

Practical Guide To Injection Moulding Nubitslutions

Many technical books about plastics are too theoretical and difficult to read. The intention of this book is to offer something completely different: it is easy to read with many examples taken from everyday life. It is suitable for readers at secondary school and university levels, and can be used for training activities in industry as well as for self-studies. Included are over 600 color images to illustrate the wide variety of plastics and process workflows used today. The book also contains a number of computer-based tools that can be downloaded from the author's website. With comprehensive coverage, this is probably the most versatile plastics handbook ever written! New in the second edition are much-expanded content (new chapter) on extrusion, new color figures, a new layout, and corrections throughout. A bonus download of working Excel tools is provided to supplement the book content.

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.

Injection moulding is one of the most important methods of manufacturing plastics products. Through the development of sophisticated micro processor control systems, the modern injection moulding machine is capable of producing precision mouldings with close tolerances in large numbers and with excellent reproducibility. This capability, however, is often limited by the lack of a proper appreciation of mould design. The mould, or tool as it is often called, is at the heart of the injection moulding process. Its basic function is to accept the plastic melt from the injection unit and cool it to the desired shape prior to ejection. It is not, however, simply a matter of the mould having an impression of the shape to be moulded. Many other factors have to be taken into account - for example, the ability to fill the mould impression properly and efficiently without inducing weaknesses in the moulding and the efficient cooling of the moulding in order to maximise production rates without diminishing the quality of the moulding. In addition, the type of mould, gate and runner system, and ejection system which will best meet the needs of a particular job specification have to be determined. In our experience lack of attention to such factors leads to the mould limiting the ability of the injection moulding machine and preventing the process as a whole from achieving its true potential.

This revised 3rd edition details the factors involved in the injection moulding process, from material properties and selection to troubleshooting faults, and includes the equipment types currently in use and machine settings for different types of plastics. Since material flow is critical in moulding, the book covers rheology and viscosity. High temperature is also discussed as it can lead to poor quality mouldings due to material degradation.

This book details the factors involved in the injection moulding process, from material properties and selection to troubleshooting faults, and includes the equipment types currently in use and machine settings for different types of plastics. Material flow is a critical parameter in moulding and there are sections covering rheology and viscosity. High temperature is also discussed as it can lead to poor quality mouldings due to material degradation. The text is supported by 74 tables, many of which list key properties and processing parameters, and 233 figures; there are also many photographs of machinery and mouldings to illustrate key points. Troubleshooting flow charts are also included to indicate what should be changed to resolve common problems. Injection moulding in the Western World is becoming increasingly competitive as the manufacturing base for many plastic materials has moved to the East. Thus, Western manufacturers have moved into more technically difficult products and mouldings to provide enhanced added value and maintain market share. Technology is becoming more critical, together with innovation and quality control. There is a chapter on advanced processing in injection moulding covering multimaterial and assisted moulding technologies. This guide will help develop good technical skills and appropriate processing techniques for the range of plastics and products in the marketplace. Every injection moulder will find useful information in this text, in addition, this book will be of use to experts looking to fill gaps in their knowledge base as well as those new to the industry. ARBURG has been manufacturing injection moulding machines since 1954 and is one of the major global players. The company prides itself on the support offered to clients, which is exemplified in its training courses. This book is based on some of the training material and hence is based on years of experience. This applications-oriented book describes the construction of an injection mold from the ground up. Included are explanations of the individual types of molds, components, and technical terms; design procedures; techniques, tips, and tricks in the construction of an injection mold; and pros and cons of various solutions. Based on a plastic part ("bowl with lid") specially developed for this book, easily understandable text and many illustrative pictures and drawings provide the necessary knowledge for practical implementation. Step by step, the plastic part is modified and enhanced. The technologies and designs that are additionally needed for an injection mold are described by engineering drawings. Maintenance and repair, and essential manufacturing techniques are also discussed. Now in full color, this second edition builds on the success of the first, with updates and small corrections throughout, as well as a new expanded section covering the process chain.

Eliminate the guesswork from critical mold aspects such as gate location, shape and size. And discover how to establish proper venting so you can prepare ideal mold venting - before the first shot is made. Both newcomers and experienced practitioners in the area of thermoplastics will benefit from its concise explanations of the methods and equipment used, the components necessary for smart mold design, a checklist for designing a mold, and the variety of finishes and textures available and how they are applied.

