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Industrial Ventilation A Manual of Recommended Practice for Design, 29th Edition *Industrial Ventilation A Manual of Recommended Practice American Conference of Governmental Industrial Hygienists* **Ventilation for Control of the Work Environment** *John Wiley & Sons* The second edition of **Ventilation Control of the Work Environment** incorporates changes in the field of industrial hygiene since the first edition was published in 1982. Integrating feedback from students and professionals, the new edition includes problems sets for each chapter and updated information on the modeling of exhaust ventilation systems, and thus assures the continuation of the book's role as the primary industry textbook. This revised text includes a large amount of material on HVAC systems, and has been updated to reflect the changes in the **Ventilation Manual** published by ACGIH. It uses both English and metric units, and each chapter concludes with a problem set. **Handbook of Ventilation for Contaminant Control** *Butterworth-Heinemann* **Quick Selection Guide to Chemical Protective Clothing** *John Wiley & Sons* **Quick Selection Guide to Chemical Protective Clothing** provides the reader with the latest information on Selection, Care and Use of Chemical Protective garments and gloves. Topics in the widely-used reference guide include Selection and Use of Chemical Protective Clothing, Chemical Index, Selection Recommendations, Glossary, Standards for Chemical Protective Clothing, Manufactures of Chemical Protective Clothing and European requirements for chemical resistant gloves. The key feature of the book is the color-coded selection recommendations. The red, yellow or green indications are highly appreciated by the users. This sixth edition of the **Quick Selection Guide to Chemical Protective Clothing** has been updated, to include approximately 1,000 chemicals/chemical brands or mixture of chemicals more than twice the information provided in the original edition. The performance of 9 generic materials and 32 proprietary barriers are compared against the 21 standard test chemicals listed in ASTM F1001. The color-coded recommendations against the broader list of materials now contain 27 representative barrier materials. This best selling pocket guide is the an essential field source for HazMat teams, spill responder, safety professionals, chemists and chemical engineers, industrial hygienists, supervisors, purchase agents, salespeople and other users of chemical protective clothing. **Industrial Ventilation A Manual of Recommended Practice for Operation and Maintenance** *Amer Conf of Governmental* **Dust Control Handbook for Industrial Minerals Mining and Processing** *CreateSpace* Throughout the mining and processing of minerals, the mined ore undergoes a number of crushing, grinding, cleaning, drying, and product sizing operations as it is processed into a marketable commodity. These operations are highly mechanized, and both individually and collectively these processes can generate large amounts of dust. If control technologies are inadequate, hazardous levels of respirable dust may be liberated into the work environment, potentially exposing workers. Accordingly, federal regulations are in place to limit the respirable dust exposure of mine workers. Engineering controls are implemented in mining operations in an effort to reduce dust generation and limit worker exposure. **A Strategy for Assessing and Managing Occupational Exposures** *AIHA* **Fundamentals of Industrial Hygiene** *National Safety Council* **Hemeon's Plant & Process Ventilation, Third Edition** *CRC Press* Industrial hygienists and ventilation engineers know the name well: W.C.L. Hemeon. Since 1955, those professionals have frequently looked to Hemeon's **Plant & Process Ventilation** for essential information on industrial ventilation. Hemeon's longtime influence and inspiration has now prompted D. Jeff Burton-a prolific author on industrial ventilation himself-to produce a Fourth Edition of "the classic industrial ventilation text." While retaining Hemeon's distinctive writing style, conveying practical information in vivid phrasing, Burton has added extensive new information to recognize today's technology and techniques. Essential fundamentals of ventilation covered in the book include an explanation about the dynamic properties of airborne contaminants, and the principles of dispersion mechanism and local exhaust. Advanced applications are also examined in detail, particularly system design, dust control, and troubleshooting. Along with providing essential background on the two primary types of workplace ventilation-general and local exhaust-Hemeon's **Plant & Process Ventilation** also aims for mutual understanding between the health-oriented priorities of industrial hygienists, and the practical applications for maximum efficiency considered by ventilation engineers. Have a well-thumbed, dog-eared copy of Hemeon's **Plant & Process Ventilation**? Now is the best time to retire it in favor of this revised-and respectful-edition. Those who are new to Hemeon's approach will discover what other professionals have known more than 40 years: Hemeon offers some of the most effective ways to control environmental contaminates through proper ventilation techniques. **Industrial Ventilation A Self-directed Learning Workbook** *I V E, Incorporated* **Industrial Safety and Health Management** *Prentice Hall* **Industrial Safety And Health Management** is ideal for senior/graduate-level courses in Industrial Safety, Industrial

