



OSHA INSTRUCTION

U.S. DEPARTMENT OF LABOR

Occupational Safety and Health Administration

DIRECTIVE NUMBER: CPL 2-2.54 A **EFFECTIVE DATE:** July 14, 2000

SUBJECT: Respiratory Protection Program Guidelines

ABSTRACT

- Purpose:** This instruction sets forth guidelines for establishing and implementing an OSHA respirator program. The purpose of the respirator program is to ensure that all OSHA employees are protected from exposure to respiratory hazards.
- Scope:** OSHA-wide.
- References:** 29 CFR 1910.134, Respiratory Protection Standard.
- Cancellations:** OSHA Instruction CPL 2-2.54 - Respiratory Protection Program Manual
- State Impact:** This instruction describes a Federal Program Change for which State adoption is not required.
- Action Offices:** National, Regional and Area Offices
- Originating Office:** Directorate of Technical Support (DTS)
Office of Science and Technology Assistance
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- I. Purpose. This instruction sets forth guidelines for establishing and implementing an OSHA respirator program. The purpose of the respirator program is to ensure that all OSHA employees are protected from exposure to respiratory hazards.
- II. Scope. This instruction applies OSHA-wide.
- III. References.
 - A. 29 CFR 1910.134, Respiratory Protection Standard.
 - B. OSHA Instruction PER 8-2.4, CSHO Pre-Employment Medical Examinations, March 31, 1989.
 - C. OSHA Instruction PER 8-2.5, CSHO Medical Examinations, March 31, 1989.
- IV. Cancellation. This instruction cancels CPL 2-2.54.
- V. Action Information.
 - A. Responsible Office. Directorate of Technical Support, Office of Science and Technology Assessment, Washington, D.C., 20210. Telephone number (202) 693-2095.
 - B. Action Offices. National Office; Regional Offices and Area Offices.
 - C. Information Offices. Not applicable to this directive.
- VI. Federal Program Change. This instruction describes a Federal Program Change for which State adoption is not required. However, to ensure that State Compliance Officers are provided the minimum protection prescribed in 29 CFR 1910.134, each state should consider adopting similar guidelines.
- VII. Significant Changes. This change incorporates new Respiratory Protection Program Guidelines developed to conform to the Respiratory Protection Standard, 29 CFR 1910.134. OSHA Regional Administrators and Area Directors will use these guidelines to establish and implement an OSHA respiratory protection program consistent with the needs of each Regional and field location.
- VIII. Background. Occupational Safety and Health Administration (OSHA) Compliance Safety and Health Officers (CSHOs) as well as other Agency personnel may be exposed to a variety of respiratory hazards while conducting safety and health compliance inspections, consultations or monitoring visits. These hazards include a wide range of

airborne contaminants and in some cases represent immediately dangerous to life or health (IDLH) conditions.

OSHA considers respirators to be necessary to protect the health of its employees at those work sites where feasible engineering controls are not available or are not sufficient to protect employee health, in emergencies, and where the health of a CSHO could be at risk. Respirators selected must be capable of protecting against overexposure by reducing and maintaining exposure to or below the relevant exposure limit. In addition to the OSHA permissible exposure limits (PELs), other relevant exposure limits include: American Conference of Governmental Industrial Hygienists (ACGIH) recommended Threshold Limit Values (TLVs), National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limits (RELs), and other occupational exposure limits. Furthermore, appropriate respirators must be worn whenever requested by the employer.

As a consequence of OSHA's newly promulgated Respiratory Protection Standard, CPL 2-2.54 is now out-of-date. This instruction, CPL 2-2.54A, eliminates the discrepancies and technical inaccuracies that exist between CPL 2-2.54 and the new standard and establishes current guidelines to be followed in setting up a respiratory protection program.

IX. Respiratory Protection Program.

A. Administration of Program.

1. Each region must assign a program administrator to oversee the respiratory protection program for its Area Offices as well as Regional Office employees requiring respiratory protection. The regional program administrator is responsible for evaluating the program's effectiveness. The person selected to perform the responsibilities of this position can be qualified either by appropriate training or experience or both and will work under the delegation of the Assistant Regional Administrator for Technical Support (ARA/TS) and/or Regional Administrator.
2. Each Area Office also must have a program administrator to coordinate the various aspects of the respiratory protection program on a local level. Although responsibility for respirator program oversight rests with the Area Director, responsibilities may be delegated to other qualified individuals such as a supervisor or CSHO with appropriate training and/or experience.

