

Technology Of Thermoforming

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Practical Thermoforming: Principles and Applications - Florian
1996-08-09

"Provides in-depth coverage of the entire thermoforming molding process from market domain and materials options to manufacturing methods and peripheral support. Second Edition furnishes entirely new information on twin sheet forming, corrugated tubing and pipe manufacturing techniques, plastics recycling, forthcoming equipment, and energy and labor costs."

Plastic Product Material and Process Selection Handbook - Dominick V
Rosato 2004-08-04

This book is for people involved in working with plastic material and plastic fabricating processes. The information and data in this book are provided as a comparative guide to help in understanding the performance of plastics and in making the decisions that must be made when developing a logical approach to fabricating plastic products to meet performance requirements at the lowest costs. It is formatted to allow for easy reader access and this care has been translated into the individual chapter constructions and index. This book makes very clear the behaviour of the 35,000 different plastics with the different behaviours of the hundreds of processes. Products reviewed range from toys to medical devices, to cars, to boats, to underwater devices, containers, springs, pipes, aircraft and spacecraft. The reader's product to be designed and/or fabricated can be directly or indirectly related to plastic materials, fabricating processes and/or product design reviews in this book. *Essential for people involved in working with plastic material and plastic fabricating processes *Will help readers understand the performance of plastics *Helps readers to make decisions which meet performance requirements and to keep costs low

Plastic Conversion Processes - Eric Cybulski 2009-05-28

The explosion of plastic material development continues to generate a proliferation of conversion processes and variants of these methods. Unfortunately, most books on plastics conversion focus on a single process, such as injection molding, limiting their usefulness to readers without prior knowledge of the field. Few, if any, single-source texts adequately describe and compare each of the plastic conversion processes together. *Plastic Conversion Processes: A Concise and Applied Guide* addresses that need. It provides a basic overview of each of the seven major conversion processes, which account for the creation of more than 97 percent of all plastics products today. This detailed guide assembles and integrates the wealth of information scattered throughout various literature, to provide a basic yet complete illustration of plastic conversion processes. Learn Methods to Compare, Evaluate, and Select the Best Process for Your Product This book is unique in that it employs an all-encompassing approach, offering more than a mere overview of basic theory and application related to each major process. Chapters begin with a process-attribute table to serve as a quick guide, and then briefly describe a particular conversion process. To ensure comprehensive understanding of each method and how it works, sections include a short history and detailed explanation of the particular equipment, tooling, and materials used, as well as general piece part design guidelines and case studies gleaned from real-life experience. There is a plastic term for every letter of the alphabet, making it one of the most complex fields in science. A "quick reference" section at the end of the book includes an exhaustive collection of more than 350 terms, definitions, acronyms, and a key process characteristics comparison chart. Supplemented with photos, diagrams, and illustrations that bolster understanding of the material, this book characterizes the plastics industry in a way that makes it less intimidating, to help those new to the field fully grasp the entire spectrum of the field. With its uncommon

consolidation of information, this volume quickly and effectively brings readers up to speed on plastic conversion processes.

Handbook of Industrial Polyethylene and Technology - Mark A. Spalding
2017-10-12

This handbook provides an exhaustive description of polyethylene. The 50+ chapters are written by some of the most experienced and prominent authors in the field, providing a truly unique view of polyethylene. The book starts with a historical discussion on how low density polyethylene was discovered and how it provided unique opportunities in the early days. New catalysts are presented and show how they created an expansion in available products including linear low density polyethylene, high density polyethylene, copolymers, and polyethylene produced from metallocene catalysts. With these different catalysts systems a wide range of structures are possible with an equally wide range of physical properties. Numerous types of additives are presented that include additives for the protection of the resin from the environment and processing, fillers, processing aids, anti-fogging agents, pigments, and flame retardants. Common processing methods including extrusion, blown film, cast film, injection molding, and thermoforming are presented along with some of the more specialized processing techniques such as rotational molding, fiber processing, pipe extrusion, reactive extrusion, wire and cable, and foaming processes. The business of polyethylene including markets, world capacity, and future prospects are detailed. This handbook provides the most current and complete technology assessments and business practices for polyethylene resins.

