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Aerosol Sampling - James H. Vincent 2007-04-04

This book provides a comprehensive account of the important field of aerosol sampling as it is applied to the measurement of aerosols that are ubiquitous in occupational and living

environments, both indoor and outdoor. It is written in four parts: Part A contains 9 chapters that describe the current knowledge of the physical science that underpins the process of aerosol sampling. Part B contains 4 chapters,

which present the basis of standards for aerosols, including the link with human exposure by inhalation. Part C contains 7 chapters that cover the development of practical aerosol sampling instrumentation, and how technical designs and methods have evolved over the years in order that aerosol sampling may be carried out in a manner matching the health-related and other criteria that have been proposed as parts of standards. Finally Part D contains 6 chapters that describe how a wide range of aerosol sampling instruments have performed when they have been applied in the field in both occupational and ambient atmospheric environments, including how different instruments, nominally intended to measure the same aerosol fraction, compare when used side-by-side in the real world. The book draws together all that is known about aerosol sampling, for the benefit of researchers and practitioners in occupational and environmental health and all other fields of

science and engineering where aerosols are of interest.

Ventilation of Buildings - H.B. Awbi
2013-05-13

Hazim Awbi's *Ventilation of Buildings* has become established as the definitive text on the subject. This new, thoroughly revised, edition builds on the basic principles of the original text drawing in the results of considerable new research in the field. A new chapter on natural ventilation is also added and recent developments in ventilation concepts and room air distribution are also considered. The text is intended for the practitioner in the building services industry, the architect, the postgraduate student undertaking courses or research in HVAC, building services engineering, or building environmental engineering, and the undergraduate studying building services as a major subject. Readers are assumed to be familiar with the basic principles of fluid flow and heat transfer and some of the

material requires more advanced knowledge of partial differential equations which describe the turbulent flow and heat transfer processes of fluids. The book is both a presentation of the practical issues that are needed for modern ventilation system design and a survey of recent developments in the subject

Inhalation Studies - Robert F. Phalen

2008-10-22

This significantly updated and expanded new edition presents the scientific foundations of inhalation research essential to the design and conduct of toxicologic studies. It incorporates the major advances that have been made in the field, including recent advances in biology and the rapidly increasing global concerns and studies on particulate air pollution. The Second Edition was motivated by: new developments in the ultrafine particle health effects and concentrated aerosol research advances in understanding postnatal lung growth and the deposition and clearance of inhaled particles

new techniques in toxicity testing the explosion of knowledge in the genetic and molecular realms the introduction of a large number of transgenic animal models updated ethical guidelines for animal testing the emergence of aerosol medicine the growing threat of aerosol-related terrorism increased appreciation of nonpulmonary effects of inhaled substances use of medical scanning techniques to study respiratory tract structure the introduction of new inhalation exposure systems the emergence of aerosol concentrators for use in air pollution studies

Aerosol Science - Ian Colbeck 2014-01-30

Aerosols influence many areas of our daily life. They are at the core of environmental problems such as global warming, photochemical smog and poor air quality. They can also have diverse effects on human health, where exposure occurs in both outdoor and indoor environments. However, aerosols can have beneficial effects too; the delivery of drugs to the lungs, the

delivery of fuels for combustion and the production of nanomaterials all rely on aerosols. Advances in particle measurement technologies have made it possible to take advantage of rapid changes in both particle size and concentration. Likewise, aerosols can now be produced in a controlled fashion. Reviewing many technological applications together with the current scientific status of aerosol modelling and measurements, this book includes:

- Satellite aerosol remote sensing
- The effects of aerosols on climate change
- Air pollution and health
- Pharmaceutical aerosols and pulmonary drug delivery
- Bioaerosols and hospital infections
- Particle emissions from vehicles
- The safety of emerging nanomaterials
- Radioactive aerosols: tracers of atmospheric processes

With the importance of this topic brought to the public's attention after the eruption of the Icelandic volcano Eyjafjallajökull, this book provides a timely, concise and accessible overview of the many facets of aerosol science.

