

SURFACE CONTAMINATION AND CLEANING

Volume I

Editor:
K.L. Mittal



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Surface Contamination And Cleaning Volume 1

Rajiv Kohli, K. L. Mittal



Surface Contamination And Cleaning Volume 1:

Surface Contamination and Cleaning Kash L. Mittal, 2003-03-01 This volume documents the proceedings of the International Symposium on Surface Contamination and Cleaning held in Newark New Jersey May 23 25 2001 Because of the importance of this topic in many technological areas tremendous efforts have been devoted to devise novel and more efficient ways to monitor analyse and characterize contamination

Developments in Surface Contamination and Cleaning, Vol. 1 Rajiv Kohli, Kashmiri L. Mittal, 2015-11-12 Developments in Surface Contamination and Cleaning Vol 1 Fundamentals and Applied Aspects Second Edition provides an excellent source of information on alternative cleaning techniques and methods for characterization of surface contamination and validation Each volume in this series contains a particular topical focus covering the key techniques and recent developments in the area This volume forms the heart of the series covering the fundamentals and application aspects characterization of surface contaminants and methods for removal of surface contamination In addition new cleaning techniques effective at smaller scales are considered and employed for removal where conventional cleaning techniques fail along with new cleaning techniques for molecular contaminants The Volume is edited by the leading experts in small particle surface contamination and cleaning providing an invaluable reference for researchers and engineers in R D manufacturing quality control and procurement specification in a multitude of industries such as aerospace automotive biomedical defense energy manufacturing microelectronics optics and xerography Provides best practice guidance for scientists and engineers engaged in surface cleaning or those who handle the consequences of surface contamination Addresses the continuing trends of shrinking device size and contamination vulnerability in a range of industries as spearheaded by the semiconductor industry Presents state of the art survey information on precision cleaning and characterization methods as written by a team of world class experts in the field

Developments in Surface Contamination and Cleaning, Volume 8 Rajiv Kohli, Kashmiri L. Mittal, 2014-11-19 As device sizes in the semiconductor industries shrink devices become more vulnerable to smaller contaminant particles and most conventional cleaning techniques employed in the industry are not effective at smaller scales The book series Developments in Surface Contamination and Cleaning as a whole provides an excellent source of information on these alternative cleaning techniques as well as methods for characterization and validation of surface contamination Each volume has a particular topical focus covering the key techniques and recent developments in the area Several novel wet and dry surface cleaning methods are addressed in this Volume Many of these methods have not been reviewed previously or the previous reviews are dated These methods are finding increasing commercial application and the information in this book will be of high value to the reader Edited by the leading experts in small scale particle surface contamination cleaning and cleaning control these books will be an invaluable reference for researchers and engineers in R D manufacturing quality control and procurement specification situated in a multitude of industries such as aerospace automotive biomedical defense energy manufacturing

microelectronics optics and xerography Provides a state of the art survey and best practice guidance for scientists and engineers engaged in surface cleaning or handling the consequences of surface contamination Addresses the continuing trends of shrinking device size and contamination vulnerability in a range of industries spearheaded by the semiconductor industry and others Covers novel wet and dry surface cleaning methods of increasing commercial importance

Developments in Surface Contamination and Cleaning, Volume 4 Rajiv Kohli, Kashmiri L. Mittal, 2011-09-26 In this series Rajiv Kohli and Kash Mittal have brought together the work of experts from different industry sectors and backgrounds to provide a state of the art survey and best practice guidance for scientists and engineers engaged in surface cleaning or handling the consequences of surface contamination The expert contributions in this volume cover important fundamental aspects of surface contamination that are key to understanding the behavior of specific types of contaminants This understanding is essential to develop preventative and mitigation methods for contamination control The coverage complements the treatment of surface contamination in vol 1 Fundamental and Applied Aspects This volume covers Sources and Generation of Particles Manipulation Techniques for Particles on Surfaces Particle Deposition and Rebound Particle Behavior in Liquid Systems Biological and Metallic Contamination and includes a comprehensive list of current standards and resources Comprehensive coverage of innovations in surface contamination and cleaning Written by established experts in the contamination and cleaning field Each chapter is a comprehensive review of the state of the art Case studies included

Developments in Surface Contamination and Cleaning Rajiv Kohli, K. L. Mittal, Rajiv Kohli and Kash Mittal have brought together the work of experts from different industry sectors and backgrounds to provide a state of the art survey and best practice guidance for scientists and engineers engaged in surface cleaning or handling the consequences of surface contamination Topics covered include A systems analysis approach to contamination control Physical factors that influence the behavior of particle deposition in enclosures An overview of current yield models and description of advanced models Types of strippable coatings their properties and applications of these coatings for removal of surface contaminants In depth coverage of ultrasonic cleaning Contamination and cleaning issues at the nanoscale Experimental results illustrating the impact of model parameters on the removal of particle contamination The expert contributions in this book provide a valuable source of information on the current status and recent developments in surface contamination and cleaning The book will be of value to industry government and academic personnel involved in research and development manufacturing process and quality control and procurement specifications across sectors including microelectronics aerospace optics xerography and joining adhesive bonding ABOUT THE EDITORS Rajiv Kohli is a leading expert with The Aerospace Corporation in contaminant particle behavior surface cleaning and contamination control At the NASA Johnson Space Center in Houston Texas he provides technical support for contamination control related to ground based and manned spaceflight hardware for the Space Shuttle the International Space Station and the new Constellation Program that is designed to meet

