



Loss Control Insights

Respiratory Protection Saves Lives

Respiratory Protection

Respirators are an important part of personal protective equipment (PPE). Anyone that has changed out a chlorine cylinder or worked in a confined space is familiar with the use of a self-contained breathing apparatus (SCBA). If we are familiar with the use of an SCBA or use one on a regular basis, then it is important for us to also be familiar with the OSHA regulations and determine if our respiratory protection program meets this minimum standard.

Are Municipalities required to have an OSHA Program for Respiratory Protection?

Although municipalities are not regulated by OSHA in PA, many treatment plants use OSHA standards as the minimum standard, all facilities should follow these regulations when developing and implementing their health and safety programs.

Goal of OSHA's Respiratory Protection Standard

The goal of OSHA's respiratory protection standard (29 CFR 1910.134) is to control occupational disease caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays or vapors. This also includes air in confined space that may have an oxygen deficient atmosphere Immediately Dangerous to Life and Health (IDLH). According to the standard, when engineering controls or ventilation is not feasible to reduce the hazard, then appropriate respiratory protection can be used.

The Written Program

A written respiratory protection program is required when the employer requires the use of respirators. The written program should site specific and include all prescribed program elements. The program should also be administered by a trained person knowledgeable in the OSHA standard. The following are the OSHA program elements:

- 1 Procedures for selecting respirators for use;
- 2 Medical evaluations of employees required to use respirators;
- 3 Fit testing procedures for tight-fitting respirators;
- 4 Procedures for proper use of respirators in routine and reasonably foreseeable emergency;
- 5 Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators;
- 6 Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere- supplying respirators;
- 7 Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations;
- 8 Training of employees in the proper use of respirators, and

9 Procedures for regularly evaluating the effectiveness of the program.

Assessment and Selection

OSHA requires employers to assess the respiratory hazard(s) in their workplace. This assessment should identify any hazardous airborne contaminant(s) the employee may inhale during their work

assignment and then make a reasonable estimate of that person's exposure so that the appropriate respirator can be selected.

To complete an assessment the program administrator would review the chemical list or MSDS's (or safety data sheets) and evaluate how each of the chemicals are handled to determine if a respiratory hazard exists. Some safety data sheets also include recommendations for selection of the correct respiratory protection.

Once the assessment is completed for each potential respiratory hazard, then the information is documented in the written program with the job task, the chemical contaminant, estimated exposure and type of respirator selected. For confined spaces where oxygen deficient atmospheres may be present, the assessment is simple: suspected IDLH environment = SCBA use.

Medical Evaluations

Since use of a respirator can place a physiological burden on an person's cardiac and pulmonary function, a medical evaluation is required by the OSHA standard to determine the his or her ability to use a respirator. A medical evaluation consists of completion of a medical questionnaire (found in Appendix C of the standard) or by having a medical evaluation by a physician or other licensed healthcare professional (PLHCP).

Either the questionnaire or the medical evaluation is required for all respirator users, except those who voluntarily use dust masks and escape-only respirators. If the medical questionnaire is used to evaluate the fitness of respirator use, then those documents must be kept confidential, and not in a file with other personnel records. There is no cost to the employee for the medical evaluation.

Fit Testing

Fit testing is required for all employees using tight-fitting respirators such as an self-contained breathing apparatus (SCBA). However, it is not required for voluntary use of respiratory protection, such as dust masks, or for escape-only respirators.

OSHA allows two types of fit testing:

- 1 Quantitative Fit Test (QNFT) – An instrument is used that will numerically measure the amount of leakage into the respirator. Then a calculation is made to determine a fit factor, to determine how well the respirator will protect the use.

- 2 Qualitative Fit Test (QLFT) – A “pass/fail” test that assess the adequacy of the respirator fit by relying on the individual’s response to the test agent, typically banana oil, sodium saccharine or irritant smoke.

While Quantitative Fit Testing is more accurate and provides a greater degree of protection, Qualitative Fit Testing is more economical. City Fire Departments are a good resource for fit testing, as they have trained personnel and equipment that may be able to assist with this portion of the OSHA requirement at no cost.

Facial Hair, Corrective Glasses and Respirator Use

As part of the written program OSHA requires employers to establish and implement procedures for the proper use of respirators. These requirements prohibit conditions that may affect the facepiece seal of the respirator which includes facial hair. The OSHA standard states that they, “do not permit respirators with tight-fitting facepieces to be worn by employees who have facial hair...or any condition that interferes with the face-to-facepiece seal or valve function.” If personnel have beards or any facial hair that interferes with the face seal of the respirator, that person cannot be fit tested and therefore should not be wearing a tight-fitting respirator.

For employees with corrective glasses, goggles or other PPE, OSHA requires that “such equipment is worn in a manner that does not interfere with the seal of the facepiece to the face of the user.” For those that wear corrective glasses, and have to wear a full-face respirator, request a spectacle kit.

Maintenance and Care of Respirators

Respirators should be cleaned and disinfected to keep them in a sanitary condition. They should also be stored accordingly to prevent damage and contamination.

- Respirators issued for the exclusive use of an employee should be cleaned and disinfected as needed to maintain it in a sanitary condition;
- Respirators issued to more than one employee should be cleaned and disinfected before being worn by other individual;
- Respirators maintained for emergency use should be cleaned and disinfected after each use.

Inspections

All respirators should be regularly inspected before each use and during cleaning. If SCBA’s are maintained for emergency use, the requirement is for monthly inspections. Cylinders should be maintained in a fully charged state and should be recharged when the pressure falls to 90% of the manufacturer’s recommended pressure level. All SCBA inspections should include a check of the regulator and warning devices.

For emergency use respirators, OSHA also requires a “certification” that the respirator was inspected. Typically, this is a checklist that is stored with the respirator. The checklist should

include the name (or signature) of the person who made the inspection, the findings, any required remedial action, and a serial number or other means of identifying the respirator.

Training and Information

Training, an OSHA requirement, should be conducted in a manner that is understandable to the employee and should occur prior to use of the respirator. The training program should include the following elements:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
- What the limitations and capabilities are;
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
- How to inspect, put on and remove, use, and check the seals of the respirator;
- What the procedures are for maintenance and storage of the respirator;
- How to recognize medical signs and symptoms that may limit or prevent the effective use of the respirator.

Conclusion

It is important to maintain all of our PPE in good condition especially our respirators. We depend on these to prevent possible respiratory disease and to protect us in confined spaces. If we are required to use a respirator in our work assignments or during emergencies, OSHA requires that we have a medical evaluation, fit testing and training. We should also feel confident that the correct respirator was selected for that task. Although most facilities have a respiratory protection program, they may not have all of the required OSHA components. The challenge is for the program administrator. He or she is tasked with the evaluation and implementation of the program and determining if any changes are needed. Recommendations from the program administrator should be implemented so that all employees can continue to remain safe when using their respirators.