpent-1-ene	354.75	0.3293	81.60	0.04391	178.89	4.087	0.289
4,4-Dimethylpent-1-ene	345.66	0.3268	72.51	0.04356	162.51	4.055	0.262
2,4-Dimethylpent-2-ene	356.43	0.3234	83.28	0.04312	181.91	4.014	0.322
4,4-Dimethyl-cis-pent-2-ene	353.57	0.3310	80.42	0.04413	176.76	4.108	0.272
4,4-Dimethyl-trans-pent-2-ene	349.88	0.3209	76.73	0.04278	170.12	3.982	0.296
3-Methyl-2-ethylbut-1-ene	359.51	0.3287	86.36	0.04383	187.45	4.080	0.295
2,3,3-Trimethylbut-1-ene	351.03	0.3293	77.88	0.04390	172.19	4.087	0.251
C ₈ ALKENES							
Oct-1-ene	394.44	0.3538	121.29	0.04717	250.32	4.391	0.377
cis-Oct-2-ene	398.15	0.3638	125.00	0.04850	257.00	4.515	0.352
trans-Oct-2-ene	397.15	0.3633	124.00	0.04844	255.20	4.509	0.352
3-Methylhept-3-ene	395.15	0.3575	122.00	0.04767	251.60	4.437	0.354
2-Ethylhex-1-ene	392.65	0.3539	119.50	0.04718	247.10	4.392	0.357
2,2-Dimethyl-cis-hex-3-ene	378.60	0.3500	105.45	0.04666	221.81	4.344	0.329
2,2-Dimethyl-trans-hex-3-ene	374.04	0.3390	100.89	0.04520	213.61	4.208	0.340
2-Methyl-3-ethylpent-1-ene	382.41	0.3519	109.26	0.04692	228.67	4.368	0.313
2,4,4-Trimethylpent-1-ene	374.62	0.3496	101.47	0.04661	214.64	4.339	0.293
2,4,4-Trimethylpent-2-ene	378.06	0.3442	104.91	0.04588	220.84	4.271	0.330
C ₉ to C ₁₂ ALKENES							
Non-1-ene	420.04	0.3713	146.89	0.04950	296.40	4.608	0.427
Dec-1-ene	443.75	0.3871	170.60	0.05161	339.08	4.804	0.471
Undec-1-ene	465.86	0.4013	192.71	0.05351	378.88	4.981	0.514
Dodec-1-ene	486.55	0.4141	213.40	0.05521	416.12	5.139	0.560
C ₁₃ to C ₁₆ ALKENES							
Tridec-1-ene	505.98	0.4258	232.83	0.05677	451.09	5.285	0.602
Tetradec-1-ene	524.31	0.4366	251.16	0.05821	484.09	5.418	0.642
Pentadec-1-ene	541.61	0.4466	268.46	0.05955	515.23	5.543	0.683
Hexadec-1-ene	558.09	0.4556	284.94	0.06074	544.89	5.654	0.722