Advances in Polymer Processing - S Thomas 2009-05-30

Processing techniques are critical to the performance of polymer products which are used in a wide range of industries. *Advances in polymer processing: From macro- to nano- scales* reviews the latest advances in polymer processing, techniques and materials. Part one reviews the fundamentals of polymer processing with chapters on rheology, materials and polymer extrusion. Part two then discusses advances in moulding technology with chapters on such topics as compression, rotational and blow moulding of polymers. Chapters in Part three review alternative processing technologies such as calendaring and coating, foam processing and radiation processing of polymers. Part four discusses micro and nano-technologies with coverage of themes such as processing of macro, micro and nanocomposites and processing of carbon nanotubes. The final section of the book addresses post-processing technologies with chapters on online monitoring and computer modelling as well as joining, machining, finishing and decorating of polymers. With is distinguished editors and team of international contributors, *Advances in polymer processing: From macro- to nano- scales* is an invaluable reference for engineers and academics concerned with polymer processing. Reviews the latest advances in polymer processing, techniques and materials analysing new challenges and opportunities Discusses the fundamentals of polymer processing considering the compounding and mixing of polymers as well as extrusion Assesses alternative processing technologies including calendaring and coating and thermoforming of polymers

Handbook of Polymers for Pharmaceutical Technologies, Processing and Applications - Vijay Kumar Thakur 2015-07-27

Polymers are one of the most fascinating materials of the present era finding their applications in almost every aspects of life. Polymers are either directly available in nature or are chemically synthesized and used depending upon the targeted applications. Advances in polymer science and the introduction of new polymers have resulted in the significant development of polymers with unique properties. Different kinds of polymers have been and will be one of the key in several applications in

many of the advanced pharmaceutical research being carried out over the globe. This 4-partset of books contains precisely referenced chapters, emphasizing different kinds of polymers with basic fundamentals and practicality for application in diverse pharmaceutical technologies. The volumes aim at explaining basics of polymers based materials from different resources and their chemistry along with practical applications which present a future direction in the pharmaceutical industry. Each volume offer deep insight into the subject being treated. Volume 1: Structure and Chemistry Volume 2: Processing and Applications Volume 3: Biodegradable Polymers Volume 4: Bioactive and Compatible Synthetic/Hybrid Polymers

The Science and Technology of Flexible Packaging - Barry A Morris
2016-09-01

The Science and Technology of Flexible Packaging: Multilayer Films from Resin and Process to End Use provides a comprehensive guide to the use of plastic films in flexible packaging, covering scientific principles, properties, processes, and end use considerations. The book brings the science of multilayer films to the practitioner in a concise and impactful way, presenting the fundamental understanding required to improve product design, material selection, and processes, and includes information on why one material is favored over another for a particular application, or how the film or coating affects material properties. Detailed descriptions and analysis of the key properties of packaging films are provided from both an engineering and scientific perspective. End-use effects are also covered in detail, providing key insights into the way the products being packaged influence film properties and design. The book bridges the gap between key scientific literature and the practical challenges faced by the flexible packaging industry, providing essential scientific insights, best practice techniques, environmental sustainability information, and key principles of structure design to enable engineers and scientists to deliver superior products with reduced development time and cost. Provides essential information on all aspects of multilayer films in flexible packaging Aids in material selection and processing, shortening development times and delivering stronger products Bridges the gap between scientific principles and key challenges in the packaging industry, with practical explanations to assist practitioners in overcoming those challenges

Encyclopedia of Polymer Science and Technology, Concise - Herman F. Mark 2013-10-16

The compact, affordable reference, revised and updated The Encyclopedia of Polymer Science and Technology, Concise Third Edition provides the key information from the complete, twelve-volume Mark's Encyclopedia in an affordable, condensed format. Completely revised and updated, this user-friendly desk reference offers quick access to all areas of polymer science, including important advances in nanotechnology, imaging and analytical techniques, controlled polymer architecture, biomimetics, and more, all in one volume. Like the twelve-volume full edition, the Encyclopedia of Polymer Science and Technology, Concise Third Edition provides both SI and common units, carefully selected key references for each article, and hundreds of tables, charts, figures, and graphs.

Human Aspects of IT for the Aged Population. Technologies, Design and User Experience - Qin Gao 2020-07-10

This three volume set of LNCS 12207, 12208 and 12209 constitutes the refereed proceedings of the 6th International Conference on Human Aspects of IT for the Aged Population, ITAP 2020, held as part of the 22nd International Conference, HCI International 2020, which took place in Copenhagen, Denmark, in July 2020. The conference was held virtually due to the COVID-19 pandemic. The total of 1439 papers and 238 posters have been accepted for publication in the HCII 2020 proceedings from a total of 6326 submissions. ITAP 2020 includes a total of 104 regular papers which are organized in topical sections named: Involving Older Adults in HCI Methodology, User Experience and Aging, Aging and Mobile and Wearable Devices, Health and Rehabilitation Technologies, Well-being, Persuasion, Health Education and Cognitive Support, Aging in Place, Cultural and Entertainment Experiences for Older Adults, Aging and Social Media, Technology Acceptance and Societal Impact.

