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Plastics Technology

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RIGHTS GUIDE

January – June 2017



Surface Technology in Plastics Processing Prepping, Coating, Enhancing and Inspecting (in German language)

2nd revised edition

ISBN: [978-3-446-44675-5](https://www.hanser.de/978-3-446-44675-5)

574 pages, Hardcover

Publication date: October 2016

Comprehensive Handbook for Practical Use

It is impossible to think of our lives without plastic products. These products, apart from their functions and inherent properties, are distinguished by their design, appearance and haptic. Surface treating technologies are providing processing options in order to customize the surface characteristics of plastic products.

This book introduces and describes the industrially established surface treatment technologies of plastic products. It gives a deep insight to test technology and presents an overview of the practically relevant, process specific tests.

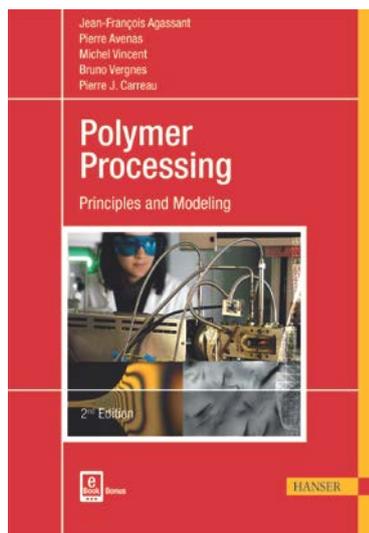
The text starts with an evaluation of the process specific properties. Next, it considers the pros and cons in view of the actual application and usage. The authors assembled many examples of surface and finishing technologies in the field to give the reader an appreciation of what these technical plastics can be used for. Each chapter is structured under the premise "from the general to the specific." This way, the practitioner can differentiate between the various forms of surface and finishing technology and select the best possible one for the job at hand.

Content:

▪ Cleaning and Activation ▪ Coating Technology ▪ Printing Technology ▪ Laser Engraving, Labeling ▪ Flock Finishing ▪ Surface Structuring, ▪ Film Insert Molding ▪ Metrology

2nd Edition. There is no similar book available!

This is the only textbook on the market about surface treatment / finishing technologies and plastics. The 2nd edition has been updated and has a new layout. Particularly Chapter 2, "Cleaning and Activation" and Chapter 7 "Flock Finishing" have been revised.



Polymer Processing Principles and Modeling

2nd edition

ISBN: [978-1-56990-605-7](https://www.hanser.de/978-1-56990-605-7)

850 pages, hardcover

Publication date: April 2017

From analysis of physical concepts to application to the key processing methods

Engineering of polymers is not an easy exercise: with evolving technology, it often involves complex concepts and processes. This book is intended to provide the theoretical essentials: understanding of processes, a basis for the use of design software, and much more.

The necessary physical concepts such as continuum mechanics, rheological behavior and measurement methods, and thermal science with its application to heating-cooling problems and implications for flow behavior are analyzed in detail. This knowledge is then applied to key processing methods, including single-screw extrusion and extrusion die flow, twin-screw extrusion and its applications, injection molding, calendering, and processes involving stretching.

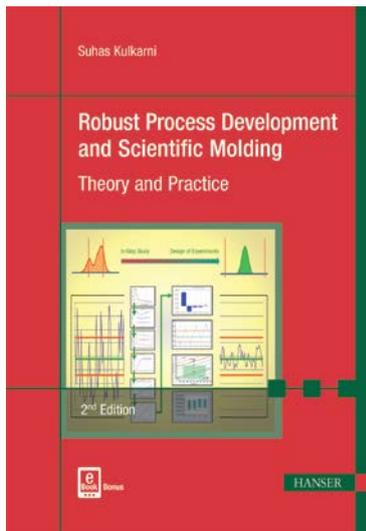
With many exercises with solutions offered throughout the book to reinforce the concepts presented, and extensive illustrations, this is an essential guide for mastering the art of plastics processing. Practical and didactic, Polymer Processing: Principles and Modeling is intended for engineers and technicians of the profession, as well as for advanced students in Polymer Science and Plastics Engineering.