Engineering, Industrial Technology, and Operations Management. It is useful for industrial engineers. Unique in approach, *Industrial Safety and Health Management, 6th Edition* combines — in one volume — an exploration of the time-tested concepts and techniques of safety and health management, a modern perspective on compliance with mandatory standards for workplace safety and health, and a variety of solved problems, case studies, and exercises. It provides reasons, explanations, and illustrations of the hazard mechanisms that form the underlying basis for the volumes of detailed standards for workplace safety and health. The new edition focuses on more of the real issues future safety and health practitioners will encounter, such as dealing with enforcement, protecting workers from ergonomic hazards, and accommodating the latest advances in process technology. *An Identification System for Occupationally Hazardous Materials A Recommended Standard Criteria for a Recommended Standard: Occupational Exposure to Crystalline Silica American National Standard for Laboratory Ventilation AIHA WHO Guidelines for Indoor Air Quality Selected Pollutants World Health Organization* 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. *ASHRAE Laboratory Design Guide Planning and Operation of Laboratory HVAC Systems Ashrae* "Reference manual for planning, design, and operation of laboratory HVAC systems to reduce the laboratory's energy footprint while ensuring safety, providing good comfort and indoor air quality, and protecting the integrity of experiments; includes online access to electronic design tools that illustrate features of laboratories and provide practical design aids"-- *Cal/OSHA Pocket Guide for the Construction Industry* The Cal/OSHA Pocket Guide for the Construction Industry is a handy guide for workers, employers, supervisors, and safety personnel. This latest 2011 edition is a quick field reference that summarizes selected safety standards from the California Code of Regulations. The major subject headings are alphabetized and cross-referenced within the text, and it has a detailed index. Spiral bound, 8.5 x 5.5" *Hazardous Chemicals Handbook Elsevier* Summarizes core information for quick reference in the workplace, using tables and checklists wherever possible. Essential reading for safety officers, company managers, engineers, transport personnel, waste disposal personnel, environmental health officers, trainees on industrial training courses and engineering students. This book provides concise and clear explanation and look-up data on properties, exposure limits, flashpoints, monitoring techniques, personal protection and a host of other parameters and requirements relating to compliance with designated safe practice, control of hazards to people's health and limitation of impact on the environment. The book caters for the multitude of companies, officials and public and private employees who must comply with the regulations governing the use, storage, handling, transport and disposal of hazardous substances. Reference is made throughout to source documents and standards, and a Bibliography provides guidance to sources of wider ranging and more specialized information. Dr Phillip Carson is Safety Liaison and QA Manager at the Unilever Research Laboratory at Port Sunlight. He is a member of the Institution of Occupational Safety and Health, of the Institution of Chemical Engineers' Loss Prevention Panel and of the Chemical Industries Association's 'Exposure Limits Task Force' and 'Health Advisory Group'. Dr Clive Mumford is a Senior Lecturer in Chemical Engineering at the University of Aston and a consultant. He lectures on several courses of the Certificate and Diploma of the National Examining Board in Occupational Safety and Health. [Given 5 star rating] - *Occupational Safety & Health, July 1994 - Loss Prevention Bulletin, April 1994 - Journal of Hazardous Materials, November 1994 - Process Safety & Environmental Prot., November 1994 NIOSH Respirator Decision Logic Air Pollution Monitoring, Quantification and Removal of Gases and Particles BoD - Books on Demand* Currently, one of the most evident and dangerous contaminants aspects for the health of all living beings is air pollution. To understand the severity of this environmental problem, in this book the authors make an in-depth review of different environmental aspects on monitoring, quantification and elimination of emissions to the atmosphere, generated by diverse anthropogenic activities in large cities. Contributors of this book have made an effort to put their ideas in simple terms without forgoing quality. The principal objective of this book is to present the most recent technical literature to all interested readers in this field. *Bioaerosols Assessment and Control Amer Conf of Governmental* Expanding far beyond its predecessor, this text offers a comprehensive guide to the assessment and control of bioaerosols in the full range of contemporary workplaces. Although the indoor environment remains a focus of concern, much of the information in this publication has application beyond office environments. The prominence of saprophytic microorganisms remains; however, more attention has been given to other important biological agents (e.g., arthropod and animal allergens, infectious agents, and microbial volatile organic compounds). In addition, fuller descriptions are provided for microbial toxins and cell wall components that may cause health effects *Controlling Airborne Contaminants at Work A Guide to Local Exhaust Ventilation (LEV) Supersedes previous edition (ISBN 9780717664153) Safety and Health in Confined Workspaces - for the Construction Industry A Training Resource Manual* "The NIOSH training resource manual concerning safety and health in confined workspaces is presented. The manual is intended to provide contractors and others in the construction industry with an understanding of safety and health associated with confined workspaces and the safeguards necessary to minimize hazards. Accidents in confined spaces are considered. Responsibilities for safety and health in confined workspaces are discussed. Essential processes in a confined workspace hazard control program are considered. The characteristics of confined workspaces in the construction industry are examined. An analysis of confined workspace accidents is presented. Preliminary steps for entry into confined

