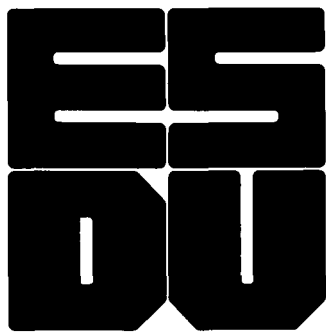




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Vapour pressure and critical points of liquids

Part 3B: additional alkyl- and alkenylbenzenes

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VAPOUR PRESSURES AND CRITICAL POINTS OF LIQUIDS

PART 3B: ADDITIONAL ALKYL AND ALKENYLBENZENES

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VAPOUR PRESSURES AND CRITICAL POINTS OF LIQUIDS
PART 3B: ADDITIONAL ALKYL AND ALKENYLBENZENES

1. INTRODUCTION

This Data Item presents saturated vapour pressures of the alkyl and alkenylbenzenes 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 to be used in Equation (1). 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 9 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 9(C) present the vapour pressures, in atm or mmHg, at intervals of 5 degrees C and Tables 5(F) to 9(F) give the values, in psia, at intervals of 10 degrees F. In Tables 5(C) to 9(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
C₁₁ ALKYL BENZENES		
1 C ₁₁ H ₁₆	Pentylbenzene	n-Pentylbenzene
2	2,4,5-Trimethyl-1-ethylbenzene	5-Ethylpseudocumene
3	1,3,4-Trimethyl-2-ethylbenzene	3-Ethylpseudocumene
4	1,3,5-Trimethyl-2-ethylbenzene	Ethylmesitylene
5	Pentamethylbenzene	
C₁₂ ALKYL BENZENES		
6 C ₁₂ H ₁₈	Hexylbenzene	n-Hexylbenzene
7	1,2-Diisopropylbenzene	
8	1,3-Diisopropylbenzene	
9	1,4-Diisopropylbenzene	
10	Hexamethylbenzene	Mellitene
C₁₃ to C₁₅ ALKYL BENZENES		
11 C ₁₃ H ₂₀	Heptylbenzene	n-Heptylbenzene
12 C ₁₄ H ₂₂	Octylbenzene	n-Octylbenzene
13 C ₁₅ H ₂₄	Nonylbenzene	n-Nonylbenzene
C₁₆ to C₂₁ ALKYL BENZENES		
14 C ₁₆ H ₂₆	Decylbenzene	n-Decylbenzene
15	Dipentylbenzene	
16 C ₁₇ H ₂₈	Undecylbenzene	n-Undecylbenzene
17 C ₁₈ H ₃₀	Dodecylbenzene	n-Dodecylbenzene
18 C ₂₁ H ₃₆	Triptylbenzene	
C₈ and C₉ ALKENYL BENZENES		
19 C ₈ H ₈	Styrene	Vinylbenzene
20 C ₉ H ₁₀	2-Methylstyrene	2-Vinyltoluene
21	3-Methylstyrene	3-Vinyltoluene
22	4-Methylstyrene	4-Vinyltoluene
C₁₀ ALKENYL BENZENES		
23 C ₁₀ H ₁₂	2-Ethylstyrene	
24	3-Ethylstyrene	
25	4-Ethylstyrene	
C₁₁ ALKENYL BENZENES		
26 C ₁₁ H ₁₄	4-Isopropylstyrene	
27	2,4,5-Trimethylstyrene	
28	2,4,6-Trimethylstyrene	
C₁₂ ALKENYL BENZENES		
29 C ₁₂ H ₁₆	4-Isopropyl-1-isopropenylbenzene	

