Environmental Engineering Science Nazaroff Cohen

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Selected Pollutants Springer Science & Business Media
This book has been conceived to provide guidance on the theory and design of cyclone systems. Forthose new to the topic, a cyclone is, in its most basic form, a stationary mechanical device that utilizes centrifugal force to separate solid or liquid particles from a carrier gas. Gas enters near the top via a tangential or vaned inlet, which gives rise to an axially descending spiral of gas and a centrifugal force field that causes the incoming particles to concentrate along, and spiral down, the inner walls of the separator. The thus-segregated particulate phase is allowed to exit out an underflow pipe while the gas phase constricts, and - in most separators - reverses its axial direction of flow and exits out a separate overflow pipe. Cyclones are applied in both heavy and light industrial applications and may be designed as either classifiers or separators. Their applications are as plentiful as they are varied. Examples include their use in the separation or classification of powder coatings, plastic fines, sawdust, wood chips, sand, sintered/powdered meta!, plastic and meta! pellets, rock and mineral cmshings, carbon fines, grain products, pulverized coal, chalk, coal and coal ash, catalyst and petroleum coke fines, mist entrained off of various processing units and liquid components from scmbbing and drilling operations. They have even been applied to separate foam into its component gas and liquid phases in recent years.
Aerosols Handbook National Academies Press
Environmental Engineering ScienceJohn Wiley & Sons
Biological Environmental Science Springer Science & Business Media
As the world population grows, already burgeoning cities are becoming taxed in every conceivable way. One topic that receives few headlines, but significantly impacts an area’s quality of health and economic development is the challenge to maintain sustainable urban drainage (SUD). Poor drainage can hamper transportation, add to problems of pollution, and compromise essential clean water resources. While a number of references concentrate on the hydrology, hydraulics, and transport phenomena relevant for urban drainage, we must recognize that any solution requires a more comprehensive consideration of the problem. Urban and Highway Stormwater Pollution: Concepts and Engineering offers a comprehensive text on wet weather pollution originating from urban drainage and road runoff. Bringing together the empirical and theoretical approaches needed to mitigate the problem, this volume: Provides a basic understanding of sources, pathways, and impacts of pollutants associated with wet weather hydrologic cycles occurring in areas with impervious or semi-impervious surfaces Examines wet weather pollutant discharges into streams, lakes, and coastal waters, as well as soil systems Details tools to quantify physical, chemical, and biological characteristics associated with wet weather pollution and methodologies for pollution abatement, control, and monitoring runoff Offers general methodologies and site-specific approaches to deal with stormwater runoff, road runoff, and sewer overflows Supplies reliable predictive tools and modeling methods SUD is rapidly becoming a problem of crisis proportions; but while we must act quickly, any solution must be based on sound principles, accurate data, and proven methods. Written by top researchers with years of experience, this book offers those working at the front line with an accessible resource that helps ameliorate problem situations and prevent others from developing.
ISE Principles of Environmental Engineering & Science Springer Science & Business Media
The indoor environment affects occupants' health and comfort. Poor environmental conditions and indoor contaminants are estimated to cost the U.S. economy tens of billions of dollars a year in exacerbation of illnesses like asthma, allergic symptoms, and subsequent lost productivity. Climate change has the potential to affect the indoor environment because conditions inside buildings are influenced by conditions outside them. Climate Change, the Indoor Environment, and Health addresses the impacts that climate change may have on the indoor environment and the resulting health effects. It finds that steps taken to mitigate climate change may cause or exacerbate harmful indoor environmental conditions. The book discusses the role the Environmental Protection Agency (EPA) should take in informing the public, health professionals, and those in the building industry about potential risks and what can be done to address them. The study also recommends that building codes account for climate change projections; that federal agencies join to develop or refine protocols and testing standards for evaluating emissions from materials, furnishings, and appliances used in buildings; and that building weatherization efforts include consideration of health effects. Climate Change, the Indoor Environment, and Health is written primarily for the EPA and other federal agencies, organizations, and researchers with interests in public health; the environment; building design, construction, and operation; and climate issues.
