

H E P A Air Cleaner

High Efficiency Particulate Air filtration is an essential component of the containment and ventilation systems supporting the research and development activities at the Oak Ridge National Laboratory. High Efficiency Particulate Air filters range in size from 7.6cm (3 inch) by 10.2 cm (4 inch) cylindrical shape filters to filter array assemblies up to 2.1 m (7 feet) high by 1.5 m (5 feet) wide. Spent filters are grouped by contaminants trapped in the filter media and become one of the components in the respective waste stream. Waste minimization and pollution prevention efforts are applied for both radiological and non-radiological applications. Radiological applications include laboratory hoods, glove boxes, and hot cells. High Efficiency Particulate Air filters also are generated from intake or pre-filtering applications, decontamination activities, and asbestos abatement applications. The disposal avenues include sanitary/industrial waste, Resource Conservation and Recovery Act and Toxic Substance Control Act, regulated waste, solid low-level waste, contact handled transuranic, and remote handled transuranic waste. This paper discusses characterization and operational experiences associated with the disposal of the spent filters across multiple applications.

This book brings together some of the finest academics in the field to address important questions around the way in which people experience their physical environments, including temperature, light, air-quality, acoustics and so forth. It is of importance not only to the comfort people feel indoors, but also the success of any building as an environment for its stated purpose. The way in which comfort is produced and perceived has a profound effect on the energy use of a building and its resilience to the increasing dangers posed by extreme weather events, and power outages caused by climate change. Research on thermal comfort is particularly important not only for the health and well-being of occupants but because energy used for temperature control is responsible for a large part of the total energy budget of the built environment. In recent years there has been an increasing focus on the vulnerabilities of the thermal comfort system; how and why are buildings failing to provide safe and agreeable thermal environments at an affordable price? Achieving comfort in buildings is a complex subject that involves physics, behaviour, physiology, energy conservation, climate change, and of course architecture and urban design. Bringing together the related disciplines in one volume lays strong, multi-disciplinary foundations for new research and design directions for resilient 21st century architecture. This book heralds workable solutions and emerging directions for key fields in building the resilience of households, organisations and populations in a heating world.

¿Biosafety in Microbiological & Biomedical Labs.¿ quickly became the cornerstone of biosafety practice & policy upon

first pub. in 1984. The info. is advisory in nature even though legislation & reg'n., in some circumstances, have overtaken it & made compliance with the guidance mandatory. This rev. contains these add'l. chap.: Occupat'l. med. & immunization; Decontam. & sterilization; Lab. biosecurity & risk assess.; Biosafety Level 3 (Ag.) labs.; Agent summary state. for some ag. pathogens; & Biological toxins. Also, chapters on the principles & practices of biosafety & on risk assess. were expanded; all agent summary state. & append. were rev.; & efforts were made to harmonize recommend. with reg'ns. promulgated by other fed. agencies.

*High Efficiency Particle Air (HEPA) Filter, Ultra Low Penetration Air (ULPA) Filter (also Referred to as Extended Media). In-place HEPA (high Efficiency, Particulate Air) Filter Testing at Hanford
Evaluation of the Impact of Indoor Air Filtration on Particulate Matter Exposures and Measures of Cardiovascular Health*

High Efficiency Particulate Air (HEPA) Filters

High Efficiency Particulate Air (HEPA) Filter Generation, Characterization, and Disposal Experiences at the Oak Ridge National Laboratory