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 ₁₁ ALKYL BENZENES							
1	Pentylbenzene	5	6, 7	5(C)	16,17	5(F)	26,27
2	2,4,5-Trimethyl-1-ethylbenzene	5	6, 7	5(C)	16,17	5(F)	26,27
3	1,3,4-Trimethyl-2-ethylbenzene	5	6, 7	5(C)	16,17	5(F)	26,27
4	1,3,5-Trimethyl-2-ethylbenzene	5	6, 7	5(C)	16,17	5(F)	26,27
5	Pentamethylbenzene	5	6, 7	5(C)	16,17	5(F)	26,27
C ₁₂ ALKYL BENZENES							
6	Hexylbenzene	6	8, 9	6(C)	18,19	6(F)	28,29
7	1,2-Diisopropylbenzene	6	8, 9	6(C)	18,19	6(F)	28,29
8	1,3-Diisopropylbenzene	6	8, 9	6(C)	18,19	6(F)	28,29
9	1,4-Diisopropylbenzene	6	8, 9	6(C)	18,19	6(F)	28,29
10	Hexamethylbenzene	6	8, 9	6(C)	18,19	6(F)	28,29
C ₁₃ to C ₁₅ ALKYL BENZENES							
11	Heptylbenzene	6	8, 9	6(C)	18,19	6(F)	28,29
12	Octylbenzene	6	8, 9	6(C)	18,19	6(F)	28,29
13	Nonylbenzene	6	8, 9	6(C)	18,19	6(F)	28,29
C ₁₆ to C ₂₁ ALKYL BENZENES							
14	Decylbenzene	7	10,11	7(C)	20,21	7(F)	30,31
15	Dipentylbenzene	7	10,11	7(C)	20,21	7(F)	30,31
16	Undecylbenzene	7	10,11	7(C)	20,21	7(F)	30,31
17	Dodecylbenzene	7	10,11	7(C)	20,21	7(F)	30,31
18	Tripentylbenzene	7	10,11	7(C)	20,21	7(F)	30,31
C ₈ and C ₉ ALKENYL BENZENES							
19	Styrene	8	12,13	8(C)	22,23	8(F)	32,33
20	2-Methylstyrene	8	12,13	8(C)	22,23	8(F)	32,33
21	3-Methylstyrene	8	12,13	8(C)	22,23	8(F)	32,33
22	4-Methylstyrene	8	12,13	8(C)	22,23	8(F)	32,33
C ₁₀ ALKENYL BENZENES							
23	2-Ethylstyrene	9	14,15	9(C)	24,25	9(F)	34,35
24	3-Ethylstyrene	9	14,15	9(C)	24,25	9(F)	34,35
25	4-Ethylstyrene	9	14,15	9(C)	24,25	9(F)	34,35
C ₁₁ ALKENYL BENZENES							
26	4-Isopropylstyrene	9	14,15	9(C)	24,25	9(F)	34,35
27	2,4,5-Trimethylstyrene	9	14,15	9(C)	24,25	9(F)	34,35
28	2,4,6-Trimethylstyrene	9	14,15	9(C)	24,25	9(F)	34,35
C ₁₂ ALKENYL BENZENES							
29	4-Isopropyl-1-isopropenylbenzene	9	14,15	9(C)	24,25	9(F)	34,35

TABLE 3
CONSTANTS in EQUATION (1)

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

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

where T is in kelvins and $q = 1 - T/T_c$, give p in kilopascals.

Name	T_c K	p_c kPa	b_1	b_2	b_3	b_4
C₁₁ ALKYL BENZENES						
Pentylbenzene	679.15	2517	-8.11496	1.55346	-4.49586	-2.63476
2,4,5-Trimethyl-1-ethylbenzene	686.15	2700	-8.33833	1.60891	-4.93735	-2.67608
1,3,4-Trimethyl-2-ethylbenzene	687.15	2800	-8.28721	1.59717	-4.83476	-2.66919
1,3,5-Trimethyl-2-ethylbenzene	685.15	2650	-8.24654	1.58086	-4.75159	-2.67091
Pentamethylbenzene	720.15	2750	-8.19553	1.56534	-4.65722	-2.65049
C₁₂ ALKYL BENZENES						
Hexylbenzene	697.15	2297	-8.32544	1.60157	-4.91377	-2.67231
1,2-Diisopropylbenzene	673.15	2500	-8.23530	1.57997	-4.73449	-2.65756
1,3-Diisopropylbenzene	669.15	2410	-8.27738	1.59130	-4.81712	-2.66585
1,4-Diisopropylbenzene	679.15	2350	-8.21509	1.58005	-4.69520	-2.64890
Hexamethylbenzene	758.15	2625	-8.36479	1.61145	-4.99254	-2.67762
C₁₃ to C₁₅ ALKYL BENZENES						
Heptylbenzene	714.15	2114	-8.55142	1.66090	-5.37148	-2.69128
Octylbenzene	729.15	1950	-8.77711	1.72781	-5.84348	-2.68024
Nonylbenzene	744.15	1838	-9.00883	1.80058	-6.33103	-2.65735
C₁₆ to C₂₁ ALKYL BENZENES						
Decylbenzene	756.15	1715	-9.25130	1.88576	-6.85368	-2.60809
Dipentylbenzene	711.15	1700	-9.17604	1.85835	-6.69188	-2.62249
Undecylbenzene	769.15	1648	-9.49158	1.97744	-7.38672	-2.52601
Dodecylbenzene	780.15	1572	-9.75847	2.08465	-7.98914	-2.41222
Triphenylbenzene	733.15	1300	-10.38140	2.37643	-9.43501	-2.04977
C₈ and C₉ ALKENYL BENZENES						
Styrene	635.15	3869	-7.48495	1.44427	-3.30966	-2.38206
2-Methylstyrene	659.15	3580	-7.75073	1.48293	-3.79745	-2.51730
3-Methylstyrene	655.15	3450	-7.81096	1.49210	-3.91162	-2.54017
4-Methylstyrene	656.15	3350	-7.78584	1.49090	-3.86865	-2.51928
C₁₀ ALKENYL BENZENES						
2-Ethylstyrene	670.15	3025	-7.92348	1.51868	-4.12812	-2.57181
3-Ethylstyrene	672.15	3030	-7.97981	1.52163	-4.23235	-2.60351
4-Ethylstyrene	674.15	3000	-7.98900	1.51951	-4.25127	-2.60601
C₁₁ ALKENYL BENZENES						
4-Isopropylstyrene	684.15	2700	-8.10789	1.54861	-4.47639	-2.64707
2,4,5-Trimethylstyrene	695.15	2700	-8.31406	1.59973	-4.89313	-2.66607
2,4,6-Trimethylstyrene	687.15	2750	-8.18883	1.57064	-4.64552	-2.64082
C₁₂ ALKENYL BENZENES						
4-Isopropyl-1-isopropenylbenzene	702.15	2450	-8.17225	1.55791	-4.60766	-2.65466

