

Pages 346-357

less apt to permit inward leakage of contaminants

#### SUPPLIES-AIR RESPIRATORS

The respirable air supply is not limited to the quantity the individual can carry, and the devices are lightweight and simple.

**Limitations:** Limited to use in atmospheres from which the wearer can escape unharmed without the aid of the respirator.

The wearer is restricted in movement by the hose and must return to the respirable atmosphere by retracing his route of entry. The hose is subject to being severed or pinched off.

(1) **Hose Mask.** The hose inlet or blower must be located and secured in a respirable atmosphere.

(a) **Hose mask with blower.** If the blower fails, the unit still provides protection, although a negative pressure exists in the facepiece during inhalation.

(b) **Hose mask without blower.** Maximum hose length may restrict application of device.

(2) **Air-Line Respirator (Continuous Flow, Demand, and Pressure-Demand Types).**

The demand type produces a negative pressure in the facepiece on inhalation, whereas continuous-flow and pressure-demand types maintain a positive pressure in the respiratory-inlet covering and are less apt to permit inward leakage of contaminants.

Air-line suits may protect against atmospheres that irritate the skin or that may be absorbed through the unbroken skin.

**Limitations:** Air-line respirators provide no protection if the air supply fails. Some contaminants, such as tritium, may penetrate the material of an air-line suit and limit its effectiveness.

Other contaminants, such as fluorine, may react chemically with the material of an air-line suit and damage it.

**Combination Airline Respirators with Auxiliary SC Air Supply.** The auxiliary self-contained air supply on this type of device allows the wearer to escape from a dangerous atmosphere. This device with auxiliary self-contained air supply is approved for escape and may be used for entry when it contains at least a 15-minute auxiliary self-contained air supply.

set strap tension and how to access a “comfortable” respirator. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This will not constitute his formal training on respirator use, only a review.

4. The test subject will hold each face piece up to his face and eliminate those that are obviously not giving a comfortable fit.
5. The more comfortable face pieces will be recorded the most comfortable mask will be worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in Item 6 below. If the test subject is not familiar with using a particular respirator, he/she shall be directed to don the mask several times and to adjust the straps each time, so that he/she becomes adept at setting proper tension on the straps.
6. Assessment of comfort shall include reviewing the following points with the test subject:
  - Proper chin placement
  - Positioning of mask on face
  - Strap tension
  - Room for prescription spectacle insert(s)
  - Room to talk
  - Tendency to slip
  - Cheeks filled out
  - Self-observation in mirror
  - Adequate time for assessment
7. Each test subject shall wear his/her respirator for at least 10 minutes before starting the fit test.

## **FIT TESTING**

Qualitative fit testing involves four distinct steps:

- Performance of positive/negative pressure checks
- Administration of stannic chloride smoke challenge
- Administration of ammonia inhalant vapor challenge
- Administration of isoamyl acetate vapor challenge

The test procedures incorporate aerosols, which are designed to produce an involuntary cough reflex and/or olfactory stimulation subject to face to seal breakthrough or leakage.

## **Fit Testing Procedure**

1. Each respirator used for the fit testing shall be equipped with combination organic vapor and high-efficiency particulate cartridges (black/magenta).

every second. Alert the test subject not to bump the respirator on the chest. Have the test subject inhale when his head is in the fully up position.

- Talking. Talk aloud and slowly for several minutes. The following paragraph is called the Rainbow Passage. Reading it will result in a wide range of facial movements, and thus be useful to satisfy this requirement. Alternative passages, which serve the same purposes, may also be used.

### **Rainbow Passage**

*"When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it.*

*"When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow."*

- Normal breathing.

Repeat fit testing steps 5 through 9, this time using vapors from an ammonia inhalant ampoule (MSA P/N 2156, or equivalent) as a secondary challenge atmosphere.

Repeat fit testing steps 5 through 9, this time using vapors from an isoamyl acetate ampoule (North P/N 7002, or equivalent) as a third challenge atmosphere.

If the irritant aerosols produce an involuntary reaction (cough) or if the test subject notices odors, the test conductor shall stop the test. In this case, the test respirator is rejected, and another respirator shall be selected.

Each test subject passing the challenge tests without evidence of a response shall be given a sensitivity check of the aerosols to determine whether he reacts to them. Failure to evoke a response shall void the fit test.

