

BIBLIOGRAPHY

1. Aldrich, "Handbook of Fine Chemicals (Catalog)," Aldrich Chemical Co., Milwaukee, Wisconsin (1984-1985).
2. Ambrose, D., "A Supplement to Report Chem. 107 (1980)," London, United Kingdom (1983).
3. Ambrose, D., "Correlation and Estimation of Vapor-Liquid Critical Properties. II. Critical Pressures and Critical Volumes of Organic Compounds," *Natl. Phys. Lab. Report Chem.* **98**, Middlesex, United Kingdom (1978).
4. Ambrose, D., "Vapor-Liquid Critical Properties," *National Physical Laboratory Report Chem.* **107**, Middlesex, United Kingdom, (1980).
5. Ambrose, D., Broderick, B. E., Townsend, R., "The Critical Temperatures and Pressures of Thirty Organic Compounds," *J. Appl. Chem. Biotechnol.*, **24**, 359 (1974).
6. Ambrose, D., Ellender, J. H., Sprake, C. H. S., Townsend, R., "Thermodynamic Properties of Organic Oxygen Compounds. XLV. The Vapour Pressure of Acetic Acid," *J. Chem. Thermo.*, **9**, 735 (1977).
7. Ambrose, D., Townsend, R., "Vapor-Liquid Critical Properties," National Physics Laboratory, Middlesex, United Kingdom (1977).
8. American Institute of Chemical Engineers, *Dow's Fire and Explosion Index-Hazard Classification Guide*, 5th ed., New York, NY (1981).
9. American Petroleum Institute Research Project 42, "Properties of Hydrocarbons of Higher Molecular Weight," American Petroleum Institute, New York (1966).
10. American Petroleum Institute, API Monograph Series, *Acenaphthalene, Acenaphthene, Flourene, and Flouranthene*, API Publication 715, Washington, D.C. (January 1981).
11. American Petroleum Institute, API Monograph Series, *Anthracene and Phenanthrene*, API Publication 708, Washington, D.C. (January 1979).
12. American Petroleum Institute, API Monograph Series, *Benzofuran, Dibenzofuran, and Benzonaphthofurans*, API Publication 721, Washington, D.C. (November 1983).
13. American Petroleum Institute, API Monograph Series, *Carbazole, 9-Methylcarbazole, and Acridine*, API Publication 716, Washington, D.C. (June 1981).
14. American Petroleum Institute, API Monograph Series, *Cis- and trans-Decalin*, API Publication 706, Washington, D.C. (October 1978).
15. American Petroleum Institute, API Monograph Series, *Four-Ring Condensed Aromatic Compounds*, API Publication 709, Washington, D.C., (March 1979).
16. American Petroleum Institute, API Monograph Series, *Indan and Indene*, API Publication 714, Washington, D.C. (April 1980).
17. American Petroleum Institute, API Monograph Series, *Indole*, API Publication 719, Washington, D.C. (April 1982).
18. American Petroleum Institute, API Monograph Series, *Naphthalene*, API Publication 707, Washington, D.C. (October 1978).
19. American Petroleum Institute, API Monograph Series, *Pyridine and Phenylpyridine*, API Publication 710, Washington, D.C. (July 1979).
20. American Petroleum Institute, API Monograph Series, *Quinoline*, API Publication 711, (December 1979).
21. American Petroleum Institute, API Monograph Series, *Tetralin*, API Publication 705, Washington, D.C. (October 1978).
22. American Society of Mechanical Engineers, *ASME Orientation and Guide for Use of SI (Metric) Units*, ASME Guide SI-1, Eighth Edition, United Engineering Center, New York (March 1978).
23. American Society of Mechanical Engineers, *ASME Text Booklet: SI Units in Thermodynamics*, ASME SI-4, First Edition, United Engineering Center, New York (November 1976).
24. An, Xu-Wu, Mansson, M., "Enthalpies of Combustion and Formation of Acetonitrile," *J. Chem. Thermo.*, **15**, 287 (1983).
25. Andon, R., Counsell, J., Martin, F., "Thermodynamic Properties of Organic Oxygen Compounds. Part II. Thermodynamic Properties from 10 to 330 K of Isopropyl Alcohol," *Trans. Faraday Soc.*, **59**, 1955 (1963).
26. Andon, R. J. L., Biddiscombe, D. P., Cox, J. D., Handley, R., Harrop, D., Herington, E. F. G., Martin, J. F., "Thermodynamic Properties of Organic Oxygen Compounds. Part I. Preparation and Physical Properties of Pure Phenol, Cresols, and Xylenols," *J. Chem. Soc.*, 5246 (1960).
27. Andon, R. J. L., Counsell, J. F., Lee, D. A., Martin, J. F., "Thermodynamic Properties of Aliphatic Halogen Compounds," *J. Chem. Soc., Faraday Trans.*, **69**, 1721 (1973).
28. Andon, R. J. L., Martin, J. F., "Thermodynamic Properties of Organic Oxygen Compounds. 40. Heat Capacity and Entropy of Six Ethers," *J. Chem. Thermo.*, **7**, 593 (1975).
29. Aston, J. G., Mastrangelo, S. V. R., Moessen, G. W., "The Thermodynamics of 1-Butyne from Calorimetric and Spectroscopic Data," *J. Am. Chem. Soc.*, **72**, 5287 (1950).
30. Bailey, W. J., "Butadiene" in "Vinyl and Diene Monomers," Vol 24, Part 2, edited by E. C. Leonard, Wiley-Interscience, New York, (1971).
31. Barin, I., Knacke, O., *Thermochemical Properties of Inorganic Substances*, Springer-Verlag, Berlin (1973).
32. Blair, A., Ihle, H., "The Thermal Composition and Thermodynamic Properties of Uranium Pentabromide," *J. Inorg. Nucl. Chem.* **3795** (1973).
33. Bondi, A., "Physical Properties of Molecular Crystals, Liquids, and Glasses," John Wiley, New York (1968).
34. Boublik, T., Fried, V., Hola, E., *The Vapour Pressure of Pure Substances*, Elsevier, New York (1973).
35. Brown, C., Berger, A. W., Hersh, C. K., "Solid Ozone," *J. Chem. Phys.*, **22**, 1151 (1954).
36. Buckles, R., Wheeler, N. G., "cis-Stilbene," *Org. Synth. Coll.*, **4**, 857 (1963).
37. Burwell, R. L., Langford, C. H., "Solvent Characteristics of Tetramethylene Sulfane," *J. Am. Chem. Soc.*, **81**, 3799 (1959).
38. BASF Wyandotte Corporation, "Tetrahydrofuran," (technical data) Parsippany, New Jersey (1976).
39. Cervenkova, I., Boublik, T., "Vapor Pressures, Refractive Indexes, and Densities at 20.0 C, and Vapor-Liquid Equilibrium at 101.325 kPa, in the tert-Amyl Methyl Ether-Methanol System," *J. Chem. Eng. Data*, **29**, 425 (1984).
40. Chang, S. S., Bestul, A. B., "Heat Capacity and Thermodynamic Properties of o-Terphenyl Crystal, Glass, and Liquid," *J. Chem. Phys.*, **56**, (1) 503 (1972).
41. Chao, K. C., Seader, J. D., "A General Correlation of Vapor-Liquid Equilibria in Hydrocarbon Mixtures," *AIChE J.*, **7**, 598 (1961).

