Starting a Respiratory Protection Program – Quick Tips

The Occupational Safety and Health Administration (OSHA) requires employers to develop and implement a written respiratory protection program for situations in which permissible exposure limits (PELs) of airborne contaminants are exceeded, or when the employer requires the use of respirators by employees.

The National Institute for Occupational Safety and Health's (NIOSH's) hierarchy of hazard controls starts with the most effective controls and moves down to those considered least effective:

- Elimination – Physically remove the hazard
- Substitution – Replace the hazard
- Engineering controls – Isolate people from the hazard
- Administrative controls – Change the way people work
- Personal protective equipment – Protect the worker with PPE

Administrative controls limit exposure to hazards by adjusting work tasks or schedules. Examples include limiting the time a worker is exposed to a hazard and creating written operating procedures. When elimination, substitution and engineering controls are not feasible (while they are being instituted or in an emergency situation), respirators must be used to control employee exposure to potentially hazardous atmospheres.

A respiratory protection program ensures that all employees are properly protected from respiratory hazards. According to 29 Code of Federal Regulations (CFR) 1910.134, employers must create and maintain an individualized, written respiratory program if their employees use respirators. Also, employers must choose NIOSH certified respirators for their employees when respirators are required.

29 CFR 1910.134(c) requires employers to develop and implement a written respiratory protection program with worksite-specific procedures and elements for respirator use. A suitably trained program administrator must lead the program. Per OSHA, an individual is qualified to be a program administrator if he or she has appropriate training or experience that matches the program's level of complexity. The training or experience is appropriate if it enables the program administrator to fulfill the minimum requirements of recognizing,

evaluating, and controlling the hazards in the workplace.

Minimum respiratory requirements for all contaminants can be found in 29 CFR 1910.134 and substance specific standards (asbestos and lead for example) are found in 29 CFR Subpart Z. The employer must follow all federal, state and local respiratory protection regulations.

Starting a Respiratory Protection Program

An employer must evaluate workplace contaminants before beginning a respiratory protection program. Airborne contaminants can present a significant threat to worker safety and health. Air contaminants can take the form of harmful dusts, fogs, fumes, mists, gases, smoke, sprays and vapors. Air monitoring is used to identify and quantify airborne contaminants to determine the level of worker protection needed. Generally, industrial hygienists evaluate work-area specific exposure levels.

The following is an overview of OSHA’s 11 requirements for starting an effective respiratory protection program.

Step 1: Written Respiratory Protection Program – An employer is required to develop and implement a written respiratory program with required worksite-specific procedures and elements for required respirator use, according to 29 CFR 1910.134(c). The written program must include a respirator-selection process; medical evaluations; fit testing; procedures for use; procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing and discarding; procedures to ensure adequate air quality, quantity and flow; training in respiratory hazards; training in use limitations and maintenance; and procedures for regularly evaluating the program’s effectiveness.

Voluntary use of respiratory protection means that an employee chooses to wear a respirator, even though a respirator is not required by the employer or by any OSHA standard. Employers who allow voluntary respirator use must make sure that the respirator itself does not create a hazard. The following table summarizes 29 CFR 1910.134 requirements for respirators based on the type of voluntary respiratory protection used.

	Filtering Facepiece (Dust Mask)	Elastomeric Negative-Pressure Respirator	Powered Air Purifying Respirator	Supplied Air Respirator
Written respiratory program	No	Yes	Yes	Yes
Medical evaluation	No	Yes	Yes	Yes
Fit testing	No	No	No	No
Annual training	No	No	No	No
Appendix D	Yes	Yes	Yes	Yes
Clean, inspect, maintain and store	Yes	Yes	Yes	Yes

Step 2: Selection of Respirators – An employer must evaluate respiratory hazards in the workplace before selecting a respirator. This evaluation must identify contaminants in their chemical state and physical form and include a reasonable employee exposure-level estimate. If an employer can't identify or reasonably estimate employee exposure, the employer should consider the atmosphere to be immediately dangerous to life and health (IDLH), according to 29 CFR 1910.134(d)(i)(III).