workspaces are noted. Safe entry permits are illustrated. Workspace testing and monitoring are discussed. Atmospheric test procedures and instrumentation are described. Ventilation of confined workspaces is examined. Fire and fire protection are discussed. The physiological aspects of work in confined spaces are considered. Noise is discussed. Personal protective equipment, safety equipment, and safe practices are cited."--NIOSH-2. Air Pollution Engineering Manual Management of Legionella in Water Systems *National Academies Press* Legionnaires' disease, a pneumonia caused by the Legionella bacterium, is the leading cause of reported waterborne disease outbreaks in the United States. Legionella occur naturally in water from many different environmental sources, but grow rapidly in the warm, stagnant conditions that can be found in engineered water systems such as cooling towers, building plumbing, and hot tubs. Humans are primarily exposed to Legionella through inhalation of contaminated aerosols into the respiratory system. Legionnaires' disease can be fatal, with between 3 and 33 percent of Legionella infections leading to death, and studies show the incidence of Legionnaires' disease in the United States increased five-fold from 2000 to 2017. Management of Legionella in Water Systems reviews the state of science on Legionella contamination of water systems, specifically the ecology and diagnosis. This report explores the process of transmission via water systems, quantification, prevention and control, and policy and training issues that affect the incidence of Legionnaires' disease. It also analyzes existing knowledge gaps and recommends research priorities moving forward. Industrial-Occupational Hygiene Calculations A Professional Reference Professional reference for industrial-occupational professionals. Used as a reference for currently practicing occupational/industrial hygienist professionals or those seeking certification/registration as CIH or ROH. Introduction to Industrial Energy Efficiency Energy Auditing, Energy Management, and Policy Issues *Academic Press* Introduction to Industrial Energy Efficiency: Energy Auditing, Energy Management, and Policy Issues offers a systemic overview of all key-aspects involved in improving industrial energy efficiency in various industry sectors. It is organized in three parts, each dealing with a particular perspective needed to form a complete view of related issues. Sections focus on energy auditing and improved energy efficiency of companies from a predominantly technical perspective, shed light on energy management and factors that hinder or drive the adoption of energy efficiency practices in the manufacturing industry, and explore energy efficiency policy instruments and how they are designed, implemented and evaluated. Practicing engineers in the field of energy efficiency, engineering and energy researchers coming into the field, and graduate students will find this book to be an invaluable reference on the fundamental knowledge they need to get started in this area. Provides, in one volume, a comprehensive overview of energy systems efficiency and management that is applied to various industrial processes Explores operational measures for improvement, including case studies from varying countries and sectors Discusses the barriers to, and driving forces for, improving energy efficiency in industrial settings, including technical, behavioral, organizational and policy aspects The Construction Chart Book The U.S. Construction Industry and Its Workers *Cpwr - The Center for Construction Research and Training* The Construction Chart Book presents the most complete data available on all facets of the U.S. construction industry: economic, demographic, employment/income, education/training, and safety and health issues. The book presents this information in a series of 50 topics, each with a description of the subject matter and corresponding charts and graphs. The contents of The Construction Chart Book are relevant to owners, contractors, unions, workers, and other organizations affiliated with the construction industry, such as health providers and workers compensation insurance companies, as well as researchers, economists, trainers, safety and health professionals, and industry observers. Dust Control Handbook *William Andrew* Consolidates information developed by industry and government laboratories on dust control engineering techniques. Designed for the minerals processing industry, the technology applies to other industries as well. Dust, its prevention, formation and control are examined, including wet and dry control systems, personal protection, and testing methods. Quantitative Industrial Hygiene A Formula Workbook *Amer Conf of Governmental* Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities *CreateSpace* In the past decade, industry, government, and the general public have become increasingly aware of the need to respond to the hazardous waste problem, which has grown steadily over the past 40 years. In 1980, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) -- the Superfund law-to provide for "liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and the cleanup of inactive waste disposal sites." This manual is a guidance document for managers responsible for occupational safety and health programs at inactive hazardous waste sites. It assumes a basic knowledge of science and experience in occupational safety and health. It is the product of a four-agency committee (the National Institute for Occupational Safety and Health [NIOSH], the Occupational Safety and Health Administration [OSHA], the U.S. Coast Guard [USCG], and the U.S. Environmental Protection Agency [EPA]) mandated by CERCLA section 301(f) to study the problem of protecting the safety and health of workers at hazardous waste sites, and by CERCLA section 111(c)(6) to develop a program to protect the health and safety of employees involved in response to hazardous substance releases, removals, or remedial actions. This manual is intended for federal, state, and local officials and their contractors. It may be used: As a planning tool by government or private individuals; As a management tool by upper level or field managers; As an educational tool to provide a comprehensive overview of all aspects of safety and health protection at hazardous waste sites; As a reference document for site personnel who need to review important aspects of health and safety. This document is not a detailed industrial hygiene textbook or a comprehensive source book on occupational safety and health. It provides general guidance and should be used as a preliminary basis for developing a specific health and safety program. The appropriateness of the information presented should always be evaluated in light of site-specific conditions. Other sources and experienced individuals should be consulted as necessary for the detail needed to design and implement occupational safety and health programs at specific hazardous waste sites. CIH EXAM Equations