In Phase IIA of this project, CeraMem has further developed and scaled up ceramic HEPA filters that are appropriate for use on filtration of vent gas from HLW tanks at DOE sites around the country. This work included procuring recrystallized SiC monoliths, developing membrane and cement materials, and defining a manufacturing process for the production of prototype full sizes HEPA filters. CeraMem has demonstrated that prototype full size filters can be manufactured by producing 9 full size filters that passed DOP aerosol testing at the Oak Ridge Filter Test Facility. One of these filters was supplied to the Savannah River Technical Center (SRTC) for process tests using simulated HLW tank waste. SRTC has reported that the filter was regenerable (with some increase in pressure drop) and that the filter retained its HEPA retention capability. CeraMem has also developed a Regenerable HEPA Filter System (RHFS) design and acceptance test plan that was reviewed by DOE personnel. The design and acceptance test plan form the basis of the system proposal for follow-on work in Phase IIB of this project. For the first time in one collected volume, a doctor explores the signs and symptoms of COPD, examining the lifestyle, environmental, and physiological factors. Schachter describes exercise routines, nutritional patterns, and medical guidance for both smokers and nonsmokers on how to maintain one's pulmonary health.

High Efficiency, Particulate Air (HEPA) Filters provide a minimum of 99.97% removal efficiency for particles greater than or equal to .3 microns in diameter. Each HEPA filter installation at Hanford is, at specified intervals, functionally tested for leaks. The test procedure involves a dioctylphthalate (DOP) smoke generator and a calibrated airborne particle detector. The DOP generator produces smoke of a known quantitative particle size distribution upstream of the filter. The airborne particle detector is first placed upstream, and then downstream of the filter to determine percent penetration. The smoke generator is characterized using a calibrated laser spectrometer, and the particle detector is calibrated using a calibrated picoammeter. 2 refs., 4 figs.

Aging Assessment of Nuclear Air-treatment System HEPA Filters and Adsorbers

Black Mold: Its' Effects and How to Rid Your Home of It

The 6 Keys to Reverse Your Condition and Reclaim Your Health

Preventing, Treating, and Reversing Chronic Obstructive Pulmonary Disease

Disaster Recovery Project Management

Operating Experiences, Calibrations, and Lessons Learned

This handbook discusses biological risk engineering, an extension of industrial hygiene that involves the assessment, control, and decontamination of indoor biological risks. The book synergizes the knowledge of experts in various fields, from law to toxicology, to provide a compendium of information for applying science to limit biological risk. Biological Risk Engineering Handbook: Infection Control and Decontamination begins with a microbiological dictionary, using pictures to illustrate the basic morphology and culture appearance of fungi, bacteria, viruses and prions. The text then reviews sampling and laboratory procedures to ensure coordination between sampling teams and their ultimate receiving laboratory. The contributing authors further examine interpretation issues associated with toxicological studies and risk assessment in hopes of providing further impetus for synergistic studies related to risk assessment and management of biohazardous agents. Other topics include ventilation design, infection control, and the use of biocides. The discussion of Legionella control and cooling towers serves as a case study of how design, maintenance, and decontamination should be a seamless process. The contributors also discuss patent utility requirements, insurance processes, laws, and current regulations, including a chapter on Tuberculosis that compares OSHA and CDC guidelines. Finally, security is addressed from the standpoint of both homeland security in the United States and the security of individual laboratories. From assessment methods to design options, Biological Risk Engineering Handbook presents state-of-the-art techniques and practices to measure, control, and contain

human exposure to biological contaminants. With the concern of biological risk on the rise and the emerging fear today of biological warfare, this handbook allows you to move into the future armed with the information needed to limit this threat.

The purpose of this report was to characterize the HEPA filter media material. This work consisted of two major tasks. First, the pressure drop characteristics of the HEPA filter material were measured as a function of the aerosol mass loading. Particle size effects were studied by using three different particle size distributions to load the filter material. The second task was to determine the filtration efficiency spectrum for solid particles as a function of particle diameter. The filtration efficiency was measured at two different media velocities, one corresponding to the equivalent flow rate under normal operating conditions, the other corresponding to the minimum equivalent flow rate expected through the filter compartments. These tests were conducted at the Argonne National Laboratory between September 1988 and February 1989. 20 refs., 31 figs., 10 tabs.

