Physical Constants of Hydrocarbon and Non-Hydrocarbon Compounds

DS 4B

ASTM

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2nd Edition

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Foreword

This publication updates the 1971 Edition of the ASTM Data Series DS 4A titled *Physical Constants of Hydrocarbons C1 TO C10*. This new edition includes all of Chapter 1 from the American Petroleum Institute's Publication 999, Technical Data Book—Petroleum Refining. This edition is broader in scope, and includes Hydrocarbons C1 to C30 as well as Non-hydrocarbons.

This book has been made available through a joint arrangement between ASTM Committee D-2 on Petroleum Products and Lubricants, and The American Petroleum Institute's Refining Department Technical Data Committee, who worked with the Department of Chemical Engineering of The Pennsylvania State University.

PREFACE

The first major revision of Chapter 1 since 1970 was undertaken during 1985 and 1986. While the previous tables were almost entirely compiled from the work of The Thermodynamics Research Center at Texas A&M University, the new tables were compiled from a variety of sources as discussed in the introduction. Common high molecular weight hydrocarbons and representative nonhydrocarbons were added while excessive numbers of isomers of hydrocarbons were eliminated. With the publication of the metric edition of the *Technical Data Book—Petroleum Refining,* sets of tables in metric units were deleted from this edition. With the concurrent computerization of the *Technical Data Book,* the pure component data are now available in a form for computer retrieval.

A compound index containing synonyms was added to aid in retrieval of information. The constants and conversion factors also were updated to the currently accepted values with complete S.I. unit inclusion and elimination of little used conversion factors.

Major work on this chapter was carried out and directed by Jill Schnitzer, Research Assistant in Chemical Engineering, under the supervision of Dr. Thomas E. Daubert, Principal Investigator. The chapter advisory committee for the Technical Data Committee included Calvin F. Spencer, Chairman, of M. W. Kellogg Company, Carl Sutton of Gas Processors Association, Sheldon J. Kramer of Amoco Oil Company, and Costa Tsonopoulos of Exxon Research and Engineering Company.

Thomas E. Daubert
Ronald P. Danner
Department of Chemical Engineering
The Pennsylvania State University
University Park, PA 16802
June 1987

CHAPTER 1

GENERAL DATA

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Revised Chapter 1 to First (1966), Second (1970),
Third (1977), and Fourth (1982) Editions

CHAPTER 1

GENERAL DATA

1-0 INTRODUCTION

Pure component properties are required for nearly all of the procedures in the API *Technical Data Book*. This chapter provides a compilation of properties for many hydrocarbon plus selected nonhydrocarbon compounds. The compounds and properties chosen for inclusion here are those deemed most useful in petroleum refining and associated industries. Further information on some hydrocarbons and many nonhydrocarbons may be found in the Design Institute for Physical Properties Research (DIPPR) *Data Compilation: Tables of Properties of Pure Compounds* (50). The majority of data for the compounds presented here was taken from the following sources (in order of priority).

1. GPA 2145-86 (82).
2. API Monograph Series (10–21).
3. DIPPR Compilation (50).
4. TRC Tables (181–189, 210).
5. Current API *Technical Data Book—Petroleum Refining* (51).

Unless otherwise indicated, predictions of hydrocarbon data were made using current Data Book procedures. Predictions of nonhydrocarbon data were made using DIPPR Compilation (50) procedures.

In addition to the data tables (Sections 1C1 through 1C4), other information of general importance is presented in this chapter. Section 1A is a list of constants and conversion factors and Section 1B is a list of letter symbols and their definitions. Section 1C is a compilation of property definitions and other pertinent information on the properties in the data tables. Note that codes in the data tables indicate whether data are predicted (P), extrapolated (T), experimental (no code), or if it is unknown whether the source is predicted or experimental (S). Codes such as C, G, K, and N indicate further descriptive information for experimental data. The key to these codes is given after Table 1C4. Section 1C5 is the reference key for the properties in the data tables.

The physical property data contained in Tables 1C1.1 through 1C4.12 also are available in computer readable form on tape or disk. The data are identical except that the number of significant digits may be different.

TABLE 1A1.1

FUNDAMENTAL CONSTANTS*

Basic Constants

Name	Symbol	Value	Units
Velocity of light (vacuum)	c	2.997925×10^{8}	m per sec
Avogadro constant	N_A	6.02214×10^{23}	molecules per g-mole
Planck constant	h	6.6261×10^{-27}	(ergs) (sec) per molecule
Faraday constant	F	96,485.3	coulombs per mole
Absolute temperature of the "ice" point:			
0 C	$T_{0\ C}$	273.15	K
32 F	$T_{32\ F}$	491.67	deg R
Pressure-volume product for 1 mole of a gas at 0 C (32 F) and zero pressure (ideal gas)	$(pV)^{p=0}_{T_{0\ C}}$	2,271.11	joules per g-mole
		22.4141	(liters) (atm) per g-mole
		2.27111×10^{6}	(cu m) (Pa) per kg-mole
		359.039	(cu ft) (atm) per lb-mol
		5,276.42	(cu ft) (psia) per lb-mol

Derived Constants

Name	Symbol	Value	Units
Electronic charge	$e = \frac{F}{N_A}$	1.60218×10^{-19}	coulombs
Gas constant	$R = \frac{(pV)^{p=0}_{T_{0\ C}}}{T_{0\ C}}$	8.3145	joules per (g-mole) (K)
		1.9872	g-cal per (g-mole) (K)
		1.9859	Btu per (lb-mole) (deg R)
		82.058	(cu cm) (atm) per (g-mole) (K)
		1,545.4	ft-lb [force] per (lb-mole) (deg R)
		10.732	(psia) (cu ft) per (lb-mole) (deg R)
		62.364	(mm Hg) (liter) per (g-mole) (K)
		0.084786	(kg per sq cm) (liter) per (g-mole) (K)
		0.73024	(atm) (cu ft) per (lb-mole) (deg R)
		554.99	(mm Hg) (cu ft) per (lb-mole) (deg R)
		8,314.5	(Pa) (cu m) per (kg-mol) (K)
Boltzmann constant	$k = \frac{R}{N_A}$	1.38066×10^{-16}	ergs per (molecule) (K)
Second radiation constant	$C_2 = \frac{hc}{k}$	1.43877	cm-deg C

Defined Constants

Name	Symbol	Value	Units
Standard gravity	g_0	980.665	cm per sec per sec
		32.174	ft per sec per sec
Standard atmosphere	atm	1,013,250	dynes per sq cm
		14.696	psia
		101,325	pascals
Standard millimeter of mercury pressure	mm Hg	$\frac{1}{760}$	atm
Calorie (thermochemical)	cal	4.1840	joules
		4.1840×10^{7}	ergs
Calorie (International Steam Tables)	cal_{IT}; I.T. cal	4.1868	joules
Liter		1,000	cu cm

TABLE 1A1.1 (Continued)

Conversion Factors—Engineering Units Vs. Metric Units

Name	Value	Units
1 in.	= 2.54 cm	Definition: in. = U.S. inch
1 ft	= 30.48 cm	Definiton: U.S. foot (1 ft = 12 in.)
1 lb	= 453.59237 g	Definition: lb = avoirdupois pound
1 gal	= 231 cu in. = 0.133680555 cu ft = 3,785.43449 cu cm = 3.785412 liters	Definition: gal = U.S. gallon
1 I.T. cal	$= \frac{1}{860}$ int watt-hr = 4.18674 joules = 4.18605 int joules = 1.000654 cal	Definition: I.T. = International Steam Tables Definition: cal = thermochemical calorie
1 Btu per lb	$= \frac{1}{1.8}$ I.T. cal per g	Definition: Btu = I.T. British thermal unit
1 Btu	= 251.996 I.T. cal = 1,055.040 joules = 1,054.866 int joules = 0.293018 int watt-hr = 252.161 cal = 0.293067 abs watt-hr	 Definition: cal = thermochemical calorie
1 hp	= 550 ft-lb [force] per sec = 745.701 watts (abs) = 745.578 int watts	
1 erg	= 1 dyne-cm	

Mathematical Constants

$\pi = 3.14159$
e (base of natural logarithms) = 2.71828
natural logarithm (base e), $\log_e 10 = \ln 10 = 2.30258509$

Temperature Conversions

$C = (F - 32)/1.8$
$F = 1.8\ C + 32$
$K = C + 273.15$
$R = F + 459.67$
$R = 1.8\ K$

Where:

C = degrees centigrade
F = degrees Fahrenheit
K = kelvins
R = degrees Rankine

* Values taken from, or derived from, those given in *Natl. Bur. Std. (U.S.), CODATA Bull. No. 63* (1986).

TABLE 1A2.1

LENGTH CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	Inches	Feet	Yards	Miles	Microns	Milli-meters	Centi-meters	Meters	Kilo-meters
Inches	1	0.083333	0.027778	1.5783×10^{-5}	25,400	25.400	2.54	0.0254	2.5400×10^{-5}
Feet	12	1	0.33333	1.8939×10^{-4}	3.0480×10^{5}	304.80	30.480	0.30480	3.0480×10^{-4}
Yards	36	3	1	5.6818×10^{-4}	9.1440×10^{5}	914.40	91.440	0.91440	9.1440×10^{-4}
Miles	63,360	5,280	1,760	1	1.6093×10^{9}	1.6093×10^{6}	1.6093×10^{5}	1.6093×10^{3}	1.6093
Microns	3.9370×10^{-5}	3.2808×10^{-6}	1.0936×10^{-6}	6.2137×10^{-10}	1	10^{-3}	10^{-4}	10^{-6}	10^{-9}
Millimeters	3.9370×10^{-2}	3.2808×10^{-3}	1.0936×10^{-3}	6.2137×10^{-7}	10^{3}	1	0.1	0.001	10^{-6}
Centimeters	0.39370	0.032808	0.010936	6.2137×10^{-6}	10^{4}	10	1	0.01	10^{-5}
Meters	39.370	3.2808	1.0936	6.2137×10^{-4}	10^{6}	1,000	100	1	0.001
Kilometers	3.9370×10^{4}	3.2808×10^{3}	1.0936×10^{3}	0.62137	10^{9}	10^{6}	10^{5}	1,000	1

TABLE 1A2.2

AREA CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	Square Inches	Square Feet	Square Yards	Acres	Square Centimeters	Square Meters
Square Inches	1	6.9444×10^{-3}	7.7160×10^{-4}	1.5942×10^{-7}	6.4516	6.4516×10^{-4}
Square Feet	144	1	0.11111	2.2957×10^{-5}	929.03	9.2903×10^{-2}
Square Yards	1,296	9	1	2.0661×10^{-4}	8,361.3	0.83613
Acres	6.2726×10^{6}	43,560	4,840	1	4.0469×10^{7}	4.0469×10^{3}
Square Centimeters	0.15500	1.0764×10^{-3}	1.1960×10^{-4}	2.4711×10^{-8}-	1	10^{-4}
Square Meters	1,550	10.764	1.1960	2.4711×10^{-4}	10^{4}	1

TABLE 1A2.3

VOLUME CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	Cubic Inches	Cubic Feet	Cubic Yards	Cubic Centimeters	Cubic Meters
Cubic Inches	1	5.7870×10^{-4}	2.1433×10^{-5}	16.387	1.6387×10^{-5}
Cubic Feet	1,728	1	3.7037×10^{-2}	2.8317×10^{4}	2.8317×10^{-2}
Cubic Yards	46,656	27	1	7.6455×10^{5}	0.76455
Cubic Centimeters	6.1023×10^{-2}	3.5315×10^{-5}	1.3080×10^{-6}	1	10^{-6}
Cubic Meters	61,023	35.315	1.3080	10^{6}	1

TABLE 1A2.4

LIQUID VOLUME CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	Fluid Ounces (U.S.)	Quarts (U.S.)	Gallons (U.S.)	Imperial Gallons	Barrels (Oil)	Cubic Inches	Cubic Feet	Liters	Cubic Centi-meters	Cubic Meters
Fluid Ounces (U.S.)	1	0.03125	7.8125×10^{-3}	6.5053×10^{-3}	1.8601×10^{-4}	1.8047	1.0444×10^{-3}	0.029574	29.574	2.9574×10^{-5}
Quarts (U.S.)	32	1	0.25	0.20817	5.9524×10^{-3}	57.75	0.033420	0.94635	946.35	9.4635×10^{-4}
Gallons (U.S.)	128	4	1	0.83267	0.023809	231	0.13368	3.7854	3,785.4	3.7854×10^{-3}
Imperial Gallons	153.72	4.8038	1.20095	1	0.028594	277.42	0.16054	4.5461	4,546.1	4.5461×10^{-3}
Barrels (Oil)	5,376	168	42	34.973	1	9,702	5.6146	158.99	1.5899×10^{5}	0.15899
Cubic Inches	0.55411	0.017316	4.3290×10^{-3}	3.6047×10^{-3}	1.0307×10^{-4}	1	5.7870×10^{4}	0.016387	16.387	1.6387×10^{-5}
Cubic Feet	957.51	29.922	7.4805	6.2289	0.17811	1,728	1	28.317	28,317	0.028317
Liters	33.814	1.0567	0.26417	0.21997	6.2898×10^{-3}	61.024	0.035315	1	1,000	1×10^{-3}
Cubic Centimeters	0.033814	1.0567×10^{-3}	2.6417×10^{-4}	2.1997×10^{-4}	6.2898×10^{-6}	0.061024	3.5315×10^{-5}	0.001	1	1×10^{-6}
Cubic Meters	33,814.	1,056.7	264.17	219.97	6.2898	61,024.	35.315	1,000	1×10^{6}	1

Note: According to ASME Guides SI-1 (22) and SI-4 (23), 1 ml = 1 cu cm.

TABLE 1A2.5

MASS CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	Grains	Ounces (Avoir)*	Pounds (Avoir)*	Ounces (Troy)†	Pounds (Troy)†	Tons (Short)‡	Tons (Long)§	Grams	Kilograms	Metric Tons
Grains	1	2.2857×10^{-3}	1.4286×10^{-4}	2.0833×10^{-3}	1.7361×10^{-4}	7.1428×10^{-8}	6.3776×10^{-8}	0.064799	6.4799×10^{-5}	6.4799×10^{-8}
Ounces (Avoir)*	437.5	1	0.0625	0.91146	0.075955	3.125×10^{-5}	2.7902×10^{-5}	28.350	0.028350	2.8350×10^{-5}
Pounds (Avoir)*	7,000	16	1	14.583	1.2153	5×10^{-4}	4.4643×10^{-4}	453.59	0.45359	4.5359×10^{-4}
Ounces (Troy)†	480	1.0971	0.068571	1	0.083333	3.4285×10^{-5}	3.0612×10^{-5}	31.103	0.031103	3.1103×10^{-5}
Pounds (Troy)†	5,760	13.166	0.82286	12	1	4.1143×10^{-4}	3.6735×10^{-4}	373.24	0.37324	3.7324×10^{-4}
Tons (Short)‡	1.4000×10^{7}	32,000	2,000	29,167	2,430.6	1	0.89286	9.0718×10^{5}	9.0718×10^{2}	0.90718
Tons (Long)§	1.5680×10^{7}	35,840	2,240	32,667	2,722.2	1.1200	1	1.0160×10^{6}	1.0160×10^{3}	1.0160
Grams	15.432	0.035274	2.2046×10^{-3}	0.032151	2.6792×10^{-3}	1.1023×10^{-6}	9.8421×10^{-7}	1	10^{-3}	10^{-6}
Kilograms	1.5432×10^{4}	35.274	2.2046	32.151	2.6792	1.1023×10^{-3}	9.8421×10^{-4}	1,000	1	10^{-3}
Metric Tons	1.5432×10^{7}	3.5274×10^{4}	2.2046×10^{3}	3.2151×10^{4}	2.6792×10^{3}	1.1023	0.98421	10^{6}	1,000	1

* Used for ordinary commodities.
† Used for drugs, jewels, precious metals.
‡ Common in the United States and Canada.
§ Common in England.

TABLE 1A2.6

DENSITY CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	$\frac{g}{cu\ cm}$	$\frac{lb}{cu\ in.}$	$\frac{lb}{cu\ ft}$	$\frac{lb}{gal\ (U.S.)}$	$\frac{kg}{cu\ m}$
$\frac{g}{cu\ cm}$	1	0.036127	62.428	8.3454	1000
$\frac{lb}{cu\ in.}$	27.680	1	1,728	231	27,680
$\frac{lb}{cu\ ft}$	0.016018	5.7870×10^{-4}	1	0.13368	16.018
$\frac{lb}{gal\ (U.S.)}$	0.11983	4.3290×10^{-3}	7.4805	1	119.83
$\frac{kg}{cu\ m}$	0.001	3.6127×10^{-5}	0.062428	0.0083454	1

TABLE 1A2.7

PRESSURE CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	dynes / sq cm	Bars	Atmospheres	kg / sq cm	mm Hg* at 0 C	in. Hg* at 32 F	lb [force] / sq in.	ft H_2O at 39.2 F	Pascals
dyns / sq cm	1	10^{-6}	0.986923 $\times 10^{-6}$	1.01972 $\times 10^{-6}$	7.5006 $\times 10^{-4}$	2.9530 $\times 10^{-5}$	1.4504 $\times 10^{-5}$	3.3457 $\times 10^{-5}$	0.10000
Bars	10^{6}	1	0.986923	1.01972	750.06	29.530	14.504	33.457	1×10^{5}
Atmospheres	1.01325 $\times 10^{6}$	1.01325	1	1.0332	760	29.921	14.696	33.900	1.01325 $\times 10^{5}$
kg / sq cm	980,670	0.98067	0.96784	1	735.56	28.959	14.223	32.809	98,066.5
mm Hg* at 0 C	1,333.2	1.3332 $\times 10^{-3}$	1.31579 $\times 10^{-3}$	1.3595 $\times 10^{-3}$	1	0.03937	0.019337	0.044605	133.32
in. Hg at 32 F	33,864	0.033864	0.033421	0.03453	25.400	1	0.49116	1.1330	3,386.4
lb [force] / sq in.	68.948	0.068948	0.068046	0.070307	51.715	2.0360	1	2.3066	6,894.7
ft H_2O at 39.2 F	29,889	0.029889	0.029499	0.030479	22.419	0.88265	0.43352	1	2,988.98
Pascals	10.000	1×10^{-5}	9.86923 $\times 10^{-6}$	1.01972 $\times 10^{-5}$	7.5006 $\times 10^{-3}$	2.9530 $\times 10^{-4}$	1.4504 $\times 10^{-4}$	3.3456 $\times 10^{-4}$	1

*1 Torr = 1 mm Hg.

TABLE 1A2.8

FLOW CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	gal (U.S.) / min	gal (U.S.) / hr	cu ft / sec	cu ft / min	bbl (42) / hr	bbl (42) / day	liters / sec	cu m / hr
gal (U.S.) / min	1	60	2.2280 $\times 10^{-3}$	0.13368	1.4286	34.286	0.063090	0.22712
gal (U.S.) / hr	0.016667	1	3.7133 $\times 10^{-5}$	2.2280 $\times 10^{-3}$	0.023810	0.57143	1.0515 $\times 10^{-3}$	3.7854 $\times 10^{-3}$
cu ft / sec	448.83	2.6930 $\times 10^{4}$	1	60	641.20	1.5388 $\times 10^{4}$	28.317	101.94
cu ft / min	7.4805	448.83	0.016667	1	10.686	256.47	0.47195	1.6990
bbl (42) / hr	0.70000	42	1.5596 $\times 10^{-3}$	0.093576	1	24	0.044163	0.15899
bbl (42) / day	0.029167	1.7500	6.4984 $\times 10^{-5}$	3.8990 $\times 10^{-3}$	0.041667	1	1.8401 $\times 10^{-3}$	6.6245 $\times 10^{-3}$
liters / sec	15.850	951.02	0.035315	2.1189	22.643	543.44	1	3.6
cu m / hr	4.4029	264.17	0.0098096	0.58858	6.2898	150.96	0.27778	1

TABLE 1A2.9

KINEMATIC VISCOSITY CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	$\frac{\text{sq ft}}{\text{hr}}$	$\frac{\text{sq ft}}{\text{sec}}$	$\frac{\text{sq m}}{\text{hr}}$	$\frac{\text{sq cm}}{\text{sec}}$ (Stokes)	$\frac{\text{sq cm}}{\text{sec}} \times 10^2$ (Centistokes)
$\frac{\text{sq ft}}{\text{hr}}$	1	2.778×10^{-4}	9.290×10^{-2}	0.2581	25.81
$\frac{\text{sq ft}}{\text{sec}}$	3,600	1	3.345×10^{2}	929	9.29×10^{4}
$\frac{\text{sq m}}{\text{hr}}$	10.76	2.990×10^{-3}	1	2.778	277.8
$\frac{\text{sq cm}}{\text{sec}}$ (Stokes)	3.875	1.076×10^{-3}	0.3600	1	100
$\frac{\text{sq cm}}{\text{sec}} \times 10^2$ (Centistokes)	3.875×10^{-2}	1.076×10^{-5}	3.600×10^{-3}	0.0100	1

TABLE 1A2.10

ABSOLUTE VISCOSITY CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	$\frac{\text{lb}}{\text{sec–ft}}$	$\frac{\text{lb}}{\text{hr–ft}}$	$\frac{\text{lb [force]–sec}}{\text{sq ft}}$	$\frac{\text{g}}{\text{sec–cm}} \times 10^2$ (Centipoises)*	$\frac{\text{kg}}{\text{hr–m}}$
$\frac{\text{lb}}{\text{sec–ft}}$	1	3,600	0.03108	1,488	5,357
$\frac{\text{lb}}{\text{hr–ft}}$	2.778×10^{-4}	1	8.634×10^{-6}	0.4134	1.488
$\frac{\text{lb [force]–sec}}{\text{sq ft}}$	32.17	1.158×10^{5}	1	47,880	1.724×10^{5}
$\frac{\text{g}}{\text{sec–cm}} \times 10^2$ (Centipoises)*	6.720×10^{-4}	2.419	2.089×10^{-5}	1	3.600
$\frac{\text{kg}}{\text{hr–m}}$	1.867×10^{-4}	0.6720	5.801×10^{-6}	0.2778	1

* 1 poise = 100 centipoises = $1 \frac{\text{g}}{\text{sec–cm}}$. Kinematic viscosity, in centistokes, times density $\left(\frac{\text{g}}{\text{cu cm}}\right)$ at same temperature equals centipoises.

TABLE 1A2.11

ENERGY CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	Absolute Joules	International Joules	Calories	I.T. Calories	British Thermal Units	Absolute Kilowatt-Hours	Horsepower-Hours	Foot-Pounds [Force]	$\frac{\text{cu ft-lb [force]}}{\text{sq in.}}$	Liter Atmospheres	Centigrade Heat Units
Absolute Joules	1	0.99984	0.23901	0.23885	9.4783×10^{-4}	2.7778×10^{-7}	3.7251×10^{-7}	0.73756	5.1220×10^{-3}	9.8690×10^{-3}	5.2657×10^{-4}
International Joules	1.0002	1	0.23905	0.23889	9.4799×10^{-4}	2.7782×10^{-7}	3.7257×10^{-7}	0.73768	5.1228×10^{-3}	9.8706×10^{-3}	5.2666×10^{-4}
Calories	4.1840	4.1833	1	0.99935	3.9657×10^{-3}	1.1622×10^{-6}	1.5586×10^{-6}	3.0860	2.1430×10^{-2}	4.1292×10^{-2}	2.2032×10^{-3}
I.T. Calories	4.1867	4.1861	1.0007	1	3.9683×10^{-3}	1.1630×10^{-6}	1.5596×10^{-6}	3.0880	2.1444×10^{-2}	4.1319×10^{-2}	2.2046×10^{-3}
British Thermal Units	1,055.0	1,054.9	252.16	252.00	1	2.9307×10^{-4}	3.9301×10^{-4}	778.16	5.4039	10.412	0.55556
Absolute Kilowatt-Hours	3.6000×10^{6}	3.5994×10^{6}	8.6042×10^{5}	8.5986×10^{5}	3,412.2	1	1.3410	2.6552×10^{6}	18,439	35,528	1,895.7
Horsepower-Hours	2.6845×10^{6}	2.6841×10^{6}	6.4162×10^{5}	6.4120×10^{5}	2,544.5	0.74570	1	1.9800×10^{6}	13,750	26,494	1,413.6
Foot-Pounds [Force]	1.3558	1.3556	0.32405	0.32384	1.2851×10^{-3}	3.7662×10^{-7}	5.0505×10^{-7}	1	6.9444×10^{-3}	1.3381×10^{-2}	7.1394×10^{-4}
$\frac{\text{cu ft-lb [force]}}{\text{sq in.}}$	195.24	195.21	46.663	46.633	0.18505	5.4233×10^{-5}	7.2727×10^{-5}	144	1	1.9268	0.10281
Liter Atmospheres	101.33	101.31	24.218	24.202	0.096042	2.8147×10^{-5}	3.7745×10^{-5}	74.735	5.1900	1	5.3356×10^{-2}
Centigrade Heat Units	1,899.1	1,898.8	453.89	453.59	1.8	5.2752×10^{-4}	7.0741×10^{-4}	1,400.7	9.7269	18.742	1

TABLE 1A2.12

POWER CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	Btu/min	Btu/hr	ft-lb/sec	ft-lb/min	Horse-power	Metric Horse-power	Watts (Absolute)	cal/sec	I.T. cal/sec	joules (abs)/sec
Btu/min	1	60.00	12.969	778.16	0.023580	0.023908	17.584	4.2027	4.1999	17.584
Btu/hr	0.016667	1	0.21615	12.969	3.9301×10^{-4}	3.9846×10^{-4}	0.29307	0.070045	0.069999	0.29307
ft-lb/sec	7.7105×10^{-2}	4.6263	1	60.00	1.8182×10^{-3}	1.8434×10^{-3}	1.3558	0.32405	0.32384	1.3558
ft-lb/min	1.2851×10^{-3}	0.77105	0.016667	1	3.0303×10^{-5}	3.0723×10^{-5}	0.022597	5.4008×10^{-3}	5.3973×10^{-3}	0.022597
Horsepower	42.408	2,544.5	550.00	33,000	1	1.0139	745.70	178.23	178.11	745.70
Metric Horsepower	41.828	2,509.7	542.48	32,549	0.98632	1	735.50	175.79	175.67	735.50
Watts (Absolute)	0.056869	3.4122	0.73756	44.254	1.3410×10^{-3}	1.3596×10^{-3}	1	0.23901	0.23885	1
cal/sec	0.23794	14.277	3.0860	185.16	5.6108×10^{-3}	5.6886×10^{-3}	4.1840	1	0.99935	4.1840
IT. cal/sec	0.23810	14.286	3.0880	185.28	5.6145×10^{-3}	5.6924×10^{-3}	4.1867	1.0007	1	4.1867
joules (abs)/sec	0.056869	3.4122	0.73756	44.254	1.3410×10^{-3}	1.3596×10^{-3}	1	0.23901	0.23885	1

Notes:
One boiler horsepower = 33,471.9 Btu per hr.
One standard commercial ton of refrigeration = 288,000 Btu per day.

TABLE 1A2.13

SPECIFIC ENERGY CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	joules (abs)/g	joules (int)/g	cal/g	I.T. cal/g	Btu/lb
joules (abs)/g	1	0.99984	0.23901	0.23885	0.42993
joules (int)/g	1.0002	1	0.23905	0.23889	0.43000
cal/g	4.1840	4.1833	1	0.99935	1.7988
I.T. cal/g	4.1867	4.1861	1.0007	1	1.8
Btu/lb	2.3260	2.3256	0.55592	0.55556	1

TABLE 1A2.14

SPECIFIC ENERGY PER DEGREE CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	joules (abs) / g–K	joules (int) / g–K	cal / g–K	I.T. cal / g–K	Btu / lb–deg F
joules (abs) / g–K	1	0.99984	0.23901	0.23885	0.23885
joules (int) / g–K	1.0002	1	0.23905	0.23889	0.23889
cal / g–K	4.1840	4.1833	1	0.99935	0.99935
I.T. cal / g	4.1867	4.1861	1.0007	1	1
Btu / lb–deg F	4.1867	4.1861	1.0007	1	1

TABLE 1A2.15

HEAT FLUX CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	Btu / hr–sq ft	cal / sec–sq cm	kg-cal / hr–sq m	watts (abs) / sq cm	joules (abs) / sec–sq m
Btu / hr–sq ft	1	7.5397×10^{-5}	2.714	3.1546×10^{-4}	3.1546
cal / sec–sq cm	13,263.	1	36,000	4.1840	41,840
kg-cal / hr–sq m	0.3684	2.7778×10^{-5}	1	1.1622×10^{-4}	1.1622
watts (abs) / sq cm	3,170.0	0.23901	8,604.2	1	10,000
joules (abs) / sec–sq m	0.31700	$2.3901 \times ^{-5}$	0.86042	1×10^{-4}	1

TABLE 1A2.16

HEAT TRANSFER COEFFICIENT CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	Btu / hr–sq ft–deg F	cal / sec–sq cm–K	kg-cal / hr–sq m–K	watts (abs) / sq cm–K	joules (abs) / sec–sq m–K
Btu / hr–sq ft–deg F	1	1.3571×10^{-4}	4.8857	5.6783×10^{-4}	5.6783
cal / sec–sq cm–K	7,368.4	1	36,000	4.1840	41,840
kg-cal / hr–sq m–K	0.20468	2.7778×10^{-5}	1	1.1622×10^{-4}	1.1622
watts (abs) / sq cm–K	1,761.1	0.23901	8,604.2	1	10,000
joules (abs) / sec–sq m–K	0.17611	2.3901×10^{-5}	0.86042	1×10^{-4}	1

TABLE 1A2.17

THERMAL CONDUCTIVITY CONVERSIONS

To convert the numerical value of a property expressed in one of the units in the left-hand column of the table to the numerical value expressed in one of the units in the top row of the table, multiply the former value by the factor in the block common to both units.

Units→ ↓	Btu / hr – sq ft – deg F per in.	Btu / hr – sq ft – deg F per ft	cal / sec – sq cm – K per cm	kg-cal / hr – sq m – K per m	watts (abs) / sq cm – K per cm	joules (abs) / sec – sq m – K per m
Btu / hr – sq ft – deg F per in.	1	0.08333	3.4471×10^{-4}	0.12410	1.4423×10	0.14423
Btu / hr – sq ft – deg F per ft	12.000	1	4.1366×10^{-3}	1.4892	0.017307	1.7307
cal / sec – sq cm – K per cm	2,901.0	241.75	1	360	4.1840	418.40
kg-cal / hr – sq m – K per m	8.0582	0.67152	2.7778×10^{-3}	1	0.011622	1.1622
watts (abs) / sq cm – K per cm	693.35	57.779	0.23901	86.042	1	100
joules (abs) / sec – sq m – k per m	6.9335	0.5778	2.3901×10^{-3}	0.86042	0.01	1

TABLE 1B1.1

LETTER SYMBOLS FOR THE PRINCIPAL CONCEPTS USED IN CHEMICAL ENGINEERING

The letter symbols for the concepts most widely used in chemical engineering are listed on the following pages.

A letter symbol is a single letter used to represent a primary concept for a physical quantity, and it may be used with a subscript or superscript. A subscript may designate a place in space or time, a system of units, or a constant or reference value. A superscript may designate a dimensionless form, a reference or equilibrium value, a sequence in time or space, or a mathematical identification (average value, derivative, tensor index). The symbols are listed under categories which are basic to all operations and processes. An alphabetical listing of the symbols is given in Table 1B1.2.

The list has been adapted from the official tables of the American Institute of Chemical Engineers and of the American National Standards Institute. Suitable modifications have been made in the units to conform with the editorial policies of the American Petroleum Institute. Several additions have been made for symbols used frequently in this book. Listing is alphabetical by concept within each category. Illustrative units or definitions are supplied where appropraite.

General Concepts

	Symbol	Unit or Definition
Acceleration	a	ft per sec per sec
Of gravity	g	ft per sec per sec
Acentric factor	ω	
Base of natural logarithms	e	
Coefficient	C	
Difference, finite	Δ	
Differential operator	d	
Partial	∂	
Efficiency	η	
Energy, dimension	E	Btu; ft-lb [force]
Enthalpy	H	Btu
Entropy	S	Btu per deg R
Force	F	lb [force]
Fugacity Coefficient	ϕ	
Function	ϕ, ψ, χ	
Gas constant, universal	R	To distinguish, use R_0
Gibbs free energy	G, F	$G = H - TS$, Btu
Heat	Q	Btu
Helmholtz free energy	A	$A = U - TS$, Btu
Internal energy	U	Btu
Mass, dimension of	m	lb
Mechanical equivalent of heat.	J	ft-lb [force] per Btu
Moment of inertia	I	lb-ft^2
Newton law of motion, conversion factor in	g_c	$g_c = ma/F$, (lb) (ft per sec per sec) per lb [force]
Number		
In general	N	
Of moles	n	
Pressure	p	lb [force] per sq ft; atm; lb [force] per sq in. (abs)
Quantity, in general	Q	
Radius of gyration	$\bar{R}$	
Ratio, in general	R	
Refractive index	n	
Resistance	R	
Shear stress	τ	lb [force] per sq ft
Temperature		
Absolute	T	K; deg R
Dimension of	θ	
In general	T, t	deg C; deg F
Temperature difference, logarithmic mean	$\bar{\theta}$	deg F
Time		
Dimension of	T	sec
In general	t, τ	sec; hr
Watson characterization factor	K	
Work	W	Btu

Geometrical Concepts

	Symbol	Unit or Definition
Angle	α, θ, ϕ	
In x,y plane	α	
In y,z plane	ϕ	
In z,x plane	θ	
Solid angle	ω	
Area		
Cross-section	S	sq ft
Fraction free cross-section	σ	
In general	A	sq ft
Projected	A_p	sq ft
Surface		
Per unit mass	A_w, s	sq ft per lb
Per unit volume	A_v, a	sq ft per cu ft
Linear dimension		
Breadth	b	ft
Diameter	D	ft
Distance along path	s, x	ft

TABLE 1B1.1 (Continued)

General Concepts—(continued)

	Symbol	Unit or Definition
Height above datum plane	Z	ft
Height equivalent	H	ft (Use subscript p for equilibrium stage and t for transfer unit.)
Hydraulic radius	r_H	ft; sq ft per ft
Lateral distance from datum plane	Y	ft
Length, distance or dimension of	L	ft
Longitudinal distance from datum plane	X	ft
Mean free path	λ	cm; ft
Radius	r	ft
Thickness		
In general	B	ft
Of film	B_f	ft
Wavelength	λ	cm; ft
Other		
Particle-shape factor	ϕ_s	
Volume		
Fraction voids	ϵ	
Humid volume	v_H	cu ft per lb dry air
In general	V	cu ft

Intensive Properties

	Symbol	Unit or Definition
Absorptivity for radiation	α	
Activity	a	
Activity coefficient, molal basis	γ	
Coefficient of expansion		
Linear	α	ft per ft per deg F
Volumetric	β	cu ft per cu ft per deg F
Compressibility factor	z	$z = pV/RT$
Density	ρ	lb per cu ft
Diffusivity		
Molecular, volumetric	D_v, δ	cu ft per (hr) (ft); sq ft per hr
Thermal	α	$\alpha = k/c\rho$, sq ft per hr
Emissivity ratio for radiation	ϵ	
Enthalpy	H	Btu per lb
Entropy	S	Btu per (lb) (deg R)
Fugacity	f	lb [force] per sq ft; atm
Gibbs free energy	G, F	Btu per lb
Heat capacity	c	Btu per (lb) (deg F)
At constant pressure	c_p	Btu per (lb) (deg F)
At constant volume	c_v	Btu per (lb) (deg F)
Heat capacities, ratio of	γ	
Helmholtz free energy	A	Btu per lb
Humid heat	c_s	Btu per (lb dry air) (deg F)
Internal energy	U	Btu per lb
Latent heat, phase change	λ	Btu per lb
Molecular weight	MW	
Reflectivity for radiation	ρ	
Surface tension	σ	lb [force] per ft
Thermal conductivity	k	Btu per (hr) (sq ft) (deg F per ft)
Transmissivity of radiation	τ	
Vapor pressure	p^*	lb [force] per sq ft; atm; lb [force] per sq in. (abs)
Viscosity		
Absolute or coefficient of	μ	lb per (sec) (ft)
Kinematic	ν	sq ft per sec
Volume, per mole	V	cu ft per lb-mole

Symbols for Concentrations

	Symbol	Unit or Definition
Absorption factor	A	$A = L/KV$
Concentration, mass or moles per unit volume	c	lb per cu ft; lb-moles per cu ft
Fraction		
By volumes	x_v	
By weight	x_w	
Cumulative beyond a given size	ϕ	
Humidity	H, Y_H	lb per lb dry air
At adiabatic saturation temperature	H_a, Y_a	lb per lb dry air
At saturation	H_s, Y^*	lb per lb dry air
At wet-bulb temperature	H_w, Y_w	lb per lb dry air
Mass concentration of particles	c_p	lb per cu ft
Moisture content		
Equilibrium water to bone dry stock	X^*	lb per lb dry stock
Free water to bone-dry stock	X	lb per dry stock
Total water to bone-dry stock	X_T	lb per lb dry stock

TABLE 1B1.1 (Continued)
Symbols for Concentrations—(continued)

Symbol		Unit or Definition
Mole or mass fraction		
In heavy or extract phase	x	
In light or raffinate phase	y	
Mole or mass ratio		
In heavy or extract phase	X	
In light or raffinate phase	Y	
Number concentration of particles	n_p	number per cu ft
Phase equilibrium ratio	K	$K = y^*/x$
Relative distribution of two components		
Between two phases in equilibrium	α	$\alpha = K_i/K_j$
Between successive stages	β	$\beta_n = \frac{(y_i/y_j)_n}{(x_j/x_i)_{n+1}}$
Relative humidity	H_R, R_H	
Slope of equilibrium curve	m	$m = dy^*/dx$
Stripping factor	S	$S = KV/L$

Symbols for Rate Concepts

Symbol		Unit or Definition
Mass transfer coefficient		
Individual	k	lb-moles per (hr) (sq ft) (driving force)
Gas film	k_G	To define driving force, use subscript: c for lb-moles per cu ft; p for atm; x for mole fraction
Liquid film	k_L	
Overall	K	
Gas film basis	K_G	
Liquid film basis	K_L	
Quantity per unit time, in general	q	
Angular velocity	ω	
Feed rate	F	lb per hr; lb-moles per hr
Frequency	f, N_f	
Friction velocity	u^*	$u^* = (g_c\tau_w\rho)^{1/2}$, ft per sec
Heat transfer rate	q	Btu per hr
Heavy or extract phase rate	L	lb per hr; lb-moles per hr
Heavy or extract product rate	B	lb per hr; lb-moles per hr
Light or raffinate phase rate	V	lb per hr; lb-moles per hr
Light or raffinate product rate	D	lb per hr; lb-moles per hr
Mass rate of flow	w	lb per sec; lb per hr
Molal rate of transfer	N	lb-moles per hr
Power	P	ft-lb [force] per sec
Revolutions per unit time	n	
Velocity		
In general	u	ft per sec
Instantaneous, local		
Longitudinal (x) component of	u	ft per sec
Lateral (y) component of	v	ft per sec
Normal (z) component of	w	ft per sec
Volumetric rate of flow	q	cu ft per sec; cu ft per hr
Quantity per unit time, unit area		
Emissive power, total	W	Btu per (hr) (sq ft)
Mass velocity, average	G	$G = w/S$, lb per (sec) (sq ft)
Vapor or light phase	G, $\overline{G}$	lb per (hr) (sq ft)
Liquid or heavy phase	L, $\overline{L}$	lb per (hr) (sq ft)
Radiation, intensity of	I	Btu per (hr) (sq ft)
Velocity		
Nominal, basis total cross-section of packed vessel	v_s	ft per sec
Volumetric average	V, $\overline{V}$	cu ft per (sec) (sq ft); ft per sec
Quantity per unit time, unit volume		
Quantity reacted per unit time, reactor volume	N_R	mole per (sec) (cu ft)
Space velocity, volumetric	Λ	cu ft per (sec) (cu ft)
Quantity per unit time, unit area, unit driving force, in general	k	
Eddy diffusivity	δ_E	sq ft per hr
Eddy viscosity	ν_E	sq ft per hr
Eddy thermal diffusivity	α_E	sq ft per hr
Heat transfer coefficient		
Individual	h	Btu per (hr) (sq ft) (deg F)
Overall	U	Btu per (hr) (sq ft) (deg F)
Stefan-Boltzmann constant	σ	0.173×10^{-8} Btu per (hr) (sq ft) (deg R)^4

TABLE 1B1.1 (Continued)
Modifying Signs for Principal Symbols

Concept	Remarks	Superscript	Subscript
Average value	Written over symbol	$\bar{}$ (Bar)	
Dimensionless form	Follows symbol	$^{+}$ (Plus)	
Equilibrium value	Follows symbol	* (Asterisk)	
Fluctuating component	Usually applied to local velocity	$'$ (Prime)	
Initial or reference value	Follows symbol		$_0$ (Zero)
Modified form	Follows symbol	$'$ (Prime) $''$ (Double prime)	
Molal quantity	Written over symbol	~ (Tilde)	
Partial molal quantity	Written over small capitals	$\bar{}$ (Bar)	
Sequence in time or space	Follows symbol	$'$ (Prime) $''$ (Double prime)	$_{1, 2, 3,}$ etc.
Standard state	Follows symbol	$^{\circ}$ (Degree)	
First derivative with respect to time	Written over symbol	$\cdot$ (Dot)	
Second derivative with respect to time	Written over symbol	$\cdot\cdot$ (Double dot)	

Dimensionless Numbers Used in Chemical Engineering

	Symbol	Unit or Definition
Condensation number	N_{Co}	$\frac{h}{k}\left(\frac{\nu^2}{a}\right)^{1/3}; \frac{h}{k}\left(\frac{\nu^2}{g}\right)^{1/3}$
Euler number	N_{Eu}	$\frac{g_c p}{\rho u^2}; \frac{g_c \rho p}{G^2}$
Fanning friction factor	f	$\frac{g_c \rho D\,(\Delta p_f)}{2G^2(\Delta L)}$
Fourier number	N_{Fo}	$\frac{kt}{c\rho L^2}$ or $\frac{\alpha t}{L^2}$
Froude number	N_{Fr}	$\frac{u^2}{aL}; \frac{u^2}{gL}$
Graetz number	N_{Gz}	$\frac{cLG}{k}$ or $\frac{L\bar{V}}{\alpha}$
Grashof number	N_{Gr}	$\frac{L^3\rho^2\beta g\Delta t}{\mu^2}$ or $\frac{L^3\beta g\Delta t}{\nu^2}$
Heat transfer factor	j_H	$\frac{h}{cG}\left(\frac{c\mu}{k}\right)^{2/3}$ or $(N_{St})(N_{Pr})^{2/3}$
Lewis number	N_{Le}	$\frac{k}{c\rho D_v}$ or $\frac{\alpha}{D_v}$
Mass transfer factor	j_M	$\frac{k_c}{u}\left(\frac{\mu}{\rho D_v}\right)^{2/3}$
Nusselt number	N_{Nu}	$\frac{hL}{k}; \frac{hD}{k}$
Peclet number	N_{Pe}	$\frac{Luc\rho}{k}$ or $\frac{Lu}{\alpha}; \frac{D\bar{V}}{\alpha}$
Prandtl number	N_{Pr}	$\frac{c\mu}{k}$ or $\frac{\nu}{\alpha}$
Prandtl velocity ratio	u^+	$\frac{\bar{u}}{u^*}$
Reynolds number	N_{Re}	$\frac{Lu\rho}{\mu}; \frac{DG}{\mu}$
Reynolds number, local	y^+	$\frac{ru^*\rho}{\mu}$
Schmidt number	N_{Sc}	$\frac{\mu}{\rho D_v}$
Sherwood number	N_{Sh}	$\frac{k_c L}{D_v}$ or $j_M\,(N_{Re})\,(N_{sc})^{1/3}$
Stanton number	N_{St}	$\frac{h}{c\rho u}; \frac{h}{cG}$
Vapor condensation number	N_{Cv}	$\frac{L^3\rho^2 g\lambda}{k\mu\Delta t}$
Weber number	N_{We}	$\frac{Lu^2\rho}{g_c\sigma}; \frac{DG^2}{g_c\rho\sigma}$

Note: Pounds mass is abbreviated as lb and pounds force as lb[force]

TABLE 1B1.2

ALPHABETICAL INDEX OF SYMBOLS USED IN CHEMICAL ENGINEERING

	Primary Concept	Subscript Concept
a	Acceleration Activity Area, alternate for Surface per unit volume	Acoustic Adiabatic Arithmetic
A	Absorption factor Area Helmholtz free energy	Absolute Area basis Component *A*
b	Breadth	Baffle Base Normal boiling point
B	Heavy product rate Thickness	Black body Boiling point Component *B*
c	Concentration, mass or moles per unit volume Specific heat, heat capacity	Concentration basis Contraction Conversion factor Critical Cutoff size
C	Coefficient	Component *C*
d	Differential operation	Discharge Disperse Drop Dry
D	Diameter Diffusivity Light or raffinate product rate	Component *D* Distillate
e	Base of natural logarithms	Effective Exit
E	Energy Dimension of In general	Component *E* Eddy Entrainment
f	Frequency Friction factor, Fanning Fugacity	Film Fluid Frequency Friction
F	Feed rate Force Gibbs free energy	Feed
g	Acceleration of gravity	Gage Gravity Vapor
G	Gibbs free energy Mass velocity In general Of vapor	Vapor Vapor film basis
h	Individual coefficient of heat transfer	Heat Heated
H	Enthalpy Height equivalent Humidity	Heat basis Humidity Hydraulic
i		Generalized component Interface Internal or inner
I	Intensity of radiation Moment of inertia	
j	Transfer factor	Generalized component
J	Mechanical equivalent of heat	
k	Mass transfer coefficient, individual Quantity per unit time, unit area, unit driving force, in general Thermal conductivity	
K	Watson characterization factor Mass transfer coefficient, overall Phase concentration ratio	
L	Heavy or extract phase rate Length Mass velocity of liquid or heavy phase	Liquid Liquid film basis
m	Mass Dimension of In general Slope of equilibrium curve	Mass Mean
M		Mass basis Molecular
MW	Molecular weight	
n	Number concentration Number of moles Refractive index Revolutions per unit time	Generalized stage number
N	Molal rate Number, in general	
o		Initial Outer
O		Overall
p	Pressure	Constant pressure Particle Plate or stages Pressure basis Projected
P	Power	
pc		Pseudocritical
q	Quantity per unit time, in general Rate of heat flow Rate of volumetric flow	Rate basis

TABLE 1B1.2 (Continued)

	Primary Concept	Subscript Concept
Q	Heat Quantity, in general	
r	Radius	Radius or radial Reduced
R	Gas constant Ratio, in general Reflux ratio Resistance	Radiation Reactor volume basis Relative value
$\overline{R}$	Radius of gyration	
s	Distance along path Specific surface	Saturation Shape Stress Surface basis
S	Cross-section Entropy Stripping factor	Cross-section basis Solid Solvent
t	Temperature Time	Tangential Terminal Transfer unit or units
T	Absolute temperature Temperature, in general	Constant temperature Total
u	Longitudinal component of local velocity Velocity, in general	Upper
U	Heat transfer coefficient, overall Internal energy	
v	Lateral component of local velocity Nominal velocity Specific volume	Constant volume Velocity basis Volumetric
V	Light or raffinate phase rate Volume, in general Volumetric average velocity	Vapor
w	Mass flow rate Normal component of local velocity	Mass basis Wet bulb
W	Work Total emissive power	
x	Distance along path Fraction Mole or mass fraction in heavy or extract phase	Mole fraction basis
X	Longitudinal distance from datum plane Mole or mass ratio in heavy or extract phase	Mole ratio basis
y	Mole or mass fraction in light or raffinate phase	
Y	Humidity Lateral distance from datum plane	
Y	Mass or mole ratio in light or raffinate phase	
z	Compressibility factor	
Z	Height above datum plane	
α	Absorptivity for radiation Angle Angle in x,y, plane Coefficient of linear expansion Relative distribution of two components between two phases at equilibrium Thermal diffusivity	
β	Coefficient of volumetric expansion Relative distribution of two components between successive stages	
γ	Activity coefficient, molal basis Ratio of heat capacities	
∂	Differential operator, partial	
δ	Diffusivity, volumetric	Film basis
Δ	Difference, finite	
ϵ	Emissivity ratio for radiation Fraction voids	
η	Efficiency	
θ	Angle Angle in z,x plane Temperature, dimension of	
$\overline{\theta}$	Log mean temperature difference	
λ	Latent heat of phase change Mean free path Wavelength	
Λ	Volumetric space velocity	
μ	Viscosity, absolute	At constant viscosity
ν	Viscosity, kinematic	
ρ	Density Reflectivity for radiation	Density basis
σ	Fraction free cross-section Stefan-Boltzmann constant Surface tension	
τ	Shear stress Time, alternate for Transmissivity for radiation	
ϕ	Angle Angle in y,z plane Fraction cumulative, larger than a given size Function Fugacity coefficient Particle factor	

TABLE 1B1.2 (Continued)

Primary Concept		Subscript Concept	Primary Concept		Subscript Concept
χ	Function		ω	Acentric factor Angular frequency Angular velocity Solid angle	
ψ	Function				

Greek Alphabet

A	α	Alpha	I	ι	Iota	P	ρ	Rho
B	β	Beta	K	κ	Kappa	Σ	σ	Sigma
Γ	γ	Gamma	Λ	λ	Lambda	T	τ	Tau
Δ	δ, ∂	Delta	M	μ	Mu	Y	υ	Upsilon
E	ϵ	Epsilon	N	ν	Nu	Φ	ϕ	Phi
Z	ζ	Zeta	Ξ	ξ	Xi	X	χ	Chi
H	η	Eta	O	o	Omicron	Ψ	ψ	Psi
Θ	θ	Theta	Π	π	Pi	Ω	ω	Omega

SECTION 1C. PROPERTY DEFINITIONS

The data in Chapter 1 are divided into four main tables, as listed below:

1C1 Hydrocarbons—Primary Properties
1C2 Hydrocarbons—Secondary Properties
1C3 Nonhydrocarbons—Primary Properties
1C4 Nonhydrocarbons—Secondary Properties

A list of properties included in the data tables as well as a definition of the property and any other pertinent information follows.

1. Compound name.
2. Chemical formula.

PRIMARY TABLE PROPERTIES

3. Molecular weight (MW) based on IUPAC "Atomic Weights of the Elements," 1986 (102).
4. Boiling point at one atmosphere in degrees Fahrenheit.
5. Freezing point in air at one atmosphere in degrees Fahrenheit.
6. Critical properties.

The conditions of equilibrium for coexisting vapor and liquid phases of a pure substance are defined on a pressure-temperature diagram by the vapor pressure curve. This curve starts at the triple point, where vapor, liquid, and solid phases are in equilibrium, and ends at the critical point. As the critical point is approached by the coexisting phases, their properties approach each other until they become identical at the critical temperature and pressure, where a single homogeneous phase is present.

Values of critical temperature in degrees Fahrenheit, pressure in pounds per square inch absolute, volume in cubic feet per pound, and compressibility factor are given.

Further information on critical properties is given in Chapter 4.

7. Acentric Factor

The acentric factor is calculated from the definition:

$$\omega = -\log P^*_{r,0.7} - 1.000$$

Where:

ω = acentric factor.
$P^*_{r,0.7}$ = the reduced vapor pressure at a reduced temperature, T_r, of 0.7, P^*/P_c
P^* = vapor pressure, in pounds per square inch absolute.
P_c = critical pressure, in pounds per square inch absolute.

T_r = reduced temperature, T/T_c.
T = temperature, in degree Rankine.
T_c = critical temperature, in degrees Rankine.

When vapor pressure data were not available at $T_r = 0.7$, Procedure 2A1.1 was used.

Further information on the acentric factor is given in Chapter 2.

8. Density of Liquids

$$\text{Specific gravity, 60 F/60 F} = \frac{\rho(60\text{ F, lb/gal})}{\rho(\text{water, 60 F, lb/gal})}$$

$$\text{sp gr} = \frac{\rho(60\text{ F, lb/gal})}{8.33718}$$

Where:
ρ = liquid density.

Liquid densities at 60 F are given in pounds per gallon at one atmosphere when 60 F is below the normal boiling point or at saturation pressure when 60 F is at or above the normal boiling point. For compounds that are solid at 60 F, the liquid density is the liquid value extrapolated back to 60 F.

Densities at other temperatures can be calculated from the density at 60 F by

$$\rho(T \text{ deg F}) = \frac{\rho(60\text{ F})}{1 + \left[\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P (T - 60)\right]}$$

Where:
T = temperature, in degrees Fahrenheit.

$\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ = coefficient of expansion, in degrees Fahrenheit^{-1}.

API gravity is defined as:

$$\text{deg API} = \frac{141.5}{\text{sp gr}} - 131.5$$

Further information on liquid density is given in Chapter 6.

9. Refractive Index of Liquids

Values of the refractive index, n_D, of the air saturated hydrocarbon relative to air at the sodium D-line (5892.6Å) are reported at 77 F.

10. Vapor Pressure

Vapor pressure is the pressure at which the vapor phase of a substance is in equilibrium with the liquid phase of that substance at a specified temperature. Values of vapor pressure at 100 degrees F are reported in units of pounds per square inch absolute.

Further information on vapor pressure is given in Chapter 5.

11. Heat Capacity of the Liquid and Gas

Heat capacities at constant pressure are reported for the liquid and ideal gas at 60 F and 1 atm pressure. These are related to the enthalpy by:

$$C_p = \left(\frac{\partial H}{\partial T}\right)_P$$

The observed heat capacity for a saturated liquid or vapor is C_s. This may be converted to the heat capacity at constant pressure by:

$$C_p = T\left(\frac{\partial V}{\partial T}\right)_P \frac{dP^*}{dT} + C_s$$

Where:
dP^*/dT = the temperature derivative of the vapor pressure, in pounds per square inch absolute per degree Rankine.

When values of the ideal gas heat capacity calculated from spectroscopic data were not available, they were predicted by the second order method of Benson using the CHETAH program (180). Heat capacities are reported in units of British thermal units per pound-degree F. For compounds where the normal boiling point is below 60 F, liquid heat capacity is reported at the saturation pressure.

Further information on heat capacity is given in Chapter 7.

12. Viscosity of Liquids

The kinematic viscosity in centistokes is reported at 100 F and 210 F and 1 atmosphere pressure. The kinematic viscosity, ν, is related to the absolute viscosity, μ, by:

$$\nu \text{ (stokes)} = \frac{\mu \text{ (poise)}}{\rho \text{ (gm/cu cm)}}$$

Where:

ρ = liquid density.

Further information on viscosity is given in Chapter 11.

13. Heat of Vaporization

The heat of vaporization, λ, is defined as the enthalpy of the real gas at the equilibrium vapor pressure, minus the enthalpy of the liquid at the same pressure and temperature. When experimental data were not available, λ was predicted at the normal boiling point by the Clapeyron Equation:

$$\lambda = \left(\frac{dP^*}{dT}\right) T\,(V_g - V_L)\,(144/778)$$

Where:

λ = latent heat of vaporization, in Btu/lb.
P^* = pure substance vapor pressure, in psia.
T = temperature, in degrees Rankine.
V_g = specific volume of saturated vapor, in ft^3/lb.
V_L = specific volume of saturated liquid, in ft^3/lb.
144/778 = conversion factor.

The heat of vaporization is reported in units of Btu/lb.

Further information on heat of vaporization is given in Chapter 7.

14. Net Heat of Combustion of the Liquid

Hydrocarbons:

The net heat of combustion at 77 F, ΔH_c, is the change in enthalpy for the reaction:

$$C_aH_b \text{ (liquid, 77 F, 1 atm)} + \left(a + \frac{b}{4}\right) 0_2 \text{ (gas, 77 F, 1 atm)} =$$

$$a\ CO_2 \text{ (gas, 77 F, 1 atm)} + \frac{b}{2} H_2O \text{ (gas, 77 F, 1 atm)}$$

Net heat of combustion is related to gross heat of combustion by the relationship:

$$\Delta H_c \text{ (net, Btu/lb)} = \Delta H_c \text{ (gross, Btu/lb)} + \frac{b}{2}\lambda_W$$

Where:

λ_W = heat of vaporization of water at 77 F and saturation pressure = 1,050.0 Btu/lb (108).

For compounds which are gaseous at 77 F and 1 atm (i.e., C_1 to C_5 hydrocarbons), the net heat of combustion of the vapor is given. This is related to the net heat of combustion of the liquid as follows:

$$\Delta H_c \text{ (vapor)} = \Delta H_c \text{ (liquid)} - \lambda$$

Where:

λ = heat of vaporization at 77 F, in Btu/lb.

Nonhydrocarbons:

For nonhydrocarbons, the standard combustion products are:

CO_2 (gas)
H_2O (gas)
F_2 (gas)
Cl_2 (gas)
Br_2 (gas)
I_2 (gas)
SO_2 (gas)
N_2 (gas)

Net heats of combustion for nonhydrocarbons are calculated from the change in enthalpy upon reaction to these standard products.

For compounds where the heat of formation was not available, the net heat of formation was predicted by the second order method of Benson using the CHETAH program (180) after which the heat of combustion as calculated from the definition.

Net heat of combustion at 77 F is reported in units of British thermal units per pound. The heat of combustion is defined as the heat evolved; therefore, the values for heat of combustion in this chapter are positive.

Further information on heat of combustion is given in Chapter 14.

15. Surface Tension of the Liquid

Surface tension is the tension exhibited by the free surface of a liquid.

The liquid surface tension at 77 F is reported in units of dynes per centimeter.

Further information on surface tension is given in Chapter 10.

SECONDARY TABLE PROPERTIES

16. Search Number

This number is for compound identification and is used only with the computerized version of the data tables.

17. Solubility Parameter

The solubility parameter is defined by:

$$\delta = \left(\frac{\Delta U^{vap}}{\underline{V}^{L}}\right)^{1/2}$$

Where:

ΔU^{vap} = internal energy change on vaporization to the ideal gas, in cal/mol.

$\underline{V}^{L}$ = liquid molar volume at 25 C, in cm^3/mol.

An approximation of the internal energy change yields:

$$\delta = \left(\frac{\lambda - RT}{\underline{V}^{L}}\right)^{1/2}$$

Where:

λ = heat of vaporization at 25 C, in cal/mol.

$\underline{V}^{L}$ = liquid molar volume at 25 C, in cm^3/mol.

R = gas constant = 1.9872 cal/mol · K.

T = absolute temperature, 298.15 in kelvins.

The above equation was used to calculate solubility parameters in units of $(cal/cm^3)^{1/2}$.

18. Flash Point Temperature

The flash point of a liquid or solid is the lowest temperature at which sufficient vapor is given off through evaporation or sublimation to form an ignitable mixture with the air near the surface of the liquid or in the vessel used. Flash point temperatures are given in degrees Fahrenheit.

19. Heat of Formation

Heat of formation of a hydrocarbon, C_aH_b, in the ideal gas state is reported at 77 F in units of British thermal units per pound. Heats of formation of the hydrocarbon in the liquid state are related to those in the ideal gas state by the following equation:

$$\Delta H_f^{liq}\ (\text{Btu/lb}) = \Delta H_f^{gas}\ (\text{Btu/lb}) - \lambda\ (\text{Btu/lb})$$

Where:

λ = the heat of vaporization at 77 F.

To derive a liquid heat of formation of a hydrocarbon, C_aH_b, from a heat of combustion, the following equations, which neglect pressure corrections, can be used:

$$\Delta H_f^{liq}\ (\text{Btu/lb}) = \Delta H_c\ (\text{net, Btu/lb}) + a\frac{\text{MW}\ (CO_2)}{\text{MW}\ (C_aH_b)}\Delta H_f\ (CO_2, \text{gas}) + \frac{b}{2}\frac{\text{MW}\ (H_2O)}{\text{MW}\ (C_aH_b)}\Delta H_f\ (H_2O, \text{gas})$$

$$\Delta H_f^{liq}\ (\text{Btu/lb}) = \Delta H_c\ (\text{net, Btu/lb}) - \frac{3844.28}{\text{MW}\ (C_aH_b)}(44)\,a - \frac{5770.9}{\text{MW}\ (C_aH_b)}(18)\,\frac{b}{2}$$

Where:

ΔH_C = net heat of combustion, in British thermal units per pound.
MW = molecular weight, in pound per pound mole.
ΔH_f = heat of formation at 77 F
−3844.28 Btu/lb = heat of formation of CO_2 gas, in British thermal units per pound.
− 5770.9 = heat of formation of liquid H_2O, in British thermal units per pound (108).

The heats of formation of nonhydrocarbons are obtained using the same techniques with standard products of combustion as given earlier. Values are taken from DIPPR Compilation where available.

For compounds where heats of formation were not derived from experimental data, heats of formation were predicted by the second order method of Benson using the CHETAH program (180).

20. Gibbs Free Energy of Formation

The Gibbs free energy of formation for the ideal gas state is reported at 77 F in units of British thermal units per pound.

21. Heat of Fusion

The heat of fusion is reported at 77 F in units of British thermal units per pound.

22. Flammability Limits

Lower and upper limits of flammability are reported as volume percent in a mixture with air.

When experimental data were not available, lower flammability limits were predicted by the method of Shebeko et al. (191), and upper flammability limits were predicted by the DIPPR Compilation method (50).

SECONDARY TABLES—HYDROCARBONS ONLY

23. Coefficient of Expansion

The coefficient of expansion is calculated by the definition:

$$\beta = \frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$$

Values are reported at 60 F in units of $(\text{deg F})^{-1}$.

24. Aniline Point

The aniline point of a petroleum product is the critical solution temperature of a mixture of equal volumes of aniline and the hydrocarbon. It is the lowest temperature at which a petroleum product is completely miscible with an equal volume of freshly distilled aniline.

The aniline point is reported in degrees Fahrenheit.

25. ASTM Octane Numbers

The octane number of a motor fuel indicates its relative tendency to knock under specified conditions of laboratory engine operation. It is equal to the percentage of iso-octane in the reference fuel whose knock characteristics equal those of the sample under test.

Octane numbers are reported for both the motor method and the research method of testing, and for both clear and solutions with 3 ml TEL per gallon added.

26. Watson K Factor

The Watson characterization factor, K, is defined by the equation:

$$K = \frac{(\text{MeABP})^{1/3}}{\text{sp gr}}$$

Where:

MeABP = mean average boiling point, the normal boiling point for a pure component, in degrees Rankine.

Further information on the Watson characterization factor is given in Chapter 2.

TABLE 1C0.1
INDEX OF COMPOUNDS

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
ACENAPHTHALENE	ACENAPHTHALENE	471
ACENAPHTHENE	ACENAPHTHENE	472
ACENAPHTHYLENE	ACENAPHTHALENE	471
ACETALDEHYDE	ACETALDEHYDE	729
ACETENE	ETHYLENE	192
ACETIC ACID	ACETIC ACID	701
ACETIC ALOEHYDE	ACETALDEHYDE	729
ACETIC ETHER	ETHYL ACETATE	755
ACETIOIN	ETHYL ACETATE	755
ACETONE	ACETONE	821
ACETONITRILE	ACETONITRILE	744
ACETOXYETHANE	ETHYL ACETATE	755
1-ACETOXYETHYLENE	VINYL ACETATE	757
1-ACETOXYPROPANE	n-PROPYL ACETATE	759
ACETYLENE	ACETYLENE	322
ACRALDEHYOE	ACROLEIN	732
ACRIDINE	ACRIDINE	751
ACROLEIN	ACROLEIN	732
ACRYLIC ALDEHYDE	ACROLEIN	732
ADAKANE 12	n-DODECANE	74
AETHYLIS CHLORIDUM	ETHYL CHLORIOE	818
AIR	AIR	770
ALGOFRENE TYPE 2	DICHLORODIFLUOROMETHANE	800
ALLENE	PROPADIENE	290
ALLYLENE	METHYLACETYLENE	323
ALLYL ALOEHYDE	ACROLEIN	732
ALLYLIC ALCOHOL	ACETONE	821
AMINIC ACID	FORMIC ACID	700
AMINOBENZENE	ANILINE	747
1-AMINOBUTANE	n-BUTYLAMINE	739
2-AMINOBUTANE	sec-BUTYLAMINE	741
AMINOETHANE	ETHYLAMINE	736
1-AMINOETHANE	ETHYLAMINE	738
2-AMINOETHANOL	MONOETHANOLAMINE	853
beta-AMINOETHYL ALCOHOL	MONOETHANOLAMINE	853
2-AMINOISOBUTANE	tert-BUTYLAMINE	742
AMINOMETHANE	METHYLAMINE	735
1-AMINO-2-METHYLPROPANE	ISOBUTYLAMINE	740
2-AMINO-2-METHYLPROPANE	tert-BUTYLAMINE	742
AMINOPHEN	ANILINE	747
1-AMINOPROPANE	1,2-PROPYLENE GLYCOL	850
2-AMINOPROPANE	ISOPROPYLAMINE	738
AMMONIA	AMMONIA	771
AMYL ACETATE	n-PENTYL ACETATE	762
n-AMYL ACETATE	n-PENTYL ACETATE	762
AMYL ACETIC ESTER	n-PENTYL ACETATE	762
AMYL ACETIC ETHER	n-PENTYL ACETATE	762
AMYL ALCOHOL	1-PENTANOL	717
n-AMYL ALCOHOL	1-PENTANOL	717
sec-AMYL ALCOHOL	2-PENTANOL	718

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
tert-AMYL ALCOHOL	2-METHYL-2-BUTANOL	720
tert-n-AMYL ALCOHOL	2-METHYL-2-BUTANOL	720
AMYLENE	2-METHYL-2-BUTENE	203
alpha,beta-AMYLENE	2-METHYL-2-BUTENE	203
cis,beta-AMYLENE	cis-2-PENTENE	199
trans,beta-AMYLENE	trans-2-PENTENE	200
AMYLENE HYDRATE	2-METHYL-2-BUTANOL	720
AMYL HYDROSULFIDE	1-PENTANETHIOL	841
n-AMYL MERCAPTAN	1-PENTANETHIOL	841
AMYL SULFHYDRATE	1-PENTANETHIOL	841
AMYL THIOALCOHOL	1-PENTANETHIOL	841
ANILINE	ANILINE	747
ANHYOROL	ETHANOL	710
ANHYOROUS HYDROBROMIC ACID	HYDROGEN BROMIDE	782
ANHYDROUS HYDROFLUORIC ACID	HYDROGEN FLUORIDE	785
ANTHRACENE	ANTHRACENE	474
ARCTON 9	TRICHLOROFLUOROMETHANE	801
AREGINAL	ETHYL FORMATE	754
ARGON	ARGON	772
ARTIC	METHYL CHLORIDE	809
AZA8ENZENE	PYRIDINE	748
9-AZAFLUORENE	DIBENZOPYRROLE	750
1-AZAINDENE	INDOLE	748
1-AZANAPHTHALENE	QUINOLINE	749
AZINE	PYRIDINE	746
1-BENZAZOLE	INDOLE	748
BENZENE	BENZENE	335
BENZENE,HYOROXY-	PHENOL	724
8ENZENOFORM	CARBON TETRACHLORIDE	802
BENZENOL	PHENOL	724
BENZINOFORM	CARBON TETRACHLORIDE	802
BENZO (JK) FLUORENE, IDRYL	FLUORANTHENE	477
BENZOL	BENZENE	335
BENZOLENE	BENZENE	335
BENZO (a) PHENATHRENE	CHRYSENE	478
1,2-BENZOPHENANTHRENE	CHRYSENE	478
BENZOPHENOL	PHENOL	724
BENZOPYRROLE	INDOLE	748
8I8ENZENE	INDOLE	748
BICARBURET of HYDROGEN	BENZENE	335
cis-BICYCLO[4,4,0]DECANE	cis-DECAHYDRONAPHTHAENE	184
trans-8ICYCLO[4,4,0]DECANE	trans-DECAHYDRONAPHTHALENE	185
BICYCLOHEXYL	BICYCLOHEXYL	183
1,1-BICYCLOHEXYL	BICYCLOHEXYL	183
BICYCLOPENTADIENE	DICYCLOPENTADIENE	319
BIETHYLENE	1,3-BUTADIENE	292
BIHEXYL	n-DODECANE	74
BIISOPROPYL	2,3-DIMETHYLBUTANE	13
BIMETHYL	ETHANE	2
BIPHENYL	BIPHENYL	398
1,1'-8IPHENYL	BIPHENYL	396
BISCYCLOPENTADIENE	OICYCLOPENTAOIENE	319
BIS[ETHOXY(1-ETHANOL)]ETHER	TETRAETHYLENE GLYCOL	852
BIS(2-HYDROXYLETHYL) AMINE	DIETHANOLAMINE	854
BIVINYL	1,3-BUTADIENE	292

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
BROMINE	BROMINE	773
BUTADIENE	1,3-BUTADIENE	292
BUTA-1,3-DIENE	1,3-BUTADIENE	292
1,2-BUTADIENE	1,2-BUTADIENE	291
1,3-BUTADIENE	1,3-BUTADIENE	292
alpha,gamma-BUTADIENE	1,3-BUTADIENE	292
BUTAL	n-BUTYRALDEHYDE	731
BUTALDEHYDE	n-BUTYRALDEHYDE	731
n-BUTANAL	n-BUTYRALDEHYDE	731
BUTANALDEHYDE	n-BUTYRALDEHYDE	731
sec-BUTANAMINE	sec-BUTYLAMINE	741
i-BUTANE	ISOBUTANE	5
n-BUTANE	n-BUTANE	4
BUTANECARBOXYLIC ACID	n-PENTANOIC ACID	705
BUTANE, 2-HYDROXY	sec-BUTANOL	715
n-BUTANETHIOL	n-BUTANETHIOL	834
tert-BUTANETHIOL	tert-BUTANETHIOL	835
2-BUTANETHIOL	2-BUTANETHIOL	836
n-BUTANOIC ACID	n-BUTYRIC ACID	703
n-BUTANOL	n-BUTANOL	713
sec-BUTANOL	sec-BUTANOL	715
t-BUTANOL	tert-BUTANOL	716
tert-BUTANOL	tert-BUTANOL	716
n-BUTAN-1-OL	n-BUTANOL	713
BUTAN-2-OL	sec-BUTANOL	715
BUTANOL-2	sec-BUTANOL	715
2-BUTANONE	METHYL ETHYL KETONE	822
trans-2-BUTENAL	trans-CROTONALDEHYDE	733
cis-2-BUTENE	cis-2-BUTENE	195
trans-2-BUTENE	trans-2-BUTENE	196
1-BUTENE	1-BUTENE	194
alpha-BUTENE	1-BUTENE	194
BUTENYNE	VINYLACETYLENE	328
BUTEN-3-YNE	VINYLACETYLENE	326
n-BUTYL ACETATE	n-BUTYL ACETATE	761
1-BUTYL ACETATE	n-BUTYL ACETATE	761
n-BUTYL ALCOHOL	n-BUTANOL	713
2-BUTYL ALCOHOL	sec-BUTANOL	715
BUTYL ALDEHYDE	n-BUTYRALDEHYDE	731
n-BUTYL ALDEHYDE	n-BUTYRALDEHYDE	731
n-BUTYLAMINE	n-BUTYLAMINE	739
sec-BUTYLAMINE	sec-BUTYLAMINE	741
tert-BUTYLAMINE	tert-BUTYLAMINE	742
1-BUTYLAMINE	n-BUTYLAMINE	739
1-BUTYLBENZENE	n-BUTYLBENZENE	349
n-BUTYLBENZENE	n-BUTYLBENZENE	349
sec-BUTYLBENZENE	sec-BUTYLBENZENE	351
tert-BUTYLBENZENE	tert-BUTYLBENZENE	352
n-BUTYLCARBINOL	1-PENTANOL	717
sec-BUTYLCARBINOL	2-METHYL-1-BUTANOL	719
tert-BUTYLCARBINOL	2,2-DIMETHYL-1-PROPANOL	722
n-BUTYLCYCLOHEXANE	n-BUTYLCYCLOHEXANE	158
sec-BUTYLCYCLOHEXANE	sec-BUTYLCYCLOHEXANE	160
tert-BUTYLCYCLOHEXANE	tert-BUTYLCYCLOHEXANE	161
n-BUTYLCYCLOPENTANE	n-BUTYLCYCLOPENTANE	124

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
BUTYLENE HYDRATE	sec-BUTANOL	715
BUTYLENE OXIDE	TETRAHYDROFURAN	768
BUTYL ETHANOATE	n-BUTYL ACETATE	761
BUTYL ETHYLENE	TETRAHYDROFURAN	768
BUTYL HYDROXIDE	n-BUTANOL	713
tert-BUTYL HYOROXIOE	tert-BUTANOL	716
n-BUTYL MERCAPTAN	n-BUTANETHIOL	834
tert-BUTYL MERCAPTAN	tert-BUTANETHIOL	835
1-n-BUTYLNAPHTHALENE	1-n-BUTYLNAPHTHALENE	436
2-n-BUTYLNAPHTHALENE	2-n-BUTYLNAPHTHALENE	437
1-n-BUTYL-1,2,3,4-TETRAHYDRONAPHTHALENE	1-n-BUTYL-1,2,3,4-TETRAHYDRONAPHTHALENE	454
6-n-BUTYL-1,2,3,4-TETRAHYDRONAPHTHALENE	6-n-BUTYL-1,2,3,4-TETRAHYDRONAPHTHALENE	455
BUTYRAL	n-BUTYRALDEHYDE	731
BUTYRALDEHYDE	n-BUTYRALDEHYDE	731
n-BUTYRALDEHYDE	n-BUTYRALDEHYDE	731
n-BUTYRIC ACID	n-BUTYRIC ACID	703
BUTYRIC ALDEHYDE	n-BUTYRALDEHYDE	731
BUTYRYALDEHYDE	n-BUTYRALOEHYDE	731
CAMPHOR TAR	NAPHTHALENE	427
CAPRYLENE	1-DCTENE	257
CARBAZOLE	DIBENZOPYRROLE	750
CARBINAMINE	METHYLAMINE	735
CARBINOL	METHANDL	709
CARBOLIC ACID	PHENDL	724
CARBONA	CARBON TETRACHLORIDE	802
CARBON BISULFIDE	CARBON DISULFIDE	831
CARBON CHLORIDE	CARBON TETRACHLORIDE	802
CARBON DIOXIDE	CARBON DIOXIDE	775
CARBON DISULFIDE	CARBON DISULFIDE	831
CARBON MONOXIDE	CARBON MONOXIDE	774
CARBON Oxide	CARBON MONOXIDE	774
CARBON OXYSULFIDE	CARBONYL SULFIDE	776
CARBON SULFIDE	CARBON DISULFIDE	831
CARBON TETRACHLORIDE	CARBON TETRACHLORIDE	802
CARBON TETRAFLUORIDE	CARBON TETRAFLUORIDE	803
CARBON TRIFLORIOE	TRIFLUOROMETHANE	807
CARBONIC ANHYDRIDE	CARBON DIOXIDE	775
CARBONIC OXIDE	CARBON MONOXIDE	774
CARBONYL DIAMIDE	UREA	743
CARBONYL SULFIDE	CARBONYL SULFIDE	776
CARBOXYETHANE	PROPIONIC ACID	702
CAUSTIC SODA	SODIUM HYDROXIDE	847
CETANE	n-HEXADECANE	78
CHINOLINE	QUINOLINE	749
CHLORINE	CHLORINE	777
CHLORODIFLUOROMETHANE	CHLORODIFLUOROMETHANE	804
CHLOROETHANE	ETHYL CHLORIDE	818
CHLOROETHENE	VINYL CHLORIDE	811
CHLOROETHYLENE	VINYL CHLORIDE	811
CHLOROFORM	CHLOROFORM	806
CHLOROMETHANE	METHYL CHLORIDE	809
CHLOROTRIFLUOROMETHANE	CHLOROTRIFLUOROMETHANE	799
CHRYSENE	CHRYSENE	478
CINNAMENE	STYRENE	384
CINNAMINDL	STYRENE	384