Battlefield of the Future - 21st Century Warfare Issues - Lawrence Grinter 2012-08-01

This is a book about strategy and war fighting. It contains 11 essays which examine topics such as military operations against a well-armed rogue state, the potential of parallel warfare strategy for different kinds of states, the revolutionary potential of information warfare, the lethal possibilities of biological warfare and the elements of an ongoing revolution in military affairs. The purpose of the book is to focus attention on the operational problems, enemy strategies and threat that will confront U.S. national security decision makers in the twenty-first century.

Aerosol Science and Technology - David S. Ensor 2011-10-06

Aerosol Science and Technology: History and Reviews captures an exciting slice of history in the evolution of aerosol science. It presents in-depth biographies of four leading international aerosol researchers and highlights pivotal

research institutions in New York, Minnesota, and Austria. One collection of chapters reflects on the legacy of the Pasadena smog experiment, while another presents a fascinating overview of military applications and nuclear aerosols. Finally, prominent researchers offer detailed reviews of aerosol measurement, processes, experiments, and technology that changed the face of aerosol science. This volume is the third in a series and is supported by the American Association for Aerosol Research (AAAR) History Working Group, whose goal is to produce archival books from its symposiums on the history of aerosol science to ensure a lasting record. It is based on papers presented at the Third Aerosol History Symposium on September 8 and 9, 2006, in St. Paul, Minnesota, USA. *Aerosols and Climate* - Ken S. Carslaw
2022-08-22

The ever-diversifying field of aerosol effects on climate is comprehensively presented here, describing the strong connection between

fundamental research and model applications in a way that will allow both experienced researchers and those new to the field to gain an understanding of a wide range of topics. The material is consistently presented at three levels for each topic: (i) an accessible "quick read" of the essentials, (ii) a more detailed description, and (iii) a section dedicated to how the processes are handled in models. The modelling section in each chapter summarizes the current level of knowledge and what the gaps in this understanding mean for the effects of aerosols on climate, enabling readers to quickly understand how new research fits into established knowledge. Definitions, case studies, reference data, and examples are included throughout. *Aerosols and Climate* is a vital resource for graduate students, postdoctoral researchers, senior researchers, and lecturers in departments of atmospheric science, meteorology, engineering, and environment. It will also be of interest to those working in

operational centers and policy-facing organizations, providing strong reference material on the current state of knowledge. Includes a section in each chapter that focuses on the treatment of relevant aerosol processes in climate models Provides clear exposition of the challenges in understanding and reducing persistent gaps in knowledge and uncertainties in the field of aerosol-climate interaction, going beyond the fundamentals and existing knowledge Authored by experts in modeling and aerosol processes, analysis or observations to ensure accessibility and balance
Aerosols - Igor Agranovski 2011-05-16
This self-contained handbook and ready reference examines aerosol science and technology in depth, providing a detailed insight into this progressive field. As such, it covers fundamental concepts, experimental methods, and a wide variety of applications, ranging from aerosol filtration to biological aerosols, and from the synthesis of carbon nanotubes to aerosol

reactors. Written by a host of internationally renowned experts in the field, this is an essential resource for chemists and engineers in the chemical and materials disciplines across multiple industries, as well as ideal supplementary reading in graduate level courses.

Metal Oxide Nanoparticles, 2 Volume Set - Oliver Diwald 2021-09-14

Metal Oxide Nanoparticles A complete nanoparticle resource for chemists and industry professionals Metal oxide nanoparticles are integral to a wide range of natural and technological processes—from mineral transformation to electronics. Additionally, the fields of engineering, electronics, energy technology, and electronics all utilize metal oxide nanoparticle powders. *Metal Oxide Nanoparticles: Formation, Functional Properties, and Interfaces* presents readers with the most relevant synthesis and formulation approaches for using metal oxide nanoparticles

as functional materials. It covers common processing routes and the assessment of physical and chemical particle properties through comprehensive and complementary characterization methods. This book will serve as an introduction to nanoparticle formulation, their interface chemistry and functional properties at the nanoscale. It will also act as an in-depth resource, sharing detailed information on advanced approaches to the physical, chemical, surface, and interface characterization of metal oxide nanoparticle powders and dispersions. Addresses the application of metal oxide nanoparticles and its economic impact Examines particle synthesis, including the principles of selected bottom-up strategies Explores nanoparticle formulation—a selection of processing and application routes Discusses the significance of particle surfaces and interfaces on structure formation, stability and functional materials properties Covers metal oxide nanoparticle characterization at different

length scales With this valuable resource, academic researchers, industrial chemists, and PhD students can all gain insight into the synthesis, properties, and applications of metal oxide nanoparticles.

