N-Heterocyclic Carbenes

Polymer Crystallization | Ullmann's Polymers and Plastics, 4 Volume Set
Metal-catalysis in Industrial Organic Processes | Computer-Aided Design of Catalysts
Fundamentals of Organometallic Catalysis | Transition Metal Catalyzed Polymerizations
Synthesis and Applications of Copolymers | Handbook of Boron Science
Introduction to Polymer Chemistry, Second Edition | Stereoregular Polymers and Stereospecific Polymerizations
Science and Technology of Rubber | Handbook of Polymer Synthesis
Isospecific Polymerization of Olefins | Metallopolymer Nanocomposites
Carragher's Polymer Chemistry, Tenth Edition | Macromolecules
New Macromolecular Architecture and Functions | Grundlagen der metalorganischen Komplexkatalyse
Metal-Catalyzed Polymerization | Polymere - Chemie und Strukturen
Official Gazette of the United States Patent and Trademark Office | Insertion Polymerization
Stereospecific Polymerization of Isoprene | The Development of Catalysis
Catalytic Chemistry | Sequence-Controlled Polymers
Handbook of Transition Metal Polymerization Catalysts | Polyolefins: 50 years after Ziegler and Natta
IHomogeneous and Heterogeneous Catalysis | Precursor Chemistry of Advanced Materials
Kunststoffe | Polymerization
Catalysis by Polymer-Immobilized Metal Complexes

N-Heterocyclic Carbenes

Als Kunststoffe werden hochmolekulare Substanzen bezeichnet, aus denen sich mittels geeigneter Verarbeitungsprozesse Formkörper herstellen lassen, die bei Raumtemperatur hart und
Polymer Crystallization I

The discoveries of organometallic catalysts for olefin polymerization by Karl Ziegler and that of stereoregular olefin polymers by Giulio Natta are probably the two most important achievements in the areas of catalysis and polymer chemistry in the second half of this century. They led to the development of a new branch of chemical industry, and to a large volume production of high-density and linear low-density polyethylene, isotactic polypropylene, ethylene-propylene rubbers, isotactic poly 1-butene, and poly-4-methyl-1-pentene. These discoveries merited the Nobel prize, which was awarded to K. Ziegler and G. Natta in 1963. The initial works of Ziegler and Natta were followed by an "explosion" of scientific papers and patents covering all aspects of polymerization chemistry, catalyst synthesis, and polymerization kinetics as well as the structural, chemical, physical, and technological characteristics of stereo regular polyolefins, polydienes, and olefin copolymers. It is sufficient to say that in the twenty-five years after the first publications more than 15,000 papers and patents appeared on subjects related to the area. The development brought about the establishment of several prominent groups of scientists occupied with the study of olefin polymerization. The most important of these were scientific schools in Italy, Germany, England, the United States, Japan, the Soviet Union, Czechoslovakia, and Venezuela. In addition, many major chemical and petrochemical corporations throughout the world established laboratories devoted to the development of the technology of catalyst synthesis and olefin polymerization.
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Ullmann's Polymers and Plastics, 4 Volume Set

This volume provides an update on recent developments in computer-aided design and modeling of catalysts for a variety of important industrial applications. Key hurdles in catalyst design are different for each application: the modeling frontiers for methane partial oxidation, automotive catalysis,

Metal-catalysis in Industrial Organic Processes

Computer-Aided Design of Catalysts

Fundamentals of Organometallic Catalysis

Boron science features in numerous fields including organic chemistry, organometallic chemistry and medicine. Boron is unique in all aspects of science and engineering and has made a significant impact in our daily lives through its use in fertilizers, germicides, fungicides, soaps, detergents, cancer drugs as well as many household glassware utensils, ceramics and cell phone windows. These volumes bring together an array of internationally renowned scientists to discuss the very latest developments in the application of boron in a broad range of disciplines. This multi-reference work describes the topic by appointing leading researchers to write on current developments in boron science, showcasing its importance to the four separate areas described in each volume: Organometallic Chemistry, Catalysis, Materials Chemistry and Medicine.

Written to cover the full range of applications and innovations in boron science, this all-encompassing work offers us a one-stop reference compiled by world-leading researchers and practitioners of the subject, making it perfect for undergraduate and graduate students of chemistry, and researchers and practitioners interested in their professional development.

