

# Plastics Fabrication And Recycling

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**Recycling of Plastics, Metals, and Their Composites** R.A. Ilyas 2021-12-28 Having a solid understanding of materials recycling is of high importance, especially due to the growing use of composites in many industries and increasingly strict legislation and concerns about the disposal of composites in landfills or by incineration. Recycling of Plastics, Metals, and Their Composites provides a comprehensive review of the recycling of waste polymers and metal composites. It provides the latest advances and covers the fundamentals of recycled polymers and metal composites, such as preparation, morphology, and physical, mechanical, thermal, and flame-retardancy properties. FEATURES Offers a state-of-the-art review of the recycling of polymer composites and metal composites for sustainability Describes a life-cycle analysis to help readers understand the true potential value and market for these recycled materials Details potential applications of recycled polymer and metal composites Includes the performance of natural fiber-reinforced recycled thermoplastic polymer composites under aging conditions and the recycling of multi-material plastics Covers recycling technologies, opportunities, and challenges for polymer-matrix composites This book targets technical professionals in the metal and polymer industries as well as researchers, scientists, and advanced students. It is also of interest to decision makers at material suppliers, recycled metal and polymer product manufacturers, and governmental agencies working with recycled metal and polymer composites.

**Waste Recycling Technologies for Nanomaterials Manufacturing** Abdel Salam Hamdy Makhlof 2021-06-10 This book discusses the recent advances in the wastes recycling technologies to provide low-cost and alternative ways for nanomaterials production. It shows how carbon nanomaterials can be synthesized from different waste sources such as banana fibers, argan (*Argania spinosa*) seed shells, corn grains, camellia oleifera shell, sugar cane bagasse, oil palm (empty fruit bunches and leaves) and palm kernel shells. Several nanostructured metal oxides (MnO<sub>2</sub>, Co<sub>3</sub>O<sub>4</sub>,....) can be synthesized via recycling of spent batteries. The recovered nanomaterials can be applied in many applications including: Energy (supercapacitors, solar cells, etc.) water treatments (heavy metal ions and dyes removal) and other applications. Spent battery and agriculture waste are rich precursors for metals and carbon, respectively. The book also explores the various recycling techniques, agriculture waste recycling, batteries recycling, and different applications of the recycled materials.

**Interstate Commerce Commission Reports** United States. Interstate Commerce Commission 1977

**Disposal of Plastics with Minimum Environmental Impact** American Society for Testing and Materials. Committee G-3 on Deterioration of Nonmetallic Materials 1973

**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 **Innovations in Materials Manufacturing, Fabrication, and Environmental Safety** Mel Schwartz 2010-11-24 When people make a call on a cellphone, drive a car, or turn on a computer, few truly appreciate the innovations in material selection, technology, and fabrication that were required to make it all possible. Innovations in Materials Manufacturing, Fabrication, and Environmental Safety explores expected developments in analysis, design, testing, and operations that will be essential to successful, practical, more cost-effective fabrication of products and their components. Determine how robotics and intelligent machine (RIM) technology can enhance YOUR manufacturing enterprise From electronics to welding, this book covers manufacturing processes that incorporate intelligent machines into the material processing and fabrication cycle—and it explains how so many innovations are dependent on government funding and research assistance. With contributions from a panel of experts from industry, government, and academia, this book examines how materials are selected through a process that must account for economic issues and various requirements related to health and environmental safety, energy limitations, and more. It includes examples of existing and developing selection methods—and corresponding fabrication processes—used in the aerospace, industrial, commercial, military, and electronics industries. Some of these processes and fabrication methods include: friction stir welding infusion mold technologies heat treatment processing plasma brazing diffusion and adhesive bonding laser processes This book breaks down each process, covering everything from testing background, why and where a method is being used, applications, potential to replace existing processes, and environmental and safety concerns. This information enables engineers/specialists to select the best process and then make sound corresponding engineering decisions and evaluations through design and trade-off studies relative to comparative costs, equipment purchase and installation, and availability of raw and substitute materials, among other factors.