Jean-François Agassant is Head of the Material and Mechanical Engineering Department at Mines ParisTech and head of MINES ParisTech in Sophia-Antipolis.

Pierre Avenas is former Director of the Center for Material Forming (CEMEF) of MINES ParisTech and held several senior positions in French government research policy and in industry, notably managing R&D Chemistry at Total Group until 2004.

Pierre J. Carreau is Emeritus Professor at the Ecole Polytechnique of Montreal

Bruno Vergnes is Research Director at the Polymer and Composites research unit of the Center for Material Forming (CEMEF) of MINES ParisTech and an expert in rheology and extrusion processes.



Robust Process Development and Scientific Molding Theory and Practice

2nd edition

ISBN: [978-1-56990-586-9](https://www.hanser.de/978-1-56990-586-9)

390 pages, hardcover

Publication date: January 2017

Explains the underlying scientific principles of injection molding

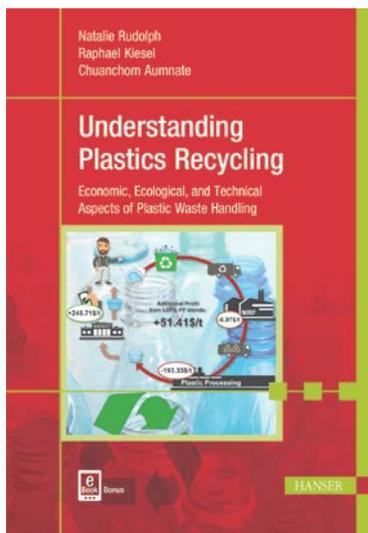
The book introduces the reader to the concepts of Scientific Molding and Scientific Processing for Injection Molding, geared towards developing a robust, repeatable, and reproducible (3Rs) molding process.

The effects of polymer morphology, thermal transitions, drying, and rheology on the injection molding process are explained in detail. The development of a robust molding process is broken down into two sections and is described as the Cosmetic Process and the Dimensional Process. Scientific molding procedures to establish a 3R process are provided.

The concept of Design of Experiments (DOEs) for and in injection molding is explained, providing an insight into the cosmetic and dimensional process windows. A plan to release qualified molds into production with troubleshooting tips is also provided. Topics that impact a robust process such as the use of regrind, mold cooling, and venting are also described. Readers will be able to utilize the knowledge gained from the book in their day-to-day operations immediately.

The second edition includes a completely new chapter on Quality Concepts, as well as much additional material throughout the book, covering fountain flow, factors affecting post mold shrinkage, and factor selections for DOEs. There are also further explanations on several topics, such as in-mold rheology curves, cavity imbalances, intensification ratios, gate seal studies, holding time optimization of hot runner molds, valve gated molds, and parts with large gates. A troubleshooting guide for common molded defects is also provided.

Suhas Kulkarni earned his Masters in Plastics Engineering from the University of Massachusetts, Lowell and a Bachelors in Polymer Engineering from the University of Poona, India. He has over 23 years of experience as a process engineer.



Understanding Plastics Recycling

Economic, Ecological, and Technical Aspects of Plastic Waste Handling

1st edition

ISBN: [978-1-56990-676-7](https://www.hanser.de/978-1-56990-676-7)

150 pages, hardcover

Publication date: June 2017

General overview of plastics recycling

This book shows the true and often-underestimated market potential of plastics recycling, with analysis from economic, ecological, and technical perspectives. It is aimed at both technical and non-technical readers, including decision makers in material suppliers, plastic product manufacturers, governmental agencies, educators, and anyone with a general interest in plastics recycling.

An overview of waste handling systems with a focus on the U.S. market is provided. Different methods of waste handling are compared from both economic and ecological perspectives.

Since plastic waste recycling is essential from an ecological point of view, common strategies and new approaches to both increase the recycling rate and improve recycling economically and technically are presented. This includes processing and material properties of recycled plastics.