3. The responsibilities detailed in Section B, which appear below, are guidelines for the Regional and Area Offices to follow in setting up a respirator program. Their implementation and coordination can be adapted to the offices' specific circumstances. The program administrator's job is to ensure consistent coordination and direction of the program as well as to maintain the integrity of the respirator program.

B. Responsibilities.

1. National Office - Directorate of Technical Support.

- Update this instruction as necessary;
- Provide advice to assist Regional Administrators and National Office personnel in complying with the program;
- Recommend appropriate respiratory protective equipment.

2. Regional Office - Regional Administrator.

- Appoint a regional program administrator to establish and implement a respirator program for Regional Office staff and ensure that each Area Office implements a consistent program;
- Assist the Area Offices in complying with the program;
- The Regional Administrator will monitor Area Office adherence to the program and evaluate the program region-wide to determine its effectiveness.

3. Area Office/Area Director.

- Administer the program in the Area Office;
- Arrange for supervisors and CSHOs to attend the OSHA Training Institute respirator course #222, "Principles of Respiratory Protection" or an equivalent course;
- Schedule medical examinations for CSHOs in accordance with CSHO physical directive.

- Delegate authority for program coordination to a designated person trained in the use and care of respirators. This individual will be named as the program administrator for the Area Office;
- Ensure that the CSHOs adhere to the program; and
- Provide an annual evaluation of the respiratory protection program to the regional program administrator.

4. Program Administrator (Regional and Area Offices).

- Ensure that the program is understood and followed by the CSHOs;
- Ensure that all employees (including new hires) receive appropriate training, fit testing, and CSHO medical evaluations in accordance with PER 8-2.5;
- Ensure the availability of appropriate respirators, sufficient supplies (e.g., filters, chemical cartridges, canisters, cleaning and disinfecting solutions) and respirator spare parts;
- Ensure that respirators are properly cleaned, maintained, and stored according to the respiratory protection program;
- Monitor respirator use to ensure that respirators are used in accordance with their certifications;
- Obtain new equipment and maintain non-individually-assigned equipment ready for reissuance;
- Ensure that emergency escape self-contained breathing apparatus is properly maintained;
- Consult regularly with CSHOs required to use respirators to assess the CSHOs' views on program effectiveness and to identify and correct any problems. Conduct evaluations of the respiratory protection program as necessary, and update written programs as needed; and
- Maintain records required by the program.

5. Compliance Safety and Health Officers.

- Have the responsibility to wear respirators when and where required, and to care for and maintain the respirators in the manner in which CSHOs are trained. Before going into hazardous areas, employees should identify those work areas, processes, or tasks that require respiratory protection.
- Should conduct a pre-inspection evaluation for their potential exposure to chemicals. They should review all pertinent information contained in the establishment file and appropriate reference sources to become knowledgeable about the industrial processes and potential respiratory hazards that may be encountered. During the opening conference, a list of hazardous substances should be developed or obtained, along with any air monitoring results that the employer has. The CSHO should determine if he or she has the appropriate respirator to protect against chemicals present at the work site.
- CSHOs must notify their supervisor or the program administrator:
 - a. If their respirators no longer fit well, and should request replacements that fit properly;
 - b. If the CSHOs encounter any respiratory hazards during inspections or onsite visits that they believe have not been previously or adequately addressed; and
 - c. If they have any other concerns regarding the program.

C. Program Elements. The respiratory protection program must cover the following basic elements, as applicable:

- Procedures for selecting respirators for use in the workplace;
- Medical evaluations of CSHOs required to use respirators;
- Fit testing procedures for tight-fitting respirators;
- Use of respirators in routine and reasonably foreseeable emergency escape situations;

- Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, and otherwise maintaining respirators;
- Procedures to ensure adequate air quality, quantity and flow of breathing air for self-contained breathing apparatus (SCBA);
- Training employees in the respiratory hazards to which they are potentially exposed;
- Training employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and maintenance procedures; and
- Procedures for regularly evaluating the effectiveness of the program.