The Sources and Modes of Infection - Charles Value Chapin 1912

Particle Size Measurements - Henk G. Merkus 2009-01-07

This book focuses on the practical aspects of particle size measurement: a major difference with existing books, which have a more theoretical approach. Of course, the emphasis still lies on the measurement techniques. For optimum application, their theoretical background is accompanied by quantitative quality aspects, limitations and problem identification. In addition the book covers the phenomena of sampling and dispersion of powders, either of which may be dominant in the overall analysis error. Moreover, there are

chapters on the general aspects of quality for particle size analysis, quality management, reference materials and written standards, in- and on-line measurement, definitions and multilingual terminology, and on the statistics required for adequate interpretation of results. Importantly, a relation is made to product performance, both during processing as well as in final application. In view of its set-up, this book is well suited to support particle size measurement courses.

Overcoming Challenges to Develop Countermeasures Against Aerosolized Bioterrorism Agents - National Research Council 2006-08-07

The National Institute of Allergy and Infectious Diseases (NIAID) gives the highest priority to developing countermeasures against bioterrorism agents that are highly infective when dispersed in aerosol form. Developing drugs to prevent or treat illnesses caused by bioterrorism agents requires testing their

effectiveness in animals since human clinical trials would be unethical. At the request of NIAID, the National Academies conducted a study to examine how such testing could be improved. *Overcoming Challenges to Develop Countermeasures Against Aerosolized Bioterrorism Agents* provides recommendations to researchers on selecting the kinds of animal models, aerosol generators, and bioterrorism agent doses that would produce conditions that most closely mimic the disease process in humans. It also urges researchers to fully document experimental parameters in the literature so that studies can be reproduced and compared. The book recommends that all unclassified data on bioterrorism agent studies--including unclassified, unpublished data from U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID)--be published in the open literature. The book also calls on the U.S. Food and Drug Administration to improve the process by which bioterrorism

countermeasures are approved based on the results of animal studies.

Air Pollution and Health - Jon Ayres 2006-09-15

This invaluable volume, the third in the series Air Pollution Reviews, addresses particular questions relating to air pollution and its effect on health. It deals with the impact of nasal disease on lung exposure, how pollutants are distributed within the lung, and the uncertainties with regard to defining the dose to the lung. It takes a tangential look at the lung dose by exploring the possibility of obtaining clues from occupational medicine.

Toxicologically, the book examines the possible methodology for exploring how particles and their toxicity can be investigated, and looks into the cardio-toxic effects of air pollution. The effects of pollutant mixtures are compared with those of individual pollutants. In addition, the question of the importance of acid aerosols is tackled. Epidemiologically, the book deals with the problems associated with point sources as

opposed to diffuse sources of air pollution, and considers whether the health effects of air pollution can be adequately quantified. These areas, though difficult, need to be addressed, in order to develop our knowledge of the health effects of air pollution. In this volume, a strong panel of authors treat the issues. They have raised questions but at the same time succeeded in solving a number of problems. Contents: The Role of the Nose in Health and Disease (R Eccles) Cardiovascular Effects of Particles (H C Routledge & J G Ayres) Point Sources of Air Pollution — Investigation of Possible Health Effects Using Small Area Methods (P Elliott) Characterisation of Airborne Particulate Matter and Related Mechanisms of Toxicity: An Experimental Approach (K Bérubé et al.) Acid Aerosols as a Health Hazard (L C Chen et al.) Testing New Particles (K Donaldson et al.) Valuing the Health Impact of Air Pollution: Deaths, DALYs or Dollars? (A E M de Hollander & J M Melse) Readership: Government bodies,

environmentalists, scientists in the field of air pollution, undergraduate and graduate students.

