Metallized Plastics 7 Fundamental And Applied Aspects

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Handbook of Plastic Optics Stefan B umer 2006-03-06 The use of plastic optics instead of glass offers a number of advantages. Most importantly, it is far less expensive, and therefore opens a huge potential for mass production. It also offers the opportunity to use unique element configuration. This book gives a coherent overview over the current status of injection molded optics describing in detail all aspects of plastic optics, from design issues to production technology and quality control. The focus is firmly set on practical applications, making this an indispensable information source for all those working in optics research and development. The contributors, each one a leading expert in his chosen discipline, possess either a background in industry or close relations to the industry, thus bringing in an ample amount of practical experience.

Polymer Surface Modification: Relevance to Adhesion Kash L. Mittal 2004-08-26 This book documents the proceedings of the Fourth International Symposium on Polymer Surface Modification: Relevance to Adhesion held under the auspices of MST Conferences, LLC in Orlando, FL, June 9-11, 2003. Polymers are used for a variety of purposes in a host of technological applications and even a cursory look at the literature will evince that currently there is tremendous interest and R&D activity in the area of polymer surface modification to attain their desired surface characteristics, particularly to enhance their adhesion. This volume contains a total of 25 papers which were properly peer reviewed, revised and edited. So this book is not merely a collection of papers, rather represents the highest standard of publication. The book is divided into three parts: 1. Plasma Surface Modification Techniques; 2. Other / Miscellaneous Surface Modification Techniques; and 3. General Papers. The topics covered include: low pressure plasma surface modification of a variety of polymers using various gases; atmospheric pressure plasma treatment; improvement of stain release properties of fabrics; modification of electrostatic properties of polymers; photon-based processes for surface modification of fibers; excimer UV light treatment; excimer laser surface treatment; low-energy ion treatment; photo-grafting and photo-curing; metallization of treated polymers; chemical (wet) functionalization of polymers; adhesion of paints to thermoplastic substrates; polymer release surfaces; nanolithography in polymer films; gas barrier properties of ceramic layers on polymers; and modification of interphase layer and relevance to adhesion. This volume and its predecessors containing plentiful information should serve as a comprehensive source of latest R&D activity in the highly technologically important arena of polymer surface modification. Anyone interested -centrally or peripherally- in knowing or learning about the various ways to modify polymer surfaces should find this book of immense value.

Particles on Surfaces 3 K.L. Mittal 2013-11-11 This volume chronicles the proceedings of the Third Symposium on Particles on Surfaces : Detection, Adhesion and Removal held as a part of the 21st Annual Meeting of the Fine Particle Society in San Diego , California, August 21 - 25 , 1990 . The first two symposia in t h i s series were held in 1986 and 1988 , respectively, and have been properly l documented ,2. Li ke its antecedent s the Third symposium was very well received, and the continuing success of these symposia reinforced our earlier belief that regular symposia on the topic of particles on surfaces were very much needed. Concomitantly, the fourth symposium in this series is planned in Las Vegas , July 13-17 , 199 2 . l As pointed out in the Preface to the earlier two volumes ,2, the topic of particles on surfaces is of tremendous interest and concern in a wide spectrum of technological areas . The objectives of the Third symposium were es s ent i a l ly the same as those of the earlier two and our intent her e was to provide an update on the research and development activities in the world of particles on surfaces . Apropos , there has been a deliberate attempt every time to s eek out new people to present their research results and we have been very succes s f ul in this mission.

Metallized Plastics 2 K.L. Mittal 1992-03-31 This volume documents the proceedings of the Second Symposium on Metallized Plastics: Fundamental and Applied Aspects held under the aegis of the Dielectric Science and Technology Division of the Electrochemical Society in Montreal, Canada, May 7-10, 1990. The first symposium on this topic was held in Chicago, October 10-12, 1988 and the proceedings of l which have been chronicled in a hard-bound volume l As pointed out in the Preface to the proceedings of the first symposium the metallized plastics find scores of applications ranging from very mundane to very sophisticated. Even a cursory look at the literature will convince that this field has sprouted; and there is every reason to believe that with all the research and development activities taking place, new and exciting applications of metallized plastics will emerge. The program for the second symposium was very comprehensive as it included 46 papers covering many aspects of metallized plastics. This symposium was a testimonial to the brisk research activity and keen interest in the topic of metallized plastics. The success of this symposium reinforced our earlier belief that there was a definite need to hold symposia on this topic on a regular basis. Concomitantly, the third symposium in this vein was held in Phoenix, Arizona, October 13-18, 1991 and the fourth is planned for May 16-21, 1993 in Honolulu, Hawaii. As regards the present volume, it contains a total of 35 papers covering a variety of topics ranging from very fundamental to very applied.