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
CINNAMOL	STYRENE	384
COAL NAPHTHA	BENZENE	335
m-CRESOL	m-CRESOL	726
o-CRESOL	o-CRESOL	725
p-CRESOL	p-CRESOL	727
2-CRESOL	o-CRESOL	725
3-CRESOL	m-CRESOL	726
4-CRESOL	p-CRESOL	727
m-CRESYLIC ACID	m-CRESOL	726
o-CRESYLIC ACID	o-CRESOL	725
p-CRESYLIC ACID	p-CRESOL	727
CROTONAL	trans-CROTONALDEHYDE	733
trans-CROTONALDEHYDE	trans-CROTONALDEHYDE	733
CROTONIC ALDEHYDE	trans-CROTONALDEHYDE	733
CROTONYLENE	DIMETHYLACETYLENE	324
CROTYLALDEHYDE	trans-CROTONALDEHYDE	733
CUMENE	ISOPROPYLBENZENE	342
psi-CUMENE	1,2,4-TRIMETHYLBENZENE	347
CYCLOBUTANE	CYCLOBUTANE	98
CYCLOHEPTANE	CYCLOHEPTANE	179
CYCLOHEXANE	CYCLOHEXANE	146
CYCLOHEXATRIENE	BENZENE	335
CYCLOHEXENE	CYCLOHEXENE	315
CYCLOHEXYLBENZENE	CYCLOHEXYLBENZENE	383
CYCLOHEXYLMETHANE	METHYLCYCLOHEXANE	147
CYCLON	HYDROGEN CYANIDE	784
CYCLONONANE	CYCLONONANE	181
CYCLOOCTANE	CYCLOOCTANE	180
CYCLOPENTADIENE	CYCLOPENTADIENE	318
CYCLOPENTADIENE DIMER	DICYCLOPENTADIENE	319
1,3-CYCLOPENTADIENE, DIMER	DICYCLOPENTADIENE	319
CYCLOPENTANE	CYCLOPENTANE	101
CYCLOPENTENE	CYCLOPENTENE	310
CYCLOPROPANE	CYCLOPROPANE	93
CYCLOTETRAMETHYLENE OXIDE	TETRAHYDROFURAN	768
m-CYMENE	m-CYMENE	357
o-CYMENE	o-CYMENE	356
p-CYMENE	p-CYMENE	358
CYMOL	p-CYMENE	358
cis-DECAHYDRONAPHTHALENE	cis-DECAHYDRONAPHTHALENE	184
trans-DECAHYDRONAPHTHALENE	trans-DECAHYDRONAPHTHALENE	185
cis-DECALIN	cis-DECAHYDRONAPHTHALENE	184
trans-DECALIN	trans-DECAHYDRONAPHTHALENE	185
n-DECANE	n-DECANE	62
1-DECENE	1-DECENE	279
n-DECYLBENZENE	n-DECYLBENZENE	376
n-DECYLCYCLOHEXANE	n-DECYLCYCLOHEXANE	168
n-DECYLCYCLOPENTANE	n-DECYLCYCLOPENTANE	135
1-n-DECYLNAPHTHALENE	1-n-DECYLNAPHTHALENE	445
1-n-DECYL-1,2,3,4-TETRAHYDRONAPHTHALENE	1-n-DECYL-1,2,3,4-TETRAHYDRONAPHTHALENE	462
1-DECYNE	1-DECYNE	334
DELPHINIC ACID	3-METHYLBUTYRIC ACID	707
DEVOTON	METHYL ACETATE	753
DIBENZAL (cis)	cis-1,2-DIPHENYLETHENE	420
DIBENZAL, (E form)	trans-1,2-DIPHENYLETHENE	421

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
DIBENZOFURAN	DIBENZOFURAN	769
DIBENZOPYRROLE	DIBENZOPYRROLE	750
DIBENZO (B,D) PYRROLE	DIBENZOPYRROLE	750
DIBENZYLIDNE, (E form)	cis-1,2-DIPHENYLETHENE	420
DICHLORODIFLUOROMETHANE	DICHLORODIFLUOROMETHANE	800
DICHLOROFLUOROMETHANE	DICHLOROFLUOROMETHANE	805
1,1-DICHLOROETHANE	1,1-DICHLOROETHANE	815
1,2-DICHLOROETHANE	1,2-DICHLOROETHANE	816
DICHLOROMETHANE	DICHLOROMETHANE	808
DICHLOROMONOFLUOROMETHANE	DICHLOROFLUOROMETHANE	805
1,2-DICHLOROPROPANE	1,2-DICHLOROPROPANE	820
alpha,beta-DICHLOROPROPANE	1,2-DICHLOROPROPANE	820
DICYCLOHEXANE	BICYCLOHEXYL	183
DICYCLOPENTADIENE	DICYCLOPENTADIENE	319
DIETHANOLAMINE	DIETHANOLAMINE	854
N,N-DIETHANOLMETHYLAMINE	METHYL DIETHANOLAMINE	856
m-DIETHYLBENZENE	m-DIETHYLBENZENE	360
o-DIETHYLBENZENE	o-DIETHYLBENZENE	359
p-DIETHYLBENZENE	p-DIETHYLBENZENE	361
1,2-DIETHYLBENZENE	o-DIETHYLBENZENE	359
1,3-DIETHYLBENZENE	m-DIETHYLBENZENE	360
1,4-DIETHYLBENZENE	p-DIETHYLBENZENE	361
1,1-DIETHYLCYCLOPENTANE	1,1-DIETHYLCYCLOPENTANE	127
cis-1,2-DIETHYLCYCLOPENTANE	cis-1,2-DIETHYLCYCLOPENTANE	128
DIETHYLDIMETHYLMETHANE	2,3-DIMETHYLPENTANE	19
DIETHYLENE GLYCOL	DIETHYLENE GLYCOL	851
DIETHYLENE OXIDE	TETRAHYDROFURAN	768
DIETHYL ETHER	DIETHYL ETHER	765
DIETHYL KETONE	DIETHYL KETONE	823
DIETHYL OXIDE	DIETHYL ETHER	765
3,3-DIETHYLPENTANE	3,3-DIETHYLPENTANE	55
DIETHYLSULFIDE	3-THIAPENTANE	838
DIETHYLTHIOETHER	3-THIAPENTANE	838
DICHLORODIFLUOROMETHANE	DICHLORODIFLUOROMETHANE	800
1,1-DIFLUOROETHANE	1,1-DIFLUOROETHANE	817
DIGLYCOLAMINE	DIGLYCOLAMINE	855
DIHEXYL	n-DODECANE	74
1,2-DIHYDROACENAPHTHALENE	ACENAPHTHENE	472
DIHYDROBUTADIENE SULFONE	SULFOLANE	862
DIHYDROGEN OXIDE	WATER	845
2,3-DIHYDROINDENE	2,3-DIHYDROINDENE	466
2,2'-DIHYDROXYDIETHYLAMINE	3-THIAPENTANE	838
beta,beta'-DIHYDROXYDIETHYL ETHER	DIETHYLENE GLYCOL	851
DI(2-HYDROXETHYL) AMINE	DIETHANOLAMINE	854
1,2-DIHYDROXYPROPANE	1,2-PROPYLENE GLYCOL	850
DIISOBUTYL	2,2,3,3-TETRAMETHYLBUTANE	40
DIISOPROPANOLAMINE	DIISOPROPYLAMINE	858
DIMETHYL	ETHANE	2
DIMETHYLACETIC ACID	2-METHYLPROPIONIC ACID	704
DIMETHYLACETONE	DIETHYL KETONE	823
DIMETHYLACETYLENE	DIMETHYLACETYLENE	324
m-DIMETHYLBENZENE	m-XYLENE	339
o-DIMETHYLBENZENE	o-XYLENE	338
p-DIMETHYLBENZENE	p-XYLENE	340
1,2-DIMETHYLBENZENE	o-XYLENE	338

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
1,3-DIMETHYLBENZENE	m-XYLENE	339
1,4-DIMETHYLBENZENE	p-XYLENE	340
2,3-DIMETHYL-1,3-BUTADIENE	2,3-DIMETHYL-1,3-BUTADIENE	300
2,2-DIMETHYLBUTANE	2,2-DIMETHYLBUTANE	12
2,3-DIMETHYLBUTANE	2,3-DIMETHYLBUTANE	13
1,3-DIMETHYL BUTANOL	4-METHYL-2-PENTANOL	723
2,3-DIMETHYL-1-BUTENE	2,3-DIMETHYL-1-BUTENE	218
2,3-DIMETHYL-2-BUTENE	2,3-DIMETHYL-2-BUTENE	220
3,3-DIMETHYL-1-BUTENE	3,3-DIMETHYL-1-BUTENE	219
DIMETHYLCARBINOL	ISOPROPANOL	712
1,1-DIMETHYLCYCLOHEXANE	1,1-DIMETHYLCYCLOHEXANE	149
cis-1,2-DIMETHYLCYCLOHEXANE	cis-1,2-DIMETHYLCYCLOHEXANE	150
trans-1,2-DIMETHYLCYCLOHEXANE	trans-1,2-DIMETHYLCYCLOHEXANE	151
cis-1,3-DIMETHYLCYCLOHEXANE	cis-1,3-DIMETHYLCYCLOHEXANE	152
trans-1,3-DIMETHYLCYCLOHEXANE	trans-1,3-DIMETHYLCYCLOHEXANE	153
cis-1,4-DIMETHYLCYCLOHEXANE	cis-1,4-DIMETHYLCYCLOHEXANE	154
trans-1,4-DIMETHYLCYCLOHEXANE	trans-1,4-DIMETHYLCYCLOHEXANE	155
1,1-DIMETHYLCYCLOPENTANE	1,1-DIMETHYLCYCLOPENTANE	104
cis-1,2-DIMETHYLCYCLOPENTANE	cis-1,2-DIMETHYLCYCLOPENTANE	105
trans-1,2-DIMETHYLCYCLOPENTANE	trans-1,2-DIMETHYLCYCLOPENTANE	106
cis-1,3-DIMETHYLCYCLOPENTANE	cis-1,3-DIMETHYLCYCLOPENTANE	107
trans-1,3-DIMETHYLCYCLOPENTANE	trans-1,3-DIMETHYLCYCLOPENTANE	108
cis-1,2-DIMETHYLCYCLOPROPANE	cis-1,2-DIMETHYLCYCLOPROPANE	96
trans-1,2-DIMETHYLCYCLOPROPANE	trans-1,2-DIMETHYLCYCLOPROPANE	97
DIMETHYLDISULFIDE	2,3-DITHIABUTANE	829
DIMETHYLENEMETHANE	PROPADIENE	290
1,1-DIMETHYLETHANETHIOL	tert-BUTANETHIOL	835
1,1-DIMETHYLETHANOL	tert-BUTANOL	716
DIMETHYL ETHER	DIMETHYL ETHER	763
DIMETHYL ETHER of POLYETHYLENE GLYCOL	SELEXOL	863
1,1-DIMETHYLETHYLAMINE	tert-BUTYLAMINE	742
DI(1-METHYLETHYL)AMINE	DIISOPROPANOLAMINE	858
(1,1-DIMETHYLETHYL) BENZENE	tert-BUTYLBENZENE	352
1,2-DIMETHYL-3-ETHYLBENZENE	1,2-DIMETHYL-3-ETHYLBENZENE	362
1,2-DIMETHYL-4-ETHYLBENZENE	1,2-DIMETHYL-4-ETHYLBENZENE	363
1,3-DIMETHYL-2-ETHYLBENZENE	1,3-DIMETHYL-2-ETHYLBENZENE	364
1,3-DIMETHYL-4-ETHYLBENZENE	1,3-DIMETHYL-4-ETHYLBENZENE	365
1,3-DIMETHYL-5-ETHYLBENZENE	1,3-DIMETHYL-5-ETHYLBENZENE	366
1,4-DIMETHYL-2-ETHYLBENZENE	1,4-DIMETHYL-2-ETHYLBENZENE	367
DIMETHYL ETHYL CARBINOL	2-METHYL-2-BUTANOL	720
1,1-DIMETHYLETHYLCYCLOHEXANE	tert-BUTYLCYCLOHEXANE	161
1,1-DIMETHYL-2-ETHYLCYCLOPENTANE	1,1-DIMETHYL-2-ETHYLCYCLOPENTANE	129
cis-1,2-DIMETHYLETHYLENE	cis-2-BUTENE	195
trans-1,2-DIMETHYLETHYLENE	trans-2-BUTENE	196
2,2-DIMETHYL-3-ETHYLPENTANE	2,2-DIMETHYL-3-ETHYLPENTANE	56
2,4-DIMETHYL-3-ETHYLPENTANE	2,4-DIMETHYL-3-ETHYLPENTANE	57
DIMETHYLETHYNE	DIMETHYLACETYLENE	324
DIMETHYLFORMALDEHYDE	ACETONE	821
DIMETHYL FORMAMIDE	N,N-DIMETHYLFORMAMIDE	859
N,N-DIMETHYLFORMAMIDE	N,N-DIMETHYLFORMAMIDE	859
2,6-DIMETHYL-1,5-HEPTADIENE	2,6-DIMETHYL-1,5-HEPTADIENE	308
2,2-DIMETHYLHEPTANE	2,2-DIMETHYLHEPTANE	46
2,6-DIMETHYLHEPTANE	2,6-DIMETHYLHEPTANE	47
2,2-DIMETHYLHEXANE	2,2-DIMETHYLHEXANE	28
2,3-DIMETHYLHEXANE	2,3-DIMETHYLHEXANE	29

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
2,4-DIMETHYLHEXANE	2,4-DIMETHYLHEXANE	30
2,5-DIMETHYLHEXANE	2,5-DIMETHYLHEXANE	31
3,3-OIMETHYLHEXANE	3,3-DIMETHYLHEXANE	32
3,4-DIMETHYLHEXANE	3,4-DIMETHYLHEXANE	33
cis-2,2-DIMETHYL-3-HEXENE	cis-2,2-DIMETHYL-3-HEXENE	274
2,3-DIMETHYL-1-HEXENE	2,3-DIMETHYL-1-HEXENE	272
2,3-DIMETHYL-2-HEXENE	2,3-DIMETHYL-2-HEXENE	273
2,4-DIMETHYL-3-ISOPROPYL PENTANE	2,4-DIMETHYL-3-ISOPROPYL PENTANE	72
DIMETHYLKETAL	ACETONE	821
DIMETHYL KETONE	ACETONE	821
N,N-DIMETHYLMETHANAMIDE	N,N-DIMETHYLFORMAMIDE	859
DIMETHYLMETHANE	PROPANE	3
6,6-DIMETHYL-2-METHYLENE8ICYCLO(3,1,1)HEPTANE	beta-PINENE	321
2,4-DIMETHYL-3-(1-METHYLETHYL)PENTANE	2,4-DIMETHYL-3-ISOPROPYLPENTANE	72
DIMETHYL MONOSULFIDE	DIMETHYL SULFIDE	829
1,2-DIMETHYLNAPHTHALENE	1,2-DIMETHYLNAPHTHALENE	432
1,4-DIMETHYLNAPHTHALENE	1,4-DIMETHYLNAPHTHALENE	433
3,7-DIMETHYL-1,6-OCTADIENE	3,7-DIMETHYL-1,6-DCTADIENE	309
2,7-DIMETHYLOCTANE	2,7-DIMETHYLOCTANE	67
2,2-DIMETHYLPENTANE	2,2-DIMETHYLPENTANE	18
2,3-OIMETHYLPENTANE	2,3-DIMETHYLPENTANE	19
2,4-DIMETHYLPENTANE	2,4-DIMETHYLPENTANE	20
3,3-OIMETHYLPENTANE	3,3-DIMETHYLPENTANE	21
2,3-DIMETHYL-1-PENTENE	2,3-DIMETHYL-1-PENTENE	244
2,3-DIMETHYL-2-PENTENE	2,3-DIMETHYL-2-PENTENE	249
2,4-DIMETHYL-1-PENTENE	2,4-DIMETHYL-1-PENTENE	245
2,4-DIMETHYL-2-PENTENE	2,4-DIMETHYL-2-PENTENE	250
3,3-DIMETHYL-1-PENTENE	3,3-DIMETHYL-1-PENTENE	246
3,4-DIMETHYL-1-PENTENE	3,4-DIMETHYL-1-PENTENE	247
cis-3,4-DIMETHYL-2-PENTENE	cis-3,4-DIMETHYL-2-PENTENE	251
trans-3,4-DIMETHYL-2-PENTENE	trans-3,4-DIMETHYL-2-PENTENE	252
4,4-DIMETHYL-1-PENTENE	4,4-DIMETHYL-1-PENTENE	248
cis-4,4-DIMETHYL-2-PENTENE	cis-4,4-DIMETHYL-2-PENTENE	253
trans-4,4-DIMETHYL-2-PENTENE	trans-4,4-DIMETHYL-2-PENTENE	254
2,2-DIMETHYLPROPANE	NEOPENTANE	8
2,2-DIMETHYL-1-PROPANOL	2,2-DIMETHYL-1-PROPANOL	722
DIMETHYL SULFIDE	DIMETHYL SULFIDE	829
DIMETHYLSULFOXIDE	DIMETHYL SULFDXIDE	861
DIMETHYLSULPHOXIDE	DIMETHYL SULFOXIDE	861
2,2-DIMETHYL-1,2,3,4-TETRAHYDRONAPHTHALENE	2,2-DIMETHYL-1,2,3,4-TETRAHYDRONAPHTHALENE	449
2,6-DIMETHYL-1,2,3,4-TETRAHYDRONAPHTHALENE	2,6-DIMETHYL-1,2,3,4-TETRAHYDRONAPHTHALENE	450
6,7-DIMETHYL-1,2,3,4-TETRAHYDRONAPHTHALENE	6,7-DIMETHYL-1,2,3,4-TETRAHYDRONAPHTHALENE	451
DIMETHYL THIOETHER	DIMETHYL SULFIDE	829
DINITROGEN MONOXIDE	NITROUS OXIDE	791
DINITROGEN OXIDE	NITROUS DXIDE	791
OINITROGEN TETRAOXIDE	NITROGEN TETRAOXIDE	793
1,1-DIOXIOE TETRAHYDROTHIOFURAN	SULFOLANE	862
OIOXOTHIOLAN	SULFDLANE	862
DIPHENYL	BIPHENYL	396
DIPHENYLACETYLENE	DIPHENYLACETYLENE	423
1,2-DIPHENYL8ENZENE	1,2-DIPHENYLBENZENE	424
1,3-DIPHENYL8ENZENE	1,3-DIPHENYLBENZENE	425
1,4-DIPHENYL8ENZENE	1,4-DIPHENYLBENZENE	426
p-DIPHENYL8ENZENE	1,4-DIPHENYLBENZENE	426
1,1-OIPHENYL8UTANE	1,1-DIPHENYLBUTANE	407

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
1,1-DIPHENYLDECANE	1,1-DIPHENYLDECANE	413
1,1-DIPHENYLDODECANE	1,1-DIPHENYLDODECANE	415
DIPHENYLENEIMINE	DIBENZOPYRROLE	750
DIPHENYLENIMIDE	DIBENZOPYRROLE	750
1,1-DIPHENYLETHANE	1,1-DIPHENYLETHANE	403
1,2-DIPHENYLETHANE	1,2-DIPHENYLETHANE	404
1,2-DIPHENYLETHENE (Z FORM)	cis-1,2-DIPHENYLETHENE	420
cis-1,2-DIPHENYLETHENE	cis-1,2-DIPHENYLETHENE	420
trans-1,2-DIPHENYLETHENE	trans-1,2-DIPHENYLETHENE	421
DIPHENYLETHYNE	DIPHENYLACETYLENE	423
1,1-DIPHENYLHEPTANE	1,1-DIPHENYLHEPTANE	410
1,1-DIPHENYLHEXADECANE	1,1-DIPHENYLHEXADECANE	419
1,1-DIPHENYLHEXANE	1,1-DIPHENYLHEXANE	409
DIPHENYLMETHANE	DIPHENYLMETHANE	402
1,1-DIPHENYLNONANE	1,1-DIPHENYLNONANE	412
1,1-DIPHENYLOCTANE	1,1-DIPHENYLOCTANE	411
1,1-DIPHENYLPENTADECANE	1,1-DIPHENYLPENTADECANE	418
1,1-DIPHENYLPENTANE	1,1-DIPHENYLPENTANE	408
1,1-DIPHENYLPROPANE	1,1-DIPHENYLPROPANE	405
1,2-DIPHENYLPROPANE	1,2-DIPHENYLPROPANE	406
1,1-DIPHENYLTETRADECANE	1,1-DIPHENYLTETRADECANE	417
1,1-DIPHENYLTRIDECANE	1,1-DIPHENYLTRIDECANE	416
1,1-DIPHENYLUNDECANE	1,1-DIPHENYLUNDECANE	414
DIPROPYLMETHANE	n-HEPTANE	14
2,3-DITHIABUTANE	2,3-DITHIABUTANE	828
DITHIOCARBONIC ANHYDRIDE	CARBON DISULFIDE	831
DIVINYL	1,3-BUTADIENE	292
n-DOCOSANE	n-DOCOSANE	84
n-DODECANE	n-DODECANE	74
DODECANE	n-DODECANE	74
1-DODECENE	1-DODECENE	281
n-DODECYLBENZENE	n-DOOECYLBENZENE	378
n-DODECYLCYCLOHEXANE	n-DODECYCLCYCLOHEXANE	170
n-DODECYLCYCLOPENTANE	n-DODECYLCYCLOPENTANE	137
DRY ICE	CARBON DIOXIDE	775
n-EICOSANE	n-EICOSANE	82
1-EICOSENE	1-EICOSENE	289
n-EICOSYLCYCLOHEXANE	n-EICOSYLCYCLOHEXANE	178
n-EICOSYLCYCLOPENTANE	n-EICOSYLCYCLOPENTANE	145
1,4-EPOXYBUTANE	TETRAHYDROFURAN	768
ERYTHRENE	1,3-BUTADIENE	292
ETHANAL	ACETALDEHYDE	729
ETHANE	ETHANE	2
ETHANECARBOXYLIC ACID	PROPIDNIC ACID	7D2
ETHANENITRILE	ACETONITRILE	744
ETHANETHIDL	ETHYL MERCAPTAN	831
ETHANOIC ACID	ACETIC ACID	701
ETHANOL	ETHANOL	710
ETHANOLAMINE	MONOETHANOLAMINE	853
beta-ETHANOLAMINE	MONOETHANOLAMINE	853
ETHENE	ETHYLENE	192
ETHENYL ACETATE	VINYL ACETATE	757
ETHENYL BENZENE	STYRENE	384
1-ETHENYL ETHANOATE	VINYL ACETATE	757
ETHER	DIETHYL ETHER	765

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
ETHER HYDROCHLORIC	ETHYL CHLORIDE	818
ETHER MURIATIC	ETHYL CHLORIOE	818
ETHINE	ACETYLENE	322
ETHOXYETHANE	DIETHYL ETHER	765
ETHYL ACETATE	ETHYL ACETATE	755
ETHYL ACETIC ACIO	n-BUTYRIC ACID	703
ETHYL ACETIC ESTER	ETHYL ACETATE	755
ETHYLACETONE	METHYL-n-PROPYL KETONE	825
ETHYLACETYLENE	ETHYLACETYLENE	325
ETHYL ALCOHOL	ETHANOL	710
ETHYL ALDEHYDE	ACETALDEHYDE	729
ETHYLAMINE	ETHYLAMINE	736
ETHYLBENZENE	ETHYLBENZENE	337
ETHYLBENZOL	ETHYLBENZENE	337
1-ETHYL-[cis-BICYCLO[4,4,0]OECANE]	9-ETHYL-[cis-DECAHYORONAPHTHALENE]	190
1-ETHYL-[trans-BICYCLO[4,4,0]DECANE	9-ETHYL-[trans-DECAHYDRONAPHTHALENE]	191
2-ETHYL-[cis-BICYCLO[4,4,0]DECANE]	1-ETHYL-[cis-OECAHYDRONAPHTHALENE]	188
2-ETHYL-[trans-BICYCLO[4,4,0]DECANE]	1-ETHYL-[trans-DECAHYDRONAPHTHALENE]	189
2-ETHYL-1-BUTENE	2-ETHYL-1-BUTENE	217
ETHYL CARBINOL	n-PROPANOL	711
ETHYL CHLORIDE	ETHYL CHLORIDE	818
ETHYLCYCLOBUTANE	ETHYLCYCLOBUTANE	100
ETHYLCYCLOHEPTANE	ETHYLCYCLOHEPTANE	182
ETHYLCYCLOHEXANE	ETHYLCYCLOHEXANE	148
1-ETHYLCYCLOHEXENE	1-ETHYLCYCLOHEXENE	317
ETHYLCYCLOPENTANE	ETHYLCYCLOPENTANE	103
1-ETHYLCYCLOPENTENE	1-ETHYLCYCLOPENTENE	312
3-ETHYLCYCLOPENTENE	3-ETHYLCYCLOPENTENE	313
ETHYLCYCLOPROPANE	ETHYLCYCLOPROPANE	95
1-ETHYL-cis-DECAHYDRONAPHTHALENE	1-ETHYL-cis-DECAHYDRONAPHTHALENE	188
1-ETHYL-trans-DECAHYDRONAPHTHALENE	1-ETHYL-trans-DECAHYDRONAPHTHALENE	189
9-ETHYL-cis-DECAHYDRONAPHTHALENE	9-ETHYL-cis-DECAHYDRONAPHTHALENE	190
9-ETHYL-trans-DECAHYDRONAPHTHALENE	9-ETHYL-trans-OECAHYORONAPHTHALENE	191
1-ETHYL-2,3-DIMETHYLBENZENE	1,2-DIMETHYL-3-ETHYLBENZENE	362
ETHYLDIMETHYLMETHANE	ISOPENTANE	7
ETHYLENE	ETHYLENE	192
ETHYLENE CHLORIDE	1,2-DICHLOROETHANE	816
ETHYLENE DICHLORIDE	1,2-DICHLOROETHANE	816
ETHYLENE DIGLYCOL	DIETHYLENE GLYCOL	851
ETHYLENE FLUORIDE	1,1-DIFLUOROETHANE	817
ETHYL ETHANOATE	ETHYL ACETATE	755
1-ETHYL-2-ETHENYL BENZENE	1-ETHYL-2-ETHENYL BENZENE	392
1-ETHYL-3-ETHENYL BENZENE	1-ETHYL-3-ETHENYL BENZENE	393
1-ETHYL-4-ETHENYL BENZENE	1-ETHYL-4-ETHENYL BENZENE	394
ETHYL ETHER	DIETHYL ETHER	765
ETHYLETHYLENE	1-BUTENE	194
ETHYLETHYNE	ETHYLACETYLENE	325
ETHYL FLUORIDE	ETHYL FLUORIDE	819
ETHYL FORMATE	ETHYL FORMATE	754
ETHYLFORMIC ACID	PROPIONIC ACID	702
ETHYLFORMIC ESTER	ETHYL FORMATE	754
3-ETHYLHEPTANE	3-ETHYLHEPTANE	45
3-ETHYLHEXANE	3-ETHYLHEXANE	27
2-ETHYL-1-HEXENE	2-ETHYL-1-HEXENE	269
3-ETHYL-1-HEXENE	3-ETHYL-1-HEXENE	270

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
4-ETHYL-1-HEXENE	4-ETHYL-1-HEXENE	271
ETHYL HYDRATE	ETHANOL	710
ETHYL HYORIDE	ETHANE	2
ETHYL HYDROSULFIDE	ETHYL MERCAPTAN	830
ETHYL HYDROXIDE	ETHANOL	710
ETHYLIC ACID	ACETIC ACID	701
1,1'-ETHYLIDENEBISBENZENE	1,1-DIPHENYLETHANE	403
ETHYLIDENE CHLORIDE	1,1-DICHLOROETHANE	815
ETHYLIOENE DICHLORIDE	1,1-DICHLOROETHANE	815
ETHYLIDENE DIFLUORIDE	1,1-DIFLUOROETHANE	817
ETHYLIDENE FLUORIDE	1,1-DIFLUOROETHANE	817
ETHYL KETONE	DIETHYL KETONE	823
ETHYL MERCAPTAN	ETHYL MERCAPTAN	830
ETHYL METHANOATE	ETHYL FORMATE	754
o-ETHYLMETHYLBENZENE	o-ETHYLTOLUENE	343
p-ETHYLMETHYLBENZENE	p-ETHYLTOLUENE	345
1-ETHYL-2-METHYLBENZENE	o-ETHYLTOLUENE	343
1-ETHYL-3-METHYLBENZENE	m-ETHYLTOLUENE	344
1-ETHYL-4-METHYLBENZENE	p-ETHYLTOLUENE	345
ETHYL METHYL CARBINOL	sec-BUTANOL	715
ETHYL METHYL ETHER	METHYL ETHYL ETHER	764
ETHYL METHYL KETONE	METHYL ETHYL KETONE	822
1-ETHYLNAPHTHALENE	1-ETHYLNAPHTHALENE	430
2-ETHYLNAPHTHALENE	2-ETHYLNAPHTHALENE	431
ETHYLOLAMINE	MONOETHANOLAMINE	853
3-ETHYLPENTANE	3-ETHYLPENTANE	17
2-ETHYL-1-PENTENE	2-ETHYL-1-PENTENE	241
3-ETHYL-1-PENTENE	3-ETHYL-1-PENTENE	242
3-ETHYL-2-PENTENE	3-ETHYL-2-PENTENE	243
1-ETHYL-4-PHENYLBENZENE	1-ETHYL-4-PHENYLBENZENE	400
ETHYL PROPIONYL	DIETHYL KETONE	823
ETHYLPROPYL SULFIDE	3-THIAHEXANE	840
alpha-ETHYLSTYRENE	2-PHENYL-1-BUTENE	395
ETHYL SULFHYDRATE	ETHYL MERCAPTAN	830
ETHYL SULFIDE	3-THIAPENTANE	838
1-ETHYL-1,2,3,4-TETRAHYDRONAPHTHALENE	1-ETHYL-1,2,3,4-TETRAHYDRONAPHTHALENE	448
ETHYL THIOALCOHOL	ETHYL MERCAPTAN	830
ETHYL THIOETHANE	3-THIAPENTANE	838
2-ETHYL TOLUENE	o-ETHYLTOLUENE	343
4-ETHYL TOLUENE	p-ETHYLTOLUENE	345
m-ETHYLTOLUENE	m-ETHYLTOLUENE	344
o-ETHYLTOLUENE	o-ETHYLTOLUENE	343
p-ETHYLTOLUENE	p-ETHYLTOLUENE	345
ETHYNE	ACETYLENE	322
ETHYNYLETHENE	VINYLACETYLENE	326
FLUORANTHENE	FLUORANTHENE	477
FLUORENE	FLUORENE	473
FLUORHYDRIC ACID	HYDROGEN FLUORIDE	785
FLUORINE	FLUORINE	778
FLUOROCARBON 11	TRICHLOROFLUOROMETHANE	801
FLUOROCARBON 12	DICHLORODIFLUOROMETHANE	800
FLUORODICHLOROMETHANE	DICHLOROFLUOROMETHANE	805
FLUOROETHANE	ETHYL FLUORIDE	819
FLUOROFORM	TRIFLUOROMETHANE	807
FLUOROMETHANE	METHYL FLUORIDE	810

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
FLUOROTRICHLOROMETHANE	TRICHLOROFLUOROMETHANE	801
FORMALDEHYDE	FORMALDEHYDE	728
FORMIC ACID	FORMIC ACID	700
FORMIC ALOEHYDE	FORMALDEHYOE	728
FORMIC ANAMMONIDE	HYDROGEN CYANIDE	784
FORMOL	FORMALDEHYDE	728
FORMONITRILE	HYDROGEN CYANIDE	784
FORMYLDIMETHYLAMINE	N,N-DIMETHYLFORMAMIDE	859
FORMYLIC ACID	FORMIC ACID	700
FORMYL TRICHLORIDE	CHLOROFORM	806
FREON 10	CARBON TETRACHLORIDE	802
FREON 11	TRICHLOROFLUOROMETHANE	801
FREON 12	DICHLORODIFLUOROMETHANE	800
FREON 14	CARBON TETRAFLUORIDE	803
FREON 20	CHLOROFORM	806
FREON 21	DICHLOROFLUOROMETHANE	805
FREON 23	TRIFLUOROMETHANE	807
FREON 30	DICHLOROMETHANE	808
FREON 143	1,1,1-TRIFLUOROETHANE	814
FREON 152A	1,1-DIFLUOROETHANE	817
2-FURALDEHYOE	FURFURAL	849
2-FURANALDEHYDE	FURFURAL	849
2-FURANCARBONAL	FURFURAL	849
FURANIDINE	TETRAHYDROFURAN	768
FURFURAL	FURFURAL	849
FURFURALDEHYDE	FURFURAL	849
FUROL	FURFURAL	849
2-FURYLMETHANAL	FURFURAL	849
GENETRON 12	DICHLORODIFLUOROMETHANE	800
GENETRON 100	1,1-DIFLUOROETHANE	817
GENETRON 152A	1,1-DIFLUOROETHANE	817
GLACIAL ACETIC ACID	ACETIC ACID	701
HALON	DICHLOROOIFLUOROMETHANE	800
HALON 14	CARBON TETRAFLUORIDE	803
HELIUM	HELIUM-4	780
HELIUM-3	HELIUM-3	779
HELIUM-4	HELIUM-4	780
o-HELIUM	HELIUM-4	780
p-HELIUM	HELIUM-4	780
HENOECANE	n-UNDECANE	73
n-HENEICOSANE	n-HENEICOSANE	83
n-HEPTACOSANE	n-HEPTACOSANE	89
n-HEPTADECANE	n-HEPTADECANE	79
1-HEPTADECENE	1-HEPTADECENE	286
n-HEPTADECYLCYCLOHEXANE	n-HEPTADECYLCYCLOHEXANE	175
n-HEPTAOECYLCYCLOPENTANE	n-HEPTADECYCLCYCLOPENTANE	142
n-HEPTANE	n-HEPTANE	14
1-HEPTANETHIOL	1-HEPTANETHIOL	844
1-HEPTENE	1-HEPTENE	221
1-n-HEPTENE	1-HEPTENE	221
n-HEPT-1-ENE	1-HEPTENE	221
cis-2-HEPTENE	cis-2-HEPTENE	222
trans-2-HEPTENE	trans-2-HEPTENE	223
cis-3-HEPTENE	cis-3-HEPTENE	224
trans-3-HEPTENE	trans-3-HEPTENE	225

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
n-HEPTYLBENZENE	n-HEPTYLBENZENE	373
n-HEPTYLCYCLOHEXANE	n-HEPTYLCYCLOHEXANE	165
n-HEPTYLCYCLOPENTANE	n-HEPTYLCYCLOPENTANE	132
HEPTYL HYDRIDE	n-HEPTANE	14
1-n-HEPTYLNAPHTHALENE	1-n-HEPTYLNAPHTHALENE	441
1-n-HEPTYL-1,2,3,4-TETRAHYDRONAPHTHALENE	1-n-HEPTYL-1,2,3,4-TETRAHYDRONAPHTHALENE	459
1-HEPTYNE	1-HEPTYNE	331
alpha-HEPTYLENE	1-HEPTENE	221
n-HEXACOSANE	n-HEXACOSANE	88
n-HEXADECANE	n-HEXADECANE	78
1-HEXADECENE	1-HEXADECENE	285
n-HEXADECYLBENZENE	n-HEXYLDECYLBENZENE	382
n-HEXADECYLCYCLOHEXANE	n-HEXADECYLCYCLOHEXANE	174
n-HEXADECYLCYCLOPENTANE	n-HEXADECYLCYCLOPENTANE	141
1,2-HEXADIENE	1,2-HEXADIENE	301
1,5-HEXADIENE	1,5-HEXADIENE	302
2,3-HEXADIENE	2,3-HEXADIENE	303
HEXAHYDROBENZENE	CYCLOHEXANE	146
HEXAHYDROTOLUENE	METHYLCYCLOHEXANE	147
HEXAMETHYLENE	CYCLOHEXANE	146
HEXANAPHTHENE	CYCLOHEXANE	146
n-HEXANE	n-HEXANE	9
1-HEXANETHIOL	1-HEXANETHIOL	843
n-HEXANOIC ACID	n-HEXANDIC ACID	708
2-HEXANONE	METHYL-N-BUTYL KEONE	825
HEXENE	1-HEXENE	204
1-HEXENE	1-HEXENE	204
n-HEXENE	1-HEXENE	204
cis-2-HEXENE	cis-2-HEXENE	205
trans-2-HEXENE	trans-2-HEXENE	206
cis-3-HEXENE	cis-3-HEXENE	207
trans-3-HEXENE	trans-3-HEXENE	208
n-HEXYLBENZENE	n-HEXYLBENZENE	372
n-HEXYLCYCLOHEXANE	n-HEXYLCYCLOHEXANE	164
n-HEXYLCYCLOPENTANE	n-HEXYLCYCLOPENTANE	131
1-n-HEXYLNAPHTHALENE	1-n-HEXYLNAPHTHALENE	439
2-n-HEXYLNAPHTHALENE	2-n-HEXYLNAPHTHALENE	440
1-n-HEXYL-1,2,3,4-TETRAHYDRONAPHTHALENE	1-n-HEXYL-1,2,3,4-TETRAHYDRONAPHTHALENE	458
1-HEXYNE	1-HEXYNE	330
HYDROCHLORIC ACID, ANHYDROUS	HYDROGEN CHLORIDE	783
HYDROCHLORIC ETHER	ETHYL CHLORIDE	818
HYDROFURAN	TETRAHYDROFURAN	768
HYDROGEN	HYDROGEN	781
HYDROGEN BROMIDE	HYDROGEN BROMIDE	782
HYDROGENCARBOXYLIC ACID	FORMIC ACID	700
HYDROGEN CHLORIDE	HYDROGEN CHLORIDE	783
HYDROGEN CYANIDE	HYDROGEN CYANIDE	784
HYDROGEN FLUORIDE	HYDROGEN FLUORIDE	785
HYDROGEN SULFIDE	HYDROGEN SULFIDE	786
HYDROXYBENZENE	PHENOL	724
1-HYDROXYBUTANE	n-BUTANOL	713
2-HYDROXYBUTANE	sec-BUTANOL	715
beta-HYDROXYETHYLAMINE	MONOETHANOLAMINE	853
bis(2-HYDROXYETHYL)ETHER	DIETHYLENE GLYCOL	851
HYDROXYMETHANE	METHANOL	709

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
1-HYDROXY-2-METHYLBENZENE	o-CRESOL	725
1-HYDROXY-3-METHYLBENZENE	m-CRESOL	726
1-HYDROXY-4-METHYLBENZENE	p-CRESOL	727
1-HYDROXYMETHYLPROPANE	ISOBUTANOL	714
1-HYOROXYPROPANE	n-PROPANOL	711
2-HYOROXYPROPANE	ISOPROPANOL	712
3-HYDROXYPROPENE	ACETONE	821
2-HYOROXYTOLUENE	o-CRESOL	725
4-HYDROXYTOLUENE	p-CRESOL	727
m-HYDROXYTOLUENE	m-CRESOL	726
o-HYOROXYTOLUENE	o-CRESOL	725
p-HYDROXYTOLUENE	p-CRESOL	727
HYPONITROUS ACID ANHYDRIDE	NITROUS OXIDE	791
ICOSANE	n-EICOSANE	82
2,2'-IMINODIETHANOL	DIETHANOLAMINE	854
INDENE	INDENE	463
INDOLE	INDOLE	748
INOONAPHTHENE	INDENE	463
1-ISOAMYLENE	2-METHYL-1-BUTENE	201
alpha-ISOAMYLENE	3-METHYL-1-BUTENE	202
beta-ISOAMYLENE	2-METHYL-2-BUTENE	203
gamma-ISOAMYLENE	2-METHYL-1-BUTENE	201
ISOAMYLHYDRIDE	ISOPENTANE	7
ISOBUTANE	ISOBUTANE	5
ISOBUTANOL	ISOBUTANOL	714
ISOBUTENAL	METHACROLEIN	734
ISOBUTENE	ISOBUTENE	197
ISOBUTYL ALCOHOL	ISOBUTANOL	714
ISOBUTYLAMINE	ISOBUTYLAMINE	740
ISOBUTYLBENZENE	ISOBUTYLBENZENE	350
ISOBUTYLCYCLOHEXANE	ISOBUTYLCYCLOHEXANE	159
ISOBUTYLCYCLOPENTANE	ISOBUTYLCYCLOPENTANE	125
ISOBUTYLENE	ISOBUTENE	197
ISOBUTYL METHYL CARBINOL	4-METHYL-2-PENTANOL	723
ISOBUTYLMETHYLMETHANOL	4-METHYL-2-PENTANOL	723
ISOBUTYLTRIMETHYLETHANE	2,2,4-TRIMETHYLPENTANE	37
ISOBUTYRIC ACID	2-METHYLPROPIONIC ACID	704
ISOCUMENE	n-PROPYLBENZENE	341
ISODIPHENYLBENZENE	1,3-DIPHENYLBENZENE	425
ISOHEPTANE	2-METHYLHEXANE	15
ISOHEXANE	2-METHYLPENTANE	10
ISOOCTANE	2-METHYLHEPTANE	24
ISOPENTAOIENE	2-METHYL-1,3-BUTADIENE	299
ISOPENTANE	ISOPENTANE	7
ISOPENTANOIC ACID	3-METHYLBUTYRIC ACID	707
ISOPRENE	2-METHYL-1,3-BUTADIENE	299
ISOPROPANOL	ISOPROPANOL	712
ISOPROPENYLBENZENE	2-PROPENYLBENZENE	387
ISOPROPYL ACETATE	ISOPROPYL ACETATE	760
ISOPROPYL ACETIC ACID	2-PROPENYL BENZENE	387
ISOPROPYL ALCOHOL	ISOPROPANOL	712
ISOPROPYLAMINE	ISOPROPYLAMINE	738
ISOPROPYLBENZENE	ISOPROPYLBENZENE	342
ISOPROPYLBENZOL	ISOPROPYLBENZENE	342
ISOPROPYL CARBINOL	ISOBUTANOL	714

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
ISOPROPYLCYCLOHEXANE	ISOPROPYLCYCLOHEXANE	157
ISOPROPYLCYCLOPENTANE	ISOPROPYLCYCLOPENTANE	110
ISOPROPYLETHYLENE	3-METHYL-1-BUTENE	202
ISOPROPYLFORMIC ACID	2-METHYLBUTYRIC ACID	706
1-ISOPROPYL-2-METHYL BENZENE	o-CYMENE	356
1-ISOPROPYL-3-METHYL BENZENE	m-CYMENE	357
1-ISOPROPYL-4-METHYL BENZENE	p-CYMENE	358
4-ISOPROPYL-1-METHYL BENZENE	p-CYMENE	358
ISOPROPYLTOLUENE	p-CYMENE	358
m-ISOPROPYLTOLUENE	m-CYMENE	357
o-ISOPROPYLTOLUENE	o-CYMENE	358
p-ISOPROPYLTOLUENE	p-CYMENE	358
ISOVALERIC ACID	ISOPROPYLBENZENE	342
KARSAN	FORMALDEHYDE	728
KELENE	ETHYL CHLORIDE	818
KETONE PROPANE	ACETONE	821
beta-KETOPROPANE	ACETONE	821
KRYPTON	KRYPTON	787
LAURYLBENZENE	n-DODECYLBENZENE	378
LEMONENE	BIPHENYL	396
LUPROSIL	PROPIONIC ACID	702
MERCAPTOETHANE	ETHYL MERCAPTAN	830
MERCAPTOMETHANE	METHYL MERCAPTAN	827
MESITYLENE	1,3,5-TRIMETHYLBENZENE	348
METACETONE	DIETHYL KETONE	823
METHACROLEIN	METHACROLEIN	734
METHACRYLALDEHYDE	METHACROLEIN	734
METHACRYLIC ALDEHYDE	METHACROLEIN	734
METHALDEHYDE	FORMALDEHYDE	728
METHANAL	FORMALDEHYDE	728
METHANE	METHANE	1
METHANE CARBOXYLIC ACID	ACETIC ACID	701
METHANE DICHLORIDE	DICHLOROMETHANE	808
METHANE TETRACHLORIDE	CARBON TETRACHLORIDE	802
METHANETHIOL	METHYL MERCAPTAN	828
METHANE TRICHLORIDE	CHLOROFORM	806
METHANOIC ACID	FORMIC ACID	700
METHANOL	METHANOL	709
METHENYL TRICHLORIDE	CHLOROFORM	806
METHYLACETALDEHYDE	n-PROPIONALDEHYDE	730
METHYL ACETATE	METHYL ACETATE	753
METHYLACETIC ACID	PROPIONIC ACID	702
METHYLACETYLENE	METHYLACETYLENE	323
METHYLACROLEIN	METHACROLEIN	734
2-METHYLACROLEIN	METHACROLEIN	734
alpha-METHYLACROLEIN	METHACROLEIN	734
METHYL ACRYLALDEHYDE	METHACROLEIN	734
METHYL ALCOHOL	METHANOL	709
METHYL ALDEHYDE	FORMALDEHYDE	728
METHYLALLENE	1,2-BUTADIENE	291
1-METHYLALLENE	1,2-BUTADIENE	291
METHYLAMINE	METHYLAMINE	735
2-METHYL-1-AMINOPROPANE	ISOBUTYLAMINE	740
2-METHYL-2-AMINOPROPANE	tert-BUTYLAMINE	742
METHYL AMYL ALCOHOL	4-METHYL-2-PENTANOL	723

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
METHYL-tert-AMYL ETHER	METHYL-tert-AMYL ETHER	767
1-METHYLAZACYCLOPENTANE-2-ONE	N-METHYL-2-PYRROLIDONE	860
METHYLBENZENE	TOLUENE	336
METHYLBENZOL	TOLUENE	336
2-METHYL-[cis-BICYCLO[4,4,0]DECANE]	1-METHYL-[cis-DECAHYDRONAPHTHALENE]	186
2-METHYL-[trans-BICYCLO[4,4,0]DECANE]	1-METHYL-[trans-DECAHYDRONAPHTHALENE]	187
beta-METHYL BIVINYL	2-METHYL-1,3-BUTADIENE	299
cis-1-METHYL BUTADIENE	cis-1,3-PENTADIENE	294
2-METHYL BUTADIENE	2-METHYL-1,3-BUTADIENE	299
2-METHYL-1,3-BUTADIENE	2-METHYL-1,3-BUTAOIENE	299
3-METHYL BUTADIENE	3-METHYL-1,2-BUTAOIENE	298
3-METHYL-1,2-BUTADIENE	3-METHYL-1,2-BUTADIENE	298
2-METHYL BUTANE	ISOPENTANE	7
METHYL BUTANOATE	METHYL n-BUTYRATE	758
2-METHYL BUTANDIC ACID	2-METHYLBUTYRIC ACID	706
3-METHYL BUTANOIC ACID	3-METHYLBUTYRIC ACID	707
2-METHYL-1-BUTANOL	2-METHYL-1-BUTANDL	719
2-METHYL BUTANOL-2	2-METHYL-2-BUTANOL	720
2-METHYL-2-BUTANOL	2-METHYL-2-BUTANOL	720
3-METHYLBUTAN-2-OL	3-METHYL-2-BUTANOL	721
3-METHYL-2-BUTANOL	3-METHYL-2-BUTANDL	721
2-METHYL-1-BUTENE	2-METHYL-1-BUTENE	201
3-METHYL-1-BUTENE	3-METHYL-1-BUTENE	202
2-METHYL-2-BUTENE	2-METHYL-2-BUTENE	203
2-METHYL-3-BUTENE	3-METHYL-1-BUTENE	202
METHYL-t-BUTYL ETHER	METHYL-tert-BUTYL ETHER	766
METHYL-tert-BUTYL ETHER	METHYL-tert-BUTYL ETHER	768
METHYL-n-BUTYL KETONE	METHYL-n-BUTYL KETONE	826
METHYLBUTYL SULFIDE	2-THIAHEXANE	839
3-METHYL-1-BUTYNE	3-METHYL-1-BUTYNE	329
METHYL BUTYRATE	METHYL n-BUTYRATE	758
METHYL n-BUTYRATE	METHYL n-BUTYRATE	758
2-METHYLBUTYRIC ACID	2-METHYLBUTYRIC ACID	706
3-METHYLBUTYRIC ACID	3-METHYLBUTYRIC ACID	707
N-METHYL-gamma-BUTYROLACTAM	N-METHYL-2-PYRROLIDONE	860
METHYL CARBINOL	ETHANOL	710
METHYL CHLORIOE	METHYL CHLORIDE	809
METHYLCYCLOBUTANE	METHYLCYCLOBUTANE	99
METHYLCYCLOHEXANE	METHYLCYCLOHEXANE	147
1-METHYLCYCLOHEXENE	1-METHYLCYCLOHEXENE	316
METHYLCYCLOPENTANE	METHYLCYCLOPENTANE	102
1-METHYLCYCLOPENTENE	1-METHYLCYCLOPENTENE	311
METHYLCYCLOPROPANE	METHYLCYCLOPROPANE	94
1-METHYL-cis-DECAHYDRONAPHTHALENE	1-METHYL-cis-DECAHYDRONAPHTHALENE	188
1-METHYL-trans-DECAHYDRONAPHTHALENE	1-METHYL-trans-DECAHYDRONAPHTHALENE	187
METHYL DIETHANOLAMINE	METHYL DIETHANOLAMINE	856
N-METHYL DIETHANOLAMINE	METHYL DIETHANOLAMINE	856
1-METHYL-2,3-DIHYDROINDENE	1-METHYL-2,3-DIHYDROINDENE	467
2-METHYL-2,3-DIHYDROINDENE	2-METHYL-2,3-DIHYOROINDENE	468
4-METHYL-2,3-OIHYDROINDENE	4-METHYL-2,3-DIHYOROINDENE	469
5-METHYL-2,3-OIHYDROINDENE	5-METHYL-2,3-DIHYOROINOENE	470
1-METHYL-1,1-DIMETHYLETHYLETHER	METHYL-tert-BUTYL ETHER	768
METHYLENE BICHLORIDE	DICHLOROMETHANE	808
METHYLENE CHLORIDE	DICHLOROMETHANE	808
METHYLENE OICHLORIDE	DICHLOROMETHANE	808

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
METHYLENE GLYCOL	1,2-PROPYLENE GLYCOL	850
METHYLENE OXIDE	FORMALDEHYDE	728
2-METHYLENEPROPANAL	METHACROLEIN	734
4,7-METHYLENE-4,7,8,9-TETRAHYDROINDENE	DICYCLOPENTADIENE	319
METHYL ETHANOATE	METHYL ACETATE	753
1-METHYL ETHANOL	ISOPROPANOL	712
METHYL ETHENE	PROPYLENE	193
1-METHYL-2-ETHENYL BENZENE	1-METHYL-2-ETHENYL BENZENE	388
1-METHYL-3-ETHENYL BENZENE	1-METHYL-3-ETHENYL BENZENE	389
1-METHYL-4-ETHENYL BENZENE	1-METHYL-4-ETHENYL BENZENE	390
METHYL ETHER	DIMETHYL ETHER	763
1-METHYLETHYL ALCOHOL	ISOPROPANOL	712
1-METHYLETHYLBENZENE	ISOPROPYLBENZENE	342
4-METHYLETHYLBENZENE	p-ETHYLTOLUENE	345
m-METHYLETHYLBENZENE	m-ETHYLTOLUENE	344
o-METHYLETHYLBENZENE	o-ETHYLTOLUENE	343
p-METHYLETHYLBENZENE	p-ETHYLTOLUENE	345
1-METHYL-2-ETHYLBENZENE	o-ETHYLTOLUENE	343
1-METHYL-3-ETHYLBENZENE	m-ETHYLTOLUENE	344
1-METHYL-4-ETHYLBENZENE	p-ETHYLTOLUENE	345
3-METHYL-2-ETHYL-1-BUTENE	3-METHYL-2-ETHYL-1-BUTENE	255
1-METHYLETHYLCYCLOHEXANE	ISOPROPYLCYCLOHEXANE	157
1-METHYLETHYLCYCLOPENTANE	ISOPROPYLCYCLOPENTANE	110
1-METHYL-1-ETHYLCYCLOPENTANE	1-METHYL-1-ETHYLCYCLOPENTANE	111
cis-1-METHYL-2-ETHYLCYCLOPENTANE	cis-1-METHYL-2-ETHYLCYCLOPENTANE	112
trans-1-METHYL-2-ETHYLCYCLOPENTANE	trans-1-METHYL-2-ETHYLCYCLOPENTANE	113
cis-1-METHYL-3-ETHYLCYCLOPENTANE	cis-1-METHYL-3-ETHYLCYCLOPENTANE	114
trans-1-METHYL-3-ETHYLCYCLOPENTANE	trans-1-METHYL-3-ETHYLCYCLOPENTANE	115
METHYLETHYLENE	PROPYLENE	193
METHYLETHYLENE GLYCOL	1,2-PROPYLENE GLYCOL	850
1-METHYLETHYL ETHANOATE	ISOPROPYL ACETATE	760
METHYL ETHYL ETHER	METHYL ETHYL ETHER	764
METHYL ETHYL KETONE	METHYL ETHYL KETONE	822
2-METHYL-3-ETHYLPENTANE	2-METHYL-3-ETHYLPENTANE	34
3-METHYL-3-ETHYLPENTANE	3-METHYL-3-ETHYLPENTANE	35
METHYLETHYL SULFIDE	2-THIABUTANE	832
METHYLETHYNE	METHYLACETYLENE	323
METHYL FLUORIDE	METHYL FLUORIDE	810
METHYL FLUOROFORM	1,1,1-TRIFLUOROETHANE	812
METHYL FORMATE	METHYL FORMATE	752
2-METHYLHEPTANE	2-METHYLHEPTANE	24
3-METHYLHEPTANE	3-METHYLHEPTANE	25
4-METHYLHEPTANE	4-METHYLHEPTANE	26
2-METHYL-1-HEPTENE	2-METHYL-1-HEPTENE	264
3-METHYL-1-HEPTENE	3-METHYL-1-HEPTENE	265
trans-3-METHYL-3-HEPTENE	trans-3-METHYL-3-HEPTENE	268
4-METHYL-1-HEPTENE	4-METHYL-1-HEPTENE	266
trans-6-METHYL-2-HEPTENE	trans-6-METHYL-2-HEPTENE	267
2-METHYL-1,5-HEXADIENE	2-METHYL-1,5-HEXADIENE	305
2-METHYL-2,4-HEXADIENE	2-METHYL-2,4-HEXADIENE	306
2-METHYLHEXANE	2-METHYLHEXANE	15
3-METHYLHEXANE	3-METHYLHEXANE	16
(3rs)-METHYLHEXANE	3-METHYLHEXANE	16
2-METHYL-1-HEXENE	2-METHYL-1-HEXENE	226
2-METHYL-2-HEXENE	2-METHYL-2-HEXENE	230

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
cis-2-METHYL-3-HEXENE	cis-2-METHYL-3-HEXENE	237
trans-2-METHYL-3-HEXENE	trans-2-METHYL-3-HEXENE	238
3-METHYL-1-HEXENE	3-METHYL-1-HEXENE	227
cis-3-METHYL-2-HEXENE	cis-3-METHYL-2-HEXENE	231
trans-3-METHYL-2-HEXENE	trans-3-METHYL-2-HEXENE	232
cis-3-METHYL-3-HEXENE	cis-3-METHYL-3-HEXENE	239
trans-3-METHYL-3-HEXENE	trans-3-METHYL-3-HEXENE	240
4-METHYL-1-HEXENE	4-METHYL-1-HEXENE	228
cis-4-METHYL-2-HEXENE	cis-4-METHYL-2-HEXENE	233
trans-4-METHYL-2-HEXENE	trans-4-METHYL-2-HEXENE	234
5-METHYL-1-HEXENE	5-METHYL-1-HEXENE	229
cis-5-METHYL-2-HEXENE	cis-5-METHYL-2-HEXENE	235
trans-5-METHYL-2-HEXENE	trans-5-METHYL-2-HEXENE	236
METHYL HYDRIDE	METHANE	1
METHYL HYDROXIDE	METHANOL	709
1-METHYL-4-HYDROXYBENZENE	p-CRESOL	727
n-METHYLIMINODIETHANOL	METHYL DIETHANOLAMINE	856
n-METHYL-2,2-IMINODIETHANOL	METHYL DIETHANOLAMINE	856
2,2-(METHYLIMINO) DIETHANOL	METHYL DIETHANOLAMINE	856
1-METHYLINDENE	1-METHYLINDENE	464
2-METHYLINDENE	2-METHYLINDENE	465
METHYL ISOBUTYL CARBINOL	4-METHYL-2-PENTANOL	723
METHYL ISOBUTYL KETONE	METHYL ISOBUTYL KETONE	824
p-METHYLISOPROPYLBENZENE	p-CYMENE	358
1-METHYL-4-ISOPROPYLCYCLOHEXANE	1-METHYL-4-ISOPROPYLCYCLOHEXANE	162
METHYL KETONE	ACETONE	821
METHYL MERCAPTAN	METHYL MERCAPTAN	827
METHYL METHANE	ETHANE	2
METHYL METHANOATE	METHYL FORMATE	752
1-METHYL-2-(1-METHYLETHYL)BENZENE	o-CYMENE	356
1-METHYL-3-(1-METHYLETHYL)BENZENE	m-CYMENE	357
1-METHYL-4-(1-METHYLETHYL)BENZENE	p-CYMENE	358
1-METHYL-4-(1-METHYLETHYL)CYCLOHEXANE	1-METHYL-4-ISOPROPYLCYCLOHEXANE	162
1-METHYL-4(4-METHYLPHENYL)-BENZENE	1-METHYL-4(4-METHYLPHENYL)-BENZENE	401
METHYL MONOSULFIDE	DIMETHYL SULFIDE	829
1-METHYLNAPHTHALENE	1-METHYLNAPHTHALENE	428
2-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	429
2-METHYLNONANE	2-METHYLNONANE	63
3-METHYLNONANE	3-METHYLNONANE	64
4-METHYLNONANE	4-METHYLNONANE	65
5-METHYLNONANE	5-METHYLNONANE	66
2-METHYLOCTANE	2-METHYLOCTANE	42
3-METHYLOCTANE	3-METHYLOCTANE	43
4-METHYLOCTANE	4-METHYLOCTANE	44
METHYLOLPROPANE	n-BUTANOL	713
3-METHYL-1,2-PENTADIENE	3-METHYL-1,2-PENTADIENE	304
METHYLPENTANE	2-METHYLPENTANE	10
2-METHYLPENTANE	2-METHYLPENTANE	10
3-METHYLPENTANE	3-METHYLPENTANE	11
2-METHYL-4-PENTANOL	4-METHYL-2-PENTANOL	723
4-METHYL-2-PENTANOL	4-METHYL-2-PENTANOL	723
4-METHYL-2-PENTANONE	METHYL ISOBUTYL KETONE	826
2-METHYL-1-PENTENE	2-METHYL-1-PENTENE	209
2-METHYL-2-PENTENE	2-METHYL-2-PENTENE	212
3-METHYL-1-PENTENE	3-METHYL-1-PENTENE	210

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
cis-3-METHYL-2-PENTENE	cis-3-METHYL-2-PENTENE	213
trans-3-METHYL-2-PENTENE	trans-3-METHYL-2-PENTENE	214
4-METHYL-1-PENTENE	4-METHYL-1-PENTENE	211
cis-4-METHYL-2-PENTENE	cis-4-METHYL-2-PENTENE	215
trans-4-METHYL-2-PENTENE	trans-4-METHYL-2-PENTENE	216
METHYLPENTYL SULFIDE	2-THIAHEPTANE	842
2-METHYLPHENOL	o-CRESOL	725
3-METHYLPHENOL	m-CRESOL	726
4-METHYLPHENOL	p-CRESOL	727
m-METHYLPHENOL	m-CRESOL	726
o-METHYLPHENOL	o-CRESOL	725
p-METHYLPHENOL	p-CRESOL	727
1-METHYL-2-PHENYLBENZENE	1-METHYL-2-PHENYLBENZENE	397
1-METHYL-3-PHENYLBENZENE	1-METHYL-3-PHENYLBENZENE	398
1-METHYL-4-PHENYLBENZENE	1-METHYL-4-PHENYLBENZENE	399
1-METHYL-1-PHENYL-ETHYLENE	2-PROPENYLBENZENE	387
as-METHYLPHENYLETHYLENE	2-PROPENYLBENZENE	387
cis-METHYLPHENYL-ETHYLENE	2-PROPENYLBENZENE	387
o-METHYLPHENYLOL	o-CRESOL	725
2-METHYL-1-PHENYLPROPANE	ISOBUTYLBENZENE	350
2-METHYL-2-PHENYLPROPANE	tert-BUTYLBENZENE	352
2-METHYL-1-PROPANAMINE	ISOBUTYLBENZENE	740
2-METHYL-2-PROPANAMINE	tert-BUTYLAMINE	742
2-METHYL PROPANE	ISOBUTANE	5
2-METHYL-1-PROPANETHIOL	2-METHYL-1-PROPANETHIOL	837
2-METHYL PROPANOIC ACID	2-METHYLPROPIONIC ACID	704
METHYL PROPANOL	ISOBUTANOL	714
1-METHYLPROPANOL	sec-BUTANOL	715
2-METHYLPROPANOL	ISOBUTANOL	714
2-METHYL PROPAN-1-OL	ISOBUTANOL	714
2-METHYL PROPAN-2-OL	tert-BUTANOL	716
2-METHYL PROPANOL-1	ISOBUTANOL	714
2-METHYL PROPANOL-2	tert-BUTANOL	716
2-METHYL-2-PROPANOL	tert-BUTANOL	716
2-METHYL PROPENAL	METHACROLEIN	734
1-METHYL-4-(trans-1-n-PROPENYL)BENZENE	1-METHYL-4-(trans-1-n-PROPENYL)BENZENE	391
2-METHYLPROPENE	ISOBUTENE	197
2-METHYLPROPIONIC ACID	2-METHYLPROPIONIC ACID	704
alpha-METHYLPROPIONIC ACID	2-METHYLPROPIONIC ACID	704
2-METHYLPROPYL ALCOHOL	ISOBUTANOL	714
1-METHYLPROPYL BENZENE	sec-BUTYLBENZENE	351
2-METHYLPROPYL BENZENE	ISOBUTYLBENZENE	350
1-METHYL-2-n-PROPYLBENZENE	1-METHYL-2-n-PROPYLBENZENE	353
1-METHYL-3-n-PROPYLBENZENE	1-METHYL-3-n-PROPYLBENZENE	354
1-METHYL-4-n-PROPYLBENZENE	1-METHYL-4-n-PROPYLBENZENE	355
2-METHYLPROPYLBENZENE	ISOBUTYLBENZENE	350
METHYL PROPYL CARBINOL	2-PENTANOL	718
1-METHYLPROPYLCYCLOHEXANE	sec-BUTYLCYCLOHEXANE	160
2-METHYLPROPYLCYCLOHEXANE	ISOBUTYLCYCLOHEXANE	159
1-METHYL-1-n-PROPYLCYCLOPENTANE	1-METHYL-1-n-PROPYLCYCLOPENTANE	126
2-METHYLPROPYLCYCLOPENTANE	ISOBUTYLCYCLOPENTANE	125
METHYL-n-PROPYL KETONE	METHYL-n-PROPYL KETONE	825
1-METHYLPYRROLIDINONE	N-METHYL-2-PYRROLIDONE	860
N-METHYLPYRROLIDINONE	N-METHYL-2-PYRROLIDONE	860
N-METHYL-alpha-PYRROLIDINONE	N-METHYL-2-PYRROLIDONE	860

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
1-METHYLPYRROLIDONE	N-METHYL-2-PYRROLIDONE	860
N-METHYLPYRROLIDONE	N-METHYL-2-PYRROLIDONE	860
N-METHYL-2-PYRROLIDONE	N-METHYL-2-PYRROLIDONE	880
N-METHYL-alpha-PYRROLIDONE	N-METHYL-2-PYRROLIDONE	860
alpha-METHYLSTYRENE	2-PROPENYLBENZENE	387
cis,beta-METHYLSTYRENE	cis-1-PROPENYLBENZENE	385
trans,beta-METHYLSTYRENE	trans-1-PROPENYLBENZENE	386
m-METHYLSTYRENE	1-METHYL-3-ETHENYLBENZENE	389
o-METHYLSTYRENE	1-METHYL-2-ETHENYLBENZENE	388
p-METHYLSTYRENE	1-METHYL-4-ETHENYLBENZENE	390
METHYL SULFHYORATE	METHYL MERCAPTAN	827
METHYL SULFOXIDE	OIMETHYL SULFOXIDE	861
1-METHYL-1,2,3,4-TETRAHYORONAPHTHALENE	1-METHYL-1,2,3,4-TETRAHYDRONAPHTHALENE	447
METHYL THIOALCOHOL	METHYL MERCAPTAN	827
m-METHYLTOLUENE	m-XYLENE	339
o-METHYLTOLUENE	o-XYLENE	338
p-METHYLTOLUENE	p-XYLENE	340
METHYL TRICHLORIDE	CHLOROFORM	806
MONOBUTYLAMINE	n-BUTYLAMINE	739
MONOCHLORETHANE	ETHYL CHLORIDE	818
MONOCHLOROETHANE	ETHYL CHLORIDE	818
MONOCHLOROETHYLENE	VINYL CHLORIDE	811
MONOCHLOROMETHANE	METHYL CHLORIDE	809
MONOCHLOROTRIFLUOROMETHANE	CHLOROTRIFLUOROMETHANE	799
MONOETHANOLAMINE	MONOETHANOLAMINE	853
MONOETHYLAMINE	ETHYLAMINE	736
MONOFLUORODICHLOROMETHANE	OICHLOROFLUOROMETHANE	805
MONOFLUOROTRICHLOROMETHANE	TRICHLOROFLUOROMETHANE	801
MONOHYDROXYBENZENE	PHENOL	724
MONOHYDROXYMETHANE	METHANOL	709
MONOMETHYLAMINE	METHYLAMINE	735
MONOPROPYLAMINE	n-PROPYLAMINE	737
MONOPROPYLENE GLYCOL	1,2-PROPYLENE GLYCOL	850
MONOYINYLACETYLENE	VINYLACETYLENE	326
MORPHOLINE	MORPHOLINE	745
NAPHTHALENE	NAPHTHALENE	427
p-NAPHTHALENE	ANTHRACENE	474
NAPHTHALENE-1,2,3,4-TETRAHYDRIDE	1,2,3,4-TETRAHYDRONAPHTHALENE	446
NAPHTHALINE	NAPHTHALENE	427
1,2-(1,8-NAPHTHYLENE)BENZENE	FLUORANTHENE	477
NEOAMYL ALCOHOL	2,2-OIMETHYL-1-PROPANOL	722
NEOHEXANE	2,2-OIMETHYL-1-PROPANOL	722
NEON	NEON	788
NEOPENTANE	NEOPENTANE	8
NEOPENTANOL	2,2-OIMETHYL-1-PROPANOL	722
NITRIC OXIDE	NITRIC OXIDE	790
NITRILO-2,2',2''-TRIETHANOL	TRIETHANOLAMINE	857
2,2,2-NITRILOTRIETHANOL	TRIETHANOLAMINE	857
2,2',2''-NITRILOTRIETHANOL	TRIETHANOLAMINE	857
NITROGEN	NITROGEN	789
NITROGEN DIOXIDE	NITROGEN DIOXIDE	792
NITROGEN PEROXIDE	NITROGEN TETROXIDE	793
NITROGEN TETROXIDE	NITROGEN TETROXIDE	793
NITROUS OXIDE	NITROUS OXIDE	791
n-NONACOSANE	n-NONACOSANE	91

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
n-NONADECANE	n-NONADECANE	81
1-NONADECENE	1-NONADECENE	288
n-NONADECYLCYCLOHEXANE	n-NONADECYLCYCLOHEXANE	177
n-NONADECYLCYCLOPENTANE	n-NONADECYLCYCLOPENTANE	144
n-NONANE	n-NONANE	41
1-NONENE	1-NONENE	278
n-NONYLBENZENE	n-NONYLBENZENE	375
n-NONYLCYCLOHEXANE	n-NONYLCYCLOHEXANE	167
n-NONYLCYCLOPENTANE	n-NONYLCYCLOPENTANE	134
1-n-NONYLNAPHTHALENE	1-n-NONYLNAPHTHALENE	443
2-n-NONYLNAPHTHALENE	2-n-NONYLNAPHTHALENE	444
1-n-NONYL-1,2,3,4-TETRAHYDONAPHTHALENE	1-n-NONYL-1,2,3,4-TETRAHYDRONAPHTHALENE	461
1-NONYNE	1-NONYNE	333
NOPINENE	beta-PINENE	321
n-OCTACOSANE	n-OCTACOSANE	90
n-OCTADECANE	n-OCTADECANE	80
1-OCTADECENE	1-OCTADECENE	287
n-OCTADECYLCYCLOHEXANE	n-OCTADECYLCYCLOHEXANE	176
n-OCTAOECYLCYCLOPENTANE	n-OCTAOECYLCYCLOPENTANE	143
2,6-OCTADIENE	2,6-OCTADIENE	307
n-OCTANE	n-OCTANE	23
1-OCTENE	1-OCTENE	257
cis-2-OCTENE	cis-2-OCTENE	258
trans-2-OCTENE	trans-2-OCTENE	259
cis-3-OCTENE	cis-3-OCTENE	260
trans-3-OCTENE	trans-3-OCTENE	261
cis-4-OCTENE	cis-4-OCTENE	262
trans-4-DCTENE	trans-4-DCTENE	263
alpha-OCTENE	1-OCTENE	257
n-OCTYLBENZENE	n-OCTYLBENZENE	374
n-OCTYLCYCLOHEXANE	n-OCTYLCYCLOHEXANE	168
n-OCTYLCYCLOPENTANE	n-OCTYLCYCLOPENTANE	133
1-n-OCTYLNAPHTHALENE	1-n-OCTYLNAPHTHALENE	442
1-n-OCTYL-1,2,3,4-TETRAHYDRONAPHTHALENE	1-n-OCTYL-1,2,3,4-TETRAHYDRONAPHTHALENE	460
1-OCTYNE	1-OCTYNE	332
ORTHOCRESOL	o-CRESOL	725
OXACYCLOPENTANE	TETRAHYDROFURAN	768
3-OXAPENTANE-1,5-DIOL	DIETHYLENE GLYCOL	851
OXOMETHANE	FORMALDEHYDE	728
1,1'-OXYBISETHANE	DIETHYL ETHER	765
2,2'-DXYBIS(ETHANOL)	DIETHYLENE GLYCDL	851
2,2'-DXYDIETHANOL	DIETHYLENE GLYCDL	851
OXYGEN	OXYGEN	794
o-OXYTOLUENE	o-CRESDL	725
p-OXYTOLUENE	p-CRESOL	727
OZONE	OZONE	795
PARANAPHTHALENE	ANTHRACENE	474
n-PENTACOSANE	n-PENTACOSANE	87
n-PENTAOECANE	n-PENTAOECANE	77
1-PENTADECENE	1-PENTADECENE	284
n-PENTADECYLBENZENE	n-PENTADECYLBENZENE	381
n-PENTADECYLCYCLOHEXANE	n-PENTADECYLCYCLDHEXANE	173
n-PENTADECYLCYCLOPENTANE	n-PENTADECYLCYCLOPENTANE	140
1,2-PENTADIENE	1,2-PENTADIENE	293
cis-1,3-PENTADIENE	cis-1,3-PENTADIENE	294

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
trans-1,3-PENTADIENE	trans-1,3-PENTADIENE	295
1,cis-3-PENTADIENE	cis-1,3-PENTADIENE	294
1,trans-3-PENTADIENE	trans-1,3-PENTADIENE	295
1,4-PENTADIENE	1,4-PENTADIENE	296
2,3-PENTADIENE	2,3-PENTADIENE	297
PENTAMETHYLENE	CYCLOPENTANE	101
n-PENTANE	n-PENTANE	6
tert-PENTANE	NEOPENTANE	8
1-PENTANETHIOL	1-PENTANETHIOL	841
n-PENTANOIC ACID	n-PENTANOIC ACID	705
PENTANOL-1	1-PENTANOL	717
PENTANOL-2	2-PENTANOL	718
PENTAN-1-OL	1-PENTANOL	717
n-PENTANOL	1-PENTANOL	717
1-PENTANOL	1-PENTANOL	717
2-PENTANOL	2-PENTANOL	718
1-PENTANOL ACETATE	n-PENTYL ACETATE	762
2-PENTANONE	METHYL-n-PROPYL KETONE	824
3-PENTANONE	DIETHYL KETONE	823
PENTASOL	1-PENTANOL	717
1-PENTENE	1-PENTENE	198
cis-2-PENTENE	cis-2-PENTENE	199
trans-2-PENTENE	trans-2-PENTENE	200
R-PENTINE	CYCLOPENTADIENE	318
PENTOLE	CYCLOPENTADIENE	318
1-PENTYL ACETATE	n-PENTYL ACETATE	762
n-PENTYL ACETATE	n-PENTYL ACETATE	762
PENTYL ALCOHOL	1-PENTANOL	717
n-PENTYL ALCOHOL	1-PENTANOL	717
sec-PENTYL ALCOHOL	2-PENTANOL	718
n-PENTYLBENZENE	n-PENTYLBENZENE	371
n-PENTYLCYCLOHEXANE	n-PENTYLCYCLOHEXANE	163
n-PENTYLCYCLOPENTANE	n-PENTYLCYCLOPENTANE	130
PENTYL ETHANOATE	n-PENTYL ACETATE	762
1-n-PENTYLNAPHTHALENE	1-n-PENTYLNAPHTHALENE	438
1-n-PENTYL-1,2,3,4-TETRAHYORONAPHTHALENE	1-n-PENTYL-1,2,3,4-TETRAHYDRONAPHTHALENE	456
6-n-PENTYL-1,2,3,4-TETRAHYDRONAPHTHALENE	6-n-PENTYL-1,2,3,4-TETRAHYDRONAPHTHALENE	457
1-PENTYNE	1-PENTYNE	327
2-PENTYNE	2-PENTYNE	328
PERCHLOROMETHANE	CARBON TETRACHLORIDE	802
PHENANTHRENE	PHENANTHRENE	475
PHENOL	PHENOL	724
PHENYLACETYLENE	PHENYLACETYLENE	422
PHENYL ALCOHOL	PHENOL	724
PHENYLBENZENE	BIPHENYL	398
2-PHENYL BIPHENYL	1,2-DIPHENYLBENZENE	424
3-PHENYL BIPHENYL	1,3-DIPHENYLBENZENE	425
4-PHENYL BIPHENYL	1,4-DIPHENYLBENZENE	426
2-PHENYL-1-BUTENE	2-PHENYL-1-BUTENE	395
4-PHENYL DIPHENYL	1,4-DIPHENYLBENZENE	426
PHENYLETHYLENE	STYRENE	384
PHENYLETHYNE	PHENYLACETYLENE	422
PHENYLHYDRIDE	BENZENE	335
1-PHENYLISOBUTANE	ISOBUTYLBENZENE	350
PHENYLMETHANE	TOLUENE	336

