

Thermoplastic Melt Rheology And Processing Plastics Engineering

Recognizing the pretension ways to acquire this book **Thermoplastic Melt Rheology And Processing Plastics Engineering** is additionally useful. You have remained in right site to begin getting this info. acquire the Thermoplastic Melt Rheology And Processing Plastics Engineering connect that we have enough money here and check out the link.

You could buy lead Thermoplastic Melt Rheology And Processing Plastics Engineering or acquire it as soon as feasible. You could speedily download this Thermoplastic Melt Rheology And Processing Plastics Engineering after getting deal. So, in the same way as you require the ebook swiftly, you can straight get it. Its as a result very easy and hence fats, isnt it? You have to favor to in this aerate

Advances in Fluid Mechanics XI - C.A. Brebbia 2016-09-29

Containing the proceedings of the 11th International Conference on Advances in Fluid Mechanics held in Ancona Italy, AFM 2016 followed the success of previous global conferences in the series, the first of which took place in 1996. The success of the conference continues to attract high quality contributions that present original findings and results. The field of fluid mechanics is extensive and has numerous and varied applications. Emphasis within the book is placed on new applications and research currently in progress. A key purpose is to provide a forum for discussing new work in fluid mechanics and, in particular, for promoting the interchange of new ideas and the presentation on the latest applications in the field. The conference covers a wide range of topics such as: Computational methods; Hydrodynamics; Fluid structure interaction; Bio-fluids; Flow in electronic devices; Environmental fluid mechanics; Heat and mass transfer; Industrial applications; Energy systems; Nano and micro fluids; Turbulent flow Jets Fluidics; Droplet and spray dynamics; Bubble dynamics; Multiphase fluid flow; Aerodynamics and gas dynamics; Pumping and fluid transportation and Experimental measurements.

Plastics Technology Handbook, Fourth Edition - Manas Chanda
2006-12-19

Because the field of plastics is one of the fastest changing areas today, the need arises to offer relevant, comprehensive material on polymers. An established source of information on modern plastics, the Plastics Technology Handbook continues to provide up-to-date coverage on the properties, processing methods, and applications of polymers. Retaining the easy-to-follow structure of the previous editions, this fourth edition includes new topics of interest that reflect recent developments and lead to better insights into the molecular behavior of polymers. New to the Fourth Edition Advances in supramolecular polymerization, flame retardancy, polymer-based nanomedicines, and drug delivery The new concept of oxo-biodegradable polymers Broadened discussion on plastic foams and foam extrusion processes More information on the processing and applications of industrial polymers, including the emerging field of nanoblends Developments in polymer synthesis and applications, such as polymeric sensors, hydrogels and smart polymers, hyperbranched polymers, shape memory polymers, polymeric optical fibers, scavenger resins, polymer nanocomposites, polymerization-filled composites, and wood-polymer composites A state-of-the-art account of the various available methods for plastics recycling Advances in the use of polymers in packaging, construction, the automotive and aerospace industries, agriculture, electronics and electrical technology, biomedical

applications, corrosion prevention, and sports and marine applications
Plastics Technology Handbook, Fourth Edition thoroughly covers traditional industrial polymers and their processing methods as well as contemporary polymeric materials, recent trends, and the latest applications.

Handbook of Polypropylene and Polypropylene Composites, Revised and Expanded - Harutun Karian 2003-03-25

Building on the success of its predecessor with completely revised material and six new chapters, the Handbook of Polypropylene and Polypropylene Composites, Second Edition responds to increasing interest and changing global trends in the manufacture and application of polypropylene resin. The authors highlight viable options for the manufacture of polypropylene composites to better accommodate market requirements across various industries. The second edition introduces chapters on high-purity submicron talc fillers with lamellar microstructures, the utilization of Wollastonite fibers for polypropylene reinforcement, and updated material on nanocomposite production using exfoliated clay treated with maleated polypropylene-based materials, among many other topics.

Metallized Plastic - K.L. Mittal 1997-11-06

"Integrates the latest findings on metallized plastics and their far-reaching applications by more than 80 recognized experts from North America, Europe, the Middle East, and Asia. Addresses both basic and applied aspects of the subject."