Transition Metal Catalyzed Polymerizations
The series Advances in Polymer Science presents critical reviews of the present and future trends in polymer and biopolymer science. It covers all areas of research in polymer and biopolymer science including chemistry, physical chemistry, physics, material science. The thematic volumes are addressed to scientists, whether at universities or in industry, who wish to keep abreast of the important advances in the covered topics. Advances in Polymer Science enjoys a longstanding tradition and good reputation in its community. Each volume is dedicated to a current topic, and each review critically surveys one aspect of that topic, to place it within the context of the volume. The volumes typically summarize the significant developments of the last 5 to 10 years and discuss them critically, presenting selected examples, explaining and illustrating the important principles, and bringing together many important references of primary literature. On that basis, future research directions in the area can be discussed. Advances in Polymer Science volumes thus are important references for every polymer scientist, as well as for other scientists interested in polymer science - as an introduction to a neighboring field, or as a compilation of detailed information for the specialist. Review articles for the individual volumes are invited by the volume editors. Single contributions can be specially commissioned. Readership: Polymer scientists, or scientists in related fields interested in polymer and biopolymer science, at universities or in industry, graduate students

Synthesis and Applications of Copolymers

Most chemical reactions in industry and biology are catalytic and play a role at some stage of the processing of about 80% of the goods manufactured in the U.S., yet catalysis is a neglected subject in chemical education. The fragmentary treatment accorded the topic until now is integrated. It covers, in a unified way, catalysis in solutions, by enzymes, in synthetic polymers within the molecular scale cages of zeolites and other molecular sieves, and on surfaces of inorganic solids. The central ideas are chemical; principles are illustrated by emphasizing industrial reactions and catalysts.
Handbook of Boron Science

Deals with a new and promising field developed during the last two decades on the boundary between homogeneous and heterogeneous catalysis. This book presents general information on catalysis for a wide range of organic reactions, e.g., hydrogenation and oxidation reactions, and polymerization transformations. Special attention is paid to electro- and photochemical stimulation of catalytic processes in the presence of immobilized metal complexes. Other topics covered are the quantitative data on the comparison of catalyses by mobile and immobilized metal complexes; main factors affecting the activity of these catalytic systems and methods of optimizing their control; and specific problems of catalysis by fixed complexes (e.g., ligand exchange and electron transfer in metal polymer systems, macromolecular effects and polyfunctional catalysis).

Advances in Catalysis

This book comprises the contributions of several authors in the area of polymer characterization by atomic force microscopy of the polymer network structure formed in Ferroelectric Liquid Crystals Cells; polymerization by microwave irradiation method of starch/acrylic acid/acrylamide; polymerization of olefins; emulsion polymerization; ring opening polymerization; cationic polymerization of vinyl monomers; block and graft copolymerization by controlled/living polymerization; fabrication of doped microstructures by two-photon polymerization; rheology of biomaterials; plant cell wall polymers; polyADP-Ribosylation in postfertilization and genome reprogramming. We hope that this book will help inspire readers to pursue study and research in this field.


Advances in Polymer Science enjoys a longstanding tradition and good reputation in its community. Each volume is dedicated to a current topic, and each review critically surveys one aspect of that topic, to place it within the context of the volume. The
volumes typically summarize the significant developments of the last 5 to 10 years and discuss them critically, presenting selected examples, explaining and illustrating the important principles, and bringing together many important references of primary literature. On that basis, future research directions in the area can be discussed. Advances in Polymer Science volumes thus are important references for every polymer scientist, as well as for other scientists interested in polymer science - as an introduction to a neighboring field, or as a compilation of detailed information for the specialist.

**Introduction to Polymer Chemistry, Second Edition**

Catalysis, the basic principle for overcoming the kinetic inhibition of chemical reactions, is fundamental in chemistry. In particular, organometallic catalysis plays an overwhelming role in both research and industry. It opens the way to entirely novel synthetic methods and finds widespread applications ranging from mass-production of everyday polymers to stereocontrolled synthesis of bioactive chemicals used as pharmaceuticals and agrochemicals. The targeted development of improved and novel catalysts demands understanding of the relationships between their structures and catalytic properties. Accordingly, this textbook offers the reader a fundamental understanding of the course of organometallic-catalyzed reactions, starting at the molecular level. The initial chapters explain the principles of catalysis and the elementary steps in organometallic catalysis. The book then explores important organometallic-catalyzed reactions, with a focus on mechanism. Current developments are emphasized throughout. Asymmetric synthesis is covered in depth. Finally, the book examines the catalytic behavior of particular metalloenzymes. A look at nitrogen fixation offers a comparative examination of the three major areas of catalysis - homogeneous, heterogeneous, and enzymatic. In addition to problems, the textbook offers solutions, making the book an invaluable learning tool. It is a must-have for advanced students in chemistry and biochemistry, as well as for inorganic and organic chemists, for those working with organometallics, and for those specializing in catalysis.
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Stereoregular Polymers and Stereospecific Polymerizations