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
2-PHENYL-2-METHYLPROPANE	tert-BUTYLBENZENE	352
1-PHENYLPROPANE	n-PROPYLBENZENE	341
cis-1-PHENYL-1-PROPENE	cis-1-PROPENYLBENZENE	385
trans-1-PHENYL-1-PROPENE	trans-1-PROPENYLBENZENE	386
2-PHENYLPROPENE	2-PROPENYLBENZENE	387
2-PHENYL-1-PROPENE	2-PROPENYLBENZENE	387
beta-PHENYLPROPENE	2-PROPENYLBENZENE	387
2-PHENYLPROPYLENE	2-PROPENYLBENZENE	387
beta-PHENYLPROPYLENE	2-PROPENYLBENZENE	387
PINENE	alpha-PINENE	320
2-PINENE	alpha-PINENE	320
2(10)-PINENE	beta-PINENE	321
alpha-PINENE	alpha-PINENE	320
beta-PINENE	beta-PINENE	321
PRIMARY AMYL ALCOHOL	1-PENTANOL	717
PROPAOIENE	PROPAOIENE	290
PROPALOEHYOE	n-PROPIONALOEHYDE	730
PROPANAL	n-PROPIONALDEHYDE	730
PROPANAMINE	n-PROPYLAMINE	737
PROPANE	PROPANE	3
n-PROPANE	PROPANE	3
PROPANE CARBOXYLIC ACIO	n-BUTYRIC ACID	703
1-PROPANE CARBOXYLIC ACIO	n-BUTYRIC ACIO	703
1,2-PROPANEOIOL	1,2-PROPYLENE GLYCOL	850
PROPANE-1,2-DIOL	1,2-PROPYLENE GLYCOL	850
PROPANE, 2-HYDROXY	ISOPROPANOL	712
1-PROPANETHIOL	1-PROPANETHIOL	833
PROPANOIC ACID	PROPIONIC ACIO	702
PROPANOL	n-PROPANOL	711
PROPANOL-1	n-PROPANOL	711
PROPAN-2-OL	ISOPROPANOL	712
1-PROPANOL	n-PROPANOL	711
n-PROPAN-1-OL	n-PROPANOL	711
n-PROPANOL	n-PROPANOL	711
2-PROPANOL	ISOPROPANOL	712
n-PROPAN-2-OL	ISOPROPANOL	712
sec-PROPANOL	ISOPROPANOL	712
PROPANOL, 2-METHYL	ISOBUTANOL	714
PROPANONE	ACETONE	B21
PROPENAL	ACROLEIN	732
PROP-2-EN-1-AL	ACROLEIN	732
PROPENE	PROPYLENE	193
2-PROPEN-1-ONE	ACROLEIN	732
cis-1-PROPENYL BENZENE	cis-1-PROPENYL BENZENE	385
trans-1-PROPENYL BENZENE	trans-1-PROPENYL BENZENE	386
2-PROPENYL BENZENE	2-PROPENYL BENZENE	387
PROPINE	METHYLACETYLENE	323
PROPINOALOEHYDE	n-PROPIONALDEHYDE	730
PROPIONAL	n-PROPIONALOEHYDE	730
n-PROPIONALOEHYOE	n-PROPIONALOEHYOE	730
PROPIONIC ACIO	PROPIONIC ACIO	702
PROPIONIC ALDEHYDE	n-PROPYL ACETATE	759
n-PROPYL ACETATE	n-PROPYL ACETATE	759
PROPYL ALCOHOL	n-PROPANOL	711
n-PROPYL ALCOHOL	n-PROPANOL	711

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
sec-PROPYL ALCOHOL	ISOPROPANOL	712
1-PROPYL ALCOHOL	n-PROPANOL	711
PROPYL ALDEHYDE	n-PROPIONALDEHYDE	730
n-PROPYLAMINE	n-PROPYLAMINE	737
n-PROPYLBENZENE	n-PROPYLBENZENE	341
PROPYL CARBINOL	n-BUTANOL	713
n-PROPYLCYCLOHEXANE	n-PROPYLCYCLOHEXANE	156
n-PROPYLCYCLOPENTANE	n-PROPYLCYCLOPENTANE	109
1-n-PROPYLCYCLOPENTENE	1-n-PROPYLCYCLOPENTENE	314
PROPYLENE	PROPYLENE	193
PROPYLENE CARBONATE	PROPYLENE CARBONATE	848
PROPYLENE CHLORIDE	1,2-DICHLOROPROPANE	820
PROPYLENE DICHLORIDE	1,2-DICHLOROPROPANE	820
alpha,beta-PROPYLENE DICHLORIDE	1,2-DICHLOROPROPANE	820
PROPYLENE GLYCOL	1,2-PROPYLENE GLYCOL	850
1,2-PROPYLENE GLYCOL	1,2-PROPYLENE GLYCOL	850
alpha-PROPYLENE GLYCOL	1,2-PROPYLENE GLYCOL	850
PROPYL ETHANOATE	n-PROPYL ACETATE	759
PROPYLETHYLENE	1-PENTENE	198
n-PROPYL FORMATE	n-PROPYL FORMATE	756
PROPYL FORMIC ACID	n-BUTYRIC ACID	703
PROPYL HYDRIDE	PROPANE	3
PROPYLIC ALDEHYDE	n-PROPIONALDEHYDE	730
PROPYL METHANOATE	n-PROPYL FORMATE	756
1-n-PROPYLNAPHTHALENE	1-n-PROPYLNAPHTHALENE	434
2-n-PROPYLNAPHTHALENE	2-n-PROPYLNAPHTHALENE	435
1-n-PROPYL-1,2,3,4-TETRAHYDRONAPHTHALENE	1-n-PROPYL-1,2,3,4-TETRAHYDRONAPHTHALENE	452
6-n-PROPYL-1,2,3,4-TETRAHYDRONAPHTHALENE	6-n-PROPYL-1,2,3,4-TETRAHYDRONAPHTHALENE	453
1-PROPYNE	METHYLACETYLENE	323
PRUSSIC ACID	HYDROGEN CYANIDE	784
PYRENE	PYRENE	476
PYRIDINE	PYRIDINE	746
PYROACETIC ACID	ACETONE	821
PYROPENTYLENE	CYCLOPENTADIENE	318
PYRROLYLENE	1,3-BUTADIENE	292
QUINOLINE	QUINOLINE	749
SELEXOL	SELEXOL	863
SKELLYSOLVE A	n-PENTANE	6
SODIUM HYDRATE	SODIUM HYDORXIDE	847
SODIUM HYDROXIDE	SODIUM HYDROXIDE	847
cis-STILBENE	cis-1,2-DIPHENYLETHENE	420
trans-STILBENE	trans-1,2-DIPHENYLETHENE	421
STYRENE	STYRENE	384
STYROL	STYRENE	384
STYROLENE	STYRENE	384
SULFOLANE	SULFOLANE	862
SULFUR DIOXIDE	SULFUR DIOXIDE	796
SULFUR TRIOXIDE	SULFUR TRIOXIDE	797
SULFURIC ACID	SULFURIC ACID	846
SULFURIC ANHYDRIDE	SULFUR TRIOXIDE	797
SULFUROUS ACID ANHYDRIDE	SULFUR DIOXIDE	796
SULFUROUS ANHYDRIDE	SULFUR DIOXIDE	796
SULFUROUS OXIDE	SULFUR DIOXIDE	796
SULPHURIC ACID	SULFURIC ACID	846
m-TERPHENYL	1,3-DIPHENYLBENZENE	425

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
o-TERPHENYL	1,2-DIPHENYLBENZENE	424
p-TERPHENYL	1,4-DIPHENYLBENZENE	426
TETRACHLOROCARBON	CARBON TETRACHLORIDE	802
TETRACHLOROMETHANE	CARBON TETRACHLORIDE	802
n-TETRACOSANE	n-TETRACOSANE	86
n-TETRADECANE	n-TETRADECANE	76
1-TETRADECENE	1-TETRADECENE	283
n-TETRADECYLBENZENE	n-TETRADECYLBENZENE	380
n-TETRADECYLCYCLOHEXANE	n-TETRADECYLCYCLOHEXANE	172
n-TETRADECYLCYCLOPENTANE	n-TETRADECYLCYCLOPENTANE	139
TETRAETHYLENE GLYCOL	TETRAETHYLENE GLYCOL	852
TETRAETHYLMETHANE	3,3-DIETHYLPENTANE	55
TETRAFLUOROMETHANE	CARBON TETRAFLUORIDE	803
TETRAHYDROFURAN	TETRAHYDROFURAN	768
1,2,3,4-TETRAHYDRONAPHTHALENE	1,2,3,4-TETRAHYDRONAPHTHALENE	446
TETRALIN	1,2,3,4-TETRAHYDRONAPHTHALENE	446
1,2,3,4-TETRAMETHYL BENZENE	1,2,3,4-TETRAMETHYL BENZENE	368
1,2,3,5-TETRAMETHYL BENZENE	1,2,3,5-TETRAMETHYL BENZENE	369
1,2,4,5-TETRAMETHYL BENZENE	1,2,4,5-TETRAMETHYL BENZENE	370
2,2,3,3-TETRAMETHYLBUTANE	2,2,3,3-TETRAMETHYLBUTANE	40
TETRAMETHYLENE	CYCLOBUTANE	98
TETRAMETHYLENE OXIDE	TETRAHYDROFURAN	768
TETRAMETHYLENE SULFONE	SULFOLANE	862
2,2,3,3-TETRAMETHYLHEXANE	2,2,3,3-TETRAMETHYLHEXANE	70
2,2,5,5-TETRAMETHYLHEXANE	2,2,5,5-TETRAMETHYLHEXANE	71
TETRAMETHYLMETHANE	NEOPENTANE	8
2,2,3,3-TETRAMETHYLPENTANE	2,2,3,3-TETRAMETHYLPENTANE	58
2,2,3,4-TETRAMETHYLPENTANE	2,2,3,4-TETRAMETHYLPENTANE	59
2,2,4,4-TETRAMETHYLPENTANE	2,2,4,4-TETRAMETHYLPENTANE	60
2,3,3,4-TETRAMETHYLPENTANE	2,3,3,4-TETRAMETHYLPENTANE	61
2-THIABUTANE	2-THIABUTANE	832
THIACYCLOPENTANE DIOXIDE	SULFOLANE	862
2-THIAHEPTANE	2-THIAHEPTANE	842
2-THIAHEXANE	2-THIAHEXANE	839
3-THIAHEXANE	3-THIAHEXANE	840
3-THIAPENTANE	3-THIAPENTANE	838
2-THIAPROPANE	DIMETHYL SULFIDE	829
THIOETHANOL	ETHYL MERCAPTAN	830
THIOETHYL ALCOHOL	ETHYL MERCAPTAN	830
THIOMETHYL ALCOHOL	METHYL MERCAPTAN	827
TOLUENE	TOLUENE	336
TOLUENE HEXAHYDRIDE	METHYLCYCLOHEXANE	147
n-TRIACONTANE	n-TRIACONTANE	92
TRIATOMIC OXYGEN	OZONE	795
1,1,1-TRICHLOROETHANE	1,1,1-TRICHLOROETHANE	812
1,1,2-TRICHLOROETHANE	1,1,2-TRICHLOROETHANE	813
TRICHLOROFLUOROMETHANE	TRICHLOROFLUOROMETHANE	801
TRICHLOROFORM	CHLOROFORM	806
TRICHLOROMETHANE	CHLOROFORM	806
n-TRICOSANE	n-TRICOSANE	85
TRIDANE	n-TRIDECYLBENZENE	379
n-TRIDECANE	n-TRIDECANE	75
1-TRIDECENE	1-TRIDECENE	282
n-TRIDECYLBENZENE	n-TRIDECYLBENZENE	379
n-TRIDECYLCYCLOHEXANE	n-TRIDECYLCYCLOHEXANE	171

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
n-TRIDECYLCYCLOPENTANE	n-TRIDECYLCYCLOPENTANE	138
TRIETHANOLAMINE	TRIETHANOLAMINE	857
TRIFLUOROCHLOROMETHANE	CHLOROTRIFLUOROMETHANE	799
1,1,1-TRIFLUOROETHANE	1,1,1-TRIFLUOROETHANE	814
TRIFLUOROMETHANE	TRIFLUOROMETHANE	807
TRIFLUOROMETHYL CHLORIDE	CHLOROTRIFLUOROMETHANE	799
TRI(HYDROXYETHYL)AMINE	TRIETHANOLAMINE	857
sym-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	348
1,2,3-TRIMETHYLBENZENE	1,2,3-TRIMETHYLBENZENE	346
1,2,4-TRIMETHYLBENZENE	1,2,4-TRIMETHYLBENZENE	347
1,3,5-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	348
2,2,3-TRIMETHYLBUTANE	2,2,3-TRIMETHYLBUTANE	22
2,3,3-TRIMETHYL-1-BUTENE	2,3,3-TRIMETHYL-1-BUTENE	256
TRIMETHYLCARBINOL	tert-BUTANOL	716
1,1,2-TRIMETHYLCYCLOPENTANE	1,1,2-TRIMETHYLCYCLOPENTANE	116
1,1,3-TRIMETHYLCYCLOPENTANE	1,1,3-TRIMETHYLCYCLOPENTANE	117
1,c-2,c-3-TRIMETHYLCYCLOPENTANE	1,c-2,c-3-TRIMETHYLCYCLOPENTANE	118
1,c-2,c-4-TRIMETHYLCYCLOPENTANE	1,c-2,c-4-TRIMETHYLCYCLOPENTANE	121
1,c-2,t-3-TRIMETHYLCYCLOPENTANE	1,c-2,t-3-TRIMETHYLCYCLOPENTANE	119
1,c-2,t-4-TRIMETHYLCYCLOPENTANE	1,c-2,t-4-TRIMETHYLCYCLOPENTANE	122
1,t-2,c-3-TRIMETHYLCYCLOPENTANE	1,t-2,c-3-TRIMETHYLCYCLOPENTANE	120
1,t-2,c-4-TRIMETHYLCYCLOPENTANE	1,t-2,c-4-TRIMETHYLCYCLOPENTANE	123
TRIMETHYLENE	CYCLOPROPANE	93
3,3,4-TRIMETHYLHEPTANE	3,3,4-TRIMETHYLHEPTANE	68
3,3,5-TRIMETHYLHEPTANE	3,3,5-TRIMETHYLHEPTANE	69
2,2,3-TRIMETHYLHEXANE	2,2,3-TRIMETHYLHEXANE	48
2,2,4-TRIMETHYLHEXANE	2,2,4-TRIMETHYLHEXANE	49
2,2,5-TRIMETHYLHEXANE	2,2,5-TRIMETHYLHEXANE	50
2,3,3-TRIMETHYLHEXANE	2,3,3-TRIMETHYLHEXANE	51
2,3,5-TRIMETHYLHEXANE	2,3,5-TRIMETHYLHEXANE	52
2,4,4-TRIMETHYLHEXANE	2,4,4-TRIMETHYLHEXANE	53
3,3,4-TRIMETHYLHEXANE	3,3,4-TRIMETHYLHEXANE	54
TRIMETHYLMETHANOL	tert-BUTANOL	716
2,2,3-TRIMETHYLPENTANE	2,2,3-TRIMETHYLPENTANE	36
2,2,4-TRIMETHYLPENTANE	2,2,4-TRIMETHYLPENTANE	37
2,3,3-TRIMETHYLPENTANE	2,3,3-TRIMETHYLPENTANE	38
2,3,4-TRIMETHYLPENTANE	2,3,4-TRIMETHYLPENTANE	39
2,3,3-TRIMETHYL-1-PENTENE	2,3,3-TRIMETHYL-1-PENTENE	275
2,4,4-TRIMETHYL-1-PENTENE	2,4,4-TRIMETHYL-1-PENTENE	276
2,4,4-TRIMETHYL-2-PENTENE	2,4,4-TRIMETHYL-2-PENTENE	277
TRIPTANE	2,2,3-TRIMETHYLBUTANE	22
n-UNDECANE	n-UNDECANE	73
1-UNDECENE	1-UNDECENE	280
n-UNDECYLBENZENE	n-UNDECYLBENZENE	377
n-UNDECYLCYCLOHEXANE	n-UNDECYLCYCLOHEXANE	169
n-UNOECYLCYCLPENTANE	n-UNDECYLCYCLOPENTANE	136
UREA	UREA	743
VALERIC ACID	N-PENTANOIC ACID	705
VINEGAR ACID	ACETIC ACID	701
VINYL ACETATE	VINYL ACETATE	757
VINYLACETYLENE	VINYLACETYLENE	326
VINYL BENZENE	STYRENE	384
VINYL CHLORIDE	VINYL CHLORIDE	811
VINYL ETHYLENE	1,3-BUTADIENE	292
WATER	WATER	845

TABLE 1C0.1 (Continued)

COMPOUND	TABLE ENTRY NAME	TABLE SEQUENCE NUMBER
XENON	XENON	798
1,2-XYLENE	o-XYLENE	338
1,3-XYLENE	m-XYLENE	339
1,4-XYLENE	p-XYLENE	340
m-XYLENE	m-XYLENE	339
o-XYLENE	o-XYLENE	338
p-XYLENE	p-XYLENE	340

TABLE 1C1.1
PARAFFINS—PRIMARY PROPERTIES

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Paraffins, C_1 to C_3										
1	METHANE	CH_4	16.04	-258.73	-298.44 Z	-116.87	666.40	0.0991	0.2880	0.0108
2	ETHANE	C_2H_6	30.07	-127.49	-297.04 Z	89.92	706.50	0.0788	0.2840	0.0990
3	PROPANE	C_3H_8	44.10	-43.75	-305.73 E	206.06	618.00	0.0737	0.2800	0.1517
Paraffins, C_4H_{10}										
4	n-BUTANE	C_4H_{10}	58.12	31.08	-217.05	305.82	550.60	0.0704	0.2743	0.1931
5	ISOBUTANE	C_4H_{10}	58.12	10.78	-255.28	274.46	527.90	0.0724	0.2820	0.1770
Paraffins, C_5H_{12}										
6	n-PENTANE	C_5H_{12}	72.15	96.92	-201.51	385.80	488.60	0.0693	0.2690	0.2486
7	ISOPENTANE	C_5H_{12}	72.15	82.12	-255.82	369.10	490.40	0.0679	0.2700	0.2275
8	NEOPENTANE	C_5H_{12}	72.15	49.10	2.17	321.13	464.00	0.0874	0.2690	0.1964
Paraffins, C_6H_{14}										
9	n-HEXANE	C_6H_{14}	86.18	155.72	-139.58	453.60	436.90	0.0688	0.2640	0.3047
10	2-METHYLPENTANE	C_6H_{14}	86.18	140.47	-244.83	435.83	436.60	0.0681	0.2670	0.2781
11	3-METHYLPENTANE	C_6H_{14}	86.18	145.91	-281.22	448.30	453.10	0.0681	0.2730	0.2773
12	2,2-DIMETHYLBUTANE	C_6H_{14}	86.18	121.52	-147.77 P	420.13	446.80	0.0887	0.2720	0.2339
13	2,3-DIMETHYLBUTANE	C_6H_{14}	86.18	136.36	-199.37 P	440.29	453.50	0.0665	0.2690	0.2478
Paraffins, C_7H_{16}										
14	n-HEPTANE	C_7H_{16}	100.20	209.16	-131.05	512.70	396.80	0.0691	0.2630	0.3494
15	2-METHYLHEXANE	C_7H_{16}	100.20	194.09	-180.89	495.00	396.50	0.0673	0.2610	0.3282
16	3-METHYLHEXANE	C_7H_{16}	100.20	197.33	-182.92	503.78	406.11	0.0646	0.2550	0.3216
17	3-ETHYLPENTANE	C_7H_{16}	100.20	200.25	-181.48	513.48	419.28	0.0665	0.2680	0.3094
18	2,2-DIMETHYLPENTANE	C_7H_{16}	100.20	174.55	-190.86	477.23	402.23	0.0685	0.2670	0.2879
19	2,3-DIMETHYLPENTANE	C_7H_{16}	100.20	193.61	...	507.58	421.78	0.0628	0.2560	0.2923
20	2,4-DIMETHYLPENTANE	C_7H_{16}	100.20	176.90	-182.64	475.95	396.94	0.0668	0.2650	0.3018
21	3,3-DIMETHYLPENTANE	C_7H_{16}	100.20	186.91	-210.03	505.85	427.21	0.0662	0.2730	0.2672
22	2,2,3-TRIMETHYLBUTANE	C_7H_{16}	100.20	177.59	-12.84 P	496.44	426.39	0.0636	0.2660	0.2503
Paraffins, C_8H_{18}										
23	n-OCTANE	C_8H_{18}	114.23	258.21	-70.18	564.22	360.70	0.0690	0.2590	0.3962
24	2-METHYLHEPTANE	C_8H_{18}	114.23	243.76	-164.27	547.68	360.35	0.0684	0.2610	0.3769
25	3-METHYLHEPTANE	C_8H_{18}	114.23	246.08	-184.90	554.94	389.31	0.0651	0.2520	0.3716
26	4-METHYLHEPTANE	C_8H_{18}	114.23	243.88	-185.72	551.46	368.40	0.0689	0.2595	0.3711
27	3-ETHYLHEXANE	C_8H_{18}	114.23	245.36	...	558.05	378.55	0.0638	0.2530	0.3628
28	2,2-DIMETHYLHEXANE	C_8H_{18}	114.23	224.31	-188.12	529.97	386.95	0.0670	0.2650	0.3378
29	2,3-DIMETHYLHEXANE	C_8H_{18}	114.23	240.09	...	554.45	381.45	0.0657	0.2630	0.3472
30	2,4-DIMETHYLHEXANE	C_8H_{18}	114.23	228.97	...	538.63	371.30	0.0682	0.2630	0.3436
31	2,5-DIMETHYLHEXANE	C_8H_{18}	114.23	228.40	-132.07	530.33	361.14	0.0676	0.2620	0.3576
32	3,3-DIMETHYLHEXANE	C_8H_{18}	114.23	233.55	-194.98	551.93	384.35	0.0621	0.2510	0.3196

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.1 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Paraffins, C_1 to C_3												
0.3000	340.00	2.500 Z	1.00040	5000.000 Z	0.5267	...	...	...	219.45	21501. Y	...	1
0.3582	285.78	2.970 F	1.00470	800.0000 Z	0.4078	0.9723 Z	...	...	211.14	20426. Y	...	2
0.5070	147.60	4.227 F	1.28980	188.6400	0.3885	0.6200	0.1858 T	...	183.01	19918. Y	7.02 T	3
Paraffins, C_4H_{10}												
0.5840	110.79	4.869 F	1.32594	51.7060	0.3950	0.5701	0.2586 T	0.1675 T	165.93	19657. Y	11.87 T	4
0.5629	119.89	4.893 F	1.35140	72.5810	0.3867	0.5707	0.2773 T	0.1873 T	157.23	19589. Y	9.81 T	5
Paraffins, C_5H_{12}												
0.8311	92.70	5.282	1.35472	15.5740	0.3882	0.5435	0.3397 T	0.2647 T	153.57	19495.	15.47 T	6
0.8247	95.01	5.208	1.35088	20.4450	0.3844	0.5378	0.3175 T	...	147.12	19304.	14.45 T	7
0.5974	105.35	4.981	1.33900	38.6609	0.3904	0.5542	...	...	135.53	19369. Y	10.89 T	8
Paraffins, C_6H_{14}												
0.6838	81.68	5.534	1.37228	4.9597	0.3863	0.5318	0.4095	...	143.94	19232.	17.98 T	9
0.8578	83.83	5.484	1.36873	8.7537	0.3851	0.5288	0.3914	...	139.40	19202.	16.87 T	10
0.6689	80.03	5.577	1.37388	6.1323	0.3803	0.5188	0.3925	...	143.77	19214.	17.58 T	11
0.8535	85.02	5.448	1.36595	9.8564	0.3814	0.5137	0.4719	...	131.79	19162.	15.80 T	12
0.8870	80.63	5.581	1.37281	7.4228	0.3747	0.5140	0.4443	...	137.13	19195.	16.87 T	13
Paraffins, C_7H_{16}												
0.6882	74.11	5.738	1.38511	1.6201	0.3845	0.5285	0.5050	0.3521 T	136.00	19158.	19.78 T	14
0.6823	75.88	5.689	1.38227	2.2773	0.3808	0.5218	0.4764	...	133.72	19135.	18.79 T	15
0.8928	72.75	5.778	1.38609	2.1281	0.3787	0.5183	0.4479	...	133.82	19148.	19.30 T	16
0.7043	89.42	5.871	1.39084	2.0043	0.3854	0.5142	0.4410	...	133.04	19156.	19.92 T	17
0.6821	75.98	5.688	1.37955	3.4914	0.3854	0.5167	0.5381	...	125.55	19097.	17.53 T	18
0.7024	69.95	5.858	1.38945	2.3522	0.3751	0.5098	0.5330	...	130.83	19140.	19.47 T	19
0.6764	77.69	5.639	1.37882	3.2933	0.3885	0.5238	0.5265	...	127.84	19113.	17.64 T	20
0.6981	71.78	5.804	1.38842	2.7688	0.3854	0.5013	0.5825	...	127.59	19121.	19.07 T	21
0.6954	71.98	5.797	1.38692	3.3720	0.3777	0.4991	0.8928	...	124.33	19105.	18.99 T	22
Paraffins, C_8H_{18}												
0.7070	68.65	5.894	1.39505	0.5369	0.3833	0.5238	0.6372	0.3995	129.52	19098.	21.08 T	23
0.7037	69.59	5.866	1.39257	0.7677	0.3804	0.5170	0.5588	0.3400	125.84	19080.	20.15 T	24
0.7098	67.88	5.917	1.39610	0.7303	0.3772	0.5138	0.5501	0.3348	128.11	19090.	20.75 T	25
0.7210	64.74	6.011	1.39553	0.7634	0.3794	0.5151	0.5338	0.3294	127.50	19093.	20.54 T	26
0.7173	65.77	5.980	1.39919	0.7457 T	0.3860 T	0.5158 T	0.5335 T	0.3265 T	128.80 T	19097.	21.08 T	27
0.7001	70.60	5.837 T	1.39104	1.2201 T	0.3825 T	0.5064 T	0.8235 T	0.3780 T	121.82 T	19054.	19.15 T	28
0.7162	68.07	5.971	1.39880	0.8610 T	0.3723 T	0.5055 T	0.5830 T	0.3659 T	124.88 T	19089.	20.53 T	29
0.7017	70.18	5.850	1.39291	1.0989 T	0.3897 T	0.5179 T	0.7057 T	0.4141 T	122.23 T	22460.	19.59 T	30
0.6983	71.12	5.822 T	1.39004	1.0974 T	0.3787 T	0.5113 T	0.5828 T	0.3703 T	123.19 T	19060.	19.28 T	31
0.7141	68.65	5.954 T	1.39782	1.0309 T	0.3867 T	0.5052 T	0.5858 T	0.3649 T	122.84 T	19071.	20.17 T	32

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.1 (Continued)

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Paraffins, C_8H_{18}										
33	3,4-DIMETHYLHEXANE	C_8H_{18}	114.23	243.91	...	564.17	390.15	0.0654	0.2650	0.3361
34	2-METHYL-3-ETHYLPENTANE	C_8H_{18}	114.23	240.17	-174.91	560.93	391.60	0.0621	0.2540	0.3309
35	3-METHYL-3-ETHYLPENTANE	C_8H_{18}	114.23	244.67	-131.57	579.03	407.56	0.0638	0.2670	0.3047
36	2,2,3-TRIMETHYLPENTANE	C_8H_{18}	114.23	229.72	-170.07	554.63	395.91	0.0611	0.2540	0.2970
37	2,2,4-TRIMETHYLPENTANE	C_8H_{18}	114.23	210.63	-161.27	519.46	372.40	0.0656	0.2660	0.3031
39	2,3,3-TRIMETHYLPENTANE	C_8H_{18}	114.23	239.59	-149.67	572.63	409.01	0.0639	0.2690	0.2903
39	2,3,4-TRIMETHYLPENTANE	C_8H_{18}	114.23	236.25	-164.56	559.67	395.95	0.0646	0.2670	0.3161
40	2,2,3,3-TETRAMETHYLBUTANE	C_8H_{18}	114.23	223.65	...	562.37	416.26	0.0646	0.2601	0.2171
Paraffins, C_9H_{20}										
41	n-NONANE	C_9H_{20}	126.26	303.47	-64.29	610.68	331.90	0.0684	0.2550	0.4368
42	2-METHYLOCTANE	C_9H_{20}	129.26	299.90	-112.67	596.48	332.13	0.0676	0.2540	0.4217
43	3-METHYLOCTANE	C_9H_{20}	126.26	291.61	-161.68	602.60	339.49	0.0661	0.2520	0.4125
44	4-METHYLOCTANE	C_9H_{20}	129.26	269.39	-171.76	599.10	339.46	0.0653	0.2510	0.4130
45	3-ETHYLHEPTANE	C_9H_{20}	129.26	289.40	...	610.07	352.44	0.0651	0.2564	0.3798
46	2,2-DIMETHYLHEPTANE	C_9H_{20}	126.26	270.94	-171.40	579.67 P	339.95 P	0.0648 P	0.2525	0.3922
47	2,6-DIMETHYLHEPTANE	C_9H_{20}	129.26	275.39	-153.22	576.21	320.53	0.0669	0.2470	0.3955
48	2,2,3-TRIMETHYLHEXANE	C_9H_{20}	129.26	272.49	...	604.67	368.40	0.0629	0.2602	0.3191
49	2,2,4-TRIMETHYLHEXANE	C_9H_{20}	129.26	259.77	-164.00	573.99	343.74	0.0642	0.2552	0.3437
50	2,2,5-TRIMETHYLHEXANE	C_9H_{20}	129.29	255.36	-159.37	582.92	339.01	0.0648	0.2560	0.3567
51	2,3,3-TRIMETHYLHEXANE	C_9H_{20}	129.26	279.92	-179.24	619.07	375.65	0.0631	0.2627	0.3124
52	2,3,5-TRIMETHYLHEXANE	C_9H_{20}	126.26	268.41	-199.04	569.01	345.19	0.0645	0.2636	0.9249
53	2,4,4-TRIMETHYLHEXANE	C_9H_{20}	129.26	267.17	-172.09	599.29	349.54	0.0643	0.2564	0.3329
54	3,3,4-TRIMETHYLHEXANE	C_9H_{20}	129.26	264.63	-150.16	626.99	366.70	0.0617	0.2639	0.3236
55	3,3-DIETHYLPENTANE	C_9H_{20}	129.26	295.14	-27.56	639.42	397.97	0.0591	0.2490	0.3391
56	2,2-DIMETHYL-3-ETHYLPENTANE	C_9H_{20}	129.26	272.99	-147.06	601.54 P	373.07 P	0.0636 P	0.2681	0.3369
57	2,4-DIMETHYL-3-ETHYLPENTANE	C_9H_{20}	129.26	276.04	-166.25	604.02 P	367.12 P	0.0639 P	0.2637	0.3570
58	2,2,3,3-TETRAMETHYLPENTANE	C_9H_{20}	129.26	294.49	14.20	639.96	396.79	0.0597	0.2570	0.2900
59	2,2,3,4-TETRAMETHYLPENTANE	C_9H_{20}	129.26	271.43	-195.96	606.20	371.91	0.0812	0.2550	0.3106
60	2,2,4,4-TETRAMETHYLPENTANE	C_9H_{20}	129.26	252.11	-97.77	568.76	342.42	0.0629	0.2500	0.3159
81	2,3,3,4-TETRAMETHYLPENTANE	C_9H_{20}	128.28	296.79	-151.92	634.01	394.50	0.0609	0.2626	0.3145
Paraffins, $C_{10}H_{22}$										
62	n-DECANE	$C_{10}H_{22}$	142.29	345.46	-21.36	652.00	305.20	0.0679	0.2490	0.4642
63	2-METHYLNONANE	$C_{10}H_{22}$	142.29	332.60	-102.37	637.07	297.33	0.0677	0.2434	0.4636
64	3-METHYLNONANE	$C_{10}H_{22}$	142.29	334.04	-120.64	644.99	310.39	0.0665	0.2476	0.4565
65	4-METHYLNONANE	$C_{10}H_{22}$	142.26	330.26	-145.66	654.53 P	320.62 P	0.0637 P	0.2431	0.4000
66	5-METHYLNONANE	$C_{10}H_{22}$	142.29	329.19	-125.86	637.91 P	313.19 P	0.0659 P	0.2493	0.4613
67	2,7-DIMETHYLOCTANE	$C_{10}H_{22}$	142.29	319.77	-65.20	621.23	291.53	0.0669	0.2393	0.4460
68	3,3,4-TRIMETHYLHEPTANE	$C_{10}H_{22}$	142.29	323.42	...	670.19	359.69	0.0622	0.2630	0.3431
69	3,3,5-TRIMETHYLHEPTANE	$C_{10}H_{22}$	142.29	312.22	...	637.61	336.49	0.0634	0.2579	0.3953
70	2,2,3,3-TETRAMETHYLHEXANE	$C_{10}H_{22}$	142.28	320.56	-65.20	661.73	364.04	0.0640	0.2755	0.3668

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.1 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Paraffins, C_8H_{18}												
0.7243	63.87	6.038	1.40180	0.7982 T	0.3678 T	0.4997 T	0.5736 T	0.3639 T	125.37 T	19093.	21.21 T	33
0.7240	63.94	6.036 T	1.40167	0.8732 T	0.3810 T	0.5072 T	0.5286 T	0.3221 T	125.19 T	19094.	21.05 T	34
0.7315	61.93	6.099	1.40549	0.8391	0.3810	...	...	...	...	19088.	21.53	35
0.7202	64.97	6.005	1.40066	1.1421	0.3799	0.5027	0.6794	0.3981	121.03	19073.	20.22 T	38
0.6992	70.87	5.829	1.38898	1.7088	0.3810	0.4891	0.6033	0.3703	116.75	19064.	18.32 T	37
0.7301	62.31	6.087	1.40522	0.9666	0.3780	0.5048	0.7021	0.3623	121.94	19077.	21.11 T	38
0.7240	63.94	6.036	1.40198	0.9769	0.3871	0.5096	0.6823	0.4053	122.78	19080.	20.68 T	39
...	...	...	...	0.8265	0.3908	0.4466 P	...	...	118.26	22445.	20.95 P	40
Paraffins, C_9H_{20}												
0.7219	64.52	6.018	1.40311	0.1795	0.3825	0.5213	0.8070	0.4697	124.36	19055.	22.38 T	41
0.7177	65.65	5.984	1.40080	0.2512	0.3796	0.5065	0.6582	0.3865	122.10	19037.	21.44 T	42
0.7250	63.68	6.044	1.40400	0.2520	0.3770	0.4994	0.6514	0.3818	122.02	19044.	21.92 T	43
0.7249	63.70	6.043	1.40390	0.2732	0.3781	0.5005	0.6518	0.3820	121.30	19041.	21.92 T	44
0.7308	62.12	8.093	1.40700	0.2865	...	...	...	...	120.00	19052.	22.34	45
0.7148	86.50	5.958	1.39930	0.4298	0.3828	0.4558 P	...	...	...	19011.	20.34	48
0.7131	66.92	5.946	1.39830	0.3686	...	...	...	...	117.66	19019.	20.38	47
0.7336	61.39	6.116	1.40820	0.4298	...	...	...	...	114.97	19030.	21.41	48
0.7197	65.12	6.000	1.40100	0.5748	...	...	...	...	112.63	19029.	20.09	49
0.7154	66.29	5.964	1.39728	0.8209	0.3744	0.4871	1.3067	0.7708	112.57	18993.	19.59 T	50
0.7419	59.24	6.185	1.41190	0.3835	...	...	...	...	...	19035.	21.95	51
0.7281	63.36	6.054	1.40370	0.4539	...	...	...	...	115.31	19025.	20.82	52
0.7278	62.91	6.068	1.40510	0.5121	...	...	...	...	112.96	19038.	20.75	53
0.7498	57.22	6.251	1.41540	0.3537	...	...	...	...	...	19047.	22.79	54
0.7587	55.00	6.328	1.41837	0.2825	0.3908	0.5090	1.5876	0.8916	118.27	19054.	23.29 T	55
0.7389	60.01	6.160	1.41020	0.4298	...	...	...	...	114.64	19063.	21.92	56
0.7420	59.21	6.186	1.41150	0.3835	...	...	...	...	...	19073.	22.34	57
0.7607	54.52	6.342	1.42140	0.3613	0.3814	0.4954	0.8146	0.3802	115.57	19045.	22.94 T	58
0.7238	64.08	6.032	1.41246	0.7293	0.3886	0.4858	0.8119	0.3579	109.89	19053.	21.57 T	59
0.7238	64.06	6.032	1.40459	0.7293	0.3886	0.4858	0.8119	0.3579	109.07	19039.	19.91 T	60
0.7588	54.99	6.326	1.42003	0.3495	0.3928	0.4557 P	...	...	...	19046.	22.88	61
Paraffins, $C_{10}H_{22}$												
0.7342	61.22	6.121	1.40967	0.0609	0.3818	0.5203	1.0130	0.5525	119.65	19019.	23.37 T	62
0.7308	62.18	6.091	1.40750	0.0852	0.3802	...	...	...	116.64	19003.	20.56 P	63
0.7375	60.35	6.149	1.41030	0.0850	0.3777	...	...	...	116.64	19010.	21.35 P	64
0.7365	60.64	6.140	1.40950	0.0950	...	...	...	...	...	19010.	22.96 P	65
0.7387	60.57	6.142	1.41000	0.0978	...	...	...	...	115.43	19010.	23.00 P	68
0.7285	82.72	6.074	1.40620	0.1206	0.3778	...	...	...	...	18987.	21.59	67
0.7607	54.52	6.342	1.42130	0.1401	...	...	...	...	111.50	19010.	26.21 P	68
0.7490	57.95	6.227	1.41470	0.1742	...	...	...	...	...	19008.	24.32 P	69
0.7684	52.88	6.408	1.42600	0.1584	...	...	...	...	109.39	19011.	27.33 P	70

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.1 (Continued)

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Paraffins, $C_{10}H_{22}$										
71	2,2,5,5-TETRAMETHYLHEXANE	$C_{10}H_{22}$	142.28	279.43	9.32	588.85	317.83	0.0643	0.2590	0.3780
72	2,4-DIMETHYL-3-ISOPROPYL-PENTANE	$C_{10}H_{22}$	142.28	314.67	-115.08	646.30 P	345.21 P	0.0629 P	0.2604	0.3707
Paraffins, C_{11} to C_{30}										
73	n-UNDECANE	$C_{11}H_{24}$	156.31	384.60	-14.07	690.71	279.92	0.0685	0.2428	0.5362
74	n-DODECANE	$C_{12}H_{26}$	170.34	421.38	14.75	725.45	258.17	0.0683	0.2362	0.5752
75	n-TRIDECANE	$C_{13}H_{28}$	184.36	455.84	22.30	757.31	239.31	0.0682	0.2304	0.6188
76	n-TETRADECANE	$C_{14}H_{30}$	198.39	488.44	42.55	794.66	208.50	0.0680	0.2090	0.5701
77	n-PENTADECANE	$C_{15}H_{32}$	212.42	519.23	49.86	813.47	207.40	0.0679	0.2190	0.7083
78	n-HEXADECANE	$C_{16}H_{34}$	226.44	548.35	64.68	838.49	194.35	0.0678	0.2142	0.7471
79	n-HEPTADECANE	$C_{17}H_{36}$	240.47	575.64	71.57	860.40 S	191.00 S	0.0870 S	0.2170	0.7645
80	n-OCTADECANE	$C_{18}H_{38}$	254.50	601.34	82.69	881.80	176.00 S	0.0630 S	0.1980	0.7946
81	n-NONADECANE	$C_{19}H_{40}$	268.53	650.84	89.40	901.00 S	162.00 S	0.0670	0.2000	0.8196
82	n-EICOSANE	$C_{20}H_{42}$	282.55	650.84	97.57	921.00 S	182.00 S	0.0640 S	0.1980	0.9119
83	n-HENEICOSANE	$C_{21}H_{44}$	296.58	673.70	104.90	947.48 P	168.38 P	0.0647 P	0.2112	0.9221
84	n-DOCOSANE	$C_{22}H_{46}$	310.61	695.50	111.90	985.50 P	159.72 P	0.0648 P	0.2095	0.9547
85	n-TRICOSANE	$C_{23}H_{48}$	324.63	716.40	117.70	982.67 P	153.58 P	0.0645 P	0.2078	0.9887
86	n-TETRACOSANE	$C_{24}H_{50}$	338.66	736.30	123.80	998.96 P	147.89 P	0.0644 P	0.2082	1.0188
87	n-PENTACOSANE	$C_{25}H_{52}$	352.69	755.40	128.70	1014.39 P	142.61 P	0.0644 P	0.2047	1.0498
88	n-HEXACOSANE	$C_{26}H_{54}$	366.71	774.00	133.50	1029.36 P	137.70 P	0.0643 P	0.2033	1.0834
89	n-HEPTACOSANE	$C_{27}H_{56}$	380.74	791.80	138.20	1043.69 P	133.11 P	0.0643 P	0.2019	1.1117
90	n-OCTACOSANE	$C_{28}H_{58}$	394.77	808.90	142.50	1057.32 P	128.81 P	0.0642 P	0.2008	1.1405
91	n-NONACOSANE	$C_{29}H_{80}$	408.79	825.40	148.70	1070.26 P	124.79 P	0.0642 P	0.1994	1.1686
92	n-TRIACONTANE	$C_{30}H_{62}$	422.82	841.50	150.40	1083.22 P	121.00 P	0.0641 P	0.1982	1.1932

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.1 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Paraffins, $C_{10}H_{22}$												
0.7229	64.24	6.027	1.40316	0.3453	...	...	...	...	...	18939.	21.26 P	71
0.7824	54.11	6.356	1.42248	0.1747	...	...	...	...	108.48	19071.	28.44 P	72
Paraffins, C_{11} to C_{30}												
0.7445	58.56	8.207	1.41507	0.0204	0.3833	0.5204	1.2580	0.6394	116.95	18988.	24.24 T	73
0.7527	58.48	6.276	1.41507	0.0071	0.3830	0.5210	1.5446	0.7467	112.26	18964.	24.94 T	74
0.7817	54.28	8.351	1.42346	0.0031	0.3814	0.5212	1.7546	0.8299	107.96	18942.	25.55 T	75
0.7833	53.87	6.364	1.42685	0.0009	0.3812	0.5228	2.2511	0.9930	102.82	18925.	26.32 T	76
0.7722	51.75	6.438	1.42979	0.0002	0.3808	0.5241	2.4918	1.0950	104.00	18909.	28.68 T	77
0.7772	50.58	6.480 R	1.43250	0.0001	0.3806	0.5246 T	2.9193	1.2480	99.72	18894.	27.09 T	78
0.7797	49.99	6.500 R	1.43480	<.0001	0.3819	0.5236 T	3.5813	1.4462	93.54	18883.	27.52 T	79
0.7820	49.45	8.519 R	1.43890 R	<.0001	0.3825	0.5212 T	4.1314	1.5974	89.20	18872. R	27.97 T	80
0.7889	48.31	8.581 R	1.43880 R	<.0001	0.3823	0.5011 T	4.8990	1.7939	89.78	18862. R	28.22 T	81
0.7924	47.10	6.597 R	1.44050 R	<.0001	0.3821	...	5.3926	1.9846	89.79	18854. R	28.54 T	82
0.7954	48.41	6.831 R	1.44200 R	...	...	...	...	...	...	18999. V	27.75 V	83
0.7981	45.79	8.854 R	1.44340 R	...	0.3889	0.5166 V	...	...	...	18992. V	27.91 V	84
0.8004	45.28	8.873 R	1.44470 R	...	0.3816	0.5167 V	...	...	...	18985. V	28.04 V	85
0.8025	44.82	8.890 R	1.44590 R	...	0.3974	0.5166 V	...	...	...	18979. V	28.14 V	86
0.8027	44.79	8.892 R	1.44700 R	...	0.3821	0.5164 V	...	...	...	18973. V	28.29 V	87
0.8079	43.64	8.738 R	1.44800 R	...	0.3813	0.5180 V	...	...	...	18969. V	...	88
0.8088	43.50	8.741 R	1.44900 R	...	0.3805	0.5158 V	...	...	...	18964. V	28.48 V	89
0.8101	43.17	8.754 R	1.44990 R	...	0.3815	0.5150 V	...	...	...	18959. V	28.54 V	90
0.8120	42.78	6.770 R	1.45080 R	...	0.3813	0.5144 V	...	...	...	18955. V	28.63 V	91
0.8132	42.50	8.780 R	1.45150 R	...	...	...	...	...	...	18951. V	28.68 V	92

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.2
CYCLOPARAFFINS—PRIMARY PROPERTIES

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Alkylcyclopropanes, C_3 to C_5										
93	CYCLOPROPANE	C_3H_6	42.08	-27.04	-197.36	258.57	808.60	0.0620	0.2745	0.1348
94	METHYLCYCLOPROPANE	C_4H_8	56.11	33.31	-287.14	874.87 P	659.29 P	0.0853 P	0.1983	0.1570
95	ETHYLCYCLOPROPANE	C_5H_{10}	70.13	98.67	-238.59	407.82 P	569.04 P	0.0648 P	0.2778	0.2170
96	cis-1,2-DIMETHYLCYCLOPROPANE	C_5H_{10}	70.13	98.65	-221.57	410.92 P	589.04 P	0.0648 P	0.2768	0.2410
97	trans-1,2-DIMETHYLCYCLOPROPANE	C_5H_{10}	70.13	82.78	-237.23	...	...	...	...	...
Alkylcyclobutanes, C_4 to C_6										
98	CYCLOBUTANE	C_4H_8	56.11	54.52	-131.31 B	368.20	723.00	0.0800	0.2740	0.1866
99	METHYLCYCLOBUTANE	C_5H_{10}	70.13	97.34	...	417.45 P	808.43 P	0.0624 P	0.2828	0.1830
100	ETHYLCYCLOBUTANE	C_6H_{12}	84.16	159.08	-224.95	488.55 P	529.03 P	0.0625 P	0.2733	0.2250
Alkylcyclopentanes, C_5 to C_7										
101	CYCLOPENTANE	C_5H_{10}	70.13	120.67	-136.98	481.50	653.00	0.0590	0.2730	0.1943
102	METHYLCYCLOPENTANE	C_6H_{12}	84.18	161.28	-224.42	499.35	548.90	0.0607	0.2720	0.2302
103	ETHYLCYCLOPENTANE	C_7H_{14}	98.19	218.24	-217.20	585.47	492.80	0.0611	0.2690	0.2715
104	1,1-DIMETHYLCYCLOPENTANE	C_7H_{14}	98.19	190.12	-93.63	525.00	500.00	0.0591	0.2746	0.2721
105	cis-1,2-DIMETHYLCYCLOPENTANE	C_7H_{14}	98.19	211.18	-85.01	557.60	499.66	0.0604	0.2710	0.2662
106	trans-1,2-DIMETHYLCYCLOPENTANE	C_7H_{14}	98.19	197.38	-179.64	538.00	499.88	0.0587	0.2700	0.2898
107	cis-1,3-DIMETHYLCYCLOPENTANE	C_7H_{14}	98.19	195.39	-208.88	532.00	500.00	0.0591	0.2727	0.2737
108	trans-1,3-DIMETHYLCYCLOPENTANE	C_7H_{14}	98.19	197.10	-209.15	538.00	500.00	0.0591	0.2716	0.2878
Alkylcyclopentanes, C_8H_{18}										
109	n-PROPYLCYCLOPENTANE	C_8H_{16}	112.21	287.71	-179.21	625.73 P	435.11 P	0.0607 P	0.2540	0.2719
110	ISOPROPYLCYCLOPENTANE	C_8H_{16}	112.21	259.55	-168.47	608.18 P	441.03 P	0.0599 P	0.2588	0.3029
111	1-METNYL-1-ETHYLCYCLOPENTANE	C_8H_{18}	112.21	250.74	-228.84	588.08 P	438.29 P	0.0811 P	0.2871	0.3305
112	cis-1-METNYL-2-ETNYL-CYCLOPENTANE	C_8H_{16}	112.21	262.49	-158.71	605.43 P	438.29 P	0.0811 P	0.2628	0.3278
113	trans-1-METHYL-2-ETNYL-CYCLOPENTANE	C_8H_{16}	112.21	250.16	-158.87	587.26 P	438.29 P	0.0811 P	0.2873	0.3293
114	cis-1-METHYL-3-ETHYL-CYCLOPENTANE	C_8H_{16}	112.21	250.18	...	588.98 P	438.29 P	0.0611 P	0.2674	0.3280
115	trans-1-METNYL-3-ETNYL-CYCLOPENTANE	C_8H_{16}	112.21	250.18	...	588.98 P	438.29 P	0.0611 P	0.2874	0.3291
116	1,1,2-TRIMETNYLCYCLOPENTANE	C_8H_{16}	112.21	238.71	-8.95	587.37 P	438.29 P	0.0811 P	0.2725	0.3324
117	1,1,3-TRIMETNYLCYCLOPENTANE	C_8H_{16}	112.21	220.81	-224.39	543.92 P	438.29 P	0.0611 P	0.2789	0.3318
118	1,c-2,c-3-TRIMETHYL-CYCLOPENTANE	C_8H_{18}	112.21	253.40	-177.57	592.00 P	438.29 P	0.0811 P	0.2881	0.3307
119	1,c-2,t-3-TRIMETNYL-CYCLOPENTANE	C_8H_{18}	112.21	243.50	-189.60	577.38 P	438.29 P	0.0611 P	0.2899	0.3325
120	1,t-2,c-3-TRIMETNYL-CYCLOPENTANE	C_8H_{16}	112.21	230.38	-170.87	558.57 P	438.29 P	0.0611 P	0.2749	0.3315
121	1,c-2,c-4-TRIMETNYL-CYCLOPENTANE	C_8H_{16}	112.21	242.60	-208.19	575.42 P	438.29 P	0.0611 P	0.2704	0.3281

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.2 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Alkylcyclopropenes, C_3 to C_5												
0.6338	91.75	5.284	...	145.4780	0.3064	...	0.2488 T	...	205.19	20018. Y	12.99 T	93
...	...	...	...	...	...	0.3160 P	...	...	...	19657. V	...	94
0.6891	73.85	5.745	1.37560	...	...	0.3357 P	...	...	220.14	19495. P	17.58 P	95
0.8989	70.96	5.827	1.38000	...	...	0.3355 P	...	...	221.06	19440. P	18.62 P	96
0.6748	78.19	5.817	...	...	...	...	...	...	...	...	...	97
Alkylcyclobutanes, C_4 to C_6												
0.6999	70.67	5.835	1.36200	34.0919	0.2960	0.4562	0.3571	...	183.76	19676. Y	16.73 T	98
0.6977	71.30	5.817	1.38100	...	...	0.3356 P	...	...	222.37	19457. P	16.38 P	99
0.7327	61.61	6.109	1.39940	...	...	0.3427 P	...	...	207.28	19354. P	19.58 P	100
Alkylcyclopentanes, C_5 to C_7												
0.7603	54.61	6.338	1.40363	9.9196	0.2712	0.4227	0.4927	...	167.09	18825.	21.71 T	101
0.7540	56.17	6.286	1.40700	4.5044	0.3001	0.4404	0.5648	...	149.87	18768.	21.65 T	102
0.7712	51.98	8.429	1.41730	1.4066	0.3058	0.4433	0.8199	0.3901	141.19	18758.	23.33 T	103
0.7592	54.87	6.330	1.41091	2.5609	0.3180	0.3649 P	...	...	...	18721.	21.24	104
0.7771	50.59	6.478 T	1.41963	1.6484 T	0.3154 T	0.4502 T	0.5698 T	0.3655 T	138.85 T	18750.	23.62 T	105
0.7561	55.83	8.304 T	1.40941	2.1928 T	0.3170 T	0.4453 T	0.5870 T	...	138.80 T	18724.	21.20 T	106
0.7495	57.28	6.249	1.40633	2.2916	0.3170	0.3646 P	...	...	...	18729.	20.22 P	107
0.7535	58.29	6.282	1.40813	2.2091	0.3170	0.3645 P	...	...	...	18738.	20.65 P	108
Alkylcyclopentenes, C_8H_{16}												
0.7811	49.88	6.512	1.42389	0.4710	0.3145	0.4514	0.7256	0.4613	132.54	18750.	24.42 T	109
0.7808	49.71	6.510	1.42350	0.6011	0.3157	0.3616 P	...	...	...	18873. P	23.89	110
0.7854	48.66	8.548	1.42476	0.7263	0.2705	0.3820 P	...	...	...	18863. P	24.29 P	111
0.7896	47.71	6.583	1.42695	0.5502	...	0.3755 P	...	...	...	18873. P	24.83 P	112
0.7734	51.46	6.448	1.41950	0.7227	...	0.3760 P	...	...	...	18873. P	22.81 P	113
0.7712	51.97	6.430	1.41700	0.7144	...	0.3761 P	...	...	...	18873. P	22.50 P	114
0.7712	51.97	6.430	1.41700	0.7387	...	0.3761 P	...	...	...	18873. P	22.50 P	115
0.7771	50.58	6.479	1.42051	0.9988	0.3604	0.3767 P	...	...	...	18829. P	23.24 P	116
0.7528	58.47	6.278	1.40870	1.3930	0.3604	0.3775 P	...	...	...	18829. P	20.42 P	117
0.7837	49.05	6.534	1.42380	0.6920	...	0.3759 P	...	...	...	18873. P	24.05 P	118
0.7750	51.09	6.481	1.41940	0.8525	...	0.3764 P	...	...	...	18840. P	22.99 P	119
0.7581	55.18	8.320	1.41140	1.1388	...	0.3770 P	...	...	133.37 P	18840. P	21.02 P	120
0.7760	50.84	8.470	1.42000	0.8499	...	0.3764 P	...	...	...	18840. P	23.06 P	121

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.2 (Continued)

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Alkylcyclopentsnes, C_8H_{16}										
122	1,c-2,t-4-TRIMETHYL-CYCLOPENTANE	C_8H_{16}	112.21	242.12	-206.59	577.38 P	438.29 P	0.0611 P	0.2699	0.3306
123	1,t-2,c-4-TRIMETHYL-CYCLOPENTANE	C_8H_{16}	112.21	228.72	-203.40	555.60 P	438.29 P	0.0611 P	0.2757	0.3310
Alkylcyclopentsnes, C_9H_{18}										
124	n-BUTYLCYCLOPENTANE	C_9H_{18}	126.24	313.88	-162.37	858.60 P	395.00 P	0.0813 P	0.2546	0.3280
125	ISOBUTYLCYCLOPENTANE	C_9H_{18}	126.24	298.31	-175.40	864.12 P	422.39 P	0.0579 P	0.2561	0.2670
126	1-METHYL-1-n-PROPYL-CYCLOPENTANE	C_9H_{18}	126.24	294.80	...	631.02 P	395.00 P	0.0613 P	0.2610	0.3760
127	1,1-DIETHYLCYCLOPENTANE	C_9H_{18}	126.24	302.90	...	642.72 P	395.00 P	0.0613 P	0.2583	0.3730
128	cis-1,2-DIETHYLCYCLOPENTANE	C_9H_{18}	126.24	308.41	-180.40	650.70 P	395.00 P	0.0813 P	0.2564	0.3730
129	1,1-DIMETHYL-2-ETHYL-CYCLOPENTANE	C_9H_{18}	126.24	280.40	...	810.20 P	395.00 P	0.0613 P	0.2681	0.3730
Alkylcyclopentenes, C_{10} to C_{25}										
130	n-PENTYLCYCLOPENTANE	$C_{10}H_{20}$	140.27	356.90	-117.40	899.71 P	359.46 P	0.0814 P	0.2490	0.4184
131	n-HEXYLCYCLOPENTANE	$C_{11}H_{22}$	154.30	397.22	-99.40	737.26 P	329.77 P	0.0616 P	0.2439	0.4646
132	n-HEPTYLCYCLOPENTANE	$C_{12}H_{24}$	168.32	435.02	-63.40	771.62 P	304.61 P	0.0817 P	0.2394	0.5100
133	n-OCTYLCYCLOPENTANE	$C_{13}H_{26}$	182.35	470.30	-47.20	802.90 P	283.00 P	0.0618 P	0.2353	0.5525
134	n-NONYLCYCLOPENTANE	$C_{14}H_{28}$	198.38	503.60	-20.20	831.92 P	264.26 P	0.0819 P	0.2316	0.5956
135	n-DECYLCYCLOPENTANE	$C_{15}H_{30}$	210.40	534.88	-7.83	858.61 P	247.84 P	0.0619 P	0.2283	0.6314
136	n-UNDECYLCYCLOPENTANE	$C_{18}H_{32}$	224.43	564.44	14.00	883.47 P	233.34 P	0.0620 P	0.2252	0.6741
137	n-DODECYLCYCLOPENTANE	$C_{17}H_{34}$	238.48	592.16	23.00	908.33 P	220.43 P	0.0620 P	0.2225	0.7183
138	n-TRIDECYLCYCLOPENTANE	$C_{18}H_{36}$	252.48	618.82	41.00	927.93 P	208.88 P	0.0621 P	0.2199	0.7582
139	n-TETRADECYLCYCLOPENTANE	$C_{19}H_{38}$	266.51	644.00	48.20	948.54 P	198.48 P	0.0621 P	0.2175	0.7949
140	n-PENTADECYLCYCLOPENTANE	$C_{20}H_{40}$	280.54	667.40	62.60	966.99 P	189.07 P	0.0622 P	0.2154	0.8395
141	n-HEXADECYLCYCLOPENTANE	$C_{21}H_{42}$	294.56	690.80	89.80	985.78 P	180.50 P	0.0622 P	0.2133	0.8755
142	n-HEPTADECYLCYCLOPENTANE	$C_{22}H_{44}$	308.59	710.60	80.60	1000.42 P	172.68 P	0.0622 P	0.2117	0.9060
143	n-OCTADECYLCYCLOPENTANE	$C_{23}H_{46}$	322.62	732.20	86.00	1017.61 P	165.52 P	0.0623 P	0.2098	1.0010
144	n-NONADECYLCYCLOPENTANE	$C_{24}H_{48}$	336.64	752.00	95.00	1032.87 P	158.92 P	0.0623 P	0.2081	0.9660
145	n-EICOSYLCYCLOPENTANE	$C_{25}H_{50}$	350.67	770.00	100.40	1046.21 P	152.83 P	0.0623 P	0.2067	1.0750
Alkylcyclohexanes, C_6 and C_7										
146	CYCLOHEXANE	C_8H_{12}	84.18	177.33	43.80	536.70	591.00	0.0588	0.2730	0.2149
147	METHYLCYCLOHEXANE	C_7H_{14}	98.19	213.68	-195.87	570.27	503.48	0.0800	0.2690	0.2350
Alkylcyclohexsnes, C_8H_{18}										
148	ETHYLCYCLOHEXANE	C_8H_{18}	112.21	269.21	-168.38	838.80	440.88	0.0642	0.2700	0.2455
148	1,1-DIMETHYLCYCLOHEXANE	C_8H_{18}	112.21	247.18	-28.29	804.40	428.18	0.0642	0.2690	0.2326
150	cis-1,2-DIMETHYLCYCLOHEXANE	C_8H_{18}	112.21	265.51	-58.04	631.40	428.18	0.0657	0.2680	0.2324
151	trans-1,2-DIMETHYLCYCLOHEXANE	C_8H_{18}	112.21	256.01	-130.19	613.40	428.18	0.0657	0.2730	0.2379

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.2 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Alkylcyclopentanes, C_8H_{16}												
0.7680	52.74	6.403	1.41612	0.8814	0.3719	0.3764 P	...	...	...	18840. P	22.18 P	122
0.7518	56.71	6.268	1.40812	1.1625	...	0.3771 P	...	...	...	18840. P	20.33 P	123
Alkylcyclopentanes, C_9H_{18}												
0.8103	43.12	6.756	1.42930	...	...	0.3861 P	...	...	176.13	18745.	25.39	124
0.7853	48.69	6.547	1.42730	...	...	0.3867 P	...	...	170.32	18831. P	24.29	125
0.8036	44.76	6.700	1.43500	...	...	0.3868 P	...	...	171.17	18860. P	26.56 P	126
0.8072	43.79	6.730	1.43630	...	...	0.3865 P	...	...	173.30	18860. P	28.76 P	127
0.8004	45.29	6.673	1.43300	...	...	0.3863 P	...	...	174.72	18869. P	26.20 P	128
0.7928	46.97	6.610	1.43000	...	...	0.3874 P	...	...	167.41	18831. P	25.16 P	129
Alkylcyclopentanes, C_{10} to C_{25}												
0.7954	46.41	6.631	1.43360	...	0.3304	0.3962 P	1.1280	0.6200	...	18739.	26.30	130
0.8006	45.24	6.675	1.43700	...	0.3346	0.4058 P	1.1450	0.7300	...	18735.	26.90	131
0.8051	44.26	6.712	1.44000	...	0.3382	0.4150 P	1.7480	0.8500	...	18731.	27.40	132
0.8088	43.45	6.743	1.44250	...	0.3412	0.4239 P	2.1300	0.9800	...	18728.	28.00	133
0.8121	42.73	6.771	1.44460	...	0.3428	0.4326 P	2.5700	1.1200	103.61	18726.	28.60	134
0.8143	42.27	6.789	1.44659	...	0.3452	0.4410 P	3.0500	1.2700	...	18723.	28.89	135
0.8175	41.58	6.818	1.44820	...	0.3473	0.4493 P	3.6300	1.4400	97.46	18721.	28.47 P	136
0.8197	41.12	6.834	1.44970	...	0.3492	0.4574 P	4.2500	1.6100	94.82	18720.	28.70 P	137
0.8217	40.70	6.851	1.45100	...	0.3509	0.4654 P	4.9500	1.7800	...	18718.	28.86 P	138
0.8235	40.32	6.866	1.45220	...	0.3524	0.4732 P	5.7100	1.9800	...	18717.	29.01 P	139
0.8252	39.97	6.880 R	1.45330	...	0.3537	...	6.5800	2.1900	...	18715.	29.13 P	140
0.8267	39.67	6.892 R	1.45430	...	0.3550	...	...	...	...	18714.	29.23 P	141
0.8280	39.40	6.903 R	1.45520 R	...	...	...	...	...	116.53	18863. V	29.42 V	142
0.8293	39.13	6.914 R	1.45600 R	...	...	...	...	...	114.07	18862. V	29.52 V	143
0.8303	38.93	6.922 R	1.45660 R	...	...	...	...	...	111.66	18861. V	29.59 V	144
0.8315	38.68	6.932 R	1.45750 R	...	...	...	...	...	109.27	18860. V	29.66 V	145
Alkylcyclohexenes, C_6 and C_7												
0.7835	49.10	6.532	1.42354	3.2816	0.2892	0.4301	0.9407	...	152.68	18676.	24.65 T	146
0.7748	51.13	6.459	1.42058	1.6047	0.3179	0.4399	0.7660	0.4343	139.34	18642.	23.30 T	147
Alkylcyclohexenes, C_8H_{16}												
0.7921	47.14	6.604	1.43073	0.4834	0.3274	0.4426	0.8634	0.5123	130.89	18661.	25.05 T	148
0.7854	48.67	6.548 T	1.42662	0.8193 T	0.3185 T	0.4356 T	0.8628 T	0.5043 T	124.30 T	18636.	23.65 T	149
0.8006	45.23	6.675 T	1.43358	0.5397 T	0.3227 T	0.4382 T	1.0733 T	0.6717 T	128.52 T	18663.	25.19 T	150
0.7803	49.85	6.505 T	1.42470	0.7060 T	0.3277 T	0.4358 T	0.8644 T	0.5043 T	125.66 T	18638.	23.57 T	151

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.2 (Continued)

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Alkylcyclohexsnes, C_6H_{16}										
152	cis-1,3-DIMETHYLCYCLOHEXANE	C_8H_{16}	112.21	248.16	-104.03	604.40	426.16	0.0642	0.2690	0.2366
153	trans-1,3-DIMETHYLCYCLOHEXANE	C_8H_{16}	112.21	256.01	-130.19	617.00	426.18	0.0657	0.2720	0.2335
154	cis-1,4-DIMETHYLCYCLOHEXANE	C_8H_{16}	112.21	255.78	-125.38	617.00 S	426.16	0.0657	0.2720	0.2311
155	trans-1,4-DIMETHYLCYCLOHEXANE	C_8H_{16}	112.21	246.83	-34.53	602.60	426.18	0.0642	0.2690	0.2370
Alkylcyclohexsnes, C_9 and C_{10}										
156	n-PROPYLCYCLOHEXANE	C_9H_{18}	126.24	314.10	-138.82	690.80	407.08	0.0605	0.2520	0.2595
157	ISOPROPYLCYCLOHEXANE	C_9H_{16}	126.24	310.57	-128.90	684.90 P	516.39 P	0.0529 P	0.2810	0.3675
158	n-BUTYLCYCLOHEXANE	$C_{10}H_{20}$	140.27	357.70	-102.50	740.93 S	372.75 S	0.0654 P	0.2660	0.2743
159	ISOBUTYLCYCLOHEXANE	$C_{10}H_{20}$	140.27	340.32	...	729.05 P	573.77 P	0.0476 P	0.3006	0.4084
160	sec-BUTYLCYCLOHEXANE	$C_{10}H_{20}$	140.27	354.70	...	710.17 P	375.05 P	0.0593 P	0.2486	0.3520
161	tert-BUTYLCYCLOHEXANE	$C_{10}H_{20}$	140.27	340.83	-42.09	702.39 P	382.91 P	0.0583 P	0.2510	0.3380
162	1-METHYL-4-ISOPROPYL-CYCLOHEXANE	$C_{10}H_{20}$	140.27	339.30	...	688.03 P	375.05 P	0.0593 P	0.2534	0.3530
Alkylcyclohexanes, C_{11} to C_{26}										
163	n-PENTYLCYCLOHEXANE	$C_{11}H_{22}$	154.30	398.61	-71.50	745.81 P	341.20 P	0.0605 P	0.2461	0.4498
164	n-HEXYLCYCLOHEXANE	$C_{12}H_{24}$	168.32	436.46	-45.40	779.81 P	314.30 P	0.0607 P	0.2413	0.4931
165	n-HEPTYLCYCLOHEXANE	$C_{13}H_{26}$	182.35	472.82	-22.90	612.16 P	291.32 P	0.0608 P	0.2369	0.5280
166	n-OCTYLCYCLOHEXANE	$C_{14}H_{28}$	196.36	506.48	-3.46	641.24 P	271.48 P	0.0610 P	0.2329	0.5793
167	n-NONYLCYCLOHEXANE	$C_{15}H_{30}$	210.40	536.70	13.64	868.66 P	254.16 P	0.0611 P	0.2293	0.6205
168	n-DECYLCYCLOHEXANE	$C_{16}H_{32}$	224.43	567.66	28.89	892.56 P	236.94 P	0.0612 P	0.2263	0.6600
169	n-UNDECYLCYCLOHEXANE	$C_{17}H_{34}$	238.46	595.76	42.44	915.56 P	225.42 P	0.0613 P	0.2234	0.6988
170	n-DODECYLCYCLOHEXANE	$C_{18}H_{36}$	252.48	622.22	54.50	936.91 P	213.35 P	0.0614 P	0.2208	0.7402
171	n-TRIDECYLCYCLOHEXANE	$C_{19}H_{38}$	266.51	647.42	65.30	957.00 P	202.50 P	0.0615 P	0.2183	0.7749
172	n-TETRADECYLCYCLOHEXANE	$C_{20}H_{40}$	280.54	671.00	75.20	975.43 P	192.71 P	0.0616 P	0.2161	0.8115
173	n-PENTADECYLCYCLOHEXANE	$C_{21}H_{42}$	294.56	694.40	84.20	994.01 P	183.82 P	0.0616 P	0.2140	0.8506
174	n-HEXADECYLCYCLOHEXANE	$C_{22}H_{44}$	308.59	716.00	92.48	1010.66 P	175.71 P	0.0617 P	0.2120	0.8897
175	n-HEPTADECYLCYCLOHEXANE	$C_{23}H_{46}$	322.62	735.80	100.04	1025.40 P	168.29 P	0.0618 P	0.2104	0.9168
176	n-OCTADECYLCYCLOHEXANE	$C_{24}H_{48}$	336.64	755.60	104.90	1040.47 P	161.47 P	0.0618 P	0.2087	0.9510
177	n-NONADECYLCYCLOHEXANE	$C_{25}H_{50}$	350.67	773.60	113.36	1053.63 P	155.18 P	0.0616 P	0.2072	0.9887
178	n-EICOSYLCYCLOHEXANE	$C_{26}H_{52}$	364.70	791.60	119.30	1067.09 P	149.36 P	0.0619 P	0.2056	1.0217
Cycloparaffins, C_7 to C_{12}										
179	CYCLOHEPTANE	C_7H_{14}	98.19	245.62	17.60	628.00	557.00	0.0565	0.2741	0.2430
160	CYCLOOCTANE	C_8H_{16}	112.21	304.05	58.64	705.20	517.00	0.0561	0.2697	0.2537
161	CYCLONONANE	C_9H_{18}	126.24	353.12	51.80	768.00	485.00	0.0561	0.2700	0.2680
162	ETHYLCYCLOHEPTANE	C_9H_{18}	126.24	325.99	...	691.77 P	429.39 P	0.0566 P	0.2570	0.3520
183	BICYCLOHEXYL	$C_{12}H_{22}$	166.31	482.27	38.53	848.93 P	371.30 P	0.0576 P	0.2530	0.4217

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.2 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Alkylcyclohexenes, C_8H_{16}												
0.7704	52.17	6.423 T	1.42063	0.7819 T	0.3249 T	0.4360 T	0.8900 T	0.5135 T	125.37 T	18620.	22.59 T	152
0.7892	47.80	6.580 T	1.42843	0.6509 T	0.3245 T	0.4435 T	0.6645 T	0.4496 T	127.38 T	18648.	24.15 T	153
0.7873	48.23	6.564 T	1.42731	0.6605 T	0.3245 T	0.4422 T	0.8797 T	0.5040 T	126.97 T	18648.	23.94 T	154
0.7670	52.98	6.395 T	1.41853	0.8201 T	0.3251 T	0.4382 T	0.7491 T	0.4724 T	124.43 T	18622.	22.52 T	155
Alkylcyclohexanes, C_9 and C_{10}												
0.7981	45.79	6.654	1.43478	0.1700	0.3376	0.4485	1.0010	0.5759	124.30	18663.	26.07 T	156
0.8064	43.97	6.723	...	0.1902	0.3750	0.3615 P	...	...	...	18775. P	25.30	157
0.8034	44.64	6.698	1.43855	0.0575	0.3418	0.4523	1.2539	0.6881	118.63	18668.	26.51 T	158
0.8161	41.88	6.804	...	0.0907	...	0.3685 P	...	...	...	18781. P	25.34	159
0.8172	41.65	6.813	1.44450	...	...	0.5143 P	...	...	167.02	18781. P	26.99	160
0.8168	41.75	6.809	1.44470	...	...	0.3684 P	...	...	...	18746. P	26.18	161
0.8586	33.30	7.158 P	...	...	...	0.3686 P	...	...	163.42	18754. P	33.88 P	162
Alkylcyclohexenes, C_{11} to C_{26}												
0.8077	43.69	6.734	1.44160	...	0.3450	0.3726 P	...	...	113.78	18670.	27.00	163
0.8115	42.88	6.766	1.44410	...	0.3480	0.3782 P	...	...	...	18672.	27.50	164
0.8112	42.94	6.763	1.44630	...	0.3503	0.3836 P	...	...	...	18673.	27.90	165
0.8177	41.55	6.817	1.44830	...	0.3524	0.3889 P	...	...	102.50	18675.	28.40	166
0.8202	41.02	6.838	1.44990	...	0.3543	0.3942 P	...	...	...	18676.	28.90	167
0.8223	40.57	6.856	1.45141	...	0.3558	0.3996 P	...	...	...	18877.	29.34	168
0.8244	40.14	6.873	1.45270	...	0.3572	0.4049 P	...	...	99.71	18678.	28.98 P	169
0.8281	39.80	8.887	1.45390	...	0.3583	0.4102 P	...	...	...	18678.	29.16 P	170
0.8277	39.45	8.901 R	1.45500	...	...	...	...	...	...	18679.	29.29 P	171
0.8291	39.18	6.912 R	1.45590	...	...	...	...	...	...	18680.	29.51 P	172
0.8303	38.93	8.922 R	1.45680 R	...	...	...	...	...	...	18680. R	29.53 V	173
0.8318	38.86	6.933 R	1.45760 R	...	...	...	...	...	...	18681. R	29.61 V	174
0.8327	38.44	8.942 R	1.45830 R	...	...	...	...	...	...	18825. V	29.76 V	175
0.8337	38.22	6.951 R	1.45900 R	...	...	...	...	...	...	18826. V	29.83 V	176
0.8346	38.05	6.958 R	1.45960 R	...	...	...	...	...	...	18826. V	29.89 V	177
0.8357	37.81	6.967 R	1.46020 R	...	...	...	...	...	...	18827. V	29.95 V	178
Cycloparaffins, C_7 to C_{12}												
0.8144	42.24	6.790 T	1.44240	0.7926 T	0.2880 T	0.4309 T	1.4796 T	0.8081 T	146.89 T	18783.	26.99 T	179
0.8405	36.86	7.007	1.45630	0.2218	0.2907	...	...	...	137.54	18825.	29.30	180
0.8545	34.10	7.124	1.46440	...	0.3795	...	...	...	129.95	18852.	34.95 P	181
0.7992	45.55	6.663	...	...	...	0.3603 P	...	...	180.58	18901. P	26.43 P	182
0.8900	27.49	7.420	1.47768	0.0054	0.3040	0.4212	2.9175	...	115.08	18233.	32.17 T	183

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.2 (Continued)

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Decahydronaphthalenes, C_{10} to C_{12}										
184	cis-DECAHYDRONAPHTHALENE	$C_{10}H_{18}$	138.25	384.47	-45.36	804.38	470.27	0.0556	0.2670	0.2942
185	trans-DECAHYDRONAPHTHALENE	$C_{10}H_{18}$	138.25	369.16	-22.68	777.02	411.49	0.0556	0.2380	0.2536
186	1-METHYL-[cis-DECAHYDRONAPHTHALENE]	$C_{11}H_{20}$	152.28	469.40	...	899.53 P	388.28 P	0.0568 P	0.2303	0.3040
187	1-METHYL-[trans-DECAHYDRONAPHTHALENE]	$C_{11}H_{20}$	152.28	455.00	...	878.45 P	388.28 P	0.0568 P	0.2339	0.3040
188	1-ETHYL-[cis-DECAHYDRONAPHTHALENE]	$C_{12}H_{22}$	166.31	500.00	...	853.03 P	353.82 P	0.0573 P	0.2395	0.3960
189	1-ETHYL-[trans-DECAHYDRONAPHTHALENE]	$C_{12}H_{22}$	166.31	491.00	...	824.95 P	353.82 P	0.0573 P	0.2447	0.3960
190	9-ETHYL-[cis-DECAHYORONAPHTHALENE]	$C_{12}H_{22}$	168.31	451.00	...	837.77 P	353.82 P	0.0573 P	0.2423	0.3960
191	9-ETHYL-[trans-DECAHYORONAPHTHALENE]	$C_{12}H_{22}$	168.31	437.00	...	817.27 P	353.82 P	0.0573 P	0.2482	0.3960