**Resource Conservation and Recycling, Hearings, Ninety-third Congress, First Session ..** United States. Congress. Senate. Committee on Commerce. Subcommittee on the Environment 1974

**Plastics and the Environment** Anthony L. Andrady 2003-02-20 Plastics offer a variety of environmental benefits. However, their production, applications, and disposal present many environmental concerns. Plastics and the Environment provides state-of-the-art technical and research information on the complex relationship between the plastic and polymer industry and the environment, focusing on the sustainability, environmental impact, and cost—benefit tradeoffs associated with different technologies. Bringing together the field’s leading researchers, Anthony Andrady’s innovative collection not only covers how plastics affect the environment, but also how environmental factors affect plastics. The relative benefits of recycling, resource recovery, and energy recovery are also discussed in detail. The first of the book’s four sections represents a basic introduction to the key subject matter of plastics and the environment; the second explores several pertinent applications of plastics with environmental implications—packaging, paints and coatings, textiles, and agricultural film use. The third section discusses the behavior of plastics in some of the environments in which they are typically used, such as the outdoors, in biotic environments, or in fires. The final section consists of chapters on recycling and thermal treatment of plastics waste. Chapters include: Commodity Polymers Plastics in Transportation Biodegradation of Common Polymers Thermal Treatment of Polymer Waste Incineration of Plastics The contributors also focus on the effectiveness of recent technologies in mitigating environmental impacts, particularly those for managing plastics in the solid waste stream. Plastic and design engineers, polymer chemists, material scientists, and ecologists will find *Plastics and the Environment* to be a vital resource to this critical industry.

**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 polypropylene, low- and high-density polyethylenes, and poly(vinyl chloride), as well as less widely used polymer types, such as acrylics, ether polymers, cellulosics, 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.

**Feedstock Recycling of Plastic Wastes** Jose Aguado 2007-10-31 The use of plastic materials has seen a massive increase in recent years, and generation of plastic wastes has grown proportionately. Recycling of these wastes to reduce landfill disposal is problematic due to the wide variation in properties and chemical composition among the different types of plastics. Feedstock recycling is one of the alternatives available for consideration, and Feedstock Recycling of Plastic Wastes looks at the conversion of plastic wastes into valuable chemicals useful as fuels or raw materials. Looking at both scientific and technical aspects of the recycling developments, this book describes the alternatives available. Areas include chemical depolymerization, thermal processes, oxidation and hydrogenation. Besides conventional treatments, new technological approaches for the degradation of plastics, such as conversion under supercritical conditions and coprocessing with coal are discussed. This book is essential reading for those involved in plastic recycling, whether from an academic or industrial perspective. Consultants and government agencies will also find it immensely useful.

**Recycling of Plastics, Metals, and Their Composites** R.A. Ilyas 2021-12-28 Having a solid understanding of materials recycling is of high importance, especially due to the growing use of composites in many industries and increasingly strict legislation and concerns about the disposal of composites in landfills or by incineration. Recycling of Plastics, Metals, and Their Composites provides a comprehensive review of the recycling of waste polymers and metal composites. It provides the latest advances and covers the fundamentals of recycled polymers and metal composites, such as preparation, morphology, and physical, mechanical, thermal, and flame-retardancy properties. FEATURES Offers a state-of-the-art review of the recycling of polymer composites and metal composites for sustainability Describes a life-cycle analysis to help readers understand the true potential value and market for these recycled materials Details potential applications of recycled polymer and metal composites Includes the performance of natural fiber-reinforced recycled thermoplastic polymer composites under aging conditions and the recycling of multi-material plastics Covers recycling technologies, opportunities, and challenges for polymer-matrix composites This book targets technical professionals in the metal and polymer industries as well as researchers, scientists, and advanced students. It is also of interest to decision makers at material suppliers, recycled metal and polymer product manufacturers, and governmental agencies working with recycled metal and polymer composites.

**Mixed Plastics Recycling Technology** Bruce Hegberg 1992-12-31 Presents an overview of mixed plastics recycling technology. In addition, it characterizes mixed plastics wastes and describes collection methods, costs, and markets for reprocessed plastics products.

**National Recycling Markets** United States. Congress. House. Committee on Energy and Commerce. Subcommittee on Commerce, Consumer Protection, and Competitiveness 1991

**Plastics Fabrication and Recycling, Plastics Engineering Series** Salil K. Roy 2008 This book begins with a discussion of different types of molds and dies. 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, key aspects of plastics recycling, developments in the field, and waste recycling problems.

**Recycling Plastics** International Research and Technology Corporation 1973

**Membrane Fabrication** Nidal Hilal 2015-03-02 Membranes play a crucial role in ensuring the optimum use and recovery of materials in manufacturing. In the process industries, they are required for efficient production and minimization of environmental impact. They are also essential for the efficient production of clean water, a significant global issue. Membrane Fabrication brings together ex *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.