Toxicological Evaluation of Electronic Nicotine Delivery Products - Manuel Peitsch
2021-01-14

Toxicological Evaluation of Electronic Nicotine Delivery Products (ENDP) discusses the scientific basis for the toxicological assessment and evaluation of ENDPs. The book covers aerosol chemistry, in vitro and in vivo studies as well as clinical studies. It provides the basis for the evaluation of short and long term-effects, along with relative risks. It also examines the potential role of ENDPs in tobacco harm reduction and how they may reduce the risk of disease in smokers who switch to them. This book is a comprehensive resource for toxicologists, health practitioners and public health professionals who want the scientific information necessary to assess the relative risk of ENDPs when compared with cigarette smoking and cessation. Delivers a

comprehensive overview of current state of science Offers an integrated analysis of e-cigarettes and heated tobacco products Provides guidance for methodologies

Handbook of Nanosafety - Ulla Vogel 2013-12-17

Handbook of Nanosafety: Measurement, Exposure and Toxicology, written by leading international experts in nanosafety, provides a comprehensive understanding of engineered nanomaterials (ENM), current international nanosafety regulation, and how ENM can be safely handled in the workplace. Increasingly, the importance of safety needs to be considered when promoting the use of novel technologies like ENM. With its use of case studies and exposure scenarios, Handbook of Nanosafety demonstrates techniques to assess exposure and risks and how these assessments can be applied to improve workers' safety. Topics covered include the effects of ENM on human health, characterization of ENM, aerosol dynamics and measurement, exposure and risk assessment,

and safe handling of ENM. Based on outcomes from the NANODEVICE initiative, this is an essential resource for those who need to apply current nanotoxicological thinking in the workplace and anyone who advises on nanosafety, such as professionals in toxicology, occupational safety and risk assessment. Multi-authored book, written by leading researchers in the field of nanotoxicology and nanosafety Features state-of-the-art physical and chemical characterization of engineered nanomaterials (ENM) Develops strategies for exposure assessment, risk assessment and risk management Includes practical case studies and exposure scenarios to demonstrate how you can safely use ENM in the workplace

Introduction to Aerosol Science - Parker C. Reist 1984

Cascade Impactor - James P. Lodge 1986

Aerosols Handbook - Lev S. Ruzer 2004-12-28

As more attention is dedicated to understanding the occupational health risks associated with the industrial manufacture and use of nanotechnology, **Aerosols Handbook: Measurement, Dosimetry, and Health Effects** is a timely presentation of time-tested research in the field of aerosol science. The book covers a multitude of topics in indoor, outdoor, Lidar - Claus Weitkamp 2006-06-03 Written by leading experts in optical radar, or lidar, this book brings all the recent practices up-to-date. With a Foreword by one of the founding fathers in the area. Its broad cross-disciplinary scope should appeal to scientists ranging from the view of optical sciences to environmental engineers. Optical remote sensing has matured to become a lead method for cross-disciplinary research. This new multi-authored book reviews the state-of-the-art in a readable monograph.

Nanofiber Filter Technologies for Filtration of Submicron Aerosols and Nanoaerosols -

Wallace Woon-Fong Leung 2021-10-30
Nanofiber Filter Technologies for Filtration of Submicron Aerosols and Nanoaerosols covers nanoaerosols and larger submicron aerosols present in high abundance in our surroundings, on the order of ten thousand's per cubic centimeter of air in 26 cities. The book summarizes various new technologies that deploy nanofibers for capturing nanoaerosols and submicron aerosols, such as composite filter, multilayer nanofiber, depth-to-surface filtration with nanofiber filter, cleaning of loaded nanofiber filter by backpulse-and-backblow, single and multilayer charged nanofiber filter, and real aerosols with uncharged and charged nanofiber filter, monodispersed versus polydispersed aerosols challenging nanofiber filter, CFD in simulating depth and cake filtration, etc. Describes technologies in a simple, understandable manner Uses basic engineering principles to build-up technologies Provides examples throughout the book for

making illustrations Presents figures in a clear and self-explanatory manner to convey the important points Covers when, where and how novel technologies on nanofibers filters can be implemented Includes problems and a summary at end of each chapter to help students reflect on what has been learned