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.2 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Decahydronaphthalenes, C_{10} to C_{12}												
0.9018	25.41	7.518	1.47878	0.0354	0.2766	0.3908	2.6582	1.0975	123.77	18323.	...	184
0.8755	30.13	7.299	1.46715	0.0541	0.2789	0.3861	1.8150	0.8519	120.10	18288.	...	185
1.0148	7.96	8.459 P	...	...	...	0.3690 P	...	...	177.77	...	52.83 P	186
...	...	...	1.46980	...	...	0.3694 P	...	...	174.57	...	49.28 P	187
...	...	...	...	...	...	0.3731 P	...	...	159.11	...	43.75 P	188
...	...	...	...	...	...	0.3736 P	...	...	158.07	...	39.74 P	189
0.8900	27.49	7.420	1.47800	...	...	0.3732 P	...	...	159.89	...	31.74 P	190
0.8648	32.12	7.210	1.46400	...	...	0.3739 P	...	...	156.99	...	28.21 P	191

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.3
MONOOLEFINS AND DIOLEFINS—PRIMARY PROPERTIES

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Monoolefins, C_2 and C_3										
192	ETHYLENE	C_2H_4	28.05	-154.68	-272.47	48.56	729.60	0.0737	0.2770	0.0652
193	PROPYLENE	C_3H_6	42.08	-53.66	-301.45	196.90	669.00	0.0689	0.2750	0.1424
Monoolefins, C_4H_6										
194	1-BUTENE	C_4H_6	56.11	20.73	-301.63	295.59	563.00	0.0665	0.2760	0.1667
195	cis-2-BUTENE	C_4H_6	56.11	36.70	-218.04	324.37	610.00	0.0668	0.2720	0.2030
196	trans-2-BUTENE	C_4H_6	56.11	33.56	-157.99	311.66	595.00	0.0680	0.2740	0.2162
197	ISOBUTENE	C_4H_8	56.11	19.58	-220.63	292.55	580.00	0.0682	0.2750	0.1693
Monoolefins, C_5H_{10}										
198	1-PENTENE	C_5H_{10}	70.13	65.94	-265.40	376.93	511.41	0.0676	0.2702	0.2330
199	cis-2-PENTENE	C_5H_{10}	70.13	98.50	-240.50	397.00	530.00	0.0690	0.2790	0.2406
200	trans-2-PENTENE	C_5H_{10}	70.13	97.44	-220.44	396.00	530.00	0.0690	0.2790	0.2373
201	2-METHYL-1-BUTENE	C_5H_{10}	70.13	66.09	-215.61	378.00	493.00	0.0667	0.2570	0.2287
202	3-METHYL-1-BUTENE	C_5H_{10}	70.13	68.11	-271.29	351.00	510.00	0.0690	0.2840	0.2286
203	2-METHYL-2-BUTENE	C_5H_{10}	70.13	101.42	-206.76	388.00	493.00	0.0667	0.2537	0.2767
Monoolefins, C_6H_{12}										
204	1-HEXENE	C_6H_{12}	84.16	146.27	-219.67	447.08	455.43	0.0873	0.2651	0.2800
205	cis-2-HEXENE	C_6H_{12}	84.16	156.00	-222.05	463.73 P	456.32 P	0.0683 P	0.2660	0.2722
206	trans-2-HEXENE	C_6H_{12}	84.16	154.17	-207.38	463.73 P	456.32 P	0.0685 P	0.2670	0.2613
207	cis-3-HEXENE	C_6H_{12}	84.16	151.61	-216.07	454.23 P	459.42 P	0.0667 P	0.2631	0.2906
208	trans-3-HEXENE	C_6H_{12}	84.16	152.76	-172.17	455.72 P	459.42 P	0.0667 P	0.2628	0.2879
209	2-METHYL-1-PENTENE	C_6H_{12}	84.16	143.80	-212.30	452.93 P	458.32 P	0.0683 P	0.2690	0.2406
210	3-METHYL-1-PENTENE	C_6H_{12}	84.16	129.52	-243.40	431.04 P	476.02 P	0.0652 P	0.2744	0.2652
211	4-METHYL-1-PENTENE	C_6H_{12}	84.16	128.96	-244.53	433.13 P	467.02 P	0.0657 P	0.2690	0.2389
212	2-METHYL-2-PENTENE	C_6H_{12}	84.16	153.15	-211.13	465.53 P	456.32 P	0.0691 P	0.2680	0.2445
213	cis-3-METHYL-2-PENTENE	C_6H_{12}	84.16	153.66	-210.71	467.65 P	476.02 P	0.0652 P	0.2636	0.2585
214	trans-3-METHYL-2-PENTENE	C_6H_{12}	84.16	156.79	-217.20	475.30 P	476.02 P	0.0652 P	0.2615	0.2583
215	cis-4-METHYL-2-PENTENE	C_6H_{12}	84.16	133.46	-210.73	438.53 P	467.02 P	0.0659 P	0.2690	0.2442
216	trans-4-METHYL-2-PENTENE	C_6H_{12}	84.16	137.46	-221.44	442.13 P	467.02 P	0.0659 P	0.2670	0.2552
217	2-ETHYL-1-BUTENE	C_6H_{12}	84.16	148.43	-204.75	481.93 P	456.32 P	0.0693 P	0.2700	0.2277
218	2,3-DIMETHYL-1-BUTENE	C_6H_{12}	84.16	132.10	-251.07	440.33 P	467.02 P	0.0664 P	0.2700	0.2269
219	3,3-DIMETHYL-1-BUTENE	C_6H_{12}	84.16	106.25	-175.38	404.10	476.61 P	0.0635 P	0.2749	0.2266
220	2,3-DIMETHYL-2-BUTENE	C_6H_{12}	84.16	163.77	-101.70	490.01 P	481.63 P	0.0637 P	0.2533	0.2268
Monoolefins, C_7H_{14}										
221	1-HEPTENE	C_7H_{14}	96.19	200.56	-161.98	507.74	410.46	0.0673	0.2613	0.3310
222	cis-2-HEPTENE	C_7H_{14}	96.19	209.14	...	526.53 P	411.91 P	0.0692 P	0.2640	0.2942
223	trans-2-HEPTENE	C_7H_{14}	98.19	208.31	-165.06	517.84 P	413.42 P	0.0662 P	0.2581	0.3389
224	cis-3-HEPTENE	C_7H_{14}	96.19	204.35	-213.95	521.33 P	411.91 P	0.0687 P	0.2640	0.2949
225	trans-3-HEPTENE	C_7H_{14}	98.19	204.21	-213.93	511.84 P	413.42 P	0.0662 P	0.2577	0.3379

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.3 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Preasure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Monoolefins, C_2 and C_3												
...	...	...	1.36320 J	...	0.3648	...	...	...	206.34	20281. Y	...	192
0.5210	140.10	4.343	1.36250 L	227.6070	0.3547	0.5737	...	...	188.92	19675. Y	6.88 T	193
Monoolefins, C_4H_8												
0.6005	104.14	5.006	1.37770 M	63.2775	0.3554	0.5359	...	...	171.98	19468. Y	12.12 T	194
0.6286	93.61	5.241	1.38420 U	45.7467	0.3273	0.5323	0.2710	...	179.53	19415. Y	13.99 T	195
0.6112	100.02	5.095	1.39320 U	49.8821	0.3661	...	0.2792	...	175.51	19389. Y	12.72 T	196
0.6013	103.83	5.013	1.39260 U	64.5830	0.3710	0.5463	0.2557	...	170.21	19341. Y	11.69 T	197
Monoolefins, C_5H_{10}												
0.6458	87.60	5.384	1.36835	19.1808	0.3642	0.5194	...	...	157.57	19187.	15.46 T	198
0.6598	82.97	5.500	1.37980	15.1333	0.3369	0.5079	...	...	162.68	19146.	16.80 T	199
0.6524	85.39	5.439	1.37610	15.4392	0.3607	0.5253	...	...	160.92	19119.	16.41 T	200
0.6563	84.10	5.472	1.37460	18.4107	0.3683	0.5264	...	...	156.83	19101.	15.40 T	201
0.6322	92.32	5.271	1.36110	26.4036	0.3950	0.5212	...	...	149.49	19158.	13.80 T	202
0.6683	80.24	5.571	1.38420	14.3133	0.3491	0.5141	...	...	162.33	19057.	17.06 T	203
Monoolefins, C_6H_{12}												
0.6769	77.53	5.644	1.38502	6.0069	0.3660	0.5116	0.3423	...	146.32	19105.	17.89 T	204
0.6917	73.06	5.767 T	1.39473	4.9069 T	0.3468 T	0.5000 T	0.3828 T	...	147.25	19046.	19.10 T	205
0.6825	75.84	5.690 T	1.39073	5.0943 T	0.3667 T	0.5189 T	0.3673 T	...	148.64	19037.	18.08 T	206
0.6848	75.14	5.709	1.39189	5.3780	...	0.4399 P	...	...	146.62	19071.	17.50 P	207
0.6820	75.98	5.688	1.39137	5.2190	...	0.4399 P	...	...	...	19035.	17.21 P	208
0.6844	75.25	5.706 T	1.38912	6.3005 T	0.3754 T	0.5191 T	0.3639 T	...	144.84	19015.	17.58 T	209
0.6722	79.01	5.604	1.38133	8.4430	...	0.4404 P	...	...	...	19075.	16.93 P	210
0.6687	80.11	5.575 T	1.37974	8.5168 T	0.3491 T	0.4947 T	0.3585 T	...	140.04	19086.	15.92 T	211
0.6909	73.32	5.760 T	1.39739	5.1762 T	0.3493 T	0.4943 T	0.3465 T	...	147.64	18970.	17.91 T	212
0.6980	71.23	5.819	1.39876	5.1430	...	0.4398 P	...	...	147.26	18992.	19.35 P	213
0.7024	69.95	5.856	1.40166	4.6140	...	0.4398 P	...	...	...	18992.	19.85 P	214
0.6741	78.40	5.620	1.38498	7.7463	0.3689	0.5151	0.3207	...	140.54	19030.	8.74 T	215
0.6738	78.58	5.616	1.38583	7.1236	0.3920	0.5368	0.3209	...	142.26	19006.	8.73 T	218
0.6944	72.26	5.790 T	1.39380	5.7044 T	0.3685 T	0.5065 T	0.3448 T	...	144.81	19030.	18.62 T	217
0.6828	75.72	5.693 T	1.38729	7.9752 T	0.3972 T	0.5334 T	0.3473 T	...	140.34	18994.	17.05 T	218
0.6584	83.42	5.489	1.37313	13.0930	...	0.4410 P	...	...	...	19028.	15.50 P	219
0.7130	68.97	5.944	1.40952	4.1630	...	0.4397 P	...	...	151.08	18956.	20.19 T	220
Monoolefins, C_7H_{14}												
0.7015	70.21	5.849	1.39713	1.9629	0.3679	0.5107	0.4318	0.3044	138.97	19202. Y	19.81 T	221
0.7114	67.41	5.931 T	1.40420	1.6885 T	0.3486 T	0.4921 T	0.4458 T	...	136.43	19172. Y	20.81 T	222
0.7058	68.99	5.884	1.40200	1.7000	...	0.4460 P	...	...	135.58	19154. Y	19.48 P	223
0.7072	68.60	5.896 T	1.40330	1.8521 T	0.3458 T	0.4902 T	0.4488 T	...	138.28	19172. Y	19.93 T	224
0.7028	69.88	5.858	1.40170	1.9000	...	0.4460 P	...	...	135.58	19154. Y	18.75 P	225

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.3 (Continued)

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Monoolefins, C_7H_{14}										
226	2-METHYL-1-HEXENE	C_7H_{14}	98.19	197.60	-153.11	508.37 P	416.10 P	0.0649 P	0.2552	0.3114
227	3-METHYL-1-HEXENE	C_7H_{14}	98.19	183.02	...	490.23 P	428.05 P	0.0649 P	0.2675	0.3078
228	4-METHYL-1-HEXENE	C_7H_{14}	98.19	188.11	-222.61	497.77 P	428.05 P	0.0649 P	0.2654	0.3074
229	5-METHYL-1-HEXENE	C_7H_{14}	98.19	185.56	...	490.62 P	416.10 P	0.0649 P	0.2599	0.3111
230	2-METHYL-2-HEXENE	C_7H_{14}	98.19	203.74	-202.63	517.41 P	416.10 P	0.0649 P	0.2528	0.3128
231	cis-3-METHYL-2-HEXENE	C_7H_{14}	98.19	207.07	-181.31	525.78 P	428.05 P	0.0649 P	0.2578	0.3096
232	trans-3-METHYL-2-HEXENE	C_7H_{14}	98.19	203.32	-200.74	520.25 P	428.05 P	0.0649 P	0.2593	0.3091
233	cis-4-METHYL-2-HEXENE	C_7H_{14}	98.19	187.36	...	496.65 P	428.05 P	0.0649 P	0.2657	0.3081
234	trans-4-METHYL-2-HEXENE	C_7H_{14}	98.19	189.61	-194.24	499.96 P	428.05 P	0.0649 P	0.2648	0.3083
235	cis-5-METHYL-2-HEXENE	C_7H_{14}	98.19	193.10	...	501.75 P	416.10 P	0.0649 P	0.2569	0.3120
236	trans-5-METHYL-2-HEXENE	C_7H_{14}	98.19	190.60	-191.81	498.06 P	416.10 P	0.0649 P	0.2579	0.3113
237	cis-2-METHYL-3-HEXENE	C_7H_{14}	98.19	186.80	...	492.46 P	416.10 P	0.0649 P	0.2594	0.3123
238	trans-2-METHYL-3-HEXENE	C_7H_{14}	98.19	186.62	-222.81	492.19 P	416.10 P	0.0649 P	0.2595	0.3112
239	cis-3-METHYL-3-HEXENE	C_7H_{14}	98.19	203.72	...	520.83 P	428.05 P	0.0649 P	0.2592	0.3067
240	trans-3-METHYL-3-HEXENE	C_7H_{14}	98.19	200.38	...	515.88 P	428.05 P	0.0649 P	0.2605	0.3065
241	2-ETHYL-1-PENTENE	C_7H_{14}	98.19	201.20	...	517.10 P	428.05 P	0.0649 P	0.2601	0.3127
242	3-ETHYL-1-PENTENE	C_7H_{14}	98.19	183.40	-197.46	494.20 P	440.51 P	0.0649 P	0.2742	0.3030
243	3-ETHYL-2-PENTENE	C_7H_{14}	98.19	204.82	...	525.97 P	440.51 P	0.0649 P	0.2653	0.3056
244	2,3-DIMETHYL-1-PENTENE	C_7H_{14}	98.19	183.70	-209.74	501.26 P	443.47 P	0.0636 P	0.2684	0.2750
245	2,4-DIMETHYL-1-PENTENE	C_7H_{14}	98.19	178.90	-191.31	487.09 P	418.81 P	0.0636 P	0.2573	0.2871
246	3,3-DIMETHYL-1-PENTENE	C_7H_{14}	98.19	171.46	-209.88	488.30 P	452.52 P	0.0634 P	0.2770	0.2599
247	3,4-DIMETHYL-1-PENTENE	C_7H_{14}	98.19	177.44	...	491.90 P	443.47 P	0.0636 P	0.2711	0.2754
248	4,4-DIMETHYL-1-PENTENE	C_7H_{14}	98.19	162.53	-213.88	467.83 P	427.11 P	0.0634 P	0.2672	0.2747
249	2,3-DIMETHYL-2-PENTENE	C_7H_{14}	98.19	207.32	-180.89	536.54 P	443.47 P	0.0636 P	0.2589	0.2784
250	2,4-DIMETHYL-2-PENTENE	C_7H_{14}	98.19	181.94	-197.86	491.59 P	418.81 P	0.0636 P	0.2561	0.2852
251	cis-3,4-DIMETHYL-2-PENTENE	C_7H_{14}	98.19	192.65	-172.11	514.62 P	443.47 P	0.0636 P	0.2648	0.2752
252	trans-3,4-DIMETHYL-2-PENTENE	C_7H_{14}	98.19	196.70	-191.82	520.68 P	443.47 P	0.0636 P	0.2631	0.2774
253	cis-4,4-DIMETHYL-2-PENTENE	C_7H_{14}	98.19	176.77	-211.83	489.06 P	427.11 P	0.0634 P	0.2612	0.2755
254	trans-4,4-DIMETHYL-2-PENTENE	C_7H_{14}	98.19	170.13	-175.42	479.16 P	427.11 P	0.0634 P	0.2640	0.2705
255	3-METHYL-2-ETHYL-1-BUTENE	C_7H_{14}	98.19	187.46	...	503.28 P	430.88 P	0.0636 P	0.2603	0.2808
256	2,3,3-TRIMETHYL-1-BUTENE	C_7H_{14}	98.19	172.20	-165.73	496.40 P	455.59 P	0.0621 P	0.2708	0.2394
Monoolefins, C_8H_{18}										
257	1-OCTENE	C_8H_{16}	112.21	250.30	-151.12	561.02	371.30	0.0873	0.2561	0.3747
258	cis-2-OCTENE	C_8H_{16}	112.21	258.15	-148.36	570.79 P	375.46 P	0.0658 P	0.2506	0.3848
259	trans-2-OCTENE	C_8H_{16}	112.21	257.00	-125.88	578.93 P	374.20 P	0.0891 P	0.2600	0.3384
260	cis-3-OCTENE	C_8H_{16}	112.21	253.22	...	583.72 P	375.48 P	0.0658 P	0.2524	0.3839
261	trans-3-OCTENE	C_8H_{16}	112.21	253.94	-166.00	573.53 P	374.20 P	0.0685 P	0.2600	0.3438
262	cis-4-OCTENE	C_8H_{16}	112.21	252.57	-181.66	562.78 P	375.46 P	0.0658 P	0.2526	0.3882
263	trans-4-OCTENE	C_8H_{16}	112.21	252.05	-138.86	571.73 P	374.20 P	0.0685 P	0.2800	0.3393
264	2-METHYL-1-HEPTENE	C_8H_{16}	112.21	246.74	-130.00	554.41 P	375.46 P	0.0658 P	0.2547	0.3855
265	3-METHYL-1-HEPTENE	C_8H_{16}	112.21	231.80	...	541.87 P	387.28 P	0.0646 P	0.2813	0.3552

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.3 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Monoolefins, C_7H_{14}												
0.7074	68.52	5.898	1.40080	2.1000	...	0.4460 P	...	...	135.56	19136. Y	20.01 P	226
0.6959	71.83	5.802	1.39380	2.8000	...	...	...	...	133.73	19182. Y	18.72 P	227
0.7030	69.78	5.861	1.39730	2.5000	...	...	...	...	...	19182. Y	19.51 P	228
0.6965	71.65	5.807	1.39400	2.7000	...	...	...	...	...	19170. Y	18.78 P	229
0.7126	67.07	5.941	1.40790	1.9000	...	...	...	...	...	19110. Y	20.24 P	230
0.7203	64.95	6.005	1.41000	1.8000	...	...	...	...	...	19122. Y	21.14 P	231
0.7188	65.35	5.993	1.40910	1.9000	...	...	...	...	...	19122. Y	20.97 P	232
0.7040	69.51	5.869	1.39990	2.6000	...	...	...	...	...	19153. Y	19.26 P	233
0.7013	70.26	5.847	1.39980	2.5000	...	...	...	...	...	19134. Y	18.96 P	234
0.7065	68.79	5.890	1.40100	2.3000	...	...	...	...	...	19141. Y	19.47 P	235
0.6971	71.48	5.812	1.39790	2.4000	...	...	...	...	...	19123. Y	18.50 P	238
0.6981	71.20	5.820	1.39900	2.2600	...	...	...	...	...	19141. Y	18.40 P	237
0.6941	72.36	5.787	1.39740	2.6000	...	...	...	...	...	19123. Y	17.84 P	238
0.7180	65.58	5.986	1.40995	1.8010	...	0.4460 P	...	...	...	19122. Y	20.41 P	239
0.7144	66.57	5.956	1.40820	1.9570	...	0.4460 P	...	...	...	19122. Y	20.04 P	240
0.7125	87.10	5.940	1.40200	2.0000	...	...	...	...	135.56	19147. Y	20.58 P	241
0.7005	70.51	5.840	1.39550	2.8000	...	...	...	...	133.73	19193. Y	19.23 P	242
0.7249	63.69	6.044	1.41220	1.8000	...	0.4460 P	...	...	135.56	19133. Y	21.70 P	243
0.7097	67.88	5.917	1.40060	2.8000	...	...	...	...	...	19117. Y	20.28 P	244
0.6987	71.03	5.825	1.39577	3.1870	...	0.4462 P	...	...	127.87	19104. Y	19.01 P	245
0.7019	70.09	5.852	1.39580	3.5200	...	...	...	...	...	19142. Y	19.38 P	246
0.7022	70.02	5.854	1.39650	3.1300	...	...	...	...	...	19152. Y	19.42 P	247
0.6872	74.42	5.729	1.38895	4.4850	...	0.4464 P	...	...	...	19121. Y	17.75 P	248
0.7323	61.74	6.105	1.41850	1.8000	...	...	...	...	...	19088. Y	22.61 P	249
0.6995	70.78	5.832	1.40090	2.8690	...	0.4462 P	...	...	132.63	19079. Y	18.75 P	250
0.7180	65.58	5.988	1.40780	2.3000	...	...	...	...	133.73	19091. Y	20.87 P	251
0.7212	64.69	6.013	1.41010	2.2000	...	...	...	...	...	19091. Y	21.26 P	252
0.7040	69.51	5.869	1.39989	3.3510	...	0.4462 P	...	...	127.69	19092. Y	19.24 P	253
0.6935	72.53	5.782	1.39525	3.7050	...	0.4463 P	...	...	129.15	19073. Y	18.09 P	254
0.7178	65.82	5.985	1.40244	2.6000	...	0.4481 P	...	...	...	19117. Y	20.70 P	255
0.7092	68.01	5.913	1.40007	3.6820	...	...	...	...	...	19092. Y	20.21 P	258
Monoolefins, C_8H_{18}												
0.7193	65.21	5.997	1.40620	0.6561	0.3688	0.5059	0.5681	0.3599	131.75	19000.	21.29 T	257
0.7287	62.69	6.075	1.41250	0.6000	...	0.4530 P	...	...	...	19111. P	20.94 P	258
0.7243	63.85	6.039	1.41070	0.8100	...	0.4530 P	...	...	128.99	18985. P	21.70 T	259
0.7257	63.49	6.050	1.41110	0.6800	...	...	...	...	...	19114. P	21.41 P	260
0.7194	85.20	5.998 T	1.41020	0.6439 T	0.3609 T	0.4998 T	0.5608 T	0.3517 T	129.01	18985. P	20.88 T	261
0.7255	63.53	8.049	1.41240	0.6600	...	0.4530 P	...	...	...	19114. P	20.58 P	262
0.7182	65.52	5.988 T	1.40930	0.8852 T	0.3609 T	0.4991 T	0.5813 T	0.3528 T	129.17	18985. P	20.67 T	283
0.7248	63.72	8.043	1.40980	0.7500	...	0.4529 P	...	...	...	19102. P	21.38 P	264
0.7149	88.44	5.960	1.40400	1.0000	...	...	...	...	...	19127. P	20.24 P	265

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.3 (Continued)

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Monoolefine, C_8H_{16}										
266	4-METHYL-1-HEPTENE	C_8H_{16}	112.21	235.04	...	546.57 P	387.28 P	0.0646 P	0.2601	0.3555
267	trans-6-METHYL-2-HEPTENE	C_8H_{16}	112.21	242.60	...	554.31 P	377.64 P	0.0646 P	0.2517	0.3598
268	trans-3-METHYL-3-HEPTENE	C_8H_{16}	112.21	249.80	...	587.95 P	387.28 P	0.0646 P	0.2547	0.3557
269	2-ETHYL-1-HEXENE	C_8H_{16}	112.21	248.00	...	573.53 P	445.27 P	0.0570 P	0.2570	0.3799
270	3-ETHYL-1-HEXENE	C_8H_{16}	112.21	230.54	...	543.27 P	397.29 P	0.0646 P	0.2677	0.3545
271	4-ETHYL-1-HEXENE	C_8H_{16}	112.21	235.40	...	550.35 P	397.29 P	0.0646 P	0.2659	0.3524
272	2,3-DIMETHYL-1-HEXENE	C_8H_{18}	112.21	230.90	...	550.02 P	399.85 P	0.0835 P	0.2628	0.3259
273	2,3-DIMETHYL-2-HEXENE	C_8H_{16}	112.21	251.19	-175.18	579.69 P	399.85 P	0.0835 P	0.2553	0.3272
274	cis-2,2-DIMETHYL-3-HEXENE	C_8H_{16}	112.21	221.77	-215.23	534.94 P	388.53 P	0.0634 P	0.2574	0.3225
275	2,3,3-TRIMETHYL-1-PENTENE	C_8H_{16}	112.21	226.96	-92.20	563.38 P	431.55 P	0.0822 P	0.2744	0.2731
276	2,4,4-TRIMETHYL-1-PENTENE	C_8H_{16}	112.21	214.59	-136.26	535.73 P	381.45 P	0.0664 P	0.2660	0.2895
277	2,4,4-TRIMETHYL-2-PENTENE	C_8H_{16}	112.21	220.84	-159.39	544.73 P	381.45 P	0.0671 P	0.2660	0.2650
Monoolefine, C_9 to C_{20}										
278	1-NONENE	C_9H_{18}	126.24	296.36	-114.47	608.18	337.94	0.0670	0.2495	0.4171
279	1-DECENE	$C_{10}H_{20}$	140.27	339.03	-87.35	650.66	308.93	0.0667	0.2272	0.4645
280	1-UNDECENE	$C_{11}H_{22}$	154.30	378.81	-56.53	703.13 P	292.98 P	0.0692 P	0.2510	0.4489
281	1-DODECENE	$C_{12}H_{24}$	168.32	416.04	-31.41	739.13 P	274.12 P	0.0690 P	0.2470	0.4909
282	1-TRIDECENE	$C_{13}H_{26}$	182.35	451.00	-9.53	773.33 P	256.72 P	0.0691 P	0.2450	0.5280
283	1-TETRADECENE	$C_{14}H_{28}$	196.38	483.98	8.87	807.53 P	240.78 P	0.0700 P	0.2430	0.5460
284	1-PENTADECENE	$C_{15}H_{30}$	210.40	515.11	25.29	811.04	208.86	0.0888	0.2148	0.6633
285	1-HEXADECENE	$C_{16}H_{32}$	224.43	544.77	39.42 P	865.13 P	214.68 P	0.0704 P	0.2380	0.6128
286	1-HEPTADECENE	$C_{17}H_{34}$	238.46	572.59	52.16	858.74	182.75	0.0665	0.2050	0.7288
287	1-OCTADECENE	$C_{18}H_{36}$	252.48	598.68	63.68	913.73 P	194.35 P	0.0704 P	0.2340	0.6669
288	1-NONADECENE	$C_{19}H_{38}$	266.51	624.38	74.12	899.60	180.99	0.0665	0.1956	0.8246
289	1-EICOSENE	$C_{20}H_{40}$	280.54	648.32	83.48	958.73 P	178.95 P	0.0702 P	0.2290	0.7340
Diolefins, C_3 to C_5										
290	PROPADIENE	C_3H_4	40.06	-30.10	-213.34	248.00	793.36 P	0.0648 P	0.2710	0.1594
291	1,2-BUTADIENE	C_4H_6	54.09	51.53	-213.14	339.53 P	652.67 P	0.0649 P	0.2670	0.2509
292	1,3-BUTADIENE	C_4H_6	54.09	24.06	-164.05	306.00	828.00	0.0654	0.2700	0.1932
293	1,2-PENTADIENE	C_5H_8	68.12	112.74	-215.07	425.19 P	551.04 P	0.0648 P	0.2561	0.2235
294	cis-1,3-PENTADIENE	C_5H_8	68.12	111.32	-221.48	436.53 P	542.44 P	0.0649 P	0.2490	0.1470
295	trans-1,3-PENTADIENE	C_5H_8	68.12	107.88	-125.45	440.33 P	542.44 P	0.0649 P	0.2480	0.1162
298	1,4-PENTADIENE	C_5H_8	68.12	78.74	-234.89	402.53 P	542.44 P	0.0713 P	0.2850	0.0837
297	2,3-PENTADIENE	C_5H_8	68.12	118.88	-194.17	434.68 P	551.04 P	0.0648 P	0.2534	0.2194
298	3-METHYL-1,2-BUTADIENE	C_5H_8	68.12	105.53	-172.52	421.47 P	558.02 P	0.0629 P	0.2520	0.1923
299	2-METHYL-1,3-BUTADIENE	C_5H_8	68.12	93.32	-230.71	411.53 P	558.40 P	0.0649 P	0.2640	0.1583
Diolefins, C_8 to C_{10}										
300	2,3-DIMETHYL-1,3-BUTADIENE	C_8H_{10}	82.15	155.80	-104.81	...	...	...	...	...
301	1,2-HEXADIENE	C_8H_{10}	82.15	168.80	...	487.81 P	488.44 P	0.0645 P	0.2534	0.2710

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.3 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Monoolefins, C_8H_{16}												
0.7209	64.79	6.010	1.40800	0.9400	...	...	...	...	...	23788. P	20.96 P	266
0.7221	64.47	6.020	1.41000	0.8100	...	...	...	...	...	19057. P	20.70 P	267
0.7329	61.58	6.110	1.41600	0.7000	...	...	...	...	140.59 P	19057. P	21.58 P	268
0.7315	61.94	6.098 T	1.41320	0.7289 T	0.3691 T	0.5099 T	0.5469 T	0.3450 T	130.70	18965. P	25.38 T	269
0.7197	65.12	6.000	1.40500	1.0000	...	...	...	...	...	19120. P	20.74 P	270
0.7305	62.21	6.090	1.41000	0.9300	...	...	...	...	...	19123. P	22.01 P	271
0.7258	63.46	6.051	1.40890	1.0000	...	...	...	...	...	21802. P	21.50 P	272
0.7452	58.38	6.213	1.42440	0.6800	...	...	...	...	...	19003. P	23.55 P	273
0.7171	65.81	5.979	1.40740	1.3090	...	0.4528 P	...	...	...	19052. P	11.93 P	274
0.7398	59.76	6.168	1.41510	1.1000	...	...	...	...	...	19022. P	23.21 P	275
0.7193	65.22	5.997 T	1.40600	1.5607 T	0.3753 T	0.4935	0.3684 T	0.2546 T	118.71	18916.	19.25 T	276
0.7260	63.40	6.053 T	1.41350	1.2880 T	0.3736 T	0.5009	0.3648 T	0.2520 T	122.32	18929.	19.68 T	277
Monoolefins, C_9 to C_{20}												
0.7336	61.38	6.116	1.41333	0.2200	0.3709	0.5212	0.7009	0.4314	126.09	18964.	22.56 T	278
0.7447	58.51	6.209	1.41913	0.0738	0.3718	0.5044	0.8852	0.5031	120.64	18936.	23.55 T	279
0.7541	56.13	6.287	1.42383	0.0244	0.3724	0.5028	1.0796	0.5909	115.72	18914.	24.40 T	280
0.7630	53.96	6.361	1.42782	0.0083	0.3730	0.5042	1.3233	0.6807	111.77	18895.	25.14 T	281
0.7899	52.30	6.418	1.43118	0.0034	0.3735	0.4886	1.6032	0.7871	106.76	18879.	25.79 T	282
0.7749	51.11	6.480	1.43412	0.0011	0.3740	0.4772	1.9222	0.9040	103.80	18865.	26.35 T	283
0.7802	49.85	6.505	1.43669	...	...	0.5269 P	...	...	99.43	18853.	26.87	284
0.7847	48.83	6.542	1.43907	0.0002	0.3747	0.5110	2.7227	1.1666	97.07	18843.	27.33 T	285
0.7900	47.63	6.586	1.44100	...	...	...	...	...	...	18834.	27.71	286
0.7923	47.10	6.805 R	1.44280	...	0.3753	0.4766	3.5276	1.4278	88.47	18826.	28.09 T	287
0.7958	46.30	6.635 R	1.44450	...	...	...	...	...	...	18819.	28.40	288
0.7981	45.80	6.854 T	1.44590 R	...	0.3754 T	0.4784 T	4.9050 T	1.8462 T	87.62	18812. R	28.73 T	289
Diolefins, C_3 to C_5												
0.5997	104.46	4.999	1.41690	144.5430	0.3442	...	0.2280	...	221.04	19921. Y	9.50 T	290
0.6578	83.68	5.482	1.42050	36.7698	0.3465	0.5407	0.2755	0.2248	192.48	19567. Y	15.78 T	291
0.6273	94.08	5.230	1.42930	59.2938	0.3406	0.5341	0.2033	0.1274	178.67	19153. Y	13.41 T	292
0.6978	71.34	5.816	1.41773	11.4910	...	0.4340 P	...	...	...	19427. P	18.29 P	293
0.6864	71.68	5.806	1.43291	11.8211	0.3213	0.5047	0.2873	...	168.49	18866.	18.33 T	294
0.6815	76.13	5.682	1.42669	12.7061	0.3533	0.5142	0.2729	...	167.69	18825.	16.75 T	295
0.6663	80.88	5.555 T	1.38542	21.8950 T	0.3367 T	0.5066	...	...	154.57	19033.	15.52 T	296
0.7001	70.61	5.837	1.42509	10.1440	...	0.4339 P	...	...	...	14841. P	17.57 P	297
0.8816	73.10	5.786	1.41692	13.2011	...	0.4342 P	...	...	...	16576. P	17.61 P	298
0.6864	74.64	5.723	1.41852	16.6788	0.3589	0.5227	...	...	161.71	19003.	16.38 T	299
Diolefins, C_8 to C_{10}												
0.7314	62.00	6.089	...	...	...	...	...	...	...	...	...	300
0.7198	65.09	6.001	1.42520	...	...	0.4396	...	...	214.93	18571. P	20.00 P	301

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.3 (Continued)

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Diolefins, C_8 to C_{10}										
302	1,5-HEXADIENE	C_6H_{10}	82.15	139.03	-221.22	442.94 P	486.44 P	0.0645 P	0.2660	0.2829
303	2,3-HEXADIENE	C_6H_{10}	82.15	154.40	...	466.11 P	486.44 P	0.0645 P	0.2593	0.2710
304	3-METHYL-1,2-PENTADIENE	C_6H_{10}	82.15	158.00	...	482.41 P	506.97 P	0.0629 P	0.2591	0.2280
305	2-METHYL-1,5-HEXADIENE	C_7H_{12}	96.17	190.60	...	779.32 P	437.78 P	0.0829 P	0.1992	0.2880
306	2-METHYL-2,4-HEXADIENE	C_7H_{12}	96.17	232.70	...	891.79 P	437.78 P	0.0829 P	0.1826	0.2870
307	2,8-OCTAOIENE	C_8H_{14}	110.20	256.10	...	917.13 P	392.86 P	0.0641 P	0.1878	0.3700
308	2,8-DIMETHYL-1,5-HEPTADIENE	C_9H_{16}	124.23	289.00	...	998.98 P	370.57 P	0.0619 P	0.1822	0.3450
309	3,7-DIMETHYL-1,6-OCTADIENE	$C_{10}H_{18}$	138.25	322.00	...	1055.55 P	339.30 P	0.0620 P	0.1788	0.4450

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.3 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Diolefins, C_6 to C_{10}												
0.6970	71.51	5.811	1.40100	7.0964	...	0.4401 P	...	...	...	19128. P	17.94 P	302
0.6849	75.10	5.710	1.39200	...	...	0.4398 P	...	...	209.23	16385. P	15.58 P	303
0.7197	65.12	6.000	1.42200	...	...	0.4398 P	...	...	210.51	19252. P	19.09 P	304
0.7234	64.11	6.031	...	...	...	0.4473 P	...	...	252.84	16271. P	20.52 P	305
0.7480	57.68	6.236	...	...	...	0.4490 P	...	...	279.89	15650. P	22.65 P	306
0.7473	57.86	6.230	...	...	...	0.4686 P	...	...	257.14	18962. P	14.69 P	307
0.7712	51.97	6.430	...	...	...	0.4718 P	...	...	241.84	17379. P	25.11 P	308
0.7611	54.43	6.345	...	...	...	0.4859 P	...	...	231.30	18906. P	23.46 P	309

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.4
CYCLOOLEFINS AND ACETYLENES—PRIMARY PROPERTIES

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Alkylcyclopentenes, C_5 to C_8										
310	CYCLOPENTENE	C_5H_8	68.12	111.64	-211.14	452.93 P	694.73 P	0.0564 P	0.2730	0.1946
311	1-METHYL-CYCLOPENTENE	C_6H_{10}	82.15	167.88	-195.75	522.43 P	599.27 P	0.0592 P	0.2765	0.2290
312	1-ETHYLCYCLOPENTENE	C_7H_{12}	96.17	223.39	-181.12	581.40 P	521.15 P	0.0597 P	0.2680	0.2370
313	3-ETHYLCYCLOPENTENE	C_7H_{12}	96.17	207.99	...	581.40 P	780.31 P	0.0473 P	0.3174	0.3110
314	1-n-PROPYLCYCLOPENTENE	C_8H_{14}	110.20	268.16	...	620.46 P	425.56 P	0.0600 P	0.2429	0.3270
Alkylcyclohexenes, C_6 to C_8										
315	CYCLOHEXENE	C_6H_{10}	82.15	181.36	-154.32	549.05	630.92 P	0.0567 P	0.2720	0.2142
316	1-METHYLCYCLOHEXENE	C_7H_{12}	96.17	230.53	-184.72	601.61 P	550.36 P	0.0580 P	0.2694	0.2550
317	1-ETHYLCYCLOHEXENE	C_8H_{14}	110.20	278.59	-165.93	648.09 P	483.59 P	0.0586 P	0.2627	0.2690
Cyclic Diolefins, C_5 and C_{10}										
318	CYCLOPENTADIENE	C_5H_6	66.10	108.70	-121.00	452.93 P	746.95 P	0.0545 P	0.2750	0.2118
319	DICYCLOPENTADIENE	$C_{10}H_{12}$	132.20	337.73 S	-72.00	728.33 P	443.82 P	0.0539 P	0.2480	0.2851
Cyclic Unsaturates, $C_{10}H_{16}$										
320	alpha-PINENE	$C_{10}H_{16}$	136.24	313.06	-83.20	677.93 P	400.31 P	0.0593 P	0.2650	0.2862
321	beta-PINENE	$C_{10}H_{16}$	136.24	330.87	-78.77	697.73 P	400.31 P	0.0595 P	0.2610	0.3252
Acetylenes, C_2 to C_4										
322	ACETYLENE	C_2H_2	26.04	-119.20 A	-113.44 B	95.31	890.40	0.0695	0.2710	0.1873
323	METHYLACETYLENE	C_3H_4	40.06	-9.80	-152.86	264.63	816.22	0.0656	0.2760	0.2161
324	DIMETHYLACETYLENE	C_4H_6	54.09	80.58	-26.07	419.00	738.79 P	0.0854 P	0.2770	0.1305
325	ETHYLACETYLENE	C_4H_6	54.09	48.53	-194.30	374.90	683.13 P	0.0654 P	0.2700	0.0500
326	VINYLACETYLENE	C_4H_4	52.08	41.18	...	357.53 P	704.89 P	0.0671 P	0.2810	0.1182
Acetylenes, C_5 to C_{10}										
327	1-PENTYNE	C_5H_8	68.12	104.32	-158.26	429.96 P	585.50 P	0.0648 P	0.2707	0.1603
328	2-PENTYNE	C_5H_8	68.12	132.93	-164.74	475.07 P	585.50 P	0.0648 P	0.2576	0.1585
329	3-METHYL-1-BUTYNE	C_5H_8	68.12	79.43	-129.46	...	...	...	...	...
330	1-HEXYNE	C_6H_{10}	82.15	160.39	-205.42	491.97 P	512.30 P	0.0645 P	0.2856	0.2320
331	1-HEPTYNE	C_7H_{12}	96.17	211.53	-113.62	545.79 P	454.94 P	0.0642 P	0.2605	0.3030
332	1-OCTYNE	C_8H_{14}	110.20	259.18	-110.74	594.12 P	408.92 P	0.0641 P	0.2553	0.3240
333	1-NONYNE	C_9H_{16}	124.23	303.26	-58.00	837.29 P	371.25 P	0.0639 P	0.2505	0.3480
334	1-DECYNE	$C_{10}H_{18}$	138.25	345.20	-47.20	877.52 P	329.95 P	0.0838 P	0.2386	0.4340

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.4 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Alkylcyclopentenes, C_5 to C_8												
0.7773	50.53	6.481	1.41940	11.7797	0.2507	0.4197	0.2656	0.2001	174.22	18552.	21.51 T	310
0.7854	48.66	6.548	1.43020	...	...	0.4398 P	...	...	218.78	18489.	22.21 P	311
0.8030	44.71	6.695	1.43840	...	...	0.4459 P	...	...	203.86	18541.	24.56 P	312
0.7878	48.11	6.568	1.42910	...	...	0.4460 P	...	...	214.99	18581.	22.78 P	313
0.8061	44.03	6.721	...	...	...	0.4531 P	...	...	186.31	18560.	25.11 P	314
Alkylcyclohexenes, C_6 to C_8												
0.8157	41.98	6.800	1.44377	2.9899	0.2941	0.4222	0.6605	...	162.81	18485.	26.09 T	315
0.8188	41.78	6.808	1.44784	...	...	0.3480 P	...	...	207.60	18438.	25.43 P	316
0.8269	39.62	6.894	1.45437	...	...	0.3544 P	...	...	...	18471.	27.03 P	317
Cyclic Diolefins, C_5 and C_{10}												
0.8041	44.48	6.704	1.44290	13.0810	0.2601	0.4479	0.3094	...	167.54	18181. P	32.78 T	318
0.9712	14.19	8.097	1.50610	0.1148	0.2696	0.4162	0.8146	0.4454	121.34	18053. P	30.69 T	319
Cyclic Unsaturates, $C_{10}H_{16}$												
0.8620	32.65	7.187	1.46320	0.1864	0.2384	...	1.2793	0.6626	112.80	18461.	26.49 T	320
0.8742	30.37	7.288	1.47680	0.1219	...	...	1.4751	0.6678	119.37	18493.	26.85 T	321
Acetylenes, C_2 to C_4												
0.6150	98.60	3.481	...	...	0.4000	...	...	...	275.46	20744. Y	1.19 T	322
0.6212	96.30	5.179	1.38630	119.3520	0.3550	...	0.2214	0.1913	238.73	19838. Y	11.51 T	323
0.6959	71.84	5.802	1.38930	21.4920	0.3379	0.5475	...	...	210.07	19226.	20.15 T	324
0.8565	84.04	5.473	...	41.0451	0.3521	0.5951	0.2933	0.2304	194.31	19590.	17.06 T	325
...	...	...	1.41610	...	0.3282	...	...	...	196.42	19319. P	...	328
Acetylenes, C_5 to C_{10}												
0.8993	70.85	5.830	1.38220	13.5000	0.3609	...	...	...	...	19256.	19.89 P	327
0.7160	66.14	5.989	1.40090	7.6000	0.3383	...	...	...	...	19122.	21.89 P	328
0.8720	79.10	5.590	...	...	0.3579	...	...	...	...	19223.	...	329
0.7200	65.02	6.003	1.39570	...	0.3640	...	...	...	210.81	19159.	...	330
0.7375	60.35	6.149	1.40600	...	...	...	...	...	195.96	19090.	22.20	331
0.7511	56.89	8.262	1.41380	...	...	...	...	...	184.14	19039.	23.30	332
0.7622	54.14	8.355	1.41950	...	...	...	...	...	174.26	19000.	24.50	333
0.7712	51.97	8.430	1.42490	...	...	...	...	...	164.64	18968.	25.40	334

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.5
BENZENE DERIVATIVES—PRIMARY PROPERTIES

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Alkylbenzenes, C_8 and C_7										
335	BENZENE	C_6H_6	78.11	176.18	41.96	552.22	710.40	0.0531	0.2710	0.2108
338	TOLUENE	C_7H_8	92.14	231.12	-138.98	605.55	595.90	0.0549	0.2640	0.2641
Alkylbenzenes, C_8H_{10}										
337	ETHYLBENZENE	C_8H_{10}	106.17	277.13	-138.95	651.24	523.50	0.0564	0.2630	0.3036
338	o-XYLENE	C_8H_{10}	106.17	291.97	-13.30	675.00	541.60	0.0557	0.2630	0.3127
339	m-XYLENE	C_8H_{10}	106.17	282.42	-54.12	651.02	513.60	0.0567	0.2590	0.3260
340	p-XYLENE	C_8H_{10}	106.17	281.05	55.86	649.60	509.20	0.0572	0.2600	0.3259
Alkylbenzenes, C_9H_{12}										
341	n-PROPYLBENZENE	C_9H_{12}	120.19	318.64	-147.06	689.41	464.10	0.0586	0.2650	0.3462
342	ISOPROPYLBENZENE	C_9H_{12}	120.19	306.34	-140.81	676.40	465.40	0.0570	0.2620	0.3377
343	o-ETHYLTOLUENE	C_9H_{12}	120.19	329.32	-113.44	712.40	490.00	0.0574	0.2688	0.2932
344	m-ETHYLTOLUENE	C_9H_{12}	120.19	322.39	-139.98	687.20	471.00	0.0580	0.2668	0.3221
345	p-ETHYLTOLUENE	C_9H_{12}	120.19	323.63	-80.16	692.60	469.00	0.0584	0.2663	0.3242
346	1,2,3-TRIMETHYLBENZENE	C_9H_{12}	120.19	349.01	-13.62	736.48	500.99	0.0552	0.2590	0.3664
347	1,2,4-TRIMETHYLBENZENE	C_9H_{12}	120.19	336.88	-46.99	708.76	468.80	0.0573	0.2580	0.3792
348	1,3,5-TRIMETHYLBENZENE	C_9H_{12}	120.19	328.54	-48.45	687.58	453.52	0.0577	0.2560	0.3985
Alkylbenzenes, $C_{10}H_{14}$										
349	n-BUTYLBENZENE	$C_{10}H_{14}$	134.22	361.89	-126.35 P	729.32	418.69	0.0593	0.2610	0.3917
350	ISOBUTYLBENZENE	$C_{10}H_{14}$	134.22	343.02	-60.66	710.60	440.88	0.0544 P	0.2580	0.3811
351	sec-BUTYLBENZENE	$C_{10}H_{14}$	134.22	343.95	-103.85	736.50 S	428.00 S	0.0593 P	0.2650	0.2756
352	tert-BUTYLBENZENE	$C_{10}H_{14}$	134.22	338.41	-72.13	728.33 S	430.80 S	0.0587 P	0.2660	0.2672
353	1-METHYL-2-n-PROPYLBENZENE	$C_{10}H_{14}$	134.22	364.87	-76.55	732.85 P	426.28 P	0.0576 P	0.2574	0.4051
354	1-METHYL-3-n-PROPYLBENZENE	$C_{10}H_{14}$	134.22	359.58	-116.64	718.56 P	407.01 P	0.0576 P	0.2487	0.4098
355	1-METHYL-4-n-PROPYLBENZENE	$C_{10}H_{14}$	134.22	362.08	-82.85	722.19 P	407.01 P	0.0576 P	0.2480	0.4094
356	o-CYMENE	$C_{10}H_{14}$	134.22	352.87	-96.77	731.93 P	424.96 P	0.0584 P	0.2600	0.3372
357	m-CYMENE	$C_{10}H_{14}$	134.22	347.09	-82.74	722.93 P	424.96 P	0.0579 P	0.2600	0.3411
358	p-CYMENE	$C_{10}H_{14}$	134.22	350.78	-90.28	718.00	411.49	0.0587 P	0.2570	0.3722
359	o-DIETHYLBENZENE	$C_{10}H_{14}$	134.22	382.18	-24.23	742.73 P	417.71 P	0.0599 P	0.2600	0.3395
360	m-DIETHYLBENZENE	$C_{10}H_{14}$	134.22	357.98	-119.06	733.73 P	417.71 P	0.0582 P	0.2550	0.3497
361	p-DIETHYLBENZENE	$C_{10}H_{14}$	134.22	362.75	-45.09	724.66	406.49	0.0593 P	0.2550	0.4035
362	1,2-DIMETHYL-3-ETHYLBENZENE	$C_{10}H_{14}$	134.22	381.04	-57.06	764.33 P	417.71 P	0.0605 P	0.2580	0.3621
363	1,2-DIMETHYL-4-ETHYLBENZENE	$C_{10}H_{14}$	134.22	373.06	-88.47	739.58 P	418.41 P	0.0576 P	0.2512	0.4141
364	1,3-DIMETHYL-2-ETHYLBENZENE	$C_{10}H_{14}$	134.22	374.18	2.73	747.54 P	438.51 P	0.0576 P	0.2616	0.4084
365	1,3-DIMETHYL-4-ETHYLBENZENE	$C_{10}H_{14}$	134.22	370.76	-81.18	736.27 P	418.41 P	0.0576 P	0.2519	0.4147
366	1,3-DIMETHYL-5-ETHYLBENZENE	$C_{10}H_{14}$	134.22	382.44	-119.78	737.98 P	438.51 P	0.0576 P	0.2838	0.4140
387	1,4-DIMETHYL-2-ETHYLBENZENE	$C_{10}H_{14}$	134.22	368.29	-64.66	747.56 P	418.41 P	0.0576 P	0.2497	0.4013
368	1,2,3,4-TETRAMETHYLBENZENE	$C_{10}H_{14}$	134.22	401.07	20.75	768.45 P	451.26 P	0.0578 P	0.2803	0.4127
369	1,2,3,5-TETRAMETHYLBENZENE	$C_{10}H_{14}$	134.22	388.40	-10.63	766.94 P	430.30 P	0.0576 P	0.2528	0.3943
370	1,2,4,5-TETRAMETHYLBENZENE	$C_{10}H_{14}$	134.22	388.24	174.63	755.60	428.18	0.0575 P	0.2520	0.4349

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.5 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Alkylbenzenes, C_6 and C_7												
0.8829	28.77	7.361	1.49792	3.2122	0.2407	0.4106	0.5959	...	169.22	17258.	28.21 T	335
0.8743	30.34	7.289	1.49413	1.0311	0.2603	0.4010	0.5605	0.3429	156.75	17423.	27.93 T	336
Alkylbenzenes, C_8H_{10}												
0.8744	30.32	7.290	1.49320	0.3732	0.2798	0.4052	0.6537	0.3971	145.44	17595.	28.59 T	337
0.8849	28.40	7.377	1.50295	0.2631	0.2920	0.4133	0.7415	0.4238	149.85	17546.	29.60 T	338
0.8694	31.26	7.248	1.49464	0.3295	0.2787	0.4044	0.5934	0.3642	147.14	17542.	28.26 T	339
0.8666	31.78	7.225	1.49325	0.3473	0.2774	0.4002	0.6152	0.3700	145.06	17546.	27.92 T	340
Alkylbenzenes, C_9H_{12}												
0.8683	31.45	7.239	1.48951	0.1418	0.2936	0.4190	0.7966	0.4524	137.22	17721.	28.43 T	341
0.8685	31.43	7.240	1.48890	0.1865	0.2919	0.4135	0.7376	0.4367	136.17	17711.	27.69 T	342
0.8847	28.43	7.376	1.50208	0.1088	0.3035	0.4133	0.8354	0.4201	136.17	17692.	29.66 T	343
0.8685	31.43	7.240	1.49406	0.1264	0.2913	0.4082	0.7870	0.4215	135.68	17684.	28.54 T	344
0.8652	32.04	7.213	1.49244	0.1249	0.2926	0.4067	0.6717	0.4184	136.52	17680.	28.30 T	345
0.8985	25.99	7.491	1.51150	0.0713	0.2992	0.4236	0.8317	0.3979	142.53	17649.	30.75 T	346
0.8806	29.19	7.342	1.50237	0.0942	0.3014	0.4205	0.8547	0.4383	139.82	17637.	29.19 T	347
0.8699	31.17	7.252	1.49684	0.1076	0.2908	0.4086	0.8449	0.4139	140.08	17631.	28.05 T	348
Alkylbenzenes, $C_{10}H_{14}$												
0.8860	31.90	7.220	1.48742	0.0465	0.3025	0.4241	0.9433	0.5165	129.33	17824.	28.63 T	349
0.8575	33.52	7.149	1.48400	0.0822	0.2978	0.4218	0.9882	0.5136	124.06	17803.	26.98 T	350
0.8662	31.86	7.221	1.48779	0.0767	0.3027	0.4054	0.9502	0.4997	125.30	17814.	28.02 T	351
0.8707	31.01	7.259	1.49024	0.0919	0.3053	0.4179	0.9736	0.5054	123.14	17800.	27.63 T	352
0.8780	29.66	7.320	1.49750	...	...	0.3674 P	...	...	...	17795.	30.52 P	353
0.8653	32.03	7.214	1.49110	...	...	0.3676 P	...	...	...	17783.	28.76 P	354
0.8829	32.49	7.194	1.48980	...	...	0.3675 P	...	...	...	17786.	28.47 P	355
0.8807	29.16	7.343	1.49830	0.0648	0.3048	0.4164	0.9740	0.5973	126.14	17792.	31.01 T	356
0.8653	32.03	7.214	1.49050	0.0739	0.3006	0.4144	0.8063	0.5117	125.25	17775.	28.88 T	357
0.8607	32.89	7.176	1.48850	0.0648	0.2671	0.4146	0.8074	0.5120	127.32	17777.	28.35 T	358
0.8839	28.59	7.369	1.50106	0.0469	0.3165	0.4226	1.0676	0.5024	128.92	17807.	29.77 T	359
0.8683	31.45	7.239	1.49310	0.0505	0.3060	0.4219	0.9746	0.5180	129.20	17791.	29.77 T	360
0.8663	31.85	7.222	1.49245	0.0470	0.3050	0.4220	0.9768	0.5202	130.00	17794.	28.47 T	361
0.8968	26.33	7.475 T	1.50950	0.0287 T	0.3168 T	0.4335 T	1.0789 T	0.4881 T	133.38	17769.	33.82 T	362
0.8788	29.51	7.327	1.50090	...	...	0.3672 P	...	...	...	17751.	30.65 P	363
0.8948	26.64	7.460	1.50850	...	...	0.3672 P	...	...	...	17770.	32.96 P	364
0.8808	29.16	7.343	1.50150	...	...	0.3673 P	...	...	...	17913. P	30.91 P	365
0.8892	31.29	7.247	1.49580	...	...	0.3885 P	...	...	...	17913. P	29.47 P	366
0.8816	29.00	7.350	1.50200	...	...	0.3667 P	...	...	...	17913. P	31.20 P	367
0.9094	24.09	7.582	1.51810	...	...	...	...	...	...	17738.	35.25 P	368
0.8945	26.68	7.458	1.51070	...	...	...	...	...	...	17718.	32.98 P	369
0.8918	27.20	7.423 R	1.50930	...	0.3245	...	...	0.4970	136.06	17643. R	...	370

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.5 (Continued)

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Alkylbenzenes, C_{11} to C_{22}										
371	n-PENTYLBENZENE	$C_{11}H_{16}$	148.25	401.72	-103.00	764.20	378.00	0.0594	0.2533	0.4434
372	n-HEXYLBENZENE	$C_{12}H_{18}$	162.27	438.98	-77.80	796.73 P	345.19 P	0.0610 P	0.2530	0.4784
373	n-HEPTYLBENZENE	$C_{13}H_{20}$	176.30	474.98	-54.40	824.70	319.00	0.0624	0.2546	0.5362
374	n-OCTYLBENZENE	$C_{14}H_{22}$	190.33	507.92	-32.80	851.00	295.00	0.0630	0.2517	0.5838
375	n-NONYLBENZENE	$C_{15}H_{24}$	204.36	539.60	-11.20	874.00	275.00	0.0636	0.2498	0.6387
376	n-DECYLBENZENE	$C_{16}H_{26}$	218.38	568.20	6.12	928.13 P	256.72 P	0.0646 P	0.2459	0.5462
377	n-UNDECYLBENZENE	$C_{17}H_{28}$	232.41	595.76	23.00	916.00	242.00	0.0645	0.2400	0.7361
378	n-DODECYLBENZENE	$C_{18}H_{30}$	246.44	821.68	37.40	934.00	229.00	0.0650	0.2424	0.7870
379	n-TRIDECYLBENZENE	$C_{19}H_{32}$	260.46	646.34	50.00	949.73 P	217.56 P	0.0652 P	0.2440	0.6144
380	n-TETRADECYLBENZENE	$C_{20}H_{34}$	274.49	669.20	60.80	966.00	206.00	0.0656	0.2400	0.8921
381	n-PENTADECYLBENZENE	$C_{21}H_{36}$	288.52	690.80	71.60	981.00	195.00	0.0624	0.2271	0.9458
382	n-HEXADECYLBENZENE	$C_{22}H_{38}$	302.54	712.40	80.60	995.00	187.00	0.0628	0.2276	0.9992
Cyclohexylbenzene, $C_{12}H_{16}$										
383	CYCLOHEXYLBENZENE	$C_{12}H_{18}$	160.26	484.22	44.58	859.73 P	417.71 P	0.0531 P	0.2510	0.4505
Alkenylbenzenes, C_8 to C_{10}										
384	STYRENE	C_8H_8	104.15	293.25	-23.13	706.73 P	580.15 P	0.0541 P	0.2810	0.2356
385	cis-1-PROPENYL BENZENE	C_9H_{10}	118.18	333.37	-79.02	717.60 P	487.02 P	0.0552 P	0.2515	0.3270
386	trans-1-PROPENYL BENZENE	C_9H_{10}	118.18	352.87	-20.79	746.55 P	487.02 P	0.0552 P	0.2455	0.3270
387	2-PROPENYL BENZENE	C_9H_{10}	118.18	329.90	-9.76	722.93 P	487.33 P	0.0579 P	0.2830	0.3123
388	1-METHYL-2-ETHENYL BENZENE	C_9H_{10}	118.18	337.86	-91.43	725.85 P	502.99 P	0.0552 P	0.2579	0.3390
389	1-METHYL-3-ETHENYL BENZENE	C_9H_{10}	118.18	340.88	-123.41	723.18 P	476.81 P	0.0552 P	0.2451	0.3830
390	1-METHYL-4-ETHENYL BENZENE	C_9H_{10}	118.18	343.04	-29.47	726.39 P	476.81 P	0.0552 P	0.2444	0.3830
391	1-METHYL-4-(trans-1-n-PROPENYL)BENZENE	$C_{10}H_{12}$	132.20	393.80	-0.40	776.17 P	425.83 P	0.0580 P	0.2378	0.4080
392	1-ETHYL-2-ETHENYL BENZENE	$C_{10}H_{12}$	132.20	369.14	-103.90	747.25 P	446.63 P	0.0560 P	0.2554	0.4230
393	1-ETHYL-3-ETHENYL BENZENE	$C_{10}H_{12}$	132.20	374.00	-149.80	747.50 P	425.83 P	0.0560 P	0.2435	0.4030
394	1-ETHYL-4-ETHENYL BENZENE	$C_{10}H_{12}$	132.20	378.14	-57.46	753.49 P	425.83 P	0.0560 P	0.2423	0.4030
395	2-PHENYL-1-BUTENE	$C_{10}H_{12}$	132.20	359.60	...	739.65 P	436.48 P	0.0551 P	0.2468	0.3490
Phenylbenzenes, C_{12} to C_{14}										
396	BIPHENYL	$C_{12}H_{10}$	154.21	491.00	158.56	961.00	558.00	0.0521	0.2940	0.3659
397	1-METHYL-2-PHENYLBENZENE	$C_{13}H_{12}$	168.24	491.54	...	907.65 P	429.69 P	0.0513 P	0.2529	0.4060
398	1-METHYL-3-PHENYLBENZENE	$C_{13}H_{12}$	168.24	522.88	40.50	945.27 P	412.21 P	0.0513 P	0.2361	0.4610
399	1-METHYL-4-PHENYLBENZENE	$C_{13}H_{12}$	168.24	518.00	118.00	938.32 P	412.21 P	0.0513 P	0.2373	0.4610
400	1-ETHYL-4-PHENYLBENZENE	$C_{14}H_{14}$	182.26	541.00	117.00	885.25 P	373.89 P	0.0522 P	0.2466	0.4910
401	1-METHYL-4(4-METHYLPHENYL)-BENZENE	$C_{14}H_{14}$	182.28	559.00	250.00	968.00 P	368.34 P	0.0522 P	0.2288	0.4830
Diphenylalkenes, C_{13} to C_{24}										
402	DIPHENYLMETHANE	$C_{13}H_{12}$	168.24	507.69	77.43	922.73 P	423.51 P	0.0521 P	0.2500	0.4811

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.5 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Alkylbenzenes, C_{11} to C_{22}												
0.8629	32.49	7.194	1.48550	...	...	0.3711 P	...	...	...	17905.	29.24	371
0.8621	32.64	7.187 T	1.48420	0.0062 T	0.3159 T	0.4204 T	1.4467 T	0.7307 T	119.08	17973.	30.04 T	372
0.8608	32.87	7.177	1.48320	...	...	0.3756 P	...	...	...	18030.	29.86	373
0.8602	32.99	7.172	1.48240	...	...	0.3767 P	...	...	105.85	18078.	30.10	374
0.8599	33.06	7.169	1.48170	...	...	0.3771 P	...	...	...	18120.	30.40	375
0.8593	33.17	7.164 T	1.48112	0.0001 T	0.3323 T	0.4248 T	3.0894 T	1.2107 T	102.41	18156.	30.51 T	376
0.8587	33.28	7.164	1.48070	...	...	0.3765 P	...	...	96.75	18188.	29.83 P	377
0.8553	33.94	7.130	1.48030	<.0001	0.3371	0.4496	4.2604	1.5348	99.09	18217.	29.59 T	378
0.8589	33.25	7.161 T	1.48000	<.0001	0.3399 T	0.4562 T	4.9591 T	1.7073 T	...	18242.	30.32 T	379
0.8587	33.29	7.159 R	1.47970	...	...	0.3725 P	...	...	...	18265.	29.97 P	380
0.8587	33.29	7.159 R	1.47940	...	...	0.3706 P	...	...	...	18285.	30.63 P	381
0.8586	33.31	7.158 R	1.47920 R	...	...	0.3683 P	...	...	...	18304. R	30.65 P	382
Cyclohexylbenzene, $C_{12}H_{16}$												
0.9473	17.88	7.897	1.52393	0.0032	0.2681	0.3868	1.3777	0.6298	126.52	17639. V	85.60 T	383
Alkenylbenzenes, C_8 to C_{10}												
0.9087	24.22	7.576	1.54395	0.2465	0.2713	0.4113	0.6643	0.3766	151.18	17418.	30.85 T	384
0.9134	23.41	7.615	1.54020	...	...	0.3626 P	...	...	198.92	17726. Y	31.77 P	385
0.9063	24.62	7.556	1.54780	...	...	0.3624 P	...	...	204.54	17711. Y	30.82 P	386
0.9128	23.56	7.608	1.53580	0.1140	0.2856	0.4016	0.7330	0.4017	140.46	17528. P	31.52 T	387
0.9165	22.89	7.641	1.54130	...	...	0.3626 P	...	...	...	17715. Y	32.66 P	388
0.9164	22.91	7.640	1.53850	...	...	0.3625 P	...	...	...	17704. Y	32.62 P	389
0.9261	21.29	7.721	1.53950	...	...	0.3625 P	...	...	...	17701. 9	34.03 P	390
0.9104	23.93	7.590	1.54100	...	...	0.3667 P	...	...	192.47	17783. P	32.27 P	391
0.9103	23.95	7.589	1.53560	...	...	0.3673 P	...	...	186.71	17821. P	32.76 P	392
0.8990	25.90	7.495	1.53250	...	...	0.3672 P	...	...	186.77	17821. P	32.73 P	393
0.8969	28.26	7.478	1.53480	...	...	0.3871 P	...	...	188.36	17821. P	30.86 P	394
0.8960	28.43	7.470	1.52620	...	...	0.3676 P	...	...	182.19	17818. P	30.71 P	395
Phenylbenzenes, C_{12} to C_{14}												
...	...	...	1.58728	...	0.2424	...	...	0.9906	136.74	16816.	...	396
1.0159	7.78	8.470	1.58900	...	...	0.3747 P	...	...	173.37	17156. P	38.69 P	397
1.0185	7.44	8.491	1.60160	...	...	0.3731 P	...	...	179.09	17156. P	39.11 P	398
1.1009	-2.97	9.179 V	...	...	...	...	...	...	177.18	17156. P	53.48 V	399
1.0377	4.88	8.651 V	...	...	...	...	...	...	...	17286. P	43.91 V	400
1.1220	-5.39	9.354 V	...	...	...	...	...	...	165.68	15573. P	60.22 V	401
Diphenylalkenes, C_{13} to C_{24}												
1.0104	8.54	8.424 R	1.57520 R	0.0017	0.2502	0.3726	2.2350	0.9319	123.36	17029.	37.57 T	402

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.5 (Continued)

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Diphenylalkanes, C_{13} to C_{24}										
403	1,1-DIPHENYLETHANE	$C_{14}H_{14}$	182.26	522.73	-0.31	935.33 P	388.70 P	0.0531 P	0.2510	0.4497
404	1,2-DIPHENYLETHANE	$C_{14}H_{14}$	182.26	536.90	124.14	944.33 P	384.35 P	0.0533 P	0.2480	0.4885
405	1,1-DIPHENYLPROPANE	$C_{15}H_{16}$	196.29	541.80	56.66	937.80 P	348.29 P	0.0523 P	0.2386	0.5360
406	1,2-DIPHENYLPROPANE	$C_{15}H_{16}$	196.29	542.59	32.45	938.89 P	348.29 P	0.0523 P	0.2384	0.5360
407	1,1-DIPHENYLBUTANE	$C_{16}H_{18}$	210.32	561.72	-13.36	944.69 P	320.52 P	0.0530 P	0.2372	0.5740
408	1,1-DIPHENYLPENTANE	$C_{17}H_{20}$	224.35	586.20	10.36	959.05 P	296.81 P	0.0537 P	0.2347	0.6240
409	1,1-DIPHENYLHEXANE	$C_{18}H_{22}$	238.37	609.85	11.23	973.27 P	276.36 P	0.0542 P	0.2322	0.6730
410	1,1-DIPHENYLHEPTANE	$C_{19}H_{24}$	252.40	633.20	55.40	987.91 P	258.53 P	0.0547 P	0.2297	0.7286
411	1,1-DIPHENYLOCTANE	$C_{20}H_{26}$	266.43	654.80	24.80	1001.01 P	242.85 P	0.0551 P	0.2275	0.8950
412	1,1-DIPHENYLNONANE	$C_{21}H_{28}$	280.45	674.60	59.00	1012.48 P	228.96 P	0.0555 P	0.2256	0.7580
413	1,1-DIPHENYLDECANE	$C_{22}H_{30}$	294.48	692.60	37.40	1022.29 P	216.56 P	0.0559 P	0.2240	0.7210
414	1,1-DIPHENYLUNDECANE	$C_{23}H_{32}$	308.50	710.60	69.80	...	...	...	...	...
415	1,1-DIPHENYLDODECANE	$C_{24}H_{34}$	322.53	726.80	50.00	1041.42 P	195.40 P	0.0565 P	0.2209	0.7600
416	1,1-DIPHENYLTRIDECANE	$C_{25}H_{36}$	336.56	743.00	80.60	1050.67 P	178.51 P	0.0592 P	0.2104	0.9330
417	1,1-DIPHENYLTETRADECANE	$C_{26}H_{38}$	350.59	757.40	64.40	1058.13 P	163.75 P	0.0620 P	0.2009	1.0032
418	1,1-DIPHENYLPENTADECANE	$C_{27}H_{40}$	364.61	771.80	91.40	1066.06 P	150.72 P	0.0647 P	0.1921	0.9210
419	1,1-DIPHENYLHEXADECANE	$C_{28}H_{42}$	378.64	784.40	78.80	1072.18 P	139.20 P	0.0674 P	0.1841	0.8530
Diphenylalkenes, $C_{14}H_{12}$										
420	cis-1,2-DIPHENYLETHENE	$C_{14}H_{12}$	180.25	503.33 P	23.00	902.93 P	397.40 P	0.0508 P	0.2490	0.4708
421	trans-1,2-DIPHENYLETHENE	$C_{14}H_{12}$	180.25	583.70	255.56	982.13 P	397.40 P	0.0514 P	0.2380	0.6195
Phenylalkynes, C_8 and C_{14}										
422	PHENYLACETYLENE	C_8H_8	102.14	287.06	-40.00	766.35 P	1796.73 P	0.0274 P	0.3822	0.5000
423	DIPHENYLACETYLENE	$C_{14}H_{10}$	178.23	571.73 S	144.50	1037.93 P	420.61 P	0.0549 P	0.2560	0.3836
Diphenylbenzenes, C_8H_{14}										
424	1,2-DIPHENYLBENZENE	$C_{18}H_{14}$	230.31	638.53 P	133.16	1144.04	565.80	0.0523	0.3960	0.4671
425	1,3-DIPHENYLBENZENE	$C_{18}H_{14}$	230.31	710.33 P	188.33	1205.06	508.48	0.0534	0.3500	0.5583
428	1,4-DIPHENYLBENZENE	$C_{18}H_{14}$	230.31	708.80	413.33	1207.04	482.03	0.0530	0.3290	0.5281

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.5 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Diphenylalkanes, C_{13} to C_{24}												
1.0041	9.43	8.371 T	1.57020	0.0006 T	0.2600 T	0.3729 T	2.8955 T	1.1536 T	118.89	17101.	36.99 T	403
...	...	...	1.57040	...	0.2602	...	2.8516	1.1430	120.15	17086.	...	404
0.9910	11.29	8.262	1.56200	...	...	0.3769 P	...	...	...	...	37.85 P	405
0.9817	12.63	8.185	1.55620	...	...	0.3769 P	...	...	...	17423. P	36.44 P	406
0.9793	12.98	8.165	1.55460	...	...	0.3776 P	...	...	147.14	...	37.17 P	407
0.9700	14.38	8.087	1.54890	...	...	0.3773 P	...	...	141.51	...	36.74 P	408
0.9605	15.82	8.008	1.54280	...	...	0.3766 P	...	...	136.52	...	36.09 P	409
0.9542	16.79	7.955	1.53810	...	...	0.3755 P	...	...	...	...	35.77 P	410
0.9468	17.94	7.894	1.53360	...	...	0.3741 P	...	...	128.04	...	35.32 P	411
0.9413	18.82	7.848	1.52990	...	...	0.3724 P	...	...	124.20	...	35.01 P	412
0.9364	19.60	7.807	1.52660	...	...	0.3707 P	...	...	120.57	...	34.74 P	413
0.9322	20.30	7.772 R	1.52380	...	...	...	...	...	...	...	...	414
0.9284	20.97	7.740	1.52130	...	...	0.3665 P	...	...	114.17	...	34.31 P	415
0.9248	21.51	7.710 R	1.51900 R	...	...	0.3643 V	...	...	114.36	...	40.51 V	416
0.9224	21.91	7.690 R	1.51820	...	...	0.3625 P	...	...	...	...	47.71 P	417
0.9190	22.47	7.662 R	1.51510 R	...	...	0.3607 V	...	...	114.27	...	56.40 V	418
0.9173	22.75	7.648 R	1.51400 R	...	...	0.3592 V	...	...	113.99	...	65.73 V	419
Diphenylalkenes, $C_{14}H_{12}$												
1.0198	7.26	8.502	...	0.0004	0.2458	0.3556	...	...	114.45	17166. P	40.43 T	420
...	...	...	...	...	0.2539	...	...	...	133.91	17176. V	...	421
Phenylalkynes, C_8 and C_{14}												
0.9320	20.33	7.770	...	...	...	0.3570 P	...	...	265.10	17684. P	32.15 P	422
...	...	...	...	...	0.2451	...	...	1.5824	122.89	17243. V	...	423
Diphenylbenzenes, C_8H_{14}												
...	...	...	...	...	0.2453	...	...	4.4334	109.35	16899. V	...	424
...	...	...	...	...	0.2453	...	...	3.8410	119.64	16899. V	...	425
...	...	...	...	...	0.2453	...	...	...	118.41	16899. V	...	426

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.6
CONDENSED RING AROMATICS AND DERIVATIVES—PRIMARY PROPERTIES

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Alkylnaphthalenes, C_{10} to C_{20}										
427	NAPHTHALENE	$C_{10}H_8$	128.17	424.30	176.52	887.36	587.55	0.0516	0.2690	0.3019
428	1-METHYLNAPHTHALENE	$C_{11}H_{10}$	142.20	472.43	-22.86	930.00	529.39 P	0.0589 P	0.2970	0.2921
429	2-METHYLNAPHTHALENE	$C_{11}H_{10}$	142.20	465.89	94.24	910.13	471.37 P	0.0571 P	0.2600	0.3459
430	1-ETHYLNAPHTHALENE	$C_{12}H_{12}$	156.23	496.99	7.14	936.63 P	481.19 P	0.0533 P	0.2878	0.4115
431	2-ETHYLNAPHTHALENE	$C_{12}H_{12}$	156.23	496.27	18.68	927.66 P	459.76 P	0.0533 P	0.2573	0.4209
432	1,2-DIMETHYLNAPHTHALENE	$C_{12}H_{12}$	156.23	511.34	30.20	959.63 P	494.78 P	0.0533 P	0.2707	0.4127
433	1,4-DIMETHYLNAPHTHALENE	$C_{12}H_{12}$	156.23	513.14	45.79	962.15 P	508.95 P	0.0533 P	0.2780	0.4905
434	1-n-PROPYLNAPHTHALENE	$C_{13}H_{14}$	170.25	523.00	16.75	947.66 P	430.14 P	0.0541 P	0.2625	0.4565
435	2-n-PROPYLNAPHTHALENE	$C_{13}H_{14}$	170.25	524.30	26.60	942.30 P	412.73 P	0.0541 P	0.2528	0.4597
436	1-n-BUTYLNAPHTHALENE	$C_{14}H_{16}$	184.28	552.90	-3.50	965.86 P	388.77 P	0.0548 P	0.2568	0.4810
437	2-n-BUTYLNAPHTHALENE	$C_{14}H_{16}$	184.28	552.20	23.00	958.24 P	374.36 P	0.0548 P	0.2484	0.5010
438	1-n-PENTYLNAPHTHALENE	$C_{15}H_{18}$	198.31	582.80	-11.85	985.30 P	354.60 P	0.0554 P	0.2511	...
439	1-n-HEXYLNAPHTHALENE	$C_{16}H_{20}$	212.33	611.60	-0.40	1004.29 P	325.90 P	0.0559 P	0.2481	...
440	2-n-HEXYLNAPHTHALENE	$C_{16}H_{20}$	212.33	613.40	22.10	1001.07 P	315.56 P	0.0559 P	0.2388	...
441	1-n-HEPTYLNAPHTHALENE	$C_{17}H_{22}$	226.38	638.60	17.60	1029.09 P	301.48 P	0.0583 P	0.2405	...
442	1-n-OCTYLNAPHTHALENE	$C_{18}H_{24}$	240.39	665.60	28.40	1040.20 P	280.43 P	0.0567 P	0.2374	...
443	1-n-NONYLNAPHTHALENE	$C_{19}H_{26}$	254.41	690.80	46.40	1077.53 P	243.66 P	0.0642 P	0.2410	0.5781
444	2-n-NONYLNAPHTHALENE	$C_{19}H_{26}$	254.41	696.20	51.80	1070.68 P	255.27 P	0.0570 P	0.2254	...
445	1-n-DECYLNAPHTHALENE	$C_{20}H_{28}$	268.44	714.20	59.00	1086.53 P	229.16 P	0.0638 P	0.2370	0.6415
Tetrahydronaphthalenes, C_{10} to C_{20}										
446	1,2,3,4-TETRAHYDRO-NAPHTHALENE	$C_{10}H_{12}$	132.20	405.77	-32.35	836.60	478.63	0.0534	0.2430	0.2859
447	1-METHYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{11}H_{14}$	146.23	429.06	...	835.25 P	443.42 P	0.0542 P	0.2531	...
448	1-ETHYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{12}H_{16}$	160.26	463.23	...	860.00 P	399.20 P	0.0550 P	0.2484	...
449	2,2-DIMETHYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{12}H_{16}$	160.26	446.00	...	835.38 P	399.20 P	0.0550 P	0.2532	...
450	2,8-DIMETHYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{12}H_{16}$	160.26	460.40	68.00	850.93 P	392.66 P	0.0550 P	0.2461	...
451	8,7-DIMETHYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{12}H_{16}$	160.26	485.60	50.00	888.53 P	402.52 P	0.0550 P	0.2452	...
452	1-n-PROPYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{13}H_{18}$	174.29	493.52	...	880.36 P	362.96 P	0.0556 P	0.2447	...
453	8-n-PROPYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{13}H_{18}$	174.29	505.40	...	892.36 P	357.52 P	0.0556 P	0.2389	...
454	1-n-BUTYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{14}H_{20}$	188.30	523.63	...	...	...	...	...	...
455	8-n-BUTYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{14}H_{20}$	188.30	537.80	...	...	...	...	...	...
458	1-n-PENTYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{15}H_{22}$	202.33	553.33	...	...	...	...	...	...

