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**CHEMICAL
SYSTEMS
LABORATORY**

US Army Armament Research and Development Command
Aberdeen Proving Ground, Maryland 21010

SPECIAL PUBLICATION ARCSL-SP-83015

**PHYSICAL PROPERTIES OF STANDARD AGENTS, CANDIDATE AGENTS,
AND RELATED COMPOUNDS AT SEVERAL TEMPERATURES (U)**

by

John B. Samuel
Elwin C. Penski
John J. Callahan

Chemical Branch
Research Division

June 1983

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18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
Diffusion Coefficient	Refractive Index	Freezing Point
Density (Bulk, Liquid, Crystal)	Boiling Point	Flash Point
Coefficient of Expansion	Dipole Moment	Heat of Fusion
Viscosity	Melting Point	Heat of Sublimation
Surface Tension	Heat of Vaporization	Heat of Combustion
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		
(U) The physical properties, extrapolated properties, calculated properties, equation parameters, and references are listed for 55 agents, candidate agents, and related compounds. The physical property data system is described in general terms. Also, methods for the prediction of critical properties, diffusion coefficients of vapors in air and viscosities of vapors are described. The use, strengths, and weaknesses of the Antoine equation are discussed.		

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19. Key Words

Autoignition Temperature	EA 1728
Heat Capacity	EA 1763
Thermal Conductivity	EA 2261
Formula Weight	EA 2337
Vapor Pressure	EA 2361
Volatility	EA 3307
Solubility	EA 3430
Storage Stability	EA 4349
Antoine Equation	EA 4923
Oxygen Index	EA 5265
Critical Properties	EA 5365
Diffusion Coefficient	EA 5389
Viscosity of Vapor	EA 5403
EA 1033 HD	EA 5414
EA 1034 L	EA 5488
EA 1036 T	
EA 1053 HN3	
EA 1205 GA	
EA 1207	
EA 1208 GB	
EA 1209 GE	
EA 1210 GD	
EA 1211 GH	
EA 1212 GF	
EA 1213	
EA 1214	
EA 1230	
EA 1232	
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EA 1249	
EA 1251 DF	
EA 1253 DICL	
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EA 1508 VG	
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EA 1701 VX	
EA 1724 QL	

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PREFACE

The work described in this report was authorized under Projects 1L161102A71A, Research in Defensive System for CW/BW; 1L762710AD61, Technical Evaluation of Foreign Chemical Warfare Potential; and 1L162706A553, Chemistry of Threat Agents and Chemical Technology. This work was started in August 1970 and completed in September 1982.

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Any suggestions or corrections for future editions should be directed to John B. Samuel, (301) 671-2366 or Elwin C. Penski, (301) 671-3953.

Acknowledgments

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PHYSICAL PROPERTIES OF STANDARD AGENTS, CANDIDATE AGENTS, AND RELATED COMPOUNDS AT SEVERAL TEMPERATURES (U)

1. (U) INTRODUCTION

(U) A problem facing users of physical chemical properties of chemical agents and related compounds has been the lack of a central source of reliable data. Data are often scattered in various technical reports, journals and laboratory notebooks. Many compilations of data fail to note original sources or important experimental details. As a result, the physical properties used in calculations in various technical reports are inconsistent and often not the best data available.

(U) For over a decade, efforts of chemists in the Physical Organic Section have been directed toward providing an automated physical property data system for chemical agents and related compounds. The characteristics of the desired system are listed in table 1. To provide the maximum assistance to the user of physical chemical properties of chemical agents, every effort was made to obtain these characteristics.

(U) This report briefly describes the physical property data system along with methods used to predict additional properties. A compilation of physical, chemical and thermodynamic data and correlations is provided for 55 chemical agents and related compounds. A list of these compounds with their chemical structures is given in Appendix A. In Appendix B, the properties along with predicted properties are provided at temperatures of -40°, -20°, 0°, 20°, 25° and 40°C.

Table 1. (U) Characteristics of the Desired Data System

- | |
|---|
| 1. Use automation to ease access and to allow for upgrading of input. |
| 2. Enter properties in formatted form so that each value is machine readable. |
| 3. Evaluate all available data and use best data. |
| 4. Combine data to extend the experimental data range where appropriate. |
| 5. Calculate properties at any specified temperature. |
| 6. Provide easy to read printout with readily apparent units. |
| 7. Take all data from original sources with provided references. |
| 8. Provide data ranges and warnings where extrapolations are performed. |

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2. (U) PHYSICAL CHEMICAL DATA SYSTEM

(U) All values for properties and equation parameters entered into the data system are formatted and identified by property code and compound number. Thus, all properties are machine readable except solubility which lists the solvent in the reference field. Table 2 lists the major components of an 80 character input line.

Table 2. (U) Components of a Data Input Line

- | |
|--|
| 1. Compound code number |
| 2. Compound letter code |
| 3. Property or parameter code number |
| 4. Property or parameter value |
| 5. Temperature and/or upper or lower values of temperature range |
| 6. Reference field of up to 36 characters |

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(U) Compounds are listed in order of their EA number. A system of numbered codes was established to identify individual properties and parameters. The compound numbers, names, and structures for compounds contained in this report are tabulated in Appendix A.

(U) Considerable time and effort were spent locating, evaluating and selecting physical chemical properties to be included in this system. The data selected are considered the best available. When conflicting data were found, selection was made primarily on the basis of experimental procedure and reported sample purity. Therefore, the values in this system tend to be for purified rather than technical grade material. When properties had been extensively evaluated and documented in reviews, these values were used unless better data had become available.

(U) Two types of equations are used in this system to describe physical properties versus temperature. Where possible, data sets covering different temperature ranges were combined to generate property parameters based on extended temperature ranges.

(U) Antoine equations¹ are used to describe both vapor pressure and viscosity. The merits of the Antoine equation for fitting and extrapolating vapor pressure data are covered extensively in Appendix C. The Antoine equation has been found also to work well for fitting and interpolating viscosity data. However, for many of the compounds, the Antoine constants for viscosity were generated from three points which covered a data range of only 25°C. Extensive extrapolation of viscosity for these compounds may result in a significant error.

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(U) Density, refractive index, and surface tension are each expressed as a linear function of temperature. The method of least squares was used to generate equation parameters from the experimental data.

(U) The reference field allows up to 36 characters per property or set of parameters. Due to this space limitation, it was necessary to abbreviate references. These references should be available in the Chemical Systems Laboratory (CSL) Technical Library. Since some data are unpublished, it was necessary to list CSL notebook (NB) numbers. Several unreferenced data points are included in the system despite substantial efforts to reference all information. Additional information is sometimes provided in the reference field, e.g., sample purity and other characteristics. In cases where the property value was reported in the literature as a range, an average value was used and the range was reported in the reference field.

(U) Numerous tests and warnings have been incorporated into this system for the following reasons: (1) to prevent the calculation of meaningless data, and (2) to warn the user when the calculated values fall outside the range of the experimental data used in generating the input parameters. The most common warning is "THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE." Due to the small temperature coefficients, extrapolations of the linear functions such as density and surface tension over broad temperature ranges are relatively reliable. The viscosity, and vapor pressure, along with properties derived from vapor pressure, undergo significant changes with temperature. Relatively poor values for these properties could result from large extrapolations, particularly when equations are derived from data collected over a narrow temperature range. An extrapolation of vapor pressure over a 200° temperature range could result in errors of one magnitude or more in value. Tests and warnings also have been incorporated into the data system to prevent extrapolation of data from one physical state to another. Table 3 demonstrates how the system uses freezing points (fp) (or melting points) and boiling points (bp) to classify a specified temperature prior to calculating liquid properties. Appropriate statements and warnings are printed along with the calculated values.

Table 3. (U) Test and Warnings

Classification	Directed Action
1. $bp < T$	Liquid properties are calculated at bp
2. $fp < T < bp$	Liquid properties are calculated at T
3. $(fp-25^{\circ}C) < T < fp$	Liquid properties are calculated at T and it is noted that these values are calculated for a supercooled liquid
4. $T < (fp-25^{\circ}C)$	Liquid properties are calculated at the fp
5. No fp	Liquid properties calculated at T with warning that there is no fp available
6. No bp	Liquid properties calculated at T with warning that there is no bp available

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3. (U) PREDICTIONS OF PHYSICAL PROPERTIES

(U) Early in the development of the physical chemical property data system, it was realized that a great potential existed with this system for predicting additional properties. Bretsznajader's book, Prediction of Transport and Other Physical Properties of Fluids,² provided much help in selecting procedures which required properties consistent with those contained within this data system. Various empirical relationships were added to the data system to allow the prediction of critical properties, the viscosity of vapor, and the diffusion coefficient of vapor into air.

3.1 (U) Critical Properties.

(U) The critical density, critical temperature, critical volume, and critical pressure are calculated using the method of Filippov.³ The property parameters used to calculate critical properties are the density equation constants A and B, and the molecular weight. The following equation allows the critical density (ρ_c) in gm/ml to be calculated at T degrees Kelvin ($^{\circ}\text{K}$).

$$\rho_c = 0.253 \left(\rho - T \frac{d\rho}{dT} \right) \quad (1)$$

where ρ is the density of compound at temperature T, and $d\rho/dT$ is the derivative of density with respect to T.

Critical temperature (T_c) in $^{\circ}\text{K}$ is calculated using the following relationship:

$$T_c = \frac{-1.95 \rho_c}{d\rho/dT} \quad (2)$$

Critical pressure (P_c) in atmospheres (atm) is calculated as follows:

$$P_c = \frac{RT_c \rho_c}{3.83 M} \quad (3)$$

where R is 82.06 (ml atm/deg-mole), and M is the molecular weight.

The critical volume (V_c) is simply the gram molecular weight divided by the critical density.

(U) Using Filippov's method, good estimates of critical properties should be obtained when the following criteria are met for the density equation parameters:

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- a. Accurate measurements were made with pure material.
- b. Experimental range is in an area where the vapor density is small compared to liquid density.
- c. $d\rho/dT$ is constant over a broad temperature range.

(U) For most liquids, $d\rho/dT$ is relatively constant. Highly associated liquids are an exception. Water exhibits an abnormality at 4°C where $d\rho/dT$ changes signs. Above 4°C, the magnitude of $d\rho/dT$ increases significantly with increased temperature.

(U) Filippov³ found that errors in calculating critical properties usually did not exceed 2 percent for ρ_c and 3 percent for T_c . Literature values for critical properties of chemical agents contained in this report were not available; therefore, four test compounds were added to the system. Table 4 contains a listing of the calculated critical properties and literature values for these compounds. Input for the test compounds consisted of molecular weights and density equation parameters. Density parameters were derived from literature values of density at various temperatures over a range of 25 to 35°C. The 2-propanol was selected as a nonideal case. Due to hydrogen bonding, its density is a nonlinear function of temperature.

(U) The estimated critical properties are in relatively good agreement with the literature values for the first three compounds. The estimated critical temperature for diethylamine is 22.5°C lower than the reported value; however, the difference in absolute temperature is only 5 percent. The estimated critical temperature for 2-propanol which is about 15 percent lower than the experimental value can be attributed primarily to the nonlinearity of its density versus temperature relationship.

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Table 4. (U) Comparison of Estimated Properties with Experiment Values^a for Four Test Compounds

Critical Properties			Diffusion Coefficient of the Vapor into Air		Viscosity of the Vapor	
Density g/ml	Temp °C	Vol cc/mole	Pressure Atm	cm ² /sec	Temp (°C)	cP
<u>BENZENE</u>						
Estimated	0.303	271	258	45.2	0.082	0
						0.0072
						0.0095
Experimental	0.304	288.5	257	47.7	0.077	0
						0.00738
						0.00918
<u>CHLOROFORM</u>						
Estimated	0.515	266	232	49.8	0.085	25
						0.0090
						0.0164
Experimental	0.516	263	228	--	0.091	25
						0.00936
						0.0164
<u>DIETHYLAMINE</u>						
Estimated	0.256	201	285	35.6	0.067	0
						0.0092
Experimental	0.246	223.5	297	36.2	0.0884	0
						0.0092
<u>2-PROPANOL</u>						
Estimated	0.264	313	228	55.2	0.079	0
						0.0087
Experimental	0.273	235.16	220	47.02	0.0818	0
						0.0109
						99.8
						99.8

* All experimental values were taken from the International Critical Tables⁴ except for the diffusion coefficient of chloroform⁵ and the critical properties of 2-propanol.⁶

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3.2 (U) Diffusion Coefficients.

The method of Othmer and Chen⁷ is used to calculate the diffusion coefficient of a vapor into air.

$$D_{12}P = (2.52 \times 10^7) \mu^{2.74} \left[\frac{\left(\frac{1}{M_1} + \frac{1}{M_2} \right)^{0.5}}{\left(v_{c1}^{0.4} + v_{c2}^{0.4} \right)^2} \right]^{1.23} \quad (4)$$

where D_{12} = the diffusion coefficient of component one into component two in cm^2/sec

M_1 = molecular weight of component one (vapor)

M_2 = molecular weight of component two (air)

P = pressure in atm

v_{c1} = critical volume in ml of component one (vapor)

v_{c2} = critical volume in ml of component two (air)

μ = viscosity of air in centipoise (cP) at the desired temperature.

(U) The V_c of component one is calculated as described in the preceding section on critical properties. The value used for the molecular weight of air is 28.95⁸ while the ρ_c of air is reported to be 0.35 g/ml.⁹ Thus, the V_c of air is calculated to be 82.71 ml. In this report, all calculations of diffusion coefficients are made at one atm.

(U) The viscosity of air is calculated at the required temperatures using the Sutherland¹⁰ equation for the influence of temperature on the viscosity of gases. When the constants for air⁴ are substituted into the equation, the following relationship is obtained:

$$\mu_{\text{air}} = \frac{0.001488 T^{3/2}}{T + 120} \quad (5)$$

where μ_{air} is the viscosity of air at T in cP.

(U) Using diffusion coefficient literature values for 50 systems at 25°C, Othmer and Chen⁷ found an average absolute deviation of 5.75 percent. In addition, they compared their calculated values for an air-water system between 25 and 1220°C to observed values and found an average error of 7.61 percent. Citing experimental difficulties, they concluded that their method, as well as several more complex methods, should give values within experimental error.

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(U) Diffusion coefficients for the vapor into air for the four test compounds were estimated in the physical property data system and included in table 4. Estimated values agree within 7 percent for three of the compounds while the fourth, diethylamine, agrees within 24 percent. The literature value for the critical volume of diethylamine was then used to recalculate the diffusion coefficient yielding a value of 0.069 cm²/sec.

3.3 (U) Viscosity of Vapor.

(U) The modified Sutherland's equation shown below was developed by Licht and Stechert¹⁰ and is used to calculate the viscosity of gases. Within the pressure range where viscosity is not dependent on pressure, the equation allows the viscosity of a gas to be calculated from its critical temperature, its critical pressure, and its molecular weight.

$$\mu = 6.30 \times 10^{-4} \left(\frac{M^3 P_c^4}{T_c} \right)^{1/6} \frac{T_r^{3/2}}{T_r + 0.8} \quad (6)$$

where μ = viscosity of vapor in cP at T°K

M = molecular weight

P_c = critical pressure in atm

T_c = critical temperature in °K

T_r = reduced temperature = T/T_c

(U) Licht and Stechert calculated the viscosity of gases for 23 compounds and found that for 19 of the compounds, estimated values fell within 10 percent of the literature values. The remaining compounds were water, helium, ammonia and ethanol. Estimated values for these compounds were within 21 percent of the literature values.¹⁰

(U) Table 4 lists the estimated and literature vapor viscosity values for the four test compounds. Using the previously estimated critical pressures and temperatures, the physical property data system was used to estimate the viscosity of vapor for these compounds. While agreement within 4 percent was obtained for the first three compounds, the estimated value for 2-propanol is 20 percent lower than the literature value. The deviation was reduced to 16 percent when the calculation was repeated using literature values for critical properties. These results for 2-propanol are consistent with Licht and Stechert's results for ethanol.

(U) It should be noted that highly associated compounds may not give estimates as accurate as those given by the compounds found in table 4; the data and compounds shown in table 4 were probably used to develop the estimation techniques.

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APPENDIX A

LIST OF COMPOUNDS (U)

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LIST OF COMPOUNDS (U)

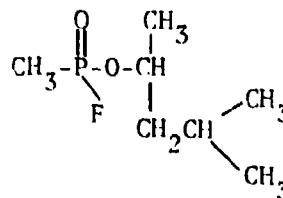
Code Number Code Name	Name	Structure
(U) EA 1033 (HD)	Bis(2-chloroethyl)sulfide; Distilled Mustard	$\text{ClC}_2\text{H}_4\text{SC}_2\text{H}_4\text{Cl}$
(U) EA 1034 (L)	2-Chlorovinylchloroarsine	ClCH=CHAsCl_2
(U) EA 1036 (T)	Bis [2-(2-chloroethylmercapto) ethyl] ether	$(\text{ClC}_2\text{H}_4\text{SC}_2\text{H}_4)_2\text{O}$
(U) EA 1053 (NH3)	Tris(2-chloroethyl)amine; Nitrogen Mustard -3	$(\text{ClC}_2\text{H}_4)_3\text{N}$
(U) EA 1205 (GA)	Ethyl N,N-dimethylphosphoramido- cyanidate	$\begin{array}{c} \text{CH}_3 \\ \diagup \\ \text{N} - \text{P} - \text{O} - \text{C}_2\text{H}_5 \\ \diagdown \quad \\ \text{CH}_3 \quad \text{CN} \end{array}$
(U) EA 1207	Ethyl methylphosphonofluoridate	$\begin{array}{c} \text{O} \\ \\ \text{CH}_3 - \text{P} - \text{OC}_2\text{H}_5 \\ \\ \text{F} \end{array}$
(U) EA 1208 (GB)	2-Propyl methylphosphono- fluoridate	$\begin{array}{c} \text{O} \quad \text{CH}_3 \\ \quad \\ \text{CH}_3 - \text{P} - \text{O} - \text{CH} \\ \quad \\ \text{F} \quad \text{CH}_3 \end{array}$
(U) EA 1209 (GE)	2-Propyl ethylphosphono- fluoridate	$\begin{array}{c} \text{O} \quad \text{CH}_3 \\ \quad \\ \text{C}_2\text{H}_5 - \text{P} - \text{O} - \text{CH} \\ \quad \\ \text{F} \quad \text{CH}_3 \end{array}$
(U) EA 1210 (GD)	Pinacolyl methylphosphono- fluoridate	$\begin{array}{c} \text{O} \quad \text{CH}_3 \\ \quad \\ \text{CH}_3 - \text{P} - \text{O} - \text{CH} - \text{C}(\text{CH}_3)_3 \\ \\ \text{F} \end{array}$

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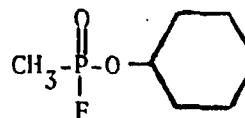
(U) EA 1211
(GH)

2-(4-Methylpentyl)methyl-
phosphonofluoridate



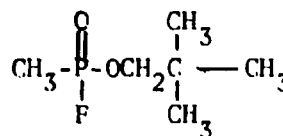
(U) EA 1212
(GF)

Cyclohexyl methylphosphono-
fluoridate



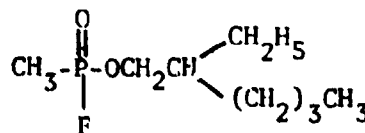
(U) EA 1213

2,2-Dimethylpropyl
methylphosphonofluoridate



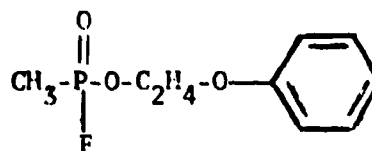
(U) EA 1214

2-Ethylhexyl methylphosphono-
fluoridate



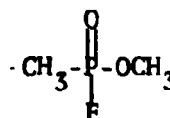
(U) EA 1230

2-Phenoxyethyl methyl-
phosphonofluoridate



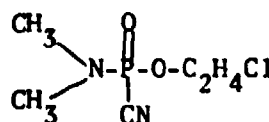
(U) EA 1232

Methyl methylphosphonofluoridate



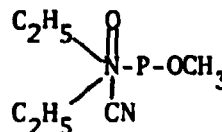
(U) EA 1244

2-Chloroethyl N,N-dimethyl-
phosphoramidocyanidate



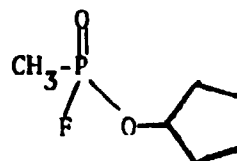
(U) EA 1245

Methyl N,N-diethylphosphoramido-
cyanidate



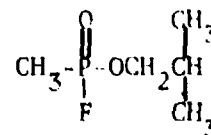
(U) EA 1246

Cyclopentyl methylphosphono-
fluoridate

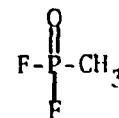


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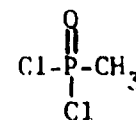
(U) EA 1249 2 Methylpropyl methylphosphonofluoridate



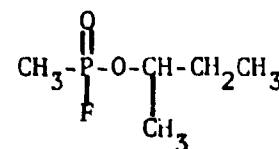
(U) EA 1251 (DF) Methyl phosphonic difluoride



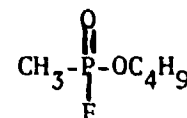
(U) EA 1253 (DACL) Methyl phosphonic dichloride



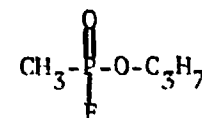
(U) EA 1255 2-Butyl methylphosphonofluoridate



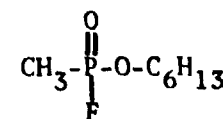
(U) EA 1258 1-Butyl methylphosphonofluoridate



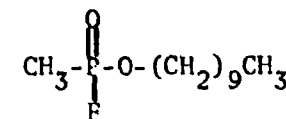
(U) EA 1261 1-Propyl methylphosphonofluoridate



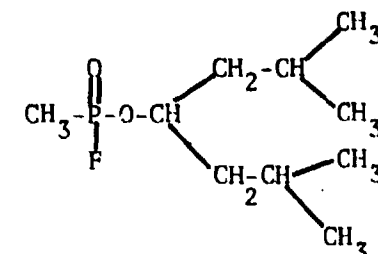
(U) EA 1262 1-Hexyl methylphosphonofluoridate



(U) EA 1263 1-Decyl methylphosphonofluoridate



(U) EA 1264 4-(2,6-Dimethylheptyl) methylphosphonofluoridate



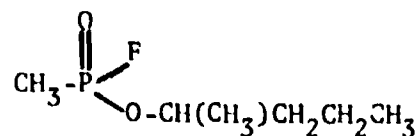
Appendix A

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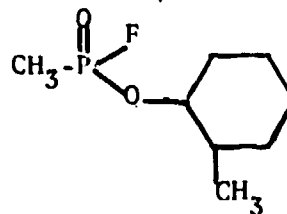
(U) EA 1274

2-Pentyl methylphosphonofluoridate



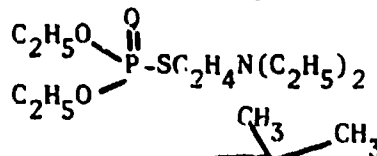
(C) EA 1356

(Racemic) 2-methylcyclohexyl methylphosphonofluoridate



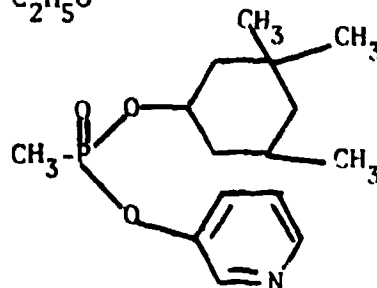
(U) EA 1508
(VG)

O,O-Diethyl S-(2-diethylaminoethyl) phosphorothioate



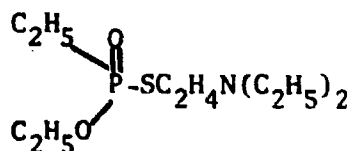
(U) EA 1511
(VP)

3-Pyridyl 3,3,5-trimethylcyclohexyl methylphosphonate



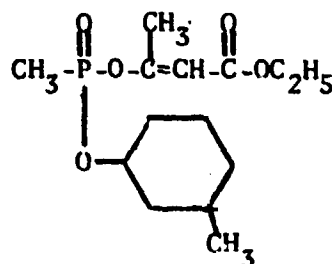
(U) EA 1517
(VE)

O-Ethyl S-(2-diethylaminoethyl) ethylphosphonothioate



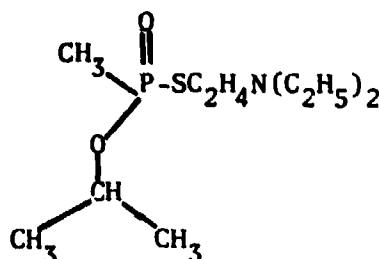
(U) EA 1576

2-Ethoxycarbonyl-1-methylvinyl 3-methylcyclohexyl methylphosphonate



(U) EA 1622

O-Isopropyl S-(2-diethylaminoethyl) methylphosphonothioate



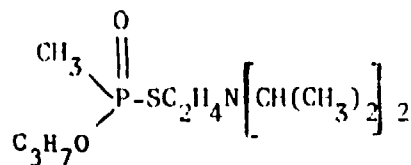
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(U) EA 1664 (VM)	O-Ethyl S-(2-diethylamino-ethyl) methylphosphonothioate	$\begin{array}{c} \text{CH}_3 \\ \diagup \\ \text{P}=\text{O} \\ \diagdown \\ \text{C}_2\text{H}_5\text{O} \end{array} - \text{SC}_2\text{H}_4\text{N}(\text{C}_2\text{H}_5)_2$
(U) EA 1677 (VS)	O-Ethyl S-(2-diisopropyl-aminoethyl) ethylphosphonothioate	$\begin{array}{c} \text{C}_2\text{H}_5 \\ \diagup \\ \text{P}=\text{O} \\ \diagdown \\ \text{C}_2\text{H}_5\text{O} \end{array} - \text{SC}_2\text{H}_4\text{N}[\text{CH}(\text{CH}_3)_2]_2$
(U) EA 1694	O-Ethyl S-(2-dimethylamino-ethyl) ethylphosphonothioate	$\begin{array}{c} \text{C}_2\text{H}_5 \\ \diagup \\ \text{P}=\text{O} \\ \diagdown \\ \text{C}_2\text{H}_5\text{O} \end{array} - \text{SC}_2\text{H}_4\text{N}(\text{CH}_3)_2$
(U) EA 1699	O-Ethyl S-(2-dimethylamino-ethyl) methylphosphonothioate	$\begin{array}{c} \text{CH}_3 \\ \diagup \\ \text{P}=\text{O} \\ \diagdown \\ \text{C}_2\text{H}_5\text{O} \end{array} - \text{SC}_2\text{H}_4\text{N}(\text{CH}_3)_2$
(U) EA 1701 (VX)	O-Ethyl S-(2-diisopropyl-aminoethyl) methylphosphonothioate	$\begin{array}{c} \text{CH}_3 \\ \diagup \\ \text{P}=\text{O} \\ \diagdown \\ \text{C}_2\text{H}_5\text{O} \end{array} - \text{SC}_2\text{H}_4\text{N}[\text{CH}(\text{CH}_3)_2]_2$
(U) EA 1724 (QL)	O-(2-Diisopropylaminoethyl) O-ethyl methylphosphonite	$\begin{array}{c} \text{CH}_3 \\ \diagup \\ \text{P} \\ \diagdown \\ \text{C}_2\text{H}_5\text{O} \end{array} - \text{OC}_2\text{H}_4\text{N}[\text{CH}(\text{CH}_3)_2]_2$
(U) EA 1728	O-Isopropyl S-(2-diisopropyl-aminoethyl) methylphosphonothioate	$\begin{array}{c} \text{CH}_3 \\ \diagup \\ \text{P}=\text{O} \\ \diagdown \\ (\text{CH}_3)_2\text{CHO} \end{array} - \text{SC}_2\text{H}_4\text{N}[\text{CH}(\text{CH}_3)_2]_2$

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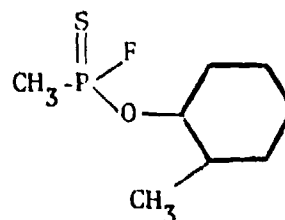
(U) EA 1763

O-n-Propyl S-(2-diisopropyl-
aminoethyl) methylphosphono-
thioate



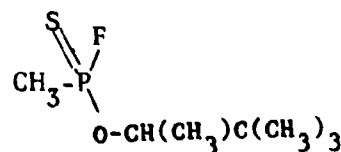
(U) EA 2261

O-(2-Methylcyclohexyl)
methylphosphonofluorido-
thioate



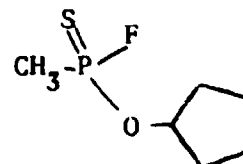
(U) EA 2337

O-Pinacolyl methylphos-
phonofluoridothioate



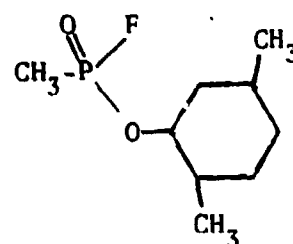
(U) EA 2361

O-Cyclopentyl methyl-
phosphonofluoridothioate



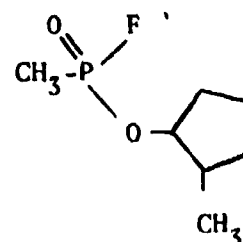
(U) EA 3307

2,5-Dimethylcyclohexyl
methylphosphono-
fluoridate



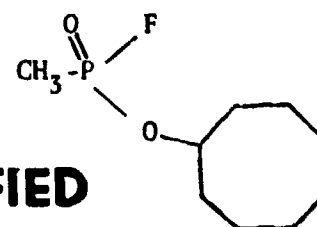
(U) EA 3430

2-Methylcyclopentyl
methylphosphono-
fluoridate



(U) EA 4349

Cyclooctyl methylphos-
phonofluoridate

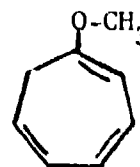


Appendix A

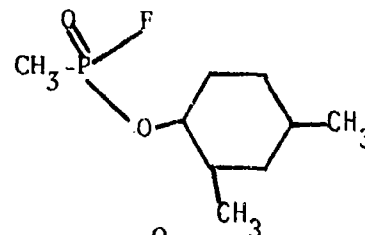
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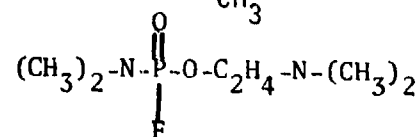
(U) EA 4923 1-Methoxy cycloheptatriene



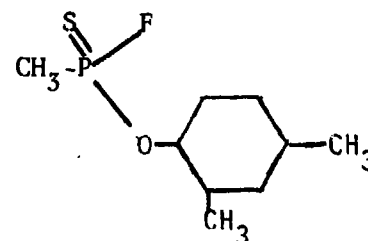
(U) EA 5265 2,4-Dimethylcyclohexyl methylphosphono-fluoridate



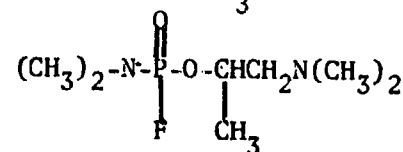
(C) EA 5365 2-Dimethylaminoethyl N,N-dimethylphosphoramidofluoridate



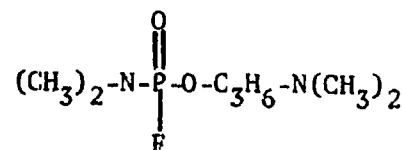
(U) EA 5389 O-2,4-Dimethylcyclohexyl methylphosphonofluoridothioate



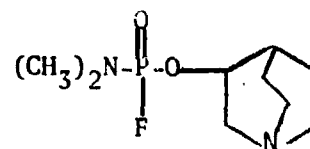
(C) EA 5403 1-Dimethylamino-2-propyl N,N-dimethylphosphoramido-fluoridate



(C) EA 5414 1-Dimethylamino-3-propyl N,N-dimethylphosphoramido-fluoridate



(C) EA 5488 3-Quinuclidyl-N,N-dimethylphosphoramido-fluoridate



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APPENDIX B

PHYSICAL PROPERTY DATA (U)

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Appendix B

SUMMARY OF PROPERTIES OF EA 1033 AT THE MELTING POINT IN LIEU OF -40 DEG C
COMMON NAME: HD FORMULA WEIGHT: 159.1 GENERAL REFERENCE: CRLR542
***** PLEASE NOTE: THE REQUESTED TEMPERATURE IS OVER 25 DEGREES BELOW MELTING POINT. THEREFORE THE PROPERTIES
ESTIMATED FOR LIQUIDS AND VAPORS ARE PROVIDED AT THE MELTING POINT OR FREEZING POINT. *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.47009, B= 1935.47, C= 204.2 DETERMINED OVER THE
TEMPERATURE RANGE 14.9 TO 140.0 DEG. CENT. REFERENCE: EQ.CAL FROM V389
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .42-01
ESTIMATED BOILING POINT(CENT.)= 217.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.3
VOLATILITY(MG/METER CUBED)= .37+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .23+01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

VAPOR PRESSURE(TORR)= .11+00 AT 25.0 DEG. CENT. REFERENCE: CRLR542
DENSITY(G/ML)= 1.2799 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2954 - .00107 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542 RANGE 20-40C LIQUID

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.59800, B= -952.50, C= 273.2 DETERMINED OVER THE TEMPERATURE
RANGE 15.0 TO 35.0 DEG. CENT. REFERENCE: CRLR542
WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTIPOISE)= 5.175
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 45.3700 - .1340*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542
WERE USED TO CALCULATE THE SURFACE TENSION 43.9 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.5305 WAS CALCULATED FROM THE EQUATION:

REFRACTIVE INDEX(ND)= 1.5377 - .00050*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
20.0 TO 36.0 DEG. CENT. REFERENCE: CRLR542

HEAT OF COMBUSTION(KCAL/MOLE)= -7.56 AT 25.0 DEG. CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)635

FLASH POINT, (CENTIGRADE)= 105.0 REFERENCE: MICRO METHOD CRLR542

HEAT OF SUBLIMATION(KCAL/MOLE)= 18.60 AT 14.5 DEGREE CENT. REFERENCE: CRLR542

HEAT OF FUSION(KCAL/MOLE)= 4.2 AT 25.0 DEGREE CENT. REFERENCE: CRLR542

HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -47.91 AT 25.0 DEGREE CENT. REFERENCE: CRLR542

HEAT CAPACITY (KCAL/MOLE)= .0569 AT 19.0 DEGREE CENT. REFERENCE: CRLR542

HEAT CAPACITY (KCAL/MOLE)= .0504 AT 0 DEGREE CENT. REFERENCE: CRLR542 -30 TO 10 DEG C

THERMAL CONDUCTIVITY(CAL/CM**2/CM/DEG. C./SEC)= .316-03 AT 20.0 DEGREE CENT. REFERENCE: CRLR542

THERMAL CONDUCTIVITY(CAL/CM**2/CM/DEG. C./SEC)= .387-03 AT 4.0 DEGREE CENT. REFERENCE: CRLR542

FREEZING POINT (DEG. CENT.)= 14.45 REFERENCE: CRLR542

SOLUBILITY(G/100G SOLVENT) .820+00 AT 22.0 DEGREE CENTIGRADE REFERENCE: WATER CRLR542

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.4020 456.11 395.70 39.49

DIFFUSION COEF. = .055 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.49,23(1944) VISCOSITY OF VAPOR = 6.37-03 CENTIPOISE

END OF COMPOUND EA 1033 AT 14.5 DEGREES C.

PAGE NUMBER B- 1

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SUMMARY OF PROPERTIES OF EA 1033 AT THE MELTING POINT IN LIEU OF -20 DEG C

***** PLEASE NOTE: THE REQUESTED TEMPERATURE IS OVER 25 DEGREES BELOW MELTING POINT. THEREFORE THE PROPERTIES ESTIMATED FOR LIQUIDS AND VAPORS ARE PROVIDED AT THE MELTING POINT OR FREEZING POINT. *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.47009, B= 1935.47, C= 204.2 DETERMINED OVER THE TEMPERATURE RANGE 14.9 TO 140.0 DEG. CENT. REFERENCE: EQ.CAL FROM V389

WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .42-01
ESTIMATED BOILING POINT(CENT.)= 217.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.3
VOLATILITY(MG/METER CUBED)= .37+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .23+01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

VAPOR PRESSURE(TORR)= .11+00 AT 25.0 DEG. CENT. REFERENCE: CRLR542
DENSITY(G/ML)= 1.2799 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2954 - .00107 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542 RANGE 20-40C LIQUID

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.59800, B= -952.50, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 35.0 DEG. CENT. REFERENCE: CRLR542
WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTIPOISE)= 5.175
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 45.4700 - .1340*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542
WERE USED TO CALCULATE THE SURFACE TENSION 43.9 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.5305 WAS CALCULATED FROM THE EQUATION:

REFRACTIVE INDEX(ND)= 1.5377 - .00050*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: CRLR542

HEAT OF COMBUSTION(KCAL/MOLE)= -7.56 AT 25.0 DEG. CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)635

FLASH POINT, (CENTIGRADE)= 105.0 REFERENCE: MICRO METHOD CRLR542

HEAT OF SUBLIMATION(KCAL/MOLE)= 18.60 AT 14.5 DEGREE CENT. REFERENCE: CRLR542

HEAT OF FUSION(KCAL/MOLE)= 4.2 AT 25.0 DEGREE CENT. REFERENCE: CRDL-542

HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -47.91 AT 25.0 DEGREE CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)635

HEAT CAPACITY (KCAL/MOLE)= .0569 AT 19.0 DEGREE CENT. REFERENCE: CRLR542

HEAT CAPACITY (KCAL/MOLE)= .0504 AT .0 DEGREE CENT. REFERENCE: CRLR542 -30 TO 10 DEG C

THERMAL CONDUCTIVITY(CAL/CM**2/CM/DEG. C./SEC)= .316-03 AT 20.0 DEGREE CENT. REFERENCE: CRLR542

THERMAL CONDUCTIVITY(CAL/CM**2/CM/DEG. C./SEC)= .387-03 AT 4.0 DEGREE CENT. REFERENCE: CRLR542

- FREEZING POINT (DEG. CENT.)= 14.45 REFERENCE: CRLR542
SOLUBILITY(G/100G SOLVENT)= .920+00 AT 22.0 DEGREE CENTIGRADE REFERENCE: WATER CRUL542

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.1020	456.11	395.70	39.49

DIFFUSION COEF. = .055 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.37-03 CENTIPOISE

END OF COMPOUND EA 1033 AT 14.5 DEGREES C. PAGE NUMBER B- 2

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Appendix B

SUMMARY OF PROPERTIES OF EA 1033 AT 10.0 DEGREES CENTIGRADE
 COMMON NAME: HD FORMULA WEIGHT: 159.1 GENERAL REFERENCE: CRLR542
 ***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
 VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.47009, B= 1935.47, C= 204.2 DETERMINED OVER THE
 TEMPERATURE RANGE 14.9 TO 140.0 DEG. CENT. REFERENCE: EQ.CAL FROM V389

WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .99-02

ESTIMATED BOILING POINT(CENT.)= 217.5

HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.8

VOLATILITY(MG/METER CUBED)= .92+02

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

VAPOR PRESSURE(TORR)= .11+00 AT 25.0 DEG. CENT. REFERENCE: CRLR542

DENSITY(G/ML)= 1.2954 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2954 - .00107 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542 RANGE 20-40C LIQUID

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.59800, B= -952.50, C= 273.2 DETERMINED OVER THE TEMPERATURE
 RANGE 15.0 TO 35.0 DEG. CENT. REFERENCE: CRLR542
 WERE USED TO CALCULATE THE TEMPERATURE
 VISCOSITY(CENTIPOISE)= 7.748

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 45.8700 - .1340*TEMP.(C.)

DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542

WERE USED TO CALCULATE THE SURFACE TENSION= 45.9 DYNES/CM

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.5377 WAS CALCULATED FROM THE EQUATION:

REFRACTIVE INDEX(ND)= 1.5377 - .00050*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
 20.0 TO 30.0 DEG. CENT. REFERENCE: CRLR542

HEAT OF COMBUSTION(KCAL/MOLE)= -7.56 AT 25.0 DEG. CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)635

FLASH POINT, (CENTIGRADE)= 105.0 REFERENCE: MICRO METHOD CRLR542

HEAT OF FUSION(KCAL/MOLE)= 4.2 AT 25.0 DEGREE CENT. REFERENCE: CRDL-542

HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -47.91 AT 25.0 DEGREE CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)635

HEAT CAPACITY (KCAL/MOLE)= .0569 AT 19.0 DEGREE CENT. REFERENCE: CRLR542

HEAT CAPACITY (KCAL/MOLE)= .0504 AT 20.0 DEGREE CENT. REFERENCE: CRLR542

THERMAL CONDUCTIVITY(CAL/CM**2/CM/DEG. C./SEC)= .316-03 AT 20.0 DEGREE CENT. REFERENCE: CRLR542

THERMAL CONDUCTIVITY(CAL/CM**2/CM/DEG. C./SEC)= .387-03 AT 4.0 DEGREE CENT. REFERENCE: CRLR542

FREEZING POINT (DEG. CENT.)= 14.45 REFERENCE: CRLR542

SOLUBILITY(G/100G SOLVENT)= .920+00 AT 22.0 DEGREE CENTIGRADE REFERENCE: WATER CRDL542

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE

GM/CC DEG C CC/MOLE ATM.

