Instrumentation for Thermoplastics Processing

Instrumentation for Thermoplastics Processing, Vol. 24 #2, Sept. 1997

by James M. Margolis ed., Hanser Publishers, New York, 1988. ISBN 3 446 15204 0

This short text (100 pages) is a collection of chapters authored by several experts that introduces the field of instrumentation and automation for the plastics industry by focusing on injection molding as an example. With some extrapolation, much of what is presented in the test is applicable to the extrusion industry as well. Certainly, the philosophy espoused by the editor in the Preface that instrumentation and automation are no longer the domain of the larger processors, but are within the reach of, and becoming an economic necessity to the smaller processing shops.

The four chapters in the text cover control systems for injection molding, melt control, thermal analysis and auxiliary equipment. The first chapter (and perhaps the last) require the greatest extrapolation for the extrusion technologist. There is little that is directly applicable, but one can feel for what automation and control can bring to a plastics processing system.

The two middle chapters, dealing with melt control and thermal analysis, cover topics near and dear to the heart of anyone working with extrusion operations. The thermal analysis text provides a primer on the myriad of thermal analysis techniques available to the plastics processor, and what information may be had by each. While the treatment of each individual test is somewhat light, the novice to the field may quickly get a feel for what sorts of tests he or she would need to perform to best suite their needs.

The chapter on melt control reviews the types of control schemes available today and the risks and benefits associated with each. With the rapid advances in computer and control technology, and the continual reduction in the costs of such systems, the array of systems available to the average processor is staggering.

A significant criticism of this test is the relatively light treatment in each of the chapters. It is clear it is intended as an introductory text, but the treatment is still somewhat light for even that audience. One also cringes somewhat about the biases that may be built into chapters on thermal analysis authored by sales and product representatives from a leading instrument systems manufacturer, or a chapter on melt analysis written by the president and marketing services manager for another instrumentation firm.

- Rob Jerman, Rohm and Haas