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.6 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Alkylnaphthalenes, C_{10} to C_{20}												
...	...	...	1.93200	...	0.2393	...	...	0.7737	145.66	16707.	...	427
1.0250	6.55	8.546	1.61512	0.0033	0.2593	0.3703	2.1179	0.9919	138.53	16913.	39.71 T	428
...	...	...	1.60190 V	0.0032	0.2600	...	1.8153	0.8332	139.92	16879.	35.45 T	429
1.0121	8.30	8.438	1.60400	...	...	0.3714 P	...	...	...	17259. P	37.97	430
0.9963	10.53	8.306	1.59770	...	...	0.3714 P	...	...	...	17887. P	36.60	431
1.0214	6.96	8.520	1.61430	...	...	0.3709 P	...	...	...	17854. P	38.81	432
1.0177	7.53	8.485	1.61140	...	...	0.3708 P	...	...	...	17854. P	42.47 P	433
0.9937	10.89	8.285	1.59010	...	...	0.3731 P	...	...	...	17966. P	36.20	434
0.9808	12.77	8.177	1.58500	...	...	0.3731 P	...	...	...	17966. P	35.24	435
0.9808	12.77	8.177	1.57970	...	...	0.3740 P	...	...	...	18032. P	35.24	436
0.9934	10.95	8.282	1.57460	...	...	0.3740 P	...	...	...	18032. P	34.90	437
0.9705	14.31	8.091	1.57040	...	...	0.3741 P	...	...	162.57	18089. P	34.70	438
0.9614	15.69	8.015	1.56260	...	...	0.3737 P	...	...	156.17	18139. P	34.40	439
0.9521	17.12	7.938	1.56010	...	...	0.3736 P	...	...	155.94	18139. P	33.54	440
0.9537	16.87	7.951	1.55650	...	...	0.3725 P	...	...	151.26	18182. P	34.18	441
0.9468	17.94	7.894	1.55060	...	...	0.3715 P	...	...	145.43	18220. P	33.84	442
0.9411	18.86	7.846 T	1.54550	<.0001	0.3111 T	0.4068 T	4.1431 T	1.7046 T	96.84	17744. P	35.59 T	443
0.9428	18.59	7.786	1.54420	...	...	0.4162 P	...	...	...	18254. P	38.05 P	444
0.9354	19.78	7.798 T	1.54120	<.0001	0.3145 T	0.4134 T	4.6966 T	1.8501 T	95.57 T	17778. P	35.16 T	445
Tetrahydronaphthalenes, C_{10} to C_{20}												
0.9748	13.65	8.127	1.53919	0.0174	0.2697	0.3852	1.6628	0.7672	137.72	17423.	33.16 T	446
0.9623	15.54	8.023	1.53330	...	...	0.3702 P	...	...	183.07	17684. P	34.96 P	447
0.9569	16.37	7.978	1.52980	...	...	0.3727 P	...	...	173.35	17785. P	35.55 P	448
0.9404	18.97	7.840	1.51800	...	...	0.3735 P	...	...	169.63	17183. P	32.89 P	449
0.9464	18.02	7.890	1.52400	...	...	0.3728 V	...	...	172.79	17743. V	33.77 V	450
0.9584	16.15	7.990	1.53600	...	...	0.3718 P	...	...	179.20	17733. P	35.70 P	451
0.9480	17.75	7.904	1.52550	...	...	0.3746 P	...	...	164.68	16817. P	35.15 P	452
0.9401	19.01	7.838	1.52410	...	...	0.3740 P	...	...	167.10	12417. P	34.16 P	453
0.9382	19.30	7.822	...	...	...	...	...	...	...	...	...	454
0.9368	19.50	7.810	...	...	...	...	...	...	...	...	...	455
0.9310	20.50	7.762	...	...	...	...	...	...	...	...	...	458

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.6 (Continued)

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
Tetrahydronaphthalenes, C_{10} to C_{20}										
457	6-n-PENTYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	$C_{15}H_{22}$	202.33	566.60	...	...	...	...	...	...
458	1-n-HEXYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	$C_{16}H_{24}$	216.37	581.00	...	942.60 P	285.22 P	0.0570 P	0.2340	...
459	1-n-HEPTYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	$C_{17}H_{26}$	230.39	609.80	...	964.40 P	266.20 P	0.0574 P	0.2304	...
460	1-n-OCTYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	$C_{18}H_{28}$	244.42	635.00	...	982.08 P	249.55 P	0.0577 P	0.2276	...
461	1-n-NONYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	$C_{19}H_{30}$	258.45	658.40	...	1021.50 P	234.86 P	0.0580 P	0.2215	...
462	1-n-DECYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	$C_{20}H_{32}$	272.47	681.80	...	1014.58 P	221.81 P	0.0583 P	0.2225	...
Indenes, C_9 to C_{10}										
483	INDENE	C_9H_8	116.16	360.32	29.30	776.93 P	554.05 P	0.0507 P	0.2460	0.3352
464	1-METHYLINDENE	$C_{10}H_{10}$	130.19	389.30	...	805.87 P	501.72 P	0.0537 P	0.2584	0.3370
485	2-METHYLINDENE	$C_{10}H_{10}$	130.19	365.00	176.00	769.64 P	501.72 P	0.0537 P	0.2660	0.3370
Dihydroindenes, C_9 to C_{10}										
488	2,3-DIHYDROINDENE	C_9H_{10}	118.18	352.13	-60.54	766.24 P	541.59 P	0.0538 P	0.2608	...
487	1-METHYL-2,3-DIHYDROINDENE	$C_{10}H_{12}$	132.20	375.08	...	772.95 P	476.99 P	0.0546 P	0.2603	...
468	2-METHYL-2,3-DIHYDROINDENE	$C_{10}H_{12}$	132.20	376.52	...	775.09 P	476.99 P	0.0546 P	0.2598	...
489	4-METHYL-2,3-DIHYDROINDENE	$C_{10}H_{12}$	132.20	395.60	...	814.53 P	491.58 P	0.0546 P	0.2595	...
470	5-METHYL-2,3-DIHYDROINDENE	$C_{10}H_{12}$	132.20	401.90	...	798.04 P	467.60 P	0.0546 P	0.2501	...
Condensed Ring Aromatics, C_{12} to C_{18}										
471	ACENAPHTHALENE	$C_{12}H_8$	152.19	518.09	...	965.93	464.12	0.0505	0.2300	...
472	ACENAPHTHENE	$C_{12}H_{10}$	154.21	531.30	200.14	986.00 P	449.82 P	0.0540 P	0.2410	0.3811
473	FLUORENE	$C_{13}H_{10}$	166.22	567.12	238.62	1106.33 P	681.68 P	0.0385 P	0.2600	0.3388
474	ANTHRACENE	$C_{14}H_{10}$	178.23	648.18	419.00	1104.53 S	484.43 P	0.0498 S	0.2560	0.5753
475	PHENANTHRENE	$C_{14}H_{10}$	178.23	644.54	210.47	1104.98	420.81 P	0.0498 P	0.2220	0.4858
478	PYRENE	$C_{16}H_{10}$	202.25	742.64	300.53	1225.13 P	378.55 P	0.0499 P	0.2110	0.5088
477	FLUORANTHENE	$C_{18}H_{10}$	202.25	721.04	230.32 P	1199.93 P	378.55 P	0.0577 P	0.2480	0.4902
478	CHRYSENE	$C_{18}H_{12}$	228.29	825.80	498.40	1302.53 P	348.64 P	0.0484 P	0.2030	0.6040

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C1.6 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Tetrahydronaphthalenes, C_{10} to C_{20}												
0.9291	20.80	7.762	...	...	...	...	...	...	...	...	...	457
0.9251	21.45	7.713	1.51270	...	...	0.3760 P	...	...	145.73	18058. P	34.05 P	458
0.9203	22.25	7.673	1.51010	...	...	0.3753 P	...	...	141.13	18106. P	33.86 P	459
0.9161	22.95	7.638	1.50800	...	...	0.3742 P	...	...	136.62	18148. P	33.67 P	460
0.9124	23.58	7.607	1.50610	...	...	0.3712 P	...	...	134.88	18185. P	33.53 P	461
0.9093	24.11	7.581	1.50450	...	...	0.3711 P	...	...	128.76	18219. P	33.44 P	462
Indenes, C_9 to C_{10}												
1.0036	9.49	8.367	1.57400	0.0500	0.2483	0.3782	1.3577	0.6308	151.58	17097.	19.09 T	463
0.9759	13.50	8.136	1.55870	...	...	0.3668 P	...	...	196.64	15724. P	33.24 P	464
0.9799	12.90	8.170 R	1.56270 R	...	...	0.3674 P	...	...	189.54	19205. V	33.86 R	465
Dihydroindenes, C_9 to C_{10}												
0.9689	14.54	8.078	1.53580	...	...	0.3624 P	...	...	...	17428. P	33.23 P	466
0.9437	18.44	7.868	1.52410	...	...	0.3672 P	...	...	189.17	17560. P	31.93 P	467
0.9464	18.02	7.890	1.51930	...	...	0.3671 P	...	...	189.56	17560. P	32.31 P	468
0.9608	15.78	8.010	1.53220	...	...	0.3666 P	...	...	197.50	17538. P	34.34 P	469
0.9495	17.53	7.918	1.53330	...	...	0.3667 P	...	...	...	17539. P	32.74 P	470
Condensed Ring Aromatics, C_{12} to C_{18}												
...	...	...	...	...	...	...	...	...	...	16522.	...	471
...	...	...	1.64700	...	0.2480	...	...	1.3826	141.89	16732.	...	472
...	...	...	1.64700	...	0.2597	...	...	1.0487	136.05	16618.	...	473
...	...	...	1.55600	...	0.2440	...	...	...	132.16	16517.	...	474
...	...	...	1.54800	...	0.2454	...	...	1.7867	131.18	16486.	...	475
...	...	...	1.77000	...	0.2297	...	...	...	123.39	16198.	...	476
...	...	...	1.73900	...	0.2449	...	...	4.9494	122.40	16357.	...	477
...	...	...	1.78500	...	0.2410	...	...	...	129.75	16345.	...	478

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.1
PARAFFINS—SECONDARY PROPERTIES

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Paraffins, C_1 to C_3								
1	METHANE	CH_4	1	5.680	...	-1997.37	-1352.22	25.23
2	ETHANE	C_2H_6	2	6.050	...	-1198.88	-456.82	40.88
3	PROPANE	C_3H_8	3	6.400	...	-1020.61	-237.89	34.35
Paraffins, C_4H_{10}								
4	n-BUTANE	C_4H_{10}	5	6.768	...	-929.42	-122.49	34.48
5	ISOBUTANE	C_4H_{10}	4	6.376	...	-998.54	-158.59	33.58
Paraffins, C_5H_{12}								
6	n-PENTANE	C_5H_{12}	7	7.059	-40.00	-874.22	-52.26	50.06
7	ISOPENTANE	C_5H_{12}	8	6.775	...	-915.86	-82.59	30.69
8	NEOPENTANE	C_5H_{12}	9	6.219	...	-1001.50	-100.23	18.75
Paraffins, C_6H_{14}								
9	n-HEXANE	C_6H_{14}	11	7.328	-7.00	-832.85	-0.75	65.25
10	2-METHYLPENTANE	C_6H_{14}	12	7.049	-29.47 P	-871.47	-25.64	31.27
11	3-METHYLPENTANE	C_6H_{14}	13	7.270	-24.07 P	-858.35	-15.81	26.46
12	2,2-DIMETHYLBUTANE	C_6H_{14}	14	6.730	-54.00	-921.31	-42.50	2.89
13	2,3-DIMETHYLBUTANE	C_6H_{14}	15	7.017	-20.00	-881.99	-14.47	3.99
Paraffins, C_7H_{16}								
14	n-HEPTANE	C_7H_{16}	17	7.433	25.00	-805.13	34.97	60.23
15	2-METHYLHEXANE	C_7H_{16}	18	7.301	...	-835.46	14.33	39.40
16	3-METHYLHEXANE	C_7H_{16}	19	7.347	25.00	-820.92	21.80	...
17	3-ETHYLPENTANE	C_7H_{16}	20	7.355	...	-812.34	48.83	40.97
18	2,2-DIMETHYLPENTANE	C_7H_{16}	21	6.945	...	-883.04	2.36	24.99
19	2,3-DIMETHYLPENTANE	C_7H_{16}	22	7.274	...	-832.80	24.50	...
20	2,4-DIMETHYLPENTANE	C_7H_{16}	23	7.020	10.00	-865.28	14.59	29.37
21	3,3-DIMETHYLPENTANE	C_7H_{16}	24	7.105	...	-857.21	21.07	30.32
22	2,2,3-TRIMETHYLBUTANE	C_7H_{16}	25	6.965	...	-877.12	20.08	9.70
Paraffins, C_8H_{18}								
23	n-OCTANE	C_8H_{18}	27	7.506	56.00	-785.94	59.92	78.06
24	2-METHYLHEPTANE	C_8H_{18}	28	7.373	...	-810.52	43.92	44.70
25	3-METHYLHEPTANE	C_8H_{18}	29	7.487	...	-799.83	47.99	43.76
26	4-METHYLHEPTANE	C_8H_{18}	30	7.517	...	-797.76	59.13	40.79
27	3-ETHYLHEXANE	C_8H_{18}	31	7.432	...	-793.05	63.34	...
28	2,2-DIMETHYLHEXANE	C_8H_{18}	32	7.168	...	-845.33	39.29	25.51
29	2,3-DIMETHYLHEXANE	C_8H_{18}	33	7.341	41.60	-804.68	58.30	...
30	2,4-DIMETHYLHEXANE	C_8H_{18}	34	7.163	50.00	-825.16	42.72	...
31	2,5-DIMETHYLHEXANE	C_8H_{18}	35	7.207	...	-837.46	36.36	48.75
32	3,3-DIMETHYLHEXANE	C_8H_{18}	36	7.276	...	-827.98	50.40	26.77

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.1 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method D 357		Research Method D 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Paraffins, C_1 to C_3									
...	...	...	...	...	...	5.00	15.00	19.5	1
...	...	+.05 K	...	+1.6 K	...	2.90	13.00	19.4	2
0.001520 E	...	97.1	...	+1.8 K	...	2.00	9.50	14.7	3
Paraffins, C_4H_{10}									
0.001170	181.6	89.6	+0.4 K	93.8	+0.4 K	1.50	9.00	13.5	4
0.001190	225.7	97.6	...	+0.1 K	...	1.80	8.50	13.8	5
Paraffins, C_5H_{12}									
0.000870	159.3	62.6	84.2	61.7	86.0	1.40	8.30	13.0	6
0.000900	170.6	90.3	...	92.3	+1.0 K	1.30	8.00	13.1	7
0.001040	216.0	80.2	99.9	85.5	+0.1 K	1.40	7.50	13.4	8
Paraffins, C_6H_{14}									
0.000750	155.5	26.0	65.2	24.8	65.3	1.10	7.70	12.8	9
0.000780	164.8	73.5	91.1	73.4	93.1	1.20	7.00	12.8	10
0.000750	156.7	74.3	91.3	74.5	93.4	1.20 P	7.00 P	12.6	11
0.000780	178.2	93.4	+2.1 K	91.8	+0.6 K	1.20	7.00	12.8	12
0.000750	161.4	94.3	+1.8 K	+0.3 K	...	1.20	7.00	12.6	13
Paraffins, C_7H_{16}									
0.000690	157.5	0.0	46.9	0.0	43.5	1.00	7.00	12.7	14
0.000680	165.2	46.4	74.5	42.4	73.2	1.00 S	6.00 S	12.7	15
0.000690	158.9	55.8	81.0	52.0	74.7	1.00 P	7.00 P	12.5	16
0.000700	150.3	69.3	88.0	65.0	85.0	1.00 P	7.00 P	12.4	17
0.000720	171.7	95.6	+2.4 K	92.8	+0.4 K	1.02 P	6.03 P	12.6	18
0.000700	153.7	88.5	+0.3 K	91.1	+0.3 K	1.10	6.70	12.4	19
0.000720	173.8	83.8	99.1	83.1	96.6	1.02 P	6.50 P	12.7	20
0.000650	158.9	86.6	+0.6 K	80.8	97.7	1.00 P	7.00 P	12.4	21
<.000001	162.0	+0.1 K	+3.1 K	+1.8 K	...	1.02 P	6.13 P	12.4	22
Paraffins, C_8H_{18}									
0.000620	159.1	...	28.1	...	24.8	0.80	6.50	12.7	23
0.000610	165.0	23.0	60.8	20.6	57.8	0.98 P	5.80 P	12.6	24
0.000620	162.0	35.0	68.0	26.8	59.6	0.98 P	5.80 P	12.5	25
0.000660	160.9	39.0	70.1	26.7	61.1	0.98 P	5.80 P	12.3	26
0.000630	155.7	52.4	80.0	33.5	61.1	0.89 P	5.80 P	12.4	27
0.000650	172.0	77.4	95.2	72.5	93.3	0.89 P	5.51 P	12.6	28
0.000630	159.1	78.9	93.7	71.3	91.7	0.89 P	5.88 P	12.4	29
0.000660	164.1	69.9	89.0	65.2	87.3	0.89 P	5.88 P	12.6	30
0.000650	172.4	55.7	82.9	55.2	81.6	0.89 P	5.88 P	12.6	31
0.000620	182.0	83.4	100	75.5	94.6	0.89 P	5.51 P	12.4	32

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.1 (Continued)

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Paraffins, C_8H_{18}								
33	3,4-DIMETHYLHEXANE	C_8H_{18}	37	7.400	...	-800.43	63.00	...
34	2-METHYL-3-ETHYLPENTAHE	C_8H_{18}	38	7.419	...	-800.92	71.28	42.67
35	3-METHYL-3-ETHYLPENTANE	C_8H_{18}	39	7.331	...	-808.63	86.11	40.79
36	2,2,3-TRIMETHYLPENTANE	C_8H_{18}	40	7.221	29.93 P	-827.83	66.66	32.44
37	2,2,4-TRIMETHYLPENTANE	C_8H_{18}	41	6.871	10.00	-843.11	52.43	34.61
38	2,3,3-TRIMETHYLPENTANE	C_8H_{18}	42	7.294	...	-822.18	68.80	3.23
39	2,3,4-TRIMETHYLPENTANE	C_8H_{18}	43	7.301	...	-817.93	71.51	34.88
40	2,2,3,3-TETRAMETHYLBUTANE	C_8H_{18}	44	7.794	...	-849.58	84.65 C	7.67
Paraffins, C_9H_{20}								
41	n-NONANE	C_9H_{20}	46	7.562	88.00	-767.14	82.79	51.96
42	2-METHYLOCTANE	C_9H_{20}	91	7.490	...	-790.57	67.38	60.34
43	3-METHYLOCTANE	C_9H_{20}	92	7.522	...	-783.37	68.72	56.98
44	4-METHYLOCTANE	C_9H_{20}	93	7.481	...	-788.41	65.70	53.63
45	3-ETHYLHEPTANE	C_9H_{20}	448	7.523	...	-775.86	83.13	53.63
46	2,2-DIMETHYLHEPTANE	C_9H_{20}	96	7.214	...	-824.93	59.67	29.83
47	2,6-DIMETHYLHEPTANE	C_9H_{20}	447	7.303	...	-813.87	61.01	43.58
48	2,2,3-TRIMETHYLHEXANE	C_9H_{20}	432	7.253	...	-809.24	85.81	34.53
49	2,2,4-TRIMETHYLHEXANE	C_9H_{20}	433	7.034	...	-815.11	73.74	39.22
50	2,2,5-TRIMETHYLHEXANE	C_9H_{20}	47	7.055	55.00	-849.05	46.26	20.78
51	2,3,3-TRIMETHYLHEXANE	C_9H_{20}	434	7.314	...	-802.07	93.19	30.50
52	2,3,5-TRIMETHYLHEXANE	C_9H_{20}	435	7.218	...	-813.03	68.72	33.52
53	2,4,4-TRIMETHYLHEXANE	C_9H_{20}	436	7.086	...	-804.32	83.80	37.88
54	3,3,4-TRIMETHYLHEXANE	C_9H_{20}	437	7.410	...	-789.03	99.55	27.15
55	3,3-DIETHYLPENTANE	C_9H_{20}	50	7.448	...	-780.48	139.78	33.82
56	2,2-DIMETHYL-3-ETHYLPENTANE	C_9H_{20}	430	7.282	...	-775.29	120.00	34.19
57	2,4-DIMETHYL-3-ETHYLPENTANE	C_9H_{20}	431	7.333	...	-764.06	121.34	24.13
58	2,2,3,3-TETRAMETHYLPENTANE	C_9H_{20}	51	7.388	...	-794.80	125.37	7.71
59	2,2,3,4-TETRAMETHYLPENTANE	C_9H_{20}	52	7.310	...	-787.62	117.99	1.68
60	2,2,4,4-TETRAMETHYLPENTANE	C_9H_{20}	53	6.924	...	-812.03	114.31	32.51
61	2,3,3,4-TETRAMETHYLPENTANE	C_9H_{20}	54	7.413	...	-792.12	90.17	30.17
Paraffins, $C_{10}H_{22}$								
62	n-DECANE	$C_{10}H_{22}$	56	7.556	115.00	-754.01	99.72	86.72
63	2-METHYLNONANE	$C_{10}H_{22}$	57	7.577	...	-775.13	85.21	52.88
64	3-METHYLNONANE	$C_{10}H_{22}$	58	7.614	...	-768.69	86.72	56.81
65	4-METHYLNONANE	$C_{10}H_{22}$	443	7.592	...	-769.69	87.33	...
66	5-METHYLNONANE	$C_{10}H_{22}$	444	7.595	...	-769.69	92.16	...
67	2,7-DIMETHYLOCTANE	$C_{10}H_{22}$	61	7.431	...	-796.25	79.77	52.28
68	3,3,4-TRIMETHYLHEPTANE	$C_{10}H_{22}$	438	7.466	...	-778.79	111.20	39.28
69	3,3,5-TRIMETHYLHEPTANE	$C_{10}H_{22}$	439	7.255	...	-785.25	97.60	42.30
70	2,2,3,3-TETRAMETHYLHEXANE	$C_{10}H_{22}$	440	7.387	...	-779.57	141.72	37.47

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.1 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method 0 357		Research Method 0 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Paraffins, C_8H_{18}									
0.000630	154.4	81.7	97.1	76.3	94.7	0.89 P	5.88 P	12.3	33
0.000630	153.0	88.1	+0.1 K	87.3	100	0.89 P	5.88 P	12.3	34
0.000590	150.6	88.7	+0.2 K	80.8	95.9	0.89 P	5.51 P	12.2	35
0.000630	159.4	99.9	+2.0 K	+1.2 K	...	1.00 P	5.59 P	12.3	36
0.000650	175.0	100.	+3.0 K	100.	+3.0 K	1.10	...	12.5	37
0.000590	152.6	99.4	+2.0 K	+0.6 K	...	1.00 P	5.59 P	12.2	38
0.000630	154.9	95.9	+0.7 K	+0.2 K	...	1.00 P	5.97 P	12.2	39
...	...	...	...	...	...	0.89 P	5.31 P	12.1	40
Paraffins, C_9H_{20}									
0.000630	164.7	...	...	...	...	0.70	5.60	12.6	41
0.000630	164.7	...	...	...	...	0.85 P	5.36 P	12.7	42
0.000580	171.5	...	...	...	...	0.85 P	5.36 P	12.5	43
0.000590	167.0	...	...	...	...	0.85 P	5.36 P	12.5	44
0.000640	176.0	...	...	...	...	0.80 P	5.36 P	12.4	45
0.000720	...	60.5	83.5	50.3	77.2	0.80 P	5.12 P	12.6	46
0.000620	163.0	...	...	...	...	0.80 P	5.43 P	12.6	47
0.000550	162.0	...	...	...	...	0.80 P	5.18 P	12.3	48
0.000580	172.0	...	...	...	...	0.80 P	5.18 P	12.4	49
0.000580	180.9	...	...	...	...	0.80 P	5.18 P	12.5	50
0.000560	...	...	...	...	...	0.80 P	5.18 P	12.2	51
0.000630	169.0	...	...	...	...	0.80 P	5.49 P	12.4	52
0.000540	...	...	...	...	...	0.80 P	5.18 P	12.4	53
0.000650	...	...	...	...	...	0.80 P	5.18 P	12.1	54
0.000520	149.0	91.6	+0.1 K	84.0	97.1	0.70	5.70	12.0	55
0.000550	...	99.5	+0.8 K	+1.8 K	>+6.0 K	0.80 P	5.18 P	12.2	56
0.000560	...	96.6	+0.4 K	+0.5 K	+3.6 K	0.80 P	5.49 P	12.2	57
0.000520	154.0	95.0	99.4	+3.6 K	>+4.0 K	0.80	4.90	11.9	58
0.000560	...	...	...	...	...	0.85 P	5.25 P	12.5	59
0.000540	167.0	...	...	...	...	0.85 P	4.95 P	12.3	60
0.000570	...	...	...	...	...	0.80	4.90	12.0	61
Paraffins, $C_{10}H_{22}$									
0.000550	170.6	...	...	...	...	0.70	5.40	12.6	62
0.000640	176.5	...	...	...	...	0.72 P	5.04 P	12.7	63
0.000640	172.9	...	...	...	...	0.72 P	5.04 P	12.6	64
0.000600	172.9	...	...	...	...	0.72 P	5.04 P	12.6	65
0.000600	172.2	...	...	...	...	0.72 P	5.04 P	12.6	66
0.000590	174.2	...	...	...	...	0.72 P	5.10 P	12.6	67
0.000570	...	...	...	...	...	0.72 P	4.89 P	12.1	68
0.000560	158.0	88.7	+0.2 K	86.4	100.	0.72 P	4.89 P	12.3	69
0.000530	...	92.4	96.7	+2.0 K	+2.5 K	0.72 P	4.70 P	12.0	70

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.1 (Continued)

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Paraffins, $C_{10}H_{22}$								
71	2,2,5,5-TETRAMETHYLHEXANE	$C_{10}H_{22}$	441	6.922	...	-863.88	58.02	29.61
72	2,4-DIMETHYL-3-ISOPROPYL-PENTANE	$C_{10}H_{22}$	442	7.570	...	-721.77	188.55	1.81
Paraffins, C_{11} to C_{30}								
73	n-UNDECANE	$C_{11}H_{24}$	63	7.818	149.00	-743.07	113.46	60.76
74	n-DODECANE	$C_{12}H_{26}$	64	7.810	165.00	-733.94	125.01	90.50
75	n-TRIDECANE	$C_{13}H_{28}$	65	7.687	...	-726.24	134.81	66.46
76	n-TETRADECANE	$C_{14}H_{30}$	66	7.814	212.00	-719.58	143.22	97.67
77	n-PENTADECANE	$C_{15}H_{32}$	67	8.045	...	-713.81	150.52	70.02
78	n-HEXADECANE	$C_{16}H_{34}$	68	7.848	...	-710.40	155.97	101.31
79	n-HEPTADECANE	$C_{17}H_{36}$	69	7.759	...	-704.31	162.57	72.34
80	n-OCTADECANE	$C_{18}H_{38}$	70	7.742	...	-700.34	167.60	104.68
81	n-NONADECANE	$C_{19}H_{40}$	71	7.845	...	-696.78	172.10	73.35
82	n-EICOSANE	$C_{20}H_{42}$	73	7.755	...	-693.59	176.15	106.32
83	n-HENEICOSANE	$C_{21}H_{44}$	445	...	...	-631.57 P	...	...
84	n-DOCOSANE	$C_{22}H_{46}$	75	...	...	-690.09 P	...	...
85	n-TRICOSANE	$C_{23}H_{48}$	76	...	...	-687.71 P	...	...
86	n-TETRACOSANE	$C_{24}H_{50}$	77	...	...	-885.51 P	...	...
87	n-PENTACOSANE	$C_{25}H_{52}$	78	...	...	-683.49 P	...	...
88	n-HEXACOSANE	$C_{26}H_{54}$	79	...	...	-681.64 P	...	...
89	n-HEPTACOSANE	$C_{27}H_{56}$	80	...	...	-679.91 P	...	...
90	n-OCTACOSANE	$C_{28}H_{58}$	81	...	...	-878.30 P	...	...
91	n-NONACOSANE	$C_{29}H_{60}$	82	...	...	-676.81 P	...	...
92	n-TRIACONTANE	$C_{30}H_{62}$	446	...	...	-875.42 P	...	...

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.1 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ et 60 F per deg F	Aniline Point deg F	ASTM Octene Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method D 357		Reseerch Method D 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gel	Lower	Upper		
Pereffins, $C_{10}H_{22}$									
0.000830	181.0	...	...	...	...	0.72 P	4.70 P	...	71
0.000520	...	...	...	...	...	0.72 P	5.16 P	...	72
Pareffins, C_{11} to C_{30}									
...	...	...	...	...	...	0.66 P	4.78 P	12.7	73
...	...	...	...	...	...	0.60	4.68 P	12.7	74
...	...	...	...	...	...	0.56 P	4.67 P	12.7	75
...	...	...	...	...	...	0.50	4.75 P	12.9	76
...	...	...	...	...	...	0.49 P	4.93 P	12.9	77
...	...	...	...	...	...	0.48 P	5.21 P	12.9	78
...	...	...	...	...	...	0.43 P	5.63 P	13.0	79
...	...	...	...	...	...	0.41 P	6.21 P	13.1	80
...	...	...	...	...	...	0.39 P	8.98 P	13.1	81
...	...	...	...	...	...	0.37 P	8.00 P	13.1	82
...	...	...	...	...	...	0.35 P	9.37 P	13.1	83
...	...	...	...	...	...	0.33 P	11.19 P	13.2	84
...	...	...	...	...	...	0.32 P	13.64 P	13.2	85
...	...	...	...	...	...	0.31 P	16.96 P	13.2	86
...	...	...	...	...	...	0.29 P	21.53 P	13.3	87
...	...	...	...	...	...	0.28 P	27.89 P	13.3	88
...	...	...	...	...	...	0.27 P	36.86 P	13.3	89
...	...	...	...	...	...	0.26 P	49.72 P	13.4	90
...	...	...	...	...	...	0.25 P	68.46 P	13.4	91
...	...	...	...	...	...	0.25 P	96.19 P	13.4	92

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.2
CYCLOPARAFFINS—SECONDARY PROPERTIES

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Alkylcyclopropanes, C_3 to C_5								
93	CYCLOPROPANE	C_3H_6	101	7.600	...	546.06	1069.00	55.57
94	METHYLCYCLOPROPANE	C_4H_8	350	...	...	581.70 P	...	...
95	ETHYLCYCLOPROPANE	C_5H_{10}	351	...	...	322.40 P	...	...
96	cis-1,2-DIMETHYLCYCLOPROPANE	C_5H_{10}	352	...	...	190.82 P	...	...
97	trans-1,2-DIMETHYLCYCLOPROPANE	C_5H_{10}	356	...	...	...	...	...
Alkylcyclobutanes, C_4 to C_6								
98	CYCLOBUTANE	C_4H_8	102	7.910	-83.47 P	208.71	848.00	8.34
99	METHYLCYCLOBUTANE	C_5H_{10}	353	...	...	154.92 P	...	...
100	ETHYLCYCLOBUTANE	C_6H_{12}	354	...	...	238.74 P	...	...
Alkylcyclopentanes, C_5 to C_7								
101	CYCLOPENTANE	C_5H_{10}	104	8.156	...	-473.49	236.74	3.73
102	METHYLCYCLOPENTANE	C_6H_{12}	105	7.907	-17.00	-545.03	182.74	35.39
103	ETHYLCYCLOPENTANE	C_7H_{14}	107	7.988	95.00	-556.37	195.29	30.08
104	1,1-DIMETHYLCYCLOPENTANE	C_7H_{14}	108	7.557	...	-605.46	170.92	4.72
105	cis-1,2-DIMETHYLCYCLOPENTANE	C_7H_{14}	109	7.903	24.53 P	-567.17	200.23	7.26
106	trans-1,2-DIMETHYLCYCLOPENTANE	C_7H_{14}	110	7.705	13.73 P	-598.50	167.99	31.38
107	cis-1,3-DIMETHYLCYCLOPENTANE	C_7H_{14}	111	7.572	...	-594.84	171.65	32.26
108	trans-1,3-DIMETHYLCYCLOPENTANE	C_7H_{14}	112	7.609	...	-584.94	181.55	31.84
Alkylcyclopentanes, C_8H_{16}								
109	n-PROPYLCYCLOPENTANE	C_8H_{16}	114	8.015	60.53 P	-587.32	201.34	38.44
110	ISOPROPYLCYCLOPENTANE	C_8H_{16}	115	...	...	-252.63 P	...	...
111	1-METHYL-1-ETHYLCYCLOPENTANE	C_8H_{16}	116	...	...	-301.53 P	...	...
112	cis-1-METHYL-2-ETHYL-CYCLOPENTANE	C_8H_{16}	357	...	...	-301.53 P	...	...
113	trans-1-METHYL-2-ETHYL-CYCLOPENTANE	C_8H_{16}	358	...	...	-301.53 P	...	...
114	cis-1-METHYL-3-ETHYL-CYCLOPENTANE	C_8H_{16}	359	...	...	-301.53 P	...	...
115	trans-1-METHYL-3-ETHYL-CYCLOPENTANE	C_8H_{16}	360	...	...	-301.53 P	...	...
116	1,1,2-TRIMETHYLCYCLOPENTANE	C_8H_{16}	118	...	...	-383.76 P	...	...
117	1,1,3-TRIMETHYLCYCLOPENTANE	C_8H_{16}	119	...	...	-383.76 P	...	...
118	1,c-2,c-3-TRIMETHYL-CYCLOPENTANE	C_8H_{16}	361	...	...	-301.53 P	...	...
119	1,c-2,t-3-TRIMETHYL-CYCLOPENTANE	C_8H_{16}	362	...	...	-383.78 P	...	...
120	1,t-2,c-3-TRIMETHYL-CYCLOPENTANE	C_8H_{16}	363	...	...	-383.78 P	...	...
121	1,c-2,c-4-TRIMETHYL-CYCLOPENTANE	C_8H_{16}	364	...	...	-383.76 P	...	...

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.2 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method O 357		Research Method O 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Alkylcyclopropanes, C_3 to C_5									
...	...	...	...	...	...	2.40	10.40	11.9	93
...	...	81.2	87.2	+0.2 K	+0.4 K	1.86 P	11.42 P	9.3	94
0.000820	...	83.8	87.8	+0.2 K	+0.7 K	1.49 P	9.57 P	11.9	95
0.000780	...	84.3	86.6	+0.4 K	+0.7 K	1.49 P	9.79 P	11.8	96
...	...	...	...	...	...	...	...	...	97
Alkylcyclobutanes, C_4 to C_6									
0.000870	...	...	...	...	...	1.80 P	11.10 P	11.4	98
0.000740	...	...	...	...	...	1.49 P	9.57 P	11.8	99
0.000730	101.7	63.9	...	41.1	...	1.20	7.70	11.6	100
Alkylcyclopentanes, C_5 to C_7									
0.000700	62.2	84.9	95.2	+0.1 K	+0.9 K	1.40 P	9.36 P	11.0	101
0.000710	91.4	80.0	93.0	91.3	+0.5 K	1.20 P	8.35 P	11.3	102
0.000670	98.1	61.2	80.7	67.2	79.5	1.10	6.70	11.4	103
0.000660	113.0	89.3	+0.1 K	92.3	+0.9 K	1.06 P	6.78 P	11.4	104
0.000630	103.8	...	...	...	...	1.06 P	7.30 P	11.3	105
0.000660	116.1	...	...	...	...	1.06 P	7.30 P	11.5	106
0.000650	...	73.1	86.8	79.2	91.2	1.06 P	7.30 P	11.8	107
0.000660	121.8	72.6	87.1	80.6	93.2	1.06 P	7.30 P	11.6	108
Alkylcyclopentanes, C_8H_{16}									
0.000580	112.0	28.1	60.5	31.2	59.8	0.95	6.42 P	11.5	109
0.000540	...	76.2	89.4	81.1	94.3	0.93 P	6.42 P	11.5	110
0.000590	...	...	...	...	...	0.93 P	6.10 P	11.4	111
0.000590	117.5	...	...	...	...	0.93 P	6.52 P	11.4	112
0.000580	126.0	...	...	...	...	0.93 P	6.52 P	11.6	113
0.000580	...	59.8	79.6	57.6	79.2	0.93 P	6.52 P	11.6	114
0.000580	...	59.8	79.6	57.6	79.2	0.93 P	6.52 P	11.6	115
0.000630	...	...	...	...	...	0.93 P	6.19 P	11.4	116
0.000660	...	83.5	95.6	87.7	+0.1 K	0.93 P	6.19 P	11.7	117
0.000590	105.8	...	...	...	...	0.93 P	6.61 P	11.4	118
0.000580	105.8	...	...	...	...	0.93 P	6.61 P	11.5	119
0.000660	105.8	...	...	...	...	0.93 P	6.61 P	11.7	120
0.000830	...	...	...	...	...	0.93 P	8.61 P	11.5	121

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.2 (Continued)

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Alkylcyclopentanes, C_8H_{16}								
122	1,c-2,t-4-TRIMETHYL-CYCLOPENTANE	C_8H_{16}	120	...	...	-383.78 P	...	...
123	1,t-2,c-4-TRIMETHYL-CYCLOPENTANE	C_8H_{16}	365	...	...	-383.76 P	...	...
Alkylcyclopentanes, C_9H_{18}								
124	n-BUTYLCYCLOPENTANE	C_9H_{18}	366	...	...	-573.10	209.03	38.53
125	ISOBUTYLCYCLOPENTANE	C_9H_{18}	367	...	...	-334.00 P	...	...
126	1-METHYL-1-n-PROPYL-CYCLOPENTANE	C_9H_{18}	368	...	...	-338.56 P	...	...
127	1,1-DIETHYLCYCLOPENTANE	C_9H_{18}	369	...	...	-338.56 P	...	...
128	cis-1,2-DIETHYLCYCLOPENTANE	C_9H_{18}	370	...	...	-338.56 P	...	...
129	1,1-DIMETHYL-2-ETHYL-CYCLOPENTANE	C_9H_{18}	371	...	...	-411.66 P	...	...
Alkylcyclopentanes, C_{10} to C_{25}								
130	n-PENTYLCYCLOPENTANE	$C_{10}H_{20}$	123	8.068	...	-579.00	213.90	...
131	n-HEXYLCYCLOPENTANE	$C_{11}H_{22}$	124	8.102	...	-583.71	217.88	...
132	n-HEPTYLCYCLOPENTANE	$C_{12}H_{24}$	125	8.131	...	-587.77	221.22	...
133	n-OCTYLCYCLOPENTANE	$C_{13}H_{26}$	128	8.157	...	-591.08	224.02	...
134	n-NONYLCYCLOPENTANE	$C_{14}H_{28}$	127	8.176	...	-594.01	226.43	...
135	n-DECYLCYCLOPENTANE	$C_{15}H_{30}$	128	8.193	...	-596.58	228.44	67.69
136	n-UNDECYLCYCLOPENTANE	$C_{16}H_{32}$	129	8.208	...	-598.72	230.27	...
137	n-DODECYLCYCLOPENTANE	$C_{17}H_{34}$	130	8.223	...	-600.68	231.88	...
138	n-TRIDECYLCYCLOPENTANE	$C_{18}H_{36}$	131	8.236	...	-602.38	233.33	...
139	n-TETRADECYLCYCLOPENTANE	$C_{19}H_{38}$	132	8.248	...	-603.94	234.61	...
140	n-PENTADECYLCYCLOPENTANE	$C_{20}H_{40}$	133	8.257	...	-605.35	235.77	...
141	n-HEXADECYLCYCLOPENTANE	$C_{21}H_{42}$	134	8.265	...	-606.58	238.82	...
142	n-HEPTADECYLCYCLOPENTANE	$C_{22}H_{44}$	373	...	...	-483.70 P	...	...
143	n-OCTADECYLCYCLOPENTANE	$C_{23}H_{46}$	374	...	...	-490.27 P	...	...
144	n-NONADECYLCYCLOPENTANE	$C_{24}H_{48}$	375	...	...	-496.29 P	...	...
145	n-EICOSYLCYCLOPENTANE	$C_{25}H_{50}$	376	...	...	-501.84 P	...	...
Alkylcyclohexanes, C_6 and C_7								
146	CYCLOHEXANE	C_6H_{12}	137	8.164	-4.00	-629.02	162.22	14.00
147	METHYLCYCLOHEXANE	C_7H_{14}	138	7.954	25.00	-877.64	119.44	29.56
Alkylcyclohexanes, C_8H_{16}								
148	ETHYLCYCLOHEXANE	C_8H_{16}	140	7.998	95.00	-858.06	150.37	31.93
149	1,1-DIMETHYLCYCLOHEXANE	C_8H_{16}	141	7.662	...	-693.49	134.98	7.74
150	cis-1,2-DIMETHYLCYCLOHEXANE	C_8H_{16}	142	7.944	71.33 P	-859.66	157.90	6.30
151	trans-1,2-DIMETHYLCYCLOHEXANE	C_8H_{16}	143	7.713	62.33 P	-689.64	132.09	39.93

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.2 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method D 357		Research Method O 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Alkylcyclopentanes, C_8H_{16}									
0.000570	...	79.5	...	89.2	98.3	0.93 P	6.61 P	11.6	122
0.000660	...	...	...	...	...	0.93 P	6.61 P	11.8	123
Alkylcyclopentanes, C_9H_{18}									
0.000540	119.7	-2.0	36.7	-3.0	29.6	0.83 P	5.87 P	11.2	124
0.000590	...	28.2	58.1	33.4	59.2	0.83 P	5.94 P	11.6	125
0.000600	...	...	...	...	...	0.83 P	5.61 P	11.3	126
0.000550	...	...	...	...	...	0.83 P	5.61 P	11.3	127
0.000600	127.2	...	...	...	...	0.83 P	5.61 P	11.4	128
0.000690	...	...	...	...	...	0.83 P	5.68 P	11.4	129
Alkylcyclopentanes, C_{10} to C_{25}									
0.000550	...	...	...	...	...	0.74 P	5.47 P	11.7	130
...	...	...	...	...	...	0.68 P	5.20 P	11.9	131
...	...	...	...	...	...	0.62 P	5.06 P	12.0	132
...	...	...	...	...	...	0.57 P	5.01 P	12.1	133
...	...	...	...	...	...	0.53 P	5.07 P	12.2	134
...	...	...	...	...	...	0.50 P	5.24 P	12.2	135
...	...	...	...	...	...	0.47 P	5.53 P	12.3	136
...	...	...	...	...	...	0.44 P	5.95 P	12.4	137
...	...	...	...	...	...	0.41 P	6.53 P	12.5	138
...	...	...	...	...	...	0.39 P	7.33 P	12.6	139
...	...	...	...	...	...	0.37 P	8.38 P	12.7	140
...	...	...	...	...	...	0.35 P	9.79 P	12.8	141
...	...	...	...	...	...	0.34 P	11.67 P	12.7	142
...	...	...	...	...	...	0.32 P	14.20 P	12.8	143
...	...	...	...	...	...	0.31 P	17.63 P	12.9	144
...	...	...	...	...	...	0.30 P	22.34 P	12.9	145
Alkylcyclohexanes, C_6 and C_7									
0.000680	87.8	77.2	87.3	83.0	97.4	1.30	8.00	11.0	146
0.000630	105.8	71.1	86.2	74.8	88.2	1.20	7.18 P	11.3	147
Alkylcyclohexanes, C_8H_{16}									
0.000540	110.8	40.8	65.4	45.6	65.1	6.60	9.00	11.4	148
0.000590	113.7	85.9	95.7	87.3	98.0	0.93 P	6.10 P	11.3	149
0.000550	107.1	78.6	90.7	80.9	94.3	0.93 P	6.52 P	11.2	150
0.000580	118.9	78.7	90.8	80.9	94.5	0.93 P	6.52 P	11.5	151

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.2 (Continued)

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Alkylcyclohexanes, C_8H_{16}								
152	cis-1,3-DIMETHYLCYCLOHEXANE	C_8H_{16}	144	7.647	58.73 P	-707.91	114.30	41.46
153	trans-1,3-DIMETHYLCYCLOHEXANE	C_8H_{16}	145	7.842	...	-676.49	139.15	37.80
154	cis-1,4-DIMETHYLCYCLOHEXANE	C_8H_{16}	146	7.813	60.53 P	-676.81	145.40	35.66
155	trans-1,4-DIMETHYLCYCLOHEXANE	C_8H_{16}	147	7.578	53.33 P	-707.27	121.51	47.25
Alkylcyclohexanes, C_9 and C_{10}								
156	n-PROPYLCYCLOHEXANE	C_9H_{18}	149	8.007	...	-658.31	161.16	35.32
157	ISOPROPYLCYCLOHEXANE	C_9H_{18}	150	...	...	-319.47 P	...	...
158	n-BUTYLCYCLOHEXANE	$C_{10}H_{20}$	152	8.023	...	-653.37	172.99	43.40
159	ISOBUTYLCYCLOHEXANE	$C_{10}H_{20}$	386	...	...	-419.09 P	...	...
160	sec-BUTYLCYCLOHEXANE	$C_{10}H_{20}$	383	...	...	-350.99 P	...	...
181	tert-BUTYLCYCLOHEXANE	$C_{10}H_{20}$	384	...	...	-386.00 P	...	...
182	1-METHYL-4-ISOPROPYL-CYCLOHEXANE	$C_{10}H_{20}$	372	...	...	-416.78 P	...	...
Alkylcyclohexanes, C_{11} to C_{26}								
163	n-PENTYLCYCLOHEXANE	$C_{11}H_{22}$	167	8.067	...	-651.44	180.70	50.13
164	n-HEXYLCYCLOHEXANE	$C_{12}H_{24}$	168	8.100	...	-649.76	187.13	56.64
165	n-HEPTYLCYCLOHEXANE	$C_{13}H_{26}$	157	8.126	...	-648.40	192.56	61.16
166	n-OCTYLCYCLOHEXANE	$C_{14}H_{28}$	169	8.151	...	-647.14	197.21	65.95
167	n-NONYLCYCLOHEXANE	$C_{15}H_{30}$	170	8.170	...	-646.17	201.25	70.11
168	n-DECYLCYCLOHEXANE	$C_{16}H_{32}$	158	8.186	...	-645.28	204.70	74.01
169	n-UNDECYLCYCLOHEXANE	$C_{17}H_{34}$	171	8.200	...	-644.43	207.82	76.94
170	n-DODECYLCYCLOHEXANE	$C_{18}H_{36}$	172	8.216	...	-643.77	210.60	78.08
171	n-TRIDECYLCYCLOHEXANE	$C_{19}H_{38}$	173	8.228	...	-643.09	213.08	82.34
172	n-TETRADECYLCYCLOHEXANE	$C_{20}H_{40}$	174	8.241	...	-842.54	215.31	84.64
173	n-PENTADECYLCYCLOHEXANE	$C_{21}H_{42}$	377	...	...	-642.06	217.34	...
174	n-HEXADECYLCYCLOHEXANE	$C_{22}H_{44}$	378	...	...	-641.55	219.17	...
175	n-HEPTADECYLCYCLOHEXANE	$C_{23}H_{46}$	379	...	...	-499.80 P	...	...
176	n-OCTADECYLCYCLOHEXANE	$C_{24}H_{48}$	380	...	...	-505.43 P	...	...
177	n-NONADECYLCYCLOHEXANE	$C_{25}H_{50}$	381	...	...	-510.61 P	...	...
178	n-EICOSYLCYCLOHEXANE	$C_{26}H_{52}$	382	...	...	-515.38 P	...	...
Cyclopsrsffina, C_7 to C_{12}								
179	CYCLOHEPTANE	C_7H_{14}	159	8.416	...	-521.21	277.55	8.24
180	CYCLOOCTANE	C_8H_{16}	160	8.509	...	-481.56	345.14	9.23
181	CYCLONONANE	C_9H_{18}	164	8.589	...	-455.97	...	6.58
182	ETHYLCYCLOHEPTANE	C_9H_{18}	385	...	...	-122.97 P	...	...
183	BICYCLOHEXYL	$C_{12}H_{22}$	155	8.419	165.20	-703.17	110.13 P	...

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.2 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method D 357		Research Method D 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Alkylcyclohexanes, C_8H_{16}									
0.000580	125.1	71.0	...	71.7	...	0.93 P	6.52 P	11.6	152
0.000590	115.3	64.2	83.8	66.9	83.5	0.93 P	8.52 P	11.3	153
0.000590	116.4	68.2	85.0	67.2	84.7	0.93 P	6.52 P	11.4	154
0.000620	126.9	62.2	83.4	68.3	82.8	0.93 P	8.52 P	11.6	155
Alkylcyclohexanes, C_9 and C_{10}									
0.000500	121.6	14.0	47.7	17.8	42.8	0.95 P	5.87 P	11.5	156
0.000500	120.0	61.1	81.4	62.8	79.6	0.83 P	5.87 P	11.4	157
0.000500	129.9	...	25.3	...	22.5	0.85 P	5.47 P	11.6	158
...	135.3	...	...	...	...	0.74 P	5.53 P	11.4	159
...	...	...	...	...	...	0.74 P	5.47 P	11.4	160
...	128.5	...	...	...	...	0.74 P	5.47 P	11.4	161
...	133.7	...	...	...	...	0.74 P	5.86 P	10.8	162
Alkylcyclohexanes, C_{11} to C_{26}									
...	...	...	...	...	...	0.68 P	5.20 P	11.8	163
...	...	...	...	...	...	0.62 P	5.06 P	11.9	164
...	...	...	...	...	...	0.57 P	5.01 P	12.0	165
...	...	...	...	...	...	0.53 P	5.07 P	12.1	166
...	...	...	...	...	...	0.50 P	5.24 P	12.2	167
...	...	...	...	...	...	0.47 P	5.53 P	12.3	168
...	...	...	...	...	...	0.44 P	5.95 P	12.4	169
...	...	...	...	...	...	0.41 P	6.53 P	12.4	170
...	...	...	...	...	...	0.39 P	7.33 P	12.5	171
...	...	...	...	...	...	0.37 P	8.38 P	12.6	172
...	...	...	...	...	...	0.35 P	9.79 P	12.8	173
...	...	...	...	...	...	0.34 P	11.67 P	12.7	174
...	...	...	...	...	...	0.32 P	14.20 P	12.8	175
...	...	...	...	...	...	0.31 P	17.63 P	12.8	176
...	...	...	...	...	...	0.30 P	22.34 P	12.9	177
...	...	...	...	...	...	0.29 P	28.90 P	12.9	178
Cycloparaffins, C_7 to C_{12}									
0.000610	...	40.2	65.3	38.8	59.8	1.06 P	7.05 P	10.9	179
0.000520	...	58.2	...	71.0	...	0.93 P	6.33 P	10.9	180
0.000530	...	...	...	...	...	0.83 P	5.79 P	10.9	181
...	...	...	...	...	...	0.83 P	5.87 P	11.5	182
...	...	...	...	...	...	0.70	5.10	10.9	183

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.2 (Continued)

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Decahydronaphthalenes, C_{10} to C_{12}								
184	cis-DECAHYDRONAPHTHALENE	$C_{10}H_{18}$	153	8.617	136.04	-526.29	265.95	29.51
185	trans-DECAHYDRONAPHTHALENE	$C_{10}H_{18}$	154	8.332	136.04	-566.50	228.72	44.81
186	1-METHYL-[cis-DECAHYDRO-NAPHTHALENE]	$C_{11}H_{20}$	176	...	...	...	...	...
187	1-METHYL-[trans-DECAHYORO-NAPHTHALENE]	$C_{11}H_{20}$	177	...	...	...	...	...
188	1-ETHYL-[cis-DECAHYDRO-NAPHTHALENE]	$C_{12}H_{22}$	178	...	...	...	...	...
189	1-ETHYL-[trans-DECAHYDRO-NAPHTHALENE]	$C_{12}H_{22}$	179	...	...	...	...	...
190	9-ETHYL-[cis-DECAHYDRO-NAPHTHALENE]	$C_{12}H_{22}$	180	...	...	...	...	...
191	9-ETHYL-[trans-DECAHYORO-NAPHTHALENE]	$C_{12}H_{22}$	181	...	...	...	...	...

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.2 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method D 357		Research Method D 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Decahydronaphthalenes, C_{10} to C_{12}									
0.000510	95.5	...	...	...	...	0.70	4.90	10.5	184
0.000550	95.5	...	...	...	...	0.70	4.90	10.7	185
...	...	...	...	...	...	0.70 P	5.72 P	9.6	186
...	...	...	...	...	...	0.70 P	5.72 P	...	187
...	...	...	...	...	...	0.64 P	5.52 P	...	188
...	...	...	...	...	...	0.64 P	5.52 P	...	189
...	...	...	...	...	...	0.64 P	5.28 P	10.9	190
...	...	...	...	...	...	0.64 P	5.28 P	11.2	191

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.3
MONOOLEFINES AND DIOLEFINS—SECONDARY PROPERTIES

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Monoolefins, C_2 and C_3								
192	ETHYLENE	C_2H_4	201	6.080	...	801.35	1048.83	51.36
193	PROPYLENE	C_3H_6	202	6.313	-162.00	201.37	640.78	30.68
Monoolefins, C_4H_8								
194	1-BUTENE	C_4H_8	204	6.935	...	0.96	547.88	29.48
195	cis-2-BUTENE	C_4H_8	205	7.337	...	-53.54	501.87	56.01
196	trans-2-BUTENE	C_4H_8	206	7.137	...	-85.60	485.78	74.76
197	ISOBUTENE	C_4H_8	207	6.894	...	-129.52	444.97	45.45
Monoolefins, C_5H_{10}								
198	1-PENTENE	C_5H_{10}	209	7.138	0.00	-128.25	486.31	35.60
199	cis-2-PENTENE	C_5H_{10}	210	7.411	-50.00 P	-172.11	440.40	43.60
200	trans-2-PENTENE	C_5H_{10}	211	7.316	-54.67 P	-194.68	426.67	51.20
201	2-METHYL-1-BUTENE	C_5H_{10}	212	7.184	20.00	-222.64	397.82	48.50
202	3-METHYL-1-BUTENE	C_5H_{10}	213	6.794	-79.87 P	-177.49	458.36	32.86
203	2-METHYL-2-BUTENE	C_5H_{10}	214	7.454	20.00	-260.85	365.76	46.58
Monoolefins, C_6H_{12}								
204	1-HEXENE	C_6H_{12}	216	7.356	...	-212.88	447.56	47.75
205	cis-2-HEXENE	C_6H_{12}	217	7.488	...	-247.08	409.52	45.25
206	trans-2-HEXENE	C_6H_{12}	218	7.500	...	-268.45	398.19	42.17
207	cis-3-HEXENE	C_6H_{12}	219	7.427	...	-247.08	420.20	42.13
208	trans-3-HEXENE	C_6H_{12}	220	7.450	...	-268.45	407.14	56.58
209	2-METHYL-1-PENTENE	C_6H_{12}	221	7.365	...	-289.82	372.76	35.91
210	3-METHYL-1-PENTENE	C_6H_{12}	222	7.006	...	-235.54	435.75	18.38
211	4-METHYL-1-PENTENE	C_6H_{12}	223	7.078	...	-249.21	437.08	18.20
212	2-METHYL-2-PENTENE	C_6H_{12}	224	7.517	...	-319.75	349.89	41.04
213	cis-3-METHYL-2-PENTENE	C_6H_{12}	225	7.511	...	-306.07	362.70	30.24
214	trans-3-METHYL-2-PENTENE	C_6H_{12}	226	7.633	...	-306.07	357.59	39.33
215	cis-4-METHYL-2-PENTENE	C_6H_{12}	227	7.142	...	-283.41	393.27	37.62
216	trans-4-METHYL-2-PENTENE	C_6H_{12}	228	7.203	...	-304.79	379.81	36.55
217	2-ETHYL-1-BUTENE	C_6H_{12}	229	7.432	...	-276.15	395.62	38.69
218	2,3-DIMETHYL-1-BUTENE	C_6H_{12}	230	7.172	...	-315.90	372.54	27.83
219	3,3-DIMETHYL-1-BUTENE	C_6H_{12}	231	6.664	...	-304.57	417.42	5.47
220	2,3-DIMETHYL-2-BUTENE	C_6H_{12}	232	7.773	...	-340.05	353.09	...
Monoolefins, C_7H_{14}								
221	1-HEPTENE	C_7H_{14}	234	7.545	32.00	-272.78	420.43	54.30
222	cis-2-HEPTENE	C_7H_{14}	235	7.512	...	-303.00	390.58 P	...
223	trans-2-HEPTENE	C_7H_{14}	236	7.538	...	-323.17 P	...	51.30
224	cis-3-HEPTENE	C_7H_{14}	249	7.599	...	-300.81	391.45 P	...
225	trans-3-HEPTENE	C_7H_{14}	237	7.474	...	-319.89 P	...	45.80

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.3 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method D 357		Research Method D 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Monoolefins, C_2 and C_3									
...	...	75.6	...	+.03 K	...	2.70	36.00	...	192
0.001890	...	84.9	...	+0.2 K	...	2.00	11.00	14.2	193
Monoolefins, C_4H_8									
0.001160	...	80.8	...	97.4	...	1.60	9.30	13.0	194
0.000980	...	83.5	...	100.	...	1.60	9.70	12.6	195
0.001070	...	...	...	...	...	1.80	9.70	12.9	196
0.001200	58.8	...	...	...	...	1.80	8.80	13.0	197
Monoolefins, C_5H_{10}									
0.000890	66.2	77.1	82.9	90.9	98.6	1.50	8.70	12.7	198
0.000870	64.4	...	...	...	...	1.40 P	10.59 P	12.5	199
<.000001	64.4	...	...	...	...	1.40 P	10.59 P	12.6	200
<.000001	...	81.9	84.2	+0.2 K	+0.3 K	1.40	10.59 P	12.5	201
<.000001	...	... N	... N	... N	... N	1.50 S	...	12.8	202
<.000001	55.0	84.7	85.8	97.3	99.2	1.40	10.09 P	12.3	203
Monoolefins, C_6H_{12}									
<.000001	73.0	63.4	76.3	76.4	91.7	1.20 P	9.25 P	12.5	204
0.000730	78.8	...	...	...	...	1.20 P	8.95 P	12.3	205
0.000720	78.8	80.8	83.2	92.7	98.4	1.20 P	8.95 P	12.5	206
0.000730	80.6	...	...	...	...	1.24 P	8.95 P	12.4	207
0.000770	80.6	80.1	82.3	94.0	...	1.24 P	8.95 P	12.5	208
0.000770	...	81.5	85.2	94.2	99.8	1.20 P	8.57 P	12.3	209
0.000750	...	81.2	82.2	96.0	+.05 K	1.24 P	9.38 P	12.5	210
0.000790	...	80.9	84.5	95.7	+0.5 K	1.20 P	9.38 P	12.5	211
0.000730	...	83.0	85.0	97.8	99.5	1.20 P	8.35 P	12.3	212
0.000740	...	...	...	...	...	1.24 P	7.82 P	12.2	213
0.000700	...	81.0	84.0	97.2	100	1.24 P	7.82 P	12.1	214
<.000001	...	84.5	86.3	99.7	+0.2 K	1.20 P	10.51 P	12.5	215
0.000800	...	82.6	...	98.0	+.02 K	1.20 P	10.51 P	12.5	216
0.000740	...	79.4	82.0	98.3	+0.3 K	1.20 P	8.95 P	12.2	217
0.000770	...	82.8	85.5	+0.1 K	+0.3 K	1.20 P	8.44 P	12.3	218
0.000900	...	93.3	...	+1.7 K	...	1.24 P	8.92 P	12.6	219
0.000710	...	80.5	84.0	97.4	98.5	1.24 P	9.10 P	12.0	220
Monoolefins, C_7H_{14}									
0.000700	81.0	50.7	68.9	54.5	80.2	1.00 P	8.00 P	12.4	221
0.000670	...	...	...	...	...	1.10 P	7.76 P	12.3	222
0.000660	...	68.8	78.9	73.4	89.5	1.06 P	7.76 P	12.4	223
0.000710	94.8	...	...	90.2	...	1.10 P	7.76 P	12.3	224
0.000700	94.8	79.3	84.6	89.8	98.2	1.06 P	7.76 P	12.4	225

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.3 (Continued)

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Monoolefins, C_7H_{14}								
226	2-METHYL-1-HEXENE	C_7H_{14}	238	7.452	...	-333.79 P	...	56.79
227	3-METHYL-1-HEXENE	C_7H_{14}	456	7.295	...	-278.47 P	...	...
228	4-METHYL-1-HEXENE	C_7H_{14}	457	7.381	...	-309.43 P	...	32.98
229	5-METHYL-1-HEXENE	C_7H_{14}	458	7.298	...	-309.43 P	...	...
230	2-METHYL-2-HEXENE	C_7H_{14}	459	7.527	...	-385.09 P	...	40.30
231	cis-3-METHYL-2-HEXENE	C_7H_{14}	460	7.568	...	-482.56 P	...	49.37
232	trans-3-METHYL-2-HEXENE	C_7H_{14}	461	7.561	...	-388.57 P	...	...
233	cis-4-METHYL-2-HEXENE	C_7H_{14}	462	7.386	...	-364.75 P	...	...
234	trans-4-METHYL-2-HEXENE	C_7H_{14}	463	7.372	...	-364.75 P	...	31.14
235	cis-5-METHYL-2-HEXENE	C_7H_{14}	464	7.396	...	-417.15 P	...	...
236	trans-5-METHYL-2-HEXENE	C_7H_{14}	465	7.349	...	-417.15 P	...	27.48
237	cis-2-METHYL-3-HEXENE	C_7H_{14}	466	7.314	...	-357.06 P	...	...
238	trans-2-METHYL-3-HEXENE	C_7H_{14}	467	7.285	...	-357.06 P	...	23.82
239	cis-3-METHYL-3-HEXENE	C_7H_{14}	239	7.653	...	-381.61 P	...	...
240	trans-3-METHYL-3-HEXENE	C_7H_{14}	240	7.564	...	-381.61 P	...	...
241	2-ETHYL-1-PENTENE	C_7H_{14}	468	7.478	...	-330.31 P	...	...
242	3-ETHYL-1-PENTENE	C_7H_{14}	469	7.415	...	-305.76 P	...	21.98
243	3-ETHYL-2-PENTENE	C_7H_{14}	241	7.593	...	-385.09 P	...	...
244	2,3-DIMETHYL-1-PENTENE	C_7H_{14}	470	7.368	...	-375.38 P	...	31.14
245	2,4-DIMETHYL-1-PENTENE	C_7H_{14}	242	7.177	...	-371.90 P	...	38.47
246	3,3-DIMETHYL-1-PENTENE	C_7H_{14}	471	7.230	...	-341.85 P	...	32.98
247	3,4-DIMETHYL-1-PENTENE	C_7H_{14}	472	7.280	...	-343.86 P	...	...
248	4,4-DIMETHYL-1-PENTENE	C_7H_{14}	243	6.880	...	-359.99 P	...	27.48
249	2,3-DIMETHYL-2-PENTENE	C_7H_{14}	473	7.632	...	-343.87 P	...	38.47
250	2,4-DIMETHYL-2-PENTENE	C_7H_{14}	244	7.314	...	-418.98 P	...	29.31
251	cis-3,4-DIMETHYL-2-PENTENE	C_7H_{14}	474	7.460	...	-447.01 P	...	38.47
252	trans-3,4-DIMETHYL-2-PENTENE	C_7H_{14}	475	7.526	...	-418.98 P	...	38.47
253	cis-4,4-DIMETHYL-2-PENTENE	C_7H_{14}	245	7.136	...	-414.77 P	...	25.65
254	trans-4,4-DIMETHYL-2-PENTENE	C_7H_{14}	246	7.111	...	-414.77 P	...	29.31
255	3-METHYL-2-ETHYL-1-BUTENE	C_7H_{14}	247	7.387	...	-364.20 P	...	...
256	2,3,3-TRIMETHYL-1-BUTENE	C_7H_{14}	476	7.109	...	-418.98 P	...	3.48
Monoolefins, C_8H_{16}								
257	1-OCTENE	C_8H_{16}	250	7.645	70.00	-317.73	400.12	59.66
258	cis-2-OCTENE	C_8H_{16}	276	...	...	-362.12 P	...	...
259	trans-2-OCTENE	C_8H_{16}	251	7.535	70.00	-365.12 P	352.86 P	...
260	cis-3-OCTENE	C_8H_{16}	477	7.592	...	-359.06 P	...	...
261	trans-3-OCTENE	C_8H_{16}	277	7.516	...	-362.44 P	353.25 P	...
262	cis-4-OCTENE	C_8H_{18}	278	...	...	-359.07 P	...	...
263	trans-4-OCTENE	C_8H_{16}	279	7.533	...	-382.44 P	380.14 P	...
264	2-METHYL-1-HEPTENE	C_8H_{16}	252	...	...	-371.42 P	...	...
265	3-METHYL-1-HEPTENE	C_8H_{16}	487	...	...	-493.09 P	...	...

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.3 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method O 357		Research Method O 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Monoolefins, C_7H_{14}									
0.000710	...	78.8	85.0	90.7	98.6	1.06 P	7.68 P	12.3	226
0.000690	...	71.5	80.0	82.2	94.8	1.06 P	8.10 P	12.4	227
0.000660	...	74.0	83.6	86.4	96.8	1.06 P	8.10 P	12.3	228
0.000700	...	64.0	78.6	75.5	91.8	1.06 P	8.10 P	12.4	229
0.000670	...	79.2	83.7	91.6	98.4	1.06 P	7.46 P	12.2	230
0.000720	...	80.0	84.0	92.4	97.4	1.06 P	7.46 P	12.1	231
0.000670	...	79.6	83.8	91.5	97.4	1.06 P	7.46 P	12.1	232
0.000700	...	...	...	98.6	...	1.06 P	7.87 P	12.3	233
0.000700	...	83.0	85.8	96.8	+.06 K	1.06 P	7.46 P	12.3	234
0.000530	...	...	...	...	...	1.06 P	7.87 P	12.3	235
0.000700	...	81.0	85.0	94.4	+0.1 K	1.06 P	7.87 P	12.4	236
0.000520	...	...	...	...	...	1.06 P	7.87 P	12.4	237
0.000740	...	82.0	85.7	97.9	+0.1 K	1.06 P	7.87 P	12.5	238
0.000810	...	...	...	96.0	...	1.06 P	7.46 P	12.1	239
0.000760	...	81.4	85.1	96.4	98.8	1.06 P	7.46 P	12.2	240
0.000670	...	...	...	...	...	1.06 P	7.76 P	12.2	241
0.000700	...	81.6	84.2	95.6	+.05 K	1.06 P	8.10 P	12.3	242
0.000680	...	80.6	84.1	93.7	97.6	1.06 P	7.46 P	12.0	243
0.000710	...	84.2	86.4	99.3	+0.1 K	1.06 P	7.87 P	12.2	244
0.000740	...	84.6	87.3	99.2	+0.3 K	1.06 P	7.87 P	12.3	245
0.000660	...	86.1	87.3	+0.3 K	+0.6 K	1.06 P	7.74 P	12.2	246
0.000660	...	80.9	...	98.9	+0.1 K	1.08 P	8.20 P	12.3	247
0.000730	...	85.4	87.7	+0.4 K	+0.8 K	1.06 P	7.74 P	12.4	248
0.000690	...	80.0	83.3	97.5	99.5	1.06 P	7.08 P	11.9	249
0.000700	...	85.3	86.4	100.	+0.1 K	1.06 P	8.03 P	12.3	250
0.000720	...	82.2	85.1	96.0	99.5	1.06 P	7.58 P	12.1	251
0.000720	...	...	...	...	...	1.06 P	7.58 P	12.0	252
0.000700	...	90.2	...	+0.5 K	...	1.06 P	7.87 P	12.2	253
0.000740	...	90.9	94.5	+0.5 K	+0.9 K	1.06 P	7.87 P	12.4	254
0.000710	...	82.0	85.6	97.0	+0.1 K	1.06 P	7.87 P	12.0	255
0.000710	95.4	90.5	93.7	+0.5 K	+1.2 K	1.06 P	7.48 P	12.1	256
Monoolefins, C_8H_{16}									
0.000580	90.5	34.7	57.7	28.7	63.5	0.90 P	7.08 P	12.4	257
0.000640	101.3	56.5	73.0	56.3	78.7	0.93 P	6.88 P	12.3	258
0.000630	101.3	56.5	73.0	56.3	78.7	0.90 P	6.88 P	12.4	259
0.000540	...	...	...	...	...	0.93 P	6.88 P	12.3	260
0.000670	...	68.1	81.2	72.5	89.4	0.90 P	6.88 P	12.4	261
0.000450	...	...	...	...	...	0.93 P	6.88 P	12.3	262
0.000630	...	74.3	84.2	73.3	91.8	0.90 P	6.88 P	12.4	263
0.000830	...	66.3	79.6	70.2	87.9	0.93 P	6.64 P	12.3	264
0.000870	...	...	...	...	...	0.93 P	7.16 P	12.4	265

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.3 (Continued)

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Monoolefins, C_8H_{16}								
266	4-METHYL-1-HEPTENE	C_8H_{16}	488	...	...	-390.81 P	...	...
267	trans-6-METHYL-2-HEPTENE	C_8H_{16}	489	...	...	-608.98 P	...	...
268	trans-3-METHYL-3-HEPTENE	C_8H_{16}	490	...	...	-416.30 P	...	...
269	2-ETHYL-1-HEXENE	C_8H_{16}	258	7.541	...	-371.64 P	349.70 P	...
270	3-ETHYL-1-HEXENE	C_8H_{16}	479	...	...	-403.80 P	...	...
271	4-ETHYL-1-HEXENE	C_8H_{16}	480	...	...	-397.23 P	...	...
272	2,3-DIMETHYL-1-HEXENE	C_8H_{16}	481	...	...	-394.66 P	...	...
273	2,3-DIMETHYL-2-HEXENE	C_8H_{16}	482	...	...	-621.65 P	...	...
274	cis-2,2-DIMETHYL-3-HEXENE	C_8H_{16}	253	...	...	-420.29 P	...	...
275	2,3,3-TRIMETHYL-1-PENTENE	C_8H_{16}	484	...	...	-512.96 P	...	...
276	2,4,4-TRIMETHYL-1-PENTENE	C_8H_{16}	256	7.100	...	-422.97	332.56 P	33.58
277	2,4,4-TRIMETHYL-2-PENTENE	C_8H_{16}	257	7.324	1.13	-401.90	358.23 P	26.03
Monoolefins, C_9 to C_{20}								
278	1-NONENE	C_9H_{18}	259	7.740	80.33 P	-352.52	384.30	61.57
279	1-DECENE	$C_{10}H_{20}$	260	7.750	128.00	-380.48	371.63	42.32
280	1-UNDECENE	$C_{11}H_{22}$	261	7.878	160.00	-403.36	361.16	47.34
281	1-DODECENE	$C_{12}H_{24}$	262	7.914	120.00	-422.35	350.10	50.85
282	1-TRIDECENE	$C_{13}H_{26}$	263	7.760	175.00 S	-438.48	341.40	53.83
283	1-TETRADECENE	$C_{14}H_{28}$	264	7.898	230.00	-452.13	335.14	55.76
284	1-PENTADECENE	$C_{15}H_{30}$	265	7.994	...	-464.32	329.72	60.42
285	1-HEXADECENE	$C_{16}H_{32}$	266	7.783	...	-474.73	328.85	57.84
286	1-HEPTADECENE	$C_{17}H_{34}$	491	8.058	...	-483.91	324.67	56.61
287	1-OCTADECENE	$C_{18}H_{36}$	267	7.515	...	-492.16	320.95	55.51
288	1-NONADECENE	$C_{19}H_{38}$	492	8.093	...	-500.14	317.63	54.04
289	1-EICOSENE	$C_{20}H_{40}$	284	7.870	...	-506.09	314.63	52.57
Diolefins, C_3 to C_5								
290	PROPADIENE	C_3H_4	301	7.625	...	2055.53	2160.02	...
291	1,2-BUTADIENE	C_4H_6	302	7.851	...	1297.90	1577.30	55.34
292	1,3-BUTADIENE	C_4H_6	303	7.260	...	876.71	1190.10	63.46
293	1,2-PENTADIENE	C_5H_8	304	...	...	887.95	1294.44	...
294	cis-1,3-PENTADIENE	C_5H_8	305	7.830	...	522.47	951.91	35.59
295	trans-1,3-PENTADIENE	C_5H_8	306	7.701	...	478.63	921.62	45.09
296	1,4-PENTADIENE	C_5H_8	307	7.114	...	871.42	1079.77	38.33
297	2,3-PENTADIENE	C_5H_8	308	...	...	839.85	1257.20	...
298	3-METHYL-1,2-BUTADIENE	C_5H_8	311	...	...	814.67	1246.54	...
299	2-METHYL-1,3-BUTADIENE	C_5H_8	309	7.496	-65.00	478.09	922.89	31.08
Diolefins, C_6 to C_{10}								
300	2,3-DIMETHYL-1,3-BUTADIENE	C_6H_{10}	312	...	...	221.59 P	...	...
301	1,2-HEXADIENE	C_6H_{10}	630	...	...	-344.46 P	...	...