TABLE 4

NORMAL BOILING POINTS and ACENTRIC FACTORS

Name	Normal Boiling Point						Acentric Factor
	p= 101.325 kPa		760 mmHg		14.69595 psia		
	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 ₁₁ ALKYL BENZENES							
Pentylbenzene	478.64	0.4191	205.49	0.05587	401.88	5.201	0.429
2,4,5-Trimethyl-1-ethylbenzene	484.69	0.4115	211.54	0.05486	412.78	5.107	0.472
1,3,4-Trimethyl-2-ethylbenzene	482.95	0.4102	209.80	0.05469	409.64	5.091	0.462
1,3,5-Trimethyl-2-ethylbenzene	483.15	0.4147	210.00	0.05529	410.01	5.147	0.455
Pentamethylbenzene	505.26	0.4338	232.11	0.05783	449.79	5.383	0.445
C ₁₂ ALKYL BENZENES							
Hexylbenzene	499.24	0.4328	226.09	0.05770	438.96	5.371	0.470
1,2-Diisopropylbenzene	476.90	0.4128	203.75	0.05503	398.75	5.123	0.452
1,3-Diisopropylbenzene	476.33	0.4125	203.18	0.05499	397.72	5.119	0.460
1,4-Diisopropylbenzene	483.37	0.4226	210.22	0.05634	410.40	5.245	0.448
Hexamethylbenzene	537.42	0.4565	264.27	0.06086	507.69	5.666	0.477
C ₁₃ to C ₁₅ ALKYL BENZENES							
Heptylbenzene	519.15	0.4450	246.00	0.05933	474.80	5.523	0.514
Octylbenzene	537.57	0.4559	264.42	0.06079	507.96	5.659	0.557
Nonylbenzene	555.15	0.4648	282.00	0.06197	539.60	5.768	0.600
C ₁₆ to C ₂₁ ALKYL BENZENES							
Decylbenzene	571.11	0.4726	297.96	0.06301	568.33	5.866	0.646
Dipentylbenzene	536.47	0.4472	263.32	0.05962	505.98	5.550	0.632
Undecylbenzene	586.36	0.4784	313.21	0.06378	595.78	5.937	0.690
Dodecylbenzene	600.77	0.4829	327.62	0.06439	621.72	5.994	0.739
Triphenylbenzene	580.54	0.4570	307.39	0.06092	585.29	5.671	0.849
C ₈ and C ₉ ALKENYL BENZENES							
Styrene	418.53	0.3727	145.38	0.04969	293.68	4.625	0.302
2-Methylstyrene	443.26	0.3864	170.11	0.05152	338.19	4.795	0.356
3-Methylstyrene	443.27	0.3855	170.12	0.05140	338.22	4.785	0.368
4-Methylstyrene	444.56	0.3892	171.41	0.05189	340.54	4.830	0.363
C ₁₀ ALKENYL BENZENES							
2-Ethylstyrene	460.98	0.4026	187.83	0.05368	370.09	4.997	0.390
3-Ethylstyrene	463.48	0.4021	190.33	0.05361	374.60	4.991	0.402
4-Ethylstyrene	465.49	0.4039	192.34	0.05384	378.22	5.012	0.404
C ₁₁ ALKENYL BENZENES							
4-Isopropylstyrene	479.08	0.4161	205.93	0.05547	402.67	5.164	0.427
2,4,5-Trimethylstyrene	490.65	0.4174	217.50	0.05565	423.49	5.180	0.468
2,4,6-Trimethylstyrene	481.91	0.4142	208.76	0.05522	407.78	5.140	0.443
C ₁₂ ALKENYL BENZENES							
4-Isopropyl-1-isopropenylbenzene	497.22	0.4340	224.07	0.05786	435.32	5.386	0.441