WAIT! BEFORE YOU READ ANY FURTHER go to www.blackmold.hiringcontractorsnow.com. You are entitled to receive my free report, "The Nine Red Flags of the Construction Industry" just for previewing my book. The Information in the report alone is worth way more than the price of this book; besides...it's FREE! Let me just tell you, no one can have a mold free home. Anyone's home, no matter how clean they are, can become a breeding ground for Black Mold. And inside Black Mold: Its Effects and How to Rid Your Home of It, you will discover the reason why; taken straight from scientific experts and not from local or regional media sources. In this text you will learn: What types of conditions are virtual breeding grounds for black mold, The \$2.50 Solution to rid your home of black mold growth, How to control the infiltration of mold spores, The realities of black mold and how much of a risk it is to your health, the hidden hiding places for black mold growth, And much, much, more...

Step By Step Picture Illustrations To Make Your Own Face Mask For Protection From Virus And Other Infections Using Available Home Materials

Infection Control and Decontamination

High Efficiency Air Filtration

Diffuse Security Threats

Reduction of Microbial Concentration in Air of Dental Operating Rooms by Hepa Filtration

Paper/nonwoven Filter

The scope of disasters ranges from man-made emergency to natural calamity, from a kitchen grease fire to a hurricane or volcanic eruption. While each type of event requires a very different scale and type of immediate response, the project management challenges that face restoration and reconstruction professionals after the emergency phase is complete are remarkably similar. Using decades of real-world experience and academic research, the author explains pertinent requirements and methods for the contractors and other professionals who bring order from

chaos. This is the first systematic presentation of the tools and skills needed for disaster recovery project management. It is designed primarily for contractors, although it will also be of value for those who might hire them, the communities they serve, and their organizational partners in the disaster recovery effort. The volume is focused on informing the management of projects that recover the built environment after emergency conditions are sufficiently stabilized, and supplements and complements books devoted to conventional construction or emergency relief management.

This report describes the experiments and modeling conducted to determine the effectiveness of commercially available in-room air cleaners (i.e., particulate matter [PM] filtration devices) in mitigating the impact of an aerosolized biological threat agent attack on a building. In one set of experiments, two air cleaners were evaluated for their single-pass filtration efficiency as a function of air flow rate, particle diameter (ranging from 0.03 to 10), and type of particle (inert aerosol and a bioaerosol). One of the air cleaners tested was a high efficiency particulate air (HEPA) filtration device, and the other PM control device tested utilized electrostatic precipitation technology. Following the single-pass experiments, the HEPA filter was further evaluated to verify its effectiveness in reducing in-room PM levels. For the single-pass testing, the electrostatic precipitator (ESP) air cleaner displayed a pronounced minimum in filtration efficiency for particles - 0.2 diameter, consistent with the principles of electrostatic precipitation. Also, the single-pass efficiency of the ESP air cleaner was found to decrease with increasing flow rate through the unit, most likely due to the decreasing residence time of the particles in the charging and deposition zones of the collector. For the HEPA air cleaner, no noticeable effect of flow rate on the filtration efficiency of the unit was observed, but an unexpected drop in efficiency was observed for particles below 0.3 in diameter. This observation could possibly be explained by some probable leaks developed around the filter due to its relatively loose fit in the single-pass test apparatus. Both air cleaners' filtration efficiencies for particles with diameters smaller than approximately 0.04 were lower than expected. No difference in the air cleaners' filtration efficiencies was observed for the biological and inert aerosols having similar particle diameters.

If you want to learn how to make your own Non-Sew Homemade HEPA air filter Face Mask in 12 minutes and Protect Yourself from germs, this book is for you, keep reading.... You may have probably come across different directive on how to make a germ free face mask for your face but have you ask yourself if this materials lining are save enough to hinder micro passage of germs?. Step By Step Picture Illustrations To Make Your Own Face Mask Using Available HEPA Home Materials Most thought "HEPA face mask" can only be bought, some are very expensive, most are not available but are prepared for Medical personnel who oversee patient during this pandemic. Even if you haven't tried making any face mask before now .It's time to do the safest Non-Sew Homemade HEPA air filter Face Mask for maximum protection, hence the need for this information. Protecting yourself and family is your obligation and you are just right on your search. CHARLOTTE WILLIAM is a well-respected health therapist whose passion and publications in family healthcare and safety span across the United States .She has been able to influence several families with ample guide to improve healthy living. In this book, you will: Discover how to Make HEPA Face Masks and why they're so important and effective Discover the best fabric you will be able to make HEPA channel. Reasons why you should make your own face mask. Understand the usage of different types of Non-sew Face Mask Discover how to make the most effective type of homemade face mask using material at home. Learn why a filter material is essential and how to make it Learn how to use these 5 special materials using 5