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.3 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method D 357		Research Method O 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Monoolefins, C_8H_{16}									
0.000630	...	...	...	...	...	0.93 P	7.16 P	12.3	266
0.000540	...	65.5	80.5	71.3	90.2	0.93 P	6.97 P	12.3	267
0.000640	...	...	...	...	...	0.93 P	6.64 P	12.1	268
0.000640	...	...	...	...	...	0.90 P	6.88 P	12.2	269
0.000670	...	...	...	...	...	0.93 P	7.16 P	12.3	270
0.000500	...	...	...	...	...	0.93 P	7.16 P	12.1	271
0.000680	...	83.6	88.1	96.3	...	0.93 P	6.97 P	12.2	272
0.000650	...	79.3	...	93.1	97.1	0.93 P	6.34 P	12.0	273
0.000630	...	88.0	...	+0.7 K	...	0.93 P	6.66 P	12.3	274
0.000690	...	85.7	87.2	+0.6 K	+0.9 K	0.93 P	6.66 P	11.9	275
0.000630	...	86.5	88.8	+0.6 K	+1.0 K	0.90 P	6.28 P	12.2	276
0.000630	90.0	86.2	88.0	+0.3 K	+0.6 K	0.90 P	6.40 P	12.1	277
Monoolefins, C_9 to C_{20}									
0.000590	100.4	...	...	...	...	0.80 P	6.41 P	12.4	278
0.000600	111.4	...	...	...	...	0.74 P	5.93 P	12.5	279
...	...	...	...	...	...	0.68 P	5.61 P	12.5	280
...	...	...	...	...	...	0.62 P	5.42 P	12.5	281
...	...	...	...	...	...	0.57 P	5.35 P	12.6	282
...	...	...	...	...	...	0.53 P	5.39 P	12.7	283
...	...	...	...	...	...	0.50 P	5.55 P	12.7	284
...	...	...	...	...	...	0.47 P	5.84 P	12.8	285
...	...	...	...	...	...	0.44 P	6.26 P	12.8	286
...	...	...	...	...	...	0.41 P	6.86 P	12.9	287
...	...	...	...	...	...	0.39 P	7.68 P	12.9	288
...	...	...	...	...	...	0.40 P	8.77 P	13.0	289
Diolefins, C_3 to C_5									
...	...	...	...	...	...	2.10	...	12.6	290
0.000980	...	...	...	...	...	2.00 P	12.00 P	12.2	291
0.001130	...	...	...	...	...	2.00	11.50	12.5	292
0.000830	...	...	...	...	...	1.59 P	...	11.9	293
0.000820	...	...	...	...	...	1.59 P	13.07 P	11.9	294
0.000850	...	...	...	...	...	1.59 P	13.07 P	12.1	295
0.000830	...	...	...	...	...	1.60 P	13.12 P	12.2	296
0.000830	...	...	...	...	...	1.59 P	...	11.9	297
0.000860	...	42.4	49.6	61.0	71.5	1.59 P	...	12.0	298
0.000860	...	81.0	79.4	99.1	98.8	2.00	9.00	12.0	299
Diolefins, C_8 to C_{10}									
...	...					...	...	11.6	300
0.000720	...	...	...	...	...	1.31 P	...	11.9	301

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.3 (Continued)

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Diolefins, C_6 to C_{10}								
302	1,5-HEXADIENE	C_6H_{10}	310	...	...	441.90 P	...	...
303	2,3-HEXADIENE	C_6H_{10}	631	...	...	1118.99 P	...	...
304	3-METHYL-1,2-PENTADIENE	C_6H_{10}	632	...	...	358.69 P	...	...
305	2-METHYL-1,5-HEXAOIENE	C_7H_{12}	633	...	...	455.26 P	...	...
306	2-METHYL-2,4-HEXAOIENE	C_7H_{12}	634	...	...	280.38 P	...	...
307	2,6-OCTADIENE	C_8H_{14}	635	...	...	180.21 P	...	...
308	2,6-OIMETHYL-1,5-HEPTADIENE	C_9H_{16}	636	...	...	32.72 P	...	...
309	3,7-OIMETHYL-1,6-OCTADIENE	$C_{10}H_{18}$	637	...	...	-225.75 P	...	...

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.3 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method D 357		Research Method D 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Diolefins, C_6 to C_{10}									
0.000780	...	37.6	43.3	71.1	80.7	1.31 P	10.91 P	12.1	302
0.000850	...	...	...	...	...	1.31 P	...	12.4	303
0.000810	...	...	...	...	...	1.31 P	...	11.8	304
0.000710	...	...	...	...	...	1.11 P	9.23 P	12.0	305
0.000580	...	...	...	...	...	1.11 P	9.00 P	11.8	306
0.000580	...	...	...	...	...	0.97 P	7.97 P	12.0	307
0.000530	...	...	...	...	...	0.86 P	7.03 P	11.8	308
0.000560	...	...	...	...	...	0.77 P	6.31 P	12.1	309

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.4
CYCLOOLEFINS AND ACETYLENES—SECONDARY PROPERTIES

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Alkylcyclopentenes, C_5 to C_8								
310	CYCLOPENTENE	C_5H_8	269	8.387	-20.00	207.82	699.26	21.23
311	1-METHYL-CYCLOPENTENE	C_6H_{10}	620	...	...	449.13 P	...	...
312	1-ETHYLCYCLOPENTENE	C_7H_{12}	621	...	...	-100.25 P	...	...
313	3-ETHYLCYCLOPENTENE	C_7H_{12}	622	...	...	-195.65 P	...	...
314	1-n-PROPYLCYCLOPENTENE	C_8H_{14}	623	...	...	-173.52 P	...	...
Alkylcyclohexenes, C_6 to C_8								
315	CYCLOHEXENE	C_6H_{10}	270	8.610	20.00	-28.03	550.04	17.24
316	1-METHYLCYCLOHEXENE	C_7H_{12}	271	...	...	-162.35 P	...	...
317	1-ETHYLCYCLOHEXENE	C_8H_{14}	272	8.510	...	-219.38 P	...	...
Cyclic Diolefins, C_5 and C_{10}								
318	CYCLOPENTADIENE	C_5H_6	315	8.274	...	850.72	1122.36 P	...
319	DICYCLOPENTADIENE	$C_{10}H_{12}$	316	8.613	90.00	409.82 P	992.21 P	1.63
Cyclic Unsaturates, $C_{10}H_{16}$								
320	alpha-PINENE	$C_{10}H_{16}$	840	7.821	91.40	89.31	681.65 P	...
321	beta-PINENE	$C_{10}H_{16}$	841	8.197	103.00	122.13	...	...
Acetylenes, C_2 to C_4								
322	ACETYLENE	C_2H_2	401	5.023	0.00	3743.63	3453.91	62.18
323	METHYLACETYLENE	C_3H_4	402	8.165	...	1980.16	2078.14	...
324	DIMETHYLACETYLENE	C_4H_6	403	8.538	...	1162.95	1472.02	73.39
325	ETHYLACETYLENE	C_4H_6	404	7.833	...	1312.93	1608.34	47.92
326	VINYLACETYLENE	C_4H_4	418	...	...	2514.70	2526.10	...
Acetylenes, C_5 to C_{10}								
327	1-PENTYNE	C_5H_8	405	...	...	911.02	1324.50	...
328	2-PENTYNE	C_5H_8	412	...	...	813.31	1225.50	...
329	3-METHYL-1-BUTYNE	C_5H_8	411	...	...	860.85	1297.00	...
330	1-HEXYNE	C_6H_{10}	413	...	...	647.04	1144.54	...
331	1-HEPTYNE	C_7H_{12}	414	...	...	460.50	1014.79	...
332	1-OCTYNE	C_8H_{14}	416	...	...	321.56	918.36	...
333	1-NONYNE	C_9H_{16}	395	...	...	213.86	843.37	...
334	1-DECYNE	$C_{10}H_{18}$	396	...	...	128.16	783.97	...

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.4 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method D 357		Research Method D 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Alkylcyclopentenes, C_5 to C_8									
0.000780	-14.0	69.7	73.4	93.3	94.8	1.59 P	12.13 P	10.7	310
0.000680	19.4	72.9	77.1	93.6	97.0	1.31 P	9.82 P	10.9	311
0.000650	34.2	72.0	78.2	90.3	95.7	1.11 P	8.38 P	11.0	312
0.000640	...	71.4	76.6	90.8	96.5	1.11 P	8.71 P	11.1	313
0.000550	57.6	...	...	...	...	0.97 P	7.35 P	11.2	314
Alkylcyclohexenes, C_6 to C_8									
0.000660	-4.0	63.0	68.1	83.9	88.4	1.31 P	10.06 P	10.6	315
0.000660	...	72.0	75.6	89.2	92.7	1.11 P	8.38 P	10.8	316
0.000570	...	70.5	75.4	85.0	91.2	0.97 P	7.35 P	10.9	317
Cyclic Diolefins, C_5 and C_{10}									
...	...	...	...	...	...	1.71 P	14.61 P	10.3	318
...	...	...	...	...	...	1.00	8.39 P	9.5	319
Cyclic Unsaturates, $C_{10}H_{16}$									
...	...	...	...	...	...	0.80 P	6.57 P	10.6	320
...	...	...	...	...	...	0.80 P	6.67 P	10.6	321
Acetylenes, C_2 to C_4									
...	...	...	...	...	...	2.50	80.00	16.7	322
...	...	...	...	...	...	1.70	57.28 P	12.3	323
0.000870	...	70.2	71.5	85.9	86.4	2.02 P	41.84 P	11.7	324
...	...	...	...	...	...	2.02 P	32.93 P	12.1	325
...	...					2.22 P	54.93 P	...	326
Acetylenes, C_5 to C_{10}									
0.000870	...	...	...	...	...	1.59 P	22.33 P	11.8	327
0.000800	...	...	...	...	...	1.59 P	25.32 P	11.7	328
...	...					...	...	...	329
0.000760	...	...	...	...	...	1.31 P	16.61 P	11.8	330
0.000690	...	...	...	...	...	1.11 P	10.80 P	11.9	331
0.000610	...	51.5	66.1	50.5	75.9	0.97 P	10.91 P	11.9	332
0.000620	...	...	...	...	...	0.86 P	9.39 P	12.0	333
0.000580	...	...	...	...	...	0.82 P	8.35 P	12.1	334

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.5
BENZENE DERIVATIVES—SECONDARY PROPERTIES

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Alkylbenzenes, C_6 and C_7								
335	BENZENE	C_6H_6	501	9.144	12.00	456.46	713.63	54.30
336	TOLUENE	C_7H_8	502	8.969	40.00	234.10	570.61	30.96
Alkylbenzenes, C_8H_{10}								
337	ETHYLBENZENE	C_8H_{10}	504	8.821	59.00	120.64	528.77	37.19
338	o-XYLENE	C_8H_{10}	505	9.018	63.00	76.92	494.36	55.06
339	m-XYLENE	C_8H_{10}	506	8.842	77.00	70.14	481.28	46.85
340	p-XYLENE	C_8H_{10}	507	8.722	77.00	73.01	491.09	69.30
Alkylbenzenes, C_9H_{12}								
341	n-PROPYLBENZENE	C_9H_{12}	509	8.705	88.00	28.26	493.95	33.15
342	ISOPROPYLBENZENE	C_9H_{12}	510	8.561	111.00	14.07	496.82	27.85
343	o-ETHYLTOLUENE	C_9H_{12}	511	8.804	...	4.65	469.30	35.63
344	m-ETHYLTOLUENE	C_9H_{12}	512	8.726	...	-6.44	452.27	27.24
345	p-ETHYLTOLUENE	C_9H_{12}	513	8.723	107.60 P	-11.45	465.40	47.77
346	1,2,3-TRIMETHYLBENZENE	C_9H_{12}	514	8.968	123.98	-33.98	446.40	29.26
347	1,2,4-TRIMETHYLBENZENE	C_9H_{12}	515	8.773	113.90	-49.36	418.50	47.19
348	1,3,5-TRIMETHYLBENZENE	C_9H_{12}	516	8.765	111.92	-56.87	422.44	34.03
Alkylbenzenes, $C_{10}H_{14}$								
349	n-BUTYLBENZENE	$C_{10}H_{14}$	518	8.530	160.00	-42.09	465.86	35.94
350	ISOBUTYLBENZENE	$C_{10}H_{14}$	519	8.308	131.00	-65.15	448.44	40.07
351	sec-BUTYLBENZENE	$C_{10}H_{14}$	520	8.520	128.00	-54.13	465.10	31.49
352	tert-BUTYLBENZENE	$C_{10}H_{14}$	521	8.422	140.00	-69.28	480.15	26.88
353	1-METHYL-2-n-PROPYLBENZENE	$C_{10}H_{14}$	584	8.817	...	-63.36	451.64	47.31
354	1-METHYL-3-n-PROPYLBENZENE	$C_{10}H_{14}$	585	8.700	...	-77.32	433.06	33.91
355	1-METHYL-4-n-PROPYLBENZENE	$C_{10}H_{14}$	586	8.675	...	-74.12	442.67	36.86
356	o-CYMENE	$C_{10}H_{14}$	522	8.498	127.40 P	-72.62	451.64	32.03
357	m-CYMENE	$C_{10}H_{14}$	523	8.374	122.00 P	-91.93	427.94	43.82
358	p-CYMENE	$C_{10}H_{14}$	524	8.495	117.00	-88.86	437.23	30.94
359	o-DIETHYLBENZENE	$C_{10}H_{14}$	525	8.684	135.00	-50.39	461.89	53.74
360	m-DIETHYLBENZENE	$C_{10}H_{14}$	526	8.639	133.00	-67.27	441.07	35.13
361	p-DIETHYLBENZENE	$C_{10}H_{14}$	527	8.572	134.00	-65.25	448.76	33.91
362	1,2-DIMETHYL-3-ETHYLBENZENE	$C_{10}H_{14}$	580	8.948	149.00 P	-82.16	443.31	43.69
363	1,2-DIMETHYL-4-ETHYLBENZENE	$C_{10}H_{14}$	581	8.931	...	-102.79	408.08	38.60
364	1,3-DIMETHYL-2-ETHYLBENZENE	$C_{10}H_{14}$	582	9.008	...	-84.02	441.71	47.11
365	1,3-DIMETHYL-4-ETHYLBENZENE	$C_{10}H_{14}$	583	8.885	...	-98.86	411.92	41.41
366	1,3-DIMETHYL-5-ETHYLBENZENE	$C_{10}H_{14}$	528	8.752	...	-113.39 P	407.44	28.68
367	1,4-DIMETHYL-2-ETHYLBENZENE	$C_{10}H_{14}$	529	8.837	...	-103.08	407.76	48.65
368	1,2,3,4-TETRAMETHYLBENZENE	$C_{10}H_{14}$	530	9.367	...	-105.86	424.09	35.97
369	1,2,3,5-TETRAMETHYLBENZENE	$C_{10}H_{14}$	531	9.175	...	-129.86	394.30	34.32
370	1,2,4,5-TETRAMETHYLBENZENE	$C_{10}H_{14}$	532	...	130.00	-142.73	385.34	67.28

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.5 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method D 357		Research Method D 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Alkylbenzenes, C_6 and C_7									
0.000660	-22.0	+2.8 K	...	...	...	1.40	7.10	9.7	335
0.000600	-22.0	+0.3 K	+1.7 K	+5.8 K	...	1.20	7.10	10.1	336
Alkylbenzenes, C_8H_{10}									
0.000540	-22.0	97.9	+0.2 K	+0.8 K	+0.8 K	1.00	6.70	10.3	337
0.000550	-4.0	100.	100.	...	...	1.00	6.00	10.3	338
0.000540	-22.0	+2.8 K	+6.0 K	+4.0 K	+6.0 K	1.10	7.00	10.4	339
0.000540	-22.0	+1.2 K	+5.1 K	+3.4 K	>+6.0 K	1.10	7.00	10.4	340
Alkylbenzenes, C_9H_{12}									
0.000540	-22.0	98.7	+2.0 K	+1.5 K	+4.3 K	0.88 P	8.57 P	10.6	341
0.000540	5.0	99.3	+0.5 K	+2.1 K	+4.3 K	0.88	6.50	10.5	342
0.000500	...	92.1	92.9	+0.2 K	+0.3 K	0.93 P	8.59 P	10.4	343
0.000540	...	100.	...	+1.8 K	...	0.93 P	6.89 P	10.6	344
0.000540	...	97.0	...	...	...	0.93 P	6.89 P	10.7	345
0.000450	...	+.06 K	+.05 K	+0.5 K	+0.5 K	0.88 P	8.62 P	10.4	346
0.000490	...	+0.6 K	+0.6 K	+1.4 K	+1.5 K	0.88 P	8.82 P	10.5	347
0.000540	-22.0	+0.6 K	...	>+6.0 K	...	0.93 P	8.62 P	10.6	348
Alkylbenzenes, $C_{10}H_{14}$									
0.000540	-22.0	94.5	+0.1 K	+0.4 K	+1.5 K	0.80	5.80	10.8	349
0.000530	...	98.0	+0.3 K	+1.6 K	+3.0 K	0.80	6.00	10.8	350
0.000540	...	95.7	+0.1 K	+0.7 K	+1.5 K	0.80	6.90	10.7	351
0.000540	...	+0.8 K	...	>+3.0 K	...	0.70	5.70	10.6	352
0.000490	...	92.2	95.7	+0.3 K	+0.6 K	0.82 P	7.74 P	10.7	353
0.000540	...	+.04 K	+0.6 K	+1.8 K	+3.8 K	0.82 P	7.74 P	10.8	354
0.000540	...	...	...	...	...	0.82 P	7.74 P	10.9	355
0.000550	...	96.0	97.7	+0.6 K	+1.5 K	0.82 P	7.74 P	10.6	356
0.000540	...	...	...	...	...	0.82 P	7.74 P	10.8	357
0.000540	...	97.7	...	+1.4 K	...	0.70	5.60	10.8	358
0.000500	...	...	...	...	...	0.82 P	7.74 P	10.6	359
0.000540	...	97.0	+0.2 K	>+3.0 K	>+3.0 K	0.82 P	7.74 P	10.8	360
0.000540	...	95.2	99.3	+0.6 K	+1.6 K	0.80	6.10	10.8	361
0.000560	...	91.9	93.3	+0.4 K	+0.4 K	0.80 P	7.73 P	10.5	362
0.000550	...	...	...	...	...	0.82 P	7.73 P	10.7	383
0.000560	...	...	...	...	...	0.82 P	7.73 P	10.5	364
0.000550	...	95.9	98.8	+0.6 K	+1.2 K	0.82 P	7.73 P	10.7	365
0.000540	...	+0.2 K	+0.8 K	+2.7 K	>+6.0 K	0.82 P	7.73 P	10.8	366
0.000490	...	96.0	98.9	+0.6 K	+0.9 K	0.82 P	7.73 P	10.5	387
0.000450	...	+.02 K	99.7 K	+0.5 K	+0.5 K	0.82 P	7.72 P	10.5	368
0.000500	...	+0.2 K	...	...	...	0.82 P	7.72 P	10.8	389
0.000440	...	...	...	...	...	0.82 P	7.72 P	10.6	370

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.5 (Continued)

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Alkylbenzenes, C_{11} to C_{22}								
371	n-PENTYLBENZENE	$C_{11}H_{16}$	567	8.945	...	-98.31	445.44	44.19
372	n-HEXYLBENZENE	$C_{12}H_{18}$	568	8.433	181.13 S	-144.66	428.94	48.77
373	n-HEPTYLBENZENE	$C_{13}H_{20}$	549	8.499	...	-183.63	415.05	53.06
374	n-OCTYLBENZENE	$C_{14}H_{22}$	569	8.493	...	-217.08	403.20	56.71
375	n-NONYLBENZENE	$C_{15}H_{24}$	570	8.491	...	-245.72	392.98	60.74
376	n-DECYLBENZENE	$C_{16}H_{26}$	554	8.329	225.00	-270.70	384.10	64.25
377	n-UNDECYLBENZENE	$C_{17}H_{28}$	571	8.484	...	-292.84	376.26	67.34
378	n-DODECYLBENZENE	$C_{18}H_{30}$	574	8.370	285.00	-312.28	369.35	70.07
379	n-TRIDECYLBENZENE	$C_{19}H_{32}$	572	8.294	...	-329.63	363.14	72.52
380	n-TETRADECYLBENZENE	$C_{20}H_{34}$	573	8.477	...	-345.21	357.58	74.71
381	n-PENTADECYLBENZENE	$C_{21}H_{36}$	588	8.475	...	-359.42	352.56	76.69
382	n-HEXADECYLBENZENE	$C_{22}H_{38}$	589	8.473	...	-372.18	348.01	78.48
Cyclohexylbenzene, $C_{12}H_{16}$								
383	CYCLOHEXYLBENZENE	$C_{12}H_{16}$	557	9.053	210.00	-56.12 P	491.74 P	40.97
Alkenylbenzenes, C_8 to C_{10}								
384	STYRENE	C_8H_8	601	9.351	90.00	608.29	882.56	45.20
385	cis-1-PROPENYL BENZENE	C_9H_{10}	646	...	...	441.40	789.05	...
386	trans-1-PROPENYL BENZENE	C_9H_{10}	647	...	...	426.18	777.48	...
387	2-PROPENYL BENZENE	C_9H_{10}	613	8.894	129.00	410.97	758.63	...
388	1-METHYL-2-ETHENYL BENZENE	C_9H_{10}	602	9.107	...	430.75	778.39	...
389	1-METHYL-3-ETHENYL BENZENE	C_9H_{10}	603	9.025	...	420.09	761.34	...
390	1-METHYL-4-ETHENYL BENZENE	C_9H_{10}	604	9.043	...	417.05	746.69	...
391	1-METHYL-4-(trans-1-n-PROPENYL)BENZENE	$C_{10}H_{12}$	648	...	...	346.69 P	...	...
392	1-ETHYL-2-ETHENYL BENZENE	$C_{10}H_{12}$	605	...	...	346.42 P	...	...
393	1-ETHYL-3-ETHENYL BENZENE	$C_{10}H_{12}$	606	...	...	279.06 P	...	...
394	1-ETHYL-4-ETHENYL BENZENE	$C_{10}H_{12}$	607	...	...	279.06 P	...	...
395	2-PHENYL-1-BUTENE	$C_{10}H_{12}$	690	...	...	342.88 P	...	...
Phenylbenzenes, C_{12} to C_{14}								
396	BIPHENYL	$C_{12}H_{10}$	558	...	235.00	507.65	760.83	51.79
397	1-METHYL-2-PHENYLBENZENE	$C_{13}H_{12}$	655	...	...	188.29 P	...	...
398	1-METHYL-3-PHENYLBENZENE	$C_{13}H_{12}$	656	...	32.00	352.30 P	...	...
399	1-METHYL-4-PHENYLBENZENE	$C_{13}H_{12}$	657	...	...	352.30 P	...	...
400	1-ETHYL-4-PHENYLBENZENE	$C_{14}H_{14}$	659	...	...	349.58 P	...	...
401	1-METHYL-4(4-METHYLPHENYL)-BENZENE	$C_{14}H_{14}$	658	...	...	325.20 P	...	...
Diphenylalkanes, C_{13} to C_{24}								
402	DIPHENYLMETHANE	$C_{13}H_{12}$	563	9.081	266.00	393.53	712.96 P	46.62 S

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.5 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method D 357		Research Method O 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Alkylbenzenes, C_{11} to C_{22}									
...	...	...	...	...	...	0.74 P	7.18 P	11.0	371
...	...	...	...	...	...	0.70 P	6.81 P	11.2	372
...	...	...	...	...	...	0.62 P	6.62 P	11.4	373
...	...	...	...	...	...	0.57 P	6.59 P	11.5	374
...	...	...	...	...	...	0.53 P	6.70 P	11.6	375
...	...	...	...	...	...	0.50 P	6.97 P	11.8	376
...	...	...	...	...	...	0.46 P	7.41 P	12.0	377
...	...	...	...	...	...	0.44 P	8.06 P	12.0	378
...	...	...	...	...	...	0.40 P	8.94 P	12.0	379
...	...	...	...	...	...	0.39 P	10.14 P	12.1	380
...	...	...	...	...	...	0.37 P	11.75 P	12.2	381
...	...	...	...	...	...	0.35 P	13.90 P	12.3	382
Cyclohexylbenzene, $C_{12}H_{16}$									
...	...	...	...	...	...	0.69 P	7.28 P	10.3	383
Alkenylbenzenes, C_8 to C_{10}									
0.000570	...	+0.2 K	+0.1 K	>+3.0 K	+2.5 K	1.10	6.10	10.0	384
0.000570	...	91.7	...	+0.5 K	+0.5 K	0.97 P	9.45 P	10.1	385
0.000570	...	92.1	91.4	+0.4 K	+0.4 K	0.97 P	9.45 P	10.3	386
0.000570	...	+0.1 K	100.	+2.1 K	+1.8 K	1.90	6.10	10.1	387
0.000520	...	...	...	...	...	0.97 P	9.45 P	10.1	388
0.000460	...	...	...	...	...	0.97 P	9.45 P	10.1	389
0.000520	...	...	...	...	...	0.97 P	9.45 P	10.0	390
0.000510	...	...	...	...	...	0.85 P	8.55 P	10.4	391
0.000510	...	...	...	...	...	0.85 P	...	10.3	392
0.000560	...	...	...	...	...	0.85 P	...	10.5	393
0.000560	...	...	...	...	...	0.85 P	...	10.5	394
0.000560	...	...	...	...	...	0.85 P	8.49 P	10.4	395
Phenylbenzenes, C_{12} to C_{14}									
...	...	...	...	...	...	0.60	5.80	9.6	396
...	...	...	...	...	...	0.69 P	8.76 P	9.7	397
...	...	...	...	...	...	0.69 P	8.76 P	9.8	398
...	...	...	...	...	...	0.69 P	8.76 P	9.0	399
...	...	...	...	...	...	0.63 P	8.58 P	9.6	400
...	...	...	...	...	...	0.63 P	8.67 P	9.0	401
Diphenylalkanes, C_{13} to C_{24}									
...	...	...	...	...	...	0.69 P	8.66 P	9.8	402

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.5 (Continued)

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Diphenylalkanes, C_{13} to C_{24}								
403	1,1-DIPHENYLETHANE	$C_{14}H_{14}$	562	9.227	264.00	273.62	477.31 P	41.45
404	1,2-DIPHENYLETHANE	$C_{14}H_{14}$	564	...	264.00	337.31	679.35 P	72.05
405	1,1-DIPHENYLPROPANE	$C_{15}H_{16}$	666	...	...	...	...	...
406	1,2-DIPHENYLPROPANE	$C_{15}H_{16}$	667	...	...	254.30 P	...	...
407	1,1-DIPHENYLBUTANE	$C_{16}H_{18}$	668	...	...	...	...	...
408	1,1-DIPHENYLPENTANE	$C_{17}H_{20}$	669	...	...	...	...	...
409	1,1-DIPHENYLHEXANE	$C_{18}H_{22}$	670	...	...	...	...	...
410	1,1-DIPHENYLHEPTANE	$C_{19}H_{24}$	671	...	...	...	...	...
411	1,1-DIPHENYLOCTANE	$C_{20}H_{26}$	672	...	...	...	...	...
412	1,1-DIPHENYLNONANE	$C_{21}H_{28}$	673	...	...	...	...	...
413	1,1-DIPHENYLDECANE	$C_{22}H_{30}$	674	...	...	...	...	...
414	1,1-DIPHENYLUNDECANE	$C_{23}H_{32}$	680	...	...	...	...	...
415	1,1-DIPHENYLDODECANE	$C_{24}H_{34}$	675	...	...	...	...	...
416	1,1-DIPHENYLTRIDECANE	$C_{25}H_{36}$	676	...	...	...	...	...
417	1,1-DIPHENYLTETRADECANE	$C_{26}H_{38}$	677	...	...	...	...	...
418	1,1-DIPHENYLPENTADECANE	$C_{27}H_{40}$	678	...	...	...	...	...
419	1,1-DIPHENYLHEXADECANE	$C_{28}H_{42}$	679	...	...	...	...	...
Diphenylalkenes, $C_{14}H_{12}$								
420	cis-1,2-DIPHENYLETHENE	$C_{14}H_{12}$	735	7.813	...	584.81 P	876.75 P	...
421	trans-1,2-DIPHENYLETHENE	$C_{14}H_{12}$	736	...	...	574.83 P	862.67 P	66.38
Phenylalkynes, C_8 and C_{14}								
422	PHENYLACETYLENE	C_8H_6	691	...	...	356.81 P	...	...
423	DIPHENYLACETYLENE	$C_{14}H_{10}$	424	...	...	1037.51 P	1229.68 P	51.63
Diphenylbenzenes, C_8H_{14}								
424	1,2-DIPHENYLBENZENE	$C_{18}H_{14}$	561	...	325.00	516.27 P	789.57 P	32.09
425	1,3-DIPHENYLBENZENE	$C_{18}H_{14}$	560	...	375.00	516.27 P	789.57 P	44.97
426	1,4-DIPHENYLBENZENE	$C_{18}H_{14}$	559	...	405.00	516.27 P	791.46 P	62.96

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.5 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method D 357		Research Method D 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Diphenylalkanes, C_{13} to C_{24}									
...	...	...	...	...	...	0.60 P	8.31 P	9.9	403
...	...	...	...	...	...	0.63 P	8.50 P	...	404
...	...	...	...	...	...	0.58 P	8.60 P	10.1	405
...	...	...	...	...	...	0.58 P	8.60 P	10.2	406
...	...	...	...	...	...	0.54 P	8.85 P	10.3	407
...	...	...	...	...	...	0.50 P	9.31 P	10.5	408
...	...	...	...	...	...	0.47 P	10.03 P	10.6	409
...	...	...	...	...	...	0.44 P	11.03 P	10.8	410
...	...	...	...	...	...	0.42 P	12.41 P	10.9	411
...	...	...	...	...	...	0.40 P	14.27 P	11.1	412
...	...	...	...	...	...	0.38 P	16.77 P	11.3	413
...	...	...	...	...	...	...	...	...	414
...	...	...	...	...	...	0.34 P	24.69 P	11.4	415
...	...	...	...	...	...	0.34 P	24.40 P	11.5	416
...	...	...	...	...	...	0.34 P	24.13 P	11.6	417
...	...	...	...	...	...	0.34 P	23.88 P	11.7	418
...	...	...	...	...	...	0.34 P	23.65 P	11.7	419
Diphenylalkenes, $C_{14}H_{12}$									
...	...	...	...	...	...	0.65 P	8.98 P	9.7	420
...	...	...	...	...	...	0.65 P	8.98 P	...	421
Phenylalkynes, C_8 and C_{14}									
0.000480	...	...	...	...	...	1.17 P	16.34 P	9.1	422
...	...	...	...	...	...	0.67 P	11.63 P	...	423
Diphenylbenzenes, C_8H_{14}									
...	...	...	...	...	...	0.51 P	12.04 P	9.6	424
...	...	...	...	...	...	0.51 P	12.04 P	9.7	425
...	...	...	...	...	...	0.51 P	12.04 P	9.6	426

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.6
CONDENSED RING AROMATICS AND DERIVATIVES—SECONDARY PROPERTIES

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Alkylnaphthalenes, C_{10} to C_{20}								
427	NAPHTHALENE	$C_{10}H_8$	701	...	176.00	505.09	751.70	63.66
428	1-METHYLNAPHTHALENE	$C_{11}H_{10}$	702	9.864	...	353.31	658.18	21.00
429	2-METHYLNAPHTHALENE	$C_{11}H_{10}$	703	...	...	351.04	653.49	36.66
430	1-ETHYLNAPHTHALENE	$C_{12}H_{12}$	704	...	...	891.29 P	...	...
431	2-ETHYLNAPHTHALENE	$C_{12}H_{12}$	755	...	...	-2.19 P	...	...
432	1,2-DIMETHYLNAPHTHALENE	$C_{12}H_{12}$	756	...	...	202.07 P	...	...
433	1,4-DIMETHYLNAPHTHALENE	$C_{12}H_{12}$	757	...	...	168.45 P	...	...
434	1-n-PROPYLNAPHTHALENE	$C_{13}H_{14}$	758	...	...	154.58 P	...	...
435	2-n-PROPYLNAPHTHALENE	$C_{13}H_{14}$	765	...	...	-148.77 P	...	...
436	1-n-BUTYLNAPHTHALENE	$C_{14}H_{16}$	759	...	...	119.87 P	...	...
437	2-n-BUTYLNAPHTHALENE	$C_{14}H_{16}$	766	...	...	119.87 P	...	...
438	1-n-PENTYLNAPHTHALENE	$C_{15}H_{18}$	760	...	...	63.59 P	...	...
439	1-n-HEXYLNAPHTHALENE	$C_{16}H_{20}$	761	...	...	14.74 P	...	...
440	2-n-HEXYLNAPHTHALENE	$C_{16}H_{20}$	767	...	...	59.39 P	...	...
441	1-n-HEPTYLNAPHTHALENE	$C_{17}H_{22}$	769	...	...	-153.77 P	...	...
442	1-n-OCTYLNAPHTHALENE	$C_{18}H_{24}$	762	...	...	-26.41 P	...	...
443	1-n-NONYLNAPHTHALENE	$C_{19}H_{26}$	711	8.405	...	-80.27 P	478.72 P	...
444	2-n-NONYLNAPHTHALENE	$C_{19}H_{26}$	768	...	...	-24.96 P	...	...
445	1-n-DECYLNAPHTHALENE	$C_{20}H_{28}$	712	8.410	...	-109.23 P	467.02 P	...
Tetrahydronaphthalenes, C_{10} to C_{20}								
446	1,2,3,4-TETRAHYDRO-NAPHTHALENE	$C_{10}H_{12}$	706	9.545	160.00	86.54	543.41	40.49
447	1-METHYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{11}H_{14}$	775	...	...	-108.25 P	...	...
448	1-ETHYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{12}H_{16}$	776	...	...	-43.44 P	...	...
449	2,2-DIMETHYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{12}H_{16}$	777	...	...	-102.59 P	...	...
450	2,6-DIMETHYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{12}H_{16}$	778	...	...	-48.83 P	...	...
451	6,7-DIMETHYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{12}H_{16}$	779	...	...	-125.26 P	...	...
452	1-n-PROPYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{13}H_{18}$	780	...	...	-186.81 P	...	...
453	6-n-PROPYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{13}H_{18}$	781	...	...	-196.72 P	...	...
454	1-n-BUTYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{14}H_{20}$	787	...	...	...	...	...
455	6-n-BUTYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{14}H_{20}$	788	...	...	...	...	...
458	1-n-PENTYL-[1,2,3,4-TETRA-HYDRONAPHTHALENE]	$C_{15}H_{22}$	789	...	...	...	...	...

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.6 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method D 357		Research Method D 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Alkylnaphthalenes, C_{10} to C_{20}									
0.000190	...	...	...	...	...	0.88	5.90	9.3	427
...	...	...	...	...	...	0.82 P	9.18 P	9.5	428
...	...	...	...	...	...	0.82 P	9.18 P	9.8	429
...	...	...	...	...	...	0.74 P	8.56 P	9.7	430
...	...	...	...	...	...	0.74 P	8.56 P	8.0	431
...	...	...	...	...	...	0.74 P	8.68 P	9.8	432
...	...	...	...	...	...	0.74 P	8.68 P	9.9	433
...	...	...	...	...	...	0.67 P	8.06 P	10.1	434
...	...	...	...	...	...	0.67 P	8.06 P	10.3	435
...	...	...	...	...	...	0.62 P	8.05 P	10.2	436
...	...	...	...	...	...	0.62 P	8.05 P	10.2	437
...	...	...	...	...	...	0.57 P	8.09 P	10.6	438
...	...	...	...	...	...	0.53 P	8.33 P	10.8	439
...	...	...	...	...	...	0.53 P	8.56 P	10.8	440
...	...	...	...	...	...	0.49 P	8.77 P	10.9	441
...	...	...	...	...	...	0.46 P	9.45 P	11.1	442
...	...	...	...	...	...	0.40 P	10.42 P	11.1	443
...	...	...	...	...	...	0.44 P	10.62 P	11.1	444
...	...	...	...	...	...	0.41 P	11.73 P	11.3	445
Tetrahydronaphthalenes, C_{10} to C_{20}									
0.000430	-4.0	81.9	84.0	96.4	100.	0.84	5.00	9.8	446
...	...	...	...	...	...	0.77 P	7.73 P	10.1	447
...	...	...	...	...	...	0.69 P	7.29 P	10.3	448
...	...	...	...	...	...	0.69 P	7.06 P	10.4	449
...	...	...	...	...	...	...	7.29 P	10.4	450
...	...	...	...	...	...	...	7.22 P	10.4	451
...	...	...	...	...	...	...	7.04 P	10.5	452
...	...	...	...	...	...	...	6.97 P	10.6	453
...	...	...	...	...	...	...	...	10.6	454
...	...	...	...	...	...	...	...	10.7	455
...	...	...	...	...	...	...	...	10.8	456

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.6 (Continued)

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 deg F Btu/lb
Tetrahydronaphthalenes, C_{10} to C_{20}								
457	6-n-PENTYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	$C_{15}H_{22}$	790	...	...	...	...	...
458	1-n-HEXYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	$C_{16}H_{24}$	782	...	...	-219.06 P	...	...
459	1-n-HEPTYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	$C_{17}H_{26}$	783	...	...	-244.38 P	...	...
460	1-n-OCTYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	$C_{18}H_{28}$	784	...	...	-266.78 P	...	...
461	1-n-NONYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	$C_{19}H_{30}$	785	...	...	-289.26 P	...	...
462	1-n-DECYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	$C_{20}H_{32}$	786	...	...	-303.95 P	...	...
Indenes, C_9 to C_{10}								
463	INDENE	C_9H_8	803	10.006	...	604.32	865.95	37.75
464	1-METHYLINDENE	$C_{10}H_{10}$	723	...	...	298.03 P	...	...
465	2-METHYLINDENE	$C_{10}H_{10}$	724	...	...	413.96 P	...	...
Dihydroindenes, C_9 to C_{10}								
466	2,3-DIHYDROINDENE	C_9H_{10}	742	...	...	545.52 P	...	...
467	1-METHYL-2,3-DIHYDROINDENE	$C_{10}H_{12}$	743	...	...	108.03 P	...	...
468	2-METHYL-2,3-DIHYDROINDENE	$C_{10}H_{12}$	744	...	...	17.14 P	...	...
469	4-METHYL-2,3-DIHYDROINDENE	$C_{10}H_{12}$	745	...	...	17.14 P	...	...
470	5-METHYL-2,3-DIHYDROINDENE	$C_{10}H_{12}$	746	...	...	-3.67 P	...	...
Condensed Ring Aromatics, C_{12} to C_{18}								
471	ACENAPHTHALENE	$C_{12}H_8$	764	...	...	733.33	926.55	19.60
472	ACENAPHTHENE	$C_{12}H_{10}$	808	...	...	432.13	725.42	59.83
473	FLUORENE	$C_{13}H_{10}$	738	...	...	483.41	750.34	50.64
474	ANTHRACENE	$C_{14}H_{10}$	804	...	250.00	555.04	800.12	70.85
475	PHENANTHRENE	$C_{14}H_{10}$	805	...	340.00	499.56	743.19	39.71
476	PYRENE	$C_{16}H_{10}$	807	...	390.00	478.28	695.10	36.90
477	FLUORANTHENE	$C_{16}H_{10}$	717	...	...	614.11	820.94	39.81
478	CHRYSENE	$C_{18}H_{12}$	806	...	...	495.10	755.32 P	49.34

NOTE: See page 1-135 for Key to footnote codes.

TABLE 1C2.6 (Continued)

Coefficient of Expansion $\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$ at 60 F per deg F	Aniline Point deg F	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		Watson K Factor	No.
		Motor Method D 357		Research Method D 908					
		Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper		
Tetrahydronaphthalenes, C_{10} to C_{20}									
...	...	...	...	...	...	...	...	10.9	457
...	...	...	...	...	...	...	7.31 P	11.1	458
...	...	...	...	...	...	...	7.75 P	11.2	459
...	...	...	...	...	...	...	8.39 P	11.4	460
...	...	...	...	...	...	...	9.29 P	11.5	461
...	...	...	...	...	...	...	10.48 P	11.6	462
Indenes, C_9 to C_{10}									
0.000500	...	+0.7 K	+0.4 K	+2.3 K	+1.4 K	1.01 P	10.29 P	9.3	463
0.000240	...	...	...	...	...	0.89 P	9.24 P	9.8	464
0.000370 R	...	...	...	...	...	0.89 P	9.29 P	9.7	465
Dihydroindenes, C_9 to C_{10}									
0.000420	...	89.8	90.8	+0.3 K	+0.5 K	0.97 P	9.32 P	9.8	466
0.000240	...	...	...	...	...	0.85 P	8.42 P	10.1	467
0.000530	...	...	...	...	...	0.85 P	8.42 P	10.1	468
0.000490	...	...	...	...	...	0.85 P	8.39 P	10.0	469
0.000530	...	...	...	...	...	0.85 P	8.39 P	10.0	470
Condensed Ring Aromatics, C_{12} to C_{18}									
...	...	...	...	...	...	...	...	...	471
...	...	...	...	...	...	0.76 P	9.24 P	...	472
...	...	...	...	...	...	0.71 P	9.38 P	...	473
...	...	...	...	...	...	0.60	9.66 P	...	474
...	...	...	...	...	...	0.67 P	9.66 P	...	475
...	...	...	...	...	...	0.60 P	11.13 P	...	476
...	...	...	...	...	...	0.60 P	11.13 P	...	477
...	...	...	...	...	...	0.53 P	12.82 P	...	478

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C3.1–1C3.3
ACIDS, ALCOHOLS AND PHENOLS, AND ALDEHYDES—PRIMARY PROPERTIES

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
	Table 1C3.1 Acids									
700	FORMIC ACID	CH_2O_2	48.03	213.01	47.12	584.33 P	1071.83 P	0.0435 P	0.1920	0.4730
701	ACETIC ACID	$C_2H_4O_2$	80.05	244.22	61.99	607.21	839.14	0.0456	0.2010	0.4824
702	PROPIONIC ACID	$C_3H_8O_2$	74.08	285.49	-5.26	624.29	598.13	0.0480	0.1830	0.5131
703	n-BUTYRIC ACID	$C_4H_8O_2$	88.11	325.89	22.64	670.73	641.07 P	0.0515 P	0.2400	0.6041
704	2-METHYLPROPIONIC ACID	$C_4H_8O_2$	88.11	310.10	-50.98	636.80	587.84	0.0531	0.2340	0.6181
705	n-PENTANOIC ACID	$C_5H_{10}O_2$	102.13	365.90	-29.20	712.13	552.60 P	0.0527 P	0.2370	0.6269
706	2-METHYLBUTYRIC ACID	$C_5H_{10}O_2$	102.13	350.60	...	697.73 P	564.20 P	0.0524 P	0.2430	0.5892
707	3-METHYLBUTYRIC ACID	$C_5H_{10}O_2$	102.13	347.18	-20.74	681.53	564.20 P	0.0527 P	0.2480	0.6480
708	n-HEXANOIC ACID	$C_6H_{12}O_2$	116.18	402.28	26.60	740.93 P	485.88 P	0.0536 P	0.2350	0.6701
	Table 1C3.2 Alcohols and Phenols									
709	METHANOL	CH_4O	32.04	148.48	-143.82	462.97	1174.21	0.0589	0.2240	0.5656
710	ETHANOL	C_2H_6O	46.07	172.92	-173.38	469.58	925.85	0.0580	0.2480	0.6371
711	n-PROPANOL	C_3H_8O	60.10	208.96	-195.16	506.41	749.79	0.0582	0.2530	0.6279
712	ISOPROPANOL	C_3H_8O	60.10	180.07	-126.17 P	455.29	691.01	0.0587	0.2480	0.6689
713	n-BUTANOL	$C_4H_{10}O$	74.12	243.79	-128.74	553.60	640.01	0.0593	0.2590	0.5945
714	ISOBUTANOL	$C_4H_{10}O$	74.12	225.79	-162.40	526.24	622.96	0.0588	0.2570	0.5885
715	sec-BUTANOL	$C_4H_{10}O$	74.12	211.19	-174.46	505.15	608.27	0.0579	0.2520	0.5711
716	tert-BUTANOL	$C_4H_{10}O$	74.12	180.38	78.48 P	451.49	576.08	0.0594	0.2600	0.6158
717	1-PENTANOL	$C_5H_{12}O$	88.15	280.04	-107.66 P	595.40	562.75 P	0.0592 P	0.2600	0.5938
718	2-PENTANOL	$C_5H_{12}O$	88.15	248.20	-99.67	533.93 P	562.75 P	0.0594 P	0.2760	0.6746
719	2-METHYL-1-BUTANOL	$C_5H_{12}O$	88.15	283.68	-477.65	557.33 P	562.75 P	0.0594 P	0.2700	0.6784
720	2-METHYL-2-BUTANOL	$C_5H_{12}O$	88.15	215.60	16.16	521.60	562.75 P	0.0594 P	0.2800	0.4831
721	3-METHYL-2-BUTANOL	$C_5H_{12}O$	88.15	232.70	...	573.53 P	574.35 P	0.0594 P	0.2710	0.3510
722	2,2-DIMETHYL-1-PROPANOL	$C_5H_{12}O$	88.15	235.58	129.20	530.33 P	562.75 P	0.0594 P	0.2770	0.6036
723	4-METHYL-2-PENTANOL	$C_8H_{14}O$	102.18	289.08	...	574.25	503.28 P	0.0596 P	0.2760	0.5723
724	PHENOL	C_6H_6O	94.11	359.31	105.64 P	789.98	889.08	0.0390	0.2430	0.4259
725	o-CRESOL	C_7H_8O	108.14	375.81	87.87 P	795.92	725.98	0.0418	0.2430	0.4335
726	m-CRESOL	C_7H_8O	108.14	398.09	54.03 P	810.86	661.37	0.0462	0.2420	0.4493
727	p-CRESOL	C_7H_8O	108.14	395.57	94.60 P	808.70	746.95	0.0410	0.2440	0.5134
	Table 1C3.3 Aldehydes									
728	FORMALDEHYDE	CH_2O	30.03	-2.38	-133.60	274.73 P	955.24 P	0.0560 P	0.2040	0.2816
729	ACETALDEHYDE	C_2H_4O	44.05	68.72	-189.40	370.13	804.96 P	0.0571 P	0.2270	0.3187
730	n-PROPIONALDEHYDE	C_3H_6O	58.08	118.40	-112.00	433.13 P	675.88 P	0.0579 P	0.2370	0.3015
731	n-BUTYRALDEHYDE	C_4H_8O	72.11	166.64	-141.52	485.33 P	580.15 P	0.0584 P	0.2410	0.3445
732	ACROLEIN	C_3H_4O	56.08	126.84	-125.86	451.13 P	725.19 P	0.0563 P	0.2340	0.3198
733	trans-CROTONALDEHYDE	C_4H_6O	70.09	219.38	-105.70	568.13 P	616.41 P	0.0571 P	0.2240	0.3455
734	METHACROLEIN	C_4H_6O	70.09	154.40	-113.80	494.33 P	616.41 P	0.0571 P	0.2410	0.2456

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C3.1–1C3.3 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Table 1C3.1 Acids												
1.2263	-16.11	10.223 T	1.36930	1.4862 T	0.2321 T	0.5118 T	1.0535	0.4959	205.37 T	1975.	37.07 T	700
1.0537	2.79	8.784 T	1.36980	0.6045	0.2505 T	0.4813	0.9043 T	0.4816 T	167.01 T	5630.	26.99 T	701
0.9996	10.05	8.334 T	1.38430	0.1549 T	0.2816 T	0.4843	0.8861 T	0.5018 T	191.16 T	8096.	26.20 T	702
0.9824	15.53	8.023 T	1.39580	0.0457 T	...	0.4733	1.2806	0.6260	221.00 T	9790.	26.08 T	703
0.9558	16.54	7.969 T	1.39080	0.0827 T	...	0.4628 T	1.0870	0.5689	208.46	9760. P	24.61 T	704
0.9431	18.53	7.863 T	1.40600	0.0130 T	0.3145 T	0.4816 T	1.7190 T	0.7889 T	204.33 T	11014.	26.81 T	705
...	...	...	...	...	...	...	...	0.6831 T	195.83 T	11282. P	...	706
0.9352	19.81	7.796 T	1.40220	0.0227 T	...	...	1.7475 T	0.7422 T	181.95 T	11009.	25.04 T	707
0.9293	20.76	7.748 T	1.41480	0.0027 T	...	0.5341 T	2.4009	1.0339	192.91 T	11950.	26.78 T	708
Table 1C3.2 Alcohols and Phenols												
0.7985	46.15	6.641 T	1.32652	4.6124 T	0.3229 T	0.5913 T	0.5942 T	0.3269 T	471.48 T	8562.	22.16 T	709
0.7967	46.10	6.643	1.35941	2.3113 T	0.3322 T	0.5631	1.1031 T	0.4600 T	367.72 T	11530.	21.99 T	710
0.8111	42.96	6.762 T	1.38370	0.8764 T	0.3391 T	0.5590 T	1.8470 T	0.6154 T	296.03 T	13191.	23.40 T	711
0.7925	47.05	6.607 T	1.37520	1.8414 T	0.3442 T	0.5937	1.8698 T	...	285.23 T	13092.	21.00 T	712
0.8147	42.19	8.792 T	1.39710	0.3201 T	0.3468 T	0.5512	2.3817 T	0.7337 T	250.78 T	14246.	24.41 T	713
0.8052	44.24	6.713 T	1.39380	0.4852 T	0.3443 T	0.5615 T	2.8730 T	0.7527 T	252.12 T	14205.	22.56 T	714
0.8144	42.26	6.789 T	1.39490	0.7956 T	0.3513 T	0.8057	2.5109	0.5835	237.59 T	14156.	23.02 T	715
0.7910	47.39	6.586 R	1.38520	1.7591 T	0.3560 T	...	3.0822	0.5471	232.67 T	14059.	19.81 T	716
0.8203	41.00	6.839 T	1.40800	0.1221 T	0.3520 T	0.5495	3.0666 T	0.8839 T	218.66 T	14927.	25.30 T	717
0.8152	42.08	6.796 T	1.40440	0.2856 T	...	...	2.7296 T	0.6675 T	211.73 T	14883.	23.45 T	718
0.8223	40.57	6.856 T	1.40880	0.1620 T	...	0.5846 T	3.3928	0.8320	218.24 T	14934.	25.05 T	719
0.8144	42.26	6.789 T	1.40240	0.7359 T	...	0.6476 T	2.7205	0.6277	195.63 T	14823.	22.31 T	720
0.8232	40.39	6.863 T	1.40750	0.4296 T	...	0.5374 T	2.6799 T	0.6102 T	200.46 T	14886.	24.67 T	721
...	...	...	1.39150	...	...	...	...	1.0707 T	201.68 T	15117. P	...	722
0.8139	42.36	6.785 T	1.40900	0.2308 T	...	...	3.1204	0.6986	174.40 T	15406. P	22.63 T	723
...	...	...	1.54960 R	0.0252 T	0.2552	...	...	1.3317	216.14 T	13346.	...	724
...	...	...	1.54420 R	0.0159	0.2760 T	...	4.4238	1.0066	181.55 T	13984.	...	725
1.0380	4.82	8.654 T	1.53960	0.0086 T	0.2671 T	0.4883 T	8.7506	1.2461	193.53 T	14026.	35.76 T	726
...	...	...	1.53910 R	0.0081	0.2671 T	...	6.8174	1.3584	197.32 T	14005.	...	727
Table 1C3.3 Aldehydes												
...	...	...	...	110.1540 T	0.2792 T	...	...	...	331.67 T	7438.	...	728
0.7868	48.33	6.560 T	1.32830	26.8811 T	0.2906 T	0.5814 T	...	...	240.38 T	10780.	19.53 T	729
0.8087	43.47	6.742 T	1.35930	10.1329 T	0.3268 T	0.5250 T	0.3606 T	...	212.00 T	12478.	22.57 T	730
0.8081	43.60	6.737 T	1.37660	3.7806 T	0.3363 T	0.5291 T	0.4738 T	0.3087 T	189.53 T	13734.	24.21 T	731
0.8453	35.90	7.047 T	1.40170	8.6990 T	...	0.5143 T	0.3622 T	...	222.64 T	11914. P	23.14 T	732
0.8584	33.34	7.157 T	1.43730	1.1405 T	...	0.6420 T	0.4904 T	0.3253 T	213.49 T	13222.	25.66 T	733
0.8518	34.61	7.102 T	1.41690	4.9871 T	...	0.4420 T	0.4678 T	...	182.45 T	13217. P	23.41 T	734

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C3.4–1C3.6
AMINES, OTHER NITROGEN-CONTAINING COMPOUNDS, AND ESTERS—PRIMARY PROPERTIES

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
	Table 1C3.4 Amines									
735	METHYLAMINE	CH_5N	31.06	20.61	-136.23	314.42	1081.63	0.0794 P	0.3210	0.2813
736	ETHYLAMINE	C_2H_7N	45.08	61.84	-113.80	361.40	815.63	0.0647	0.2700	0.2851
737	n-PROPYLAMINE	C_3H_9N	59.11	119.30	-117.40	434.84	687.77	0.0705 P	0.2980	0.2957
738	ISOPROPYLAMINE	C_3H_9N	59.11	90.32	-139.36	389.66	658.38	0.0599	0.2560	0.2785
739	n-BUTYLAMINE	$C_4H_{11}N$	73.14	171.32	-56.38	497.75	609.16	0.0686 P	0.2970	0.3295
740	ISOBUTYLAMINE	$C_4H_{11}N$	73.14	153.91	-120.28	465.04 P	611.34 P	0.0685 P	0.3085	0.3627
741	sec-BUTYLAMINE	$C_4H_{11}N$	73.14	145.40	-156.01	466.07	580.15 P	0.0679 P	0.2900	0.2815
742	tert-BUTYLAMINE	$C_4H_{11}N$	73.14	111.92	-88.53	411.35	556.95	0.0642	0.2800	0.2748
	Table 1C3.5 Other Nitrogen-Containing Compounds									
743	UREA	CH_4N_2O	60.06	400.73 P	270.88	845.33 P	979.01 P	0.0581 P	0.2440	...
744	ACETONITRILE	C_2H_3N	41.05	178.88	-46.89	522.23	701.00	...	0.1840	0.3382
745	MORPHOLINE	C_4H_9NO	87.12	262.40	26.42	652.73 P	774.50 P	0.0507 P	0.2870	0.3583
746	PYRIDINE	C_5H_5N	79.10	239.47	-42.92	656.24	817.10	0.0514	0.2780	0.2389
747	ANILINE	C_6H_7N	93.13	364.01	21.16 P	798.53	770.07	0.0464	0.2470	0.4041
748	INDOLE	C_8H_7N	117.15	487.40	32.95	962.33 P	623.66 P	0.0589 P	0.2820	0.3742
749	QUINOLINE	C_9H_7N	129.16	459.68	5.18	948.20	675.88 P	0.0582 P	0.3360	0.3287
750	DIBENZOPYRROLE	$C_{12}H_9N$	167.21	670.49	472.64	1158.53 P	472.82 P	0.0462 P	0.2100	0.4938
751	ACRIDINE	$C_{13}H_9N$	179.22	654.80	234.14	1169.60	522.14	0.0485	0.2600	0.4300
	Table 1C3.6 Esters									
752	METHYL FORMATE	$C_2H_4O_2$	60.05	89.15	-146.20	417.29	870.00	0.0459	0.2550	0.2537
753	METHYL ACETATE	$C_3H_6O_2$	74.08	134.49	-144.40	452.57	680.42	0.0493	0.2540	0.3254
754	ETHYL FORMATE	$C_3H_6O_2$	74.08	129.76	-111.28	455.45	687.77	0.0495	0.2570	0.2849
755	ETHYL ACETATE	$C_4H_8O_2$	88.11	170.71	-118.39	482.18	555.51	0.0520	0.2520	0.3611
756	n-PROPYL FORMATE	$C_4H_8O_2$	88.11	177.48	-135.22	508.73	589.31	0.0518	0.2590	0.3180
757	VINYL ACETATE	$C_4H_6O_2$	86.09	162.50	-135.04	483.53 P	616.41 P	0.0502 P	0.2830	0.3384
758	METHYL n-BUTYRATE	$C_5H_{10}O_2$	102.13	216.95	-122.44	538.43	503.78	0.0533	0.2560	0.3807
759	n-PROPYL ACETATE	$C_5H_{10}O_2$	102.13	214.70	-139.00	529.25	487.91	0.0541	0.2540	0.3941
760	ISOPROPYL ACETATE	$C_5H_{10}O_2$	102.13	191.30	-100.12	508.73 P	519.24 P	0.0527 P	0.2690	0.3550
761	n-BUTYL ACETATE	$C_6H_{12}O_2$	116.16	258.80	-100.30	582.80	458.32 P	0.0536 P	0.2550	0.4167
762	n-PENTYL ACETATE	$C_7H_{14}O_2$	130.19	300.20	-95.44	616.73 P	406.11 P	0.0544 P	0.2490	0.4896

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C3.4–1C3.6 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Table 1C3.4 Amines												
0.8681	80.29	5.570 T	1.34910	78.3092	0.3782 T	...	0.2681 T	...	361.45 T	13498.	19.41 T	735
0.6888	73.93	5.743	1.36270	32.0617	0.3756 T	0.6393 T	...	...	260.81 T	15138.	19.58 T	736
0.7241	63.92	6.037 T	1.38510	9.9739 T	0.3748 T	0.6599 T	0.4615 T	...	214.83 T	15745.	22.49 T	737
0.8949	72.14	5.793 T	1.37110	18.1660 T	...	0.6587 T	0.4208	0.2903	205.31 T	15686.	17.40 T	738
0.7498	57.27	6.249 T	1.39870	3.1899 T	0.3778 T	0.5762 T	0.6637	...	189.03 T	16320.	24.76 T	739
0.7387	60.04	6.159 T	1.39450	4.7487 T	...	0.5932 T	0.6357 T	...	180.61 T	16293.	21.70 T	740
0.7293	62.51	6.081 T	1.39070	5.8590 T	...	0.5550 T	0.5804 T	...	176.39 T	16262.	21.11 T	741
0.8987	71.02	5.825 T	1.37610	11.7379 T	...	0.6228 T	0.5619 T	...	162.28 T	16187.	16.86 T	742
Table 1C3.5 Other Nitrogen–Containing Compounds												
...	...	...	...	...	0.2594 T	...	...	...	...	3896.	...	743
0.7900	47.62	6.586 T	1.34160	3.0641 T	0.2991 T	0.5278 T	0.4082	...	317.31 T	12467.	28.66 T	744
1.0055	9.23	8.383 T	1.45212	0.3687 T	...	...	1.5816 T	0.6871 T	191.39 T	12140. P	37.08 T	745
0.9898	11.49	8.250 T	1.50745	0.7800 T	0.2142 T	0.3949 T	0.7619 T	0.4573 T	194.42 T	14523.	36.72 T	746
1.0252	8.52	8.547 T	1.58364	0.0255 T	0.2689 T	0.4907 T	2.6604 T	0.8320 T	204.15 T	14951.	42.38 T	747
1.1100	-4.03	9.254 T	1.63000	0.0008 T	0.2360 T	...	5.0169 T	0.9236 T	178.42 T	14977.	41.63 T	748
1.0975	-2.57	9.150 T	1.62480	0.0033 T	...	0.3595 T	2.2751 T	0.8176 T	157.40 T	15126.	42.53 T	749
...	...	...	...	...	...	...	...	...	151.37 T	15262.	...	750
...	...	...	...	...	...	...	...	...	...	15362.	...	751
Table 1C3.6 Esters												
0.9820	12.59	8.187 T	1.34150	18.3474 T	0.2591 T	0.4648 T	0.3134 T	...	201.79 T	6593.	24.24 T	752
0.9412	18.84	7.847 T	1.35890	7.1117 T	0.2697 T	0.4538 T	0.3511 T	0.2228 T	177.66 T	8479.	24.54 T	753
0.9295	20.73	7.750 T	1.35750	7.9783 T	0.2728 T	0.4814 T	0.3716 T	...	172.87 T	8746.	23.08 T	754
0.9053	24.80	7.548 T	1.37040	3.2706 T	0.3027 T	0.4564 T	0.4238	0.2558	157.48 T	10066. P	23.24 T	755
0.9110	23.82	7.595 T	1.37500	2.8656 T	0.2901 T	0.4707 T	0.4783 T	0.2956 T	156.18 T	9959.	23.95 T	756
0.9389	19.21	7.827 T	1.39340	3.9191 T	0.2669	0.4362 T	0.3902 T	...	156.75 T	9733. P	23.99 T	757
0.9038	25.07	7.535 T	1.38470	1.2009 T	...	...	0.5276 T	0.3197 T	144.63 T	11335. P	24.58 T	758
0.8938	28.85	7.450 T	1.38280	1.2395 T	...	...	0.5483	0.3158	145.10 T	11421. P	23.88 T	759
0.8822	28.89	7.355 T	1.37500	2.1319 T	...	0.4606 T	0.5323 T	...	135.66 T	11189. P	21.28 T	760
0.8867	28.09	7.392 T	1.39180	0.4547 T	0.3184 T	0.4616 T	0.6908 T	0.3583 T	135.34 T	12150. P	24.75 T	761
0.8816	29.00	7.350 T	1.40280	0.1501 T	...	0.4728 T	0.8073 T	0.4357 T	127.28 T	12857. P	25.10 T	762

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C3.7–1C3.8
ETHERS AND GASES—PRIMARY PROPERTIES

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
	Table 1C3.7 Ethers									
763	DIMETHYL ETHER	C_2H_6O	46.07	-12.71	-222.68	260.51	778.89	0.0591	0.2744	0.2036
764	METHYL ETHYL ETHER	C_3H_8O	60.10	45.23	-171.67 P	328.37	637.81	0.0589	0.2670	0.2189
765	DIETHYL ETHER	$C_4H_{10}O$	74.12	93.97	-177.34	380.39	527.59	0.0605	0.2820	0.2846
766	METHYL-tert-BUTYL ETHER	$C_5H_{12}O$	88.15	131.36	-163.48	435.11	497.48	0.0598 P	0.2730	0.2674
767	METHYL-tert-AMYL ETHER	$C_6H_{14}O$	102.18	187.34	...	...	...	...	...	...
768	TETRAHYDROFURAN	C_4H_8O	72.11	148.73	-163.30	512.60	752.43	0.0497	0.2590	0.2264
769	DIBENZOFURAN	$C_{12}H_8O$	168.19	543.97	180.50	998.60	464.13	0.04650	0.2300	0.4260
	Table 1C3.8 Gases									
770	AIR		28.96	-317.83	-353.20	-221.31	546.90	0.0510 D	0.3200	0.0138
771	AMMONIA	NH_3	17.03	-28.17	-107.93	270.50	1635.67	0.0682	0.2420	0.2520
772	ARGON	Ar	39.95	-302.57	-308.82	-188.12	710.40	0.0299	0.2910	...
773	BROMINE	Br_2	159.81	137.75	18.95	591.80	1499.00	0.0135 S	0.2870	0.1189
774	CARBON MONOXIDE	CO	28.01	-312.61	-337.00	-220.41	507.45	0.0532	0.2950	0.0883
775	CARBON DIOXIDE	CO_2	44.01	-109.26 T	-69.83	87.91	1071.00	0.0342	0.2740	0.2278
776	CARBONYL SULFIDE	COS	60.07	-58.27	-217.84	222.17	920.85	0.0360	0.2720	0.1041
777	CHLORINE	Cl_2	70.91	-29.25	-149.85	291.20	1118.37	0.0280	0.2750	0.0890
778	FLUORINE	F_2	38.00	-306.76	-363.32	-199.91	756.40	0.0279	0.2880	0.0588
779	HELIUM-3	He	3.02	-453.91	-457.85	-453.71	18.97	0.3851	0.3080	...
780	HELIUM-4	He	4.00	-452.07	-456.50	-450.31	33.00	0.2293	0.3020	...
781	HYDROGEN	H_2	2.02	-422.98	-434.56	-399.82	188.11	0.5167	0.3050	...
782	HYDROGEN BROMIDE	HBr	80.91	-88.08	-124.26	194.00	1240.34	0.0198 S	0.2840	0.0693
783	HYDROGEN CHLORIDE	HCl	36.48	-121.00	-173.52	124.70	1205.07	0.0358	0.2490	0.1322
784	HYDROGEN CYANIDE	HCN	27.03	78.26	8.17	382.30	781.83	0.0821	0.1970	0.4098
785	HYDROGEN FLUORIDE	HF	20.01	67.14	-118.05	370.40	940.54	0.0552	0.1170	0.3828
788	HYDROGEN SULFIDE	H_2S	34.08	-76.50	-121.88 E	212.45	1300.00	0.0463	0.2840	0.0827
787	KRYPTON	Kr	83.80	-244.03	-251.27	-82.84	797.99	0.0174	0.2880	0.0013
788	NEON	Ne	20.18	-410.91	-415.48	-379.75	384.79	0.0331	0.3000	...
789	NITROGEN	N_2	28.01	-320.45	-346.00 E	-232.51	493.10	0.0515	0.2920	0.0403
790	NITRIC OXIDE	NO	30.01	-241.19	-257.80	-135.40	940.54	0.0308	0.2500	0.5848
791	NITROUS OXIDE	N_2O	44.01	-127.26	-131.48	97.58	1050.76	0.0354	0.2740	0.1418
792	NITROGEN DIOXIDE	NO_2	46.01	69.53 S	11.84 S	316.76 S	1469.60 S	0.0287 S	0.2330	0.8488
793	NITROGEN TETROXIDE	N_2O_4	92.01	84.33	11.75	316.40	1469.60	0.0144 S	0.2330	...
794	OXYGEN	O_2	32.00	-297.33 E	-361.82 E	-181.43	731.40	0.0367	0.2880	0.0218
795	OZONE	O_3	48.00	-168.34	-315.40	10.13	808.28	0.0297	0.2290	0.1947
796	SULFUR DIOXIDE	SO_2	64.06	13.96	-99.67	315.68	1143.50	0.0305	0.2690	0.2451
797	SULFUR TRIOXIDE	SO_3	80.06	112.55	62.24	423.86	1190.38	0.0254	0.2560	0.4215
798	XENON	Xe	131.29	-162.62	-169.22	61.86	847.08	0.0144	0.2860	0.0115

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C3.7–1C3.8 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Dansity of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Table 1C3.7 Ethers												
0.6711	79.36	5.595 T	1.29840	122.2820 T	0.3349 T	...	...	...	201.23 T	12397.	11.36 T	763
0.7050	69.20	5.878 T	1.34410	44.3934 T	0.3501 T	...	...	...	190.61 T	13817.	14.82 T	764
0.7199	65.06	6.002 T	1.34954	16.4345 T	0.3553 T	0.5557 T	0.2867	0.1887	157.11 T	14521.	16.42 T	765
0.7459	58.21	6.218 T	1.36630	7.9728 T	0.3553 T	0.4998 T	0.4065	0.2645	137.41 T	15119.	19.09 T	766
...	...	...	1.38848	...	...	...	...	...	...	...	...	767
0.8908	27.34	7.427 T	1.40496	5.3515 T	0.2448 T	0.4028	0.4752 T	...	180.42 T	13863.	24.98 T	768
...	...	...	1.60790	...	...	...	...	...	...	14562.	...	769
Table 1C3.8 Gases												
0.8748	30.26	7.293 G	1.00102	...	0.2399	...	...	...	88.20	0.	...	770
0.6162	98.12	5.138	1.32500	211.4880	0.4969 T	1.1438 T	0.1991 T	0.1373 T	588.92 T	7998. P	21.08 T	771
...	...	...	1.00026	...	0.1242 T	...	...	...	69.31 T	...	...	772
3.1380	-86.41	26.162	1.64800	6.8966	0.0537	0.1144	0.2809	...	80.61	0.	40.96 T	773
...	...	...	1.00031	...	0.2484 T	...	...	...	90.70 T	4344.	...	774
0.8180	41.48	6.820 F	1.00041	...	0.1991	0.8699 T	...	...	246.47 W	0.	0.57 T	775
1.0200	7.22	8.504 T	1.37850	246.9570 T	0.1627 T	0.3221 T	...	...	134.01 T	3924.	7.87 T	776
1.4274	-32.37	11.901	1.37860	157.7630	0.1138 T	...	...	...	123.78 T	0.	17.32 T	777
...	...	...	1.20000	...	0.1958 T	...	...	...	73.82 T	0.	...	778
...	...	...	1.00002	...	...	...	...	...	...	...	...	779
...	...	...	1.00003	...	1.2404 T	...	...	...	8.95 T	...	...	780
...	...	...	1.00013	...	...	...	...	...	189.85 T	51469. P	...	781
1.7834	-52.16	14.868 T	1.00056	473.1420	0.0860 T	0.1804 T	...	...	95.97 T	367.	9.20 T	782
0.8463	35.70	7.056 T	1.32870	908.8620 T	0.1908 T	...	0.0920	...	191.15 T	337.	3.30 T	783
0.6944	72.27	5.789 T	1.25940	22.7120	0.3139 T	0.6252 T	...	...	427.87 T	9915.	17.76 T	784
0.9861	14.96	8.054 T	1.15740	27.0445 T	0.3479 T	0.5951 T	...	...	...	3259. P	8.40 T	785
0.8014	45.06	6.682 F	1.00585	394.5900	0.2383	...	...	...	235.63	7785. P	9.11 T	786
...	...	...	1.00039	...	0.0592	...	...	...	46.59	...	...	787
...	...	...	1.00006	...	0.2460	...	...	...	36.47	...	...	788
0.8094	43.32	6.748 G	1.20530	...	0.2483	...	...	...	85.59	0.	...	789
...	...	...	1.33050	...	0.2374 T	...	...	...	194.16 T	1293. P	...	790
0.8175	41.58	6.816 T	1.19300	...	0.2067 T	...	...	...	168.06 T	801. P	1.33 T	791
...	...	...	1.40000	30.7473	0.1905 T	...	0.2277	...	356.20	309. P	...	792
...	...	...	1.40000	20.4801	0.2066	0.3657	...	...	...	42. P	...	793
1.1421	-7.61	9.522 G	1.22100	...	0.2189	...	...	...	91.59	0.	...	794
...	...	...	...	...	0.1929	...	...	...	126.61	1278. P	...	795
1.3946	-30.04	11.627 T	1.35700	88.0205 T	0.1472 T	...	0.2332	...	165.70 T	0.	21.69 T	796
1.9269	-58.07	16.065	1.40520	10.4563	0.1492 T	...	0.6396	...	214.69 T	531. P	33.08 T	797
1.4151	-31.51	11.798	1.00064	...	0.0378	...	...	...	41.33	...	...	798

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C3.9–1C3.10
HALOGENATED COMPOUNDS AND KETONES—PRIMARY PROPERTIES

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
	Table 1C3.9 Halogenated Compounds									
799	CHLOROTRIFLUOROMETHANE	$CClF_3$	104.46	-114.54	-293.80	83.86	572.32	0.0276	0.2830	0.1800
800	DICHLORODIFLUOROMETHANE	CCl_2F_2	120.91	-21.62	-252.40	233.24	598.27	0.0287	0.2800	0.1796
801	TRICHLOROFLUOROMETHANE	CCl_3F	137.37	74.88	-168.00	388.49	639.28	0.0289	0.2790	0.1837
802	CARBON TETRACHLORIDE	CCl_4	153.82	189.95	-9.08	541.76	661.32	0.0287	0.2720	0.1926
803	CARBON TETRAFLUORIDE	CF_4	88.00	-198.51	-298.46	-50.17	542.28	0.0255	0.2770	0.1855
804	CHLORODIFLUOROMETHANE	$CHClF_2$	86.47	-41.49	-251.36	205.07	720.98	0.0308	0.2690	0.2192
805	DICHLOROFLUOROMETHANE	$CHCl_2F$	102.92	48.02	-211.00	353.17	751.85	0.0305	0.2710	0.2069
806	CHLOROFORM	$CHCl_3$	119.38	142.12	-82.34	505.85	793.58	0.0321	0.2930	0.2129
807	TRIFLUOROMETHANE	CHF_3	70.01	-115.89	-247.32	78.33	701.44	0.0305	0.2590	0.2672
808	DICHLOROMETHANE	CH_2Cl_2	84.93	103.55	-139.25	458.33	881.76	0.0349 P	0.2650	0.1918
809	METHYL CHLORIDE	CH_3Cl	50.49	-11.60	-143.88	289.58	968.76	0.0441	0.2680	0.1529
810	METHYL FLUORIDE	CH_3F	34.03	-108.99	-223.24	112.19	852.37	0.0532	0.2510	0.2125
811	VINYL CHLORIDE	C_2H_3Cl	62.50	7.93	-244.82	317.93 P	822.37 P	0.0459 P	0.2830	0.1005
812	1,1,1-TRICHLOROETHANE	$C_2H_3Cl_3$	133.40	165.35	-22.72	521.33	623.11	0.0337 P	0.2660	0.2157
813	1,1,2-TRICHLOROETHANE	$C_2H_3Cl_3$	133.40	236.93	-33.97	623.93 P	649.77 P	0.0337 P	0.2520	0.2598
814	1,1,1-TRIFLUOROETHANE	$C_2H_3F_3$	84.04	-53.32	-168.34	163.58	545.07	0.0370	0.2530	0.2529
815	1,1-DICHLOROETHANE	$C_2H_4Cl_2$	98.96	135.14	-142.53	481.73	734.80	0.0388	0.2800	0.2443
816	1,2-DICHLOROETHANE	$C_2H_4Cl_2$	98.96	182.20	-32.19	550.13	778.89	0.0358	0.2530	0.2876
817	1,1-DIFLUOROETHANE	$C_2H_4F_2$	66.05	-14.44	-178.60	236.21	652.50	0.0439	0.2530	0.2629
818	ETHYL CHLORIDE	C_2H_5Cl	64.51	54.09	-213.52	368.96	764.19	0.0497 S	0.2750	0.1905
819	ETHYL FLUORIDE	C_2H_5F	48.06	-35.86	-225.76	215.89	729.22	0.0547 P	0.2640	0.2220
820	1,2-DICHLOROPROPANE	$C_3H_6Cl_2$	112.99	205.47	-148.79	569.93 P	614.98 P	0.0413 P	0.2590	0.2513
	Table 1C3.10 Ketones									
821	ACETONE	C_3H_6O	58.08	133.32	-138.46	455.09	681.89	0.0576	0.2330	0.3064
822	METHYL ETHYL KETONE	C_4H_8O	72.11	175.35	-124.01 P	504.23	602.54	0.0593	0.2490	0.3241
823	DIETHYL KETONE	$C_5H_{10}O$	86.13	215.58	-38.15	550.04	542.28	0.0625	0.2690	0.3502
824	METHYL-n-PROPYL KETONE	$C_5H_{10}O$	86.13	216.16	-106.35	550.27	535.82	0.0560	0.2380	0.3458
825	METHYL-n-BUTYL KETONE	$C_6H_{12}O$	100.16	261.86	-68.44	597.02	482.03	0.0590 P	0.2510	0.3967
826	METHYL ISOBUTYL KETONE	$C_6H_{12}O$	100.16	241.70	-119.20	568.85	474.68	0.0590 P	0.2540	0.3887

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C3.9–1C3.10 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Table 1C3.9 Halogenated Compounds												
0.9838	12.32	8.202 T	1.19900	...	0.1510 T	...	...	...	64.22 T	1294. P	0.26 T	799
1.3422	-26.08	11.190	1.28500	130.4590 T	0.1421 T	0.2283 T	0.1595	0.1061	73.27 T	349. P	8.79 T	800
1.5002	-37.18	12.507 T	1.37400	23.8160 T	0.1348 T	0.2080 T	0.2652 T	0.1937 T	78.73 T	328. P	18.34 T	801
1.6021	-43.18	13.357	1.45730	3.7775	0.1285 T	0.2020 T	0.4893 T	0.2706 T	83.41 T	721.	26.29 T	802
...	...	...	1.15100	...	0.1630 T	...	...	...	57.10 T	2637. P	...	803
1.2304	-16.49	10.258 T	1.25600	207.2300 T	0.1538 T	0.2901	0.1643 T	...	100.40 T	327. P	7.87 T	804
1.3915	-29.81	11.601 T	1.35400	39.8874 T	0.1395 T	0.2497	0.2187 T	0.1686 T	102.91 T	966. P	20.16 T	805
1.4997	-37.15	12.503 T	1.44310	6.4505	0.1294 T	0.2268 T	0.3277	...	107.27 T	1368.	26.68 T	806
0.8781	29.65	7.320 T	1.21500	...	0.1713 T	0.3617	...	...	102.04 T	1098. P	0.03 T	807
1.3374	-25.70	11.150 T	1.42120	13.6516 T	0.1416 T	0.2816 T	0.2851	0.2060	143.67 T	2601.	28.77 T	808
0.9331	20.14	7.779	1.33620	118.5450	0.1898 T	0.3778 T	0.1733 T	0.1224 T	183.50 T	5751.	15.19 T	809
0.6110	100.09	5.094	1.17400	755.6970 T	0.2603 T	...	...	...	223.22 T	6594. P	1.82 T	810
0.9199	22.31	7.670 T	1.36600	82.6703 T	0.2007 T	0.3167 T	0.1713 T	0.1231 T	157.00 T	7966. P	15.84 T	811
1.3469	-26.45	11.229 T	1.43130	4.1052 T	0.1631 T	0.2567	0.5119 T	0.2964 T	96.16 T	3142. P	25.02 T	812
1.4513	-34.00	12.099 T	1.46890	0.8535 T	...	0.2674 T	0.6218 T	0.3350 T	111.59 T	3106. P	33.75 T	813
0.9915	11.21	8.266 T	1.20600	253.4820 T	0.2181 T	...	...	...	99.55 T	2067. P	5.43 T	814
1.1838	-11.97	9.869 T	1.41380	7.3321 T	0.1812 T	0.3036	0.3561 T	...	126.99 T	4821. P	25.04 T	815
1.2605	-19.24	10.509 T	1.44210	2.7294 T	0.1871 T	0.3072	0.5341 T	0.2955 T	139.73 T	4801.	32.27 T	816
0.9221	21.95	7.688 T	1.24340	124.7940 T	0.2403 T	0.3776 T	0.2473	...	141.46 T	4937. P	10.03 T	817
0.9032	25.17	7.530 T	1.36520	35.1432 T	0.2271 T	0.3819 T	0.2649 T	0.2023 T	164.93 T	8563.	18.27 T	818
0.7307	62.14	6.092 T	1.26210	184.8570 T	0.2890 T	...	...	...	178.53 T	9930. P	9.25 T	819
1.1630	-9.83	9.698 T	1.43680	1.8148 T	0.2031 T	0.3097 T	0.5664 T	...	121.87 T	6486. P	30.08 T	820
Table 1C3.10 Ketones												
0.7973	45.98	8.647 T	1.35596	7.5011 T	0.3000 T	0.5129 T	0.3546 T	...	220.53 T	12282.	23.04 T	821
0.8100	43.18	6.753	1.37640	3.2516 T	0.3382 T	0.5211 T	0.4403 T	0.2805 T	186.15 T	13485.	23.96 T	822
0.8194	41.18	6.831 T	1.39002	1.3348 T	0.3526 T	0.5250 T	0.4873	...	...	14377.	24.56 T	823
0.8125	42.65	6.774 T	1.38800	1.3299 T	0.3346 T	0.5056	0.5184 T	0.3326 T	167.05 T	14375.	23.26 T	824
0.8162	41.86	6.805 T	1.39870	0.4204 T	0.3462 T	0.5039	0.6228 T	0.3594 T	157.21 T	14981.	25.28 T	825
0.8058	44.11	6.718 T	1.39330	0.7581 T	0.3441 T	0.5007 T	0.6432	0.4617	153.74 T	14969. P	23.50 T	826

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C3.11–1C3.12
SULFUR-CONTAINING COMPOUNDS AND MISCELLANEOUS—PRIMARY PROPERTIES

No.	Compound	Formula	M.W.	Boiling Point at 1 atm deg F	Freezing Point in air at 1 atm. deg F	Critical Constants				Acentric Factor
						Temperature deg F	Pressure psia	Volume cu ft per lb	Compressibility Factor	
	Table 1C3.11 Sulfur Containing Compounds									
827	CARBON DISULFIDE	CS_2	76.13	115.20	-168.83	533.93	1146.29	0.0337	0.2760	0.1079
828	METHYL MERCAPTAN	CH_4S	48.10	42.72	-189.35	386.24	1049.29	0.0483	0.2680	0.1488
829	2,3-DITHIABUTANE	$C_2H_6S_2$	94.19	229.54	-120.50	631.13 P	777.40 P	0.0429 P	0.2680	0.2652
830	DIMETHYL SULFIDE	C_2H_6S	62.13	99.20	-144.89	445.80	802.00	0.0518	0.2660	0.1893
831	ETHYL MERCAPTAN	C_2H_6S	62.13	95.01	-234.20	438.80	796.26	0.0534	0.2740	0.1921
832	2-THIABUTANE	C_3H_8S	76.16	151.99	...	500.00	0.00	0.0553	...	...
833	1-PROPANETHIOL	C_3H_8S	76.16	153.90	...	...	...	...	...	...
834	n-BUTANETHIOL	$C_4H_{10}S$	90.18	209.23	-176.24	564.53 P	575.80 P	0.0545 P	0.2580	0.2784
835	tert-BUTANETHIOL	$C_4H_{10}S$	90.18	147.59	34.00	494.33 P	588.85 P	0.0545 P	0.2830	0.1907
836	2-BUTANETHIOL	$C_4H_{10}S$	90.18	184.96	...	...	...	...	...	...
837	2-METHYL-1-PROPANETHIOL	$C_4H_{10}S$	90.19	191.10	...	...	...	...	...	...
838	3-THIAPENTANE	$C_4H_{10}S$	90.18	197.78	-155.11	543.20	574.61	0.0564	0.2720	0.2936
839	2-THIAHEXANE	$C_5H_{12}S$	104.21	254.16	...	...	...	...	...	...
840	3-THIAHEXANE	$C_5H_{12}S$	104.21	245.30	...	...	...	...	...	...
841	1-PENTANETHIOL	$C_5H_{12}S$	104.21	259.95	-104.26	616.73 P	503.28 P	0.0552 P	0.2510	0.3211
842	2-THIAHEPTANE	$C_6H_{14}S$	118.24	293.00	...	...	...	...	...	...
843	1-HEXANETHIOL	$C_6H_{14}S$	118.24	306.81	...	...	...	...	...	...
844	1-HEPTANETHIOL	$C_7H_{16}S$	132.26	350.49	...	...	...	...	...	...
	Table 1C3.12 Miscellaneous									
845	WATER	H_2O	18.02	212.00	32.00	705.16	3198.80	0.0497	0.2290	0.3449
846	SULFURIC ACID	H_2SO_4	98.07	638.33 P	50.56	1205.33 P	928.24 P	0.0289	0.1470	0.8560
847	SODIUM HYDROXIDE	NaOH	40.00	2534.33 P	613.13	4616.33 P	3673.99 P	0.0801 P	0.2200	...
848	PROPYLENE CARBONATE	$C_3H_6CO_3$	102.09	...	...	...	...	...	...	...
849	FURFURAL	$C_5H_4O_2$	96.09	323.06	-33.70	722.93 P	799.46 S	0.0420 P	0.2540	0.4442
850	1,2-PROPYLENE GLYCOL	$C_3H_8O_2$	76.09	369.68	-76.00	667.13 P	884.73 P	0.0503 P	0.2800	1.1085
851	DIETHYLENE GLYCOL	$C_4H_{10}O_3$	106.12	473.00	13.19	764.33 P	667.18 P	0.0471 P	0.2540	1.2008
852	TETRAETHYLENE GLYCOL	$C_8H_{18}O_5$	194.23	586.13	23.00	839.93 P	375.65 P	0.0465 P	0.2430	1.5783
853	MONOETHANOLAMINE	C_2H_7NO	61.08	339.80	50.90	688.73 P	996.41 P	0.0590 P	0.2910	0.7966
854	DIETHANOLAMINE	$C_4H_{11}NO_2$	105.14	516.00	82.40	827.33 P	474.27 P	0.0532 P	0.1920	1.0463
855	DIGLYCOLAMINE	$H(OC_2H_4)_2NH_2$	105.14	...	...	...	...	...	...	...
856	METHYL DIETHANOLAMINE	$C_5H_{13}NO_2$	119.16	476.60 S	-S.80 S	760.73 P	562.75 P	0.0539 P	0.2760	1.3017
857	TRIETHANOLAMINE	$C_6H_{15}NO_3$	149.19	643.73 P	70.16	956.93 P	355.34 P	0.0507 P	0.1770	1.1008
858	DIISOPROPANOLAMINE	$(HOC_3H_6)_2NH$	133.19	...	...	...	...	...	...	...
859	N,N-DIMETHYLFORMAMIDE	C_3H_7NO	73.09	307.40	-76.77	704.93 P	641.07 P	0.0585 P	0.2190	0.3724
860	N-METHYL-2-PYRROLIDONE	C_5H_9NO	99.13	395.60	-11.20	843.53 P	693.28 P	0.0511 P	0.2510	0.3577
861	DIMETHYL SULFOXIDE	C_2H_6OS	78.13	372.20	65.34	847.13 P	819.47 P	0.0465 P	0.2120	0.2094
862	SULFOLANE	$C_4H_8O_2S$	120.17	545.00	81.68	1079.33 P	729.54 P	0.0400 P	0.2120	0.3463
863	SELEXOL		280.00	518.00 S	-20.00 S	...	...	...	...	...

