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AGENDA

Hour 1 Bloodborne Pathogens

Hour 2 Hazard Communication

Hour 3 Personal Protective Equipment

Hearing Conservation

Respirator Requirements

OBJECTIVES

Who should attend:

Employers and employees who need some basic awareness of safety and health issues, newly appointed safety directors or safety committee members that have limited exposure to injury prevention strategies or safety requirements; or employers who need a refresher on a safety or health topic.

Students can earn a Safety Works for You Seminar Series completion card for attending six modules. The card will be sent the month following completion of the modules.

The Safety Works for You classes do not require follow-up activities in order to receive a completion certificate with continuing education credits.

Resources Available from the Division of Safety & Hygiene (DSH) Libraries

(800) 644-6292 (614) 466-7388

library@bwc.state.oh.us

www.ohiobwc.com

Safety training:

- Safety talks, outlines and scripts - DSH Safety leader's discussion guide, Training Center's One-hour safety presentations, reference books, web resources
- Videos – hundreds of safety and health topics
- Books and articles on training techniques

Machine and equipment safety:

- Safety standards (ANSI, NFPA, CGA)
- Books and articles on power presses, material handling equipment, lockout/tagout, etc.

Sample written programs:

- DSH program profiles and sample written programs
- Reference books
- Internet resources

Illness and injury statistics:

- Statistics from the U.S. Bureau of Labor Statistics
- National Safety Council's *Injury Facts*
- National Institute of Occupational Safety & Health (NIOSH) studies

Hazard communication and chemical safety:

- Chemical safety information
- Material safety data sheets (MSDSs)
- Sample written programs
- Videos
- Internet resources

Safety standards

- American National Standards Institute (ANSI) standards (including standards for construction, machinery and equipment, personal protective equipment)
- National Fire Protection Association (NFPA) fire codes (including the Life Safety Code and the National Electrical Code)
- Compressed Gas Association (CGA) standards

Other topics of interest (books, articles, magazines, videos and standards):

- Confined spaces
- Electrical safety
- Job safety analysis
- New employee orientation
- Powered industrial trucks
- Respiratory protection
- Safety culture
- Scaffolds

Directories and lists of vendors of safety equipment

Occupational Safety & Health Administration (OSHA) regulations

Manual of Uniform Traffic Control Devices (MUTCD)

Recommendations of useful Internet sites

BWC publications

**INTERNET WEB SITES
FOR
OCCUPATIONAL SAFETY & HEALTH INFORMATION
April 2005**

GENERAL

NATIONAL SAFETY COUNCIL (NSC)

<http://www.nsc.org/>

The NSC has a user friendly web site for innovative and current information on home, farm and community, on the road and workplace safety and as well statistical data and charts.

NORTH DAKOTA WORKFORCE SAFETY & INSURANCE

<http://www.workforcesafety.com/>

For workplace safety, North Dakota's WSI site puts forth their "safe operating procedures" page where they give information on accident and near miss reports, substance abuse, material handling and storage, walking and working surfaces, and safety program development and orientation.

OCCUPATIONAL & INDUSTRIAL SAFETY RESOURCES

<http://www.khake.com/page59.html>

Maintained by a Vocational Information Center, this web site provides links to occupational and industrial safety with lists of directories, national centers, hotlines and help lines as well as specific area coverage such as emergency, disaster and natural hazards, and tool, machine and equipment safety options.

OKLAHOMA STATE UNIVERSITY

<http://www.pp.okstate.edu/ehs/>

The Department of Environmental Health & Safety at OSU offers an online safety resource library that is constantly being updated with topics from A-Z including specific areas of safety such as fire, construction, HAZCOM and training. Go to the "Links Library" option.

SAFETY DIRECTORY

<http://www.safetydirectory.com/>

Safety Directory.com is an Internet gateway to occupational health & safety sites. This web site is indexed with information on industry specific topics, training, illness and injury, as well as safety publications and resources.

FEDERAL GOVERNMENT

CENTERS FOR DISEASE CONTROL & PREVENTION (CDC)

<http://www.cdc.gov/>

The CDC is always a good resource for current medical issues throughout the United States. Health topics from A-Z give an in-depth look at most communicable diseases as well as topics such as safe driving, violence, and air pollution, and workplace safety and health topics.

FEDERAL EMERGENCY MANAGEMENT ASSOCIATION (FEMA)

<http://www.fema.gov/>

For up-to-date information on active disasters and emergencies nationwide access this web site first. Publications include options for emergency preparedness and prevention, response and recovery, disaster fact sheets, and public awareness information.

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY & HEALTH (NIOSH)

<http://www.cdc.gov/niosh/homepage.html>

NIOSH's web site provides current information on many services as well as safety research, including ergonomics programs, respirators, and mining safety. At the chemical page you will find databases and other helpful resources, information on personal protective equipment, as well as government agency web sites of interest.

OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA)

<http://www.osha.gov>

OSHA'S official web site includes media releases, online publications, statistics, standards & directives, "Technical Links," training center courses, "hot topics," and "what's new" as well a very useful A-Z index page.

INTERNATIONAL RESOURCES

HEALTH & SAFETY EXECUTIVE (HSE)

<http://www.hse.gov.uk/>

The United Kingdom has an international safety web site with a good deal to offer on occupational safety & health. Drop down boxes offer A-Z industry information, health and safety topics, tools, research, as well as publications and statistics.

ERGNET

<http://www.sunderland.ac.uk/~ts0qli/ergnet.htm>

The University of Sunderland in the UK is an international web site directory of "places for ergonomics and human factors". Featuring lists of sources such as societies, organizations, government bodies, institutes, centers and laboratories, this site also gives links to journals, a research database and other general ergonomic sites.

OHIO

<http://www.epa.state.oh.us>

At the official web site for Ohio's Environmental Protection Agency; use the "Topic Index" to find regulations and information on permits, hazardous waste, pollution prevention, wastewater, wetlands, and much more.

OHIO STATE LIBRARY/OHIOLINK

<http://winslo.state.oh.us>

At **OhioLink**, a statewide library and information network, you can search the State Library of Ohio's collection for the BWC's Division of Safety & Hygiene library books as well as other Ohio College and university library collections. Also available at this web site are searchable versions of Ohio Administrative laws and rules, electronic databases, and other Ohio library directories.

SPECIFIC (BY SUBJECT)

CONSTRUCTION

<http://www.cdc.gov/elcosh/index.html>

CDC's **eLCOSH** is a comprehensive library of construction-related safety information presented in both English and Spanish with items listed under trade, hazard, job site, and others. Also see: The Construction Industry Safety Council, a Center to Protect Workers' Rights resource center at <http://www.buildsafe.org/RSC.htm> for OSHA publications in PDF and hazard alerts.

ERGONOMICS

<http://www.ergoweb.com>

ERGOWEB provides current information on ergonomics and human factor science. Offered are: research, case studies, reference material and a forum for questions, answers and discussion.

LABORATORY SAFETY

<http://safety.science.tamu.edu/>

Texas A&M University College of Science is an optional choice for safety in the laboratory information. From hazard identification to waste disposal this web site offers thorough coverage of laboratory safe practices.

MATERIAL SAFETY SHEETS

<http://www.ilpi.com/msds/index.html>

This web site offers many solutions for finding MSDS (100 free sites) as well as chemical manufacturers and suppliers, pesticides including fertilizers, government sites, and other miscellaneous locations for chemical data. Also check any toxicological effects at <http://www.atsdr.cdc.gov/toxprofiles/> and health and safety information on household chemical ingredients at <http://householdproducts.nlm.nih.gov/>.

MOTOR CARRIER SAFETY PROGRAMS

<http://www.fmcsa.dot.gov/safetyprogs/saftprogs.htm>

The Federal Motor Carrier Safety Administration (FMCSA), an administration within the U.S. Department of Transportation, regulates and supports the Nation's interstate commercial carrier industry. The FMCSA web page offers several safety programs in PDF format such as brake safety, fatigue, HAZMAT safety, speed management, sharing the road safely, and other insurance and licensing information.

RADIATION

<http://www.physics.isu.edu/radinf/>

The Radiation Information Network offers a web site that is in-depth with information on radiation topics and issues. In addition to what's new in the field and general information there are regulatory, organizational and society links as well as research and educational resources available to access.

SAFETY STATISTICS

<http://stats.bls.gov/>

Occupational health and safety statistics by industry and occupation can be researched for injuries, illnesses, and fatality data at this web site starting with the "Overview of BLS Statistics on Worker Safety and Health" page.

SAFETY BRIEFINGS, MANUALS, PRODUCTS & PROGRAMS

OSHA POWERPOINT SAFETY PRESENTATIONS

<http://esf.uvm.edu/siript/powerpt.html>

An extensive safety PowerPoint presentation library is available at this web site featuring A-Z topics such as accident investigations, bomb threats, chemical spills, construction, electrical, hand tools, emergency response, fire safety, forklifts, JSA, laser, OSHA compliance, PPE, razor knife safety, safe lifting, and many more.

SAFETY PUBLICATIONS & VIDEO RESOURCES

<http://www.cbs.state.or.us/external/osha/standards/pub.htm>

A valuable resource for safety resources, the Oregon State's Department of Consumer and Business Publications web site is packed with downloadable information. Areas covered are agriculture, asbestos abatement, occupational exposures, HAZCOM, HAZMAT, HAZWOPER, safety practices, writing manuals and programs, tools of the trade, workers' compensation and ergonomics.

Ohio Bureau of Workers' Compensation, Div. of Safety & Hygiene Library
 30 W. Spring St., L-3, Columbus, OH 43215-2256
 (800) 644-6292, press option 2 - 2
 (614) 466-7388/ (614) 644-9634 (fax)
 E-Mail: library@bwc.state.oh.us

Saving You Time and Research

Requests for copies of OSHA standards, information on starting a safety committee, a video on accident investigation techniques -- these are some of the thousands of inquiries BWC's Division of Safety & Hygiene (DSH) libraries receive each year.

DSH has two libraries to serve you:

- The central library in the William Green Building in downtown Columbus;
- The resource center and video library located at the Ohio Center for Occupational Safety and Health (OCOSH) in Pickerington.

Both libraries are open 8 a.m. to 4:45 p.m., Monday through Friday. Your need for information does not require a visit to the library. You can phone, fax, or e-mail your requests and receive a quick response.

The central library provides free information services on the topics of occupational safety and health, workers' compensation and rehabilitation.

The OCOSH resource center provides similar services for those who visit OCOSH for meetings and training center classes.

The video library offers an extensive collection of videotapes to supplement your organization's safety and health training program. It is a convenient and popular source for Ohio employers to borrow quality occupational safety- and health-related training aids.

Visit our Web site at **www.ohiobwc.com**.

Central library
30 W. Spring St., Third Floor
Columbus OH 43215-2256
1-800-OHIOBWC
(614) 466-7388
(614) 644-9634 (fax)
library@bwc.state.oh.us

OCOSH resource center
13430 Yarmouth Drive
Pickerington OH 43147
1-800-OHIOBWC
Resource center (614) 728-6464
Video library (614) 644-0018



What are bloodborne pathogens?

Bloodborne pathogens are infectious materials in blood that can cause disease in humans, including hepatitis B and C and human immunodeficiency virus, or HIV. Workers exposed to these pathogens risk serious illness or death.

What protections does OSHA's Bloodborne Pathogen standard provide?

The full text of OSHA's Bloodborne Pathogens standard, published in *Title 29 of the Code of Federal Regulations* 1910.1030, details what employers must do to protect workers whose jobs put them at a reasonable risk of coming into contact with blood and other potentially infectious materials. The standard requires employers to do the following:

- Establish an exposure control plan. This is a written plan to eliminate or minimize employee exposures. Employers must update the plan annually to reflect technological changes that will help eliminate or reduce exposure to bloodborne pathogens. In the plan, employers must document annually that they have considered and implemented safer medical devices, if feasible, and that they have solicited input from frontline workers in identifying, evaluating, and selecting engineering controls.
- Use engineering controls. These are devices that isolate or remove the bloodborne pathogen hazard from the workplace. They include sharps disposal containers, self-sheathing needles, and safer medical devices such as sharps with engineered sharps-injury protection and needleless systems.
- Enforce work practice controls. These are practices that reduce the likelihood of exposure by changing the way a task is performed. They include appropriate procedures for hand washing, sharps disposing, lab specimen packaging, laundry handling, and contaminated material cleaning.
- Provide personal protective equipment such as gloves, gowns, and masks. Employers must

clean, repair, and replace this equipment as needed.

- Make available Hepatitis B vaccinations to all employees with occupational exposure to bloodborne pathogens within 10 days of assignment.
- Provide post-exposure followup to any worker who experiences an exposure incident, at no cost to the worker. This includes conducting laboratory tests; providing confidential medical evaluation, identifying, and testing the source individual, if feasible; testing the exposed employee's blood, if the worker consents; performing post-exposure prophylaxis; offering counseling; and evaluating reported illnesses. All diagnoses must remain confidential.
- Use labels and signs to communicate hazards. The standard requires warning labels affixed to containers of regulated waste, refrigerators and freezers, and other containers used to store or transplant blood or other potentially infectious materials. Facilities may use red bags or containers instead of labels. Employers also must post signs to identify restricted areas.
- Provide information and training to employees. Employers must ensure that their workers receive regular training that covers the dangers of bloodborne pathogens, preventive practices, and post-exposure procedures. Employers must offer this training on initial assignment, then at least annually. In addition, laboratory and production facility workers must receive specialized initial training.
- Maintain employee medical and training records. The employer also must maintain a Sharps Injury Log unless classified as an exempt industry under OSHA's standard on Recording and Reporting Occupational Injuries and Illnesses.

How can I get more information?

OSHA's website provides more indepth information about bloodborne pathogens on the Bloodborne Pathogens webpage at www.osha.gov/SLTC/bloodbornepathogens and

on the Needlesticks webpages at www.osha.gov/needlesticks and www.osha.gov/SLTC/needlestick.

In addition, OSHA has various publications, standards, technical assistance, and compliance tools to help you, and offers extensive assistance through its many safety and health programs: workplace consultation, voluntary protection programs, grants, strategic partnerships, state plans, training, and education. Documents such as OSHA's *Safety and Health Management Guidelines* provide information about elements that are critical to the development of a successful safety and health management system. This and other information are available on OSHA's website.

- For one free copy of OSHA publications, send a self-addressed mailing label to this address:

OSHA Publications Office, PO Box 37535, Washington, DC 20013-7535; or send a request to our fax at (202) 693-2498, or call (202) 693-1888.

- Order OSHA publications online at www.osha.gov. Go to **Publications** and follow the instructions for ordering.
- To file a complaint by phone, report an emergency, or get OSHA advice, assistance, or products, contact your nearest OSHA office under the "U.S. Department of Labor" listing in your phone book, or call us toll-free at **(800) 321-OSHA (6742)**. The teletypewriter (TTY) number is (877) 889-5627.
- To file a complaint online or obtain more information on OSHA federal and state programs, visit OSHA's website.

This is one of a series of informational fact sheets highlighting OSHA programs, policies, or standards. It does not impose any new compliance requirements or carry the force of legal opinion. For compliance requirements of OSHA standards or regulations, refer to *Title 29 of the Code of Federal Regulations*. This information will be made available to sensory-impaired individuals upon request. Voice phone: (202) 693-1999. See also OSHA's website at www.osha.gov.





Protect Yourself When Handling Sharps

U.S. Department of Labor
Occupational Safety and Health Administration



A needlestick or a cut from a contaminated scalpel can lead to infection from hepatitis B virus (HBV) or human immunodeficiency virus (HIV) which causes AIDS. Although few cases of AIDS have been documented from occupational exposure, approximately 8,700 health care workers each year contract hepatitis B. About 200 will die as a result. The new OSHA standard covering bloodborne pathogens specifies measures to reduce these risks of infection.

PROMPT DISPOSAL

The best way to prevent cuts and sticks is to minimize contact with sharps. That means disposing of them immediately after use. Puncture-resistant containers must be available nearby to hold contaminated sharps-- either for disposal or, for reusable sharps, later decontamination for re-use. When reprocessing contaminated reusable sharps, employees must not reach by hand into the holding container. Contaminated sharps must never be sheared or broken.

Recapping, bending, or removing needles is permissible only if there is no feasible alternative or if required for a specific medical procedure such as blood gas analysis. If recapping, bending, or removal is necessary, workers must use either a mechanical device or a one-handed technique. If recapping is essential--for example, between multiple injections for the same patient--employees must avoid using both hands to recap. Employees might recap with a one-handed "scoop" technique, using the needle itself to pick up the cap, pushing cap and sharp together against a hard surface to ensure a tight fit. Or they might hold the cap with tongs or forceps to place it on the needle.

SHARPS CONTAINERS

Containers for used sharps must be puncture resistant. The sides and the bottom must be leakproof. They must be labeled or color coded red to ensure that everyone knows the contents are hazardous. Containers for disposable sharps must have a lid, and they must be maintained upright to keep liquids and the sharps inside.

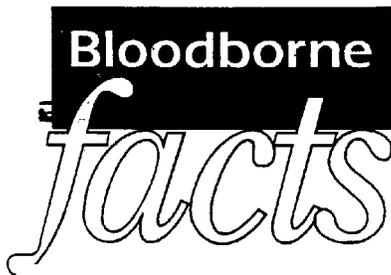
Employees must never reach by hand into containers of contaminated sharps. Containers for reusable sharps could be equipped with wire basket line for easy removal during reprocessing, or employees could use tongs or forceps to withdraw the contents. Reusable sharps disposal containers may not be opened, emptied, or cleaned manually.

Containers need to be located as near to as feasible the area of use. In some cases, they may be placed on carts to prevent access to mentally disturbed or pediatric patients. Containers also should be available wherever sharps may be found, such as in laundries. The containers must be replaced routinely and not be overfilled, which can increase the risk of needlesticks or cuts.

HANDLING CONTAINERS

When employees are ready to discard containers, they should first close the lids. If there is a chance of leakage from the primary container, the employees should use a secondary container that is closable, labeled, or color coded and leak resistant.

Careful handling of sharps can prevent injury and reduce the risk of infection. By following these work practices, employees can decrease their chances of contracting bloodborne illness.



Personal Protective Equipment Cuts Risk

U.S. Department of Labor
Occupational Safety and Health Administration



Wearing gloves, gowns, masks, and eye protection can significantly reduce health risks for workers exposed to blood and other potentially infectious materials. The new OSHA standard covering bloodborne disease requires employers to provide appropriate personal protective equipment (PPE) and clothing free of charge to employees.

Workers who have direct exposure to blood and other potentially infectious materials on their jobs run the risk of contracting bloodborne infections from hepatitis B virus (HBV), human immunodeficiency virus (HIV) which causes AIDS, and other pathogens. About 8,700 health care workers each year are infected with HBV, and 200 die from the infection. Although the risk of contracting AIDS through occupational exposure is much lower, wearing proper personal protective equipment can greatly reduce potential exposure to all bloodborne infections.

SELECTING PPE

Personal protective clothing and equipment must be suitable. This means the level of protection must fit the expected exposure. For example, gloves would be sufficient for a laboratory technician who is drawing blood, whereas a pathologist conducting an autopsy would need considerably more protective clothing.

PPE may include gloves, gowns, laboratory coats, face shields or masks, eye protection, pocket masks, and other protective gear. The gear must be readily accessible to employees and available in appropriate sizes.

If an employee is expected to have hand contact with blood or other potentially infectious materials or contaminated surfaces, he or she must wear gloves. Single use gloves cannot be washed or decontaminated for reuse. Utility gloves may be decontaminated if they are not compromised. They should be replaced when they show signs of cracking, peeling, tearing, puncturing, or deteriorating. If employees are allergic to standard gloves, the employer must provide hypoallergenic gloves or similar alternatives.

Routine gloving is not required for phlebotomy in voluntary blood donation centers, though it is necessary for all other phlebotomies. In any case, gloves must be available in voluntary blood donation centers for employees who want to use them. Workers in voluntary blood donation centers must use gloves (1) when they have cuts, scratches or other breaks in their skin, (2) while they are in training; and (3) when they believe contamination might occur.

Employees should wear eye and mouth protection such as goggles and masks, glasses with solid side shields, and masks or chin-length face shields when splashes, sprays, splatters, or droplets of potentially infectious materials pose a hazard through the eyes, nose or mouth. More extensive coverings such as gowns, aprons, surgical caps and hoods, and shoe covers or boots are needed when gross contamination is expected. This often occurs, for example, during orthopedic surgery or autopsies.