**Tool and Manufacturing Engineers Handbook: Plastic Part Manufacturing** Philip Mitchell 1996-12-09 This volume focuses on the practical application of processes for manufacturing plastic products. It includes information on design for manufacturability (DFM), material selection, process selection, dies, molds, and tooling, extrusion, injection molding, blow molding, thermoforming, lamination, rotational molding, casting, foam processing, compression and transfer molding, fiber reinforced processing, assembly and fabrication, quality, plant engineering and maintenance, management.

**Plastics, Rubber, and Paper Recycling** Charles P. Rader 1995 Presents an up-to-date analysis of the current technology for recycling paper, rubber and plastics in food packaging, automotive parts and other applications. The book includes overview chapters that examine the economics of recycling plastics, rubber and

**Handbook of Biopolymers and Biodegradable Plastics** Sina Ebnesajjad 2012-09-19 This new Handbook provides engineers and scientists with the information and practical guidance needed to successfully design and manufacture products using biopolymers and biodegradable plastics. Biopolymers and biodegradable plastics are a hot issue across the plastics industry, and for many of the industry sectors that use plastic: from packaging to medical devices and from the construction industry to the automotive sector. This book brings together in one place a number of key biopolymer and biodegradable plastics topics-in chapters previously published as well as updated and new chapters-for a broad audience of engineers of and scientists, especially those designing with biopolymers and biodegradable plastics or evaluating the options for switching from traditional plastics to biopolymers. Topics covered include preparation, fabrication, applications and recycling (including biodegradability and compostability). Applications in key areas such as films, coatings, controlled release, and tissue engineering are discussed.

**Processing the Plastics from Urban Refuse** James L. Holman 1972

**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.

**Development of Recycling Markets** United States. Congress. House. Committee on Energy and Commerce. Subcommittee on Transportation and Hazardous Materials 1991 *Resource Conservation and Recycling, Bearings Before the Subcommittee on Environment of ....* United States. Congress. Senate. Committee on Commerce 1974

**Intelligent Computing in Control and Communication** G.T. Chandra Sekhar 2021-01-04 This book consists of peer-reviewed papers presented at the First International Conference on Intelligent Computing in Control and Communication (ICCC 2020). It comprises interesting topics in the field of applications of control engineering, communication and computing technology. As the current world is witnessing the use of various intelligent techniques for their independent problem solving, so this book may have a wide importance for all range of researchers and scholars. The book serves as a reference for researchers, professionals and students from across electrical, electronic and computer engineering disciplines.

**Plastics and Environmental Sustainability** Anthony L. Andrady 2015-02-13 Survey’s the issues typically raised in discussions of sustainability and plastics Discusses current issues not covered in detail previously suchas ocean litter, migration of additives into food products and therecovery of plastics Covers post-consumer fate of plastics on land and in theoceans, highlighting the environmental impacts of disposalMethods Details toxicity of plastics, particularly as it applies tohuman health Presents a clear analysis of the key plastic-related issuesincluding numerous citations of the research base that supports andcontradicts the popularly held notions

**Plastics Technology Handbook** Manas Chanda 2018

**Handbook of Biopolymers and Biodegradable Plastics** Sina Ebnesajjad 2012-12-31 Biopolymers and Biodegradable Plastics are a hot issue across the Plastics industry, and for many of the industry sectors that use plastic, from packaging to medical devices and from the construction industry to the automotive sector. This book brings together a number of key biopolymer and biodegradable plastics topics in one place for a broad audience of engineers and scientists, especially those designing with biopolymers and biodegradable plastics, or evaluating the options for switching from traditional plastics to biopolymers. Topics covered include preparation, fabrication, applications and recycling (including biodegradability and compostability). Applications in key areas such as films, coatings controlled release and tissue engineering are discussed. Dr Ebnesajjad provides readers with an in-depth reference for the plastics industry – material suppliers and processors, bio-polymer producers, bio-polymer processors and fabricators – and for industry sectors utilizing biopolymers – automotive, packaging, construction, wind turbine manufacturers, film manufacturers, adhesive and coating industries, medical device manufacturers, biomedical engineers, and the recycling industry. Essential information and practical guidance for engineers and scientists working with bioplastics, or evaluating a migration to bioplastics. Includes key published material on biopolymers, updated specifically for this Handbook, and new material including coverage of PLA and Tissue Engineering Scaffolds. Coverage of materials and applications together in one handbook enables engineers and scientists to make informed design decisions.