Principles of Polymer Systems - Ferdinand Rodriguez 2014-12-09

Maintaining a balance between depth and breadth, the Sixth Edition of Principles of Polymer Systems continues to present an integrated approach to polymer science and engineering. A classic text in the field, the new edition offers a comprehensive exploration of polymers at a level geared toward upper-level undergraduates and beginning graduate stu

Polymer Blends and Alloys - George P. Simon 2019-07-16

Distinguishing among blends, alloys and other types of combinations, clarifying terminology and presenting data on new processes and materials, this work present up-to-date and effective compounding

techniques for polymers. It offers extensive analyses on the challenging questions that surround miscibility, compatibility, dynamic processing, interaction/phase behaviour, and computer simulations for predicting behaviours of polymer mixture and interaction.

Masters Theses in the Pure and Applied Sciences - Wade H. Shafer 2012-12-06

Masters Theses in the Pure and Applied Sciences was first conceived, published, and disseminated by the Center for Information and Numerical Oata Analysis and Synthesis (CINOAS) * at Purdue. University in 1957, starting its coverage of theses with the academic year 1955. Beginning with Volume 13, the printing and dissemination phases of the activity were transferred to University Microfilms/Xerox of Ann Arbor, Michigan, with the thought that such an arrangement would be more beneficial to the academic and general scientific and technical community. After five years of this joint undertaking we had concluded that it was in the interest of all con cerned if the printing and distribution of the volumes were handled by an interna tional publishing house to assure improved service and broader dissemination. Hence, starting with Volume 18, Masters Theses in the Pure and Applied Sciences has been disseminated on a worldwide basis by Plenum Publishing Cor poration of New York, and in the same year the coverage was broadened to include Canadian universities. All back issues can also be ordered from Plenum. We have reported in Volume 33 (thesis year 1988) a total of 13,273 theses titles from 23 Canadian and 1 85 United States universities. We are sure that this broader base for these titles reported will greatly enhance the value of this important annual reference work. While Volume 33 reports theses submitted in 1988, on occasion, certain univer sities do report theses submitted in previous years but not reported at the time.

Who's Who in Plastics Polymers - James P. Harrington 2000-05-09

This is the first edition of a unique new plastics industry resource: Who's Who in Plastics & Polymers. It is the only biographical directory of its kind and includes contact, affiliation and background information on more than 3300 individuals who are active leaders in this industry and

related organizations. The biographical directory is in *Industrial Polymers, Specialty Polymers, and Their Applications* - Manas Chanda 2008-07-18

Derived from the fourth edition of the well-known *Plastics Technology Handbook*, *Industrial Polymers, Specialty Polymers, and Their Applications* covers a wide range of general and special types of polymers, along with a wealth of information about their applications. The book first focuses on commonly used industrial polymers, including polypropylenes, low- and high-density polyethylenes, and poly(vinyl chloride), as well as less widely used polymer types, such as acrylics, ether polymers, cellulose, sulfide polymers, silicones, polysulfones, polyether ether ketones, and polybenzimidazoles. It then explores polymer derivatives and polymeric combinations that play special and often critical roles in diverse fields of human activities. The polymers covered include liquid crystal, electroactive, ionic, and shape memory polymers; hydrogels; and nanocomposites. The volume concludes with a comprehensive overview of new developments in the use of polymers in a variety of areas.

Plastics Fabrication and Recycling - Manas Chanda 2016-04-19

Derived from the fourth edition of the well-known *Plastics Technology Handbook*, *Plastics Fabrication and Recycling* presents the molding and fabrication processes of plastics as well as several important features of plastics recycling. The book begins with a discussion of different types of molds and dies, including compression molding, injection molding, blow molding, thermoforming, reaction injection molding, extrusion, and pultrusion. It then covers spinning, casting, reinforcing, foaming, compounding, and coating processes as well as powder molding, adhesive bonding, and plastics welding techniques. The authors also explore the decoration of plastics, including painting operations, printing processes, hot stamping, in-mold decorating, embossing, electroplating, and vacuum metallizing. They conclude with an overview on key aspects of plastics recycling, developments in the field, and waste recycling problems.

