Respirator Training Information (For all Respirators except PAPRs, SARs, and SCBAs)

Revision: October 13, 2026

Hazard Communication

Discuss with the employee the general health hazards associated with the contaminants for which they are requesting respiratory protection. Refer to Table 1 of this document for hazard communication guidance. Discuss items such as potential for skin absorption and other items related to safety and health. Also, refer to the Respirator Training Information Checklist for additional training information.

Proper Respirators for Specific Tasks

Discuss with the employee the specific use of respirator and cartridges for the work to be performed.

Chemical cartridges and filters do not have the same capabilities. For example, gas and vapor air-purifying respirators provide no protection against particulate contaminants unless specified on the canister or chemical cartridge label. Likewise, particulate removing respirators protect against non-volatile particles and do not provide protection against gases and vapors. Neither of these types that are classified as air-purifying respirators will provide protection where there is an insufficient oxygen level. A self-contained breathing apparatus (SCBA) is the appropriate respirator for emergencies in atmospheres containing less than 19.5% oxygen (< 19.5% O2).

Assignment

Each respirator permanently assigned to an individual shall be only for the use of that individual. Other employees shall not use a respirator assigned to one employee. Other employees wishing to use respiratory protection must obtain their own respirator. Respiratory equipment shared by employees shall be properly cleaned after each use.

Should the assigned mask user have a change in job duties or if they leave the University, the respirator must be returned to EHS as soon as possible.

Employees with facial hair that comes between the sealing surface of the facepiece and the face, or that interferes with the valve function are not permitted to wear tight-fitting respirators. Facial hair that does not interfere with the seal or the valve function of the respirator may be allowed.

Respirator Inspection

Prior to each usage, the employee should inspect the following:

- Tightness of connections.
- Condition of facepiece, straps, cartridges, and/or filters.
- Condition of exhalation and inhalation valves. If the sides of the exhalation valve gap even slightly, a new valve shall be furnished.
- Pliability and flexibility of rubber parts. Deteriorated respirators shall be replaced; and

- Condition of lenses of full-face respirators. Damaged lenses shall be replaced, or the respirator must be returned by EHS to the manufacturer.

EHS shall be the contact point for issue, repair, and return of all respirators.

Donning the Respirator and Checking its Fit and Operation

Instruct the employee on how to properly don and doff the respirator. This includes facepiece to face seal using the negative and positive pressure tests. Conditions that may possibly prevent a satisfactory seal include long sideburns, a beard and/or mustache, temples on eyeglasses, absence of dentures, heavy make-up or an unusual face structure. If the conditions cannot be corrected or eliminated, the worker shall not be assigned to any area requiring routine or emergency use of respiratory protection.

Cleaning the Respirator

It is the responsibility of the respirator wearer and his/her using department to ensure that all respiratory protective equipment is cleaned and sanitized. Cleaning and disinfecting shall occur according to the manufacturer's instruction at the following intervals:

- Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.
- Respirators issued to more than one employee shall be cleaned and disinfected after each individual's use.
- Respirators maintained for emergency use shall be cleaned and disinfected after each use; and
- Respirators used in fit testing and training shall be cleaned and disinfected after each use.

To properly clean respiratory equipment, remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts. Further guidance is as follows:

1. Wash components in warm (49ºC [120ºF] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
2. Rinse components thoroughly in clean, warm (49ºC [120ºF] maximum), preferably running water. Drain
3. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:
    - Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 49ºC (120ºF); or,
    - Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6–8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 49ºC (120ºF); or
    - Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.
4. Rinse components thoroughly in clean, warm 49ºC (120ºF), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
5. Components should be hand-dried with a clean lint-free cloth or air-dried.

6. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.
7. Test the respirator to ensure that all components work properly
8. EHS recommends the use of non-alcohol equipment cleaning pads to disinfect the respirator.

Storage of Respirators

When not in use, the respirator and cartridges should be kept in a sealed plastic bag and stored in a clean, dry, moderate temperature, non-contaminated environment. It is especially important to keep gas and vapor cartridges in a sealed container, so they do not absorb gases and vapors from the storage environment. Particulate filters should also be protected from dust and dirt to enhance their service life. Care should be taken to prevent deformation of the respirator during storage. When respirators are taken into the workplace for use throughout the day, respirators must be stored inside a plastic bag in a manner that will prevent deformation of the facepiece and exhalation valve and in accordance with the manufacturer's instructions when not in use.