This review has been written as a practical guide to rubber injection moulding. Many injection moulding processes produce rejects or scrap, because they depend on a host of variables. To eliminate waste it is necessary to learn how to recognise the variables that cause problems, and then experiment to understand their interdependence. This can be developed to a fine art and lead towards 'right first time' processing, the commercial ideal. An additional indexed section containing several hundred abstracts from the Rapra Polymer Library database gives useful references for further reading.

This work focuses on the factors critical to successful injection moulding, including knowledge of plastic materials and how they melt, the importance of mould design, the role of the screw, and the correct use of the controls of an injection moulding machine. It seeks to provide operating personnel with a clear understanding of the basics of injection moulding, resulting in more efficient processing, reduced cycle times, and better part quality with fewer rejects.

Annotation Injection moulding is one of the most commonly used processing technologies for plastics materials. Proper machine set up, part and mould design, and material selection can lead to high quality production. This review outlines common factors to check when preparing to injection mould components, so that costly mistakes can be avoided. This review examines the different types of surface defects that can be identified in plastics parts and looks at ways of solving these problems. Useful flow charts to illustrate possible ways forward are included. Case studies and a large b257 of figures make this a very useful report.

This book provides a structured methodology and scientific basis for engineering injection molds. The topics are presented in a top-down manner, beginning with introductory definitions and the big picture before proceeding to layout and detailed design of molds. The book provides very pragmatic analysis with worked examples that can be readily adapted to real-world product design applications. It will help students and practitioners to understand the inner workings of injection molds and encourage them to think outside the box in developing innovative and highly functional mold designs. This new edition has been extensively revised with new content that includes more than 80 new and revised figures and tables, coverage of development strategy, 3D printing, in-mold sensors, and practical worksheets, as well as a completely new chapter on the mold commissioning process, part approval, and mold maintenance.

The Injection Molding Handbook provides engineers, professionals and other involved in this important industry sector with a thorough up-to-date overview of injection molding processing equipment and techniques, including the basic fundamental information on chemistry, physics, material science and process engineering. It covers all components of the injection molding machine and the various process steps. Topics directly affecting injection molding, such as material selection, process control, simulation, design and troubleshooting complete this reference book for the injection molder. The updated second edition handbook presents a well-rounded overview of the underlying theory governing the various injection molding processes without loosing its practical flavor.

The goal of the book is to assist the designer in the development of parts that are functional, reliable, manufacturable, and aesthetically pleasing. Since injection molding is the most widely used manufacturing process for the production of plastic parts, a full understanding of the integrated design process presented is essential to achieving economic and functional design goals. Features over 425 drawings and photographs. Contents: Introduction to Materials. Manufacturing Considerations for Injection Molded Parts. The Design Process and Material Selection. Structural Design Considerations. Prototyping and Experimental Stress Analysis. Assembly of Injection Molded Plastic Parts. Conversion Constants.

Examining processes that affect more than 70 percent of consumer products ranging from computers to medical devices and automobiles, this reference presents the latest research in automated plastic injection and die casting mold design and manufacture. It analyzes many industrial examples and methodologies while focusing on the algorithms, implementation procedures, and system architectures that will lead to a fully automated or semi-automated computer-aided injection mold design system (CADIMDS). This invaluable guide in this challenging area of precision engineering summarizes key findings and innovations from the authors' many years of research on intelligent mold design technologies.

Stretch Blow Molding, Third Edition, provides the latest on the blow molding process used to produce bottles of the strength required for carbonated drinks. In this updated handbook, Ottmar Brandau introduces the technology of stretch blow molding, explores practical aspects of designing and running a production line, and looks at practical issues for quality control and troubleshooting. As an experienced engineer, manager, and consultant, Brandau's focus is on optimizing the production process, improving quality, and reducing cycle time. In this new edition, the author has thoroughly reviewed the content of the book, providing updates on new

developments in stretch blow molding, including neck sizes, new equipment and processes, and the economics of the process. The book is a thoroughly practical handbook which provides engineers and managers with the toolkit to improve production and engineering aspects in their own businesses, allowing them to save money, increase output, and improve competitiveness by adopting new technologies. Provides knowledge and understanding of the latest technological and best practice developments in stretch blow molding Includes money saving, practical strategies to optimize the production process, improve quality, and reduce cycle times Provides a guide to the training of operators, as well as tactics on how to troubleshoot when products are faulty, productivity is low, or machinery is not operating as expected