D. Selection Procedures. Respirator selection requires correctly matching the respirator with the hazard, the degree of hazard, and the user. The respirator selected must be adequate to effectively reduce exposure of the respirator user under all conditions of use, including reasonably foreseeable emergency escape situations. Proper respirator selection involves choosing a device that will protect the CSHO from the respiratory hazards to which he or she may be exposed, yet permits the CSHO to perform the job with the least amount of physical burden.

1. General Requirements. Many factors must be carefully considered in selecting a respirator. In choosing the appropriate respirator, one must consider the nature and extent of the hazard, work requirements and conditions, and the characteristics and limitations of the available respirators. The following information must be taken into account:

- Nature of the hazard, and the physical and chemical properties of the air contaminant;
- Concentrations of contaminants;
- Relevant permissible exposure limit or other occupational exposure limit;
- Nature of the work operation or process;
- Length of time the respirator is worn;

- Work activities and physical/psychological stress;
- Fit testing; and
- Physical characteristics, functional capabilities, and limitations of respirators.

The program administrator will make a respirator available to each CSHO who is assigned a job that requires respiratory protection. All respirators selected must be certified by NIOSH and must be used in accordance with the terms of that certification, which appears on the NIOSH certification label. Under certain circumstances, OSHA may permit the use of respirators not approved by NIOSH (i.e., where no NIOSH-approved respirator exists) where documentation exists to attest to the adequacy of the respirator's effectiveness against the contaminant(s) of concern. The National Office will examine those situations on a case-by-case basis.

Replacement respirators, cartridges, canisters, and filters will be made available as required. All filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label. The label must not be removed or defaced while the respirator is in use.

2. Non-IDLH Atmospheres. For protection against gases and vapors in atmospheres that are non-IDLH, an air-purifying respirator should be used. When an air-purifying respirator is selected, a system must be in effect that will reliably protect respirator wearers from contaminant breakthrough. These systems are:

- A respirator equipped with a NIOSH-approved end-of-service life indicator (ESLI) for the particular contaminant; or
- If there is no ESLI appropriate for the conditions encountered at a worksite, the CSHO follows a sorbent change schedule for canisters and cartridges based on reliable information or data ensuring that canisters and cartridges are changed before the end of their service life.

In many cases, CSHOs may need to don respirators before recognizing all of the conditions of the work area or having access to the information needed to develop a good change-out schedule. Compliance officers

should be urged to carry to each jobsite extra cartridges or canisters and to err on the side of caution. CSHOs should obtain as much information on the chemical hazards in the workplace as possible, and they should consider the employer's change-out schedule, if one is available, since it will have been created with that site in mind. If the gases and/or vapors have sensory warning properties such as odor, taste, and/or irritation effects, and the CSHO detects "breakthrough," the CSHO must leave the respirator use area and the cartridge or canister must be immediately replaced before the CSHO returns to the work area.

Some gaseous contaminants will migrate across the adsorbent or absorbent bed while the respirator is not in use, such as overnight. This migration can subject the user to an initial dose of the contaminant when the respirator is again placed in service. Therefore, as a minimum, gas vapor cartridges and canisters should be disposed of after each day's activities no matter how short those activities were.

Experience and professional judgment should be used along with existing information and data to establish cartridge or canister change schedules. If further information is needed in establishing a change-out schedule then the program administrator and /or CSHO can consult the OSHA website at (<http://www.osha-slc.gov/SLTC/respiratoryprotection/changeout.html>) or the manufacturer's website if one exists.

For protection against particulate contaminants in atmospheres that are non-IDLH, a CSHO should use an air-purifying respirator equipped with filters certified for particulates by NIOSH under 42 CFR part 84. Filter cartridges should be replaced when the breathing resistance becomes great enough to cause discomfort to the wearer (overloaded) or when the cartridge suffers physical damage compromising its integrity.