Respirators placed at workstations and work areas for emergency use shall be stored in compartments built for this purpose and must be quickly accessible at all times and clearly marked. Manufacturer's instructions shall be closely followed for proper storage of masks.

Respirator Limitations and Change-Out Schedules

A respirator and cartridges are selected for specific contaminants based on the tasks performed by the employee. A cartridge that filters one substance may not necessarily be used for another. Any new exposures need to be re-evaluated to ensure that the proper respirator protection is provided.

The service time of any cartridge or filter will depend on how often the respirator is worn and the levels of contamination in which it is used. Gas and vapor cartridges need to be changed at a minimum of every six months or per the cartridge change-out schedule determined by the area specific EHS representative through the use of manufacturer cartridge life expectancy calculators or other means of life expectancy calculations. Particulate filters may also be changed out every six months or used until breathing resistance increases to an uncomfortable level. For cartridges with an End-of-Service-Life Indicator (ESLI), e.g., mercury, replace the cartridges when indicated by color change.

NOTE: Please refer to Calculated Cartridge Life Expectancies for contaminant specific end-of-service-life information as well as an example printout from the SURVIVAIR® ESLI calculator using m-xylene.

General Limitations

As stated in the section on donning the respirator, beards, facial hair, mustaches, heavy make-up, dentures, and glasses can interfere with a face seal. Tight-fitting respirators will not be issued to employees with facial hair that interferes with the seal or valve function. These employees shall not be assigned to any area requiring routine or emergency use of tight-fitting respirators.

If the wearer of a respirator has a significant weight change (10 pounds or more), the employee shall be fit tested again.

In lieu of glass inserts, contact lenses may be worn with full-facepiece respirators if they are rigid gas permeable or soft (hydrophilic) lenses, except in atmospheres containing acrylonitrile, methylene chloride, 1,2-dibromo-3- chloropropane, ethylene oxide, and methylene dianiline.

Hazard Communication Information		
Respiratory Hazard	**Examples**	**Health Effects**
Oxygen (O2) Deficiency Less than 19.5% oxygen (by volume) in respirable air	May exist in confined spaces such as tanks, wells, and pits.	Effects range from slightly impaired coordination and breathing effects to nausea, vomiting, & unconsciousness, to death within minutes depending on percentage of O2 in the air.
Asphyxiants Simple – Materials that displace O2 in the air to create an O2 deficiency. Chemical – Materials that act to render the body unable to utilize O2	**Simple** – nitrogen (N2), hydrogen (H2), methane (CH4), helium (He), neon (Ne), argon (Ar) **Chemical** – carbon monoxide (CO), hydrogen (H2), hydrogen sulfide (H2S), nitriles	See O2 Deficiency (above)
Carcinogens	**Gas/Vapor** – benzene, carbon tetrachloride, vinyl chloride **Particulate** – radioactive particulate, asbestos, chromates	Development of cancer(s) after a period of time.
Irritants	**Gas/Vapor** – ammonia (NH3), hydrogen chloride (HCl), sulfur dioxide (SO2), hydrogen sulfide (H2S), chlorine (Cl2), ozone (O3) **Particulate** – fiberglass, acidic mists, alkali mists	May cause irritation and inflammation to various parts of the respiratory system. Pulmonary edema may also result. Chronic bronchitis may be seen with long term exposure. Eye and skin irritation may also be a concern.
Systemic Poisons	**Gas/Vapor** – mercury (Hg), lead (Pb), hydrogen sulfide (H2S), organic solvents, pesticides, ethylene oxide, ether, carbon tetrachloride, chloroform, benzene, carbon disulfide **Particulate** – lead (Pb), cadmium (Cd), pesticides	Acute effects may include irritation to eyes, nose, and throat, headache, nausea, vomiting, dizziness, drowsiness, incoordination, and unconsciousness. Long term exposure may involve damage to organs and systems such as nervous system, kidneys, liver, blood, bone or respiratory system. May also have reproductive effects. Skin absorption may also be a route of exposure.
Allergy-producing	Animal furs, pollens, molds, formaldehyde, pesticides, ethylenediamine	Reactions may include itching, sneezing, and asthma. Other hypersensitive reactions may also occur. Skin contact may also be a concern