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C3.11–1C3.12 (Continued)

Specific Gravity 60/60	API Gravity at 60 F deg API	Density of the Liquid at 60 F lb/gal	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F psia	Heat Capacity at 60 F and Constant Pressure Btu/lb deg F		Kinematic Viscosity of the Liquid centistokes		Heat of Vaporization at Normal Boiling Point Btu/lb	Net Heat of Combustion of Liquid at 77 F Btu/lb	Surface Tension of the Liquid at 77 F dyne/cm	No.
					Ideal Gas	Liquid at 1 atm.	at 100 F	at 210 F				
Table 1C3.11 Sulfur Containing Compounds												
1.2705	-20.12	10.592 T	1.62409	11.0771 T	0.1412 T	0.2388 T	0.2613 T	...	152.63 T	6236. P	31.56 T	827
0.8783	29.97	7.306 T	...	44.2060 T	0.2458 T	...	...	...	227.70 T	10293.	23.84 T	828
1.0684	0.94	8.907 T	1.52297	1.0429 T	0.2351 T	0.3682	0.4690 T	0.2643 T	156.76 T	9329.	33.07 T	829
0.8622	32.62	7.188 T	1.43228	15.0690 T	0.2797 T	0.4503 T	...	...	186.20 T	12068.	24.17 T	830
0.8445	36.05	7.041 T	1.42777	16.1741 T	0.2738 T	0.4490	...	...	185.93 T	12011.	22.82 T	831
...	...	...	1.43735	...	...	...	...	...	...	...	...	832
...	...	...	1.43533	...	...	...	...	...	...	...	...	833
0.8470	35.56	7.061 T	1.44033	1.6119 T	0.3061 T	0.4508	0.4742 T	...	156.28 T	14089.	25.22 T	834
0.8056	44.15	6.716 T	1.42004	5.8694 T	0.3133 T	0.4586 T	0.6518 T	...	136.10 T	14014.	20.29 T	835
...	...	...	1.43394	...	...	...	...	...	...	16559.	...	836
...	...	...	1.43600	...	...	...	...	...	...	16553.	...	837
0.8420	36.55	7.020 T	1.44015	2.0397 T	0.3030 T	0.4489	0.4534 T	...	152.55 T	14115. P	24.66 T	838
...	...	...	1.44524	...	...	...	...	...	...	17082.	...	839
...	...	...	1.44350	...	...	...	...	...	...	16972.	...	840
0.8469	35.58	7.060 T	1.44435	0.5260 T	0.3165 T	0.4562 T	0.6162 T	0.3741 T	145.13 T	14711.	26.02 T	841
...	...	...	1.44820	...	...	...	...	...	...	...	...	842
...	...	...	1.44720	...	...	...	...	...	...	...	...	843
...	...	...	1.44981	...	...	...	...	...	...	...	...	844
Table 1C3.12 Miscellaneous												
1.0000	10.00	8.337	1.33250	0.9501	0.4446	.9997	0.7136	...	970.18	0.	72.82 T	845
1.8462	-54.86	15.392 T	1.41828	...	0.1927 T	...	8.3370 T	...	...	...	52.39 T	846
...	...	...	1.43300 S	...	0.2889 T	...	...	...	...	...	...	847
...	...	...	...	...	...	...	...	...	...	...	...	848
1.1683	-10.18	9.723 T	1.52345	0.0953 T	0.2381 T	0.3986 T	1.1596 T	0.7223 T	188.61 T	10066.	43.01 T	849
1.0407	4.48	8.676 T	1.43140	0.0076 T	0.3134 T	0.5857 T	19.4434 T	2.8772 T	307.81 T	9309.	35.47 T	850
1.1225	-5.45	9.359 T	1.44600	0.0005 T	...	0.5426	15.9800	2.4251	249.40 T	8730.	48.18 T	851
1.1314	-8.43	9.432 T	1.45700	0.0000 T	...	0.5087 T	22.3149 T	2.9372 T	173.36 T	9695. P	44.13 T	852
1.0220	8.95	8.521 T	1.45210	0.0203 T	0.3265 T	...	13.0208 T	2.1609 T	362.72 T	9594.	48.32 T	853
...	...	...	1.47470	0.0000 T	0.3135 T	...	210.8330 T	9.1426 T	263.58 T	9857.	47.25 T	854
...	...	...	...	...	...	...	...	...	...	...	...	855
1.0387	4.73	8.660 T	1.46850	0.0000 T	...	...	45.7244 T	4.9235 T	252.01 T	11040. P	38.22 T	856
...	...	...	1.48350	0.0000 T	0.3135 T	...	220.1190 T	11.3059 T	203.70 T	10117.	45.24 T	857
...	...	...	...	...	...	...	...	...	...	...	...	858
0.9542	16.78	7.956 T	1.42690	0.1692 T	0.2979 T	0.4875 T	0.7562 T	0.4694 T	229.17 T	10521.	34.43 T	859
1.0387	4.99	8.643 T	1.46900	0.0164 T	...	...	1.2668 T	0.5008 T	193.94 T	12166. P	30.25 T	860
...	...	...	1.47730	0.0274	0.2671 T	...	1.4894	0.6808	234.96 T	8515. P	42.75 T	861
...	...	...	1.47800	0.0005 T	...	...	6.6668 T	2.1609 T	187.03 T	8515. P	85.49 T	882
...	...	...	...	...	...	...	...	...	...	...	...	863

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C4.1–1C4.3
ACIDS, ALCOHOLS AND PHENOLS, AND ALDEHYDES—SECONDARY PROPERTIES

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 F Btu/lb	Flammability Limits, Volume Percent in Air Mixture	
									Lower	Upper
	Table 1C4.1 Acids									
700	FORMIC ACID	CH_2O_2	1251	10.48	156.00	-3536.63	-3278.68	118.62	18.00	57.00
701	ACETIC ACID	$C_2H_4O_2$	1252	8.97	109.00	-3094.56	-2677.90	83.87	5.40	16.00
702	PROPIONIC ACID	$C_3H_6O_2$	1253	9.36	130.00	-2632.21	-2128.21 P	61.87	2.90 P	14.80 P
703	n-BUTYRIC ACID	$C_4H_8O_2$	1256	9.91	161.00	-2294.82	-1717.08 P	56.56	2.19	13.40
704	2-METHYLPROPIONIC ACID	$C_4H_8O_2$	1260	11.83	170.00	-2362.40 P	-1767.32 P	24.50	2.00	9.20
705	n-PENTANOIC ACID	$C_5H_{10}O_2$	1258	10.92	204.80	-2064.19	-1443.92 P	59.62	1.60 P	...
706	2-METHYLBUTYRIC ACID	$C_5H_{10}O_2$	1257	...	...	-2096.33 P	-1481.74 P	...	1.60 P	...
707	3-METHYLBUTYRIC ACID	$C_5H_{10}O_2$	1261	9.81	...	-2166.63	-1544.89 P	30.82	1.60 P	...
708	n-HEXANOIC ACID	$C_6H_{12}O_2$	1262	11.39	215.00	-1900.93	-1258.40 P	55.75	1.30 P	...
	Table 1C4.2 Alcohols and Phenols									
709	METHANOL	CH_4O	1101	14.43	52.00	-2692.46	-2179.34	43.00	7.30	38.00
710	ETHANOL	C_2H_6O	1102	12.92	55.00	-2187.78	-1566.94	46.02	4.30	19.00
711	n-PROPANOL	C_3H_8O	1103	12.01	59.00	-1834.28	-1157.50	38.43	2.00	12.00
712	ISOPROPANOL	C_3H_8O	1104	11.53	53.00	-1948.92	-1240.41	38.70	2.00	12.00
713	n-BUTANOL	$C_4H_{10}O$	1105	11.39	84.00	-1593.21	-874.62	54.36	1.40	11.20
714	ISOBUTANOL	$C_4H_{10}O$	1106	11.61	82.00	-1642.71	-899.10 P	36.67	1.70	10.90
715	sec-BUTANOL	$C_4H_{10}O$	1107	11.06	75.00	-1698.77	-973.64	34.63	1.70	9.80
716	tert-BUTANOL	$C_4H_{10}O$	1108	10.51	52.00	-1812.10	-1030.43	38.83	2.40	8.00
717	1-PENTANOL	$C_5H_{12}O$	1109	11.04	91.00	-1457.02	-712.19	47.75	1.20	10.00
718	2-PENTANOL	$C_5H_{12}O$	1110	10.59	94.00	-1530.48	-776.88 P	0.00	1.50 P	...
719	2-METHYL-1-BUTANOL	$C_5H_{12}O$	1112	10.89	122.00	-1473.35	-715.54 P	0.00	1.40	9.00
720	2-METHYL-2-BUTANOL	$C_5H_{12}O$	1111	10.15	105.00	-1608.03	-806.05	21.73	1.20	9.00
721	3-METHYL-2-BUTANOL	$C_5H_{12}O$	1124	10.56	103.00	-1532.52	-762.60 P	...	1.50 P	...
722	2,2-DIMETHYL-1-PROPANOL	$C_5H_{12}O$	1113	9.42	98.60	-1556.20 P	-757.81 P	0.00	1.50 P	...
723	4-METHYL-2-PENTANOL	$C_6H_{14}O$	1130	9.47	106.00	-1440.77 P	-654.99 P	...	1.00	5.50
724	PHENOL	C_6H_6O	1181	11.78	175.00	-440.37	-149.07	52.60	1.50 S	...
725	o-CRESOL	C_7H_8O	1182	11.44	178.00	-511.15	-131.00	62.90	1.40	...
726	m-CRESOL	C_7H_8O	1183	11.77	202.00	-525.98	-159.74	42.57	1.10	...
727	p-CRESOL	C_7H_8O	1184	11.65	202.00	-498.35	-125.87	50.52	1.10	...
	Table 1C4.3 Aldehydes									
728	FORMALDEHYDE	CH_2O	1001	11.70	-88.87 P	-1659.48	-1573.57 S	...	7.00	73.00
729	ACETALDEHYDE	C_2H_4O	1002	9.69	-36.00	-1621.89	-1258.07	31.44	1.60	10.40
730	n-PROPIONALDEHYDE	C_3H_6O	1003	9.47	-22.00	-1376.84	-920.86	...	2.60	16.10
731	n-BUTYRALDEHYDE	C_4H_8O	1005	9.26	20.00	-1228.61	-688.00	66.21	2.50	12.50
732	ACROLEIN	C_3H_4O	1034	9.95	-14.80	-621.17 P	-429.25 P	...	2.80	31.00
733	trans-CROTONALDEHYDE	C_4H_6O	1036	10.16	55.00	-635.47	-298.72 P	...	2.10	15.50
734	METHACROLEIN	C_4H_6O	1037	9.20	35.60	-691.39 P	-353.33 P	...	6.00	...

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C4.4–1C4.6
AMINES, OTHER NITROGEN-CONTAINING COMPOUNDS, AND ESTERS— SECONDARY PROPERTIES

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 F Btu/lb	Flammability Limits, Volume Percent in Air Mixture	
									Lower	Upper
	Table 1C4.4 Amines									
735	METHYLAMINE	CH_5N	1701	11.30	...	-317.98	444.24	84.91	4.90	20.70
736	ETHYLAMINE	C_2H_7N	1704	9.53	-49.27 P	-438.89	355.50	...	3.50	14.00
737	n-PROPYLAMINE	C_3H_9N	1711	9.05	10.00	-526.46	289.40	...	2.00	10.40
738	ISOPROPYLAMINE	C_3H_9N	1719	8.53	-34.60	-609.50	232.23 P	53.27	2.00	10.40
739	n-BUTYLAMINE	$C_4H_{11}N$	1712	8.93	10.00	-541.09	289.24 S	...	1.70	9.80
740	ISOBUTYLAMINE	$C_4H_{11}N$	1714	8.63	-0.04	-580.78	270.99 P	...	1.60 P	...
741	sec-BUTYLAMINE	$C_4H_{11}N$	1726	8.45	-20.00	-612.42	238.82	...	1.60 P	...
742	tert-BUTYLAMINE	$C_4H_{11}N$	1727	7.69	15.80	-704.65	169.71	5.18	1.70	8.90
	Table 1C4.5 Other Nitrogen-Containing Compounds									
743	UREA	CH_4N_2O	1877	...	...	-1758.22	-1093.27	106.33 S	5.60 P	35.30 P
744	ACETONITRILE	C_2H_3N	1772	11.78	42.00	775.40	961.55 P	93.33	4.40	16.00
745	MORPHOLINE	C_4H_9NO	1765	10.79	100.00	-769.83 P	78.96 P	45.40 P	1.80	10.80
746	PYRIDINE	C_5H_5N	1791	10.66	68.00	761.82	1033.80	45.00	1.80	12.40
747	ANILINE	C_6H_7N	1792	11.79	158.00	400.99	769.54	48.66	1.30	11.00
748	INDOLE	C_8H_7N	2784	11.62	...	574.71	870.87	33.03	...	...
749	QUINOLINE	C_9H_7N	1748	10.73	214.00	739.95	976.95	35.95	1.00 P	...
750	DIBENZOPYRROLE	$C_{12}H_9N$	2789	10.18	...	538.92	928.20 P	75.67	...	...
751	ACRIDINE	$C_{13}H_9N$	704	...	...	698.16	958.89	41.26	...	...
	Table 1C4.6 Esters									
752	METHYL FORMATE	$C_2H_4O_2$	1301	10.02	-2.00	-2522.91	-2111.97	53.92	5.90	20.00
753	METHYL ACETATE	$C_3H_6O_2$	1312	9.51	14.00	-2374.50	-1866.10 P	...	3.10	16.00
754	ETHYL FORMATE	$C_3H_6O_2$	1302	9.26	24.80	-2253.55	-1759.08	53.42	2.70	13.50
755	ETHYL ACETATE	$C_4H_8O_2$	1313	8.99	24.00	-2161.30	-1597.60	51.14	2.20	11.40
756	n-PROPYL FORMATE	$C_4H_8O_2$	1303	8.97	27.00	-1973.26 P	-1424.33 P	...	2.10 P	...
757	VINYL ACETATE	$C_4H_6O_2$	1321	9.02	18.00	-1576.71	-1142.35	...	2.60	13.40
758	METHYL n-BUTYRATE	$C_5H_{10}O_2$	1332	8.83	57.00	-1897.22	-1285.16	...	1.60 P	...
759	n-PROPYL ACETATE	$C_5H_{10}O_2$	1314	8.80	40.00	-1956.58	-1348.72	...	1.80	8.00
760	ISOPROPYL ACETATE	$C_5H_{10}O_2$	1319	8.37	36.00	-2027.72	-1404.71	...	1.76 S	7.20 S
781	n-BUTYL ACETATE	$C_6H_{12}O_2$	1315	8.60	72.00	-1796.18	-1155.88	...	1.70	7.60
762	n-PENTYL ACETATE	$C_7H_{14}O_2$	1357	8.61	77.00	-1669.37	-1002.29	...	1.10 P	...

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C4.7–1C4.8
ETHERS AND GASES—SECONDARY PROPERTIES

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 F Btu/lb	Flammability Limits, Volume Percent in Air Mixture	
									Lower	Upper
	Table 1C4.7 Ethers									
763	DIMETHYL ETHER	C_2H_6O	1401	8.59	...	-1717.64	-1052.69	46.07	3.40	18.00
764	METHYL ETHYL ETHER	C_3H_8O	1407	8.31	-35.00	-1548.42	-841.71	...	2.00	10.10
765	DIETHYL ETHER	$C_4H_{10}O$	1402	7.59	-49.00	-1462.40	-706.20	41.70	1.90	48.00
766	METHYL-tert-BUTYL ETHER	$C_5H_{12}O$	1405	7.39	-18.00	-1428.45	-611.78	37.07	2.00	15.10
767	METHYL-tert-AMYL ETHER	$C_6H_{14}O$	1400	...	...	...	...	...	...	...
768	TETRAHYDROFURAN	C_4H_8O	1479	9.35	6.00	-1098.16	-475.08	50.92	2.00	11.80
769	DIBENZOFURAN	$C_{12}H_8O$	705	...	...	0.00	0.00	0.00	...	...
	Table 1C4.8 Gases									
770	AIR		915	6.18	...	0.00	0.00	...	5.71 P	...
771	AMMONIA	NH_3	1911	14.28	...	-1158.70	-414.05	142.80	16.00	...
772	ARGON	Ar	914	6.91	...	0.00	0.00	12.72	...	...
773	BROMINE	Br_2	922	11.57	...	83.15 S	8.43	28.44	...	...
774	CARBON MONOXIDE	CO	908	3.13	...	-1696.50	-2105.32 S	12.91	12.50	74.00
775	CARBON DIOXIDE	CO_2	909	7.12	...	-3844.28	-3852.90	88.11	...	...
776	CARBONYL SULFIDE	COS	1893	8.89	...	-990.59	-1185.50 S	33.84	12.00	29.00
777	CHLORINE	Cl_2	918	9.85	...	0.00	0.00	38.84	...	...
778	FLUORINE	F_2	917	7.42	...	0.00	0.00	5.77	...	...
779	HELIUM-3	He	923	...	...	...	...	...	...	...
780	HELIUM-4	He	913	0.60	...	0.00	0.00	5.37	...	...
781	HYDROGEN	H_2	902	3.25	...	0.00	0.00	24.98	4.00	75.00
782	HYDROGEN BROMIDE	HBr	1906	10.19	...	-193.64	-284.23	12.78	...	...
783	HYDROGEN CHLORIDE	HCl	1904	10.70	...	-1088.49	-1123.77	23.56	...	...
784	HYDROGEN CYANIDE	HCN	1771	12.12	0.00	2149.88	1983.48	133.72	6.00	41.00
785	HYDROGEN FLUORIDE	HF	1905	...	...	-5856.93	-5901.97	98.43	...	...
786	HYDROGEN SULFIDE	H_2S	1922	8.80	...	-260.28	-421.90	29.98	4.30	45.50
787	KRYPTON	Kr	920	7.47	...	0.00	0.00	8.41	...	...
788	NEON	Ne	919	4.60	...	0.00	0.00	6.99	...	...
789	NITROGEN	N_2	905	4.44	...	0.00	0.00	11.04	...	...
790	NITRIC OXIDE	NO	912	11.37	...	1293.10	1240.34	32.97	...	...
791	NITROUS OXIDE	N_2O	899	10.20	...	801.47	1017.51	63.88	...	...
792	NITROGEN DIOXIDE	NO_2	900	16.40	...	309.28	478.85	...	...	...
793	NITROGEN TETROXIDE	N_2O_4	906	...	...	42.42	456.59	68.46	...	...
794	OXYGEN	O_2	901	4.00	...	0.00	0.00	5.96	...	...
795	OZONE	O_3	924	9.27	...	1277.96	1461.60	18.74 P	...	...
796	SULFUR DIOXIDE	SO_2	910	6.00	...	-1992.24	-2014.54	49.67	...	...
797	SULFUR TRIOXIDE	SO_3	911	15.15	...	-2125.10	-1992.08	40.45	...	...
798	XENON	Xe	959	7.78	...	0.00	0.00	7.52	...	...

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C4.9–1C4.10
HALOGENATED COMPOUNDS AND KETONES—SECONDARY PROPERTIES

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 F Btu/lb	Flammability Limits, Volume Percent in Air Mixture	
									Lower	Upper
	Table 1C4.9 Halogenated Compounds									
799	CHLOROTRIFLUOROMETHANE	$CClF_3$	1606	6.99	...	-2913.69	-2746.82	...	...	...
800	DICHLORODIFLUOROMETHANE	CCl_2F_2	1601	7.39	...	-1748.03	-1609.71	...	...	...
801	TRICHLOROFLUOROMETHANE	CCl_3F	1602	7.64	...	-903.55	-780.46	21.59	...	...
802	CARBON TETRACHLORIDE	CCl_4	1501	8.59	...	-268.26	-150.00	7.09	...	...
803	CARBON TETRAFLUORIDE	CF_4	1616	6.76	...	-4558.96	-4340.78	3.48	...	...
804	CHLORODIFLUOROMETHANE	$CHClF_2$	1604	8.44	...	-2394.44	-2240.25	20.50	...	...
805	DICHLOROFLUOROMETHANE	$CHCl_2F$	1696	8.53	...	-1183.22	-1056.04	...	...	...
806	CHLOROFORM	$CHCl_3$	1521	9.30	...	-371.58	-253.57	34.36	...	...
807	TRIFLUOROMETHANE	CHF_3	1615	8.63	...	-4257.16	-4045.74	24.92	...	...
808	DICHLOROMETHANE	CH_2Cl_2	1511	9.96	24.53 P	-483.52	-349.14	23.30	15.50	66.00
809	METHYL CHLORIDE	CH_3Cl	1502	9.64	...	-697.93	-497.73	55.76	10.70	12.40
810	METHYL FLUORIDE	CH_3F	1613	9.96	...	-3002.28	-2700.49	...	...	...
811	VINYL CHLORIDE	C_2H_3Cl	1504	8.74	-108.00	195.71	288.57	32.63	3.60	33.00
812	1,1,1-TRICHLOROETHANE	$C_2H_3Cl_3$	1527	8.46	...	-458.59	-245.54	7.57	8.00	10.50
813	1,1,2-TRICHLOROETHANE	$C_2H_3Cl_3$	1524	9.69	...	-469.23	-268.45	36.41	8.60 P	...
814	1,1,1-TRIFLUOROETHANE	$C_2H_3F_3$	1619	7.70	...	-3814.17	-3469.78	31.68	...	...
815	1,1-DICHLOROETHANE	$C_2H_4Cl_2$	1522	8.96	10.40	-565.30	-318.45	34.19	5.40	11.40
816	1,2-DICHLOROETHANE	$C_2H_4Cl_2$	1523	9.90	56.00	-563.86	-321.19	38.35	6.20	16.00
817	1,1-DIFLUOROETHANE	$C_2H_4F_2$	1640	8.50	...	-3213.62	-2839.43	...	3.70	18.00
818	ETHYL CHLORIDE	C_2H_5Cl	1503	8.67	-58.00	-748.11	-403.18	29.67	3.80	15.40
819	ETHYL FLUORIDE	C_2H_5F	1617	8.56	...	-2354.33	-1887.99	...	...	...
820	1,2-DICHLOROPROPANE	$C_3H_6Cl_2$	1526	8.99	60.00	-630.45	-316.18	...	3.40	14.50
	Table 1C4.10 Ketones									
821	ACETONE	C_3H_6O	1051	9.67	0.00	-1607.42	-1130.46	42.13	2.60	12.80
822	METHYL ETHYL KETONE	C_4H_8O	1052	9.19	21.00	-1421.21	-870.89	50.32	1.80	10.00
823	DIETHYL KETONE	$C_5H_{10}O$	1053	8.93	55.00	-1289.79	-674.16 P	57.87	1.50	8.00
824	METHYL-n-PROPYL KETONE	$C_5H_{10}O$	1060	8.94	45.00	-1293.77	-690.64	53.02	1.50	8.20
825	METHYL-n-BUTYL KETONE	$C_6H_{12}O$	1062	8.87	77.00	-1201.13	-558.36	...	1.20	8.00
826	METHYL ISOBUTYL KETONE	$C_6H_{12}O$	1054	8.71	60.00	-1238.31 P	-581.00 P	...	1.40	7.50

NOTE: See page 1-135 for Key to footnote codes.

TABLES 1C4.11–1C4.12
SULFUR-CONTAINING COMPOUNDS AND MISCELLANEOUS—SECONDARY PROPERTIES

No.	Compound	Formula	Search Number	Solubility Parameter $(Cal/cm^3)^{1/2}$	Flash Point Temperature deg F	Ideal Gas Heat of Formation at 77 F Btu/lb	Ideal Gas Gibbs Free Energy of Formation at 77 F Btu/lb	Heat of Fusion at 77 F Btu/lb	Flammability Limits, Volume Percent in Air Mixture	
									Lower	Upper
	Table 1C4.11 Sulfur Containing Compounds									
827	CARBON DISULFIDE	CS_2	1938	9.98	-22.00	661.11	377.83	24.81	1.30	50.00
828	METHYL MERCAPTAN	CH_4S	1801	10.11	-63.67 P	-202.00	-84.91	52.77	3.90	21.80
829	2,3-DITHIABUTANE	$C_2H_6S_2$	1828	9.84	44.33	-107.71	70.09	41.96	1.90 P	...
830	DIMETHYL SULFIDE	C_2H_6S	1820	9.05	-29.00	-257.38	50.96	55.25	2.20	19.70
831	ETHYL MERCAPTAN	C_2H_6S	1802	8.93	-55.00 P	-318.45	-29.53	34.43	2.80	18.00
832	2-THIABUTANE	C_3H_8S	1815	...	...	...	...	...	...	...
833	1-PROPANETHIOL	C_3H_8S	1808	...	...	...	...	...	...	...
834	n-BUTANETHIOL	$C_4H_{10}S$	1841	8.77	35.00	-419.87	52.66	49.87	...	...
835	tert-BUTANETHIOL	$C_4H_{10}S$	1804	7.72	...	-521.04	4.96	11.83	...	...
836	2-BUTANETHIOL	$C_4H_{10}S$	1823	...	...	...	...	...	...	...
837	2-METHYL-1-PROPANETHIOL	$C_4H_{10}S$	1825	...	...	...	...	...	...	...
838	3-THIAPENTANE	$C_4H_{10}S$	1818	8.56	14.00	-397.93	84.77	56.75	...	...
839	2-THIAHEXANE	$C_5H_{12}S$	1816	...	...	...	...	...	...	...
840	3-THIAHEXANE	$C_5H_{12}S$	1817	...	...	...	...	...	...	...
841	1-PENTANETHIOL	$C_5H_{12}S$	1827	8.62	64.13	-452.95	74.67	72.32	...	...
842	2-THIAHEPTANE	$C_6H_{14}S$	1819	...	...	...	...	...	...	...
843	1-HEXANETHIOL	$C_6H_{14}S$	1826	...	...	...	...	...	...	...
844	1-HEPTANETHIOL	$C_7H_{16}S$	1829	...	...	...	...	...	...	...
	Table 1C4.12 Miscellaneous									
845	WATER	H_2O	1921	23.38	...	-5769.34	-5453.70	143.23	...	...
846	SULFURIC ACID	H_2SO_4	1901	12.53	...	-3222.63	-2864.66 S	46.95	...	...
847	SODIUM HYDROXIDE	NaOH	1912	...	...	-2125.69	-2154.75	71.06	...	...
848	PROPYLENE CARBONATE	$C_3H_6CO_3$	1185	...	...	...	...	...	...	...
849	FURFURAL	$C_5H_4O_2$	1889	11.56	140.00	-675.83	-460.28	64.21	2.10	19.30
850	1,2-PROPYLENE GLYCOL	$C_3H_8O_2$	1211	14.43	210.00	-2315.47	-1658.71 P	...	2.60	12.50
851	DIETHYLENE GLYCOL	$C_4H_{10}O_3$	1202	13.10	255.00	-2313.75	-1657.31 P	...	2.00 P	...
852	TETRAETHYLENE GLYCOL	$C_8H_{18}O_5$	1204	12.81	385.00	-1953.04 P	-1238.27 P	...	1.00 P	...
853	MONOETHANOLAMINE	C_2H_7NO	1723	15.25	185.00	-1479.42	-752.29 P	144.26 P	3.10 P	...
854	DIETHANOLAMINE	$C_4H_{11}NO_2$	1724	14.42	305.00	-1622.93	-875.43 P	102.66	1.80 P	...
855	DIGLYCOLAMINE	$H(OC_2H_4)_2NH_2$	1728	...	...	...	...	...	...	...
856	METHYL DIETHANOLAMINE	$C_5H_{13}NO_2$	1722	14.11	260.00	-1370.99 P	-609.73 P	...	...	...
857	TRIETHANOLAMINE	$C_6H_{15}NO_3$	1725	13.36	355.00	-1619.77	-864.32 P	78.36 P	1.20 P	...
858	DIISOPROPANOLAMINE	$(HOC_3H_6)_2NH$	1730	...	...	...	...	...	...	...
859	N,N-DIMETHYLFORMAMIDE	C_3H_7NO	1876	11.60	136.00	-1127.54	-519.99 P	95.02	2.20	15.20
860	N-METHYL-2-PYRROLIDONE	C_5H_9NO	1071	11.43	204.00	-847.40 P	-231.68 P	...	2.18	12.24
861	DIMETHYL SULFOXIDE	C_2H_6OS	1844	12.88	190.00	-1150.96	-636.61	76.67	2.60	28.50
862	SULFOLANE	$C_4H_8O_2S$	1845	12.58	350.00	-1395.34 P	-926.65 P	4.91	...	...
863	SELEXOL		1410	...	304.00 S	...	...	...	...	...

NOTE: See page 1-135 for Key to footnote codes.

KEY TO FOOTNOTE CODES

A = Sublimation point temperature.
B = Pseudocritical value.
C = Absolute values from weights in vacuum.
D = Calculated from the definition.
E = At saturation pressure (triple point).
F = At saturation pressure and 60 F.
G = At boiling point.
H = Critical solution temperature instead of aniline point.
J = Evaluated at −148 F.
K = The + sign and the number following signify that the octane number of the compound corresponds to that of 2,2,4-trimethylpentane with the indicated number of milliliters of tetraethyl lead added.
L = Evaluated at −54 F.
M = Evaluated at −193.3 F.
N = Too volatile to run as a liquid in the CFR engine.
P = Predicted.
Q = Specific gravity − 119.2 F/60 F (sublimation point).
R = For the undercooled liquid below the normal freezing point.
S = Unknown whether predicted or experimental.
T = Extrapolated.
U = Evaluated at −13.27 F.
V = Predicted and extrapolated.
W = Sublimation temperature.
Y = Net heat of combustion of the gas.
Z = Estimated value.
a = Net heat of combustion of the solid.

TABLE 1C5.1
KEY TO REFERENCES—HYDROCARBONS

Key to References

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F	Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	No.
				Temperature	Pressure	Volume				Ideal Gas	Liquid at 1 atm	at 100 F	at 200 F		
1	METHANE	82	82	82	82	51	82	181	82	82	...	...	...	82	1
2	ETHANE	82	82	82	82	51	82	136	82	82	82	...	...	82	2
3	PROPANE	82	82	82	82	51	82	136	82	82	82	189	...	82	3
4	n-BUTANE	82	82	82	82	189	82	189	82	82	...	189	189	82	4
5	ISOBUTANE	82	82	82	82	51	82	68	82	82	82	189	189	82	5
6	n-PENTANE	82	82	82	82	226	82	51	82	82	...	189	189	82	6
7	ISOPENTANE	82	82	82	82	51	82	51	82	82	...	189	...	82	7
8	NEOPENTANE	51	51	51	51	51	189	51	189	189	...	...	...	189	8
9	n-HEXANE	82	82	82	82	51	82	51	82	82	189	189	...	82	9
10	2-METHYLPENTANE	51	51	51	51	51	189	51	189	189	189	...	...	189	10
11	3-METHYLPENTANE	51	73	51	51	51	189	51	189	189	189	...	...	189	11
12	2,2-DIMETHYLBUTANE	51	(P)	51	51	51	189	51	189	189	189	...	...	189	12
13	2,3-DIMETHYLBUTANE	51	(P)	51	51	51	189	51	189	189	189	...	...	189	13
14	n-HEPTANE	82	82	82	82	51	82	51	82	82	189	189	189	82	14
15	2-METHYLHEXANE	51	51	51	51	51	189	51	189	189	189	...	...	189	15
16	3-METHYLHEXANE	51	171	51	51	51	189	51	189	189	...	...	...	189	16
17	3-ETHYLPENTANE	51	51	51	51	51	189	51	189	189	189	...	...	189	17
18	2,2-DIMETHYLPENTANE	51	51	51	51	51	189	51	189	189	189	...	...	189	18
19	2,3-DIMETHYLPENTANE	51	...	51	51	51	189	51	189	189	189	...	...	189	19
20	2,4-DIMETHYLPENTANE	51	51	51	51	51	189	51	189	189	189	...	...	189	20
21	3,3-DIMETHYLPENTANE	51	51	51	51	51	189	51	189	189	189	...	...	189	21
22	2,2,3-TRIMETHYLBUTANE	51	(P)	51	51	51	189	51	189	189	189	...	...	189	22
23	n-OCTANE	82	82	82	82	51	82	51	82	82	189	189	189	82	23
24	2-METHYLHEPTANE	51	51	51	51	51	189	51	189	189	189	...	...	189	24
25	3-METHYLHEPTANE	51	51	51	51	51	189	51	189	189	189	...	...	189	25
26	4-METHYLHEPTANE	51	51	51	189	189	189	51	189	189	189	...	...	189	26
27	3-ETHYLHEXANE	51	...	189	189	189	189	51	189	189	...	...	...	189	27
28	2,2-DIMETHYLHEXANE	51	51	189	189	189	189	51	189	189	...	...	...	189	28
29	2,3-DIMETHYLHEXANE	51	...	189	189	189	189	51	189	189	...	...	...	189	29
30	2,4-DIMETHYLHEXANE	51	...	189	189	189	189	51	189	189	...	...	...	189	30
31	2,5-DIMETHYLHEXANE	51	51	189	189	189	189	51	189	189	...	...	...	189	31
32	3,3-DIMETHYLHEXANE	51	51	189	189	189	189	51	189	189	...	...	...	189	32
33	3,4-DIMETHYLHEXANE	51	...	189	189	189	189	51	189	189	...	...	...	189	33
34	2-METHYL-3-ETHYLPENTANE	51	51	189	189	189	189	51	189	189	...	...	...	189	34
35	3-METHYL-3-ETHYLPENTANE	189	189	181	181	181	189	189	189	189	...	...	...	...	35
36	2,2,3-TRIMETHYLPENTANE	51	51	51	51	51	189	51	189	189	...	...	...	189	36
37	2,2,4-TRIMETHYLPENTANE	51	51	51	51	51	189	51	189	189	189	...	...	189	37
38	2,3,3-TRIMETHYLPENTANE	51	51	189	189	189	189	51	189	189	189	...	...	189	38
39	2,3,4-TRIMETHYLPENTANE	51	51	189	189	189	189	51	189	189	189	...	...	189	39

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Coefficient of Expansion at 60 F	Aniline Point	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		No.
									Motor Method		Research Method				
									Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper	
1	189	...	...	187	187	189	...	...	...	...	...	...	82	82	1
2	189	...	...	187	187	189	...	...	82	...	...	82	82	82	2
3	189	189	...	187	187	189	51	...	82	...	...	82	82	82	3
4	189	189	...	187	187	189	51	51	82	51	51	82	82	82	4
5	189	189	...	187	187	189	51	51	82	...	...	82	82	82	5
6	189	189	209	187	187	189	51	51	82	51	51	82	82	82	6
7	189	189	...	187	187	189	51	51	82	...	51	82	82	82	7
8	189	189	...	187	187	189	51	51	51	51	51	51	209	209	8
9	189	189	209	187	187	189	51	51	82	51	51	82	82	82	9
10	189	189	(P)	187	187	189	51	51	51	51	51	51	209	209	10
11	189	189	(P)	187	187	73	51	51	51	51	51	51	191	50	11
12	189	189	209	187	187	189	51	51	51	51	51	51	209	209	12
13	189	189	209	187	187	189	51	51	51	51	...	51	209	209	13
14	189	189	209	187	187	189	51	51	82	51	51	82	82	82	14
15	189	189	...	187	187	189	51	51	51	51	51	51	177	177	15
16	189	189	171	187	187	...	51	51	51	51	51	51	51	51	16
17	189	189	...	187	187	189	51	51	51	51	51	51	51	51	17
18	189	189	...	187	187	189	51	51	51	51	51	51	191	49	18
19	189	189	...	187	187	...	51	51	51	51	51	51	209	209	19
20	189	189	209	187	187	189	51	51	51	51	51	51	191	49	20
21	189	189	...	187	187	189	51	51	51	51	51	51	51	51	21
22	189	189	...	184	184	189	51	51	51	51	...	51	191	49	22
23	189	189	209	187	187	204	51	51	...	51	51	...	82	82	23
24	189	189	...	187	187	189	51	51	51	51	51	51	51	49	24
25	189	189	...	187	187	189	51	51	51	51	51	51	51	49	25
26	189	189	...	187	187	189	51	51	51	51	51	51	51	49	26
27	189	189	...	187	187	...	51	51	51	51	51	51	191	49	27
28	189	189	...	187	187	189	51	51	51	51	51	51	191	49	28
29	189	189	177	187	187	...	51	51	51	51	51	51	191	49	29
30	189	189	177	187	187	...	51	51	51	51	51	51	191	49	30
31	189	189	...	187	187	189	51	51	51	51	51	51	191	49	31
32	189	189	...	187	187	189	51	51	51	51	51	51	191	49	32
33	189	189	...	187	187	...	51	51	51	51	51	51	191	49	33
34	189	189	...	187	187	189	51	51	51	51	51	51	191	49	34
35	189	189	...	189	189	...	51	51	51	51	51	51	191	49	35
36	189	189	(P)	187	187	193	51	51	51	51	...	51	51	49	36
37	189	189	209	187	187	189	51	51	51	51	51	51	209	...	37
38	189	189	...	187	187	189	51	51	51	51	...	51	51	49	38
39	189	189	...	187	187	189	51	51	51	51	...	51	51	49	39

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F	Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	No.
				Temperature	Pressure	Volume				Ideal Gas	Liquid at 1 atm	at 100 F	at 200 F		
40	2,2,3,3-TETRAMETHYLBUTANE	189	...	189	189	189	...	...	189	181	180	...	...	51	40
41	n-NONANE	82	82	82	82	51	82	51	82	82	189	189	189	82	41
42	2-METHYLOCTANE	51	51	51	51	51	...	51	189	189	...	...	...	...	42
43	3-METHYLOCTANE	51	51	51	51	51	...	51	189	189	...	...	...	...	43
44	4-METNYLOCTANE	51	51	51	51	51	...	51	189	189	...	...	...	...	44
45	3-ETHYLHEPTANE	189	...	189	189	189	189	189	189	...	...	...	...	189	45
46	2,2-DIMETNYLHEPTANE	189	189	(P)	(P)	(P)	189	189	189	189	180	...	...	...	46
47	2,6-DIMETNYLNEPTANE	189	189	189	189	189	189	189	189	...	...	...	...	189	47
48	2,2,3-TRIMETNYLHEXANE	189	...	189	189	189	189	189	189	...	...	...	...	189	48
49	2,2,4-TRIMETHYLHEXANE	189	189	189	189	189	189	189	189	...	...	...	...	189	49
50	2,2,5-TRIMETNYLHEXANE	51	51	51	51	51	...	51	189	189	...	...	...	...	50
51	2,3,3-TRIMETHYLHEXANE	189	189	189	189	189	189	189	189	...	...	...	...	...	51
52	2,3,5-TRIMETHYLHEXANE	189	189	189	189	189	189	189	189	...	...	...	...	189	52
53	2,4,4-TRIMETHYLHEXANE	189	189	189	189	189	189	189	189	...	...	...	...	189	53
54	3,3,4-TRIMETHYLHEXANE	189	189	189	189	189	189	189	189	...	...	...	...	...	54
55	3,3-DIETHYLPENTANE	51	51	51	51	51	...	51	189	189	189	...	...	...	55
56	2,2-DIMETNYL-3-ETHYLPENTANE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	189	56
57	2,4-DIMETNYL-3-ETHYLPENTANE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	57
58	2,2,3,3-TETRAMETHYLPENTANE	51	51	51	51	51	...	51	189	189	189	...	...	...	58
59	2,2,3,4-TETRAMETNYLPENTANE	51	51	51	51	51	...	51	189	189	...	...	...	...	59
60	2,2,4,4-TETRAMETHYLPENTANE	51	51	51	51	51	...	51	189	189	189	...	...	...	60
61	2,3,3,4-TETRAMETHYLPENTANE	189	189	189	189	189	189	189	189	189	180	...	...	...	61
62	n-DECANE	82	82	82	82	51	82	51	82	82	189	189	189	82	62
83	2-METNYLNONANE	189	189	189	189	189	189	189	189	189	...	...	...	189	63
64	3-METHYLNONANE	189	189	189	189	189	189	189	189	189	...	...	...	189	64
85	4-METNYLNONANE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	65
66	5-METHYLNONANE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	189	66
87	2,7-DIMETHYLOCTANE	189	189	189	189	189	189	189	189	189	...	...	...	...	67
68	3,3,4-TRIMETHYLHEPTANE	189	...	189	189	189	189	189	189	...	...	...	...	189	68
69	3,3,5-TRIMETNYLHEPTANE	189	...	189	189	189	189	189	189	...	...	...	...	...	69
70	2,2,3,3-TETRAMETNYLNEXANE	189	189	189	189	189	189	189	189	...	...	...	...	189	70
71	2,2,5,5-TETRAMETNYLHEXANE	189	189	189	189	189	189	189	189	...	...	...	...	...	71
72	2,4-DIMETNYL-3-ISOPROPYL-PENTANE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	189	72
73	n-UNDECANE	189	189	189	189	189	189	189	...	189	...	189	189	189	73
74	n-DODECANE	189	189	189	189	189	189	189	...	189	...	189	189	189	74
75	n-TRIDECANE	189	189	189	189	189	189	181	...	189	...	189	189	189	75
76	n-TETRADECANE	189	189	154	154	189	189	181	...	189	...	189	189	189	78
77	n-PENTADECANE	189	189	189	189	189	189	181	...	189	...	189	189	189	77

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Coefficient of Expansion at 60 F	Aniline Point	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		No.
									Motor Method		Research Method				
									Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper	
40	189	(P)	...	189	189	...	...	...	...	...	...	...	191	49	40
41	189	189	209	189	189	189	51	51	...	...	...	...	82	82	41
42	189	189	...	189	186	189	51	51	...	...	...	...	51	49	42
43	189	189	...	189	186	189	51	51	...	...	...	...	51	49	43
44	189	189	...	186	188	189	51	51	...	...	...	...	51	49	44
45	189	189	...	189	189	...	51	51	...	...	...	...	191	49	45
46	189	189	...	189	189	...	51	...	51	51	51	51	191	49	46
47	189	189	...	189	189	...	51	51	...	...	...	...	191	49	47
48	189	189	...	189	189	...	51	51	...	...	...	...	191	49	48
49	189	189	...	189	189	...	51	51	...	...	...	...	191	49	49
50	189	189	209	204	204	189	51	51	...	...	...	...	191	49	50
51	189	189	...	189	189	...	51	...	...	...	...	...	191	49	51
52	189	189	...	189	189	...	51	51	...	...	...	...	191	49	52
53	189	189	...	189	189	...	51	...	...	...	...	...	191	49	53
54	189	189	...	189	189	...	51	...	...	...	...	...	191	49	54
55	189	189	...	189	188	74	51	51	51	51	51	51	209	209	55
58	189	189	...	189	189	...	51	...	51	51	51	51	191	49	56
57	189	189	...	189	189	...	51	...	51	51	51	51	191	49	57
58	189	189	...	189	186	189	51	51	51	51	51	51	177	177	58
59	189	189	...	189	186	189	51	...	...	...	...	...	51	49	59
60	189	189	...	189	186	189	51	51	...	...	...	...	51	49	60
61	189	189	...	189	189	...	51	...	...	...	...	...	...	...	81
82	189	189	209	189	189	189	51	51	...	...	...	...	82	82	82
63	189	(P)	...	189	189	...	51	51	...	...	...	...	191	49	63
64	189	(P)	...	189	189	...	51	51	...	...	...	...	191	49	64
85	189	(P)	...	189	189	...	51	51	...	...	...	...	191	49	65
66	189	(P)	...	189	189	...	51	51	...	...	...	...	191	49	66
67	189	181	...	189	189	...	51	51	...	...	...	...	191	49	87
68	189	(P)	...	189	189	...	51	...	...	...	...	...	191	49	68
69	189	(P)	...	189	189	...	51	51	51	51	51	51	191	49	89
70	189	(P)	...	189	189	...	51	...	51	51	51	51	191	49	70
71	189	(P)	...	189	189	...	51	51	...	...	...	...	191	49	71
72	189	(P)	...	189	189	...	51	...	...	...	...	...	191	49	72
73	189	189	209	189	189	189	...	...	...	...	...	...	191	49	73
74	189	189	209	189	189	189	...	...	...	...	...	...	209	49	74
75	189	189	...	189	189	204	...	...	...	...	...	...	191	49	75
76	189	189	209	189	189	204	...	...	...	...	...	...	209	49	76
77	189	189	...	189	189	204	...	...	...	...	...	...	191	49	77

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F	Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	No.
				Temperature	Pressure	Volume				Ideal Gas	Liquid at 1 atm	at 100 F	at 200 F		
78	n-HEXADECANE	189	189	189	189	189	189	181	...	189	...	189	189	189	78
79	n-HEPTADECANE	51	51	51	51	51	189	51	...	189	...	189	189	189	79
80	n-OCTADECANE	51	51	51	51	51	189	181	...	189	...	189	189	189	80
81	n-NONADECANE	189	51	51	51	51	189	51	...	189	...	189	189	189	81
82	n-EICOSANE	51	51	51	51	51	51	51	...	189	...	189	189	189	82
83	n-HENEICOSANE	181	181	(P)	(P)	(P)	189	181	...	...	...	...	...	...	83
84	n-DOCOSANE	189	189	(P)	(P)	(P)	189	181	...	189	180	...	...	...	84
85	n-TRICOSANE	189	189	(P)	(P)	(P)	9	189	...	181	180	...	...	...	85
86	n-TETRACOSANE	189	189	(P)	(P)	(P)	9	181	...	181	180	...	...	...	86
87	n-PENTACOSANE	189	189	(P)	(P)	(P)	189	181	...	181	180	...	...	...	87
88	n-HEXACOSANE	189	189	(P)	(P)	(P)	9	189	...	181	180	...	...	...	88
89	n-HEPTACOSANE	189	189	(P)	(P)	(P)	189	189	...	181	180	...	...	...	89
90	n-OCTACOSANE	189	189	(P)	(P)	(P)	9	189	...	181	180	...	...	...	90
91	n-NONACOSANE	189	189	(P)	(P)	(P)	189	189	...	181	180	...	...	...	91
92	n-TRIACONTANE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	92
93	CYCLOPROPANE	51	51	51	189	189	...	...	189	...	...	...	...	...	93
94	METHYLCYCLOPROPANE	189	189	(P)	(P)	(P)	...	...	...	...	180	...	...	...	94
95	ETHYLCYCLOPROPANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	95
96	cis-1,2-DIMETHYLCYCLOPROPANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	96
97	trans-1,2-DIMETHYLCYCLOPROPANE	189	189	...	...	...	51	...	...	...	...	...	...	...	97
88	CYCLOBUTANE	51	51	51	51	51	...	51	189	...	...	...	...	...	98
99	METHYLCYCLOBUTANE	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	99
100	ETHYLCYCLOBUTANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	100
101	CYCLOPENTANE	51	51	51	51	51	189	51	189	189	...	189	...	189	101
102	METHYLCYCLOPENTANE	51	51	51	51	51	189	51	189	189	...	189	...	188	102
103	ETHYLCYCLOPENTANE	51	51	51	51	51	189	51	189	189	...	189	189	189	103
104	1,1-DIMETHYLCYCLOPENTANE	189	189	189	189	189	189	189	189	189	180	...	...	...	104
105	cis-1,2-DIMETHYLCYCLOPENTANE	51	51	51	51	51	...	51	...	189	...	...	...	189	105
108	trans-1,2-DIMETHYLCYCLOPENTANE	51	51	51	51	51	...	51	...	189	...	...	...	189	106
107	cis-1,3-DIMETHYLCYCLOPENTANE	189	189	189	189	189	189	189	189	189	180	...	...	...	107
108	trans-1,3-DIMETHYLCYCLOPENTANE	189	189	189	189	189	189	189	189	189	180	...	...	...	108
109	n-PROPYLCYCLOPENTANE	51	51	51	51	51	189	51	189	189	...	189	189	...	109
110	ISOPROPYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	189	181	180	...	...	...	110
111	1-METHYL-1-ETHYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	189	181	180	...	...	...	111
112	cis-1-METHYL-2-ETHYL-CYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	...	112
113	trans-1-METHYL-2-ETHYL-CYCLOPENTANE	189	51	(P)	(P)	(P)	189	189	189	...	180	...	...	...	113
114	cis-1-METHYL-3-ETHYL-CYCLOPENTANE	189	...	(P)	(P)	(P)	189	189	189	...	180	...	...	...	114

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Coefficient of Expansion at 60 F	Aniline Point	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		No.
									Motor Method		Research Method				
									Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper	
78	189	189	...	204	204	204	...	...	...	...	...	...	191	49	78
79	189	189	...	189	186	189	...	...	...	...	...	...	191	49	79
80	189	189	...	189	186	189	...	...	...	...	...	...	191	49	80
81	189	189	...	189	189	189	...	...	...	...	...	...	191	49	81
82	189	189	...	189	186	189	...	...	...	...	...	...	191	49	82
83	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	83
84	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	84
85	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	85
86	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	86
87	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	87
88	180	...	...	(P)	...	...	...	...	...	...	...	...	191	49	88
89	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	89
90	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	90
91	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	91
92	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	92
93	189	189	...	189	189	189	...	...	...	...	...	...	51	51	93
94	180	...	...	(P)	...	...	...	...	51	51	51	51	191	49	94
95	180	(P)	...	(P)	...	...	51	...	51	51	51	51	191	49	95
96	180	(P)	...	(P)	...	...	51	...	51	51	51	51	191	49	96
97	...	...	...	...	...	...	...	...	...	...	...	...	...	...	97
98	189	189	(P)	181	181	189	51	...	...	...	...	...	51	49	98
99	180	(P)	...	(P)	...	...	51	...	...	...	...	...	191	49	99
100	180	(P)	...	(P)	...	...	51	51	51	...	...	51	...	...	100
101	189	189	...	189	189	189	51	51	51	51	51	51	51	49	101
102	189	189	171	189	189	189	51	51	51	51	51	51	51	51	102
103	189	189	177	189	189	189	51	51	51	51	51	51	51	51	103
104	189	189	...	189	189	...	51	51	51	51	51	51	191	49	104
105	189	189	62	189	189	189	51	51	...	...	...	...	191	49	105
106	189	189	62	189	...	189	51	51	...	...	...	...	191	49	106
107	189	(P)	...	189	189	...	51	...	51	51	51	51	191	49	107
108	189	(P)	...	189	189	...	51	51	51	51	51	51	191	49	108
109	189	189	(P)	189	189	189	51	51	51	51	51	51	51	49	109
110	180	189	...	(P)	...	...	51	...	51	51	51	51	191	49	110
111	180	(P)	...	(P)	...	...	51	...	...	...	...	...	191	49	111
112	180	(P)	...	(P)	...	...	51	51	...	...	...	...	191	49	112
113	180	(P)	...	(P)	...	...	51	51	...	...	...	...	191	49	113
114	180	(P)	...	(P)	...	...	51	...	51	51	51	51	191	49	114

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F	Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	No.
				Temperature	Pressure	Volume				Ideal Gas	Liquid at 1 atm	at 100 F	at 200 F		
115	trans-1-METHYL-3-ETHYL-CYCLOPENTANE	189	...	(P)	(P)	(P)	189	189	189	...	180	...	...	...	115
116	1,1,2-TRIMETHYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	189	181	180	...	...	...	116
117	1,1,3-TRIMETHYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	189	181	180	...	...	...	117
118	1,c-2,c-3-TRIMETHYL-CYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	...	118
119	1,c-2,t-3-TRIMETHYL-CYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	...	119
120	1,t-2,c-3-TRIMETHYL-CYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	51	120
121	1,c-2,c-4-TRIMETHYL-CYCLOPENTANE	189	51	(P)	(P)	(P)	189	189	189	...	180	...	...	...	121
122	1,c-2,t-4-TRIMETHYL-CYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	189	181	180	...	...	...	122
123	1,t-2,c-4-TRIMETHYL-CYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	...	123
124	n-BUTYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	51	124
125	ISOBUTYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	125
128	1-METHYL-1-n-PROPYL-CYCLOPENTANE	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	126
127	1,1-DIETHYLCYCLOPENTANE	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	127
128	cis-1,2-DIETHYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	128
129	1,1-DIMETHYL-2-ETHYL-CYCLOPENTANE	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	129
130	n-PENTYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	189	180	189	189	...	130
131	n-HEXYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	189	180	189	189	...	131
132	n-HEPTYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	189	180	189	189	...	132
133	n-OCTYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	189	180	189	189	...	133
134	n-NONYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	189	180	189	189	189	134
135	n-DECYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	189	180	189	189	...	135
138	n-UNDECYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	189	180	189	189	189	136
137	n-DODECYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	189	180	189	189	189	137
138	n-TRIDECYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	189	180	189	189	...	138
139	n-TETRADECYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	189	180	189	189	...	139
140	n-PENTADECYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	189	...	189	189	...	140
141	n-HEXADECYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	189	...	...	...	...	141
142	n-HEPTADECYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	142
143	n-OCTADECYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	143
144	n-NONADECYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	144

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Coefficient of Expansion at 60 F	Aniline Point	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		No.
									Motor Method		Research Method				
									Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper	
115	180	(P)	...	(P)	...	...	51	...	51	51	51	51	191	49	115
116	180	(P)	...	(P)	...	...	51	...	...	...	...	...	191	49	116
117	180	(P)	...	(P)	...	...	51	...	51	51	51	51	191	49	117
118	180	(P)	...	(P)	...	...	51	51	...	...	...	...	191	49	118
119	180	(P)	...	(P)	...	...	51	51	...	...	...	...	191	49	119
120	180	(P)	...	(P)	...	...	51	51	...	...	...	...	191	49	120
121	180	(P)	...	(P)	...	...	51	...	...	...	...	...	191	49	121
122	180	(P)	...	(P)	...	...	51	...	51	...	51	51	191	49	122
123	180	(P)	...	(P)	...	...	51	...	...	...	...	...	191	49	123
124	189	189	...	189	189	...	51	51	51	51	51	51	191	49	124
125	180	189	...	(P)	...	...	51	...	51	51	51	51	191	49	125
126	180	(P)	...	(P)	...	...	51	...	...	...	...	...	191	49	126
127	180	(P)	...	(P)	...	...	51	...	...	...	...	...	191	49	127
128	180	(P)	...	(P)	...	...	51	51	...	...	...	...	191	49	128
129	180	(P)	...	(P)	...	...	51	...	...	...	...	...	191	49	129
130	189	189	...	189	189	...	51	...	...	...	...	...	191	49	130
131	189	189	...	189	189	...	...	...	...	...	...	...	191	49	131
132	189	189	...	189	189	...	...	...	...	...	...	...	191	49	132
133	189	189	...	189	189	...	...	...	...	...	...	...	191	49	133
134	189	189	...	189	189	...	...	...	...	...	...	...	191	49	134
135	189	189	...	189	189	...	...	...	...	...	...	...	191	49	135
136	189	(P)	...	189	189	...	...	...	...	...	...	...	191	49	136
137	189	(P)	...	189	189	...	...	...	...	...	...	...	191	49	137
138	189	(P)	...	189	189	...	...	...	...	...	...	...	191	49	138
139	189	(P)	...	189	189	...	...	...	...	...	...	...	191	49	139
140	189	(P)	...	189	189	...	...	...	...	...	...	...	191	49	140
141	189	(P)	...	189	189	...	...	...	...	...	...	...	191	49	141
142	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	142
143	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	143
144	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	144

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Oenaity at 60 F	Refractive Index of the Liquid at 77 F	Vapor Presaure at 100 F	Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	No.
				Temp-erature	Presaure	Volume				Idaal Gaa	Liquid at 1 atm	at 100 F	at 200 F		
145	n-EICOSYLCYCLOPENTANE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	145
146	CYCLOHEXANE	51	51	51	51	51	189	51	189	189	...	189	...	189	148
147	METHYLCYCLOHEXANE	51	51	51	51	51	189	189	189	189	...	189	189	189	147
148	ETHYLCYCLOHEXANE	51	51	51	51	51	189	51	189	189	...	189	189	189	148
149	1,1-DIMETHYLCYCLOHEXANE	51	51	51	51	51	...	51	189	189	...	...	...	189	149
150	cis-1,2-DIMETHYLCYCLOHEXANE	51	51	51	51	51	...	51	189	189	...	...	...	189	150
151	trena-1,2-DIMETHYLCYCLOHEXANE	51	51	51	51	51	...	51	189	189	...	...	...	189	151
152	cis-1,3-DIMETHYLCYCLOHEXANE	189	189	51	51	51	...	51	189	189	...	...	...	189	152
153	trans-1,3-DIMETHYLCYCLOHEXANE	51	51	189	51	51	...	51	189	189	...	...	...	189	153
154	cis-1,4-DIMETHYLCYCLOHEXANE	189	189	51	51	51	...	51	189	189	...	...	...	189	154
155	trans-1,4-DIMETHYLCYCLOHEXANE	51	51	51	51	51	...	51	189	189	...	...	...	189	155
158	n-PROPYLCYCLOHEXANE	51	51	51	51	51	189	51	189	189	...	189	189	...	158
157	ISOPROPYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	...	34	181	180	...	...	...	157
158	n-BUTYLCYCLOHEXANE	51	51	51	198	172	189	51	189	189	...	189	...	...	156
159	ISOBUTYLCYCLOHEXANE	181	...	(P)	(P)	(P)	220	...	34	...	180	...	...	...	159
160	sec-BUTYLCYCLOHEXANE	181	...	(P)	(P)	(P)	220	51	...	...	180	...	...	...	160
161	tert-BUTYLCYCLOHEXANE	181	51	(P)	(P)	(P)	220	51	...	...	180	...	...	...	161
162	1-METHYL-4-ISOPROPYL-CYCLOHEXANE	181	...	(P)	(P)	(P)	(P)	...	...	...	180	...	...	...	162
183	n-PENTYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	189	180	...	...	189	163
164	n-HEXYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	189	180	...	...	...	164
185	n-HEPTYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	189	180	...	...	...	165
188	n-OCTYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	189	180	...	...	189	188
167	n-NONYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	189	180	...	...	...	167
168	n-DECYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	189	180	...	...	...	168
189	n-UNDECYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	189	180	...	...	189	169
170	n-DODECYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	189	180	...	...	...	170
171	n-TRIDECYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	171
172	n-TETRADECYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	172
173	n-PENTADECYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	173
174	n-HEXADECYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	174
175	n-HEPTADECYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	175
178	n-OCTADECYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	176
177	n-NONADECYLCYCLOHEXANE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	177
178	n-EICOSYLCYCLOHEXANE	189	189	(P)	(P)	(P)	9	189	...	...	...	...	...	...	178
179	CYCLOHEPTANE	189	189	189	189	189	...	51	189	...	...	...	...	...	179
180	CYCLOOCTANE	189	189	169	189	189	189	189	189	181	...	...	...	189	180
181	CYCLONONANE	189	189	189	189	189	189	189	...	181	...	...	...	189	181
182	ETHYLCYCLOHEPTANE	181	...	(P)	(P)	(P)	181	...	...	...	180	...	...	...	182
183	BICYCLOHEXYL	171	171	150	130	172	...	171	...	...	...	...	...	...	183

(P) = Pradicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Coefficient of Expansion at 60 F	Aniline Point	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		No.
									Motor Method		Research Method				
									Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper	
145	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	145
146	189	189	209	189	189	225	51	51	51	51	51	51	209	209	146
147	189	189	209	189	189	189	51	51	51	51	51	51	209	49	147
148	189	189	209	189	189	189	51	51	51	51	51	51	209	209	148
149	189	189	...	189	189	204	51	51	51	51	51	51	191	49	149
150	189	189	62	189	189	189	51	51	51	51	51	51	191	49	150
151	189	189	62	189	189	189	51	51	51	51	51	51	191	49	151
152	189	189	62	189	189	189	51	51	51	...	...	51	191	49	152
153	189	189	...	189	189	189	51	51	51	51	51	51	191	49	153
154	189	189	62	189	189	189	51	51	51	51	51	51	191	49	154
155	189	189	62	189	189	189	51	51	51	51	51	51	191	49	155
156	189	189	...	189	189	189	51	51	51	51	51	51	51	49	156
157	180	189	...	(P)	...	...	51	51	51	51	51	51	191	49	157
158	189	189	...	189	189	189	51	51	...	51	51	...	51	49	158
159	180	189	...	(P)	...	...	...	51	...	...	...	...	191	49	159
160	180	189	...	(P)	...	...	...	...	...	...	...	...	191	49	160
161	180	189	...	(P)	...	...	...	51	...	...	...	...	191	49	161
162	180	(P)	...	(P)	...	...	...	51	...	...	...	...	191	49	162
163	189	189	...	189	189	...	...	...	...	...	...	...	191	49	163
164	189	189	...	189	189	...	...	...	...	...	...	...	191	49	164
165	189	189	...	189	189	...	...	...	...	...	...	...	191	49	165
166	189	189	...	189	189	...	...	...	...	...	...	...	191	49	166
167	189	189	...	189	189	...	...	...	...	...	...	...	191	49	167
168	189	189	...	189	189	...	...	...	...	...	...	...	191	49	168
169	189	(P)	...	189	189	...	...	...	...	...	...	...	191	49	169
170	189	(P)	...	189	189	...	...	...	...	...	...	...	191	49	170
171	189	(P)	...	189	189	...	...	...	...	...	...	...	191	49	171
172	189	(P)	...	189	189	...	...	...	...	...	...	...	191	49	172
173	189	51	...	189	189	...	...	...	...	...	...	...	191	49	173
174	189	51	...	189	189	...	...	...	...	...	...	...	191	49	174
175	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	175
176	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	176
177	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	177
178	180	51	...	(P)	...	...	...	...	...	...	...	...	191	49	178
179	189	...	...	181	181	189	51	...	51	51	51	51	191	49	179
180	189	180	...	181	204	...	51	...	51	...	...	51	191	49	180
181	189	(P)	...	181	...	...	51	...	...	...	...	...	191	49	181
182	180	(P)	...	(P)	...	...	...	...	...	...	...	...	191	49	182
183	161	...	148	161	(P)	...	...	...	...	...	...	...	148	148	183

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F	Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	No.
				Temperature	Pressure	Volume				Ideal Gas	Liquid at 1 atm	at 100 F	at 200 F		
184	cis-DECAHYDRONAPHTHALENE	14	14	14	14	14	...	14	...	...	...	...	...	...	184
185	trans-DECAHYDRONAPHTHALENE	14	14	14	14	14	...	14	...	...	...	...	...	...	185
186	1-METHYL-[cis-DECAHYDRO-NAPHTHALENE]	189	...	(P)	(P)	(P)	(P)	...	...	...	180	...	...	...	186
187	1-METHYL-[trans-DECAHYDRO-NAPHTHALENE]	189	...	(P)	(P)	(P)	...	189	...	...	180	...	...	...	187
188	1-ETHYL-[cis-DECAHYDRO-NAPHTHALENE]	189	...	(P)	(P)	(P)	...	...	...	...	180	...	...	...	188
189	1-ETHYL-[trans-DECAHYDRO-NAPHTHALENE]	189	...	(P)	(P)	(P)	...	...	...	...	180	...	...	...	189
190	9-ETHYL-[cis-DECAHYDRO-NAPHTHALENE]	51	...	(P)	(P)	(P)	51	51	...	...	180	...	...	...	190
191	9-ETHYL-[trans-DECAHYDRO-NAPHTHALENE]	51	...	(P)	(P)	(P)	51	51	...	...	180	...	...	...	191
192	ETHYLENE	51	51	51	51	51	...	68	...	189	...	...	...	189	192
193	PROPYLENE	51	51	51	51	51	189	68	189	189	189	...	...	189	193
194	1-BUTENE	51	51	51	51	51	189	136	189	189	189	...	...	189	194
195	cis-2-BUTENE	51	51	51	51	51	189	136	189	189	189	...	...	189	195
196	trans-2-BUTENE	51	51	51	51	51	189	136	189	189	...	...	...	189	196
197	ISOBUTENE	51	51	51	51	51	189	134	189	189	...	...	...	189	197
198	1-PENTENE	51	51	189	189	189	189	51	189	189	189	...	...	189	198
199	cis-2-PENTENE	51	51	51	51	51	189	51	189	189	189	...	...	189	199
200	trans-2-PENTENE	51	51	51	51	51	189	51	189	189	189	...	...	189	200
201	2-METHYL-1-BUTENE	51	51	189	189	189	189	51	189	189	189	...	...	189	201
202	3-METHYL-1-BUTENE	51	51	51	51	51	189	51	189	189	189	...	...	189	202
203	2-METHYL-2-BUTENE	51	51	189	189	189	189	51	189	189	189	...	...	189	203
204	1-HEXENE	51	51	189	189	189	189	189	189	189	...	189	...	...	204
205	cis-2-HEXENE	51	51	150	130	172	...	51	189	189	...	...	...	51	205
206	trans-2-HEXENE	51	51	150	130	172	...	51	189	189	...	...	...	51	206
207	cis-3-HEXENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	189	207
208	trans-3-HEXENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	...	208
209	2-METHYL-1-PENTENE	51	51	150	130	172	...	51	189	...	...	...	...	...	209
210	3-METHYL-1-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	...	210
211	4-METHYL-1-PENTENE	51	51	150	130	172	...	51	189	...	...	...	...	51	211
212	2-METHYL-2-PENTENE	51	51	150	130	172	...	51	189	...	...	...	...	51	212
213	cis-3-METHYL-2-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	189	213
214	trans-3-METHYL-2-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	...	214
215	cis-4-METHYL-2-PENTENE	51	51	150	130	172	...	51	189	189	...	...	...	...	215
216	trans-4-METHYL-2-PENTENE	51	51	150	130	172	...	51	189	189	...	...	...	...	216