.4020 456.11 395.70 39.45

DIFFUSION COEF. = .049 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.00-03 CENTIPOISE

END OF COMPOUND EA 1033 AT 10.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1033 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: HD FORMULA WEIGHT: 159.1 GENERAL REFERENCE: CRLR542

THE FOLLOWING ANTIGINE CONSTANTS(EATR 4491): A= 7.47009, B= 1935.47, C= 204.2 DETERMINED OVER THE TEMPERATURE RANGE 14.9 TO 140.0 DEG. CENT. REFERENCE: EQ.CAL FROM V389
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .69-01
ESTIMATED BOILING POINT(CENT.)= 217.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.1
VOLATILITY(MILLIMOLE/ METER CUBED)= .38+01
VOLATILITY(MG/METER CUBED)= .80+03 AT 25.0 DEG. CENT. REFERENCE: CRLR542
VAPOR PRESSURE(TORR)= .11+00 AT 25.0 DEG. CENT. REFERENCE: CRLR542
DENSITY(G/ML)= 1.2739 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2954 - .00107 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542 RANGE 20-40C LIQUID

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.59800, B= -952.50, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 35.0 DEG. CENT. REFERENCE: CRLR542
WERE USED TO CALCULATE THE VISCOSITY

THE EQUATION: SURFACE TENSION(DYNES/CM)= 45.8700 - .1340*TEMP.(C.) REFERENCE: CRLR542
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT.
WERE USED TO CALCULATE THE SURFACE TENSION 43.2 DYNES/CM
REFRACTIVE INDEX(ND)= 1.5277 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.5377 - .00050*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: CRLR542

HEAT OF COMBUSTION(KCAL/MOLE)= -7.56 AT 25.0 DEG. CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)635
FLASH POINT (CENTIGRADE)= 105.0 REFERENCE: MICRO METHOD CRLR542

HEAT OF FUSION(KCAL/MOLE)= 18.60 AT 14.5 DEGREE CENT. REFERENCE: CRLR542
HEAT OF SUBLIMATION(KCAL/MOLE)= 4.2 AT 25.0 DEGREE CENT. REFERENCE: CRLR542

HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -47.91 AT 25.0 DEGREE CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)635
HEAT CAPACITY (KCAL/MOLE)= .0569 AT 19.0 DEGREE CENT. REFERENCE: CRLR542

HEAT CAPACITY (KCAL/MOLE)= .0504 AT 0 DEGREE CENT. REFERENCE: CRLR542
THERMAL CONDUCTIVITY(CAL/CM**2/CM/DEG. C./SEC)= .316-03 AT 20.0 DEGREE CENT. REFERENCE: CRLR542

THERMAL CONDUCTIVITY(CAL/CM**2/CM/DEG. C./SEC)= .387-03 AT 4.0 DEGREE CENT. REFERENCE: CRLR542
FREEZING POINT (DEG. CENT.)= 14.45 REFERENCE: CRLR542

SOLUBILITY(G/100G SOLVENT)= .920+00 AT 22.0 DEGREE CENTIGRADE REFERENCE: WATER CRLR542

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37, 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.0020 456.11 395.70 39.49

DIFFUSION COEF. = .057 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.52-03. CENTIPOISE

END OF COMPOUND EA 1033 AT 20.0 DEGREES C. PAGE NUMBER B- 4

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SUMMARY OF PROPERTIES OF EA 1033 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: NO FORMULA WEIGHT: 159.1 GENERAL REFERENCE: CRLR542

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= 7.47009, B= 1935.47, C= 204.2 DETERMINED OVER THE TEMPERATURE RANGE 14.9 TO 140.0 DEG. CENT. REFERENCE: EQ.CAL FROM V389
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .11+00
ESTIMATED BOILING POINT(CENT.)= 217.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.0
VOLATILITY(MG/METER CUBED)= .91+03 VOLATILITY(MILLIMOLE/METER CUBED)= .57+01
VAPOR PRESSURE(TORR)= .11+00 AT 25.0 DEG. CENT. REFERENCE: CRLR542
DENSITY(G/ML)= 1.2685 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2954 - .00107 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542 RANGE 20-40C LIQUID

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= -2.59800, B= -952.50, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 35.0 DEG. CENT. REFERENCE: CRLR542
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTIPOISE)= 3.951

THE EQUATION: SURFACE TENSION(DYNES/CM)= 45.8700 - .1340*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542
WERE USED TO CALCULATE THE SURFACE TENSION 42.5 DYNES/CM
REFRACTIVE INDEX(MD)= 1.5252 WAS CALCULATED FROM THE EQUATION:

REFRACTIVE INDEX(MD)= 1.5377 - .00050*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: CRLR542

HEAT OF COMBUSTION(KCAL/MOLE)= -7.56 AT 25.0 DEG. CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)1635
FLASH POINT, (CENTIGRADE)= 105.0 REFERENCE: MICRO METHOD CRLR542

HEAT OF SUBLIMATION(KCAL/MOLE)= 18.60 AT 14.5 DEGREE CENT. REFERENCE: CRLR542

HEAT OF FUSION(KCAL/MOLE)= 4.2 AT 25.0 DEGREE CENT. REFERENCE: CRDL-542

HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -47.91 AT 25.0 DEGREE CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)1635

HEAT CAPACITY (KCAL/MOLE)= .0569 AT 19.0 DEGREE CENT. REFERENCE: CRLR542

HEAT CAPACITY (KCAL/MOLE)= .0504 AT .0 DEGREE CENT. REFERENCE: CRLR542 -30 TO 10 DEG C

THERMAL CONDUCTIVITY(CAL/CM**2/CM/DEG. C./SEC)= .316-03 AT 20.0 DEGREE CENT. REFERENCE: CRLR542

THERMAL CONDUCTIVITY(CAL/CM**2/CM/DEG. C./SEC)= .307-03 AT 4.0 DEGREE CENT. REFERENCE: CRLR542

FREEZING POINT (DEG. CENT.)= 14.45 REFERENCE: CRLR542

SOLUBILITY(G/100G SOLVENT)= .920+00 AT 22.0 DEGREE CENTIGRADE REFERENCE: WATER CRDL542

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.1020	456.11	395.70	39.49

DIFFUSION COEF. = .060 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48:23(1944) VISCOSITY OF VAPOR = 6.65-03 CENTIPOISE

END OF COMPOUND EA 1033 AT 25.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1033 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: NO FORMULA WEIGHT: 159.1 GENERAL REFERENCE: CRLR542

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = 7.47009, B = 1935.47, C = 204.2 DETERMINED OVER THE TEMPERATURE RANGE 14.9 TO 140.0 DEG. CENT. REFERENCE: EQ.CAL FROM V389
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR) = .35+00
ESTIMATED BOILING POINT(CENT.) = 217.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE) = 14.5
VOLATILITY(MG/METER CUBED) = .29+04 VOLATILITY(MILLIMOLE/ METER CUBED)ⁿ .18+02
VAPOR PRESSURE(TORR) = .11+00 AT 25.0 DEG. CENT. REFERENCE: CRLR542
DENSITY(G/ML) = 1.2524 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.2954 - .00107 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542 RANGE 20-40C LIQUID

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -2.59800, B = -952.50, C = 273.2 DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 35.0 DEG. CENT. REFERENCE: CRLR542
VISCOSITY(CENTIPOISE) = 2.779
WERE USED TO CALCULATE THE VISCOSITY

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM) = 45.8700 - .1340*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542
WERE USED TO CALCULATE THE SURFACE TENSION
REFRACTIVE INDEX(ND) = 1.5177 WAS CALCULATED FROM THE EQUATION:

REFRACTIVE INDEX(ND) = 1.5377 - .00050*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: CRLR542

HEAT OF COMBUSTION(KCAL/MOLE) = -7.56 AT 25.0 DEG. CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)635
FLASH POINT, (CENTIGRADE) = 105.0 REFERENCE: MICRO METHOD CRLR542

HEAT OF SUBLIMATION(KCAL/MOLE) = 18.60 AT 14.5 DEGREE CENT. REFERENCE: CRLR542

HEAT OF FUSION(KCAL/MOLE) = 4.2 AT 25.0 DEGREE CENT. REFERENCE: CRLR542

HEAT OF FORMATION OF LIQUID (KCAL/MOLE) = -47.91 AT 25.0 DEGREE CENT. REFERENCE: CRD1-542

HEAT CAPACITY (KCAL/MOLE) = .0509 AT 19.0 DEGREE CENT. REFERENCE: CRLR542

HEAT CAPACITY (KCAL/MOLE) = .0504 AT 0.0 DEGREE CENT. REFERENCE: CRLR542 -30 TO 10 DEG C

THERMAL CONDUCTIVITY(CAL/CM*2/CM/DEG. C./SEC) = .316-03 AT 20.0 DEGREE CENT. REFERENCE: CRLR542

THERMAL CONDUCTIVITY(CAL/CM*2/CM/DEG. C./SEC) = .387-03 AT 4.0 DEGREE CENT. REFERENCE: CRLR542

FREEZING POINT (DEG. CENT.) = 14.45 REFERENCE: CRLR542

SOLUBILITY(G/100G SOLVENT) .920+00 AT 22.0 DEGREE CENTIGRADE REFERENCE: WATER CRDL542

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.4020 456.11 395.70 39.49

DIFFUSION COEF. = .066 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 7.04-03 CENTIPOISE

END OF COMPOUND EA 1033 AT 40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1034 AT THE MELTING POINT IN LIEU OF -40 DEG C
 COMMON NAME: L FORMULA WEIGHT: 207.3 GENERAL REFERENCE: S.O./R/667
 ***** PLEASE NOTE: THE REQUESTED TEMPERATURE IS OVER 25 DEGREES BELOW MELTING POINT. THEREFORE THE PROPERTIES
 ESTIMATED FOR LIQUIDS AND VAPORS ARE PROVIDED AT THE MELTING POINT OR FREEZING POINT. *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.40361, B= 1237.03, C= 155.2 DETERMINED OVER THE
 TEMPERATURE RANGE 50.0 TO 150.0 DEG. CENT. REFERENCE: S.O./R/561 HIGH PURITY
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .24-01
 ESTIMATED BOILING POINT(CENT.)= 195.9
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 17.6
 VOLATILITY(MG/METER CUBED)= .29+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .14+01
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.9230 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.9210 - .00167 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.02201, B= -223.38, C= 142.4 DETERMINED OVER THE TEMPERATURE
 RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667
 WERE USED TO CALCULATE THE SURFACE TENSION
 VISCOSITY(CENTIPOISE)= 3.631
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 44.1900 - .1218*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/344
 WERE USED TO CALCULATE THE SURFACE TENSION 44.3 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -1.2 REFERENCE: -18 TO .1 DEG C ETf100-41V4
 REFRACTIVE INDEX(ND)= 1.6207 WAS CALCULATED FROM THE EQUATION:
 REFRACTIVE INDEX(ND)= 1.6201 - .00050*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .6014 429.11 344.72 43.66

DIFFUSION COEF. = .052 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 7.68-03 CENTIPOISE

END OF COMPOUND EA 1034 AT -1.2 DEGREES C. PAGE NUMBER B- 7

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Appendix B

SUMMARY OF PROPERTIES OF EA 1034 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: L FORMULA WEIGHT: 207.3 GENERAL REFERENCE: S.O./R/667
***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.40361, B= 1237.03, C= 155.2 DETERMINED OVER THE
TEMPERATURE RANGE 50.0 TO 150.0 DEG. CENT. REFERENCE: S.O./R/561 HIGH PURITY
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .18-02
ESTIMATED BOILING POINT(CENT.)= 195.9
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 19.8
VOLATILITY(MG/METER CUBED)= .24+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .11+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.9544 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.9210 - .00167 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.02201, B= -223.38, C= 142.4 DETERMINED OVER THE TEMPERATURE
RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VISCOSITY(CENTIPOISE)= 6.353
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 44.1900 - .1218*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/544
WERE USED TO CALCULATE THE SURFACE TENSION 46.6 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -1.2 REFERENCE: -18 TO .1 DEG C ETT100-41V4
REFRACTIVE INDEX(ND)= 1.6301 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.6201 - .00050*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.6014 429.11 344.72 43.68

DIFFUSION COEF. = .044 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48:23(1944) VISCOSITY OF VAPOR = 7.04-03 CENTIPOISE

END OF COMPOUND EA 1034 AT -20.0 DEGREES C. PAGE NUMBER B- 8

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SUMMARY OF PROPERTIES OF EA 1034 AT .0 DEGREES CENTIGRADE
 COMMON NAME: L FORMULA WEIGHT: 207.3 GENERAL REFERENCE: S.O./R/667

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.40361, B= 1237.03, C= 155.2 DETERMINED OVER THE
 TEMPERATURE RANGE 50.0 TO 150.0 DEG. CENT. REFERENCE: S.O./R/561 HIGH PURITY
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .27-01
 ESTIMATED BOILING POINT(CENT.)= 195.9
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 17.5
 VOLATILITY(MG/METER CUBED)= .33+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .18+01
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.9210 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.9210 - .00167 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.02201, B= -223.38, C= 142.4 DETERMINED OVER THE TEMPERATURE
 RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667

WISCOSITY(CENTIPOISE)= 3.521 WERE USED TO CALCULATE THE VISCOSITY

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 44.1900 - .1218*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/544
 WERE USED TO CALCULATE THE SURFACE TENSION 44.2 DYNES/CM

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -1.2 REFERENCE: -18 TO .1 DEG C ETF100-41V4

REFRACTIVE INDEX(ND)= 1.6201 WAS CALCULATED FROM THE EQUATION:

REFRACTIVE INDEX(ND)= 1.6201 - .00050*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.6014	429.11	344.72	43.66

DIFFUSION COEF. = .053 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 7.70-03 CENTIPOISE

END OF COMPOUND EA 1034 AT .0 DEGREES C. PAGE NUMBER 8- 9

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SUMMARY OF PROPERTIES OF EA 1034 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: L FORMULA WEIGHT: 207.3 GENERAL REFERENCE: S.O./R/667

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.40361, B= 1237.03, C= 155.2 DETERMINED OVER THE
TEMPERATURE RANGE 50.0 TO 150.0 DEG. CENT. REFERENCE: S.O./R/561 HIGH PURITY
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .22+00
ESTIMATED BOILING POINT(CENT.)= 195.9
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.8
VOLATILITY(MILLIMOLE/ METER CUBED)= .25+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .12+02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.8876 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.9210 - .00167 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.02201, B= -223.38, C= 142.4 DETERMINED OVER THE TEMPERATURE
RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667
WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTIPOISE)= 2.257
THE EQUATION: SURFACE TENSION(DYNES/CM)= 44.1900 - .1218*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/544
WERE USED TO CALCULATE THE SURFACE TENSION 41.8 DYNES/CM
MELTING POINT (DEG. CENT.) = -1.2 REFERENCE: -18 TO .1 DEG C ETF100-41V4
REFRACTIVE INDEX(ND)= 1.6101 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.6201 - .00050*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.6014 429.11 344.72 43.66

DIFFUSION COEF. = .061 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 8.36-03 CENTIPOISE

END OF COMPOUND EA 1034 AT 20.0 DEGREES C. PAGE NUMBER B- 10

Appendix B

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SUMMARY OF PROPERTIES OF EA 1034 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: L FORMULA WEIGHT: 207.3 GENERAL REFERENCE: S.O./R/667

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 5.40361, B= 1237.03, C= 155.2 DETERMINED OVER THE
TEMPERATURE RANGE 50.0 TO 150.0 DEG. CENT. REFERENCE: S.O./R/561 HIGH PURITY
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .35+00
ESTIMATED BOILING POINT(CENT.)= 195.9
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.5
VOLATILITY(MG/METER CUBED)= .39+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .19+02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.8793 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.9210 - .00167 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.02201, B= -223.38, C= 142.4 DETERMINED OVER THE TEMPERATURE
RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667 WERE USED TO CALCULATE THE VISCOSITY

THE EQUATION: SURFACE TENSION(DYNES/CM)= 44.1900 - .1218*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/544
WERE USED TO CALCULATE THE SURFACE TENSION 41.1 DYNES/CM
MELTING POINT (DEG. CENT.) = -1.2 REFERENCE: -18 TO .1 DEG C ETF100-41V4
REFRACTIVE INDEX(ND)= 1.6076 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.6201 - .00050*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.6014 429.11 344.72 43.66

DIFFUSION COEF. = .064 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 8.53-03 CENTIPOISE

END OF COMPOUND EA 1034 AT 25.0 DEGREES C. PAGE NUMBER 8- 11

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SUMMARY OF PROPERTIES OF EA 1034 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: L FORMULA WEIGHT: 207.3 GENERAL REFERENCE: S.O./R/667

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.40361, B= 1237.03, C= 155.2 DETERMINED OVER THE TEMPERATURE RANGE 50.0 TO 150.0 DEG. CENT. REFERENCE: S.O./R/561 HIGH PURITY WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= 12+01
ESTIMATED BOILING POINT(CENT.)= 195.9
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.5
VOLATILITY(MG/METER CUBED)= 12+05 VOLATILITY(MILLIMOLE/ METER CUBED)= .60+02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.8542 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.9210 - .00167 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.02201, B= -223.38, C= 142.4 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667 WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTIPOISE)= 1.595
THE EQUATION: SURFACE TENSION(DYNES/CM)= 44.1900 - .1218*TEMP.(C.) REFERENCE: S.O./R/544
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT.
WERE USED TO CALCULATE THE SURFACE TENSION 39.3 DYNES/CM
MELTING POINT (DEG. CENT.) = -1.2 REFERENCE: -18 TO .1 DEG C ETF100-41V4
REFRACTIVE INDEX(ND)= 1.6001 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.6201 - .00050*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: S.O./R/667

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.6014 429.11 344.72 43.66

DIFFUSION COEF. = .071 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING : 2 ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY-CHEM.48,23(1944) VISCOSITY OF VAPOR = 9.02-03 CENTIPOISE

END OF COMPOUND EA 1034 AT 40.0 DEGREES C. PAGE NUMBER B- 12

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SUMMARY OF PROPERTIES OF EA 1036 AT THE MELTING POINT IN LIEU OF -40 DEG C
 COMMON NAME: T FORMULA WEIGHT: 263.2 GENERAL REFERENCE: CRLR542
 ***** PLEASE NOTE: THE REQUESTED TEMPERATURE IS OVER 25 DEGREES BELOW MELTING POINT. THEREFORE THE PROPERTIES
 ESTIMATED FOR LIQUIDS AND VAPORS ARE PROVIDED AT THE MELTING POINT OR FREEZING POINT. *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.53000, B= 4191.00, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 50.0 TO 70.0 DEG. CENT. REFERENCE: CRLR542 HIGH PURITY FM 8.85
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .48-05
 ESTIMATED BOILING POINT(CENT.)= 357.1
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 19.1
 VOLATILITY(MG/METER CUBED)= .71-01 VOLATILITY(MILLIMOLE/ METER CUBED)= .27-03
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.2514 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2599 - .00095 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: CRLR542

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE VISCOSITY(CENTIPOISE)= 18.300 AT 20.0 DEGREES CENTIGRADE REFERENCE: SYNTHETIC T,FP 5.8, TDMR 524
 EQUATION: SURFACE TENSION(DYNES/CM)= 48.2600 - .1106*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542 FP 7.8C
 WERE USED TO CALCULATE THE SURFACE TENSION 47.3 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.5440 WAS CALCULATED FROM THE EQUATION:
 REFRACTIVE INDEX(ND)= 1.5478 - .00042*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
 15.0 TO 25.0 DEG. CENT. REFERENCE: CRLR542 FP 5.4
 HEAT OF SUBLIMATION(KCAL/MOLE)= 24.00 AT .0 DEGREE CENT. REFERENCE: CRLR520 CAL.
 HEAT OF FUSION(KCAL/MOLE)= 4.65 AT .0 DEGREE CENT. REFERENCE: CRLR542 ALSO GIVES 4.9
 BOILING POINT, (DEG. CENTIGRADE)= 357.0 AT 760.0 MM OF HG REFERENCE: CRLR542 CAL DECOMP
 FREEZING POINT (DEG. CENT.)= 8.97 REFERENCE: CRLR542 +OR- .01 PERCENT

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3844	515.89	684.82	24.69

DIFFUSION COEF. = .035 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 5.27-03 CENTIPOISE

END OF COMPOUND EA 1036 AT 9.0 DEGREES C. PAGE NUMBER B- 13

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SUMMARY OF PROPERTIES OF EA 1036 AT THE MELTING POINT IN LIEU OF -20 DEG C
 COMMON NAME: 1 FORMULA WEIGHT: 263.2
 ***** PLEASE NOTE: THE REQUESTED TEMPERATURE IS OVER 25 DEGREES BELOW MELTING POINT. THEREFORE THE PROPERTIES
 ESTIMATED FOR LIQUIDS AND VAPORS ARE PROVIDED AT THE MELTING POINT OR FREEZING POINT. *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.53000, B= 4191.00, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 50.0 TO 70.0 DEG. CENT. REFERENCE: CRLR542 HIGH PURITY FP 8.85
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .48-05
 ESTIMATED BOILING POINT(CENT.)= 357.1
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 19.1
 VOLATILITY(MG/METER CUBED)= .71-01 VOLATILITY(MILLIMOLE/ METER CUBED)= .27-03
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.2514 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2599 - .00095 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: CRLR542

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

VISCOSITY(CENTIPOISE)= 18.300 AT 20.0 DEGREES CENTIGRADE REFERENCE: SYNTHETIC T, FP 5.8, TDMR 524
 THE EQUATION: SURFACE TENSION(DYNES/CM)= 48.2600 - .1106*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542 FP 7.6C
 WERE USED TO CALCULATE THE SURFACE TENSION 47.3 DYNES/CM

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.5440 WAS CALCULATED FROM THE EQUATION:

REFRACTIVE INDEX(ND)= 1.5478 - .00042*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
 15.0 TO 25.0 DEG. CENT. REFERENCE: CRLR542 FP 5.4

HEAT OF SUBLIMATION(KCAL/MOLE)= 24.00 AT .0 DEGREE CENT. REFERENCE: CRLR520 CAL.

HEAT OF FUSION(KCAL/MOLE)= 4.65 AT .0 DEGREE CENT. REFERENCE: CRLR542 ALSO GIVES 4.9

BOILING POINT (DEG. CENTIGRADE)= 357.0 AT 760.0 MM OF HG REFERENCE: CRLR542 CAL DECOMP

FREEZING POINT (DEG. CENT.)= 8.97 REFERENCE: CRLR542 +OR- .01 PERCENT

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3844 515.89 684.82 24.69

DIFFUSION COEF. = .035 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J. PHY. CHEM. 48, 23(1944) VISCOSITY OF VAPOR = 5.27-03 CENTIPOISE

END OF COMPOUND EA 1036 AT 9.0 DEGREES C.

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Appendix B

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SUMMARY OF PROPERTIES OF EA 1036 AT .0 DEGREES CENTIGRADE
 COMMON NAME: T FORMULA WEIGHT: 263.2 GENERAL REFERENCE: CRLR542
 ***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
 VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****

THE FOLLOWING ANTONE CONSTANTS(EATR 4491): A= 9.53000, B= 4191.60, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 50.0 TO 70.0 DEG. CENT. REFERENCE: CRLR542 HIGH PURITY FP 8.85
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .15-05
 ESTIMATED BOILING POINT(CENT.)= 357.1
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 19.1
 VOLATILITY(MG/METER CUBED)= .24-01 VOLATILITY(MILLIMOLE/ METER CUBED)= .91-04
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.2599 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2599 - .00095 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: CRLR542

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

VISCOSITY(CENTIPOISE)= 18.300 AT 20.0 DEGREES CENTIGRADE REFERENCE: SYNTHETIC T.FP 5.8, TDMR 524
 THE EQUATION: SURFACE TENSION(DYNES/CM)= 48.2600 - .1106*TEMP.(C.) REFERENCE: SYNTHETIC T.FP 5.8, TDMR 524
 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542 FP 7.6C
 WERE USED TO CALCULATE THE SURFACE TENSION 48.3 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.5478 WAS CALCULATED FROM THE EQUATION:
 REFRACTIVE INDEX(ND)= 1.5478 - .00042*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
 15.0 TO 25.0 DEG. CENT. REFERENCE: CRLR542 FP 5.4
 HEAT OF SUBLIMATION(KCAL/MOLE)= 24.00 AT .0 DEGREE CENT. REFERENCE: CRLR520 CAL.
 HEAT OF FUSION(KCAL/MOLE)= 4.65 AT .0 DEGREE CENT. REFERENCE: CRLR542 ALSO GIVES 4.9
 BOILING POINT, (DEG. CENTIGRADE)= 357.0 AT 760.0 MM OF HG REFERENCE: CRLR542 CAL DECOMP
 FREEZING POINT (DEG. CENT.)= 8.97 REFERENCE: CRLR542 +OR- .01 PERCENT

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37, 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3844 515.89 684.82 24.69

DIFFUSION COEF. = .033 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.07-03 CENTIPOISE

END OF COMPOUND EA 1036 AT .0 DEGREES C. PAGE NUMBER B- 15

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SUMMARY OF PROPERTIES OF EA 1036 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: 7 FORMULA WEIGHT: 263.2 GENERAL REFERENCE: CRLR542

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.53000, B= 4191.00, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 50.0 TO 70.0 DEG. CENT. REFERENCE: CRLR542 HIGH PURITY FP 8.85
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .17-04
ESTIMATED BOILING POINT(CELT)= 357.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 19.1
VOLATILITY(MG/METER CUBED)= .25*00 VOLATILITY(MILLIMOLE/ METER CUBED)= .94-03
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.2409 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2599 - .00095 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: CRLR542

VISCOSITY(CENTIPOISE)= 19.300 AT 20.0 DEGREES CENTIGRADE REFERENCE: SYNTHETIC T.FP 5.8, TDMR 524
THE EQUATION: SURFACE TENSION(DYNES/CM)= 48.2600 - .1108*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542 FP 7.6C
WERE USED TO CALCULATE THE SURFACE TENSION 46.0 DYNES/CM
REFRACTIVE INDEX(ND)= 1.5384 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.5478 - .00042*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
15.0 TO 25.0 DEG. CENT. REFERENCE: CRLR542 FP 5.4
HEAT OF SUBLIMATION(KCAL/MOLE)= 24.00 AT .0 DEGREE CENT. REFERENCE: CRLR520 CAL.
HEAT OF FUSION(KCAL/MOLE)= 4.85 AT .0 DEGREE CENT. REFERENCE: CRLR542 ALSO GIVES 4.9
BOILING POINT, (DEG. CENTIGRADE)= 357.0 AT 760.0 MM OF HG REFERENCE: CRLR542 CAL DECOMP
FREEZING POINT (DEG. CENT.)= 8.97 REFERENCE: CRLR542 +OR- .01 PERCENT

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3844 515.89 684.82 24.69
DIFFUSION COEF. = .038 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.52-03 CENTIPOISE

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Appendix B

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SUMMARY OF PROPERTIES OF EA 1036 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: T FORMULA WEIGHT: 263.2 GENERAL REFERENCE: CLR542

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.53000, B= 4191.00, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 50.0 TO 70.0 DEG. CENT. REFERENCE: CLR542 HIGH PURITY FP 8.85 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .30-04
ESTIMATED BOILING POINT(CENT.)= 357.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 19.1
VOLATILITY(MG/METER CUBED)= .42+00 VOLATILITY(MILLIMOLE/ METER CUBED)= .18-02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.2362 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2599 - .00095 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: CLR542

VISCOSITY(CENTIPOISE)= 18.300 AT 20.0 DEGREES CENTIGRADE REFERENCE: SYNTHETIC T.FP 5.8, TDMR 524
THE EQUATION: SURFACE TENSION(DYNES/CM)= 49.2600 - .1106*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CLR542 FP 7.6C
WERE USED TO CALCULATE THE SURFACE TENSION
REFRACTIVE INDEX(ND)= 1.5373 WAS CALCULATED FROM THE EQUATION:

REFRACTIVE INDEX(ND)= 1.5478 - .00042*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 25.0 DEG. CENT. REFERENCE: CLR542 FP 5.4
HEAT OF SUBLIMATION(KCAL/MOLE)= 24.00 AT .0 DEGREE CENT. REFERENCE: CLR520 CAL.
HEAT OF FUSION(KCAL/MOLE)= 4.65 AT .0 DEGREE CENT. REFERENCE: CLR542 ALSO GIVES 4.9
BOILING POINT, (DEG. CENTIGRADE)= 357.0 AT 760.0 MM OF HG REFERENCE: CLR542 CAL DECOMP
FREEZING POINT (DEG. CENT.)= 8.97 REFERENCE: CLR542 +OR- .01 PERCENT

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3844 515.89 684.82 24.89

DIFFUSION COEF. = .040 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.: J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 5.83-03 CENTIPOISE

END OF COMPOUND EA 1036 AT 25.0 DEGREES C. PAGE NUMBER B- 17

Appendix B

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SUMMARY OF PROPERTIES OF EA 1036 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: T FORMULA WEIGHT: 263.2 GENERAL REFERENCE: CRLR542

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= 9.53000, B= 4191.00, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 50.0 TO 70.0 DEG. CENT. REFERENCE: CRLR542 HIGH PURITY FP 0.85
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(13)= .14-03
ESTIMATED BOILING POINT(CENT.)= 357.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 19.1
VOLATILITY(WG/WEI CUBED)= .19-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
DENSITY(G/ML)= 1.219 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2599 - .00095 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: CRLR542

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

VISCOSITY(CENTIPOISE)= 18.300 AT 20.0 DEGREES CENTIGRADE REFERENCE: SYNTHETIC T.FP 5.8. TDWR 524
EQUATION: SURFACE TENSION(DYNES/CM)= 48.2600 - .1106*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: CRLR542 FP 7.6C
WERE USED TO CALCULATE THE SURFACE TENSION 43.8 DYNES/CM
REFRACTIVE INDEX(ND)= 1.5310 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.5478 - .00042*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 25.0 DEG. CENT. REFERENCE: CRLR542 FP 5.4
HEAT OF SUBLIMATION(KCAL/MOLE)= 24.00 AT .0 DEGREE CENT. REFERENCE: CRLR520 CAL.
HEAT OF FUSION(KCAL/MOLE)= 4.65 AT .0 DEGREE CENT. REFERENCE: CRLR542 ALSO GIVES 4.9
BOILING POINT, (DEG. CENTIGRADE)= 357.0 AT 760.0 MM OF HG REFERENCE: CRLR542 CAL DECOMP
FREEZING POINT (DEG. CENT.)= 8.97 REFERENCE: CRLR542 +DR- .01 PERCENT

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3244 515.89 684.82 24.69

DIFFUSION COEF. = .044 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.96-03 CENTIPOISE

END OF COMPOUND EA 1036 AT 40.0 DEGREES C. PAGE NUMBER B- 18

Appendix B

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SUMMARY OF PROPERTIES OF EA 1053 AT THE MELTING POINT IN LIEU OF -40 DEG C
 COMMON NAME: HN3 FORMULA WEIGHT: 204.5 GENERAL REFERENCE: ETF100-41V4 N-MUSTARD-3
 ***** PLEASE NOTE: THE REQUESTED TEMPERATURE IS OVER 25 DEGREES BELOW MELTING POINT. THEREFORE THE PROPERTIES
 ESTIMATED FOR LIQUIDS AND VAPORS ARE PROVIDED AT THE MELTING POINT OR FREEZING POINT. *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= 8.55297, B= 2856.48, C= 246.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 186.0 DEG. CENT. REFERENCE: COMB.SO/R/643.W11451.N83821
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .61-03
 ESTIMATED BOILING POINT(CENT.)= 257.2
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.1
 VOLATILITY(MG/METER CUBED)= .74+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .36-01
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.2632 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2596 - .00098 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: SO/R/643

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= -5.32800, B=-1250.00, C= 273.2 DETERMINED OVER THE TEMPERATURE
 RANGE 20.0 TO 35.0 DEG. CENT. REFERENCE:SO/R/643
 WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTIPOISE)= .205
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 44.0900 - .1290*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: SO/R/643
 WERE USED TO CALCULATE THE SURFACE TENSION 44.6 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -3.7 REFERENCE: ETF100-41V4

REFRACTIVE INDEX(ND)= 1.5057 WAS CALCULATED FROM THE EQUATION:
 REFRACTIVE INDEX(ND)= 1.5042 - .00040*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
 20.0 TO 35.8 DEG. CENT. REFERENCE: SO/R/643
 SOLUBILITY(G/100G SOLVENT) .600-02 AT 25.0 DEGREE CENTIGRADE REFERENCE: ETF100-41V4 APP WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3860	498.94	529.83	31.23

DIFFUSION COEF. = .039 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 5.30-03 CENTIPOISE

END OF COMPOUND EA 1053 AT -3.7 DEGREES C. PAGE NUMBER B- 19

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SUMMARY OF PROPERTIES OF EA 1053 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: NN3 FORMULA WEIGHT: 204.5
 GENERAL REFERENCE: ETF100-41V4 N-MUSTARD-3
 WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
 VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****

Appendix B

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.55297, B= 2856.46, C= 246.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 186.0 DEG. CENT. REFERENCE: COMB.SO/R/643.W11451.NB8821
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .87-04
 ESTIMATED BOILING POINT(CENT.)= 257.2
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.3
 VOLATILITY(MILLIMOLE/ METER CUBED)= .55-02
 VOLATILITY(MG/METER CUBED)= .11+01
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.2790 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2598 - .00098 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: SO/R/643

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -5.32800, B=-1250.00, C= 273.2 DETERMINED OVER THE TEMPERATURE
 RANGE 20.0 TO 35.0 DEG. CENT. REFERENCE: SO/R/643
 WERE USED TO CALCULATE THE SURFACE TENSION
 VISCOSITY(CENTIPOISE)= .406
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 44.0900 - .1290*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: SO/R/643
 WERE USED TO CALCULATE THE SURFACE TENSION 46.7 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -3.7 REFERENCE: ETF100-41V4

REFRACTIVE INDEX(ND)= 1.5122 WAS CALCULATED FROM THE EQUATION:
 REFRACTIVE INDEX(ND)= 1.5042 - .00040*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
 20.0 TO 35.8 DEG. CENT. REFERENCE: SO/R/643

SOLUBILITY(G/100G SOLVENT) .800-02 AT 25.0 DEGREE CENTIGRADE REFERENCE: ETF100-41V4 APP WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37, 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3860	498.94	529.83	31.23

DIFFUSION COEF. = .034 CM.SO./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.9+03 CENTIPOISE

END OF COMPOUND EA 1053 AT -20.0 DEGREES C. PAGE NUMBER B- 20

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SUMMARY OF PROPERTIES OF EA 1053 AT .0 DEGREES CENTIGRADE
COMMON NAME: HN3 FORMULA WEIGHT: 204.5 GENERAL REFERENCE: ETF100-41V4 N-MUSTARD-3

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.55297, B= 2855.46, C= 246.4 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 186.0 DEG. CENT. REFERENCE: COMB.SO/R/643.M11451.NB0821
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .92-03
ESTIMATED BOILING POINT(CENT.)= 257.2
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.0
VOLATILITY(MG/METER CUBED)= .11+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .54-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.2596 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2596 - .00098 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: SO/R/643

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -5.32800, B=-1250.00, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 35.0 DEG. CENT. REFERENCE:SO/R/643
WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTIPOISE)= .177
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 44.0900 - .1290*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: SO/R/643
WERE USED TO CALCULATE THE SURFACE TENSION 44.1 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -3.7 REFERENCE: ETF100-41V4
REFRACTIVE INDEX(ND)= 1.5042 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.5042 - .00040*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 35.8 DEG. CENT. REFERENCE: SO/R/643
SOLUBILITY(G/100G SOLVENT) .800-02 AT 25.0 DEGREE CENTIGRADE REFERENCE: ETF100-41V4 APP WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3860 -98.94 529.83 31.23

DIFFUSION COEF. = .040 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.38-03 CENTIPOISE

END OF COMPOUND EA 1053 AT .0 DEGREES C. PAGE NUMBER B- 21

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SUMMARY OF PROPERTIES OF EA 1053 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: HN3 FORMULA WEIGHT: 204.5 GENERAL REFERENCE: ETF100-41V4 N-MUSTARD-3

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.55297, B= 2856.46, C= 246.4 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 186.0 DEG. CENT. REFERENCE: COMB.SO/R/643.W11451.NB8821
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TGRR)= .68-02
ESTIMATED BOILING POINT(CENT.)= 257.2
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.8
VOLATILITY(MG/METER CUBED)= .76+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .37+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
DENSITY(G/ML)= 1.2401 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2598 - .00098 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: SO/R/643

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -5.32800, B=-1250.00, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 35.0 DEG. CENT. REFERENCE: SO/R/643
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTIPOISE)= .086
THE EQUATION: SURFACE TENSION(DYNES/CM)= 44.0900 - .1290*TEMP.(C.) REFERENCE: SO/R/643
WERE DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT.
WERE USED TO CALCULATE THE SURFACE TENSION 41.5 DYNES/CM
MELTING POINT (DEG. CENT.) = -3.7 REFERENCE: ETF100-41V4
REFRACTIVE INDEX(ND)= 1.4962 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.5042 - .00040*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 35.8 DEG. CENT. REFERENCE: SO/R/643
SOLUBILITY(G/100G SOLVENT) .800-02 AT 25.0 DEGREE CENTIGRADE REFERENCE: ETF100-41V4 APP WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3860	498.94	529.83	31.23

DIFFUSION COEF. = .046 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.85-03 CENTIPOISE

END OF COMPOUND EA 1053 AT 20.0 DEGREES C. PAGE NUMBER B- 22

Appendix B

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SUMMARY OF PROPERTIES OF EA 1053 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: HN3 FORMULA WEIGHT: 204.5 GENERAL REFERENCE: ETF100-41V4 N-MUSTARD-3

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = 8.55297, B = 2856.46, C = 245.4 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 186.0 DEG. CENT. REFERENCE: COMB.SD/R/643, W11451, N88021
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR) = .11-01
ESTIMATED BOILING POINT(CELT.) = 257.2
HEAT OF VAPORIZATION(KILOCALORIES/MOLE) = 15.8
VOLATILITY(MILLIMOLE/ METER CUBED) = .59+00
DENSITY(G/ML) = 1.2352 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.2596 - .00098 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: SO/R/643

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -5.32800, B = -1250.00, C = 273.2 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 35.0 DEG. CENT. REFERENCE: SO/R/643
WERE USED TO CALCULATE THE VISCOSITY

THE EQUATION: SURFACE TENSION(DYNES/CM) = 44.0900 - .1290*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: SO/R/643
WERE USED TO CALCULATE THE SURFACE TENSION 40.9 DYNES/CM
MELTING POINT (DEG. CENT.) = -3.7 REFERENCE: ETF100-41V4
REFRACTIVE INDEX(ND) = 1.4942 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND) = 1.5042 - .00040*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 35.8 DEG. CENT. REFERENCE: SO/R/643
SOLUBILITY(G/100G SOLVENT) .800-02 AT 25.0 DEGREE CENTIGRADE REFERENCE: ETF100-41V4 APP WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3860	498.94	529.83	31.23

DIFFUSION COEF. = .048 CM-SO./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.97-03 CENTIPOISE

END OF COMPOUND EA 1053 AT 25.0 DEGREES C. PAGE NUMBER 8- 23

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1053 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: HN3 FORMULA WEIGHT: 204.5 GENERAL REFERENCE: ETF100-41V4 N-MUSTARD-3

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.55297, B= 2856.46, C= 246.4 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 186.0 DEG. CENT. REFERENCE: COMB.SO/R/643.W11451.N88821
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .38-01
ESTIMATED BOILING POINT(CENT.)= 257.2
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.6
VOLATILITY(MG/METER CUBED)= .40+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .20+01
DENSITY(G/ML)= 1.2206 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2596 - .00098 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: SO/R/643

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -5.32800, B=-1250.00, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 35.0 DEG. CENT. REFERENCE:SO/R/643
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTIPOISE)= .046

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 44.0900 - .1290*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: SO/R/643
WERE USED TO CALCULATE THE SURFACE TENSION 38.9 DYNES/CM

MELTING POINT (DEG. CENT.) = -3.7 REFERENCE: ETF100-41V4

REFRACTIVE INDEX(ND)= 1.4882 WAS CALCULATED FROM THE EQUATION:

REFRACTIVE INDEX(ND)= 1.5042 - .00040*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 35.8 DEG. CENT. REFERENCE: SO/R/643
SOLUBILITY(G/100G SOLVENT) .800-02 AT 25.0 DEGREE CENTIGRADE REFERENCE: ETF100-41V4 APP WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHEM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
CM/CC DEG C CC/MOLE ATM.
.3860 498.94 529.83 31.23

DIFFUSION COEF. = .054 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.33-03 CENTIPOISE

END OF COMPOUND EA 1053 AT 40.0 DEGREES C. PAGE NUMBER B- 24

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SUMMARY OF PROPERTIES OF EA 1205 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: GA FORMULA WEIGHT: 162.1 GENERAL REFERENCE: TDMR94

THE FOLLOWING ANTDINE CONSTANTS(EATR 4491): A= 6.80011, B= 1700.59, C= 186.4 DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 152.0 DEG. CENT. REFERENCE: TDMR1094, A3804/3, EC1R75032
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .15-04
ESTIMATED BOILING POINT(CENT.)= 247.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 19.7
VOLATILITY(MG/METER CUBED)= .17+00 VOLATILITY(MILLIMOLE/ METER CUBED)= .10-02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1389 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0999 - .00097 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE -40.0 TO 71.0 DEG. CENT. REFERENCE: STM 109

THE FOLLOWING ANTDINE CONSTANTS(EATR 4491): A= -2.68053, B= -905.78, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1094
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTIPOISE)= 16.011
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 35.0000 - .1000*TEMP.(C.) REFERENCE: STM 109 P.2
DETERMINED OVER THE TEMPERATURE RANGE 5.0 TO 40.0 DEG. CENT.
WERE USED TO CALCULATE THE SURFACE TENSION 39.0 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.4469 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.4316 - .00038*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 40.0 DEG. CENT. REFERENCE: STM 109 P.2
FLASH POINT, CLOSED CUP(CENTIGRADE)= 78.0 REFERENCE: PTP45
HEAT CAPACITY (KCAL/MOLE)= .0700 AT 25.0 DEGREE CENT. REFERENCE: 25 TO 50 DEG C., STM109
FREEZING POINT (DEG. CENT.)= -50.00 REFERENCE: TDMR 1094
SOLUBILITY(G/100G SOLVENT) .720+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: ETF100-41 VOL 1
SOLUBILITY(G/100G SOLVENT) .980+01 AT .0 DEGREE CENTIGRADE REFERENCE: STUDY 35-48 WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3456 419.02 459.10 31.62

DIFFUSION COEF. = .031 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.64-03 CENTIPOISE

END OF COMPOUND EA 1205 AT -40.0 DEGREES C.
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SUMMARY OF PROPERTIES OF EA 1205 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: GA FORMULA WEIGHT: 162.1 GENERAL REFERENCE: TDMR94

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.80011, B= 1700.59, C= 126.4 DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 152.0 DEG. CENT. REFERENCE: TDMR1094, A3804/3, ECTR75032
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TOPR)= .38-03
ESTIMATED BOILING POINT(CENT.)= 247.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.0
VOLATILITY(MG/METER CUBED)= .39+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .24-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1194 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0999 - .00097 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE -40.0 TO 71.0 DEG. CENT. REFERENCE: STM 109

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.68053, B= -905.78, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1094
WERE USED TO CALCULATE THE SURFACE TENSION 37.0 DYNES/CM
VISCOSITY(CENTIPOISE)= 7.897
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 35.0000 - .1000*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 5.0 TO 40.0 DEG. CENT. REFERENCE: STM 109 P.2
WERE USED TO CALCULATE THE SURFACE TENSION 37.0 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.4392 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.4316 - .00038*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 40.0 DEG. CENT. REFERENCE: STM 109 P.2
FLASH POINT, CLOSED CUP(CENTIGRADE)= 78.0 REFERENCE: PTP45
HEAT CAPACITY (KCAL/MOLE)= .0700 AT 25.0 DEGREE CENT. REFERENCE: 25 TO 50 DEG C, STM109
FREEZING POINT (DEG. CENT.)= -50.00 REFERENCE: TDMR 1094
SOLUBILITY(G/100G SOLVENT) .720+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: ETF100-41 VOL 1
SOLUBILITY(G/100G SOLVENT) .980+01 AT .0 DEGREE CENTIGRADE REFERENCE: STUDY 35-48 WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3456 419.02 469.10 31.62

DIFFUSION COEF. = .037 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.12-03 CENTIPOISE

END OF COMPOUND EA 1205 AT -20.0 DEGREES C. PAGE NUMBER B- 26

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SUMMARY OF PROPERTIES OF EA 1205 AT .0 DEGREES CENTIGRADE
COMMON NAME: GA FORMULA WEIGHT: 162.1 GENERAL REFERENCE: TDMR94

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.80011, B= 1700.59, C= 186.4 DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 152.0 DEG. CENT. REFERENCE: TDMR1094, A3804/3, ECTR75032
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .47-02
ESTIMATED BOILING POINT(CENT.)= 247.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.7
VOLATILITY(MG/METER CUBED)= .45+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .28+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0999 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0999 - .00097 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE -40.0 TO 71.0 DEG. CENT. REFERENCE: STM 109

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.68053, B= -905.78, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1094
WERE USED TO CALCULATE THE SURFACE TENSION
VISCOSITY(CENTIPOISE)= 4.320
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 35.0000 - .1000*TEMP.(C.) REFERENCE: STM 109 P.2
DETERMINED OVER THE TEMPERATURE RANGE 5.0 TO 40.0 DEG. CENT.
WERE USED TO CALCULATE THE SURFACE TENSION 35.0 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.4316 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.4316 - .00036*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 40.0 DEG. CENT. REFERENCE: STM 109 P.2
FLASH POINT, CLOSED CUP(CENTIGRADE)= 78.0 REFERENCE: PTP45
HEAT CAPACITY (KCAL/MOLE)= .0700 AT 25.0 DEGREE CENT. REFERENCE: 25 TO 50 DEG C, STM109
FREEZING POINT (DEG. CENT.)= -50.00 REFERENCE: TDMR 1094
SOLUBILITY(G/100G SOLVENT)= .720+01 AT 20.0 DEGREE CENTIGRADE
SOLUBILITY(G/100G SOLVENT)= .980+01 AT .0 DEGREE CENTIGRADE

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE	VOLUME	PRESSURE
GM/CC	CC/MOLE	ATM.
.3456	419.02	31.62

DIFFUSION COEF. = .044 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 5.60-03 CENTIPOISE

END OF COMPOUND EA 1205 AT .0 DEGREES C. PAGE NUMBER B- 27

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SUMMARY OF PROPERTIES OF EA 1205 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: GA FORMULA WEIGHT: 162.1 GENERAL REFERENCE: TDMR94

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.80011, B= 1700.59, C= 186.4 DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 152.0 DEG. CENT. REFERENCE: TDMR1094, A3804/3, ECTR75032
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .36-01
ESTIMATED BOILING POINT(CENT.)= 247.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.7
VOLATILITY(MG/METER CUBED)= .32+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .20+01
DENSITY(G/ML)= 1.0804 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0999 - .00097 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE -40.0 TO 71.0 DEG. CENT. REFERENCE: STM 109

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.68053, B= -905.78, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1094
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTIPOISE)= 2.566
THE EQUATION: SURFACE TENSION(DYNES/CM)= 35.0000 - .1000*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 5.0 TO 40.0 DEG. CENT. REFERENCE: STM 109 P.2
WERE USED TO CALCULATE THE SURFACE TENSION 33.0 DYNES/CM
REFRACTIVE INDEX(ND)= 1.4240 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.4316 - .00038*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 40.0 DEG. CENT. REFERENCE: STM 109 P.2
FLASH POINT, CLOSED CUP(CENTIGR.= 78.0 REFERENCE: PTP45
HEAT CAPACITY (KCAL/MOLE)= .0700 AT 25.0 DEGREE CENT. REFERENCE: 25 TO 50 DEG C, STM109
FREEZING POINT (DEG. CENT.)= -50.00 REFERENCE: TDMR 1094
SOLUBILITY(G/100G SOLVENT) .720+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: ETF100-41 VOL 1
SOLUBILITY(G/100G SOLVENT) .980+01 AT .0 DEGREE CENTIGRADE REFERENCE: STUDY 35-48 WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37, 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3456	419.02	469.10	31.62

DIFFUSION COEF. = .051 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.08-03 CENTIPOISE

END OF COMPOUND EA 1205 AT 20.0 DEGREES C. PAGE NUMBER B- 28

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Appendix B

SUMMARY OF PROPERTIES OF EA 1205 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: GA FORMULA WEIGHT: 162.1 GENERAL REFERENCE: TDMR94

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.80011, B= 1700.59, C= 186.4 DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 152.0 DEG. CENT. REFERENCE: TDMR1094, A3804/3, ECTR75032
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .57-01
ESTIMATED BOILING POINT(CENT.)= 247.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.5
VOLATILITY(MG/METER CUBED)= .49+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .31+01
DENSITY(G/ML)= 1.0756 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0999 - .00097 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE -40.0 TO 71.0 DEG. CENT. REFERENCE: STM 109

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.68053, B= -905.78, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1094
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTIPOISE)= 2.277
THE EQUATION: SURFACE TENSION(DYNES/CM)= 35.0000 - .1000*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 5.0 TO 40.0 DEG. CENT. REFERENCE: STM 109 P.2
WERE USED TO CALCULATE THE SURFACE TENSION 32.5 DYNES/CM
REFRACTIVE INDEX(ND)= 1.4221 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.4316 - .00038*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 40.0 DEG. CENT. REFERENCE: STM 109 P.2

FLASH POINT, CLOSED CUP(CENTIGRADE)= 78.0 REFERENCE: PTP45
HEAT CAPACITY (KCAL/MOLE)= .0700 AT 25.0 DEGREE CENT. REFERENCE: 25 TO 50 DEG C, STM109
FREEZING POINT (DEG CENT.)= -50.00 REFERENCE: TDMR 1094
SOLUBILITY(G/100G SOLVENT) .720+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: ETF100-41 VOL 1
SOLUBILITY(G/100G SOLVENT) .980+01 AT .0 DEGREE CENTIGRADE REFERENCE: STUDY 35-48 WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3456 419.02 469.10 31.62

DIFFUSION COEF. = .053 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.20-03 CENTIPOISE
END OF COMPOUND EA 1205 AT 25.0 DEGREES C. PAGE NUMBER B- 29

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SUMMARY OF PROPERTIES OF EA 1205 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: GA FORMULA WEIGHT: 162.1 GENERAL REFERENCE: TDMR94

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.80311, B= 1700.59, C= 186.4 DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 152.0 DEG. CENT. REFERENCE: TDMR1094, A3804/3, ECTR75032 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .19+00
ESTIMATED BOILING POINT(CENT.)= 247.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.9
VOLATILITY(MG/METER CUBED)= .16+04 VOLATILITY(MILLIMOLE/ METER CUPED)= .99+01
DENSITY(G/ML)= 1.0610 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0999 - .00097 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE -40.0 TO 71.0 DEG. CENT. REFERENCE: STM 109

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.68053, B= -905.78, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1094 WERE USED TO CALCULATE THE VISCOSITY VISCOSITY(CENTIPOISE)= 1.629

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 35.0000 - .1000*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 5.0 TO 40.0 DEG. CENT. REFERENCE: STM 109 P.2
WERE USED TO CALCULATE THE SURFACE TENSION 31.0 DYNES/CM
REFRACTIVE INDEX(ND)= 1.4163 WAS CALCULATED FROM THE EQUATION:

REFRACTIVE INDEX(ND)= 1.4316 - .00038*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 40.0 DEG. CENT. REFERENCE: STM 109 P.2

FLASH POINT, CLOSED CUP(CENTIGRADE)= 78.0 REFERENCE: PTP45
HEAT CAPACITY (KCAL/MOLE)= .0700 AT 25.0 DEGREE CENT. REFERENCE: 25 TO 50 DEG C, STM109

FREEZING POINT (DEG. CENT.)= -50.00 REFERENCE: TDMR 1094
SOLUBILITY(G/100G SOLVENT) .720+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: ETF100-41 VOL 1
SOLUBILITY(G/100G SOLVENT) .980+01 AT .0 DEGREE CENTIGRADE REFERENCE: STUDY 35-48 WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3456 419.02 469.10 31.62

DIFFUSION COEF. = .059 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 6.56-03 CENTIPOISE

END OF COMPOUND EA 1205 AT 40.0 DEGREES C. PAGE NUMBER B- 30

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1207 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 126.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .29*01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.2324 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1832 - .00123 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.09866, B= -632.26, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.5
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 4.102

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 27.6 AT 25.0 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3760 AT 25.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -64.00. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3844	336.19	328.01	39.81

DIFFUSION COEF. = .040 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.67-03 CENTIPOISE

END OF COMPOUND EA 1207 AT -40.0 DEGREES C.