TABLE 5
VAPOUR PRESSURE of C₁₁ ALKYL BENZENES

Units: kPa v. K

1 2 3 4 5	C ₁₁ H ₁₆	Pentylbenzene	2,4,5-Trimethyl-1-ethylbenzene	1,3,4-Trimethyl-2-ethylbenzene	1,3,5-Trimethyl-2-ethylbenzene	n-Pentylbenzene	5-Ethylpseudocumene	3-Ethylpseudocumene	Ethylmesitylene
No.		1	2	3	4	5			
T (K)		679.15	686.15	687.15	685.15	720.15			
P _C (kPa)		2517	2700	2800	2650	2750			
T K				P kPa					
695						2065.6			
690						1948.6			
685			2662.8	2728.9	2645.2	1837.2			
680			2507.3	2570.7	2492.1	1731.0			
675	2396.3	2360.5	2421.2	2347.7	1629.7				
670	2258.5	2221.4	2279.3	2210.8	1533.2				
665	2127.9	2089.4	2144.6	2080.8	1441.4				
660	2003.9	1964.1	2016.7	1957.4	1353.9				
655	1886.0	1845.1	1895.1	1840.1	1270.6				
650	1773.9	1732.0	1779.6	1728.6	1191.3				
645	1667.4	1624.6	1669.8	1622.6	1116.0				
640	1566.1	1522.7	1565.5	1521.9	1044.4				
635	1469.7	1425.8	1466.5	1426.2	976.35				
630	1378.1	1334.0	1372.5	1335.4	911.79				
625	1291.1	1246.8	1283.2	1249.2	850.56				
620	1208.5	1164.2	1198.6	1167.3	792.53				
615	1130.0	1085.9	1118.3	1089.7	737.59				
610	1055.5	1011.7	1042.3	1016.2	685.60				
605	984.93	941.54	970.38	946.55	636.46				
600	918.02	875.18	902.32	880.65	590.05				
595	854.66	812.49	837.99	818.33	546.27				
590	794.70	753.30	777.24	759.45	505.02				
585	738.01	697.49	719.92	703.87	466.20				
580	684.47	644.90	665.90	651.46	429.69				
575	633.94	595.41	615.04	602.09	395.42				
570	586.31	548.88	567.20	555.63	363.27				
565	541.45	505.18	522.27	511.97	333.17				
560	499.26	464.21	480.11	470.97	305.03				
555	459.62	425.83	440.61	432.54	278.75				
550	422.43	389.93	403.65	396.56	254.25				
545	387.58	356.41	369.11	362.91	231.45				
540	354.97	325.15	336.89	331.50	210.26				
535	324.50	296.04	306.89	302.22	190.61				
530	296.08	268.99	278.98	274.98	172.41				
525	269.60	243.88	253.08	249.66	155.60				
520	244.99	220.63	229.07	226.19	140.10				
515	222.14	199.14	206.87	204.46	125.83				
510	200.97	179.32	186.38	184.39	112.73				
505	181.40	161.06	167.51	165.89	100.73				
500	163.34	144.30	150.16	148.86	89.764				
495	146.70	128.93	134.26	133.24	79.765				
490	131.42	114.88	119.71	118.93	70.671				
485	117.42	102.07	106.43	105.85	62.424				
480	104.61	90.414	94.339	93.942	54.965				
475	92.924	79.840	83.366	83.116	48.239				
470	82.294	70.274	73.433	73.305	42.192				
465	72.651	61.647	64.468	64.440	36.772				
460	63.927	53.889	56.401	56.452	31.931				
455	56.059	46.937	49.165	49.279	27.621				
450	48.985	40.726	42.697	42.857	23.798				

