The Chemist's Companion: A Handbook of Practical Data, Techniques, and References

By Arnold J. Gordon, Richard A. Ford

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Here in one source is a wide variety of practical, everyday information often required by chemists but seldom found together, if at all, in the standard handbooks, data collections, manuals, and other usual sources. Discussing physical, chemical, and mechanical properties of substances and systems, the authors answer such questions as:

- How do I test for and destroy peroxides in different solvents and what is the best way to purify such solvents?
- What are the structure, physical properties, and recent references to the use of common-name solvents and solvent aids such as the "Skellysolves," "Cellosolves," "Crownanes," and "Glymes"?
- What is the utility of a particular molecular sieve, or permeation gel, or epoxy cement, or liquid crystal, and where do I buy them and find references to their application?

The book is divided into nine chapters and covers properties of atoms and molecules, spectroscopy, photochemistry, chromatography, kinetics and thermodynamics, various experimental techniques, and mathematical and numerical information, including the definitions, values, and usage rules of the newly adopted International System of Units (SI Units). A section on statistical treatment of data which provides an actual least-squares computer program is also included. In the spectroscopy chapter, very extensive and up-to-date collections of spectral correlation data are presented for ir, uv-vis, optical rotation, nmr, and mass spectra, along with data on esr and nqr spectroscopy. Also included is a variety of hard-to-classify but frequently sought information, such as names and addresses of microanalysis companies and chemistry publishers, descriptions and commercial sources of atomic and molecular models, and safety data for hazardous chemicals. More than 500 key references are also included, most of which are recent. There are important hints and definitions associated with the art as well as the state of the art for the appropriate subjects. Also found throughout the book are about 250 suppliers and directions for obtaining special booklets or other material.

Containing a wealth of useful information, *The Chemist's Companion* will be an

indispensable guide for students and professional chemists in nearly all the chemical disciplines. In addition, it will provide for the teacher and student an unusual adjunct for use in a broad cross-section of chemistry courses.

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Editorial Review

From the Inside Flap
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From the Back Cover
The Chemist’s Companion A Handbook of Practical Data, Techniques, and References Arnold J. Gordon and Richard A. Ford Contents Properties of Molecular Systems Properties of Solvents and Common Liquids • Azeotropic Data • Empirical Boiling Point-Pressure Relationships • Properties of Selected Gases • Properties of Representative Fused Salt Systems • Structure and Properties of Naturally Occurring α-Amino Acids • Properties and Applications of Liquid Crystals • Prototropic Tautomerism • Acids and Bases • Properties of Atoms and Bonds Properties of the Elements • Table of Isotopes • Selected Bond Lengths • Effective van der Waals Radii • Bond Angles and Hybridization • Selected Bond Strengths • Force Constants • Torsion and Inversion Barriers • Bond and Group Dipole Moments • Aromaticity • Kinetics and Energetics Activation Parameters and Kinetics of Selected Reactions • Linear Free Energy Relationships • Conformational Free Energy Values • Free Energy-Composition Chart • Spectroscopy The Electromagnetic Spectrum • Solvents and Other Media for Spectral Measurements • Optical Materials for Spectroscopy and Photochemistry • Vibration Spectra • Electronic Absorption and Emission Spectra: Uv and Vis • Optical Activity and Optical Rotation • Mass Spectrometry • Nuclear Magnetic Resonance Spectroscopy • Electron

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About the Author
About the Authors ARNOLD J. GORDON is Associate Director of Scientific Affairs at Pfizer Pharmaceuticals. He was previously a member of the chemistry faculty of the Catholic University of America. Dr. Gordon received a B.S. degree in Chemical Engineering from Northeastern University and a Ph.D. degree in Organic Chemistry from New York University. He is the author of more than 25 articles published in journals and books in such diverse areas as stereochemistry, synthesis, new drug development, organic semiconductors and chemical education. R. A. FORD is Assistant Professor at Montgomery College in Takoma Park, Maryland. He was previously Assistant Professor at Catholic University. Dr. Ford received a Ph.D. degree at Wayne State University.

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Kimberly Gonzalez:

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