This work focuses on the factors critical to successful injection moulding, including knowledge of plastic materials and how they melt, the importance of mould design, the role of the screw, and the correct use of the controls of an injection moulding machine. It seeks to provide operating personnel with a clear understanding of the basics of injection moulding

This Practical Guide to Injection Moulding is based on course material used by ARBURG in training operators of injection moulding machines. The factors involved in injection moulding from material properties and selection to troubleshooting faults are all examined in this book. It covers the equipment types in use and machine settings for different types of plastics. This Guide will assist progress in developing good technical skills and appropriate processing techniques for the range of plastics and products in the marketplace.

How easy life would be if only moldings were the same size and shape as the mold. But they never are, as molders, toolmakers, designers and end users know only too well. Shrinkage means that the size is always different; warpage often changes the shape too. The effects are worse for some plastics than others. Why is that? What can you do about it? The Handbook of Molded Part Shrinkage and Warpage is the first and only book to deal specifically with this fundamental problem. Jerry Fischer's Handbook explains in plain terms why moldings shrink and warp, shows how additives and reinforcements change the picture, sets out the effect of molding process conditions, and explains why you never can have a single 'correct' shrinkage value. It goes on to demonstrate how to alleviate the problem through careful design of the molded part and the mold, and by proper material selection. It also examines computer-aided methods of forecasting shrinkage and warpage. And most important of all, the Handbook gives you the data you need to work with. . Authoritative and rooted in extensive industrial experience, the expert guidance contained in this handbook offers practical understanding to novices, and new insights to readers already skilled in the art of injection molding and mold making. Contains the answers to common problems and detailed advice on how to control mold and post-mold shrinkage and warpage. Case Studies illustrate and enrich the text; Data tables provide the empirical data that is essential for success, but hard to come by.

Injection blow molding is one of the main processes used in the blow molding industry. And although you may find information on this topic in general books on blow molding, the coverage is skimpy and lacking in details. None of them supply the sharply focused, essential information you will find in Samuel Belcher's Practical Guide to Injection Moulding. This third edition has been written to thoroughly update the coverage of injection molding in the World of Plastics. There have been changes, including extensive additions, to over 50% of the content of the second edition. Many examples are provided of processing different plastics and relating the results to critical factors, which

range from product design to meeting performance requirements to reducing costs to zero-defect targets. Changes have not been made that concern what is basic to injection molding. However, more basic information has been added concerning present and future developments, resulting in the book being more useful for a long time to come. Detailed explanations and interpretation of individual subjects (more than 1500) are provided, using a total of 914 figures and 209 tables. Throughout the book there is extensive information on problems and solutions as well as extensive cross referencing on its many different subjects. This book represents the ENCYCLOPEDIA on IM, as is evident from its extensive and detailed text that follows from its lengthy Table of CONTENTS and INDEX with over 5200 entries. The worldwide industry encompasses many hundreds of useful plastic-related computer programs. This book lists these programs (ranging from operational training to product design to molding to marketing) and explains them briefly, but no program or series of programs can provide the details obtained and the extent of information contained in this single sourcebook. This handbook provides a framework for understanding how to characterize plastic manufacturing processes for use in troubleshooting problems. The 21 chapters are authored by well-known and experienced engineers who have specialized knowledge about the processes covered in this practical guide. From the Preface: "In every chapter, the process is described and the most common problems are discussed along with the root causes and potential technical solutions. Numerous case studies are provided that illustrate the troubleshooting process. Mark A. Spalding, The Dow Chemical Company

This second edition of the bestselling guide has been completely revised and updated. The book details the factors involved in the injection moulding process, from material properties and selection to troubleshooting faults, and includes the equipment types currently in use and machine settings for different types of plastics.

