



TOSHA INSTRUCTION

TENNESSEE DEPARTMENT OF LABOR & WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY & HEALTH

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SUBJECT: Respiratory Protection Program Guidelines

ABSTRACT

Purpose: This instruction sets forth guidelines for establishing and implementing a TOSHA respirator program. The purpose of the respirator program is to ensure that all TOSHA employees are protected from exposure to respiratory hazards.

Scope: This instruction applies to all TOSHA field personnel who utilize respiratory protection.

References: 29 CFR 1910.134, Respiratory Protection Standard.

Action Offices: TOSHA Central and Field Offices.

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Respiratory Protection Program Guidelines

- I. Purpose.** This instruction sets forth guidelines for establishing and implementing a TOSHA respirator program. The purpose of the respirator program is to ensure that all TOSHA employees are protected from exposure to respiratory hazards.
- II. Scope.** This instruction applies TOSHA-wide.
- III. References.** 29 CFR 1910.134, Respiratory Protection Standard.
- IV. Action Information.** All TOSHA employees who wear respiratory protection will follow the guidance provided by this instruction. Section Managers and Supervisors are responsible to provide training and insure the instructions are followed.
- V. Significant Changes.** This instruction incorporates the TOSHA Respiratory Protection Program Guidelines into the TOSHA Directives system. It was developed to conform to the Respiratory Protection Standard, 29 CFR 1910.134 . TOSHA Managers and Area Supervisors will use these guidelines to establish and implement a TOSHA respiratory protection program consistent with the needs of each office and field location.
- VI. Background.** Tennessee Occupational Safety and Health Administration (TOSHA) 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, and laboratory operations. These hazards include a wide range of airborne contaminants and in some cases represent immediately dangerous to life or health (IDLH) conditions.

TOSHA 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 TOSHA 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.

VII. Respiratory Protection Program.

A. Administration of Program.

- 1.** The Manager of Training is the Program Administrator.
- 2.** The Industrial Hygiene Supervisor in each Area Office is the local program administrator to coordinate the various aspects of the respiratory protection program on a local level. They will coordinate the program with

the Area Office Safety Supervisors and the Manager of Training, Manager of Industrial Hygiene, Manager of Public Sector and Managers of Safety.

B. Responsibilities.

1. Manager of Training.

- a. Assist the Area Offices in complying with the program;
- b. Monitor Area Office adherence to the program and evaluate the program;
- c. Ensure that all employees (including new hires) receive appropriate fit testing;
- d. Ensure that each Area Office implements a consistent program;
- e. Maintain annual training records.

2. Industrial Hygiene Area Supervisor.

- a. Administer the program in the Area Office;
- b. Schedule medical examinations for CSHOs with the Manager of Administrative Services;
- c. Conduct annual training and keep records of the training;
- d. Ensure that the program is understood and followed by the CSHOs;
- e. Ensure that CSHOs know how to order appropriate respirators, sufficient supplies (e.g., filters, chemical cartridges, canisters, cleaning and disinfecting solutions) from the TOSHA Lab;
- f. Ensure that respirators are properly cleaned, maintained, and stored;
- g. Monitor respirator use to ensure that respirators are used properly;
- h. Maintain non-individually-assigned equipment such as PAPRs;
- i. Consult regularly with CSHOs required to use respirators to assess the CSHOs' views on program effectiveness and to identify and correct any problems.

3. Compliance Safety and Health Officers.

- a.** 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.
- b.** 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.
- c.** CSHOs must notify their supervisor if their respirators no longer fit well.

C. Program Elements. The respiratory protection program covers the following basic elements:

- 1.** Procedures for selecting respirators for use in the workplace;
- 2.** Medical evaluations of CSHOs required to use respirators;
- 3.** Fit testing procedures for tight-fitting respirators;
- 4.** Use of respirators in routine and reasonably foreseeable emergency escape situations;
- 5.** Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, and otherwise maintaining respirators;
- 6.** Training employees in the respiratory hazards to which they are potentially exposed;
- 7.** Training employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and maintenance procedures; and
- 8.** 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 under all conditions of use.