TABLE 5 continued
 VAPOUR PRESSURE of C₁₁ ALKYL BENZENES continued

Units: kPa v. K					
No.	1	2	3	4	5
continued					
T K	p kPa				
445	42.645	35.198	36.935	37.129	20.420
440	36.982	30.296	31.820	32.037	17.445
435	31.944	25.965	27.298	27.528	14.838
430	27.476	22.154	23.315	23.550	12.561
425	23.530	18.815	19.822	20.056	10.582
420	20.060	15.902	16.771	16.999	8.8702
415	17.021	13.372	14.119	14.337	7.3960
410	14.371	11.186	11.825	12.030	6.1329
405	12.071	9.3053	9.8490	10.040	5.0565
400	10.084	7.6968	8.1570	8.3320	4.1441
395	8.3778	6.3283	6.7156	6.8742	3.3752
390	6.9191	5.1706	5.4947	5.6368	2.7311
385	5.6794	4.1972	4.4667	4.5926	2.1949
380	4.6320	3.3837	3.6065	3.7168	1.7514
375	3.7524	2.7085	2.8913	2.9870	1.3872
370	3.0185	2.1518	2.3008	2.3830	1.0902
365	2.4104	1.6961	1.8167	1.8866	8.50E-1
360	1.9099	1.3260	1.4228	1.4816	6.57E-1
355	1.5012	1.0278	1.1048	1.1537	5.03E-1
350	1.1700	7.89E-1	8.50E-1	8.91E-1	3.82E-1
345	9.04E-1	6.01E-1	6.48E-1	6.81E-1	2.87E-1
340	6.92E-1	4.52E-1	4.89E-1	5.16E-1	2.13E-1
335	5.24E-1	3.37E-1	3.66E-1	3.87E-1	1.57E-1
330	3.93E-1	2.49E-1	2.70E-1	2.87E-1	1.14E-1
325	2.92E-1	1.81E-1	1.97E-1	2.10E-1	
320	2.14E-1	1.31E-1	1.43E-1	1.52E-1	
315	1.55E-1	9.28E-2	1.02E-1	1.09E-1	
310	1.11E-1	6.51E-2	7.14E-2	7.69E-2	
305	7.83E-2	4.50E-2	4.95E-2	5.36E-2	
300	5.45E-2	3.06E-2	3.38E-2	3.68E-2	
295	3.74E-2	2.05E-2	2.28E-2	2.48E-2	
290	2.52E-2	1.35E-2	1.50E-2	1.65E-2	
285	1.67E-2	8.77E-3	9.78E-3	1.08E-2	
280	1.09E-2	5.57E-3	6.24E-3	6.91E-3	
275	6.99E-3	3.47E-3	3.90E-3	4.35E-3	
270	4.39E-3	2.12E-3	2.39E-3	2.68E-3	
265	2.70E-3	1.26E-3	1.43E-3	1.61E-3	
260	1.62E-3	7.36E-4	8.38E-4	9.49E-4	
255	9.51E-4		4.78E-4		
250	5.44E-4		2.65E-4		
245	3.03E-4		1.43E-4		
240	1.64E-4		7.51E-5		
235	8.59E-5		3.81E-5		
230	4.36E-5		1.86E-5		
225	2.14E-5		8.80E-6		
220	1.01E-5		3.99E-6		
215	4.57E-6		1.73E-6		
210	1.98E-6		7.20E-7		
205	8.19E-7		2.84E-7		
200	3.22E-7		1.06E-7		
T _f (K)	198	259	—	257	328

TABLE 6
VAPOUR PRESSURE of C_{12} to C_{15} ALKYL BENZENES
Units: kPa v. K

No. T_c (K) P_c (kPa)	6 $C_{12}H_{18}$		7 $C_{13}H_{20}$		8 $C_{14}H_{22}$		9 $C_{15}H_{24}$		10		11		12		13	
	Hexylbenzene 1,2-Diisopropylbenzene 1,3-Diisopropylbenzene 1,4-Diisopropylbenzene Hexamethylbenzene		Heptylbenzene Octylbenzene Nonylbenzene		n-Hexylbenzene Mellitene		n-Heptylbenzene n-Octylbenzene n-Nonylbenzene									
T K																
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TABLE 6 continued
 VAPOUR PRESSURE of C₁₂ to C₁₅ ALKYL BENZENES continued
 Units: kPa v. K