PAGE NUMBER B- 31

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1207 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 126.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .29+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.2078 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1832 - .00123 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.09866, B= -632.26, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.5
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 2.505

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 27.6 AT 25.0 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3760 AT 25.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -64.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3844 336.19 328.01 39.81

DIFFUSION COEF. = .048 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.25-03 CENTIPOISE

END OF COMPOUND EA 1207 AT -20.0 DEGREES C. PAGE NUMBER B- 32

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Appendix B

SUMMARY OF PROPERTIES OF EA 1207 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 126.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = .29+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML) = 1.1832 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.1832 - .00123 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -2.09866, B = -632.26, C = 273.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.5
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 1.644

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 27.6 AT 25.0 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND) = 1.3760 AT 25.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -64.00 REFERENCE: TCR36

ZHURN. FIZ KHIM. 37. 201(1963)

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3844	336.19	328.01	39.81

DIFFUSION COEF. = .057 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.82-03 CENTIPOISE

END OF COMPOUND EA 1207 AT .0 DEGREES C. PAGE NUMBER B- 33

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SUMMARY OF PROPERTIES OF EA 1207 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 126.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .29+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.1586 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1832 - .00123 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.09868, B= -632.26, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.5
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 1.143

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 27.6 AT 25.0 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3760 AT 25.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -64.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3844 336.19 328.01 39.81

DIFFUSION COEF. = .066 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY-CHEM,48,23(1944) VISCOSITY OF VAPOR = 7.38-03 CENTIPOISE

END OF COMPOUND EA 1207 AT 20.0 DEGREES C. PAGE NUMBER B- 34

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SUMMARY OF PROPERTIES OF EA 1207 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 120.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .29+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.1525 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1832 - .00123 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.09868, B= -632.26, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE:TCR36 P.5
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 1.052

SURFACE TENSION (DYNES/CM) = 27.6 AT 25.0 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3760 AT 25.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -64.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATL = VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3944 336.19 328.01 39.81

DIFFUSION COEF. = .069 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 7.53-03 CENTIPOISE

END OF COMPOUND EA 1207 AT 25.0 DEGREES C. PAGE NUMBER B- 35

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SUMMARY OF PROPERTIES OF EA 1207 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 126.1 GENERAL REFERENCE: TCR38

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .29+01 AT 25.0 DEG. CENT. REFERENCE: TCR38
DENSITY(G/ML)= 1.1340 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1832 - .00123 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR 38

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.09866, B= -832.26, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR38 P.5
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = .832

SURFACE TENSION (DYNES/CM) = 27.6 AT 25.0 DEG. CENT. REFERENCE: TCR38
REFRACTIVE INDEX(ND)= 1.3760 AT 25.5 DEG. CENT. REFERENCE: TCR38
FREEZING POINT (DEG. CENT.)= -84.00 REFERENCE: TCR38

ZHURN. FIZ KHIM. 37. 201(1963)

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3844 336.19 328.01 39.81

DIFFUSION COEF. = .076 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1947) VISCOSITY OF VAPOR = 7.95-03 CENTIPOISE

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END OF COMPOUND EA 1207 AT 40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1208 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: GB FORMULA WEIGHT: 140.1 GENERAL REFERENCES: PTP278

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.48180, B= 1773.82, C= 227.9 DETERMINED OVER THE TEMPERATURE RANGE 5.0 TO 80.0 DEG. CENT. REFERENCE: PTP278
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .11-01
ESTIMATED BOILING POINT(CENT.)= 157.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.5
VOLATILITY(MG/METER CUBED)= .11+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .75+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1654 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1182 - .00118 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 40.0 DEG. CENT. REFERENCE: PTP278

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.71231, B= -88.35, C= 80.2 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: PTP278 PURE. TECH 10% HIGHER
WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTISTOKES) = 27.103

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 28.7640 - .1129*TEMP.(C.) REFERENCE: PTP278 HIGH PURITY
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 35.0 DEG. CENT.
WERE USED TO CALCULATE THE SURFACE TENSION 33.3 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.4089 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.3917 - .00043*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE

15.0 TO 30.0 DEG. CENT. REFERENCE: PTP278
HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -249.00 AT 25.0 DEGREE CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)635

FREEZING POINT (DEG. CENT.)= -56.90 REFERENCE: ICIR 513
SOLUBILITY(G/100G SOLVENT) .100+03 AT .0 DEGREE CENTIGRADE REFERENCE: CRDL-TL-83-9-595 MISCIBLE

ZHURN. FIZ KHIM. 37. 201(1983)

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3645 329.12 384.41 33.57

DIFFUSION COEF. = .036 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.: J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 5.42-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 24.7 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P 4

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END OF COMPOUND EA 1208 AT -40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1208 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: GB FORMULA WEIGHT: 140.1 GENERAL REFERENCE: PTP278

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.48160, B= 1773.82, C= 227.9 DETERMINED OVER THE TEMPERATURE RANGE 5.0 TO 80.0 DEG. CENT. REFERENCE: PTP278
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .89-01
ESTIMATED BOILING POINT(CENT.)= 157.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.0
VOLATILITY(MG/METER CUBED)= .79+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .56+01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

* DENSITY(G/ML)= 1.1418 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1182 - .00118 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 40.0 DEG. CENT. REFERENCE: PTP278

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.71231, B= -86.35, C= 80.2 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: PTP278 PURE. TECH 10% HIGHER
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 5.259

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 28.7640 - .1129*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 35.0 DEG. CENT. REFERENCE: PTP278 HIGH PURITY
WERE USED TO CALCULATE THE SURFACE TENSION 31.0 DYNES/CM

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.4003 WAS CALCULATED FROM THE EQUATION:

REFRACTIVE INDEX(ND)= 1.3917 - .00043*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 30.0 DEG. CENT. REFERENCE: PTP278

HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -249.00 AT 25.0 DEGREE CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)635
FREEZING POINT (DEG. CENT.)= -56.90 REFERENCE: TCIR 513
SOLUBILITY(G/100G SOLVENT) .100+03 AT .0 DEGREE CENTIGRADE REFERENCE: CRDL-TL-63-S-555 MISCIBLE

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3645 329.12 384.41 33.57

DIFFUSION COEF. = .043 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48-23(1944) VISCOSITY OF VAPOR = 5.97-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 24.7 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P 4

END OF COMPOUND EA 1208 AT -20.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1208 AT .0 DEGREES CENTIGRADE
COMMON NAME: GB FORMULA WEIGHT: 140.1 GENERAL REFERENCE: PTP278

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.48160, B= 1773.82, C= 227.9 DETERMINED OVER THE TEMPERATURE RANGE 5.0 TO 80.0 DEG. CENT. REFERENCE: PTP278
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .50+00
ESTIMATED BOILING POINT(CENT.)= 157.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.7
VOLATILITY(MG/METER CUBED)= .41+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .29+02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1182 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1182 - .00118 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 40.0 DEG. CENT. REFERENCE: PTP278

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.71231, B= -86.35, C= 80.2 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: PTP278 PURE. TECH 10% HIGHER
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 2.310

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 28.7640 - .1129*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 35.0 DEG. CENT. REFERENCE: PTP278 HIGH PURITY
WERE USED TO CALCULATE THE SURFACE TENSION 28.8 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.3917 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.3917 - .00043*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 30.0 DEG. CENT. REFERENCE: PTP278
HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -249.00 AT 25.0 DEGREE CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)635
FREEZING POINT (DEG. CENT.)= -56.90 REFERENCE: TCIR 513
SOLUBILITY(G/100G SOLVENT) .100+03 AT .0 DEGREE CENTIGRADE REFERENCE: CRDL-TL-63-9-555 MISCIBLE

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3645 329.12 384.41 33.57

DIFFUSION COEF. = .051 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.: J.PHY.CHEM.48:23(1944) VISCOSITY OF VAPOR = 6.51-03 CENTIPOISE
DIPOLE MOMENT(DEBES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 24.7 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P 4

END OF COMPOUND EA 1208 AT .0 DEGREES C. PAGE NUMBER B- 39

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SUMMARY OF PROPERTIES OF EA 1208 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: GB FORMULA WEIGHT: 140.1 GENERAL REFERENCE: PTP278

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.48160, B= 1773.82, C= 227.9 DETERMINED OVER THE TEMPERATURE RANGE 5.0 TO 80.0 DEG. CENT. REFERENCE: PTP278

WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TOHR)= .2140;
ESTIMATED BOILING POINT(CENT.)= 157.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.3
VOLATILITY(MG/METER CUBED)= .16405 VOLATILITY(MILLIMOLE/ METER CUBED)= .12403
DENSITY(G/ML)= 1.0946 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1182 - .00118 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 40.0 DEG. CENT. REFERENCE: PTP278

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.71231, B= -86.35, C= 80.2 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: PTP278 PURE. TECH 10% HIGHER
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 1.409

THE EQUATION: SURFACE TENSION(DYNES/CM)= 28.7640 - .1129*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 35.0 DEG. CENT. REFERENCE: PTP278 HIGH PURITY
WERE USED TO CALCULATE THE SURFACE TENSION 26.5 DYNES/CM
REFRACTIVE INDEX(ND)= 1.3831 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.3917 - .00043*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 30.0 DEG. CENT. REFERENCE: PTP278
HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -249.00 AT 25.0 DEGREE CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)635
FREEZING POINT (DEG. CENT.)= -56.90 REFERENCE: TCIR 513
SOLUBILITY(G/100G SOLVENT) .100+03 AT .0 DEGREE CENTIGRADE REFERENCE: CROD-TL-63-9-555 MISCIBLE

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3645 329.12 384.41 33.57

DIFFUSION COEF. = .059 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.; J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 7.05-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 24.7 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P 4

END OF COMPOUND EA 1208 AT 20.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1208 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: GB FORMULA WEIGHT: 140.1 GENERAL REFERENCE: PTP278

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.48160, B= 1773.82, C= 227.9 DETERMINED OVER THE TEMPERATURE RANGE 5.0 TO 80.0 DEG. CENT. REFERENCE: PTP278
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .29+01
ESTIMATED BOILING POINT(CENT.)= 157.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.3
VOLATILITY(MG/METER CUBED)= .22+05 VOLATILITY(MILLIMOLE/ METER CUBED)= .16+03
DENSITY(G/ML)= 1.0887 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1182 - .00118 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 40.0 DEG. CENT. REFERENCE: PTP278

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.71231, B= -88.35, C= 80.2 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: PTP278 PURE. TECH 10% HIGHER
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 1.283

THE EQUATION: SURFACE TENSION(DYNES/CM)= 28.7640 - .1129*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 35.0 DEG. CENT. REFERENCE: PTP278 HIGH PURITY
WERE USED TO CALCULATE THE SURFACE TENSION 25.9 DYNES/CM
REFRACTIVE INDEX(ND)= 1.3809 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.3917 - .00043*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 30.0 DEG. CENT. REFERENCE: PTP278
HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -249.00 AT 25.0 DEGREE CENT. REFERENCE: J.RES NBS SEC A 1975 79A(5)635
FREEZING POINT (DEG. CENT.)= -56.90 REFERENCE: ICIR 513
SOLUBILITY(G/100G SOLVENT) = .100+03 AT .0 DEGREE CENTIGRADE REFERENCE: CRDL-TL-63-3-555 MISCIBLE

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3645 329.12 384.41 33.57

DIFFUSION COEF. = .061 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 7.19-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 24.7 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P 4

END OF COMPOUND EA 1208 AT 25.0 DEGREES C. PAGE NUMBER B- 41

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SUMMARY OF PROPERTIES OF EA 1208 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: G8 FORMULA WEIGHT: 140.1 GENERAL REFERENCE: PTP278

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.48160, B= 1773.82, C= 227.9 DETERMINED OVER THE TEMPERATURE RANGE 5.0 TO 80.0 DEG. CENT. REFERENCE: PTP278
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .72+01
ESTIMATED BOILING POINT(CENT.)= 157.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.1
VOLATILITY(MG/METER CUBED)= .52+05 VOLATILITY(MILLIMOLE/ METER CUBED)= .37+03
DENSITY(G/ML)= 1.0710 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1182 - .00118 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 40.0 DEG. CENT. REFERENCE: PTP278

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.71231, B= -86.35, C= 80.2 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 40.0 DEG. CENT. REFERENCE: PTP278 PURE. TECH 10% HIGHER
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 1.013

THE EQUATION: SURFACE TENSION(DYNES/CM)= 28.7640 - .1129*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 35.0 DEG. CENT. REFERENCE: PTP278 HIGH PURITY
WERE USED TO CALCULATE THE SURFACE TENSION 24.2 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.3745 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.3917 - .00043*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 30.0 DEG. CENT. REFERENCE: PTP278
HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -249.00 AT 25.0 DEGREE CENT. REFERENCE: J.RES NBS SEC A 1975 79A(S)835
FREEZING POINT (DEG. CENT.)= -56.90 REFERENCE: TCIR 513
SOLUBILITY(G/100G SOLVENT)= .100+03 AT .0 DEGREE CENTIGRADE REFERENCE: CRDL-TL-83-S-555 MISCIBLE

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. F12 KHIM. 37. 201(1983)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3645 329.12 384.41 33.57

DIFFUSION COEF. = .068 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 7.59-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 24.7 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P 4

END OF COMPOUND EA 1208 AT 40.0 DEGREES C.

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Appendix B

SUMMARY OF PROPERTIES OF EA 1209 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: GE FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TDMR1182

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.70810, B= 2536.90, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 30.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1182
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .68-02
ESTIMATED BOILING POINT(CENT.)= 162.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.6
VOLATILITY(MG/METER CUBED)= .72+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .46+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1255 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0830 - .00106 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1182

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

VISCOSITY(CENTISTOKE)= 1.400 AT 25.0 DEGREES CENTIGRADE REFERENCE: TDMR 1182
VISCOSITY(CENTIPOISE)= 1.480 AT 25.0 DEGREES CENTIGRADE REFERENCE: TDMR 1181
SURFACE TENSION (DYNES/CM) = 24.9 AT 25.0 DEG. CENT. REFERENCE: TDMR 1182
REFRACTIVE INDEX(ND)= 1.3817 AT 25.0 DEG. CENT. REFERENCE: TDMR 1182
FREEZING POINT (DEG. CENT.)= -79.00 REFERENCE: TDMR 1182 DID NOT FREEZE

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3475	364.24	443.50	30.80

DIFFUSION COEF. = .032 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.97-03 CENTIPOISE

END OF COMPOUND EA 1209 AT -40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1209 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: GE FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TDMR1182

THE FOLLOWING ANTUINE CONSTANTS(EATR 4491): A= 8.70810, B= 2536.90, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 30.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1182
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .49-01
ESTIMATED BOILING POINT(CENT.)= 162.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.6
VOLATILITY(MG/METER CUBED)= .48+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .31+01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1043 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0830 - .00106 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1182

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

VISCOSITY(CENTISTOKE)= 1.400 AT 25.0 DEGREES CENTIGRADE REFERENCE: TDMR 1182
VISCOSITY(CENTIPOISE)= 1.480 AT 25.0 DEGREES CENTIGRADE REFERENCE: TDMR 1181
SURFACE TENSION (DYNES/CM)= 24.9 AT 25.0 DEG. CENT. REFERENCE: TDMR 1182
REFRACTIVE INDEX(ND)= 1.3817 AT 25.0 DEG. CENT. REFERENCE: TDMR 1182
FREEZING POINT (DEG. CENT.)= -70.00 REFERENCE: TDMR 1182 DID NOT FREEZE

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3475 364.24 443.50 30.80

DIFFUSION COEF. = .039 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY-CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.48-03 CENTIPOISE

END OF COMPOUND EA 1209 AT -20.0 DEGREES C. PAGE NUMBER B- 44

Appendix B

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SUMMARY OF PROPERTIES OF EA 1209 AT .0 DEGREES CENTIGRADE
COMMON NAME: GE FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TDMR1182

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.70810, B= 2536.90, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 30.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1182
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .26+00
ESTIMATED BOILING POINT(CENT.)= 162.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.8
VOLATILITY(MG/METER CUBED)= .24+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .16+02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0830 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0830 - .00105 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1182

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

VISCOSITY(CENTISTOKE)= 1.400 AT 25.0 DEGREES CENTIGRADE REFERENCE: TDMR 1182
VISCOSITY(CENTIPOISE)= 1.480 AT 25.0 DEGREES CENTIGRADE REFERENCE: TDMR 1181
SURFACE TENSION (DYNES/CM) = 24.9 AT 25.0 DEG. CENT. REFERENCE: TDMR 1182
REFRACTIVE INDEX(ND)= 1.3817 AT 25.0 DEG. CENT. REFERENCE: TDMR 1182
FREEZING POINT (DEG. CENT.)= -70.00 REFERENCE: TDMR 1182 DID NOT FREEZE

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3475 364.24 443.50 30.80

DIFFUSION COEF. = .046 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 5.99-03 CENTIPOISE

END OF COMPOUND EA 1209 AT .0 DEGREES C. PAGE NUMBER B- 45

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SUMMARY OF PROPERTIES OF EA 1209 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: GE FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TDMR1182

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.70810, B= 2536.90, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 30.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1182
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .11+01
ESTIMATED BOILING POINT(CENT.)= 162.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.6
VOLATILITY(MG/METER CUBED)= .96+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .62+02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0517 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0830 - .00106 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1182

VISCOSITY(CENTISTOKE)= 1.400 AT 25.0 DEGREES CENTIGRADE REFERENCE: TDMR 1182
VISCOSITY(CENTIPOISE)= 1.480 AT 25.0 DEGREES CENTIGRADE REFERENCE: TDMR 1181
SURFACE TENSION (DYNES/CM) = 24.9 AT 25.0 DEG. CENT. REFERENCE: TDMR 1182
REFRACTIVE INDEX(ND)= 1.3817 AT 25.0 DEG. CENT. REFERENCE: TDMR 1182
FREEZING POINT (DEG. CENT.)= -70.00 REFERENCE: TDMR 1182 DID NOT FREEZE

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3475 364.24 443.50 30.80

DIFFUSION COEF. = .054 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 6.49-03 CENTIPOISE

END OF COMPOUND EA 1209 AT 20.0 DEGREES C.

PAGE NUMBER B- 46

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SUMMARY OF PROPERTIES OF EA 1209 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: GE FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TDMR1182

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.70810, B= 2536.90, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 30.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1182
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .16+01
ESTIMATED BOILING POINT(CENT.)= 162.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.6
VOLATILITY(MG/METER CUBED)= .13+05 VOLATILITY(MILLIMOLE/ METER CUBED)= .85+02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0564 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0830 - .00106 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1182

VISCOSITY(CENTISTOKE)= 1.400 AT 25.0 DEGREES CENTIGRADE REFERENCE: TDMR 1182
VISCOSITY(CENTIPOISE)= 1.480 AT 25.0 DEGREES CENTIGRADE REFERENCE: TDMR 1181
SURFACE TENSION (DYNES/CM) = 24.9 AT 25.0 DEG. CENT. REFERENCE: TDMR 1182
REFRACTIVE INDEX(ND)= 1.3817 AT 25.0 DEG. CENT. REFERENCE: TDMR 1182
FREEZING POINT (DEG. CENT.)= -70.00 REFERENCE: TDMR 1182 DID NOT FREEZE

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. F12 KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3475 364.24 443.50 30.80
DIFFUSION COEF. = .055 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY-CHEM.48:23(1944) VISCOSITY OF VAPOR = 6.61-03 CENTIPOISE

END OF COMPOUND EA 1209 AT 25.0 DEGREES C. PAGE NUMBER 8- 47

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Appendix B

SUMMARY OF PROPERTIES OF EA 1209 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: GE FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TDMR1182

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.70810, B= 2536.90, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 30.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1182
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .41+01
ESTIMATED BOILING POINT(CENT.)= 162.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.8
VOLATILITY(MG/METER CUBED)= .32+05 VOLATILITY(MILLIMOLE/ METER CUBED)= .21+03
DENSITY(G/ML)= 1.0405 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0830 - .00106 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1182

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

VISCOSITY(CENTISTOKE)= 1.400 AT 25.0 DEGREES CENTIGRADE REFERENCE: TDMR 1182
VISCOSITY(CENTIPOISE)= 1.480 AT 25.0 DEGREES CENTIGRADE REFERENCE: TDMR 1181
SURFACE TENSION (DYNES/CM) = 24.9 AT 25.0 DEG. CENT. REFERENCE: TDMR 1182
REFRACTIVE INDEX(ND)= 1.3817 AT 25.0 DEG. CENT. REFERENCE: TDMR 1182
FREEZING POINT (DEG. CENT.)= -70.00 REFERENCE: TDMR 1182 DID NOT FREEZE

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3475	364.24	443.50	30.80

DIFFUSION COEF. = .062 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 6.99-03 CENTIPOISE

END OF COMPOUND EA 1209 AT 40.0 DEGREES C. PAGE NUMBER 8- 48

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SUMMARY OF PROPERTIES OF EA 1210 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: GD FORMULA WEIGHT: 182.2
GENERAL REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.47060, B= 1903.10, C= 216.9 DETERMINED OVER THE
TEMPERATURE RANGE -23.0 TO 190.0 DEG. CENT. REFERENCE: EC-TR-76058
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .51-03
ESTIMATED BOILING POINT(CENT.)= 197.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.1
VOLATILITY(MG/METER CUBED)= .64+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .35-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0828 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0456 - .00093 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.36154, B= -704.49, C= 222.0 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 32.374

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 24.5 AT 26.5 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND)= 1.4050 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
FLASH POINT, OPEN CUP (CENTIGRADE)= 121.0 REFERENCE: NB-6695, 96% PURE
FREEZING POINT (DEG. CENT.)= -42.00 REFERENCE: NB7285 97.6% PURE
SOLUBILITY(G/100G SOLVENT) .210+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: EATR4210 WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. P12 KHIM. 37. 261(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.

.3288 416.28 554.06 26.67

DIFFUSION COEF. = .027 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48:23(1944) VISCOSITY OF VAPOR = 4.42-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.6 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS

END OF COMPOUND EA 1210 AT -40.0 DEGREES C.

PAGE NUMBER 8- 40

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SUMMARY OF PROPERTIES OF EA 1210 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: GD FORMULA WEIGHT: 182.2 GENERAL REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.47060, B= 1903.10, C= 216.9 DETERMINED OVER THE TEMPERATURE RANGE -23.0 TO 190.0 DEG. CENT. REFERENCE: EC-TR-76058
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .64-02
ESTIMATED BOILING POINT(CENT.)= 197.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.4
VOLATILITY(MILLIMOLE/ METER CUBED)= .40+00
DENSITY(G/ML)= 1.0642 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0458 - .00093 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.36154, B= -704.49, C= 222.0 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTONES)= 13.390

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 24.5 AT 26.5 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND)= 1.4050 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
FLASH POINT, OPEN CUP (CENTIGRADE)= 121.0 REFERENCE: NB-6695, 96% PURE
FREEZING POINT (DEG. CENT.)= -42.00 REFERENCE: NB7265 97.6% PURE
SOLUBILITY(G/100G SOLVENT) .210+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: EATR4210 WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37, 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3288 416.28 554.06 26.67

DIFFUSION COEF. = .033 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 4.87-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.6 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS

END OF COMPOUND EA 1210 AT -20.0 DEGREES C. PAGE NUMBER 8- 50

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SUMMARY OF PROPERTIES OF EA 1210 AT .0 DEGREES CENTIGRADE
 COMMON NAME: GD FORMULA WEIGHT: 182.2 GENERAL REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.47060, B= 1903.10, C= 216.9 DETERMINED OVER THE
 TEMPERATURE RANGE -23.0 TO 190.0 DEG. CENT. REFERENCE: EC-TR-76058

WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .50-01

ESTIMATED BOILING POINT(CENT.)= 197.8

HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.8

VOLATILITY(MG/METER CUBED)= .53+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .29+01

DENSITY(G/ML)= 1.0456 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0456 - .00092 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.36154, B= -704.49, C= 222.0 DETERMINED OVER THE
 TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTISTOKES)= 6.493

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 24.5 AT 26.5 DEG. CENT. REFERENCE: TDMR1292

REFRACTIVE INDEX(ND)= 1.4050 AT 25.0 DEG. CENT. REFERENCE: TDMR1292

FLASH POINT, OPEN CUP (CENTIGRADE)= 121.0 REFERENCE: NB-6695, 96% PURE

FREEZING POINT (DEG. CENT.)= -42.00 REFERENCE: NB7265 97.6% PURE

SOLUBILITY(G/100G SOLVENT) .210+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: EATR4210 WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE

GM/CC DEG C CC/MOLE ATM.

.3288 416.28 554.06 26.67

DIFFUSION COEF. = .039 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.33-03 CENTIPOISE

DIPOLE MOMENT(DEBYES)= 3.6 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-7R IN PROGRESS

END OF COMPOUND EA 1210 AT .0 DEGREES C. PAGE NUMBER B- 51

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Appendix B

SUMMARY OF PROPERTIES OF EA 1210 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: GD FORMULA WEIGHT: 182.2 GENERAL REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.47060, B= 1903.10, C= 216.9 DETERMINED OVER THE
TEMPERATURE RANGE -23.0 TO 190.0 DEG. CENT. REFERENCE: EC-TR-76059

WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .27+00

ESTIMATED BOILING POINT(CENT.)= 197.8

HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.3

VOLATILITY(MILLIMOLE/ METER CUBED)= .15+02

DENSITY(G/ML)= 1.0270 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0456 - .00093 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.36154, B= -704.49, C= 222.0 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTISTOKES)= 3.549

SURFACE TENSION (DYNES/CM) = 24.5 AT 26.5 DEG. CENT. REFERENCE: TDMR1292

REFRACTIVE INDEX(ND)= 1.4050 AT 25.0 DEG. CENT. REFERENCE: TDMR1292

FLASH POINT, OPEN CUP (CENTIGRADE)= 121.0 REFERENCE: NB-6695, 96% PURE

FREEZING POINT (DEG. CENT.)= -42.00 REFERENCE: NB7265 97.6% PURE

SOLUBILITY(G/100G SOLVENT) .210+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: EATR4210 WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE

GM/CC DEG C CC/MOLE ATM.

.3288 416.28 554.06 26.87

DIFFUSION COEF. = .045 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.76-03 CENTIPOISE

DIPOLE MOMENT(DEBYES)= 3.6 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS

END OF COMPOUND EA 1210 AT 20.0 DEGREES C. PAGE NUMBER B- 52

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SUMMARY OF PROPERTIES OF EA 1210 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: GD FORMULA WEIGHT: 182.2 GENERAL REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.47060, B= 1903.10, C= 216.9 DETERMINED OVER THE
TEMPERATURE RANGE -23.0 TO 190.0 DEG. CENT. REFERENCE: EC-TR-76058
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .40+03
ESTIMATED BOILING POINT(CENT.)= 197.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.2
VOLATILITY(MG/METER CURED)= .36+04 VOLATILITY(MILLIGLE/METER CUBED)= .22+02
DENSITY(G/ML)= 1.0223 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0456 - .00093 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.36154, B= -704.49, C= 222.0 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 3.098

SURFACE TENSION (DYNES/CM) = 24.5 AT 26.5 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND)= 1.4350 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
FLASH POINT, OPEN CUP (CENTIGRADE)= 121.0 REFERENCE: NB-6695, 96% PURE
FREEZING POINT (DEG. CENT.)= -42.00 REFERENCE: NB7265 97.6% PURE
SOLUBILITY(G/100G SOLVENT) .210+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: EATR4210 WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURU. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3288 416.28 554.06 26.67

DIFFUSION COEF. = .047 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM, 48, 23(1944) VISCOSITY OF VAPOR = 5.90-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.6 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS

END OF COMPOUND EA 1210 AT 25.0 DEGREES C. PAGE NUMBER B- 53

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1210 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: GD FORMULA WEIGHT: 182.2 GENERAL REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.47060, B= 1903.10, C= 216.9 DETERMINED OVER THE TEMPERATURE RANGE -23.0 TO 190.0 DEG. CENT. REFERENCE: EC-TR-76058
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .12+01
ESTIMATED BOILING POINT(CENT.)= 197.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.9
VOLATILITY(MG/METER CUBED)= .11+05 VOLATILITY(MILLIMOLE/ METER CUBED)= .59+02
DENSITY(G/ML)= 1.0084 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0456 - .00093 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.36154, B= -704.49, C= 222.0 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 2.127

SURFACE TENSION (DYNES/CM) = 24.5 AT 26.5 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND)= 1.4050 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
FLASH POINT, OPEN CUP (CENTIGRADE)= 121.0 REFERENCE: NB-6695, 96% PURE
FREEZING POINT (DEG. CENT.)= -42.00 REFERENCE: NB7265 97.6% PURE
SOLUBILITY(G/100G SOLVENT) .210+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: EATR4210 WATER

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3288 416.28 554.06 26.67

DIFFUSION COEF. = .052 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.24-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.6 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS

END OF COMPOUND EA 1210 AT 40.0 DEGREES C. PAGE NUMBER B= 54

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1211 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: GH FORMULA WEIGHT: 162.2 GENERAL REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.78980, B= 3069.00, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 49.9 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .43-03
ESTIMATED BOILING POINT(CENT.)= 171.0
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.0
VOLATILITY(MG/METER CUBED)= .53+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .29-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
DENSITY(G/ML)= 1.0758 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0366 - .00098 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.00851, B= -175.38, C= 108.0 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 37.042

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 25.7 AT 25.5 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND)= 1.4030 AT 24.0 DEG. CENT. REFERENCE: TDMR1292
FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TCR36 DID NOT FREEZE -78C 72HR

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3300 383.45 552.09 25.49

DIFFUSION COEF. = .027 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.58-03 CENTIPOISE

END OF COMPOUND EA 1211 AT -40.0 DEGREES C. PAGE NUMBER B- 55

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1211 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: GH FORMULA WEIGHT: 182.2 GENERAL REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.78980, B= 3069.00, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 49.9 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .47-02
ESTIMATED BOILING POINT(CENT.)= 171.0
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.0
VOLATILITY(MG/METER CUBED)= .54+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .30+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0562 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0366 - .00098 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.00851, B= -175.38, C= 108.0 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 9.623

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 25.7 AT 25.5 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND)= 1.4030 AT 24.0 DEG. CENT. REFERENCE: TDMR1292
FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TCR36 DID NOT FREEZE -78C 72HR

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3300	383.45	552.09	25.49

DIFFUSION COEF. = .033 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.05-03 CENTIPOISE

END OF COMPOUND EA 1211 AT -20.0 DEGREES C. PAGE NUMBER B- 56

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1211 AT .0 DEGREES CENTIGRADE
 COMMON NAME: GH FORMULA WEIGHT: 182.2 GENERAL REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.78980, B= 3069.00, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 49.9 DEG. CENT. REFERENCE: TDMR 1292

WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .36-01
 ESTIMATED BOILING POINT(CENT.)= 171.0
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.0
 VOLATILITY(MG/METER CUBED)= .39+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .21+01
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0366 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0366 - .00098 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.00851, B= -175.38, C= 108.0 DETERMINED OVER THE
 TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1292

WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 4.117

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM)= 25.7 AT 25.5 DEG. CENT. REFERENCE: TDMR1292
 REFRACTIVE INDEX(ND)= 1.4030 AT 24.0 DEG. CENT. REFERENCE: TDMR1292
 FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TCR36 DID NOT FREEZE -78C 72HR

ZHMN. FIZ KHM. 37. 201(1963)

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3300	383.45	552.09	25.49

DIFFUSION COEF. = .039 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.52-03 CENTIPOISE

END OF COMPOUND EA 1211 AT .0 DEGREES C.
 PAGE NUMBER B- 57

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SUMMARY OF PROPERTIES OF EA 1211 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: GH FORMULA WEIGHT: 182.2 GENERAL REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.78980, B= 3069.00, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 49.9 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .21+00
ESTIMATED BOILING POINT(CENT.)= 171.0
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.0
VOLATILITY(MG/METER CUBED)= .21+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .11+02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0170 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0366 - .00098 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.00851, B= -175.38, C= 108.0 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 2.397

SURFACE TENSION (DYNES/CM) = 25.7 AT 25.5 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND)= 1.4030 AT 24.0 DEG. CENT. REFERENCE: TDMR1292
FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TCR36 DID NOT FREEZE -78C 72HR

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3300 383.45 552.09 25.49

DIFFUSION COEF. = .046 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.98-03 CENTIPOISE

END OF COMPOUND EA 1211 AT 20.0 DEGREES C. PAGE NUMBER 8- 58

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1211 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: GH FORMULA WEIGHT: 182.2 GENERAL REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = 9.78980, B = 3069.00, C = 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 49.9 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR) = .31+00
ESTIMATED BOILING POINT(CENT.) = 171.0
HEAT OF VAPORIZATION(KILOCALORIES/MOLE) = 14.0
VOLATILITY(MILLIMOLE/ METER CUBED) = .31+04 VOLATILITY(MILLIMOLE/ METER CUBED) = .17+02
DENSITY(G/ML) = 1.0121 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0368 - .00098 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.00851, B = -175.38, C = 108.0 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 2.040

SURFACE TENSION (DYNES/CM) = 25.7 AT 25.5 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND) = 1.4030 AT 24.0 DEG. CENT. REFERENCE: TDMR1292
FREEZING POINT (DEG. CENT.) = -78.00 REFERENCE: TCR36 DID NOT FREEZE -78C 72HR

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. 2HURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3300 383.45 552.09 25.49

DIFFUSION COEF. = .047 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,49.23(1944) VISCOSITY OF VAPOR = 6.10-03 CENTIPOISE

END OF COMPOUND EA 1211 AT 25.0 DEGREES C. PAGE NUMBER B- 59

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SUMMARY OF PROPERTIES OF EA 1211 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: GH FORMULA WEIGHT: 182.2 GENERAL REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.78980, B= 3069.00, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 49.9 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .98+00
ESTIMATED BOILING POINT(CENT.)= 171.0
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.0
VOLATILITY(MG/METER CUBED)= .91+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .50+02
DENSITY(G/ML)= .9974 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0366 - .00098 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.00851, B= -175.38, C= 108.0 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 35.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 1.500

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 25.7 AT 25.5 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND)= 1.4030 AT 24.0 DEG. CENT. REFERENCE: TDMR1292
FREEZING POINT.(DEG. CENT.)= -78.00 REFERENCE: TCR36 DID NOT FREEZE -78C 72HR

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3300 383.45 552.09 25.49
DIFFUSION COEF. = .053 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 6.45-03 CENTIPOISE

END OF COMPOUND EA 1211 AT 40.0 DEGREES C. PAGE NUMBER 8- 60

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1212 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: GF FORMULA WEIGHT: 180.2 GENERAL REFERENCE: EATR4210
***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.5240, B= 1507.30, C= 170.4 DETERMINED OVER THE
TEMPERATURE RANGE 14.0 TO 168.0 DEG. CENT. REFERENCE: COMB EQU.PTP 341 + NB8343P36
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= 10-04
ESTIMATED BOILING POINT(CENT.)= 239.0
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 22.0
VOLATILITY(MG/METER CUBED)= .12+00 VOLATILITY(MILLIMOLE/ METER CUBED)= .69-03
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1918 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1524 - .00099 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.79115, B= -164.65, C= 86.7 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE:TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 541.044

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 32.3 AT 25.5 DEG. CENT. REFERENCE: TDMR1292
MELTING POINT (DEG. CENT.) = -12.0 REFERENCE: E100-41 VOL 1, METASTABLE
REFRACTIVE INDEX(ND)= 1.4590 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.4438 - .00038*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
15.0 TO 30.0 DEG. CENT. REFERENCE: CRLR164

FLASH POINT (CENTIGRADE)= 94.0 REFERENCE: Calculated
FREEZING POINT (DEG. CENT.)= -30.00 REFERENCE: E100-41 VOL 1 <-30 DEG C
MELTING POINT DEPRESSION(DEG. C./MOLE)= -12.000 REFERENCE: E100-41 VOL 1
SOLUBILITY(G/100G SOLVENT) .510+01 AT .0 DEGREE CENTIGRADE REFERENCE: WATER E100-41 VOL 1
SOLUBILITY(G/100G SOLVENT) .370+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: WATER E100-41 VOL. 1

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3597 438.22 500.87 30.44

DIFFUSION COEF. = .029 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.59-03 CENTIPOISE

END OF COMPOUND EA 1212 AT -40.0 DEGREES C. PAGE NUMBER B- 61

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SUMMARY OF PROPERTIES OF EA 1212 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: GF FORMULA WEIGHT: 180.2 GENERAL REFERENCE: EATR4210
 ***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
 VALID ONLY FOR SUPECOOLED LIQUID AND NOT THE SOLID *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.56240, B= 1507.30, C= 170.4 DETERMINED OVER THE
 TEMPERATURE RANGE 14.0 TO 168.0 DEG. CENT. REFERENCE: COMB EQU. PTP 341 + NB8343P36
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .35-03
 ESTIMATED BOILING POINT(CENT.)= 239.0
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 19.5
 VOLATILITY(MG/METER CUBED)= .39+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .22-01
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DE DENSITY(G/ML)= 1.1721 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1524 - .00099 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.79115, B= -164.65, C= 86.7 DETERMINED OVER THE
 TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 47.502

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 32.3 AT 25.5 DEG. CENT. REFERENCE: TDMR1292
 MELTING POINT (DEG. CENT.) = -12.0 REFERENCE: E100-41 VOL 1, METASTABLE
 REFRACTIVE INDEX(ND)= 1.4514 WAS CALCULATED FROM THE EQUATION:
 REFRACTIVE INDEX(ND)= 1.4438 - .00038*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
 15.0 TO 30.0 DEG. CENT. REFERENCE: CRLR164
 FLASH POINT, (CENTIGRADE)= 94.0 REFERENCE: Calculated
 FREEZING POINT (DEG. CENT.)= -30.00 REFERENCE: ETF 100-41 VOL 1 <-30 DEG C
 MELTING POINT DEPRESSION(DEG. C./MOLE)= -12.000 REFERENCE: ETF 100-41 VOL 1
 SOLUBILITY(G/100G SOLVENT) .510+01 AT .0 DEGREE CENTIGRADE REFERENCE: WATER ETF 100-41 VOL 1
 SOLUBILITY(G/100G SOLVENT) .370+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: WATER ETF 100-41 VOL. 1

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3597 438.22 500.87 30.44

DIFFUSION COEF. = .035 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.07-03 CENTIPOISE

END OF COMPOUND EA 1212 AT -20.0 DEGREES C. PAGE NUMBER B- 62

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1212 AT .0 DEGREES CENTIGRADE
COMMON NAME: GF FORMULA WEIGHT: 180.2 GENERAL REFERENCE: EATR4210

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.56240, B= 1507.30, C= 170.4 DETERMINED OVER THE
TEMPERATURE RANGE 14.0 TO 168.0 DEG. CENT. REFERENCE: COMB EQU.PTP 341 + N88343P36
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .52-02
ESTIMATED BOILING POINT(CENT.)= 239.0
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 17.7
VOLATILITY(MG/METER CUBED)= .55+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .31+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1524 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1524 - .00099 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.79115, B= -164.65, C= 86.7 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE:TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTISTOKES)= 12.810

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 32.3 AT 25.5 DEG. CENT. REFERENCE: TDMR1292
MELTING POINT (DEG. CENT.) = -12.0 REFERENCE: E100-41 VOL 1 METASTABLE
REFRACTIVE INDEX(ND)= 1.4438 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.4438 - .00038*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
15.0 TO 30.0 DEG. CENT. REFERENCE: CRLR164

FLASH POINT, (CENTIGRADE)= 94.0 REFERENCE: **Calculated**
FREEZING POINT (DEG. CENT.)= -30.00 REFERENCE: ETF 100-41 VOL 1 <-30 DEG C
MELTING POINT DEPRESSION(DEG. C./MOLE)= -12.000 REFERENCE: ETF 100-41 VOL 1
SOLUBILITY(G/100G SOLVENT) .510+01 AT .0 DEGREE CENTIGRADE REFERENCE: WATER ETF 100-41 VOL 1
SOLUBILITY(G/100G SOLVENT) .370+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: WATER ETF 100-41 VOL. 1

ZHURN. FIZ KHIM. 37. 201(1963)

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3597 438.22 500.87 30.44

DIFFUSION COEF. = .042 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.55-03 CENTIPOISE

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END OF COMPOUND EA 1212 AT .0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1212 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: GF FORMULA WEIGHT: 180.2 GENERAL REFERENCE: EATR4210

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.56240, B= 1507.30, C= 170.4 DETERMINED OVER THE TEMPERATURE RANGE 14.0 TO 168.0 DEG. CENT. REFERENCE: COMB EQU. PTP 341 + N8834.
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .44-01
ESTIMATED BOILING POINT(CENT.)= 239.0
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.3
VOLATILITY(MG/METER CUBED)= .44+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .24+01
DENSITY(G/ML)= 1.1327 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1524 - .00099 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.79115, B= -164.66, C= 60.7 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 5.645

SURFACE TENSION (DYNES/CM) = 32.3 AT 25.5 DEG. CENT. REFERENCE: TDMR1292
MELTING POINT (DEG. CENT.) = -12.0 REFERENCE: E100-41 VOL 1, METASTABLE
REFRACTIVE INDEX(ND)= 1.4363 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.4438 - .00038*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 30.0 DEG. CENT. REFERENCE: CRLR164

FLASH POINT, (CENTIGRADE)= 94.0 REFERENCE: CRLR164
FREEZING POINT (DEG. CENT.)= -30.00 REFERENCE: E1F 100-41 VOL 1 <-30 DEG C
MELTING POINT DEPRESSION(DEG. C./MOLE)= -12.000 REFERENCE: E1F 100-41 VOL 1
SOLUBILITY(G/100G SOLVENT) .510+01 AT .0 DEGREE CENTIGRADE REFERENCE: WATER E1F 100-41 VOL 1
SOLUBILITY(G/100G SOLVENT) .370+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: WATER E1F 100-41 VOL 1

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURM. P12 NIMB. 37. 201(1983)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3597 438.22 500.87 30.44

DIFFUSION COEF. = .049 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY-CHEM,48,23(1944) VISCOSITY OF VAPOR = 0.03-03 CENTIPOISE

END OF COMPOUND EA 1212 AT 20.0 DEGREES C. PAGE NUMBER 8- 64

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SUMMARY OF PROPERTIES OF EA 1212 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: GF FORMULA WEIGHT: 180.2 GENERAL REFERENCE: EATR4210

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.56240, B= 1507.30, C= 170.4 DETERMINED OVER THE
TEMPERATURE RANGE 14.0 TO 168.0 DEG. CENT. REFERENCE: COMB EQU.FTP 341 + N88343P36
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .70-01
ESTIMATED BOILING POINT(CENT.)= 239.0
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.0
VOLATILITY(MG/METER CUBED)= .68+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .38+01
DENSITY(G/ML)= 1.1278 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1524 - .00059 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TOMR 1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.79115, B= -164.65, C= 86.7 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TOMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 4.816

