

Advances in Macromolecular Chemistry, Volume I

Edited by W. M. PASIKA. Academic Press: London and New York, 1968. 432 pp.
115s

Advances in Macromolecular Chemistry is the latest in a series of review monographs from different publishers, all concerned with developments in polymer science. The present volume compares favourably in presentation and style with any of its rival publications and avoids overlap with topics previously reviewed. Material covered consists of a series of articles by E. W. NEUSE (Ferrocene polymers), J. W. BREITENBACH (Popcorn polymerizations), L. P. ELLINGER (Electron acceptors as initiators of charge transfer polymerizations), A. PETERLIN (Non-Newtonian viscosity and the macromolecule), Y. TABATA (Solid state polymerization) and K. J. IVIN and J. B. ROSE (Polysulphones: organic and physical chemistry). Several of the chapters consist of exhaustive literature surveys rather than critical reviews, nevertheless the book will be valuable to research workers in the various aspects of polymer science. However, it is to be hoped that future volumes of this series will show better balance with regard to length of the various articles. For example in this first volume Ferrocene polymers (138 pages) and Polysulphones (61 pages) appear to be given significance in inverse relationship to the current general interest in these topics.

A. LEDWITH

Progress in High Polymers, Volume II

Edited by J. C. ROBB and F. W. PEAKER. Heywood: London, 1968. 6 in. × 9½ in.
313 pp. 95s

This is the second volume in a series which started in 1961. The four reviews in this new volume are on topics unconnected with one another and with the topics treated in Volume I.

Polymer physics is dealt with by A. R. PAYNE. This substantial article covers an extremely wide area. It tends occasionally to become almost a list of references with little critical appraisal of their contents. The thorough coverage of tearing, fatigue, friction and failure properties is a most valuable and unusual feature. These topics have only rarely been discussed in widely read books on polymers and this review is especially timely since a valid molecular interpretation of the phenomena is beginning to emerge. There might have been advantages if the writer had concentrated entirely on these aspects of his subject and had found space for a fundamental introduction to it.

A. M. NORTH discusses diffusion control in polymerization. The chapter includes in a readable form the basic theory of diffusion control of chemical reactions and points out the problems met in applying it to the several stages in free radical polymerization. There is also a short section on polymerization of solid monomers.

Cationic polymerization is reviewed by P. H. PLESCH. The author stresses the importance of re-examining supposedly cationically propagated polymerizations to determine whether ions are really present during the polymerization. Even when they are, the impression one receives is that despite extensive and painstaking research very little is yet known with certainty about the reaction mechanisms.

The final review, by W. W. WRIGHT and W. A. LEE, describes most of the polymers which have been prepared and evaluated in recent years in the search for high thermal stability. Although no very satisfactory materials have yet been found this comprehensive review of progress to date is valuable. With the addition of sections setting out more fully the criteria to be met by such polymers and describing critically the methods of evaluating thermal stability this review might form the basis of a separate monograph.

The volume lacks an index. This is everywhere inconvenient and it is a most serious omission in the case of the last chapter. It is to be hoped that further volumes in this series may appear more frequently and that great care will be exercised in selecting subjects which have seen recent activity and progress so that there is something new and worthwhile for the reviewer to choose as his theme.

P. MEARES