Employers must provide the PPE and ensure that their workers wear it. This means that if a lab coat is considered PPE, it must be supplied by the employer rather than the employee. The employer also must clean or launder clothing and equipment and repair or replace it as necessary.

Additional protective measures such as using PPE in animal rooms and decontaminating PPE before laundering are essential in facilities that conduct research on HIV or HBV.

EXCEPTION

There is one exception to the requirement for **protective gear**. An employee may choose, temporarily and briefly, **under rare and extraordinary circumstances**, to forego the equipment. It must be the employee's professional judgment that using the protective equipment would prevent the delivery of health care or public safety services or would pose an increased hazard to the safety of the worker or co-worker. When one of these excepted situations occurs, employers are to investigate and document the circumstances to determine if there are ways to avoid it in the future. For example, if a firefighter's resuscitation device is damaged, perhaps another type of device should be used or the device should be carried in a different manner. Exceptions must be limited--this is not a blanket exemption.

DECONTAMINATING AND DISPOSING OF PPE

Employees must remove personal protective clothing and equipment before leaving the work area or when the PPE becomes contaminated. If a garment is penetrated, workers must remove it immediately or as soon as feasible. Used protective clothing and equipment must be placed in designated containers for storage, decontamination, or disposal.

OTHER PROTECTIVE PRACTICES

If an employee's skin or mucous membranes come into contact with blood, he or she is to wash with soap and water and flush eyes with water as soon as feasible. In addition, workers must wash their hands immediately or as soon as feasible after removing protective equipment. If soap and water are not immediately available, employers may provide other handwashing measures such as moist **towelettes**. Employees still must wash with soap and water as soon as possible.

Employees must refrain from eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses in areas where they may be exposed to blood or other potentially infectious materials.



Reporting Exposure Incidents

U.S. Department of Labor
Occupational Safety and Health Administration



OSHA's new bloodborne pathogens standard includes provisions for medical follow-up for workers who have an exposure incident. The most obvious exposure incident is a needlestick. But any specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials is considered an exposure incident and should be reported to the employer.

Exposure incidents can lead to infection from hepatitis B virus (HBV) or human immunodeficiency virus (HIV) which causes AIDS. Although few cases of AIDS are directly traceable to workplace exposure, every year about 8,700 health care workers contract hepatitis B from occupational exposures. Approximately 200 will die from this bloodborne infection. Some will become carriers, passing the infection on to others.

WHY REPORT?

Reporting an exposure incident right away permits immediate medical follow-up. Early action is crucial. Immediate intervention can forestall the development of hepatitis B or enable the affected worker to track potential HIV infection. Prompt reporting also can help the worker avoid spreading bloodborne infection to others. Further, it enables the employer to evaluate the circumstances surrounding the exposure incident to try to find ways to prevent such a situation from occurring again.

Reporting is also important because part of the follow-up includes testing the blood of the source individual to determine HBV and HIV infectivity if this is unknown and if permission for testing can be obtained. The exposed employee must be informed of the results of these tests.

Employers must tell the employee what to do if an exposure incident occurs.

MEDICAL EVALUATION AND FOLLOW-UP

Employers must provide free medical evaluation and treatment to employees who experience an exposure incident. They are to refer exposed employees to a licensed health care provider who will counsel the individual about what happened and how to prevent further spread of any potential infection. He or she will prescribe appropriate treatment in line with current U.S. Public Health Service recommendations. The licensed health care provider also will evaluate any reported illness to determine if the symptoms may be related to HIV or HBV development.

The first step is to test the blood of the exposed employee. Any employee who wants to participate in the medical evaluation program must agree to have blood drawn. However, the employee has the option to give the blood sample but refuse permission for HIV testing at that time. The employer must maintain the employee's blood sample for 90 days in case the employee changes his or her mind about testing--should symptoms develop that might relate to HIV or HBV infection.

The health care provider will counsel the employee based on the test results. If the source individual was HBV positive or in a high risk category, the exposed employee may be given hepatitis B immune globulin and vaccination, as necessary. If there is no information on the source individual or the test is negative, and the employee has not been vaccinated or does not have immunity based on his or her test, he or she may receive the vaccine. Further, the health care provider will discuss any other findings from the tests.

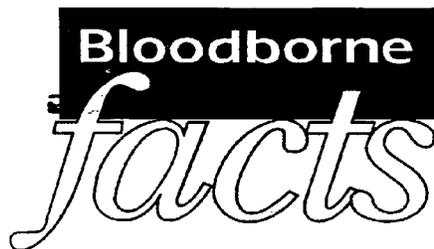
The standard requires that the employer make the hepatitis B vaccine available, at no cost to the employee, to all employees who have occupational exposure to blood and other potentially infectious materials. This requirement is in addition to post exposure testing and treatment responsibilities.

WRITTEN OPINION

In addition to counseling the employee, the health care provider will provide a written report to the employer. This report simply identifies whether hepatitis B vaccination was recommended for the exposed employee and whether or not the employee received vaccination. The health care provider also must note that the employee has been informed of the results of the evaluation and told of any medical conditions resulting from exposure to blood which require further evaluation or treatment. Any added findings must be kept confidential.

CONFIDENTIALITY

Medical records must remain confidential. They are not available to the employer. The employee must give specific written consent for anyone to see the records. Records must be maintained for the duration of employment plus 30 years in accordance with OSHA's standard on access to employee exposure and medical records.



Hepatitis B Vaccination-- Protection For You

U.S. Department of Labor
Occupational Safety and Health Administration



WHAT IS HBV?

Hepatitis B virus (HBV) is a potentially life-threatening bloodborne pathogen. Centers for Disease Control estimates there are approximately 280,000 HBV infections each year in the U.S.

Approximately 8,700 health care workers each year contract hepatitis B, and about 200 will die as a result. In addition, some who contract HBV will become carriers, passing the disease on to others. Carriers also face a significantly higher risk for other liver ailments which can be fatal, including cirrhosis of the liver and primary liver cancer.

HBV infection is transmitted through exposure to blood and other infectious body fluids and tissues. Anyone with occupational exposure to blood is at risk of contracting the infection.

Employers must provide engineering controls; workers must use work practices and protective clothing and equipment to prevent exposure to potentially infectious materials. However, the best defense against hepatitis B is vaccination.

WHO NEEDS VACCINATION?

The new OSHA standard covering bloodborne pathogens requires employers to offer the three-injection vaccination series free to all employees who are exposed to blood or other potentially infectious materials as part of their job duties. This includes health care workers, emergency responders, morticians, first-aid personnel, law enforcement officers, correctional facilities staff, launderers, as well as others.

The vaccination must be offered within 10 days of initial assignment to a job where exposure to blood or other potentially infectious materials can be "reasonably anticipated." The requirements for vaccinations of those already on the job take effect July 6, 1992.

WHAT DOES VACCINATION INVOLVE?

The hepatitis B vaccination is a noninfectious, yeast-based vaccine given in three injections in the arm. It is prepared from recombinant yeast cultures, rather than human blood or plasma. Thus, there is no risk of contamination from other bloodborne pathogens nor is there any chance of developing HBV from the vaccine.

The second injection should be given one month after the first, and the third injection six months after the initial dose. More than 90 percent of those vaccinated will develop immunity to the hepatitis B virus. To ensure immunity, it is important for individuals to receive all three injections. At this point it is unclear how long the immunity lasts, so booster shots may be required at some point in the future.

The vaccine causes no harm to those who are already immune or to those who may be HBV carriers. Although employees may opt to have their blood tested for antibodies to determine need for the vaccine, employers may not make such screening a condition of receiving vaccination nor are employers required to provide prescreening.

Each employee should receive counseling from a health care professional when vaccination is offered. This discussion will help an employee determine whether inoculation is necessary.

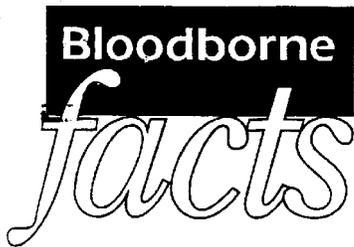
WHAT IF I DECLINE VACCINATION?

Workers who decide to decline vaccination must complete a declination form. Employers must keep these forms on file so that they know the vaccination status of everyone who is exposed to blood. At any time after a worker initially declines to receive the vaccine, he or she may opt to take it.

WHAT IF I AM EXPOSED BUT HAVE NOT YET BEEN VACCINATED?

If a worker experiences an exposure incident, such as a needlestick or a blood splash in the eye, he or she must receive confidential medical evaluation from a licensed health care professional with appropriate follow-up. To the extent possible by law, the employer is to determine the source individual for HBV as well as human immunodeficiency virus (HIV) infectivity. The worker's blood will also be screened if he or she agrees.

The health care professional is to follow the guidelines of the U.S. Public Health Service in providing treatment. This would include hepatitis B vaccination. The health care professional must give a written opinion on whether or not vaccination is recommended and whether the employee received it. Only this information is reported to the employer. Employee medical records must remain confidential. HIV or HBV status must NOT be reported to the employer.



Holding the Line on Contamination

U.S. Department of Labor
Occupational Safety and Health Administration



Keeping work areas in a clean and sanitary condition reduces employees' risk of exposure to bloodborne pathogens. Each year about 8,700 health care workers are infected with hepatitis B virus, and 200 die from contracting hepatitis B through their work. The chance of contracting human immunodeficiency virus (HIV), the bloodborne pathogen which causes AIDS, from occupational exposure is small, yet a good housekeeping program can minimize this risk as well.

DECONTAMINATION

Every employer whose employees are exposed to blood or other potentially infectious materials must develop a written schedule for cleaning each area where exposures occur. The methods of decontaminating different surfaces must be specified, determined by the type of surface to be cleaned, the soil present and the tasks or procedures that occur in that area.

For example, different cleaning and decontamination measures would be used for a surgical operatory and a patient room. Similarly, hard surfaced flooring and carpeting require separate cleaning methods. More extensive efforts will be necessary for gross contamination than for minor spattering. Likewise, such varied tasks as laboratory analyses and normal patient care would require different techniques for clean-up.

Employees must decontaminate working surfaces and equipment with an appropriate disinfectant after completing procedures involving exposure to blood. Many laboratory procedures are performed on a continual basis throughout a shift. Except as discussed below, it is not necessary to clean and decontaminate between procedures. However, if the employee leaves the area for a period of time, for a break or lunch, then contaminated work surfaces must be cleaned.

Employees also must clean (1) when surfaces become obviously contaminated; (2) after any spill of blood or other potentially infectious materials; and (3) at the end of the work shift if contamination might have occurred. Thus, employees need not decontaminate the work area after each patient care procedure, but only after those that actually result in contamination.

If surfaces or equipment are draped with protective coverings such as plastic wrap or aluminum foil, these coverings should be removed or replaced if they become obviously contaminated. Reusable receptacles such as bins, pails and cans that are likely to become contaminated must be inspected and decontaminated on a regular basis. If contamination is visible, workers must clean and decontaminate the item immediately, or as soon as feasible.

Should glassware that may be potentially contaminated break, workers need to use mechanical means such as a brush and dustpan or tongs or forceps to pick up the broken glass--never by hand, even when wearing gloves.

Before any equipment is serviced or shipped for repairing or cleaning, it must be decontaminated to the extent possible. The equipment must be labeled, indicating which portions are still contaminated. This enables employees and those who service the equipment to take appropriate precautions to prevent exposure.

REGULATED WASTE

In addition to effective decontamination of work areas, proper handling of regulated waste is essential to prevent unnecessary exposure to blood and other potentially infectious materials. Regulated waste must be handled with great care --i.e., liquid or semi liquid blood and other potentially infectious materials, items caked with these materials, items that would release blood or other potentially infected materials if compressed, pathological or microbiological wastes containing them and contaminated sharps.

Containers used to store regulated waste must be closable and suitable to contain the contents and prevent leakage of fluids. Containers designed for sharps also must be puncture resistant. They must be labeled or color coded to ensure that employees are aware of the potential hazards. Such containers must be closed before removal to prevent the contents from spilling. If the outside of a container becomes contaminated, it must be placed within a second suitable container.

Regulated waste must be disposed of in accordance with applicable state and local laws.

LAUNDRY

Laundry workers must wear gloves and handle contaminated laundry as little as possible, with a minimum of agitation. Contaminated laundry should be bagged or placed in containers at the location where it is used, but not sorted or rinsed there.

Laundry must be transported within the establishment or to outside laundries in labeled or red color-coded bags. If the facility uses Universal Precautions for handling all soiled laundry, then alternate labeling or color coding that can be recognized by the employees may be used. If laundry is wet and it might soak through **laundry** bags, then workers must use bags that prevent leakage to transport it.

RESEARCH FACILITIES

More stringent decontamination requirements apply to research laboratories and production facilities that work with concentrated strains of HIV and HBV.

(SAMPLE PROGRAM)

Bloodborne Pathogens Policy and Procedures

Purpose

Scope

Definitions

Exposure Control Plan

- Exposure Determination

- Method of Compliance

- Hepatitis B Virus Vaccination

- Post Exposure Evaluation and Follow up

- Education and Training

- Recordkeeping/Medical Record

- Cleaning and Disinfecting Work Surfaces/Waste Disposal

Appendix A

- Accidental Blood Contamination Exposure Report

Appendix B

- Employee Consent Form For Hepatitis B Vaccine

Appendix C

- Hepatitis B Vaccine Declination

Bloodborne Pathogens

Policy and Procedures

Company

PURPOSE

To protect _____ employees from exposures to blood and other potentially infectious materials since any exposure could result in transmission of bloodborne pathogens which could lead to disease or death. The diseases of primary concern are Hepatitis B (HBV) and Human Immunodeficiency Virus (HIV).

I. SCOPE

Covers _____ employees who could be "reasonably anticipated" as the result of performing their job duties to have contact with blood and other potentially infectious materials.

II. DEFINITIONS

- A. Bloodborne Pathogens means pathogenic microorganisms that are present in human blood and can cause disease in humans.
- B. Occupational Exposure means reasonably anticipated broken skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from performance of the employee's duties.
- C. Universal Precautions is an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and bloodborne pathogens.

III. EXPOSURE CONTROL PLAN

A. Exposure Determination

1. All _____ employees who perform services in the following job categories are included in this plan:
 - a. Nurses
 - b. First-Aid Responders
 - c. Custodial Personnel
 - d. Maintenance Personnel
 - e. Any Other Personnel That May Be Identified As At Risk

2. The following job tasks are included in this plan:
 - a. Nurse
 - 1) Wound, burns, abrasions cleansing and preparation
 - 2) Examination and procedures involving the eye
 - 3) Handling specimen bottles for urinalysis and drug screening
 - 4) Recussitation
 - 5) Handling and disposal of sharps
 - 6) Starting I.V.'s or taking any blood samples
 - 7) Cleaning up of blood or body fluid spills

 - b. First Aid Responders
 - 1) Treatment of wounds, burns, abrasions
 - 2) Recussitation
 - 3) Cleaning up of blood or body fluid spills

 - c. Custodial Personnel
 - 1) Cleaning restrooms
 - 2) Cleaning up of blood or body fluid spills
 - 3) Emptying trash containers

 - d. Maintenance Personnel
 - 1) Making repairs to broken plumbing

B. Method of Compliance

1. Universal Precautions shall be followed at all times to prevent contact with blood or other potentially infectious materials.
-

- 2.** Vinyl or latex gloves in various sizes will be available and shall be worn when:

 - a.** Handling urine specimens
 - b.** Drawing blood or handling blood products
 - c.** Examining, cleaning, and/or treating wounds
 - d.** Cleaning contaminated instruments or equipment
 - e.** Cleaning up any blood or body fluid
 - f.** Gloves shall also be worn when performing any procedure where there is likelihood of contact with blood or other body fluid.
- 3.** Running water, soap, and paper towels shall be available and hands shall be washed immediately after gloves are removed and dried with paper towels.
- 4.** Sharps containers shall be available in all departments or areas where sharp instruments or needles will be used. Needles shall not be bent, capped, or sheared but shall be deposited in sharps containers. Sharps containers are red, leak proof, hard plastic, and puncture resistant. When filled they shall be disposed of by an approved medical waste transporter and disposer.
- 5.** No food shall be permitted in refrigerators where blood or urine specimens might be stored. Eating, drinking, smoking, handling of contact lenses, etc. shall not be permitted in work areas where there is a reasonable likelihood of exposure to contaminated materials.
- 6.** All blood specimens or other potentially infectious materials shall be placed in appropriate containers and sealed according to the directions of the laboratory performing the analysis.
- 7.** Cleaning and disinfecting of work surfaces shall follow a regular schedule of established cleaning procedures and shall be cleaned when ever they become laden with blood.
- 8.** Hands and other skin surfaces shall be washed immediately and thoroughly if contact with blood or other body fluids is made.
- 9.** Mouthpieces, resuscitation bags or other ventilation devices shall be used for resuscitation.
- 10.** All incidents of occupational exposure to blood or other body fluids shall be reported to your supervisor immediately after the occurrence.

11. All needle stick incidents shall be reported to your supervisor immediately.
12. All spills of blood or other body fluids shall be cleaned up immediately. Personnel Protective Equipment and a disinfecting solution shall be used in any spill clean up.

C. Hepatitis B Virus Vaccination

1. Hepatitis B vaccines shall be made available to all employees identified in Section A.1 that are determined to be at risk of exposure.
2. The vaccine shall be available at no cost to the employees. An Informed consent form shall be filled out by the employee receiving the vaccine. (See Appendix B).
3. If employees do not choose immunization, they will sign the statement as published in Appendix C.
4. Employees may initially decline immunization and choose to accept immunization at a later date at no cost.
5. If routine immunization boosters are recommended at a future date, vaccine shall be made available to employees at no cost.
6. The immunization program shall be under the supervision of the safety department.
7. Each employee's immunization status shall be maintained in a confidential manner in their employee health record.

D. Post Exposure Evaluation and Follow-up

1. If there is exposure to blood or potentially infectious fluids, the exposed employee shall immediately have a medical evaluation under the direction of a physician chosen by this company. The evaluation and follow-up shall include:
 - a. Incident report including site and route of entry. (See Appendix A)
 - b. Identification and documentation of source
 - c. Source blood shall be tested as soon as consent is obtained to determine HBV and HIV status. If consent is not obtained, this shall be documented. If the source is known to be HIV or HBV positive, retest is not necessary.
-

- d.** The exposed employee shall be informed of source individual's results.
- e.** The exposed employee shall have blood tests done as soon as consent is obtained. If consent is not given for HIV and HBV testing, the specimen shall be maintained for 90 days. If the exposed employee decides to have a baseline test done within the day period, it shall be completed as soon as possible.
- f.** The company doctor shall counsel with the exposed employee and evaluate any reported illness. The doctor shall provide a written opinion with 15 days stating:
 - 1)** Whether Hepatitis B vaccine is needed and if immunization has begun.
 - 2)** What post-exposure evaluation and follow-up is needed.
 - 3)** That the employee has been informed of the results of the evaluation and of any medical conditions resulting from exposure.
 - 4)** All other findings shall be held confidential and shall not be included in the report.

E. Education and Training

- 1.** All employees identified in Section A.1. shall participate in a training program on the Bloodborne Pathogens Standard and company procedures.
- 2.** Training shall be conducted for new employees prior to job assignments identified in Section A.1.
- 3.** Training shall be repeated/updated annually.
- 4.** A copy of the Bloodborne Pathogens Standard 29 CFR 1910.1030 shall be available from the Safety Department.
- 5.** Training shall include: review of universal precautions, protective equipment, cleaning procedures.
- 6.** A record of training sessions shall be prepared and maintained. The record shall include:
 - a.** The trainer's name and qualifications.
 - b.** Names of the participants and their signatures.
 - c.** A outline of the training program.

7. A copy of training records shall be available to employees on request, to any person having written consent of the employee and to the Assistant Secretary of Labor or OSHA and the Director of NIOSH.

F. Recordkeeping/Medical Record

1. The Safety Department shall establish and maintain an accurate record of each employee with occupational exposure. The record shall include:
 - a. The name and social security number of the employee.
 - b. A copy of the employee's hepatitis B vaccination status
 - c. including the dates of all the hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination.
 - d. A copy of all results of examinations, medical testing, and follow-up procedures.
 - e. The company's copy of any health care professionals written opinions and copies of any information provided to the health care professional.
 - f. The company shall ensure that any employee records required under this standard are kept confidential and are not disclosed or reported without the employee's expressed written consent.
 - g. The company shall maintain records for the length of employment plus 30 years.