Good Cascade Impactor Practices, AIM and EDA for Orally Inhaled Products - Terrence P. Tougas 2013-04-10

The purpose of this publication is to introduce a new, simpler and more effective way in which to interpret pharmaceutical aerosol particle size data from orally inhaled products (OIPs). Currently, the compendial and regulatory requirements dictate the need for measurements by full resolution multi-stage cascade impactor (CI), a process that is demanding for the operator, time consuming, prone to experimental error, and challenging for method transfers from one laboratory to another. Furthermore, we shall show that the current practice of reducing

information from mass-weighted aerodynamic particle size distribution (APSD) measurements through the use of CI stage groupings is not the most effective decision-making tool for OIP quality control (QC) in comparison with newly introduced, mutually-independent efficient data analysis (EDA) metrics that can be derived either from full resolution or abbreviated impactor measurements (AIM).

Air Pollution, the Automobile, and Public Health - Sponsored by The Health Effects Institute 1988-01-01

"The combination of scientific and institutional integrity represented by this book is unusual. It should be a model for future endeavors to help quantify environmental risk as a basis for good decisionmaking." —William D. Ruckelshaus, from the foreword. This volume, prepared under the auspices of the Health Effects Institute, an independent research organization created and funded jointly by the Environmental Protection Agency and the automobile industry, brings

together experts on atmospheric exposure and on the biological effects of toxic substances to examine what is known—and not known—about the human health risks of automotive emissions.

Airborne Particles - National Research Council (U.S.). Subcommittee on Airborne Particles 1979

Aerosol Measurement - Pramod Kulkarni 2011-09-09

Aerosol Measurement: Principles, Techniques, and Applications Third Edition is the most detailed treatment available of the latest aerosol measurement methods. Drawing on the know-how of numerous expert contributors; it provides a solid grasp of measurement fundamentals and practices a wide variety of aerosol applications. This new edition is updated to address new and developing applications of aerosol measurement, including applications in environmental health, atmospheric science, climate change, air pollution, public health, nanotechnology, particle

and powder technology, pharmaceutical research and development, clean room technology (integrated circuit manufacture), and nuclear waste management.

Pharmaceutical Inhalation Aerosol Technology, Second Edition - Anthony J.

Hickey 2003-09-03

This thoroughly revised and expanded reference provides authoritative discussions on the physiologic, pharmacologic, metabolic, molecular, cellular and physicochemical factors, influencing the efficacy and utilization of pharmaceutical aerosol. It analyzes the latest science and developments in the generation, administration and characterization of these compounds, showcasing current clinical applications, the efficiency and limitations of major aerosol products and emerging aerosol therapies impacting the field.

Secondhand Smoke Exposure and Cardiovascular Effects - Institute of Medicine
2010-02-21

Data suggest that exposure to secondhand smoke can result in heart disease in nonsmoking adults. Recently, progress has been made in reducing involuntary exposure to secondhand smoke through legislation banning smoking in workplaces, restaurants, and other public places. The effect of legislation to ban smoking and its effects on the cardiovascular health of nonsmoking adults, however, remains a question. *Secondhand Smoke Exposure and Cardiovascular Effects* reviews available scientific literature to assess the relationship between secondhand smoke exposure and acute coronary events. The authors, experts in secondhand smoke exposure and toxicology, clinical cardiology, epidemiology, and statistics, find that there is about a 25 to 30 percent increase in the risk of coronary heart disease from exposure to secondhand smoke. Their findings agree with the 2006 Surgeon General's Report conclusion that there are increased risks of coronary heart disease morbidity and

mortality among men and women exposed to secondhand smoke. However, the authors note that the evidence for determining the magnitude of the relationship between chronic secondhand smoke exposure and coronary heart disease is not very strong. Public health professionals will rely upon *Secondhand Smoke Exposure and Cardiovascular Effects* for its survey of critical epidemiological studies on the effects of smoking bans and evidence of links between secondhand smoke exposure and cardiovascular events, as well as its findings and recommendations.

