

# Respiratory Protection

## What is a respiratory hazard?

A respiratory hazard exists when there are harmful contaminants in the air or when there is insufficient oxygen. Examples of harmful contaminants include:

- Airborne asbestos fibers
- Hazardous dusts, such as lead or silica
- Welding fumes
- Chemical vapors
- Toxic gases, such as carbon monoxide
- Airborne infectious agents, such as SARS

## How are respiratory hazards controlled?

Hazards should always be controlled using the most effective controls first, such as eliminating the hazard, substituting the hazard with something less hazardous, using engineering controls (i.e. ventilation or a barrier), or using safe work practices. When these controls are not sufficient to protect from respiratory hazards, or when they are not feasible, respirators may be required.

## How do respirators protect me?

There are two types of respirators, and they protect you in different ways:

### Air-Purifying Respirators (APRs)

Air purifying respirators remove the contaminants from the air you breathe by drawing it through filters, cartridges, or canisters. The filters, cartridges, and canisters are specific to the contaminant.



N95 filtering  
facepiece  
respirator



Half-face elastomeric  
respirator

### Atmosphere Supplying Respirators

Atmosphere supplying respirators provide the user with breathing air from a source independent of the work area, such as an air tank.



SCBA air tank

Respirators do have limitations:

- Air-purifying respirators can only be used when the contaminants are known, and they will not provide protection in oxygen deficient environments.
- Respirators must be chosen for the specific contaminants, and they must be worn and fit properly to provide protection.
- Some people are not able to physically wear a respirator, including those with reduced lung function.

## What do I need to do if I think I need a respirator?

Contact Environmental Health and Safety (EHS) at 610-436-3333 to request a workplace assessment.

## What happens if I need to wear a respirator?

If the workplace assessment indicates that you are required to wear a respirator, you will be enrolled in the University's Respiratory Protection Program, which requires:

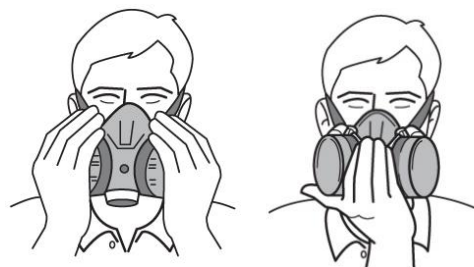
- A medical evaluation by a licensed health professional prior to initial use and annually thereafter
- Annual training
- Annual respirator fit-testing

EHS will coordinate the medical evaluation and provide training and fit-testing.

## What are my responsibilities?

- Only wear the make, model, and size respirator you have been fit-tested for.
- Inspect the respirator before each use to make sure it is clean and in good condition, the shape is not deformed, and the respirator is not missing parts.
- Wipe the respirator with non-alcohol wipes after each use, and clean the respirator per manufacturer instructions as needed.
- Store the respirator in a sealable bag or bin in a dry area away from temperature extremes.
- Move to a safe area and remove the respirator if any breakthrough is detected, there is a change in breathing resistance, or leakage of the facepiece is detected.
- Inform your supervisor of any respirator malfunction and replace or repair the respirator prior to reuse.
- Shave or trim back any facial hair that interferes with the face to facepiece seal and/or valve function.
- Perform seal checks prior to each use to ensure proper fit:

- Cover cartridges with palms of your hand and inhale. You should feel the mask collapse slightly against face.
- Cover exhalation valve with palm of hand and exhale. You should feel positive pressure build up inside the mask.



*Respirator seal checks*

## Can I wear a respirator voluntarily?

Respirator use is required when exposures to contaminants exceed established exposure limits. Some employees may want to wear a respirator voluntarily to protect from non-hazardous air contaminants, such as nuisance dust.

N95 respirators may be worn on a voluntary basis for activities involving low-level, non-hazardous nuisance dust or particulate. You will not be required to complete a medical evaluation or be fit-tested to wear an N95 voluntarily. To wear an N95 respirator voluntarily you must:

- Read and follow instructions provided by the manufacturer regarding use, maintenance, care, and limitations.
- Read and sign the Voluntary N95 Respirator Use Form on the EHS website.

Voluntary respirator use of other types of tight-fitting respirators, such as half-face and full-face elastomeric respirators must be reviewed by EHS and will require medical clearance, training and fit testing.



*N95 filtering facepiece respirator*



*Full-face elastomeric respirator*

## Where can I get more information?

Contact EHS at 610-436-3333 for more information about the Respiratory Protection Program or to schedule a workplace assessment.