different face mask pattern for sewing Learn about the secret advantages of a Face Mask And many more This book is detailed using practical guide with pictures to ensure you have completed, usable, washable long lasting DIY Non-Sew Homemade HEPA air filter Face Mask. Allow yourself the opportunity to engage with these mind blowing discoveries by getting this face mask book. MAKE YOUR NO-SEW HOME MADE "HEPA" AIR FILTER FACE MASK NOW Scroll to the top and select the buy now button!

Final Report on Evaluation of In-room Air Cleaners for Building Protection

A Thesis

Experimental Study of Shedding from ULPA/HEPA Air Filters

Reduction in Number of Airborne Bacteria by Air Cleaning Devices in a Closed Space

High Efficiency Particle Air (HEPA) Filter & Ultra Low Penetration Air (ULPA) Filter

A Primer on HEPA and Carbon Filtration

Background: The efficacy of the high-efficiency particle arresting (HEPA) air cleaner and its related health benefits have gotten some attention, yet the number of studies on this topic is still modest. Recently, a commercially-available "auto-mode" air cleaner has emerged on the market that adjusts the operating fan speed automatically depending on its built-in particulate matter (PM) sensor, which may improve real-world effectiveness since it doesn't rely on the user to adjust the air cleaner when they perceive the air is polluted. Objectives: We sought to assess the impact of auto-mode filtration on indoor PM exposure and cardiovascular health among healthy, non-smoking adults in an urban United States location. Methods: The study approach was a randomized, crossover 3-way air filtration intervention pilot study in the urban Seattle area from February 1 to March 29, 2019. Six non-smoking, healthy young adults were enrolled in the study, provided an air cleaner, and exposed to each of the three following intervention scenarios for 1 week (order of interventions randomized), with each one separated by a washout period of at least two weeks in duration: (1) a control period consisting of a sham filter installed in the air cleaner, (2) an intervention consisting of the air cleaner set to auto-mode filtration, and (3) an intervention in which participants were allowed to adjust the settings of the air cleaner. In all cases, the air cleaner was used in the participant's living room. Participants were asked to take two blood pressure measurements daily at 8 am and 8 pm. Indoor area PM_{2.5} monitoring was conducted in both the kitchen and the living room of each household using a continuous particle counter. Results: The indoor mean PM_{2.5} levels measured in the living room and the kitchen were significantly reduced by 5.05 [$\mu\text{g}/\text{m}^3$] (95% CI [-6.19, -3.91]; p

Microbial aerosols are known to be created and disseminated in dental operating rooms (DOR's) in quantities sufficient to raise the possibility of cross infection. The purpose of this study was to evaluate the effectiveness of high efficiency particulate air (HEPA) filters in reducing the concentration of air-borne microorganisms. Test were made in DOR's of 1600-, 1800-, and 3240-cu ft capacity with an 800-cfm HEPA filter unit. Concentrations of microorganisms were measured 4 times daily at approximately 2- to 3-hour intervals. Samples were taken in each DOR with 1-hour Reyniers air samplers drawing 1 cfm for 2 weeks without air filtration and then for 2 weeks with air filtration. In a DOR used for routine scaling with an ultrasonic instrument, the mean microbial air count of 21 viable particles (VP)/cu ft without air filtration was reduced 90 percent when the air was filtered. In this DOR, peak recoveries of 185 VP/cu ft without air filtration

were reduced 84 percent when the air was filtered. Bacteria recovered during peak periods were predominantly alpha-hemolytic streptococci of the viridans group. In two DOR's used only for routine operative dentistry, microbial air counts were lower, with mean values of 3-8 VP/cu ft and peak values of 8-26 VP/cu ft without air filtration. These concentrations were reduced 65 percent when the air was filtered. It was concluded that under normal working conditions an 800-cfm HEPA filter unit is effective in reducing the concentration of airborne microorganisms in a DOR by about 70 percent.