3. Use of SCBAs. **The use of SCBAs by CSHOs is strongly discouraged.** If a worksite needs to be entered where an SCBA is required, the Health Response Team should be contacted for assistance. Only those CSHOs who are medically certified to wear an SCBA may do so. In addition, CSHOs must be adequately trained in the use of the equipment and the equipment must be properly maintained. Compressed breathing air must meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G 7.1-1989.

The ARA/TS must be consulted for assistance in determining the appropriateness of SCBA use in a specific situation. Any planned entry involving the use of SCBA must be coordinated with the ARA/TS.

4. Entry into IDLH Atmospheres. **CSHOs are not allowed to enter known IDLH atmospheres for inspection purposes.** OSHA personnel are not emergency responders and are not authorized to act in such a manner. Evaluation methods (i.e., sampling strategies) should be used which do not require entry into an IDLH area.
5. Emergency Escape from IDLH Atmospheres. Escape-only respirators must be carried by all individuals when there is a potential for exposure to IDLH atmospheres. This type of situation may exist in portions of refineries, chemical plants, sewage treatment plants, and hazardous waste sites, etc. All escape-only respirators have limitations and these limitations must be taken into account when selecting them.

Respirators that are to be used exclusively for escape from IDLH atmospheres are to be selected from those certified by NIOSH for escape from the atmosphere in which they will be used. If the toxic materials in question can cause eye irritation, then a full facepiece or hood must be used. For example, under current 29 CFR 1910.1050, the standard governing exposure to methylenedianiline (MDA), escape respirators may be any full facepiece air-purifying respirator equipped with high-efficiency particulate air (HEPA) cartridges or any positive pressure or continuous flow self-contained breathing apparatus with full facepiece or hood. For formaldehyde exposure, escape respirators may be a full facepiece with chin style, front, or a back-mounted industrial canister approved against formaldehyde (29 CFR 1910.1048). If an escape SCBA is selected for a potential IDLH atmosphere, the CSHO must assess the egress route to ensure that the emergency egress time does not exceed the capacity of the escape SCBA.

- E. Medical Evaluation. CSHOs assigned to tasks that require the use of a respirator must be physically able to perform the work while using a respirator. Accordingly, CSHOs must be able to tolerate the physical and psychological stress imposed by respirator use, as well as the physical stress originating from job and workplace conditions.
 1. Purpose. The purpose of a medical evaluation is to determine if CSHOs can tolerate the physiological burden associated with respirator use,

including: the burden imposed by the respirator itself (e.g., its weight and breathing resistance during both normal operation and under conditions of filter, canister, or cartridge overload); musculoskeletal and cardiopulmonary stress (e.g., when the respirator to be worn is an SCBA); limitations on hearing, sight, or smell; and isolation from the workplace environment. Since certain jobs and workplace conditions in which a respirator is used can also impose a physiological burden on the user, the medical evaluation must also consider the following factors: type and weight of the respirator to be worn; duration and frequency of respirator use; expected physical work effort; use of protective clothing and equipment to be worn; and temperature and humidity extremes that may be encountered.

2. Respirator Wear Evaluation. CSHOs must be medically evaluated and found eligible to wear the respirator selected for their use prior to fit testing and first-time use of the respirator in the workplace.
3. Medical Eligibility Determination. Medical eligibility is to be determined by adhering to the following OSHA programs:
 - CSHO Pre-employment Medical Examinations (OSHA Instruction PER 8-2.4), and
 - CSHO Medical Examinations (PER 8-2.5)

Both of these programs are medical evaluations that certify ability to use a respirator. The medical examination will be conducted by a physician experienced in occupational medicine. Regional Administrators and Area Directors are responsible for implementing the CSHO Medical Examination Program.

The CSHO pre-employment medical examination (PER 8-2.4) is required for new hires so that the Agency can determine if they are physically and medically capable of performing the essential duties of their position efficiently and without a hazard to themselves or others. The examination will be provided free of charge to the applicant. Failure to meet the required physical and medical qualifications will be considered disqualifying.

A periodic CSHO medical examination is required for current OSHA employees in accordance with OSHA Instruction PER 8-2.5. Student trainees are covered under this program if their tenure with the Agency is

expected to exceed a year from their initial (pre-employment) examination. Annual examinations and any additional medical exam necessary will be scheduled by the Area Director/Supervisor and will be conducted during working hours.