TABLE 5
VAPOUR PRESSURE of C₇ ALKENES-I

Units: kPa v. K

1	Hept-1-ene								1-Heptene
2	cis-Hept-2-ene								cis-2-Heptene
3	trans-Hept-2-ene								trans-2-Heptene
4	cis-Hept-3-ene								cis-3-Heptene
5	trans-Hept-3-ene								trans-3-Heptene
6	3-Methyl-cis-hex-3-ene								3-Methyl-cis-3-hexene
7	3-Methyl-trans-hex-3-ene								3-Methyl-trans-3-hexene
No.		1	2	3	4	5	6	7	
T (K)		537.30	544.15	543.15	540.15	540.15	544.15	542.15	
p _C (kPa)		2836	2880	2877	2879	2891	3090	3055	
T									
K									
					p				
					kPa				
540			2718.2	2753.1	2872.9	2884.9	2917.3	2965.5	
535		2745.8	2534.9	2567.0	2678.4	2689.2	2721.5	2767.5	
530		2559.6	2362.4	2392.2	2496.3	2506.0	2537.3	2581.5	
525		2384.8	2200.0	2227.6	2325.1	2333.8	2363.7	2406.2	
520		2220.2	2046.8	2072.4	2163.7	2171.6	2199.9	2240.8	
515		2065.1	1902.3	1926.1	2011.7	2018.7	2045.4	2084.8	
510		1918.9	1766.1	1788.1	1868.3	1874.5	1899.7	1937.5	
505		1781.1	1637.6	1658.1	1733.1	1738.6	1762.2	1798.5	
500		1651.2	1516.5	1535.5	1605.7	1610.6	1632.6	1667.5	
495		1528.8	1402.5	1420.0	1485.7	1490.0	1510.5	1543.9	
490		1413.5	1295.2	1311.4	1372.7	1376.6	1395.5	1427.5	
485		1305.0	1194.2	1209.2	1266.5	1269.8	1287.4	1318.0	
480		1203.0	1099.4	1113.3	1166.6	1169.5	1185.7	1214.9	
475		1107.2	1010.4	1023.2	1072.9	1075.4	1090.2	1118.1	
470		1017.3	926.96	938.73	984.97	987.12	1000.7	1027.2	
465		933.07	848.84	859.66	902.61	904.43	916.82	941.96	
460		854.18	775.78	785.72	825.55	827.08	838.36	862.19	
455		780.43	707.57	716.68	753.56	754.83	765.06	787.60	
450		711.57	643.98	652.31	686.40	687.45	696.69	717.97	
445		647.39	584.79	592.40	623.86	624.70	633.02	653.07	
440		587.66	529.80	536.74	565.70	566.36	573.84	592.68	
435		532.18	478.80	485.11	511.73	512.23	518.92	536.58	
430		480.74	431.60	437.33	461.74	462.10	468.07	484.58	
425		433.15	388.01	393.19	415.53	415.78	421.07	436.48	
420		389.20	347.84	352.52	372.91	373.05	377.73	392.07	
415		348.71	310.91	315.13	333.69	333.75	337.87	351.17	
410		311.51	277.05	280.83	297.69	297.67	301.29	313.59	
405		277.40	246.07	249.46	264.73	264.65	267.81	279.15	
400		246.21	217.82	220.85	234.63	234.51	237.25	247.68	
395		217.78	192.13	194.83	207.23	207.07	209.44	218.99	
390		191.94	168.85	171.23	182.36	182.17	184.21	192.93	
385		168.53	147.80	149.91	159.85	159.64	161.40	169.32	
380		147.38	128.85	130.71	139.56	139.34	140.84	148.01	
375		128.36	111.85	113.48	121.34	121.11	122.37	128.84	
370		111.30	96.661	98.079	105.02	104.79	105.86	111.67	
365		96.067	83.138	84.370	90.476	90.248	91.142	96.339	
360		82.520	71.153	72.218	77.565	77.344	78.088	82.713	
355		70.525	60.579	61.496	66.155	65.943	66.559	70.654	
350		59.954	51.294	52.079	56.119	55.919	56.425	60.000	