Prediction of Polymer Properties - Jozef Bicerano 2002-08-01

Highlighting a broad range of multiscale modeling and methods for anticipating the morphologies and the properties of interfaces and multiphase materials, this reference covers the methodology of predicting polymer properties and its potential application to a wider variety of polymer types than previously thought possible. A comprehensive source, the

Rheology and Processing of Polymeric Materials - Chang Dae Han 2007-06-04

Polymer Processing presents the fundamental approach to effectively analyze polymer processing operations of both thermoplastic polymers and thermosets.

Polymer Yearbook 15 - Richard A. Pethrick 1998-11-26

This volume contains reviews on state-of-the-art Japanese research presented in the annual Spring and Autumn meetings of the Japanese Polymer Science Society. The aim of this section is to make information on the progress of Japanese Polymer Science, and on topics of current interest to polymer scientists in Japan, more easily available worldwide. *Principles of Polymer Processing* - Zehev Tadmor 2013-12-02

Thoroughly revised edition of the classic text on polymer processing The Second Edition brings the classic text on polymer processing thoroughly up to date with the latest fundamental developments in polymer processing, while retaining the critically acclaimed approach of the First Edition. Readers are provided with the complete panorama of polymer processing, starting with fundamental concepts through the latest current industry practices and future directions. All the chapters have been revised and updated, and four new chapters have been added to introduce the latest developments. Readers familiar with the First Edition will discover a host of new material, including: * Blend and alloy microstructuring * Twin screw-based melting and chaotic mixing mechanisms * Reactive processing * Devolatilization--theory, mechanisms, and industrial practice * Compounding--theory and industrial practice * The increasingly important role of computational fluid mechanics * A systematic approach to machine configuration design The Second Edition expands on the unique approach that distinguishes it

from comparative texts. Rather than focus on specific processing methods, the authors assert that polymers have a similar experience in any processing machine and that these experiences can be described by a set of elementary processing steps that prepare the polymer for any of the shaping methods. On the other hand, the authors do emphasize the unique features of particular polymer processing methods and machines, including the particular elementary step and shaping mechanisms and geometrical solutions. Replete with problem sets and a solutions manual for instructors, this textbook is recommended for undergraduate and graduate students in chemical engineering and polymer and materials engineering and science. It will also prove invaluable for industry professionals as a fundamental polymer processing analysis and synthesis reference.

Polymer and Composite Rheology - Rakesh K. Gupta 2000-06-14

An analysis of polymer and composite rheology. This second edition covers flow properties of thermoplastic and thermoset polymers, and general principles and applications of all phases of polymer rheology, with new chapters on the rheology of particulate and fibre composites. It also includes new and expanded detail on polymer blends and emulsions, foams, reacting systems, and flow through porous media as well as composite processing operations.

Thermoplastic Melt Rheology and Processing - Aroon Shenoy 1996-08-23

Presents rheological data on a number of polymers, making use of the master curve approach to determine unified curves for each generic type of polymer. The text offers a step-by-step procedure for developing a spreadsheet computer program to obtain accurate thermoplastic rheograms at any temperature without using sophisticated rheometers. It includes

Plastics Technology Handbook - Manas Chanda 2017-11-07

Updated throughout to reflect advances over the last decade, the Fifth Edition continues the handbook's tradition of authoritative coverage of fundamentals, production methods, properties, and applications of plastics and polymer-based materials. It covers tooling for plastics fabrication processes, thermoplastics, thermosetting plastics, foamed

plastics, reinforced plastics, plastisols, and new developments in mold design. It also discusses rubber compounding and processing technologies. More recent developments in polymer fabrication and processing, including electrospinning, electrografted coating, polymer-metal hybrid joining, flex printing, and rapid prototyping/ 3D printing, are also presented. The handbook highlights advanced materials including natural and synthetic nanosize polymers, their unusual properties, and innovative applications, as well as polymer-carbon nanocomposites, graphene-based polymer nanocomposites, smart healable polymer composites, smart polymer coatings, electroactive polymers, polymer nanomaterials, and novel nano-/microfibrillar polymer composites. It offers updates on polymer solar battery development, plastics recycling and disposal methods, new concepts of "upcycling" and single-polymer composites, renewable synthetic polymers, biodegradable plastics and composites, and toxicity of plastics. The book also provides an overview of new developments in polymer applications in various fields including packaging, building and construction, corrosion prevention and control, automotive, aerospace applications, electrical and electronic applications, agriculture and horticulture, domestic appliances and business machines, medical and biomedical applications, marine and offshore applications, and sports.