As the first polymer book to receive the CHOICE Outstanding Academic Title distinction (2007), Introduction to Polymer Chemistry provided undergraduate students with a much-needed, well-rounded presentation of the principles and applications of natural, synthetic, inorganic, and organic polymers. With an emphasis on the environment and green chemistry and materials, this second edition continues that tradition, offering detailed coverage of natural and synthetic giant molecules, inorganic and organic polymers, elastomers, adhesives, coatings, fibers, plastics, blends, caulks, composites, and ceramics. Using simple fundamentals, the author shows how the basic principles of one polymer group can be applied to all of the other groups. He covers synthesis and polymerization reactions, reactivities, techniques for characterization and analysis, energy absorption and thermal conductivity, physical and optical properties, and practical applications. This edition also addresses environmental concerns and green polymeric materials, including biodegradable polymers and microorganisms for synthesizing materials. Brief case studies are woven within the text as historical accounts to illustrate various developments and the societal and scientific contexts in which these changes occurred. Introduction to Polymer Chemistry, Second Edition remains the premier text for understanding the behavior of polymers while offering new material on environmental science. Building on undergraduate work in foundational courses, the text fulfills the American Chemical Society Committee on Professional Training (ACS CPT) in-depth course requirement. It also provides a test bank with upon qualifying course adoption.

Science and Technology of Rubber

Catalysis underpins most modern industrial organic processes. It has become an essential tool in creating a 'greener' chemical industry by replacing more traditional stoichiometric reactions, which have high energy consumption and high waste production, with mild processes which increasingly resemble
Nature's enzymes. Metal-Catalysis in Industrial Organic Processes considers the major areas of the field and discusses the logic of using catalysis in industrial processes. The book provides information on oxidation, hydrogenation, carbonylation, C-C bond formation, metathesis and polymerization processes, as well as on the mechanisms involved. In addition two appendices offer a concise treatment of homogeneous and heterogenous catalysis. Numerous exercises referring to problems of catalytic processes, and research perspectives complete the book. This definitive reference source, written by practising experts in the field, provides detailed and up-to-date information on key aspects of metal catalysis.

Handbook of Polymer Synthesis

Advances in Catalysis

Isospecific Polymerization of Olefins

The 3rd edition of The Science and Technology of Rubber provides a broad survey of elastomers with special emphasis on materials with a rubber-like elasticity. As in the 2nd edition, the emphasis remains on a unified treatment of the material; exploring topics from the chemical aspects such as elastomer synthesis and curing, through recent theoretical developments and characterization of equilibrium and dynamic properties, to the final applications of rubber, including tire engineering and manufacturing. Many advances have been made in polymer and elastomers research over the past ten years since the 2nd edition was published. Updated material stresses the continuous relationship between the ongoing research in synthesis, physics, structure and mechanics of rubber technology and industrial applications. Special attention is paid to recent advances in rubber-like elasticity theory and new processing techniques for elastomers. This new edition is comprised of 20% new material, including a new chapter on environmental issues and tire recycling. · Explores new applications of rubber within the tire industry, from new filler materials to “green tires (a tire that has yet to undergo curing and vulcanization). · 30% of the
material has been revised from the previous edition with the addition of 20% new material, including a chapter on the environment. A mixture of theory, experiments, and practical procedures will offer value to students, practitioners, and research & development departments in industry.

**Metallopolymer Nanocomposites**

Advances in Polymer Science enjoys a longstanding tradition and good reputation in its community. Each volume is dedicated to a current topic, and each review critically surveys one aspect of that topic, to place it within the context of the volume. The volumes typically summarize the significant developments of the last 5 to 10 years and discuss them critically, presenting selected examples, explaining and illustrating the important principles, and bringing together many important references of primary literature. On that basis, future research directions in the area can be discussed. Advances in Polymer Science volumes thus are important references for every polymer scientist, as well as for other scientists interested in polymer science - as an introduction to a neighboring field, or as a compilation of detailed information for the specialist.