Metallized Plastics 5&6: Fundamental and Applied Aspects Kash L. Mittal 1998-10-22 This book chronicles the proceedings of the 5th and 6th symposia on Metallized Plastics: Fundamental and Applied Aspects, held in May 1996 and September 1997 respectively. This volume contains 29, carefully reviewed, revised and up-dated papers which were presented at both symposia. The book is divided in the following three parts: Metallization Te

Nonthermal Plasmas for Materials Processing J rg Florian Friedrich 2022-07-15 NONTHERMAL PLASMAS FOR MATERIALS PROCESSING This unique book covers the physical and chemical aspects of plasma chemistry with polymers and gives new insights into the interaction of physics and chemistry of nonthermal plasmas and their applications in materials science for physicists and chemists. The properties and characteristics of plasmas, elementary (collision) processes in the gas phase, plasma surface interactions, gas discharge plasmas and technical plasma sources, atmospheric plasmas, plasma diagnostics, polymers and plasmas, plasma polymerization, post-plasma processes, plasma, and wet-chemical processing, plasma-induced generation of functional groups, and the chemical reactions on these groups along with a few exemplary applications are discussed in this comprehensive but condensed state-of-the-art book on plasma chemistry and its dependence on plasma physics. While plasma physics, plasma chemistry, and polymer science are often handled separately, the aim of the authors is to harmoniously join the physics and chemistry of low-pressure and atmospheric-pressure plasmas with polymer surface chemistry and polymerization and to compare such chemistry with classic chemistry. Readers will find in these chapters Interaction of plasma physics and chemistry in plasmas and at the surface of polymers; Explanation and interpretation of physical and chemical mechanisms on plasma polymerization and polymer surface modification; Introduction of modern techniques in plasma diagnostics, surface analysis of solids, and special behavior of polymers on exposure to plasmas; Discussion of the conflict of energy-rich plasma species with permanent energy supply and the much lower binding energies in polymers and alternatives to avoid random polymer decomposition Technical applications such as adhesion, cleaning, wettability, textile modification, coatings, films, etc. New perspectives are explained about how to use selective and mild processes to allow post-plasma chemistry on non-degraded polymer surfaces. Audience Physicists, polymer chemists, materials scientists, industrial engineers in biomedine, coatings, printing, etc.

Coating Technology for Vehicle Applications Sung Chul Cha 2015-04-20 This book describes current, competitive coating technologies for vehicles. The authors detail how these technologies impact energy efficiency in engines and with increased use of lightweight materials and by varying coatings applications can resolve wear problems, resulting in the increased lifecycle of dies and other vehicle components.

Laser Surface Modification and Adhesion K. L. Mittal 2014-09-18 The book provides a unique overview on laser techniques and applications for the purpose of improving adhesion by altering surface chemistry and topography/morphology of the substrate. It details laser surface modification techniques for a wide range of industrially relevant materials (plastics, metals, ceramics, composites) with the aim to improve and enhance their adhesion to other materials. The joining of different materials is of critical importance in the fabrication of many and varied products.

Progress in Adhesion and Adhesives, Volume 4 K. L. Mittal 2019-07-11 A solid collection of interdisciplinary review articles on the latest developments in adhesion science and adhesives technology With the ever-increasing amount of research being published, it is a Herculean task to be fully conversant with the latest research developments in any field, and the arena of adhesion and adhesives is no exception. Thus, topical review articles provide an alternate and very efficient way to stay abreast of the state-of-the-art in many subjects representing the field of adhesion science and adhesives. Based on the success of the preceding volumes in this series "Progress in Adhesion and Adhesives"), the present volume comprises 9 review articles published in Volume 6 (2018) of Reviews of Adhesion and Adhesives. The subject of these reviews fall into the following general areas: 1. Adhesion to wood and wood bonds 2. Adhesive joints 3. Adhesion in microelectronic packaging 4. Surface modification 5. Contact angle, wettability and surface free energy. The topics covered include: Adhesion phenomena in microelectronic packaging; adhesives for wood and lignocellulosic materials; adhesion to wood and lignocellulosic materials; adhesively bonded lap joints having bi-adhesive and modulus-graded bondlines; adhesion between compounded elastomers; applications of contact angle measurements in pharmaceuticals and foods; oxygen or ammonia plasma treatment of polyolefin surfaces; surface free energy determination of powders and particles; wood bonds; and dispersion adhesion forces between macroscopic objects.