G. Cleaning And Disinfecting Work Surfaces / Waste Disposal

1. Countertops in exam areas shall be washed with soap and water, sprayed and wiped with 10% chlorine bleach solution at least weekly.
2. Where there has been contamination due to injury, etc. the affected area shall be washed immediately with soap and water, then sprayed with a 10% chlorine bleach solution and wiped dry.
3. Waste cans and pails shall routinely be lined with plastic bags. They shall be cleaned and disinfected at least monthly with a 10% chlorine bleach solution.
4. Broken glassware that may be contaminated shall be picked up with forceps. Small fragments shall be picked up with wet paper towels.
5. Contaminated instruments shall be washed with soap and water and placed in a solution for disinfecting.

6. Disposable drapes, towels, table covers, sheets, etc. shall be used to avoid laundry handling.
7. Non-sharp waste (bandages, swabs, dressings, etc.) that does not meet the criteria described in "regulated wastes" shall be disposed of as domestic waste.
8. Non-sharps waste that is considered 'regulated waste' will be placed in red bags and marked as bio-hazard waste. It shall be disposed of in accordance with EPA regulations.
9. All contaminated laundry shall be placed in laundry bags marked as Bio-Hazard. No laundry shall be presoaked or rinsed by hand.

APPENDIX A:

**ACCIDENTAL BLOOD CONTAMINATION
EXPOSURE REPORT**

Date of Exposure: _____

Name of Exposed Employee: _____ **SSN:** _____

Home Address:

Telephone: _____

Supervisor: _____

Route of Exposure: _____

Circumstances of Exposure: _____

Reference Blood Specimen Drawn: Yes / No **Date:** _____

Medical Evaluation: _____

Recommendations and Comments: _____

Evaluating Physician: _____

Signature: _____ **Date:** _____

Copy to Employee: _____ **Date:** _____

APPENDIX B:

**EMPLOYEE CONSENT FORM
FOR HEPATITIS B VACCINE**

EMPLOYEE: _____

DEPARTMENT: _____ **SOCIAL SECURITY #** _____

I understand that it is in my best interest to receive the Hepatitis B Vaccine. With the hazards of Hepatitis B having been completely explained to me I am requesting that I receive the Hepatitis B vaccine at this time, at no cost to me.

SIGNATURE: _____ **DATE:** _____

APPENDIX C:

HEPATITIS B VACCINE DECLINATION

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring the hepatitis B virus infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline the hepatitis B vaccine at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine I can receive the vaccination series at no charge to me.

EMPLOYEE: _____

SIGNATURE: _____

DATE: _____

29 CFR 1910.1030

Bloodborne Pathogens.

Definitions:

"Blood" means human blood, human blood components, and products made from human blood.

"Bloodborne Pathogens" means pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

"Contaminated" means the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

"Contaminated Laundry" means laundry which has been soiled with blood or other potentially infectious materials or may contain sharps.

"Contaminated Sharps" means any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.

"Decontamination" means the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

"Engineering Controls" means controls (e.g., sharps disposal containers, self-sheathing needles) that isolate or remove the bloodborne pathogens hazard from the workplace.

"Exposure Incident" means a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties.

"Handwashing Facilities" means a facility providing an adequate supply of running potable water, soap and single use towels or hot air drying machines.

"Licensed Healthcare Professional" is a person whose legally permitted scope of practice allows him or her to independently perform the activities required by paragraph (f) Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up.

"HBV" means hepatitis B virus.

"HIV" means human immunodeficiency virus.

"Occupational Exposure" means reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.

"Other Potentially Infectious Materials" means

1910.1030(b)(1)

(1) The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids;

1910.1030(b)(2)

(2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and

1910.1030(b)(3)

(3) HIV-containing cell or tissue cultures, organ cultures, and HIV - or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

"Parenteral" means piercing mucous membranes or the skin barrier through such events as needlesticks, human bites, cuts, and abrasions.

"Personal Protective Equipment" is specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.

"Production Facility" means a facility engaged in industrial -scale, large -volume or high concentration production of HIV or HBV.

"Regulated Waste" means liquid or semi -liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi - liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

"Source Individual" means any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee. Examples include, but are not limited to, hospital and clinic patients; clients in institutions for the developmentally disabled; trauma victims; clients of drug and alcohol treatment facilities; residents of hospices and nursing homes; human remains; and individuals who donate or sell blood or blood components.

"Sterilize" means the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.

"Universal Precautions" is an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

"Work Practice Controls" means controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).

Related Reference Material Can Be Found:

Division of Safety and Hygiene Training Center
Bloodborne Pathogens Course # IHY2200
1-800-644-6292 X 2 X 2

Related Reference Material Can Be Found:

www.osha.gov

Safety and Health Topics

Bloodborne Pathogens and Needlestick Prevention

Workers in many different occupations are at risk of exposure to bloodborne pathogens. First aid team members, housekeeping personnel in some settings, and nurses are examples of workers who may be at risk of exposure. In 1991, OSHA issued the Bloodborne Pathogens Standard to protect workers from this risk. In 2001, in response to the [Needlestick Safety and Prevention Act](#), OSHA revised the Bloodborne Pathogens Standard [1910.1030](#). The revised standard clarifies the need for employers [to select safer needle devices](#) and to [involve employees in identifying and choosing these devices](#). The updated standard also requires employers to [maintain a log of injuries from contaminated sharps](#).

This page is maintained as a product of the [Alliance](#) between OSHA's Office of Occupational Health Nursing (OOHN), OSHA's Office of Occupational Medicine (OOM), and the American Biological Safety Association (ABSA). The following commonly asked questions link to resources that provide useful safety and health information about bloodborne pathogens and needlestick prevention.

What OSHA standards apply?

[OSHA Standards](#) | [Preambles to OSHA Standards](#) | [OSHA Directives](#)

How do I recognize bloodborne pathogens hazards?

[Hazard Recognition](#) | [Healthcare eTools](#) | [Fact Sheet](#)

What are some examples of possible solutions for workplace hazards?

[Control Programs](#) | [Safer Needle Devices](#) | [Decontamination](#)

What should I do if I am exposed to blood?

[Post-Exposure Evaluation](#)

Where can I find additional assistance?

[Related Safety and Health Topics](#) | [Training](#) | [Additional Resources](#)

News Releases

- [OSHA Issues Safety and Health Information Bulletin on Disposal of Contaminated Needles and Blood Tube Holders](#). OSHA Trade News Release (2003, October 16), 2 pages.

[Disposal of Contaminated Needles and Blood Tube Holders Used for Phlebotomy](#) (2003, October 15), 4 pages. Also available as a 37 KB [PDF](#), 4 pages. OSHA has concluded that the best practice for prevention of needlestick injuries following phlebotomy procedures is the use of a sharp with engineered sharps injury protection (SESIP) (e.g., safety needle)

attached to the blood tube holder and the immediate disposal of the entire unit after each patient's blood is drawn

Bloodborne Pathogens Standard

- Revised Bloodborne Pathogens Standard 1910.1030 . OSHA revisions to the Bloodborne Pathogens Standard 1910.1030, took effect April 18, 2001.
 - App A, Hepatitis B Vaccine Declination (Mandatory)
- Occupational Exposure to Bloodborne Pathogens; Needlestick and Other Sharps Injuries -- Final Rule - 66:5317-5325. Federal Register (2001, January 18), 17 pages. OSHA is revising the Bloodborne Pathogens standard in conformance with the requirements of the Needlestick Safety and Prevention Act.
 - Also available in a 450 KB PDF file.
- Frequently Asked Questions: OSHA's Occupational Exposure to Bloodborne Pathogens Standard (29 CFR 1910.1030) and Smallpox Vaccination Programs . OSHA (2003, March), 4 pages. These FAQs provide questions and answers for the safe administration of vaccines.
- Notice to Readers: Approval for a new rapid test for HIV antibody . Center for Disease Control and Prevention (CDC), Morbidity and Mortality Weekly Report (MMWR) (2002, November 22), 3 pages. The Food and Drug Administration (FDA) announces the OraQuick Rapid HIV - 1 Antibody Test.

New Interpretation Letters Clarifying the Updated Standard

- Acceptable use of antiseptic -hand cleansers for bloodborne pathogen decontamination and as an appropriate handwashing practice . (2003, March 3), 2 pages.
- Evaluation of sutureless catheter securement devices to prevent needlestick hazards . (2003, January 23), 2 pages.
- Applicability of the Bloodborne Pathogens Standard to the municipal solid waste industry . (2003, January 2), 2 pages.



[Technical Links](#) > [Small Business Training](#)

HAZARD COMMUNICATION

Becoming Familiar with the Rule

Identifying Responsible Staff

Identifying Hazardous Chemicals in the Workplace

Preparing and Implementing a Hazard Communication Program

Labels and Other Forms of Warning

Material Safety Data Sheets

Employee Information and Training

Other Requirements

Checklist for Compliance

Further Assistance

References:

29 CFR 1910.1200, [Hazard Communication](#)

Additional Source of Information:

[Chemical Hazard Communication](#) - OSHA 3084

[Discussion/Overheads](#) - 1.8 MB 

[Student Handouts](#) - 114 KB 

[Self-Inspection Checklist](#)

HAZARD COMMUNICATION

Guidelines for Employer Compliance - From Appendix E (Advisory)

The Hazard Communication Standard (HCS) is based on a simple concept--that employees have both a need and a right to know the hazards and identities of the chemicals they are exposed to when working. They also need to know what protective measures are available to prevent adverse effects from occurring. The HCS is designed to provide employees with the information they need.

Knowledge acquired under the HCS will help employers provide safer workplaces for their employees. When employers have information about the chemicals being used, they can take steps to reduce exposures, substitute less hazardous materials, and establish proper work practices. These efforts will help prevent the occurrence of work-related illnesses and injuries caused by chemicals.

The HCS addresses the issues of evaluating and communicating hazards to workers. Evaluation of chemical hazards involves a number of technical concepts, and is a process that requires the professional judgment of experienced experts. That's why the HCS is designed so that employers who simply use chemicals, rather than produce or import them, are not required to evaluate the hazards of those chemicals. Hazard determination is the responsibility of the producers and importers of the materials. Producers and importers of chemicals are then required to provide the hazard information to employers that purchase their products.

Employers that don't produce or import chemicals need only focus on those parts of the rule that deal with establishing a workplace program and communicating information to their workers. This appendix is a general guide for such employers to help them determine what's required under the rule. It does not supplant or substitute for the regulatory provisions, but rather provides a simplified outline of the steps an average employer would follow to meet those requirements.

1. Becoming familiar with the rule.

OSHA has provided a simple summary of the HCS in a pamphlet entitled "Chemical Hazard Communication," OSHA Publication Number 3084. Some employers prefer to begin to become familiar with the rule's requirements by reading this pamphlet. A copy may be obtained from your local OSHA Area Office, or by contacting the OSHA Publications Office at (202) 693-1888.



The standard is long, and some parts of it are technical, but the basic concepts are simple. In fact, the requirements reflect what many employers have been doing for years. You may find that you are already largely in compliance with many of the provisions, and will simply have to modify your existing programs somewhat. If you are operating in an OSHA-approved State Plan State, you must comply with the State's requirements, which may be different than those of the Federal rule. Many of the State Plan States had hazard communication or "right-to-know" laws prior to promulgation of the Federal rule. Employers in State Plan States should contact their State OSHA offices for more information regarding applicable requirements.

The HCS requires information to be prepared and transmitted regarding all hazardous chemicals. The HCS covers both physical hazards (such as flammability), and health hazards (such as irritation, lung damage, and cancer). Most chemicals used in the workplace have some hazard potential, and thus will be covered by the rule.

One difference between this rule and many others adopted by OSHA is that this one is performance-oriented. That means that you have the flexibility to adapt the rule to the needs of your workplace, rather than having to follow specific, rigid requirements. It also means that you have to exercise more judgment to implement an appropriate and effective program.

The standard's design is simple. Chemical manufacturers and importers must evaluate the hazards of the chemicals they produce or import. Using that information, they must then prepare labels for containers, and more detailed technical bulletins called material safety data sheets (MSDS).

Chemical manufacturers, importers, and distributors of hazardous

chemicals are all required to provide the appropriate labels and material safety data sheets to the employers to which they ship the chemicals. The information is to be provided automatically. Every container of hazardous chemicals you receive must be labeled, tagged, or marked with the required information. Your suppliers must also send you a properly completed material safety data sheet (MSDS) at the time of the first shipment of the chemical, and with the next shipment after the MSDS is updated with new and significant information about the hazards.

You can rely on the information received from your suppliers. You have no independent duty to analyze the chemical or evaluate the hazards of it.

Employers that "use" hazardous chemicals must have a program to ensure the information is provided to exposed employees. "Use" means to package, handle, react, or transfer. This is an intentionally broad scope, and includes any situation where a chemical is present in such a way that employees may be exposed under normal conditions of use or in a foreseeable emergency.

The requirements of the rule that deal specifically with the hazard communication program are found in the standard in paragraphs (e), written hazard communication program; (f), labels and other forms of warning; (g), material safety data sheets; and (h), employee information and training. The requirements of these paragraphs should be the focus of your attention. Concentrate on becoming familiar with them, using paragraphs (b), scope and application, and (c), definitions, as references when needed to help explain the provisions.

There are two types of work operations where the coverage of the rule is limited. These are laboratories and operations where chemicals are only handled in sealed containers (e.g., a warehouse). The limited provisions for these workplaces can be found in paragraph (b), scope and application. Basically, employers having these types of work operations need only keep labels on containers as they are received; maintain material safety data sheets that are received, and give employees access to them; and provide information and training for employees. Employers do not have to have written hazard communication programs and lists of chemicals for these types of operations.



The limited coverage of laboratories and sealed container operations addresses the obligation of an employer to the workers in the operations involved, and does not affect the employer's duties as a distributor of chemicals. For example, a distributor may have warehouse operations where employees would be protected under the limited sealed container provisions. In this situation, requirements for obtaining and maintaining MSDSs are limited to providing access to those received with containers while the substance is in the workplace, and requesting MSDSs when employees request access for those not received with the containers. However, as a distributor of hazardous chemicals, that employer will still have responsibilities for providing MSDSs to downstream customers at the time of the first shipment and when the MSDS is updated. Therefore, although they may not be required for the employees in the work operation, the distributor may, nevertheless, have to have MSDSs to satisfy other requirements of the rule.

2. Identifying responsible staff.

Hazard communication is going to be a continuing program in your facility. Compliance with the HCS is not a "one shot deal." In order to have a successful program, it will be necessary to assign responsibility for both the initial and ongoing activities that have to be undertaken to comply with the rule. In some cases, these activities may already be part of current job assignments. For example, site supervisors are frequently responsible for on-the-job training sessions. Early identification of the responsible employees, and involvement of them in the development of your plan of action, will result in a more effective program design. Evaluation of the effectiveness of your program will also be enhanced by involvement of affected employees.



For any safety and health program, success depends on commitment at every level of the organization. This is particularly true for hazard communication, where success requires a change in behavior. This will only occur if employers understand the program, and are committed to its success, and if employees are motivated by the people presenting the information to them.

3. Identifying hazardous chemicals in the workplace.

The standard requires a list of hazardous chemicals in the workplace as part of the written hazard communication program. The list will eventually serve as an inventory of everything for which an MSDS must be maintained. At this point, however, preparing the list will help you complete the rest of the program since it will give you some idea of the scope of the program required for compliance in your facility.



The best way to prepare a comprehensive list is to survey the workplace. Purchasing records may also help, and certainly employers should establish procedures to ensure that in the future purchasing procedures result in MSDSs being received before a material is used in the workplace.

The broadest possible perspective should be taken when doing the survey. Sometimes people think of "chemicals" as being only liquids in containers. The HCS covers chemicals in all physical forms--liquids, solids, gases, vapors, fumes, and mists--whether they are "contained" or not. The hazardous nature of the chemical and the potential for exposure are the factors which determine whether a chemical is covered. If it's not hazardous, it's not covered. If there is no potential for exposure (e.g., the chemical is inextricably bound and cannot be released), the rule does not cover the chemical.

Look around. Identify chemicals in containers, including pipes, but also think about chemicals generated in the work operations. For example, welding fumes, dusts, and exhaust fumes are all sources of chemical exposures. Read labels provided by suppliers for hazard information. Make a list of all chemicals in the workplace that are potentially hazardous. For your own information and planning, you may also want to note on the list the location(s) of the products within the workplace, and an indication of the hazards as found on the label. This will help you as you prepare the rest of your program.

Paragraph (b), scope and application, includes exemptions for various chemicals or workplace situations. After compiling the complete list of chemicals, you should review paragraph (b) to determine if any of the items can be eliminated from the list because they are exempted materials. For example, food, drugs, and cosmetics brought into the

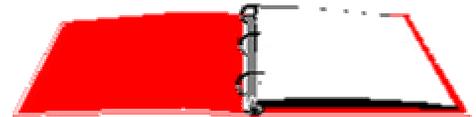
workplace for employee consumption are exempt. So rubbing alcohol in the first aid kit would not be covered.

Once you have compiled as complete a list as possible of the potentially hazardous chemicals in the workplace, the next step is to determine if you have received material safety data sheets for all of them. Check your files against the inventory you have just compiled. If any are missing, contact your supplier and request one. It is a good idea to document these requests, either by copy of a letter or a note regarding telephone conversations. If you have MSDSs for chemicals that are not on your list, figure out why. Maybe you don't use the chemical anymore. Or maybe you missed it in your survey. Some suppliers do provide MSDSs for products that are not hazardous. These do not have to be maintained by you.

You should not allow employees to use any chemicals for which you have not received an MSDS. The MSDS provides information you need to ensure proper protective measures are implemented prior to exposure.

4. Preparing and implementing a hazard communication program.

All workplaces where employees are exposed to hazardous chemicals must have a written plan which describes how the standard will be implemented in that facility.



Preparation of a plan is not just a paper exercise--all of the elements must be implemented in the workplace in order to be in compliance with the rule. See paragraph (e) of the standard for the specific requirements regarding written hazard communication programs. The only work operations which do not have to comply with the written plan requirements are laboratories and work operations where employees only handle chemicals in sealed containers. See paragraph (b), scope and application, for the specific requirements for these two types of workplaces.

The plan does not have to be lengthy or complicated. It is intended to be a blueprint for implementation of your program--an assurance that all aspects of the requirements have been addressed.

Many trade associations and other professional groups have provided sample programs and other assistance materials to affected employers. These have been very helpful to many employers since they tend to be tailored to the particular industry involved. You may wish to investigate whether your industry trade groups have developed such materials.

Although such general guidance may be helpful, you must remember that the written program has to reflect what you are doing in your workplace. Therefore, if you use a generic program it must be adapted to address the facility it covers. For example, the written plan must list the chemicals present at the site, indicate who is to be responsible for the various aspects of the program in your facility, and indicate where written materials will be made available to employees.

If OSHA inspects your workplace for compliance with the HCS, the OSHA compliance officer will ask to see your written plan at the outset of the inspection. In general, the following items will be considered in evaluating your program.

The written program must describe how the requirements for labels and other forms of warning, material safety data sheets, and employee information and training, are going to be met in your facility. The following discussion provides the type of information compliance officers will be looking for to decide whether these elements of the hazard communication program have been properly addressed:

A. Labels and other forms of warning.

In-plant containers of hazardous chemicals must be labeled, tagged, or marked with the identity of the material and appropriate hazard warnings. Chemical manufacturers, importers, and distributors are required to ensure that every container of hazardous chemicals they ship is appropriately labeled with such information and with the name and address of the producer or other responsible party. Employers purchasing chemicals can rely on the labels provided by their suppliers. If the material is subsequently transferred by the employer from a labeled container to another container, the employer will have to label that container unless it is subject to the portable container exemption. See paragraph (f) for specific labeling requirements.



The primary information to be obtained from an OSHA-required label is an identity for the material, and appropriate hazard warnings. The identity is any term which appears on the label, the MSDS, and the list of chemicals, and thus links these three sources of information. The identity used by the supplier may be a common or trade name ("Black Magic Formula"), or a chemical name (1,1,1,-trichloroethane). The hazard warning is a brief statement of the hazardous effects of the chemical ("flammable," "causes lung damage"). Labels frequently contain other

information, such as precautionary measures ("do not use near open flame"), but this information is provided voluntarily and is not required by the rule. Labels must be legible, and prominently displayed. There are no specific requirements for size or color, or any specified text.