**Carraher's Polymer Chemistry, Tenth Edition**

Carraher's Polymer Chemistry, Tenth Edition integrates the core areas of polymer science. Along with updating of each chapter, newly added content reflects the growing applications in Biochemistry, Biomaterials, and Sustainable Industries. Providing a user-friendly approach to the world of polymeric materials, the book allows students to integrate their chemical knowledge and establish a connection between fundamental and applied chemical information. It contains all of the elements of an introductory text with synthesis, property, application, and characterization. Special sections in each chapter contain definitions, learning objectives, questions, case studies and additional reading.

**Macromolecules**
Your personal Ullmann's: Chemical and physical characteristics, production processes and production figures, main applications, toxicology and safety information are all to be found here in one single resource - bringing the vast knowledge of the Ullmann's Encyclopedia to the desks of industrial chemists and chemical engineers. The ULLMANN'S perspective on polymers and plastics brings reliable information on more than 1500 compounds and products straight to your desktop Carefully selected "best of" compilation of 61 topical articles from the Encyclopedia of Industrial Chemistry on economically important polymers provide a wealth of chemical, physical and economic data on more than 1000 different polymers and hundreds of modifications Contains a wealth of information on the production and use of all industrially relevant polymers and plastics, including organic and inorganic polymers, fibers, foams and resins Extensively updated: more than 30% of the content has been added or updated since the launch of the 7th edition of the Ullmann's encyclopedia in 2011 and is now available in print for the first time 4 Volumes

New Macromolecular Architecture and Functions

Highly dispersed nanoscale particles in polymer matrices are currently attracting great interest in many fields of chemistry, physics, and materials science. This book presents and analyzes the essential data on nanoscale metal clusters dispersed in, or chemically bonded with polymers. Special attention is paid to the in situ synthesis of the nanocomposites, their chemical interactions, and the size and distribution of the particles in the polymer matrix. Numerous novel nanocomposites are described with regard to their mechanical, electrophysical, optical, magnetic, catalytic, and biological properties. Their applications, present and future, are outlined. The book is addressed both to researchers who actively use these materials and to students entering this multidisciplinary field.

Grundlagen der metallorganischen Komplexkatalyse

Including recent advances and historically important catalysts, this book overviews methods for developing and applying
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polymers that afford commercially acceptable high yields of polymer with respect to catalyst mass or productivity. • Contains the valuable data needed to reproduce syntheses or use the catalyst for new applications • Offers a guide to the design and synthesis of catalysts, and their applications in synthesis of polymers • Includes the information essential for choosing the appropriate reactions to maximize yield of polymer synthesized • Presents new chapters on vanadium catalysts, Ziegler catalysts, laboratory homopolymerization, and copolymerization

Metal-Catalyzed Polymerization

Alicyclic Hydrocarbons—Advances in Research and Application: 2013 Edition is a ScholarlyBrief™ that delivers timely, authoritative, comprehensive, and specialized information about ZZZAdditional Research in a concise format. The editors have built Alicyclic Hydrocarbons—Advances in Research and Application: 2013 Edition on the vast information databases of ScholarlyNews™. You can expect the information about ZZZAdditional Research in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Alicyclic Hydrocarbons—Advances in Research and Application: 2013 Edition has been produced by the world’s leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Polymere - Chemie und Strukturen

Edited by a leading authority in the field, the first book on this important and emerging topic provides an overview of the latest trends in sequence-controlled polymers. Following a brief introduction, the book goes on to discuss various synthetic approaches to sequence-controlled polymers, including template
polymerization, genetic engineering and solid-phase chemistry. Moreover, monomer sequence regulation in classical polymerization techniques such as step-growth polymerization, living ionic polymerizations and controlled radical polymerizations are explained, before concluding with a look at the future for sequence-controlled polymers. With its unique coverage of this interdisciplinary field, the text will prove invaluable to polymer and environmental chemists, as well as biochemists and bioengineers.

