

Respirator Fit Testing: What to Expect

This WorkCare Fact Sheet describes the respirator fit testing process.

The federal Occupational Safety and Health Administration (OSHA) and related state agencies require employees at risk of exposure to hazardous airborne materials to wear a respirator.

A respirator is a device that filters out particles, chemically cleans or purifies air, or supplies clean air from an outside source. It may be used to prevent inhalation of dust and debris; toxic gases, mists, chemical fumes or smoke; or infectious bacteria or viruses.

OSHA-approved fit testing procedures are described in standards for the use of personal protective equipment. (Refer to [29 CFR, Part 1910.134, Appendix A.](#)) According to regulations, test subjects are allowed to try on a sufficient number of suitable models and sizes to achieve an optimal fit. The selected, fitted respirator and facepiece must be the same model that is worn at work.

Medical Evaluation

Before an employee is allowed to wear a respirator, he or she must complete a medical evaluation questionnaire. A qualified clinician reviews the completed questionnaire and determines whether a physical examination is needed to clarify any potential health risks. The medical review and fit process is repeated on an annual basis to ensure continued safe use.

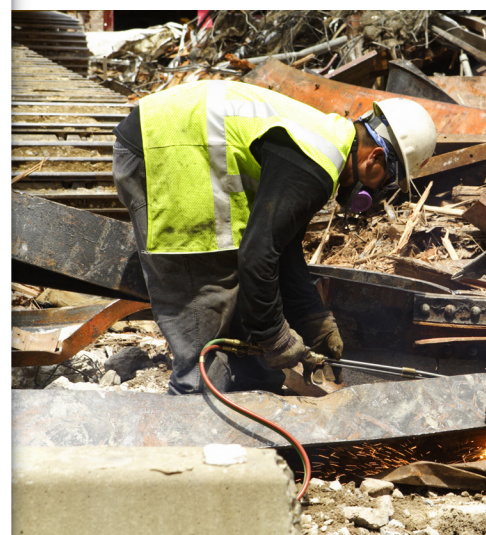
With medical approval, the worker can be fit-tested and trained on respirator use. However, a test subject must be referred to a physician or other licensed health care professional for further evaluation and possible clearance if he or she experiences breathing problems or other physical distress during the fit test.

A fit test is also required when:

- Changes in exposure hazards or job duties require different respiratory protection.
- The wearer has a change in physical condition that could affect the facepiece seal.

Types of Tests

A fit test is performed by a trained professional to check the seal between the respirator's facepiece and the user's face. The test is performed while wearing any required safety gear to determine whether it may interfere with respirator operation and fit.



The test is not allowed if there is any hair growth between the skin and the facepiece sealing surface, such as stubble, beard, mustache or sideburns which cross the respirator sealing surface. Any type of apparel that interferes with a satisfactory fit must be altered or removed.

The following test exercises are routinely required to be performed for one minute each. (Certain types of respirators have other specific test protocols):

- Normal breathing in a standing position without talking.
- Slow, deep breathing in a standing position.
- Turning one's head from side to side and up and down.
- Talking loudly enough to be clearly heard by the test administrator.
- Making facial expressions, such as grimacing, smiling or frowning (15-second limit).
- Bending at the waist or jogging in place if bending is not permitted.

Any adjustments made during testing nullifies it. If the equipment is not comfortable, a different respirator model is fit-tested.

Fit testing may be quantitative or qualitative depending on the type of respirator to be used. Quantitative testing uses specialized equipment to detect and measure leakage into any type of tight-fitting facepiece. Qualitative testing uses the test subject's sense of taste and smell, or reaction to an irritant, to detect a leak.

Substances approved for qualitative testing include:

- Isoamyl acetate, which smells like bananas
- Saccharin, which leaves a sweet taste
- Bitrex, which leaves a bitter taste
- Irritant smoke, which can trigger coughing

While fit testing is essential, it's incumbent on the wearer to ensure a proper fit every time a respirator is worn. If safe use is in doubt, an employee is allowed by law to select a different type of respirator and be retested. The selection may include a new make, model, style or size.

To learn more, refer to *General Respiratory Protection Guidance for Employers and Workers* at www.osha.gov. For guidance on NIOSH-approved respirators, visit www.cdc.gov/niosh/npptl.

Did You Know?

Breathing through a respirator is more difficult than breathing in open air. People with lung diseases, such as asthma or emphysema, or who are claustrophobic may not be able to wear a full facepiece or hooded respirator. People with vision problems may have trouble seeing while wearing a mask or hood.

Types of Respirators

1. *Self-contained breathing apparatus: This type of respirator is worn by firefighters, certain chemical handlers and others who need to use their own air tank to supply clean air.*
2. *Powered air-purifying respirator: This model uses a fan to draw air through a type of filter or cartridge that is selected based on the nature of the exposure hazard.*
3. *Chemical cartridge/gas mask: These air-purifying respirators filter or clean chemical gases out of the air while breathing. They feature a facepiece or mask and a cartridge or canister.*
4. *Particulate: This basic type of filtering facepiece respirator (N95 mask), filters out dust particles and infectious agents, but not toxic chemicals, gases or vapors.*