An employer should then select respirators based on the identified hazards, and workplace and user factors that might hinder respirator performance and reliability. Respirators must be NIOSH certified. In IDLH atmospheres, a full facepiece, pressure-demand self-contained breathing apparatus (SCBA) with a minimum service life of 30 minutes, or a combination full facepiece, pressure-demand supplied-air respirator (SAR) with auxiliary self-contained air supply must be used. In atmospheres that are non-IDLH, employers must use the assigned protection factors (APF) to select a respirator that meets or exceeds the required level of employee protection. For protection from gases and vapors,

employers should provide an atmosphere-supplying respirator or an air-purifying respirator (APR), providing the APR has an end-of-service-life indicator or a cartridge replacement schedule based upon objective data. For protection against particulates, make sure the equipment is NIOSH certified as a high-efficiency particulate air (HEPA) filter or that an APR equipped with a filter is NIOSH certified for particulates.

Step 3: Medical Evaluations – An employer must provide a medical evaluation to determine an employee's medical eligibility for respirator use. The medical evaluation must occur before an employee is fit tested or required to use the respirator in the workplace. Initial exam results or a physician or licensed healthcare professional's (PLHCP) findings might require further evaluations.

Employers should allow for confidential and convenient evaluations during normal work hours, and the PLHCP should ensure that an employee understands the exam's results. The PLHCP must note any limitations the employee might have if there is a need for follow-up exams. The PLHCP must also provide the employee with a written copy of any recommendations. If medical conditions prevent an employee from using a negative-pressure respirator, a powered air-purifying respirator (PAPR) may be appropriate.

Additional medical evaluations might be necessary if:

- The employee reports symptoms;
- The physician or licensed healthcare provider, supervisor or program administrator recommends them;
- Observations or evaluations indicate that they're necessary; or
- A change in the workplace affects the physical burden placed on the wearer.

Step 4: Fit Testing – Employees must be fit tested with the same make, model, style and size of respirator that will be used if respirator use is required, according to 29 CFR 1910.134(f).

Employees who are required to use a tight-fitting facepiece respirator must pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT). A QLFT may only be used to fit test negative pressure APRs that must achieve a fit factor of 100 or less. A QNFT must be used when the fit factor must be equal to or greater than 100 for half-face masks and equal to or greater than 500 for full-face masks.

Atmosphere-supplying respirators and tight-fitting PAPRs must be fit tested through quantitative or qualitative testing in negative-pressure mode, regardless of its negative or positive operation, according to 29 CFR 1910.134(f)(8). Employees then should be retested annually, when there is a change in the type of respirator used, or when there is a change in an employee's physical condition, such as an obvious change in body weight.

Step 5: Use of Respirators – Employers must establish rules and procedures for respirator use. These rules must prohibit an employee from removing a mask in a hazardous environment and prevent conditions that could result in facepiece seal leaks. The rules must also ensure continued effective respirator use throughout work shifts, and establish procedures for respirator use in IDLH atmospheres and in structural firefighting situations, according to 29 CFR 1910.134(g).

Employers must not allow an employee with facial hair or any condition that

limits a facepiece seal or valve function to wear a tight-fitting facepiece. If an employee wears glasses, goggles or personal protective equipment (PPE), the employer must ensure that the equipment doesn't interfere with the facepiece seal.

Employers must maintain work-area surveillance for stress and exposure. Employees should leave the respirator work area if they detect vapor or gas breakthrough, leakage of the facepiece or changes in breathing resistance.

Step 6: Maintenance and Care – The employer must provide for the cleaning and disinfecting, storage, inspection and repair of respirators, according to 29 CFR 1910.134(h). The cleaning and disinfecting must be done for exclusive-use respirators as needed, for multiple-use respirators before other uses, for rescue respirators after each use, and for those used for fit testing after each use. Stored respirators should be protected from environmental damage and facepiece and exhalation-valve deformation. Emergency respirators must be accessible and clearly marked. Routine-use respirator inspections must be performed before each use and when cleaning. Emergency respirators must be inspected monthly, before and after each use, and in accordance with the manufacturer's recommendations. Escape respirators should be inspected before each use. Inspections should include all parts and a check of elastomeric parts for pliability and deterioration. Emergency respirators should include a certification of inspection, name, date, etc. Only appropriately trained employees should perform repairs or adjustments, and only NIOSH-approved parts should be used.