Simply Explained and with Examples About the Book: "CIH EXAM Equations simply explained and with examples" was written in an easy-to-understand manner for the young professional studying for the certified industrial hygienist (CIH) exam to help them understand the fundamental units used in the exams' formulas and grasp the basic concepts of the calculations by rigorous explained examples. "CIH EXAM Equations explained and with examples" can also assist safety and environmental professionals in their daily work and decision-making process. About the Author: Dr. Daniel Farcas has more than 20 years of experience in conducting scientific research and leading production teams in a variety of fields, including public health, infection control, nanotechnology, microbiology, silica, and asbestos. He is author or co-author of numerous scientific manuscripts in peer-reviewed journals. Dr. Daniel Farcas is a Certified Industrial Hygienist (CIH) CP #11723, a Certified Safety Professional (CSP) #36048, and a Certified Hazardous Materials Manager (CHMM) #24712. To learn more about Dr. Daniel Farcas work and research in industrial hygiene, please visit: www.DanielFarcas.com

Industrial Hygiene Control of Airborne Chemical Hazards, Second Edition *CRC Press* Are you a practicing occupational hygienist wondering how to find a substitute organic solvent that is safer to use than the hazardous one your company is using? Chapter 6 is your resource. Are you a new hygienist looking for an alternative technology as a nonventilation substitute for an existing hazard? Chapter 8 is your resource. Are you looking for an overview of ventilation? Chapters 10 and 11 are your resource? Are you an industrial hygiene student wanting to learn about local exhaust ventilation? Chapters 13 through 16 are your resource. Are you needing to learn about personal protective equipment and respirators? Chapters 21 and 22 are your resources. This new edition brings all of these topics and more right up-to-date with new material in each chapter, including new governmental regulations. While many of the controls of airborne hazards have their origins in engineering, this author has been diligent in explaining concepts, writing equations in understandable terms, and covering the topics of non-ventilation controls, both local exhaust and general ventilation, and receiver controls at the level needed by most IHs without getting too advanced. Taken as a whole, this book provides a unique, comprehensive tool to learn the challenging yet rewarding role that industrial hygiene can play in controlling airborne chemical hazards at work. Most chapters contain a set of practice problems with the solutions available to instructors. Features

- Written for the novice industrial hygienist but useful to prepare for ABIH certification
- Explains engineering concepts but requires no prior engineering background
- Includes specific learning goals that differentiate the depth of learning appropriate to each topic within the fuller information and explanations provided for each chapter
- Contains updated governmental regulations and abundant references
- Presents a consistent teaching philosophy and approach throughout the book
- Deals with both ventilation and non-ventilation controls