SURFACE TENSION (DYNES/CM) = 32.3 AT 25.5 DEG. CENT. REFERENCE: TOMR1292
MELTING POINT (DEG. CENT.) = -12.0 REFERENCE: E100-41 VOL 1, METASTABLE
REFRACTIVE INDEX(ND)= 1.4343 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.4439 - .00038*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
15.0 TO 30.0 DEG. CENT. REFERENCE: CLR164
FLASH POINT,
(CENTIGRADE)= 94.0 REFERENCE: Calculated
FREEZING POINT (DEG. CENT.)= -30.00 REFERENCE: ETF 100-41 VOL 1 <-30 DEG C
MELTING POINT DEPRESSION(DEG. C./MOLE)= -12.000 REFERENCE: ETF 100-41 VOL 1
SOLUBILITY(G/100G SOLVENT) .510+01 AT .0 DEGREE CENTIGRADE REFERENCE: WATER ETF 100-41 VOL 1
SOLUBILITY(G/100G SOLVENT) .370+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: WATER ETF 100-41 VOL 1

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3597	438.22	500.87	30.44

DIFFUSION COEF. = .051 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 8.15-03 CENTIPOISE

END OF COMPOUND EA 1212 AT 25.0 DEGREES C. PAGE NUMBER B- 65

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SUMMARY OF PROPERTIES OF EA 1212 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: GF FORMULA WEIGHT: 180.2 GENERAL REFERENCE: EATR4210

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.56240, B= 1507.30, C= 170.4 DETERMINED OVER THE TEMPERATURE RANGE 14.0 TO 168.0 DEG. CENT. REFERENCE: COMB EQU.PTP 341 + NB8343P36
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .25+00
ESTIMATED BOILING POINT(CENT.)= 239.0
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.3
VOLATILITY(MG/METER CUBED)= .23+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .13+02
DENSITY(G/ML)= 1.1130 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1524 - .00099 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.79115, B= -164.65, C= 86.7 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 3.222

SURFACE TENSION (DYNES/CM) = 32.3 AT 25.5 DEG. CENT. REFERENCE: TDMR1292
MELTING POINT (DEG. CENT.) = -12.0 REFERENCE: E100-41 VOL 1 METASTABLE
REFRACTIVE INDEX(ND)= 1.4287 WAS CALCULATED FROM THE EQUATION:

REFRACTIVE INDEX(ND)= 1.4438 - .00038*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 30.0 DEG. CENT. REFERENCE: CR1R164
FLASH POINT, (CENTIGRADE)= 94.0 REFERENCE: Calculated
FREEZING POINT (DEG. CENT.)= -30.00 REFERENCE: ETF 100-41 VOL 1 <-30 DEG C
MELTING POINT DEPRESSION(DEG. C./MOLE)= -12.000 REFERENCE: ETF 100-41 VOL 1, METASTABLE
SOLUBILITY(G/100G SOLVENT) .510+01 AT .0 DEGREE CENTIGRADE REFERENCE: WATER ETF 100-41 VOL 1
SOLUBILITY(G/100G SOLVENT) .370+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: WATER ETF 100-41 VOL. 1

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3597	438.22	500.87	30.44

DIFFUSION COEF. = .056 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 6.50-03 CENTIPOISE

END OF COMPOUND EA 1212 AT 40.0 DEGREES C. PAGE NUMBER B- 66

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SUMMARY OF PROPERTIES OF EA 1213 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 168.1 GENERAL REFERENCE: TDMR1292
 ***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
 VALID ONLY FOR SUPECOOLED LIQUID AND NOT THE SOLID *****

VAPOR PRESSURE(TORR)= .22+02 AT 84.0 DEG. CENT. REFERENCE: TDMR1292
 VAPOR PRESSURE(TORR)= .55+00 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
 DENSITY(G/ML)= 1.0919 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0531 - .00097 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.92419, B= -495.20, C= 189.2 DETERMINED OVER THE
 TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 24.864

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 24.8 AT 26.0 DEG. CENT. REFERENCE: TDMR1292
 REFRACTIVE INDEX(ND)= 1.3980 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
 FREEZING POINT (DEG. CENT.)= -18.80 REFERENCE: TDMR1292

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3335 397.22 504.25 28.49

DIFFUSION COEF. = .029 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.61-03 CENTIPOISE

END OF COMPOUND EA 1213 AT -40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1213 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 158.1 GENERAL REFERENCE: TDMR1292
 ***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
 VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****
 VAPOR PRESSURE(TORR)= .22*02 AT 84.0 DEG. CENT. REFERENCE: TDMR1292
 VAPOR PRESSURE(TORR)= .55*00 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
 DENSITY(G/ML)= 1.0725 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0531 - .00097 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4911): A= -1.92419, B= -495.20, C= 189.2 DETERMINED OVER THE
 TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 10.072

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 24.8 AT 26.0 DEG. CENT. REFERENCE: TDMR1292
 REFRACTIVE INDEX(ND)= 1.3980 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
 FREEZING POINT (DEG. CENT.) = -18.80 REFERENCE: TDMR1292

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3335 397.22 504.25 28.49

DIFFUSION COEF. = .035 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.08-03 CENTIPOISE

END OF COMPOUND EA 1213 AT -20.0 DEGREES C. PAGE NUMBER 8- 68

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SUMMARY OF PROPERTIES OF EA 1213 AT -0.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 168.1 GENERAL REFERENCE: TDMR1292

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .22+02 AT 84.0 DEG. CENT. REFERENCE: TDMR1292
VAPOR PRESSURE(TORR)= .55+00 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
DENSITY(G/ML)= 1.0531 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0531 - .00097 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.92419, B= -495.20, C= 189.2 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 4.939

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 24.8 AT 26.0 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND)= 1.3980 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
FREEZING POINT (DEG. CENT.)= -18.80 REFERENCE: TDMR1292

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3335	397.22	504.25	28.49

DIFFUSION COEF. = .042 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.55-03 CENTIPOISE

END OF COMPOUND EA 1213 AT -0.0 DEGREES C. PAGE NUMBER B- 69

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SUMMARY OF PROPERTIES OF EA 1213 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 168.1 GENERAL REFERENCE: TDMR1292

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .22+02 AT 84.0 DEG. CENT. REFERENCE: TDMR1292
VAPOR PRESSURE(TORR)= .55+00 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
DENSITY(G/ML)= 1.0337 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0531 - .00097 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.92419, B= -495.20, C= 189.2 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 2.775

SURFACE TENSION (DYNES/CM) = 24.8 AT 26.0 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND)= 1.3980 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
FREEZING POINT (DEG. CENT.)= -18.00 REFERENCE: TDMR1292

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3335 397.22 504.25 28.49

DIFFUSION COEF. = .049 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 6.02-03 CENTIPOISE

END OF COMPOUND EA 1213 AT 20.0 DEGREES C. PAGE NUMBER 8- 70

Appendix B

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Appendix B

SUMMARY OF PROPERTIES OF EA 1213 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 168.1 GENERAL REFERENCE: TDMR1292

*** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .22+02 AT 84.0 DEG. CENT. REFERENCE: TDMR1292
VAPOR PRESSURE(TOPR)= .55+00 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
DENSITY(G/ML)= 1.0289 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0531 - .00097 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR1292

THE FOLLOWING Antoine constants(EATR 4491): A= -1.92419, B= -495.20, C= 189.2 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 2.444

SURFACE TENSION (DYNES/CM) = 24.8 AT 26.0 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND)= 1.3980 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
FREEZING POINT (DEG. CENT.) = -18.80 REFERENCE: TDMR1292

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GW/CC DEG C CC/MOLE ATM.
.3335 397.22 504.25 28.49

DIFFUSION COEF. = .051 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 6.14-03 CENTIPOISE

END OF COMPOUND EA 1213 AT 25.0 DEGREES C. PAGE NUMBER B- 71

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SUMMARY OF PROPERTIES OF EA 1213 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 169.1 GENERAL REFERENCE: TDMR1292

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .22+02 AT 84.0 DEG. CENT. REFERENCE: TDMR1292
VAPOR PRESSURE(TORR)= .55+00 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
DENSITY(G/ML)= 1.0143 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0531 - .00097 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.92419, B= -495.20, C= 189.2 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 1.725

SURFACE TENSION (DYNES/CM) = 24.8 AT 26.0 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(NL)= 1.3980 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
FREEZING POINT (DEG. CENT.)= -18.80 REFERENCE: TDMR1292

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3335 397.22 504.25 28.49

DIFFUSION COEF. = .056 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY-CHEM,48,23(1944) VISCOSITY OF VAPOR = 6.50-03 CENTIPOISE

END OF COMPOUND EA 1213 AT 40.0 DEGREES C. PAGE NUMBER B- 72

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SUMMARY OF PROPERTIES OF EA 1214 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 210.1 GENERAL REFERENCE: TDMR1292

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .30+01 AT 105.0 DEG. CENT. REFERENCE: TDMR1292 TEMP. +-1 DEG.
VAPOR PRESSURE(TORR)= .60-01 AT 25.0 DEG. CENT. REFERENCE: TDMR1292 APROX (0.04 TO 0.08)
DENSITY(G/ML)= 1.0568 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0210 - .00089 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.96037, B= -502.19, C= 178.6 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 45.948

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 27.3 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND)= 1.4190 AT 23.5 DEG. CENT. REFERENCE: TDMR1292
FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TDMR-1292 DID NOT FREEZE TO-78

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3198 427.58 657.03 22.88

DIFFUSION COEF. = .024 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48:23(1944) VISCOSITY OF VAPOR = 4.18-03 CENTIPOISE

END OF COMPOUND EA 1214 AT -40.0 DEGREES C. PAGE NUMBER B- 73

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1214 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 210.1 GENERAL REFERENCE: TDMR1292

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = .30+01 AT 105.0 DEG. CENT. REFERENCE: TDMR1292 TEMP. +-1 DEG.
VAPOR PRESSURE(TORR) = .60-01 AT 25.0 DEG. CENT. REFERENCE: TDMR1292 APPROX (0.04 TO 0.08)
DENSITY(G/ML) = 1.0388 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0210 - .00089 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.96037, B = -502.19, C = 178.6 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 16.051

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 27.3 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND) = 1.4190 AT 23.5 DEG. CENT. REFERENCE: TDMR1292
FREEZING POINT (DEG. CENT.) = -78.00 REFERENCE: TDMR-1292 DID NOT FREEZE TO -78

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3198 427.58 657.03 22.86

DIFFUSION COEF. = .029 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 4.62-03 CENTIPOISE

END OF COMPOUND EA 1214 AT -20.0 DEGREES C. PAGE NUMBER B- 74

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SUMMARY OF PROPERTIES OF EA 1214 AT .0 DEGREES CENTIGRADE
 COMPOUND NAME: FORMULA WEIGHT: 210.1 GENERAL REFERENCE: TDMR1292

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .30-01 AT 105.0 DEG. CENT. REFERENCE: TDMR1292 TEMP. +-1 DEG.
 VAPOR PRESSURE(TORR)= .60-01 AT 25.0 DEG. CENT. REFERENCE: TDMR1292 APROX (0.04 TO 0.09)
 DENSITY(G/ML)= 1.0210 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0210 - .00089 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR1292

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.98037, B= -502.19, C= 178.6 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 7.098

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 27.3 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
 REFRACTIVE INDEX(ND)= 1.4190 AT 23.5 DEG. CENT. REFERENCE: TDMR1292
 FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TDMR-1292 DID NOT FREEZE TO-78

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3198	427.58	657.03	22.86

DIFFUSION COEF. = .034 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.05-03 CENTIPOISE

END OF COMPOUND EA 1214 AT .0 DEGREES C. PAGE NUMBER 8- 75

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Appendix B

SUMMARY OF PROPERTIES OF EA 1214 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 210.1 GENERAL REFERENCE: TDMR1292

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = .30+01 AT 105.0 DEG. CENT. REFERENCE: TDMR1292 TEMP. +-1 DEG.
VAPOR PRESSURE(TORR) = .60+01 AT 25.0 DEG. CENT. REFERENCE: TDMR1292 APPROX (0.04 TO 0.08)
DENSITY(G/ML) = 1.0032 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0210 - .00089 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.98037, B = -502.19, C = 178.6 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 3.698

SURFACE TENSION (DYNES/CM) = 27.3 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND) = 1.4190 AT 23.5 DEG. CENT. REFERENCE: TDMR1292
FREEZING POINT (DEG. CENT.) = -78.00 REFERENCE: TDMR-1292 DID NOT FREEZE TO -78

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G./CC DEG C CC/MOLE ATM.
.3198 427.58 657.03 22.86

DIFFUSION COEF. = .040 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.48-03 CENTIPOISE

END OF COMPOUND EA 1214 AT 20.0 DEGREES C.

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UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1214 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 210.1 GENERAL REFERENCE: TDMR1292

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .30+01 AT 105.0 DEG. CENT. REFERENCE: TDMR1292 TEMP. +-1 DEG.
VAPOR PRESSURE(TORR)= .60+01 AT 25.0 DEG. CENT. REFERENCE: TDMR1292 APPROX (0.04 TO 0.08)
DENSITY(G/ML)= .9488 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0210 - .00089 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.96037, B= -5C2.19, C= 178.8 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 3.205

SURFACE TENSION (DYNES/CM) = 27.3 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND)= 1.4190 AT 23.5 DEG. CENT. REFERENCE: TDMR1292
FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TDMR-1292 DID NOT FREEZE TO-78

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3198 427.58 657.03 22.86

DIFFUSION COEF. = .042 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.59-03 CENTIPOISE

END OF COMPOUND EA 1214 AT 25.0 DEGREES C. PAGE NUMBER 8- 77

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1214 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 210.1 GENERAL REFERENCE: TDMR1292

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .30+01 AT 105.0 DEG. CENT. REFERENCE: TDMR1292 TEMP. +-1 DEG.
VAPOR PRESSURE(TORR)= .60-01 AT 25.0 DEG. CENT. REFERENCE: TDMR1292 APROX (0.04 TO 0.08)
DENSITY(G/ML)= .9-54 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0210 - .00089 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR1292

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.96037, B= -502.19, C= 178.6 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TDMR 1292
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 2.171

SURFACE TENSION (DYNES/CM) = 27.3 AT 25.0 DEG. CENT. REFERENCE: TDMR1292
REFRACTIVE INDEX(ND)= 1.4190 AT 23.5 DEG. CENT. REFERENCE: TDMR1292
FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TDMR-1292 DID NOT FREEZE TO-78

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3198 427.58 657.03 22.86

DIFFUSION COEF. = .046 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.92-93 CENTIPOISE

END OF COMPOUND EA 1214 AT 40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1230 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 218.2 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .10+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.2966 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2578 - .00097 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTONE CONSTANTS(EATR 4491): A= -1.25660, B= -259.14, C= 80.3 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36 P. 6
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 151368.965

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 40.0 AT 24.5 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4940 AT 24.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3853 501.36 566.28 29.31

DIFFUSION COEF. = .027 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.38-03 CENTIPOISE

END OF COMPOUND EA 1230 AT -40.0 DEGREES C. PAGE NUMBER 8- 79

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1230 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 218.2 GENERAL REFERENCE: TCR36

**** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .10400 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.2772 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2578 - .00097 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

**** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE ****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.25660, B= -259.14, C= 80.3 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36 P. 6
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 1105.983

**** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE ****

SURFACE TENSION (DYNES/CM) = 40.0 AT 24.5 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4940 AT 24.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG. C CC/MOLE ATM.
.3853 501.36 566.28 29.31

DIFFUSION COEF. = .032 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.84-03 CENTIPOISE

END OF COMPOUND EA 1230 AT -20.0 DEGREES C. PAGE NUMBER B- 80

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1230 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 218.2 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .10+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.2578 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2578 - .00097 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
THE FOLLOWING ANTIOXIDANT CONSTANTS(EATR 4491): A= -1.25660, B= -259.14, C= 80.3 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36 P. 6

WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 93.787

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 40.0 AT 24.5 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4940 AT 24.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
CM/CC DEG C CC/MOLE ATM.
.3853 501.36 568.28 29.31

DIFFUSION COEF. = .038 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.31-03 CENTIPOISE

END OF COMPOUND EA 1230 AT .0 DEGREES C. PAGE NUMBER B- 81

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SUMMARY OF PROPERTIES OF EA 1230 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 218.2 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .10+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.2384 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2578 - .00097 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.25660, B= -259.14, C= 80.3 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36 P. 6
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 21.285

SURFACE TENSION (DYNES/CM) = 40.0 AT 24.5 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4940 AT 24.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3853 501.36 566.28 29.31

DIFFUSION COEF. = .044 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ.. J.PHY-CHEM.48,23(1944) VISCOSITY OF VAPOR = 3.77-03 CENTIPOISE

END OF COMPOUND EA 1230 AT 20.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1230 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 218.2 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .1040 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.2336 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2578 -
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36
.00097 *TEMP.(C.) DETERMINED OVER

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.25660, B= -259.14, C= 80.3 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36 P. 6
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 16.043

SURFACE TENSION (DYNES/CM) = 40.0 AT 24.5 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4940 AT 24.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3853 501.36 566.28 29.31

DIFFUSION COEF. = .046 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ.. J.RHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.89-03 CENTIPOISE

END OF COMPOUND EA 1230 AT 25.0 DEGREES C. PAGE NUMBER 3- 83

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1230 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 218.2 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .10+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.2190 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2578 -
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 .00097 *TEMP.(C.) DETERMINED OVER

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.25660, B= -259.14, C= 80.3 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36 P. 6
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 7.911

SURFACE TENSION (DYNES/CM) = 40.0 AT 24.5 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4940 AT 24.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. Z.JURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3853 501.36 566.28 29.31

DIFFUSION COEF. = .051 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.24-03 CENTIPOISE

END OF COMPOUND EA 1230 AT 40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1232 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 112.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .38+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.3231 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2715 - .00129 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 9.5 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOLINE CONSTANTS(EATR 4491): A= -2.18494, B= -854.91, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 9.5 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.7
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 4.207

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 30.9 AT 25.0 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3720 AT 24.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -67.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.4108 347.88 272.74 48.80

DIFFUSION COEF. = .045 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 5.97-03 CENTIPOISE

END OF COMPOUND EA 1232 AT -40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1232 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 112.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .38+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.2373 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2715 - .00129 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 9.5 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.18484, B= -854.91, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 9.5 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.7
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 2.524

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 30.9 AT 25.0 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3720 AT 24.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -67.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.4108 347.88 272.74 48.80

DIFFUSION COEF. = .054 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 6.58-03 CENTIPOISE

END OF COMPOUND EA 1232 AT -20.0 DEGREES C. PAGE NUMBER 8- 86

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SUMMARY OF PROPERTIES OF EA 1232 AT -0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 112.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = .38+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML) = 1.2715 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.2715 - .00129 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 9.5 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOLINE CONSTANTS(EATR 4491): A = -2.18484, B = -654.91, C = 273.2 DETERMINED OVER THE TEMPERATURE RANGE 9.5 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.7
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 1.632

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 30.9 AT 25.0 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND) = 1.3720 AT 24.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -67.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37, 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.4108 347.08 272.74 48.80

DIFFUSION COEF. = .065 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 7.18-03 CENTIPOISE

END OF COMPOUND EA 1232 AT -0 DEGREES C. PAGE NUMBER 8- 87

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Appendix B

SUMMARY OF PROPERTIES OF EA 1232 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 112.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .38+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.2457 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2715 -
THE TEMPERATURE RANGE 9.5 TO 50.0 DEG. CENT. REFERENCE: TCR36 .00129 *TEMP.(C.) DETERMINED OVER

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.18484, B= -854.91, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 9.5 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.7
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 1.120

SURFACE TENSION (DYNES/CM) = 30.9 AT 25.0 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3720 AT 24.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -87.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.4108 347.88 272.74 48.80

DIFFUSION COEF. = .075 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 7.78-03 CENTIPOISE

END OF COMPOUND EA 1232 AT 20.0 DEGREES C.

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Appendix B

SUMMARY OF PROPERTIES OF EA 1232 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 112.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = .38+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML) = 1.2392 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.2715 - .00129 * TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 9.5 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -2.18484, B = -654.91, C = 273.2 DETERMINED OVER THE TEMPERATURE RANGE 9.5 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.7
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 1.027

SURFACE TENSION (DYNES/CM) = 30.9 AT 25.0 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND) = 1.3720 AT 24.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -67.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.4108 347.88 272.74 48.80

DIFFUSION COEF. = .078 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 7.93-03 CENTIPOISE

END OF COMPOUND EA 1232 AT 25.0 DEGREES C. PAGE NUMBER B- 89

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SUMMARY OF PROPERTIES OF EA 1232 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 112.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .38+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.2199 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2715 - .00129 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 9.5 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.18484, B= -854.91, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 9.5 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.7
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= .806

SURFACE TENSION (DYNES/CM) = 30.9 AT 25.0 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3720 AT 24.5 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -67.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.4108 347.88 272.74 48.80

DIFFUSION COEF. = .087 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 8.38-03 CENTIPOISE

END OF COMPOUND EA 1232 AT 40.0 DEGREES C. PAGE NUMBER 8- 90

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SUMMARY OF PROPERTIES OF EA 1244 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 196.6 GENERAL REFERENCE: TCR36
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = -20.01 AT 30.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML) = 1.2854 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.2466 - .00097 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.94420, B = -506.85, C = 154.7 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.8
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 298.184

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 37.8 AT 23.2 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND) = 1.4520 AT 25.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3824 495.65 514.03 32.05

DIFFUSION COEF. = .029 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.46-03 CENTIPOISE

END OF COMPOUND EA 1244 AT -40.0 DEGREES C. PAGE NUMBER B- 91

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SUMMARY OF PROPERTIES OF EA 1244 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 196.8 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .20-01 AT 30.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.2660 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2466 - .00097 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.94420, B= -508.83, C= 154.7 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.8
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 65.833

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 37.8 AT 23.2 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4520 AT 25.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHM. 37. 201(1963)

DENSITY TEMPERATURE	VOLUME PRESSURE
GM/CC	DEG C
.3824	495.65
514.03	32.05

DIFFUSION COEF. = .034 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.93-03 CENTIPOISE

END OF COMPOUND EA 1244 AT -20.0 DEGREES C. PAGE NUMBER 8- 92

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Appendix B

SUMMARY OF PROPERTIES OF EA 1244 AT .0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 196.6 GENERAL REFERENCE: TCR36
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 VAPOR PRESSURE(TORR)= .20-01 AT 30.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML)= 1.2466 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2466 - .00097 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.94420, B= -506.85, C= 154.7 DETERMINED OVER THE
 TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.8
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 21.479

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 SURFACE TENSION (DYNES/CM) = 37.8 AT 23.2 DEG. CENT. REFERENCE: TCR36
 REFRACTIVE INDEX(ND)= 1.4520 AT 25.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3824 495.65 514.03 32.05

DIFFUSION COEF. = .041 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
 THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.40-03 CENTIPOISE
 END OF COMPOUND EA 1244 AT .0 DEGREES C.

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Appendix B

SUMMARY OF PROPERTIES OF EA 1244 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 196.6 GENERAL REFERENCE: TCR36
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .20-01 AT 30.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.2272 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2466 - .00097 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.94420, B= -506.85, C= 154.7 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.8
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 9.057

SURFACE TENSION (DYNES/CM) = 37.8 AT 23.2 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4520 AT 25.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3824 495.65 514.03 32.05

DIFFUSION COEF. = .048 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.87-03 CENTIPOISE

END OF COMPOUND EA 1244 AT 20.0 DEGREES C.

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Appendix B

SUMMARY OF PROPERTIES OF EA 1244 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 196.6 GENERAL REFERENCE: TCR36
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .20-01 AT 30.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML)= 1.2224 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2466 - .00097 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.94420, B= -506.85, C= 154.7 DETERMINED OVER THE
 TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.8
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 7.520

SURFACE TENSION (DYNES/CM) = 37.8 AT 23.2 DEG. CENT. REFERENCE: TCR36
 REFRACTIVE INDEX(ND)= 1.4520 AT 25.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3824	495.65	514.03	32.05

DIFFUSION COEF. = .049 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.99-03 CENTIPOISE

END OF COMPOUND EA 1244 AT 25.0 DEGREES C. PAGE NUMBER B- 95

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Appendix B

SUMMARY OF PROPERTIES OF EA 1244 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 196.6 GENERAL REFERENCE: TCR36
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 VAPOR PRESSURE(TORR)= -20-01 AT 30.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML)= 1.2078 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.2466 - .00097 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.94420, B= -506.85, C= 154.7 DETERMINED OVER THE
 TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.8
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 4.560
 SURFACE TENSION (DYNES/CM) = 37.8 AT 23.2 DEG. CENT. REFERENCE: TCR36
 REFRACTIVE INDEX(ND)= 1.4520 AT 25.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3824 495.65 514.03 32.05

DIFFUSION COEF. = .055 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY-CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.35-03 CENTIPOISE

END OF COMPOUND EA 1244 AT 40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1245 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 176.2 GENERAL REFERENCE: TCR36
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .30-01 AT 30.0 DEG. CENT. REFERENCE: TCR36
 VAPOR PRESSURE(TORR)= .65-01 AT 50.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML)= 1.1208 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0852 - .00089 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.38600, B= -711.4, C= 219.3 DETERMINED OVER THE
 TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.9
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 38.239

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 34.2 AT 21.8 DEG. CENT. REFERENCE: TCR36
 REFRACTIVE INDEX(ND)= 1.4290 AT 23.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3361 463.19 524.18 30.10

DIFFUSION COEF. = .028 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48,23(1944). VISCOSITY OF VAPOR = 4.30-03 CENTIPOISE

END OF COMPOUND EA 1245 AT -40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1245 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 176.2 GENERAL REFERENCE: TCR36
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
**** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .30-01 AT 30.0 DEG. CENT. REFERENCE: TCR36
VAPOR PRESSURE(TORR)= .65-01 AT 50.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.1030 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0852 - .00089 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

**** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE ****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.38600, B= -711.47, C= 219.3 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.9
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 15.283

**** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE ****

SURFACE TENSION (DYNES/CM) = 34.2 AT 21.8 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4290 AT 23.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3361 463.19 524.18 30.10

DIFFUSION COEF. = .034 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 4.75-03 CENTIPOISE

END OF COMPOUND EA 1245 AT -20.0 DEGREES C. PAGE NUMBER B- 98

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SUMMARY OF PROPERTIES OF EA 1245 AT .0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 176.2 GENERAL REFERENCE: TCR36
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .30-01 AT 30.0 DEG. CENT. REFERENCE: TCR36
 VAPOR PRESSURE(TORR)= .65-01 AT 50.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML)= 1.0852 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0852 - .00089 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.38600, B= -711.47, C= 219.3 DETERMINED OVER THE
 TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.9
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 7.221

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 34.2 AT 21.8 DEG. CENT. REFERENCE: TCR36
 REFRACTIVE INDEX(ND)= 1.4290 AT 23.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3361 463.19 524.18 30.10

DIFFUSION COEF. = .041 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.20-03 CENTIPOISE

END OF COMPOUND EA 1245 AT .0 DEGREES C. PAGE NUMBER 8- 99

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SUMMARY OF PROPERTIES: 1245 AT 20.0 DEGREES CENTIGRADE
 FORMULA WEIGHT: 170.2
 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = .30-01 AT 30.0 DEG. CENT. REFERENCE: TCR36
 VAPOR PRESSURE(TORR) = .65-01 AT 50.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML) = 1.0674 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0852 - .00089 * TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTIMINE CONSTANTS(EATR 4491): A = -2.38600, B = -711.47, C = 219.3 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.9
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 3.867

SURFACE TENSION (DYNES/CM) = 34.2 AT 21.8 DEG. CENT. REFERENCE: TCR36
 REFRACTIVE INDEX(ND) = 1.4290 AT 23.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3361	463.19	524.18	30.10

DIFFUSION COEF. = .047 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.65-03 CENTIPOISE

END OF COMPOUND EA 1245 AT 20.0 DEGREES C. PAGE NUMBER B-100

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Appendix B

SUMMARY OF PROPERTIES OF EA 1245 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 176.2 GENERAL REFERENCE: TCR36
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCULS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .30-01 AT 30.0 DEG. CENT. REFERENCE: TCR36
 VAPOR PRESSURE(TORR)= .85-01 AT 50.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML)= 1.0630 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0852 - .00089 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.38600, B= -711.47, C= 219.3 DETERMINED OVER THE
 TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.9
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 3.361

SURFACE TENSION (DYNES/CM) = 34.2 AT 21.8 DEG. CENT. REFERENCE: TCR36
 REFRACTIVE INDEX(ND)= 1.4290 AT 23.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG.C	CC/MOLE	ATM.
.3361	463.19	524.18	30.10

DIFFUSION COEF. = .049 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.76-03 CENTIPOISE

END OF COMPOUND EA 1245 AT 25.0 DEGREES C. PAGE NUMBER B-101

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Appendix B

SUMMARY OF PROPERTIES OF EA 1245 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 176.2 GENERAL REFERENCE: TCR36
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = .30-01 AT 30.0 DEG. CENT. REFERENCE: TCR36
 VAPOR PRESSURE(TORR) = .65-01 AT 50.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML) = 1.0496 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0852 - .00089 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -2.38600, B = -711.47, C = 219.3 DETERMINED OVER THE
 TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.9
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 2.280

SURFACE TENSION (DYNES/CM) = 34.2 AT 21.8 DEG. CENT. REFERENCE: TCR36
 REFRACTIVE INDEX(ND) = 1.4290 AT 23.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GH/CC DEG C CC/MOLE ATM.
 .3361 463.19 524.18 30.10

DIFFUSION COEF. = .055 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48:23(1944) VISCOSITY OF VAPOR = 6.10-03 CENTIPOISE

END OF COMPOUND EA 1245 AT 40.0 DEGREES C.

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Appendix B

SUMMARY OF PROPERTIES OF EA 1246 AT -20.0 DEGREES CENTIGRADE
 COMPOUND NAME: FORMULA WEIGHT: 166.1
 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOCIS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.90720, B= 2890.40, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE -0 TO 28.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .31-02
 ESTIMATED BOILING POINT(CENT.)= 208.5
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.2
 VOLATILITY(MG/METER CUBED)= .32+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .20+00
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 DENSITY(G/ML)= 1.1924 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1714 - .00105 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.22760, B= -799.87, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 8.552
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3689 412.01 450.22 32.61
 DIFFUSION COEF. = .038 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
 THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.36-03 CENTIPOISE
 END OF COMPOUND EA 1246 AT -20.0 DEGREES C. PAGE NUMBER B-104

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SUMMARY OF PROPERTIES OF EA 1246 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 166.1 GENERAL REFERENCE: ARCSL-TR-77001

***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.90720, B= 2890.40, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE .0 TO 28.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .32-03

ESTIMATED BOILING POINT(CENT.)= 206.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.2

VOLATILITY(MG/METER CUBED)= .37+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .22-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.2134 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1714 - .00105 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.22760, B= -799.87, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE:ARCSL-TR-77001

WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 15.963

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G#/CC DEG C CC/MOLE ATM.
.3689 412.01 450.22 32.61

DIFFUSION COEF. = .032 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 4.86-03 CENTIPOISE

END OF COMPOUND EA 1246 AT -40.0 DEGREES C. PAGE NUMBER B-103

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SUMMARY OF PROPERTIES OF EA 1246 AT .0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 166.1 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTINE CONSTANTS(EATR 4491): A= 8.90720, B= 2890.40, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE .0 TO 28.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .21-01
 ESTIMATED BOILING POINT(CENT.)= 206.5
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.2
 VOLATILITY(MG/METER CUBED)= .21+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .12+01
 DENSITY(G/ML)= 1.1714 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1714 - .00105 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTINE CONSTANTS(EATR 4491): A= -2.22760, B= -799.87, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 5.020

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
CG/CC	DEG C	CC/MOLE	ATM.
.3689	412.01	450.22	32.61

DIFFUSION COEF. = .045 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.87-03 CENTIPOISE

END OF COMPOUND EA 1246 AT .0 DEGREES C. PAGE NUMBER 8-105

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SUMMARY OF PROPERTIES OF EA 1246 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 166.1 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.90720, B= 2890.40, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 0 TO 28.0 DEG. CENT. REFERENCE: ARCSL-IR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .11400
 ESTIMATED BOILING POINT(CENT.)= 206.5
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.2
 VOLATILITY(MG/METER CUBED)= .10404 VOLATILITY(MILLIMOLE/ METER CUBED)= .61401
 DENSITY(G/ML)= 1.1504 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1714 - .00105 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.2760, B= -799.87, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 3.169
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C. CC/MOLE ATM.
 .3689 412.01 450.22 32.61
 DIFFUSION COEF. = .053 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 6.37-03 CENTIPOISE
 END OF COMPOUND EA 1246 AT 20.0 DEGREES C. PAGE NUMBER B-106

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1246 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 166.1
 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOLLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.90720, B= 2890.40, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE .0 TO 28.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .16+00
 ESTIMATED BOILING POINT(CFNT.)= 206.5
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.2
 VOLATILITY(MG/METER CUBED)= .15+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .88+01
 DENSITY(G/ML)= 1.1452 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1714 - .00105 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.22760, B= -799.87, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 2.852

ZHURN. FIZ KHIM. 37. 201(1963)

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3689	412.01	450.22	32.61

DIFFUSION COEF. = .055 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 6.49-03 CENTIPOISE

END OF COMPOUND EA 1246 AT 25.0 DEGREES C. PAGE NUMBER 8-107

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1246 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 166.1
 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.90720, B= 2890.40, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE .0 TO 28.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .48+00
 ESTIMATED BOILING POINT(CENT.)= 208.5
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.2
 VOLATILITY(MG/METER CUBED)= .40+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .24+02
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 DENSITY(G/ML)= 1.1294 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1714 - .00105 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.22760, B= -799.87, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 2.122

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	ATM.
.3689	412.01	450.22
		32.61

DIFFUSION COEF. = .061 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.87-03 CENTIPOISE

END OF COMPOUND EA 1246 AT 40.0 DEGREES C.

PAGE NUMBER D-108

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1249 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36
 ***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
 VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****
 VAPOR PRESSURE(TORR)= .74+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML)= 1.1327 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0899 - .00107 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 SURFACE TENSION (DYNES/CM) = 24.4 AT 20.4 DEG. CENT. REFERENCE: TCR36
 REFRACTIVE INDEX(ND)= 1.3890 AT 23.0 DEG. CENT. REFERENCE: TCR36
 FREEZING POINT (DEG. CENT.)= -34.70 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201 (1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3497 364.16 440.78 30.99
 DIFFUSION COEF. = .032 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
 THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.00-03 CENTIPOISE
 END OF COMPOUND EA 1249 AT -40.0 DEGREES C. PAGE NUMBER B-109

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1249 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36

***** WARNING: Since there is no boiling point data for this compound and there is no vapor pressure data to estimate a boiling point, the values calculated above the data ranges may be above boiling point and not meaningful

VAPOR PRESSURE(TORR)= .74+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.1113 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0899 - .00107 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 24.4 AT 20.4 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3890 AT 23.0 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -34.70 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3497 364.16 440.78 30.99

DIFFUSION COEF. = .039 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.50-03 CENTIPOISE

END OF COMPOUND EA 1249 AT -20.0 DEGREES C. PAGE NUMBER B-110

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1249 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .74+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.0899 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0899 - .00107.*TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 24.4 AT 20.4 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3890 AT 23.0 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -34.70 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3497 364.16 440.78 30.99

DIFFUSION COEF. = .046 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY-CHEM,48,23(1944) VISCOSITY OF VAPOR = 6.01-03 CENTIPOISE

END OF COMPOUND EA 1249 AT .0 DEGREES C. PAGE NUMBER 8-111

UNCLASSIFIED

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1249 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .7400 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.0686 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0899 - .00107 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

SURFACE TENSION (DYNES/CM) = 24.4 AT 20.4 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3890 AT 23.0 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -34.70 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3497 364.16 440.78 30.99

DIFFUSION COEF. = .054 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 8.52-03 CENTIPOISE

END OF COMPOUND EA 1249 AT 20.0 DEGREES C. PAGE NUMBER B-112

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1249 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = .74+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML) = 1.0632 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0899 - .00107 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36
SURFACE TENSION (DYNES/CM) = 24.4 AT 20.4 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND) = 1.3890 AT 23.0 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -34.70 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3497 364.16 440.78 30.99

DIFFUSION COEF. = .056 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.64-03 CENTIPOISE

END OF COMPOUND EA 1249 AT 25.0 DEGREES C. PAGE NUMBER 8-113

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1249 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .74+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.0472 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0899 - .00107 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

SURFACE TENSION (DYNES/CM) = 7.4 AT 20.4 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3890 AT 3.0 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -34.70 REFERENCE: TCR36

THE FOLLOWING PHYSICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG. C CC/MOLE ATM.
0.3497 36.16 440.78 30.99

DIFFUSION COEF. = .062 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 7.02-03 CENTIPOISE

END OF COMPOUND EA 1249 AT 40.0 DEGREES C. PAGE NUMBER B-114

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1251 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: OF FORMULA WEIGHT: 100.0 GENERAL REFERENCE: JACS 82 1988 3843
***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.54440, B= 1577.80, C= 238.6 DETERMINED OVER THE
TEMPERATURE RANGE 19.0 TO 99.0 DEG. CENT. REFERENCE: JACS 82 3843 1986
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .40+00
ESTIMATED BOILING POINT(CENT.)= 99.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 9.9
VOLATILITY(MG/METER CUBED)= .27+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .27+02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.4806 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.4060 - .00186 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.41890, B= -230.77, C= 171.4 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 2.171

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.3148 AT 25.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
HEAT OF FUSION(KCAL/MOLE)= 2.84 AT -36.9 DEGREE CENT. REFERENCE: J RSCH NBS P+C V68A 1964 P367
FREEZING POINT (DEG. CENT.)= -36.86 REFERENCE: J RSCH NBS P+C V68A 1964 P367
MELTING POINT DEPRESSION(DEG. C./MOLE)= 2.340 REFERENCE: JACS 82 3843 1960

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.4846	233.60	206.36	52.62

DIFFUSION COEF. = .054 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ.: J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 7.77-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: JACS 82 3843 1980
OXYGEN INDEX(UNITLESS)= 45.4 AT AMBIENT TEMPERATURE REFERENCE: N89253 P. 4

END OF COMPOUND EA 1251 AT -40.0 DEGREES C.

PAGE NUMBER 8-118

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1251 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: OF FORMULA WEIGHT: 100.0 GENERAL REFERENCE: JACS 82 1960 3843

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.54440, B= -1577.80, C= 238.8 DETERMINED OVER THE
TEMPERATURE RANGE 19.0 TO 99.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .21+01
ESTIMATED BOILING POINT(CENT.)= 99.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 9.7
VOLATILITY(MG/METER CUBED)= .13+05 VOLATILITY(MILLIMOLE/ METER CUBED)= .13+03
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

* DENSITY(G/ML)= 1.4433 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.4080 - .00166 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.41890, B= -230.77, C= 171.4 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 1.273

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.3148 AT 25.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
HEAT OF FUSION(KCAL/MOLE)= 2.84 AT -36.9 DEGREE CENT. REFERENCE: J RSCN NBS P+C V68A 1964 P367
FREEZING POINT (DEG. CENT.)= -36.86 REFERENCE: J RSCN NBS P+C V68A 1964 P367
MELTING POINT DEPRESSION(DEG. C./MOLE)= 2.340 REFERENCE: JACS 82 3843 1960

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1962)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.4846 233.60 206.36 52.62

DIFFUSION COEF. = .065 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 8.52-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: JACS 82 3843 1960
OXYGEN INDEX(UNITLESS)= 45.4 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P. 4

END OF COMPOUND EA 1251 AT -20.0 DEGREES C. PAGE NUMBER 8-116

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1251 AT .0 DEGREES CENTIGRADE
COMMON NAME: DF FORMULA WEIGHT: 100.0 GENERAL REFERENCE: JACS 82 1960 3843

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.54440, B= 1577.80, C= 238.6 DETERMINED OVER THE TEMPERATURE RANGE 19.0 TO 99.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .85+01
ESTIMATED BOILING POINT(CENT.)= 99.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 9.5
VOLATILITY(MG/METER CUBED)= .50+05 VOLATILITY(MILLIMOLE/ METER CUBED)= .50+03
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.4060 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.4090 - .00198 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.41890, B= -230.77, C= 171.4 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82,3843 1960
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= .848

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.3148 AT 25.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
HEAT OF FUSION(KCAL/MOLE)= 2.84 AT -36.9 DEGREE CENT. REFERENCE: J RSCH NBS P+C V68A 1964 P367
FREEZING POINT (DEG. CENT.)= -36.86 REFERENCE: J RSCH NBS P+C V68A 1964 P367
MELTING POINT DEPRESSION(DEG. C./MOLE)= 2.340 REFERENCE: JACS 82 3843 1960

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.4846 233.60 206.36 52.62

DIFFUSION COEF. = .077 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 9.27-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: JACS 82 3843 1960
OXYGEN INDEX(UNITLESS)= 45.4 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P. 4

END OF COMPOUND EA 1251 AT .0 DEGREES C. PAGE NUMBER B-117

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1251 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: OF FORMULA WEIGHT: 100.0 GENERAL REFERENCE: JACS 82 1960 3843

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.54440, B= 1577.80, C= 238.6 DETERMINED OVER THE
TEMPERATURE RANGE 19.0 TO 99.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .28+02
ESTIMATED BOILING POINT(CENT.)= 99.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 9.3
VOLATILITY(MG/METER CUBED)= .15+06 VOLATILITY(MILLIMOLE/ METER CUBED)= .15+04
DENSITY(G/ML)= 1.3687 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.4060 - .00186 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.41890, B= -230.77, C= 171.4 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82,3843 1960
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= .612

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.3148 AT 25.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
HEAT OF FUSION(KCAL/MOLE)= 2.84 AT -36.9 DEGREE CENT. REFERENCE: J RSCH NBS P+C V68A 1964 P367
FREEZING POINT (DEG. CENT.)= -36.86 REFERENCE: J RSCH NBS P+C V68A 1964 P367
MELTING POINT DEPRESSION(DEG. C./MOLE)= 2.340 REFERENCE: JACS 82 3843 1960

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.4846 233.60 206.36 52.62

DIFFUSION COEF. = .090 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 1.00-02 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: JACS 82 3843 1960
OXYGEN INDEX(UNITLESS)= 45.4 AT AMBIENT TEMPERATURE REFERENCE: N89253 P. 4

END OF COMPOUND EA 1251 AT 20.0 DEGREES C. PAGE NUMBER 8-118

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1251 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: DF FORMULA WEIGHT: 100.0 GENERAL REFERENCE: JACS 82 1860 3843

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.54440, B= 1577.80, C= 238.6 DETERMINED OVER THE TEMPERATURE RANGE 19.0 TO 99.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .36+02
ESTIMATED BOILING POINT(CENT.)= 99.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 9.2
VOLATILITY(MG/METER CUBED)= .19+06 VOLATILITY(MILLIMOLE/ METER CUBED)= .19+04
DENSITY(G/ML)= 1.3594 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.4060 - .00186 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.41890, B= -230.77, C= 171.4 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82,3843 1960
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOMES)= .570

REFRACTIVE INDEX(ND)= 1.3140 AT 25.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
HEAT OF FUSION(KCAL/MOLE)= 2.84 AT -36.9 DEGREE CENT. REFERENCE: J RSCH NBS P+C V88A 1964 P367
FREEZING POINT (DEG. CENT.)= -36.86 REFERENCE: J RSCH NBS P+C V88A 1964 P367
MELTING POINT DEPRESSION(DEG. C./MOLE)= 2.340 REFERENCE: JACS 82 3843 1960

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.4846 233.60 206.36 52.62

DIFFUSION COEF. = .094 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE OVER CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.: J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 1.02-02 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: JACS 82 3843 1960
OXYGEN INDEX(UNITLESS)= 45.4 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P. 4

END OF COMPOUND EA 1251 AT 25.0 DEGREES C. PAGE NUMBER B-119

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1251 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: DF FORMULA WEIGHT: 100.0 GENERAL REFERENCE: JACS 82 1960 3843

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.54440, B= 1577.80, C= 238.6 DETERMINED OVER THE TEMPERATURE RANGE 19.0 TO 99.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .76+02
ESTIMATED BOILING POINT(CENT.)= 99.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 9.1
VOLATILITY(MG/METER CUBED)= .33+08 VOLATILITY(MILLIMOLE/ METER CUBED)= .39+04
DENSITY(G/ML)= 1.3314 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.4080 - .00186 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.41890, B= -230.77, C= 171.4 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82,3843 1960
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= .470

REFRACTIVE INDEX(ND)= 1.3140 AT 25.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
HEAT OF FUSION(KCAL/MOLE)= 2.84 AT -38.9 DEGREE CENT. REFERENCE: J RSCH NBS P+C V68A 1964 P367
FREEZING POINT (DEG. CENT.)= -38.46 REFERENCE: J RSCH NBS P+C V68A 1964 P367
MELTING POINT DEPRESSION(DEG. C./MOLE)= 2.340 REFERENCE: JACS 82 3843 1960

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.4848 233.60 208.36 52.62

DIFFUSION COEF. = .104 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 1.07-02 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: JACS 82 3843 1960
OXYGEN INDEX(UNITLESS)= 45.4 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P. 4

END OF COMPOUND EA 1251 AT 40.0 DEGREES C. PAGE NUMBER B-120

SUMMARY OF PROPERTIES OF EA 1253 AT THE MELTING POINT IN LIEU OF -40 DEG C
 COMMON NAME: DICI FORMULA WEIGHT: 132.9 GENERAL REFERENCE: JACS 82 1960 3843 CH3P(0)CL2
 ***** PLEASE NOTE: THE REQUESTED TEMPERATURE IS OVER 25 DEGREES BELOW MELTING POINT. THEREFORE THE PROPERTIES
 ESTIMATED FOR LIQUIDS AND VAPORS ARE PROVIDED AT THE MELTING PCINT OR FREEZING POINT. *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.24420, B= 1669.70, C= 216.1 DETERMINED OVER THE
 TEMPERATURE RANGE 39.0 TO 167.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .35+01
 ESTIMATED BOILING POINT(CENT.)= 166.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.5
 VOLATILITY(MG/METER CUBED)= .24+05 VOLATILITY(MILLIMOLE/ METER CUBED)= .18+03
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.4450 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.4908 - .00138 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.79780, B= -103.26, C= 84.8 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82,3843 1960
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 1.201

REFRACTIVE INDEX(ND)= 1.4569 AT 35.0 DEG. CENT. REFERENCE: JACS 82 1960 3843
 HEAT OF FUSION(KCAL/MOLE)= 4.32 AT 32.9 DEGREE CENT. REFERENCE: J RSCH NBS P+C V68A 1964 P367
 FREEZING POINT.(DEG. CENT.)= 32.95 REFERENCE: J RSCH NBS P+C V68A 1964 P367
 MELTING POINT DEPRESSION(DEG. C./MOLE)= 3.440 REFERENCE: JACS 82 1960 3843

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .4728 392.88 281.10 50.78

DIFFUSION COEF. = .080 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.-18,23(1944) VISCOSITY OF VAPOR = 8.34-03 CENTIPOISE
 DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: JACS 82 1960 3843

END OF COMPOUND EA 1253 AT 32.9 DEGREES C.