Atmospheric Aerosols - Claudio Tomasi
2017-03-20

The book describes the morphological, physical and chemical properties of aerosols from various natural and anthropogenic sources to help the reader better understand the direct role of aerosol particles in scattering and absorbing short- and long-wave radiation.

Air Pollution - Bhola R. Gurjar 2010-06-22

Air pollution is recognized as one of the leading contributors to the global environmental burden of disease, even in countries with relatively low concentrations of air pollution. *Air Pollution: Health and Environmental Impacts* examines the effect of this complex problem on human health and the environment in different settings around the world. I

Atmospheric Aerosols - Olivier Boucher
2015-05-18

This textbook aims to be a one stop shop for those interested in aerosols and their impact on the climate system. It starts with some fundamentals on atmospheric aerosols, atmospheric radiation and cloud physics, then goes into techniques used for in-situ and remote sensing measurements of aerosols, data assimilation, and discusses aerosol-radiation interactions, aerosol-cloud interactions and the multiple impacts of aerosols on the climate system. The book aims to engage those interested in aerosols and their impacts on the

climate system: graduate and PhD students, but also post-doctorate fellows who are new to the field or would like to broaden their knowledge. The book includes exercises at the end of most chapters. Atmospheric aerosols are small (microscopic) particles in suspension in the atmosphere, which play multiple roles in the climate system. They interact with the energy budget through scattering and absorption of solar and terrestrial radiation. They also serve as cloud condensation and ice nuclei with impacts on the formation, evolution and properties of clouds. Finally aerosols also interact with some biogeochemical cycles. Anthropogenic emissions of aerosols are responsible for a cooling effect that has masked part of the warming due to the increased greenhouse effect since pre-industrial time. Natural aerosols also respond to climate changes as shown by observations of past climates and modelling of the future climate.

Particle Filter Retrofit for All Diesel Engines - Andreas Mayer 2008

Aerosol Technology In Hazard Evaluation - Thomas Mercer 2012-12-02

Aerosol Technology in Hazard Evaluation is the fifth in the series of books on the subject of aerosol technology. This series is organized into nine chapters that cover the properties, sampling, and respirable activity of aerosol. After briefly describing the nature of an inhalation hazard, the book examines the properties, measurement, and significance of geometric diameters of aerosols, as well as the shape factors relating them to various particulate properties. The mathematical description of size distributions and the statistics of sampling from a lognormal distribution of particle sizes are provided. Considerable chapters deal with the methods of aerosol concentration measurement and geometric and aerodynamic size sampling. Operating characteristics of respirable aerosol activity samplers and their limitations are also examined. The concluding chapter discusses

problems in the production, flow measurement, apparatus calibration, and isokinetic sampling of aerosols. This series will provide a convenient source of information to those concerned in industrial hygiene and will stimulate the interest of those involved in all phases of environmental health.

Methods in Pulmonary Research - S. Uhlig
1998

Airways.- 1 Measurement of lung function in rodents in vivo.- Spontaneous respiration.- Pulmonary manoeuvres.- Material and equipment.- Lung function laboratory.- Methods.- Preparation and calibration.- Pulmonary function testing.- Examples for applications.- Discussion.- Troubleshooting.- References.- 2 The isolated perfused lung.- Advantages and disadvantages of perfused lungs.- Theoretical background.- Vascular resistance.- Respiratory mechanics.- Material and equipment.- Artificial thorax chamber and ventilation.- Perfusion.- Weight measurement.-