The medical evaluation is designed to identify medical conditions that place CSHOs who use respirators at risk of serious medical consequences. Medical conditions known to compromise an employee's ability to tolerate respirator-, job-, and workplace-related physiological stress include: cardiovascular and respiratory diseases (e.g., a history of high blood pressure, angina, heart attack, cardiac arrhythmias, stroke, asthma, chronic bronchitis, emphysema); reduced pulmonary function caused by other factors (e.g., smoking or prior exposure to respiratory hazards); neurological or musculoskeletal disorders (e.g., ringing in the ears, epilepsy, lower back pain); impaired sensory function (e.g., perforated ear drums, reduced or absent ability to smell); and psychological disorders (e.g., claustrophobia and severe anxiety).

4. Reevaluation of CSHO Ability to Use a Respirator. In addition to the annual medical evaluation there are a number of circumstances that may require reevaluating a CSHOs ability to use a respirator. Medical reevaluations will be provided under the following conditions: when the CSHO reports medical signs or symptoms that are relevant to the CSHOs ability to use a respirator; when OSHA management informs the examining physician that a CSHO needs to be reevaluated; when information from the respirator program, including observations made during fit testing or program evaluation, indicates a need for CSHO reevaluation; or when a change in workplace conditions occurs (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on a CSHO.
5. Reporting Results of Examinations. The examining physician must forward to the Office of Occupational Medicine the results of the medical examination. The Office of Occupational Medicine will review the findings of the examination and determine whether or not the CSHO is fit to use a respirator. In addition, the examining physician will generate a personal medical report for each CSHO/applicant examined and mail a copy to their private residence within 15 working days of the date of the examination.

F. Fit Testing.

1. Purpose. The primary purpose of fit testing is to identify the specific make, model, style, and size of respirator best suited for each CSHO. In addition, fit testing also reinforces respirator training by having wearers review the proper methods of donning and wearing the respirator. CSHOs must be medically evaluated and found eligible to wear the respirator selected for their use prior to fit testing.
2. Requirements. Fit testing is required for all negative or positive pressure tight-fitting facepiece respirators. The OSHA respiratory protection standard requires that fit testing be performed before an employee first starts wearing a respirator in the work environment, whenever a different respirator facepiece is used, and at least annually thereafter.
3. Demonstrating and Selecting a Respirator Model. Prior to the actual fit test, the CSHO must be shown how to put on a respirator, position it on the face, set strap tension, and determine an acceptable fit. Next, the CSHO must be allowed to choose a respirator from a sufficient number of models and sizes so that the CSHO can find an acceptable and correctly fitting respirator. Once an acceptable respirator has been found -- which takes into account the position of the mask on the face, nose, and cheeks; room for eye protection; and room to talk -- a user seal check must be conducted (refer to next section on “Respirator Use”).
4. Protocols. Fit testing may be either *qualitative* (QLFT) or *quantitative* (QNFT), and must be administered using an OSHA-accepted QLFT or QNFT protocol. Usually most CSHOs will be quantitatively fit tested as each Area and Regional Office has access to a Portacount™ unit.
5. Protocol Descriptions. QLFT and QNFT protocols are described in mandatory Appendix A to 1910.134, and must be incorporated into all Regional and Area Office Programs. QLFT may only be used to fit test negative-pressure air-purifying respirators that must achieve a fit factor of 100 or less. If the fit factor, as determined by QNFT fit testing, is equal or greater than 100 for tight-fitting half facepieces, or equal to or greater than 500 for tight-fitting full facepieces, then the QNFT has been passed with that respirator.
6. Preliminary Steps. Prior to the commencement of the fit test, the CSHO must be given a description of the fit test and a description of the exercises that he or she will be performing during fit testing. The respirator to be

tested must be worn for at least five minutes before the start of the fit test. The CSHO must be fit tested with the same make, model, style, and size of respirator that will be used. CSHOs assigned more than one respirator must be fit tested for each respirator assigned.