Hazard Communication Information		
Pulmonary fibrosis producing	Silica, asbestos	Fibrotic disease in lungs
Febrile producing	Fumes of zinc (Zn), iron (Fe), and copper (Cu) (usually associated with welding)	Flu-like disorder with fever and chills that typically last 24 to 48 hours.
Nuisance particulate	Construction dust, plaster dust, ceramics, sawdust	May cause discomfort and irritation but usually not associated with causing any adverse health problems.
Infectious Agents Pathogenic microorganisms that are transmitted through air and can cause disease in humans.	Tuberculosis(TB), pigeon excrement	May cause infection and disease specific to the pathogen.

Respirator Training Information Checklist	
Use	• Why the respirator is necessary; Include general information on hazards of substance.
	For initial fit testing, the user should be given the opportunity to select the respirator and size that is most comfortable. A respirator should be worn for at least five minutes to assess comfort.
	• Inspection: Should be performed before each use- Check valves, headstraps, facepiece, etc. for any defects. All problems must be replaced/repaired before use, Call EHS for parts.
	Instruct user how to don, doff, and use respirator. Demonstrate donning, positioning on the face, setting strap tension, and doffing. Strap tension must be readjusted with each use.
	• Fit should be assessed by using the following criteria: placement of the chin; adequate strap tension (not overly tightened); fit across nose bridge; proper size to span from nose to chin; tendency to slip.
	Seal check: Positive and negative pressure checks must be done each time the respirator is used.
	• Conditions that may prevent a satisfactory seal include long sideburns, a beard (more than 24 hours growth), and/or mustache, temples on eyeglasses, absence of dentures, heavy makeup, or unusual face structure. Fit Test will not be conducted if the wearer has any facial hair that interferes with the sealing areas of the respirator.
	How improper fit, usage, or maintenance can compromise the protection provided by the respirator.
	• Limitations and capabilities of respirator – only will protect for contaminants indicated in use, i.e., Organic vapor cartridge on a ½ face will not protect against oxygen deficient atmosphere.
	Medical signs and symptoms: Respirator use may cause increased physiological stress on the heart and lungs. This is why all respirator users receive a medical exam prior to receiving a respirator. If you experience symptoms such as dizziness, difficulty breathing or irritation, leave the area immediately, remove respirator, and inform your supervisor/EHS. In addition, you may need an additional medical examination if your personal health status has changed in any way that may affect your respirator use.
	Cartridges are designed for specific contaminants. The cartridges issued are selected according to the particular substance that will be used. Consult EHS if substance used changes to ensure that the proper cartridge is used
Cartridges	Gas/Vapor cartridges should be changed out every 6 months (at a minimum), or anytime odor has been detected. Alternatively, change out at the following frequency as determined by an EHS Representative for your exposure situation: For cartridges with an

	End-of-Service-Life Indicator (ESLI), e.g. mercury, replace the cartridges when indicated by the color change. HEPA filters should be changed out once breathing resistance increases or if the filters become wet.
Cleaning	Respirators should be washed regularly with warm soapy water. Remove cartridges prior to washing. In between washings, the respirator may be wiped with respirator wipe pads after each use. Dust masks are disposable but if reused should be air dried for 24 hours between use.
Storage	• Keep respirator and cartridges in a clean, dry plastic bag when not in use.
	• Ensure that the respirator is dry before storing. Respirators should be air-dried rather than mechanically dried after washing.
	• Do not store respirator in a contaminated area.
	• Do not store respirator where it can be crushed.
	• Do not expose the respirator to temperature extremes
Information	• If “Required” user, inform that they will need to have annual fit tests and training
	• If “Voluntary” user, supply with Information for Voluntary Users of Respirators.
	• If Mask is no longer needed (job duties change or user leaves / retires from UM) return mask to EHS