Fundamentals of Plastics Thermoforming - Peter Klein 2009

The process of heating and reshaping plastics sheet and film materials has been in use since the beginning of the plastics industry. This process is known as thermoforming. Today this process is used for industrial products including signage, housings, and hot tubs. It also produces much of the packaging in use today including blister packs, egg cartons, and food storage containers. This process has many advantages over other methods of producing these products, but it has some limitations.

This book has a twofold purpose. It is designed to be used as a text book for a course on thermoforming. It is also intended to be an application guide for professionals in the field of thermoforming including manufacturing, process and quality engineers, and managers. This book is focused on process application rather than theory. It refers to real products and processes with the intent of understanding the real issues faced in this industry. In addition to materials and processes, part and tool design are covered. Quality control is critical to any operation and this is also covered in this text. Two areas of focus in today's industry include Lean operations and environmental issues. Both of these topics are also included. Table of Contents: Introduction / Plastics Materials / Thermoforming Process Overview / The Forming Process / Part Design Mold / Tool Design / Quality Control Issues / Lean Operations / Environmental Issues

Insights and Innovations in Structural Engineering, Mechanics and Computation - Alphose Zingoni 2016-11-25

Insights and Innovations in Structural Engineering, Mechanics and Computation comprises 360 papers that were presented at the Sixth International Conference on Structural Engineering, Mechanics and Computation (SEMC 2016, Cape Town, South Africa, 5-7 September 2016). The papers reflect the broad scope of the SEMC conferences, and cover a wide range of engineering structures (buildings, bridges, towers, roofs, foundations, offshore structures, tunnels, dams, vessels, vehicles and machinery) and engineering materials (steel, aluminium, concrete, masonry, timber, glass, polymers, composites, laminates, smart materials). Some contributions present the latest insights and new understanding on (i) the mechanics of structures and systems (dynamics, vibration, seismic response, instability, buckling, soil-structure interaction), and (ii) the mechanics of materials and fluids (elasticity, plasticity, fluid-structure interaction, flow through porous media, biomechanics, fracture, fatigue, bond, creep, shrinkage). Other contributions report on (iii) recent advances in computational modelling and testing (numerical simulations, finite-element modeling, experimental testing), and (iv) developments and innovations in structural engineering (planning, analysis, design, construction, assembly, maintenance, repair and retrofitting of structures). Insights and Innovations in Structural Engineering, Mechanics and Computation is particularly of interest to civil, structural, mechanical, marine and aerospace engineers. Researchers, developers, practitioners and academics in these disciplines will find the content useful. Short versions of the papers, intended to be concise but self-contained summaries of the full papers, are collected in the book, while the full versions of the papers are on the accompanying CD.

Practical Thermoforming: Principles and Applications - Raymond J. Mikulak 1996-08-09

"Provides in-depth coverage of the entire thermoforming molding process from market domain and materials options to manufacturing methods and peripheral support. Second Edition furnishes entirely new information on twin sheet forming, corrugated tubing and pipe manufacturing techniques, plastics recycling, forthcoming equipment, and energy and labo

Applied Plastics Engineering Handbook - Myer Kutz 2016-09-15

Applied Plastics Engineering Handbook: Processing, Materials, and Applications, Second Edition, covers both the polymer basics that are helpful to bring readers quickly up-to-speed if they are not familiar with a particular area of plastics processing and the recent developments that enable practitioners to discover which options best fit their requirements. New chapters added specifically cover polyamides, polyimides, and polyesters. Hot topics such as 3-D printing and smart plastics are also included, giving plastics engineers the information they need to take these embryonic technologies and deploy them in their own work. With the increasing demands for lightness and fuel economy in the automotive industry (not least due to CAFÉ standards), plastics will soon be used even further in vehicles. A new chapter has been added to cover the technology trends in this area, and the book has been substantially updated to reflect advancements in technology, regulations, and the commercialization of plastics in various areas. Recycling of plastics has been thoroughly revised to reflect ongoing developments in sustainability of plastics. Extrusion processing is constantly progressing, as have the elastomeric materials, fillers, and additives which are available. Throughout the book, the focus is on the engineering aspects of producing and using plastics. The properties of plastics are explained, along with techniques for testing, measuring, enhancing, and analyzing them. Practical introductions to both core topics and new developments make this work equally valuable for newly qualified plastics engineers

seeking the practical rules-of-thumb they don't teach you in school and experienced practitioners evaluating new technologies or getting up-to-speed in a new field. Presents an authoritative source of practical advice for engineers, providing guidance from experts that will lead to cost savings and process improvements Ideal introduction for both new engineers and experienced practitioners entering a new field or evaluating a new technology Updated to include the latest technology, including 3D Printing, smart polymers, and thorough coverage of biopolymers and biodegradable plastics