Asthma is one of the most important diseases affecting our society. It is an extremely common condition that reduces quality of life, and acute exacerbations can be life-threatening. It affects a disproportionate number of children. With the overwhelming volume of research being carried out in this field specialists need a method of keeping up-to-date with current opinion. As with the other 'Challenges' books, 'Challenges in Asthma' is aimed at hospital specialists and therefore assumes a certain level of knowledge about the disease. It builds on this by discussing only areas of controversy and uncertainty in both the basic understanding of asthma and its management. An international author list will provide stimulating debate with, and ultimately draw some conclusions from, existing data which will benefit readers in their day-to-day practice.

Solutions for Dioctyl Phthalate (DOP) Tested High Efficiency Particulate Air (HEPA) Filters Destined for Disposal at Hanford, Washington

High-efficiency Particulate Air (HEPA) Filter Performance Following Service and Radiation Exposure

Treatment of Laboratory Air by Scrubber and High Efficiency Particulate Air (HEPA) Filtration

No-Sew Home Made "hepa" Air Filter Face Mask

Routledge Handbook of Resilient Thermal Comfort

Usps Air Filtration Systems Need More Testing and Cost Benefit Analysis Before Implementation

Stress induced electrical charges, action potential and electret behavior of bone, muscles, skin and nerve cells have been known for some time. Electrically Active Materials for Medical Devices builds on this knowledge and encourages readers to understand and exploit electrical activity in biomaterials from native, derived, or completely synthetic origin, or a combination thereof. It presents data and insights from both historic and contemporary research that spans over six decades with a view to generate convergence of interdisciplinary knowledge and skills. Divided into four parts, this book first introduces the reader to a general overview of electrically active materials in biology and biomedical science and describes important concepts and pioneering discoveries. The second part discusses common types of materials that are known to generate electrical activity and lays the foundation for these materials for use in medical devices. The third part gives examples of where electrically active materials have been examined for device application. The final part looks for upcoming and emerging concepts, tools and methodologies that are expected to shape the future profile of this field of

converging science. Written by specialists in their respective fields, it has been specifically targeted at a readership of professionals, graduate students and researchers in the fields of biomedical engineering, physics, chemistry biology and clinical medicine.

A Phase I aging assessment of high-efficiency particulate air (HEPA) filters and activated carbon gas adsorption units (adsorbers) was performed by the Pacific Northwest Laboratory (PNL) as part of the US Nuclear Regulatory Commission's (NRC) Nuclear Plant Aging Research (NPAR) Program. Information concerning design features; failure experience; aging mechanisms, effects, and stressors; and surveillance and monitoring methods for these key air-treatment system components was compiled. Over 1100 failures, or 12 percent of the filter installations, were reported as part of a Department of Energy (DOE) survey. Investigators from other national laboratories have suggested that aging effects could have contributed to over 80 percent of these failures.

Tensile strength tests on aged filter media specimens indicated a decrease in strength. Filter aging mechanisms range from those associated with particle loading to reactions that alter properties of sealants and gaskets. Low radioiodine decontamination factors associated with the Three Mile Island (TMI) accident were attributed to the premature aging of the carbon in the adsorbers. Mechanisms that can lead to impaired adsorber performance include oxidation as well as the loss of potentially available active sites as a result of the adsorption of pollutants. Stressors include heat, moisture, radiation, and airborne particles and contaminants.