HVAC Air Duct Leakage Test Manual 2nd Ed Emergency and Continuous Exposure Guidance Levels for Selected Submarine Contaminants *National Academies Press* U.S. Navy personnel who work on submarines are in an enclosed and isolated environment for days or weeks at a time when at sea. To protect workers from potential adverse health effects due to those conditions, the U.S. Navy has established exposure guidance levels for a number of contaminants. In this latest report in a series, the Navy asked the National Research Council (NRC) to review, and develop when necessary, exposure guidance levels for 11 contaminants. The report recommends exposure levels for hydrogen that are lower than current Navy guidelines. For all other contaminants (except for two for which there are insufficient data), recommended levels are similar to or slightly higher than those proposed by the Navy. The report finds that, overall, there is very little exposure data available on the submarine environment and echoes recommendations from earlier NRC reports to expand exposure monitoring in submarines.

Guidelines for Laboratory Design Health, Safety, and Environmental Considerations *John Wiley & Sons* Proven and tested guidelines for designing ideal labs for scientific investigations Now in its Fourth Edition, **Guidelines for Laboratory Design** continues to enable readers to design labs that make it possible to conduct scientific investigations in a safe and healthy environment. The book brings together all the professionals who are critical to a successful lab design, discussing the roles of architects, engineers, health and safety professionals, and laboratory researchers. It provides the design team with the information needed to ask the right questions and then determine the best design, while complying with current regulations and best practices. **Guidelines for Laboratory Design** features concise, straightforward advice organized in an easy-to-use format that facilitates the design of safe, efficient laboratories. Divided into five sections, the book records some of the most important discoveries and achievements in:

- Part IA, Common Elements of Laboratory Design, sets forth technical specifications that apply to most laboratory buildings and modules
- Part IB, Common Elements of Renovations, offers general design principles for the renovation and modernization of existing labs
- Part II, Design Guidelines for a Number of Commonly Used Laboratories, explains specifications, best practices, and guidelines for nineteen types of laboratories, with three new chapters covering nanotechnology, engineering, and autopsy labs
- Part III, Laboratory Support Services, addresses design issues for imaging facilities, support shops, hazardous waste facilities, and laboratory storerooms
- Part IV, HVAC Systems, explains how to heat, cool, and ventilate labs with an eye towards energy conservation
- Part V, Administrative Procedures, deals with bidding procedures, final acceptance inspections, and sustainability

The final part of the book features five appendices filled with commonly needed data and reference materials. This Fourth Edition is indispensable for all laboratory design teams, whether constructing a new laboratory or renovating an old facility to meet new objectives.

Lees' Loss Prevention in the Process Industries Hazard Identification, Assessment and Control *Elsevier* Over the last three decades the process industries have grown very rapidly, with corresponding increases in the quantities of hazardous materials in process, storage or transport. Plants have become larger and are often situated in or close to densely populated areas. Increased hazard of loss of life or property is continually highlighted with incidents such as Flixborough, Bhopal, Chernobyl, Three Mile Island, the Phillips 66 incident, and Piper Alpha to name but a few. The field of Loss Prevention is, and continues to, be of supreme importance to countless companies, municipalities and governments

around the world, because of the trend for processing plants to become larger and often be situated in or close to densely populated areas, thus increasing the hazard of loss of life or property. This book is a detailed guidebook to defending against these, and many other, hazards. It could without exaggeration be referred to as the "bible" for the process industries. This is THE standard reference work for chemical and process engineering safety professionals. For years, it has been the most complete collection of information on the theory, practice, design elements, equipment, regulations and laws covering the field of process safety. An entire library of alternative books (and cross-referencing systems) would be needed to replace or improve upon it, but everything of importance to safety professionals, engineers and managers can be found in this all-encompassing reference instead. Frank Lees' world renowned work has been fully revised and expanded by a team of leading chemical and process engineers working under the guidance of one of the world's chief experts in this field. Sam Mannan is professor of chemical engineering at Texas A&M University, and heads the Mary Kay O'Connor Process Safety Center at Texas A&M. He received his MS and Ph.D. in chemical engineering from the University of Oklahoma, and joined the chemical engineering department at Texas A&M University as a professor in 1997. He has over 20 years of experience as an engineer, working both in industry and academia. New detail is added to chapters on fire safety, engineering, explosion hazards, analysis and suppression, and new appendices feature more recent disasters. The many thousands of references have been updated along with standards and codes of practice issued by authorities in the US, UK/Europe and internationally. In addition to all this, more regulatory relevance and case studies have been included in this edition. Written in a clear and concise style, *Loss Prevention in the Process Industries* covers traditional areas of personal safety as well as the more technological aspects and thus provides balanced and in-depth coverage of the whole field of safety and loss prevention. * A must-have standard reference for chemical and process engineering safety professionals * The most complete collection of information on the theory, practice, design elements, equipment and laws that pertain to process safety * Only single work to provide everything; principles, practice, codes, standards, data and references needed by those practicing in the field