Handbook of Elastomers, Second Edition, - Anil K. Bhowmick 2000-11-02

"Provides the latest authoritative research on the developments, technology, and applications of rubbery materials. Presents structures, manufacturing techniques, and processing details for natural and synthetic rubbers, rubber-blends, rubber composites, and thermoplastic elastomers. 80% revised and rewritten material covers major advances since publication of the previous edition."

Understanding Plastics Engineering Calculations - Natti S. Rao

2012-03-01

The plastics engineer working on the shop floor in a plastics manufacturing plant often needs quick answers to questions such as why the extruder output is low or whether he can expect better quality product by changing the resin or if the die pressure can be lowered.

Applying state-of-the art numerical software to address these issues is time-consuming and costly. Starting from practical design formulas which are easily applicable, and yet take the resin rheology into account, this guide provides answers to these questions quickly and effectively by guiding the user step by step through the computational procedures on the basis of illustrative technical examples. Problems related to melt fracture, homogeneity of the melt, effect of screw geometry on the quality of the melt and the effect of die pressure on the pellet surface and their troubleshooting are only few of the topics among many that are dealt with in detail. All the calculations involved can be handled by pocket calculators and hence can be performed right on the site where the machines are running. This guide is a valuable tool not only to troubleshoot but also to estimate the effect of design and process parameters on the product quality in plastics processing.

Plastics Technology Handbook, Third Edition, - Manas Chanda
1998-04-10

"Completely updated and enlarged to reflect the advances that have taken place since the publication of the Second Edition. Third Edition offers concise examinations of the chemical nature, characteristic properties, and uses of traditional industrial polymers, such as acrylics, polyolefins, vinyl polymers, polyesters, epoxies, and silicones, among others."

Polymer Processing - Donald G. Baird 2014-03-24

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.

Multilayer Flexible Packaging - John R. Wagner, Jr. 2016-03-29

Multilayer Flexible Packaging, Second Edition, provides a thorough introduction to the manufacturing and applications of flexible plastic films, covering materials, hardware and processes, and multilayer film designs and applications. The book gives engineers and technicians a better understanding of the capability and limitations of multilayer flexible films and how to use them to make effective packaging. It includes contributions from world renowned experts and is fully updated to reflect the rapid advances made in the field since 2009, also including an entirely new chapter on the use of bio-based polymers in flexible packaging. The result is a practical, but detailed reference for polymeric flexible packaging professionals, including product developers, process engineers, and technical service representatives. The materials coverage includes detailed sections on polyethylene, polypropylene, and additives. The dies used to produce multilayer films are explored in the hardware section, and the process engineering of film manufacture is explained, with a particular focus on meeting specifications and targets. In addition, a new chapter has been added on regulations for food packaging -

including both FDA and EU regulations. Provides a complete introduction to multilayer flexible packaging, assisting plastics practitioners with the development, design, and manufacture of flexible packaging for food, cosmetics, pharmaceuticals, and more. Presents thorough, well-written, and up-to-date reviews of the current technology by experts in the field, making this an essential reference for any engineer or manager. Includes discussion and analysis of the latest rules and regulations governing food packaging.

Polymer Modifiers and Additives - Richard F. Grossman 2000-11-08

"Outlines the benefits of using additives individually or in combination to modify the properties and processability of pure polymers, and discusses easy-to-understand theory and practical applications for immediate economic and performance improvements."