Third Edition National Academies Press
From 1972 to 1982, approximately 1,500-2,100 US Air Force Reserve personnel trained and worked on C-123 aircraft that had formerly been used to spray herbicides in Vietnam as part of Operation Ranch Hand. After becoming aware that some of the aircraft on which they had worked had previously served this purpose, some of these AF Reservists applied to the US Department of Veterans Affairs (VA) for compensatory coverage under the Agent Orange Act of 1991. The Act provides health care and disability coverage for health conditions that have been deemed presumptively service-related for herbicide exposure during the Vietnam War. The VA denied the applications on the basis that these veterans were ineligible because as non-Vietnam-era veterans or as Vietnam-era veterans without "boots on the ground" service in Vietnam, they were not covered. However, with the knowledge that some air and wipe samples taken between 1979 and 2009 from some of the C-123s used in Operation Ranch Hand showed the presence of agent orange residues, representatives of the C-123 Veterans Association began a concerted effort to reverse VA's position and obtain coverage. At the request of the VA, Post-Vietnam Dioxin Exposure in Agent Orange-Contaminated C-123 Aircraft evaluates whether or not service in these C-123s could have plausibly resulted in exposures detrimental to the health of these Air Force Reservists. The Institute of Medicine assembled an expert committee to address this question qualitatively, but in a scientific and evidence-based fashion. This report evaluates the reliability of the available information for establishing exposure and addresses and places in context whether any documented residues represent potentially harmful exposure by characterizing the amounts available and the degree to which absorption might be expected. Post-Vietnam Dioxin Exposure rejects the idea that the dioxin residues detected on interior surfaces of the C-123s were immobile and effectively inaccessible to the Reservists as a source of exposure. Accordingly, this report states with confidence that the Air Force Reservists were exposed when working in the Operation Ranch Hand C-123s and so experienced some increase in their risk of a variety of adverse responses.
The Science and Applications of Microbial Genomics CRC Press
Food manufacturing has evolved over the centuries from kitchen industries to modern, sophisticated production operations. A typical food factory includes the food processing and packaging lines, the buildings and exterior landscaping, and the utility-supply and waste-treatment facilities. As a single individual is unlikely to possess all the necessary skills required to facilitate the design, the task will undoubtedly be undertaken by an interdisciplinary team employing a holistic approach based on a knowledge of the natural and biological sciences, most engineering disciplines, and relevant legislation. In addition, every successful project requires a competent project manager to ensure that all tasks are completed on time and within budget. This Handbook attempts to compress comprehensive, up-to-date coverage of these areas into a single volume. It is hoped that it will prove to be of value across the food-manufacturing community. The multi-disciplinary nature of the subject matter should facilitate more informed communication between individual specialists on the team. It should also provide useful background information on food factory design for a wider range of

professionals with a more peripheral interest in the subject: for example, process plant suppliers, contractors, HSE specialists, retailers, consultants, and financial institutions. Finally, it is hoped that it will also prove to be a valuable reference for students and instructors in the areas of food technology, chemical engineering, and mechanical engineering, in particular.
Environmental Engineering Createspace Independent Publishing Platform
International experts provide a comprehensive picture of the principles, concepts and methods that are applicable to problems originating from the interaction between the living/non-living environment and mankind. Both the analysis of such problems and the way solutions to environmental problems may work in specific societal contexts are addressed. Disciplinary approaches are discussed but there is a focus on multi- and interdisciplinary methods. A large number of practical examples and case studies are presented. There is special emphasis on modelling and integrated assessment. This book is different because it stresses the societal, cultural and historical dimensions of environmental problems. The main objective is to improve the ability to analyse and conceptualise environmental problems in context and to make readers aware of the value and scope of different methods. Ideal as a course text for students, this book will also be of interest to researchers and consultants in the environmental sciences.
NIOSH Manual of Analytical Methods: NIOSH monitoring methods John Wiley & Sons
"America's Children and the Environment (ACE)" is EPA's report presenting data on children's environmental health. ACE brings together information from a variety of sources to provide national indicators in the following areas: Environments and Contaminants, Biomonitoring, and Health. Environments and Contaminants indicators describe conditions in the environment, such as levels of air pollution. Biomonitoring indicators include contaminants measured in the bodies of children and women of child-bearing age, such as children's blood lead levels. Health indicators report the rates at which selected health outcomes occur among U.S. children, such as the annual percentage of children who currently have asthma. Accompanying each indicator is text discussing the relevance of the issue to children's environmental health and describing the data used in preparing the indicator. Wherever possible, the indicators are based on data sources that are updated in a consistent manner, so that indicator values may be compared over time.
WHO Guidelines for Indoor Air Quality National Academies Press
Relationship between concentration of carbon monoxide in the air and its adverse effects on man and the environment.