Gas exchange.- Methods.- Surgery and setting up the lung.- Criteria for viability.- Cleaning the apparatus.- An example application.- Discussion.- Interpretation of the results.- Constant flow (CFP) versus constant pressure perfusion (CPP).- Negative or positive pressure ventilation.- Choice of perfusate.- Recirculating versus non-recirculating perfusion.- Additional experimental options.- Troubleshooting.- Final comments.- References.- 3 Lung explants.- Material and equipment.- Preparation of culture media.- Preparation of agarose.- Preparation of animals.- Preparation of explants.- Image acquisition.- Variations on this technique.- Applications.- Effects of bronchoconstriction.- Measurements of mucociliary clearance.- Measurements of pulmonary vasculature.- Long term explant culture techniques.- Investigations of protein and gene expression.- Troubleshooting.- Discussion.- Acknowledgements.- References.- 4 Tracheal preparations.- Methods.- Guinea pig tracheal preparations.- Immersion techniques.-

Tracheal chain.- Spirally cut trachea.- Zig-zag tracheal strip.- Tracheal tube preparations.- Superfusion techniques.- Electrically stimulated trachea.- Epithelium-denuded trachea.- Conclusion.- References.- Vessels.- 5 Intravital microscopy: Airway circulation.- Materials and equipment.- Microscope.- Video equipment.- Peripheral equipment.- Ventilation.- Solutions.- Methods.- Surgery.- Experimental procedure.- Species differences.- Discussion.- References.- 6 The bronchial circulation.- Importance and role of the bronchial circulation.- Postobstructive pulmonary vasculopathy (POPV) and principles of the techniques.- Material and equipment.- Production of POPV in dogs, rats and guinea pigs: Ligation of the left main pulmonary artery.- In situ perfused LLL preparation.- Morphological assessment of the bronchial and pulmonary vasculature using light microscopy and morphometry.- Methods.- Surgical ligation of the left main pulmonary artery in dogs, rats and guinea pigs.- Canine model.- Rat and guinea pig

model.- In situ perfused LLL preparation to measure pulmonary and bronchial vascular flows, pressures and resistances using modified AO and VO and bronchial vascular micropuncture.- Procedure for the in situ perfused LLL preparation.- AO and VO measurements.- Modified in situ perfused LLL preparation for bronchial collateral.- vascular pressure measurements by micropuncture.- Morphological assessment of the bronchial and pulmonary vasculature, using light microscopy and morphometry.- Measurement of pulmonary vascular medial thickness and muscularization in lungs injected with pigmented gelatin-barium mixtures.- Fixation and preparation.- Morphometry.- Assessment of proliferation in the bronchial vasculature.- Bronchial vessel number per airway.- Assessment of bronchial vascular endothelial proliferation using bromodeoxyuridine (BrdU) labeling.- Discussion and troubleshooting.- Production of POPV.- In situ perfused left lower lobar preparation.-

Morphological assessment of the bronchial and pulmonary vasculature.- Acknowledgements.- References.- 7 Segmental vascular resistance and compliance from vascular occlusion.- Methods.- The lumped parameter RCR model.- The continuous RC distribution.- More distributed lumped parameter models.- The 3C4R model.- The 3C2R model.- Arterial occlusion in vivo.- Acknowledgements.- References.- Edema.- 8 Experimental and clinical measurement of pulmonary ...
Aerosol Technology - William C. Hinds
2012-12-06

The #1 guide to aerosol science and technology - now better than ever Since 1982, *Aerosol Technology* has been the text of choice among students and professionals who need to acquire a thorough working knowledge of modern aerosol theory and applications. Now revised to reflect the considerable advances that have been made over the past seventeen years across a broad spectrum of aerosol-related application

areas - from occupational hygiene and biomedical technology to microelectronics and pollution control -this new edition includes: * A chapter on bioaerosols * New sections on resuspension, transport losses, respiratory deposition models, and fractal characterization of particles * Expanded coverage of atmospheric aerosols, including background aerosols and urban aerosols * A section on the impact of aerosols on global warming and ozone depletion. *Aerosol Technology, Second Edition* also features dozens of new, fully worked examples drawn from a wide range of industrial and research settings, plus new chapter-end practice problems to help readers master the material quickly.