With these requirements in mind, the compliance officer will be looking for the following types of information to ensure that labeling will be properly implemented in your facility:

1. Designation of person(s) responsible for ensuring labeling of in-plant containers;
2. Designation of person(s) responsible for ensuring labeling of any shipped containers;
3. Description of labeling system(s) used;
4. Description of written alternatives to labeling of in-plant containers (if used); and,
5. Procedures to review and update label information when necessary.

Employers that are purchasing and using hazardous chemicals--rather than producing or distributing them--will primarily be concerned with ensuring that every purchased container is labeled. If materials are transferred into other containers, the employer must ensure that these are labeled as well, unless they fall under the portable container exemption [paragraph (f)(7)]. In terms of labeling systems, you can simply choose to use the labels provided by your suppliers on the containers. These will generally be verbal text labels, and do not usually include numerical rating systems or symbols that require special training. The most important thing to remember is that this is a continuing duty--all in-plant containers of hazardous chemicals must always be labeled. Therefore, it is important to designate someone to be responsible for ensuring that the labels are maintained as required on the containers in your facility, and that newly purchased materials are checked for labels prior to use.

B. Material safety data sheets.

Chemical manufacturers and importers are required to obtain or develop a material safety data sheet for each hazardous chemical they produce or import.

Material Safety Data Sheet This is a safety summary with important information for workers. It is not a substitute for training.		U.S. Department of Labor Occupational Safety and Health Administration 200 Constitution Avenue, N.W. Washington, D.C. 20535-0001 Phone: (202) 245-7172	
Section I - Product Name Manufacturer's Name Address (Street, Box, City, State, and Zip Code)		Section II - Hazardous Ingredients Chemical Name CAS No. (Chemical Abstracts Service) Other No. (Other No.) Other No. (Other No.)	
Section III - Physical and Chemical Data Molecular Weight Boiling Point Melting Point Density (at 20°C) Specific Gravity (at 20°C) Vapor Pressure (at 20°C) Flash Point Freezing Point Odor Odor Threshold Solubility (in water) Solubility (in other liquids) Stability (in air) Stability (in water) Stability (in other liquids) Other Data		Section IV - Physical and Chemical Data Molecular Weight Boiling Point Melting Point Density (at 20°C) Specific Gravity (at 20°C) Vapor Pressure (at 20°C) Flash Point Freezing Point Odor Odor Threshold Solubility (in water) Solubility (in other liquids) Stability (in air) Stability (in water) Stability (in other liquids) Other Data	
Section V - Physical and Chemical Data Molecular Weight Boiling Point Melting Point Density (at 20°C) Specific Gravity (at 20°C) Vapor Pressure (at 20°C) Flash Point Freezing Point Odor Odor Threshold Solubility (in water) Solubility (in other liquids) Stability (in air) Stability (in water) Stability (in other liquids) Other Data		Section VI - Physical and Chemical Data Molecular Weight Boiling Point Melting Point Density (at 20°C) Specific Gravity (at 20°C) Vapor Pressure (at 20°C) Flash Point Freezing Point Odor Odor Threshold Solubility (in water) Solubility (in other liquids) Stability (in air) Stability (in water) Stability (in other liquids) Other Data	

Distributors are responsible for ensuring that their customers are provided a copy of these MSDSs. Employers must have an MSDS for each hazardous chemical which they use. Employers may rely on the information received from their suppliers. The specific requirements for material safety data sheets are in paragraph (g) of the standard.

There is no specified format for the MSDS under the rule, although there are specific information requirements. OSHA has developed a non-mandatory format, OSHA Form 174, which may be used by chemical manufacturers and importers to comply with the rule. The MSDS must be in English. You are entitled to receive from your supplier a data sheet which includes all of the information required under the rule. If you do not receive one automatically, you should request one. If you receive one that is obviously inadequate, with, for example, blank spaces that are not completed, you should request an appropriately completed one. If your request for a data sheet or for a corrected data sheet does not produce the information needed, you should contact your local OSHA Area Office for assistance in obtaining the MSDS.

The role of MSDSs under the rule is to provide detailed information on each hazardous chemical, including its potential hazardous effects, its physical and chemical characteristics, and recommendations for appropriate protective measures. This information should be useful to you as the employer responsible for designing protective programs, as well as to the workers. If you are not familiar with material safety data sheets and with chemical terminology, you may need to learn to use them yourself. A glossary of MSDS terms may be helpful in this regard. Generally speaking, most employers using hazardous chemicals will primarily be concerned with MSDS information regarding hazardous effects and recommended protective measures. Focus on the sections of the MSDS that are applicable to your situation.

MSDSs must be readily accessible to employees when they are in their work areas during their workshifts. This may be accomplished in many different ways. You must decide what is appropriate for your particular workplace. Some employers keep the MSDSs in a binder in a central location (e.g., in the pick-up truck on a construction site). Others, particularly in workplaces with large numbers of chemicals, computerize the information and provide access through terminals. As long as employees can get the information when they need it, any approach may be used. The employees must have access to the MSDSs themselves-- simply having a system where the information can be read to them over the phone is only permitted under the mobile worksite provision,

paragraph (g)(9), when employees must travel between workplaces during the shift. In this situation, they have access to the MSDSs prior to leaving the primary worksite, and when they return, so the telephone system is simply an emergency arrangement.

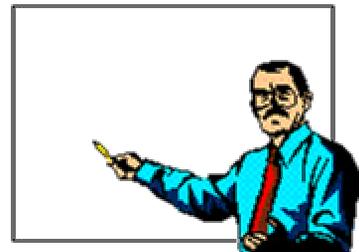
In order to ensure that you have a current MSDS for each chemical in the plant as required, and that employee access is provided, the compliance officers will be looking for the following types of information in your written program:

1. Designation of person(s) responsible for obtaining and maintaining the MSDSs;
2. How such sheets are to be maintained in the workplace (e.g., in notebooks in the work area(s) or in a computer with terminal access), and how employees can obtain access to them when they are in their work area during the work shift;
3. Procedures to follow when the MSDS is not received at the time of the first shipment;
4. For producers, procedures to update the MSDS when new and significant health information is found; and,
5. Description of alternatives to actual data sheets in the workplace, if used.

For employers using hazardous chemicals, the most important aspect of the written program in terms of MSDSs is to ensure that someone is responsible for obtaining and maintaining the MSDSs for every hazardous chemical in the workplace. The list of hazardous chemicals required to be maintained as part of the written program will serve as an inventory. As new chemicals are purchased, the list should be updated. Many companies have found it convenient to include on their purchase orders the name and address of the person designated in their company to receive MSDSs.

C. Employee information and training.

Each employee who may be "exposed" to hazardous chemicals when working must be provided information and trained prior to initial assignment to work with a hazardous chemical, and whenever the hazard changes. "Exposure" or "exposed" under the rule means that "an employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation,



ingestion, skin contact or absorption, etc.) and includes potential (e.g., accidental or possible) exposure." See paragraph (h) of the standard for specific requirements. Information and training may be done either by individual chemical, or by categories of hazards (such as flammability or carcinogenicity). If there are only a few chemicals in the workplace, then you may want to discuss each one individually. Where there are large numbers of chemicals, or the chemicals change frequently, you will probably want to train generally based on the hazard categories (e.g., flammable liquids, corrosive materials, carcinogens). Employees will have access to the substance-specific information on the labels and MSDSs.

Information and training is a critical part of the hazard communication program. Information regarding hazards and protective measures are provided to workers through written labels and material safety data sheets. However, through effective information and training, workers will learn to read and understand such information, determine how it can be obtained and used in their own workplaces, and understand the risks of exposure to the chemicals in their workplaces as well as the ways to protect themselves. A properly conducted training program will ensure comprehension and understanding. It is not sufficient to either just read material to the workers, or simply hand them material to read. You want to create a climate where workers feel free to ask questions. This will help you to ensure that the information is understood. You must always remember that the underlying purpose of the HCS is to reduce the incidence of chemical source illnesses and injuries. This will be accomplished by modifying behavior through the provision of hazard information and information about protective measures. If your program works, you and your workers will better understand the chemical hazards within the workplace. The procedures you establish regarding, for example, purchasing, storage, and handling of these chemicals will improve, and thereby reduce the risks posed to employees exposed to the chemical hazards involved. Furthermore, your workers' comprehension will also be increased, and proper work practices will be followed in your workplace.

If you are going to do the training yourself, you will have to understand the material and be prepared to motivate the workers to learn. This is not always an easy task, but the benefits are worth the effort. More information regarding appropriate training can be found in OSHA Publication No. 2254 which contains voluntary training guidelines prepared by OSHA's Office of Training and Education. A copy of this document is available from OSHA's Publications Office at (202) 693-1888.

In reviewing your written program with regard to information and training, the following items need to be considered:

1. Designation of person(s) responsible for conducting training;
2. Format of the program to be used (audiovisuals, classroom instruction, etc.);
3. Elements of the training program (should be consistent with the elements in paragraph (h) of the HCS); and,
4. Procedure to train new employees at the time of their initial assignment to work with a hazardous chemical, and to train employees when a new hazard is introduced into the workplace.

The written program should provide enough details about the employer's plans in this area to assess whether or not a good faith effort is being made to train employees. OSHA does not expect that every worker will be able to recite all of the information about each chemical in the workplace. In general, the most important aspects of training under the HCS are to ensure that employees are aware that they are exposed to hazardous chemicals, that they know how to read and use labels and material safety data sheets, and that, as a consequence of learning this information, they are following the appropriate protective measures established by the employer. OSHA compliance officers will be talking to employees to determine if they have received training, if they know they are exposed to hazardous chemicals, and if they know where to obtain substance-specific information on labels and MSDSs.

The rule does not require employers to maintain records of employee training, but many employers choose to do so. This may help you monitor your own program to ensure that all employees are appropriately trained. If you already have a training program, you may simply have to supplement it with whatever additional information is required under the HCS. For example, construction employers that are already in compliance with the construction training standard (29 CFR 1926.21) will have little extra training to do.

An employer can provide employees information and training through whatever means found appropriate and protective. Although there would always have to be some training on-site (such as informing employees of the location and availability of the written program and MSDSs), employee training may be satisfied in part by general training about the requirements of the HCS and about chemical hazards on the job which is provided by, for example, trade associations, unions, colleges, and professional schools. In addition, previous training, education and

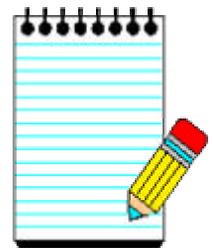
experience of a worker may relieve the employer of some of the burdens of informing and training that worker. Regardless of the method relied upon, however, the employer is always ultimately responsible for ensuring that employees are adequately trained. If the compliance officer finds that the training is deficient, the employer will be cited for the deficiency regardless of who actually provided the training on behalf of the employer.

D. Other requirements.

In addition to these specific items, compliance officers will also be asking the following questions in assessing the adequacy of the program:

1. Does a list of the hazardous chemicals exist in each work area or at a central location?
2. Are methods the employer will use to inform employees of the hazards of non-routine tasks outlined?
3. Are employees informed of the hazards associated with chemicals contained in unlabeled pipes in their work areas?
4. On multi-employer worksites, has the employer provided other employers with information about labeling systems and precautionary measures where the other employers have employees exposed to the initial employer's chemicals?
5. Is the written program made available to employees and their designated representatives?

If your program adequately addresses the means of communicating information to employees in your workplace, and provides answers to the basic questions outlined above, it will be found to be in compliance with the rule.



5. Checklist for compliance.

The following checklist will help to ensure you are in compliance with the rule:

Checklist for Compliance

Obtain a copy of the rule.	_____
Read and understood the requirements.	_____
Assigned responsibility for tasks.	_____
Prepared an inventory of chemicals.	_____
Ensured containers are labeled.	_____
Obtained MSDS for each chemical.	_____
Prepared written program.	_____
Made MSDSs available to workers.	_____
Conducted training of workers.	_____
Established procedures to maintain current program.	_____
Established procedures to evaluate effectiveness.	_____

6. Further assistance.

If you have a question regarding compliance with the HCS, you should contact your local OSHA Area Office for assistance. In addition, each OSHA Regional Office has a Hazard Communication Coordinator who can answer your questions. Free consultation services are also available to assist employers, and information regarding these services can be obtained through the Area and Regional offices as well.

The telephone number for the OSHA office closest to you should be listed in your local telephone directory. If you are not able to obtain this information, you may contact OSHA's Office of Information and Consumer Affairs at (202) 219-8151 for further assistance in identifying the appropriate contacts.

[Discussion/Overheads](#) - 1.8 MB 

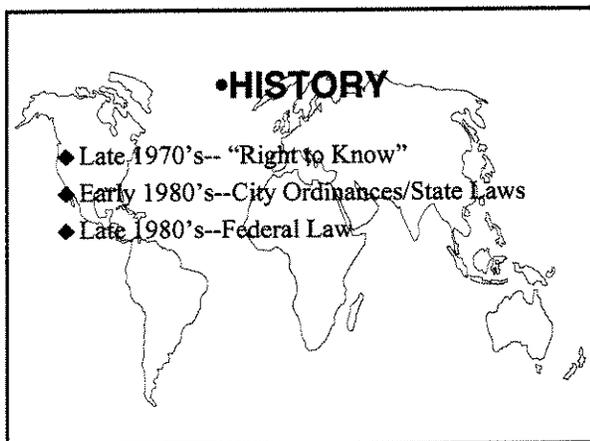
[Student Handouts](#) - 114 KB 

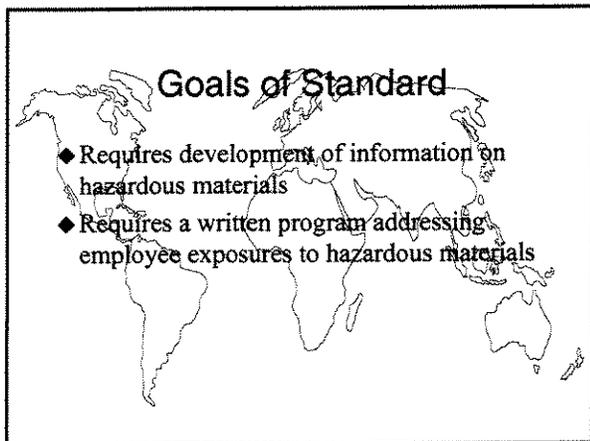
[Self-Inspection Checklist](#)

This information was found July 5, 2002 at
<http://www.osha-slc.gov/SLTC/smallbusiness/sec16.html>

Hazard Communication



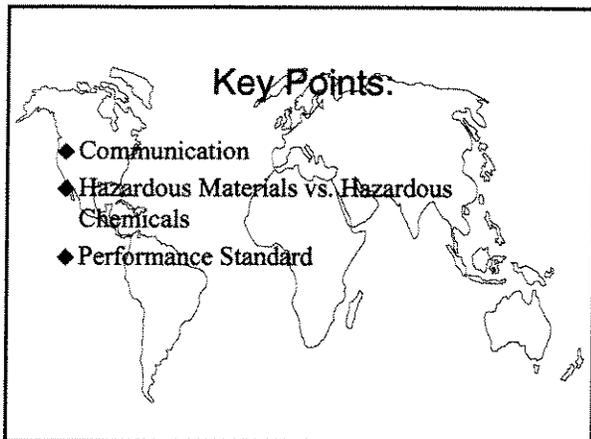




Hazard Communication

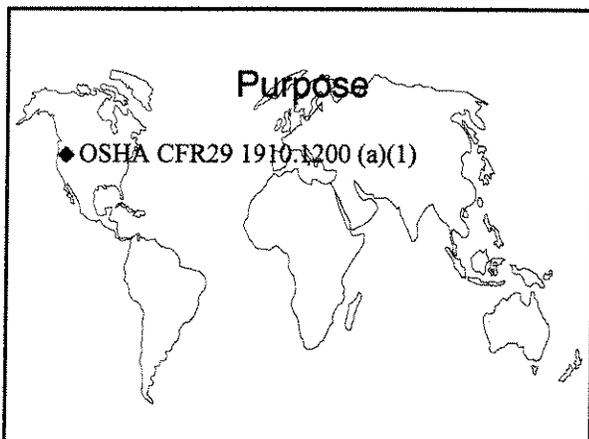
Key Points:

- ◆ Communication
- ◆ Hazardous Materials vs. Hazardous Chemicals
- ◆ Performance Standard



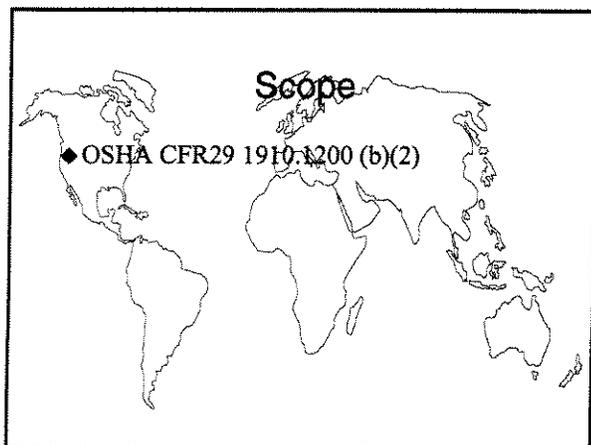
Purpose

- ◆ OSHA CFR29 1910.1200 (a)(1)



Scope

- ◆ OSHA CFR29 1910.1200 (b)(2)



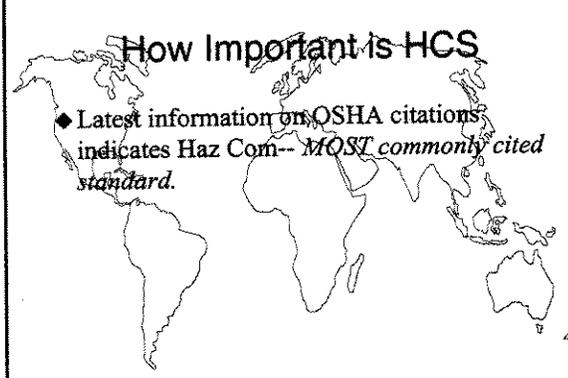
Hazard Communication

Costs and Benefits

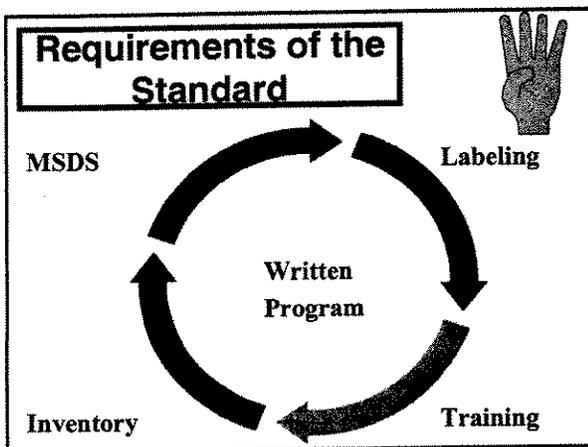


- ◆ **Costs:**
 - Requires time and effort to start
 - Must be maintained
- ◆ **Benefits**
 - Safer work practices
 - Hazard reduction

How Important is HCS



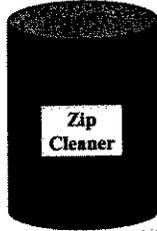
- ◆ Latest information on OSHA citations indicates Haz Com-- *MOST commonly cited standard.*



Hazard Communication

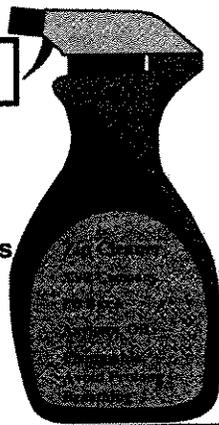
Labeling

- ◆ Purpose
- ◆ What information is required
- ◆ Accessible/Legible/in English
- ◆ Types; Mfg.'s, HMIS, NFPA
- ◆ Someone responsible



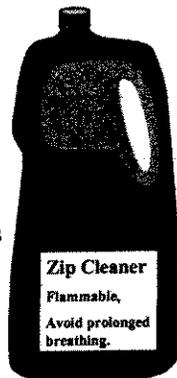
Manufacturers Label

- Mfg.'s Name/Address
- Product Name
- Physical Warnings
- Health Hazard Warnings Including Target Organs