PAGE NUMBER B-121

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SUMMARY OF PROPERTIES OF EA 1253 AT THE MELTING POINT IN LIEU OF -20 DEG C
 COMMON NAME: DICI FORMULA WEIGHT: 132.9 GENERAL REFERENCE: JACS 82 1960 3843 CH3P(O)CL2
 ***** PLEASE NOTE: THE REQUESTED TEMPERATURE IS OVER 25 DEGREES BELOW MELTING POINT. THEREFORE THE PROPERTIES
 ESTIMATED FOR LIQUIDS AND VAPORS ARE PROVIDED AT THE MELTING POINT OR FREEZING POINT. *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.24420, B= 1669.70, C= 216.1 DETERMINED OVER THE
 TEMPERATURE RANGE 39.0 TO 167.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .35+01
 ESTIMATED BOILING POINT(CENT.)= 166.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.5
 VOLATILITY(MG/METER CUBED)= .24+05 VOLATILITY(MILLIMOLE/ METER CUBED)= .18+03
 < ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.4450 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.4906 - .00138 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.79780, B= -103.28, C= 84.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82,3843 1960
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 1.201

REFRACTIVE INDEX(ND)= 1.4569 AT 35.0 DEG. CENT. REFERENCE: JACS 82 1960 3843
 HEAT OF FUSION(KCAL/MOLE)= 4.32 AT 32.9 DEGREE CENT. REFERENCE: J RSCH NBS P+C V68A 1964 P367
 FREEZING POINT (DEG. CENT.)= 32.95 REFERENCE: J RSCH NBS P+C V68A 1964 P367
 MELTING POINT DEPRESSION(DEG. C./MOLE)= 3.440 REFERENCE: JACS 82 1960 3843

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .4728 392.88 281.10 50.78

DIFFUSION COEF. = .080 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 8.34-03 CENTIPOISE
 DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: JACS 82 1960 3843

END OF COMPOUND EA 1253 AT 32.9 DEGREES C. PAGE NUMBER 8-122

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1253 AT THE MELTING POINT IN LIEU OF 0 DEG C
 COMMON NAME: DICI FORMULA WEIGHT: 132.9 GENERAL REFERENCE: JACS 82 1960 3843 CH3P(0)CL2
 ***** PLEASE NOTE: THE REQUESTED TEMPERATURE IS OVER 25 DEGREES BELOW MELTING POINT. THEREFORE THE PROPERTIES
 ESTIMATED FOR LIQUIDS AND VAPORS ARE PROVIDED AT THE MELTING POINT OR FREEZING POINT. *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.24420, B= 1689.70, C= 216.1 DETERMINED OVER THE
 TEMPERATURE RANGE 39.0 TO 167.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .35+01
 ESTIMATED BOILING POINT(CENT.)= 166.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.5
 VOLATILITY(MG/METER CUBED)= .24+05 VOLATILITY(MILLIMOLE/ METER CUBED)= .18+03
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.4450 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.4908 - .00138 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.79780, B= -103.26, C= 84.8 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82,3843 1960
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 1.201

REFRACTIVE INDEX(ND)= 1.4569 AT 35.0 DEG. CENT. REFERENCE: JACS 82 1960 3843
 HEAT OF FUSION(KCAL/MOLE)= 4.32 AT 32.9 DEGREE CENT. REFERENCE: J RSCH NBS P+C V68A 1964 P367
 FREEZING POINT.(DEG. CENT.)= 32.95 REFERENCE: J RSCH NBS P+C V68A 1964 P367
 MELTING POINT DEPRESSION(DEG. C./MOLE)= 3.440 REFERENCE: JACS 82 1960 3843

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .4728 392.88 281.10 50.78

DIFFUSION COEF. = .080 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 8.34-03 CENTIPOISE
 DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: JACS 82 1960 3843

END OF COMPOUND EA 1253 AT 32.9 DEGREES C.

PAGE NUMBER B-123

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SUMMARY OF PROPERTIES OF EA 1253 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: DICI FORMULA WEIGHT: 132.9
***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.24420, B= 1669.70, C= 216.1 DETERMINED OVER THE
TEMPERATURE RANGE 39.0 TO 167.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .15+01
ESTIMATED BOILING POINT(CENT.)= 166.6
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.8
VOLATILITY(MG/METER CUBED)= .11+05 VOLATILITY(MILLIMOLE/ METER CUBED)= .81+02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.4629 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.4908 - .00138 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.79780, B= -103.26, C= 84.8 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 1.541

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.4569 AT 35.0 DEG. CENT. REFERENCE: JACS 82 1960 3843
HEAT OF FUSION(KCAL/MOLE)= 4.32 AT 32.9 DEGREE CENT. REFERENCE: J RSCH NBS P+C V68A 1964 P367
FREEZING POINT (DEG. CENT.)= 32.95 REFERENCE: J RSCH NBS P+C V68A 1964 P367
MELTING POINT DEPRESSION(DEG. C./MOLE)= 3.440 REFERENCE: JACS 82 1960 3843

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.4728 392.88 281.10 50.78

DIFFUSION COEF. = .072 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 7.94-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: JACS 82 1960 3843

END OF COMPOUND EA 1253 AT 20.0 DEGREES C. PAGE NUMBER B-124

SUMMARY OF PROPERTIES OF EA 1253 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: DICI FORMULA WEIGHT: 132.9
 ***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
 VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****

GENERAL REFERENCE: JACS 82 1960 3843 CH3P(0)CL2

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = 7.24420, B = 1669.70, C = 216.1 DETERMINED OVER THE
 TEMPERATURE RANGE 39.0 TO 167.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR) = .21+01
 ESTIMATED BOILING POINT(CENT.) = 166.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE) = 11.7
 VOLATILITY(MG/MEIER CUBED) = .15+05 VOLATILITY(MILLIMOLE/ METER CUBED) = .11+03
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML) = 1.4560 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.4906 - .00138 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -.79780, B = -103.26, C = 84.8 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82, 3843 1960
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 1.390

REFRACTIVE INDEX(ND) = 1.4569 AT 35.0 DEG. CENT. REFERENCE: JACS 82 1960 3843
 HEAT OF FUSION(KCAL/MOLE) = 4.32 AT 32.9 DEGREE CENT. REFERENCE: J RSCH NBS P+C V68A 1964 P367
 FREEZING POINT (DEG. CENT.) = 32.95 REFERENCE: J RSCH NBS P+C V68A 1964 P367
 MELTING POINT DEPRESSION(DEG. C./MOLE) = 3.440 REFERENCE: JACS 82 1960 3843

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1962)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.4728	392.08	281.10	50.78

DIFFUSION COEF. = .075 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J. PHY. CHEM. 48, 23(1944) VISCOSITY OF VAPOR = 8.10-03 CENTIPOISE
 DIPOLE MOMENT(DEBYES) = 3.4 AT AMBIENT TEMPERATURE REFERENCE: JACS 82 1960 3843

END OF COMPOUND EA 1253 AT 25.0 DEGREES C. PAGE NUMBER 3-125

SUMMARY OF PROPERTIES OF EA 1253 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: DICI FORMULA WEIGHT: 132.9 GENERAL REFERENCE: JACS 82 1960 3843 CH3P(O)CL2

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.24420, B= 1869.70, C= 216.1 DETERMINED OVER THE
TEMPERATURE RANGE 39.0 TO 167.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .53+01
ESTIMATED BOILING POINT(CENT.)= 166.6
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 11.4
VOLATILITY(MG/METER CUBED)= .36+05 VOLATILITY(MILLIMOLE/ METER CUBED)= .27+03
DENSITY(G/ML)= 1.4352 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.4906 - .00138 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.79780, B= -103.26, C= 84.8 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: JACS 82 3843 1960
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 1.071

REFRACTIVE INDEX(ND)= 1.4569 AT 35.0 DEG. CENT. REFERENCE: JACS 82 1960 3843
HEAT OF FUSION(KCAL/MOLE)= 4.32 AT 32.9 DEGREE CENT. REFERENCE: J RSCH NBS P+C V68A 1964 P367
FREEZING POINT (DEG. CENT.)= 32.95 REFERENCE: J RSCH NBS P+C V68A 1964 P367
MELTING POINT DEPRESSION(DEG. C./MOLE)= 3.440 REFERENCE: JACS 82 1960 3843

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201 (1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.4728 392.88 281.10 50.78

DIFFUSION COEF. = .083 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ.; J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 8.56-03 CENTIPOISE
DIPOLE MOMENT (DEBYES)= 3.4 AT AMBIENT TEMPERATURE REFERENCE: JACS 82 1960 3843

END OF COMPOUND EA 1253 AT 40.0 DEGREES C.

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UNCLASSIFIED

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1255 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = .12*01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML) = 1.1329 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0909 - .00105 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -2.46410, B = -794.03, C = 275.8 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR56 P.11
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 7.997

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 24.2 AT 22.2 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE

G/CC DEG C CC/MOLE ATM.
.3486 374.19 442.21 31.37

DIFFUSION COEF. = .032 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.93-03 CENTIPOISE

END OF COMPOUND EA 1255 AT -40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1255 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = .12+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML) = 1.1119 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0909 - .00105 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

*** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -2.46410, B = -794.03, C = 275.8 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR50 P.11
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 4.362

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 24.2 AT 22.2 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.5486 374.19 442.21 31.37

DIFFUSION COEF. = .039 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.44-03 CENTIPOISE

END OF COMPOUND EA 1255 AT -20.0 DEGREES C. PAGE NUMBER B-128

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SUMMARY OF PROPERTIES OF EA 1255 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .12*01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.0909 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0909 - .00105 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= -2.46410, B= -794.03, C= 275.8 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR56 P.11
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 2.598

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 24.2 AT 22.2 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3486	374.19	442.21	31.37

DIFFUSION COEF. = .046 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY-CHEM,46,23(1944) VISCOSITY OF VAPOR = 5.94-03 CENTIPOISE

END OF COMPOUND EA 1255 AT .0 DEGREES C. PAGE NUMBER B-129

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SUMMARY OF PROPERTIES OF EA 1255 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .12+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.0599 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0909 - .00105 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.46410, B= -794.03, C= 275.8 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR56 P.11
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 1.660

SURFACE TENSION (DYNES/CM) = 24.2 AT 22.2 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3486 374.19 442.21 31.37

DIFFUSION COEF. = .054 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.44-03 CENTIPOISE

END OF COMPOUND EA 1255 AT 20.0 DEGREES C. PAGE NUMBER B-130

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SUMMARY OF PROPERTIES OF EA 1255 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36

*** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .12+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.0647 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0909 - .00105 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING Antoine constants(EATR 4491): A= -2.46410, B= -794.03, C= 275.8 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR56 P.11
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 1.498

SURFACE TENSION (DYNES/CM) = 24.2 AT 22.2 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
G./CC DEG C CC/MOLE ATM.
.3486 374.19 442.21 31.37

DIFFUSION COEF. = .056 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLAND EQ., J.PHY.CHEM.49,23(1944) VISCOSITY OF VAPOR = 6.56-03 CENTIPOISE

END OF COMPOUND EA 1255 AT 25.0 DEGREES C. PAGE NUMBER B-131

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SUMMARY OF PROPERTIES OF EA 1255 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = .12+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML) = 1.0489 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0909 - .00105 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A = -2.46410, B = -794.03, C = 275.8 DETERMINED OVER THE TEMPERATURE RANGE 10.0 TO 50.0 DEG. CENT. REFERENCE: TCR56 P.11
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTONES) = 1.122

SURFACE TENSION (DYNES/CM) = 24.2 AT 22.2 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3486	374.19	442.21	31.37

DIFFUSION COEF. = .062 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.94-03 CENTIPOISE

END OF COMPOUND EA 1255 AT 40.0 DEGREES C. PAGE NUMBER B-132

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Appendix B

SUMMARY OF PROPERTIES OF EA 1258 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .45+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML)= 1.1401 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0977 - .00106 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.36333, B= -762.65, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.13
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 8.084

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***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 27.6 AT 25.7 DEG. CENT. REFERENCE: TCR36
 REFRACTIVE INDEX(ND)= 1.3950 AT 23.5 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
G/CC	DEG C	CC/MOLE	ATM.
.3510	372.50	439.19	31.50

DIFFUSION COEF. = .032 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.96-03 CENTIPOISE

END OF COMPOUND EA 1258 AT -40.0 DEGREES C. PAGE NUMBER B-133

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Appendix B

SUMMARY OF PROPERTIES OF EA 1258 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .45+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML)= 1.1189 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0977 - .00106 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.36333, B= -762.65, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.13
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 4.459

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 27.9 AT 25.7 DEG. CENT. REFERENCE: TCR36
 REFRACTIVE INDEX(ND)= 1.3950 AT 23.5 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3510 372.50 439.19 31.50

DIFFUSION COEF. = .039 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 5.47-03 CENTIPOISE

END OF COMPOUND EA 1258 AT -20.0 DEGREES C. PAGE NUMBER B-134

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Appendix B

SUMMARY OF PROPERTIES OF EA 1258 AT .0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 VAPOR PRESSURE(TORR)= .45+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML)= 1.0977 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0977 - .00106 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.36333, B= -762.65, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.13
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 2.683

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 SURFACE TENSION (DYNES/CM) = 27.6 AT 25.7 DEG. CENT. REFERENCE: TCR36
 REFRACTIVE INDEX(ND)= 1.3950 AT 23.5 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3510 372.50 439.19 31.50

DIFFUSION COEF. = .046 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.98-03 CENTIPOISE

END OF COMPOUND EA 1258 AT .0 DEGREES C. PAGE NUMBER 8-135

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SUMMARY OF PROPERTIES OF EA 1258 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .45+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML)= 1.0765 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0977 - .00106 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= -2.36333, B= -762.65, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.13
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 1.730

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 27.6 AT 25.7 DEG. CENT. REFERENCE: TCR36
 REFRACTIVE INDEX(ND)= 1.3950 AT 23.5 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37, 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
G./CC	DEG C.	CC/MOLE	ATM.
.3510	372.50	439.19	31.50

DIFFUSION COEF. = .054 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 6.48-03 CENTIPOISE

END OF COMPOUND EA 1258 AT 20.0 DEGREES C. PAGE NUMBER 8-138

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Appendix B

SUMMARY OF PROPERTIES OF EA 1258 AT 25.0 DEGREES CENTIGRADE

COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .45+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML)= 1.0712 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0977 - .00106 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.36333, B= -762.65, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.13
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 1.565

SURFACE TENSION (DYNES/CM) = 27.6 AT 25.7 DEG. CENT. REFERENCE: TCR36
 REFRACTIVE INDEX(ND)= 1.3950 AT 23.5 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3510	372.50	439.19	31.50

DIFFUSION COEF. = .058 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.49,23(1944) VISCOSITY OF VAPOR = 8.61-03 CENTIPOISE

END OF COMPOUND EA 1258 AT 25.0 DEGREES C. PAGE NUMBER B-137

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Appendix B

SUMMARY OF PROPERTIES OF EA 1258 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 154.1 GENERAL REFERENCE: TCR36
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = .45+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML) = 1.0553 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0977 - .00106 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -2.36333, B = -762.65, C = 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.13
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 1.180

SURFACE TENSION (DYNES/CM) = 27.8 AT 25.7 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND) = 1.3950 AT 23.5 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3510 372.50 439.19 31.50

DIFFUSION COEF. = .062 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 8.98-03 CENTIPOISE

END OF COMPOUND EA 1258 AT 40.0 DEGREES C. PAGE NUMBER B-138

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SUMMARY OF PROPERTIES OF EA 1261 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 140.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .14+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.1768 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1320 - .00112 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.18302, B= -688.15, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.14
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 5.752

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 28.8 AT 24.3 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3870 AT 22.2 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -52.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3639 360.23 385.11 35.25

DIFFUSION COEF. = .035 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.23-03 CENTIPOISE

END OF COMPOUND EA 1261 AT -40.0 DEGREES C. PAGE NUMBER B-139

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1261 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 140.1
GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .14+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.1544 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1320 - .00112 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.18302, B= -886.15, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.14
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 3.368

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 26.8 AT 24.3 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3870 AT 22.2 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -52.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.2638 360.23 385.11 35.25

DIFFUSION COEF. = .043 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.77-03 CENTIPOISE

END OF COMPOUND EA 1261 AT -20.0 DEGREES C. PAGE NUMBER 8-140

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SUMMARY OF PROPERTIES OF EA 1261 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 140.1
GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE((TORR)) = .14+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML) = 1.1320 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1320 - .00112 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.18302, B= -886.15, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.14
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 2.132

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 29.8 AT 24.3 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND) = 1.3870 AT 22.2 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -52.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3638 360.23 385.11 35.25

DIFFUSION COEF. = .051 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.30-03 CENTIPOISE

END OF COMPOUND EA 1261 AT .0 DEGREES C. PAGE NUMBER B-141

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SUMMARY OF PROPERTIES OF EA 1261 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 140.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .14+01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.1096 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1320 -
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 .00112 *TEMP.(C.) DETERMINED OVER

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.18302, B= -886.15, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.14
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 1.437

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 26.8 AT 24.3 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3870 AT 22.2 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -52.00 REFERENCE: TCR38

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3638 360.23 385.11 35.25

DIFFUSION COEF. = .059 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.83-03 CENTIPOISE

END OF COMPOUND EA 1261 AT 20.0 DEGREES C.

PAGE NUMBER B-142

SUMMARY OF PROPERTIES OF EA 1261 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 140.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .1401 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.1040 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1320 - .00112 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.18302, B= -686.15, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.14
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 1.313

SURFACE TENSION (DYNES/CM) = 26.8 AT 24.3 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3870 AT 22.2 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -52.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.

ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3638 360.23 385.11 35.25

DIFFUSION COEF. = .061 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.96-03 CENTIPOISE

END OF COMPOUND EA 1261 AT 25.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1261. AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 140.1 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .1401 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.0872 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1320 -
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 .00112 *TEMP.(C.) DETERMINED OVER

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.18302, B= -686.15, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.14
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOMES) = 1.019

SURFACE TENSION (DYNES/CM) = 26.8 AT 24.3 DEG. CENT. REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.3870 AT 22.2 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -52.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3638 360.23 385.11 35.25

DIFFUSION COEF. = .068 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 7.35-03 CENTIPOISE

END OF COMPOUND EA 1261 AT 40.0 DEGREES C. PAGE NUMBER 8-144

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SUMMARY OF PROPERTIES OF EA 1262 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 182.2
GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .80-01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.0841 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0485 - .00094 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.88490, B= -510.09, C= 200.0 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.15
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 20.082

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 26.8 AT 24.0 DEG. CENT. REFERENCE: TCR36
MELTING POINT (DEG. CENT.) = -50.0 REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4050 AT 23.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3297 410.84 552.53 26.53

DIFFUSION COEF. = .027 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.45-03 CENTIPOISE

END OF COMPOUND EA 1262 AT -40.0 DEGREES C. PAGE NUMBER B-145

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1262 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 182.2 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .80-01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.0653 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0465 - .00094 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.88490, B= -510.09, C= 200.0 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.15
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 8.885

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 28.8 AT 24.0 DEG. CENT. REFERENCE: TCR36
MELTING POINT (DEG. CENT.) = -50.0 REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4050 AT 23.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3297 410.84 552.53 26.53

DIFFUSION COEF. = .033 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.91-03 CENTIPOISE

END OF COMPOUND EA 1262 AT -20.0 DEGREES C. PAGE NUMBER B-146

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Appendix B

SUMMARY OF PROPERTIES OF EA 1262 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 182.2 GENERAL REFERENCE: TCR36

**** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .80-01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.0465 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0465 - .00094 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

**** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE ****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.88490, B= -510.09, C= 200.0 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.15
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 4.627

**** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE ****

SURFACE TENSION (DYNES/CM) = 26.8 AT 24.0 DEG. CENT. REFERENCE: TCR36
MELTING POINT (DEG. CENT.) = -50.0 REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4050 AT 23.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3297 410.84 552.53 26.53

DIFFUSION COEF. = .039 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.37-03 CENTIPOISE

END OF COMPOUND EA 1262 AT .0 DEGREES C. PAGE NUMBER B-147

UNCLASSIFIED

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SUMMARY OF PROPERTIES OF EA 1262 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 182.2 GENERAL REFERENCES: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .80-01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.0277 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0455 - .00094 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.88429, B= -510.09, C= 200.0 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.15
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 2.713

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 26.8 AT 24.0 DEG. CENT. REFERENCE: TCR36
MELTING POINT (DEG. CENT.) = -50.0 REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4050 AT 23.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3297 410.84 552.53 26.53

DIFFUSION COEF. = .046 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48:23(1944) VISCOSITY OF VAPOR = 5.82-03 CENTIPOISE

END OF COMPOUND EA 1262 AT 20.0 DEGREES C. PAGE NUMBER B-148

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1262 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 182.2 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOIL'G POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .80-01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.0230 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0465 - .00094.*TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.88490, B= -510.09, C= 200.0 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.15
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 2.410

SURFACE TENSION (DYNES/CM) = 26.8 AT 24.0 DEG. CENT. REFERENCE: TCR36
MELTING POINT (DEG. CENT.) = -50.0 REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4050 AT 23.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3297 410.84 552.53 26.53

DIFFUSION COEF. = .047 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLAND'S EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.94-03 CENTIPOISE

END OF COMPOUND EA 1262 AT 25.0 DEGREES C. PAGE NUMBER 8-149

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Appendix B

SUMMARY OF PROPERTIES OF EA 1262 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 182.2 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .80-01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.0089 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0465 - .00094 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTONE CONSTANTS(EATR 4491): A= -1.88490, B= -510.09, C= 200.0 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.15
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 1.739

SURFACE TENSION (DYNES/CM) = 26.8 AT 24.0 DEG. CENT. REFERENCE: TCR36
MELTING POINT (DEG. CENT.) = -50.0 REFERENCE: TCR36
REFRACTIVE INDEX(ND)= 1.4050 AT 23.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3297 410.84 552.53 26.53

DIFFUSION COEF. = .053 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 6.28-03 CENTIPOISE

END OF COMPOUND EA 1262 AT 40.0 DEGREES C.

PAGE NUMBER B-150

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1263 AT THE MELTING POINT IN LIEU OF -40 DEG C
 COMMON NAME: FORMULA WEIGHT: 238.3 GENERAL REFERENCE: TCR36
 ***** PLEASE NOTE: THE REQUESTED TEMPERATURE IS OVER 25 DEGREES BELOW MELTING POINT. THEREFORE THE PROPERTIES
 ESTIMATED FOR LIQUIDS AND VAPORS ARE PROVIDED AT THE MELTING POINT OR FREEZING POINT. *****

VAPOR PRESSURE(TORR): -40-01 AT 25.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML)= .9954 WAS CALCULATED FROM THE EQUATION: DENSITY= .9872 - .00082 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.15850, B= -663.14, C= 204.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.16
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 18.038

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 28.4 AT 26.3 DEG. CENT. REFERENCE: TCR36
 FREEZING POINT (DEG. CENT.) = -10.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .2064 455.57 777.59 20.08

DIFFUSION COEF. = .028 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.48-03 CENTIPOISE

END OF COMPOUND EA 1263 AT -10.0 DEGREES C. PAGE NUMBER 8-151

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SUMMARY OF PROPERTIES OF EA 1263 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 238.3 GENERAL REFERENCE: TCR36
 ***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
 VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****

VAPOR PRESSURE(TORR) = .40-01 AT 25.0 DEG. CENT. REFERENCE: TCR36
 DENSITY(G/ML) = 1.0036 WAS CALCULATED FROM THE EQUATION: DENSITY = .9872 - .00082 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -2.15850, B = -663.14, C = 204.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.16
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 27.641

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 28.4 AT 26.3 DEG. CENT. REFERENCE: TCR36
 FREEZING POINT (DEG. CENT.) = -10.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3064 455.57 777.59 20.08

DIFFUSION COEF. = .026 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.28-03 CENTIPOISE

END OF COMPOUND EA 1263 AT -20.0 DEGREES C. PAGE NUMBER B-152

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SUMMARY OF PROPERTIES OF EA 1263 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 238.3 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .40-01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= .9872 WAS CALCULATED FROM THE EQUATION: DENSITY= .9872 - .00082 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.15850, B= -663.14, C= 204.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.16
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 12.273

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 28.4 AT 26.3 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -10.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3064 455.57 777.59 20.08

DIFFUSION COEF. = .030 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.68-03 CENTIPOISE

END OF COMPOUND EA 1263 AT .0 DEGREES C. PAGE NUMBER B-153

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Appendix B

SUMMARY OF PROPERTIES OF EA 1263 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 238.3 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .40-01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= .9708 WAS CALCULATED FROM THE EQUATION: DENSITY= .9872 - .00082 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.15850, B= -663.14, C= 204.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.16
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 6.299

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 28.4 AT 26.3 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -10.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3064 455.57 777.59 20.08

DIFFUSION COEF. = .035 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.09-03 CENTIPOISE

END OF COMPOUND EA 1263 AT 20.0 DEGREES C.

PAGE NUMBER B-154

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Appendix B

SUMMARY OF PROPERTIES OF EA 1263 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 238.3 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR): .40-01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML): .9667 WAS CALCULATED FROM THE EQUATION: DENSITY = .9872 - .00082 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -2.15850, B = -663.14, C = 204.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.16
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 5.429

SURFACE TENSION (DYNES/CM) = 28.4 AT 26.3 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -10.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
G4/CC DEG C CC/MOLE ATM.
.3064 455.57 777.59 20.08

DIFFUSION COEF. = .037 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 5.19-03 CENTIPOISE

END OF COMPOUND EA 1263 AT 25.0 DEGREES C. PAGE NUMBER B-155

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SUMMARY OF PROPERTIES OF EA 1263 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 238.3 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .40-01 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= .9544 WAS CALCULATED FROM THE EQUATION: DENSITY= .9872 - .00082 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.15850, B= -663.14, C= 204.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36 P.16
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 3.606

SURFACE TENSION (DYNES/CM) = 28.4 AT 26.3 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -10.00 REFERENCE: TCR36

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3064 455.57 777.59 20.08

DIFFUSION COEF. = .041 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.49-03 CENTIPOISE

END OF COMPOUND EA 1263 AT 40.0 DEGREES C. PAGE NUMBER B-156

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Appendix B

SUMMARY OF PROPERTIES OF EA 1264 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 224.3 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .12+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= 1.0191 WAS CALCULATED FROM THE EQUATION: DENSITY= .9839 - .00088 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.85290, B= -444.97, C= 160.4 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36 P.17
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 69.853

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 25.1 AT 25.0 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3097 413.19 724.04 20.31

DIFFUSION COEF. = .022 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.11-03 CENTIPOISE

END OF COMPOUND EA 1264 AT -40.0 DEGREES C. PAGE NUMBER B-157

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SUMMARY OF PROPERTIES OF EA 1264 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 224.3 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE (TORR) = .12+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
 DENSITY (G/ML) = 1.0015 WAS CALCULATED FROM THE EQUATION: DENSITY = .9839 - .00088 * TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS (EATR 4491): A = -1.85290, B = -444.97, C = 160.4 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36 P.17
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY (CENTISTOKES) = 20.767

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 25.1 AT 25.0 DEG. CENT. REFERENCE: TCR36
 FREEZING POINT (DEG. CENT.) = -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201 (1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3097 413.19 724.04 20.31

DIFFUSION COEF. = .027 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.54-03 CENTIPOISE

END OF COMPOUND EA 1264 AT -20.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1264 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 224.3 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .12+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= .9839 WAS CALCULATED FROM THE EQUATION: DENSITY= .9839 - .00088 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.85290, B= -444.97, C= 160.4 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36 P.17
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 8.355

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 25.1 AT 25.0 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
CM/CC	DEG C	CC/MOLE	ATM.
.3097	413.19	724.04	20.31

DIFFUSION COEF. = .032 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 4.96-03 CENTIPOISE

END OF COMPOUND EA 1264 AT .0 DEGREES C. PAGE NUMBER 8-159

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SUMMARY OF PROPERTIES OF EA 1264 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 224.3 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .12+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML)= .9663 WAS CALCULATED FROM THE EQUATION: DENSITY= .9639 -
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.85280, B= -444.97, C= 160.4 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36 P.17
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 4.114

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 25.1 AT 25.0 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.)= -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. 112 KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3097 413.19 724.04 20.31

DIFFUSION COEF. = .037 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 9.38-03 CENTIPOISE

END OF COMPOUND EA 1264 AT 20.0 DEGREES C. PAGE NUMBER 6-160

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Appendix B

SUMMARY OF PROPERTIES OF EA 1264 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 224.3 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE (TORR) = .12+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY (G/ML) = .9619 WAS CALCULATED FROM THE EQUATION: DENSITY = .9839 - .00088 * TEMP. (C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS (EATR 4491): A = -1.85290, B = -444.97, C = 160.4 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR 38 P.17
VISCOSITY (CENTISTOKES) = 3.529

SURFACE TENSION (DYNES/CM) = 25.1 AT 25.0 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201 (1963)
DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3097 413.19 724.04 20.31

DIFFUSION COEF. = .039 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM, 48, 23 (1944) VISCOSITY OF VAPOR = 5.49-03 CENTIPOISE

END OF COMPOUND EA 1264 AT 25.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1264 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 224.3 GENERAL REFERENCE: TCR36

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = .12+00 AT 25.0 DEG. CENT. REFERENCE: TCR36
DENSITY(G/ML) = .9487 WAS CALCULATED FROM THE EQUATION: DENSITY = .9839 - .00088 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR36

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.85290, B = -444.97, C = 160.4 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: TCR 36 P.17
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 2.333

SURFACE TENSION (DYNES/CM) = 25.1 AT 25.0 DEG. CENT. REFERENCE: TCR36
FREEZING POINT (DEG. CENT.) = -78.00 REFERENCE: TCR36 DID NOT FREEZE TO -78 C

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3037 413.19 724.04 20.31

DIFFUSION COEF. = .043 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.81-03 CENTIPOISE

END OF COMPOUND EA 1264 AT 40.0 DEGREES C. PAGE NUMBER B-162

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SUMMARY OF PROPERTIES OF EA 1274 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 168.1 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.55430, B= 2662.60, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE -29.0 TO 15.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .14-02
 ESTIMATED BOILING POINT(CENT.)= 196.2
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.2
 VOLATILITY(MG/METER CUBED)= .16+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .94-01
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1020 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0620 - .00100 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.70210, B= -885.12, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 12.424

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GR/CC DEG C CC/MOLE ATM.
 .3378 385.55 497.64 28.37

DIFFUSION COEF. = .030 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.70-03 CENTIPOISE

END OF COMPOUND EA 1274 AT -40.0 DEGREES C. PAGE NUMBER 8-163

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1274 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 168.1
 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.55430, B= 2662.60, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE -29.0 TO 15.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .11-01
 ESTIMATED BOILING POINT(CENT.)= 196.2
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.2
 VOLATILITY(MG/METER CUBED)= .12+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .69+00
 DENSITY(G/ML)= 1.0820 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0820 - .00100 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.70210, B= -885.12, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 6.22R

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C. CC/MOLE ATM.
 .5378 385.55 497.64 28.37

DIFFUSION COEF. = .036 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.19-03 CENTIPOISE

END OF COMPOUND EA 1274 AT -20.0 DEGREES C.

PAGE NUMBER B-164

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1274 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 168.1 GENERAL REFERENCE: ARCSL-TR-77001

***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.55430, B= 2662.60, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE -29.0 TO 15.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .64-01
ESTIMATED BOILING POINT(CENT.)= 196.2
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.2
VOLATILITY(MG/METER CUBED)= .63+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .38+01
DENSITY(G/ML)= 1.0020 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0620 - .00100 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.70210, B= -885.12, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 3.454

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GA/CC	DEG C	CC/MOLE	ATM.
.3378	385.55	497.64	28.37

DIFFUSION COEF. = .042 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.67-03 CENTIPOISE

END OF COMPOUND EA 1274 AT .0 DEGREES C. PAGE NUMBER B-165

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1274 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 168.1
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.55430, B= 2682.60, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE -29.0 TO 15.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .30+00
 ESTIMATED BOILING POINT(CENT.)= 196.2
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.2
 VOLATILITY(MG/METER CUBED)= .27+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .16+02
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0420 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0620 - .00100 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.70210, B= -885.12, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 2.076

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3378 385.55 497.64 28.37

DIFFUSION COEF. = .049 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.15-03 CENTIPOISE

END OF COMPOUND EA 1274 AT 20.0 DEGREES C. PAGE NUMBER B-166

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1274 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 168.1 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.55430, B= 2662.60, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE -29.0 TO 15.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .42+00
 ESTIMATED BOILING POINT(CENT.)= 196.2
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.2
 VOLATILITY(MG/METER CUBED)= .38+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .23+02
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 DENSITY(G/ML)= 1.0370 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0620 - .00100 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.70210, B= -885.12, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 1.848

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 CM/CC DEG C CC/MOLE ATM.
 .3378 385.55 497.64 28.37

DIFFUSION COEF. = .051 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 6.27-03 CENTIPOISE

END OF COMPOUND EA 1274 AT 25.0 DEGREES C. PAGE NUMBER B-167

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1274 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 158.1
 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.55430, B= 2662.60, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE -29.0 TO 15.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .11+01
 ESTIMATED BOILING POINT(CENT.)= 196.2
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.2
 VOLATILITY(MG/METER CUBED)= .87+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .58+02
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0220 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0620 - .00100 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.70210, B= -885.12, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 1.332

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3378 385.55 497.64 28.37

DIFFUSION COEF. = .057 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 8.62-03 CENTIPOISE

END OF COMPOUND EA 1274 AT 40.0 DEGREES C. PAGE NUMBER B-168

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SUMMARY OF PROPERTIES OF EA 1356 AT THE MELTING POINT IN LIEU OF -40 DEG C
 COMMON NAME: FORMULA WEIGHT: 194.2 GENERAL REFERENCE: ARCSL-TR-77001
 ***** PLEASE NOTE: THE REQUESTED TEMPERATURE IS OVER 25 DEGREES BELOW MELTING POINT. THEREFORE THE PROPERTIES
 ESTIMATED FOR LIQUIDS AND VAPORS ARE PROVIDED AT THE MELTING POINT OR FREEZING POINT. *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= 9.13080, B= 3165.10, C= 278.8 DETERMINED OVER THE
 TEMPERATURE RANGE -15.0 TO 180.0 DEG. CFMT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .24-02
 ESTIMATED BOILING POINT(CENT.)= 227.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.9
 VOLATILITY(MG/METER CUBED)= .28+02 VOLATILITY(MILLINGM/ METER CUBED)= .14+00
 DENSITY(G/ML)= 1.1261 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1175 - .00090 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE ***

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= -2.47160, B= -949.86, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 13.567

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 31.8 AT 25.0 DEG. CENT. REFERENCE: N83192
 MELTING POINT (DEG. CENT.) = -9.6 REFERENCE: ARCSL-TR-77001
 REFRACTIVE INDEX(ND) = 1.4342 AT 25.0 DEG. CENT. REFERENCE:
 FREEZING POINT (DEG. CENT.) = -9.60 REFERENCE: N83392
 SOLUBILITY(G/100G SOLVENT) .150+02 AT 25.0 DEGREE CENTIGRADE REFERENCE: >15 PROPYLENE GLYCOL, CMLR2093
 SOLUBILITY(G/100G SOLVENT) .100+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: WATER, EATR-4210

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .5449 474.18 563.02 28.45

DIFFUSION COEF. = .035 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM,48:23(1944) VISCOSITY OF VAPOR = 4.94-03 CENTIPOISE

END OF COMPOUND EA 1356 AT -9.6 DEGREES C. PAGE NUMBER 8-169

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SUMMARY OF PROPERTIES OF EA 1356 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 194.2 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
 VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.13080, B= 3165.10, C= 278.8 DETERMINED OVER THE
 TEMPERATURE RANGE -15.0 TO 180.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .00-03
 ESTIMATED BOILING POINT(CENT.)= 227.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.8
 VOLATILITY(MG/METER CUBED)= .98+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .51-01
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1355 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1175 - .00090 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.47160, B= -949.86, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 19.079

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 31.8 AT 25.0 DEG. CENT. REFERENCE: NB3392
 MELTING POINT (DEG. CENT.) = -9.6 REFERENCE: ARCSL-TR-77001
 REFRACTIVE INDEX(ND)= 1.4342 AT 25.0 DEG. CENT. REFERENCE:
 FREEZING POINT (DEG. CENT.)= -9.60 REFERENCE: NB3392
 SOLUBILITY(G/100G SOLVENT) .150+02 AT 25.0 DEGREE CENTIGRADE REFERENCE: >15 PROPYLENE GLYCOL, CMLR2093
 SOLUBILITY(G/100G SOLVENT) .100+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: WATER, EATR-4210

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .7449 474.18 563.02 28.45

DIFFUSION COEF. = .032 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 4.71-03 CENTIPOISE

END OF COMPOUND EA 1356 AT -20.0 DEGREES C. PAGE NUMBER B-170

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SUMMARY OF PROPERTIES OF EA 1356 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 194.2 GENERAL REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.13080, B= 3165.10, C= 278.8 DETERMINED OVER THE
TEMPERATURE RANGE -15.0 TO 180.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .60-02

ESTIMATED BOILING POINT(CENT.)= 227.6

HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.9

VOLATILITY(MG/METER CUBED)= .69+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .35+00

DENSITY(G/ML)= 1.1175 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1175 - .00090 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.47160, B= -949.86, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTISTOKES)= 10.135

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 31.8 AT 25.0 DEG. CENT. REFERENCE: N83392

MELTING POINT (DEG. CENT.) = -9.6 REFERENCE: ARCSL-TR-77001

REFRACTIVE INDEX(ND)= 1.4342 AT 25.0 DEG. CENT. REFERENCE:

FREEZING POINT (DEG. CENT.) = -9.60 REFERENCE: N83392

SOLUBILITY(G/100G SOLVENT) .150+02 AT 25.0 DEGREE CENTIGRADE

SOLUBILITY(G/100G SOLVENT) .100+01 AT 20.0 DEGREE CENTIGRADE

REFERENCE: >15 PROPYLENE GLYCOL, CWLR2093
REFERENCE: WATER, EATR-4210

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.

ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE

CG/CC DEG C CC/MOLE ATM.

.3449 474.18 563.02 28.45

DIFFUSION COEF. = .038 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48:23(1944) VISCOSITY OF VAPOR = 5.15-03 CENTIPOISE

END OF COMPOUND EA 1356 AT .0 DEGREES C. PAGE NUMBER B-171

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SUMMARY OF PROPERTIES OF EA 1356 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 194.2 GENERAL REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.13080, B= 3165.10, C= 278.8 DETERMINED OVER THE
TEMPERATURE RANGE -15.0 TO 180.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .35-01
ESTIMATED BOILING POINT(CENT.)= 227.6
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.9
VOLATILITY(MG/METER CUBED)= .37+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .19+01
DENSITY(G/ML)= 1.0995 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1175 - .00090 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

*** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE ***

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.47160, B= -949.86, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTISTOKES) = 5.869

*** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE ***

SURFACE TENSION(DYNES/CM) = 31.8 AT 25.0 DEG. CENT. REFERENCE: N83392
MELTING POINT (DEG. CENT.) = -9.6 REFERENCE: ARCSL-TR-77001
REFRACTIVE INDEX(D) = 1.4342 AT 25.0 DEG. CENT. REFERENCE:
FREEZING POINT (DEG. CENT.) = -9.60 REFERENCE: N83392
SOLUBILITY(G/100G SOLVENT) .150+02 AT 25.0 DEGREE CENTIGRADE REFERENCE: >15 PROPYLENE GLYCOL, CMLR2093
SOLUBILITY(G/100G SOLVENT) .100+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: WATER, EATR-4210

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3449 474.18 563.02 28.45

DIFFUSION COEF. = .045 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.60-03 CENTIPOISE

END OF COMPOUND EA 1356 AT 20.0 DEGREES C. PAGE NUMBER B-172

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SUMMARY OF PROPERTIES OF EA 1356 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 194.2 GENERAL REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= 9.13080, B= 3165.10, C= 276.8 DETERMINED OVER THE
TEMPERATURE RANGE -15.0 TO 130.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .52-01
ESTIMATED BOILING POINT(CENT.)= 227.6
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.9
VOLATILITY(MILLIMOLE/ METER CUBED)= .28+01
DENSITY(G/ML)= 1.0950 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1175 - .00090 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= -2.47160, B= -949.86, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 5.179

SURFACE TENSION (DYNES/CM) = 31.8 AT 25.0 DEG. CENT. REFERENCE: NB3392
MELTING POINT (DEG. CENT.) = -9.6 REFERENCE: ARCSL-TR-77001
REFRACTIVE INDEX(ND)= 1.4342 AT 25.0 DEG. CENT. REFERENCE:
FREEZING POINT (DEG. CENT.) = -9.60 REFERENCE: NB3392
SOLUBILITY(G/100G SOLVENT) .150+02 AT 25.0 DEGREE CENTIGRADE REFERENCE: >15 PROPYLENE GLYCOL, CMLR2093
SOLUBILITY(G/100G SOLVENT) .100+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: WATER, EATR-4210

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963),
DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.7419 474.18 563.02 28.45

DIFFUSION COEF. = .046 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.71-03 CENTIPOISE

END OF COMPOUND EA 1356 AT 25.0 DEGREES C. PAGE NUMBER 8-173

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SUMMARY OF PROPERTIES OF EA 1356 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 194.2 GENERAL REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTUINE CONSTANTS(EATR 44911): A= 9.13080, B= 3165.10, C= 278.8 DETERMINED OVER THE TEMPERATURE RANGE -15.0 TO 180.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .16+00
ESTIMATED BOILING POINT(CENT.)= 227.6
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.0
VOLATILITY(MG/METER CUBED)= .16+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .82+01
DENSITY(G/ML)= 1.0815 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1175 - .00090 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTUINE CONSTANTS(EATR 44911): A= -2.47160, B= -949.86, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 3.645

SURFACE TENSION (DYNES/CM) = 31.8 AT 25.0 DEG. CENT. REFERENCE: N83392
MELTING POINT (DEG. CENT.) = -9.6 REFERENCE: ARCSL-TR-77001
REFRACTIVE INDEX(ND)= 1.4342 AT 25.0 DEG. CENT. REFERENCE:
FREEZING POINT (DEG. CENT.)= -9.60 REFERENCE: N83392
SOLUBILITY(G/100G SOLVENT) .150+02 AT 25.0 DEGREE CENTIGRADE REFERENCE: >15 PROPYLENE GLYCOL, CWLR2093
SOLUBILITY(G/100G SOLVENT) .100+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: WATER, EATR-4210

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3449 474.18 563.02 28.45

DIFFUSION COEF. = .052 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR =6.05-03 CENTIPOISE

END OF COMPOUND EA 1356 AT 40.0 DEGREES C. PAGE NUMBER B-174

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SUMMARY OF PROPERTIES OF EA 1508 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: VG FORMULA WEIGHT: 269.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.1025 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0675 - .00087 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -83209, B = -187.39, C = 99.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 213.433

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 31.0 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346
 REFRACTIVE INDEX(ND) = 1.4658 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 Gm/CC DEG C CC/MOLE ATM.
 .3305 463.50 814.71 19.38

DIFFUSION COEF. = .020 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 3.96-03 CENTIPOISE

END OF COMPOUND EA 1508 AT -40.0 DEGREES C. PAGE NUMBER 8-175

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SUMMARY OF PROPERTIES OF EA 1508 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: VG FORMULA WEIGHT: 269.3
 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML): 1.0150 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0675 - .00087 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATH 4491): A= -83209, B= -187.39, C= 99.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 34.017

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 31.0 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346
 REFRACTIVE INDEX(ND)= 1.4658 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
G/CC	DEG C	CC/MOLE	ATM.
0.3305	463.50	914.71	19.38

DIFFUSION COEF. = .025 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.37-03 CENTIPOISE

END OF COMPOUND EA 1508 AT -20.0 DEGREES C. PAGE NUMBER B-176

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Appendix B

SUMMARY OF PROPERTIES OF EA 1508 AT .0 DEGREES CENTIGRADE
COMMON NAME: VG FORMULA WEIGHT: 269.3 GENERAL REFERENCE: CWLR 2346
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
DENSITY(G/ML) = 1.0675 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0675 - .00087 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -.83209, B = -187.39, C = 99.3 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 11.363
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
SURFACE TENSION (DYNES/CM) = 31.0 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346
REFRACTIVE INDEX(ND) = 1.4658 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346
THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 20*(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3305 463.50 814.71 19.38
DIFFUSION COEF. = .029 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.79-03 CENTIPOISE
END OF COMPOUND EA 1508 AT .0 DEGREES C.
PAGE NUMBER 8-177

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Appendix B

SUMMARY OF PROPERTIES OF EA 1508 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: VG FORMULA WEIGHT: 269.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPEROOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML)= 1.0500 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0675 - .00087 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -83209, B= -187.39, C= 99.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 5.483

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 SURFACE TENSION (DYNES/CM) = 31.0 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346
 REFRACTIVE INDEX(ND)= 1.4658 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3305 463.50 814.71 19.38

DIFFUSION COEF.= .034 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.20-03 CENTIPOISE

END OF COMPOUND EA 1508 AT 20.0 DEGREES C.

