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***The brief is the first to focus
exclusively on
environmentally friendly***

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***delivery of pesticides
(controlled-release
nanoparticulate formulation
of pesticides using
biodegradable polymers as
carriers). The brief also
introduces pesticides like***

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***Chlorpyrifos and
biodegradable polymers like
guar-gum. The brief will be
extremely useful to the
researchers in the field of
agrochemicals and will be
equally useful for advanced***

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***professionals in the field of
biology, chemistry,
environmental biology,
entomology and
horticulture.***

***Written by a pioneer in the
development of spin***

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labeling in biophysics, this expert book covers the fundamentals of nitroxide spin labeling through cutting-edge applications in chemistry, physics, materials science, molecular

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biology, and biomedicine. Nitroxides have earned their place as one of the most popular organic paramagnets due to their suitability as inhibitors of oxidative processes, as a

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means to polarize magnetic nuclei, and, in molecular biology, as probes and labels to understand molecular structures and dynamics AS DRUGS FOR CANCER AND OTHER

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DISEASES. Beginning with an overview of the basic methodology and nitroxides' 145-year history, this book equips students with necessary background and techniques to undertake

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***original research and
industry work in this
growing field.***

***Reverse engineering is
widely practiced in the
rubber industry. Companies
routinely analyze***

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competitors' products to gather information about specifications or compositions. In a competitive market, introducing new products with better features and at a

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faster pace is critical for any manufacturer. Reverse Engineering of Rubber Products: Concepts, Tools, and Techniques explains the principles and science behind rubber formulation

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development by reverse engineering methods. The book describes the tools and analytical techniques used to discover which materials and processes were used to produce a particular

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***vulcanized rubber compound
from a combination of raw
rubber, chemicals, and
pigments. A Compendium of
Chemical, Analytical, and
Physical Test Methods
Organized into five***

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chapters, the book first reviews the construction of compounding ingredients and formulations, from elastomers, fillers, and protective agents to vulcanizing chemicals and

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processing aids. It then discusses chemical and analytical methods, including infrared spectroscopy, thermal analysis, chromatography, and microscopy. It also

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examines physical test methods for visco-elastic behavior, heat aging, hardness, and other features. A chapter presents important reverse engineering concepts. In

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addition, the book includes a wide variety of case studies of formula reconstruction, covering large products such as tires and belts as well as smaller products like seals and

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***hoses. Get Practical Insights
on Reverse Engineering
from the Book's Case
Studies Combining scientific
principles and practical
advice, this book brings
together helpful insights on***

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reverse engineering in the rubber industry. It is an invaluable reference for scientists, engineers, and researchers who want to produce comparative benchmark information,

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discover formulations used throughout the industry, improve product performance, and shorten the product development cycle.

In this book, experts on

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textile technologies convey both general and specific information on various aspects of textile engineering, ready-made technologies, and textile chemistry. They describe the

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entire process chain from fiber materials to various yarn constructions, 2D and 3D textile constructions, preforms, and interface layer design. In addition, the authors introduce testing

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***methods, shaping and
simulation techniques for
the characterization of and
structural mechanics
calculations on anisotropic,
pliable high-performance
textiles, including specific***

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examples from the fields of fiber plastic composites, textile concrete and textile membranes. Readers will also be familiarized with the potential offered by increasingly employed

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textile structures, for instance in the fields of composite technology, construction technology, security technology and membrane technology.
Shape Memory Polymers

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***Concepts, Tools, and
Techniques
Mechanisms and Materials
The Effect of Sterilization on
Plastics and Elastomers
Introduction to Polymer
Science and Chemistry***

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Handbook of Elastomers

This is the first volume of a two-volume work which summarizes in an edited format and in a fairly comprehensive manner many of the recent technical research accomplishments in the area of Elastomers. “Advances in Elastomers” discusses the various attempts reported on

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solving these problems from the point of view of the chemistry and the structure of elastomers, highlighting the drawbacks and advantages of each method. It summarizes the importance of elastomers and their multiphase systems in human life and industry, and covers all the topics related to recent advances in elastomers,

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their blends, IPNs, composites and nanocomposites. This first volume focuses on advances on the blends and interpenetrating networks (IPNs) of elastomers.