In House Label

- Product Name
- Physical Hazards
- Health Hazard Warnings Including Target Organs



Hazard Communication

Health Hazard		Chemical Name	Fire Hazard	
4-Deadly			Flash Points	
3-Extremely Hazardous			4-Below 73° F	
2-Hazardous			3-Below 100° F	
1-Slightly Hazardous			2-Below 200° F	
0-Normal material			1-Above 200° F	
			0-Will not burn	
Specific Hazard		NFPA Label	Reactivity	
Oxidizer	OXY		4-May detonate	
Acid	ACID		3-Shock and heat may detonate	
Alkali	ALK		2-Violent chemical change	
Corrosive	COR		1-Unstable if heated	
Use NO WATER	-W		0-Stable	
Radiation Hazard				

HMIS LABEL			
Health	<input type="text"/>	<input type="text"/>	(blue)
Flammability	<input type="text"/>	<input type="text"/>	(red)
Reactivity	<input type="text"/>	<input type="text"/>	(yellow)
Personal Protective Equipment	<input type="text"/>	<input type="text"/>	(white)
Chemical Name: _____			

Employee Training	
◆ General Training	
◆ Specific Training	

Hazard Communication

General Training

- ◆ Hazard Communication Standard
- ◆ Employer's Written Program
- ◆ Location/Availability Of Written Program & MSDS
- ◆ How to read labels & MSDS's



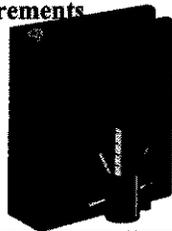
Specific Training

- ◆ Characteristics - How to detect
- ◆ Health & Safety Hazards
- ◆ Work practices or SOPs
- ◆ Emergency action plans
- ◆ Personal Protective Equipment (PPE)
- ◆ Non-routine tasks
- ◆ Industrial Hygiene monitoring results



Written Program

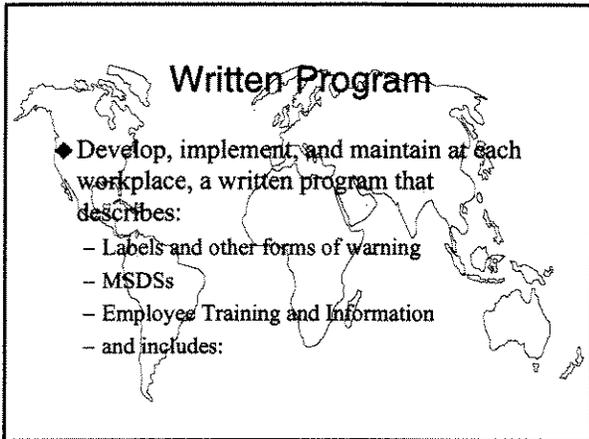
- ◆ Must be developed, implemented & maintained
- ◆ A blueprint for how the requirements will be met
- ◆ Readily accessible



Hazard Communication

Written Program

- ◆ Develop, implement, and maintain at each workplace, a written program that describes:
 - Labels and other forms of warning
 - MSDSs
 - Employee Training and Information
 - and includes:



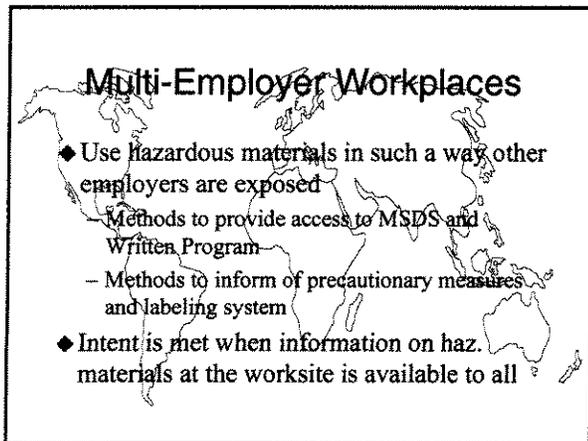
Miscellaneous

- ◆ Chemical Inventory
- ◆ Non-Routine Tasks
- ◆ Piping Systems
- ◆ Contractors/
Multi-Employer Worksites



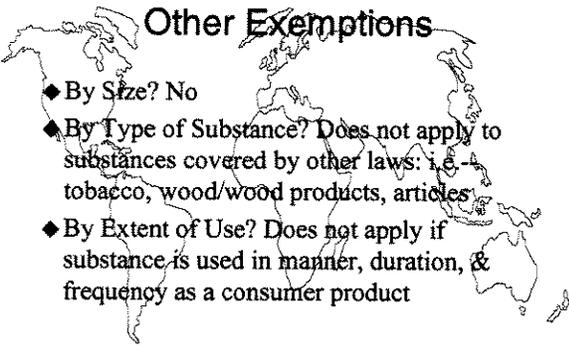
Multi-Employer Workplaces

- ◆ Use hazardous materials in such a way other employers are exposed
 - Methods to provide access to MSDS and Written Program
 - Methods to inform of precautionary measures and labeling system
- ◆ Intent is met when information on haz. materials at the worksite is available to all



Hazard Communication

Other Exemptions



- ◆ By Size? No
- ◆ By Type of Substance? Does not apply to substances covered by other laws: i.e. - tobacco, wood/wood products, articles
- ◆ By Extent of Use? Does not apply if substance is used in manner, duration, & frequency as a consumer product

Summary

- ◆ What is Hazcom?
- ◆ Why was the Hazcom Standard implemented?
- ◆ What are the 4 major elements of our written Hazcom program?
- ◆ Why is a workplace inventory important?
- ◆ What is the purpose of an MSDS?

Summary (continued)

- ◆ Where do we keep MSDSs & Written Program?
- ◆ Who is responsible for maintaining MSDS in your area?
- ◆ What labeling system do we use?
- ◆ Why do we need MSDS and labeling?
- ◆ Why do we train on Hazcom?
- ◆ What's the difference between General and Specific training?



[Technical Links](#) > [Small Business Training](#)

ASSESSING THE NEED FOR PERSONAL PROTECTIVE EQUIPMENT (PPE)

Protecting Employees from Workplace Hazards

OSHA's General PPE Requirements

Eye and Face Protection

Head Protection

Foot and Leg Protection

Hand and Arm Protection

Body Protection

Hearing Protection

References:

OSHA General Industry Standards, Subpart I, [Personal Protective Equipment](#)

Additional Sources of Information:

[Personal Protective Equipment](#), OSHA 3077 (1998, revised)
[Personal Protective Equipment](#) OSHA Technical Links page
[American National Standards Institute \(ANSI\)](#)

[Discussion/Overheads](#) - 2.6 MB 

[Student Handouts](#) - 665 KB 

[Self-Inspection Checklist](#)

This information was found July 5, 2002 at
<http://www.osha-slc.gov/SLTC/smallbusiness/sec7.html>

**Personal
Protective
Equipment****Recognition****Control****Compliance****Training**

Personal Protective Equipment (PPE)

OSHA requires the use of personal protective equipment (PPE) to reduce employees' exposures to hazards when engineering the administrative controls are not feasible or effective in reducing these exposures to acceptable levels. Employers are required to determine all exposures to hazards in their workplace and determine if PPE should be used to protect their workers.

If PPE is to be used to reduce the exposure of employees to hazards, a PPE program should be initialized and maintained. This program should contain identification and evaluation of hazards in the workplace and if use of PPE is an appropriate control measure; if PPE is to be used, how it is selected, maintained and its use evaluated; training of employees using the PPE; and vigilance of the program to determine its effectiveness in preventing employee injury or illness.

Related Technical Links:

- [Construction: Personal Protective Equipment](#)

Recognition

- [Personal Protective Equipment](#). OSHA Publication 3077 (1998), 25 pages. Also available in a 305 KB [PDF file](#).
- [Assessing the Need for Personal Protective Equipment: A Guide for Small Business Employers](#). OSHA Publication 3151 (1997), 56 pages, 189 KB PDF file.
- [Guidelines for the Use of Contact Lenses in Industrial Environments](#). Contact Lens Section, American Optometric Association (1998, May), 1 page. These guidelines provide a brief discussion of contact lens use in

industrial workplaces, and questions which should be addressed in evaluating the workplace and when prescribing lens for workers.

- [OSHA Small Business Training Program, Section 7](#). Assessing the Need for Personal Protective Equipment (PPE).
- [Personal Protective Equipment program](#). CDC, 13 pages. This program addresses eye, face, head, foot, and hand protection.

Control

- [A Guide of Evaluating the Performance of Chemical Protective Clothing](#). DHHS (NIOSH) Publication No. 90-109 (1990, June), 96 pages, 1.6 MB PDF file, or 2 separate PDF files. This guide includes selection and evaluation guidelines for protective clothing.
- [Recommendations for Chemical Protective Clothing](#). A Companion to the NIOSH Pocket Guide to Chemical Hazards (1998, February), 3 pages. Provides chemical protective clothing guidelines for chemicals listed in the Pocket Guide.

Compliance

Due to the amount of information, the [Compliance](#) section is on a separate page.

Training

- [Personal Protection Equipment Course](#). Free training course on personal protective equipment.
- [OSHA Fact Sheet - 93-03](#). (1993, January 01), 3 pages. A report describing Eye protection in the workplace.
- [Personal Protective Equipment](#). 5.0 MB ZIP. These materials are designed to assist trainers conducting OSHA 10-hour General Industry outreach training for workers. Since workers are the target audience, these materials emphasize hazard identification, avoidance,

and control - not standards. No attempt has been made to treat the ten topics exhaustively.

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<http://www.osha-slc.gov/SLTC/personalprotectiveequipment/index.html>



Personal Protective Equipment

U.S. Department of Labor
Occupational Safety and Health Administration

OSHA 3077
1998 (Revised)

This informational booklet is intended to provide a generic, non-exhaustive overview of a particular standards-related topic. This publication does not itself alter or determine compliance responsibilities, which are set forth in OSHA standards themselves and the *Occupational Safety and Health Act*. Moreover, because interpretations and enforcement policy may change over time, for additional guidance on OSHA compliance requirements, the reader should consult current administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts.

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This information will be made available to sensory impaired individuals upon request. Voice phone: (202) 219-8615; Telecommunications Device for the Deaf (TDD) message referral phone: 1-800-326-2577.

Personal Protective Equipment



U.S. Department of Labor
Alexis M. Herman, Secretary

Occupational Safety and Health Administration
Charles N. Jeffress, Assistant Secretary

OSHA 3077
1998 (Revised)

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Introduction

The goal of the *Occupational Safety and Health Act of 1970* is to ensure safe and healthful working conditions for working men and women in the nation. This Act, which established the Occupational Safety and Health Administration (OSHA) in the Department of Labor, provides for research, information, education, and training in the field of occupational safety and health and authorizes enforcement of OSHA standards.

The Act covers more than 100 million employees throughout the United States. This landmark legislation, the first national safety and health law, establishes standards requiring employers to provide their workers with workplaces free from recognized hazards that could cause serious injury or death. It also requires the employees to abide by all safety and health standards that apply to their jobs.

Although the aim of this booklet is to assist in providing a safe and healthful workplace, the scope is restricted to preventing employee exposure to unsafe equipment and situations. Words such as "must," "shall," "required," and "necessary" indicate requirements under the OSHA standards. Procedures indicated by "should," "may," "suggested," and "recommended" constitute generally accepted good practices.

Much of the personal protective equipment (PPE) information in this booklet is framed in general terms and is intended to complement relevant regulations and manufacturers' requirements. For more specific information, refer to the OSHA standards collected in *Title 29, Code of Federal Regulations* (CFR), Parts 1900-1999. In some instances, the standards or this booklet refer to specifications by the American National Standards Institute (ANSI), 11 West 42nd St., New York, NY 10036, and the American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103. Employers are encouraged to use the most recent ANSI consensus standards and resolutions to provide protection equal to or greater than Federal OSHA regulations.

Information in this booklet also reflects OSHA's latest revisions to PPE standards (1910.132 and 1910.138) as published in the *Federal Register* Vol. 59, No. 66, pp. 16344-16364, April 6, 1994, and Vol. 59, No. 126, pp. 33910, July 1, 1994. The final rule also contains nonmandatory guidelines for a hazard assessment and a chart identifying the appropriate personal protective equipment for particular hazards.

Personal protective equipment should not be used as a substitute for engineering, work practice, and/or administrative controls. Personal protective equipment should be used in conjunction with these controls to provide for employee safety and health in the workplace. Personal protective equipment includes all clothing and other work accessories designed to create a barrier against workplace hazards. The basic element of any management program for personal protective equipment should be an in depth evaluation

of the equipment needed to protect against the hazards at the workplace. Management dedicated to the safety and health of the employees should use that evaluation to set a standard operating procedure for personnel, then train employees on the protective limitations of personal protective equipment, and on its proper use and maintenance.

Using personal protective equipment requires hazard awareness and training on the part of the user. Employees must be aware that the equipment does not eliminate the hazard. If the equipment fails, exposure will occur. To reduce the possibility of failure, equipment must be properly fitted and maintained in a clean and serviceable condition.

Selection of the proper personal protective equipment for a job is important. Employers and employees must understand the equipment's purpose and its limitations. The equipment must not be altered or removed even though an employee may find it uncomfortable. (Sometimes equipment may be uncomfortable simply because it does not fit properly.)

This booklet discusses those types of equipment most commonly used for protection for the head, including eyes and face and the torso, arms, hands, and feet. The use of equipment to protect against life-threatening hazards also is discussed. Information on respiratory protective equipment may be found in Title, 29 CFR, Part 1910.134. The standard should be consulted for information on specialized equipment such as that used by firefighters.

Employers and employees in the 25 states that operate OSHA-approved workplace safety and health plans should check with their state. Their state may be enforcing standards and other procedures that while "at least as effective as" federal standards are not always identical to the federal requirements. See page 24 for more information on state plans.

Hazard Assessment

Employers are required to assess the workplace to determine if hazards that require the use of personal protective equipment are present or are likely to be present. If hazards or the likelihood of hazards are found employers must select and have affected employees use properly fitted personal protective equipment suitable for protection from these hazards.

Employers must certify in writing that a workplace hazard assessment has been performed. Defective or damaged personal protective equipment shall not be used.

Training

Before doing work requiring use of personal protective equipment, employees must be trained to know: when personal protective equipment is necessary; what type is necessary; how it is to be worn; and what its limitations are, as well as know its proper care, maintenance, useful life, and disposal. In many cases, more than one type of personal protective equipment will provide adequate protection. In those instances, employers should be given a choice.

Employers must certify in writing that training has been carried out and that employees understand it. Each written certification shall contain the name of each employee trained, the date(s) of training, and identify the subject certified.

Head Protection

Prevention of head injuries is an important factor in every safety program. A survey by the Bureau of Labor Statistics (BLS) of accidents and injuries noted that most workers who suffered impact injuries to the head were not wearing head protection [1.p.2]. The majority of workers were injured while performing their normal jobs at their regular worksites.

The survey showed that in most instances where head injuries occurred employers had not required their employees to wear head protection. Of those workers wearing hard hats, all but 5 percent indicated that they were required by their employers to wear them [1,p.2]. The vast majority of those who wore hard hats all or most of the time at work believed that hard hats were practical for their jobs. According to the report, in almost half of the accidents involving head injuries, employees knew of no actions taken by employers to prevent such injuries from recurring.

The BLS survey noted that more than one-half of the workers were struck in the head while they were looking down and almost three-tenths were looking straight ahead. Although a third of the unprotected workers were injured when bumping into stationary objects, such actions injured only one-eighth of hard hat wearers [1.p.1]. Elimination or control of a hazard leading to an accident causing head injuries are of a type difficult to anticipate and control. Where these conditions exist, head protection must be provided to prevent injury.

Head injuries are caused by falling or flying objects, or by bumping the head against a fixed object. Head protection, in the form of protective hats, must do two things -- resist penetration and absorb the shock of the blow. This is accomplished by making the shell of the hat of a material hard enough to resist the blow, and by utilizing a shock -absorbing lining composed of headband and crown straps to keep the shell away from the wearer's skull. Protective hats are also used to protect against electric shock.

The standards recognized by OSHA for protective hats purchased prior to July 5, 1994, are contained in ANSI *Requirements for Industrial Head Protection*, Z89.1-1969, and ANSI *Requirements for Industrial Protective Helmets for Electrical Workers*, Z89.2-1971. These should be consulted for details. The standards for protective helmets purchased after July 5, 1994, are contained in ANSI *Personnel Protection -- Protective Headwear for Industrial Workers-Requirements*, Z89.1-1986. Later editions of these standards are available and acceptable for use.

Selection

Each type and class of head protector is intended to provide protection against specific hazardous conditions. An understanding of these conditions will help in selecting the right hat for the particular situation.

Protective hats are made in the following types and classes:

Type 1 - helmets with full brim, not less than 1 and 1/4 inches wide; and **Type 2** - brimless helmets with a peak extending forward from the crown.

For industrial purposes, three classes of helmets are recognized:

Class A - general service, limited voltage protection;

Class B - utility service, high -voltage helmets; and

Class C - special service, no voltage protection.

For firefighters, head protection must consist of a protective head device with ear flaps and a chin strap that meet the performance, construction, and testing requirements stated in Title 29 CFR, 1910.156(e)(5).

Hats and caps under **Class A** are intended for protection against impact hazards. They are used in mining, construction, shipbuilding, tunneling, lumbering, and manufacturing.

Class B, utility service hats and caps protect the wearer's head from impact and penetration by falling or flying objects and from high -voltage shock and burns. They are used extensively by electrical workers.

The safety hat or cap in **Class C** is designed specifically for lightweight comfort and impact protection. This class is usually manufactured from aluminum and offers no dielectric protection. **Class C** helmets are used in certain construction and manufacturing occupations, oil fields, refineries, and chemical plants where there is no danger from electrical hazards or corrosion. They also are used on occasions where there is a possibility of bumping the head against a fixed object.

Materials used in helmets should be water -resistant and slow burning. Each helmet consists essentially of a shell and suspension. Ventilation is provided by a space between the headband and the shell. Each helmet should be accompanied by the instructions explaining the proper method of adjusting and replacing the suspension and headband.

The wearer should be able to identify the type of helmet by looking inside the shell for the manufacturer, ANSI designation and class.

Helmets are date stamped by the manufacturer and should be replaced no later than the date recommended by the manufacturer, e.g., 5 years. For example: Manufacturer's Name; ANSI Z89.1-1969 (or later year); Class A.

Fit

Headbands are adjustable in 1/8 -size increments. When the headband is adjusted to the right size, it provides sufficient clearance between the shell and the headband. The removable or replaceable type sweatband should cover at least the forehead portion of the headband. The shell should be of one -piece seamless construction and designed to resist the impact of a blow from falling material. The internal cradle of the headband and sweatband forms the suspension. Any part of that comes into contact with the wearer's head must not be irritating to normal skin.

Inspection and Maintenance

Manufacturers should be consulted with regard to paint or cleaning materials for their helmets because some paints and thinners may damage the shell and reduce protection by physically weakening it or negating electrical resistance.

A common method of cleaning shells is dipping them in hot water (approximately 140° F) containing a good detergent for at least a minute. Shells should then be scrubbed and rinsed in clear hot water. After rinsing, the shell should be carefully inspected for any signs of damage.

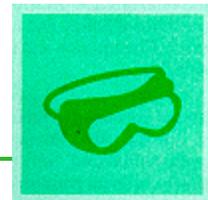
All components, shells, suspensions, headbands, sweatbands, and any accessories should be visually inspected daily for signs of dents, cracks, penetration, or any other damage that might reduce the degree of safety originally provided.

Users are cautioned that if unusual conditions occur (such as higher or lower extreme temperatures than described in the standards), or if there are signs of abuse or mutilation of the helmet or any component, the margin of safety may be reduced. If damage is suspected, helmets should be replaced or representative samples tested in accordance with procedures contained in ANSI Z89.1 -1986. This booklet references national consensus standards, for example, ANSI standards, that were adopted into OSHA Regulations. Employers are encouraged to use up-to-date national consensus standards that provide employee protection equal to or greater than that provided by OSHA standards.

Helmets should not be stored or carried on the rear -window shelf of an automobile, since sunlight and extreme heat may adversely affect the degree of protection.

