Book Review

THERMAL ANALYSIS IN POLYMER CHARACTERIZATION
Selected papers presented at the
Eastern Analytical Symposium
New York City, November 1980
Edited by EDITH A. TURI
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Thermal Analysis has dramatically expanded in use during the last few years as a primary polymer characterization approach. Recognition of advances is shown by the increasing number of symposia in this field. The 1980 Eastern Analytical Symposium devoted several sessions to this area, and this book presents selected papers from this meeting, and is edited by Edith A. Turi, the session organizer. Dr. Turi has selected a number of excellent papers which show the versatility and usefulness of various thermoanalytical approaches. The topics are covered by the individual authors with an expertise, clarity and cohesiveness not usually shown in a symposium edition, and is a compliment to both the authors and the editor.

B. Wunderlich's "Determination of the History of a Solid by Thermal Analysis", not only covers fundamentals of thermodynamics and kinetics, but its application to our understanding of polymer thermal history. This important subject for process development and property relationships serves as an appropriate introductory chapter. The other stimulating chapters are —

W. M. Prest, Jr., D. J. Luca and F. J. Roberts, Jr. — "The Capabilities and Applications of a Computer Controlled Differential Scanning Calorimeter" — where applications to aging processes and the compatibility of polymer blends are discussed.

J. H. Flynn — "Analysis of the Kinetics of Thermogravimetry: Overcoming Complications of Thermal History" — a "must" for those involved with polymer degradation with polystyrene used as a model.

E. A. Turi, Y. P. Khanna and J. A. Bender — "Effect of Diethylene Glycol Content of Polyethylene Terephthalate on its Thermal Transitions" — a study which relates the results of a chemical defect structure introduced during the polymerization process with basic properties such as glass transition temperatures, melting points, heats of fusion and the temperatures and rates of solidification.

J. M. O'Reilly — "A Review of the Effect of Polymer Structure on Enthalpy Recovery in Glasses" — a definitive paper characterizing enthalpy recovery and dealing with its temperature and structure dependence.

S.-S. Chang — "Specific Heat of Thermosetting Resins — Study of Phenolic Resin by Automated Adiobatic Calorimetry and Differential Scanning Calorimetry" — specific heat relationships by different methods are compared, and the effect of the loss or absorption of water are elucidated.

H. E. Bair, L. Shepherd, and D. J. Boyle — "The Effective Butadiene Content in a Rubber Toughened Plastic as measured by DSC" — the effective rubber concentration in modifying the deformation of ABS systems is determined from C_p values, and related to impact strength results.

P. H. C. Shu and B. Wunderlich — "Thermal Properties of Polymeric Selenium" — an

example of the ability to correlate macroscopic thermal analysis with molecular structure.

This is an important addition to the thermal analysis literature and is recommended to those actively involved in polymer characterization.

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