42. Chen, S. S., Wilhoit, R. C., Zwolinsky, B. J., "Thermodynamic Properties of Normal and Deuterated Methanols," *J. Phys. Chem. Ref. Data*, **6**, (1) 105 (1977).
43. Cheng, D., "Critical Temperatures and Volumes of Some Binary Systems," *Chem. Eng. Sci.*, **18**, 715 (1963).
44. Clever, H. L., Westrum, E. F. Jr., "Dimethyl Sulfide and Dimethyl Sulfone. Heat Capacities, Enthalpies of Fusion, and Thermodynamic Properties," *J. Phys. Chem.*, **74**, 1309 (1970).
45. Coward, H. F., Jones, G. W., "Limits of Flammability of Gases and Vapors," Bureau of Mines Bulletin 503 (1952).
46. Cox, J. D., Pilcher, G., *Thermochemistry of Organic and Organometallic Compounds*, Academic Press, New York (1970).
47. Curme, G. O. J., editor, "Glycols," Reinhold Publishing Corporation, New York (1952).
48. CODATA Task Group, "CODATA Recommended Key Values for Thermodynamics, 1977," *J. Chem. Thermo.*, **10**, 903 (1978).
49. Danner, R. P., Daubert, T. E., *Manual for Predicting Chemical Process Design Data*, 1st edition, 600 pages, American Institute of Engineers, New York, NY (1983-1986 in sections).
50. Daubert, T. E., Danner, R. P., *Data Compilation: Tables of Properties of Pure Compounds*, American Institute of Chemical Engineers, New York (1985-1988 in sections).
51. Daubert, T. E., Danner, R. P., *Technical Data Book—Petroleum Refining, 4th Edition*, 1000+ pages, American Petroleum Institute, Washington, D.C., (1982).
- 51A. Daubert, T. E., Jalowka, J. W., Goren, V., CEP Symposium Series 83(256), p. 128 (1987).
52. Davies, P., "Ammonia," edited by F. Din, pp. 33-100, Butterworth Scientific Publications, London (1956).
53. Delafontaine, J., Sabbah, R., Lafitte, M., "Micro-Calorimetric Measurements of Enthalpies of Formation (in the condensed state) of Volatile Compounds," *Zert fur Phys. Chem. Neise Folge*, **84**, 157 (1973).
54. Diamond Shamrock, *Caustic Soda Handbook*, Diamond Corporation, Cleveland, Ohio (1977).
55. Domalski, E. S., Selected Values of Heats of Formation of Organic Compounds Containing the Elements C, H, N, O, P, and S," *J. Phys. Chem. Ref. Data* **1**, (2) 221 (1972).
56. Douslin, D. R., Huffman, H. M., "Low-Temperature Thermal Data on the Five Isomeric Hexanes," *J. Am. Chem. Soc.*, **68**, 1074 (1946).
57. Dow Chemical Company, "Organic Chemicals. The Glycols," Midland, Michigan (1974).
58. Dow Chemical Company, "Organic Chemicals. The Glycols," Midland, Michigan (1973).
59. Dow Chemical Company, "The Alkanolamines Handbook," Midland, Michigan (1981).
60. Dow Chemical Company, "Dicyclopentadiene Concentrate," Freeport, Texas, (1979).
61. Draeger J. A., Scott, D. W., "Ideal Gas Thermodynamic Properties of 1,4-Dimethylbenzene," *J. Chem. Phys.*, **74**, (8) 4748 (1981).
62. Dreisbach, R. R., "Physical Properties of Chemical Compounds," Advances in Chemistry Series, American Chemical Society (1955).
63. DuPont Product Information, "Dimethyl Formamide," Grosselli Chemicals Department, E. I. DuPont de Nemours, Wilmington, Delaware (1954).
64. Du Pont, "Freon Products," E. I. DuPont de Nemours & Co., Inc., Freon Products Division, Wilmington, Delaware (1969).
65. Eastman Coatings Chemicals, "Isopropyl Acetate," Publication No. M-144C, Eastman Chemical Products, Inc., Kingsport, Tennessee (1978).
66. Eastman Industrial Chemicals, "Isobutyric Acid," Publication No. A-104, Eastman Chemical Products, Inc., Kingsport, Tennessee (1976).
67. Eastman Coatings Chemicals, "Propionaldehyde," Publication No. C-103A, Eastman Chemical Products, Inc., Kingsport, Tennessee (1977).
68. Egloff, G., *Physical Constants of Hydrocarbons*, Reinhold Publishing Corp., New York (1939-1947).
69. Evans, T. W., Edlund, K. R., "Tertiary Alkyl Ethers. Preparation and Properties," *Ind. Eng. Chem.*, **28**, (10) 1186 (1936).
70. Exxon Chemical Company, "Methyl Isobutyl Ketone," ChE-76-1693, Houston, Texas (1976).
71. Fedors, R. F., "A Method to Estimate Critical Volumes," *AIChE J.*, **25**, 202 (1979).
72. Ferry, J. D., Thomas, S. B., "Some Heat Capacity Data for Durene, Pentamethylbenzene, Stilbene, and Dibenzyl," *J. Phys. Chem.*, **37**, 253 (1957).
73. Finke, H. L., Messerly, J. F., "3-Methylpentane and 3-Methylheptane: Low Temperature Thermodynamic Properties," *J. Chem. Thermo.*, **5**, 249 (1973).
74. Finke, H. L., Messerly, J. F., Douslin, D. R., "Low-Temperature Thermal Quantities for Five Alkyl-Substituted Pentanes," *J. Chem. Thermo.*, **8**, 965 (1976).
75. Finke, H. L., Messerly, J. F., Lee, S. H., Osborn, A. G., Douslin, D. R., "Comprehensive Thermodynamic Studies of Seven Aromatic Hydrocarbons," *J. Chem. Thermo.*, **9**, 937 (1977).
76. Finke, H. L., Messerly, J. F., Todd, S. S., "Thermodynamic Properties of Acrylonitrile, 1-Aminopropane, 2-Aminopropane, and 2-Methyl-2-Aminopropane," *J. Chem. Thermo.*, **4**, 359 (1972).
77. Finke, H. L., Scott, D. W., Gross, M. E., Waddington, G., Huffman, H. M., "The Entropy and Vapor Pressure of 1-Pentanethiol," *J. Am. Chem. Soc.*, **74**, 2804 (1952).
78. Forman, J. C., Thodos, G., "Critical Temperatures and Pressures of Organic Compounds," *AIChE J.*, **6**, 206 (1960).
79. Francis, A. W., Refractive Indices of Liquefied Gases," *J. Chem. Eng. Data*, **5**, (4) 534 (1960).
80. Friz, G., Vossen, H., "Density and Surface Tension Measurements of Pure Polyphenyls and Some Polyphenyl Mixtures," Joint Nuclear Research Center, ISPRA Establishments, Italy AEC, EUR-165.E, 1 (1963).
81. Gallant, R. W., *Physical Properties of Hydrocarbons*, Gulf Publishing Co. (Vol 1, 1968; Vol. 2, 1970).
82. Gas Processors Association, "Standard Tables of Physical Constants of Paraffin Hydrocarbons and Other Components of Natural Gas," Publication No. 2145-86, Tulsa, Oklahoma, (1986).
- 82A. Gas Processors Suppliers Association, "Engineering Data Book," Tulsa, Oklahoma (1987).
83. Geller, Z. I., Rastorguev, Yu. L., Ganiev, Yu. A., "Thermal Conductivity of Selected Solvents," *Izv. vyssh. ucheb. Zaved. Neft'i Gaz.*, **8** (6) 79 (1965).
84. Giaque, W. F., Kemp, J. D., "The Entropies of Nitrogen Tetroxide and Nitrogen Dioxide. The Heat Capacity from 15 K to the Boiling Point. The Heat of Vaporization and Vapor Pressure. The Equilibria $N_2O_4 = 2NO_2 = 2NO + O_2$," *J. Chem. Phys.*, **6**, 40 (1938).

