



Policy

- This Safety Instruction defines **OSU rules** regarding the **use of respirators** for personal protection against airborne contaminants
- Before respirators are used, feasible **engineering controls** must be instituted to provide protection against airborne contaminants
- The ability for a respirator to provide adequate protection is based on **proper selection, fit and training**
- Respirators which are intended for protection against harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors must **NOT** be obtained or worn by employees without approval from EH&S and in accordance with this program
- The respirator program is **managed by EH&S** and has been established to **comply with the OR-OSHA regulations** for respiratory protection
- EH&S maintains a **supply** of different types of respirators
- Respirators should be obtained through EH&S in order to ensure the proper selection and fit
- Off campus facilities and other campus groups who have a large number of respirator users may obtain their own respirators after consultation with EH&S
- Such groups should contact EH&S at least every year to review the program and make necessary changes

Use of Respirators

- Every employee that wears a respirator on the job, whether required to wear one or not, shall have it properly fitted prior to initial use and at all times while performing an operation in a hazardous atmosphere
- No employee shall use a respirator or be assigned to a task that requires the use of a respirator until it has been determined that the employee is physically able to perform under such conditions
- Exception to full program participation: **voluntary use** of filtering facepiece respirators (dust mask) used in the absence of hazardous materials is allowed after an employee and their supervisor fill out an [approval form](#). More details of this exception can be found on the approval form.
- [Filtering facepiece use training](#)

Medical Fitness Evaluation

- Process begins with the completion of a [medical questionnaire](#).
- The questionnaire has been developed in accordance with OROSHA regulations
- Employee returns the questionnaire directly to OSU Occupational Medicine
- A physical will be conducted for those employees who indicate potential medical problems on the medical questionnaire
- After review by the Occupational Medicine Clinician, EH&S is notified of the employee's physical ability to wear a respirator
- Periodically, a review of the employee's health status must be made, at the frequency specified by the Occupational Medicine Clinician, by completing and submitting another questionnaire
- The employing department is responsible for paying all fees associated with the medical evaluation process
- Other arrangements can be made for medical evaluation if necessary; contact EH&S to set this up

Selection

- The useful life of each respirator or cartridge will vary depending on the job duties and actual time in use
- Each respirator has limitations; for details, refer to the manufacturer's instructions and recommendations
- Air purifying respirators (disposable masks, half or full face cartridge respirators) will not be used in an environment that has less than 19.5% oxygen
- OSU is responsible for determining the "End of Service Life" for all respirator/cartridges combinations based on
 - manufacturer's tests recommendations chemicals used
 - usage patterns

Contact EHS:
safety@oregonstate.edu
oregonstate.edu/ehs/
541 • 737 • 2273

- Consult with EH&S to choose proper respirators and determine service life

Training of Employees

- Each respirator user will be trained on how to use, check, and maintain respirators
- A record will be kept of those employees who have been trained
- Each user must understand and be able to apply the contents of this respirator program in the daily use, care, and safekeeping of the respirators
- Training will be provided by EH&S or by other groups in consultation with EH&S and will include the following:
 1. The reasons for respiratory protection.
 2. The nature, extent, and effects of respiratory hazards to which the person may be exposed.
 3. Where applicable, 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.
 4. An explanation of why a particular type of respirator has been selected for a specific respiratory hazard.
 5. An explanation of the operation, and the capabilities and limitations, of the respirator selected.
 6. Instruction in inspecting, donning, checking the seal of, and wearing the respirator.
 7. An opportunity for each respirator wearer to handle the respirator and to wear the respirator, in both a normal atmosphere and a test atmosphere, for an adequate period of time to ensure that the wearer is familiar with the operational characteristics of the respirator.
 8. An explanation of how maintenance and storage of the respirator is carried out.
 9. Instructions in how to recognize and cope with emergency situations. Instructions as needed for special respirator use.
 10. Regulations concerning respirator use.