1. General Requirements. 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. This information must be taken into account:

- a. Nature of the hazard, and the physical and chemical properties of the air contaminant;
- b. Concentrations of contaminants;
- c. Relevant permissible exposure limit or other occupational exposure limit;
- d. Nature of the work operation or process;
- e. Length of time the respirator is worn;
- f. Work activities and physical/psychological stress;
- g. Fit testing; and
- h. 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. Only NIOSH certified respirators will be used, and only in accordance with the terms of that certification. Replacement respirators, cartridges, canisters, and filters will be made available as required through the TOSHA lab.

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. The CSHO must follow 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. 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.

At a minimum, gas vapor cartridges and canisters should be disposed of after each day's activities regardless of the duration of the activity. Experience and professional judgment should be used along with existing information and data to establish cartridge or canister change schedules.

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.** *CSHOs are not allowed to use SCBA's or supplied air respirators. If a situation arises where one is necessary, notify the program administrator in the Central Office immediately.*
4. **Entry into IDLH Atmospheres.** *CSHOs are not allowed to enter known IDLH atmospheres for inspection purposes.* TOSHA 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. If an escape respirator is needed, contact the Program Administrator in Nashville.

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.

1. **Purpose.** The purpose of a medical evaluation is to determine if CSHOs can tolerate the physiological burden associated with respirator use.

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. Medical eligibility is to be determined by a CSHO Medical Evaluation. The examination will be provided free of charge and will be coordinated by the Manager of Administrative Services in the Nashville Central Office.
3. **Reevaluation of CSHO Ability to Use a Respirator.** In addition to the medical evaluation there are a number of circumstances that may require reevaluating a CSHOs ability to use a respirator, such as when the CSHO reports medical signs or symptoms that are relevant to the CSHOs ability to use a respirator; when TOSHA 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.
4. **Reporting Results of Examinations.** The examining physician will forward to the Nashville Central Office a copy of the Healthcare Professional's Written Opinion. A copy will be given to the CSHO within 15 working days of the date of receipt. A copy of the written opinion will be kept in the employee's personnel file maintained by the TOSHA administrator.

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 tight-fitting facepiece respirators. The TOSHA 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, 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 using a Portacount™ unit.
5. **Protocol Descriptions.** The QNFT protocol in Appendix A of the respirator standard will be used. 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. The CSHO must be fit tested with the same make, model, style, and size of respirator that will be used.

- 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.** 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 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 TOSHA requirements, the manufacturer's instructions for inspecting, cleaning, and maintaining should be consulted to ensure that the respirator continues to function properly. The maintenance program should include at least:

1. Cleaning and disinfecting procedures;
2. Proper storage;
3. Regular inspections for defects; and
4. 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. Defective respirators should be discarded.

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. 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.

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. A new respirator must be requested from the TOSHA Lab.
- J. Training.** Training is an important part of the respiratory protection program and is essential for correct respirator use. TOSHA personnel must receive training prior to using a respirator. The Area Office Supervisors will coordinate or provide the necessary training to all CSHOs who may be assigned to wear respirators. 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 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. All respirator training will be documented by the Area Office Supervisor. The records of all annual respirator training records will be sent to Nashville and maintained by the Manager of Training.
- 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.

- M. Record keeping** A Healthcare Professional's Written Opinion for each CSHO will be kept in their TOSHA personnel file. Other records (i.e., fit testing and the written respirator program) required under 29 CFR 1910.134 will be maintained in the Nashville Central Office. 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:

1. Name of the person tested;
2. Type of fit test performed (QLFT, QNFT - irritant smoke, saccharin, etc.);
3. Make, model, and size of the respirator fitted;
4. Date of the fit test;
5. Pass/fail results if a QLFT is used; and

- 6.** Fit factor and strip chart recording or other record of the test results if quantitative fit testing was performed.

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.