7. Changing Respirator Model Selection, Retesting. If the CSHO finds the fit of the respirator to be unacceptable, he or she must be given a reasonable opportunity to select a different respirator and to be retested. In addition, retesting is required whenever there are changes in a CSHO's physical condition that could affect respirators fit. Such conditions include, but are not limited to, facial scarring, dental changes (e.g., wearing new dentures), cosmetic surgery, or an obvious change in body weight.

- G. Respirator Use. It is necessary to ensure that respirators are used properly on inspections. CSHOs must use their respirators under conditions specified by the respiratory protection program and in accordance with the training they receive. In addition, the respirator must not be used in a manner for which it is not certified by NIOSH or by its manufacturer.

The following conditions compromise the effective use of the respirator and jeopardize worker protection: facepiece seal leakage; removing the respirator while in hazardous atmospheres; not properly performing user seal checks; or not properly repairing defective parts.

1. Facepiece Seal Protection. All CSHOs must conduct a user seal check (formerly known as a fit check) every time a tight-fitting respirator is put on or adjusted to ensure that the respirator is seated properly on the face with no noticeable leaks. The user seal check procedure conducted must be either the positive and/or negative pressure checks described in Appendix B-1 of 1910.134, or the manufacturer's recommended procedures (when equally protective). If leaks are present, the CSHO should adjust the respirator and try again.

Respirators with tight-fitting facepieces may not be worn by CSHOs who have conditions that would compromise the facepiece-to-face seal. Examples of these conditions include facial hair (e.g., beard stubble, sideburns, or beard) that interferes with the facepiece seal or valve function, absence of normally worn dentures, facial deformities (e.g., scars, deep skin creases, prominent cheekbones), or the use of jewelry or headgear that projects under the facepiece seal.

Corrective glasses or goggles, or other personal protective equipment, must be worn in such a way that does not interfere with the seal of the facepiece to the face. It should be noted that in some cases a full-facepiece respirator or powered air-purifying respirator (PAPR) may be more comfortable and less cumbersome than the combination of a half-mask and chemical goggles. OSHA's current standard on respiratory protection allows the use of contact lenses with respirators where the wearer has successfully worn such lenses before.

2. Skin or Eye Irritation. Skin or eye irritation can result from wearing a respirator in hot, humid conditions as well as in contaminated environments. Such irritation can cause considerable distress to CSHOs, causing them to remove or adjust the respirator or to refrain from wearing the respirator at all, thereby rendering it ineffective. To prevent skin or eye irritation associated with respirator use, CSHOs should leave the respirator use area to wash their faces and respirator facepieces as needed.
3. Vapor or Gas Breakthrough. Whenever the CSHO can detect vapor or gas breakthrough (by odor, taste, and/or irritation effects) or a change in breathing resistance or leakage of the facepiece, the CSHO must leave the respirator use area to replace the respirator or the filter, cartridge, or canister elements. Similarly, CSHOs must leave the respirator use area if they are replacing cartridge or canister elements according to a change schedule, or when the end-of-service-life indicator shows that the canister or cartridge(s) must be changed.
4. Impairments. Because respirators must be in good working condition to function, they should not be used if they have been impaired in any way. Impairments include a broken strap, loss of respirator shape, and a face seal that can no longer be maintained. Respirators that are not properly functioning must be replaced, repaired, or discarded.

H. Maintenance and Care Program. To ensure that the respirator remains serviceable and delivers effective protection, a maintenance program must be in place prior to respirator use. In addition to the OSHA requirements, the manufacturer's instructions for inspecting, cleaning, and maintaining should be consulted to ensure that the respirator continues to function properly. A proper maintenance program ensures that the CSHO's respirator remains as effective as when it was new. The maintenance program should be tailored to the type of facilities, working conditions, and hazards involved, but all programs are required to include at least:

- Cleaning and disinfecting procedures;
- Proper storage;
- Regular inspections for defects; and
- Repair methods.

I. CSHO Responsibilities for Maintenance and Care. CSHOs must clean and inspect their own respirators in accordance with the provisions of this program. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn or deteriorated parts must be replaced prior to use. No components are to be replaced or repairs made beyond those recommended by the manufacturer. Repairs to regulators or alarms of atmosphere-supplying respirators are to be conducted by the manufacturer.