Application of Fracture Mechanics to Polymers, Adhesives and Composites D R Moore 2003-12-04 Application of Fracture Mechanics to Polymers, Adhesives and Composites

The Plasma Chemistry of Polymer Surfaces J rg Friedrich 2012-02-13 More than 99% of all visible matter in the universe occurs as highly ionized gas plasma with high energy content. Electrical low- and atmospheric-pressure plasmas are characterized by continuous source of moderate quantities of energy or enthalpy transferred predominantly as kinetic energy of electrons. Therefore, such energetically unbalanced plasmas have low gas temperature but produce sufficient energy for inelastic collisions with atoms and molecules in the gas phase, thus producing reactive species and photons, which are able to initiate all types of polymerizations or activate any surface of low reactive polymers. However, the broadly distributed energies in the plasma exceed partially the binding energies in polymers, thus initiating very often unselective reactions and polymer degradation. The intention of this book is to present new plasma processes and new plasma reactions of high selectivity and high yield. This book aims to bridge classical and plasma chemistry, particularly focusing on polymer chemistry in the bulk and on the surface under plasma exposure. The stability of surface functionalization and the qualitative and quantitative measurement of functional groups at polymer surface are featured prominently, and chemical pathways for suppressing the undesirable side effects of plasma exposure are proposed and illustrated with numerous examples. Special attention is paid to the smooth transition from inanimate polymer surfaces to modified bioactive polymer surfaces. A wide range of techniques, plasma types and applications are demonstrated.

Handbook of Adhesives and Sealants Phillipe Cognard 2005-07-14 Handbook of Adhesives and Sealants is the most comprehensive Adhesives and Sealants Handbook ever published, with the cooperation of around 35 authors from all over the world – each one a specialist in their field. It will include 80 chapters dealing with general information, theory of bonding and sealing, design of bonding parts, technical characteristics, chemistry, types of adhesives, application, equipment, controls, standards etc. Industrial applications such as automotive, aeronautics, building and civil engineering, electronics, packaging, wood, furniture, metals, plastics and composites, textiles, footwear etc. Over 1,000 real-life examples illustrate the do's and don'ts of using adhesives Every scientific and technical issue concerning every chemical type in every industry Designed to help solve problems quickly, the content is structured to allow readers to navigate this comprehensive resource in 4 different ways

Advanced Plasma Technology Riccardo d'Agostino 2008-09-08 A panel of internationally renowned scientists discuss the latest results in plasma technology. This volume has been compiled with both a didactic approach and an overview of the newest achievements for industrial applications. It is divided into two main sections. One is focused on fundamental technology, including plasma production and control, high-pressure discharges, modeling and simulation, diagnostics, dust control, and etching. The section on application technology covers polymer treatments, silicon solar cell, coating and spray, biomaterials, sterilization and waste treatment, plasma propulsion, plasma display panels, and anti-corrosion coatings. The result is an indispensable work for physicists, chemists and engineers involved in the field of plasma technology.

Polyimides and Other High Temperature Polymers: Synthesis, Characterization and Applications Kash L. Mittal 2005-04-18 This volume chronicles the proceedings of the Third International Symposium on Polyimides and Other High Temperature Polymers: Synthesis, Characterization, and Applications, held in Orlando, December 17-19, 2003. This volume is divided into three parts. Part 1. "Synthesis, Properties and Bulk Characterization"; Part 2 "Hybrids and Composites" and Part 3 "Applications and General Papers". The topics covered include: Synthesis, characterization and processing (including some novel approaches) of a variety of polyimides and other high temperature polymers; structure-property relationships; hybrids and nanocomposites using these materials and their characterization, properties and applications; segmental dynamics in polyimide materials; photoalignable polyimides; photoconductivity and photosensitivity of polyimides; ultrafiltration membranes from polyetherimide; polyimide as a tunneling barrier; polymer materials for nonlinear optical applications; alignment of SWNTs in rigid-rod polymer compositions; surface modification of polyimide; adhesion of Cu to polyimide surfaces; and polyimide erosion in a low Earth orbit space environment.