85. Giauque, W. F., Powell, T. M., "Chlorine. The Heat Capacity, Vapor Pressure, Heats of Fusion and Vaporization, and Entropy," *J. Am. Chem. Soc.*, **61**, 1970 (1939).
86. Goodwin, R. D., "Hydrogen Sulfide Provisional Thermophysical Properties from 188 to 700 K at Pressures to 75 MPa," National Bureau of Standards, SBSIR83-1694, Chemical Engineering Science Division, National Engineering Laboratory, Boulder, Colorado (October 1983).
87. Grace and Co., *Physical and Thermodynamics Properties Report*, Memphis, Tennessee (1980).
88. Gray, D. E., *American Institute of Physics Handbook*, 3rd ed., McGraw-Hill, New York (1972).
89. GAF Corporation *M-Pyrol Handbook*, New York (1972).
90. Haar, L., Gallagher, J. S., Kell, G. S., "NBS/NRC Steam Tables Thermodynamic and Transport Properties and Computer Programs for Vapor and Liquid State of Water in SI Units," Hemisphere Publishing Corporation, Washington (1984).
91. Haines, W. E., Helm, R. V., Bailey, C. W., Ball, J. S., "Purification and Properties of Ten Organic Sulfur Compounds," *J. Phys. Chem.*, **58**, 270 (1954).
92. Hanley, H. J. M., Prydz, R., "The Viscosity and Thermal Conductivity Coefficients of Gaseous and Liquid Fluorine," *J. Phys. Ref. Data*, **1**, (4) 1101 (1972).
93. Heisig, G. B., Action of Radon on Some Unsaturated Hydrocarbons. III. Vinylacetylene and Butadiene," *J. Am. Chem. Soc.*, **55**, 2304 (1933).
94. Helm, R. V., Lanum, W. J., Cook, G. J., Ball, J. S., "Purification and Properties of Pyrrole, Pyrrolidine, Pyridine, and 2-Methylpyridine," *J. Phys. Chem.*, **62**, 858 (1958).
95. Hercules, Inc., "Hazards Evaluation and Risk Control Services," Bulletin HE-109A, Cumberland, Maryland (October 1982).
96. Herz, W., "Beziehungen der Spezifischen Warmen Von Flussigkeiten," *Z. Anorg. Chem.*, **125**, 295 (1923).
97. Hexagon Laboratories, Inc., "Dimethyl Ketone," (Data Sheet), Bronx, New York (1980).
98. Hildebrand, D. L., McDonald, R. A., "The Heat of Vaporization and Vapor Pressure of Carbon Tetrachloride: The Entropy from Calorimetric Data," *J. Phys. Chem.*, **63**, 1521 (1959).
99. Horvath, A. L., *Physical Properties of Inorganic Compounds*, Crane Russak, New York (1975).
100. Hu, J. H., White, D., Johnston, H. L., "The Heat Capacity, Heat of Fusion and Heat of Vaporization of Hydrogen Fluoride," *J. Am. Chem. Soc.*, **75**, 1232 (1953).
101. Huffman, H. M., Eaton, M., Oliver, G. D., "The Heat Capacities, Heats of Transition, Heats of Fusion and Entropies of Cyclopentene and Cyclohexene," *J. Am. Chem. Soc.*, **70**, 2911 (1948).
102. IUPAC, "Atomic Weights of the Elements-1985," *Pure Appl. Chem.*, **58**, 1677 (1986).
103. IUPAC, "International Thermodynamic Tables of the Fluid State—Argon," edited by S. Angus and B. Armstrong, Butterworths, London (1971).
104. IUPAC, "International Thermodynamic Tables of the Fluid State—Carbon Dioxide," edited by S. Angus, B. Armstrong, and K. M. deReuck, Pergamon Press, New York (1976).
105. JANAF Thermochemical Tables, 1974 Supplement, *J. Phys. Chem. Ref. Data*, **3**, (2) 311 (1974).
106. JANAF Thermochemical Tables, 1982 Supplement, *J. Phys. Chem. Ref. Data*, **11**, (3) 695 (1982).