Metal injection molding combines the most useful characteristics of powder metallurgy and plastic injection molding to facilitate the production of small, complex-shaped metal components with outstanding mechanical properties. Handbook of Metal Injection Molding, Second Edition provides an authoritative guide to this important technology and its applications. Building upon the success of the first edition, this new edition includes the latest developments in the field and expands upon specific processing technologies. Part one discusses the fundamentals of the metal injection molding process with chapters on topics such as component design, important powder characteristics, compound manufacture, tooling design, molding optimization, debinding, and sintering. Part two provides a detailed review of quality issues, including feedstock characterisation, modeling and simulation, methods to qualify a MIM process, common defects and carbon content control. Special metal injection molding processes are the focus of part three, which provides comprehensive coverage of micro components, two material/two color structures, and porous metal techniques, as well as automation of the MIM process and metal injection molding of large components. Finally, part four explores metal injection molding of particular materials, and has been expanded to include super alloys, carbon steels, precious metals, and aluminum. With its distinguished editor and expert team of international contributors, the Handbook of Metal Injection Molding is an essential guide for all those involved in the high-volume manufacture of small precision parts, across a wide range of high-tech industries such

as microelectronics, biomedical and aerospace engineering. Provides an authoritative guide to metal injection molding and its applications Discusses the fundamentals of the metal injection molding processes and covers topics such as component design, important powder characteristics, compound manufacture, tooling design, molding optimization, debinding, and sintering Comprehensively examines quality issues such as feedstock characterization, modeling and simulation, common defects and carbon content control

Polypropylene is now the third largest consumed plastic material after polyethylene and polyvinyl chloride. This book discusses the advantages and disadvantages of working with polypropylene, offering practical comment on the available types of polypropylene, its mechanical properties and in-service performance, and processing. Comparisons with other common plastics are also provided, which highlight the advantages of this polyolefin.

The all-encompassing guide to total quality process control for injection molding In the same simple, easy-to-understand language that marked the first edition, Total Quality Process Control for Injection Molding, Second Edition lays out a successful plan for producing superior plastic parts using high-quality controls. This updated edition is the first of its kind to zero in on every phase of the injection molding process, the most commonly used plastics manufacturing method, with an all-inclusive strategy for excellence. Beginning with sales and marketing, then moving forward to cover finance, purchasing, design, tooling, manufacturing, assembly, decorating, and shipping, the book thoroughly covers each stage to illustrate how elevated standards across individual departments relate to result in the creation of a top-notch product. This Second Edition: Details ways to improve plastic part design and quality Includes material and process control procedures to monitor quality through the entire manufacturing system Offers detailed information on machinery and equipment and the implementation of quality assurance methods—content that is lacking in similar books Provides problem-analysis techniques and troubleshooting procedures Includes updates that cover Six Sigma, ISO 9000, and TS 16949, which are all critical for quality control; computer-guided process control techniques; and lean manufacturing methods With proven ways to problem-solve, increase performance, and ensure customer satisfaction, this valuable guide offers the vital information today's managers need to plan and implement quality process control—and produce plastic parts that not only meet, but surpass expectations.

This practical guide begins with general background to the polyethylene family, with price, production and market share information. It describes the basic types of polyethylene including virgin and filled polyethylene, copolymers, block and graft polymers and composites, and reviews the types of additives used in polyethylene. It gives the low down on the properties, including, amongst others, rheological, mechanical, chemical, thermal, and electrical properties. It goes on to describe the processing issues and conditions for the wide range of techniques used for polyethylene, and also considers post-processing and assembly issues. It offers guidance on product design and development issues, including materials selection. It is an indispensable resource for everyone working with this material.

This easy-to-understand guide provides the necessary information to implement a scientific molding program. It is a hands-on reference for people on the molding floor, including those previously lacking theoretical background or formal education. The book covers how the injection molding machine prepares the plastic and understanding of plastic flow. The functions of the main machine components are explained and understanding of correct procedures and testing is developed. Each step of the process is clearly explained in a step-by-step manner, and simple examples of important calculations are provided. The practical approach is augmented by useful guides for troubleshooting and machine set-up. An Excel spreadsheet

with a process test and a machine performance test is available as bonus material. Contents 1. Injection Unit: Screw 2. Injection Unit: Barrel 3. Clamping Unit 4. Ejectors/Controllers, Human Machine Interface (HMI) 5. Machine Performance Testing 6. Process Development Test 7. Plastic Temperature 8. Plastic Flow 9. Plastic Pressure (Pack/Hold) 10. Cooling 11. Benchmarking the Injection Molding Process 12. Process Troubleshooting 13. What is Important on a Set-Up Sheet? 14. Commonly Used Conversion Factors and Formulas 15. Machine Set-Up 16. Things That Hurt the Bottom Line of a Company 17. Terms and Definitions

This book covers a wide range of applications and uses of simulation and modeling techniques in polymer injection molding, filling a noticeable gap in the literature of design, manufacturing, and the use of plastics injection molding. The authors help readers solve problems in the advanced control, simulation, monitoring, and optimization of injection molding processes. The book provides a tool for researchers and engineers to calculate the mold filling, optimization of processing control, and quality estimation before prototype molding.