Performance and Durability Assessment: Michael Kohl 2004-10-09 2 real examples demonstrate how to obtain the service life of solar collector systems Durable, providing fundamentals that will continue to be valuable over the next 5-10 years Lighting a pathway to the commercialisation of solar products Solar devices lose their performance over time. The rate of degradation controls the service life of these devices. The essential concepts used to assess durability and performance of two specific solar collector systems are described, enabling researchers to assess durability in other solar devices. The examples of modelling, testing and performance measurements give researchers a how-to approach to reach crucial service lifetime predictions. Achieving successful and sustainable commercialisation of solar products relies on the fulfilment of 2 further criteria and these are also discussed. The methodology of service lifetime predictions (SLP), which is explained in detail in the book, is crucially needed in other solar technologies and is generally applicable to a wide variety of materials, components and systems used in other solar, biomedical, aerospace, electronic and coatings technologies. 2 real examples demonstrate how to obtain the service life of solar collector systems Reassuringly durable, providing fundamentals that will continue to be valuable over the next 5-10 years Lighting a pathway for the commercialisation of solar products

Plasma Processing of Polymers Ricardo d'Agostino 1997-11-30 Proceedings of the NATO Advanced Study Institute on Plasma Treatments and Deposition of Polymers, Acquafredda di Maratea, Italy, May 19-June 2, 1996

Polyimides Malay Ghosh 2018-02-06 Provides coverage on the full range of topics associated with polyimides, including structure, polymer fundamentals, and product areas. The text addresses both basic and applied aspects of the subject. It details the synthesis of polyimides, polyamideimides, and flourinated polyimides, explains the molecular design of photosensitive polyimides, and more.

Polymer Surface Modification K. L. Mittal 2009-02-28 The topic of polymer surface modification is of tremendous contemporary interest because of its critical importance in many and varied technological applications where polymers are used. Currently there is brisk research activity in unraveling the mechanisms of surface modification and finding ways to prolong the life of surface treatment. Also there is acute interest and need to devise new, improved and economical means to modify polymer surfaces. This book is divided into three parts as follows: Part 1: Surface Modification Techniques; Part 2: Interfacial Aspects and Adhesion; Part 3: General Papers. The topics covered include: various techniques for surface modification including plasma (both vacuum and atmospheric pressure), ozone, photografting, UV photo-oxidation, laser, use of charged particles and others for a variety of polymers; Longevity of surface treatment; hydrophobic recovery; fabrication of high-density polymer nano-dots; immobilization of organometallic catalysts on textile carrier materials; polymer membrane antifouling properties; electroless metallization of polymers; effects of surface modification on interfacial shear strength of composites, cord/rubber adhesion, adhesion of UV-curable coatings and attachment of hyperbranched polymers; plasma polymerization; block copolymers; application of plasma technology in decontamination of heat-sensitive polymer surfaces. In essence this book reflects the current state-of-the-knowledge in the arena and represents the work of many renowned scientists and technologists. It should be of interest to anyone with a desire or need to learn the latest R&D activity in this domain and the information contained here should be very valuable in deciding the optimum surface modification technique for his/her particular requirements.

Metallized Plastics 5&6 K. L. Mittal 1998-10 This book chronicles the proceedings of the 5th and 6th symposia on Metallized Plastics: Fundamental and Applied Aspects, held in May 1996 and September 1997 respectively. This volume contains 29, carefully reviewed, revised and up-dated papers which were presented at both symposia. The book is divided in the following three parts: Metallization Techniques and Properties of Metal Deposits; Spectroscopic Investigation of Interfacial Interactions; Surface Modification and Adhesion Aspects. Topics covered include: various metallization techniques for a variety of plastic substrates and simplification of electroless method by using plasma or UV laser pretreatment; various properties of metal deposits; investigation of metal-polymer interfaces using a variety of spectroscopic techniques; interaction of metals with self-assembled monolayers; study of early stages of metal-polymer interface formation; surface modification of plastics by a host of techniques including plasma, excimer laser, ion beams and characterization of modified plastics surfaces; surface modification of polymers used in the low Earth Orbit space environment; adhesion aspects of metallized plastics including a quantitative adhesion test for metal coated polymer fibers and nondestructive techniques for monitoring metallized plastics adhesion.

