

BASIC CONCEPTS *of*  
INDUSTRIAL  
HYGIENE

Ronald Scott

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Dr. Scott has consulted on problems of metal ion toxicity, and has published research papers in professional journals on chromatographic methods of trace analysis, techniques for clinical analysis, and work relating to the use of freshwater clams as environmental monitors of industrial effluents. Dr. Scott has written three chromatography reference books — a biochemistry textbook, three industrial hygiene references or textbooks, and was technical editor of a reference book on trace analysis. Dr. Scott has written three chromatography reference books — a biochemistry textbook, three industrial hygiene references or textbooks, and was technical editor of a reference book on trace analysis. Dr. Scott has written three chromatography reference books — a biochemistry textbook, three industrial hygiene references or textbooks, and was technical editor of a reference book on trace analysis.



## Preface

This book is a nonencyclopediaic textbook of industrial hygiene, the field dedicated to the protection of workers. The book is based on years of teaching an industrial hygiene course. It is a broad survey of the field and addresses the typical student. Extra discussion is provided where experience has shown that some students will not be strongly prepared, given the variety of backgrounds of students enrolled in such a class. At the end of each chapter, material covered is summarized in a Key Points section. References are provided both to material that helps the student who has little background in the topic of that chapter and to sources that expand beyond the scope of the chapter. The problem sets used often have a practical basis and lead students into the CFR (*Code of Federal Regulations*) to familiarize them with the contents and the manner of locating information in this source. Extensive appendices provide practical information to support the instructional message and to allow the text to be a reference of value to the student later.

The U.S. needs well-trained and qualified people to serve as industrial hygienists. The maintenance of high standards for health and safety in the workplace involves controlling a variety of working conditions, including noise level, radiation level, temperature, and potential for physical injury. There is increasing concern about bacterial and viral infections resulting from job contacts. Industrial toxicology focuses on the threat of injury due to contact with chemicals used in the workplace. This threat is not restricted to workers in the chemical industry because the use of chemicals is a ubiquitous part of modern industry. Many commercial processes involve painting or packaging a product, degreasing or otherwise cleaning machinery, assembling with adhesives, dyeing or printing with dissolved pigments, and a host of other processes that expose workers to chemicals. Furthermore, it can be argued that the need for regulation is greater outside chemical manufacturing, because management there is less likely to include chemistry specialists.

The book is divided into five sections. The first section introduces the field from a historical standpoint and describes the legal basis of health and safety in the U.S. The second section focuses on the chemical hazards. The basics of toxicology are presented, problems arising from skin contact or inhalation of chemicals are described, the detection and control of airborne contaminants is outlined, and the threat of fire or explosion is discussed. The third section is concerned with injury from other causes, including sound, radiation, heat, biological agents, and accidents. Ergonomics, the study of problems due to the manner of performing the job, is introduced. Finally, the fourth section describes a range of industries, ones that are major sources both of jobs and of potential injury, and illustrates and expands on the principles presented in earlier sections.

**Ronald Scott  
Ypsilanti, Michigan**

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