Official Gazette of the United States Patent and Trademark Office

This volume summarizes the papers presented at the second Osaka University Macromolecular Symposium OUMS '95 on "New Macromolecular Architecture and Functions" which was held at Senri Life Science Center, Osaka, Japan, on June 2 through June 5, 1995. The symposium covered the three topics, (1) Controlled Polymerizations, (2) Macromolecular Organized Systems and (3) Biomimetic Polymers, and invited leading scientists in these fields. At present, any of these topics is a hot issue in itself and frequently taken up separately on many occasions. It is noted, however, that all these topics are correlated with each other with the keyword "molecular design of new types of polymers" and their combination provides a unique feature of the present symposium in reflecting the interactions among investigators working in these important fields with the common ground expressed by the keyword "molecular design of new types of polymers". Twenty five invited lectures and twenty nine posters were presented at the Symposium, and twenty of the lectures contribute to this volume. In the first topic, preparations of sequentially stereoregularly controlled polymers were discussed from the viewpoints of precise design of polymer preparation on the molecular level; attention was paid to a possibility of living radical polymerization, preparations of new types of living polymers, recent advances in preparation of stereospecific living polymers, sequential control in block copolymers, and molecular design of initiators and/or catalysts for the controlled polymerizations.
Insertion Polymerization

The proposed book focusses on metal mediated/catalyzed “controlled/living radical polymerization” (CRP/LRP) methods. It surveys a wide variety of catalyzed polymerization reactions, making it essentially a “one stop” review in the field. A significant contribution to polymer science is “metathesis polymerization” discovered by Grubbs and others. The book will cover various metathesis polymerization methods and implications in polymer industry.

Stereospecific Polymerization of Isoprene

Stereoregular Polymers and Stereospecific Polymerizations: The Contributions of Guilio Natta and his School to Polymer Chemistry, Volume 1 covers the developments in understanding the reactions, nomenclature, and physico-chemical properties of polymers. This volume is composed of 82 chapters, and starts with surveys of the synthesis and crystal structure of polymers. Significant chapters are devoted to the characterization of crystalline polymers, with emphasis on the determination of their viscosity and molecular weight. Other chapters deal with stereospecific polymers of olefins, mechanism of stereospecific catalysis, reaction kinetics. This volume also considers the polymerization of synthetic elastomers and the copolymerization of olefins, as well as their reaction kinetics. The remaining chapters describe the X-ray characterization of isotactic polymers. This book is directed toward polymer chemists.

The Development of Catalysis

In less than 20 years N-heterocyclic carbenes (NHCs) have become well-established ancillary ligands for the preparation of transition metal-based catalysts. This is mainly due to the fact that NHCs tend to bind strongly to metal centres, avoiding the need of excess ligand in catalytic reactions. Also, NHC–metal complexes are often insensitive to air and moisture, and have proven remarkably resistant to oxidation. This book showcases the wide variety of applications of NHCs in different chemistry fields beyond being simple phosphine mimics. This second
edition has been updated throughout, and now includes a new chapter on NHC–main group element complexes. It covers the synthesis of NHC ligands and their corresponding metal complexes, as well as their bonding and stereoelectronic properties and applications in catalysis. This is complemented by related topics such as organocatalysis and biologically active complexes. Written for organic and inorganic chemists, this book is ideal for postgraduates, researchers and industrialists.

Catalytic Chemistry

Stereospecific Polymerization of Isoprene, a doctoral dissertation by Dr. Elena Ceausescu, is a study of the synthesis of cis-1, 4-polyisoprene rubber, an elastomer of synthetic rubber whose structure and properties are similar to that of natural rubber. This elastomer is primarily used in the manufacture of tires, belts, hoses, matting, flooring, dampeners, and other synthetic rubber goods. The book is organized into two parts. Part I, the Ph.D. thesis, focuses on the explanation and exposition of the polymerization reaction; properties of the polymer; and certain theoretical aspects related to the polymer’s reaction mechanism and kinetics. Part II presents data derived from an extensive variety of experiments and tests intended to serve as a basis for the industrial production of cis-1, 4-polyisoprene rubber. The text will be an interesting book for materials engineers, industrial engineers, chemists, and science students engaged in the study of polymers.

Sequence-Controlled Polymers

Handbook of Transition Metal Polymerization Catalysts

Material synthesis by the transformation of organometallic compounds (precursors) by vapor deposition techniques such as chemical vapor deposition (CVD) and atomic layer deposition (ALD) has been in the forefront of modern day research and development of new materials. There exists a need for new routes for designing and synthesizing new precursors as well as
the application of established molecular precursors to derive tuneable materials for technological demands. With regard to the precursor chemistry, a most detailed understanding of the mechanistic complexity of materials formation from molecular precursors is very important for further development of new processes and advanced materials. To emphasize and stimulate research in these areas, this volume comprises a selection of case studies covering various key-aspects of the interplay of precursor chemistry with the process conditions of materials formation, particularly looking at the similarities and differences of CVD, ALD and nanoparticle synthesis, e.g. colloid chemistry, involving tailored molecular precursors.