Polymer Viscoelasticity - Evaristo Riande 1999-11-05

Showcasing vital engineering applications to transient and dynamic perturbations of macromolecular materials, structural recovery's role in mechanical responses in the glassy state, and viscoelastic parameters that condition the non-Newtonian behaviour of polymers, this work presents a systematic account of the responses of macromolecular materials to mechanical force fields. It focuses on the most important features of the linear stress-strain relationships for ideal solids and liquids.

Handbook of Vinyl Polymers - Munmaya Mishra 2016-04-19

Radical polymerization is one of the most widely used means of producing vinyl polymers, supporting a myriad of commercial uses. Maintaining the quality of the critically acclaimed first edition, the *Handbook of Vinyl Polymers: Radical Polymerization, Process, and Technology, Second Edition* provides a fully updated, single-volume source on the chemistry, technology, and applications of vinyl polymers. Emphasizes radical initiating systems and mechanisms of action... Written by renowned researchers in the field, this handbook is primarily concerned with the physical and organic chemistry of radical vinyl polymerization. The authors survey the most recent advances, processing methods, technologies, and applications of free radical vinyl

polymerization. The book features thorough coverage of polymer functionalization, photo initiation, block and graft copolymers, and polymer composites. Analyzes living/controlled radical polymerization, one of the latest developments in the field... Combining fundamental aspects with the latest advances, processing methods, and applications in free radical vinyl polymerization and polymer technology, this invaluable reference provides a unified, in-depth, and innovative perspective of radical vinyl polymerization.

Melt Rheology and Its Role in Plastics Processing - John M Dealy 1999-07-31

This book is designed to fulfill a dual role. On the one hand it provides a description of the rheological behavior of molten polymers. On the other, it presents the role of rheology in melt processing operations. The account of rheology emphasizes the underlying principles and presents results, but not detailed derivations of equations. The processing operations are described qualitatively, and wherever possible the role of rheology is discussed quantitatively. Little emphasis is given to non-rheological aspects of processes, for example, the design of machinery. The audience for which the book is intended is also dual in nature. It includes scientists and engineers whose work in the plastics industry requires some knowledge of aspects of rheology. Examples are the polymer synthetic chemist who is concerned with how a change in molecular weight will affect the melt viscosity and the extrusion engineer who needs to know the effects of a change in molecular weight distribution that might result from thermal degradation. The audience also includes post-graduate students in polymer science and engineering who wish to acquire a more extensive background in rheology and perhaps become specialists in this area. Especially for the latter audience, references are given to more detailed accounts of specialized topics, such as constitutive relations and process simulations. Thus, the book could serve as a textbook for a graduate level course in polymer rheology, and it has been used for this purpose.

Fundamentals of Polymer Engineering, Revised and Expanded - Anil Kumar 2003-01-21

Exploring the characterization, thermodynamics and structural, mechanical, thermal and transport behavior of polymers as melts, solutions and solids, this text covers essential concepts and breakthroughs in reactor design and polymer production and processing. It contains modern theories, end-of-chapter problems and real-world examples for a clear understanding of polymer function and development. *Fundamentals of Polymer Engineering, Second Edition* provides a thorough grounding in the fundamentals of polymer science for more advanced study in the field of polymers. Topics include reaction engineering of step-growth polymerization, emulsion polymerization, and polymer diffusion.

Handbook of Thermoplastics - Olagoke Olabisi 1997-03-19

Offers coverage of all known commodity, transitional, engineering, high-temperature and high-performance thermoplastics, and analyzes emerging developments in the creation of new thermoplastics. The text examines: important issues in the field for each substance discussed, including history, development and commercialization; polymer formation mechanisms and process technologies; the affect of structural and phase characteristics on properties; the commercial relevance of thermoplastic blends, alloys, copolymers and composites; and more.

Polymer Modification - John Meister 2000-07-25

"Describes new modification methods and applications for natural, synthetic, thermoplastic, and thermoset polymers that result from economic forces, commercial processes, and the latest research and development. Features chemical and physical technologies such as sulfonation, alkylation, acid/base hydrolysis, hydrogenation, stress orienting, anneal

Applied Polymer Rheology - Marianna Kontopoulou 2011-10-24

Explore polymer rheology from an industrial standpoint Presenting state-of-the-art polymer rheology as observed by well-recognized authors, *Applied Polymer Rheology: Polymeric Fluids with Industrial Applications* is designed to help readers understand the relationship between molecular structure and the flow behavior of polymers. In particular, it focuses on polymeric systems that elicit special attention from industry.