TABLE 5 continued
VAPOUR PRESSURE of C₇ ALKENES-I continued

Units: kPa v. K

No.	1	2	3	4	5	6	7
continued							
T K	p kPa						
345	50.682	43.183	43.851	47.336	47.149	47.561	50.720
340	42.592	36.135	36.700	39.689	39.516	39.849	42.601
335	35.572	30.044	30.519	33.068	32.910	33.177	35.559
330	29.515	24.813	25.210	27.369	27.226	27.439	29.488
325	24.321	20.347	20.677	22.494	22.366	22.534	24.285
320	19.896	16.561	16.833	18.351	18.238	18.369	19.854
315	16.151	13.374	13.595	14.855	14.756	14.858	16.108
310	13.006	10.710	10.889	11.926	11.841	11.918	12.963
305	10.383	8.5013	8.6457	9.4918	9.4184	9.4774	10.342
300	8.2144	6.6856	6.8006	7.4851	7.4228	7.4671	8.1772
295	6.4366	5.2061	5.2968	5.8454	5.7932	5.8260	6.4034
290	4.9925	4.0118	4.0826	4.5179	4.4747	4.4988	4.9636
285	3.8309	3.0574	3.1121	3.4539	3.4185	3.4359	3.8063
280	2.9061	2.3029	2.3445	2.6100	2.5813	2.5938	2.8856
275	2.1779	1.7130	1.7444	1.9480	1.9252	1.9340	2.1611
270	1.6112	1.2574	1.2808	1.4350	1.4171	1.4232	1.5978
265	1.1757	9.10E-1	9.27E-1	1.0425	1.0286	1.0328	1.1652
260	8.45E-1	6.49E-1	6.61E-1	7.46E-1	7.36E-1	7.38E-1	8.37E-1
255	5.99E-1	4.55E-1	4.64E-1	5.26E-1	5.18E-1	5.20E-1	5.92E-1
250	4.17E-1	3.14E-1	3.20E-1	3.64E-1	3.58E-1	3.60E-1	4.12E-1
245	2.85E-1	2.13E-1	2.17E-1	2.48E-1	2.43E-1	2.44E-1	2.82E-1
240	1.91E-1	1.41E-1	1.44E-1	1.65E-1	1.62E-1	1.63E-1	1.89E-1
235	1.26E-1	9.19E-2	9.37E-2	1.08E-1	1.06E-1	1.06E-1	1.24E-1
230	8.09E-2	5.84E-2	5.96E-2	6.90E-2	6.76E-2	6.79E-2	7.99E-2
225	5.08E-2	3.63E-2	3.70E-2	4.31E-2	4.22E-2	4.23E-2	5.02E-2
220	3.12E-2	2.19E-2	2.24E-2	2.62E-2	2.56E-2	2.57E-2	3.07E-2
215	1.86E-2	1.29E-2	1.32E-2	1.55E-2	1.51E-2	1.52E-2	1.83E-2
210	1.08E-2	7.37E-3	7.53E-3	8.92E-3	8.69E-3	8.72E-3	1.06E-2
205	6.04E-3	4.08E-3	4.17E-3	4.96E-3	4.83E-3	4.85E-3	5.95E-3
200	3.28E-3	2.18E-3	2.22E-3	2.67E-3	2.59E-3	2.60E-3	3.23E-3
195	1.71E-3	1.12E-3	1.14E-3	1.38E-3	1.34E-3	1.35E-3	1.69E-3
190	8.60E-4	5.52E-4	5.64E-4	6.87E-4	6.64E-4	6.68E-4	8.46E-4
185	4.13E-4	2.60E-4	2.66E-4	3.27E-4	3.15E-4	3.17E-4	4.07E-4
180	1.89E-4	1.17E-4	1.20E-4	1.48E-4	1.42E-4	1.44E-4	1.87E-4
175	8.25E-5	4.98E-5	5.10E-5	6.37E-5	6.11E-5	6.16E-5	8.12E-5
170	3.39E-5	2.00E-5	2.05E-5	2.58E-5	2.47E-5	2.50E-5	3.34E-5
165	1.31E-5	7.55E-6	7.74E-6	9.85E-6	9.40E-6	9.51E-6	1.29E-5
160	4.73E-6	2.66E-6		3.50E-6	3.34E-6	3.38E-6	4.67E-6
155	1.59E-6	8.65E-7		1.15E-6	1.10E-6	1.11E-6	1.56E-6
150		2.59E-7		3.50E-7	3.31E-7	3.37E-7	4.83E-7
145		7.04E-8		9.65E-8	9.09E-8	9.27E-8	1.36E-7
140		1.73E-8		2.40E-8	2.25E-8	2.30E-8	3.45E-8
T _f (K)	154	—	164	—	136	—	—