**Increased Freight Rates and Charges, 1972 (environmental Matters)** 1970

**Recycled Plastic Biocomposites** Md Rezaur Rahman 2022-01-25 Recycled plastic biocomposites have attracted widespread attention from both researchers and manufacturers due to the significant improvements in their physico-mechanical, thermal, rheological, and barrier properties when compared to conventional materials, as well as their potential regarding commercialization and zero waste. Recycled Plastic Biocomposites presents the latest information on recycled polymers, textiles, pulp and paper, wood plastic, rubber waste plastic, and micro and nano effects of recycled plastic waste resources that have great potential as reinforcement materials in composites because they are non-toxic, inexpensive, biodegradable, cost-effective, and available in large amounts. Recycled plastic biocomposites are now starting to be deployed in a broad range of materials applications due to their advantages over petroleum-based materials. Currently, there are no limits to the possibility of their applications. They also have exceptional sustainable and biodegradable properties when compared to conventional materials such as polymers and composites. Recycled Plastic Biocomposites reviews the latest research advances on recycled plastic-based biocomposites, including thermoplastic, thermoset, rubber, and foams. In addition, the book covers critical assessments on the economics of recycled plastic, including a cost-performance analysis that discusses its strengths and weaknesses as a reinforcement material. The huge potential applications of recycled plastic in industry are also explored in detail with respect to low cost, recyclable and biodegradable properties, and the way they can be applied to the automotive, construction, and packaging industries. The life cycles of both single and hybrid recycled plastic-based polymer composites and biocomposites are also discussed in detail. From the viewpoint of recycled plastic-based polymer composites, the book covers not only the well-known role of recycled polymers and composites, but also advanced materials produced from micro-, nano-, and pico-scale fillers that achieve better physical, mechanical, morphological, and thermal properties. This book will be an essential reference resource for academic and industrial researchers, materials scientists, and those working in polymer science and engineering, chemical engineering, manufacturing, and biocomposites. Places an emphasis on micro-, nano-, and pico-scale fillers that significantly improve properties. Discusses the most suitable fabrication methods, properties, and applications. Features critical assessments on the economics of recycled plastic, including a cost-performance analysis that reviews its strengths and weaknesses as a reinforcement material.

**Additive Manufacturing for Plastic Recycling** Rupinder Singh 2022-04-27 This book provides a comprehensive and up-to-date discussion of breakthroughs on additive manufacturing for plastic material recycling to boost a circular economy. It offers new ideas of combining/hybridizing processing methods that work as a source of information for manufacturers in making new and strategic product development plans. Additive Manufacturing for Plastic Recycling: Efforts in Boosting a Circular Economy provides a critical, comprehensive, methodological, and strong state-of-the-art work on the processing of thermoplastic and thermosetting along with new directions and applications. It describes the common and hybrid approaches of recycling processes and includes theoretical and practical ideas of combining/hybridizing processing methods with the use of fused deposition modelling, which is one of the low-cost additive manufacturing techniques. The book also discusses mechanical twin-screw extrusion followed by case studies for developing hybrid composite structures for biomedical and structural applications. Recent innovations in melt processing for recycling and the fundaments, process parameters investigations, and applications for new product development are also presented. This book is a first-hand reference source of information for academic scholars and commercial manufacturers for making strategic development plans for new product development.

**Industrial Ecology** Stanley E. Manahan 2017-11-01 Industrial ecology may be a relatively new concept – yet it’s already proven instrumental for solving a wide variety of problems involving pollution and hazardous waste, especially where available material resources have been limited. By treating industrial systems in a manner that parallels ecological systems in nature, industrial ecology provides a substantial addition to the technologies of environmental chemistry. Stanley E. Manahan, bestselling author of many environmental chemistry books for Lewis Publishers, now examines Industrial Ecology: Environmental Chemistry and Hazardous Waste. His study of this innovative technology uses an overall framework of industrial ecology to cover hazardous wastes from an environmental chemistry perspective. Chapters one to seven focus on how industrial ecology relates to environmental science and technology, with consideration of the anthrosphere as one of five major environmental spheres. Subsequent chapters deal specifically with hazardous substances and hazardous waste, as they relate to industrial ecology and environmental chemistry.