The first systematic reference on the topic with an emphasis on the characteristics and dimension of the reinforcement. This

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first of three volumes, authored by leading researchers in the field from academia, government, industry, as well as private research institutions around the globe, focuses on macro and micro composites. Clearly divided into three sections, the first offers an introduction to polymer composites, discussing the state of the art,

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new challenges, and opportunities of various polymer composite systems, as well as preparation and manufacturing techniques. The second part looks at macro systems, with an emphasis on fiber reinforced polymer composites, textile composites, and polymer hybrid composites. Likewise, the final section

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deals with micro systems, including micro particle reinforced polymer composites, the synthesis, surface modification and characterization of micro particulate fillers and flakes as well as filled polymer micro composites, plus applications and the recovery, recycling and life cycle analysis of synthetic polymeric composites.

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Volume 2 of the conference proceedings of the SPE/Antac on 'Materials', held on the 7-11 May 2000 in Orlando, Florida, USA. Ratna presents a detailed review of the recent advances on thermostat-based composites and nanocomposites, highlighting the future directions of research in various areas of thermostat

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resins.

Preparation, Properties, and Applications
Conducting Polymer Nanocomposites for
Supercapacitors

Elements of Polymer Science &
Engineering

Polyurethane Shape Memory Polymers

Plastic Films in Food Packaging

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Miscibility, Morphology and Interfaces

This new edition of the bestselling Handbook of Thermoplastics incorporates recent developments and advances in thermoplastics with regard to materials development, processing, properties, and applications. With contributions from 65 internationally recognized authorities in

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the field, the second edition features new and updated discussions of several topics, including: Polymer nanocomposites Laser processing of thermoplastic composites Bioplastics Natural fiber thermoplastic composites Materials selection Design and application Additives for thermoplastics Recycling of thermoplastics Regulatory

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and legislative issues related to health, safety, and the environment. The book also discusses state-of-the-art techniques in science and technology as well as environmental assessment with regard to the impact of thermoplastics. Each chapter is written in a review format that covers: Historical development and

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commercialization Polymerization and process technologies Structural and phase characteristics in relation to use properties The effects of additives on properties and applications Blends, alloys, copolymers, and composites derived from thermoplastics Applications Giving thorough coverage of the most recent

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trends in research and practice, the Handbook of Thermoplastics, Second Edition is an indispensable resource for experienced and practicing professionals as well as upper-level undergraduate and graduate students in a wide range of disciplines and industries.

Supercapacitors have drawn intensive

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attention owing to their virtues of high power density, long cycle life, short charging time and safe operation for promising applications to resolve problems of limited global energy supply and environmental problems.

Supercapacitors are designed to bridge the gap between batteries and capacitors,

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to form fast charging energy-storage devices of intermediate specific energy. The supercapacitor is an important device in the energy storage and conversion systems, and is used in different applications such as in electric vehicles, uninterruptible power supplies, memory protection of computer electronics and

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cellular devices. This book serves as a guide in understanding the basics of conducting polymer technology, nanostructurisation of conducting polymers and their composites emerging as a new field of research and development, directed to the creation of new smart materials, especially for

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supercapacitors. The concepts of supercapacitors are well explained in simple and concise form to avoid the confusion of students and academic professionals. The book has chemical engineering orientation and therefore, professionals from the polymer science field may find this book most suitable for

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their advanced and applied field of research. It will provide them an opportunity to learn about conducting polymers and nanocomposites, and their production and processing technology for supercapacitors. Although the attention is mainly focused on preparation of conducting polymer based binary and

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ternary nanocomposites and their electrochemical performances for supercapacitor application, this book will be a valuable reference for scientists, engineers, students and general readers who are interested in the investigation and exploitation of the fascinating new class of conducting polymer nanocomposites.

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Inorganic-Whisker-Reinforced Polymer Composites: Synthesis, Properties and Applications gives a comprehensive presentation of inorganic microcrystalline fibers, or whiskers, a polymer composite filler. It covers whisker synthesis, surface modification, applications for reinforcing polymer-matrix composites, and analysis

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of resulting filled polymer composites. It focuses on calcium carbonate whiskers as a primary case study, introducing surface treatment methods for calcium carbonate whiskers and factors that influence them. Along with calcium carbonate, the book discusses potassium titanate and aluminum borate whiskers, which also