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Appendix B

SUMMARY OF PROPERTIES OF EA 1508 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: VG FORMULA WEIGHT: 269.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0456 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0675 - .00087 * TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -83209, B = -187.39, C = 99.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 4.740

SURFACE TENSION (DYNES/CM) = 31.0 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346
 REFRACTIVE INDEX(ND) = 1.4658 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3305 463.50 814.71 19.38

DIFFUSION COEF. = .035 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.31-03 CENTIPOISE

END OF COMPOUND EA 1508 AT 25.0 DEGREES C. PAGE NUMBER 8-179

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SUMMARY OF PROPERTIES OF EA 1508 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: VG FORMULA WEIGHT: 269.3
 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0325 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0675 - .00087 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -.83209, B = -187.39, C = 99.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 3.261

SURFACE TENSION (DYNES/CM) = 31.0 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346
 REFRACTIVE INDEX(ND) = 1.4658 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 CM/CC DEG C CC/MOLE ATM.
 .3305 463.50 814.71 19.38

DIFFUSION COEF. = .039 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM, 48, 23(1944) VISCOSITY OF VAPOR = 5.62-03 CENTIPOISE

END OF COMPOUND EA 1508 AT 40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1511 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: VP FORMULA WEIGHT: 297.3
 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0699 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0411 - .00072 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.26010, B = -282.41, C = 78.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = *****

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 30.4 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE	VOLUME	PRESSURE
G./CC	CC/MOLE	ATM.
.3132	573.99	949.16
		19.13

DIFFUSION COEF. = .018 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 3.39-03 CENTIPOISE

END OF COMPOUND EA 1511 AT -40.0 DEGREES C. PAGE NUMBER B-181

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Appendix B

SUMMARY OF PROPERTIES OF EA 1511 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: VP FORMULA WEIGHT: 297.3 GENERAL REFERENCE: CMLR 2346
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
DENSITY(G/ML)= 1.0555 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0411 - .00072 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.26010, B= -282.45, C= 78.4 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 3763.170
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
SURFACE TENSION (DYNES/CM) = 30.4 AT 25.0 DEG. CENT. REFERENCE: CMLR 2346
THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3132 573.99 949.16 19.13
DIFFUSION COEF. = .022 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 3.76-03 CENTIPOISE
END OF COMPOUND EA 1511 AT -20.0 DEGREES C. PAGE NUMBER B-182

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SUMMARY OF PROPERTIES OF EA 1511 AT .0 DEGREES CENTIGRADE
 COMMON NAME: VP FORMULA WEIGHT: 297.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0411 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0411 - .00072 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.26010, B = -282.45, C = 78.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 219.852

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 30.4 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

CRITICAL TEMPERATURE	VOLUME PRESSURE
CC/CC	DEG C
3132	573.99
	949.16
	19.13

DIFFUSION COEF. = .026 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.12-03 CENTIPOISE

END OF COMPOUND EA 1511 AT .0 DEGREES C. PAGE NUMBER 8-183

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SUMMARY OF PROPERTIES OF EA 1511 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: VP FORMULA WEIGHT: 297.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.0267 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0411 - .00072 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.26010, B= -282.45, C= 78.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 40.742

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 30.4 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3132 573.93 949.16 19.13

DIFFUSION COEF.= .030 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.49-03 CENTIPOISE

END OF COMPOUND EA 1511 AT 20.0 DEGREES C. PAGE NUMBER B-184

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1511 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: VP FORMULA WEIGHT: 297.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0231 WAS CALCULATED FROM THE EQUATION: DENSITY = $1.0411 - .00072 \cdot \text{TEMP. (C.)}$ DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.26010, B = -282.45, C = 78.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 29.598

SURFACE TENSION (DYNES/CM) = 30.4 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 CM/CC DEG C CC/MOLE ATM.
 .3132 573.99 949.16 19.13

DIFFUSION COEF. = .031 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM, 48, 23(1944) VISCOSITY OF VAPOR = 4.58-03 CENTIPOISE

END OF COMPOUND EA 1511 AT 25.0 DEGREES C. PAGE NUMBER 8-185

UNCLASSIFIED

Appendix B

SUMMARY OF PROPERTIES OF EA 1511 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: VP FORMULA WEIGHT: 297.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML) = 1.0123 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0411 - .00072 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.26010, B = -282.45, C = 78.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 13.343
 SURFACE TENSION (DYNES/CM) = 30.4 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GW/CC DEG C CC/MOLE ATM.
 .3132 573.99 949.16 19.13

DIFFUSION COEF. = .035 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.: J.PHY-CHEM.48.23(1944) VISCOSITY OF VAPOR = 4.86-03 CENTIPOISE

END OF COMPOUND EA 1511 AT 40.0 DEGREES C. PAGE NUMBER B-106

UNCLASSIFIED

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SUMMARY OF PROPERTIES OF EA 1517 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: VE FORMULA WEIGHT: 253.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.0739 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0395 - .00068 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -92983, B= -205.35, C= 98.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 391.193

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 31.8000 - .0895*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 35.4 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 157.0 REFERENCE: CWLR2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3224	457.93	785.61	19.94

DIFFUSION COEF. = .021 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J. PHY. CHEM. 48, 23(1944) VISCOSITY OF VAPOR = 3.96-03 CENTIPOISE

END OF COMPOUND EA 1517 AT -40.0 DEGREES C. PAGE NUMBER 8-187

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SUMMARY OF PROPERTIES OF EA 1517 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: VE FORMULA WEIGHT: 253.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML)= 1.0567 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0395 - .00086 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.92983, B= -205.35, C= 98.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 49.288

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE EQUATION: SURFACE TENSION(DYNES/CM)= 31.8000 - .0895*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 33.6 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 157.0 REFERENCE: CWLR2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KH.M. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3224	457.93	785.61	19.94

DIFFUSION COEF. = .025 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.37-03 CENTIPOISE

END OF COMPOUND EA 1517 AT -20.0 DEGREES C. PAGE NUMBER B-188

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1517 AT .0 DEGREES CENTIGRADE
 COMMON NAME: VE FORMULA WEIGHT: 253.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.0395 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0395 - .00086 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.92983, B= -205.35, C= 98.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 14.426

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 31.8000 - .0895*TEMP.(C.) REFERENCE: CWLR 2346
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT.
 WERE USED TO CALCULATE THE SURFACE TENSION 31.8 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

FLASH POINT, MCCORMAN-YOUNG(CENTIGRADE)= 157.0 REFERENCE: CWLR2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3224	457.93	785.61	19.94

DIFFUSION COEF. = .030 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.78-03 CENTIPOISE

END OF COMPOUND EA 1517 AT .0 DEGREES C. PAGE NUMBER B-189

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SUMMARY OF PROPERTIES OF EA 1517 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: VE FORMULA WEIGHT: 253.3 GENERAL REFERENCE: CCLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML)= 1.0223 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0395 - .00086 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CCLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= -.92983, B= -205.35, C= 98.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CCLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 6.397

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE EQUATION: SURFACE TENSION(DYNES/CM)= 31.8000 - .0895*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CCLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 30.0 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 157.0 REFERENCE: CCLR2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3224 457.93 785.61 19.94

DIFFUSION COEF. = .035 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.20-03 CENTIPOISE

END OF COMPOUND EA 1517 AT 20.0 DEGREES C. PAGE NUMBER B-190

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Appendix B

SUMMARY OF PROPERTIES OF EA 1517 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: VE FORMULA WEIGHT: 253.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0180 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0395 - .00086 * TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -.92883, B = -205.35, C = 98.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 5.440

THE EQUATION: SURFACE TENSION(DYNES/CM) = 31.8000 - .0895 * TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 29.6 DYNES/CM
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE) = 157.0 REFERENCE: CWLR2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FI.I.PPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3224	457.93	785.61	19.94

DIFFUSION COEF. = .036 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.30-03 CENTIPOISE

END OF COMPOUND EA 1517 AT 25.0 DEGREES C. PAGE NUMBER B-191

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1517 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: VE FORMULA WEIGHT: 253.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.0051 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0395 - .00086 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.92983, B= -205.35, C= 98.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 3.589

THE EQUATION: SURFACE TENSION(DYNES/CM)= 31.8000 - .0895*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 28.2 DYNES/CM
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 157.0 REFERENCE: CWLR2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)

DENSITY TEMPERATURE VOLUME PRESSURE
 GW/CC DEG C CC/MOLE ATM.
 .3224 457.93 785.61 19.94

DIFFUSION COEF. = .040 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.61-03 CENTIPOISE

END OF COMPOUND EA 1517 AT 40.0 DEGREES C. PAGE NUMBER B-192

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SUMMARY OF PROPERTIES OF EA 1576 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 304.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.1383 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1042 - .00095 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING Antoine constants(EATR 4491): A= -1.01294, B= -259.43, C= 84.0 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 76612.679

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 32.4 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346

ZHURN. FIZ KHIM. 37. 201(1963)

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3382 500.99 893.65 18.44

DIFFUSION COEF. = .019 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 3.80-03 CENTIPOISE

PAGE NUMBER B-193

END OF COMPOUND EA 1576 AT -40.0 DEGREES C.

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1576 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 304.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLES TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.1212 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1042 - .00085 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.01294, B= -259.43, C= 84.0 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 1099.475

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 32.4 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3382 500.99 899.65 18.44

DIFFUSION COEF. = .023 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.20-03 CENTIPOISE

END OF COMPOUND EA 1576 AT -20.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1576 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 304.3
GENERAL REFERENCE: CWLR 2346

***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.1042 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1042 - .00085 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.01294, B= -259.43, C= 84.0 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 119.077

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SURFACE TENSION (DYNES/CM) = 32.4 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3382	500.99	899.65	18.44

DIFFUSION COEF. = .027 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48:23(1944) VISCOSITY OF VAPOR = 4.61-03 CENTIPOISE

END OF COMPOUND EA 1576 AT .0 DEGREES C. PAGE NUMBER 8-195

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SUMMARY OF PROPERTIES OF EA 1576 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: A WEIGHT: 304.3 GENERAL REFERENCE: CMLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID APPROXIMATIONS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML)= 1.0372 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1042 - .00085 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= -1.01294, B= -259.43, C= 84.0 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 30.324
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 SURFACE TENSION (DYNES/CM) = 32.4 AT 25.0 DEG. CENT. REFERENCE: CMLR 2346
 THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3382 500.99 899.65 18.44
 DIFFUSION COEF. = .031 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
 THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.01-03 CENTIPOISE
 END OF COMPOUND EA 1576 AT 20.0 DEGREES C. PAGE NUMBER B-196

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SUMMARY OF PROPERTIES OF EA 1576 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 304.3 GENERAL REFERENCE: CMLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.0429 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1042 - .00085 *TEMP.(C.) DETERMINED OVER
 (THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346)

THE FOLLOWING ANTIJUNE CONSTANTS(EATR 4491): A= -1.01294, B= -259.43, C= 84.0 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 23.299

SURFACE TENSION (DYNES/CM) = 32.4 AT 25.0 DEG. CENT. REFERENCE: CMLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3382 500.99 899.65 18.44

DIFFUSION COEF. = .033 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 9.11-03 CENTIPOISE

END OF COMPOUND EA 1576 AT 25.0 DEGREES C.

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Appendix B

SUMMARY OF PROPERTIES OF EA 1576 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 304.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0701 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.1042 - .00085 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.01294, B = -259.43, C = 84.0 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 12.006

SURFACE TENSION (DYNES/CM) = 32.4 AT 25.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3382 500.99 899.65 18.44

DIFFUSION COEF. = .036 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM, 48:23(1944) VISCOSITY OF VAPOR = 5.41-03 CENTIPOISE

END OF COMPOUND EA 1576 AT 40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1622 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 253.3
 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPEROOLDS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0829 WAS CALCULATED FROM THE EQUATION: DENSITY = $1.0461 - .00092 \times \text{TEMP. (C.)}$ DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.02159, B = -227.26, C = 100.8 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 522.261

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM) = $31.5000 - .0689 \times \text{TEMP. (C.)}$
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 34.3 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3283 421.97 771.53 19.31

DIFFUSION COEF. = .021 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.15-03 CENTIPOISE

END OF COMPOUND EA 1622 AT -40.0 DEGREES C.

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Appendix B

SUMMARY OF PROPERTIES OF EA 1622 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 253.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML)= 1.0645 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0461 - .00092 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.02159, B= -227.28, C= 100.8 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 61.941

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 31.5000 - .0689*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 32.9 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3283 421.97 771.53 19.31

DIFFUSION COEF. = .026 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.58-03 CENTIPOISE

END OF COMPOUND EA 1622 AT -20.0 DEGREES C. PAGE NUMBER 8-200

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SUMMARY OF PROPERTIES OF EA 1622 AT .0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 253.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0461 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0461 - .00092 * TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4431): A = -1.02159, B = -227.26, C = 100.8 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 17.123

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM) = 31.5000 - .0689 * TEMP.(C.) REFERENCE: CWLR 2346
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT.
 WERE USED TO CALCULATE THE SURFACE TENSION 31.5 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GW/CC	DEG C	CC/MOLE	ATM.
.3283	421.97	771.53	19.31

DIFFUSION COEF. = .030 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J. PHY. CHEM. 48, 23(1944) VISCOSITY OF VAPOR = 5.01-03 CENTIPOISE

END OF COMPOUND EA 1622 AT .0 DEGREES C. PAGE NUMBER B-201

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Appendix B

SUMMARY OF PROPERTIES OF EA 1622 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 253.3 GENERAL REFERENCE: CMLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML)= 1.0277 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0461 - .00092 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.02159, B= -227.26, C= 100.8 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 7.247
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE EQUATION: SURFACE TENSION(DYNES/CM)= 31.5000 - .0669*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3283 421.97 771.53 19.31

DIFFUSION COEF. = .035 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.44-03 CENTIPOISE

END OF COMPOUND EA 1622 AT 20.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1622 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 253.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML)= 1.0231 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0461 - .00092 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.02159, B= -227.26, C= 100.8 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 6.100
 THE EQUATION: SURFACE TENSION(DYNES/CM)= 31.5000 - .0689*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 29.8 DYNES/CM
 THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .5283 421.97 771.53 19.31
 DIFFUSION COEF. = .037 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
 THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.55-03 CENTIPOISE
 END OF COMPOUND EA 1622 AT 25.0 DEGREES C. PAGE NUMBER B-203

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SUMMARY OF PROPERTIES OF EA 1622 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 253.3
 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0093 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0461 - .00092 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.02159, B = -227.26, C = 100.8 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 3.916

THE EQUATION: SURFACE TENSION(DYNES/CM) = 31.5000 - .0689*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 28.7 DYNES/CM

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GR/CC	DEG C	CC/MOLE	ATM.
.3283	421.97	771.53	19.31

DIFFUSION COEF. = .041 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM, 48,23(1944) VISCOSITY OF VAPOR = 5.87-03 CENTIPOISE

END OF COMPOUND EA 1622 AT 40.0 DEGREES C. PAGE NUMBER B-204

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SUMMARY OF PROPERTIES OF EA 1664 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: VM FORMULA WEIGHT: 239.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .21-02 AT 25.0 DEG. CENT. REFERENCE:
 DENSITY(G/ML)= 1.0840 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0495 - .00086.*TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.01361, B= -232.85, C= 106.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 318.945

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 33.9315 - .1063*TEMP.(C.) REFERENCE: CWLR2346
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT.
 WERE USED TO CALCULATE THE SURFACE TENSION 38.2 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 236.0 REFERENCE: NB 4612 P 79

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3252 461.57 735.94 21.39
 DIFFUSION COEF. = .022 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.00-03 CENTIPOISE

END OF COMPOUND EA 1664 AT -40.0 DEGREES C. PAGE NUMBER B-205

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SUMMARY OF PROPERTIES OF EA 1664 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: VM FORMULA WEIGHT: 239.3
 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .21-02 AT 25.0 DEG. CENT. REFERENCE:
 DENSITY(G/ML)= 1.0668 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0495 - .00086 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.01361, B= -232.85, C= 106.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 48.714

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE EQUATION: SURFACE TENSION(DYNES/CM)= 33.9315 - .1063*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR2346
 WERE USED TO CALCULATE THE SURFACE TENSION 36.1 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 236.0 REFERENCE: NB 4612 P 79

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3252 461.57 735.94 21.39

DIFFUSION COEF. = .027 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.42-03 CENTIPOISE

END OF COMPOUND EA 1664 AT -20.0 DEGREES C. PAGE NUMBER B-206

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1664 AT .0 DEGREES CENTIGRADE
 COMMON NAME: VM FORMULA WEIGHT: 239.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .21-02 AT 25.0 DEG. CENT. REFERENCE:
 DENSITY(G/ML)= 1.0495 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0495 - .00088 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.01361, B= -232.85, C= 106.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 15.099

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 33.9315 - .1063*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR2346
 WERE USED TO CALCULATE THE SURFACE TENSION 33.9 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= .236.0 REFERENCE: NB 4612 P 79

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. F12 KHIM. 37. 201(1983)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3252 461.57 735.94 21.39

DIFFUSION COEF. = .031 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.84-03 CENTIPOISE

END OF COMPOUND EA 1664 AT .0 DEGREES C. PAGE NUMBER B-207

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1664 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: VM FORMULA WEIGHT: 239.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR) = .21-02 AT 25.0 DEG. CENT. REFERENCE:
 DENSITY(G/ML) = 1.0322 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0495 - .00066 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.01361, B = -232.85, C = 106.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 6.784

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM) = 33.9315 - .1063*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR2346
 WERE USED TO CALCULATE THE SURFACE TENSION 31.8 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE) = 236.0 REFERENCE: NB 4612 P 79

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3252	461.57	735.94	21.39

DIFFUSION COEF. = .037 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.28-03 CENTIPOISE

END OF COMPOUND EA 1664 AT 20.0 DEGREES C. PAGE NUMBER 8-208

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SUMMARY OF PROPERTIES OF EA 1664 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: VM FORMULA WEIGHT: 239.3 GENERAL REFERENCE: CMLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE(TORR)= .21-02 AT 25.0 DEG. CENT. REFERENCE:
 DENSITY(G/ML)= 1.0279 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0495 - .00086 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.01361, B= -232.85, C= 108.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 5.770

THE EQUATION: SURFACE TENSION(DYNES/CM)= 33.9315 - .1063*TEMP.(C.) REFERENCE: CMLR2346
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT.
 WERE USED TO CALCULATE THE SURFACE TENSION 31.3 DYNES/CM
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 236.0 REFERENCE: NB 4612 P 79

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3252 461.57 735.94 21.39
 DIFFUSION COEF. = .038 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.36-03 CENTIPOISE

END OF COMPOUND EA 1664 AT 25.0 DEGREES C. PAGE NUMBER 8-209

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Appendix B

SUMMARY OF PROPERTIES OF EA 1664 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: VM FORMULA WEIGHT: 239.3 GENERAL REFERENCE: CMLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID. *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

VAPOR PRESSURE (TORR) = .21-02 AT 25.0 DEG. CENT. REFERENCE:
 DENSITY (G/ML) = 1.0150 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0495 - .00086 * TEMP. (C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346

THE FOLLOWING ANTOIN CONSTANTS (EATR 4491): A = -1.01361, B = -232.85, C = 106.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY (CENTISTOKES) = 3.794

THE EQUATION: SURFACE TENSION (DYNES/CM) = 33.9315 - .1083 * TEMP. (C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 29.7 DYNES/CM
 FLASH POINT, MCCUTCHAN-YOUNG (CENTIGRADE) = 236.0 REFERENCE: NB 4612 P 79

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201 (1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3252 461.57 735.91 21.39

DIFFUSION COEF. = .042 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J. PHY. CHEM. 48, 23 (1944) VISCOSITY OF VAPOR = 5.68-03 CENTIPOISE

END OF COMPOUND EA 1664 AT 40.0 DEGREES C. PAGE NUMBER B-210

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Appendix B

SUMMARY OF PROPERTIES OF EA 1677 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: VS FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCools TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML) = 1.0533 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0215 - .00080 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -79135, B = -190.74, C = 83.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 4194.138

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE EQUATION: SURFACE TENSION(DYNES/CM) = 32.3000 - .0837*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 35.6 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE) = 168.0 REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .5134 494.72 897.75 18.33

DIFFUSION COEF. = .019 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM, 48, 23(1944) VISCOSITY OF VAPOR = 3.68-03 CENTIPOISE

END OF COMPOUND EA 1677 AT -40.0 DEGREES C. PAGE NUMBER B-211

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SUMMARY OF PROPERTIES OF EA 1677 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: VS FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CMLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0374 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0215 - .00080 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOSHE CONSTANTS(EATR 4491): A = -.79135, B = -190.74, C = 83.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 168.294

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM) = 32.3000 - .0837*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 34.0 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE) = 168.0 REFERENCE: CMLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURIN, FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3134 494.72 897.75 18.33

DIFFUSION COEF. = .023 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.07-03 CENTIPOISE

END OF COMPOUND EA 1677 AT -20.0 DEGREES C.

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Appendix B

SUMMARY OF PROPERTIES OF EA 1677 AT .0 DEGREES CENTIGRADE
 COMMON NAME: VS FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.0215 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0215 - .00080 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.79135, B= -190.74, C= 83.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 31.683

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 32.3000 - .0637*TEMP.(C.) REFERENCE: CWLR 2346
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT.
 WERE USED TO CALCULATE THE SURFACE TENSION 32.3 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 168.0 REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3134 494.72 897.75 18.33

DIFFUSION COEF. = .027 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.46-03 CENTIPOISE

END OF COMPOUND EA 1677 AT .0 DEGREES C. PAGE NUMBER B-213

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Appendix B

SUMMARY OF PROPERTIES OF EA 1677 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: VS FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VAL: 5 CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0056 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0215 - .00080 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -.79135, B = -190.74, C = 83.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 11.394

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM) = 32.3000 - .0837*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 30.6 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE) = 168.0 REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3134 494.72 897.75 18.33

DIFFUSION COEF. = .032 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.85-03 CENTIPOISE

END OF COMPOUND EA 1677 AT 20.0 DEGREES C. PAGE NUMBER B-214

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Appendix B

SUMMARY OF PROPERTIES OF EA 1677 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: VS FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0216 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0215 - .00080 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -.79135, B = -190.74, C = 83.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 9.360

THE EQUATION: SURFACE TENSION(DYNES/CM) = 32.3000 - .0837*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 30.2 DYNES/CM
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE) = 168.0 REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3134	494.72	897.75	18.33

DIFFUSION COEF. = .033 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.95-03 CENTIPOISE

END OF COMPOUND EA 1677 AT 25.0 DEGREES C. PAGE NUMBER B-215

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SUMMARY OF PROPERTIES OF EA 1677 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: VS FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = .9897 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0215 - .00080 * TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -.79135, B = -190.74, C = 83.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOES) = 5.711

THE EQUATION: SURFACE TENSION(DYNES/CM) = 32.3000 - .0827 * TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 29.0 DYNES/CM
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE) = 168.0 REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3134	494.72	897.75	18.33

DIFFUSION COEF. = .036 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.24-03 CENTIPOISE

END OF COMPOUND EA 1677 AT 40.0 DEGREES C. PAGE NUMBER 8-216

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SUMMARY OF PROPERTIES OF EA 1694 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 225.2
 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML) = 1.1017 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0670 - .00087 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -80785, B = -186.71, C = 86.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 635.686

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM) = 32.5000 - .0647*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 35.1 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3299	468.07	682.56	23.27

DIFFUSION COEF. = .023 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM, 48, 23(1944) VISCOSITY OF VAPOR = 4.08-03 CENTIPOISE

END OF COMPOUND EA 1694 AT -40.0 DEGREES C. PAGE NUMBER B-217

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SUMMARY OF PROPERTIES OF EA 1694 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 225.2 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOLLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0844 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0870 - .00087 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -.80765, B = -166.71, C = 86.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 51.502

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION, SURFACE TENSION(DYNES/CM) = 32.5000 - .0647*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 33.8 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3299 468.07 682.56 23.27

DIFFUSION COEF. = .028 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48:23(1944) VISCOSITY OF VAPOR = 4.48-03 CENTIPOISE

END OF COMPOUND EA 1694 AT -20.0 DEGREES C. PAGE NUMBER B-218

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Appendix B

SUMMARY OF PROPERTIES OF EA 1694 AT .0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 225.2 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0670 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0670 - .00087 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -80765, B = -166.71, C = 86.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 13.398

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM) = 32.5000 - .0647*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 32.5 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GR/CC DEG C CC/MOLE ATM.
 .3299 468.07 682.56 23.27

DIFFUSION COEF. = .035 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.91-03 CENTIPOISE

END OF COMPOUND EA 1694 AT .0 DEGREES C. PAGE NUMBER B-219

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SUMMARY OF PROPERTIES OF EA 1694 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 225.2 GENERAL REFERENCE: CWLR 2346

***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.0496 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0670 - .00087 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTONE CONSTANTS(EATR 4491): A= -60765, B= -166.71, C= 86.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 5.789

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 32.5000 - .0647*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
WERE USED TO CALCULATE THE SURFACE TENSION 31.2 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3299 468.07 682.56 23.27

DIFFUSION COEF. = .039 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.33-03 CENTIPOISE

END OF COMPOUND EA 1694 AT 20.0 DEGREES C. PAGE NUMBER B-220

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SUMMARY OF PROPERTIES OF EA 1694 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 225.2 GENERAL REFERENCE: CMLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0453 WAS CALCULATED FROM THE EQUATION: $DENSITY = 1.0670 - .00087 * TEMP.(C.)$ DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -80765, B = -166.71, C = 86.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 4.920

THE EQUATION: SURFACE TENSION(DYNES/CM) = $32.5000 - .0647 * TEMP.(C.)$
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 30.9 DYNES/CM

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3299	468.07	682.56	23.27

DIFFUSION COEF. = .040 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.44-03 CENTIPOISE

END OF COMPOUND EA 1694 AT 25.0 DEGREES C. PAGE NUMBER 8-221

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Appendix B

SUMMARY OF PROPERTIES OF EA 1694 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 225.2 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.0323 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0670 - .00087 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.80765, B= -166.71, C= 86.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 3.263

THE EQUATION: SURFACE TENSION(DYNES/CM)= 32.5000 - .0647*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 29.9 DYNES/CM

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. F12 KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3299	468.07	682.56	23.27

DIFFUSION COEF. = .045 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.76-03 CENTIPOISE

END OF COMPOUND EA 1694 AT 40.0 DEGREES C. PAGE NUMBER 8-222

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SUMMARY OF PROPERTIES OF EA 1693 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 211.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.12770, B= 3230.30, C= 260.7 DETERMINED OVER THE
 TEMPERATURE RANGE -42.0 TO 180.0 DEG. CENT. REFERENCE: NB 9298
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .31-05
 ESTIMATED BOILING POINT(CENT.)= 256.4
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.5
 VOLATILITY(MG/METER CUBED)= .45-01 VOLATILITY(MILLIMOLE/ METER CUBED)= .21-03
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1173 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0820 - .00088 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.03746, B= -226.22, C= 103.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 341.651

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 33.7000 - .0916*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
CM ³ /CC	DEG C	CC/MOLE	ATM.
.3348	406.14	631.18	25.10

DIFFUSION COEF. = .025 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.15-03 CENTIPOISE

END OF COMPOUND EA 1699 AT -40.0 DEGREES C. PAGE NUMBER 8-223

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SUMMARY OF PROPERTIES OF EA 1699 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 211.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.12770, B= 3230.30, C= 260.7 DETERMINED OVER THE
 TEMPERATURE RANGE 42.0 TO 180.0 DEG. CENT. REFERENCE: MB 9298
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .51-04
 ESTIMATED BOILING POINT(CENT.)= 256.4
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.3
 VOLATILITY(MG/METER CUBED)= .68+00 VOLATILITY(MILLIMOLE/ METER CUBED)= .32-02
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0997 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0820 - .00088 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.03746, B= -226.22, C= 103.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 47.500

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 33.7000 - .0916*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 35.5 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 2J1(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3349 463.14 631.18 25.10

DIFFUSION COEF. = .030 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.58-03 CENTIPOISE

END OF COMPOUND EA 1699 AT -20.0 DEGREES C. PAGE NUMBER 8-224

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Appendix B

SUMMARY OF PROPERTIES OF EA 1699 AT .0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 211.3
 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.12770, B= 3230.30, C= 260.7 DETERMINED OVER THE
 TEMPERATURE RANGE 42.0 TO 180.0 DEG. CENT. REFERENCE: ~~MB~~ 9298
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .55-03
 ESTIMATED BOILING POINT(CENT.)= 256.4
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.2
 VOLATILITY(MG/METER CUBED)= .68+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .32-01
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 DENSITY(G/ML)= 1.0820 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0820 - .00088 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.03746, B= -226.22, C= 103.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 14.173
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE EQUATION: SURFACE TENSION(DYNES/CM)= 33.7000 - .0916*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 33.7 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GR/CC DEG C CC/MOLE ATM.
 .3348 466.14 631.18 25.10
 DIFFUSION COEF. = .035 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
 THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.02-03 CENTIPOISE
 END OF COMPOUND EA 1699 AT .0 DEGREES C. PAGE NUMBER 8-225

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SUMMARY OF PROPERTIES OF EA 1699 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 211.3 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.12770, B= 3230.30, C= 260.7 DETERMINED OVER THE
 TEMPERATURE RANGE 42.0 TO 100.0 DEG. CENT. REFERENCE: MB 9298
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .42-02
 ESTIMATED BOILING POINT(CENT.)= 256.4
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.1
 VOLATILITY(MILLIMOLE/ METER CUBED)= .23+00
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0643 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0820 - .00088 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.03746, B= -226.22, C= 103.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 6.259

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 33.7000 - .0916*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 31.9 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3348	466.14	631.18	25.10

DIFFUSION COEF. = .041 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.45-03 CENTIPOISE

END OF COMPOUND EA 1699 AT 20.0 DEGREES C.

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UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1699 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 211.3 GENERAL REFERENCE: CWLR 2346
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.12770, B= 3230.30, C= 260.7 DETERMINED OVER THE
TEMPERATURE RANGE 42.0 TO 180.0 DEG. CENT. REFERENCE: MB 9298
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .66-02
ESTIMATED BOILING POINT(CENT.)= 256.4
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.1
VOLATILITY(MG/METER CUBED)= .75+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .36+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
DENSITY(G/M³)= 1.0599 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0820 - .00088 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.03746, B= -226.22, C= 103.3 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 5.310
THE EQUATION: SURFAC TENSION(DYNES/CM)= 33.7000 - .0916*TEMP.(C.)
DETERMINED OVER E TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
WERE USED TO CALC LATE THE SURFACE TENSION 31.4 DYNES/CM
THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GR/CC DEG C CC/MOLE ATM.
.3348 466.14 631.18 25.10
DIFFUSION COEF. = .043 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.56-03 CENTIPOISE
END OF COMPOUND EA 1699 AT 25.0 DEGREES C.
PAGE NUMBER B-227

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1699 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 211.3 GENERAL REFERENCE: CMLR 2346
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.12770, B= 3230.30, C= 260.7 DETERMINED OVER THE
TEMPERATURE RANGE 42.0 TO 180.0 DEG. CENT. REFERENCE: MB 9298
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .24-01
ESTIMATED BOILING POINT(CENT.)= 256.4
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.0
VOLATILITY(MG/METER CUBED)= .26+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .12+01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0467 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0800 - .00088 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.03746, B= -226.22, C= 103.3 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 3.473

THE EQUATION: SURFACE TENSION(DYNES/CM)= 33.7000 - .0916*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
WERE USED TO CALCULATE THE SURFACE TENSION 30.0 DYNES/CM

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE 4
G/CC DEG C CC/MOLE ATM.
.3348 466.14 631.18 25.10

DIFFUSION COEF. = .047 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.89-03 CENTIPOISE

END OF COMPOUND EA 1699 AT 40.0 DEGREES C. PAGE NUMBER 8-228

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1701 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: VX FORMULA WEIGHT: 267.4 GENERAL REFERENCE: EATR4210

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.28100, B= 2072.10, C= 172.5 DETERMINED OVER THE
TEMPERATURE RANGE 30.0 TO 231.0 DEG. CENT. REFERENCE: EC-TR 76058
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .44-08
ESTIMATED BOILING POINT(CENT.)= 298.4
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 29.3
VOLATILITY(MG/METER CUBED)= .81-04 VOLATILITY(MILLIMOLE/ METER CUBED)= .30-06
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

* DENSITY(G/ML)= 1.0622 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0290 - .00083 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.90572, B= -189.38, C= 80.0 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR2346
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 8524.939

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 34.6631 - .1326*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
WERE USED TO CALCULATE THE SURFACE TENSION 40.0 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -50.0 REFERENCE: -29 TO -60 CWLR2346
REFRACTIVE INDEX(ND)= 1.4774 AT 25.0 DEG. CENT. REFERENCE: CWLR2346
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 159.0 REFERENCE: CWLR 2346
HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -318.50 AT 25.0 DEGREE CENT. REFERENCE: EST. BENSN. CHEM. R. NO3. P279.69
HEAT CAPACITY (KCAL/MOLE)= .1100 AT 25.0 DEGREE CENT. REFERENCE: TECH REF HB. CRDL-63-S-780
SOLUBILITY(G/100G SOLVENT) .500+01 AT 21.5 DEGREE CENTIGRADE REFERENCE: WATER, CHLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3177 473.27 841.66 19.00

DIFFUSION COEF. = .020 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J. PHY. CHEM. 48.23(1944) VISCOSITY OF VAPOR = 3.83-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.6 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 21.4 AT AMBIENT TEMPERATURE REFERENCE: N89283 P 4

END OF COMPOUND EA 1701 AT -40.0 DEGREES C. PAGE NUMBER B-229

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SUMMARY OF PROPERTIES OF EA 1701 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: VX FORMULA WEIGHT: 267.4 GENERAL REFERENCE: EATR4210

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.28100, B= 2072.10, C= 172.5 DETERMINED OVER THE TEMPERATURE RANGE 30.0 TO 231.0 DEG. CENT. REFERENCE: EC-TR 76058
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .50-06
ESTIMATED BOILING POINT(CENT.)= 298.4
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 26.1
VOLATILITY(MG/METER CUBED)= .84-02 VOLATILITY(MILLIMOLE/ METER CUBED)= .31-04
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0456 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0290 - .00083 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.80572, B= -189.38, C= 80.0 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR2346
WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTISTOKES)= 224.618

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 34.6631 - .1326*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
WERE USED TO CALCULATE THE SURFACE TENSION 37.3 DYNES/CM

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -50.0 REFERENCE: -39 TO -60 CWLR2346
REFRACTIVE INDEX(ND)= 1.4774 AT 25.0 DEG. CENT. REFERENCE: CWLR2346

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 159.0 REFERENCE: CWLR 2346

HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -318.50 AT 25.0 DEGREE CENT.

HEAT CAPACITY (KCAL/MOLE)= .1100 AT 25.0 DEGREE CENT. REFERENCE: TECH REF HB, CRDL-63-S-780

SOLUBILITY(G/100G SOLVENT) .500+01 AT 21.5 DEGREE CENTIGRADE REFERENCE: WATER, CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3177 473.27 841.66 19.00

DIFFUSION COEF. = .024 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.23-03 CENT:POISE
DIPOLE MOMENT(DEBYES)= 3.6 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 21.4 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P 4

END OF COMPOUND EA 1701 AT -20.0 DEGREES C.

PAGE NUMBER B-230

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1701 AT .0 DEGREES CENTIGRADE
COMMON NAME: VX FORMULA WEIGHT: 267.4 GENERAL REFERENCE: EATR4210

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.26100, B= 2072.10, C= 172.5 DETERMINED OVER THE
TEMPERATURE RANGE 30.0 TO 231.0 DEG. CENT. REFERENCE: EC-1R 76058

WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .19-04

ESTIMATED BOILING POINT(CENT.)= 298.4

HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 23.7

VOLATILITY(MG/METER CUBED)= .29+00 VOLATILITY(MILLIMOLE/ METER CUBED)= .11-02

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0290 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0290 - .00083 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -80572, B= -189.38, C= 80.0 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR2346

WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTISTOKES)= 36.474

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 34.6631 - .1326*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

WERE USED TO CALCULATE THE SURFACE TENSION

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -50.0 REFERENCE: -39 TO -60 CWLR2346

REFRACTIVE INDEX(ND)= 1.4774 AT 25.0 DEG. CENT. REFERENCE: CWLR2346

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 159.0 REFERENCE: CWLR 2346

HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -318.50 AT 25.0 DEGREE CENT. REFERENCE: EST.BENSN,CHEM.R.NO3,P279.69

HEAT CAPACITY (KCAL/MOLE)= .1100 AT 25.0 DEGREE CENT. REFERENCE: TECH REF HB, CRDL-63-S-780

SOLUBILITY(G/100G SOLVENT) .500+01 AT 21.5 DEGREE CENTIGRADE REFERENCE: WATER,CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE

GM/CC DEG C CC/MOLE ATM.

.3177 473.27 841.66 19.00

DIFFUSION COEF. = .028 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ.: J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.63-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.6 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 21.4 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P 4

END OF COMPOUND EA 1701 AT .0 DEGREES C. PAGE NUMBER 8-231

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1701 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: VX FORMULA WEIGHT: 267.4 GENERAL REFERENCE: EATR4210

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.28100, B= 2072.10, C= 172.5 DETERMINED OVER THE TEMPERATURE RANGE 30.0 TO 231.0 DEG. CENT. REFERENCE: EC-TR 78058
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .33-03
ESTIMATED BOILING POINT(CENT.)= 298.4
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 22.0
VOLATILITY(MG/METER CUBED)= .48+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .18-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

* DENSITY(G/ML)= 1.0124 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0290 -
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.80572, B= -189.38, C= 80.0 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR2346
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 12.258

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
THE EQUATION: SURFACE TENSION(DYNES/CM)= 34.6631 -
DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CMLR 2346
WERE USED TO CALCULATE THE SURFACE TENSION 32.0 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -50.0 REFERENCE: -39 TO -60 CMLR2346
REFRACTIVE INDEX(ND)= 1.4774 AT 25.0 DEG. CENT. REFERENCE: CMLR2346
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 159.0 REFERENCE: CMLR 2346
HEAT OF FUSION OF LIQUID (KCAL/MOLE)= -318.50 AT 25.0 DEGREE CENT.
HEAT CAPACITY (KCAL/MOLE)= .1100 AT 25.0 DEGREE CENT. REFERENCE: EST. BENSON, CHEM. R. NO3, P.279, 89
SOLUBILITY(G/1003 SOLVENT) .500+01 AT 21.5 DEGREE CENTIGRADE REFERENCE: TECH REF HB, CRDL-63-S-780
REFERENCE: WATER, CMLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. F12 KHIM. 37. 201(1983)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3177 473.27 841.65 19.00

DIFFUSION COEF. = .033 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.: J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.03-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.6 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 21.4 AT AMBIENT TEMPERATURE REFERENCE: N89253 P 4

END OF COMPOUND EA 1701 AT 20.0 DEGREES C. PAGE NUMBER 8-232

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1701 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: VX FORMULA WEIGHT: 267.4 GENERAL REFERENCE: EATR4210

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.28100, B= 2072.10, C= 172.5 DETERMINED OVER THE
TEMPERATURE RANGE 30.0 TO 231.0 DEG. CENT. REFERENCE: EC-TR 76058
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .62-03
ESTIMATED BOILING POINT(CENT.)= 298.4
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 21.6
VOLATILITY(MG/METER CUBED)= .89+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .33-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0083 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0290 - .00083 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.80572, B= -189.38, C= 80.0 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR2346
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 9.958

THE EQUATION: SURFACE TENSION(DYNES/CM)= 34.3631 - .1326*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
WERE USED TO CALCULATE THE SURFACE TENSION 31.3 DYNES/CM
MELTING POINT (DEG. CENT.) = -50.0 REFERENCE: -39 TO -60 CWLR2346
REFRACTIVE INDEX(ND)= 1.4774 AT 25.0 DEG. CENT. REFERENCE: CWLR2346
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 159.0 REFERENCE: CWLR 2346
HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -318.50 AT 25.0 DEGREE CENT.
HEAT CAPACITY (KCAL/MOLE)= .1100 AT 25.0 DEGREE CENT. REFERENCE: TECH REF MB, CRDL-83-S-780
SOLUBILITY(G/100G SOLVENT) = .500+01 AT 21.5 DEGREE CENTIGRADE REFERENCE: WATER,CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. F12 KNIM. 37. 201(1983)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3177 473.27 841.66 19.00

DIFFUSION COEF. = .034 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J. PHY. CHEM. 48, 23(1944) VISCOSITY OF VAPOR = 5.13-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.6 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 21.4 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P 4

END OF COMPOUND EA 1701 AT 25.0 DEGREES C.

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UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1701 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: VX FORMULA WEIGHT: 297.4 GENERAL REFERENCE: EATR4210

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.28100, B= 2072.10, C= 172.5 DETERMINED OVER THE
TEMPERATURE RANGE 30.0 TO 231.0 DEG. CENT. REFERENCE: EC-TR 76058

WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .34-02
ESTIMATED BOILING POINT(CENT.)= 298.4
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 20.6
VOLATILITY(MG/METER CUBED)= .46+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .17+00
DENSITY(G/ML)= .9958 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0290 - .00083 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.80572, B= -189.38, C= 80.0 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR2346
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 5.924

THE EQUATION: SURFACE TENSION(DYNES/CM)= 34.6631 - .1326*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
WERE USED TO CALCULATE THE SURFACE TENSION 29.4 DYNES/CM
MELTING POINT (DEG. CENT.) = -50.0 REFERENCE: -39 TO -60 CWLR2346
REFRACTIVE INDEX(ND)= 1.4774 AT 25.0 DEG. CENT. REFERENCE: CWLR2346
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 159.0 REFERENCE: CWLR 2346
HEAT OF FORMATION OF LIQUID (KCAL/MOLE)= -318.50 AT 25.0 DEGREE CENT.
HEAT CAPACITY (KCAL/MOLE)= .1100 AT 25.0 DEGREE CENT. REFERENCE: TECH REF HB, CRDL-63-S-780
SOLUBILITY(G/100G SOLVENT) = .500+01 AT 21.5 DEGREE CENTIGRADE REFERENCE: WATER, CWLR 2346

REFERENCE: EST. BENSN. CHEM. R. NO3, P279.69
REFERENCE: TECH REF HB, CRDL-63-S-780
REFERENCE: WATER, CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37, 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3177 473.27 841.66 19.00

DIFFUSION COEF. = .038 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ.: J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.43-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 3.6 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 21.4 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P 4

END OF COMPOUND EA 1701 AT 40.0 DEGREES C.

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UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1724 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: QL FORMULA WEIGHT: 235.3 GENERAL REFERENCE: CWL TECH MEMO 31-42 12-9-57
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.52001, B= 1428.57, C= 147.8 DETERMINED OVER THE
 TEMPERATURE RANGE 112.6 TO 151.9 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 +NB8707
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .18-06
 ESTIMATED BOILING POINT(CENT.)= 244.8
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 30.6
 VOLATILITY(MG/METER CUBED)= .30-02 VOLATILITY(MILLIMOLE/ METER CUBED)= .13-04
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= .9671 WAS CALCULATED FROM THE EQUATION: DENSITY= .9307 - .00091 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE -53.9 TO 73.9 DEG. CENT. REFERENCE: FMC DA-11-173-AMC-308(A) 1-66

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.00996, B= -201.21, C= 123.0 DETERMINED OVER THE TEMPERATURE
 RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTIFOISE)= 25.961

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 27.1630 - .0626*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57
 WERE USED TO CALCULATE THE SURFACE TENSION 29.7 DYNES/CM

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.4480 AT 20.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57
 FLASH POINT, OPEN CUP(CENTIGRADE)= 95.0 REFERENCE: TAG DC. NB10112 P51
 AUTOIGNITION TEMPERATURE(CENTIGRADE)= 129.0 REFERENCE: NB9283 P81

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.2983	366.74	788.84	17.38

DIFFUSION COEF. = .021 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.18-03 CENTIPOISE
 DIPOLE MOMENT(DEBYES)= 1.9 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS
 OXYGEN INDEX(UNITLESS)= 20.2 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P23

END OF COMPOUND EA 1724 AT -40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 1724 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: QL FORMULA WEIGHT: 235.3
GENERAL REFERENCE: CNL TECH MEMO 31-42 12-9-57

***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.52001, B= 1428.57, C= 147.8 DETERMINED OVER THE TEMPERATURE RANGE 112.8 TO 151.9 DEG. CENT. REFERENCE: CNL TECH MEMO 31-42 +NB8707
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .22-04
ESTIMATED BOILING POINT(CENT.)= 244.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 25.6
VOLATILITY(MG/METER CUBED)= .32+00 VOLATILITY(MILLIMOLE/ METER CUBED)= .14-02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= .9489 WAS CALCULATED FROM THE EQUATION: DENSITY= .9307 - .00091 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE -53.9 TO 73.9 DEG. CENT. REFERENCE: FMC DA-11-173-AMC-308(A) 1-68

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.00990, B= -201.21, C= 123.0 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CNL TECH MEMO 31-42 12-9-57 WERE USED TO CALCULATE THE VISCOSITY VISCOSITY(CENTIPOISE)= 8.782
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 27.1630 - .0628*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CNL TECH MEMO 31-42 12-9-57
WERE USED TO CALCULATE THE SURFACE TENSION 28.4 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.4480 AT 20.0 DEG. CENT. REFERENCE: CNL TECH MEMO 31-42 12-9-57
FLASH POINT, OPEN CUP(CENTIGRADE)= 95.0 REFERENCE: TAG OC. NB10112 P51
AUTOIGNITION TEMPERATURE(CENTIGRADE)= 129.0 REFERENCE: NB9283 P61

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.2983 366.74 788.84 17.38

DIFFUSION COEF. = .025 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.49,23(1944) VISCOSITY OF VAPOR = 4.60-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 1.9 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 20.2 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P23

END OF COMPOUND EA 1724 AT -20.0 DEGREES C.