Eye and face protective equipment is required by OSHA where there is a reasonable probability of preventing injury when such equipment is used. Employers must provide a type of protector suitable for work to be performed and employees must use the protectors. These stipulations also apply to supervisors and management personnel, and should apply to visitors while they are in hazardous areas.

Eye and Face Protection



The BLS study found that about 60 percent of workers who suffered eye injuries were not wearing eye protective equipment [2, p.12]. When asked why they were not wearing face protection at the time of the accident, workers indicated that face protection was not normally used or practiced in their type of work, or it was not required for the type of work performed at the time of the accident [2, p.2; 3, p.12].

Suitable eye protectors must be provided where there is a potential for injury to the eyes or face from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, potentially injurious light radiation or a combination of these. Protectors must meet the following minimum requirements:

- Provide adequate protection against the particular hazards for which they are designed;
- Be reasonably comfortable when worn under the designated conditions;

- Fit snugly without interfering with the movements or vision of the wearer;
- Be durable;
- Be capable of being disinfected;
- Be easily cleanable; and
- Be kept clean and in good repair.

Every protector shall be distinctly marked to facilitate identification of the manufacturer.

Each affected employee shall use equipment with filter lenses that have a shade number appropriate for the work being performed for protection from injurious light radiation. The following table lists the appropriate shade numbers for various work operations.

Filter Lenses for Protection Against Radiant Energy

Operation	Electrode Size (1/32 inch diameter standard)	Arc Current (Amps)	Minimum* Protective Shade
Shielded metal arc welding	< 3/32	< 60	7
	3/32-5/32	60-160	8
	5/32-8/32	160-250	10
	> 8/32	250-500	11
Gas metal arc welding and flux cored arc welding		< 60	7
		60-160	10
		160-250	10
		250-500	10
Gas Tungsten arc welding		< 50	8
		50-150	8
		150-500	10
Air carbon arc cutting	(Light)	< 500	10
	(Heavy)	500-1000	10
Plasma arc welding		< 20	6
		20-100	8
		100-400	10
		400-800	11
Plasma arc cutting	(light)**	< 300	8
	(medium)**	300-400	9
	(heavy)**	400-800	10
Torch brazing		—	3
Torch soldering		—	2
Carbon arc welding		—	14

* As a rule of thumb, start with a shade that is too dark to see the weld zone (the darkest lens carries a value of 10). Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.

** These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the workpiece.

Operation	Plate Thickness		Minimum Protective Shade
	inches	millimeters	
Gas welding:			
Light	< 1/8	< 3.2	4
Medium	1/8 to 1/2	3.2 to 12.5	5
Heavy	> 1/2	> 12.7	6
Oxygen cutting			
Light	< 1	< 25	3
Medium	1 to 62	5 to 150	4
Heavy	> 6	> 150	5

OSHA and the National Society to Prevent Blindness recommend that emergency eyewashes be placed in all hazardous locations. First -aid instructions should be posted close to potential danger spots since any delay to immediate aid or an early mistake in dealing with an injury can result in lasting damage.

Selection

Each eye, face, or face-and-eye protector is designed for a particular hazard. In selecting the protector, consideration should be given to the kind and degree of hazard, and the protector should be selected on that basis. Where a choice of protectors is given, and the degree of protection required is not an important issue, worker comfort may be a deciding factor. The BLS survey showed that few workers ever complained about poor vision or discomfort with personal eye protection equipment.

The survey noted that the typical injury was caused by flying or falling blunt metal objects. Lacerations, fractures, broken teeth, and contusions were common types of injuries reported.

Persons using corrective spectacles and those who are required by OSHA to wear eye protection must wear face shields, goggles, or spectacles of one of the following types:

- Spectacles with protective lenses providing optical correction;
- Goggles worn over corrective spectacles without disturbing the adjustment of the spectacles; or
- Goggles that incorporate corrective lenses mounted behind the protective lenses.

When limitations or precautions are indicated by the manufacturer, they should be transmitted to the user and strictly observed.

Over the years, many types and styles of eye and face -and-eye protective equipment have been developed to meet the demands for protection against a variety of hazards.

Goggles come in a number of different styles: eyecups, flexible or cushioned goggles, plastic eyeshield goggles, and foundrymen's goggles. Goggles are manufactured in several styles for specific uses such as protecting against dusts and splashes, and in chipper's, welder's, and cutter's models.

Safety spectacles require special frames. Combinations of normal streetwear frames with safety lenses are not in compliance.

Many hard hats and nonrigid helmets are designed with face and eye protective equipment.

Design, construction, tests, and use of eye and face protection purchased prior to July 5, 1994, must be in accordance with ANSI Z87.1 -1968 *USA Standard Practice for Occupational and Educational Eye and Face Protection*. Protective eye and face devices purchased after July 5, 1994, must comply with ANSI Z87.1 -1989, *American National Standard Practice for Occupational and Educational Eye and Face Protection*.

Fit

Fitting of goggles and safety spectacles should be done by someone skilled in the procedure. Prescription safety spectacles should be fitted only by qualified optical personnel.

Inspection and Maintenance

It is essential that the lenses of eye protectors be kept clean. Continuous vision through dirty lenses can cause eye strain -- often an excuse for not wearing the eye protectors. Daily inspection and cleaning of the eye protector with soap and hot water, or with a cleaning solution and tissue, is recommended.

Pitted lenses, like dirty lenses, can be a source of reduced vision. They should be replaced. Deeply scratched or excessively pitted lenses are apt to break more readily.

Slack, worn-out, sweat-soaked, or twisted headbands do not hold the eye protector in proper position. Visual inspection can determine when the headband elasticity is reduced to a point beyond proper function.

Goggles should be kept in a case when not in use. Spectacles, in particular, should be given the same care as one's own glasses, since the frame, nose pads, and temples can be damaged by rough usage.

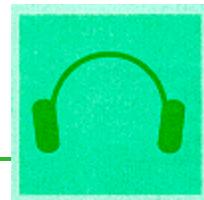
Personal protective equipment that has been previously used should be disinfected before being issued to another employee.

Also, when each employee is assigned protective equipment for extended periods, it is recommended that such equipment be cleaned and disinfected regularly.

Several methods for disinfecting eye-protective equipment are acceptable. The most effective method is to disassemble the goggles or spectacles and thoroughly clean all parts with soap and warm water. Carefully rinse all traces of soap, and replace defective parts with new ones. Swab thoroughly or completely and immerse all parts for 10 minutes in a solution of germicidal deodorant fungicide. Remove parts from solution and suspend in a clean place for air drying at room temperature or with heated air. Do not rinse after removing parts from the solution because this will remove the germicidal residue which retains its effectiveness after drying.

The dry parts or items should be placed in a clean, dust-proof container, such as a box, bag, or plastic envelope, to protect them until reissue.

Ear Protection



Exposure to high noise levels can cause hearing loss or impairment. It can create physical and psychological stress. There is no cure for noise-induced hearing loss, so the prevention of excessive noise exposure is the only way to avoid hearing damage. Specifically designed protection is required, depending on the type of noise encountered and the auditory condition of the employee.

Preformed or molded earplugs should be individually fitted by a professional. Waxed cotton, foam, or fiberglass wool earplugs are self-forming. When properly inserted, they work as well as most molded earplugs.

Some earplugs are disposable, to be used one time and then thrown away. The non-disposable type should be cleaned after each use for proper protection. Plain cotton is ineffective as protection against hazardous noise.

Earmuffs need to make a perfect seal around the ear to be effective. Glasses, long sideburns, long hair, and facial movements, such as chewing, can reduce protection. Special equipment is available for use with glasses or beards.

For more specific information on a hearing conservation program, see Title 29 CFR 1910.95 - *Occupational Noise Exposure*.

Respiratory Protection



Respirators shall be used in the following circumstances:

- i. Where exposure levels exceed the permissible exposure limit (PEL), during the time period necessary to install or implement feasible engineering and work practice controls;
- ii. In those maintenance and repair activities and during those brief or intermittent operations where exposures exceed the PEL and engineering and work practice controls are not feasible or are not required;
- iii. In regulated areas;
- iv. Where the employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL;
- v. In emergencies.

Torso Protection



Many hazards can threaten the torso: heat, splashes from hot metals and liquids, impacts, cuts, acids, and radiation. A variety of protective clothing is available: vests, jackets, aprons, coveralls, and full body suits.

Wool and specially treated cotton are two natural fibers that are fire-resistant and comfortable since they adapt well to changing workplace temperatures.

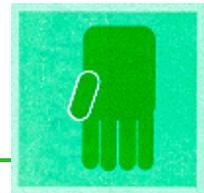
Duck, a closely woven cotton fabric, is good for light -duty protective clothing. It can protect against cuts and bruises on jobs where employees handle heavy, sharp, or rough material.

Heat-resistant material, such as leather, is often used in protective clothing to guard against dry heat and flame. Rubber and rubberized fabrics, neoprene, and plastics give protection against some acids and chemicals.

It is important to refer to the manufacturers' selection guides for the effectiveness of specific materials against specific chemicals.

Disposable suits of plasticlike or other similar synthetic materials are particularly important for protection from dusty materials or materials that can splash. If the substance is extremely toxic, a completely enclosed chemical suit may be necessary. The clothing should be inspected to ensure proper fit and function for continued protection.

Arm and Hand Protection



Examples of injuries to arms and hands are burns, cuts, electrical shock, amputation, and absorption of chemicals.

There is a wide assortment of gloves, hand pads, sleeves, and wristlets for protection against various hazardous situations.

Employers need to determine what hand protection their employees need. The work activities of the employees should be studied to determine the degree of dexterity required, the duration, frequency, and degree of exposure to hazards and the physical stresses that will be applied.

Also, it is important to know the performance characteristics of gloves relative to the specific hazard anticipated; e.g., exposure to chemicals, heat, or flames. Gloves' performance characteristics should be assessed by using standard test procedures.

Before purchasing gloves, the employer should request documentation from the manufacturer that the gloves meet the appropriate test standard(s) for the hazard(s) anticipated. For example, for protection against chemical hazards, the toxic properties of the chemical(s) must be determined -- particularly, the ability of the chemical(s) to pass through the skin and cause systemic effects.

The protective device should be selected to fit the job. For example, some gloves are designed to protect against specific chemical hazards. Employees may need to use gloves -- such as wire mesh, leather, and canvas -- that have been tested and provide insulation from burns and cuts. The employee should become acquainted with the limitations of the clothing used.

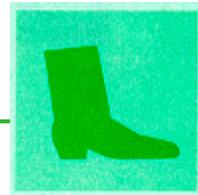
Certain occupations require special protection. For example, electricians need special protection from shocks and burns. Rubber is considered the best material for insulating gloves and sleeves from these hazards.

Rubber protective equipment for electrical workers must conform to the requirements established in ANSI as specified in the following list:

Item	Standard ¹
Rubber insulating gloves	ASTM D 120-87
Rubber matting for use around electrical apparatus	ASTM D 178-88 or 178-93
Rubber insulating blankets	ASTM D 1048-93 or 1048-88A
Rubber insulating hoods	ASTM D 1048-88 or 1049-93
Rubber insulating line hose	ASTM D 1050-90
Rubber insulating sleeves	ASTM D 1051-87

Source: 29 CFR 1910.137, *Federal Register* 59 (20): 4436, January 31, 1994.

Foot and Leg Protection



According to the BLS survey, most of the workers in selected occupations who suffered foot injuries were not wearing protective footwear. Furthermore, most of their employers did not require them to wear safety shoes. The typical foot injury was caused by objects falling fewer than 4 feet and the median weight was about 65 pounds [4, p.1]. Again, most workers were injured while performing their normal job activities at their worksites.

For protection of feet and legs from falling or rolling objects, sharp objects, molten metal, hot surfaces, and wet slippery surfaces, workers should use appropriate footguards, safety shoes, or boots and leggings. Leggings protect the lower leg and feet from molten metal or welding sparks. Safety snaps permit their rapid removal.

Aluminum alloy, fiberglass, or galvanized steel footguards can be worn over usual work shoes, although they may present the possibility of catching on something and causing workers to trip. Heat-resistant soled shoes protect against hot surfaces like those found in the roofing, paving, and hot metal industries.

Safety shoes should be sturdy and have an impact-resistant toe. In some shoes, metal insoles protect against puncture wounds. Additional protection, such as metatarsal guards, may be found in some types of footwear. Safety shoes come in a variety of styles and materials, such as leather and rubber boots and oxfords.

Safety footwear is classified according to its ability to meet minimum requirements for both compression and impact tests. These requirements and testing procedures may be found in American National Standards Institute standards. Protective footwear purchased prior to July 5, 1994, must comply with ANSI Z41.1 -1967, *USA Standard for Men's Safety-Toe Foot-wear*. Protective footwear purchased after July 5, 1994, must comply with ANSI Z41-1991. *America National Standard for Personal Protection-Protective Footwear*.

OSHA Related Issues

Protective Vests

A Coast Guard-approved life jacket or buoyant work vest should be used if there is danger of falling into water while working. For emergency rescue operations, boats and ring buoys with at least 90 feet (27 meters) of line must be provided.

Night workers and flagmen who might be struck by moving vehicles need suits or vests designed to reflect light.

Cost Assumption

OSHA interprets its general personal protective equipment standard, as well as specific standards, to require employers to provide and to pay for personal protective equipment required by the company for the worker to do his or her job safely and in compliance

with OSHA standards. Where equipment is personal in nature and usable by workers off the job, the matter of payment may be left to labor -management negotiations.

OSHA'S 29 CFR 1910.132 establishes the employer's general obligation to provide personal protective equipment to employees as follows:

"Protective equipment, including personal protective equipment for eyes, face, head and extremities, protective clothing, respiratory devices and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation, or physical contact."

Sections 1910.133-1910.138 contain additional requirements for specific types of personal protective equipment. To accommodate work situations in which it is customary, as an exception, for workers in a particular trade to provide their own personal protective equipment. OSHA acknowledges that employees may provide their own equipment, but does not specify that practice as the norm. Instead, the agency underscores the employer's obligation to assure that such equipment is adequate and that it is properly maintained.

Conclusion

To have an effective safety program, one manager must be responsible for its coordination. First-line supervisors must be convinced of the hazard and must be held accountable for their employees' use of personal protective equipment. A safety program for new employees is a necessary part of any orientation program. An on-going safety program should be used to motivate employees to continue to use protective gear.

Teaming the correct personal protective equipment with a good training program can give the worker a large measure of safety where other controls are inadequate or impossible.

Personal protective equipment can be effective only if the equipment is selected based on its intended use, employees are trained in its use, and the equipment is properly tested and maintained, and worn.

In the final analysis, the best protection comes from an interested management and work force committed to sound work practices.

Other Sources of OSHA Assistance

Safety and Health Program Management Guidelines

Effective management of worker safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related costs. To assist employers and employees in developing effective safety and health programs, OSHA published recommended *Safety and Health Program Management Guidelines* (*Federal Register* 54(18):3908-3916, January 26, 1988). These voluntary guidelines apply to all places of employment covered by OSHA.

The guidelines identify four general elements that are critical to the development of a successful safety and health management program:

- Management commitment and employee involvement;
- Worksite analysis;
- Hazard prevention and control; and
- Safety and health training.

The guidelines recommend specific actions under each of these general elements to achieve an effective safety and health program. A single free copy of the guidelines can be obtained from the U.S. Department of Labor OSHA/OICA Publications, P.O. box 37535, Washington, DC 20013-7535, by sending a self-addressed mailing label with your request.

State Programs

The *Occupational Safety and Health Act of 1970* encourages states to develop and operate their own job safety and health plans. States with plans approved under section 18(b) of the OSH Act must adopt standards and enforce requirements that are at least as effective as federal requirements. There are currently 25 state plan states: 23 of these states administer plans covering both private and public (state and local government) employees; the other states, Connecticut and New York, cover public sector employees only. OSHA-approved plan states must adopt safety and health standards comparable, but

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Training and Education

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The OSHA Training Institute also has established OSHA Training Education Centers to address the increased demand for its courses from the private sector and from other Federal agencies. These centers are nonprofit colleges, universities, and other organizations that have been selected after a competition for participation in the program.

OSHA also provides funds to nonprofit organizations, through grants, to conduct workplace training and education in subjects where OSHA believes there is a lack of workplace training. Grants are awarded annually. Grant recipients are expected to contribute a matching share of at least 20 percent of the total grant cost.

For more information on grants, training, and education, contact the OSHA Training Institute, Office of Training and Education, 1555 Times Drive, Des Plaines, IL 60018, (847) 297-4810, Fax (847) 297-4874. For further information on any OSHA program, contact your nearest OSHA area or regional office listed at the end of this publication.

Electronic Information

Internet -- OSHA standards, interpretations, directives, and additional information are now on the World Wide Web at <http://www.osha.gov/>.

CD-ROM -- A wide variety of OSHA materials including standards, interpretations, directives, and more can be purchased on CD-ROM from the U.S. Government Printing Office. To order write to U. S. Government Bookstore, 710 N. Capitol Street, NW Washington, DC 20401 or phone (202) 512-0132. Specify OSHA regulations, Documents and Technical Information on CD-ROM, (ORDT), GPO Order No. S/N 729-013-00000-5. The price is \$38 per year (\$47.50 foreign); \$15 per single copy (\$18.75 foreign).

Emergencies

For life-threatening situations call (800) 321-OSHA. Complaints will go immediately to the nearest OSHA area or state office for help.

References

1. U.S. Department of Labor. Bureau of Labor Statistics. *Accidents Involving Head Injuries*. Report 605. Washington, DC: U.S. Government Printing Office, July 1980. 17 Pp.
2. *Accidents Involving Eye Injuries*. Report 597. Washington, DC: U.S. Government Printing Office. April 1980. 23 Pp.
3. *Accidents Involving Face Injuries*. Report 604. Washington, DC: U.S. Government Printing Office. May 1980. 20 Pp.
4. *Accidents Involving Foot Injuries*. Report 626. Washington, DC: U.S. Government Printing Office. January 1981. 22 Pp.

Related OSHA Publications

Single free copies of the following publications can be obtained from OSHA field offices or the U.S. Department of Labor, OSHA/OICA Publications, P.O. Box 37535, Washington, DC 20013-7535. Send a self-addressed mailing label with your request.

All About OSHA - OSHA 2056

Employee Workplace Rights - OSHA 3021

Consultation Kit - OSHA 3184

Hearing Conservation - OSHA 3074

How to Plan for Workplace Emergencies and Evacuations - OSHA 3088

Respiratory Protection - OSHA 3079

The following publications are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 (202) 512 -1800, Fax (202) 512-2250. Include GPO Order No. and make checks payable to Superintendent of Documents. Credit purchases (Visa and Mastercard) are acceptable.

Controlling Electrical Hazards - OSHA 3075.

Order No. 029-016-00126-3;\$1.00.

Hand and Power Tools - OSHA 3080. Order No.

029-016-00143-3; cost \$1.00.

Job Hazard Analysis - OSHA 3071. Order No.

029-016-00142-5; cost \$1.00.

States with Approved Plans

Commissioner

Alaska Department of Labor
1111 West 8th Street
Room 306
Juneau, AK 99801
(907) 465-2700

Director

Industrial Commission of Arizona
800 W. Washington
Phoenix, AZ 85007
(602) 542-5795

Director

California Department of Industrial Relations
45 Fremont Street
San Francisco, CA 94105
(415) 972-8835

Commissioner

Connecticut Department of Labor
200 Folly Brook Boulevard



Safety and Health Topics

Noise and Hearing Conservation

Every year, approximately 30 million people in the U.S. are occupationally exposed to hazardous noise. Fortunately, the incidence of noise-induced hearing loss can be reduced or eliminated through the successful application of engineering controls and hearing conservation programs.

Related Safety and Health Topics

- [Construction - Noise and Hearing Conservation](#)

Recognition

- [OSHA 3074, Hearing Conservation](#). OSHA (2002, Revised), 160 KB PDF, 32 pages. This is an informational booklet that provides a generic, non-exhaustive overview of the issue.
- [Noise-Induced Hearing Loss](#). American College of Occupational and Environmental Medicine (ACOEM) (2000). This position statement/guideline describes what occupational noise-induced hearing loss is, its characteristics, and more.
- [Work-Related Hearing Loss](#). National Institute for Occupational Safety and Health (NIOSH), 1 page. This is a brief discussion of the issue in terms of magnitude, cost, and prevention.
- [General Estimates of Work-Related Noise](#). Department of Health and Human Services (DHHS), NIOSH Publication No. 2001-104. This simple diagram allows the viewer to put certain sounds they may experience into perspective. It includes sound levels for some common noises experienced in everyday life and in the work environment.