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comprise the new generation of inorganic whiskers. According to research results, composites filled by inorganic whiskers show improved strength, wear-resistance, thermal conductivity, and antistatic properties. It explains the importance of modifying polymer materials for use with inorganic whiskers and describes

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preparation and evaluation methods of polymers filled with inorganic whiskers. The book also considers possible challenges and solutions in synthesis and applications of polymers filled with inorganic whiskers. It summarizes the latest practices and research progress in China and elsewhere. With much of its

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information being new outside of China, Inorganic-Whisker-Reinforced Polymer Composites calls attention to the excellent promise displayed by applications of inorganic whiskers. They have the potential for wide and durable application and also for further development. This book demonstrates their potential and

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presents current and future directions in polymer science and inorganic whiskers. Now available for the first time, this valuable reference presents polymer solubility parameters and various polymer-liquid interaction parameters in an easy-to-use form. It critically evaluates and comprehensively compiles data from

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original sources. It presents these quantities polymer-by-polymer, alphabetically by polymer common chemical name, fully cross-referenced by systematic chemical names, alternative names and trade names. This one-of-a-kind handbook summarizes the relationship between the various

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quantities and their methods of determination. This resource is an absolute must for all who are interested in the chemical industry, specifically polymer chemistry, chemical engineering, applied chemistry, and physical chemistry.

Synthesis, Properties and Applications
Materials, Technology and Applications

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The Non-halogenated Flame Retardant
Handbook

Forming Processes

Blends and Interpenetrating Networks

High Performance Polymers and
Engineering Plastics

Up-to-date coverage of

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**methods of emulsion
polymerization This book
provides a comprehensive
reference on emulsion
polymerization
methods, focusing on the
fundamental mechanisms and**

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kinetics of each process, as well as how they can be applied to the manufacture of environmentally friendly polymeric materials. Topics covered include: Conventional emulsion polymerization

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**Miniemulsion polymerization
Microemulsion polymerization
Industrial emulsion
polymerization processes
(primarily the semibatch and
continuous reactions
systems) The role of various**

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**colloidal phenomena in
emulsion polymerization
Important end-use properties
of emulsion polymer (latex)
products Information on
industrial applications in
paints, coatings, adhesives,**

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**paper and board, and more
This is a hands-on reference
for graduate students and
professionals in
polymerchemistry, chemical
engineering, and materials
science who are involved in**

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**research on coatings,
adhesives, rubber, latex,
paints, finishes, and other
materials that can be created
using various methods of
emulsion polymerization.
Many challenges confront the**

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rubber technologist in the development, manufacture, and use of rubber products. These challenges include selecting and combining materials to form rubber compounds suitable for

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**processing, successfully
operating a range of
manufacturing equipment, and
meeting product performance
in difficult and diverse
environments. Case studies
and literature references**

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relate problem solutions to the everyday experience of the rubber technologist. From materials to processes to products, this book identifies many different rubber-related problems and suggests

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approaches to solve them.

**Contents: • TSE and TPE
Materials, Compounds,
Processes, and Products •
TSE Materials and
Compounds • TSE Processes
and Equipment • TSE**

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**Products • TPE Materials and
Compounds • TPE Processes
and Equipment • TPE
Products**

**This book is the inaugural
volume a series entitled
Polymeric Foams: Technology**

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and Applications. Generally, thermoplastic and thermoset foams have been treated as two separate practices in industry. Polymeric Foams: Mechanisms and Materials presents the basics of

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foaming in general build a strong foundation to those working in both thermoplastic and thermoset foams. The book addresses scientific principles behind polymeric foaming and presents foaming

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chemistry and physics, resin and blowing agents, and foaming mechanisms in separate chapters, thus providing an overall and fundamental understanding of foaming for polymeric foam

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**products and processes.
When fibres in a composite
are discontinuous and are
shorter than a few millimetres,
the composite is called a
'short fibre reinforced
composite (SFRP)'. SFRPs**

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have found extensive applications in automobiles, business machines, durable consumer items, sporting goods and electrical industries owing to their low cost, easy processing and

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**superior mechanical
properties over the parent
polymers. The book
summarises recent
developments in this area,
focusing on the fundamental
mechanisms that govern the**

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mechanical properties including strength, modulus, fracture toughness and thermal properties of SFRP materials. This book covers the following topics: extrusion compounding and injection

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**moulding, major factors
affecting mechanical
performance, stress transfer,
strength, elastic modulus
flexural modulus, thermal
conductivity and expansion,
non-linear stress-strain**