No.	6	7	8	9	10	11	12	13
continued								
T K	P kPa							
470	49.435	85.659	86.875	73.349	18.145	29.546	17.968	10.885
465	43.242	75.560	76.653	64.627	15.580	25.593	15.413	9.2405
460	37.690	66.430	67.410	56.751	13.322	22.082	13.166	7.8090
455	32.728	58.201	59.076	49.661	11.342	18.975	11.197	6.5682
450	28.309	50.809	51.587	43.300	9.6138	16.237	9.4788	5.4974
445	24.388	44.190	44.880	37.610	8.1110	13.833	7.9864	4.5776
440	20.922	38.283	38.892	32.540	6.8103	11.731	6.6959	3.7915
435	17.870	33.032	33.567	28.038		9.9009	5.5851	3.1231
430	15.194	28.380	28.848	24.056		8.3151	4.6336	2.5577
425	12.857	24.276	24.684	20.547		6.9474	3.8229	2.0821
420	10.826	20.670	21.024	17.470		5.7734	3.1358	1.6844
415	9.0688	17.515	17.821	14.781		4.7710	2.5566	1.3538
410	7.5560	14.768	15.030	12.443		3.9196	2.0714	1.0808
405	6.2603	12.387	12.610	10.420		3.2005	1.6672	8.57E-1
400	5.1565	10.333	10.523	8.6776		2.5968	1.3327	6.74E-1
395	4.2213	8.5706	8.7307	7.1853		2.0930	1.0577	5.26E-1
390	3.4337	7.0666	7.2008	5.9140		1.6752	8.33E-1	4.08E-1
385	2.7745	5.7904	5.9022	4.8372		1.3312	6.51E-1	3.13E-1
380	2.2261	4.7138	4.8063	3.9305		1.0498	5.05E-1	2.38E-1
375	1.7732	3.8113	3.8873	3.1719		8.21E-1	3.88E-1	1.80E-1
370	1.4016	3.0597	3.1216	2.5414		6.37E-1	2.96E-1	1.34E-1
365	1.0991	2.4381	2.4881	2.0209		4.90E-1	2.23E-1	9.94E-2
360	8.55E-1	1.9275	1.9677	1.5944		3.74E-1	1.67E-1	7.28E-2
355	6.59E-1	1.5115	1.5434	1.2475		2.82E-1	1.23E-1	5.27E-2
350	5.03E-1	1.1750	1.2002	9.68E-1		2.11E-1	9.03E-2	3.77E-2
345	3.81E-1	9.05E-1	9.25E-1	7.44E-1		1.56E-1	6.53E-2	2.67E-2
340	2.85E-1	6.91E-1	7.06E-1	5.66E-1		1.14E-1	4.67E-2	1.86E-2
335	2.11E-1	5.22E-1	5.34E-1	4.27E-1		8.25E-2	3.30E-2	1.28E-2
330	1.55E-1	3.90E-1	3.99E-1	3.18E-1		5.90E-2	2.30E-2	8.71E-3
325	1.12E-1	2.89E-1	2.95E-1	2.35E-1		4.16E-2	1.58E-2	5.83E-3
320	8.00E-2	2.11E-1	2.16E-1	1.71E-1		2.90E-2	1.07E-2	3.85E-3
315	5.65E-2	1.52E-1	1.56E-1	1.23E-1		1.99E-2	7.16E-3	2.49E-3
310	3.93E-2	1.09E-1	1.11E-1	8.76E-2		1.34E-2	4.71E-3	1.59E-3
305	2.70E-2	7.64E-2	7.82E-2	6.14E-2		8.94E-3	3.04E-3	9.96E-4
300	1.82E-2	5.29E-2	5.42E-2	4.25E-2		5.86E-3	1.93E-3	6.12E-4
295	1.21E-2	3.61E-2	3.70E-2	2.89E-2		3.77E-3	1.20E-3	3.69E-4
290	7.92E-3	2.43E-2	2.49E-2	1.94E-2		2.38E-3	7.34E-4	2.17E-4
285	5.08E-3	1.60E-2	1.64E-2	1.27E-2		1.47E-3	4.39E-4	1.25E-4
280	3.20E-3	1.04E-2	1.07E-2	8.24E-3		8.94E-4	2.57E-4	7.06E-5
275	1.97E-3	6.63E-3	6.79E-3	5.23E-3		5.31E-4	1.47E-4	3.88E-5
270	1.19E-3	4.14E-3	4.24E-3	3.25E-3		3.08E-4	8.19E-5	2.07E-5
265	7.04E-4	2.53E-3	2.59E-3	1.98E-3		1.74E-4	4.45E-5	1.08E-5
260	4.06E-4	1.51E-3	1.54E-3	1.18E-3		9.61E-5	2.35E-5	5.44E-6
255	2.28E-4	8.79E-4	9.00E-4			5.15E-5	1.20E-5	2.66E-6
250	1.24E-4	4.99E-4	5.11E-4			2.68E-5	5.97E-6	1.26E-6
245	6.60E-5	2.76E-4	2.82E-4			1.35E-5	2.87E-6	
240	3.40E-5	1.48E-4	1.51E-4			6.60E-6	1.33E-6	
235	1.69E-5	7.69E-5	7.88E-5			3.11E-6		
230	8.11E-6	3.87E-5	3.96E-5			1.41E-6		
225	3.75E-6	1.88E-5	1.92E-5			6.12E-7		
220	1.66E-6	8.77E-6	8.96E-6					
215	7.06E-7		4.01E-6					
210			1.72E-6					
T _f (K)	212	216	210	256	439	225	237	249