[Safety and Health Topics](#)

[Noise and Hearing Conservation](#)

- [Recognition](#)
- [Evaluation](#)
- [Control](#)
- [Compliance](#)
- [Training](#)
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- [Credits](#)

noises.

Evaluation

- [OSHA Technical Manual](#), TED 1-0.15A (1999, January 20):
 - [Technical Equipment](#), Section II: Chapter 3, 20 pages. Contains a specific section on [Noise Monitors and Meters](#), including descriptions and techniques for the use of sound level meters and dosimeters.
 - [Noise Measurement](#), Section III: Chapter 5, 22 pages. Includes sections on instruments, measurement procedures, etc.

Control

- [OSHA 3074, Hearing Conservation](#). (1995), 14 pages. A good primer for implementing an effective hearing conservation program as required by OSHA standards.
- [Hearing Conservation Program Evaluation Checklist](#). NIOSH, 3 pages. A useful list of questions to help an employer or safety professional set up and evaluate a hearing loss prevention program.
- [Preventing Occupational Hearing Loss – A Practical Guide](#). DHHS (NIOSH) Publication No. 96-110 (1996, June), 106 pages. This document provides guidance in non-technical terms regarding the eight key components of an effective hearing loss prevention program.
- [The NIOSH Compendium of Hearing Protective Devices](#). DHHS (NIOSH) Publication No. 95-105 (1994, October), 4.8 MB PDF. Includes information on different types of protective hearing devices, including rating systems and procedures for selection and use.
- [Industrial Noise Control Manual](#). DHHS (NIOSH) Publication No. 79-117 (1978, December), 9.6 MB PDF. This historic document, originally published in 1975, contains essential information about noise control technology, as well as a collection of 61 case histories describing successful noise

- control projects.
- [Best Practices in Hearing Loss Prevention](#). NIOSH Pub. No. 2001-157 (1999, October 28), 820 KB PDF. An in-depth look at topics such as measurement and control, evaluation, employee training and motivation, the role of audiometric data management, and other hearing protection issues as they relate to hearing loss prevention.

Compliance

- **OSHA Standards**
 - [1910.95](#), Occupational noise exposure.
 - [App A](#), Noise exposure computation.
 - [App B](#), Methods for estimating the adequacy of hearing protector attenuation.
 - [App C](#), Audiometric measuring instruments.
 - [App D](#), Audiometric test rooms.
 - [App E](#), Acoustic calibration of audiometers.
 - [App F](#), Calculations and application of age corrections to audiograms.
 - [App G](#), Monitoring noise levels non-mandatory informational appendix.
 - [App H](#), Availability of referenced documents.
 - [App I](#), Definitions.
- **OSHA Directives**
 - [OSHA Technical Manual](#), TED 1-0.15A (1999, January 20):
 - [Technical Equipment](#), Section II: Chapter 3, 20 pages. Includes a specific portion on [Noise Monitors and Meters](#).
 - [Noise Measurement](#), Section III: Chapter 5, 22 pages.
 - [STP 2.21](#). 29 CFR 1910.95, Occupational Noise Exposure; Hearing Conservation Amendment (1981, December 12), 4 pages.
 - [CPL 2-2.35A](#). 29 CFR 1910.95(b)(1),

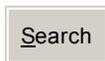
Guidelines for Noise Enforcement;
Appendix A - Noise Control Guidelines
(1983, December 19), 3 pages.

- [CPL 2.103](#). OSHA Field Inspection Reference Manual, Section 7 - Chapter III, Inspection Documentation (1994, September 26), 41 pages. Paragraph C.3.b. includes citation policies for violations of the 1910.95 noise standard.
- [NHCA Alert](#). The National Hearing Conservation Association (2001, October 12), 1 page. Provides information regarding the pending revision of the 29 CFR 1904 federal recordkeeping rule .

- **Review Commission and Administrative Law Judge Decisions**

The Occupational Safety and Health Review Commission (OSHRC) is an independent Federal agency created to resolve contests of citations or penalties resulting from OSHA inspections of American workplaces. To locate decisions related to this topic, search for keywords at the [OSHRC site](#).

- **Standard Interpretations and Compliance Letters**



Search for standard interpretations and compliance letters related to this topic.

- **Other Standards**

- [Criteria for a Recommended Standard: Occupational Noise Exposure - Revised Criteria 1998](#). DHHS (NIOSH) Publication No. 98-126 (1998, June), 122 pages. This criteria document reevaluates and reaffirms the NIOSH recommended exposure limit (REL) for occupational noise exposure established in 1972. Additional recommendations for hearing loss prevention programs are provided. Also available in PDF (4.3

- MB).
- [Mine Safety and Health Administration-Health Standards for Occupational Noise Exposure](#). MSHA (2002, January 1), 1 page. A single source page for all documents and resources related to the new Health Standards for Occupational Noise Exposure rule, established to protect miners from hearing loss.
 - [Department of Defense Hearing Conservation Program \(HCP\)](#). DoD Instruction No. 6055.12 (1996, April 22), 43 pages. Includes exposure limits and requirements for monitoring, control methods, hearing conservation programs, etc.
 - ACGIH 2001 TLVs and BEIs. Threshold Limit Values - Acoustic., pp. 101-105, American Conference of Governmental Industrial Hygienists ([ACGIH](#)). Includes recommendations for infrasound, low-frequency sound, continuous or intermittent noise, impulsive noise, and ultrasound.
 - [American National Standards Institute \(ANSI\)](#). ANSI, as well as the International Organization for Standardization (ISO), has published several standards related to noise and acoustics. [Search](#) for noise standards using relevant keywords at the ANSI website (e.g., "noise", "acoustics", "occupational noise", etc.).

Training

- [Safeworker: Sound Advice - Protect Your Ears in Noisy Work Environments](#). National Safety Council (2000, February). This booklet, written in collaboration by NSC and NIOSH, offers general guidance to workers about protecting their hearing.
- [Today's Supervisor: Listen Up! Learn How to Protect your Hearing](#). National Safety Council (2000, February). This booklet, written in collaboration by NSC and NIOSH, assists

employers and supervisors in making decisions that will help prevent noise-induced hearing loss among their employees.

Other

- [Noise and Hearing Loss Prevention](#). NIOSH, 2 pages. Publications, presentations, research information, related links, and more.
- Noise, Vibration, and Ultrasound. Robert D. Bruce, Arno S. Bommer, and Charles T. Moritz, in *The Occupational Environment - Its Evaluation and Control*, Chapter 20, pp. 424-489, Salvatore R. DiNardi, Ed., AIHA Press. (1997). This chapter of the "AIHA White Book" covers nearly all aspects of occupational noise exposure. Available in hardcopy or CD-ROM from [AIHA](#).
- The Noise Manual, 5th Ed. Edited by Elliott H. Berger, Larry H. Royster, Julia D. Royster, Dennis P. Driscoll, and Marty Layne, AIHA Press (2000). The classic noise reference is used by many health and safety professionals and has been authored by 17 experts in the field and peer-reviewed. Available from [AIHA](#).

Revision Date: 15 February 2002

Information found July 18, 2002 at
<http://www.osha-slc.gov/SLTC/noisehearingconservation/index.html>

**OSHA 3074****Hearing Conservation**

**Hearing
Conservation**

U.S. Department of Labor
Occupational Safety and Health Administration

OSHA 3074
1995 (Revised)

This informational booklet is intended to provide a generic, non-exhaustive overview of a particular standards related topic. This publication does not itself alter or determine compliance responsibilities, which are set forth in OSHA standards themselves, and the *Occupational Safety and Health Act of 1970*. Moreover, because interpretations and enforcement policy may change over time, for additional guidance on OSHA compliance requirements, the reader should consult current administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts.

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This information will be made available to sensory impaired individuals upon request.
Voice phone: (202) 219-8615;

Telecommunications Device for the Deaf (TDD) message referral phone:
(800) 326-2577.

Hearing Conservation



U. S. Department of Labor
Robert B. Reich, Secretary

Occupational Safety and Health Administration
Joseph A. Dear, Assistant Secretary

OSHA 3074
1995 (Revised)

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Occupational Noise Exposure

Noise, or unwanted sound, is one of the most pervasive occupational health problems. It is a by-product of many industrial processes. Sound consists of pressure changes in a medium (usually air), caused by vibration or turbulence. These pressure changes produce waves emanating away from the turbulent or vibrating source. Exposure to high levels of noise causes hearing loss and may cause other harmful health effects as well. The extent of damage depends primarily on the intensity of the noise and the duration of the exposure. Noise-induced hearing loss can be temporary or permanent. Temporary hearing loss results from short term exposures to noise, with normal hearing returning after a period of rest. Generally, prolonged exposure to high noise levels over a period of time gradually causes permanent damage.

OSHA's hearing conservation program is designed to protect workers with significant occupational noise exposures from suffering material hearing impairment even if they are subject to such noise exposures over their entire working lifetimes.

The following summarizes the required component of OSHA's hearing conservation program.**

Monitoring

The hearing conservation program requires employers to monitor noise exposure levels in a manner that will accurately identify employees who are exposed to noise at or above 85 decibels (dB) averaged over 8 working hours, or an 8-hour time-weighted average (TWA.) That is, employers must monitor all employees whose noise exposure is equivalent to or greater than a noise exposure received in 8 hours where the noise level is constantly 85 dB. The exposure measurement must include all continuous, intermittent, and impulsive noise within an 80 dB to 130 dB range and must be taken during a typical work situation. This requirement is performance-oriented since it allows employers to choose the monitoring method that best suits each individual situation. Monitoring should be repeated when changes in production, process, or controls increase noise exposure. Such changes may mean that additional employees need to be monitored and/or their hearing protectors may no longer provide adequate attenuation.

Under this program, employees are entitled to observe monitoring procedures and they must be notified of the results of exposure monitoring. The method used to notify employees is left to the discretion of the employers.

Instruments used for monitoring employee exposures must be carefully checked or calibrated to ensure that the measurements are accurate. Calibration procedures are unique to specific instruments. Employers have the duty to ensure that the measuring instruments are properly calibrated. They may find it useful to follow the manufacturer's instruction to determine when and how extensively to calibrate.

Audiometric Testing

Audiometric testing not only monitors the sharpness and acuity of an employee's hearing over time, but also provides an opportunity for employers to educate employees about their hearing and the need to protect it.

The employer shall establish and maintain an audiometric testing program. The important elements of an audiometric testing program include baseline audiograms, annual audiograms, training, and followup procedures. Audiometric testing must be made available at no cost to all employees who are exposed to an action level of 85 dB or above, measured as an 8-hour TWA.

The audiometric testing program followup should indicate whether the employer's hearing conservation program is preventing hearing loss. A licensed or certified audiologist (specialist dealing with an individual having impaired hearing), an otolaryngologist (physician specializing in the diagnosis and treatment of disorders of the ear, nose, and throat), or a physician must be responsible for the program. Both professionals and trained technicians may conduct audiometric testing. The professional in charge of the program does not have to be present when a qualified technician conducts tests, however. The professional's responsibilities include overseeing the program and the work of the technicians, reviewing problem audiograms, and determining whether referral is necessary.

The employee needs a referral for further testing when test results are questionable or when problems of a medical nature are suspected. If additional testing is necessary or if the employer suspects a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors, the employee shall be referred for a clinical audiological evaluation or otological exam, as appropriate. There are two types of audiograms required in the hearing conservation program: baseline and annual audiograms.

Baseline Audiograms

The baseline audiogram is the reference audiogram against which future audiograms are compared. Baseline audiograms must be provided within 6 months of an employee's first exposure at or above an 8-hour TWA of 85 dB. An exception is the use of mobile test vans to obtain audiograms. In these instances, baseline audiograms must be completed within 1 year after an employee's first exposure to workplace noise at or above a TWA of 85 dB. Employees, however, must be fitted with, issued, and required to wear hearing protectors for any period exceeding 6 months after their first exposure until the baseline audiogram is obtained.

Baseline audiograms taken before the effective date of the hearing conservation program (April 7, 1983) are acceptable baselines if the professional supervisor determines that the audiogram is valid. Employees should not be exposed to workplace noise for 14 hours preceding the baseline test; however, appropriate hearing protectors can serve as a substitute for this requirement and can be worn during this time period.

Annual Audiograms

Annual audiograms must be conducted within 1 year of the baseline. It is important to test hearing on an annual basis to identify deterioration in hearing ability so that protective followup measures can be initiated before hearing loss progresses. Annual audiograms must be routinely compared to baseline audiograms to determine whether the audiogram is valid and to determine whether the employee has lost hearing ability--i.e., if a standard threshold shift (STS) has occurred. STS is an average shift in either ear of 10 dB or more at 2,000, 3,000, and 4,000 hertz. An averaging method of determining STS was chosen because it diminished the number of persons falsely identified as having STS and who are later shown not to have had a change in hearing ability. Additionally, the method is sensitive enough to identify meaningful shifts in hearing early on.

Audiogram Evaluation

If an STS is identified, employees must be fitted or refitted with adequate hearing protectors, shown how to use them, and required to wear them. Employees must be notified within 21 days from the time the determination is made that their audiometric test results showed an STS. Some employees with an STS may need to be referred for further testing if the professional determines that their test results are questionable or if they have an ear problem of a medical nature that is thought to be caused or aggravated by wearing hearing protectors. If the suspected medical problem is not thought to be related to wearing hearing protection, employees must be informed that they should see a

physician. If subsequent audiometric tests show that the STS identified on a previous audiogram is not persistent, employees whose exposure to noise is less than a TWA of 90 dB may discontinue wearing hearing protectors.

An annual audiogram may be substituted for the original baseline audiogram if the professional supervising the program determines that the employee's STS is persistent. The original baseline audiogram, however, must be retained for the length of the employee's employment. This substitution will ensure that the same shift is not repeatedly identified. The professional also may decide to revise the baseline audiogram if an improvement in hearing occurs. This will ensure that the baseline reflects actual hearing thresholds to the extent possible. Audiometric tests must be conducted in a room meeting specific background levels and with calibrated audiometers that meet American National Standard Institute (ANSI) specifications of SC-1969.

Hearing Protectors

Hearing protectors must be available to all workers exposed to 8-hour TWA noise levels of 85 dB or above. This requirement will ensure that employees have access to protectors before they experience a loss in hearing. Hearing protectors must be worn by (1) employees for any period exceeding 6 months from the time they are first exposed to 8-hour TWA noise levels of 85 dB or above until they receive their baseline audiograms in situations where baseline audiograms are delayed because it is inconvenient for mobile test vans to visit the workplace more than once a year; (2) employees who have incurred standard threshold shifts since these workers have demonstrated that they are susceptible to noise; and (3) employees exposed over the permissible exposure limit of 90 dB over an 8-hour TWA.

Employees should decide, with the help of a person who is trained in fitting hearing protectors, which size and type protector is most suitable for their working environment. The protector selected should be comfortable to wear and offer sufficient attenuation to prevent hearing loss.

Hearing protectors must adequately reduce the severity of the noise level for each employee's work environment. The employer must reevaluate the suitability of the employee's present protector whenever there is a change in working conditions that may cause the hearing protector being used to be inadequate. If workplace noise levels increase, employees must be given more effective protectors. The protector must reduce employee exposures to at least 90 dB and to 85 dB when an STS already has occurred in the worker's hearing. Employees must be shown how to use and care for their protectors and must be supervised on the job to ensure that they continue to wear them correctly.

Training

Employee training is very important. When workers understand the reasons for the hearing conservation programs' requirements and the need to protect their hearing, they will be better motivated to participate actively in the program and to cooperate by wearing their protectors and taking audiometric tests. Employees exposed to TWAs of 85 dB and above must be trained at least annually in the effects of noise; the purpose, advantages, and disadvantages of various types of hearing protectors; the selection, fit, and care of protectors; and the purpose and procedures of audiometric testing. The training program may be structured in any format, with different portions conducted by different individuals and at different times, as long as the required topics are covered.

Recordkeeping

Noise exposure measurement records must be kept for 2 years. Records of audiometric test results must be maintained for the duration of employment of the affected employee. Audiometric test

records must include the name and job classification of the employee, the date, the examiner's name, the date of the last acoustic or exhaustive calibration, measurements of the background sound pressure levels in audiometric test rooms, and the employee's most recent noise exposure measurement.

Other Sources of OSHA Assistance

Safety and Health Management

Effective management of worker safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related costs. To assist employers and employees in developing effective safety and health programs, OSHA published recommended *Safety and Health Program Management Guidelines* (*Federal Register* 54(18):3908-3916, January 26, 1989). These voluntary guidelines apply to all places of employment covered by OSHA.

The guidelines identify four general elements that are critical to the development of a successful safety and health management program

- management commitment and employee involvement,
- worksite analysis,
- hazard prevention and control, and
- safety and health training.

The guidelines recommend specific actions under each of these general elements to achieve an effective safety and health program. A single free copy of the guidelines can be obtained from the OSHA Publications Office, P.O. Box 37535, Washington, DC 20013-7535 by sending a self-addressed mailing label with your request.

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Electronic Information

Labor News Bulletin Board--OSHA news releases, recent *Federal Register* notices, fact sheets, and other information are available by modem by dialing (202) 219-4784. Callers should set the modem at 300, 1,200, 2,400, 9,600, or 14,400 BAUD; Parity: None; Data Bits=8; Stop Bit=1. Voice phone: (202) 219-8831.

Internet--OSHA standards, interpretations, directives, and additional information are now on the World Wide Web at <http://www.osha.gov/> and <http://www.osha-slc.gov/>.

CD-ROM--A wide variety of OSHA materials including standards, interpretations, directives, and more can be purchased on the [OSHA CD-ROM](#) from the Government Printing Office.

OSHA FAX--OSHA news releases, fact sheets, and other short documents are available by fax for a nominal charge of \$1.50 per minute. Callers should dial (900) 555-3400 to access this service.

For further information on any OSHA program, contact your nearest OSHA area or regional office

listed at the end of this publication.

Related Publications

Single free copies of the following publications can be obtained from the OSHA Publications Office, P.O. Box 37535, Washington, DC 20013-7535. Send a self-addressed mailing label with your request.

Access to Medical and Exposure Records (OSHA 3110)

All About OSHA (OSHA 2056)

Employee Workplace Rights (OSHA 3021)

Personal Protective Equipment (OSHA 3077)

The following publications are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 512-1800. Include GPO Order No. and make checks payable to the Superintendent of Documents.

Ergonomics: The Study of Work (OSHA 3125) Order No. 029-016-00124-7; cost \$1.00.

Training Requirements in OSHA Standards and Training Guidelines (OSHA 2254) Order No. 029-016-00137-9; cost \$4.25.

States with Approved Plans

Commissioner

Alaska Department of Labor
1111 West 8th Street
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(907) 465-2700

Director

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800 W. Washington
Phoenix, AZ 85007
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Director

California Department of Industrial Relations
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San Francisco, CA 94102
(415) 703-4590

Commissioner

Connecticut Department of Labor
200 Folly Brook Boulevard
Wethersfield, CT 06109
(203) 566-5123



Safety and Health Topics: Respiratory Protection

An estimated 5 million workers are required to wear respirators in 1.3 million workplaces throughout the United States. Respirators protect workers against insufficient oxygen environments, harmful dusts, fogs, smokes, mists, gases, vapors, and sprays. These hazards may cause cancer, lung impairment, other diseases, or death.

Compliance with the OSHA Respiratory Protection Standard could avert hundreds of deaths and thousands of illnesses annually. The following questions link to resources that provide



[Respiratory Protection Technical Advisor](#). Offers expert assistance to businesses seeking to comply with the new respiratory protection standard ([1910.134](#)). The primary focus of this advisor is to provide information on the development of respirator cartridge change schedules. However, it also addresses respirator selection, and other requirements of the standard. This advisor is also available as a [downloadable file](#).