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**behaviour and fracture
mechanics of short fibre
reinforced polymers. With its
distinguished team of authors,
Science and engineering of
short fibre reinforced polymer
composites is a standard**

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reference for anyone involved in the development, manufacture and use of SFRPs. It will also provide an in-depth understanding of the behaviour of these versatile materials. Reviews the

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**mechanical properties and
functions of short fibre
reinforced polymer
composites (SFRP) Examines
recent developments in the
fundamental mechanisms of
SFRP's Assesses major**

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**factors affecting mechanical
performance such as stress
transfer and strength**

**Advances in Elastomers I
Nitroxides**

Polymeric Foams

Heat Transfer in Polymer

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**Composite Materials
Applied Chemistry and
Chemical Engineering, Volume
2
Science and Technology**

Reverse Engineering of Rubber
Products Concepts, Tools, and

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TechniquesCRC Press

Shape-memory polymers (SMP) are a unique branch of the smart materials family which are capable of changing shape on-demand upon exposure to external stimulus. The discovery of SMP made a

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significant breakthrough in the developments of novel smart materials for a variety of engineering applications, superseded the traditional materials, and also influenced the current methods of product

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designing. This book provides the latest advanced information of on-going research domains of SMP. This will certainly enlighten the reader to the achievements and tremendous potentials of SMP. The basic fundamentals of SMP,

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including shape-memory mechanisms and mechanics are described. This will aid reader to become more familiar with SMP and the basic concepts, thus guiding them in undergoing independent research in the SMP

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field. The book also provides the reader with associated challenges and existing application problems of SMP. This could assist the reader to focus more on these issues and further exploit their knowledge to look for innovative solutions. Future

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outlooks of SMP research are discussed as well. This book should prove to be extremely useful for academics, R&D managers, researcher scientists, engineers, and all others related to the SMP research.

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With such a wide diversity of properties and applications, is it any wonder that industry and academia have such a fascination with polymers? A solid introduction to such an enormous and important field is critical to the modern

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polymer scientist-to-be, but most of the available books do not stress practical problem solving or include recent advances. Serving as the polymer book for the new millennium, Introduction to Polymer Science and Chemistry: A Problem

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Solving Approach unites the fundamentals of polymer science and polymer chemistry in a seamless presentation.

Emphasizing polymerization kinetics, the author uses a unique question-and-answer approach

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when developing theory or introducing new concepts. The first four chapters introduce polymer science, focusing on physical and molecular properties, solution behavior, and molecular weights. The remainder of the book explores

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polymer chemistry, devoting individual, self-contained chapters to the main types of polymerization reactions: condensation; free radical; ionic; coordination; and ring-opening. It introduces recent advances such as supramolecular

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polymerization, hyperbranching, photoemulsion polymerization, the grafting-from polymerization process, polymer brushes, living/controlled radical polymerization, and immobilized metallocene catalysts. With

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numerical problems accompanying the discussion at every step along with numerous end-of-chapter exercises, Introduction to Chemical Polymer Science: A Problem Solving Approach is an ideal introductory text and self-study

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vehicle for mastering the principles and methodologies of modern polymer science and chemistry.

Rubber Nanocomposites: Preparation, Properties and Applications focuses on the preparation, characterization and

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properties of natural and synthetic rubber nanocomposites. The book carefully debates the preparation of unmodified and modified nanofillers, various manufacturing techniques of rubber nanocomposites, structure,

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morphology and properties of nanocomposites. The text reviews the processing; characterization and properties of 0-, 1D and 2D nanofiller reinforced rubber nanocomposites. It examines the polymer/filler interaction, i.e., the

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compatibility between matrix and filler using unmodified and modified nanofillers. The book also examines the applications of rubber nanocomposites in various engineering fields, which include tyre engineering. The book also

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examines the current state of the art, challenges and applications in the field of rubber nanocomposites. The handpicked selection of topics and expert contributions make this survey of rubber nanocomposites an outstanding resource for anyone

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involved in the field of polymer materials design. A handy "one stop" reference resource for important research accomplishments in the area of rubber nanocomposites. Covers the various aspects of preparation,

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characterization, morphology, properties and applications of rubber nanocomposites.