1. Cleaning. Cleaning and sanitizing respirators is necessary to prevent skin irritation and dermatitis. Where the contaminant is a dust, mist, or fume, its build-up on the respirator face-to-facepiece seal or within the respirator can reduce the protection provided by the respirator because the contaminant is in the breathing zone or has compromised the seal. In addition, the build-up of contamination on the respirator can contribute to the deterioration of the respirator's materials, which can lead to reduced protection.

Respirators that are issued for the exclusive use of a CSHO must be cleaned and disinfected as often as necessary to remain sanitary. Respirators used by more than one employee must be cleaned and disinfected prior to being used by a different individual. Respirators maintained for escape-only use, as well as respirators used in fit testing and training, must be cleaned and disinfected after each use.

The CSHO must use either the cleaning and disinfecting procedures recommended in Appendix B-2 of the OSHA respiratory protection standard or the procedures recommended by the respirator manufacturer, as long as they are equivalent in effectiveness to the OSHA method. Equivalent effectiveness simply means that the procedures used ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user. The program administrator will ensure an adequate supply of the appropriate cleaning and disinfecting agents are maintained at the cleaning station.

2. Storage. All respirators must be stored so that they are protected against damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals. Filter cartridges must be stored separately from respirator facepieces that have been cleaned. This is to prevent contamination of the interior of the respirator facepiece from hazardous particulate matter (e.g., lead, asbestos, cadmium, silica) that may have accumulated on the filter cartridge. When respirators are packed or stored, the facepiece and exhalation valve must be stored in a manner that will prevent deformation. Each respirator should be positioned so that it retains its natural configuration. Synthetic materials and even rubber will warp if stored in an unnatural shape, thus affecting the fitting characteristics of the facepiece.
3. Inspection. To ensure the continued reliability of respiratory equipment, they must be inspected on a regular basis.
 - a. All Respirators. For all respirators, inspections must include a check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canisters, or filters. In addition, the elastomeric parts must be evaluated for pliability and signs of deterioration.
 - b. SCBAs. SCBAs require monthly inspections. The air and oxygen cylinders must be maintained in a fully charged state and recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. In addition, the regulator and warning devices must be inspected to ensure that they function properly. For SCBAs maintained for emergency use a record of the monthly inspection must be maintained by the program administrator. The record must include the date of the inspection, the name of the inspector, the findings of the inspection, any required remedial action, and a serial number or other means of identifying the inspected respirator.
4. Inspection Frequency. The frequency of inspection and the procedures to be followed depend on whether the respirator is intended for *routine use* or *emergency escape*.
 - a. Routine Use. All respirators used in *routine* situations must be inspected before each use and during cleaning.

b. Escape-Only Use. Respirators used for *escape-only* must be inspected before being carried onto the jobsite.

5. Repair. Respirators that fail to pass inspection or are otherwise found to be defective must be removed from service, and discarded, repaired, or adjusted. Repairs or adjustments to respirators must be done only by appropriately trained personnel, using only the respirator manufacturer's NIOSH-approved parts designed for that respirator. The repairs also must be made in accordance with the manufacturer's recommendations and specifications regarding the type and extent of repairs to be performed. Because components such as reducing and admission valves, regulators, and alarms are complex and essential to the safe functioning of the respirator, they are required to be adjusted and repaired only by the manufacturer or a technician trained by the manufacturer. When a respirator is taken out of service, the respirator must be tagged "out of service," and the CSHO should be given a replacement of the same make, model and size.

J. Training. Training is an important part of the respiratory protection program and is essential for correct respirator use. OSHA personnel must receive training prior to using a respirator. For the training to be effective, the training must be comprehensive and presented in an understandable way.

All program administrators must attend the OSHA Training Institute (OTI) course on respiratory protection or an equivalent course. The program administrator or other qualified individual will provide the necessary training to all CSHOs who may be assigned to wear respirators. Additional training may also be provided through completion of an OTI course in respiratory protection or other training source. As a result of this training, all personnel will be able to understand the operation of the respirator and be able to use it properly.