Manuals Combined: Navy Air Force And Army Occupational Health And Safety - Including Fall Protection And Scaffold Requirements *Jeffrey Frank Jones* Over 2,900 total pages ... Contains the following publications: 1. NAVY SAFETY AND OCCUPATIONAL HEALTH PROGRAM MANUAL 2. NAVY SAFETY AND OCCUPATIONAL HEALTH (SOH) PROGRAM MANUAL FOR FORCES AFLOAT 3. DEPARTMENT OF THE NAVY (DON) FALL-PROTECTION GUIDE 4. Air Force Consolidated Occupational Safety Instruction 5. U.S. Army Corps of Engineers SAFETY AND HEALTH REQUIREMENTS Occupational Noise Exposure Criteria for a Recommended Standard *Createspace Independent Publishing Platform*

In the Occupational Safety and Health Act of 1970, Congress declared that its purpose was to assure, so far as possible, safe and healthful working conditions for every working man and woman and to preserve our human resources. In this Act, the National Institute for Occupational Safety and Health (NIOSH) is charged with recommending occupational safety and health standards and describing exposure concentrations that are safe for various periods of employment-including but not limited to concentrations at which no worker will suffer diminished health, functional capacity, or life expectancy as a result of his or her work experience. By means of criteria documents, NIOSH communicates these recommended standards to regulatory agencies (including the Occupational Safety and Health Administration [OSHA]) and to others in the occupational safety and health community. Criteria documents provide the scientific basis for new occupational safety and health standards. These documents generally contain a critical review of the scientific and technical information available on the prevalence of hazards, the existence of safety and health risks, and the adequacy of control methods. In addition to transmitting these documents to the Department of Labor, NIOSH also distributes them to health professionals in academic institutions, industry, organized labor, public interest groups, and other government agencies. In 1972, NIOSH published Criteria for a Recommended Standard: Occupational Exposure to Noise, which provided the basis for a recommended standard to reduce the risk of developing permanent hearing loss as a result of occupational noise exposure [NIOSH 1972]. NIOSH has now evaluated the latest scientific information and has revised some of its previous recommendations. The 1998 recommendations go beyond attempting to conserve hearing by focusing on preventing occupational noise-induced hearing loss (NIHL). This criteria document reevaluates and reaffirms the recommended exposure limit (REL) for occupational noise exposure established by the National Institute for Occupational Safety and Health (NIOSH) in 1972. The REL is 85 decibels, A-weighted, as an 8-hr time-weighted average (85 dBA as an 8-hr TWA). Exposures at or above this level are hazardous. By incorporating the 4000-Hz audiometric frequency into the definition of hearing impairment in the risk assessment, NIOSH has found an 8% excess risk of developing occupational noise-induced hearing loss (NIHL) during a 40-year lifetime exposure at the 85-dBA REL. NIOSH has also found that scientific evidence supports the use of a 3-dB exchange rate for the calculation of TWA exposures to noise. The recommendations in this document go beyond attempts to conserve hearing by focusing on prevention of occupational NIHL. For workers whose noise exposures equal or exceed 85 dBA, NIOSH recommends a hearing loss prevention program (HLPP) that includes exposure assessment, engineering and administrative controls, proper use of hearing protectors, audiometric evaluation, education and motivation, recordkeeping, and program audits and evaluations. Audiometric evaluation is an important component of an HLPP. To provide early identification of workers with increasing hearing loss, NIOSH has revised the criterion for significant threshold shift to an increase of 15 dB in the hearing threshold level (HTL) at 500, 1000, 2000, 3000, 4000, or 6000 Hz in either ear, as determined by two consecutive tests. To permit timely intervention and prevent further hearing losses in workers whose HTLs have increased because of occupational noise exposure, NIOSH no longer recommends age correction on individual audiograms.