Blow moulding is a manufacturing process used to form hollow plastic parts. It evolved from the ancient art of glass blowing and it is used to particular advantage with plastic materials. Celluloid was used first to blow mould baby rattles and novelties in the 1930s, linear low-density polyethylene was used in the 1940s for high production bottles and these days polyethylene terephthalate is used to make anything from soda bottles, to highly sophisticated multilayered containers and automotive fuel tanks in the last decade. When designing a product it is important to consider aspects such as a material's characteristics, the processing methods available, the assembly and finishing procedures, and the life cycle and expected performance of the product. This book presents the basics of blow moulding as well as the latest state-of-the-art and science of the industry. A key feature is the approach of discussing the 'basics' and then taking the reader through the entire process from design development through to final production.

Rotational moulding (also called rotomoulding or rotocasting), is a low pressure, high temperature manufacturing process that offers a very competitive alternative to blow moulding, thermoforming and injection moulding for the manufacture of hollow plastic parts. It offers designers the chance to produce relatively stress-free articles, with uniform wall thickness and potentially complex shapes. This second edition of the very popular Practical Guide to Rotational Moulding describes the basic aspects of the process and the latest state-of-the-art developments in the industry. It is completely revised and is extensively illustrated. This guide will be of interest both to students of polymer processing and those who work with rotational moulding equipment.

Energy Management in Plastics Processing: Strategies, Targets, Techniques, and Tools, Third Edition, addresses energy benchmarking and site surveys, how to understand energy supplies and bills, and how to measure and manage energy usage and carbon footprinting. The book's approach highlights the need to reduce the kWh/kg of materials processed and the resulting permanent reductions in consumption and costs. Every topic is covered in a 2-page spread, providing the reader with clear actions and key tips for success. This revised third edition covers new developments in energy management, power supply considerations, automation, assembly operations, water footprinting, and transport considerations, and more. Users will find a practical workbook that not only shows how to reduce energy consumption in all the major plastics shaping processes (moulding, extrusion, forming), but also provides tactics that will benefit other locations in plants (e.g. in factory services and nonmanufacturing areas).

Enables plastics processors in their desire to institute an effective energy management system, both in processing and elsewhere in the plant Provides a holistic perspective, shining a light on areas where energy management methods may have not been previously considered Acts as a roadmap to help companies move towards improved sustainability and cost savings

This book is aimed at potential customers and personnel in the injection moulding industry, and emphasises quality control, including working to the ISO 9001 Standard. It also highlights the need to consider the economics of operation prior to taking on new projects. Above all, the customer-manufacturer relationship is emphasised at all stages. The customer is encouraged to examine the capabilities of the manufacturer, and the manufacturer is encouraged to develop a good understanding of the exact requirements of the customer. This book is of value to all areas of a company, from those who purchase raw materials to those working in design, technology and production. It will provide a guide for automotive component buyers and should also be useful to a CEO or board member who is new to the industry.

Beginning with an introduction to injection moulding and an overview of MIM, this practical guide covers all aspects of the technology from selecting raw materials and fillers to tooling up, sintering, feedstock calculations, capital investment and product development.

This book covers the most recent and important developments in advanced injection molding technologies, such as intelligent process control; technology innovations and computer simulation for emerging special injection molding processes like microinjection molding, microcellular injection molding, water-assisted foaming, water-assisted injection molding, and variable mold temperature technologies; conductive polymer foams and composites; injection molding of optical products; and an automated mold design navigation system with integrated knowledge management capability. It is intended to be used as a textbook for both introductory and advanced injection molding courses, as a must-have reference for professional engineers and engineering managers who want to keep abreast of the latest technological developments and applications, and in libraries to serve interested readers from both academic and industrial communities as well as the general public. With chapters written by an international team of experts, this book provides a broad and insightful coverage, complementary to other books on injection molding.