Handbook of Industrial Polyethylene and Technology - Mark A. Spalding 2017-10-26

This handbook provides an exhaustive description of polyethylene. The 50+ chapters are written by some of the most experienced and prominent authors in the field, providing a truly unique view of polyethylene. The book starts with a historical discussion on how low density polyethylene was discovered and how it provided unique opportunities in the early days. New catalysts are presented and show how they created an expansion in available products including linear low density polyethylene, high density polyethylene, copolymers, and polyethylene produced from metallocene catalysts. With these different catalysts systems a wide range of structures are possible with an equally wide range of physical properties. Numerous types of additives are presented that include additives for the protection of the resin from the environment and processing, fillers, processing aids, anti-fogging agents, pigments, and flame retardants. Common processing methods including extrusion, blown film, cast film, injection molding, and thermoforming are presented along with some of the more specialized processing techniques such as rotational molding, fiber processing, pipe extrusion, reactive extrusion, wire and cable, and foaming processes. The business of polyethylene including markets, world capacity, and future prospects are detailed. This handbook provides the most current and complete technology assessments and business practices for polyethylene resins.

Thermoforming - Peter Schwarzmann 2018-12-10

Thermoforming is an area of plastics processing with especially high growth, applying to both production of technical parts as well as for packaging. In the area of plastics packaging, thermoforming is unrivaled as a processing method. This popular and unparalleled book has been substantially extended and revised in its second edition. New topics include thermoforming tools, decoration in thermoforming, and energy usage in thermoforming. In addition to the thermoplastic materials, all procedural steps of thermoforming as well as the essential machine types and fundamentals of making tools and molds are described comprehensively and illustrated with practical examples. This is a practical manual for both beginners and experienced professionals, based on a well-proven teaching program employed in training courses, with detailed descriptions of the principles and processes of thermoforming. It provides an introduction to the topic for students, as well as the fundamental knowledge for deeper treatment of specific problems for working engineers and technicians with practical field experience.

Technology of Plastics Packaging for the Consumer Market - Geoff A. Giles 2001

This volume acquaints the reader with the technologies that can be used to convert a limited number of polymers into a myriad of packaging formats. It is directed at packaging technologists and those involved in the design and development of packaging.

Proceedings of 5th International Conference on Advanced Manufacturing Engineering and Technologies - Vidosav Majstorovic 2017-04-22

This book presents the proceedings from the 5th NEWTECH conference (Belgrade, Serbia, 5-9 June 2017), the latest in a series of high-level conferences that bring together experts from academia and industry in order to exchange knowledge, ideas, experiences, research results, and information in the field of manufacturing. The range of topics addressed is wide, including, for example, machine tool research and in-machine measurements, progress in CAD/CAM technologies, rapid prototyping and reverse engineering, nanomanufacturing, advanced material processing, functional and protective surfaces, and cyber-physical and reconfigurable manufacturing systems. The book will benefit readers by providing updates on key issues and recent progress in manufacturing engineering and technologies and will aid the transfer of valuable knowledge to the next generation of academics and practitioners. It will appeal to all who work or conduct research in this rapidly evolving field.

Handbook of Plastic Processes - Charles A. Harper 2006-05-26

An outstanding and thorough presentation of the complete field of plastics processing Handbook of Plastic Processes is the only

comprehensive reference covering not just one, but all major processes used to produce plastic products-helping designers and manufacturers in selecting the best process for a given product while enabling users to better understand the performance characteristics of each process. The authors, all experts in their fields, explain in clear, concise, and practical terms the advantages, uses, and limitations of each process, as well as the most modern and up-to-date technologies available in their application. Coverage includes chapters on: Injection molding Compression and transfer molding Sheet extrusion Blow molding Calendaring Foam processing Reinforced plastics processing Liquid resin processing Rotational molding Thermoforming Reaction injection molding Compounding, mixing, and blending Machining and mechanical fabrication Assembly, finishing, and decorating Each chapter details a particular process, its variations, the equipment used, the range of materials utilized in the process, and its advantages and limitations. Because of its increasing impact on the industry, the editor has also added a chapter on nanotechnology in plastics processing.

Thermoforming - Geza Gruenwald 2018-05-04

FROM THE FOREWORD Dr. Gruenwald has indicated the desirable properties of polymers for differing applications; thus, his text is especially useful for polymer chemists who must "tailor" plastic materials for specific groups of applications. Engineers in extruding and calendaring film and sheet will benefit from the intimate relationships elucidated between processing parameters imposed upon stocks employed in thermoforming and the products thereof. Mold designers are provided with a complete guide that will enable them to avoid the less obvious pitfalls and wasted effort so often experienced in the evolution of molds for (especially) complex parts. Quite likely, Dr. Gruenwald's suggestions will lead to considerable benefits to those who read and practice by this remarkable exposition of thermoforming technology. Robert K. Jordan Director-Metallizing Institute, Director-Engineering Research Institute, Scientist in Residence, Gannon University

Understanding Thermoforming - James L. Throne 2008

Modern thermoforming practice is a balance of practical experience and the application of engineering principles. This very practical book introduces the process, its tools and machinery, and the commonly used materials to novices and practicing engineers alike.