Metallization of Flexible Electronics L. Magagnin 2015-07-29

Surfactant Science and Technology Laurence S. Romsted 2014-05-05 Surfactant research explores the forces responsible for surfactant assembly and the critical industrial, medical, and personal applications, including viscosity control, microelectronics, drug stabilization, drug delivery, cosmetics, enhanced oil recovery, and foods. Surfactant Science and Technology: Retrospects and Prospects, "a Festschrift in honor of Dr. Kash Mittal," provides a broad perspective with chapters contributed by leaders in the fields of surfactant-based physical, organic, and materials chemistries. Many of the authors participated in a special symposium in Melbourne, Australia, honoring Kash Mittal's 100th edited book at the 18th Surfactants in Solution (SIS) meeting. Each chapter provides an overview of a specific research area, with discussions on past, present, and future directions. The book is divided into six parts. Part I reviews the evolution of theoretical models for surfactant adsorption at solid/liquid interfaces, and introduces a model for interpreting ion-specific effects on aggregate properties. Part II focuses on interactions of surfactant solutions with solid supports; uses contact angles to understand hydrophobic/hydrophilic changes in a lipid layer; uses surface tension to understand molecular arrangements at interfaces; reviews spreading phenomena; discusses pattern formation on solid surfaces; and applies tensiometry to probe flavor components of espresso. Part III discusses novel DNA-based materials, multifunctional poly(amino acid)s–based graft polymers for drug delivery, and polymeric surfactants for stabilizing suspensions and emulsions. Part IV introduces farm-based biosurfactants from natural products and "greener" biosurfactants from bacteria. Part V explores lyotropic liquid crystals and their applications in triggered drug release; microemulsion properties and controlled drug release; the role of hydrotopes in formulations and in enhancing solubilization in liquid crystals; the potential of ionic liquids to generate tunable and selective reaction media; and provides an overview of stimuli-responsive surfactants. Focusing on emulsions, Part VI reviews the design of emulsion properties for various commercial applications, the role of surfactants in the oil and gas industries, and surfactant mechanisms for soil removal via microemulsions and emulsification.

Recent Advances in Adhesion Science and Technology in Honor of Dr. Kash Mittal Wojciech (Voytek) Gutowski 2013-12-31 The surface of an object is the first thing we see or touch. Nearly every article or object we encounter at home, in industry, land transportation, aerospace, or the medical field in some way uses an adhesive, a sealant, or a decorative coating. Adhesion science provides the technology and the know-how behind these applications. Recent Advances in Adhesion Science and Technology in Honor of Dr. Kash Mittal is dedicated to Dr. Mittal's outstanding contributions to the global adhesion community and his achievements in disseminating the science of adhesion. This Festschrift volume contains selected papers from the Special Symposium on Recent Advances in Adhesion Science and Technology held in honor of Dr. Mittal to commemorate the publication of his 100th edited book. Written by world-renowned researchers, the papers have been updated for inclusion in this volume. They offer insight into recent developments and the significant ramifications to adhesion science and adhesive technology. Nineteen articles are divided into five sections: Interfaces, Wettability, and Adhesion; Surface Modification of Polymers; Adhesion Aspects of Bio-Based Materials and Bioadhesion; Adhesives and Their Testing; and Nanomaterials and Nanocomposites. Reflecting the multidisciplinary nature of adhesion science, the topics covered include metal–polymer interfaces and ways to improve adhesion, lateral force at liquid–solid interface, particle adhesion in pharmaceutical sciences, wood joints formed without use of adhesives, reinforced polymer composites using different fillers, "green" composites, medium density fiber board surfaces for powder coating, adhesion aspects in dentistry, E. coli interactions in porous media, analysis of adhesive behavior in bonded assemblies, soy proteins as wood adhesives, carbon nanotube-based interphase sensors, and reaction of multiwalled carbon nanotubes with gaseous atoms.

Riccardo d'Agostino 2006-03-06 This volume compiles essential contributions to the most innovative fields of Plasma Processes and Polymers. High-quality contributions cover the fields of plasma deposition, plasma treatment of polymers and other organic compounds, plasma processes under partial vacuum and at atmospheric pressure, biomedical, textile, automotive, and optical applications as well as surface treatment of bulk materials, clusters, particles and powders. This unique collection of refereed papers is based on the best contributions presented at the 16th International Symposium on Plasma Chemistry in Taormina, Italy (ISPC-16, June 2003). A high class reference of relevance to a large audience in plasma community as well as in the area of its industrial applications.

Metallized Plastics 3 K.L. Mittal 2012-12-06 This volume chronicles the proceedings of the Third Symposium on Metallized Plastics: Fundamental and Applied Aspects held under the auspices of the Dielectric Science and Technology Division of the Electrochemical Society in Phoenix, Arizona, October 13-18, 1991. This series of symposia to address the subject of metallized plastics was initiated in 1988 and the premier symposium was held in Chicago, October 10-12, 1988, followed by the second event in Montreal, Canada, May 7-10, 1990. The proceedings of these two symposia have been properly documented ,2. The third symposium was a huge success like the previous two events, and all this is testimonial to the brisk interest and high tempo of R&D activity in the fie14 of metallized plastics. This further bolsters our earlier thinking that there was a conspicuous need to hold symposia on this topic on a regular basis and the fourth is planned for May 16-21, 1993 in Honolulu, Hawaii. The study of metallized plastics constitutes an important human endeavor l and as pointed out earlier there are myriad applications of metallized plastics ranging from very commonplace to exotic. Also a survey of the recent literature will reveal that both the fundamental and applied aspects of metallized plastics are being pursued with great vigor.