Confectionery Science and Technology CRC Press
Green Manufacturing: Fundamentals and Applications introduces the basic definitions and issues surrounding green manufacturing at the process,machine and system (including supply chain) levels. It also shows, by way of several examples from different industry sectors, the potential for substantial improvement and the paths to achieve the improvement. Additionally, this book discusses regulatory and government motivations for green manufacturing and outlines the path for making manufacturing more green as well as making production more sustainable. This book also: Discusses new engineering approaches for manufacturing and provides a path from traditional manufacturing to green manufacturing Addresses regulatory and economic issues surrounding green manufacturing Details new supply chains that need to be in place before going green Includes state-of-the-art case studies in the areas of automotive, semiconductor and medical areas as well as in the supply chain and packaging areas
Monitoring for Gaseous Pollutants in Museum Environments McGraw-Hill Publishing Company
This book focuses on a range of geospatial applications for environmental health research, including environmental justice issues, environmental health disparities, air and water contamination, and infectious diseases. Environmental health research is at an exciting point in its use of geotechnologies, and many researchers are working on innovative approaches. This book is a timely scholarly contribution in updating the key concepts and applications of using GIS and other geospatial methods for environmental health research. Each chapter contains original research which utilizes a geotechnical tool (Geographic Information Systems (GIS), remote sensing, GPS, etc.) to address an environmental health problem. The book is divided into three sections organized around the following themes: issues in GIS and environmental health research; using GIS to assess environmental health impacts; and geospatial methods for environmental health. Representing diverse case studies and geospatial methods, the book is likely to be of interest to researchers, practitioners and students across the geographic and environmental health sciences. The authors are leading researchers and practitioners in the field of GIS and environmental health.
Using 21st Century Science to Improve Risk-Related Evaluations IWA Publishing
This book presents WHO guidelines for the protection of public health from risks due to a number of chemicals commonly present in indoor air. The substances considered in this review, i.e. benzene, carbon monoxide, formaldehyde, naphthalene, nitrogen dioxide, polycyclic aromatic hydrocarbons (especially benzo[a]pyrene), radon, trichloroethylene and tetrachloroethylene, have indoor sources, are known in respect of their hazardousness to health and are often found indoors in concentrations of health concern. The guidelines are targeted at public health professionals involved in preventing health risks of environmental exposures, as well as specialists and authorities involved in the design and use of buildings, indoor materials and products. They provide a scientific basis for legally enforceable standards.
Environmental Engineering CRC Press
Microbial pollution is a key element of indoor air pollution. It is caused by hundreds of species of bacteria and fungi, in particular filamentous fungi (mould), growing indoors when sufficient moisture is available. This document provides a comprehensive review of the scientific evidence on health problems associated with building moisture and biological agents. The review concludes that the most important effects are increased prevalences of respiratory symptoms, allergies and asthma as well as perturbation of the immunological system. The document also summarizes the available information on the conditions that determine the presence of mould and measures to control their growth indoors. WHO guidelines for protecting public health are formulated on the basis of the review. The most important means for avoiding adverse health effects is the prevention (or minimization) of persistent dampness and microbial growth on interior surfaces and in building structures. [Ed.]
Airborne Particles and Settled Dust Simon and Schuster
As global climate change proliferates, so too do the health risks associated with the changing world around us. Called for in the President’s Climate Action Plan and put together by experts from eight different Federal agencies, The Impacts of Climate Change on Human Health: A Scientific Assessment is a comprehensive report on these evolving health risks, including: Temperature-related death and illness Air quality deterioration Impacts of extreme events on human health Vector-borne diseases Climate impacts on water-related Illness Food safety, nutrition, and distribution Mental health and well-being This report summarizes scientific data in a concise and accessible fashion for the general public, providing executive summaries, key takeaways, and full-color diagrams and charts. Learn what health risks face you and your family as a result of global climate change and start preparing now with The Impacts of Climate Change on Human Health.