Plastics Technology Handbook - - Don Rosato 2010-10-22

This comprehensive handbook provides a simplified, practical and innovative approach to understanding the design and manufacture of plastic products. It will expand the reader's understanding of plastics technology by defining and focusing on past, current, and future technical trends. Published in 2 volumes, the content is presented so that both technical and non-technical readers can understand the interrelationships of materials to processes. Different plastic products are examined and their related critical factors are shown, from meeting performance requirements in different environments, to reducing costs and targeting for zero defects. Examples used include small to large, and simple to complex shapes. Information is included on static properties (tensile, flexural), dynamic properties (creep, fatigue, impact) and physical and chemical properties. Extensive reference sources and useful data and physical and chemical constants are also provided. Volume 1 sets out the basic principles of polymers, what they are and how plastics are formulated, processed, and manufactured.

Hot Embossing - Matthias Worgull 2009-09-28

This book is an overview of replication technology for micro- and nanostructures, focusing on the techniques and technology of hot embossing, a scaleable and multi-purpose technology for the manufacture of devices such as BioMEMS and microfluidic devices which are expected to revolutionize a wide range of medical and industrial processes over the coming decade. The hot embossing process for replicating microstructures was developed by the Forschungszentrum Karlsruhe (Karlsruhe Institute of Technology) where the author is head of the Nanoreplication Group. Worgull fills a gap in existing information by fully detailing the technology and techniques of hot embossing. He also covers nanoimprinting, a process related to hot embossing, with examples of actual research topics and new applications in nanoreplication. *A practical and theoretical guide to selecting the materials, machinery and processes involved in microreplication using hot embossing techniques. *Compares different replication processes such as: micro injection molding, micro thermoforming, micro hot embossing, and nanoimprinting *Details commercially available hot embossing machinery and components like tools and mold inserts

Proceedings of the 36th International MATADOR Conference -

Srichand Hinduja 2010-08-05

Presented here are 130 refereed papers given at the 36th MATADOR Conference held at The University of Manchester in July 2010. The MATADOR series of conferences covers the topics of Manufacturing Automation and Systems Technology, Applications, Design, Organisation and Management, and Research. The proceedings of this Conference contain original papers contributed by researchers from many countries on different continents. The papers cover the principles, techniques and applications in aerospace, automotive, biomedical, energy, consumable goods and process industries. The papers in this volume reflect: • the importance of manufacturing to international wealth creation; • the emerging fields of micro- and nano-manufacture; • the increasing trend towards the fabrication of parts using lasers; • the growing demand for precision engineering and part inspection techniques; and • the changing trends in manufacturing within a global environment.

Processing Technology for Bio-Based Polymers - Khalid Mahmood Zia 2021-06-25

Processing Technology for Bio-Based Polymers: Advanced Strategies and Practical Aspects brings together the latest advances and novel technologies surrounding the synthesis and manufacture of biopolymers, ranging from bio-based polymers to synthetic polymers from bio-derived monomers. Sections examine bio-based polymer chemistry, discuss polymerization process and emerging design technologies, cover manufacturing and processing approaches, explain cutting-edge approaches and innovative applications, and focus on biomedical and other key application areas. Final chapters provide detailed discussion and an analysis of economic and environmental concerns, practical considerations, challenges, opportunities and future trends. This is a valuable resource for researchers, scientists and advanced students in polymer science, bio-based materials, nanomaterials, plastics engineering, biomaterials, chemistry, biotechnology, and materials science and engineering, as well as R&D professionals, engineers and industrialists interested in the development of biopolymers for advanced products and applications. Focuses on the processing of bio-based polymers, covering both traditional methods and innovative new approaches. Offers novel opportunities and ideas for developing or improving technologies for biopolymer research, preparation and application. Examines other key considerations, including reliability and end product, economic concerns, and environmental and lifecycle aspects.

Advances in System-Integrated Intelligence - Maurizio Valle

This book reports on cutting-edge research and developments focusing on integrating intelligent functionalities into materials, components, systems and products. Gathering the proceedings of the 6th International Conference on System-Integrated Intelligence (SysInt 2022), held on September 7-9, in Genova, Italy, it offers a comprehensive, multidisciplinary and applied perspective on the state-of-the-art and challenges in the field of intelligent, flexible and connected systems. The book covers advanced methods and applications relating to artificial, pervasive and ubiquitous intelligence, sensors, smart factory and logistics, structural health monitoring, as well as soft robotics, cognitive systems and human-machine interaction. Giving a special focus to artificial intelligence, it extensively reports on methods and algorithms for data-driven modeling, and agent-based data processing and planning. It aims at inspiring and fostering collaboration between researchers and professionals from the different fields of electrical, manufacturing and production engineering, and materials and computer sciences. .

