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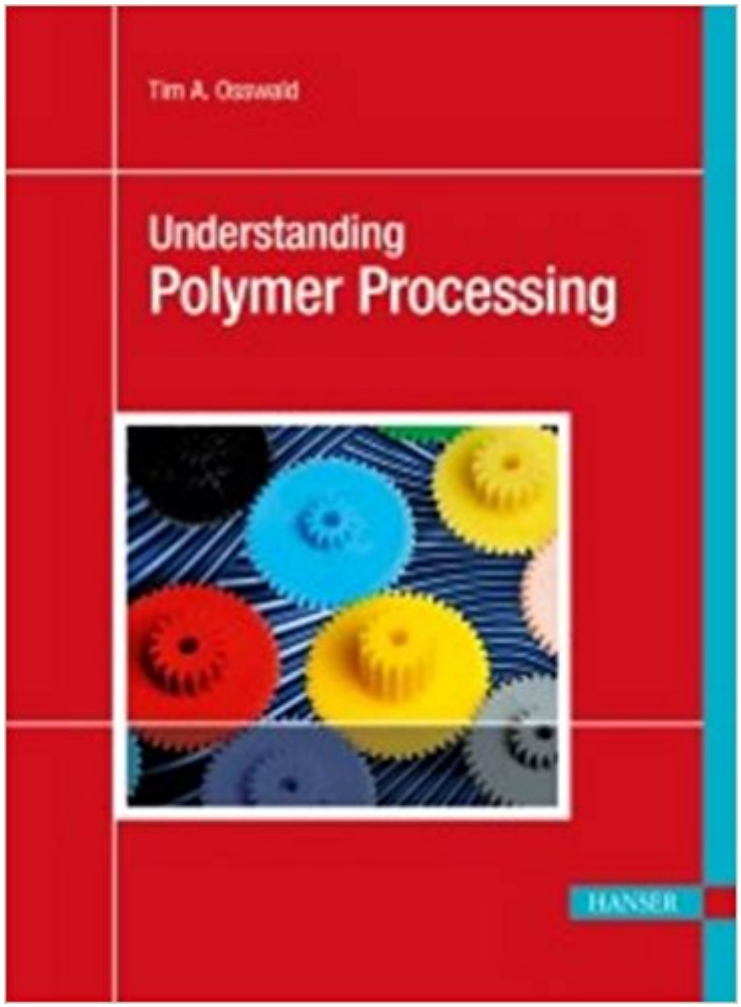
Understanding Polymer Processing: Processes And Governing Equations



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Synopsis

This book provides the background needed to understand not only the wide field of polymer processing but also the emerging technologies associated with the plastics industry in the 21st century. The book combines practical engineering concepts with modeling of realistic polymer processes. It is divided into three sections that provide the reader sufficient knowledge of polymer materials, polymer processing, and modeling. Understanding Polymer Processing is intended for the person who is entering the plastics manufacturing industry and as a textbook for students taking an introductory course in polymer processing. This three-part book also serves as a guide to the practicing engineer when choosing a process, determining important parameters and factors during the early stages of process design, and when optimizing such a process. Practical examples illustrating basic concepts are presented throughout the book. Contents: Part I Polymeric Materials. This section gives a general introduction to polymers, including mechanical behavior of polymers and melt rheology. Part II Polymer Processing. The major polymer processes are introduced in this section, including extrusion, mixing, injection molding, thermoforming, blow molding, film blowing, and many others. Part III Modeling. This last section delivers the tools to allow the engineer to solve back-of-the-envelop polymer processing models. It includes dimensional analysis and scaling, transport phenomena in polymer processing, and modeling polymer processes.

Book Information

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Customer Reviews

Tim Osswald is a Professor of Mechanical Engineering and Director of the Polymer Engineering Center at the University of Wisconsin Madison. Originally from CÃƒÂºcuta, Colombia, he received his B.S. and M.S. in Mechanical Engineering from the South Dakota School of Mines and Technology and his Ph.D. in Mechanical Engineering at the University of Illinois at Urbana-Champaign in the field of Polymer Processing. He spent two and a half years at the Institute for Plastics Processing (IKV) in Aachen, Germany, as an Alexander von Humboldt Fellow. He received the National Science Foundation's Presidential Young Investigator Award, as well as the 2001 VDI-K Dr--Richard-Escales-Preis. In 2006 he was named an Honorary Professor at the University of Erlangen-Nuremberg in Germany. Professor Osswald teaches polymer processing and designing with polymers and researches in the same areas. Professor Osswald has published over 100 papers and many books for Hanser, including Materials Science of Polymers for Engineers 3E (Ã Â©2012), Injection Molding Handbook 2E (Ã Â©2007) Compression Molding (Ã Â©2003), Polymer Processing: Modeling and Simulation (Ã Â©2006), Plastics Testing and Characterization (Ã Â©2008), International Plastics Handbook (Ã Â©2006), and Understanding Polymer Processing (Ã Â©2010). Professor Osswald has also been consulted by several industries, is one of the co-founders of The Madison Group, and is the Director of the Technical Advisory Board of SIMTEC Silicone Parts.

Delivered as promised and the book matched its stated description.

Needed it for a class. It is a very good overview of polymer processing.

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