the United States Vision for Space Exploration Kashmiri Lal Kash Mittal was associated with IBM from 1972 to 1994 Currently he is teaching and consulting in the areas of surface contamination and cleaning and in adhesion science and technology He is the Editor in Chief of the Journal of Adhesion Science and Technology and is the editor of 98 published books many of them dealing with surface contamination and cleaning Also available Developments in Surface Contamination and Cleaning Volume 1 Fundamentals and Applied Aspects edited by Rajiv Kohli K L Mittal ISBN 9780815515555 Provides guidance on best practice cleaning techniques and the avoidance of surface contamination Covers contamination and cleaning issues at the nanoscale Includes an in depth look at ultrasonic cleaning Developments in Surface Contamination and Cleaning - Vol 6 Rajiv Kohli,Kashmiri L. Mittal,2013-05-27 In this series Rajiv Kohli and Kash Mittal have brought together the work of experts from different industry sectors and backgrounds to provide a state of the art survey and best practice guidance for scientists and engineers engaged in surface cleaning or handling the consequences of surface contamination The expert contributions in this volume cover important fundamental aspects of surface contamination that are key to understanding the behavior of specific types of contaminants This understanding is essential to develop preventative and mitigation methods for contamination control The coverage complements the treatment of surface contamination in vol 1 Fundamental and Applied Aspects This volume covers Sources and Generation of Particles Manipulation Techniques for Particles on Surfaces Particle Deposition and Rebound Particle Behavior in Liquid Systems Biological and Metallic Contamination and includes a comprehensive list of current standards and resources Comprehensive coverage of innovations in surface contamination and cleaning Written by established experts in the contamination and cleaning field Each chapter is a comprehensive review of the state of the art Case studies included Developments in Surface Contamination and Cleaning - Vol 2 Rajiv Kohli,Kashmiri L. Mittal,2009-11-20 Rajiv Kohli and Kash Mittal have brought together the work of experts from different industry sectors and backgrounds to provide a state of the art survey and best practice guidance for scientists and engineers engaged in surface cleaning or handling the consequences of surface contamination Topics covered include A systems analysis approach to contamination control Physical factors that influence the behavior of particle deposition in enclosures An overview of current yield models and description of advanced models Types of strippable coatings their properties and applications of these coatings for removal of surface contaminants In depth coverage of ultrasonic cleaning Contamination and cleaning issues at the nanoscale Experimental results illustrating the impact of model parameters on the removal of particle contamination The expert contributions in this book provide a valuable source of information on the current status and recent developments in surface contamination and cleaning The book will be of value to industry government and academic personnel involved in research and development manufacturing process and quality control and procurement specifications across sectors including microelectronics aerospace optics xerography and joining adhesive bonding ABOUT THE EDITORS Rajiv Kohli is a leading expert with The Aerospace

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cleaning techniques and the avoidance of surface contamination Covers contamination and cleaning issues at the nanoscale Includes an in depth look at ultrasonic cleaning Developments in Surface Contamination and Cleaning Rajiv Kohli,Kashmiri L. Mittal,2016-07-14 In this series Rajiv Kohli and Kash Mittal have brought together the work of experts from different industry sectors and backgrounds to provide a state of the art survey and best practice guidance for scientists and engineers engaged in surface cleaning or handling the consequences of surface contamination The expert contributions in this volume cover important fundamental aspects of surface contamination that are key to understanding the behavior of specific types of contaminants This understanding is essential to develop preventative and mitigation methods for contamination control The coverage complements the treatment of surface contamination in vol 1 Fundamental and Applied Aspects This volume covers Sources and Generation of Particles Manipulation Techniques for Particles on Surfaces Particle Deposition and Rebound Particle Behavior in Liquid Systems Biological and Metallic Contamination and includes a comprehensive list of current standards and resources Comprehensive coverage of innovations in surface contamination and cleaning Written by established experts in the contamination and cleaning field Each chapter is a comprehensive review of the state of the art Case studies included *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 self assembly 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

Surfactants in Precision Cleaning Rajiv Kohli, Kashmiri L. Mittal, 2021-10-21 Surfactants in Precision Cleaning Removal of Contaminants at the Micro and Nanoscale is a single source of information on surfactants emulsions microemulsions and detergents for removal of surface contaminants at the micro and nanoscale The topics covered include cleaning mechanisms effect of surfactants types of stable dispersions emulsions microemulsions surfactants detergents etc cleaning technology and cleaning applications Users will find this volume an excellent resource on the use of stable dispersions in precision cleaning Single source of current information on surfactants emulsions microemulsions and detergents for precision cleaning applications Includes a list of extensive reference sources Discusses specific selection and properties of surfactants and their use in cleaning Provides a guide for cleaning applications in different industry sectors