Advances in Thermoforming - J. L. Throne 1997

This review provides a brief discussion of the thermoforming process, including its historical development and machinery and material requirements. An additional indexed section containing several hundred abstracts from the Rapra Polymer Library database provides useful references for further reading.

Manufacturing and Design - Erik Tempelman 2014-03-03

Manufacturing and Design presents a fresh view on the world of industrial production: thinking in terms of both abstraction levels and trade-offs. The book invites its readers to distinguish between what is possible in principle for a certain process (as determined by physical law); what is possible in practice (the production method as determined by industrial state-of-the-art); and what is possible for a certain supplier (as determined by its production equipment). Specific processes considered here include metal forging, extrusion, and casting; plastic injection molding and thermoforming; additive manufacturing; joining; recycling; and more. By tackling the field of manufacturing processes from this new angle, this book makes the most out of a reader's limited

time. It gives the knowledge needed to not only create well-producible designs, but also to understand supplier needs in order to find the optimal compromise. Apart from improving design for production, this publication raises the standards of thinking about producibility. Emphasizes the strong link between product design and choice of manufacturing process. Introduces the concept of a "production triangle" to highlight tradeoffs between function, cost, and quality for different manufacturing methods. Balanced sets of questions are included to stimulate the reader's thoughts. Each chapter ends with information on the production methods commonly associated with the principle discussed, as well as pointers for further reading. Hints to chapter exercises and an appendix on long exercises with worked solutions available on the book's companion site: <http://booksite.elsevier.com/9780080999227/>

SPE/ANTEC 1999 Proceedings - Spe 1999-04-29

Volume 2 of the conference proceedings of the SPE/Antac on 'Plastics Bridging the Millennia' - subtopic of 'Materials', held on the 2-6 May 1999 in New York City, USA.

Polypropylene - Clive Maier 1998-04-15

Polypropylene: The Definitive User's Guide and Databook presents in a single volume a panoramic and up-to-the-minute user's guide for today's most important thermoplastic. The book examines every aspect of science, technology, engineering, properties, design, processing, applications of the continuing development and use of polypropylene. The unique treatment means that specialists can not only find what they want but for the first time can relate to and understand the needs and requirements of others in the product development chain. The entire work is underpinned by very extensive collections of property data that allow the reader to put the information to real industrial and commercial use. Despite the preeminence and unrivaled versatility of polypropylene as a thermoplastic material to manufacture, relatively few books have been devoted to its study. Polypropylene: The Definitive User's Guide and Databook not only fills the gap but breaks new ground in doing so. Polypropylene is the most popular thermoplastic in use today, and still one of the fastest growing. Polypropylene: The Definitive User's Guide and Databook is the complete workbook and reference resource for all those who work with the material. Its comprehensive scope uniquely caters to polymer scientists, plastics engineers, processing technologists, product designers, machinery and mold makers, product managers, end users, researchers and students alike.

Polypropylene - J. Karger-Kocsis 2012-12-06

My heart sank when I was approached by Dr Hastings and by Professor Briggs (Senior Editor of Materials Science and Technology and Series Editor of Polymer Science and Technology Series at Chapman & Hall, respectively) to edit a book with the provisional title Handbook of Polypropylene. My reluctance was due to the fact that my former book [1] along with that of Moore [2], issued in the meantime, seemed to cover the information demand on polypropylene and related systems. Encouraged, however, by some colleagues (the new generation of scientists and engineers needs a good reference book with easy information retrieval, and the development with metallocene catalysts deserves a new update!), I started on this venture. Having some experience with polypropylene systems and being aware of the current literature, it was easy to settle the titles for the book chapters and also to select and approach the most suitable potential contributors. Fortunately, many of my first-choice authors accepted the invitation to contribute. Like all editors of multi-author volumes, I recognize that obtaining contributors follows an S-type curve of asymptotic saturation when the number of willing contributors is plotted as a function of time. The saturation point is, however, never reached and as a consequence, Dear Reader, you will also find some topics of some relevance which are not explicitly treated in this book (but, believe me, I have considered them).

