

## BOOK REVIEWS

N. G. GAYLORD, Editor

**Glass Reinforced Plastics.** PHILLIP MORGAN, Editor. Interscience, New York; Iliffe, London, 1961. XVI + 340 pp. \$9.50.

**Glass Fibre Reinforced Plastics.** A. DE DANI, Advisory Editor. Interscience, New York; George Newnes, London, 1960. VIII + 296 pp. \$9.75.

In view of similarities in their subject matter and approach, it seems appropriate to review these books together. Both books consist of collections of chapters by specialist contributors on materials, processes, and, in the case of Morgan, applications of glass fiber reinforced plastics. Four of the contributors appear in both books.

*Glass Reinforced Plastics* has been expanded and up-dated from the second edition published in 1957. The first chapter covers glass fiber reinforcements and includes information on the effect of sizings and reinforcement type on laminate strength. The next six chapters are concerned with resins used in reinforced plastics; polyesters are given major attention (three chapters). The remaining thirteen chapters, except for a short dissertation on the design of structures, are devoted to fabrication processes and reinforced plastic applications. New or expanded material is presented on spray techniques, polyester dough molding ("premix molding" in the U.S.), glass reinforced translucent sheeting, and filament winding. Process descriptions are clearly written and generally up-to-date—although the chapter on filament winding does not reflect the process sophistication being achieved in the U.S. in the construction of rocket motor cases. Applications in the electrical, automobile and transportation, marine, chemical process, and aircraft fields are covered in separate chapters. The final chapter on miscellaneous applications lists 280 references, an indication of the diversity of uses of reinforced plastics. There is a brief appendix on the use of models for predicting the performance of full-scale structures. Coverage of the literature is variable. Although a number of chapters (notably 3 and 20) have extensive lists of references, other chapters are deficient in this respect. The index appears adequate.

*Glass Fibre Reinforced Plastics* follows a similar pattern in presenting information on materials and fabrication processes. The book does not include detailed review of applications in various fields. On the other hand, it does include a number of subjects not covered in detail in Morgan: the use of reinforced plastics in tools and fixtures, finishing operations, molding shop layout, and laboratory equipment and procedures for chemical and physical testing. It thus complements Morgan's book with practical (how-to-do-it) information. There is also a chapter in which equations are developed for predicting laminate properties on the basis of simple parameters; unfortunately there is no indication of the degree of correspondence between predicted values and experimental results. The book suffers from an insufficiency of literature references.

The use of different authors for various chapters, although bringing specialized knowledge to bear on each subject, has resulted in some duplication of material within each book. Such duplication is particularly apparent in the chapters on polyesters and ancillary materials. Combining of these chapters in future editions is suggested.

Both books are directed more toward technology than science. Thus both lack detailed coverage of basic subjects, such as factors affecting the strength of glass fibers and

the mechanism of resin-glass bonding. The technological orientation also gives rise, on occasion, to concepts that are scientifically questionable: for example, the "critical temperature" concept for the decomposition of benzoyl peroxide (Morgan, p. 65; De Dani, Table opp. p. 92).

Despite their limitations, both books are timely and should be of value to laboratory, production, and technical sales people in the field. *Glass Reinforced Plastics*, in particular, provides the most comprehensive summary available of the technology and applications of reinforced plastics.

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**Alkyd Resin Technology, Formulating Techniques and Allied Calculations, Manual #8.** T. C. PATTON, Ed. Interscience, New York, 1962, ix + 197 pp. \$9.75.

As prefaced by the author, the purpose of the manual "is to abstract and analyze many of the articles dealing specifically with alkyd calculations."

After a too short description of the chemical nature and the factors affecting alkyd production (i.e., preparation), considerable emphasis is given to the theoretical approaches of formulation based on the work of Flory, Stockmayer, etc. As is the writer's privilege, he has attempted to foster interest in his own approach to alkyd formulation, the alkyd constant. This concept that the ratio of total moles to total acid equivalents is approximately unity requires calculations followed by experiment, recalculation, and reexperiment to arrive at an alkyd candidate for satisfactory application. Other workers in the field have developed what may be simpler routes to the same end, particularly for the inexperienced resin chemist.

The book has a few excellent features, particularly its many nomographs. It is regrettable that mistakes resulted from poor proofreading—especially in the Table of Contents and in the names of authors in the Reference section—and inadequate credits, particularly for the resin formulations.

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## POLYMER NEWS

The SPE Central New York Section will sponsor its first Regional Technical Conference on April 18, 1963 in Syracuse, New York on the subject of "Plastics in Electronics." The conference will be held in Marshall Hall at the State University College of Forestry, Syracuse University.

Conference Chairman, Dr. John A. Meyer, from whom additional information may be obtained, is associated with the Chemistry Department at the College of Forestry. Honorary Chairman is James R. Lampman (General Electric Co.), 1962 SPE President and first President of the Central New York Section. Fred E. Ruhe (Carrier Air Conditioning Co.) will serve as Executive Assistant to the conference chairman.

Other major committee chairmen include Program, Dr. F. P. Hall, Pass & Seymour Inc.; Registration, Ralph R. Collis, Joseph Cashier & Co., Inc.; Publicity, Peter G. Whedon, Formica Corp.; Printing, Daniel Mackessy, Santay Eastern Inc. The Treasurer is Edward H. Ethridge, Jr., Thermold Corp.