New Books

SUPPLEMENT TO BOOK OF A.S.T.M. STANDARDS INCLUDING TENTATIVES, 1953, Part 7 (published by the American Society for Testing Materials, 1916 Race Street, Philadelphia, Pa.). Part 7 of A.S.T.M. Standards covers Textiles, Soap, Water, Paper, Shipping Containers. The Supplement covers the Standards and Tentatives revised, adopted, or withdrawn in 1953. In the Supplement the Standards and Tentatives covering the above divisions as issued or revised in 1953 appear in their latest revised form. When a Tentative was adopted as Standard without revision, it is not included.

The following changes are the result of the September, 1953, letter ballot, approving actions of the annual meeting: five Standards in Part 7 of the 1952 Book of A.S.T.M. Standards have been revised and are now obsolete; 12 Tentatives have been adopted as Standards, 11 without change and one with revision; 26 new Tentatives were issued. Revisions were made and accepted in 13 Tentatives, and a tentative revision of one Standard was made. One Standard and three Tentatives were withdrawn. The supplement is not indexed, but furnished with it is the complete combined index covering the supplement, all the Standards in all seven parts of the 1952 Book of A.S.T.M. Standards as well as those in the 1950 Book of A.S.T.M. Methods for the Chemical Analysis of Metals. Printed stickers are provided, to be used to correct the copies of Part 7 of the A.S.T.M. Book of Standards.

The supplement is essential to all holders of the 1952 Book of A.S.T.M. Standards and of minor interest to others unless they obtain the 1952 edition of Part 7.

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HEAT TRANSMISSION, by William H. McAdams (McGraw-Hill Book Company Inc., 3rd ed., 532 pp., 1954, $8.50). This book has 6 in. x 9 in. pages and the same general appearance and format as others in the McGraw-Hill Series in Chemical Engineering. Besides the 15 chapters of textual material, there is a large appendix which contains numerous tables and charts of data, an extensive bibliography and author index, as well as a subject index.

The table of contents indicates that, after an introduction, different methods of heat transmission are discussed. These include steady and transient states, radiant and natural and forced convection. There is some material on dimensional analysis and fluid flow. Specific conditions are covered, such as heating and cooling inside and outside of tubes, condensing vapors, and boiling liquids. After studying special cases such as packed and fluidized systems, and high-velocity flow, a chapter is devoted to applications to design.

This third edition is an extension of the earlier editions into new fields of application and brings the older material up to date. Because of research with nuclear reactors and jet engines, the ranges of correlations have been greatly extended. New developments of heat transmission in rarefied gases and molten metals have been included. Fluidization is one of the newer techniques used in industry. Heat transmission in these beds is covered. It appears that no significant new work has been overlooked.

As has been true in past editions, this book will be of value to the student in school as a text and to the practicing engineer for problems involving heat transmission.

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MONOMOLECULAR LAYERS, edited by Harry Sobotka (publication of the American Association for the Advancement of Science, Washington, D. C., VII + 207 pp., 1954, $4.25). This book, a neat volume of excellent printing, contains the papers of an A.A.A.S. symposium presented on December 27, 1951. The following papers are given: 1. Modern Film Techniques and Their Application to Biochemical Reactions, by Hans J. Trurnit; 2. The Determination of Molecular Weights of Proteins by the Horizontal Surface Balance, by E. Mishuck and F. Eirich; 3. Mechanical Properties of the Surface Films on Aqueous Solutions of Detergents, by A. P. Brady and A. G. Brown; 4. Study of Adsorption at a Solution-Air Interface by Radiotracers, by J. K. Dixon, C. M. Judson, and D. J. Salley; 5. Deposited Radioactive Monolayers, by D. E. Beischer; 6. Hydrophobic Monolayers and Their Adsorption from Aqueous Solution, by E. G. Shafrin and W. A. Zisman; 7. A Review of the Properties of Films at Oil-Water Interfaces, by E. Hutchinson; 8. Chemical Reactions of Simple and Mixed Monomolecular Layers, by Harry Sobotka and Shirley Rosenberg; 9. Chemical Reactions and Electrode Potential in Monolayers, by E. Havinga.

This symposium has the difficulties of most such presentations, in that its appeal is primarily to the expert or student specifically interested in surface chemistry, but there is important matter here for the oil and detergent chemist. It is inevitable that the presentations are uneven, some being in the nature of comprehensive reviews while others are detailed catalogues of recent explorations.

In his preface the editor, Harry Sobotka, says, "It has been our aim to give . . . a cross-section of recent progress in monomolecular layers. . . . The contributors hope to have assembled a symposium that will illustrate the scope of their methods and techniques . . . and that will . . . stimulate interest in a field of chemistry that has many riddles yet to be solved."

The third lecture will be of considerable interest to detergent chemists. It opens with a competent review of bulk solutions as background and concludes with the judgment that pure detergents form gaseous films which are much modified in the practical case by non-ionic "impurities," these frequently being products of hydrolysis.

The next and related lecture discusses such interesting features as the confirmation of the Gibbs isotherm, multilayer adsorption of surface-active agents at the surface and of small ions under the surface, and evidence for micelle formation in accord with that given by other techniques.

In the eighth section monomolecular layers are discussed in relation to the effects of specific orientations, high diffusion rate, and film penetration. Unsaturated fatty acids as well as other long-chain compounds and cholesterol are among the compounds mentioned.

The final lecture contains extremely interesting material, very likely related to cell processes, on the effects of electric potential upon chemical effects in monolayers, doubtless through altering the activation energy of the oriented reactants.

This book should be in the library of all directly interested in surface chemistry, especially the detergent chemist, the emulsion chemist, and the cytochemist and those physical chemists who pride themselves on a comprehensive grasp of current developments.

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Fred Olsen has been named vice president for research of the new OLIN-MATHIESON CHEMICAL CORPORATION, New York City, formed by the merger of Olin Industries Inc. and Mathieson Chemical Corporation.