Providing a comprehensive overview of the rheological characteristics of polymeric fluids, the book bridges the gap between theory and practice/application, enabling readers to see the connection between molecular structure and the behavior of the polymers studied. Beginning with a discussion of the properties, processability, and processing aids of specific polymers, later chapters examine filled polymers and composites, and the theoretical framework upon which their analysis is based. Various systems containing microstructure are presented subsequently, with the final chapter introducing paste extrusion of polytetrafluoroethylene paste. An invaluable reference guide that covers the literature and vast array of technical approaches to polymer rheology, *Applied Polymer Rheology's* coverage of polymeric fluids of interest to industry make it an essential resource for plastics, polymer, and chemical engineers, materials scientists, polymer chemists, and polymer physicists to use when interpreting findings and planning experiments.

Polymer Melt Rheology - F N Cogswell 1981-01-01

This book explores the ways in which melt flow behaviour can be exploited by the plastics engineer and technician for increased efficiency of processing operation, control of end product properties and selection and development of polymers for specific purposes. (reissued with minor corrections 1994)

Star and Hyperbranched Polymers - Munmaya Mishra 1999-05-25

Synthesizing the raw data needed for a wide variety of industrial applications, this work supplies up-to-date advanced in research on star, hyperbranched and dendritic polymers. It provides detailed descriptions of the size and shape of the molecules that make up these polymers, as well as their biological advances, low viscosity in solution and substrate-holding properties.

Polymer Science and Engineering - National Research Council 1994-01-01

Polymers are used in everything from nylon stockings to commercial aircraft to artificial heart valves, and they have a key role in addressing international competitiveness and other national issues. *Polymer Science*

and Engineering explores the universe of polymers, describing their properties and wide-ranging potential, and presents the state of the science, with a hard look at downward trends in research support. Leading experts offer findings, recommendations, and research directions. Lively vignettes provide snapshots of polymers in everyday applications. The volume includes an overview of the use of polymers in such fields as medicine and biotechnology, information and communication, housing and construction, energy and transportation, national defense, and environmental protection. The committee looks at the various classes of polymers—plastics, fibers, composites, and other materials, as well as polymers used as membranes and coatings—and how their composition and specific methods of processing result in unparalleled usefulness. The reader can also learn the science behind the technology, including efforts to model polymer synthesis after nature's methods, and breakthroughs in characterizing polymer properties needed for twenty-first-century applications. This informative volume will be important to chemists, engineers, materials scientists, researchers, industrialists, and policymakers interested in the role of polymers, as well as to science and engineering educators and students.

Selecting Thermoplastics for Engineering Applications, Second Edition, - Macdermott 2020-08-26

"Combines fundamental theory, systematic experimentation, disciplined research, and logical procedures to simplify the thermoplastic selection process as well as reduce production cost and time. Second Edition contains new features such as rheology property data, recycling in resin selection, and more and more."

Rheology in Polymer Processing - Krzysztof Wilczyński 2021-01-05

"Rheology in Polymer Processing" introduces the fundamentals of rheology and rheometry as the basis for modeling and computer-aided design in plastics processing. The logically structured content enables the reader to intelligently use the tools of computer-aided design and modeling of plastics processing, with correct interpretation of the results. The book presents difficult and complex issues of rheology and modeling in an accessible way, with particular emphasis on the practical

engineering aspects. The software described in the book allows modeling all the important problems of plastics processing. Particular attention is paid to the extrusion process, which is fundamentally important as a processing technology in mass manufacture of plastic parts, and the basis of compounding processes (blending, filling, granulation, and reinforcement). This book is aimed equally at engineers, researchers, and scientists, as well as intermediate students, for whom it will serve as an ideal course book.