107. Kaye, G. W. C., Laby, T. H., *Tables of Physical and Chemical Constants*, 14th ed., Longman Group, Limited, London (1973).
108. Keenan, J. H., Keyes, F. G., *Steam Tables*, S. I., Wiley, New York (1978).
109. Kelley, K. E., "The Heat Capacity of Methyl Alcohol from 16K to 298K and the Corresponding Entropy and Free Energy," *J. Am. Chem. Soc.*, **51**, 180 (1929).
110. Kirk-Othmer *Encyclopedia of Chemical Technology*, 3rd ed., Interscience, New York (1978).
111. Kirk-Othmer, *Encyclopedia of Chemical Technology*, 2nd ed., (22 Vols. + Suppl.), Interscience, New York (1966).
112. Kobe, A. K., Ravicz, A. E., Vohra, S. P., "Critical Properties and Vapor Pressures of Some Ethers and Heterocyclic Compounds," *J. Chem. Eng. Data*, **1**, (1) 50 (1956).
113. Kobe, K. A., Long, E. G., Thermochemistry of the Petrochemical Industry," *Petroleum Refiner*, **28**, (10) 133 (1949).
114. Kobe, K. A., Lynn, R. E., Jr., "The Critical Properties of Elements and Compounds," *Chem. Rev.*, **52**, 117 (1953).
115. Kobe, K. A., Matthews, J. F., "Critical Properties and Vapor Pressures of Some Organic Nitrogen and Oxygen Compounds," *J. Chem. Eng. Data*, **15**, (1) 182 (1970).
116. Kohl, A. L., Riesenfeld, F. L., *Gas Purification*, 4th ed., Gulf Publishing Co., book division, Houston, Texas (1985).
117. Kondo, H., Wanatabe, K., Tanishita, I., "Equations of State for Several Fluorocarbon Refrigerants," *Bull USME*, **17**, (108) 776 (1974).
118. Koppers Industrial Chemicals, "Refined Quinoline," Technical Data Sheet, Koppers, Inc., Pittsburgh, PA (1980).
119. Kudchadker, A. P., Alani, G. H., Zwolinski, B. J., "The Critical Constants of Organic Substances," *Chem. Rev.*, **68**, (6) 659 (1968).
120. Kudchadker, A. P., Kudchadker, S. A., Wilhoit, R. C., "Key Chemicals Data Books—Cresols," Thermodynamics Research Center, Texas Engineering Experiment Station, Texas A&M University, College Station, Texas (1984).
121. Kudchadker, A. P., Kudchadker, S. A., Wilhoit, R. C., "Key Chemicals Data Books—Furan, Dihydrofuran, Tetrahydrofuran," Thermodynamics Research Center, Texas Engineering Experiment Station, Texas A&M University, College Station, Texas (1984).
122. Kudchadker, A. P., Kudchadker, S. A., Wilhoit, R. C., "Key Chemicals Data Books—Phenol," Thermodynamics Research Center, Texas Engineering Experiment Station, Texas A&M University, College Station, Texas (1977).
123. Kudchadker, S. A., Goyal, H. B., Kudchadker, A. P., "Thermodynamic Properties of Oxygen Compounds. I. Vinyl Acetate," *Thermochemica Acta*, **11**, 361 (1975).
124. Kudchadker, S. A., Kudchadker, A. P., "Thermodynamic Properties of Oxygen Compounds. III. Benzaldehyde and Furfural (2-Furaldehyde)," *Thermochemica Acta*, **12**, 432 (1975).
125. Kudchadker, S. A., Kudchadker, A. P., Wilhoit, R. C., Zwolinski, B. J., "Ideal Gas Thermodynamic Properties of Phenols and Cresols," *J. Phys. Chem. Ref. Data*, **7**, (2) 417 (1978).
126. Lange, N. A., "Handbook of Chemistry," 11th ed., McGraw-Hill, New York (1973).
127. Lawrenson, I. J., Lee, D. A., "Thermodynamic Properties of Organic Oxygen Compounds. XLVIII. The Critical