TABLE 6
VAPOUR PRESSURE of C₇ ALKENES-II

Units: kPa v. K

8	2,4-Dimethylpent-1-ene							2,4-Dimethyl-1-pentene
9	4,4-Dimethylpent-1-ene							4,4-Dimethyl-1-pentene
10	2,4-Dimethylpent-2-ene							2,4-Dimethyl-2-pentene
11	4,4-Dimethyl-cis-pent-2-ene							4,4-Dimethyl-cis-2-pentene
12	4,4-Dimethyl-trans-pent-2-ene							4,4-Dimethyl-trans-2-pentene
13	3-Methyl-2-ethylbut-1-ene							3-Methyl-2-ethyl-1-butene
14	2,3,3-Trimethylbut-1-ene							2,3,3-Trimethyl-1-butene
No.	8	9	10	11	12	13	14	
T (K)	526.15	515.15	526.15	527.15	521.15	537.15	531.15	
p _C (kPa)	2910	2850	3015	2940	3105	3200	3235	
T								
K								
535						3107.0		
530						2901.1	3185.4	
525	2863.6		2965.9	2854.3		2707.6	2979.0	
520	2671.0		2761.9	2664.7	3054.8	2525.1	2784.6	
515	2490.2	2844.0	2570.8	2486.4	2846.4	2352.9	2601.1	
510	2319.9	2652.2	2391.1	2318.2	2651.0	2190.2	2427.6	
505	2159.4	2472.5	2222.0	2159.5	2467.2	2036.6	2263.4	
500	2007.9	2303.4	2062.7	2009.7	2294.0	1891.6	2108.1	
495	1865.0	2143.9	1912.6	1868.1	2130.7	1754.7	1961.2	
490	1730.2	1993.4	1771.2	1734.5	1976.8	1625.5	1822.3	
485	1603.1	1851.5	1638.2	1608.4	1831.8	1503.8	1691.0	
480	1483.2	1717.5	1513.0	1489.4	1695.1	1389.1	1567.1	
475	1370.4	1591.2	1395.2	1377.2	1566.4	1281.2	1450.1	
470	1264.2	1472.1	1284.6	1271.6	1445.4	1179.7	1339.8	
465	1164.3	1360.0	1180.8	1172.2	1331.5	1084.4	1235.9	
460	1070.5	1254.4	1083.5	1078.7	1224.6	994.99	1138.1	
455	982.54	1155.1	992.38	990.97	1124.3	911.23	1046.3	
450	900.07	1061.8	907.14	908.65	1030.3	832.85	960.04	
445	822.90	974.31	827.53	831.55	942.35	759.64	879.21	
440	750.79	892.29	753.30	759.44	860.12	691.34	803.55	
435	683.51	815.53	684.18	692.10	783.39	627.76	732.84	
430	620.84	743.80	619.94	629.31	711.90	568.65	666.87	
425	562.58	676.87	560.34	570.87	645.41	513.83	605.42	
420	508.50	614.52	505.16	516.58	583.68	463.07	548.30	
415	458.42	556.56	454.18	466.25	526.49	416.18	495.30	
410	412.13	502.77	407.18	419.68	473.60	372.96	446.23	
405	369.46	452.96	363.96	376.69	424.82	333.23	400.90	
400	330.20	406.94	324.31	337.10	379.92	296.79	359.12	
395	294.18	364.51	288.02	300.73	338.70	263.46	320.71	
390	261.22	325.49	254.92	267.41	300.96	233.06	285.48	
385	231.14	289.71	224.81	236.97	266.51	205.43	253.28	
380	203.78	256.98	197.51	209.24	235.14	180.38	223.91	
375	178.98	227.13	172.83	184.06	206.68	157.75	197.21	
370	156.56	199.99	150.60	161.27	180.93	137.39	173.03	
365	136.37	175.40	130.66	140.71	157.73	119.13	151.19	
360	118.26	153.19	112.83	122.24	136.90	102.81	131.55	
355	102.07	133.21	96.971	105.71	118.28	88.307	113.94	
350	87.671	115.31	82.913	90.974	101.68	75.460	98.22	