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ZHURN. FIZ KHIM. 37. 201(1963)

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Appendix B

SUMMARY OF PROPERTIES OF EA 1724 AT .0 DEGREES CENTIGRADE
 COMMON NAME: QL FORMULA WEIGHT: 235.3
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.52001, B= 1428.57, C= 147.8 DETERMINED OVER THE
 TEMPERATURE RANGE 112.8 TO 151.9 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 +NB8707
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .71-03
 ESTIMATED BOILING POINT(CENT.)= 244.8
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 22.3
 VOLATILITY(MG/METER CUBED)= .98+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .42-01
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= .9307 WAS CALCULATED FROM THE EQUATION: DENSITY= .9307 - .00091 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE -53.9 TO 73.9 DEG. CENT. REFERENCE: FMC DA-11-173-AMC-308(A) 1-66

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.00990, B= -201.21, C= 123.0 DETERMINED OVER THE TEMPERATURE
 RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTIPOISE)= 4.226
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 27.1630 - .0626*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57
 WERE USED TO CALCULATE THE SURFACE TENSION 27.2 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.4480 AT 20.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57
 FLASH POINT, OPEN CUP(CENTIGRADE)= 95.0 REFERENCE: TAG OC. NB10112 P51
 AUTOIGNITION TEMPERATURE(CENTIGRADE)= 129.0 REFERENCE: NB9283 P61

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .2983 386.74 788.84 17.38
 DIFFUSION COEF. = .030 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J. PHY. CHEM. 48, 23(1944) VISCOSITY OF VAPOR = 5.03-03 CENTIPOISE
 DIPOLE MOMENT(DEBYES)= 1.9 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS
 OXYGEN INDEX(UNITLESS)= 20.2 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P23

END OF COMPOUND EA 1724 AT .0 DEGREES C. PAGE NUMBER B-237

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SUMMARY OF PROPERTIES OF EA 1724 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: QL FORMULA WEIGHT: 235.3 GENERAL REFERENCE: CWL TECH MEMO 31-42 12-9-57

***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.52001, B= 1428.57, C= 147.8 DETERMINED OVER THE TEMPERATURE RANGE 112.8 TO 151.9 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 +NB8707

WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .10-01

ESTIMATED BOILING POINT(CENT.)= 244.8

HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 19.9

VOLATILITY(MG/METER CUBED)= .13+03 VOLATILITY(MILLIMOLES/ METER CUBED)= .55+00

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= .9125 WAS CALCULATED FROM THE EQUATION: DENSITY= .9307 - .00091 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE -53.9 TO 73.9 DEG. CENT. REFERENCE: FMC DA-11-173-AMC-308(A) 1-86

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.00990, B= -201.21, C= 123.0 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57 WERE USED TO CALCULATE THE VISCOSITY VISCOSITY(CENTIPOISE)= 2.496

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 27.1630 - .0626*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57
WERE USED TO CALCULATE THE SURFACE TENSION 25.9 DYNES/CM

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

REFRACTIVE INDEX(ND)= 1.4480 AT 20.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57
FLASH POINT, OPEN CUP(CENTIGRADE)= 95.0 REFERENCE: TAG OC. NB10112 P51
AUTOIGNITION TEMPERATURE(CENTIGRADE)= 129.0 REFERENCE: NB9283 P61

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.2983 366.74 789.84 17.38

DIFFUSION COEF. = .035 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.45-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 1.9 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 20.2 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P23

END OF COMPOUND EA 1724 AT 20.0 DEGREES C. PAGE NUMBER B-238

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SUMMARY OF PROPERTIES OF EA 1724 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: QL FORMULA WEIGHT: 235.3
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.52001, B= 1428.57, C= 147.8 DETERMINED OVER THE
 TEMPERATURE RANGE 112.8 TO 151.9 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 +NB8707
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .18-01
 ESTIMATED BOILING POINT(CENT.)= 244.8
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 19.4
 VOLATILITY(MG/METER CUBED)= .23+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .96+00
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= .9080 WAS CALCULATED FROM THE EQUATION: DENSITY= .9307 - .00091 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE -53.9 TO 73.9 DEG. CENT. REFERENCE: FMC DA-11-173-AMC-308(A) 1-66

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.00990, B= -201.21, C= 123.0 DETERMINED OVER THE TEMPERATURE
 RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57 WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTIPOISE)= 2.237
 THE EQUATION: SURFACE TENSION(DYNES/CM)= 27.1630 - .0626*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57
 WERE USED TO CALCULATE THE SURFACE TENSION 25.6 DYNES/CM
 REFRACTIVE INDEX(ND)= 1.4480 AT 20.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57
 FLASH POINT, OPEN CUP(CENTIGRADE)= 95.0 REFERENCE: TAG DC. NB10112 P51
 AUTOIGNITION TEMPERATURE(CENTIGRADE)= 129.0 REFERENCE: NB9283 P61

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .2983 366.74 788.84 17.38

DIFFUSION COEF. = .036 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM, 48,23(1944) VISCOSITY OF VAPOR = 5.55-03 CENTIPOISE
 DIPOLE MOMENT(DEBYES)= 1.9 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS
 OXYGEN INDEX(UNITLESS)= 20.2 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P23

END OF COMPOUND EA 1724 AT 25.0 DEGREES C. PAGE NUMBER B-239

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SUMMARY OF PROPERTIES OF EA 1724 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: QL FORMULA WEIGHT: 235.3

***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.52001, B= 1428.57, C= 147.8 DETERMINED OVER THE TEMPERATURE RANGE 112.8 TO 151.9 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 +NB8707

WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= -82-01

ESTIMATED BOILING POINT(CENT.)= 244.8

HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 18.2

VOLATILITY(MG/METER CUBED)= .98+03

VOLATILITY(MILLIMOLE/ METER CUBED)= .42+01

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= .8943 WAS CALCULATED FROM THE EQUATION: DENSITY= .9307 - .00091 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE -53.9 TO 73.9 DEG. CENT. REFERENCE: FMC DA-11-173-AMC-308(A) 1-68

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.00990, B= -201.21, C= 123.0 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57 WERE USED TO CALCULATE THE VISCOSITY VISCOSITY(CENTIPOISE)= 1.677

THE EQUATION: SURFACE TENSION(DYNES/CM)= 27.1630 - .0626*TEMP.(C.)

DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57

WERE USED TO CALCULATE THE SURFACE TENSION 24.7 DYNES/CM

REFRACTIVE INDEX(ND)= 1.4480 AT 20.0 DEG. CENT. REFERENCE: CWL TECH MEMO 31-42 12-9-57

FLASH POINT, OPEN CUP(CENTIGRADE)= 95.0 REFERENCE: TAG OC. NB10112 P51

AUTOIGNITION TEMPERATURE(CENTIGRADE)= 129.0 REFERENCE: NB92B3 P61

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE

GM/CC DEG C CC/MOLE ATM.

.2983 366.74 788.84 17.38

DIFFUSION COEF. = .040 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.87-03 CENTIPOISE
DIPOLE MOMENT(DEBYES)= 1.9 AT AMBIENT TEMPERATURE REFERENCE: NMR-CALC ARCSL-TR IN PROGRESS
OXYGEN INDEX(UNITLESS)= 20.2 AT AMBIENT TEMPERATURE REFERENCE: NB9253 P23

END OF COMPOUND EA 1724 AT 40.0 DEGREES C.

DATA IGNORED - IN CONTROL MODE

EOF

EOF IGNORED - IN CONTROL MODE

BRKPT PRINTS

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SUMMARY OF PROPERTIES OF EA 1728 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOLLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML)= 1.0419 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0099 - .00080 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.94359, B= -222.82, C= 86.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 7250.587

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 31.3000 - .0810*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 34.5 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 170.0 REFERENCE: CWLR2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3108	484.40	905.43	17.93

DIFFUSION COEF. = .019 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 3.70-03 CENTIPOISE

END OF COMPOUND EA 1728 AT -40.0 DEGREES C. PAGE NUMBER B-241

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SUMMARY OF PROPERTIES OF EA 1728 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.0259 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0099 - .00080 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -.94359, B = -222.82, C = 86.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 258.827

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM) = 31.3000 - .0810*TEMP.(C.) REFERENCE: CWLR 2346
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT.
 WERE USED TO CALCULATE THE SURFACE TENSION 32.9 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE) = 170.0 REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3108	484.40	905.43	17.93

DIFFUSION COEF. = .023 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 4.09-03 CENTIPOISE

END OF COMPOUND EA 1728 AT -20.0 DEGREES C. PAGE NUMBER 8-242

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1728 AT .0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.0099 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0099 - .00080 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -94359, B= -222.82, C= 86.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 43.337

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 31.3000 - .0810*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 31.3 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 170.0 REFERENCE: CWLR2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3108	484.40	905.43	17.93

DIFFUSION COEF. = .027 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.48-03 CENTIPOISE

END OF COMPOUND EA 1728 AT .0 DEGREES C. PAGE NUMBER B-243

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1728 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 281.4
 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML)= .9339 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0099 - .00080 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= -.94359, B= -222.82, C= 86.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 14.155
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE EQUATION: SURFACE TENSION(DYNES/CM)= 31.3000 - .0810*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 29.7 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 170.0 REFERENCE: CWLR2346

ZHURN. FIZ KHIM. 37. 201(1963)

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3108	484.40	905.43	17.93

DIFFUSION COEF. = .031 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY-CHEM,48:23(1944) VISCOSITY OF VAPOR = 4.87-03 CENTIPOISE

END OF COMPOUND EA 1728 AT 20.0 DEGREES C.

PAGE NUMBER B-244

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1728 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= .9899 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0059 - .00080 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.94359, B= -222.62, C= 86.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 11.400

THE EQUATION: SURFACE TENSION(DYNES/CM)= 31.3000 - .0810*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 29.3 DYNES/CM
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 170.0 REFERENCE: CWLR2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
Gm/CC	DEG C	CC/MOLE	ATM.
.3108	484.40	905.43	17.93

DIFFUSION COEF. = .033 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 4.96-03 CENTIPOISE

END OF COMPOUND EA 1728 AT 25.0 DEGREES C. PAGE NUMBER B-245

UNCLASSIFIED

Appendix B

SUMMARY OF PROPERTIES OF EA 1728 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY (G/ML) = .9779 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0099 - .00080 * TEMP. (C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS (EATR 4491): A = -.94359, B = -222.82, C = 86.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY (CENTISTOKES) = 6.599

THE EQUATION: SURFACE TENSION (DYNES/CM) = 31.3000 - .0810 * TEMP. (C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 28.1 DYNES/CM
 FLASH POINT, MCCUTCHAN-YOUNG (CENTIGRADE) = 170.0 REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201 (1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3108	484.40	905.43	17.93

DIFFUSION COEF. = .036 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J. PHY. CHEM. 48:23 (1944) VISCOSITY OF VAPOR = 5.26-03 CENTIPOISE

END OF COMPOUND EA 1728 AT 40.0 DEGREES C. PAGE NUMBER B-246

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SUMMARY OF PROPERTIES OF EA 1763 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.0198 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0175 - .00081 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.16101, B= -282.37, C= 102.5 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 2261.294

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 32.3000 - .0837*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 35.6 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SOLUBILITY(G/100G SOLVENT) .200+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: CWDL 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3133 482.88 898.28 18.04

DIFFUSION COEF. = .019 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 3.72-03 CENTIPOISE

END OF COMPOUND EA 1763 AT -40.0 DEGREES C.

PAGE NUMBER B-247

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1763 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 201.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML) = 1.0337 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0175 - .00081 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.16101, B = -282.37, C = 102.5 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 182.054

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE EQUATION: SURFACE TENSION(DYNES/CM) = 32.3000 - .0837*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 34.0 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SOLUBILITY(G/100G SOLVENT) .200+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: CWOL 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3133	482.83	898.23	18.04

DIFFUSION COEF. = .023 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY-CHEM, 48, 23(1944) VISCOSITY OF VAPOR = 4.11-03 CENTIPOISE

END OF COMPOUND EA 1763 AT -20.0 DEGREES C.

PAGE NUMBER B-248

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SUMMARY OF PROPERTIES OF EA 1763 AT .0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.0175 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0175 - .00081 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.5101, B= -282.37, C= 102.5 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 39.163

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 32.3000 - .0837*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION: 32.3 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SOLUBILITY(G/100G SOLVENT) .200+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: CWDL 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3133	482.88	898.28	18.04

DIFFUSION COEF. = .027 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.51-03 CENTIPOISE

END OF COMPOUND EA 1763 AT .0 DEGREES C. PAGE NUMBER B-249

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1763 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOCIS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML)= 1.0013 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0175 - .00081 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.16101, B= -282.37, C= 102.5 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 13.912

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 32.300C - .0837*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 30.6 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

SOLUBILITY(G/100G SOLVENT) .200+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: CWDL 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3133	482.88	898.29	18.04

DIFFUSION COEF. = .032 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.90-03 CENTIPOISE

END OF COMPOUND EA 1763 AT 20.0 DEGREES C. PAGE NUMBER 8-250

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 1763 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = .9973 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0175 - .00081 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.16101, B = -282.37, C = 102.5 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 11.299

THE EQUATION: SURFACE TENSION(DYNES/CM) = 32.3000 - .0837*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 30.2 DYNES/CM
 SOLUBILITY(G/100G SOLVENT) .200+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: CWLR 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3133 482.89 898.28 18.04

DIFFUSION COEF. = .033 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.00-03 CENTIPOISE

END OF COMPOUND EA 1763 AT 25.0 DEGREES C. PAGE NUMBER B-251

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Appendix B

SUMMARY OF PROPERTIES OF EA 1763 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 281.4 GENERAL REFERENCE: CWLR 2346
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCools TO SPECIFIED TEMPERATURE *****
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = .9352 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0175 - .00081 * TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.16101, B = -282.37, C = 102.5 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 6.608

THE EQUATION: SURFACE TENSION(DYNES/CM) = 32.3000 - .0837 * TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 50.0 DEG. CENT. REFERENCE: CWLR 2346
 WERE USED TO CALCULATE THE SURFACE TENSION 29.0 DYNES/CM
 SOLUBILITY(G/100G SOLVENT) .200+01 AT 20.0 DEGREE CENTIGRADE REFERENCE: CWDL 2346

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3133 482.88 898.28 18.04
 DIFFUSION COEF. = .036 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.29-03 CENTIPOISE

END OF COMPOUND EA 1763 AT 40.0 DEGREES C. PAGE NUMBER 8-252

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SUMMARY OF PROPERTIES OF EA 2261 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 210.2 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.41620, B= 2860.40, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE .0 TO 50.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .14-03
 ESTIMATED BOILING POINT(CENT.)= 243.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.1
 VOLATILITY(MG/METER CUBED)= .20+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .97-02
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 DENSITY(G/ML)= 1.0359 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0059 - .00075 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.13730, B= -709.95, C= 238.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 30.028
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 118.0 REFERENCE: ARCSL-TR-77001
 THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3063 523.30 686.19 24.87
 DIFFUSION COEF. = .023 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
 THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 3.71-03 CENTIPOISE
 END OF COMPOUND EA 2261 AT -40.0 DEGREES C. PAGE NUMBER B-253

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Appendix B

SUMMARY OF PROPERTIES OF EA 2261 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 210.2
GENERAL REFERENCE: ARCSL-TR-77001
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.41620, B= 2860.40, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE .0 TO 50.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .13-02
ESTIMATED BOILING POINT(CENT.)= 243.6
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.1
VOLATILITY(MG/METER CUBED)= .17+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .83-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
DENSITY(G/ML)= 1.0709 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0059 - .00075 *TEMP.(C.). DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.13730, B= -709.95, C= 236.4 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 13.914
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 118.0 REFERENCE: ARCSL-TR-77001
THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3063 523.30 686.19 24.87
DIFFUSION COEF. = .028 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.10-03 CENTIPOISE
END OF COMPOUND EA 2261 AT -20.0 DEGREES C.
PAGE NUMBER B-254

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SUMMARY OF PROPERTIES OF EA 2261 AT .0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 210.2 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTONE CONSTANTS(EATR 4491): A= 8.41620, B= 2860.40, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE .0 TO 50.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .88-02
 ESTIMATED BOILING POINT(CENT.)= 243.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.1
 VOLATILITY(MG/METER CUBED)= .11+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .52+00
 DENSITY(G/ML)= 1.0059 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0059 - .00375 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTONE CONSTANTS(EATR 4491): A= -2.13730, B= -709.95, C= 236.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 7.343

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 118.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 CM/CC DEG C CC/MOLE ATM.
 .3063 523.30 686.19 24.87

DIFFUSION COEF. = .033 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.FHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.50-03 CENTIPOISE

END OF COMPOUND EA 2261 AT .0 DEGREES C.

PAGE NUMBER B-255

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SUMMARY OF PROPERTIES OF EA 2261 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 210.2
GENERAL REFERENCE: ARCSL-TR-77001
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTONE CONSTANTS(EATR 4491): A= 8.41820, B= 2860.40, C= 273.2 TERMINED OVER THE
TEMPERATURE RANGE .0 TO 50.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .48-01
ESTIMATED BOILING POINT(CENT.)= 243.6
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.1
VOLATILITY(MG/METER CUBED)= .52+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .25+01
DENSITY(G/ML)= .9909 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0059 - .00078 *TEMP. (C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
THE FOLLOWING ANTONE CONSTANTS(EATR 4491): A= -2.13730, B= -709.95, C= 230.4 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 4.282
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 118.0 REFERENCE: ARCSL-TR-77001
THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZNAJN. FIZ. KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3063 523.30 686.18 24.87
DIFFUSION COEF. = .039 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.89-03 CENTIPOISE
END OF COMPOUND EA 2261 AT 20.0 DEGREES C. PAGE NUMBER 8-256

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Appendix B

SUMMARY OF PROPERTIES OF EA 2261 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 210.2 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.41620, B= 2860.40, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE .0 TO 50.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .66-01
 ESTIMATED BOILING POINT(CENT.)= 243.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.1
 VOLATILITY(MG/METER CUBED)= .75+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .39+01
 DENSITY(G/ML)= .9872 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0059 - .00075 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.13730, B= -709.95, C= 236.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 3.790
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 118.0 REFERENCE: ARCSL-TR-77001
 THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHORN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G./CC DEG C CC/MOLE ATM.
 .3063 523.30 696.19 24.87
 DIFFUSION COEF. = .040 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
 THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.99-03 CENTIPOISE
 END OF COMPOUND EA 2261 AT 25.0 DEGREES C. PAGE NUMBER 8-257

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Appendix B

SUMMARY OF PROPERTIES OF EA 2261 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 210.2
 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.41620, B= 2850.40, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE .0 TO 50.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .19+00
 ESTIMATED BOILING POINT(CENT.)= 243.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.1
 VOLATILITY(MG/METER CUBED)= .21+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .98+01
 DENSITY(G/ML)= .9759 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0059 - .00075 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.13730, B= -709.95, C= 236.4 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 2.699
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 118.0 REFERENCE: ARCSL-TR-77001
 THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3063 523.30 686.19 24.87
 DIFFUSION COEF. = .045 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
 THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.29-03 CENTIPOISE
 END OF COMPOUND EA 2261 AT 40.0 DEGREES C. PAGE NUMBER 8-258

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SUMMARY OF PROPERTIES OF EA 2337 AT THE MELTING POINT IN LIEU OF -40 DEG C
COMMON NAME: FORMULA WEIGHT: 198.2
GENERAL REFERENCE: ARCSL-TR-77001
***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.85660, B= 2695.80, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE -27.0 TO 60.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .19-02
ESTIMATED BOILING POINT(CENT.)= 178.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.3
VOLATILITY(MG/METER CUBED)= .27+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .13+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0379 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0499 -.00095 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.27820, B= -313.12, C= 160.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 21.223

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -19.0 REFERENCE: ARCSL-TR-77001
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 105.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3313	406.85	598.28	24.36

DIFFUSION COEF. = .026 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.42-03 CENTIPOISE

END OF COMPOUND EA 2337 AT -40.0 DEGREES C. PAGE NUMBER B-259

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UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 2337 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 198.2 GENERAL REFERENCE: ARCSL-TR-77001
***** WARNING THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= 8.85660, B= 2696.80, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE -27.0 TO 60.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(LTORR)= .16-01
ESTIMATED BOILING POINT(CENT.)= 178.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.3
VOLATILITY(MG/METER CUBED)= .20+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .10+01
DENSITY(G/ML)= 1.0639 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0499 - .00095 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= -1.27820, B= -313.12, C= 180.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 9.020

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -19.0 REFERENCE: ARCSL-TR-77001
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 105.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV, ZHURN, 512 KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CG/MOLE ATM.
1.0313 489.85 598.29 24.36

DIFFUSION COEF. = .031 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.87-03 CENTIPOISE

END OF COMPOUND EA 2337 AT -20.0 DEGREES C. PAGE NUMBER 8-260

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 2337 AT 0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 198.2 GENERAL REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.05660, B= 2696.80, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE -27.0 TO 60.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(10RR) = .98-01
ESTIMATED BOILING POINT(CENT.) = 178.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE) = 12.3
VOLATILITY(MG/METER CUBED) = .11+04 VOLATILITY(MILLIMOLE/ METER CUBED) = .57+01
DENSITY(G/ML) = 1.0499 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0499 - .00095 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

**** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE ****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.27820, B= -313.12, C= 160.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 4.747

**** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE ****

MELTING POINT (DEG. CENT.) = -19.0 REFERENCE: ARCSL-TR-77001
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE) = 105.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3313 400.85 598.28 24.38

DIFFUSION COEF. = .037 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 5.33-03 CENTIPOISE

END OF COMPOUND EA 2337 AT 0 DEGREES C. PAGE NUMBER B-261

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 2337 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 198.2 GENERAL REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.85680, B= 2896.80, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE -27.0 TO 60.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .45+00
ESTIMATED BOILING POINT(CELT.)= 178.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.3
VOLATILITY(MILLIMOLE/ METER CUBED)= .25+02
VOLATILITY(MG/METER CUBED)= .49+04
DENSITY(G/ML)= 1.0309 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0499 - .00095 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.27820, B= -313.12, C= 150.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 2.880

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.)= -19.0 REFERENCE: ARCSL-TR-77001
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 105.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3313 406.85 598.28 24.36

DIFFUSION COEF. = .043 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.78-03 CENTIPOISE

END OF COMPOUND EA 2337 AT 20.0 DEGREES C. PAGE NUMBER 8-262

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SUMMARY OF PROPERTIES OF EA 2337 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 198.2 GENERAL REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTICINE CONSTANTS(EATR 4491): A = 8.85660, B = 2696.80, C = 273.2 DETERMINED OVER THE
TEMPERATURE RANGE -27.0 TO 60.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR) = .65+00
ESTIMATED BOILING POINT(CENT.) = 178.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE) = 12.3
VOLATILITY(MILLIMETER CUBED) = .69+04 VOLATILITY(MILLIMETER CUBED) = .35+02
DENSITY(G/ML) = 1.0262 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0499 - .00095 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTICINE CONSTANTS(EATR 4491): A = -1.27820, B = -313.12, C = 160.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTISTOKES) = 2.585

MELTING POINT (DEG. CENT.) = -19.0 REFERENCE: ARCSL-TR-77001
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE) = 105.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3313 498.85 598.28 24.36

DIFFUSION COEFF. = .044 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.90-03 CENTIPOISE

END OF COMPOUND EA 2337 AT 25.0 DEGREES C. PAGE NUMBER B-263

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Appendix B

SUMMARY OF PROPERTIES OF EA 2337 AT 40.3 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 198.2 GENERAL REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = 8.85650, B = 2896.80, C = 273.2 DETERMINED OVER THE
TEMPERATURE RANGE -27.0 TO 60.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(10RR) = .18401
ESTIMATED BOILING POINT(CENT.) = 178.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE) = 12.3
VOLATILITY(MG/METER CUBED) = .1805 VOLATILITY(MILLIMOLE/ METER CURED) = .90+02
DENSITY(G/ML) = 1.0119 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.0499 - .00095 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -1.27820, B = -313.12, C = 160.2 DETERMINED OVER THE
TEMPERATURE RANGE 15.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 1.931

MELTING POINT (DEG. CENT.) = -19.0 REFERENCE: ARCSL-TR-77001
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE) = 105.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3313 406.85 598.28 24.36

DIFFUSION COEF. = .049 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.24-03 CENTIPOISE

END OF COMPOUND EA 2337 AT 40.0 DEGREE PAGE NUMBER B-264

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SUMMARY OF PROPERTIES OF EA 2361 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 182.2 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.77900, B= 2778.10, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE -25.0 TO 0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(10³MM)= .73-03
 ESTIMATED BOILING POINT(CENT.)= 197.9
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.7
 VOLATILITY(MG/METER CUBED)= .92*01 VOLATILITY(MILLIMOLE/ METER CUBED)= .50-01
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.2151 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1731 - .00105 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.54720, B= -439.67, C= 212.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 10.095

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

FLASH POINT, MCJUTCHAN-YOUNG(CENTIGRADE)= 98.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37, 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3694 412.79 493.30 29.8*

DIFFUSION COEF. = .029 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.79-03 CENTIPOISE

END OF COMPOUND EA 2361 AT -40.0 DEGREES C. PAGE NUMBER B-265

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SUMMARY OF PROPERTIES OF EA 2361 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 182.2
 WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALU'S BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOLDS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.77900, B= 2778.10, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE -25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(DDHR)= .84-02
 ESTIMATED BOILING POINT(CENT.)= 197.3
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.7
 VOLATILITY(G/METER CUBED)= .74+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .40+00
 DENSITY(G/ML)= 1.1941 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1731 - .00105 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.54720, B= -439.37, C= 212.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 5.480

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 96.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 CM/CC DEG C CC/MOLE ATM.
 .5694 412.79 493.30 29.80

DIFFUSION COEF. = .036 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.28-03 CENTIPOISE
 END OF COMPOUND EA 2361 AT -20.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 2361 AT .0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 182.2 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.77900, B= 2778.10, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE -25.0 TO .0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TOPR)= .41-01
 ESTIMATED BOILING POINT(CENT.)= 197 °
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.7
 VOLATILITY(MG/METER CUBED)= .43+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .24+01
 DENSITY(G/ML)= 1.1731 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1731 - .00105 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.54720, B= -439.67, C= 212.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 3.338

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 98.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3694 412.79 493.30 29.80

DIFFUSION COEF. = .042 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.78-03 CENTIPOISE

END OF COMPOUND EA 2361 AT .0 DEGREES C. PAGE NUMBER B-267

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SUMMARY OF PROPERTIES OF EA 2361 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 182.2
 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOLDS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4.91): A= 8.77900, B= 2778.10, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE -25.0 TO 0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .20+00
 ESTIMATED BOILING POINT(CENT.)= 197.9
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.7
 VOLATILITY(MG/METER CUBED)= .20+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .11+02
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1521 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1731 - .00105 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.54720, B= -439.67, C= 212.3 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 2.214

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 96.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)
 DENSITY EMPEERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3694 412.79 493.30 29.80

DIFFUSION COEF. = .049 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 8.27+03 CENTIPOISE

END OF COMPOUND EA 2361 AT 20.0 DEGREES C. PAGE NUMBER 8-268

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Appendix B

SUMMARY OF PROPERTIES OF EA 2361 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 182.2
 WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS (EATR 4491): A= 2.77900, B= 2778.10, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE -25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE (TORR)= 23.60
 ESTIMATED BOILING POINT (CENT.)= 187.9
 HEAT OF VAPORIZATION (KILOCALORIES/MOLE)= 12.7
 VOLATILITY (MG/METER CUBED)= 28.04 VOLATILITY (MILLIMOLE/ METER CUBED)= 18.02
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 DENSITY (G/ML)= 1.1468 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1731 - .00108 *TEMP.(C.) (ETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001)
 THE FOLLOWING ANTOINE CONSTANTS (EATR 4491): A= -1.54720, B= -439.67, C= 212.3 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY (CENTISTOKES)= 2.020
 FLASH POINT, MCCUTCHAM-YOUNG (CENTIGRADE)= 96.0 REFERENCE: ARCSL-TR-77001
 THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.
 DENSITY TEMPERATURE VOLUME PRESSURE
 GR/CC DEG C CC/MOLE ATM.
 .3694 412.79 493.30 29.80
 DIFFUSION COEF. = .051 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
 THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J. PHY. CHEM. 48.23 (1944)
 VISCOSITY OF VAPOR = 8.38-03 CENTIPOISE
 END OF COMPOUND EA 2361 AT 25.0 DEGREES C.
 ZHURN. FIZ KHIM. 37. 201 (1963)
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SUMMARY OF PROPERTIES OF EA 2361 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 182.2 GENERAL REFERENCE: ARCSL-TR-77001
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.77900, B= 2778.10, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE -25.0 TO .0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .81+00
ESTIMATED BOILING POINT(CENT.)= 197.9
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.7
VOLATILITY(MG/METER CUBED)= .75+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .41+02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1311 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1731 - .00105 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.54720, B= -419.67, C= 212.3 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 1.568

FLASH POINT, MCCUTCHEAN-YOUNG(CENTIGRADE)= 96.C REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3694 412.79 493.30 29.80

DIFFUSION COEF. = .057 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.76-03 CENTIPOISE

END OF COMPOUND EA 2361 AT 40.0 DEGREES C. PAGE NUMBER R-270

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Appendix B

SUMMARY OF PROPERTIES OF EA 3307 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 219.2
GENERAL REFERENCE: ARCSL-TR-77001
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCJLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.70650, B= 3114.70, C= 251.8 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 55.0 DEG. CENT. REFERENCE ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .10-04
ESTIMATED BOILING POINT(CENT.)= 204.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 17.2
VOLATILITY(MG/METER CUBED)= .15+00 VOLATILITY(MILLIMOLE/ METER CUBED)= .69-03
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

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END OF COMPOUND EA 3307 AT -40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 3307 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 219.2 GENERAL REFERENCE: ARCSL-TR-77001
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(STR 4491): A= 9.70650, B= 3114.70, C= 251.8 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 55.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .19-03
ESTIMATED BOILING POINT(CENT.)= 204.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 17.0
VOLATILITY(MG/METER CUBED)= .26+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .12-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

END OF COMPOUND EA 3307 AT -20.0 DEGREES C.

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Appendix B

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Appendix B

SUMMARY OF PROPERTIES OF EA 3307 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 219.2 GENERAL REFERENCE: ARCSL-TR-77001
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.70850, B= 3114.70, C= 251.8 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 55.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .22-02
ESTIMATED BOILING POINT(CENT.)= 204.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.7
VOLATILITY(MG/METER CUBED)= .28+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .13+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

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.0 DEGREES C.

END OF COMPOUND EA 3307 AT

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SUMMARY OF PROPERTIES OF EA 3307 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 219.2
GENERAL REFERENCE: ARCSL-TR-77001
WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTIZINE CONSTANTS(EATR 4491): A= 9.70650, B= 3114.70, C= 251.8 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 55.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .18-01
ESTIMATED BOILING POINT(CENT.)= 204.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.8
VOLATILITY(MG/METER CUBED)= .21+03

VOLATILITY(MILLIMOLE/ METER CUBED)= .97+00

END OF COMPOUND EA 3307 AT 20.0 DEGREES C.

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Appendix B

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SUMMARY OF PROPERTIES OF EA 3307 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 219.2 GENERAL REFERENCE: ARCSL-TR-77001
WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE ***
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.70650, B= 3114.70, C= 251.8 DETERMINED OVER THE
TEMPERATURE RANGE 10.0 TO 55.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .29-01
ESTIMATED BOILING POINT(CENT.)= 204.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.5
VOLATILITY(MG/METER CUBED)= .34+03
VOLATILITY(MILLIMOLE/ METER CUBED)= .18+01
END OF COMPOUND EA 3307 AT 25.0 DEGREES C.
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SUMMARY OF PROPERTIES OF EA 3307 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 219.2 GENERAL REFERENCE: ARCSL-TR-77001
WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE ***
THE FOLLOWING ANFOINE CONSTANTS(EATR 44911): A= 9.70859, B= 3114.70, C= 251.8 DETERMINED OVER THE
TEMPERATURE RANGE -10.0 TO 55.0 DEC. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .11+86
ESTIMATED BOILING POINT(CENT.)= 204.5
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.4
VOLATILITY(MG/METER CUBED)= .12+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .55+01

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END OF COMPOUND EA 3307 AT -40.0 DEGREES C.

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Appendix B

SUMMARY OF PROPERTIES OF EA 3430 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 180.2
 WARNING: THE REQUESTED TEMPERATURE IS BELOW THE MELTING POINT. THEREFORE THE LIQUID PROPERTIES ARE
 VALID ONLY FOR SUPERCOOLED LIQUID AND NOT THE SOLID *****

DENSITY(G/ML)= 1.2091 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1671 - .00103 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.19770, B= -781.80, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 14.306

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -37.9 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 20 (1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3678 403.97 489.90 29.88

DIFFUSION COEF. = .030 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.: J.PHY.CHEM. 19,23(1944) VISCOSITY OF VAPOR = 4.80-03 CENTIPOISE

END OF COMPOUND EA 3430 AT -40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 3430 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 180.2 GENERAL REFERENCE: ARCSL-TR-77001

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.1961 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.1671 - .00105 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS (EATR 4481): A = -2.19770, B = -781.80, C = 273.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 7.773

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -37.8 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.

DENSITY TEMPERATURE VOLUME PRESSURE ZHURN. FIZ KHIM. 37. 201(1963)
G4/CC DEG C CC/MOLE ATM.
.3678 409.97 489.90 39.88

DIFFUSION COEF. = .036 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.29-03 CENTIPOISE

END OF COMPOUND EA 3430 AT -20.0 DEGREES C.

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Appendix B

SUMMARY OF PROPERTIES OF EA 3430 AT .0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 180.2 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL
 DENSITY(G/ML)= 1.1671 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1971 - .00105 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= -2.19770, B= -781.80, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 4.818

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 MELTING POINT (DEG. CENT.) = -37.8 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF LILIPPOV. ZHURN. FIZ KHIM. 37. 201 (1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 G/CC DEG C CC/MOLE ATM.
 .3878 409.97 89.90 29.88

DIFFUSION COEF. = .042 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ. J. PHY. CHEM. 48.23(1944) VISCOSITY OF VAPOR = 5.79-03 CENTIPOISE

END OF COMPOUND EA 3430 AT .0 DEGREES C. PAGE NUMBER 8-279

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SUMMARY OF PROPERTIES OF EA 3439 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA HEIGHT: 180.2
GENERAL REFERENCE: ARCSL-TR-77001

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.1481 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.1671 - 00105 * TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -2.18770, B = -781.80, C = 273.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOES) = 2.946

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -37.8 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201 (1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3678 409.97 489.80 20.48

DIFFUSION COEF. = .049 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J. PHY. CHEM. 48, 23 (1944) VISCOSITY OF VAPOR = 6.28-03 CENTIPOISE

END OF COMPOUND EA 3439 AT 20.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 3430 AT 25.0 DEGREES CENTIGRADE COMMON NAME: FORMULA WEIGHT: 100.2 GENERAL REFERENCE: ARCSL-TR-77001

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML) = 1.1408 WAS CALCULATED FROM THE EQUATION: DENSITY = 1.1671 - .00108 * TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A = -2.19770, B = -781.80, C = 273.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 2.658

MELTING POINT (DEG. CENT.) = -37.8 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.

ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3672 409.97 489.90 29.68

DIFFUSION COEF. = .051 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF E VAPOR WAS ESTIMATE USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 8.40-03 CENTIPOISE

END OF COMPOUND EA 3430 AT 25.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 3430 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA HEIGHT: 180.2 GENERAL REFERENCE: ARCSL-TR-77001

***** WARNING: SINCE THERE IS NO BOILING POINT DATA FOR THIS COMPOUND AND THERE IS NO VAPOR PRESSURE DATA TO ESTIMATE
 A BOILING POINT, THE VALUES CALCULATED ABOVE THE DATA RANGES MAY BE ABOVE BOILING POINT AND NOT MEANINGFUL

DENSITY(G/ML)= 1.1251 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1671 - .00105 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -2.19770, B= -781.90, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 1.990

MELTING POINT (DEG. CENT.) = -37.8 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE	VOLUME	PRESSURE
CM/CC	DEG C	ATM.
0.678	409.97	489.90
		29.88

DIFFUSION COEF. = .057 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J. PHY. CHEM. 68, 23(1944) VISCOSITY OF VAPOR = 6.77-03 CENTIPOISE

END OF COMPOUND EA 3430 AT 40.0 DEGREES C. PAGE NUMBER 8-282

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SUMMARY OF PROPERTIES OF EA 4349 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 208.2 GENERAL REFERENCE: ARCSL-TR-77001
 WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOL'S TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.00900, B= 1714.70, C= 188.1 DETERMINED OVER THE
 TEMPERATURE RANGE 15.0 TO 50.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .29-05
 ESTIMATED BOILING POINT(CENT.)= 354.8
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 19.4
 VOLATILITY(MG/METER CUBED)= .41-01 VOLATILITY(MILLIMOLE/ METER CUBED)= .26-03
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1145 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1285 - .00090 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.33200, B= -360.96, C= 145.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 125.744

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 20 (1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3477 480.21 598.78 26.96

DIFFUSION COEF. = .026 CM-SQ /SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J-PHY-CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.21-03 CENTIPOISE

END OF COMPOUND EA 4349 AT -40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 4349 AT -20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 208.2 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.03900, B= 1714.70, C= 198.1 DETERMINED OVER THE
 TEMPERATURE RANGE 15.0 TO 50.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .69-04
 ESTIMATED BOILING POINT(CENT.)= 354.8
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 17.8
 VOLATILITY(MG/METER CUBED)= .91+00 VOLATILITY(MILLIMOLE/ METER CUBED)= .44-C2
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1465 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1285 - .00090 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.33200, B= -360.96, C= 145.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 35.586

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3477 480.21 598.78 26.96

DIFFUSION COEF. = .031 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.65-03 CENTIPOISE

END OF COMPOUND EA 4349 AT -20.0 DEGREES C. PAGE NUMBER B-284

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SUMMARY OF PROPERTIES OF EA 4349 AT 0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 208.2 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.03900 B= 1714.70, C= 188.1 DETERMINED OVER THE
 TEMPERATURE RANGE 15.0 TO 50.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .84-03
 ESTIMATED BOILING POINT(CENT.)= 354.8
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.5
 VOLATILITY(MG/METER CUBED)= .10-02 VOLATILITY(MILLIMOLE/ METER CUBED)= .49-01
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 DENSITY(G/ML)= 1.1285 WAS CALCULATED FROM THE EQUATION: DENSITY= .1285 + .00090 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.33200, B= -360.96, C= 145.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 14.260
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 301(1983)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3477 420.21 598.78 26.96
 DIFFUSION COEF. = .037 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
 THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48:23(1944) VISCOSITY OF VAPOR = 5.09-03 CENTIPOISE
 END OF COMPOUND EA 4349 AT 0 DEGREES C. PAGE NUMBER B-285

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Appendix B

SUMMARY OF PROPERTIES OF EA 4349 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 208.2
 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.03900, B= 1714.70, C= 188.1 DETERMINED OVER THE
 TEMPERATURE RANGE 15.0 TO 50.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .63-02
 ESTIMATED BOILING POINT(CENT.)= 354.3
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.6
 VOLATILITY(MG/METER CUBED)= .72+02 VOLATILITY(MILLINQUE/ METER CUBED)= .34+00
 DENSITY(G/ML)= 1.1195 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1285 - .00090 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.33200, B= -350.96, C= 145.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 7.130

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV.

DENSITY	TEMPERATURE	VOLUME	PRESSURE	
G/CC	DEG C	CC/MOLE	ATM.	
0.477	480.21	598.78	26.96	ZHURN. FIZ KHIM. 37. 201(1963)

DIFFUSION COEF. = .043 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.54-03 CENTIPOISE

END OF COMPOUND EA 4349 AT 20.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 4349 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 208.2
 ** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 GENERAL REFERENCE: ARCSL-TR-77001
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.03900, B= 1714.70, C= 138.1 DETERMINED OVER THE TEMPERATURE RANGE 15.0 TO 50.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .98-02
 ESTIMATED BOILING POINT(CENT.)= 354.8
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.3
 VOLATILITY(M3/METER CUBED)= .11+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .53+00
 DENSITY(G/ML)= 1.1060 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1285 - .00090 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.33200, B= -360.96, C= 145.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 6.151

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3477	480.21	598.78	26.96

DIFFUSION COEF. = .044 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.49.23(1944) VISCOSITY OF VAPOR = 5.65-03 CENTIPOISE

END OF COMPOUND EA 4349 AT 25.0 DEGREES C. PAGE NUMBER 8-287

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UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 4349 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 208.2
 GENERAL REFERENCE: ARCSL-TR-77001
 WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 6.02900, B= 1714.70, C= 108.1 DETERMINED OVER THE
 TEMPERATURE RANGE 15.0 TO 50.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .33-31
 ESTIMATED BOILING POINT(CENT.)= 354.0
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.8
 VOLATILITY(MILLIMOLE/ METER CUBED)= .17-01
 DENSITY(G/ML)= 1.0925 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1285 - .00090 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -1.33200, B= -380.98, C= 145.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES) = 4.141

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3477 480.21 598.78 26.96

DIFFUSION COEF. = .049 CM.²/SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J. PHY. CHEM. 48, 23(1944) VISCOSITY OF VAPOR = 5.98-03 CENTIPOISE

END OF COMPOUND EA 4349 AT 40.0 DEGREES C. PAGE NUMBER 0-268

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SUMMARY OF PROPERTIES OF EA 4923 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: GENERAL REFERENCE: MRC-DA-263 DEC 70

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.36642, B= 1710.85, C= 212.8 DETERMINED OVER THE
TEMPERATURE RANGE 45.0 TO 174.0 DEG. CENT. REFERENCE: MRC-DA-263ANB8343 P50 COMB.EQU
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .25-02

ESTIMATED BOILING POINT(CENT.)= 173.8

HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.2

VOLATILITY(MG/METER CUBED)= .21+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .17+00

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0289 WAS CALCULATED FROM THE EQUATION: DENSITY= .9937 - .00088 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 30.0 TO 65.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -90640, B= -148.99, C= 112.8 DETERMINED OVER THE
TEMPERATURE RANGE .5 TO 50.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70
WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTISTOSES)= 13.775

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 36.7171 - .1146*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 30.0 TO 65.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70
WERE USED TO CALCULATE THE SURFACE TENSION 41.3 DYNES/CM

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -103.0 REFERENCE: MRC-DA-263 12/70 APPROXIMATE

REFRACTIVE INDEX(ND)= 1.5626 WAS CALCULATED FROM THE EQUATION:

REFRACTIVE INDEX(ND)= 1.5434 - .00048*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE

25.0 TO 60.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70

FLASH POINT, OPEN CUP(CENTIGRADE)= 56.0 REFERENCE: MRC-DA-263 12/70

MELTING POINT DEPRESSION(DEG. C./MOLE)= -103.000 REFERENCE: MRC-DA-263 DEC 70 APPROX

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 20:(1963)

DENSITY TEMPERATURE VOLUME PRESSURE

GM/CC DEG C CC/MOLE ATM.