Temperatures of Some Alkanols," *J. Chem. Thermo.*, **10**, 1111 (1978).

128. Lelmezs, J., Aleman, H., "Ideal Gas State Thermodynamic Functions for a Series of Halogenated Propenes," *Thermochim. Acta*, **10**, (4) 333 (1974).

129. Li, J. C. M., Pitzer, K. S., "The Thermodynamic Properties of 1,1-Dichloroethane: Heat Capacities from 14 to 294 K, Heats of Fusion and Vaporization, Vapor Pressure and Entropy of the Ideal Gas. The Barrier to Internal Rotation," *J. Am. Chem. Soc.*, **78**, (6) 1077 (1956).

130. Lydersen, A. L., "Estimation of Critical Properties of Organic Compounds," University of Wisconsin Coll. Eng. Exp. Stn. Rep. 3, Madison Wis., (April 1955).

131. Mackle, H., O'Hare, P. A. G., "Thermodynamic Properties of Dimethyl Sulfoxide and Dimethyl Sulphone," *Trans. Faraday Soc.*, **58**, 1912 (1962).

132. Mandel, H., "Heavy Water Organic Cooled Reactor. Melting Points, Transition Energies, and Specific Heats of Polyphenol Reactor Coolants," AEC AI-CE-58 Atomic International, Canoga Park, California (1967).

133. Martin, J. F., Andon, R. J. L., "Thermodynamic Properties of Organic Oxygen Compounds. Part LII. Molar Heat Capacity of Ethanoic, Propanoic, and Butanoic Acids," *J. Chem. Thermodynamics*, **14**, 679 (1982).

134. Matheson Company, Inc., *Matheson Gas Data Book*, unabridged ed., 4 vols, East Rutherford, New Jersey (1974).

135. Matheson Company, Inc., *Matheson Gas Data Book*, 3rd. ed., East Rutherford, New Jersey (1961).

136. Matheson Company, Inc., *Matheson Gas Data Book*, 6th ed., Lyndhurst, New Jersey (1980).

137. Mathews, J. F., "The Critical Constants of Inorganic Substances," *Chem. Rev.*, **72**, (1) 71 (1972).

138. McCullough, J. P., Douslin, D. R., Messerly, J. F., Hossenlopp, I. A., Kincheloe, T. C., Waddington, G., "Pyridine: Experimental and Calculated Chemical Thermodynamic Properties Between 0 and 1500 K; A Revised Vibrational Assignment," *J. Am. Chem. Soc.*, **79**, 4289 (1957).

139. McCullough, J. P., Finke, H. L., Gross, M. E., Messerly, J. F., Waddington, G., "Low Temperature Calorimetric Studies of Seven 1-Olefins: Effect of Orientational Disorder in the Solid State," *J. Phys. Chem.*, **61**, 289 (1957).

140. McCullough, J. P., Finke, H. L., Messerly, J. F., Todd, S. S., Kincheloe, T. C., Waddington, G., "The Low-Temperature Thermodynamic Properties of Naphthalene, 1-Methylnaphthalene, 2-Methylnaphthalene, 1,3,4-Tetrahydronaphthalene, trans-Decahydronaphthalene and cis-Decahydronaphthalene," *J. Phys. Chem.*, **1105** (1957).

141. McCullough, J. P., Scott, D. W., Finke, H. L., Hubbard, W. N., Gross, M. E., Katz, C., "The Thermodynamic Properties of 2-Methyl-2-Propanethiol from 0 to 1000K," *J. Am. Chem. Soc.*, **75**, 1818 (1953).

142. Messerly, J. F., Todd, S. S., Finke, H. L., "Low-Temperature Thermodynamic Properties of n-Propyl- and n-Butylbenzene," *J. Phys. Chem.*, **69**, 12 (1965).

143. Messerly, J. F., Todd, S. S., Guthrie, G. B., "Chemical Thermodynamic Properties of Pentadienes," *J. Chem. Eng. Data*, **15**, (2) 227 (1970).

144. Minadakis, C., Sabbah, R., "Thermodynamics of Nitrogen Compounds. VIII. Thermochemical Study of Diethanolamine and Triethanolamine," *Thermochim. Acta*, **55**, (2) 147 (1982).

145. Monsanto Chemical Intermediates Company, "t-Butylamine," (data sheets) St. Louis, Missouri. (1982).

146. Mumford, S. A., Phillips, J. W. C., "The Physical Properties of Some Aliphatic Compounds," *J. Chem. Soc.*, **75**, (1950).