TABLE 6 continued
VAPOUR PRESSURE of C₇ ALKENES-II continued

Units: kPa v. K							
No.	8	9	10	11	12	13	14
continued							
T K	p kPa						
345	74.913	99.327	70.514	77.896	86.972	64.136	84.255
340	63.666	85.127	59.631	66.342	73.988	54.204	71.895
335	53.798	72.566	50.128	56.185	62.586	45.539	61.012
330	45.186	61.511	41.876	47.302	52.624	38.019	51.476
325	37.712	51.829	34.752	39.575	43.968	31.532	43.166
320	31.264	43.398	28.639	32.893	36.492	25.970	35.964
315	25.735	36.097	23.428	27.150	30.075	21.233	29.761
310	21.026	29.815	19.017	22.245	24.602	17.225	24.451
305	17.044	24.444	15.309	18.086	19.968	13.859	19.936
300	13.700	19.884	12.218	14.583	16.072	11.055	16.124
295	10.915	16.041	9.6613	11.658	12.822	8.7374	12.931
290	8.6156	12.827	7.5653	9.2335	10.135	6.8387	10.277
285	6.7330	10.162	5.8629	7.2423	7.9316	5.2976	8.0896
280	5.2064	7.9712	4.4939	5.6219	6.1425	4.0591	6.3035
275	3.9811	6.1873	3.4046	4.3164	4.7041	3.0742	4.8591
270	3.0081	4.7492	2.5475	3.2754	3.5600	2.2996	3.7030
265	2.2442	3.6022	1.8811	2.4548	2.6604	1.6977	2.7877
260	1.6518	2.6978	1.3696	1.8155	1.9615	1.2360	2.0715
255	1.1984	1.9934	9.82E-1	1.3239	1.4256	8.86E-1	1.5181
250	8.56E-1	1.4518	6.93E-1	9.51E-1	1.0204	6.26E-1	1.0962
245	6.02E-1	1.0411	4.81E-1	6.72E-1	7.18E-1	4.34E-1	7.79E-1
240	4.16E-1	7.34E-1	3.28E-1	4.67E-1	4.97E-1	2.96E-1	5.44E-1
235	2.82E-1	5.09E-1	2.19E-1	3.18E-1	3.38E-1	1.98E-1	3.74E-1
230	1.87E-1	3.46E-1	1.43E-1	2.13E-1	2.25E-1	1.29E-1	2.52E-1
225	1.22E-1	2.31E-1	9.16E-2	1.39E-1	1.46E-1	8.28E-2	1.66E-1
220	7.72E-2	1.50E-1	5.72E-2	8.92E-2	9.31E-2	5.18E-2	1.07E-1
215	4.78E-2	9.58E-2	3.48E-2	5.57E-2	5.78E-2	3.15E-2	6.72E-2
210	2.88E-2	5.95E-2	2.06E-2	3.39E-2	3.49E-2	1.86E-2	4.12E-2
205	1.69E-2	3.59E-2	1.18E-2	2.00E-2	2.05E-2	1.07E-2	2.46E-2
200	9.57E-3	2.11E-2	6.54E-3	1.15E-2	1.17E-2	5.96E-3	1.42E-2
195	5.25E-3	1.20E-2	3.50E-3	6.35E-3	6.41E-3	3.20E-3	7.94E-3
190	2.77E-3	6.56E-3	1.80E-3	3.39E-3	3.39E-3	1.65E-3	4.29E-3
185	1.41E-3	3.47E-3	8.91E-4	1.74E-3	1.73E-3	8.18E-4	2.23E-3
180	6.83E-4	1.76E-3	4.21E-4	8.57E-4	8.41E-4	3.87E-4	1.11E-3
175	3.16E-4	8.51E-4	1.89E-4	4.02E-4	3.90E-4	1.74E-4	5.26E-4
170	1.39E-4	3.92E-4	8.02E-5	1.79E-4	1.72E-4	7.45E-5	2.37E-4
165	5.76E-5	1.71E-4	3.21E-5	7.56E-5	7.15E-5	2.99E-5	1.01E-4
160	2.24E-5	7.06E-5	1.20E-5	3.00E-5	2.79E-5	1.13E-5	
155	8.14E-6	2.72E-5	4.19E-6	1.11E-5		3.96E-6	
150	2.74E-6	9.76E-6	1.35E-6	3.81E-6		1.28E-6	
145		3.23E-6	3.97E-7	1.20E-6		3.80E-7	
140		9.79E-7		3.46E-7		1.02E-7	
T _f (K)	149	136	145	138	158	—	163