After passing the fit test, the test subject shall be questioned again regarding the comfort of the respirator. If it has become uncomfortable, another model of respirator shall be tried.

The test subject shall be given the opportunity to select a different facepiece and be re-tested if during the use the chosen facepiece becomes unacceptably uncomfortable.

### **8. Protection Factors (PF)**

350 of 357

If a respirator passes the qualitative tests, it can be work in concentrations determined by the assigned PF. The Maximum Use Concentration (MUC) is calculated by multiplying the TLV of the contaminant by its PF. PFs for air purifying respirators are:

## **EXHIBIT "D"**

### **RESPIRATOR TRAINING RECORD**

Employee's Name (print) \_\_\_\_\_  
(Last) (First) (M.I.)

Craft \_\_\_\_\_ SSN: \_\_\_\_\_

Project Name: \_\_\_\_\_ Job No.: \_\_\_\_\_

Your signature on this Respirator Training Record will attest to your having received and understood the basic respirator training program which both *S.C. Swiderski, LLC* and the Occupational Safety and Health Administration (OSHA) require as part of an acceptable respiratory protection program.

The basic respirator training program consists of the following elements:

- The reasons for the need of respiratory protection.
- The nature, extent, and effects of respiratory hazards to which the person may be exposed.
- An explanation of why engineering controls are not being applied or are not adequate and of what effort is being made to reduce or eliminate the need for respirators.
- An explanation of the operation and the capabilities and limitations of the respirator selected.
- Instruction in inspecting, donning, checking of the fit of, and wearing the respirator.
- An opportunity for each respirator wearer to handle the respirator, learn how to don and wear it properly, check its seals, wear it in a safe atmosphere, and wear it in a test atmosphere.
- An explanation of how maintenance and storage of the respirator is carried out.
- Instructions in how to recognize and cope with emergency situations.
- Instructions as needed for special respirator use.
- Regulations concerning respirator use.

Employee's Signature \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Trainer's Signature \_\_\_\_\_

Trainer's Title \_\_\_\_\_

352 of 357

## **EXHIBIT "E"**

### **RESPIRATOR FIT TEST RECORD**

Employee's Name (print) \_\_\_\_\_  
(Last) (First) (M.I.)

## **EXHIBIT "F"**

### **PROGRAM FOR THE VOLUNTARY USE OF DUST MASKS**

This program is designed to protect employee health even though it has been determined that respirators are not required. Filtering face piece dust masks will be allowed for those employees who wish to use them. This program is designed for compliance with OSHA Standard 29 CFR 1910.134(c)(2)(i) with the exception in 1910.134(c)(2)(ii).

The Safety Manager has determined that respirators are not required for the following jobs, tasks, or departments: Concrete, Masonry, Plumbing, Steel, Earthwork, Millwright, and Carpentry.

The use of dust mask respirators by employees is strictly voluntary.

The Safety Manager will provide and employees are to read Appendix D of the OSHA Respirator Standard 29 CFR 1910.134, a copy of which follows:

#### **Appendix D 1910.134 Mandatory) Information for Employees Using Respirators When Not Required Under the Standard**

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warning regarding the respirator's limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or

354 of 357

statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.

3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator

3. The Safety Manager will provide the following supplemental information:
  - a) The type and weight of the respirator to be used by the employee
  - b) The duration and frequency of respirator use (including use for rescue and escape)
  - c) The expected physical work effort
  - d) Additional protective clothing and equipment to be worn
  - e) Temperature and humidity extremes that may be encountered
  - f) A copy of this written respiratory protection program
  - g) A copy of the respiratory protection standard (29 CFR 1910.134)

4. Respirators will be cleaned and disinfected according to the manufacturer's recommendations or those found in Appendix B-2 of the standard.

All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be packed or stored to prevent deformation of the face piece and exhalation valve.

8. The Safety Manager will provide a copy of and employees are to read Appendix D of the OSHA Respirator Standard 29 CFR 1910.134, a copy of which follows:

#### **Appendix D 1910.134 (Non-Mandatory) Information for Employees Using Respirators When Not Required Under the Standard**

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators you're your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warning regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging.

356 of 357

It will tell you what the respirator is designed for and how much it will protect you.

3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very

---

Revision #1

Created 24 May 2024 15:00:29 by Dale Bergman

Updated 6 June 2024 16:49:05 by Dale Bergman