

NEW BOOKS

edited by F. W. Quackenbush

DAINGEROUS PROPERTIES OF INDUSTRIAL MATERIALS, Third Edition, by N. Irving Sax (Reinhold Book Corporation, New York, N.Y., 1251 p., 1968, Price \$35.00).

The format of the book is excellent. Its hard-back, cloth-bound cover should serve to protect the volume during frequent use by the many scientific and other personnel having need to consult it.

Although somewhat smaller type was used in this edition to reduce the physical size of the book and make it easier to handle, the clarity and readability of the printing has not suffered.

Readers of the Journal should find the book useful for the general information and preventive advice given as well as for the first aid and palliative instructions so important during the critical period between exposure to a hazard and the arrival of professionally trained personnel summoned to care for the injured.

The general arrangement found so satisfactory in previous editions has been retained. The various sections, prepared by experts in their respective fields, have been enlarged and revised where necessary and brought in line with current conditions and latest developments. The treatment of material in Section 4 "Control of Environmental Pollution" and Sections 5 and 8 dealing with environmental pollution by radioactive materials is especially timely and useful.

Section 12 "General Chemicals" has been greatly enlarged. As in previous editions the information is keyed to other sections of the book to avoid unnecessary repetitions.

Pertinent, up-to-date references are given at the end of each section.

The hazards of dangerous industrial materials are described objectively and not in a manner to provoke hysterical reaction. (Would that the lay press and other communication media would adopt a more objective approach to the reporting of incidents involving hazardous materials.)

There is a gremlin-like typographical error on page 207—"fire-sale record cabinets" should presumably read "fire-safe record cabinets."

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KETONES by Ibert Mellan (Chemical Publishing Co., New York, 185 p. 1968, \$10.00).

This book is intended for chemists using ketone solvents in the plastic and surface coating industries. It begins with a brief history of the uses of naturally occurring ketones and discoveries in the chemistry of ketones. The alternative ways of naming ketones are explained. A chapter on the chemistry of ketones emphasizes the reactions important in the synthesis and utilization of industrially important ketones. The physical properties of the ketones are discussed in separate chapters on the aliphatic, cyclic, aromatic, diketones and ketones containing other functions. The information on industrially important ketones is extensive, especially information on the solubility of plastics in ketone, the viscosity of ketone solutions and the flammability of ketones. The information is presented conveniently in the form of tables and graphs, often giving useful comparisons of the properties of different ketones. The many references provide a key to the literature on the subject. The index is brief and perfunctory.

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SURFACE-ACTIVE LIPIDS IN FOODS, edited by S. S. Brown, M. Lavery, I. D. Morton and J. J. Wren (S.C.I. Monograph No. 32, Society of Chemical Industry, London, 173 p., 1968, \$4.90).

This slim volume comprises the papers (with discussion) read at a Joint Symposium, organized by the Food Group and the Oils and Fats Group of the Society of Chemical Industry, and held on March 21-22, 1968, at the School of Pharmacy, University of London.

The 11 papers making up the Symposium were divided into four sessions of three papers each (except for the last, which included only two), and this format is retained in the present volume. The first two sessions included papers of a more fundamental sort, while the last two sessions are devoted to the practical applications of this knowledge.

The first paper, "Molecular Aggregation in Phospholipid Dispersions," by L. Saunders, gives a somewhat too brief review of the chemical nature of phospholipids, and then explores the literature on the aggregation state of these materials in dispersion as a function of the method of preparation.

"Structures of Emulsifier-Water Phases," by K. Larsson, discusses the state of knowledge of structure in aqueous systems of surface-active lipids used in foods, and some new results are given. Special attention is given to the α -crystal form and the gel state, and it is concluded that these physical states are important for the applications of emulsifiers in the food industry.

A significant contribution by M. van den Tempel, "Effects of Emulsifiers on the Crystallisation of Triglycerides," concludes that emulsifiers have no effect on the total amount of solid phase at equilibrium, but that they may influence the rate of attainment of this equilibrium, and both nucleation and crystal growth may be influenced by the presence of surface-active agents.

"Evaluation of Some Properties of Membrane Lipids in Model Systems," by J. de Gier, R. A. Demel and L. L. M. van Deenen, deals with the study of the interaction of synthetic lecithins, containing defined fatty acid chains, with themselves and with cholesterol. These studies have been carried out by examination of monolayers at the air-water interface, and by permeability studies on bimolecular layer systems of these lipids, which are formed spontaneously from layer-latticed liquid crystals in dilute electrolyte. The results are discussed in relation to the functioning of natural membranes.

"Plant Lipids: Their Structure and Function," is discussed by B. W. Nichols, with special emphasis on the function of phospholipids and glycolipids.

In "Mechanism of Promotion of Emulsification," G. S. Hartley discusses the phenomenon of emulsification *in vivo*, in the processes of mastication and peristalsis. Hartley makes the important point that the emulsifying properties of a surface-active agent can be due to either their stabilizing actions, i.e., opposing flocculation and coalescence, or to facilitation of break-up of the liquid globules. Other surface properties than reduction in interfacial tension may thus be significant, and, in the case of surface-active lipids, may be the more significant.

The more applied portion of the Symposium begins with a paper by W. R. Morrison on "Surface-Active Lipids in Milk and Milk Products." The major portion of this paper is devoted to a discussion of the milk fat globule membrane, and its properties, followed by a discussion of the effect of added surface-active agents on some milk products. N. H. Tattrie and W. H. Cook follow with a thorough discussion of "Lipoproteins and Lipids of Egg Yolk."

(Continued on page 628A)

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(Continued from page 614A)

The effect on the rheological properties of chocolate is explored by T. L. Harris in a paper entitled, "Surface-Active Lipids in Chocolate." An extensive discussion of "The Role of Surfactants in Baked Goods," by W. H. Knightly, explores the effect of the surface-active agents on the behavior of the starch fractions of flour, with respect to staling. A very brief discussion of the use of surface-active agents in other aerated products, such as toppings and fillings, is included.

The Symposium concludes with a paper by J. J. Wren, "Importance of Physical State in the Applications of Fat-Derived Emulsifiers."

The discussions of the papers are included, in a summary form, at the end of each session. They do not add a great deal to the papers, but occasionally serve to clarify some of the points discussed.

In general, the quality of these papers is high, although, in some cases, they are far too brief. Like *Oliver Twist*, we feel inclined to beg for more. There are a number of inconsequential misprints. In view of the range and quality of the papers, and the modest cost, it would seem that anyone seriously engaged in this field should own a copy.

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COASTS, by E. C. F. Bird (The M.I.T. Press, Cambridge, Mass., 246 p., 1969, \$7.50. First published in 1968 by the Australian University Press, Canberra, Australia).

"Coasts" is published as Volume Four of a series on "Introduction to Systematic Geomorphology." After an introduction it contains chapters on tides, waves, and currents; changing levels of land and sea; cliffed coasts; beaches, spits, and barriers; coastal dunes; estuaries and lagoons; deltas; coral reefs and atolls; and classification of coastal land forms.

The book is written for high school and university students and for the interested layman. It is readily understandable, although occasionally the nongeologist would prefer to find a glossary of the technical terms used. The many half-tone plates, maps and diagrams that take up about a third of the space are very useful in illustrating the points made in the text.

The American reader would wish to find more examples from the western hemisphere. By far most of the illustrations refer to Australia and England, the countries where the author has studied and worked.

"Coasts" is well organized and informative, without going into too many technical minutiae.

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