147. National Bureau of Standards (U.S.), *CODATA Bulletin*, No. **63**, (1986).

148. National Fire Protection Association, *Fire Protection Guide on Hazardous Materials*, 7th ed., Boston, Massachusetts (1978).

149. Neilson, E. F., White, D., "The Heat Capacity, Heat of Fusion, Heat of Transition, and Heat of Vaporization of Chlorodifluoromethane between 16 K and the Boiling Point," *J. Am. Chem. Soc.*, **79**, 5618 (1972).

150. Nokay, R., "Estimated Petrochemical Properties," *Chem. Engr.*, **66**, (4) 147 (1959).

151. O'Rourke, D. F., Mraw, S. C., "Heat Capacities and Enthalpies of Fusion of Dibenzothiophene (220 to 560K) and of Biphenyl, Cyclohexylbenzene, and Cyclohexylcyclohexane (220 to 475K). Enthalpies and Temperatures of Three Transitions in Solid Cyclohexylcyclohexane," *J. Chem. Thermo.*, **15**, 489 (1983).

152. Oetting, F. L., "Absolute Entropies of the Methyl Alkyl Ketones at 298.15 K," *J. Chem. Eng. Data*, **10**, 122 (1965).

153. Ogata, Y., Tsuchida, M., "Linear Boiling Point Relations," *Ind. Eng. Chem.*, **49**, 415 (1957).

154. Pak, S. C., Kay, W. B., "The Critical Properties of Binary Hydrocarbon Systems," *Ind. Eng. Chem. Fundam.*, **11**, (2) 255 (1972).

155. Palczewska-Tulinska, M., Cholinski, J., Szafranski, A. M., Wyrzykowska-Stankiewicz, D., "Experimental Vapor Pressures and Maximum Likelihood Antoine—Equation Constants for 1,1,1-Methoxydimethylpropane, Thiacyclopentane and 1,4-Butanediol," *Fluid Phase Equilibrium*, **15**, 295, (1984).

156. Parks, G. S., Huffman, H. M., "Some Fusion and Transition Data for Hydrocarbons," *Ind. Eng. Chem.*, **23**, (10) 1138 (1931).

157. Parks, G. S., Huffman, H. M., "Thermal Data on Organic Compounds. IX. A Study of the Effect of Unsaturation on the Heat Capacities, Entropies and Free Energies of Some Hydrocarbons and Other Compounds," *J. Am. Chem. Soc.*, **52**, 4381 (1930).

158. Parks, G. S., Huffman, H. M., Barmore, M., "Thermal Data on Organic Compounds. XI. The Heat Capacities, Entropies and Free Energies of Ten Compounds Containing Oxygen or Nitrogen," *J. Am. Chem. Soc.*, **55**, 2733 (1933).

159. Parks, G. S., Kelley, K. K., "Thermal Data on Organic Compounds. II. The Heat Capacities of Five Organic Compounds. The Entropies and Free Energies of Some Homologous Series of Aliphatic Compounds," *J. Am. Chem. Soc.*, **47**, 2089 (1925).

160. Parks, G. S., Todd, S. S., Shomate, C. H., "Thermal Data on Organic Compounds. XVII. Some Heat Capacity, Entropy and Free Energy Data for Five Higher Olefins," *J. Am. Chem. Soc.*, **58**, 2505 (1936).

161. Pedley, J. B., Rylance, J., "Sussex—N.P.L. Computer Analysed Thermochemical Data," University of Sussex, Brighton, England (1977).

162. Petro-Tex Chemical Corp., "Methyl tert-Butyl Ether," (Material Safety Data Sheet), Houston, Texas (1979).

163. Phillips Chemical Company, "Ethyl Mercaptan," (technical data sheet) Borger, Texas. (September 1979).

164. Pitzer, K. S., Guttman, L., Westrum, E. F., Jr., "The Heat Capacity, Heats of Fusion and Vaporization, Vapor

Pressure, Entropy, Vibrational Frequencies and Barrier to Internal Rotation of Styrene," *J. Am. Chem. Soc.*, **68**, 2209 (1946).

165. Pollock, J. R. A., Stevens, R., *Dictionary of Organic Compounds*, Oxford University Press, New York (1965).

166. Prasad, B., "Viscosity of Liquids, Their Boiling Points and Critical Temperatures," *J. Ind. Chem. Soc.*, **10**, 135 (1933).

167. Prausnitz, J. M., Shair, F. H., "A Thermodynamic Correlation of Gas Solubilities," *AIChE J.*, **7**, 682 (1961).

168. Putnam, W. E., McEachern, D. M., Kilpatrick, J. E., "Entropy and Related Thermodynamic Properties of Acetonitrile (Methyl Cyanide)," *J. Chem. Phys.*, **42**, (2) 749 (1965).

169. Reid, R. C., Prausnitz, J. M., Sherwood, T. K., *The Properties of Gases and Liquids*, 3rd ed. McGraw-Hill, New York (1977).

170. Rhodes, Clyde L., II, "A Computer Algorithm to Perform Chemical Structure Analysis for Group Contribution Calculations," M. S. Thesis, The Pennsylvania State University, University Park, Pennsylvania (1984).

171. Riddick, J. A., Bunger, W. B., *Organic Solvents: Physical Properties and Methods of Purification* 3rd ed., Wiley Interscience, New York (1970).

172. Riedel, L., "Kritischer Koeffizienten, Dichte des gesättigten Dampfes und Verdampfungswärme," *Chem. Ingr.-Tech.*, **26**, 679 (1954).