Polyolefins: 50 years after Ziegler and Natta I


Homogeneous and Heterogeneous Catalysis

Catalytic olefin insertion polymerization has undergone dramatic changes in recent years, from both scientific and commercial points of view. The boundaries originally determined by Karl Ziegler have finally been exceeded and insertion polymerization is now a commercially attractive process and environmentally sound. On September 28 and 29, 2000, BASF AG hosted the Conference on Insertion
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Polymerization in Ludwigshafen, Germany. Experts from around the world gathered to present and discuss the state-of-the-art in insertion polymerization, with special emphasis on recent scientific breakthroughs, industrial applications and future prospects. This volume of Macromolecular Symposia contains many of the papers presented and provides an overview of the current state and predicted directions of insertion polymerization research and technology.

Precursor Chemistry of Advanced Materials

Issues in Chemistry and General Chemical Research: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Chemistry and General Chemical Research. The editors have built Issues in Chemistry and General Chemical Research: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Chemistry and General Chemical Research in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Chemistry and General Chemical Research: 2011 Edition has been produced by the world’s leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Energy Research Abstracts

Houben-Weyl is the acclaimed reference series for preparative methods in organic chemistry, in which all methods are organized according to the class of compound or functional group to be synthesized. The Houben-Weyl volumes contain 146000 product-specific experimental procedures, 580000 structures, and 700000 references. The preparative significance of the methods for all classes of compounds is critically evaluated. The series includes data from as far back as the early
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1800s to 2003. // The content of this e-book was originally published in 1975.

Alicyclic Hydrocarbons—Advances in Research and Application: 2013 Edition

Macromolecules is an introductory book about macromolecules, specifically about the fundamental aspects of macromolecules, such as their nature, the ways they are formed, and their behavior. This book also focuses on the basics of macromolecules, which includes history, composition, and properties. The topics covered in this book include polymerization kinetics, chemical reactions, and degradation of macromolecules. This book also discusses biological molecules, including naturally occurring materials, synthetic macromolecules, and model compounds. Students majoring in chemistry or other related fields, such as materials engineering, will find this book very useful.

Kunststoffe


Polymerization

From the onset to the first large scale industrial processes: the
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origin of the catalytic era -- Historical development of theories of catalysis -- Catalytic processes associated with hydrocarbons and petroleum industry -- Surface science methods in the second half of the XX century -- The development of homogeneous and organo catalysis -- Material science and catalysis design -- Photocatalysis -- Enzymatic catalysis -- Miscellanea

Polyolefins: 50 years after Ziegler and Natta II

This Proceedings contains plenary lectures and selected poster communications spanning the entire field of catalysis --- from catalysis by protons to catalysis by multinuclear clusters and ultra-disperse particles. It includes discussion of the recent results of fundamental research conducted at the juncture between homogeneous and heterogeneous catalysis. New ideas, based on modern physical and quantum-chemical methods, and concerning the mechanism of formation and functioning of active sites of catalysts are suggested. It is shown how the cyclic change of atomic distribution in the active site occurs during catalytic transformations. In addition, the Proceedings report new data on methods of "assembling" molecularly organized catalytic systems and on the mechanisms of their action. The various problems such as the effect of strong metal--support interaction, migration of atoms in active sites, and design of catalytic properties of substances are also widely discussed. Similarities and differences in mechanisms of action of homogeneous and heterogeneous catalysts are considered, using as examples CO hydrogenation, hydrogenolysis of saturated hydrocarbons, selective hydrogenation and oxidation of olefins, metathesis and polymerization of olefins, hydrosilylation and hydroformylation of olefins, etc.


An in-depth review of important preparative methods for the synthesis and chemical modification of polymers, this authoritative second edition examines the advantages and limitations of various polymerization applications and
procedures. It features new approaches and innovative strategies from the most prominent industry and academic laboratories.

**Catalysis by Polymer-Immobilized Metal Complexes**

Understanding the reactivity of monomers is crucial in creating copolymers and determining the outcome of copolymerization. Covering the fundamental aspects of polymerization, Synthesis and Applications of Copolymers explores the reactivity of monomers and reaction conditions that ensure that the newly formed polymeric materials exhibit desired properties. Referencing a wide-range of disciplines, the book provides researchers, students, and scientists with the preparation of a diverse variety of copolymers and their recent developments, with a particular focus on copolymerization, crystallization, and techniques like nanoimprinting and micropatterning.

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