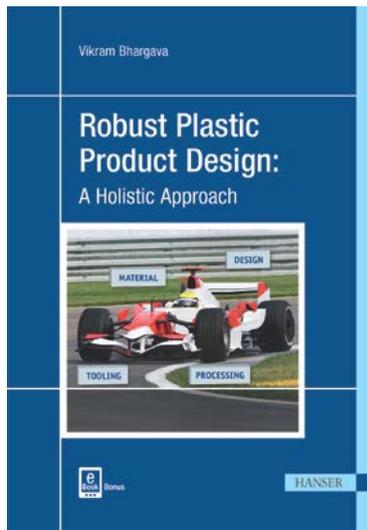
Finally, a worldwide outlook of plastic recycling is provided with analysis of additional worldwide markets, encompassing highly developed, fast-developing, and less developed countries.

Dr.-Ing. Natalie Rudolph is Assistant Professor at the University of Wisconsin-Madison College of Engineering.

Raphael Kiesel, M.S. is a researcher at the Fraunhofer Institute for Production Technology, Germany.

Chuanchom Auminate, M.S. is Research Assistant and Ph.D. Candidate at the University of Wisconsin-Madison.

Design



Robust Plastic Product Design: A Holistic Approach

1st edition

ISBN: [978-1-56990-580-7](https://www.hanser.de/978-1-56990-580-7)

350 pages, hardcover

Publication date: July 2017

Hence, the **HOLISTIC APPROACH**

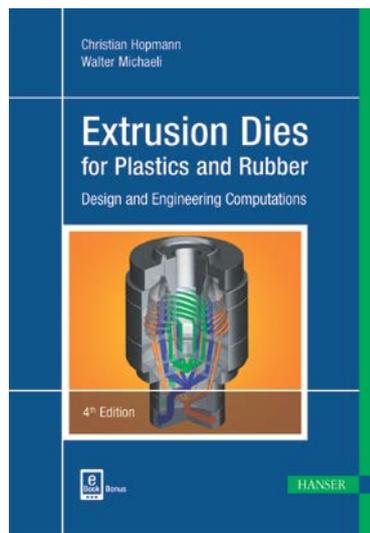
Tooling, molding, secondary operations, material selection, evaluation and testing, design, project management, costing, value engineering, international supplier management and enhancement, and more: this book provides a broad insight from the author's over 40 years of experience in the plastics industry. Through attention to fundamental engineering principles as an astute mechanical engineer and proven and recognized international hands-on experience as an individual contributor and manager of various teams in all aspects of plastics, and involving extremely robust mission critical products, the author has gained a one-of-a-kind depth and breadth of knowledge.

As a recognized long time international trainer, he has a deep understanding of the strengths and weakness of people working in all aspects of plastics as well as Six Sigma.

The book is therefore an essence of all the experience gained along the way: the good, the bad and the ugly.

This book is unique among the many other fine books available in the field in that it is the perspective of one who has been in the trenches – as opposed to an academician, scientist, or other professional in a field with very narrow scope, such as material science, tooling, or manufacturing.

Vikram Bhargava has been deeply involved in all aspects of plastics since 1968. He has been awarded 21 US and international patents for his innovations. Since 1994, he has been Director of Engineering at Motorola, Inc.



Extrusion Dies for Plastics and Rubber

Design and Engineering Computations

4th edition

ISBN: [978-1-56990-623-1](https://www.hanser.de/978-1-56990-623-1)

412 pages, hardcover

Publication date: Oktober 2016

The comprehensive guide to the full range of dies for the extrusion of plastics and rubber

This definitive book provides a comprehensive account of the full range of dies used for extrusion of plastics and elastomers. The distinctive features of the various types of dies are described in detail. Expert advice on the configuration of dies is given, and the possibilities of computer-aided design, as well as its limitations, are demonstrated. Fundamentals and computational procedures are clearly explained so that no special prior knowledge of the subject is required. The mechanical configuration, handling, and maintenance of extrusion dies are described. Calibration procedures for pipes and profiles are also discussed.