TABLE 7

VAPOUR PRESSURE of C₈ ALKENES-I

Units: kPa v. K

15	Oct-1-ene			1-Octene	
16	cis-Oct-2-ene			cis-2-Octene	
17	trans-Oct-2-ene			trans-2-Octene	
18	3-Methylhept-3-ene			3-Methyl-3-heptene	
19	2-Ethylhex-1-ene			2-Ethyl-1-hexene	
No.	15	16	17	18	19
T _c (K)	566.65	573.15	571.15	572.15	569.15
p _c (kPa)	2568	2475	2450	2650	2700
T					
K			p		
			kPa		
570		2373.3	2412.6	2574.9	
565	2510.6	2220.3	2256.7	2408.5	2553.4
560	2344.6	2076.1	2110.1	2251.9	2386.9
555	2188.6	1940.0	1971.7	2104.0	2230.1
550	2041.6	1811.2	1841.0	1964.3	2082.0
545	1902.9	1689.5	1717.5	1832.2	1942.0
540	1771.9	1574.4	1600.7	1707.3	1809.8
535	1648.3	1465.6	1490.2	1589.2	1684.8
530	1531.6	1362.7	1385.9	1477.7	1566.7
525	1421.6	1265.5	1287.3	1372.3	1455.2
520	1317.8	1173.8	1194.2	1272.8	1350.0
515	1219.9	1087.2	1106.4	1179.0	1250.7
510	1127.8	1005.6	1023.6	1090.5	1157.1
505	1041.0	928.80	945.65	1007.2	1068.9
500	959.51	856.50	872.26	928.79	985.97
495	882.94	788.53	803.27	855.11	908.00
490	811.09	724.73	738.49	785.94	834.78
485	743.77	664.89	677.73	721.08	766.12
480	680.77	608.86	620.82	660.34	701.82
475	621.89	556.47	567.59	603.54	641.67
470	566.95	507.55	517.88	550.50	585.49
465	515.76	461.94	471.52	501.06	533.11
460	468.15	419.50	428.37	455.05	484.34
455	423.95	380.08	388.27	412.30	439.03
450	382.98	343.52	351.07	372.67	396.99
445	345.10	309.70	316.64	336.00	358.09
440	310.13	278.47	284.84	302.13	322.14
435	277.94	249.70	255.53	270.93	289.01
430	248.36	223.25	228.58	242.25	258.55
425	221.26	199.00	203.85	215.96	230.61
420	196.49	176.83	181.24	191.91	205.04
415	173.91	156.61	160.60	169.98	181.71
410	153.40	138.23	141.83	150.04	160.49
405	134.81	121.57	124.81	131.96	141.23
400	118.03	106.51	109.41	115.62	123.83
395	102.92	92.948	95.542	100.91	108.14
390	89.374	80.780	83.088	87.705	94.052
385	77.272	69.902	71.948	75.900	81.449
380	66.504	60.215	62.021	65.387	70.218
375	56.961	51.625	53.212	56.064	60.250

TABLE 7 continued
VAPOUR PRESSURE of C_8 ALKENES-I continued

Units: kPa v. K					
No.	15	16	17	18	19
continued					
T K	p kPa				
370	48.543	44.041	45.428	47.831	51.442
365	41.151	37.375	38.582	40.595	43.694
360	34.691	31.545	32.590	34.265	36.911
355	29.076	26.472	27.371	28.757	31.003
350	24.221	22.081	22.850	23.988	25.885
345	20.046	18.301	18.956	19.884	21.475
340	16.480	15.068	15.621	16.372	17.699
335	13.451	12.319	12.784	13.386	14.485
330	10.897	9.9972	10.385	10.864	11.767
325	8.7588	8.0501	8.3707	8.7486	9.4858
320	6.9814	6.4292	6.6924	6.9876	7.5844
315	5.5159	5.0904	5.3047	5.5329	6.0120
310	4.3178	3.9938	4.1666	4.3411	4.7225
305	3.3468	3.1033	3.2414	3.3734	3.6740
300	2.5675	2.3868	2.4962	2.5947	2.8294
295	1.9481	1.8161	1.9018	1.9744	2.1556
290	1.4610	1.3661	1.4325	1.4853	1.6237
285	1.0823	1.0153	1.0661	1.1039	1.2084
280	7.91E-1	7.45E-1	7.83E-1	8.10E-1	8.88E-1
275	5.71E-1	5.39E-1	5.68E-1	5.86E-1	6.44E-1
270	4.05E-1	3.85E-1	4.06E-1	4.18E-1	4.60E-1
265	2.84E-1	2.70E-1	2.86E-1	2.94E-1	3.24E-1
260	1.95E-1	1.87E-1	1.98E-1	2.03E-1	2.24E-1
255	1.32E-1	1.27E-1	1.34E-1	1.38E-1	1.52E-1
250	8.74E-2	8.46E-2	8.98E-2	9.19E-2	1.02E-1
245	5.68E-2	5.53E-2	5.88E-2	6.01E-2	6.66E-2
240	3.61E-2	3.54E-2	3.77E-2	3.84E-2	4.27E-2
235	2.24E-2	2.21E-2	2.36E-2	2.40E-2	2.68E-2
230	1.36E-2	1.35E-2	1.45E-2	1.47E-2	1.64E-2
225	8.03E-3	8.03E-3	8.62E-3	8.73E-3	9.76E-3
220	4.61E-3	4.65E-3	5.00E-3	5.05E-3	5.65E-3
215	2.56E-3	2.61E-3	2.81E-3	2.83E-3	3.18E-3
210	1.38E-3	1.42E-3	1.53E-3	1.54E-3	1.73E-3
205	7.15E-4	7.43E-4	8.07E-4	8.08E-4	9.11E-4
200	3.57E-4	3.76E-4	4.09E-4	4.08E-4	4.61E-4
195	1.71E-4	1.82E-4	1.99E-4	1.98E-4	2.24E-4
190	7.83E-5	8.45E-5	9.26E-5	9.18E-5	1.04E-4
185	3.41E-5	3.74E-5	4.11E-5	4.06E-5	4.62E-5
180	1.41E-5	1.57E-5	1.73E-5	1.70E-5	1.95E-5
175	5.49E-6	6.22E-6	6.89E-6	6.75E-6	7.73E-6
170		2.31E-6	2.58E-6	2.51E-6	2.89E-6
165		8.05E-7	9.00E-7	8.73E-7	1.01E-6
160		2.60E-7	2.92E-7	2.81E-7	3.26E-7
155		7.71E-8	8.71E-8	8.36E-8	9.71E-8
150		2.09E-8	2.37E-8	2.26E-8	2.64E-8
T_f (K)	171	—	—	—	—

