

NEW BOOKS

edited by F. W. Quackenbush

III. INTERNATIONALE VORTRAGSTAGUNG UBER GRENZFLÄCHENAKTIVE STOFFE, Part Two, p. 521-953 of a compilation of the presentations made at a symposium of the German Academy of Science in Berlin, March 29-31, 1966. (Akademi-Verlag, Berlin, 432 p., 1967).

All the papers presented at the Third International Symposium on Surface Active Materials held in Berlin from March 29-31, 1966 were published in two parts. Part One, covering papers on the chemistry, analysis and application of surface active materials will be reviewed elsewhere. In Part Two, a total of 45 papers are presented in three languages; 34 in German, 10 in English and one in French. It includes authors from the U.S.A., Russia, Czechoslovakia, Hungary, England, Bulgaria, Poland and Germany.

The 45 papers given at this symposium covered the full gamut of physical chemistry theories and techniques applied to surface active agents. Typical of the high caliber papers presented include the following: A. Scheludko, University of Sofia, "The Elasticity of Adsorption Layers"; J. Lyklema, Wageningen, Holland, "Cationic Adsorption and the Lyotropic Sequence in Colloidal Stability"; H. Sawistowski and B. R. James, Imperial College of Science and Technology, London, "Effect of Interfacial Disturbances on Mass Transfer Rates in Liquid-Liquid Systems"; and J. W. Herrmann and E. R. Wilson, Procter & Gamble, Cincinnati "Micellar Properties of Some Zwitterionic Surfactants."

ERIC JUNGERMANN
Armour Grocery Products Co.
Chicago, Illinois

TREATISE ON ADHESION AND ADHESIVES, Vol. 2—Materials, edited by Robert L. Patrick (Marcel Dekker, Inc., 95 Madison Avenue, New York, New York, 554 pages, 1969, \$32.50).

The first volume of this series was a treatise on the theories of adhesion and adhesives. This second volume deals with the materials utilized to affect adhesion and inherently is not as straightforward. Nevertheless, the theoretical concepts covered in Volume 1 have been incorporated in the discussion of materials and systems, and continuity has been realized. The multiple-author approach, which is the format used, is quite effective because the editor is able to integrate the various contributions without destroying the individuality characteristic of this style of presentation.

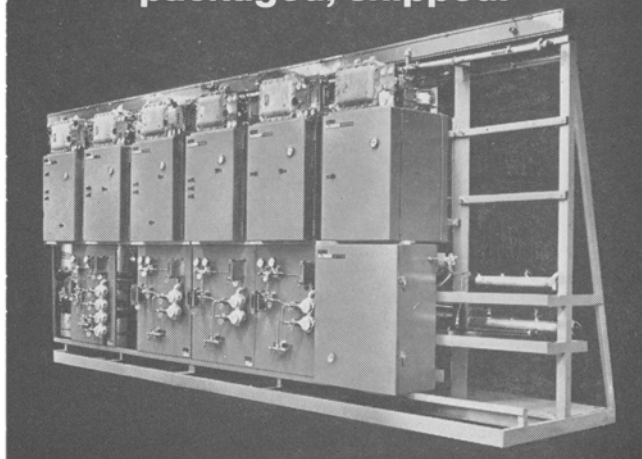
The book consists of 11 chapters, written by well-qualified scientists, including an appropriate introduction by the editor. The classification of materials is indeed arbitrary, and the sequence is not entirely logical, but the discussions of the various types as outlined by the editor are comprehensive and in depth.

Dannenberg and May introduce the subject of epoxide adhesives, including physicochemical and surface chemical principles, curing mechanisms, formulations and analyses. Eby and Brown follow with an inclusive discussion of thermosetting adhesives and inadvertently cover the epoxide resins again but devote attention to application and properties of specific adhesives, with emphasis on structural adhesives in aircraft and space. W. C. Wake, in the treatment of elastomeric adhesives, reviews the theory of diffusion in a style superior to that of a mere literature review.

The chapter on pressure-sensitive adhesives does not survey the multitudinous kinds of pressure tapes but discusses broader use categories and the characteristics of each. Dahlquist has simplified the theory of peel and tack, which is generally overburdened with mathematical equations, to explain factors which affect the performance characteristics of pressure sensitive adhesives. The text is easily understood and well illustrated.

Patterson and Brelant cover the areas of fiber adhesion

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and glass resin adhesion, respectively. The latter presents the results of original study and other evidence in logical fashion to support general conclusions regarding glass-resin bond strengths, causes of structural failure, and structural response, and suggests areas for further research.

Soldering, brazing and welding are unique examples of high-temperature adhesion, reviewed by Bair impressively, with a well illustrated discussion on joint mechanisms, properties and characteristics, in terms of better known processes. A separate chapter on high-temperature adhesion deals with adhesives based on organic polymers which are used for structural purposes and recent developments engendered by heterocyclic-aromatic polymers, obviously based on the author's own work. The last chapter, which might logically be the first, describes the attainment of ultra-clean surfaces, a prerequisite for fundamental studies of surfaces.

Each chapter has a bibliography, and the text has both an author and subject index. The book is remarkably free of errors.

Polymer and surface chemists will find the book very useful, as will mechanical and chemical engineers. In fact, there is a little for almost anyone who is interested in or concerned with the requirements of adhesives. Scientists, students and even laymen will find practical information, useful for an understanding of adhesive materials, for applications and formulations, and for structural requirements. Adhesion specialists will appreciate the interdisciplinary character of the individual contributions. The book will be a valuable asset to a professional library and is highly recommended.

WILLIAM E. LINK
Ashland Chemical Company
10701 Lyndale Avenue South
Bloomington, Minnesota 55420