Developments in Surface Contamination and Cleaning: Applications of Cleaning Techniques Rajiv Kohli, K.L. Mittal, 2018-11-27 Developments in Surface Contamination and Cleaning Applications of Cleaning Techniques Volume Eleven part of the Developments in Surface Contamination and Cleaning series provides a guide to recent advances in the application of cleaning techniques for the removal of surface contamination in various industries such as aerospace automotive biomedical defense energy manufacturing microelectronics optics and xerography The material in this new edition compiles cleaning applications into one easy reference that has been fully updated to incorporate new applications and techniques Taken as a whole the series forms a unique reference for professionals and academics working in the area of surface contamination and cleaning Presents the latest reviewed technical information on precision cleaning applications as written by established experts in the field Provides a single source on the applications of innovative precision cleaning techniques for a wide variety of industries Serves as a guide to the selection of precision cleaning techniques for specific applications

Developments in surface contamination and cleaning Rajiv Kohli, K. L. Mittal, 2013 In this series Rajiv Kohli and Kash Mittal have brought together the work of experts from different industry sectors and backgrounds to provide a state of the art survey and best practice guidance for scientists and engineers engaged in surface cleaning or handling the consequences of surface contamination The expert contributions in this volume cover important fundamental aspects of surface contamination that are key to understanding the behavior of specific types of contaminants This understanding is essential to develop preventative and mitigation methods for contamination control The coverage complements the treatment of surface contamination in vol 1 Fundamental and Applied Aspects This volume covers Sources and Generation of Particles Manipulation Techniques for Particles on Surfaces Particle Deposition and Rebound Particle Behavior in Liquid Systems Biological and Metallic Contamination and includes a comprehensive list of current standards and resources Feature Comprehensive coverage of innovations in surface contamination and cleaning Benefit One stop series where a wide range of readers will be sure to find a solution to their cleaning problem saving the time involved in

consulting a range of disparate sources Feature Written by established experts in the contamination and cleaning field Benefit Provides an authoritative resource Feature Each chapter is a comprehensive review of the state of the art Benefit Can be relied on to provide insight clarity and real expertise on up to the minute innovations Feature Case studies included Benefit Case studies help the reader see theory applied to the solution of real world practical cleaning and contamination problems *Chemical Surface Preparation, Passivation and Cleaning for Semiconductor Growth and Processing: Volume 259* Robert J. Nemanich, 1992-11-03 The MRS Symposium Proceeding series is an internationally recognised reference suitable for researchers and practitioners **Nuclear Science Abstracts**, 1974 *Solar Cells: Research and Development of Solar Cells* Stanislav Kolisnychenko, 2015-07-31 Aggregated Book *Developments in Surface Contamination and Cleaning, Volume 12* Rajiv Kohli, K.L. Mittal, 2019-06-08 Developments in Surface Contamination and Cleaning Methods for Assessment and Verification of Cleanliness of Surfaces and Characterization of Surface Contaminants Volume Twelve the latest release in the Developments in Surface Contamination and Cleaning series provides best practices on determining surface cleanliness Chapters include an introduction to the nature and size of particles a discussion of cleanliness levels detailed coverage of measurement methods characterization methods and analytical methods for evaluating surfaces and an overview of analysis methods for various contaminants As a whole the series creates a unique and comprehensive knowledge base for those in research and development in a variety of industries Manufacturing quality control and procurement specification professionals in the aerospace automotive biomedical defense energy manufacturing microelectronics optics and xerography industries will find this book to be very helpful In addition researchers in an academic setting will also find these volumes excellent source books Includes an extensive listing with a description of available methods for the assessment of surface cleanliness Provides a single source of information on methods for verification of surface cleanliness Serves as a guide to the selection assessment and verification of methods for specific applications Journal of Testing and Evaluation, 1986 **Metal Finishing Abstracts**, 1985 Developments in Surface Contamination and Cleaning: Methods for Surface Cleaning Rajiv Kohli, Kashmiri L. Mittal, 2016-11-04 Developments in Surface Contamination and Cleaning Methods for Surface Cleaning Volume 9 part of the Developments in Surface Contamination and Cleaning series provide a state of the art guide to the current knowledge on the behavior of film type and particulate surface contaminants and their associated cleaning methods This newest volume in the series discusses methods of surface cleaning of contaminants and the resources that are needed to deal with them Taken as a whole the series forms a unique reference for professionals and academics working in the area of surface contamination and cleaning A strong theme running through the series is that of surface contamination and cleaning at the micro and nano scales Provides a comprehensive coverage of innovations in surface cleaning Written by established experts in the surface cleaning field presenting an authoritative resource Contains a comprehensive review of the state of the art including case studies to enhance the learning process

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