Summarizes many of the recent technical research accomplishments in the area of nanocomposites, in a

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comprehensive manner It covers an up to date record on the major findings and observations in the field

Characterization of Polymer Blends
Technologies - Methods - Materials
- Properties

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Handbook of Thermoset Resins
A Problem-Solving Approach
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advances in synthesis,
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of environmentally friendly polymers generated from renewable resources. With contents based on a wide range of functional monomers and contributions from eminent

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researchers, this volume demonstrates the design, synthesis, properties and applications of plant oil based polymers, presenting an elaborate review of acid mediated

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polymerization techniques for the generation of green polymers. Chemical engineers are provided with state-of-the-art information that acts to further progress research

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in this direction.

This book covers many important aspects of applied chemistry and chemical engineering, focusing on three main aspects: principles,

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parts: polymer chemistry
and technology bioorganic
and biological chemistry
nanoscale technology
selected topics This book
is the second of the two-
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Chemistry and Chemical Engineering. The first volume is Volume 1: Mathematical and Analytical Techniques. The book offers an in-depth review of the

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materials design and manufacturing processes employed in the development of multi-component or multiphase polymer material systems. This field has seen rapid

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growth in both academic and industrial research, as multiphase materials are increasingly replacing traditional single-component materials in commercial applications.

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Many obstacles can be overcome by processing and using multiphase materials in automobile, construction, aerospace, food processing, and other chemical industry

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applications. The comprehensive description of the processing, characterization, and application of multiphase materials presented in this book offers a world

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of new ideas and potential technological advantages for academics, researchers, students, and industrial manufacturers from diverse fields including rubber

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engineering, polymer chemistry, materials processing and chemical science. From the commercial point of view it will be of great value to those involved in

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processing, optimizing and manufacturing new materials for novel end-use applications. The book takes a detailed approach to the description of process parameters,

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process optimization, mold design, and other core manufacturing information. Details of injection, extrusion, and compression molding processes have been provided based on the

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most recent advances in the field. Over two comprehensive sections the book covers the entire field of multiphase polymer materials, from a detailed description of

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material design and processing to the cutting-edge applications of such multiphase materials. It provides both precise guidelines and general concepts for the present

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and future leaders in academic and industrial sectors.

Shape memory polymers (SMPs) are some of the most important and valuable engineering

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materials developed in the last 25 years. These fascinating materials demonstrate remarkably versatile properties—including capacity for actuation and

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stimulus

responsiveness—that are enabling technologists to develop applications used to explore everything from the outer reaches of space to the inside of the human

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body. Polyurethane Shape Memory Polymers details the fundamentals of SMP makeup, as well as their shape-recovery features and their seemingly endless potential for use

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in applications ranging from the macro- to submicron scales. With an abundance of illustrations and vivid pictures to explain how SMPs and their composites work and how

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they can be used, this book covers: History and most recent developments in SMPs Thermomechanical properties and behavior of the polymers and their composites Modification of

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SMPs and novel actuation
mechanisms Large-scale
surface pattern generation
Multi-shape memory effect
Fabrication techniques
Characterization of
composites A must-have

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reference for anyone working in the materials science and engineering fields, this book outlines the properties—such as light weight, low cost, and ability to handle high

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strain—that make the easily processed SMPs so useful in fields including aerospace, biomedicine, and textiles. It is intended to help readers understand and apply the

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knowledge and techniques
presented to develop new
innovations that will
further benefit society.
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Rubber
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Fundamentals, and Recent
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Inorganic-Whisker-
Reinforced Polymer
Composites

Rubber Nanocomposites

Handbook of Detergents - 6

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Edition

Polymers are among the major hallmarks of 20th-century science, and the explosive outgrowth and

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tremendous importance of polymeric foams is a testament to their amazing versatility and unique properties. With applications from automotive to acoustic and medical, polymeric foams pervade all areas of our

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lives. If this growth is to continue into the

With contributions from experts and pioneers, this set provides readers with the tools they need to answer the need for sustainable development faced by the industry.