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Coefficient of Expansion at 60 F	Aniline Point	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		No.
									Motor Method		Research Method				
									Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper	
184	14	...	14	14	14	14	51	51	...	...	...	...	209	209	184
185	14	...	14	14	14	14	51	51	...	...	...	...	209	209	185
186	...	51	...	...	...	...	...	...	...	...	...	...	191	49	186
187	...	51	...	...	...	...	...	...	...	...	...	...	191	49	187
188	...	51	...	...	...	...	...	...	...	...	...	...	191	49	188
189	...	51	...	...	...	...	...	...	...	...	...	...	191	49	189
190	...	51	...	...	...	...	...	...	...	...	...	...	191	49	190
191	...	51	...	...	...	...	...	...	...	...	...	...	191	49	191
192	189	...	...	189	189	189	...	...	51	...	...	51	229	229	192
193	189	189	221	186	189	189	51	...	51	...	...	51	221	221	193
194	189	189	...	189	189	189	51	...	51	...	...	51	209	209	194
195	189	189	...	189	189	189	51	...	51	...	...	51	136	136	195
196	189	189	...	189	189	189	51	...	...	...	...	...	209	209	196
197	189	189	...	189	189	189	51	51	...	...	...	...	209	209	197
198	189	189	209	189	189	189	51	51	51	51	51	51	209	209	198
199	189	189	171	189	189	189	51	51	...	...	...	...	51	49	199
200	189	189	(P)	189	189	189	51	51	...	...	...	...	51	49	200
201	189	189	209	189	189	189	51	...	51	51	51	51	51	49	201
202	189	189	(P)	189	189	189	51	...	51	51	51	51	134	...	202
203	189	189	209	189	189	189	51	51	51	51	51	51	51	49	203
204	189	189	...	189	189	189	51	51	51	51	51	51	51	49	204
205	189	...	...	51	51	189	51	51	...	...	...	...	191	49	205
208	189	...	...	51	51	189	51	51	51	51	51	51	191	49	206
207	189	51	...	189	189	...	51	51	...	...	...	...	191	49	207
208	189	51	...	189	189	...	51	51	51	51	...	51	191	49	208
209	189	...	...	51	51	189	51	...	51	51	51	51	191	49	209
210	189	51	...	189	189	...	51	...	51	51	51	51	191	49	210
211	189	...	...	51	51	189	51	...	51	51	51	51	191	49	211
212	189	...	...	51	51	189	51	...	51	51	51	51	191	49	212
213	189	51	...	189	189	...	51	...	...	...	...	...	191	49	213
214	189	51	...	189	189	...	51	...	51	51	51	51	191	49	214
215	189	...	...	189	189	189	51	...	51	51	51	51	51	49	215
216	189	...	...	189	189	189	51	...	51	...	51	51	51	49	216

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F	Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	No.
				Temperature	Pressure	Volume				Ideal Gas	Liquid at 1 atm	at 100 F	at 200 F		
217	2-ETHYL-1-BUTENE	51	51	150	130	172	...	51	189	...	...	...	...	51	217
218	2,3-DIMETHYL-1-BUTENE	51	51	150	130	172	...	51	189	...	...	...	...	51	218
219	3,3-DIMETHYL-1-BUTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	...	219
220	2,3-DIMETHYL-2-BUTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	51	220
221	1-HEPTENE	51	51	189	189	189	189	189	189	189	...	189	189	...	221
222	cis-2-HEPTENE	51	...	150	130	172	...	51	189	...	...	...	...	51	222
223	trans-2-HEPTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	189	223
224	cis-3-HEPTENE	51	51	150	130	172	...	51	189	...	...	...	...	...	224
225	trans-3-HEPTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	189	225
226	2-METHYL-1-HEXENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	189	226
227	3-METHYL-1-HEXENE	189	...	(P)	(P)	(P)	189	189	189	...	...	...	...	189	227
228	4-METHYL-1-HEXENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	228
229	5-METHYL-1-HEXENE	189	...	(P)	(P)	(P)	189	189	189	...	...	...	...	...	229
230	2-METHYL-2-HEXENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	230
231	cis-3-METHYL-2-HEXENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	231
232	trans-3-METHYL-2-HEXENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	232
233	cis-4-METHYL-2-HEXENE	189	...	(P)	(P)	(P)	189	189	189	...	...	...	...	...	233
234	trans-4-METHYL-2-HEXENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	234
235	cis-5-METHYL-2-HEXENE	189	...	(P)	(P)	(P)	189	189	189	...	...	...	...	...	235
238	trans-5-METHYL-2-HEXENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	236
237	cis-2-METHYL-3-HEXENE	189	...	(P)	(P)	(P)	189	189	189	...	...	...	...	...	237
238	trans-2-METHYL-3-HEXENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	238
239	cis-3-METHYL-3-HEXENE	189	...	(P)	(P)	(P)	189	189	189	...	180	...	...	...	239
240	trans-3-METHYL-3-HEXENE	189	...	(P)	(P)	(P)	189	189	189	...	180	...	...	...	240
241	2-ETHYL-1-PENTENE	189	...	(P)	(P)	(P)	189	189	189	...	...	...	...	189	241
242	3-ETHYL-1-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	189	242
243	3-ETHYL-2-PENTENE	189	...	(P)	(P)	(P)	189	189	189	...	180	...	...	189	243
244	2,3-DIMETHYL-1-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	244
245	2,4-DIMETHYL-1-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	189	245
246	3,3-DIMETHYL-1-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	246
247	3,4-DIMETHYL-1-PENTENE	189	...	(P)	(P)	(P)	189	189	189	...	...	...	...	...	247
248	4,4-DIMETHYL-1-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	...	248
249	2,3-DIMETHYL-2-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	249
250	2,4-DIMETHYL-2-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	189	250
251	cis-3,4-DIMETHYL-2-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	189	251
252	trans-3,4-DIMETHYL-2-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	252
253	cis-4,4-DIMETHYL-2-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	189	253
254	trans-4,4-DIMETHYL-2-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	189	254
255	3-METHYL-2-ETHYL-1-BUTENE	189	...	(P)	(P)	(P)	189	189	189	...	180	...	...	...	255

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Coefficient of Expansion at 60 F	Aniline Point	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		No.
									Motor Method		Research Method				
									Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper	
217	189	...	...	51	51	189	51	...	51	51	51	51	191	49	217
218	189	...	...	51	51	189	51	...	51	51	51	51	191	49	218
219	189	51	...	189	189	...	51	...	51	...	...	51	191	49	219
220	189	...	...	51	51	...	51	...	51	51	51	51	191	49	220
221	189	...	177	189	189	189	51	51	51	51	51	51	51	49	221
222	189	...	...	161	(P)	...	51	...	...	...	...	...	191	49	222
223	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	223
224	189	...	...	161	(P)	...	51	51	...	...	...	51	191	49	224
225	189	51	...	(P)	...	...	51	51	51	51	51	51	191	49	225
226	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	226
227	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	227
228	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	228
229	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	229
230	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	230
231	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	231
232	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	232
233	189	51	...	(P)	...	...	51	...	...	...	...	51	191	49	233
234	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	234
235	189	51	...	(P)	...	...	51	...	...	...	...	...	191	49	235
236	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	236
237	189	51	...	(P)	...	...	51	...	...	...	...	...	191	49	237
238	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	238
239	189	51	...	(P)	...	...	51	...	...	...	...	51	191	49	239
240	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	240
241	189	51	...	(P)	...	...	51	...	...	...	...	...	191	49	241
242	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	242
243	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	243
244	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	244
245	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	245
246	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	246
247	189	51	...	180	...	...	51	...	51	...	51	51	191	49	247
248	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	248
249	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	249
250	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	250
251	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	251
252	189	51	...	(P)	...	...	51	...	...	...	...	...	191	49	252
253	189	51	...	(P)	...	...	51	...	51	...	...	51	191	49	253
254	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	254
255	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	255

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F	Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	No.
				Temp-erature	Pressure	Volume				Ideal Gas	Liquid at 1 atm	at 100 F	at 200 F		
256	2,3,3-TRIMETHYL-1-BUTENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	256
257	1-OCTENE	51	51	189	189	189	189	51	189	189	...	189	189	...	257
258	cis-2-OCTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	...	258
259	trans-2-OCTENE	51	51	150	130	172	189	51	189	...	180	...	...	51	259
280	cis-3-OCTENE	189	...	(P)	(P)	(P)	189	189	189	...	...	...	...	...	280
281	trans-3-OCTENE	51	51	150	130	172	...	51	189	...	...	...	...	...	261
282	cis-4-OCTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	...	262
283	trans-4-OCTENE	51	51	150	130	172	...	51	189	...	...	...	...	...	263
284	2-METHYL-1-HEPTENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	...	264
265	3-METHYL-1-HEPTENE	189	...	(P)	(P)	(P)	189	189	189	...	...	...	...	...	265
268	4-METHYL-1-HEPTENE	189	...	(P)	(P)	(P)	189	189	189	...	...	...	...	...	268
267	trans-6-METHYL-2-HEPTENE	189	...	(P)	(P)	(P)	189	189	189	...	...	...	...	...	267
268	trans-3-METHYL-3-HEPTENE	189	...	(P)	(P)	(P)	189	189	199	...	...	...	...	51	268
269	2-ETHYL-1-HEXENE	51	...	150	130	172	...	51	189	...	...	...	...	...	269
270	3-ETHYL-1-HEXENE	189	...	(P)	(P)	(P)	189	189	189	...	...	...	...	...	270
271	4-ETHYL-1-HEXENE	189	...	(P)	(P)	(P)	189	189	189	...	...	...	...	...	271
272	2,3-DIMETHYL-1-HEXENE	189	...	(P)	(P)	(P)	189	189	189	...	...	...	...	...	272
273	2,3-DIMETHYL-2-HEXENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	273
274	cis-2,2-DIMETHYL-3-HEXENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	...	274
275	2,3,3-TRIMETHYL-1-PENTENE	189	189	(P)	(P)	(P)	189	189	189	...	...	...	...	...	275
276	2,4,4-TRIMETHYL-1-PENTENE	51	51	150	130	172	...	51	189	...	...	...	...	...	276
277	2,4,4-TRIMETHYL-2-PENTENE	51	51	150	130	172	...	51	189	...	...	...	...	51	277
278	1-NONENE	189	189	189	189	189	189	51	189	189	...	189	189	...	278
279	1-DECENE	51	51	189	189	189	189	51	189	189	...	189	189	...	279
280	1-UNDECENE	51	51	150	130	172	189	51	189	189	...	189	189	...	280
281	1-DODECENE	51	51	150	130	172	189	51	189	189	...	189	189	...	281
282	1-TRIDECENE	51	51	150	130	172	189	51	189	189	...	189	189	...	282
283	1-TETRADECENE	51	51	150	130	172	189	51	189	189	...	189	189	...	283
284	1-PENTADECENE	189	189	189	189	189	189	189	...	...	180	...	...	189	284
285	1-HEXADECENE	51	(P)	150	130	172	189	51	189	189	...	189	189	...	285
286	1-HEPTADECENE	189	189	189	189	189	9	189	...	...	...	...	...	...	286
287	1-OCTADECENE	51	51	150	130	172	189	51	...	189	...	189	189	...	287
288	1-NONADECENE	189	189	189	189	189	189	189	...	...	...	...	...	...	288
289	1-EICOSENE	51	51	150	130	172	189	189	...	...	...	189	189	...	289
290	PROPADIENE	51	51	51	51	51	...	68	189	189	...	...	...	...	290
291	1,2-BUTADIENE	51	51	51	51	51	...	68	189	189	...	...	...	...	291
292	1,3-BUTADIENE	51	51	51	51	51	...	30	189	189	...	...	...	...	292
293	1,2-PENTADIENE	189	189	(P)	(P)	(P)	189	189	189	...	180	...	...	...	293
294	cis-1,3-PENTADIENE	189	189	150	130	51	...	51	189	189	...	...	...	...	294

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Coefficient of Expansion at 60 F	Aniline Point	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		No.
									Motor Method		Research Method				
									Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Uppar	
256	189	51	...	(P)	...	...	51	51	51	51	51	51	191	49	256
257	189	...	209	189	189	189	51	51	51	51	51	51	51	49	257
258	180	51	...	(P)	...	...	51	51	51	51	51	51	191	49	258
259	180	...	148	170	(P)	...	51	51	51	51	51	51	191	49	259
260	180	51	...	(P)	...	...	51	...	...	...	...	...	191	49	260
261	180	...	...	170	(P)	...	51	...	51	51	51	51	191	49	261
262	180	51	...	(P)	...	...	51	...	...	...	...	...	191	49	262
263	180	...	...	170	(P)	...	51	...	51	51	51	51	191	49	263
264	180	51	...	(P)	...	...	51	...	51	51	51	51	191	49	264
265	180	51	...	(P)	...	...	51	...	...	...	...	...	191	49	265
266	180	51	...	(P)	...	...	51	...	...	...	...	...	191	49	266
267	180	51	...	(P)	...	...	51	...	51	51	51	51	191	49	267
268	180	51	...	(P)	...	...	51	...	...	...	...	...	191	49	268
269	180	...	...	170	(P)	...	51	...	...	...	...	...	191	49	269
270	180	51	...	(P)	...	...	51	...	...	...	...	...	191	49	270
271	180	51	...	(P)	...	...	51	...	...	...	...	...	191	49	271
272	180	51	...	(P)	...	...	51	...	51	51	...	51	191	49	272
273	180	51	...	(P)	...	...	51	...	51	...	51	51	191	49	273
274	180	51	...	180	...	...	51	...	51	...	...	51	191	49	274
275	180	51	...	(P)	...	...	51	...	51	51	51	51	191	49	275
278	189	...	...	161	(P)	160	51	...	51	51	51	51	191	49	276
277	161	...	199	181	(P)	160	51	51	51	51	51	51	191	49	277
278	189	...	(P)	189	189	189	51	51	...	...	...	...	191	49	278
279	189	...	177	189	189	139	51	51	...	...	...	...	191	49	279
280	189	...	221	189	189	139	...	...	...	...	...	...	191	49	280
281	189	...	221	204	204	139	...	...	...	...	...	...	191	49	281
282	189	...	221	189	189	189	...	...	...	...	...	...	191	49	282
283	189	...	148	189	189	189	...	...	...	...	...	...	191	49	283
284	189	189	...	189	189	...	...	...	...	...	...	...	191	49	284
285	189	...	...	189	189	139	...	...	...	...	...	...	191	49	285
286	189	189	...	189	189	...	...	...	...	...	...	...	191	49	286
287	189	...	...	189	189	189	...	...	...	...	...	...	191	49	287
288	189	189	...	189	189	...	...	...	...	...	...	...	191	49	288
289	189	...	...	189	189	189	...	...	...	...	...	...	191	49	289
290	189	...	...	189	189	...	...	...	...	...	...	...	177	...	290
291	189	...	...	189	189	204	51	...	...	...	...	...	51	51	291
292	189	...	...	189	189	135	51	...	...	...	...	...	209	209	292
293	180	51	...	189	189	...	51	...	...	...	...	...	191	...	293
294	51	...	...	143	143	143	51	...	...	...	...	...	191	49	294

(P) = Predictad or calculatad by project steff.

TABLE 1C5.1 (Continued)

Key to References

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F	Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	No.
				Temperature	Pressure	Volume				Ideal Gas	Liquid at 1 atm	at 100 F	at 200 F		
295	trans-1,3-PENTADIENE	51	143	150	13D	51	...	51	189	189	...	...	...	...	295
296	1,4-PENTADIENE	51	51	150	130	172	...	51	189	...	...	...	...	...	296
297	2,3-PENTADIENE	189	189	(P)	(P)	(P)	189	189	189	...	18D	...	...	...	297
298	3-METHYL-1,2-BUTADIENE	189	189	(P)	(P)	(P)	189	188	85	...	180	...	...	...	298
299	2-METHYL-1,3-BUTADIENE	51	51	51	51	51	...	189	189	189	...	...	...	...	299
300	2,3-DIMETHYL-1,3-BUTADIENE	189	189	...	...	...	51	...	...	...	...	...	...	...	300
301	1,2-HEXADIENE	189	...	(P)	(P)	(P)	189	189	...	...	...	...	...	...	301
302	1,5-HEXADIENE	189	189	(P)	(P)	(P)	189	189	85	...	180	...	...	...	3D2
303	2,3-HEXADIENE	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	303
304	3-METHYL-1,2-PENTADIENE	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	304
305	2-METHYL-1,5-HEXADIENE	51	...	(P)	(P)	(P)	51	...	...	...	180	...	...	...	305
306	2-METHYL-2,4-HEXADIENE	51	...	(P)	(P)	(P)	51	...	...	...	180	...	...	...	306
307	2,6-OCTADIENE	51	...	(P)	(P)	(P)	51	...	...	...	180	...	...	...	3D7
308	2,6-DIMETHYL-1,5-HEPTADIENE	51	...	(P)	(P)	(P)	51	...	...	...	180	...	...	...	308
309	3,7-DIMETHYL-1,6-OCTADIENE	51	...	(P)	(P)	(P)	51	...	...	...	180	...	...	...	3D9
310	CYCLOPENTENE	51	51	150	130	172	...	51	...	189	...	...	...	...	310
311	1-METHYL-CYCLOPENTENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	311
312	1-ETHYLCYCLOPENTENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	312
313	3-ETHYLCYCLOPENTENE	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	313
314	1-n-PROPYLCYCLOPENTENE	189	...	(P)	(P)	(P)	189	...	...	...	180	...	...	...	314
315	CYCLOHEXENE	51	51	204	130	172	...	51	...	189	...	...	...	...	315
316	1-METHYLCYCLOHEXENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	316
317	1-ETHYLCYCLOHEXENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	317
318	CYCLOPENTADIENE	110	110	130	13D	71	...	110	...	189	...	...	...	...	318
319	OICYCLOPENTAOIENE	110	60	130	130	71	...	110	...	...	...	...	...	...	319
320	alpha-PINENE	34	171	150	130	172	...	171	...	...	...	...	...	...	320
321	beta-PINENE	34	171	150	130	172	...	171	...	...	...	...	...	...	321
322	ACETYLENE	(P)	51	51	51	51	...	...	...	189	...	...	...	...	322
323	METHYLACETYLENE	51	51	51	51	51	...	83	189	189	...	...	...	...	323
324	DIMETHYLACETYLENE	51	51	51	51	51	...	51	189	189	...	...	...	...	324
325	ETHYLACETYLENE	51	51	51	51	51	...	...	189	189	...	...	...	...	325
326	VINYLACETYLENE	220	...	150	130	172	...	220	...	...	...	...	...	...	326
327	1-PENTYNE	189	189	(P)	(P)	(P)	189	188	189	51	...	...	...	...	327
328	2-PENTYNE	189	189	(P)	(P)	(P)	189	189	189	51	...	...	...	...	328
329	3-METHYL-1-BUTYNE	189	189	...	...	...	51	...	...	51	...	...	...	...	329
330	1-HEXYNE	189	189	(P)	(P)	(P)	189	189	...	51	...	...	...	...	330
331	1-HEPTYNE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	331
332	1-OCTYNE	189	189	(P)	(P)	(P)	189	188	...	...	...	...	...	...	332
333	1-NONYNE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	333
334	1-OECYNE	189	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	334

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

Key to References

No.	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Coefficient of Expansion at 60 F	Aniline Point	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		No.
									Motor Method		Research Method				
									Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper	
295	51	...	...	143	143	143	51	...	...	...	...	...	191	49	295
296	51	...	...	189	189	143	51	...	...	...	...	...	191	49	296
297	180	51	...	189	189	...	51	...	...	...	...	...	191	...	297
298	180	51	...	189	189	...	51	...	51	51	51	51	191	...	298
299	189	...	209	189	189	143	51	...	51	51	51	51	221	221	299
300	...	...	...	180	...	...	...	...	...	...	...	...	...	...	300
301	180	51	...	(P)	...	...	51	...	...	...	...	...	191	...	301
302	180	51	...	(P)	...	...	51	...	51	51	51	51	191	49	302
303	180	51	...	(P)	...	...	51	...	...	...	...	...	191	...	303
304	180	51	...	(P)	...	...	51	...	...	...	...	...	191	...	304
305	180	51	...	(P)	...	...	51	...	...	...	...	...	191	49	305
306	180	51	...	(P)	...	...	51	...	...	...	...	...	191	49	306
307	180	51	...	(P)	...	...	51	...	...	...	...	...	191	49	307
308	180	51	...	(P)	...	...	51	...	...	...	...	...	191	49	308
309	180	51	...	(P)	...	...	51	...	...	...	...	...	191	49	309
310	189	...	177	189	189	204	51	51	51	51	51	51	191	49	310
311	189	51	...	(P)	...	...	51	51	51	51	51	51	191	49	311
312	189	51	...	(P)	...	...	51	51	51	51	51	51	191	49	312
313	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	313
314	189	51	...	(P)	...	...	51	51	...	...	...	...	191	49	314
315	189	...	177	204	189	101	51	51	51	51	51	51	191	49	315
318	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	316
317	189	51	...	(P)	...	...	51	...	51	51	51	51	191	49	317
318	180	...	...	161	(P)	...	...	...	...	...	...	...	191	49	318
319	180	...	209	180	(P)	110	...	...	...	...	...	...	209	49	319
320	93	...	148	181	(P)	...	...	...	...	...	...	...	191	49	320
321	161	...	211	161	...	...	...	...	...	...	...	...	191	49	321
322	189	...	177	189	189	204	...	...	...	...	...	...	51	51	322
323	189	...	...	204	204	...	...	...	...	...	...	...	209	49	323
324	51	...	...	189	189	204	51	...	51	51	51	51	191	49	324
325	230	...	...	189	189	29	...	...	...	...	...	...	191	49	325
326	180	...	...	204	204	...	...	...	...	...	...	...	191	49	326
327	189	51	...	189	189	...	51	...	...	...	...	...	191	49	327
328	189	51	...	189	189	...	51	...	...	...	...	...	191	49	328
329	189	...	...	189	189	...	...	...	...	...	...	...	...	...	329
330	189	...	...	189	189	...	51	...	...	...	...	...	191	49	330
331	189	(P)	...	189	189	...	51	...	...	...	...	...	191	49	331
332	189	(P)	...	189	189	...	51	...	51	51	51	51	191	49	332
333	189	(P)	...	189	189	...	51	...	...	...	...	...	191	49	333
334	189	(P)	...	189	189	...	51	...	...	...	...	...	191	49	334

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F	Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	No.
				Temperature	Pressure	Volume				Ideal Gas	Liquid at 1 atm	at 100 F	at 200 F		
335	BENZENE	51	51	51	51	51	...	51	...	189	189	189	...	189	335
336	TOLUENE	51	51	51	51	51	...	51	...	189	188	189	189	189	336
337	ETHYLBENZENE	51	51	51	51	51	...	51	...	189	189	189	189	189	337
338	o-XYLENE	51	51	51	189	51	...	51	...	189	189	189	189	189	338
338	m-XYLENE	51	51	51	51	51	...	51	...	189	188	189	189	189	339
340	p-XYLENE	51	188	51	51	51	...	51	...	189	189	189	189	189	340
341	n-PROPYLBENZENE	51	51	51	51	51	...	51	...	189	189	189	189	189	341
342	ISOPROPYLBENZENE	189	51	51	51	51	...	51	...	189	...	189	189	189	342
343	o-ETHYLTOLUENE	51	51	51	...	...	...	51	...	189	...	...	...	189	343
344	m-ETHYLTOLUENE	51	51	51	...	...	...	51	...	189	...	...	...	189	344
345	p-ETHYLTOLUENE	51	51	51	51A	51A	...	51	...	189	...	...	...	189	345
346	1,2,3-TRIMETHYLBENZENE	51	51	51	51	51	...	51	...	189	189	...	...	189	346
347	1,2,4-TRIMETHYLBENZENE	51	51	51	51	51	...	51	...	189	189	...	...	189	347
348	1,3,5-TRIMETHYLBENZENE	51	51	51	51	51	...	51	...	189	189	...	...	189	348
349	n-BUTYLBENZENE	51	(P)	51	51	51	...	51	...	189	...	189	189	...	349
350	ISOBUTYLBENZENE	51	51	51	51	172	...	51	...	...	...	...	...	...	350
351	sec-BUTYLBENZENE	51	51	51	51	172	...	51	...	...	...	...	...	...	351
352	tert-BUTYLBENZENE	51	51	51	51	172	...	51	...	...	...	...	...	...	352
353	1-METHYL-2-n-PROPYLBENZENE	188	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	353
354	1-METHYL-3-n-PROPYLBENZENE	188	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	354
355	1-METHYL-4-n-PROPYLBENZENE	189	189	(P)	(P)	(P)	189	188	...	...	180	...	...	...	355
356	o-CYMENE	51	51	150	130	172	...	51	...	...	...	...	...	...	356
357	m-CYMENE	51	51	150	130	172	...	51	...	...	...	...	...	...	357
358	p-CYMENE	51	51	51	51	172	...	51	...	...	...	...	...	...	358
359	o-DIETHYLBENZENE	51	51	150	130	172	...	51	...	...	...	...	...	...	359
360	m-DIETHYLBENZENE	51	51	150	130	172	...	51	189	...	...	...	...	...	360
361	p-DIETHYLBENZENE	51	51	51	51	172	...	51	189	...	...	...	...	...	361
382	1,2-DIMETHYL-3-ETHYLBENZENE	51	51	150	130	172	...	51	...	...	...	...	...	51	362
363	1,2-DIMETHYL-4-ETHYLBENZENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	363
364	1,3-DIMETHYL-2-ETHYLBENZENE	189	188	(P)	(P)	(P)	189	189	...	...	180	...	...	...	364
385	1,3-DIMETHYL-4-ETHYLBENZENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	365
388	1,3-DIMETHYL-5-ETHYLBENZENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	366
367	1,4-DIMETHYL-2-ETHYLBENZENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	367
368	1,2,3,4-TETRAMETHYLBENZENE	189	189	(P)	(P)	(P)	189	188	...	...	...	...	...	...	368
388	1,2,3,5-TETRAMETHYLBENZENE	188	189	(P)	(P)	(P)	189	189	...	...	...	...	...	...	369
370	1,2,4,5-TETRAMETHYLBENZENE	51	51	51	51	172	51	51	...	...	...	...	...	...	370
371	n-PENTYLBENZENE	189	189	189	189	189	189	189	...	...	180	...	...	...	371
372	n-HEXYLBENZENE	51	188	51	51	51	...	188	...	...	...	189	189	...	372
373	n-HEPTYLBENZENE	189	188	188	188	189	188	189	...	...	180	...	...	...	373

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Coefficient of Expansion at 60 F	Aniline Point	ASTH Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		No.
									Motor Method		Research Method				
									Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper	
335	189	...	209	189	189	189	51	51	51	...	...	...	209	209	335
336	189	...	209	189	189	189	51	51	51	51	...	51	209	209	336
337	189	...	209	204	189	189	51	51	51	51	51	51	209	209	337
338	189	...	209	204	189	189	51	51	51	51	...	...	209	209	338
339	189	...	209	189	189	189	51	51	51	51	51	51	209	209	339
340	189	...	209	61	61	189	51	51	51	51	51	51	209	209	340
341	189	...	209	189	189	142	51	51	51	51	51	51	51	49	341
342	189	...	209	204	189	189	51	51	51	51	51	51	51	51	342
343	189	...	...	188	189	189	51	...	51	51	51	51	191	49	343
344	189	...	...	188	204	189	51	...	51	...	...	51	191	49	344
345	189	...	62	188	189	189	51	...	51	...	...	...	191	49	345
346	189	...	111	188	189	189	51	...	51	51	51	51	51	49	346
347	189	...	111	188	189	189	51	...	51	51	51	51	51	49	347
348	189	...	111	188	189	189	51	51	51	...	...	51	191	49	348
349	189	...	209	188	189	204	51	51	51	51	51	51	209	209	349
350	189	...	177	188	188	189	51	...	51	51	51	51	177	177	350
351	189	...	209	188	188	189	51	...	51	51	51	51	209	209	351
352	189	...	209	188	188	189	51	...	51	...	...	51	209	209	352
353	189	(P)	...	189	181	...	51	...	51	51	51	51	223	204	353
354	189	(P)	...	189	181	...	51	...	51	51	51	51	223	204	354
355	189	(P)	...	189	181	...	51	...	...	...	...	...	223	204	355
356	189	...	62	188	188	189	51	...	51	51	51	51	191	49	356
357	189	...	62	188	188	189	51	...	...	...	...	...	191	49	357
358	189	...	209	188	188	189	51	...	51	...	...	51	221	221	358
359	189	189	148	188	188	189	51	...	...	...	...	...	191	49	359
360	189	189	209	188	188	189	51	...	51	51	51	51	191	49	360
361	189	189	148	188	188	189	51	...	51	51	51	51	45	45	361
362	189	...	62	188	188	189	51	...	51	51	51	51	223	204	362
363	189	(P)	...	189	181	...	51	...	...	...	...	...	223	204	363
364	189	(P)	...	189	181	...	51	...	...	...	...	...	223	204	364
365	180	(P)	...	189	181	...	51	...	51	51	51	51	223	204	365
366	180	(P)	...	(P)	181	...	51	...	51	51	51	51	223	204	366
367	180	(P)	...	189	181	...	51	...	51	51	51	51	223	204	367
368	189	(P)	...	189	181	...	51	...	51	51	51	51	223	204	368
369	189	(P)	...	189	181	...	51	...	51	...	...	...	223	204	369
370	189	...	148	188	188	189	51	...	...	...	...	...	191	49	370
371	189	189	...	189	189	...	...	...	...	...	...	...	223	204	371
372	189	...	1	188	189	189	...	...	...	...	...	...	223	204	372
373	189	189	...	189	189	...	...	...	...	...	...	...	223	204	373

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F	Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	No.
				Temperature	Pressure	Volume				Ideal Gas	Liquid at 1 atm	at 100 F	at 200 F		
374	n-OCTYLBENZENE	189	189	189	189	189	189	189	...	...	180	...	...	189	374
375	n-NONYLBENZENE	189	189	189	189	189	189	189	...	...	180	...	...	...	375
378	n-DECYLBENZENE	51	51	150	130	168	...	51	...	...	...	189	189	...	378
377	n-UNDECYLBENZENE	189	189	189	189	189	189	189	...	...	180	...	...	189	377
378	n-DODECYLBENZENE	51	51	51	51	51	...	51	...	189	...	189	189	...	378
379	n-TRIDECYLBENZENE	189	189	51	51	51	...	189	...	...	...	189	189	...	379
380	n-TETRADECYLBENZENE	189	189	189	189	189	189	189	...	...	180	...	...	...	380
381	n-PENTADECYLBENZENE	189	189	189	189	189	189	191	...	...	180	...	...	...	381
38Z	n-HEXADECYLBENZENE	189	189	189	189	189	189	189	...	...	180	...	...	...	38Z
383	CYCLOHEXYLBENZENE	171	171	150	130	17Z	...	171	...	...	...	...	...	...	383
384	STYRENE	51	51	51	51	51	...	51	...	189	...	...	...	...	384
385	cis-1-PROPENYL BENZENE	189	189	(P)	(P)	(P)	ZZO	189	...	...	180	...	...	...	385
386	trans-1-PROPENYL BENZENE	189	189	(P)	(P)	(P)	ZZO	189	...	...	180	...	...	...	386
387	Z-PROPENYL BENZENE	189	189	150	130	17Z	...	189	...	189	...	...	...	...	387
388	1-METHYL-Z-ETHENYL BENZENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	388
389	1-METHYL-3-ETHENYL BENZENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	389
390	1-METHYL-4-ETHENYL BENZENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	390
391	1-METHYL-4-(trans--1-n-PROPENYL)BENZENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	391
39Z	1-ETHYL-2-ETHENYL BENZENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	39Z
393	1-ETHYL-3-ETHENYL BENZENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	393
394	1-ETHYL-4-ETHENYL BENZENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	394
395	2-PHENYL-1-BUTENE	189	...	(P)	(P)	(P)	189	51	...	...	180	...	...	...	395
398	BIPHENYL	51	51	51	51	51	...	218	...	...	...	...	...	...	396
397	1-METHYL-Z-PHENYLBENZENE	51	...	(P)	(P)	(P)	51	51	...	...	180	...	...	...	397
398	1-METHYL-3-PHENYLBENZENE	51	51	(P)	(P)	(P)	51	51	...	...	180	...	...	...	398
399	1-METHYL-4-PHENYLBENZENE	51	51	(P)	(P)	(P)	(P)	...	...	...	...	...	...	...	399
400	1-ETHYL-4-PHENYLBENZENE	51	51	(P)	(P)	(P)	(P)	...	...	...	...	...	...	...	400
401	1-METHYL-4(4-METHYLPHENYL)--BENZENE	51	51	(P)	(P)	(P)	(P)	...	...	...	...	...	...	...	401
402	DIPHENYLMETHANE	51	51	150	130	17Z	...	51	...	...	...	...	...	...	40Z
403	1,1-DIPHENYLETHANE	51	51	150	130	168	...	51	...	...	...	...	...	...	403
404	1,2-DIPHENYLETHANE	51	51	130	130	172	...	51	...	...	...	...	...	...	404
405	1,1-DIPHENYLPROPANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	405
406	1,2-DIPHENYLPROPANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	406
407	1,1-DIPHENYLBUTANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	407
408	1,1-DIPHENYLPENTANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	408
409	1,1-DIPHENYLHEXANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	409
410	1,1-DIPHENYLHEPTANE	189	189	(P)	(P)	(P)	9	189	...	...	180	...	...	...	410

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Coefficient of Expansion at 60 F	Aniline Point	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		No.
									Motor Method		Research Method				
									Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper	
374	189	189	...	189	189	...	...	...	...	...	...	...	223	204	374
375	189	189	...	189	189	...	...	...	...	...	...	...	223	204	375
376	189	...	177	188	189	189	...	...	...	...	...	...	223	204	376
377	189	(P)	...	189	189	...	...	...	...	...	...	...	223	204	377
378	189	...	177	189	189	189	...	...	...	...	...	...	191	49	378
379	189	...	...	188	189	189	...	...	...	...	...	...	223	204	379
380	189	(P)	...	189	189	...	...	...	...	...	...	...	223	204	380
381	189	(P)	...	189	189	...	...	...	...	...	...	...	223	204	381
382	189	(P)	...	189	189	...	...	...	...	...	...	...	223	204	382
383	180	...	177	180	(P)	151	...	...	...	...	...	...	191	49	383
384	189	...	209	189	189	164	51	...	51	51	51	51	209	209	384
385	189	(P)	...	189	189	...	51	...	51	...	51	51	223	204	385
386	189	(P)	...	189	189	...	51	...	51	51	51	51	223	204	386
387	180	...	209	189	181	...	51	...	51	51	51	51	209	209	387
388	189	(P)	...	189	181	...	51	...	...	...	...	...	223	204	388
389	189	(P)	...	189	181	...	51	...	...	...	...	...	223	204	389
390	189	(P)	...	189	181	...	51	...	...	...	...	...	223	204	390
391	180	(P)	...	(P)	...	...	51	...	...	...	...	...	223	204	391
392	180	(P)	...	(P)	...	...	51	...	...	...	...	...	223	...	392
393	180	(P)	...	(P)	...	...	51	...	...	...	...	...	223	...	393
394	180	(P)	...	(P)	...	...	51	...	...	...	...	...	223	...	394
395	180	(P)	...	(P)	...	...	51	...	...	...	...	...	223	204	395
396	230	...	209	204	204	204	...	...	...	...	...	...	209	209	396
397	180	(P)	...	(P)	...	...	...	...	...	...	...	...	223	204	397
398	180	(P)	51	(P)	...	...	...	...	...	...	...	...	223	204	398
399	180	(P)	...	(P)	...	...	...	...	...	...	...	...	223	204	399
400	180	(P)	...	(P)	...	...	...	...	...	...	...	...	223	204	400
401	180	(P)	...	(P)	...	...	...	...	...	...	...	...	223	204	401
402	189	...	177	51	(P)	46	...	...	...	...	...	...	191	49	402
403	161	...	177	161	(P)	190	...	...	...	...	...	...	223	204	403
404	51	...	177	51	(P)	190	...	...	...	...	...	...	191	49	404
405	...	(P)	...	...	...	...	...	...	...	...	...	...	223	204	405
406	180	(P)	...	(P)	...	...	...	...	...	...	...	...	223	204	406
407	...	(P)	...	...	...	...	...	...	...	...	...	...	223	204	407
408	...	(P)	...	...	...	...	...	...	...	...	...	...	223	204	408
409	...	(P)	...	...	...	...	...	...	...	...	...	...	223	204	409
410	...	(P)	...	...	...	...	...	...	...	...	...	...	223	204	410

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F	Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	No.
				Temperature	Pressure	Volume				Ideal Gas	Liquid at 1 atm	at 100 F	at 200 F		
411	1,1-DIPHENYLOCTANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	411
412	1,1-DIPHENYLNONANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	412
413	1,1-DIPHENYLDECANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	413
414	1,1-OIPHENYLUNOECANE	189	189	...	...	...	51	189	...	...	...	...	...	...	414
415	1,1-DIPHENYLDOOECANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	415
416	1,1-DIPHENYLTRIOECANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	416
417	1,1-DIPHENYLTETRADECANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	417
418	1,1-DIPHENYLPENTADECANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	418
419	1,1-DIPHENYLHEXAOECANE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	419
420	cis-1,2-DIPHENYLETHENE	(P)	36	130	130	172	...	...	...	...	...	...	...	...	420
421	trans-1,2-OIPHENYLETHENE	177	157	150	130	172	...	...	...	...	...	...	...	...	421
422	PHENYLACETYLENE	51	51	(P)	(P)	(P)	51	...	...	...	180	...	...	...	422
423	OIPHENYLACETYLENE	220	165	130	130	172	...	...	...	...	...	...	...	...	423
424	1,2-DIPHENYLBENZENE	(P)	40	119	119	119	...	...	...	...	...	...	...	...	424
425	1,3-OIPHENYLBENZENE	(P)	132	119	119	119	...	...	...	...	...	...	...	...	425
426	1,4-DIPHENYLBENZENE	110	132	119	119	119	...	...	...	...	...	...	...	...	428
427	NAPHTHALENE	18	18	18	18	18	...	18	...	189	...	...	...	...	427
428	1-METHYLNAPHTHALENE	51	51	51	(P)	172	189	51	189	...	...	...	...	...	428
429	2-METHYLNAPHTHALENE	51	51	51	130	172	...	(P)	189	...	...	...	...	...	429
430	1-ETHYLNAPHTHALENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	430
431	2-ETHYLNAPHTHALENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	431
432	1,2-DIMETHYLNAPHTHALENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	432
433	1,4-DIMETHYLNAPHTHALENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	433
434	1-n-PROPYLNAPHTHALENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	434
435	2-n-PROPYLNAPHTHALENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	435
436	1-n-BUTYLNAPHTHALENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	438
437	2-n-BUTYLNAPHTHALENE	189	189	(P)	(P)	(P)	9	189	...	...	180	...	...	...	437
438	1-n-PENTYLNAPHTHALENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	438
439	1-n-HEXYLNAPHTHALENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	439
440	2-n-HEXYLNAPHTHALENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	440
441	1-n-HEPTYLNAPHTHALENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	441
442	1-n-OCTYLNAPHTHALENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	442
443	1-n-NONYLNAPHTHALENE	189	51	150	130	168	189	51	...	...	...	...	...	...	443
444	2-n-NONYLNAPHTHALENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	444
445	1-n-DECYLNAPHTHALENE	189	51	150	130	166	189	51	...	...	...	...	...	...	445
446	1,2,3,4-TETRAHYORO-NAPHTHALENE	21	21	21	21	21	...	21	...	189	...	...	...	...	446
447	1-METHYL-[1,2,3,4-TETRA-HYORONAPHTHALENE]	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	447

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Coefficient of Expansion at 60 F	Aniline Point	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		No.
									Motor Method		Research Method				
									Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper	
411	...	(P)	...	...	...	...	...	...	...	...	...	...	223	204	411
412	...	(P)	...	...	...	...	...	...	...	...	...	...	223	204	412
413	...	(P)	...	...	...	...	...	...	...	...	...	...	223	204	413
414	...	...	...	...	...	...	...	...	...	...	...	...	...	...	414
415	...	(P)	...	...	...	...	...	...	...	...	...	...	223	204	415
418	...	(P)	...	...	...	...	...	...	...	...	...	...	223	204	416
417	...	(P)	...	...	...	...	...	...	...	...	...	...	223	204	417
418	...	(P)	...	...	...	...	...	...	...	...	...	...	223	204	418
419	...	(P)	...	...	...	...	...	...	...	...	...	...	223	204	419
420	180	...	...	180	(P)	...	...	...	...	...	...	...	191	49	420
421	180	...	...	180	(P)	72	...	...	...	...	...	...	191	49	421
422	180	(P)	...	(P)	...	...	51	...	...	...	...	...	223	204	422
423	180	...	...	180	(P)	156	...	...	...	...	...	...	191	49	423
424	180	...	177	180	(P)	40	...	...	...	...	...	...	191	49	424
425	180	...	177	180	(P)	132	...	...	...	...	...	...	191	49	425
428	180	...	177	180	(P)	132	...	...	...	...	...	...	191	49	426
427	18	...	18	18	18	18	51	...	...	...	...	...	18	18	427
428	230	189	...	204	204	140	...	...	...	...	...	...	191	49	428
429	230	189	...	204	204	140	...	...	...	...	...	...	191	49	429
430	180	189	...	(P)	...	...	...	...	...	...	...	...	223	204	430
431	180	189	...	(P)	...	...	...	...	...	...	...	...	223	204	431
432	180	189	...	(P)	...	...	...	...	...	...	...	...	223	204	432
433	180	(P)	...	(P)	...	...	...	...	...	...	...	...	223	204	433
434	180	189	...	(P)	...	...	...	...	...	...	...	...	223	204	434
435	180	189	...	(P)	...	...	...	...	...	...	...	...	223	204	435
438	180	189	...	(P)	...	...	...	...	...	...	...	...	223	204	436
437	180	189	...	(P)	...	...	...	...	...	...	...	...	223	204	437
438	180	189	...	(P)	...	...	...	...	...	...	...	...	223	204	438
439	180	189	...	(P)	...	...	...	...	...	...	...	...	223	204	439
440	180	189	...	(P)	...	...	...	...	...	...	...	...	223	204	440
441	180	189	...	(P)	...	...	...	...	...	...	...	...	223	204	441
442	180	189	...	(P)	...	...	...	...	...	...	...	...	223	204	442
443	180	...	...	170	(P)	...	...	...	...	...	...	...	223	204	443
444	180	(P)	...	(P)	...	...	...	...	...	...	...	...	223	204	444
445	180	...	...	170	(P)	...	...	...	...	...	...	...	223	204	445
448	21	...	209	21	21	21	51	51	51	51	51	51	51	51	446
447	180	(P)	...	(P)	...	...	...	...	...	...	...	...	223	204	447

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

Key to References

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F	Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	No.
				Temperature	Pressure	Volume				Ideal Gas	Liquid at 1 atm	at 100 F	at 200 F		
448	1-ETHYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	448
449	2,2-DIMETHYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	449
450	2,6-DIMETHYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	450
451	8,7-DIMETHYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	451
452	1-n-PROPYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	452
453	6-n-PROPYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	453
454	1-n-BUTYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	...	...	...	...	51	...	...	...	...	...	...	...	454
455	6-n-BUTYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	...	...	...	...	51	...	...	...	...	...	...	...	455
456	1-n-PENTYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	...	...	...	...	51	...	...	...	...	...	...	...	456
457	6-n-PENTYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	...	...	...	...	51	...	...	...	...	...	...	...	457
458	1-n-HEXYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	458
459	1-n-HEPTYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	459
460	1-n-OCTYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	460
461	1-n-NONYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	461
462	1-n-DECYL-[1,2,3,4-TETRAHYDRONAPHTHALENE]	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	462
463	INDENE	16	16	150	130	16	...	16	...	...	...	...	...	...	463
464	1-METHYLINDENE	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	464
465	2-METHYLINDENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	465
466	2,3-DIHYDROINDENE	189	189	(P)	(P)	(P)	189	189	...	...	180	...	...	...	466
467	1-METHYL-2,3-DIHYDROINDENE	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	467
468	2-METHYL-2,3-DIHYDROINDENE	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	468
469	4-METHYL-2,3-DIHYDROINDENE	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	469
470	5-METHYL-2,3-DIHYDROINDENE	189	...	(P)	(P)	(P)	189	189	...	...	180	...	...	...	470
471	ACENAPHTHALENE	...	...	...	...	...	...	...	...	...	...	...	...	...	471

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

Key to References

No.	Net Heat of Combuation of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Coefficient of Expansion at 60 F	Aniline Point	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		No.
									Motor Method		Research Method				
									Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper	
448	180	(P)	...	(P)	...	...	...	...	...	...	...	...	223	204	448
449	180	(P)	...	(P)	...	...	...	...	...	...	...	...	223	204	449
450	180	(P)	...	(P)	...	...	...	...	...	...	...	...	...	204	450
451	180	(P)	...	(P)	...	...	...	...	...	...	...	...	...	204	451
452	180	(P)	...	(P)	...	...	...	...	...	...	...	...	...	204	452
453	180	(P)	...	(P)	...	...	...	...	...	...	...	...	...	204	453
454	...	...	...	...	...	...	...	...	...	...	...	...	...	...	454
455	...	...	...	...	...	...	...	...	...	...	...	...	...	...	455
456	...	...	...	...	...	...	...	...	...	...	...	...	...	...	456
457	...	...	...	...	...	...	...	...	...	...	...	...	...	...	457
458	180	(P)	...	(P)	...	...	...	...	...	...	...	...	...	204	458
459	180	(P)	...	(P)	...	...	...	...	...	...	...	...	...	204	459
460	180	(P)	...	(P)	...	...	...	...	...	...	...	...	...	204	460
461	180	(P)	...	(P)	...	...	...	...	...	...	...	...	...	204	461
462	180	(P)	...	(P)	...	...	...	...	...	...	...	...	...	204	462
463	16	...	...	16	16	16	51	...	51	51	51	51	191	49	463
464	180	(P)	...	(P)	...	...	51	...	...	...	...	...	223	204	464
465	180	(P)	...	(P)	...	...	51	...	...	...	...	...	223	204	465
466	180	(P)	...	(P)	...	...	51	...	51	51	51	51	223	204	466
467	180	(P)	...	(P)	...	...	51	...	...	...	...	...	223	204	467
468	180	(P)	...	(P)	...	...	51	...	...	...	...	...	223	204	468
469	180	(P)	...	(P)	...	...	51	...	...	...	...	...	223	204	469
470	180	(P)	...	(P)	...	...	51	...	...	...	...	...	223	204	470
471	...	...	...	...	...	...	...	...	...	...	...	...	...	...	471

(P) = Predicted or calculated by project staff.

TABLE 1C5.1 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constante			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Preaaure at 100 F	Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	No.
				Temp-erature	Preasure	Volume				Ideal Gaa	Liquid at 1 atm	at 100 F	at 200 F		
472	ACENAPHTHENE	10	(P)	10	10	172	...	10	...	...	...	...	...	...	472
473	FLUORENE	194	75	194	194	172	...	10	...	...	...	...	...	...	473
474	ANTHRACENE	11	11	11	11	11	...	11	...	189	...	...	...	...	474
475	PNENANTHRENE	11	11	43	130	11	...	11	...	189	...	...	...	...	475
478	PYRENE	15	227	150	130	15	...	15	...	189	...	...	...	...	476
477	FLUORANTNENE	10	(P)	150	130	172	...	10	...	...	...	...	...	...	477
478	CHRYSENE	15	15	150	130	15	...	15	...	189	...	...	...	...	478

(P) = Predicted or calculated by project staff.

No.	Net Heat of Combuation of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temp-erature	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fuaion at 77 F	Coefficient of Expansion at 60 F	Aniline Point	ASTM Octane Numbers				Flammability Limits, Volume Percent in Air Mixture		No.
									Motor Method		Research Hethod				
									Clear	With 3 ml TEL per gal	Clear	With 3 ml TEL per gal	Lower	Upper	
472	10	...	...	10	10	10	...	...	...	...	...	...	191	49	472
473	10	...	...	10	10	10	...	...	...	...	...	...	191	49	473
474	11	...	209	11	11	11	...	...	...	...	...	...	209	49	474
475	11	...	209	11	11	11	...	...	...	...	...	...	191	49	475
476	15	...	209	196	196	15	...	...	...	...	...	...	191	49	476
477	10	...	...	10	10	10	...	...	...	...	...	...	191	49	477
478	15	...	...	15	(P)	15	...	...	...	...	...	...	191	49	478

(P) = Predicted or csiculated by project staff.

TABLE 1C5.2

KEY TO REFERENCES--NONHYDROCARBONS

TABLE 1C5.2
KEY TO REFERENCES—NONHYDROCARBONS

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F
				Temp-erature	Preasure	Volume			
700	FORMIC ACID	182	182	130	3	71	210	182	210
701	ACETIC ACID	182	182	6	182	182	210	182	210
702	PROPIONIC ACID	182	182	4	4	4	210	182	210
703	n-BUTYRIC ACID	182	182	119	130	71	210	182	210
704	2-METHYLPROPIONIC ACID	189	189	119	119	119	210	88	210
705	n-PENTANOIC ACID	182	182	182	130	71	210	182	210
708	2-METHYLBUTYRIC ACID	58	...	130	130	71	...	...	...
707	3-METHYLBUTYRIC ACID	202	206	182	130	71	210	171	210
708	n-HEXANOIC ACID	182	182	130	130	71	...	182	210
709	METHANOL	223	223	119	119	119	210	182	210
710	ETHANOL	223	223	223	223	223	210	223	210
711	n-PROPANOL	182	223	223	223	223	210	182	210
712	ISOPROPANOL	223	(P)	223	223	223	210	223	210
713	n-BUTANOL	223	223	223	223	223	210	223	210
714	ISOBUTANOL	182	202	223	223	119	210	223	210
715	sec-BUTANOL	182	182	182	182	182	210	182	210
716	tert-BUTANOL	182	(P)	223	223	119	51	223	210
717	1-PENTANOL	182	(P)	223	223	223	210	223	210
718	2-PENTANOL	223	(P)	130	130	71	210	223	210
719	2-METHYL-1-BUTANOL	223	110	130	130	71	210	223	210
720	2-METHYL-2-BUTANOL	223	182	223	130	71	210	182	210
721	3-METHYL-2-BUTANOL	223	...	130	130	71	210	223	210
722	2,2-DIMETHYL-1-PROPANOL	223	223	130	130	71	...	110	...
723	4-METHYL-2-PENTANOL	223	...	127	130	71	210	182	210
724	PHENOL	28	(P)	122	122	122	...	122	210
725	o-CRESOL	182	(P)	182	182	182	...	120	210
726	m-CRESOL	120	(P)	120	120	120	210	120	210
727	p-CRESOL	120	(P)	120	120	120	...	120	210
728	FORMALDEHYDE	182	182	169	169	71	...	...	210
729	ACETALDEHYDE	182	182	119	130	71	...	182	210
730	n-PROPIONALDEHYDE	182	182	130	130	71	...	182	210
731	n-BUTYRALDEHYDE	182	182	130	130	71	...	182	210
732	ACROLEIN	171	202	130	130	71	...	171	...
733	trans-CROTONALDEHYDE	171	171	130	130	71	...	171	...
734	METHACROLEIN	111	110	130	130	71	...	110	...
735	METHYLAMINE	182	182	182	182	71	...	182	...
736	ETHYLAMINE	182	182	182	182	4	...	182	...
737	n-PROPYLAMINE	182	182	182	182	71	...	182	...
738	ISOPROPYLAMINE	182	182	4	4	4	...	182	...

(P) = Predicted or calculated by project staff.

TABLE 1C5.2 (Continued)

Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature at 77 F	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Flammability Limits Volume Percent in Air Mixture		No.
Ideal Gas atm	Liquid at 1	at 100 F	at 200 F								Lower	Upper	
...	...	...	...	...	230	...	209	204	204	204	177	177	700
...	...	...	...	...	230	...	209	217	217	204	209	209	701
...	...	...	...	...	230	...	209	48	(P)	133	221	221	702
...	...	...	...	...	230	...	209	46	(P)	133	221	221	703
...	...	...	...	...	(P)	...	221	180	(P)	171	148	148	704
...	...	...	...	...	230	...	110	204	(P)	171	191	...	705
...	...	...	...	...	(P)	...	...	170	(P)	...	191	...	706
...	...	...	...	...	181	...	...	161	(P)	171	191	...	707
...	...	...	...	...	181	...	177	181	(P)	171	191	...	708
210	210	210	210	210	230	210	209	42	42	223	209	209	709
210	210	210	210	210	230	210	209	223	223	222	209	209	710
210	210	210	210	210	230	210	209	223	223	222	209	209	711
210	210	210	...	210	230	210	209	223	223	182	209	209	712
210	210	210	210	210	230	210	171	223	223	223	209	209	713
210	210	210	210	210	230	210	209	223	(P)	171	209	209	714
210	210	210	210	210	230	210	209	182	182	222	209	209	715
210	...	210	210	210	230	210	209	223	223	223	209	209	716
210	210	210	210	210	230	210	209	223	223	223	209	209	717
...	...	210	210	210	230	210	209	223	(P)	...	191	...	718
...	210	210	210	210	230	210	209	182	(P)	...	178	178	719
...	210	210	210	210	230	210	177	223	223	182	177	177	720
...	210	210	210	210	223	210	209	223	(P)	...	191	...	721
...	...	...	210	210	180	...	110	180	(P)	...	191	...	722
...	...	...	...	...	(P)	210	209	180	(P)	...	209	209	723
210	...	...	...	210	122	...	209	125	125	182	212	...	724
210	...	...	...	210	230	...	209	120	120	120	209	...	725
210	210	...	...	210	120	210	177	120	120	120	177	...	726
210	...	...	...	210	120	...	177	120	120	120	177	...	727
...	...	...	...	...	230	...	(P)	203	203	...	209	209	728
...	...	...	...	...	230	...	209	217	217	204	209	209	729
...	...	...	...	...	230	...	67	182	182	...	67	67	730
...	...	...	...	...	230	...	177	182	182	204	177	177	731
...	...	...	...	...	(P)	...	110	180	(P)	...	209	209	732
...	...	...	...	...	161	...	209	161	(P)	...	209	209	733
...	...	...	...	...	(P)	...	110	180	(P)	...	110	...	734
...	...	...	...	...	230	...	...	217	217	204	209	209	735
...	...	...	...	...	230	...	(P)	204	204	...	209	209	736
...	...	...	...	...	230	...	171	204	204	...	209	209	737
...	...	...	...	...	161	...	199	181	(P)	76	199	199	738

(P) = Predicted or calculated by project staff.

TABLE 1C5.2 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F
				Temperature	Pressure	Volume			
739	n-BUTYLAMINE	182	182	207	207	71	...	182	...
740	ISOBUTYLAMINE	182	182	130	130	71	...	182	...
741	sec-BUTYLAMINE	2	204	185	185	185	...	182	...
742	tert-BUTYLAMINE	182	76	207	207	207	...	182	...
743	UREA	130	111	78	130	71	...	...	...
744	ACETONITRILE	182	168	4	4	...	...	182	...
745	MORPHOLINE	199	171	130	130	71	...	112	...
746	PYRIDINE	4	19	119	119	4	...	171	...
747	ANILINE	4	(P)	119	119	119	...	171	...
748	INDOLE	17	17	130	130	71	...	17	...
749	QUINOLINE	20	20	20	20	71	...	20	...
750	DIBENZOPYRROLE	34	202	130	130	71	...	...	...
751	ACRIDINE	13	13	13	13	13	...	...	...
752	METHYL FORMATE	182	182	182	182	182	210	182	210
753	METHYL ACETATE	182	182	182	182	182	210	182	210
754	ETHYL FORMATE	182	182	182	182	182	210	182	210
755	ETHYL ACETATE	182	182	119	119	119	210	182	210
758	n-PROPYL FORMATE	182	182	182	182	182	210	182	210
757	VINYL ACETATE	171	171	130	130	71	...	171	...
758	METHYL n-BUTYRATE	182	182	182	182	182	210	182	210
759	n-PROPYL ACETATE	182	182	182	182	182	210	182	210
760	ISOPROPYL ACETATE	182	182	130	130	71	210	182	210
761	n-BUTYL ACETATE	182	182	182	130	71	210	182	210
762	n-PENTYL ACETATE	182	182	130	130	71	210	182	210
763	DIMETHYL ETHER	182	182	182	182	182	...	182	210
764	METHYL ETHYL ETHER	182	(P)	182	182	182	...	111	210
765	DIETHYL ETHER	182	182	182	182	182	...	182	210
766	METHYL-tert-BUTYL ETHER	182	182	5	5	71	...	182	210
767	METHYL-tert-AMYL ETHER	...	...	...	...	...	...	...	...
768	TETRAHYDROFURAN	4	171	119	119	119	210	171	210
769	DIBENZOFURAN	12	12	12	12	12	...	12	...
770	AIR	82	99	82	82	99	82	99	...
771	AMMONIA	182	182	137	137	137	...	197	210
772	ARGON	103	182	103	103	103	...	182	...
773	BROMINE	182	203	137	137	107	...	182	210
774	CARBON MONOXIDE	182	182	119	119	119	...	182	...
775	CARBON DIOXIDE	82	82	82	82	137	82	182	...
778	CARBONYL SULFIDE	136	206	175	175	175	...	174	...
777	CHLORINE	182	85	137	137	137	210	182	210

(P) = Predicted or calculated by project staff.

TABLE 1C5.2 (Continued)

Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature at 77 F	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Flammability Limits Volume Percent in Air Mixture		No.
Ideal Gas atm	Liquid at 1	at 100 F	at 200 F								Lower	Upper	
...	...	...	...	...	230	...	209	204	204	...	209	209	739
...	...	...	...	...	181	...	215	161	(P)	...	191	...	740
...	...	...	...	...	230	...	171	204	204	...	191	...	741
...	...	...	...	...	230	...	145	204	204	76	145	145	742
...	...	...	...	...	230	...	...	204	204	87	191	49	743
...	...	...	...	...	24	...	209	24	(P)	204	177	177	744
...	...	...	...	...	(P)	...	221	170	(P)	33	221	221	745
...	...	...	...	...	230	...	209	204	204	204	209	209	746
...	...	...	...	...	230	...	209	204	204	204	209	148	747
...	...	...	...	...	17	...	...	17	17	17	...	...	748
...	...	...	...	...	20	...	118	20	20	20	191	...	749
...	...	...	...	...	161	...	...	161	(P)	218	...	...	750
...	...	...	...	...	13	...	...	13	13	13	...	...	751
210	210	...	...	...	230	...	209	183	183	204	209	209	752
210	210	...	...	...	55	...	209	204	(P)	...	209	209	753
210	210	...	...	...	171	...	209	183	183	171	209	209	754
210	210	...	...	...	(P)	...	171	204	204	158	209	209	755
210	210	...	...	...	53	...	209	180	(P)	...	191	...	756
...	...	...	...	...	(P)	...	171	123	123	...	209	209	757
...	...	210	210	...	(P)	210	209	183	183	...	191	...	758
...	...	...	...	...	180	...	209	183	183	...	209	209	759
...	210	...	...	...	(P)	...	171	184	184	...	65	65	760
210	210	...	...	...	(P)	...	209	183	183	...	209	209	761
...	210	...	...	...	(P)	...	171	182	184	...	191	...	762
210	...	...	...	210	230	...	...	182	182	182	209	209	763
210	...	...	...	210	230	...	209	204	204	...	209	209	764
210	210	...	...	210	230	...	209	182	182	222	209	209	765
210	210	...	...	210	230	...	162	204	204	28	182	162	768
...	...	...	...	...	...	...	...	...	...	...	...	...	767
210	210	210	...	...	161	210	209	182	182	121	209	209	768
...	...	...	...	...	12	...	...	12	12	12	...	...	769
82	...	...	...	82	...	...	...	...	...	...	191	...	770
210	...	...	...	210	(P)	...	...	106	106	52	209	...	771
...	...	...	...	...	...	...	...	...	...	208	...	...	772
...	...	...	...	...	(P)	...	...	217	203	203	...	...	773
210	...	...	...	210	230	...	...	203	203	182	209	209	774
82	210	...	...	82	(P)	...	...	203	203	185	...	...	775
...	...	...	...	...	230	...	...	203	203	204	209	209	776
210	...	...	...	...	(P)	...	...	48	203	85	...	...	777

(P) = Predicted or calculated by project staff.

TABLE 1C5.2 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F
				Temp-erature	Pressure	Volume			
778	FLUORINE	182	99	92	92	92	...	136	...
779	HELIUM-3	208	182	208	208	182	...	182	...
780	HELIUM-4	208	208	208	208	182	...	182	...
781	HYOROGEN	182	182	137	137	137	...	182	...
782	HYOROGEN 8ROMIOE	182	182	137	137	99	210	182	210
783	HYOROGEN CHLORIOE	182	182	137	137	137	210	99	210
784	HYOROGEN CYANIOE	182	182	137	137	137	...	182	...
785	HYOROGEN FLUORIOE	182	100	182	182	182	210	182	210
788	HYOROGEN SULFIOE	82	82	82	82	137	82	182	82
787	KRYPTON	106	106	182	182	182	...	182	...
788	NEON	208	208	208	208	182	...	182	...
789	NITROGEN	82	82	82	82	182	82	99	...
790	NITRIC OXIOE	182	202	137	137	137	...	99	...
791	NITROUS OXIOE	182	182	137	137	137	...	136	...
792	NITROGEN OIOXIOE	136	136	136	136	136	...	136	...
793	NITROGEN TETROXIOE	182	84	137	137	136	...	136	210
794	OXYGEN	82	82	82	82	137	82	99	...
795	OZONE	182	35	137	137	137	...	...	...
796	SULFUR OIOXIOE	182	99	182	182	182	...	99	210
797	SULFUR TRIOXIOE	182	182	137	137	137	...	182	210
798	XENON	106	106	182	182	182	...	182	...
799	CHLOROTRIFLUOROMETHANE	182	64	117	117	117	210	134	...
800	OICHLOROOIFLUOROMETHANE	134	134	119	119	119	210	134	210
801	TRICHLOROFLUOROMETHANE	134	134	119	119	119	210	110	210
802	CARBON TETRACHLORIOE	182	182	119	119	119	210	182	210
803	CARBON TETRAFLUORIOE	182	195	182	182	182	...	134	...
804	CHLOROOIFLUOROMETHANE	51	149	4	4	4	210	64	210
805	OICHLOROFLUOROMETHANE	182	64	4	4	4	210	64	210
806	CHLOROFORM	182	182	119	119	119	210	182	210
807	TRIFLUOROMETHANE	182	213	182	182	182	210	64	...
808	OICHLOROMETHANE	182	182	182	182	71	210	182	210
809	METHYL CHLORIOE	182	185	119	119	119	210	182	210
810	METHYL FLUORIOE	182	182	182	182	182	210	182	210
811	VINYL CHLORIOE	182	182	193	193	193	...	182	...
812	1,1,1-TRICHLOROETHANE	182	182	4	4	71	210	182	210
813	1,1,2-TRICHLOROETHANE	182	204	130	130	71	210	182	210
814	1,1,1-TRIFLUOROETHANE	182	182	182	182	182	210	182	210
815	1,1-OICHLOROETHANE	182	182	119	119	119	210	182	210
818	1,2-OICHLOROETHANE	51	182	119	119	119	210	171	210

(P) = Predicted or calculated by project staff.

TABLE 1C5.2 (Continued)

Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature at 77 F	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Flammability Limits Volume Percent in Air Mixture		No.
Ideal Gas atm	Liquid at 1	at 100 F	at 200 F								Lower	Upper	
210	...	...	...	...	...	...	...	...	...	136	...	...	778
...	...	...	...	...	...	...	...	...	...	...	...	...	779
...	...	...	...	...	...	...	...	48	217	208	...	...	780
...	...	...	...	...	181	...	...	48	182	182	209	209	781
...	...	...	...	...	230	...	...	203	203	204	...	...	782
210	...	...	...	...	230	...	...	203	203	135	...	...	783
...	...	...	...	...	230	...	209	217	217	204	209	209	784
210	...	...	...	...	(P)	...	...	203	203	99	...	...	785
82	...	...	...	82	(P)	...	...	182	182	134	82	82	786
...	...	...	...	...	...	...	...	48	48	136	...	...	787
...	...	...	...	...	...	...	...	...	...	208	...	...	788
82	...	...	...	82	...	...	...	189	189	176	...	...	789
210	...	...	...	210	(P)	...	...	182	182	204	...	...	790
210	...	...	...	210	(P)	...	...	203	203	204	...	...	791
210	...	...	...	...	(P)	...	...	203	203	...	...	...	792
210	...	...	...	...	(P)	...	...	203	203	84	...	...	793
82	...	...	...	82	...	...	...	...	189	88	...	...	794
210	...	...	...	210	(P)	...	...	182	182	200	...	...	795
210	...	...	...	210	...	...	...	203	203	204	...	...	796
210	...	...	...	210	(P)	...	...	184	184	189	...	...	797
...	...	...	...	...	...	...	...	106	106	134	...	...	798
...	...	...	...	...	...	...	...	203	203	...	...	...	799
...	...	...	...	...	(P)	...	...	203	203	...	...	...	800
...	...	...	...	...	(P)	...	...	203	203	134	...	...	801
...	...	...	...	...	230	...	...	203	203	110	...	...	802
...	...	...	...	...	(P)	...	...	203	203	195	...	...	803
...	...	...	...	...	(P)	...	...	203	203	149	...	...	804
...	...	...	...	...	(P)	...	...	203	203	...	...	...	805
210	210	...	...	...	230	...	...	203	203	171	...	...	806
...	...	...	...	...	(P)	...	...	183	183	204	...	...	807
210	210	...	...	...	230	...	(P)	203	203	204	209	209	808
210	210	...	...	...	230	...	...	183	183	134	209	209	809
210	...	...	...	...	(P)	...	...	182	182	...	...	...	810
...	...	...	...	...	(P)	...	177	184	184	111	177	177	811
210	210	...	...	...	(P)	...	...	183	183	27	110	110	812
...	...	...	...	...	(P)	...	...	183	183	204	191	...	813
...	...	...	...	...	(P)	...	...	183	183	204	...	...	814
210	210	...	...	...	(P)	...	110	183	183	204	110	110	815
...	...	...	...	...	230	...	209	217	217	176	209	209	816

(P) = Predicted or calculated by project staff.

TABLE 1C5.2 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Denaity at 60 F	Refractive Index of the Liquid at 77 F	Vapor Preaaure at 100 F
				Temp-erature	Pressure	Volume			
817	1,1-OIFLUOROETHANE	182	182	119	119	119	210	182	210
818	ETHYL CHLORIOE	182	182	182	182	138	...	182	210
819	ETHYL FLUORIOE	182	182	182	182	71	210	182	210
820	1,2-OICHLOROPROPANE	182	182	130	130	71	...	182	...
821	ACETONE	182	182	119	119	119	...	182	210
822	METHYL ETHYL KETONE	182	(P)	182	182	182	...	182	210
823	OIETHYL KETONE	(P)	182	182	182	182	...	182	210
824	METHYL-n-PROPYL KETONE	182	182	4	4	4	...	182	210
825	METHYL-n-BUTYL KETONE	182	182	4	4	71	...	182	210
828	METHYL ISOBUTYL KETONE	182	182	182	182	71	...	182	...
827	CARBON OISULFIOE	171	171	137	137	137	...	171	...
828	METHYL MERCAPTAN	189	189	119	119	4	...	...	...
829	2,3-OITHIA8UTANE	189	189	130	130	71	...	189	...
830	OIMETHYL SULFIOE	51	51	51	51	51	...	51	...
831	ETHYL MERCAPTAN	189	189	4	4	4	...	189	...
832	2-THIA8UTANE	...	...	...	...	...	...	...	...
833	1-PROPANETHIOL	...	...	...	...	...	...	...	...
834	n-BUTANETHIOL	204	204	130	130	71	...	171	...
835	tert-BUTANETHIOL	189	189	130	130	71	...	189	...
836	2-8UTANETHIOL	...	...	...	...	...	...	...	...
837	2-METHYL-1-PROPANETHIOL	...	...	...	...	...	...	...	...
838	3-THIAPENTANE	171	204	119	119	119	...	171	...
839	2-THIAHEXANE	...	...	...	...	...	...	...	...
840	3-THIAHEXANE	...	...	...	...	...	...	...	...
841	1-PENTANETHIOL	189	189	130	130	71	...	189	...
842	2-THIAHEPTANE	...	...	...	...	...	...	...	...
843	1-HEXANETHIOL	...	...	...	...	...	...	...	...
844	1-HEPTANETHIOL	...	...	...	...	...	...	...	...
845	WATER	82	82	82	82	90	82	51	82
848	SULFURIC ACIO	106	106	130	130	201	...	99	...
847	SOOIUM HYOROXIOE	105	105	(P)	130	153	...	54	...
848	PROPYLENE CAR8ONATE	...	...	...	...	...	...	...	...
849	FURFURAL	81	171	130	171	71	...	171	...
850	1,2-PROPYLENE GLYCOL	182	182	130	130	71	...	182	...
851	OIETHYLENE GLYCOL	47	173	130	130	71	...	58	...
852	TETRAETHYLENE GLYCOL	202	57	130	130	71	...	57	...
853	MONOETHANOLAMINE	51	51	130	130	71	...	171	...
854	OIETHANOLAMINE	51	51	59	59	71	...	51	...
855	OIGLYCOLAMINE	...	...	...	...	...	...	...	...

(P) = Predicted or calculated by project staff.

TABLE 1C5.2 (Continued)

Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature at 77 F	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Flammability Limits Volume Percent in Air Mixture		No.
Ideal Gas atm	Liquid at 1	at 100 F	at 200 F								Lower	Upper	
210	210	...	...	...	(P)	...	...	204	204	...	199	199	817
...	...	...	...	...	230	...	209	182	182	136	209	209	818
210	...	...	...	...	(P)	...	...	183	183	...	...	...	819
...	...	...	...	...	(P)	...	209	204	204	...	209	209	820
210	210	...	...	...	230	...	209	182	182	159	209	209	821
210	210	...	...	...	230	...	209	204	204	204	209	209	822
210	210	...	...	...	161	...	209	161	(P)	171	97	97	823
210	210	...	...	...	161	...	178	182	182	152	178	178	824
210	210	...	...	...	161	...	221	182	182	...	199	199	825
...	...	...	...	...	(P)	...	70	180	(P)	...	209	209	826
...	...	...	...	...	(P)	...	148	203	203	204	148	148	827
...	...	...	...	...	230	...	(P)	189	189	204	209	209	828
...	...	...	...	...	230	...	178	189	189	189	191	...	829
...	...	...	...	...	230	...	171	189	189	189	51	51	830
...	...	...	...	...	230	...	163	189	181	204	209	209	831
...	...	...	...	...	...	...	...	...	...	...	...	...	832
...	...	...	...	...	...	...	...	...	...	...	...	...	833
210	210	...	...	...	230	...	178	204	204	204	...	...	834
...	...	...	...	...	230	...	...	189	186	189	...	...	835
...	...	...	...	...	...	...	...	...	...	...	...	...	836
...	...	...	...	...	...	...	...	...	...	...	...	...	837
...	...	...	...	...	(P)	...	199	204	204	204	...	...	838
...	...	...	...	...	...	...	...	...	...	...	...	...	839
...	...	...	...	...	...	...	...	...	...	...	...	...	840
...	...	...	...	...	230	...	148	189	186	189	...	...	841
...	...	...	...	...	...	...	...	...	...	...	...	...	842
...	...	...	...	...	...	...	...	...	...	...	...	...	843
...	...	...	...	...	...	...	...	...	...	...	...	...	844
82	82	210	...	82	...	210	...	189	189	108	...	...	845
...	...	...	...	...	...	...	...	106	106	106	...	...	846
...	...	...	...	...	...	...	...	105	105	105	...	...	847
...	...	...	...	...	...	...	...	...	...	...	...	...	848
...	...	...	...	...	161	...	209	124	124	171	209	209	849
...	...	...	...	...	161	...	209	161	(P)	...	209	209	850
...	...	...	...	...	46	...	209	46	(P)	...	191	...	851
...	...	...	...	...	(P)	...	57	180	(P)	...	191	...	852
...	...	...	...	...	8	...	209	8	(P)	59	191	...	853
...	...	...	...	...	144	...	209	144	(P)	171	191	...	854
...	...	...	...	...	...	...	...	...	...	...	...	...	855

(P) = Predicted or calculated by project staff.

TABLE 1C5.2 (Continued)

No.	Compound Name	Boiling Point at 1 atm	Freezing Point in air at 1 atm	Critical Constants			Density at 60 F	Refractive Index of the Liquid at 77 F	Vapor Pressure at 100 F
				Temp-erature	Pressure	Volume			
656	METHYL DIETHANOLAMINE	11D	11D	13D	13D	71	...	1	...
657	TRIETHANOLAMINE	(P)	51	59	59	71	...	59	...
658	DIISOPROPANOLAMINE	...	...	...	...	...	...	...	...
659	N,N-DIMETHYLFORMAMIDE	171	171	13D	13D	71	...	63	...
660	N-METHYL-2-PYRROLIDONE	51	51	13D	13D	71	...	51	...
661	DIMETHYL SULFOXIDE	171	44	13D	13D	71	...	171	...
662	SULFOLANE	51	51	13D	13D	71	...	51	...
663	SELEXOL	62A	62A	...	...	...	...	...	...

(P) = Predicted or calculated by project staff.

TABLE 1C5.2 (Continued)

Heat Capacity at 60 F		Viscosity of the Liquid		Heat of Vaporization at Normal Boiling Point	Net Heat of Combustion of Liquid at 77 F	Surface Tension of the Liquid at 77 F	Flash Point Temperature at 77 F	Heat of Formation at 77 F	Gibbs Free Energy of Formation at 77 F	Heat of Fusion at 77 F	Flammability Limits Volume Percent in Air Mixture		No.
Ideal Gas atm	Liquid at 1	at 100 F	at 200 F								Lower	Upper	
...	...	...	...	...	(P)	...	1	170	(P)	...	...	...	856
...	...	...	...	...	144	...	51	144	(P)	59	191	...	857
...	...	...	...	...	...	...	...	...	...	...	...	...	858
...	...	...	...	...	161	...	209	161	(P)	171	171	171	859
...	...	...	...	...	(P)	...	171	180	(P)	...	89	89	860
...	...	...	...	...	(P)	...	221	131	131	171	209	209	861
...	...	...	...	...	(P)	...	111	170	(P)	37	...	...	862
...	...	...	...	...	...	...	82A	...	...	...	...	...	863

(P) = Predicted or calculated by project staff.

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