The Wiley Encyclopedia of Packaging Technology - Kit L. Yam 2010-01-05

The complete and authoritative guide to modern packaging technologies—updated and expanded From A to Z, The Wiley Encyclopedia of Packaging Technology, Third Edition covers all aspects of packaging technologies essential to the food and pharmaceutical industries, among others. This edition has been thoroughly updated and expanded to include important innovations and changes in materials, processes, and technologies that have occurred over the past decade. It is an invaluable resource for packaging technologists, scientists and engineers, students and educators, packaging material suppliers, packaging converters, packaging machinery manufacturers, processors, retailers, and regulatory agencies. In addition to updating and improving articles from the previous edition, new articles are also added to cover the recent advances and developments in packaging. Content new to this edition

includes: Advanced packaging materials such as antimicrobial materials, biobased materials, nanocomposite materials, ceramic-coated films, and perforated films Advanced packaging technologies such as active and intelligent packaging, radio frequency identification (RFID), controlled release packaging, smart blending, nanotechnology, biosensor technology, and package integrity inspection Various aspects important to packaging such as sustainable packaging, migration, lipid oxidation, light protection, and intellectual property Contributions from experts in all-important aspects of packaging Extensive cross-referencing and easy-to-access information on all subjects Large, double-column format for easy reference

Basics of Troubleshooting in Plastics Processing - Muralisrinivasan Natamai Subramanian 2011-04-20

The Basics of Troubleshooting in Plastics Processing is a condensed practical guide that gives the reader a broad introduction to properties of thermoplastics plastics, additives, the major processes (extrusion, injection molding, rotational molding, blow molding, and thermoforming), as well as troubleshooting. The main goal is to provide the plastics processor with an improved understanding of the basics by explaining the science behind the technology. Machine details are minimized as the emphasis is on processing problems and the defects in an effort to focus on basic root causes to problems and how to solve them. The book's framework is troubleshooting in plastics processing because of the importance it has to the eventual production of high quality end products. Each chapter contains both practical and detailed technical information. This basic guide provides state-of-the-art information on: Processing problems and defects during manufacturing Plastics materials, their properties and characterization The plastics processing techniques Plastics additives Troubleshooting of the 5 main plastics processes References for further reading

PVC Technology - M.V. Titow 2012-12-06

This book continues the tradition of the first two editions of the late W. S. Penn's original PVC Technology, and the extensively revised third (1971) edition prepared by myself and B. J. Lanham. In the present edition the original general format, and the arrangement of chapters, have been largely preserved, but virtually nothing now remains of Penn's own text: a part of the contents is based on material from the 1971 Titow/Lanham version (revised, updated and mainly rewritten): the rest is new, including, inter alia, several chapters specially contributed by experts from the plastics industry in the UK and Europe. The section listing international (ISO) and national (BS, ASTM and DIN) standards relevant to PVC, which was first introduced (as Appendix 1) in the 1971 edition, proved a popular feature: it has now been brought up to date and considerably extended. Two further appendices provide, respectively, comprehensive unit conversion tables (with additional information on some of the most frequently encountered units, and the SI units), and a list of many properties of interest in PVC materials, with definitions, typical numerical values, and references to relevant standard test methods. For various reasons, work on this edition involved more than the usual quota of problems: I am truly grateful to the Publisher's Managing Editor, Mr G. B. Olley, for his understanding, patience, unflinching courtesy and friendly encouragement.

Chemical Engineering and Chemical Process Technology - Volume VII - Ryzhard Pohorecki 2010-11-30

Chemical Engineering and Chemical Process Technology is a theme component of Encyclopedia of Chemical Sciences, Engineering and Technology Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty Encyclopedias. Chemical engineering is a branch of engineering, dealing with processes in which materials undergo changes in their physical or chemical state. These changes may concern size, energy content, composition and/or other application properties. Chemical engineering deals with many processes belonging to chemical industry or related industries (petrochemical, metallurgical, food, pharmaceutical, fine chemicals, coatings and colors, renewable raw materials, biotechnological, etc.), and finds application in manufacturing of such products as acids, alkalis, salts, fuels, fertilizers, crop protection agents, ceramics, glass, paper, colors, dyestuffs, plastics, cosmetics, vitamins and many others. It also plays significant role in environmental protection, biotechnology, nanotechnology, energy production and sustainable economical development. The Theme on Chemical Engineering and Chemical Process Technology deals, in five volumes and covers several topics such as: Fundamentals of Chemical Engineering; Unit Operations - Fluids; Unit Operations - Solids; Chemical Reaction Engineering; Process Development, Modeling, Optimization and Control;

Process Management; The Future of Chemical Engineering; Chemical Engineering Education; Main Products, which are then expanded into multiple subtopics, each as a chapter. These five volumes are aimed at the following five major target audiences: University and College students Educators, Professional practitioners, Research personnel and Policy analysts, managers, and decision makers and NGOs.