**Household Hazardous Waste Management** Daniel Mmereki 2017-02-01 Rapid global urbanization and increases in living standards in recent decades have led to changes in the household hazardous waste (HHW) generation characteristics due to increases in buying power and easier access to products that are convenient but not always safe. In recent years, the amount of diversified hazardous materials and/or potentially hazardous materials, such as cleaning products, medicines, personal care products, packaging and container products, phthalates, and antibacterial agents, poses a serious threat to the environment and public health. As a result developed countries have adopted well-functioning policy measures and innovative technologies to deal with HHW. On the other hand, developing countries have weak institutional structures and poor policy performance and have adopted ad hoc approaches to manage HHW. The book contains five chapters covering topics of household hazardous waste management and exposure assessment. This book will be useful to many research scientists, solid and hazardous waste managers, administrators, librarians, and students in the scope of development in solid and hazardous waste management program including sources of household hazardous waste, exposure assessment, and government policies on waste generation and treatment and processing of HHW.

**Industry, Trade, and Technology Review** 1992

**Manufacturing Technology** Helmi A. Youssef 2011-08-17 Individuals who will be involved in design and manufacturing of finished products need to understand the grand spectrum of manufacturing technology. Comprehensive and fundamental, *Manufacturing Technology: Materials, Processes, and Equipment* introduces and elaborates on the field of manufacturing technology—its processes, materials, tooling, and equipment. The book emphasizes the fundamentals of processes, their capabilities, typical applications, advantages, and limitations. Thorough and insightful, it provides mathematical modeling and equations as needed to enhance the basic understanding of the material at hand. Designed for upper-level undergraduates in mechanical, industrial, manufacturing, and materials engineering disciplines, this book covers complete manufacturing technology courses taught in engineering colleges and institutions worldwide. The book also addresses the needs of production and manufacturing engineers and technologists participating in related industries.

**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 gfnanosize 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.

**Recent Developments in Plastic Recycling** Jyotishkumar Parameswaranpillai 2021-10-01 This book provides a systematic and comprehensive account of the recent developments in the recycling of plastic waste material. It presents state-of-the-art procedures for recycling of plastics from different sources and various characterization methods adopted in analyzing their properties. In addition, it looks into properties, processing, and applications of recycled plastic products as one of the drivers for sustainable recycling plastics especially in developing countries. This book proves a useful reference source for both engineers and researchers working in composite materials science as well as the students attending materials science, physics, chemistry, and engineering courses.

**Engineered Materials Handbook, Desk Edition** ASM International. Handbook Committee 1995-11-01 A comprehensive reference on the properties, selection, processing, and applications of the most widely used nonmetallic engineering materials. Section 1, General Information and Data, contains information applicable both to polymers and to ceramics and glasses. It includes an illustrated glossary, a collection of engineering tables and data, and a guide to materials selection. Sections 2 through 7 focus on polymeric materials--plastics, elastomers, polymer-matrix composites, adhesives, and sealants--with the information largely updated and expanded from the first three volumes of the *Engineered Materials Handbook*. Ceramics and glasses are covered in Sections 8 through 12, also with updated and expanded information. Annotation copyright by Book News, Inc., Portland, OR

**A Material Scientist’s Memoir** Harry S. Katz 2013-06

**Design and Manufacturing of Plastics Products** Antonio Pouzada 2021-08-14 Design and Manufacturing of Plastics Products: Integrating Conventional Methods and Innovative Technologies brings together detailed information on design, materials selection, properties, manufacturing, and the performance of plastic products, incorporating the utilization of the latest novel techniques and additive manufacturing technologies. The book integrates the design of molded products and conventional manufacturing and molding techniques with recent additive manufacturing techniques to produce performant products and cost-effective tools. Key areas of innovation are explained in detail, including hybrid molds, the integration of processing options with product properties and performance, and sustainability factors such as eco-design strategies, recycling, and lifecycle assessment. Other sections cover the development of plastics products, including design methodologies, design solutions specific to plastics, and design for re-use, as well as manufacturing and performance, with an emphasis on thermoplastic molding techniques, recent advances on plastics tooling, and the appraisal of the influence of processing options on product performance. This is a valuable resource to plastics engineers, design engineers, mold makers, and product or part designers across industries. It will also be of interest to researchers and advanced students in plastics engineering, polymer science, additive manufacturing and mechanical engineering. Offers a thorough grounding in plastics part design, thermoplastic material selection, properties, manufacture and performance of plastic parts Presents the latest advances, including the integration of additive manufacturing in the plastics product development cycle, hybrid molds, and lifecycle and recycling considerations Enables the reader to utilize traditional methods alongside cutting-edge technologies in the production of performant plastic products and parts