TABLE 8
VAPOUR PRESSURE of C₈ ALKENES-II

Units: kPa v. K

20	2,2-Dimethyl-cis-hex-3-ene	2,2-Dimethyl-cis-3-hexene
21	2,2-Dimethyl-trans-hex-3-ene	2,2-Dimethyl-trans-3-hexene
22	2-Methyl-3-ethylpent-1-ene	2-Methyl-3-ethyl-1-pentene
23	2,4,4-Trimethylpent-1-ene	2,4,4-Trimethyl-1-pentene
24	2,4,4-Trimethylpent-2-ene	2,4,4-Trimethyl-2-pentene

No.	20	21	22	23	24
T _c (K)	548.15	546.15	561.15	550.15	555.15
p _c (kPa)	2489	2800	2764	2650	2900

T K	p kPa				
560			2722.1		
555			2547.7		2894.1
550			2383.6	2644.7	2704.3
545	2383.8	2755.1	2228.6	2475.1	2526.2
540	2225.8	2569.1	2082.1	2315.7	2358.3
535	2077.0	2394.9	1943.4	2165.1	2199.8
530	1936.7	2231.1	1812.2	2022.6	2050.1
525	1804.3	2076.9	1688.1	1887.8	1908.7
520	1679.2	1931.6	1570.7	1760.2	1775.1
515	1561.2	1794.6	1459.8	1639.4	1648.9
510	1449.7	1665.5	1354.9	1525.1	1529.8
505	1344.5	1543.9	1255.9	1417.0	1417.5
500	1245.3	1429.3	1162.5	1314.9	1311.6
495	1151.9	1321.4	1074.4	1218.4	1211.8
490	1063.8	1219.9	991.49	1127.4	1118.0
485	981.00	1124.5	913.47	1041.6	1029.7
480	903.15	1035.0	840.15	960.73	946.88
475	830.05	950.90	771.34	884.67	869.17
470	761.50	872.12	706.84	813.20	796.36
465	697.30	798.38	646.46	746.11	728.26
460	637.25	729.44	590.04	683.24	664.64
455	581.17	665.10	537.39	624.39	605.31
450	528.88	605.12	488.35	569.41	550.06
445	480.21	549.31	442.74	518.11	498.71
440	434.98	497.47	400.42	470.35	451.06
435	393.04	449.41	361.22	425.95	406.95
430	354.22	404.94	324.99	384.77	366.18
425	318.37	363.88	291.57	346.65	328.60
420	285.34	326.05	260.84	311.44	294.03
415	254.98	291.28	232.63	279.00	262.31
410	227.13	259.41	206.81	249.18	233.27
405	201.67	230.27	183.25	221.84	206.77
400	178.46	203.71	161.80	196.84	182.65
395	157.35	179.56	142.35	174.06	160.76
390	138.22	157.67	124.75	153.35	140.96
385	120.95	137.91	108.89	134.60	123.11
380	105.39	120.13	94.654	117.66	107.08
375	91.445	104.18	81.915	102.43	92.727
370	78.984	89.940	70.564	88.778	79.934
365	67.898	77.274	60.493	76.592	68.577
360	58.078	66.058	51.596	65.761	58.537
355	49.418	56.172	43.773	56.175	49.704
350	41.819	47.500	36.929	47.732	41.969