Advanced Thermoforming - Sven Engelmann 2012-06-19

Introduces the latest innovations in thermoforming materials, processes, and applications Advanced Thermoforming brings readers fully up to date with the latest standards, processes, materials, and applications in the field. From forming to filling to sealing processes, the author explains everything that can now be accomplished using the most advanced thermoforming technologies available. Moreover, readers learn how to fully leverage these technologies in order to design and manufacture products that meet all specifications at minimum cost and maximum efficiency. Emphasizing the application of advanced thermoforming for the production of technical parts and packaging, the book: Guides readers through all facets of development, design, and machine and mold technology Recommends new technologies that offer higher productivity, better quality, and lower costs Describes common raw materials used in thermoforming, including how specific materials affect the production process Explains the proper handling of semi-finished products and formed parts Sets forth the basic principles of extrusion, an essential process underlying thermoforming Introduces the latest software techniques to simulate the thermoforming of new products Throughout the book, readers learn about the latest innovations in thermoforming, from thermoformed automobile body parts to fully automated packaging assembly lines. The author offers valuable content from his interviews with leading industrial thermoformers, sharing insights and tips from their years of hands-on experience with readers. With Advanced Thermoforming as their guide, polymer and plastics engineering professionals and students can now explore and exploit the full range of possibilities that thermoforming technology offers.

Thermoforming of Single and Multilayer Laminates - Syed Ali Ashter 2013-11-07

Thermoforming of Single and Multilayer Laminates explains the fundamentals of lamination and plastics thermoforming technologies along with current and new developments. It focuses on properties and thermoforming mechanics of plastic films and in particular single and multilayered laminates, including barrier films. For environmental and economic reasons, laminates are becoming increasingly important as a replacement for solid sheets and paint finishes in many industries, including transportation, packaging, and construction. Yet the processes of film formability during the extensive deformation and elevated temperatures experienced in conventional processing technologies, such as thermoforming, are poorly understood by most engineers. This book covers production processes, such as extrusion, calendaring, and casting, as well as mechanical and impact testing methods. It also describes how testing protocols developed for metals can be leveraged for plastic films and laminates, and includes a thorough discussion on methods for performing optical strain analysis. Applications in transportation vehicles and packaging, including packaging for food, medical and electronics applications, sports equipment, and household appliances, are discussed. Safety, recycling and environmental aspects of thermoforming and its products complete the book. First comprehensive source of information and hands-on guide for the thermoforming of multilayered laminates Covers applications across such sectors as automotive, packaging, home goods, and construction Introduces new testing methods leveraging protocols used for metals

Plastics Processing Technology - Edward A. Muccio 1994-01-01

Provides a basic understanding of plastics processing technology at a level suitable for technicians, managers, buyers, quality assurance personnel, and engineers who have minimal experience with plastics. Highlights the key aspects of materials, thermodynamics, fluid technology, control, and tool/p

Handbook of Plastics Technologies - Charles A. Harper 2010-05-27

Understand, design, and manufacture plastics This resource provides you with the state-of-the-art information for the design, manufacture and application of plastics as well as its cutting-edge usage in nanotechnology. Includes the latest industry specifications and standards Covers the latest recycling methods

Advanced High Strength Steel And Press Hardening - Proceedings Of The 4th International Conference On Advanced High Strength Steel And Press Hardening (Ichs2018) - Ma Mingtu 2018-12-14

The automotive industry requirements for vehicle weight reduction,

weight containment, improved part functionality and passenger safety have resulted in the increased use of steel grades with a fully martensitic microstructure. These steel grades are essential to improve the anti-intrusion resistance of automotive body parts and the related passenger safety during car collisions. Standard advanced high strength steel (AHSS) grades are notoriously difficult to be formed by cold stamping; they are characterized by elastic springback, poor stretch flangeability and low hole expansion ratios. Hot stamping has therefore received much attention recently as an alternative technology to produce AHSS automotive parts. In this book, selected articles from the Fourth International Conference on Advanced High Strength Steel and Press Hardening held on August 20-22th, 2018 in Hefei, China, are compiled. It focuses on AHSS for the development of press hardening of high performance sheet metal for lightweight vehicle, advanced digital manufacturing technology, as well as the physical metallurgy principles

of the hot stamping process. Aiming at the process design and industrial application for hot stamping of press hardened steel and high strength aluminium alloy sheet, the effect of temperature and strain rate on the formability and mechanical properties of the products is discussed. In addition, more practical cases are provided concerning accurate modelling and multi-physics coupling simulation of the hot stamping process. Furthermore, the influence of tool design on forming process, more precise process control strategies to increase production efficiency, and the improvement of hot stamping equipment by advanced design methods will also be presented.

Technology of Thermoforming - James L. Throne 1996

This thorough text covers thermoforming processes and products. It moves from a relatively simple approach to more technical in-depth consideration, featuring examples and guidelines to illustrate all technical aspects.