Fundamentals of Air Cleaning Technology and Its Application in Cleanrooms sets up the theoretical framework for cleanrooms. New ideas and methods are presented, which include the characteristic index of cleanrooms, uniform and non-uniform distribution characteristics, the minimum sampling volume, a new concept of outdoor air conditioning and the fundamentals of leakage-preventing layers. Written by an author who can look back on major scientific achievements and 50 years of experience in this field, this book offers a concise and accessible introduction to the fundamentals of air cleaning technology and its application. The work is intended for researchers, college teachers, graduates, designers, technicians and corporate R&D personnel in the field of HVAC and air cleaning technology. Zhonglin Xu is a senior research fellow at China Academy of Building Research.

Electrically Active Materials for Medical Devices

Biological Risk Engineering Handbook

Phase I Characterization of the HEPA (High Efficiency Particulate Air) Filter Media Used in the Airborne Activity Confinement System at the Savannah River Site

***What to Do When the Doctor Says Its Asthma
Preparing for the Next Disease Outbreak: Workshop Summary
Life and Breath***

Reverse your negative health trajectory and start the journey towards healing and resilient health with Palmer Kippola's groundbreaking plan to erase the effects of autoimmune disease. "An empowering and actionable guidebook that simplifies the steps back to health. Highly recommended!" —Izabella Wentz, PharmD, FASCP and #1 New York Times bestselling author of Hashimoto's Protocol Palmer Kippola is on a mission to make autoimmune disease history. When she was diagnosed with Multiple Sclerosis at age 19, she began a journey toward healing that resulted in a complete reversal of her symptoms. Now, with the help of leading medical experts, including renowned specialists in immunology and longevity from UCLA and Stanford medical schools, as well as leading practitioners in the field of autoimmunity and functional medicine, Kippola wants to help you find freedom from disease too. This comprehensive book is the first to explore all six of the critical lifestyle factors that are the root causes of autoimmune conditions—and the sources of regaining health: * Discover the foods that can trigger disease as well as healthy solutions to fit your personal nutritional profile *Explore the impact of common, often-undiagnosed infections and ways to optimize your immunity naturally *Learn how gut health is the key to recovery *Gain insight on how hormone imbalances can disrupt healing and how to assess your hormone levels *Eliminate environmental toxins in your home and body, and learn how to live a detox lifestyle *Reduce stress and build resilience Drawing on her own inspiring return to resilient health, as well as the healing stories of a dozen medical doctors and practitioners, plus years of research with autoimmune experts, Palmer Kippola gives readers the tools to beat autoimmune disease—and the hope that relief and healing are possible. "An excellent resource for those who want to use an integrative and functional medicine approach to support their healing journey!" —Terry Wahls, MD, author of The Wahls Protocol: A Radical New Way to Treat All Chronic Autoimmune Conditions Using Paleo Principles

A need for reducing the concentration of microorganisms in the air of dental operatories has been assumed. The purpose of this study was to evaluate the effectiveness of two methods of air cleaning in reducing the number of airborne bacteria in a closed space. Tests for clearance of Bacillus subtilis spores from static and dynamic aerosols were conducted in a 700 cu ft experimental room. The air cleaning devices were a portable electronic air cleaner with a capacity of 175 cfm (tested in combinations of one, two, and three) and a high efficiency particulate air (HEPA) filter module with a capacity of 800 cfm (tested singly and as a pair). Both devices cleaned and circulated room air only. The time required for complete clearance of spores from a static aerosol decreased as air capacity increased, from an average of 19 minutes at 175 cfm to 8 minutes at 800 cfm. With forced ventilation at 800 cfm, an average of 5 minutes was required. When a dynamic aerosol was disseminated over a 10-minute period, spore concentrations plateaued after several minutes, the level depending on the rate of air flow through the cleaning devices. Cleaning efficiency was maximum when the theoretical turnover of room air occurred once every 1 1/2 to 2 minutes. No difference was observed between the efficiency of the electronic and HEPA devices. Forced ventilation at 800 cfm produced results comparable to those of HEPA filtration at the same rate.