TABLE 7
VAPOUR PRESSURE of C₁₆ to C₂₁ ALKYL BENZENES
Units: kPa v. K

14	C ₁₆ H ₂₆	Decylbenzene	n-Decylbenzene		
15		Dipentylbenzene			
16	C ₁₇ H ₂₈	Undecylbenzene	n-Undecylbenzene		
17	C ₁₈ H ₃₀	Dodecylbenzene	n-Dodecylbenzene		
18	C ₂₁ H ₃₆	Triphenylbenzene			
No.					
T _C (K)	14	15	16	17	18
P _C (kPa)	756.15	711.15	769.15	780.15	733.15
	1715	1700	1648	1572	1300
T			P		
K			kPa		
770				1386.6	
765			1566.5	1303.2	
760			1473.8	1224.3	
755	1691.2		1386.3	1149.7	
750	1591.9		1303.5	1079.0	
745	1498.3		1225.1	1012.1	
740	1409.8		1150.8	948.76	
735	1325.9		1080.3	888.75	
730	1246.4		1013.5	831.93	1243.9
725	1171.0		950.21	778.14	1160.1
720	1099.5		890.20	727.24	1081.7
715	1031.6		833.34	679.08	1008.2
710	967.25	1675.1	779.47	633.54	939.26
705	906.21	1571.6	728.46	590.49	874.49
700	848.33	1474.2	680.18	549.83	813.63
695	793.48	1382.4	634.50	511.44	756.44
690	741.51	1295.6	591.30	475.22	702.69
685	692.31	1213.6	550.48	441.07	652.19
680	645.73	1136.0	511.93	408.91	604.76
675	601.68	1062.6	475.55	378.63	560.22
670	560.04	993.16	441.24	350.15	518.41
665	520.71	927.49	408.92	323.39	479.20
660	483.59	865.39	378.49	298.27	442.44
655	448.57	806.70	349.87	274.72	408.00
650	415.58	751.25	322.97	252.66	375.76
645	384.51	698.89	297.73	232.03	345.61
640	355.29	649.47	274.07	212.74	317.43
635	327.84	602.87	251.90	194.74	291.12
630	302.07	558.95	231.17	177.97	266.59
625	277.92	517.58	211.80	162.36	243.74
620	255.30	478.66	193.73	147.85	222.48
615	234.14	442.07	176.90	134.39	202.73
610	214.38	407.71	161.24	121.92	184.40
605	195.95	375.47	146.69	110.38	167.41
600	178.79	345.26	133.20	99.735	151.70
595	162.83	316.98	120.71	89.921	137.19
590	148.01	290.54	109.16	80.893	123.80
585	134.27	265.85	98.511	72.605	111.48
580	121.56	242.83	88.703	65.013	100.16
575	109.82	221.40	79.689	58.071	89.778
570	98.991	201.47	71.422	51.740	80.278
565	89.029	182.98	63.855	45.977	71.602
560	79.881	165.84	56.946	40.746	63.697
555	71.498	149.99	50.651	36.008	56.511
550	63.832	135.35	44.930	31.729	49.994
545	56.840	121.86	39.743	27.874	44.100
540	50.475	109.46	35.052	24.411	38.783
535	44.698	98.070	30.821	21.309	33.999
530	39.466	87.644	27.017	18.539	29.709
525	34.742	78.118	23.605	16.074	25.872

