

Book Reviews

Interaction of Liquids at Solid Substrates, Advances in Chemistry, Series No. 87.

Edited by R. F. GOULD, American Chemical Society, Washington DC, 1968.

9 in. × 6 in. 214 pp. \$9.50

THIS contains a total of sixteen original and review papers presented at an ACS Symposium, with Allen L. Alexander as chairman, held in Chicago on 11-12 September 1966. The first twelve papers deal mainly with low energy surfaces of various kinds, including polymer surfaces, and the introductory paper is by W. A. Zisman. The last four papers deal with heparinised surfaces at the blood/material interface, the introductory paper being by Frank Hastings, Director of the Artificial Heart Program of the National Heart Institute of the U.S.A. Most of the papers in the first area are concerned with contact angle measurements and their interpretation, supplementing by infra-red surface studies and other techniques. The common theme linking the two areas is the one of methods to chemically modify the surfaces of interest to secure desirable properties, such as increased adhesion or decreased clotting of blood in contact with the surface. The whole volume exemplifies very well the great strength of the U.S. scientific effort, in particular its ability to focus basic science on applied problems in the important early stages of development. The papers will all have interest, to the increasing number of chemists and physicists interested in polymer surfaces.

D. D. ELEY

Polyurethane Technology

Edited by PAUL F. BRUINS. John Wiley & Sons: London and New York, 1969.

9½ in. × 6½ in. 292 pp. 140s

THIS book comprises the lectures on various aspects of polyurethane technology which were presented at a seminar at the Polytechnic Institute of Brooklyn. Most of the chapters are written by different well known North American experts in the field and have the following titles: 1. Fundamental chemistry and catalysis of polyurethanes. 2. One shot slab polyether urethane production. 3. Rigid urethane foams. 4. Chemical and mechanical factors affecting one-shot rigid urethane foams. 5. Polymeric isocyanates in urethane foams. 6. Flame retardent polyurethane foams. 7. New trends in equipment and application techniques for polyurethane foam manufacture. 8. Some progress in the synthesis of polyurethanes. 9. Casting of urethane elastoplastics. 10. Polyurethane thermoplastics. 11. Polyurethane coatings. 12. Polyurethane seamless flooring. 13. Light-stable polyurethane coatings. 14. Spandex fibre technology.

The chapters vary from excellent to mediocre and often contain the inevitable slightly annoying repetition of the basic chemistry and overlap of the discussion. Chapter 8 by Herman Mark is noteworthy for its brevity; just over two pages, but it does include much useful information on new polymers.

Only one major error was found. This was on page 58 where the figure 6 given bears no relation to the figure 6 discussed in the text.

The book describes the basic chemistry very well, the raw materials and formulations quite adequately but foam testing only briefly except for the important topic flame retardency which is covered in some detail and with diagrams and references to most of the commonly used tests. Some of the most recent developments in fire retardent foams are however not mentioned.

The available foam mixing units and factory lines for rigid and flexible foams are reviewed in a non-critical manner with a few omissions. For example the internal air-mix gun used extensively in Canada and Britain is not mentioned nor is the important recent development of equipment for the production of flat topped flexible foam blocks. The latter omission is probably a reflection of how fast a book in this rapidly advancing field must become out-of-date.

Though more than half of this book is devoted to urethane foams the remainder gives interesting and adequate introductions to the rapidly developing fields of urethane paints, casting formulations, rubbers and fibres.

This book is to be highly recommended to anyone commencing research or technical service into urethane foams and it will also prove useful to people in a similar position with respect to urethane paints, castings or fibres. For those with either considerable experience or only a passing interest in these fields it is still well worthwhile reading but they will probably not wish to buy a copy for their own bookshelf.

N. B. GRAHAM