.3122 418.69 391.08 37.91

DIFFUSION COEF. = .036 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY-CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.55-03 CENTIPOISE

END OF COMPOUND EA 4923 AT -40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 4923 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 122.1 GENERAL REFERENCE: MRC-DA-263 DEC 70

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= 7.30642, B= 1710.85, C= 212.8 DETERMINED OVER THE TEMPERATURE RANGE 45.0 TO 174.0 DEG. CENT. REFERENCE: MRC-DA-263&N88343 P50 COMB.EQU
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .27-01
ESTIMATED BOILING POINT(CEM)= 173.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.5
VOLATILITY(MG/METER CUBED)= .21+03 VOLATILITY(MILLIMOLES/ METER CUBED)= .17+01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)* 1.0113 WAS CALCULATED FROM THE EQUATION: DENSITY= .9937 - .00088 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 30.0 TO 65.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= -.90640, B= -148.99, C= 112.8 DETERMINED OVER THE TEMPERATURE RANGE .5 TO 50.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 4.994

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 36.7171 - .1146*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 30.0 TO 65.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70
WERE USED TO CALCULATE THE SURFACE TENSION 39.0 DYNES/CM

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -103.0 REFERENCE: MRC-DA-263 12/70 APPROXIMATE
REFRACTIVE INDEX(ND)= 1.5530 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.5434 - .00048*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 60.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70
FLASH POINT, OPEN CUP(CENTIGRADE)= 56.0 REFERENCE: MRC-DA-263 12/70
MELTING POINT DEPRESSION(DEG. C./MOLE)= -103.000 REFERENCE: MRC-DA-263 DEC 70 APROX

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
CM/CC	DEG C	CC/MOLE	ATM.
.3122	418.69	91.08	37.91

DIFFUSION COEF. = .043 CM.SQ./SEC. CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.02-03 CENTIPOISE

END OF COMPOUND EA 4923 AT -20.0 DEGREES C. PAGE NUMBER B-290

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SUMMARY OF PROPERTIES OF EA 4923 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 122.1 GENERAL REFERENCE: MRC-DA-263 DEC 70

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.30642, B= 1710.85, C= 212.8 DETERMINED OVER THE TEMPERATURE RANGE 43.0 TO 174.0 DEG. CENT. REFERENCE: MRC-DA-263&NB8343 P50 COMB.EQU WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .18+0C
ESTIMATED BOILING POINT(CENT.)= 173.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.9
VOLATILITY(MG/METER CUBED)= .13+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .11+02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= .9937 WAS CALCULATED FROM THE EQUATION: DENSITY= .9937 - .00088 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 30.0 TO 65.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.90640, B= -148.99, C= 112.8 DETERMINED OVER THE TEMPERATURE RANGE .5 TO 50.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70 WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 2.594

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE EQUATION: SURFACE TENSION(DYNES/CM)= 36.7171 - .1146*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 30.0 TO 65.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70 WERE USED TO CALCULATE THE SURFACE TENSION 36.7 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.)= -103.0 REFERENCE: MRC-DA-263 12/70 APPROXIMATE
REFRACTIVE INDEX(ND)= 1.5434 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.5434 - .00048*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 60.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70
FLASH POINT, OPEN CUP(CENTIGRADE)= 56.0 REFERENCE: MRC-DA-263 12/70
MELTING POINT DEPRESSION(DEG. C./MOLE)= -103.000 REFERENCE: MRC-DA-263 DEC 70 APROX

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3122	418.69	391.08	37.91

DIFFUSION COEF. = .051 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.49-03 CENTIPOISE

END OF COMPOUND EA 4923 AT .0 DEGREES C. PAGE NUMBER B-291

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SUMMARY OF PROPERTIES OF EA 4923 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 122.1 GENERAL REFERENCE: MRC-DA-263 DEC 70

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.30642, B= 1710.85, C= 212.8 DETERMINED OVER THE
 TEMPERATURE RANGE 45.0 TO 174.0 DEG. CENT. REFERENCE: MRC-DA-2634N8343 P50 COMB.EQU
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .9100
 ESTIMATED BOILING POINT(CENT.)= 173.8
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.4
 VOLATILITY(MG/METER CUBED)= .3104 VOLATILITY(MILLIMOLE/ METER CUBED)= .5002
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= .9761 WAS CALCULATED FROM THE EQUATION: DENSITY= .9937 - .00088 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 30.0 TO 85.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.90640, B= -148.99, C= 112.8 DETERMINED OVER THE
 TEMPERATURE RANGE .5 TO 50.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 1.641

THE EQUATION: SURFACE TENSION(DYNES/CM)= 36.7171 - .1146*TEMP.(C.)
 DETERMINED OVER THE TEMPERATURE RANGE 30.0 TO 65.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70
 WERE USED TO CALCULATE THE SURFACE TENSION 34.4 DYNES/CM
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -103.0 REFERENCE: MRC-DA-263 12/70 APPROXIMATE
 REFRACTIVE INDEX(ND)= 1.5338 WAS CALCULATED FROM THE EQUATION:
 REFRACTIVE INDEX(ND)= 1.5434 - .00048*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
 25.0 TO 60.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70
 FLASH POINT, OPEN CUP(CENTIGRADE)= 58.0 REFERENCE: MRC-DA-263 12/70
 MELTING POINT DEPRESSION(DEG. C./MOLE)= -103.000 REFERENCE: MRC-DA-263 DEC 70 APROX

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 3, 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3122 418.69 391.08 37.91

DIFFUSION COEF. = .059 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1941) VISCOSITY OF VAPOR = 5.98-03 CENTIPOISE

END OF COMPOUND EA 4923 AT 20.0 DEGREES C. PAGE NUMBER B-292

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 4923 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 122.1 GENERAL REFERENCE: MRC-DA-263 DEC 70

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.30642, B= 1710.85, C= 212.8 DETERMINED OVER THE TEMPERATURE RANGE 45.0 TO 174.0 DEG. CENT. REFERENCE: MRC-DA-263&NB8343 P50 COMB.EQU WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .13+01
ESTIMATED BOILING POINT(CENT.)= 173.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.3
VOLATILITY(MG/METER CUBED)= .85+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .70+02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= .9717 WAS CALCULATED FROM THE EQUATION: DENSITY= .9937 - .00088 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 30.0 TO 65.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.90640, B= -148.99, C= 112.8 DETERMINED OVER THE TEMPERATURE RANGE .5 TO 50.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70 WERE USED TO CALCULATE THE VISCOSITY VISCOSITY(CENTISTOKES)= 1.495

THE EQUATION: SURFACE TENSION(DYNES/CM)= 36.7171 - .1146*TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 30.0 TO 65.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70 WERE USED TO CALCULATE THE SURFACE TENSION 33.9 DYNES/CM
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -103.0 REFERENCE: MRC-DA-263 12/70 APPROXIMATE
REFRACTIVE INDEX(ND)= 1.5314 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.5434 - .00048*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 60.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70
FLASH POINT, OPEN CUP(CENTIGRADE)= 56.0 REFERENCE: MRC-DA-263 12/70
MELTING POINT DEPRESSION(DEG. C./MOLE)= -103.000 REFERENCE: MRC-DA-263 DEC 70 APPROX

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1933)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3122 418.69 391.08 37.91

DIFFUSION COEF. = .062 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 8.08-03 CENTIPOISE

END OF COMPOUND EA 4923 AT 25.0 DEGREES C. PAGE NUMBER 8-293

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SUMMARY OF PROPERTIES OF EA 4923 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 122.1
GENERAL REFERENCE: MRC-DA-263 DEC 70

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.30642, B= 1710.85, C= 212.8 DETERMINED OVER THE
TEMPERATURE RANGE 45.0 TO 174.0 DEG. CENT. REFERENCE: MRC-DA-263&NB8343 P50 COMB.EQU
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .35+01
ESTIMATED BOILING POINT(CENT.)= 173.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 12.0
VOLATILITY(MG/METER CUBED)= .22+05 VOLATILITY(MILLIMOLE/ METER CUBED)= .18+03
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= .9585 WAS CALCULATED FROM THE EQUATION: DENSITY= .9937 - .00088 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 30.0 TO 65.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.90640, B= -148.99, C= 112.8 DETERMINED OVER THE
TEMPERATURE RANGE .5 TO 50.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 1.171

THE EQUATION: SURFACE TENSION(DYNES/CM)= 36.7171 - .1146*TEMP.(C.)
DETERMINED OVER THE TEMPERATURE RANGE 30.0 TO 65.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70
WERE USED TO CALCULATE THE SURFACE TENSION
MELTING POINT (DEG. CENT.) = -103.0 REFERENCE: MRC-DA-263 12/70 APPROXIMATE
REFRACTIVE INDEX(ND)= 1.5242 WAS CALCULATED FROM THE EQUATION:
REFRACTIVE INDEX(ND)= 1.5434 - .00048*TEMPERATURE(C.) DETERMINED OVER THE TEMPERATURE RANGE
25.0 TO 60.0 DEG. CENT. REFERENCE: MRC-DA-263 12/70
FLASH POINT, OPEN CUP(CENTIGRADE)= 56.0 REFERENCE: MRC-DA-263 12/70
MELTING POINT DEPRESSION(DEG. C./MOLE)= -103.000 REFERENCE: MRC-DA-263 DEC 70 APROX

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963).
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3122 418.69 391.08 37.91

DIFFUSION COEF. = .069 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY-CHEM.48,23(1944) VISCOSITY OF VAPOR = 6.43-03 CENTIPOISE

END OF COMPOUND EA 4923 AT 40.0 DEGREES C. PAGE NUMBER B-294

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SUMMARY OF PROPERTIES OF EA 5265 AT -40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 219.2
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOLLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 10.75150, B= 3658.20, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .12-04
 ESTIMATED BOILING POINT(CENT.)= 191.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.7
 VOLATILITY(MG/METER CUBED)= .17+00 VOLATILITY(MILLIMOLE/ METER CUBED)= .79-03
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0670 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0350 - .00080 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -3.10540, B=-1153.22, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 69.320

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1983)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
G/CC	DEG C	CC/MOLE	ATM.
.3171	499.88	691.18	23.97

DIFFUSION COEF. = .023 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48:23(1944) VISCOSITY OF VAPOR = 3.85-03 CENTIPOISE

END OF COMPOUND EA 5265 AT -40.0 DEGREES C.

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UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 5265 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 219.2 GENERAL REFERENCE: ARCSL-TR-77001
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 10.75150, B= 3658.20, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .20-03
ESTIMATED BOILING POINT(CENT.)= 191.6
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 18.7
VOLATILITY(MG/METER CUBED)= .28+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .13-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
DENSITY(G/ML)= 1.0510 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0352 - .00080 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -3.10540, B=-1153.22, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 28.189
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
CM/CC DEG C CC/MOLE ATM.
.3171 499.88 691.18 23.97
DIFFUSION COEF. = .028 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR
THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ.. J.PHY-CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.26-03 CENTIPOISE
END OF COMPOUND EA 5265 AT -20.0 DEGREES C. PAGE NUMBER B-296

UNCLASSIFIED

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SUMMARY OF PROPERTIES OF EA 5265 AT .0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 219.2
 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 10.75150, B= 3658.20, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .23-02
 ESTIMATED BOILING POINT(CENT.)= 191.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.7
 VOLATILITY(MG/METER CUBED)= .28+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .13+00
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0350 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0350 - .0080 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -3.10540, B=-1153.22, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: AKCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 13.078

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3171	495.88	691.18	23.97

DIFFUSION COEF. = .033 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.66-03 CENTIPOISE

END OF COMPOUND EA 5265 AT .0 DEGREES C. PAGE NUMBER B-297

UNCLASSIFIED

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 5265 AT 20.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 219.2
 GENERAL REFERENCE: ARCSL-TR-77001
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPEROOLDS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 10.75150, B= 3658.20, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .19-01
 ESTIMATED BOILING POINT(CENT.)= 191.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.7
 VOLATILITY(MILLIMOLE/ METER CUBED)= .22+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .10+01
 DENSITY(G/ML)= 1.0190 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0350 - .00080 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -3.10540, B=-1153.22, C= 273.2 DETERMINED OVER THE
 TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 6.737

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3171 499.08 691.18 23.97

DIFFUSION COEF. = .039 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY.CHEM.48:23(1944) VISCOSITY OF VAPOR = 5.07-03 CENTIPOISE

END OF COMPOUND EA 5265 AT 20.0 DEGREES C. PAGE NUMBER B-238

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SUMMARY OF PROPERTIES OF EA 5265 AT 25.0 DEGREES CE TIGRADE
COMMON NAME: FORMULA WEIGHT: 219.2
GENERAL REFERENCE: ARCSL-TR-77001
*** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE ***
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 10.75150, B= 3658.20, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TOPRI)= .30-01
ESTIMATED BOILING POINT(CENT.)= 191.6
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.7
VOLATILITY(MG/METER CUBED)= .36+03 VOLATILITY(MILLING/ METER CUBED)= .16+01
DENSITY(G/ML)= 1.0150 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0350 - .00080 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -3.10540, B=-1153.22, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 5.788

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3171 499.88 691.18 23.97

DIFFUSION COEF. = .040 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.17-03 CENTIPOISE

END OF COMPOUND EA 5265 AT 25.0 DEGREES C. PAGE NUMBER B-299

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 5265 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 219.2
 WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4431): A= 10.75150, B= 3658.20, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 20.0 TO 30.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .12+00
 ESTIMATED BOILING POINT(CENT.)= 191.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.7
 VOLATILITY(MILLIMOLE/ METER CUBED)= .13+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .60+01
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 DENSITY(G/ML)= 1.0030 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0350 - .00080 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -3.10540, B=-1153.22, C= 273.2 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
 WERE USED TO CALCULATE THE VISCOSITY
 VISCOSITY(CENTISTOKES)= 3.778

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
 DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3171 499.88 691.18 23.97
 DIFFUSION COEF. = .044 CM.SQ./SEC CALCULA D FOR VAPOR IN AIR
 THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,2(1944) VISCOSITY OF VAPOR = 5.48-03 CENTIPOISE
 END OF COMPOUND EA 5265 AT 40.0 DEGREES C. PAGE NUMBER B-300

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SUMMARY OF PROPERTIES OF EA 5365 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 198.2 GENERAL REFERENCE: EC-TR-76058
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOLDS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(STR 4491): A= 8.68720, B= 2773.90, C= 253.0 DETERMINED OVER THE
TEMPERATURE RANGE 30.0 TO 146.0 DEG. CENT. REFERENCE: EC-TR-76058
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .44-04
ESTIMATED BOILING POINT(CENT.)= 225.6
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.2
VOLATILITY(MG/METER CUBED)= .60+00 VOLATILITY(MILLIMOLE/ METER CUBED)= .30-02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
DENSITY(G/ML)= 1.2147 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1755 -.00098 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: N88484 SUPENDED SOLIDS LIQ
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3651 453.36 542.84 28.68
DIFFUSION COEF. = .027 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48.23(1944) VISCOSITY OF VAPOR = 4.50-03 CENTIPOISE

END OF COMPOUND EA 5365 AT -40.0 DEGREES C. PAGE NUMBER B-301

CONFIDENTIAL

SUMMARY OF PROPERTIES OF EA 5365 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 198.2 GENERAL REFERENCE: EC-TR-76058
**** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.68720, B= 2778.90, C= 253.0 DETERMINED OVER THE
TEMPERATURE RANGE 30.0 TO 146.0 DEG. CENT. REFERENCE: EC-TR-76058
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .58-03
ESTIMATED BOILING POINT(CENT.)= 225.6
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.0
VOLATILITY(MG/METER CUBED)= .73+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .37-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1951 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1755 - .00098 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: N88484 SUPENDED SOLIDS LIQ

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3651	453.36	542.84	28.68

DIFFUSION COEF. = .033 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 4.97-03 CENTIPOISE

END OF COMPOUND EA 5365 AT -20.0 DEGREES C. PAGE NUMBER B-302

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SUMMARY OF PROPERTIES OF EA 5365 AT .0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 198.2 GENERAL REFERENCE: EC-TR-76058
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.68720, B= 2778.90, C= 253.0 DETERMINED OVER THE
 TEMPERATURE RANGE 30.0 TO 146.0 DEG. CENT. REFERENCE: EC-TR-76058
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .51-02
 ESTIMATED BOILING POINT(CENT.)= 225.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.8
 VOLATILITY(MG/METER CUBED)= .59+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .30+00
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1755 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1755 - .00098 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: NB8484 SUPENDED SOLIDS LIQ

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
 GM/CC DEG C CC/MOLE ATM.
 .3651 453.36 542.84 28.68

DIFFUSION COEF. = .039 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.44-03 CENTIPOISE

END OF COMPOUND EA 5365 AT .0 DEGREES C. PAGE NUMBER B-303

CONFIDENTIAL

SUMMARY OF PROPERTIES OF EA 5365 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 198.2
GENERAL REFERENCE: EC-TR-76058
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUP-COOLES TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.66720, B= 2778.90, C= 253.0 DETERMINED OVER THE
TEMPERATURE RANGE 30.0 TO 145.0 DEG. CENT. REFERENCE: EC-TR-76058
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TQRR)= .32-01
ESTIMATED BOILING POINT(CENT.)= 225.3
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.3
VOLATILITY(MG/METER CUBED)= .35+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .19+01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
DENSITY(G/ML)= 1.1559 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1755 - .00098 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 40.0 DEG. CENT. REFERENCE: NBB484 SUPENDED SOLIDS LIQ

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37, 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3681	453.36	542.84	28.68

DIFFUSION COEF. = .046 CM-SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.91-03 CENTIPOISE

END OF COMPOUND EA 5365 AT 20.0 DEGREES C. PAGE NUMBER B-304

CONFIDENTIAL

SUMMARY OF PROPERTIES OF EA 5365 AT 25.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 198.2
 GENERAL REFERENCE: EC-TR-76058
 ***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 44911): A= 8.68720, B= 2778.90, C= 253.0 DETERMINED OVER THE
 TEMPERATURE RANGE 30.0 TO 146.0 DEG. CENT. REFERENCE: EC-TR-76058
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .49-01
 ESTIMATED BOILING POINT(CENT.)= 225.0
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.6
 VOLATILITY(MG/METER CUBED)= .53+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .27+01
 ***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****
 DENSITY(G/ML)= 1.1510 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1755 - .00098 (TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: N80484 SUPENDED SOLIDS LIQ

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.5651	453.35	542.84	23.68

DIFFUSION COEF. = .048 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ.. J.PHY-CHEM.48.23(1944) VISCOSITY OF VAPOR = 6.02-03 CENTIPOISE

END OF COMPOUND EA 5365 AT 25.0 DEGREES C. PAGE NUMBER B-305

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SUMMARY OF PROPERTIES OF EA 5365 AT 40.0 DEGREES CENTIGRADE
 COMMON NAME: FORMULA WEIGHT: 198.2 GENERAL REFERENCE: EC-TR-76058
 *** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
 BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
 THE FOLLOWING ANTOINE CONSTANTS(EATR 4/91): A= 8.68720, B= 2779.90, C= 253.0 DETERMINED OVER THE
 TEMPERATURE RANGE 30.0 TO 146.0 DEG. CENT. REFERENCE: EC-TR-76058
 WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
 VAPOR PRESSURE(TORR)= .16+00
 ESTIMATED BOILING POINT(CENT.)= 225.6
 HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.5
 VOLATILITY(MG/METER CUBED)= .16+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .82+01
 DENSITY(G/ML)= 1.1363 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.1755 - .00098 *TEMP.(C.) DETERMINED OVER
 THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: N88484 SUPENDED SOLIDS LIQ

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3651	453.33	542.84	28.68

DIFFUSION COEF. = .053 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
 MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.38-03 CENTIPOISE

END OF COMPOUND EA 5365 AT 40.0 DEGREES C.

PAGE NUMBER B-306

UNCLASSIFIED

SUMMARY OF PROPERTIES OF EA 5389 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: GENERAL REFERENCE: ARCSL-TR-77001
FORMULA WEIGHT: 224.3

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.19050, B= 2118.40, C= 222.5 DETERMINED OVER THE
TEMPERATURE RANGE 3.0 TO 64.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .38-04
ESTIMATED BOILING POINT(CENT.)= 389.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.8
VOLATILITY(MILLIMOLE/ METER CUBED)= .59+00 VOLATILITY(MILLIMOLE/ METER CUBED)= .26-02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1262 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0002 - .00090 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4401): A= -.36660, B= -74.13, C= 47.9 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= *****

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -67.0 REFERENCE: ARCSL-TR-77001
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 136.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. TRUCK. FIZ KHIM. 37. 201(1993)

DENSITY	TEMPERATURE	VOLUME	PRESSURE
GM/CC	DEG C	CC/MOLE	ATM.
.3380	459.20	663.59	23.65

DIFFUSION COEF. = .024 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 4.16-03 CENTIPOISE

END OF COMPOUND EA 5389 AT -40.0 DEGREES C. PAGE NUMBER B-307

UNCLASSIFIED

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SUMMARY OF PROPERTIES OF EA 5389 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 224.3 GENERAL REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.19050, B= 2118.40, C= 222.5 DETERMINED OVER THE
TEMPERATURE RANGE 3.0 TO 64.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .53-03

ESTIMATED BOILING POINT(CENT.)= 269.1

HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 15.1

VOLATILITY(MG/METER CUBED)= .76+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .34-01

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.1082 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0902 - .0090 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.36660, B= -74.13, C= 47.9 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

WERE USED TO CALCULATE THE VISCOSITY

VISCOSITY(CENTISTOKES)= 195.224

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -67.0 REFERENCE: ARCSL-TR-77001

FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 136.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE

GM/CC DEG C CC/MOLE ATM.

.3380 459.20 663.59 23.65

DIFFUSION COEF. = .029 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,43,23(1944) VISCOSITY OF VAPOR = 4.60-03 CENTIPOISE

END OF COMPOUND EA 5389 AT -20.0 DEGREES C. PAGE NUMBER 8-308

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SUMMARY OF PROPERTIES OF EA 5389 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 224.3 GENERAL REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.19050, B= 2118.40, C= 222.5 DETERMINED OVER THE
TEMPERATURE RANGE 3.0 TO 64.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .47-02
ESTIMATED BOILING POINT(CENT.)= 269.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.6
VOLATILITY(MG/METER CUBED)= .61+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .27+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

DENSITY(G/ML)= 1.0902 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0902 - .00090 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.36660, B= -74.13, C= 47.9 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 15.173

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -67.0 REFERENCE: ARCSL-TR-77001
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 136.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
.3880 459.20 663.59 23.65

DIFUSION COEF. = .634 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM.48,23(1944) VISCOSITY OF VAPOR = 5.03-03 CENTIPOISE

END OF COMPOUND EA 5389 AT .0 DEGREES C. PAGE NUMBER B-309

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SUMMARY OF PROPERTIES OF EA 5389 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 224.3 GENERAL REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS (EATR 4491): A= 7.19050, B= 2118.40, C= 222.5 DETERMINED OVER THE
TEMPERATURE RANGE 3.0 TO 64.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE (TORR)= .28-01
ESTIMATED BOILING POINT (CENT.)= 269.1
HEAT OF VAPORIZATION (KILOCALORIES/MOLE)= 14.2
VOLATILITY (MG/METER CUBED)= .35+03 VOLATILITY (MILLIMOLE/ METER CUBED)= .16+01
DENSITY (G/ML)= 1.0722 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0902 - .00090 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

THE FOLLOWING ANTOINE CONSTANTS (EATR 4491): A= -.36660, B= -74.13, C= 47.9 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY (CENTISTOKES)= 5.311

***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

MELTING POINT (DEG. CENT.) = -67.0 REFERENCE: ARCSL-TR-77001
FLASH POINT, MCCUTCHAN-YOUNG (CENTIGRADE) = 136.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201 (1963)

DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3380 459.20 663.59 25.65

DIFFUSION COEF. = .040 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM, 48, 23 (1941) VISCOSITY OF VAPOR = 5.47-03 CENTIPOISE

END OF COMPOUND EA 5389 AT 20.0 DEGREES C. PAGE NUMBER B-310

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SUMMARY OF PROPERTIES OF EA 5389 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 224.3 GENERAL REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.19050, B= 2118.40, C= 222.5 DETERMINED OVER THE
TEMPERATURE RANGE 3.0 TO 64.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .43-01
ESTIMATED BOILING POINT(CENT.)= 269.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.1
VOLATILITY(MG/METER CUBED)= .52+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .23+01
DENSITY(G/ML)= 1.0877 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0902 - .00090 *TEMP.(C.) DETERMINED OVER
THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -.36660, B= -74.13, C= 47.9 DETERMINED OVER THE
TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES)= 4.470

MELTING POINT (DEG. CENT.) = -67.0 REFERENCE: ARCSL-TR-77001
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 136.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 201(1963)
DENSITY TEMPERATURE VOLUME PRESSURE
G/CC DEG C CC/MOLE ATM.
.3380 459.20 663.59 23.65

DIFFUSION COEF. = .041 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE
MODIFIED SUTHERLANDS EQ., J.PHY.CHEM,48,23(1944) VISCOSITY OF VAPOR = 5.58-03 CENTIPOISE

END OF COMPOUND EA 5389 AT 25.0 DEGREES C. PAGE NUMBER B-311

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SUMMARY OF PROPERTIES OF EA 5389 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 224.3 GENERAL REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 7.19050, B= 2118.40, C= 222.5 DETERMINED OVER THE TEMPERATURE RANGE 3.0 TO 64.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:

VAPOR PRESSURE(TORR)= .13+00
ESTIMATED BOILING POINT(CENT.)= 269.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.8
VOLATILITY(MG/METER CUBED)= .10+64 VOLATILITY(MILLIMOLE/ METER CUBED)= .67+01
DENSITY(G/ML)= 1.0542 WAS CALCULATED FROM THE EQUATION: DENSITY= 1.0902 - .00090 *TEMP.(C.) DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001

THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= -36860, B= -74.13, C= 47.9 DETERMINED OVER THE TEMPERATURE RANGE 25.0 TO 45.0 DEG. CENT. REFERENCE: ARCSL-TR-77001
WERE USED TO CALCULATE THE VISCOSITY
VISCOSITY(CENTISTOKES) = 2.998

MELTING POINT (DEG. CENT.) = -67.0 REFERENCE: ARCSL-TR-77001
FLASH POINT, MCCUTCHAN-YOUNG(CENTIGRADE)= 138.0 REFERENCE: ARCSL-TR-77001

THE FOLLOWING CRITICAL PROPERTIES WERE ESTIMATED USING THE METHOD OF FILIPPOV. ZHURN. FIZ KHIM. 37. 23. (1963)

DENSITY TEMPERATURE VOLUME PRESSURE
GM/CC DEG C CC/MOLE ATM.
1.3880 459.20 663.59 23.65

DIFFUSION COEF. = .046 CM.SQ./SEC CALCULATED FOR VAPOR IN AIR

THE VISCOSITY OF THE VAPOR WAS ESTIMATED USING THE ABOVE CRITICAL PROPERTIES AND THE MODIFIED SUTHERLANDS EQ., J. PHY. CHEM. 48. 23(1944) VISCOSITY OF VAPOR = 5.90-03 CENTIPOISE

END OF COMPOUND EA 5389 AT 40.0 DEGREES C. PAGE NUMBER B-312

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SUMMARY OF PROPERTIES OF EA 5403 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 212.2 GENERAL REFERENCE: EATR-4710
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.88792, B= 2946.07, C= 269.7 DETERMINED OVER THE
TEMPERATURE RANGE 60.0 TO 153.0 DEG. CENT. REFERENCE: FATR-4710, B CORRECTED N88343
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .12-03
ESTIMATED BOILING POINT(CENT.)= 223.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.0
VOLATILITY(MG/MEIER CUBED)= .17+01 VOLATILITY(MILLIMOLE/ MEIER CUBED)= .79-02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

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END OF COMPOUND EA 5403 AT -40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 5403 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 212.2
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
GENERAL REFERENCE: EATR-4710
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.08792, B= 2946.07, C= 269.7 DETERMINED OVER THE
TEMPERATURE RANGE 60.0 TO 150.0 DEG. CENT. REFERENCE: EATR-4710, B CORRECTED NBB343
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .12-02
ESTIMATED BOILING POINT(CENT.)= 220.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.8
VOLATILITY(MG/METER CUBED)= .17+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .78-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

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END OF COMPOUND EA 5403 AT -20.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 5403 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 212.2 GENERAL REFERENCE: EATR-4710
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.08792, B= 2946.07, C= 269.7 DETERMINED OVER THE
TEMPERATURE RANGE 00.0 TO 150.0 DEG. CENT. REFERENCE: EATR-4710, B CORRECTED NB7343
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .92-02
ESTIMATED BOILING POINT(CENT.)= 220.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.8
VOLATILITY(MG/METER CUBED)= .11+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .54+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

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END OF COMPOUND EA 5403 AT .0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 5403 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 212.2 GENERAL REFERENCE: EATR-4710
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.88792, B= 2946.07, C= 269.7 DETERMINED OVER THE
TEMPERATURE RANGE 60.0 TO 150.0 DEG. CENT. REFERENCE: EATR-4710, B CORRECTED NB8343
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .52-01
ESTIMATED BOILING POINT(CENT.)= 220.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.8
VOLATILITY(MILLIMOLE/ METER CUBED)= .29+01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

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END OF COMPOUND EA 5403 AT 20.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 5403 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 212.2 GENERAL REFERENCE: EATR-4710
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.03792, B= 2946.07, C= 269.7 DETERMINED OVER THE
TEMPERATURE RANGE 60.0 TO 150.0 DEG. CENT. REFERENCE: EATR-4710, B CORRECTED N88343
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .78-01
ESTIMATED BOILING POINT(CENT.)= 220.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.8
VOLATILITY(MG/METER CUBED)= .89+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .42+01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

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END OF COMPOUND EA 5403 AT 25.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 5403 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 212.2 GENERAL REFERENCE: EATR-4710
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.88792, B= 2946.07, C= 269.7 DETERMINED OVER THE
TEMPERATURE RANGE 60.0 TO 150.0 DEG. CENT. REFERENCE: EATR-4710, B CORRECTED, NB8343
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .24+00
ESTIMATED BOILING POINT(CENT.)= 220.7
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 13.8
VOLATILITY(MG/METER CUBED)= .26+04 VOLATILITY(MILLIMOLE/ METER CUBED)= .12+02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

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END OF COMPOUND EA 5403 AT 40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 5414 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 212.2 GENERAL REFERENCE: EATR-4710
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.70800, B= 3320.35, C= 262.4 DETERMINED OVER THE
TEMPERATURE RANGE 60.0 TO 155.0 DEG. CENT. REFERENCE: EATR 4710
BEFORE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR) = .59-05
ESTIMATED BOILING POINT(CENT.) = 224.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE) = 15.7
VOLATILITY(MILLIMOLE/ METER CUBED) = .41-03
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

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END OF COMPOUND EA 5414 AT -40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 5414 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 212.2 GENERAL REFERENCE: EATR-4710
WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOL TO SPECIFIED TEMPERATURE *****
THE FOLLOWING Antoine CONSTANT (EATR 4711): A= 9.70600, B= 2320.35, C= 262.4 DETERMINED OVER THE
TEMPERATURE RANGE 80.0 TO 155.0 DEG. CENT. REFERENCE: EATR 4710
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE (TORR) = 10-03
ESTIMATED BOILING POINT (CENT.) = 224.1
HEAT OF VAPORIZATION (KILOCALORIES/MOLE) = 10.8
VOLATILITY (CC/METER CUBED) = .14+01 VOLATILITY (MILLIMOLE/ METER CUBED) = .64-02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

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END OF COMPOUND EA 5414 AT -20.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 5414 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 212.2 GENERAL REFERENCE: EATR-4710
WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 9.70600, B= 3320.35, C= 262.4 DETERMINED OVER THE
TEMPERATURE RANGE 80.0 TO 155.0 DEG. CENT. REFERENCE: EATR 4710
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .11-02
ESTIMATED BOILING POINT(CENT.)= 324.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.4
VOLATILITY(MG/METER CUBED)= .14+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .66-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

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.0 DEGREES C.

END OF COMPOUND EA 5414 AT

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SUMMARY OF PROPERTIES OF EA 5414 AT 20.0 DEGREES CELSIUS
COMMON NAME: FORMULA WEIGHT: 212.2 REFERENCE: EATP-471C
WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE ***
THE FOLLOWING Antoine constants(EATP 471C): A= 9.70800, B= 3320.35, C= 182.6 DETAINED OVER THE
TEMPERATURE RANGE 80.0 TO 155.0 DEG. CENT. REFERENCE: EATP 471C
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .08-02
ESTIMATED BOILING POINT(CENT.)= 224.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.4
VOLATILITY(MILLIMOLE/METER CUBED)= .10+03 VOLATILITY(MILLIMOLE/METER CUBED)= .10+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

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END OF COMPOUND EA 5414 AT 20.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 5414 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 212.2 (GENERAL REFERENCE: EATR-4710
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPEROOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTIGINE CONSTANTS(EATR 4491): A= 9.70600, B= 3320.35, C= 262.4 DETERMINED OVER THE
TEMPERATURE RANGE 80.0 TO 155.0 DEG. CENT. REFERENCE: EATR 4710
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TOHR)= .14-01
ESTIMATED BOILING POINT(CENT.)= 224.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.3
VOLATILITY(MG/METER CUBED)= .16+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .70+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

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END OF COMPOUND EA 5414 AT 25.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 5414 AT 40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 212.2 GENERAL REFERENCE: EATR-4710
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4451): A= 9.70600, B= 3320.35, C= 262.4 DETERMINED OVER THE
TEMPERATURE RANGE 80.0 TO 155.0 DEG. CENT. REFERENCE: EATR 4710
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .53-01
ESTIMATED BOILING POINT(CENT.)= 224.1
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 16.3
VOLATILITY(MG/METER CUBED)= .58+03 VOLATILITY(MILLIMOLE/ METER CUBED)= .37+01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

PAGE NUMBER B-324

END OF COMPOUND EA 5414 AT 40.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 5488 AT -40.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 236.2 GENERAL REFERENCE: EATR 4710
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.46292, B= 3226.38, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 130.0 TO 215.0 DEG. CENT. REFERENCE: EATR 4710
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .12-05
ESTIMATED BOILING POINT(CENT.)= 304.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.7
VOLATILITY(M3/METER CUBED)= .68-01 VOLATILITY(MILLIMOLE/ METER CUBED)= .29-03
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

END OF COMPOUND EA 5488 AT -40.0 DEGREES C. PAGE NUMBER B-325

Appendix B

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SUMMARY OF PROPERTIES OF EA 5488 AT -20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 236.2 GENERAL REFERENCE: EATR 4710
WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4710): A= 8.46277, B= 3226.38, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 130.0 TO 215.0 DEG. CENT. REFERENCE: EATR 4710
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .52-04
ESTIMATED BOILING POINT(CENT.)= 304.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.7
VOLATILITY(MG/METER CUBED)= .78+00 VOLATILITY(MILLIMOLE/ METER CUBED)= .33-02
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

PAGE NUMBER B-326

END OF COMPOUND EA 5488 AT -20.0 DEGREES C.

Appendix B

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SUMMARY OF PROPERTIES OF EA 5488 AT .0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 236.2 GENERAL REFERENCE: EATR 4710
..... WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.46292, B= 3226.38, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 130.0 TO 215.0 DEG. CENT. REFERENCE: EATR 4710
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .45-03
ESTIMATED BOILING POINT(CENT.)= 304.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.7
VOLATILITY(MG/METER CUBED)= .62+01 VOLATILITY(MILLIMOLE/ METER CUBED)= .26-01
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

PAGE NUMBER B-327

.0 DEGREES C

END OF COMPOUND EA 5488 AT

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SUMMARY OF PROPERTIES OF EA 5488 AT 20.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 236.2 GENERAL REFERENCE: EATR 4710
***** WARNING: SINCE THERE IS NO MELTING POINT FOR THIS COMPOUND, CALCULATION OF VALUES BELOW DATA RANGE MAY NOT
BE VALID UNLESS LIQUID SUPERCOOLS TO SPECIFIED TEMPERATURE *****
THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.46292, B= 3226.38, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 130.0 TO 215.0 DEG. CENT. REFERENCE: EATR 4710
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .29-02
ESTIMATED BOILING POINT(CENT.)= 304.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.7
VOLATILITY(MG/METER CUBED)= .37+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .16+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

PAGE NUMBER B-328

END OF COMPOUND EA 5488 AT 20.0 DEGREES C.

Appendix B

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SUMMARY OF PROPERTIES OF EA 5488 AT 25.0 DEGREES CENTIGRADE
COMMON NAME: FORMULA WEIGHT: 236.2 GENERAL REFERENCE: EATR 4710
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THE FOLLOWING ANTOINE CONSTANTS(EATR 4491): A= 8.46292, B= 3226.38, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 130.0 TO 215.0 DEG. CENT. REFERENCE: EATR 4710
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .44-02
ESTIMATED BOILING POINT(CENT.)= 304.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.7
VOLATILITY(MG/METER CUBED)= .56+02 VOLATILITY(MILLIMOLE/ METER CUBED)= .24+00
***** WARNING: THE ABOVE VALUES ARE EXTRAPOLATED OUT OF THE DATA TEMPERATURE RANGE *****

PAGE NUMBER B-329

END OF COMPOUND EA 5488 AT 25.0 DEGREES C.

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SUMMARY OF PROPERTIES OF EA 5488 AT 40.0 DEGREES CENTIGRADE
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THE FOLLOWING Antoine constants(EATR 4491): A= 8.46292, B= 3226.38, C= 273.2 DETERMINED OVER THE
TEMPERATURE RANGE 130.0 TO 215.0 DEG. CENT. REFERENCE: EATR 4710
WERE USED TO CALCULATE THE FOLLOWING FOUR PROPERTIES:
VAPOR PRESSURE(TORR)= .14-01
ESTIMATED BOILING POINT(CENT.)= 304.8
HEAT OF VAPORIZATION(KILOCALORIES/MOLE)= 14.7
VOLATILITY(MG/METER CUBED)= .17+03 VOLATILITY(MILLIMOLE/ METER CUBED)* .74+06
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PAGE NUMBER B-330

END OF COMPOUND EA 5488 AT 40.0 DEGREES C.

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APPENDIX C

**USE OF THE ANTOINE EQUATION TO
FIT VAPOR PRESSURE DATA (U)**

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APPENDIX C

USE OF THE ANTOINE EQUATION TO FIT VAPOR PRESSURE DATA (U)

(U) Vapor pressure data plays an important role in the development of defense against chemical agents; some areas where vapor pressure plays a critical role are listed in Table C-1.

Table C-1. (U) Areas in Which Vapor Pressures Play a Critical Role in Chemical Defense

Percutaneous toxicity
Fabric penetration by vapor transfer
Inhalation toxicity
Persistency and threat calculations
Chemical decontamination activity coefficients of kinetic equations
Dissemination
Munition design
Doctrine studies
Jet exhaust decontamination

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(U) The Antoine equation¹ is defined as follows:

$$\text{Log}_{10} P = A - B/(t+C) \quad (C-1)$$

where P = vapor pressure,
 t = temperature in centigrade, and
 $A, B, \text{ \& } C$ = constants.

A & B are constants that vary widely for different compounds. C is a constant that does not vary greatly from compound to compound and is frequently close to 230.

(U) A recent data compilation questions the use of the Antoine equation which is used extensively in this report. In reference 2, it is stated that the Antoine equation fits the data well "but gives unrealistically high values at higher temperatures." No justification for this opinion is provided.

Appendix C

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(U) Table C-2 lists the reasons why the Antoine equation has been chosen for correlating and extrapolating vapor pressure data. Some problems dealing with fitting data to the Antoine equation do occur with the current computer program;³ see table C-3. However, studies are being conducted on these problems and preliminary results have been reported by Celmins.⁴

Table C-2. (U) Advantages of Using the Antoine Equation for Extrapolations

1. Numerous comparisons with other equations have been reported in published literature.
2. The Antoine equation:
 - accurately fits the data of hundreds of compounds over a wide range of temperatures.
 - is close to the Clausius-Clapeyron equation.
 - has only three parameters.
 - contains no polynomials.

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Table C-3. (U) Problems in Using the Antoine Equation

1. Current computer program³ gives an estimate of the quality of fit, but does not give an estimate of error of specific vapor pressures.
2. While the program fits the data very well, there are some logical problems in the routine (not in the Antoine equation) that might reduce the quality of extrapolations.
3. Antoine equation extrapolations close to the critical point tend to be low.

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(U) The Antoine equation was chosen for use at CSL after a careful study of the literature and in-house testing of many equations. A number of physical chemists participated in the decision. A more recent study tends to confirm the correctness of this decision. Trump⁵ states, "In each case the Antoine equation gave a closer fit... and was therefore the preferred correlating equation. The Chebyshev equation produced deviations about twice as large."

(U) The consensus⁶ in the chemical literature is that the Antoine equation gives good fits at low temperatures; but, the extrapolations up to a reduced temperature of 0.75 with the Antoine equation result in low values. Therefore, equations 1 and 2 (reference 2) which give even lower values cannot provide superior extrapolations as reported. The errors introduced from the use of such equations are quite large. Figure C-1 shows

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that equation 1 (reference 2) does not pass through any of the data points and that equation 2 passes through only the top two points, an insufficient number for the extrapolation of a curving line. Equation 2 actually goes through a maximum vapor pressure at the highest temperatures.

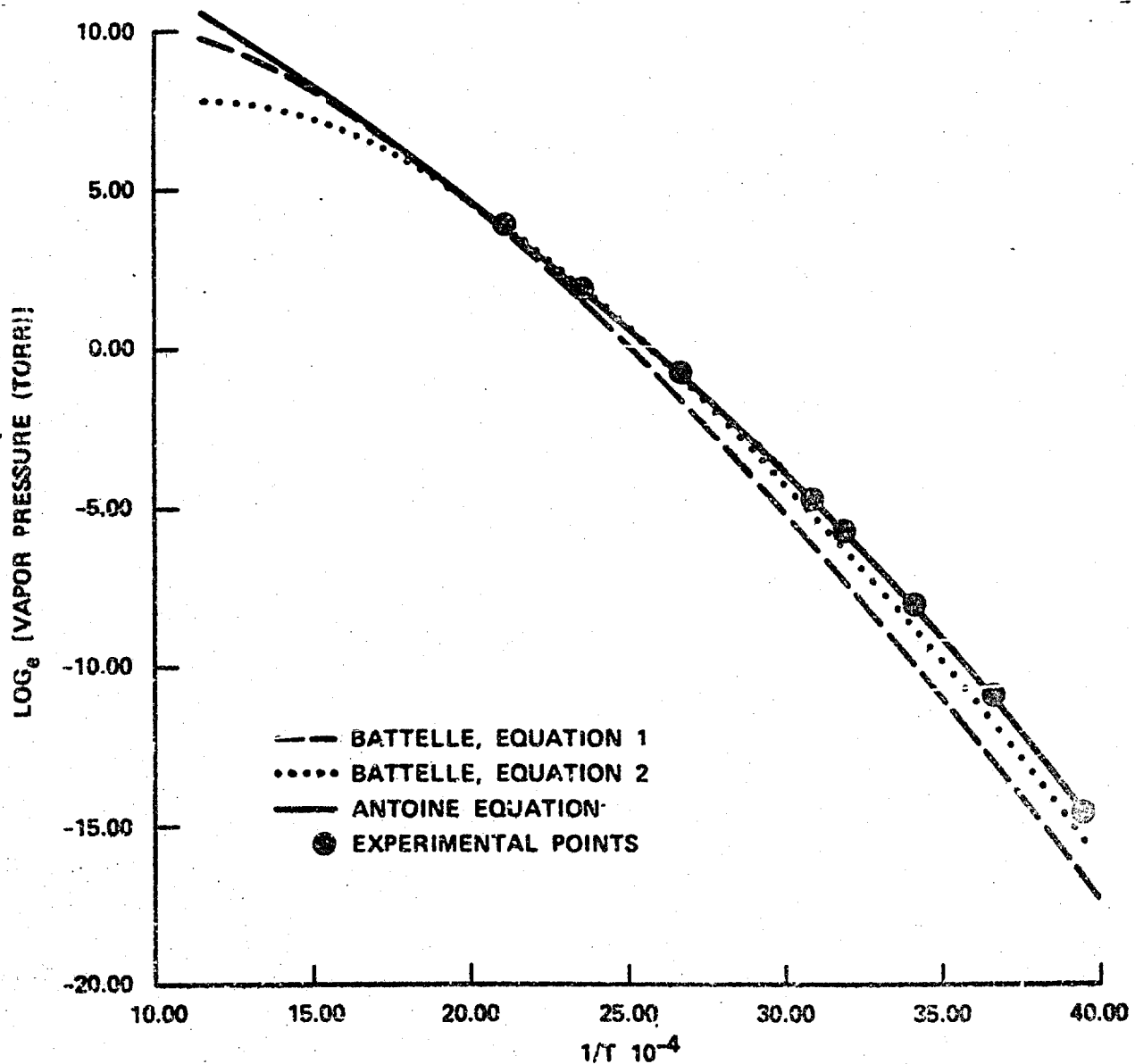


Figure C-1. (U) Comparison of Antoine Equation With Other Equations.

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LITERATURE CITED (U)

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2. Tomlinson, G. J., and Samuel, A. H. Chemical Systems Laboratory Contract Report CR-80051. Literature Survey of Physical and Chemical Properties of Agents VX, GD, HD and HL. Vol. I. Battelle, Washington Operations. July 1980. UNCLASSIFIED Report.
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4. Celmins, A. Ballistic Research Laboratory Interim Memorandum Report 741. Error Analysis of Vapor Pressure Measurements. April 1982. UNCLASSIFIED Report.
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6. Ambrose, D. The Correlation and Estimation of Vapor Pressures, p 193. Proceedings of the National Physics Laboratory, Conference on Chemical Thermodynamic Data on Fluids and Fluid Mixtures. IPC Science Tech Press, Guilford England.

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DEPARTMENT OF THE ARMY
US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND
EDGEWOOD CHEMICAL BIOLOGICAL CENTER
5183 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MD 21010-5424

REPLY TO
ATTENTION OF

RDCB-DPC-RS

FEB 18 2016

MEMORANDUM THRU Director, Edgewood Chemical Biological Center, (RDCB-D/Dr. Joseph L. Corriveau), 5183 Blackhawk Road, Aberdeen Proving Ground, Maryland 21010-5424

FOR Defense Technical Information Center (DTIC), 8725 John J. Kingman Road, Ft Belvoir, VA 22060-6218

SUBJECT: Request for Change in Distribution

1. This action is in response to an Edgewood Chemical Biological Center (ECBC) internal request for a Change in Distribution for the attached listed documents.
2. The listed documents have current distribution statements or classifications which limit their release. ECBC Subject Matter Experts have reviewed the documents and deem them all suitable for the change in distribution to read "Distribution A: Approved for public release; distribution unlimited."
3. The point of contact is Adana Eilo, ECBC Security Specialist, (410) 436-2063 or adana.l.eilo.civ@mail.mil.

Encl


RONALD L. STAFFORD
Security Manager

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3. Doyle, W. L., et al. *Informal Monthly Progress Report on Toxicity and Irritancy of Chemical Agents*, No. N.S. 3, The University of Chicago Toxicity Laboratory in cooperation with The Medical Division, Chemical Warfare Service, U.S. Army and the Bureau of Medicine and Surgery, U.S. Navy, **1945**. (CBRNIAC-CB-068173) Dist. "E"
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7. Samuel, J. B.; Penski, E. C.; Callahan, J. J. *Physical Properties of Standard Agents, Candidate Agents, and Related Compounds at Several Temperatures*, UNCLASSIFIED Special Publication ARCSL-SP-83015, U.S. Army Chemical Systems Laboratory, Aberdeen Proving Ground, MD, **1983**, (ADC033491) Dist. "E"
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10. War Department Memorandum, Subject: New German Gas, MCE, Preliminary Report, 19 June **1945**. (CBRNIAC-CB-093876)

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