Related Technical Links:

- [Personal Protective Equipment](#)
- [Tuberculosis](#)

Recognition

- Chemical and Biological Respiratory Protection Workshop Report. NIOSH/DOD/OSHA (1999, March), DHHS Pub. No. 2000-122, 78 pages. This report documents the workshop at which over 140 subject matter experts discussed chemical and biological terrorism issues.
- [Small Entity Compliance Guide for the Revised Respiratory Protection Standard](#). OSHA Directorate of Health Standards Programs, (1998, September 30), 100 pages, 481 KB PDF file. This guide is intended to help small businesses comply with the new Respiratory Protection Standard. A sample respiratory protection program is included as an appendix.
- [NIOSH Guide to Industrial Respiratory Protection](#). DHHS (NIOSH) Publication No. 87-116 (1987, September), 305 pages, 11.2 MB PDF file, or 10 separate PDF files. This guide contains information on respirator types, and procedures for selection and use.
- [Questions and Answers on the Respiratory Protection Standard](#), OSHA Memorandum (1998, August 17), 82 pages (237 KB PDF file). This document provides questions and answers relating to each paragraph of the Respiratory Protection Standard.

- [OSHA Respiratory Protection Standard](#). OSHA News Release (1998, January 8), 2 pages. Highlights some of the requirements of the new respiratory protection standard.
- [OSHA Respirator Facts and Highlights](#). OSHA News Release (1998, January 8), 2 pages. Covers the benefits of the revised respirator standard, the impact on small businesses, and other important aspects of the new standard.
- [Special Risks to Fire Fighters Involved in Interior Structural Fire Fighting](#). OSHA News Release (1998, January 8), 2 pages. Describes the special hazards associated with fire fighting, the two-in/two-out requirement of the revised respirator protection standard and the applicability of the standard to fire fighters.
- [A Fire Fighter Who Lives Can Save Your Life](#). OSHA News Release (1998, January 8), 2 pages. Discusses fire fighter fatality rates and how the revised respiratory protection standard will reduce these fatality rates.
- [Farm Respiratory Hazards](#). The National Ag Safety Database (1991), 1 page. A summary of respiratory hazards that may be found on farms.
- [Respiratory Protection Standard](#). Training and Reference Materials (2 pages).

Evaluation

- [Respiratory Protection Needed for Many Farm Jobs](#). The National Ag Safety Database (1993), 2 pages.

Control

- [Respiratory Protection Program Guidelines](#). OSHA Directive CPL 2-2.54A (2000, July 14), 16 pages. This instruction sets forth guidelines for OSHA offices establishing and implementing respirator programs.
- [NIOSH Respirator Decision Logic](#). (DHHS) NIOSH Publication No. 87-108 (1987, May), 61 pages, 2.6 MB PDF file or 2 separate PDF files. Provides a procedure for selecting suitable classes of respirators for particular

concentrations of specific contaminants.

- [Respirator Change-out Schedules](#). Section [1910.134\(d\)\(3\)\(iii\)\(B\)](#) of the standard will require that a respirator cartridge change-out schedule be developed. This series of pages presents possible approaches to developing these schedules.
- [Respirator Fit Testing Procedures](#).
- [Respiratory protective equipment maintenance](#). The National Ag Safety Database (1993), 3 pages. Summary of respirator maintenance procedures.
- [Agricultural respiratory protective equipment — air-purifying respirators](#). The National Ag Safety Database (1993), 2 pages.
- [Farm Respiratory Protection](#). The National Ag Safety Database (1993), 1 page.
- NIOSH Respirator User Notice:
 - [Type CE, Abrasive-Blast, Supplied-Air Respirators](#) (1996), 1 page.
 - [Differences and Limitations Between Part 11 Particulate Respirators and Part 84 Particulate Respirators](#) (1996), 1 page.
 - [NIOSH Respirator User Notice](#) (1999, December 22), 1 page.
 - [Selected Topics - Respirator](#). Contains a list of links to topics pertinent to respirators.
- [Respiratory Protection in Agriculture](#). The National Ag Safety Database (1993), 3 pages. Includes guidelines for respirator selection.
- [MSA Portal-Pack® Units Pose Significant User Risk, Should Be Replaced Immediately with Certified Substitutes](#). NIOSH Update (1997, November 14), 3 pages. Chemical fragments and fine particles may be present in the breathing tube of the Portal-Pack® self-contained self-rescuer (SCSR), manufactured by MSA.
- [Histoplasmosis: Protecting Workers at Risk](#). DHHS (NIOSH) Publication No. 97-146 (1997, September). This is a 10 page document.

Compliance

- **OSHA Standards**
 - [1910.134](#), Respiratory protection. Employers must follow this standard until October 5, 1998.
 - [App A](#), Fit Testing Procedures (Mandatory)
 - [App B-1](#), User Seal Check Procedures (Mandatory)
 - [App B-2](#), Respiratory Cleaning Procedures (Mandatory)
 - [App C](#), OSHA Respirator Medical Evaluation Questionnaire (Mandatory)
 - [App D](#), Information for Employees Using Respirators When not Required Under Standard (Mandatory)

- **OSHA Directives**
 - [CPL 2-0.120](#), Inspection procedures for the Respiratory Protection Standard, (1998, September 18).

- **Federal Register**
 - [Respiratory Protection Standard; Extension of the OMB's Approval of an Information-Collection \(Paperwork\) Requirements - 66:22016-22017](#) (2001, May 2), 3 pages.

- **OSHA Unified Agenda**
 - [Assigned Protection Factors: Amendments to the Final Rule on Respiratory Protection \[Proposed Rule Stage\]](#). OSHA Unified Agenda (2001, December 5).

- **Review Commission and Administrative Law Judge Decisions**

The Occupational Safety and Health Review Commission (OSHRC) is an independent

Federal agency created to decide contests of citations or penalties resulting from OSHA inspections of American work places. To locate decisions related to this topic, search for keywords at the [OSHRC site](#).

- **Standards affected by the revised 1910.134**

These standards have respiratory protection elements that may be affected by the new standard.

- [1910.156](#), Fire brigades
- [1910 Subpart L App A](#), Fire Protection
- 1910.1000, Toxic and Hazardous Substances
 - [1910.1001](#), Asbestos
 - [1910.1017](#), Vinyl chloride
 - [1910.1018](#), Inorganic arsenic
 - [1910.1025](#), Lead
 - [1910.1027](#), Cadmium
 - [1910.1028](#), Benzene
 - [1910.1029](#), Coke oven emissions
 - [1910.1044](#), 1,2-dibromo-3-chloropropane
 - [1910.1045](#), Acrylonitrile
 - [1910.1047](#), Ethylene oxide
 - [1910.1048](#), Formaldehyde
 - [1910.1050](#), Methylenedianiline
 - [1910.1051](#), 1,3-Butadiene
 - [1910.1052](#), Methylene Chloride
- [1915.154](#), Respiratory protection. Shipyard employment
- [1915.1001](#), Asbestos
- [1917.92](#), Respiratory protection. Marine Terminals
- [1918.102](#), Respiratory protection. Longshoring
- [1926.62](#), Lead
- [1926.60](#), Methylenedianiline
- [1926.103](#), Respiratory protection. Construction
- [1926.1127](#), Cadmium
- [1926.1101](#), Asbestos

Training

- [NIOSH video #215, TB Respiratory Protection:](#)

[Administrator's Review](#). NIOSH (2001).

Available to borrow free of charge or for purchase through the above link. The video takes you step-by-step through developing a respiratory protection program, with emphasis on tuberculosis in health care facilities.

- [Proper Use of a Respirator: Script](#). The National Ag Safety Database, 1 page. Training script with associated figures and an interactive slide show. Selection of the proper respirator for a given exposure.
- [Respiratory Protection Standard](#). OSHA (1998, May 28), 2 pages. Training and reference materials include slides and presentation information, as well as FAQs.
- [Suggested Respirator Cleaning and Sanitation Procedures](#). NIOSH.

Revision Date: 18 March 2002

This information was found July 18, 2002 at
<http://www.osha-slc.gov/SLTC/respiratoryprotection/index.html>

OSHA National News Release

U.S. Department of Labor Office of Public Affairs

January 8, 1998

Respirator Facts and Highlights

Respirator Use

A respirator is a safety device covering at least the nose and mouth that protects the wearer against hazardous atmospheres containing particulates/dusts (e.g., silica); vapors and gases (e.g., carbon monoxide); atmospheres that are Immediately Dangerous to Life or Health (IDLH)(e.g., oxygen deficiency); physical agents (e.g., radioactive particles); or biological agents (e.g., mold spores).

About 5 million employees in 1.3 million establishments use respirators at one time or another.

Improper use of respirators can result in overexposure to hazardous contaminants, oxygen deficiency (suffocation) or acute and chronic health effects.

OSHA, the National Institute for Occupational Safety and Health (NIOSH) and the Mine Safety and Health Administration (MSHA) all regard effective respirator programs as essential to workers' health.

Benefits of the Revised OSHA Respirator Standard

Compared to the existing standard, OSHA estimates the new standard will reduce exposure of workers to toxic substances by an average of approximately 27 percent, due to annual fit testing and training requirements. Currently, 75 percent of respirator-wearing employees work in establishments that do not have those elements of an effective respirator program in place.

OSHA estimates that more than 900 and possibly as many as 1,625 deaths will be averted annually among respirator wearers because of reduced exposure to toxic substances that cause cancer and cardiovascular disease. Many other deaths related to acute overexposure will also be avoided by proper respirator use.

In total, OSHA estimates that more than 4,000 injuries and illnesses will likely be prevented annually.

Savings of up to \$94 million annually in injury and illness-related costs are anticipated. Costs will amount to about \$22 per employee per year, on average, and the average annual expense per establishment is estimated to be \$87.

Impact on Small Businesses

A number of changes from the proposal have been made in the final standard to reduce the impact on small businesses:

- Supersedes existing standards that require semi-annual fit testing and requires only annual fit testing;
- Use of portable quantitative fit testing devices is permitted;
- The employer can simply provide enough respirator choices to obtain an acceptable fit among the employees (instead of being required to have at least three different sizes of facepieces from two different manufacturers);
- Disposable respirators can be reused if they will continue to protect employees;
- Requirement for an annual review of the employee's medical status is eliminated;

- A medical questionnaire rather than a hands-on physical examination can be used to evaluate an employee's ability to wear a respirator;
- Accepts previous training in lieu of full initial training; and
- The compliance deadlines have been extended to 150 and 180 days after the effective date.

Other Important Aspects

- A revised table of Assigned Protection Factors (APFs), which are numerical ratings given to different types of respirators to tell users how much protection the respirator can provide, will be added to the final rule at a later date.
- OSHA's original respiratory protection standard will continue to apply to respirator use for occupational exposure to tuberculosis until the TB standard (proposed standard published in November 1997) is made final. With regard to filter efficiency, any respirators certified by NIOSH under 42 CFR Part 84 and HEPA respirators certified under 30 CFR Part 11 will be acceptable to OSHA, in the interim, for protection against occupational exposure to TB.
- The OSHA respirator standard and the NIOSH certification standard work together. The OSHA standard requires selection of NIOSH-certified respirators and use as specified by the conditions of NIOSH-certification. The OSHA standard is being published during the transition from respirators certified under the old NIOSH 30 CFR Part 11 certification procedures to those certified under the new NIOSH 42 Part 84 procedures. The OSHA standard accommodates respirator selection under either NIOSH standard.
- The OSHA standard requires at least one standby person when work is conducted in most Immediately Dangerous to Life or Health (IDLH) atmospheres. This was required by the previous OSHA standard.
- IDLH atmospheres resulting from interior structural fires trigger additional provisions. At least two firefighters must enter the burning building and remain in visual and voice contact with each other at all times. In addition, at least two standby persons are required when two persons are engaged in interior structural firefighting in a burning building (this protective practice is known as "two-in / two-out").

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Personal Protective Equipment

Rick Maj
Linda Ghindea

Revised General Requirements

OSHA PPE Standard

- Conduct Hazard Assessment
- Select PPE
- Explain proper use, care, and maintenance
- Fit PPE
- Conduct PPE Training
- Certify Hazard assessment & Training

Hierarchy of Controls

- Engineering
- Administrative
- Personal Protective Equipment

Why Doesn't PPE Work

- Lack of or improper training
- Misunderstood training
- Improper fit
- Improper care, cleaning and storage
- Health factors
- Non enforcement of PPE policies

PPE Assessment Considerations

- Hazardous Process or Exposure
- Body Parts Affected
- PPE Required

PPE Hazard Assessment

Hazard Categories

PPE Assessment

- Impact (falling objects or potential for dropping objects)
- Penetration
- Compression
- Chemical

PPE Assessment

- Heat
- Harmful dust
- Light (optical) radiation

Accident and Injury Review

- Analyze 300 log
- Review relevant BWC FROI and/or OSHA 301 forms
- Review in-house accident investigation forms
- Review first aid logs
- Analyze comp costs from BWC

Job Hazard Analysis

- Assign competent, responsible persons
- Obtain written job descriptions
- Assemble relevant MSDS
- Assemble relevant injury and accident reports
- Observe tasks and note hazards

Head Protection

Head Protection

- Penetrability
- Electrical Protection
- Construction
- Materials
- Labeling
- Flammability

Eye and Face Protection

Eye & Face Protection

- Eye protection - Safety glasses and goggles
- Face protection - Faceshields
- Welding protection - Faceshields and goggles

Hand Protection

Hand Protection
CFR 29 1910.138

- Chemical absorption and burns
- Cuts, abrasion, and punctures
- Thermal burns and temperature extremes

Foot Protection

Foot Protection

- Toe box impact resistance
- Toe box compression resistance
- Metatarsal protection when required
- Electrical protection
- Sole puncture resistance
- Static dissipative footwear

NOISE
is
any unwanted sound

- Noise can be annoying
- Noise can be harmful

Noise Harmful Effects

- Permanent Loss of Hearing
- Create Stress
- Cause Accidents

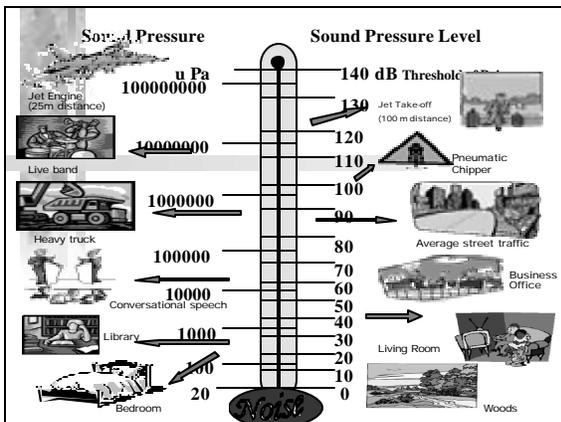
Hearing is Priceless

- Learning
- Communications
- Enjoy Life
- Safety

Factors that Affect Hearing Loss

- Loudness of noise
- Frequency of the noise
- Length of exposure
- Other Factors

Decibel Scale



Two Major Types of Hearing Loss

- Conductive
 - Decreases the amount of sound energy conducted to inner ear
 - Generally reversible
- Sensory / Neural
 - Noise induced hearing loss
 - Permanent and irreversible
 - Damage in inner ear to hair cells and nerves

Noise Induced Hearing Loss

- Temporary Hearing Loss
 - After excessive exposure
 - Bounces back with rest
 - Prolonged exposure capable of causing permanent damage
- Permanent Hearing Loss
 - Destruction of hair cells, and nerves in inner ear
 - Damage is never replaced or repaired
 - No physical signs--NO PAIN
 - Inability to hear high-pitched or soft sounds
 - Trouble understanding speech
 - Ringing in the ears--Tinnitus

How Much Noise is Too Much

- OSHA PEL for noise is 90 dBA over 8 hours
- OSHA Action Level is 85 dBA over 8 hours
 - Must develop a Hearing Conservation Program
- NIOSH estimates over a 40 year working lifetime:
 - 25% Risk of hearing impairment in workers exposed to 90 dBA
 - 8% Risk of hearing impairment in workers exposed to 85 dBA

Protection from Noise

- Engineering Controls
 - Quieter machines
 - Maintenance and repair
 - Noise dampers
 - Sound barriers
 - Increased distance / Isolation
- Administrative Controls
 - Job rotation
 - Rescheduling

Hearing Protectors Insert Types and Muffs

- if not Plugs (Insert types)
 - Advantages
 - Comfortable with other safety equipment
 - Small and light weight
 - Comfortable in hot environments
 - Generally better noise reduction ratings
 - Disadvantages
 - Care to maintain good hygiene
 - Requires period of time acceptance
 - Variability of noise reduction worn properly

Types of Protectors (continued)

- Muffs
 - Advantages
 - Accepted more easily than insert types
 - Less of an infection hazard
 - Not easily lost
 - Adjustable to fit various people
 - Disadvantage
 - Cumbersome to wear
 - Cumbersome to carry
 - Cannot easily be worn with safety equipment
 - Uncomfortable in hot or cold environments
 - Can be more expensive

OSHA's Hearing Conservation Amendment Requirements

- Protection from noise when exposures exceed 90 dBA
 - Feasible engineering, and administrative controls to reduce noise
 - Personal protective equipment
- Hearing Conservation Program required for noise at or above 85 dBA

Monitoring

- Required to determine who belongs in the program
- Employees exposed at or above 85 dBA must be notified of the results
- Repeated whenever changes increase noise exposures

Audiometric Tests

- Required when worker noise exposures are at or above 85 dBA
- Performed by a licensed or certified person
- Baseline audiograms required
 - Within 6 months of hiring or placement in noise exposure
 - Mobile test van exception; 1 year
 - 14 hour quiet period
 - Hearing periods may be used as a substitute
 - Employer must notify employee of need to avoid noise prior to test
- Annual audiograms

Audiometric Testing

- Checks workers' hearing ability
 - Establishes a baseline for future reference
 - Identifies hearing loss
 - Identifies changes from the last test
- Measures the overall success of the program
 - Identifies potential problems
 - Provides a basis for corrective action

Audiogram Evaluation

- Presence of a standard threshold shift (STS)
 - Change in hearing (adjusted for age) of an average of 10 db or more at 2000, 3000, and 4000 hertz in either ear
- STS occurs
 - Employee notified in writing within 21 days
 - May retest within 30 days
 - Follow-up procedures
 - employees not using hearing protectors--fitted, trained in use and care, and required to use
 - employees using refitted, retrained and provided with protectors providing greater protection if necessary
 - referred for medical evaluation
 - Revised baseline

Hearing Protectors

- Selection available to workers exposed at or above 85 dBA
- Worn at or above 85 dBA
 - For any period exceeding 6 months until they receive their baseline
 - Employees have incurred a STS
- Mandatory for exposures greater than 90 dBA
- Must reduce exposures too--
 - 90 dBA or lower
 - 85 dBA or below for employees having a STS
- Re-evaluation if noise increases

Training

- Annual for employees exposed to 85 dBA and above covering--
 - Effects of noise
 - Purpose, advantages, disadvantages, and attenuation of various types of hearing protectors
 - Selection, fitting, use and care of hearing protectors
 - Purposes and procedures of audiometric testing
 - Available copy of the standard
 - Posting of the standard

Recordkeeping

- Noise exposure measurements; 2 years
- Audiometric test records; duration of employment

Respiratory Protection

Controls for Safety and Health Hazards

- Engineering
- Administrative
- Personal Protective Equipment

Cost of a Respirator Program

<ul style="list-style-type: none">▪ Direct Costs• Medical• Respirators• Maintenance• Monitoring• Fit Testing	<ul style="list-style-type: none">▪ Indirect Costs• Employee Wages• Program Administrators Wages• Training and Maintenance Time• Consulting Medical Fee
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29 CFR 1910.134

- Written Program
 - Program Administrator
 - Respirator Selection
 - Medical Evaluations
 - Fit Testing
 - Proper Use
 - Maintenance and Care
 - Breathing Air Quality
 - Instruction and Training
 - Program Auditing

When Respirators are not Required

- Voluntary respirator use is permissible by employer
 - Respirators may be supplied by the employer
 - Permit employees to use their own respirator
- Respirator use will not in itself create a hazard

When Respirators are not Required

- Establish and implement these elements of a written respiratory protection program
 - Voluntary respirator user is medically able to use that respirator
 - Respirator is cleaned, stored, and maintained so that its use does not present a health hazard
- Exception:
 - Employees using voluntary respirator with filtering facepieces (dust masks) are not required to be included in a written respirator protection program.

Provide information in Appendix D

- Read and heed Mfg. instructions on:
 - Use, Maintenance, Cleaning, Care
 - Warnings on respirator limitations
- Choose NIOSH certified respirators
- Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against
- Keep track of your respirator, do not mistakenly use someone else's respirator