Polyimides and Other High Temperature Polymers: Synthesis, Characterization and Applications, Volume 2 Kash L. Mittal 2003-03-01 This volume documents the proceedings of the Second International Symposium on Polyimides and Other High Temperature Polymers: Synthesis, Characterization and Applications, held in Newark, New Jersey, December 3-6, 2001. Polyimides possess many desirable attributes, so this class of materials has found applications in many technologies ranging from **Adhesion International 1993** Louis H. Sharpe 2020-01-29 First published in 1996. ADHESION INTERNATIONAL 1993 is a volume of the Proceedings of the 16th Annual Meeting of The Adhesion Society, Inc. Williamsburg, Virginia, USA February 21-26,1993. This meeting featured an International Symposium on The Interphase. Interphases are extremely important in many areas of technology. They are formed when dissimilar materials are joined and they control the properties of adhesive joints, composites, coatings, and microelectronics devices. Considering the importance and scope of phenomena associated with the interphase, it was appropriate to convene such a symposium at the meeting.

Adhesion in Microelectronics K. L. Mittal 2014-08-25 This comprehensive book will provide both fundamental andapplied aspects of adhesion pertaining to microelectronics in asingle and easily accessible source. Among the topics to be coveredinclude; Various theories or mechanisms of adhesion Surface (physical or chemical) characterization of materials asit pertains to adhesion Surface cleaning as it pertains to adhesion Ways to improve adhesion Unraveling of interfacial interactions using an array ofpertinent techniques Characterization of interfaces / interphases Polymer-polymer adhesion Metal-polymer adhesion (metallized polymers) Polymer adhesion to various substrates Adhesion of thin films Adhesion of underfills Adhesion of molding compounds Adhesion of different dielectric materials Delamination and reliability issues in packaged devices Interface mechanics and crack propagation Adhesion measurement of thin films and coatings

Metallized Plastics 7: Fundamental and Applied Aspects Kash L. Mittal 2020-04-12 This volume documents the proceedings of the 7th Symposium on Metallized Plastics: Fundamental and Applied Aspects, held in Newark, New Jersey, December 2-3, 1999. This volume contains a total of 16 papers, which were all rigorously peer reviewed and suitably revised before inclusion. The book is divided into two parts: Metallization Techniques and Properties of Metal Deposits, and Interfacial and Adhesion Aspects. The topics covered include: various metallization techniques for a variety of plastics including some novel developments involving suitable plastic pretreatments; modification of polymers by plasma and ion-assisted reactions; metal doped plasma polymer films; metal-polymide nanocomposite films; investigation of metal/polymer interactions by a variety of techniques; ways to improve adhesion of metal/polymer systems; modeling of metal/polymer interfaces; application of surface analytical techniques in the arena of metallized plastics; and ultrathin films on metal surfaces. This volume offers a wealth of information and represents current commentary on the R&D activity taking place in the technologically highly important field of metallized plastics and is of value and interest to anyone interested in the fundamental or applied aspects of metallized plastics.

W. J. Van Ooij 1998-12 This Festschrift documents the Proceedings of the First International Congress on Adhesion Science and Technology, held in honor of Dr. Kash Mittal on the occasion of his 50 birthday, in Amsterdam, The Netherlands, October 16-20, 1995. It contains the full accounts of the plenary and invited lectures, which are divided into the following seven parts: Part 1: Fundamental aspects of adhesion and general topics; Part 2: Contact angle, wettability and surface energetics; Part 3: Surface modification: Relevance to adhesion; Part 4: Adhesives and adhesive joints; Part 5: Adhesion aspects of polymeric coatings, and polymer-polymer interphase; Part 6: Metal-polymer and metal-ceramic adhesion; and Part 7: General papers. The topics covered include many different aspects of adhesion science and technology, and both fundamental and applied issues are addressed. The final section of this volume gives a listing of titles, authors and affiliations of the other 185 papers which were included in the technical program of the conference.

J rg Friedrich 2017-09-13 The result of decades of research by a pioneer in the field, this is the first book to deal exclusively with achieving high-performance metal-polymer composites by chemical bonding. Covering both the academic and practical aspects, the author focuses on the chemistry of interfaces between metals and polymers with a particular emphasis on the chemical bonding between the different materials. He elucidates the various approaches to obtaining a stable interface, including, but not limited to, thermodynamically driven redox reactions, bond protection to prevent hydrolysis, the introduction of barrier layers, and stabilization by spacer molecules. Throughout, chemical bonding is promoted as a simple and economically viable alternative to adhesion based on reversible weak physical interaction. Consequently, the text equips readers with the practical tools necessary for designing high-strength metal-polymer composites with such desired properties as resilience, flexibility, rigidity or degradation resistance.