Provides uniform inspection procedures & guidelines to be followed when conducting inspections & issuing citations under Section 5 (a) (1) of the OSH Act & pertinent standards for employees who are occupationally exposed to tuberculosis. Appendix A includes detailed guidelines for preventing the transmission of Mycobacterium Tuberculosis to health-care workers, patients, volunteers, visitors & others in health-care

facilities. Appendix B describes the smoke-trail testing method for negative pressure isolation room. Charts, tables & diagrams. Glossary.

High Efficiency Air Filters (HEPA and ULPA). Part 3, Testing Flat Sheet Filter Media

Asthma

Viral Penetration of High Efficiency Particulate Air (HEPA) Filters

Air Cleaning Systems Analysis and HEPA Filter Response to Simulated Tornado Loadings. [TVENT].

ALTERNATE HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTRATION SYSTEM.

Biosafety in Microbiological and Biomedical Laboratories

Following the anthrax attacks of October 2001, the United States Postal Service (USPS) has started to look at various options that could be implemented in the event of another bioterror attack. The high-efficiency particulate air (HEPA) filtration system is being used as a prototype at two facilities and is planned for implementation throughout the country. HEPA filtering is the state-of-the-art technology for the removal of particulate biohazards and other particles of micron-sized range. The USPS has adequately tested the HEPA filtration system to confirm that it will meet its intended purpose of trapping anthrax spores and its secondary purpose of cleaning the mail processing equipment. USPS's testing has not shown conclusively (1) the HEPA filtration system's ability to trap released hazards and other contaminants, and (2) what level of hazards or contaminants could be released into the mail processing environment as a result of the air filtration system's design. Furthermore, USPS has not verified through testing that the air filtration system will not interfere with the air sampling and detection equipment. Even though HEPA filtration systems could reduce the risk of exposure to biohazards, they may negate the benefits of other technologies being used by USPS to protect its employees and customers in the event of another anthrax attack. Finally, the design and installation of a HEPA filtration system requires custom modification to USPS equipment nationwide and will likely cost more than USPS currently spends on its Emergency Preparedness Plan.

This book reveals the category and source of air contaminants in the air, compares the airworthiness regulation between current standards on cabin air quality, demonstrates the possible procedures for HEPA filter selection for aircraft in the initial stages, summarizes and analyzes the major air purification methods and research of future air filter modification strategies to reduce cabin contaminants. Retrospective studies on contaminants in aircraft cabin air emerge that the cabin might not be as clean as manufacturers claim, also compulsory regulations on aircraft cabin air should be issued by airworthiness certification authorities. Aircraft environmental control system on air quality purification showed that HEPA filter installed in recirculation air is the dominant way to purify cabin recirculation air among current aircraft. Further research on the mechanism of HEPA filtration will provide a better understanding of air filtration.

In January 1992, Argonne National Laboratory East, Environmental and Waste Management Program, learned that a significant amount of material used for testing of all HEPA filters at the primary source, Flanders Filter, Inc. in Washington, NC, was considered

hazardous chemical by Washington State Dangerous Waste Regulations. These regulations are under the jurisdiction of the Washington Administration Code, Chapter 173-303, and therefore directly under impact the Hanford Site Solid Waste Management Criteria. Dioctyl Phthalate, DOP" as it is referred to in chemical abbreviation form, is added in small test quantities at three Department of Energy (DOE) operated HEPA filter test facilities, and in the installed duct work at various operating laboratories or production facilities. When small amounts of radioactivity are added to the filter media in operation, the waste is classified as mixed waste. This definition would normally only develop in the state of Washington since their acceptance criteria are more stringent than the US Environmental Protection Agency's (US EPA). Methods of Processing will be discussed, which include chemical detoxification, physical separation, heat and vacuum separation, and compaction. The economic impact of a mixed waste in the State of Washington, and an Low Level Waste (LLW) definition in other locations, may lend this product to be a candidate for commercial disposal in the future, or a possible de-listing by the State of Washington.