The training must cover, at a minimum, the following topics:

1. The general requirements of the OSHA respiratory protection standard;
2. A discussion of why the use of the respirator is necessary. Such training should address the identification of the hazards involved during inspections, the extent of employee exposures to those hazards, and the potential health effects of such exposures;
3. Proper selection of respirators;

4. The procedures for inspecting the respirator, donning and removing it, checking the fit and seal, and actually wearing it;
 5. Information regarding the consequences of improper fit, usage, or maintenance;
 6. Limitations and capabilities of the respirator selected, including ESLI and change schedules;
 7. How to use the respirator effectively in emergency situations, including situations when malfunctions occur;
 8. Proper procedures for maintenance and storage; and
 9. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators (e.g., shortness of breath, dizziness).
- K. Annual Retraining and Refresher Training. Retraining must be done annually and under some conditions additional retraining might be required. Circumstances which would require retraining include situations where changes in the type of respirator assigned to the employee render previous training obsolete; when the employee has not retained the requisite understanding or skill to use the respirator properly; or any other situation in which retraining appears necessary to ensure safe respirator use.

For example, training in the operation and use of SCBAs must be ongoing and continuous. Individuals who are designated to use SCBA must follow the manufacturer's instructions and be trained annually. Training must include the wearing and use of SCBA during exercise situations (e.g., walking). All respirator training will be documented by the program administrator and the documentation will include the type, model, and size of the respirator assigned to each employee.

- L. Program Evaluation. The program administrator must conduct evaluations of the respiratory protection program as necessary to ensure that the provisions of the current written respirator program are being properly implemented for all CSHOs required to use respirators. Evaluations must be conducted to ensure the continued effectiveness of the program. Evaluations of the program will determine whether the correct respirators are being used and worn properly and whether the training program is effective.

The program administrator must regularly consult with CSHOs wearing respirators to ascertain the employees' views on program effectiveness and to identify any problems. This assessment must determine if the respirators are properly fitted. It must also evaluate whether CSHOs are able to wear the respirators without interfering with effective workplace performance; respirators are correctly selected for the hazards encountered; respirators are being worn when necessary; and whether respirators are being maintained properly. The program administrator must correct any problems associated with wearing a respirator that are identified by CSHOs or that are revealed during any other part of this evaluation.

- M. Record keeping. SCBAs require monthly inspections. The air and oxygen cylinders must be maintained in a fully charged state and recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. In addition, the regulator and warning devices must be inspected to ensure that they function properly. For SCBAs maintained for emergency use a record of the monthly inspection must be maintained by the program administrator. The record must include the date of the inspection, the name of the inspector, the findings of the inspection, any required remedial action, and a serial number or other means of identifying the inspected respirator. The Director of the Office of Occupational Medicine must ensure that all procedures for review and handling of OSHA medical records are in accordance with OSHA standard 29 CFR 1910.1020, "Access to Employee Exposure and Medical Records" and the Office of Personnel Management's 5 CFR 293, Subpart E, "Employee Medical File System Records." This includes establishing and maintaining a confidential storage and retrieval system so that individual records can be kept.

The CSHO's Area Director or supervisor must receive a copy of the written medical opinion for each CSHO who will wear a respirator so that they have knowledge of the CSHO's ability to wear a respirator. The CSHO should also be provided with a copy. The program administrator must keep a copy of the written opinion as well as other records (i.e., fit testing and the written respirator program) required under 29 CFR 1910.134. This information will assist the program administrator in auditing the adequacy of the program.

Fit test records must be retained for respirator users until the next fit test is administered. These records consist of:

- Name of the person tested;
- Type of fit test performed (QLFT, QNFT - irritant smoke, saccharin, etc.);

- Make, model, and size of the respirator fitted;
- Date of the fit test;
- Pass/fail results if a QLFT is used; and
- Fit factor and strip chart recording or other record of the test results if quantitative fit testing was performed.

Fit test records must be maintained to determine whether annual fit testing has been done, and whether the employee tested passed the QLFT or passed the QNFT with a fit factor that was appropriate for the type of respirator being used. If the employee's use of a respirator is discontinued (e.g., because of a change of duties or termination), fit test records need not be retained.

All written materials required to be maintained under the record keeping requirements must be made available, upon request, to affected CSHOs for examination and copying.

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