TABLE 7 continued
VAPOUR PRESSURE of C₁₆ to C₂₁ ALKYL BENZENES continued

Units: kPa v. K

No.	14	15	16	17	18
	continued				
T K	p kPa				
520	30.488	69.435	20.556	13.886	22.451
515	26.668	61.541	17.837	11.952	19.412
510	23.248	54.382	15.423	10.247	16.720
505	20.196	47.907	13.286	8.7504	14.345
500	17.481	42.068	11.400	7.4415	12.257
495	15.075	36.817	9.7432	6.3013	10.429
490	12.949	32.111	8.2923	5.3120	8.8346
485	11.078	27.905	7.0270	4.4575	7.4497
480	9.4382	24.160	5.9281	3.7225	6.2520
475	8.0059	20.837	4.9778	3.0932	5.2211
470	6.7604	17.898	4.1597	2.5571	4.3379
465	5.6819	15.309	3.4586	2.1027	3.5849
460	4.7522	13.038	2.8608	1.7193	2.9462
455	3.9546	11.053	2.3534	1.3978	2.4074
450	3.2736	9.3268	1.9252	1.1296	1.9554
445	2.6950	7.8313	1.5657	9.07E-1	1.5784
440	2.2061	6.5421	1.2657	7.24E-1	1.2658
435	1.7952	5.4360	1.0166	5.74E-1	1.0083
430	1.4519	4.4920	8.11E-1	4.51E-1	7.98E-1
425	1.1667	3.6906	6.43E-1	3.53E-1	6.26E-1
420	9.31E-1	3.0139	5.06E-1	2.73E-1	4.88E-1
415	7.38E-1	2.4459	3.95E-1	2.10E-1	3.77E-1
410	5.81E-1	1.9720	3.06E-1	1.60E-1	2.89E-1
405	4.54E-1	1.5791	2.35E-1	1.21E-1	2.20E-1
400	3.52E-1	1.2555	1.79E-1	9.10E-2	1.66E-1
395	2.70E-1	9.91E-1	1.36E-1	6.76E-2	1.24E-1
390	2.06E-1	7.76E-1	1.02E-1	4.97E-2	9.14E-2
385	1.55E-1	6.03E-1	7.53E-2	3.62E-2	6.68E-2
380	1.16E-1	4.64E-1	5.53E-2	2.61E-2	4.84E-2
375	8.62E-2	3.54E-1	4.02E-2	1.86E-2	3.46E-2
370	6.32E-2	2.68E-1	2.89E-2	1.31E-2	2.45E-2
365	4.59E-2	2.01E-1	2.05E-2	9.10E-3	1.71E-2
360	3.29E-2	1.49E-1	1.44E-2	6.25E-3	1.18E-2
355	2.33E-2	1.09E-1	1.00E-2	4.24E-3	8.04E-3
350	1.63E-2	7.92E-2	6.85E-3	2.83E-3	5.39E-3
345	1.13E-2	5.68E-2	4.62E-3	1.87E-3	3.57E-3
340	7.71E-3	4.02E-2	3.08E-3	1.21E-3	2.32E-3
335	5.18E-3	2.81E-2	2.02E-3	7.73E-4	1.49E-3
330	3.43E-3	1.94E-2	1.30E-3	4.86E-4	9.39E-4
325	2.24E-3	1.32E-2	8.27E-4	3.00E-4	5.81E-4
320	1.44E-3	8.83E-3	5.16E-4	1.81E-4	3.53E-4
315	9.07E-4	5.82E-3	3.16E-4	1.08E-4	2.10E-4
310	5.62E-4	3.78E-3	1.90E-4	6.27E-5	1.23E-4
305	3.41E-4	2.41E-3	1.12E-4	3.57E-5	7.01E-5
300	2.03E-4	1.51E-3	6.43E-5	1.99E-5	3.91E-5
295	1.18E-4	9.24E-4	3.62E-5	1.08E-5	2.13E-5
290	6.75E-5	5.55E-4	1.99E-5	5.73E-6	1.13E-5
285	3.76E-5	3.26E-4	1.07E-5	2.96E-6	5.84E-6
280	2.04E-5	1.88E-4	5.57E-6	1.48E-6	2.93E-6
275	1.08E-5	1.05E-4	2.83E-6		1.43E-6
270	5.53E-6	5.75E-5	1.39E-6		6.74E-7
265	2.76E-6	3.06E-5			3.07E-7
260	1.33E-6	1.58E-5			1.35E-7
255		7.91E-6			5.72E-8
250		3.83E-6			2.33E-8
245		1.79E-6			9.06E-9
240		8.08E-7			3.37E-9
235		3.50E-7			1.19E-9
T _f (K)	259	—	268	276	