Fundamentals of Air Cleaning Technology and Its Application in Cleanrooms
Introduction to Deconstruction - Textbook (Oregon State Edition)

Beat Autoimmune

Enforcement Procedures And Scheduling For Occupational Exposure To Tuberculosis

Aging Assessment of Nuclear Air-treatment System HEPA Filters and Adsorbers. Volume 1, Phase 1
Classification, Construction and Performance

A computer code, TVENT, for predicting tornado-induced depressurization in air cleaning systems is described. TVENT easily fits on many computers with input/output formats that are familiar to most analysts and HVAC designers.

Applications of TVENT to several nuclear facilities in Idaho, New York, and New Mexico are described. Flow-resistance data of HEPA filters for use in TVENT are also described. At low flow resistance appears to be mainly caused by a diffusion mechanism, while at high flow the resistance seems to be caused by the mechanism of momentum exchange.

Learning from SARS Preparing for the Next Disease Outbreak: Workshop Summary National Academies Press

The emergence of severe acute respiratory syndrome (SARS) in late 2002 and 2003 challenged the global public health community to confront a novel epidemic that spread rapidly from its origins in southern China until it had reached more than 25 other countries within a matter of months. In addition to the number of patients infected with the SARS virus, the disease had profound economic and political repercussions in many of the affected regions. Recent reports of isolated new SARS cases and a fear that the disease could reemerge and spread have put public health officials on high alert for any indications of possible new outbreaks. This report examines the response to SARS by public health systems in individual countries, the biology of the SARS coronavirus and related coronaviruses in animals, the economic and political fallout of the SARS epidemic, quarantine law and other public health measures that apply to

combating infectious diseases, and the role of international organizations and scientific cooperation in halting the spread of SARS. The report provides an illuminating survey of findings from the epidemic, along with an assessment of what might be needed in order to contain any future outbreaks of SARS or other emerging infections.

Enforcement Procedures and Scheduling for Occupational Exposure to Tuberculosis

Bringing Order from Chaos

Critical Debates

High Efficiency Air Filters (HEPA and ULPA). Determining the Efficiency of Filter Element

Learning from SARS

Commercial Aircraft Air Purification Design

Air filters, Air cleaning equipment, Filters, Efficiency, Performance, Air-conditioning systems, Air-conditioning equipment, Ventilation, Air purification, Controlled-atmosphere rooms, Particulate air pollutants, Particulate materials, Counting, Classification systems, Grading (quality), Test equipment

High Efficiency Particulate Air (HEPA) filters are the primary technology used for particulate removal in many individual and collective protection applications. HEPA filters are commonly thought to be impenetrable to particulate matter, but in fact they are only 99.97% efficient at collecting the most penetrating particle (~ 0.2 micrometer). While this is an impressive collection efficiency, HEPA filters may be vulnerable to certain types of threats: Viruses are submicron in size and most have very small minimum infectious doses (MID). Therefore, an appropriate viral challenge will yield penetration that exceeds the MID, for many of the threat agent viruses. Nonetheless, the overall particle size (agglomerated viruses and/or viruses attached to inert carriers) will determine the capture efficiency by HEPA filters. Aerosolized viruses are commonly thought to exist as agglomerates, which would increase the particle size and render them more prone to capture. However many of the threat agent viruses can be highly agglomerated and still exist as submicron particles. Furthermore the stability of aggregates is not well understood, and they may break apart during filtration. We have demonstrated in our laboratory that biological aerosols of MS2 coli phage, a common viral simulant, can penetrate both Carbon HEPA Aerosol Canisters (CHAC) and flat sheet HEPA material. The penetration is linear over time, thus viral penetration exceeding the MID is expected to occur in minutes following a viral challenge. We are currently investigating the particle size of the MS2 coli phage aerosol and our aim is to shift the particle size to see what effect it has on penetration. Furthermore, we are evaluating the penetration characteristics of a mammalian virus, which may better represent the threat agent viruses.