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The six volumes constitute a shift from the traditional, mostly theoretical focus of most resources to the practical application of advances in research and development. With con
Due to the emphasis on replacing

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halogenated flame retardants with alternate technologies, this handbook contains in one place all of the current commercial non-halogenated flame retardant technologies, as well as experimental systems

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nearcommercialization. This book focuses on non-halogenated flame retardants in a holistic but practical manner. It starts with an overview of the regulations and customer perceptions driving non-halogenated flame retardant

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selection over older halogenated technologies. It then moves into separate chapters covering the known major classes of non-halogenated flame retardants. These chapters are written by known experts in those

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specific chemistries who are also industrial experts in how to apply that technology to polymers for fire safety needs. The handbook concludes with some of the newer technologies in place that are either niche performers or

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may be commercial in the nearfuture. Future trends in flame retardancy are alsodiscussed. The Non-Halogenated Flame Retardant Handbook book takes apractical approach to addressing the narrow subject ofnon-halogenated flame

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retardancy. This includes more emphasis on flame retardant selection for specific plastics, practical considerations in flame retardant material design, and what the strengths and limits of these various technologies are. Previous

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flame retardant material science books have covered non-halogenated flame retardants, but they focus more on how they work rather than how to use them. The combination of its unique morphology, physical properties,

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cost effectiveness and environmental friendliness make natural rubber an appealing constituent for many materials and applications. Natural Rubber Materials covers the synthesis, characterization and applications

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of natural rubber based blends, interpenetrating polymer networks, composites and nanocomposites. With contributions from established international experts in the field, volume 1 covers different types of natural rubber-based

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blends and IPNs, whilst volume 2 focuses on natural rubber-based composites and nanocomposites. This is the first book to consolidate the current state of the art information on natural rubber based materials providing a "one

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stop" reference resource for professionals, researchers, industrial practitioners, graduate students, and senior undergraduates in the fields of polymer science and engineering, materials science, surface science,

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Principles of Polymer Systems

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Science and Engineering of Short
Fibre Reinforced Polymer
Composites
Principles, Methodology, and
Evaluation Methods

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Polymers are an important part in everyday life; products made from polymers range from sophisticated articles, such as biomaterials, to aerospace materials. One of the reasons for the great popularity exhibited by polymers is their ease of processing. Polymer properties can be tailored to meet specific needs by varying the "atomic

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composition" of the repeat structure, by varying molecular weight and by the incorporation (via covalent and non-covalent interactions) of an enormous range of compounds to impart specific activities. In food science, the use of polymeric materials is widely explored, from both an engineering and a nutraceutical point of

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view. Regarding the engineering application, researchers have discovered the most suitable materials for intelligent packaging which preserves the food quality and prolongs the shelf-life of the products. Furthermore, in agriculture, specific functionalized polymers are used to increase the efficiency of treatments and reduce the

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environmental pollution. In the nutraceutical field, because consumers are increasingly conscious of the relationship between diet and health, the consumption of high quality foods has been growing continuously. Different compounds (e.g. high quality proteins, lipids and polysaccharides) are well known to

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contribute to the enhancement of human health by different mechanisms, reducing the risk of cardiovascular disease, coronary disease, and hypertension. This first volume, of this two volume book, concerns the application of polymers in food packaging. The 3rd edition of The Science and Technology of Rubber provides a broad

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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

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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,

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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. ·

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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,

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experiments, and practical procedures will offer value to students, practitioners, and research & development departments in industry.

"Provides the latest authoritative research on the developments, technology, and applications of rubbery materials. Presents structures, manufacturing techniques, and

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processing details for natural and synthetic rubbers, rubber-blends, rubber composites, and thermoplastic elastomers. 80% revised and rewritten material covers major advances since pu

Epoxy resins have been commercially available for about 45 years and now have many major industrial applications,

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especially where technical advantages warrant their somewhat higher costs. The chemistry of these resins is fascinating and has attracted study by many very able scientists. The technological applications of the epoxy resins are very demanding and there are many new developments each year. The aims of the present book are to present

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in a compact form both theoretical and practical information that will assist in the study, research and innovations in the field of epoxy resin science and technology. The literature on epoxy resins is so vast that it is not possible to be encyclopaedic and that is not the function of the present text. It is the editor's hope that the selection of topics

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discussed will provide an up-to-date survey. There is some overlap in the chapters but this is minimal and so each chapter is essentially self contained. As with all chemicals there are toxicological and other hazards. These are not dealt with in this text since a little knowledge can be dangerous, but material supplied can provide

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information regarding any safety precautions that may be necessary. However, often these precautions are not onerous and epoxy resins, or more specifically the hardeners, can be handled readily. It is hoped that this text will provide an up-to-date outline of the science and technology of epoxy resins and stimulate

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further research into unsolved problems and assist further technological developments.