Fitting of Respirators

- Proper fitting of respirators is essential for employees to receive the protection for which the respirator is designed
- In order to ensure a good face seal, follow the manufacturer's fitting instructions and the following instructions:
 1. The respirator and all straps should be in place and worn in the appropriate position.
 2. To adjust head bands, pull the free end tight until a comfortable and effective fit is obtained.
 3. To adjust the face-piece properly, position chin firmly in the chin cup and manually shift rubber mask until the most comfortable position is located.
 4. Make final adjustments on the headband and do not break the nasal seal.
 5. Modifications to the respirator or straps will not be made.
 6. BEARDS are not allowed.
 7. Respirators should not be worn when projections under the face piece prevent a good face seal. Note: Such conditions may be a growth of beard, sideburns, temple pieces on glasses, or a skull cap that projects under the face piece.
 8. Respirators should not be worn if scars, hollow temples, excessively protruding cheekbones, deep creases in facial skin, the absence of teeth or dentures, or unusual facial configurations prevent a good face seal.
 9. Each day, to ensure proper protection, the wearer of a respirator should check the seal of the face-piece by conducting both a positive and negative pressure test.
 10. Positive and negative pressure checks will be conducted every time the respirator is put on and prior to each entry into a hazardous atmosphere
 - a) **Positive Pressure User Seal Check**
 - ✓ Close off exhalation valve with palm
 - ✓ Exhale gently
 - ✓ A small buildup of positive pressure, with no outward leaks, indicates a good face-piece fit
 - ✓ If air leakage is detected, reposition the respirator on the face, readjust the tension of the head bands, or try a different size respirator
 - ✓ Repeat the test until a satisfactory seal has been achieved
 - b) **Negative Pressure User Seal Check**
 - ✓ Cover air inlets with palms or other means; if a disposable, cover the entire filtering surface
 - ✓ Gently breathe in so that face-piece collapses slightly
 - ✓ Hold breath for 10 seconds
 - ✓ If respirator remains slightly collapsed and no inward leaks are felt, the face-piece fits tight enough If air leakage is detected, reposition the respirator on the face, readjust the tension of the head bands, or try a different size respirator

Repeat the test until a satisfactory seal has been achieved

Required Fit Tests

- Fit tests are required on initial issuance of respirators for all employees
- Fit tests will be conducted by EH&S or other approved groups as outlined in this document
- Additional fit tests are required for each employee when a new type of respirator is issued
- Negative pressure respirators, requiring a fit factor of 100 or less, will be tested using one of the following **qualitative fit procedures**:
 1. Isoamyl Acetate Test using a fit-test tent (preferred method)
 2. Bitrex™ (Denatonium Benzoate) Solution Aerosol Test using a fit-test tent
 3. Irritant Fume Test using stannic chloride [NO TENT]
- Fit testing of respirators requiring a fit factor of greater than 100 (e.g., tight-fitting atmosphere supplying respirators, such as SCBA) will be performed with quantitative fit testing
- Contact EH&S for additional information or to arrange a test.
- Fit testing must be repeated and documented **at least annually** for all employees

Maintenance of Respirators

- Respirators need to be maintained to ensure effectiveness and to prevent chemical and bacterial contamination
- Proper maintenance of the respirator is the responsibility of each employee
- Respirators issued for the exclusive use of one worker should be cleaned after each day's work, or more often if necessary
- Additional maintenance should be performed in accordance with manufacturer's recommendations
- Respirators used by more than one worker should be thoroughly cleaned and disinfected after each use
- Respirators stored for emergency use should be thoroughly inspected at least once a month and after each use by the responsible individual
- A copy of recent inspection records is to be maintained at the storage location.
- Self-contained air tanks must be hydro-tested at the frequency specified by the US Department of Transportation for type of tank, typically 3 or 5 years

Respirator Cleaning and Disinfecting Procedures

1. Remove all covering assemblies before cleaning and disinfecting:
 - a. Filters, cartridges, canisters
 - b. Speaking diaphragms
 - c. Demand and pressure-demand valve assemblies
 - d. Head band
 - e. Any other components recommended by the respirator manufacturer
2. Wash respirator and appropriate covering assemblies as recommended by the manufacturer, in warm cleaner and disinfectant solution (49°C/120°F max. temp.).
3. A soft cloth may be used to help remove dirt or other foreign material.
4. A recommended disinfecting solution can be made from ordinary household bleach diluted 1:10 with clear water.
5. A two minute immersion will disinfect adequately.
6. Rinse respirator and appropriate covering assemblies in clean, warm water (49°C/120°F max. temp.).
7. Shake respirator as needed to remove water residues and any foreign materials that may still remain.
8. Inspect parts and replace any parts found defective.
9. Set respirator aside to air dry.
10. When dry, reassemble respirator and attach new filters, cartridges or canisters if necessary.
11. Visually inspect and, where possible, test parts and respirator assemblies for proper function.
12. After respirator has been cleaned, dried, and inspected it should be stored in a sealed, clean, sanitary container (zip-lock bag), away from any source of contaminants.
13. Respirators should not be hung by straps.
14. The face-piece, inhalation and exhalation valves must be in a normal position so as to prevent the abnormal "set" of elastomer parts during storage.

Respirator Program Evaluation

- The effectiveness of the respirator program should be **evaluated at least annually** by supervisors and EH&S
- Corrective action should be taken to correct defects found in the program
- Supervisors will monitor the effectiveness of this program by:
 - Frequent unscheduled observations of employee activities throughout the work area to confirm proper respirator use and acceptance by employees.
 - Observation of and discussion with new employees to confirm proper training has been carried out.