Book Review

Thermal Characterization of Polymeric Materials, Edith A. Turi, Ed., Academic, New York, 1981, 972 pp. Price: $ 98.00.

The reviewer is not a specialist of the methods for the thermal characterization of polymers but these techniques are so important today that all scientists interested in polymers need to know something about them. Therefore, this volume is a very welcome addition to the literature dealing with the science, technology, and applications of thermal analyses to polymers. The editor and the authors undertook the difficult task of presenting the state of the art in a single volume and, in my opinion, they achieved their goal and produced a book which may well serve as a standard for many years.

In the first chapter there is not only a systematic description and evaluation of the instruments used but also explanation of the new trend which utilizes microprocessor and computer interaction for a more sophisticated instrumentation. The next chapter provides the necessary theoretical background to interpret the results of the thermal measurements, and serves in a welcome way as a bridge between theory and application.

These introductory chapters are followed by a thorough critical review of the most important polymers, with particular emphasis on their characterization by thermal analysis methods. Evidentially they vary in their subjects but a principle was followed throughout the whole volume. "This book", writes the editor in the Preface, "is to be considered a guideline and not an encyclopedia". Accordingly, each chapter includes much valuable practical guidance and advice to the interested professionals. Let me list here just a few examples of topics treated in detail:

Thermoplastics: glass transition, crystallization, melting, thermal, and thermooxidative degradation.

Thermosets: curing, effect of catalysts and fillers, properties and stability of cured systems.

Elastomers: practical rubber compounds and vulcanizates, screening methods, and quality control.

Polymer flammability: techniques for screening fire retardant additives, mechanism of flame inhibition.

Additives: antioxidants, stabilizers, lubricants, plasticizers, nucleating agents, and impact modifiers.

This rather incomplete list of keywords serves to demonstrate the broad range of information offered in the various chapters of the book, making it a very valuable source of knowledge for the students and practitioners of thermal analysis and for the users of polymeric materials.

The scientific level of the book reflects the coordinated work of a well-selected team comprised of scientists with a high reputation in the domain of their specialization.

A final note: the editor revealed her special efforts "to keep the references up to date; some of them were added in the last phases of proofreading". It is, indeed, an unusually complete reference book. Altogether this volume is a comprehensive, authoritative treatment of the subject, recommended for academic and industrial libraries as well as for the desk of individuals involved in thermal analysis, or in the research, production, and application of polymeric materials.

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