

Conducting Respirator Fit Tests and Seal Checks

What is a fit test?

According to OSHA, “a ‘fit test’ tests the seal between the N95 mask’s, or respirator’s, facepiece and your face.” It typically takes 15-20 minutes to complete and should be performed when this type of mask is first used and then at least annually. The purpose of the fit test is to assure that the mask fits and seals properly so potentially contaminated air cannot leak into the mask and so hazardous substances are kept out.

The fit test must be conducted using the same make, model and size of mask that the worker will use on the job. Fit testing with a different type of mask than the one that will be used does not assure proper protection.

If the model of mask used for the fit test does not properly fit, another make, model, style, or size of mask must be tested until one that fits properly has been identified.

Employers need to provide staff with a reasonable selection of sizes and models to try. Once the fit test is completed and the wearer knows which mask fits best, he/she should always use the one shown to be the right ‘fit’ or ‘size.’ That way, it can be replaced with another mask with appropriate fit.

Fit tests can be qualitative or quantitative. In dentistry, the qualitative test is most often used.

- Qualitative fit testing is normally used for half-mask respirators like the N95, which cover only the user’s mouth and nose. Qualitative fit tests operate on a pass/fail method and do not measure the actual amount of leakage. They rely on the user’s sense of taste or smell, or the person’s reaction to an irritant, to detect leakage. The mask fails the test if the wearer can detect any leakage of the test substance.
 - OSHA has accepted four qualitative fit test methods:
 1. Isoamyl acetate, which smells like bananas;
 2. Saccharin, which leaves a sweet taste in your mouth;
 3. Bitrex, which leaves a bitter taste in your mouth;
 4. Irritant smoke, which causes coughing.

Information on quantitative fit testing can be found on OSHA’s website. The agency’s resource, [Appendix A to §1910.134—Fit Testing Procedures \(Mandatory\): Part I. OSHA-Accepted Fit Test Protocols: A. Fit Testing Procedures—General Requirements](#), offers helpful guidance.

Mask fit should be reevaluated any time the wearer experiences changes in his/her physical condition that could affect the fit. These include: a significant change in weight (either loss or gain); major dental work, such as new dentures; facial surgery that changes the shape of the face; or significant scarring in the area around the seal.

Employers must ensure that the fit testing and recordkeeping requirements of OSHA’s respiratory protection standard are met before staff can use a N95 mask for protection against hazardous exposures at work. Employers may allow personnel to use their own respirators but cannot require them to do so.

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Why does it have to be done annually?

OSHA requires that training and fit testing be done every year, before or on the anniversary date of the employee's previous training and fit test to ensure proper protection.

How do I do a seal check?

OSHA has released a video, [How to Perform a User Seal Check with an N95 Respirator](#), to offer guidance for conducting the mask seal check.

A seal check is a quick check performed by the wearer each time the mask is put on. It determines if the mask is properly seated to the face or if it needs to be readjusted. It is not a substitute for a fit test. There are two types of seal checks: the positive pressure check and the negative pressure check.

- To conduct a positive pressure check:

Don and adjust the mask for proper fit. Then, exhale gently into the facepiece.

The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal.

- To conduct a negative pressure check:

Don and adjust the mask for proper fit; then inhale gently so that the facepiece collapses slightly, and hold the breath for ten seconds.

If the facepiece remains slightly collapsed and no inward leakage of air is detected, the tightness of the mask is considered satisfactory.

Users can opt instead to perform a seal check by following the N95 mask manufacturer's recommended procedures as long as the employer can demonstrate that the manufacturer's procedures are equally effective. Always be sure to follow the manufacturer's specific instructions for conducting a seal check and be sure to fully inspect the complete respirator, including the straps, to ensure that no damage has occurred.

When using a respirator that has a metal strip that fits over the nose, be sure to carefully press the strip down to ensure that the nosepiece fits closely and provides a full seal. Always be sure to remove the respirator without touching the exterior since it could have been contaminated.

What is the fit testing expectation for KN95 masks?

There is no guidance available on the OSHA's website for testing KN95 masks.

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