This book was written for plastics engineers who need daily support in their practical work in industry and science, as well as for students preparing for their professional life. The 4th edition is brought up to date with several important additions, including coverage of multilayer (>15 layer) dies, melt encapsulation, and simulation tools (rheological/thermal CFD simulations).

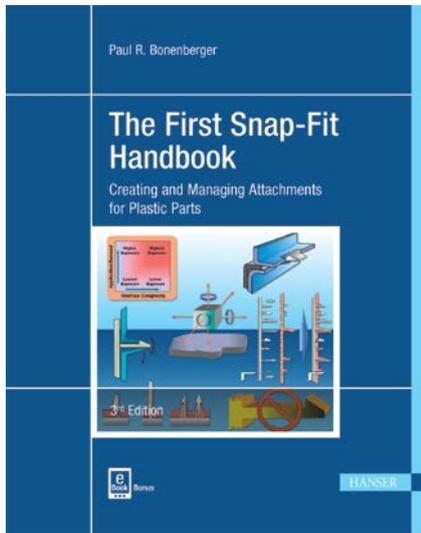
Contents:

Properties of Polymeric Melts, Fundamental Equations for Simple Flows, Computation of Velocity and Temperature Distributions in Extrusion Dies, Monoextrusion Dies for Thermoplastics, Coextrusion Dies for Thermoplastics, Extrusion Dies for Elastomers, Heating of Extrusion Dies, Mechanical Design of Extrusion Dies, Handling, Cleaning, and Maintaining Extrusion Dies, Calibration of Pipes and Profiles

Professor Christian Hopmann is the chairman of the Institute for Plastics Processing (IKV) in Industry and Trade at the RWTH Aachen since April 2011.

Professor Walter Michaeli held this position at the IKV for 23 very successful years. He left in 2011 when he reached retirement age.

Design



The First Snap-Fit Handbook

Creating and Managing Attachments for Plastics Parts

3rd edition

ISBN: [978-1-56990-595-1](https://www.hanser.de/978-1-56990-595-1)

412 pages, hardcover

Publication date: **September 2016**

The first and still the only comprehensive source for snap-fit technology!

Snap-fits have long been used to join plastic parts; however, the available technical know-how focused only on lock feature performance. The systems-level knowledge needed to create good snap-fit interfaces existed only in the minds of self-taught experts. Plastic part developers had no snap-fit resources unless they had personal access to one of those experts. Inspired by Design for Assembly initiatives and first published in 2000, The First Snap-Fit Handbook changed all that.

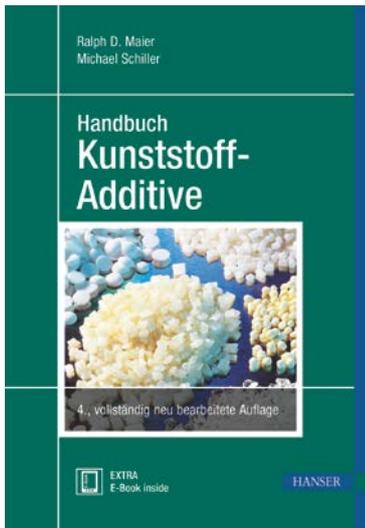
This book remains the first and only comprehensive source for snap-fit technology. It organizes and presents all design aspects of snap-fits and emphasizes the systems-level thinking required to create world-class attachments.

Both beginning and experienced product developers will find the information they need to create snap-fits and avoid many common snap-fit problems.

A chapter for business leaders discusses how to introduce and manage snap-fit technology, providing strategies for ensuring long-term snap-fit capability in a product development organization.

This third edition has been extensively revised with more graphics and case studies in an improved format. It includes new information on cantilever hook style locks with additional analysis procedures for other beam-based lock features.

Paul R. Bonenberger is President of FasteningSmart, Inc., a position he has held since 2006. He is a widely recognized expert on mechanical attachments, especially those involving threaded fasteners or snap-fits. He consults on design solutions, problem diagnosis, patents, and technology management issues, and undertakes training courses in this area.