Handbook of Plastics Analysis - Hubert Lobo 2003-06-25

Plastics possess properties that have revolutionized the manufacture of products in the 20th century and beyond. It remains critical to understand their behavior throughout their life cycle, from manufacture to use and eventually to reclamation and disposal. This volume highlights the most prominent tools in physical and chemical analysis techniques and applications. A practical reference for performing measurements, solving problems, and investigating behavioral phenomena, the editors advocate a phenomenological approach, relying on case studies and illustrations to represent possible outcomes of each technique and presenting the basic governing equations where necessary.

Rheology of Drag Reducing Fluids - Aroon Shenoy 2020-03-25

This book explains theoretical derivations and presents expressions for fluid and convective turbulent flow of mildly elastic fluids in various internal and external flow situations involving different types of geometries, such as the smooth/rough circular pipes, annular ducts, curved tubes, vertical flat plates, and channels. Understanding the methodology of the analyses facilitates appreciation for the rationale used for deriving expressions of parameters relevant to the turbulent flow of mildly elastic fluids. This knowledge serves as a driving force for developing new ideas, investigating new situations, and extending theoretical analyses to other unexplored areas of the rheology of mildly elastic drag reducing fluids. The book suits a range of functions—it can be used to teach elective upper-level undergraduate or graduate courses for chemical engineers, material scientists, mechanical engineers, and polymer scientists; guide researchers unexposed to this alluring and

interesting area of drag reduction; and serve as a reference to all who want to explore and expand the areas dealt with in this book.

Thermoplastic Melt Rheology and Processing - Aroon Shenoy
1996-08-23

Presents rheological data on a number of polymers, making use of the master curve approach to determine unified curves for each generic type of polymer. The text offers a step-by-step procedure for developing a spreadsheet computer program to obtain accurate thermoplastic rheograms at any temperature without using sophisticated rheometers. It includes possible correlations of melt flow index with various parameters involved in polymer manufacture, product fabrication and property evaluation.

Plastics Fundamentals, Properties, and Testing - Manas Chanda
2008-07-18

Derived from the fourth edition of the well-known Plastics Technology Handbook, Plastics Fundamentals, Properties, and Testing covers the behavior, characterization, and evaluation of polymers. With a lucid approach and wealth of valuable information, this volume looks at the remarkable versatility of this nonmetallic class of materials. Examining polymers at the molecular level, the book first discusses their inherent properties and how their end-use properties can be influenced through changes in the molecular architecture or incorporation of various fillers and additives. The authors coherently present a wide spectrum of topics by sequentially introducing structural aspects, properties, and applications. They then proceed to explore the mechanical, electrical, optical, and thermal properties of polymers, providing theoretical derivations where necessary as well as explanations on molecular and structural features. To identify the principles involved, the book also furnishes the bases of many standard test methods according to ASTM

and BS 2782 specifications.

Advances in Filament Yarn Spinning of Textiles and Polymers - Dong Zhang 2014-02-15

Advances in Filament Yarn Spinning of Textiles and Polymers reviews the different types of spinning techniques for synthetic polymer-based fibers, and issues such as their effect on fiber properties, including melt, dry, wet, and gel spinning. Synthetic polymer-based fibers are used in a great variety of consumer and industrial textile applications ranging from clothing to home furnishings to surgical procedures. This book explores how a wide array of spinning techniques can be applied in the textile industry. Part one considers the fundamental structure and properties of fibers that determine their behavior during spinning. The book then discusses developments in technologies for manufacturing synthetic polymer films to produce different fibers with specialized properties. Part two focuses on spinning techniques, including the benefits and limitations of melt spinning and the use of gel spinning to produce high-strength and high-elastic fibers. These chapters focus specifically on developments in bi-component, bi-constituent, and electro-spinning, in particular the fabrication of nanocomposite fibers. The final chapters review integrated composite spinning of yarns and the principles of wet and dry spinning. This collection is an important reference for a wide range of industrial textile technologists, including spinners, fabric and garment manufacturers, and students of textile technology. It is also of great interest for polymer scientists. Reviews the different spinning techniques and issues such as their effect on fiber properties, including melt, dry, wet, and gel spinning. Considers the fundamental structure and properties of fibers that determine their behavior during spinning. Reviews integrated composite spinning of yarns and the principles of wet and dry spinning.