Particles in Gases and Liquids 2 K.L. Mittal 2013-11-11 This book chronicles the proceedings of the Second Symposium on Particles in Gases and Liquids: Detection, Characterization and Control held as a part of the 20th Annual Fine Particle Society meeting in Boston, August 21-25, 1989. As this second symposium was as successful as the prior one, so we have decided to hold symposia on this topic on a regular (biennial) basis and the third symposium in this series is scheduled to be held at the 22nd Annual Meeting of the Fine Particle Society in San Jose, California, July 29-August 2, 1991. L As pointed out in the Preface to the prior volume in this series that recently there has been tremendous concern about yield losses due to unwanted particles, and these unwelcome particles can originate from a legion of sources, including process gases and liquids. Also all signals indicate that in the future manufacture of sophisticated and sensitive microelectronic components (with shrinking dimensions) and other precision parts, the need for detection, characterization, analysis and control of smaller and smaller particles will be more intensified.

Polyimides and Other High Temperature Polymers: Synthesis, Characterization and Applications, Volume 4 Kash L. Mittal 2007-07-10 This book is mostly based on papers presented at the Fourth International Symposium on this topic held in Savannah, Georgia. However, in addition to these papers, certain very relevant papers have also been included to broaden the scope and thus enhance the value of this book.Currently there is tremendous interest in these material because of their

Reactive Polymers: Fundamentals and Applications Johannes Karl Fink 2017-10-31 Reactive Polymers: Fundamentals and Applications: A Concise Guide to Industrial Polymers, Third Edition introduces engineers and scientists to a range of reactive polymers and then details their applications and performance benefits. Basic principles and industrial processes are described for each class of reactive resin (thermoset), as well as additives, the curing process, applications and uses. The initial chapters are devoted to individual resin types (e.g., epoxides, cyanacrylates), followed by more general chapters on topics such as reactive extrusion and dental applications. Injection molding of reactive polymers, radiation curing, thermosetting elastomers, and reactive extrusion equipment are covered as well. The use of reactive polymers enables manufacturers to make chemical changes at a late stage in the production process, which, in turn, cause changes in performance and properties. Material selection and control of the reaction are essential to achieve optimal performance. Material new to this edition includes the most recent developments, applications and commercial products for each chemical class of thermosets, as well as sections on fabrication methods, reactive biopolymers, recycling of reactive polymers and case studies. Covers the basics and most recent developments, including reactive biopolymers, recycling of reactive polymers, nanocomposites and fluorosilicones Offers an indispensable guide for engineers and advanced students alike Provides extensive literature and patent review Reflects a thorough review of all literature published in this area since 2014 Features revised and updated chapters to reflect the latest research in reactive polymers

Metallization of Polymers 2 Edward Sacher 2012-12-06 As the demands put on the polymer/metal interface, particularly by the microelectronics industry, become more and more severe, the necessity for understanding this interface, its properties and its limitations, becomes more and more essential. This requires a broad knowledge of, and a familiarity with, the latest findings in this rapidly advancing field. At the very least, such familiarity requires an exchange of information, particularly among those intimately involved in this field. Communications among many of us in this area have made one fact quite obvious: the facilities provided by existing organizations, scientific and otherwise, do not offer the forum necessary to accomplish this exchange of information. It was for this reason that Jean-Jacques Pireaux, Steven Kowalczyw and I organized the first Metallization of Polymers, a symposium sponsored by the American Chemical Society, which took place in Montreal, September 25-28, 1989; the Proceedings from that symposium were published as ACS Symposium Series 440, (1990). It is this same per ceived lack of a proper forum, and the encouragement of my colleagues, that prompted me to organize this meeting, so as to bring to the attention of the participants new instruments, materials, methods, advances, and, particularly, thoughts in the field of polymer metalliza tion. The meeting was designed as a workshop, with time being made available throughout for discussion and for the consideration of new findings.