Step 7: Breathing Air Quality – An employer must provide employees who use atmosphere-supplying respirators (supplied air and SCBA) with high-purity breathing gases (compressed air, compressed oxygen, liquid air and liquid oxygen), according to 29 CFR 1910.134(i). Compressed breathing air must meet at least the Type 1, Grade D breathing-air requirements described in the American National Standards Institute (ANSI) and Compressed Gas Association (CGA) Commodity Specification for Air CGA G-7.1 which was last updated in 2018.

Step 8: Identification of Filters, Cartridges and Canisters – An employer must ensure that all filters, cartridges and canisters used in the workplace are labeled and color-coded with NIOSH-approved labels, according to 29 CFR 1910.134(j). The employer must also ensure that the labels are not removed and remain legible.

Step 9: Training and Information – The employer must provide effective training to employees who are required to wear respirators. The training must be comprehensive, understandable and reviewed annually or more often if necessary, according to 29 CFR 1910.134(k). Employees must be able to demonstrate why a respirator is necessary, consequences of improper fit, usage and maintenance. They must be aware of limitations and capabilities of the respirator. They must know how to use it in emergency situations and know what to do should the respirator fail. They must know how to inspect, maintain and store the respirator. They should be aware of medical signs or symptoms that would limit or prevent the use of the respirator. Retraining is required whenever there are changes in the workplace, when new types of respirators are used, if inadequacies are noticed, or employee knowledge or use indicates a need.

Step 10: Program Evaluation – The employer is required to conduct evaluations of

the workplace to ensure that the written respiratory protection program is properly implemented and that it continues to be effective, as stated in 29 CFR 1910.134(l). The employer shall conduct evaluations as necessary. They should regularly consult employees regarding respirator fit, selection, use and maintenance.

Step 11: Record Keeping – The employer is required to establish and retain written information regarding medical evaluations, fit testing and the respirator protection program. This information will facilitate employee involvement in the respirator protection program, assist the employer in auditing the adequacy of the program, and provide a record for compliance determinations by OSHA, according to 29 CFR 1910.134(m). Records of medical evaluations required by this section must be retained and made available in accordance with 29 CFR 1910.1020. Fit-testing records must be detailed and retained until the next fit test. The employer must also retain a written copy of the current respirator protection program.

It's important to remember that when elimination, substitution and engineering controls are not feasible (while they are being instituted or in an emergency situation), respirators must be used to control employee exposure to potentially hazardous atmospheres. OSHA requires employers to develop and implement a written respiratory protection program for situations in which permissible exposure limits (PELs) of airborne contaminants are exceeded, or when the employer requires the use of respirators by employees.

Commonly Asked Questions

Q: Can I use respirator parts from another manufacturer to repair my respirator?

A: No, doing so will void all NIOSH approvals.

Q: Do I need a written respiratory protection program if I only have employees using disposable dust/mist respirators?

A: OSHA defines filtering facepieces and dust masks as one and the same within 29 CFR 1910.134. And if employees are required to wear a respirator, of any type, a written program is required. If employees voluntarily wear respirators, the employer must demonstrate that all conditions for voluntary use exist. OSHA is very clear on voluntary use of respirators. Voluntary use means:

- An exposure assessment has been conducted;
- The permissible exposure limit (PEL) is not exceeded;
- No OSHA regulation requires that respirators be provided by the employer;
- The employer does not believe it is necessary to reduce exposures below their current levels (i.e., there is no perceived hazard);
- The employer does not require, recommend, encourage or suggest that respirators be used;
- Workers ask to wear respirators; and
- Respirators will not be used for emergency response or escape.

If one or more of these conditions are not met, respirator use is not voluntary and a complete written respiratory protection program is required.

Q: What is IDLH?

A: IDLH is the concentration at which a contaminant is immediately dangerous to life and health. If the concentration meets or exceeds the IDLH concentration, a full facepiece, pressure-demand SCBA with a minimum service life of 30 minutes, or a combination full facepiece, pressure-demand SAR with auxiliary self-contained air supply must be used.

Sources

29 CFR 1910.134 Respiratory Protection

29 CFR 1910.1001 Asbestos

29 CFR 1910.1025 Lead

29 CFR 1910.1020 Access to Employee Exposure and Medical Records

Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Hierarchy of Controls

CGA G-7.1-2018 Commodity Specification for Air

Small Entity Compliance Guide for the Respiratory Protection Standard OSHA 3384-09 2011