Handbook of Plastic-Additives

(in German language)

4th revised edition

ISBN: [978-3-446-22352-3](https://www.hanser.de/978-3-446-22352-3)

1296 pages, hardcover

Publication date: **October 2016**

Without Plastic Additives No Plastics!

Additives in plastics manufacturing serve a variety of purposes.

They:

- Strengthen plastics to withstand the strain of further processing
- Ease future material manipulation
- Protect from degeneration through thermal and UV exposure during use
- Enhance material properties through targeted modification.

This work is a unique blend of scientific depth, up-to-dateness and application orientation.

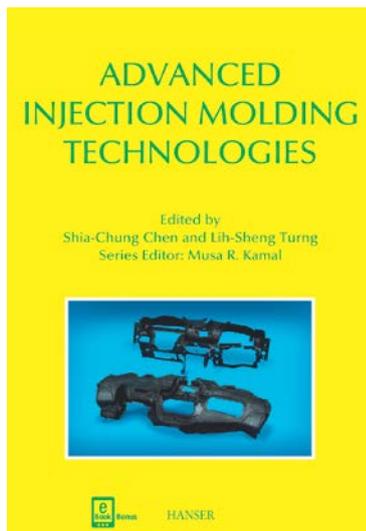
The main focus is additives for polyolefines, PVC and technical plastics. Additionally, there is extensive information about stabilizers for elastomeres, caoutchoucs, high-strength thermoplastics and thermosets.

Without an equal: The only comprehensive work in German.

Finally, this is the much desired 4th German edition of the successful and indispensable classic. It has been completely revised and contains new information on all relevant technological developments. It has been written for all who are involved in the development of new plastics and plastic products, who process plastics, blends and composites and who work in related areas.

Ralph-Dieter Maier has a doctoral degree in chemistry and works in R&D at BASF in Wyandotte, Michigan, USA.

Michael Schiller, Ph.D., owns the consulting business HMS Concept for plastics technology.



Advanced Injection Molding Technologies

1st edition

ISBN: [978-1-56990-603-3](https://www.hanser.de/978-1-56990-603-3)

500 pages, hardcover

Publication date: May 2017

State-of-the-art molding technologies and processes developed in the last decade

In this important work, leading international experts cover the most recent and significant developments in advanced injection molding technologies, such as intelligent process control, emerging special injection molding processes, process visualization, variable mold temperature technologies, and computer-aided engineering (CAE). Also included are applications in optics, micromolding, and medical devices, and integrated knowledge guidance and management systems. It is intended to be used as a must-have reference for professional engineers and engineering managers who want to keep abreast of the latest technological developments and applications, a textbook for both introductory and advanced injection molding courses, and in libraries to serve interested readers from both academic and industrial communities as well as the general public.

Contents: ■ Developments of injection molding equipment and processes (Shia-Chung Chen) ■ Intelligent process control of injection molding machines (Furong Gao) ■ Water-assisted injection molding (Shih-Jung Liu) ■ Special injection molding processes (Lih-Sheng Turng) ■ Microcellular injection molding (Chul Park) ■ Water-assisted foaming (Jose Castro) ■ Micro molding (R. D. Chien) ■ Visualization of injection molding (Hide-toshi Yokoi) ■ Measuring technologies of temperature and pressure distributions (Hide-toshi Yokoi) ■ Variable mold temperature technologies (Shia-Chung Chen) ■ Advanced CAE technology (Rong-yeu Chang) ■ Injection molding of optical products (Pei-Jen Wang) ■ Micro and nano injection molded medical devices (L. James Lee) ■ Integrated knowledge guidance and management system for plastics injection mold design and manufacturing (Wen-Ren Jong)

Professor Shia-Chung Chen is currently the Vice Chancellor, Chief Executive Officer of Executive Operation Center for Industry-Academia Cooperation, and Professor at Chuang Yuan Christian University in Taiwan.

Professor Lih-Sheng (Tom) Turng is Co-Director of the Polymer Engineering Center at University of Wisconsin–Madison.