Clinical Handbook of Air Pollution-Related Diseases WHO Regional Office Europe
Apply the principles of probability and statistics to realistic engineering problems The easiest and most effective way to learn the principles of probabilistic modeling and statistical inference is to apply those principles to a variety of applications. That’s why Ang and Tang’s Second Edition of Probability Concepts in Engineering (previously titled Probability Concepts in Engineering Planning and Design) explains concepts and methods using a wide range of problems related to engineering and the physical sciences, particularly civil and environmental engineering. Now extensively revised with new illustrative problems and new and expanded topics, this Second Edition will help you develop a thorough understanding of probability and statistics and the ability to formulate and solve real-world problems in engineering. The authors present each basic principle using different examples, and give you the opportunity to enhance your understanding with practice problems. The text is ideally suited for students, as well as those wishing to learn and apply the principles and tools of statistics and probability through self-study. Key Features in this 2nd Edition: A new chapter (Chapter 5) covers Computer-Based Numerical and Simulation Methods in Probability, to extend and expand the analytical methods to more complex engineering problems. New and expanded coverage includes distribution of extreme values (Chapter 3), the Anderson-Darling method for goodness-of-fit test (Chapter 6), hypothesis testing (Chapter 6), the determination of confidence intervals in linear regression (Chapter 8), and Bayesian regression and correlation analyses (Chapter 9). Many new exercise problems in each chapter help you develop a working knowledge of concepts and methods. Provides a wide variety of examples, including many new to this edition, to help you learn and understand specific concepts. Illustrates the formulation and solution of engineering-type probabilistic problems through computer-based methods, including developing computer codes using commercial software such as MATLAB and MATHCAD. Introduces and develops analytical probabilistic models and shows how to formulate engineering problems under uncertainty, and provides the fundamentals for quantitative risk assessment.
Probability Concepts in Engineering: Emphasis on Applications to Civil and Environmental Engineering, 2e Instructor Site National Academies Press
Risk assessment has become a dominant public policy tool for making choices, based on limited resources, to protect public health and the environment. It has been instrumental to the mission of the U.S. Environmental Protection Agency (EPA) as well as other federal agencies in evaluating public health concerns, informing regulatory and technological decisions, prioritizing research needs and funding, and in developing approaches for cost-benefit analysis. However, risk assessment is at a crossroads. Despite advances in the field, risk assessment faces a number of significant challenges including lengthy delays in making complex decisions; lack of data leading to significant uncertainty in risk assessments; and many chemicals in the marketplace that have not been evaluated and emerging agents requiring assessment. Science and Decisions makes practical scientific and technical recommendations to address these challenges. This book is a complement to the widely used 1983 National Academies book, Risk Assessment in the Federal Government (also known as the Red Book). The earlier book established a framework for the concepts and conduct of risk assessment that has been adopted by numerous expert committees, regulatory agencies, and public health institutions. The new book embeds these concepts within a broader framework for risk-based decision-making. Together, these are essential references for those working in the regulatory and public health fields.
Principles, Design, and Operation Springer Science & Business Media
The text is written for both Civil and Environmental Engineering students enrolled in Wastewater Engineering courses, and for Chemical Engineering students enrolled in Unit Processes or Transport Phenomena courses. It is oriented toward engineering design based on fundamentals. The presentation allows the instructor to select chapters or parts of chapters in any sequence desired.
Comparative Dosimetry of Radon in Mines and Homes John Wiley & Sons
This book examines in detail the clinical implications of those diseases that either are primarily triggered by air pollution or represent direct consequences of air pollutants. The aim is to provide medical practitioners with practical solutions to issues in diagnosis and treatment while simultaneously furnishing other interested parties with crucial information on the field. The book introduces the concept that air pollution-related diseases constitute a new class of pathologies. A wide range of conditions mainly attributable to air pollution are discussed, covering different body systems and pollution impacts in subsets of the population. In addition to presenting state of the art overviews of clinical aspects, the book carefully examines the implications of current knowledge for social and public health strategies aimed at disease prevention and prophylaxis. The Clinical Handbook of Air Pollution-Related Diseases will greatly assist doctors and healthcare workers when dealing with the consequences of air pollution in their everyday practice and will provide researchers, industry, and policymakers with valuable facts and insights.
Workshop Summary National Academies Press
With an emphasis on passive sampling, this volume focuses on the environmental monitoring for common gaseous pollutants. It offers an overview of the history and nature of pollutants of concern to museums and the challenges facing scientists, conservators, and managers seeking to develop target pollutant guidelines to protect cultural property.
Measurement, Dosimetry, and Health Effects, Second Edition CRC Press
Studies of underground miners have provided a wealth of data about the risk of lung cancer from exposure to radon's progeny elements, but the application of the miner data to the home environment is not straightforward. In Comparative Dosimetry of Radon in Mines and Homes, an expert committee uses a new dosimetric model to extrapolate to the home environment the risk relationships found in the miner studies. Important new scaling factors are developed for applying risk estimates based on miner data to men, women, and children in domestic environments. The book includes discussions of radon dosimetry and the uncertainties concerning other risk factors such as age and smoking habits. The book also contains a thorough technical discussion of the characteristics of radioactive aerosols in domestic environments, the dose of inhaled radon progeny to different age groups, identification of respiratory tract cells at the greatest risk of carcinogenesis, and a complete description of the new lung dose model being developed by the International Commission on Radiological Protection as modified by this committee.