Benny Mandler 2016-11-16 The two-volume set LNICST 169 and 170 constitutes the thoroughly refereed post-conference proceedings of the Second International Internet of Things Summit, IoT 360° 2015, held in Rome, Italy, in October 2015. The IoT 360° is an event bringing a 360 degree perspective on IoT-related projects in important sectors such as mobility, security, healthcare and urban spaces. The conference also aims to coach involved people on the whole path between research to innovation and the way through to commercialization in the IoT domain. This volume contains 61 revised full papers at the following four conferences: International Conference on IoT as a Service, IoTaaS, International Conference on Mobility in IoT, Mobility IoT, International Conference on Sensor Systems and Software, S-Cube, International Conference on Interoperability in IoT, InterioT, International Conference on Software Defined and Virtual Future Wireless Networks, SDWNCT.

Particles in Gases and Liquids 3 K.L. Mittal 2013-11-11 This book documents the proceedings of the Third Symposium on Particles in Gases and Liquids: Detection, Characterization and Control held as a part of the 22nd Annual Meeting of the Fine Particle Society in San Jose, California, July 29-August 2, 1991. This series of symposia was initiated in 1987 in light of the growing importance to eliminate particles from process gases and liquids. As pointed out in the Preface to antecedent volumes in this series that particles in process gases and liquids could cause significant yield losses in precision manufacturing and concomitantly there has been heightened interest in understanding the behavior of particles in gases and liquids and devising ways to eliminate, or at least reduce substantially, these particles. The concern about particles in gases and liquids has been there for qui.te some time in the microelectronics arena, but there are other areas also where particles are of significant concern, e.g. in operation theatres in hospitals, food and beverage industry, and pharmaceutical manufacturing. This symposium basically had the same objectives as its predecessors, but to provide an update on the R&D activity taking place in the arena of particle detection, characterization and control. The printed program comprised a total of 28 papers dealing with variegated aspects of particles in gases and liquids. There were brisk and lively discussions and the attendees offered many positive comments, which goes to show that it was a well-received and needed symposium.

Metallized Plastics 3 K.L. Mittal 2012-10-25 This volume chronicles the proceedings of the Third Symposium on Metallized Plastics: Fundamental and Applied Aspects held under the auspices of the Dielectric Science and Technology Division of the Electrochemical Society in Phoenix, Arizona, October 13-18, 1991. This series of symposia to address the subject of metallized plastics was initiated in 1988 and the premier symposium was held in Chicago, October 10-12, 1988, followed by the second event in Montreal, Canada, May 7-10, 1990. The proceedings of these two symposia have been properly documented ,2. The third symposium was a huge success like the previous two events, and all this is testimonial to the brisk interest and high tempo of R&D activity in the fie14 of metallized plastics. This further bolsters our earlier thinking that there was a conspicuous need to hold symposia on this topic on a regular basis and the fourth is planned for May 16-21, 1993 in Honolulu, Hawaii. The study of metallized plastics constitutes an important human endeavor l and as pointed out earlier there are myriad applications of metallized plastics ranging from very commonplace to exotic. Also a survey of the recent literature will reveal that both the fundamental and applied aspects of metallized plastics are being pursued with great vigor.

Metallized Plastics 2 K.L. Mittal 2013-11-11 This volume documents the proceedings of the Second Symposium on Metallized Plastics: Fundamental and Applied Aspects held under the aegis of the Dielectric Science and Technology Division of the Electrochemical Society in Montreal, Canada, May 7-10, 1990. The first symposium on this topic was held in Chicago, October 10-12, 1988 and the proceedings of l which have been chronicled in a hard-bound volume l As pointed out in the Preface to the proceedings of the first symposium the metallized plastics find scores of applications ranging from very mundane to very sophisticated. Even a cursory look at the literature will convince that this field has sprouted; and there is every reason to believe that with all the research and development activities taking place, new and exciting applications of metallized plastics will emerge. The program for the second symposium was very comprehensive as it included 46 papers covering many aspects of metallized plastics. This symposium was a testimonial to the brisk research activity and keen interest in the topic of metallized plastics. The success of this symposium reinforced our earlier belief that there was a definite need to hold symposia on this topic on a regular basis. Concomitantly, the third symposium in this vein was held in Phoenix, Arizona, October 13-18, 1991 and the fourth is planned for May 16-21, 1993 in Honolulu, Hawaii. As regards the present volume, it contains a total of 35 papers covering a variety of topics ranging from very fundamental to very applied.

Directory of Published Proceedings 1993

Low Dielectric Constant Materials for IC Applications Paul S. Ho 2003 Low dielectric constant materials are an important component of microelectronic devices. This comprehensive book covers the latest low-dielectric-constant (low-κ) materials technology, thin film materials characterization, integration and reliability for back-end interconnects and packaging applications in microelectronics. Highly informative contributions from leading academic and industrial laboratories provide comprehensive information about materials technologies for