Reverse Engineering of Rubber Products

Raw Materials

From Technology to Biology, Volume 1:

Food Packaging

SPE/ANTEC 2000 Proceedings

Introduction to Polymer Compounding

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Handbook of Polymer Synthesis

Tremendous developments in the field of polymer science, its growing importance, and an increase in the number of polymer science courses in both physics and chemistry departments have led to the

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concepts to technological applications * Highlights the vastly valuable resource of polymer technology * Uses quantitative examples and problems to fully develop concepts * Contains practical lead-ins to emulsion

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***polymerization, viscoelasticity
and polymer rheology***

***The value of the groceries
purchases in the USA is over
\$500 billion annually, most of
which is accounted for by
packaged foods. Plastic
packaging of foods is not only***

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ubiquitous in developed economies, but increasingly commonplace in the developing world, where plastic packaging is instrumental in decreasing the proportion of the food supply lost to spoilage. This

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new handbook is a combination of new material and updated chapters, chosen by Dr. Sina Ebnesajjad, from recently published books on this subject. Plastic Films in Food Packaging offers a practical handbook for

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engineers, scientists and managers working in the food packaging industry, providing a tailor-made package of science and engineering fundamentals, best practice techniques and guidance on new and emerging

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technologies. By covering materials, design, packaging processes, machinery and waste management together in one book, the authors enable the reader to take a lifecycle approach to food packaging. The Handbook

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addresses questions related to film grades, types of packages for different types of foods, packaging technologies, machinery and waste management. Additionally the book provides a review of new and emerging technologies.

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Two chapters cover the development of barrier films for food packaging and the regulatory and safety aspects of food packaging. Essential information and practical guidance for engineers and scientists working at all

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***stages of the food packaging
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regulatory framework and safety aspects Coverage of materials and applications together in one handbook enables engineers and scientists to make informed design and manufacturing decisions

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A relatively compact, but nonetheless comprehensive, review of the most important preparative methods for the synthesis and chemical modification of polymers. The contents are subdivided according to chemical

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***structure of the polymer backbone. Complementary emphasis is on special properties and appl
Polymer Compounding, Volume 1 focuses on aspects of the raw materials used in polymer processing. Polymer***

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compounding comprises a complex heterogeneous system of polymers and other ingredients and, in many ways, the preparation of these materials is still very much an art. It is a powerful tool that will eventually be required as

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one of the basics of polymer processing. This book provides readers with a wide array of state-of-the-art strategies to develop their knowledge about compounding and the use of polymers while minimising

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wastage during processing. Details about polymer properties and additives are assembled to provide a one-source repository for compounding. Another important point to be considered in the book is the

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combination of polymers and additives and the essentials required for the development of economic and environmental incentives in polymer processing. This book will encourage further studies to understand the

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scientifically challenging polymer processing issues arising during the manufacture of parts for end-use applications. Finally, this volume presents an overview of polymer compounding requirements, as well as an

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institutions around the world summarize recent technical advances in chapters devoted to their individual contributions. In so doing, they examine a wide range of modern characterization techniques, from microscopy and spectroscopy to

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diffraction, thermal analysis, rheology, mechanical measurements and chromatography. These methods are compared with each other to assist in determining the best solution for both fundamental and applied problems, paying attention to the

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characterization of nanoscale miscibility and interfaces, both in blends involving copolymers and in immiscible blends. The thermodynamics, miscibility, phase separation, morphology and interfaces in polymer blends are also discussed

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in light of new insights involving the nanoscopic scale. Finally, the authors detail the processing-morphology-property relationships of polymer blends, as well as the influence of processing on the generation of micro and nano morphologies, and the

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dependence of these morphologies on the properties of blends. Hot topics such as compatibilization through nanoparticles, miscibility of new biopolymers and nanoscale investigations of interfaces in blends are also addressed. With its

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application-oriented approach, handpicked selection of topics and expert contributors, this is an outstanding survey for anyone involved in the field of polymer blends for advanced technologies. Organized to present the subject

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clearly to a person with no prior knowledge of polymer systems. Serves also as a broadening tool for scientists and engineers with partial experience in the field. New edition has added more than 300 general references and over 35 original problems. Annotation

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