Fundamental concepts coupled with practical, step-by-step guidance With its emphasis on core principles, this text equips readers with the skills and knowledge to design the many processes needed to safely and successfully manufacture thermoplastic parts. The first half of the text sets forth the general theory and concepts underlying polymer processing, such as the viscoelastic response of polymeric fluids and diffusion and mass transfer. Next, the text explores specific practical aspects of polymer processing, including mixing, extrusion dies, and post-die processing. By addressing a broad range of design issues and methods, the authors demonstrate how to solve most common processing problems. This Second Edition of the highly acclaimed Polymer Processing has been thoroughly updated to reflect current polymer processing issues and practices. New areas of coverage include: Micro-injection molding to produce objects weighing a fraction of a gram, such as miniature gears and biomedical devices New chapter dedicated to the recycling of thermoplastics and the processing of renewable polymers Life-cycle assessment, a systematic method for determining whether recycling is appropriate and which form of

recycling is optimal Rheology of polymers containing fibers Chapters feature problem sets, enabling readers to assess and reinforce their knowledge as they progress through the text. There are also special design problems throughout the text that reflect real-world polymer processing issues. A companion website features numerical subroutines as well as guidance for using MATLAB®, IMSL®, and Excel to solve the sample problems from the text. By providing both underlying theory and practical step-by-step guidance, Polymer Processing is recommended for students in chemical, mechanical, materials, and polymer engineering.

The IM Troubleshooting Guide was originally prepared in 1996 as a 48 page convenient pocket sized resource for use in Injection Molding. This information is most useful by personnel who work in the injection molding field including press operators, technicians, engineers, etc. This 3rd ED is at 104 pages and includes selected extra pages from other APEBOOKS that are helpful in process set up and troubleshooting. This book includes many useful definitions and tips for troubleshooting molding problems -- both process and tooling related. The book was written based on many years of process engineering. The solutions for correcting process problems are listed in the best order to solve the problem based on factors such as ease & timeliness to perform versus cost to implement and always considering effectiveness to solve problem. It is also useful to identify a common set of definitions for each department to use when discussing these common molding defects. Tips are often provided as to which defects may be process correctable versus those requiring product or mold changes. An introduction to DOE and dimensional nominalization is made, but discussed in greater detail in some of the other booklets written by this author for injection molding ... these are listed later in this book ... a total of six books have been written for injection molding.

This practical introductory guide to injection molding simulation is aimed at both practicing engineers and students. It will help the reader to innovate and improve part design and molding processes, essential for efficient manufacturing. A user-friendly, case-study-based approach is applied, enhanced by many illustrations in full color. The book is conceptually divided into three parts: Chapters 1–5 introduce the fundamentals of injection molding, focusing the factors governing molding quality and how molding simulation methodology is developed. As they are essential to molding quality, the rheological, thermodynamic, thermal, mechanical, kinetic properties of plastics are fully elaborated in this part, as well as curing kinetics for thermoset plastics. Chapters 6–11 introduce CAE verification of design, a valuable tool for both part and mold designers toward avoiding molding problems in the design stage and to solve issues encountered in injection molding. This part covers design guidelines of part, gating, runner, and cooling channel systems. Temperature control in hot runner systems, prediction and control of warpage, and fiber orientation are also discussed. Chapters 12–17 introduce research and development in innovative molding,

illustrating how CAE is applied to advanced molding techniques, including co-/bi-Injection molding, gas-/water-assisted injection molding, foam injection molding, powder injection molding, resin transfer molding, and integrated circuit packaging. The authors come from the creative simulation team at CoreTech System (Moldex3D), winner of the PPS James L. White Innovation Award 2015. Several CAE case study exercises for execution in the Moldex3D software are included to allow readers to practice what they have learned and test their understanding.

Plastics Injection Molding: Scientific Molding, Recommendations, and Best Practices is a user-friendly reference book and training tool, with all the essentials to understand injection molding of plastics. It is a practical guide to refining and controlling the process, increasing robustness and consistency, increasing productivity and profitability, and reducing costs. This book contains structured information on process definitions and parameters, optimization methods, key points, interpretation of data sheets, among other useful recommendations regarding both technology and design. It also provides analysis of process deviation, defects, incidents, etc. as well as a section dedicated to material selection and comparison. It includes a bonus of downloadable Excel spreadsheets for application to scientific molding, process analysis, and optimization. This book is aimed at injection molding technicians, process engineers, quality engineers, mold designers, part designers, simulation engineers, team leaders, plant managers, and those responsible for purchasing plastic materials.

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