173. Rinkenbach, W. H., "Properties of Diethylene Glycol," *Ind. Eng. Chem.*, **19**, 474 (1927).

174. Robinson, D. B., Senturk, N. H., "The Density and Refractive Index of Carbonyl Sulfide," *J. Chem. Thermo.*, **11**, 875 (1979).

175. Robinson, D. B., Senturk, N. H., "The Vapour Pressure and Critical Properties of Carbonyl Sulfide," *J. Chem. Thermo.*, **11**, 461 (1979).

176. Rossini, F. D., Wagman, D. D., Evans, W. H., Levine, S., Jaffe, I., *Selected Values of Chemical Thermodynamic Properties*, National Bureau of Standards Circular No. 500, Washington, D.C. (1952).

177. Sax, N. I., *Dangerous Properties of Industrial Materials*, 5th ed., VanNostrand Reinhold Company, New York (1979).

178. Sax, N. I., *Dangerous Properties of Industrial Materials*, 6th ed., Van Nostrand Reinhold Company, New York (1984).

179. Schildknecht, C. E., *Vinyl and Related Polymers: Their Preparation, Properties, and Applications, in Rubbers, Plastics, Fibers, and in Medical and Industrial Arts*, John Wiley and Sons, New York (1952).

180. Seaton, W. H., Freedman, E., Treweek, D. N., "CHETAH—The ASTM Chemical Thermodynamic and Energy Release Evaluation Program, ASTM DS 51," American Society for Testing and Materials (1974).

181. *Selected Values of Hydrocarbons and Related Compounds*, Thermodynamic Research Center, American Petroleum Institute Research Project 44, Texas A&M University, College Station, Texas (1980).

182. *Selected Values of Properties of Chemical Compounds*, Thermodynamic Research Center, Data Project, Texas A&M University, College Station, Texas (1980).

183. *Selected Values of Properties of Chemical Compounds*, Thermodynamic Research Center, Data Project, Texas A&M University, College Station, Texas (1981).

184. *Selected Values of Properties of Chemical Compounds*,

Thermodynamic Research Center, Data Project, Texas A&M University, College Station, Texas (1982).

185. *Selected Values of Properties of Chemical Compounds*, Thermodynamic Research Center, Data Project, Texas A&M University, College Station, Texas (1983).

186. *Selected Values of Properties of Hydrocarbons and Related Compounds*, Thermodynamic Research Center, Thermodynamic Research Center Hydrocarbon Project, Texas A&M University, College Station, Texas (1982).

187. *Selected Values of Properties of Hydrocarbons and Related Compounds*, Thermodynamic Research Center, Thermodynamic Research Center Hydrocarbon Project, Texas A&M University, College Station, Texas (1983).

188. *Selected Values of Properties of Hydrocarbons and Related Compounds*, Thermodynamic Research Center, Thermodynamic Research Center Hydrocarbon Project, Texas A&M University, College Station, Texas (1984).

189. *Selected Values of Properties of Hydrocarbons and Related Compounds*, Thermodynamic Research Center, Thermodynamic Research Center Hydrocarbon Project, Texas A&M University, College Station, Texas (1986).

190. Serijan, K. T., Wise, P. H., "Dicyclic Hydrocarbons. III. Diphenyl- and Dicycloalkanes Through C15," *J. Am. Chem. Soc.*, **73**, 4766 (1951).

191. Shebeko, Yu. N., Ivanov, A. V., Dmitrieva, T. M., "Methods of Calculation of Lower Concentration Limits of Combustion of Gases and Vapors in Air," *The Soviet Chemical Industry*, **15**, (3) 311 (1983).

192. Shell Technical Bulletin IC:71-20, Shell Chemical Company, (October 1971).

193. Shelton, L. G., Hamilton, D. E., Fisackerly, R. H., *Vinyl and Vinylidene Chlorine in Vinyl and Diene Monomers, Part 3*, edited by E. Leonard, Wiley-Interscience, New York (1971).

194. Sivaram, A., Kobayashi, R., "Investigation of Vapor Pressure and Heats of Vaporization of Condensed Aromatic Compounds at Elevated Temperatures," *J. Chem. Eng. Data*, **27**, 264 (1982).

195. Smith, J. H., Pace, E. L., "The Thermodynamic Properties of Carbon Tetrafluoride from 12 K to Its Boiling Point. The Significance of the Parameter," *J. Phys. Chem.*, **73**, 4232 (1969).

196. Smith, N. K., Stewart, R. C., Osborn, A. G., Scott, D. W., "Pyrene: Vapor Pressure, Enthalpy of Combustion, and Chemical Thermodynamic Properties," *J. Chem. Thermo.*, **12**, 919 (1980).

197. Smith, O., "Optical Properties of Substances at the Critical Point," *Proc. Royal Soc.*, **87A**, 366 (1912).

198. Smith, T. O., Fabuss, B. M., Belenyessy, L. I., Cornell, J. H., Driscall, J. S., Fabuss, M. A., Yudzinowicz, B. J., Kafesjian, R., Wurster, C. F., Jr., "Evaluation of Hydrocarbons for High Temperature Jet Fuels. Fuel Evaluation and Property Correlation. Vol. 2. Hydrocarbon Properties," Wright Air Development Center, Technical Report 59-327 (1962).

199. Steere, N. V., *Handbook of Laboratory Safety*, 2nd ed., CRC Press Inc., Boca Raton, Florida (1982).

200. Streng, A. G., "Tables of Ozone Properties," *J. Chem. Eng. Data*, **6**, (3) 43 (1961).

201. Stuckey, J. E., Secoy, C. H., "Critical Temperatures and Densities of the SO₃-H₂O System," *J. Chem. Eng. Data*, **8**, (3) 387 (1963).