Review of the Department of Defense Enhanced Particulate Matter Surveillance Program Report - National Research Council 2010-07-23
Soldiers deployed during the 1991 Persian Gulf War were exposed to high concentrations of particulate matter (PM) and other airborne

pollutants. Their exposures were largely the result of daily windblown dust, dust storms, and smoke from oil fires. On returning from deployment, many veterans complained of persistent respiratory symptoms. With the renewed activity in the Middle East over the last few years, deployed military personnel are again exposed to dust storms and daily windblown dust in addition to other types of PM, such as diesel exhaust and particles from open-pit burning. On the basis of the high concentrations observed and concerns about the potential health effects, DOD designed and implemented a study to characterize and quantify the PM in the ambient environment at 15 sites in the Middle East. The endeavor is known as the DOD Enhanced Particulate Matter Surveillance Program (EPMSP). The U.S. Army asked the National Research Council to review the EPMSP report. In response, the present evaluation considers the potential acute and chronic health implications on the basis of information

presented in the report. It also considers epidemiologic and health-surveillance data collected by the USACHPPM, to assess potential health implications for deployed personnel, and recommends methods for reducing or characterizing health risks.

Evaporation and Droplet Growth in Gaseous Media - N.A. Fuchs 2013-10-22

Evaporation and Droplet Growth in Gaseous Media deals with the evaporation of droplets of liquid in gaseous media and the reverse process of droplet growth in a medium supersaturated with the vapor of the liquid. The discussion is restricted to the kinetics of evaporation and growth of droplets of pure liquids (and heat transfer to the same). Comprised of three chapters, this book first examines the quasi-stationary evaporation and growth of droplets that are motionless relative to the medium and the hydrodynamic factor is absent. The Maxwell equation, the basis of the theory of evaporation of droplets in a gaseous medium, is taken into

account. The influence of the Stefan flow and the concentration change at the surface on the rate of evaporation are considered, along with the evaporation of droplets in a vessel with absorbing walls and the fall in temperature of both free evaporating droplets and supported evaporating droplets. The second chapter is devoted to the quasi-stationary evaporation of droplets in a stream of gas, that is, droplets moving relative to the medium. The last chapter focuses on non-stationary evaporation and growth of droplets that either motionless or moving relative to the medium. This monograph will be of interest to students, practitioners, and researchers in inorganic and structural chemistry.

Fibrous Filter Media - Philip Brown

2017-06-16

Fibrous Filter Media comprehensively covers the types, manufacture, applications, performance, and modeling of fibrous filter media. Part I introduces the principles of gas and liquid

filtration, while Part II presents an overview of the types of fibrous filters, including details of fiber types, fabric construction, and applications. Part III covers a variety of filtration applications in which fibrous assemblies are used, with examples ranging from filtration for improving air quality, to medical filters, to industrial wastewater filtration. Finally, Part III covers the properties and performance of fibrous filters, including chapters on filter performance and simulation. With its expert editors and international team of contributors, this important book provides information on fibrous filters relevant to fiber and textile scientists, and is also ideal for academics and industry professionals working in the field of filtration. Dr. Philip Brown is Sweetenburg Professor of polymer and textile engineering at Clemson University, USA. Dr. Christopher Cox is Professor of mathematical sciences at Clemson University, USA. Systematic and comprehensive coverage of the trends and new technologies

being developed in the field of fibrous filter media Focused on the needs of the textiles and filtration industries, with a clear emphasis on applied technology Contains contributions from an international team of authors edited by an expert in the field

Environmental Chemistry of Aerosols - Ian Colbeck 2008-03-24

Covering the most recent material, this text brings together all the information on atmospheric aerosols in one place, making it easily accessible to practitioners and students.

Aerosol Science and Technology - Parker C.

Reist 1993

The Chemical Components of Tobacco and Tobacco Smoke - Alan Rodgman 2016-04-19

Authored by two longtime researchers in tobacco science, The Chemical Components of Tobacco and Tobacco Smoke, Second Edition chronicles the progress made from late 2008 through 2011 by scientists in the field of tobacco science. The book examines the isolation and characterization of each component. It explores developments in pertinent analytical
Public Health Reports - 2009