TABLE 8 continued
 VAPOUR PRESSURE of C_8 ALKENES-II continued

Units: kPa v. K

No.	20	21	22	23	24
continued					
T K	p kPa				
345	35.184	39.932	30.972	40.332	35.232
340	29.422	33.363	25.816	33.879	29.394
335	24.446	27.695	21.378	28.282	24.365
330	20.175	22.833	17.581	23.457	20.059
325	16.532	18.690	14.355	19.322	16.395
320	13.445	15.182	11.632	15.801	13.299
315	10.849	12.234	9.3496	12.824	10.701
310	8.6808	9.7756	7.4516	10.324	8.5376
305	6.8849	7.7415	5.8858	8.2414	6.7508
300	5.4096	6.0728	4.6052	6.5199	5.2875
295	4.2087	4.7164	3.5672	5.1093	4.1000
290	3.2402	3.6242	2.7340	3.9639	3.1454
285	2.4670	2.7538	2.0719	3.0427	2.3859
280	1.8563	2.0677	1.5515	2.3094	1.7882
275	1.3794	1.5329	1.1472	1.7320	1.3232
270	1.0115	1.1213	8.37E-1	1.2825	9.66E-1
265	7.31E-1	8.09E-1	6.02E-1	9.37E-1	6.95E-1
260	5.21E-1	5.74E-1	4.26E-1	6.75E-1	4.92E-1
255	3.65E-1	4.01E-1	2.97E-1	4.79E-1	3.43E-1
250	2.51E-1	2.76E-1	2.03E-1	3.34E-1	2.35E-1
245	1.70E-1	1.86E-1	1.37E-1	2.29E-1	1.58E-1
240	1.13E-1	1.23E-1	9.02E-2	1.54E-1	1.04E-1
235	7.33E-2	7.94E-2	5.82E-2	1.02E-1	6.71E-2
230	4.66E-2	5.03E-2	3.67E-2	6.57E-2	4.23E-2
225	2.89E-2	3.10E-2	2.26E-2	4.15E-2	2.60E-2
220	1.74E-2	1.87E-2	1.36E-2	2.56E-2	1.56E-2
215	1.03E-2	1.09E-2	7.91E-3	1.53E-2	9.04E-3
210	5.85E-3	6.19E-3	4.48E-3	8.94E-3	5.10E-3
205	3.23E-3	3.40E-3	2.45E-3	5.06E-3	2.78E-3
200	1.72E-3	1.80E-3	1.30E-3	2.77E-3	1.46E-3
195	8.84E-4	9.19E-4	6.60E-4	1.46E-3	7.39E-4
190	4.36E-4	4.50E-4	3.22E-4	7.43E-4	3.58E-4
185	2.05E-4	2.11E-4	1.50E-4	3.62E-4	1.66E-4
180	9.21E-5	9.38E-5	6.69E-5	1.68E-4	7.29E-5
175	3.92E-5	3.96E-5	2.82E-5		3.04E-5
170	1.57E-5	1.58E-5	1.12E-5		1.19E-5
165	5.94E-6	5.90E-6	4.18E-6		
160	2.09E-6	2.05E-6	1.45E-6		
155	6.79E-7	6.61E-7	4.67E-7		
150	2.03E-7	1.96E-7	1.38E-7		
145	5.53E-8	5.26E-8	3.70E-8		
140	1.35E-8	1.27E-8	8.96E-9		
T_f (K)	136	—	—	180	167