202. Stull, D. R., "Vapor Pressure of Pure Substances," *Ind. Eng. Chem.*, **39**, 517 (1947).

203. Stull, D. R., *JANAF Thermochemical Tables*, 2nd ed., NSRDS-NBS 37, U.S. Department of Commerce, Washington, D.C. (1971).
204. Stull, D. R., Westrum, E. F., Jr, Sinke, G. C., *The Chemical Thermodynamics of Organic Compounds*, John Wiley and Sons, New York (1969).
205. Tauscher, W. A., "Correlation for Gas Thermal Conductivity of Halogenated Methanes," *AIChE.*, **17**, (6) 1511 (1971).
206. Timmermans, J., *Physico-Chemical Constants of Pure Organic Substances* (2 vols.), 2nd ed., Elsevier, New York (1965).
207. Toczylkin, L. S., Young, C. L., "Gas-Liquid Critical Temperatures of Mixtures Containing Electron Donors. II. Amine Mixtures," *J. Chem. Thermo.*, **12**, 365 (1980).
208. Touloukian, Y. S., Ho, C. Y., ed., *Properties of Non-metallic Fluid Elements*, McGraw-Hill Book Co., New York (1981).
209. Tryon, G. H., "Fire Protection Handbook", 12th ed., National Fire Protection Association, Boston, Massachusetts (1962).
210. *TRC Thermodynamic Tables—Non-Hydrocarbons*, Thermodynamic Research Center, The Texas A&M University System, College Station, Texas (1985).
211. Union Camp Terpene Products Data, "beta-Pinene-90," Union Camp Corporation, Jacksonville, Florida (March 1982).
212. USS Chemicals Material Safety Data Sheet, (1972).
213. Valentine, R. H., et. al., "Trifluoromethane: Entropy, Low Temperature Heat Capacity, Heats of Fusion and Vaporization, and Vapor Pressure," *J. Phys. Chem.*, **66**, 392 (1962).
214. Vargaftik, N. B., *Tables on the Thermophysical Properties of Liquids and Gases*, 2nd ed., Halsted Press, New York, (1975).
215. Virginia Chemicals, "Physical Properties of Amines," Bucks, Alabama (1979).
216. VonSteiger, A. L., "Die Energie der Atombindungen in Graphit und in den Aromatischen Kohlenwasserstoffen," *Berichte der Chemischen Gesellschaft*, **53**, 666 (1920).
217. Wagman, D. D., Evans, W. H., Parker, V. B., Halow, I., Bailey, S. M., Schumm, R. H., *Selected Values of Chemical Thermodynamic Properties*, National Bureau of Standards Technical Note 270-3, Washington, D.C. (1968).
218. Washburn, E. W., *International Critical Tables of Numerical Data, Physics, Chemistry, and Technology*, (7 Vols. + Index), McGraw-Hill, New York (1926-1933).
219. Weast, R. C., *Handbook of Chemistry and Physics*, 58th ed., The Chemical Rubber Co., Cleveland, Ohio (1977-1978).
220. Weast, R. C., *Handbook of Chemistry and Physics*, 62nd ed., The Chemical Rubber Co., Cleveland, Ohio (1981).
221. Weiss, G (editor), *Hazardous Chemicals Data Book*, Noyes Data Corporation, Park Ridge, New Jersey (1980).
222. Wilhoit, R. C., Chao, J., Hall, K. R., "Thermodynamic Properties of Key Organic Compounds in the Carbon Range C1 to C4. Part 1. Properties of Condensed Phases," *J. Phys. Chem. Ref. Data*, **14**, (1) 1 (1985).
223. Wilhoit, R. C., Zwolinski, B. J., "Physical and Thermodynamic Properties of Aliphatic Alcohols," *J. Phys. Chem. Ref. Data*, **2**, (Suppl. No. 1), (1973).
224. Wilson, G. M., Johnston, R. H., S-C Hwang, Tsionopoulos, C., "Volatility of Coal Liquids at High Temperatures and Pressures," *Ind. Eng. Process Des. Dev.*, **20**, 94, (1981).
225. Wisatzki, K. D., Wurflinger, A., "PVT Data for Liquid and Solid Cyclohexane, Cyclohexanone and Cyclopentanol up to 3000 bar," *J. Phys. Chem. Solids*, **43**, (1) 13 (1982).
226. Wolfe, D., Kay, W., Teja, A., "Phase Equilibria in the n-Pentane + Pent-1-ene System. 1. Critical States," *J. Chem. Eng. Data*, **28**, 319 (1983).
227. Wong, W.-K., Westrum, E. F., "Thermodynamics of Polynuclear Aromatic Molecules. 1. Heat Capacities and Enthalpies of Fusion of Pyrene, Fluoranthene, and Triphenylene," *J. Chem. Thermo.*, **3**, 105 (1971).
228. Zaalishvili, Sh.D., Kolysko, L. E., Gorodinskaya, E. Ya., "New Method for Determination of the Molar Volume of a Vapour. III. Acetonitrile," *Russ. J. Phys. Chem.*, **45**, 1500 (1971).
229. Zabetakis, M. G., "Flammability Characteristics of Combustible Gases and Vapors," U.S. Bureau of Mines Bulletin No. 627 (1965).
230. Zwolinski, B. J., Wilhoit, R., *Heats of Formation and Heats of Combustion in American Institute of Physics Handbook*, 3rd ed., edited by D. E. Gray, pp. 4-316-342, McGraw-Hill, New York (1972).