

Decontamination of Quantitative fit testing (QNFT) and Fit Testing Equipment

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When we fit test, we are verifying a specific manufacture, make, model, style and size of a respirator on a specific face. You only get one chance. A respirator can't protect you if it doesn't fit your face. It's that simple. Agencies are finding it necessary to do in-house, just in time fit testing because of the demands of the changing workload associated with the Coronavirus. This additional task can bring challenges to our First Responders and Healthcare Professionals. These challenges can include but are not limited to:

- Training of fit testers based on OSHA and Z88.10 requirements;
- Cleaning of the respirators per OSHA B-2 or Manufactures guidelines whichever is more stringent;
- Multiple fit testings because of a change of manufacture, make, style, model and size of a different respirator;
- Changes of PPE that inter-react with the respirator;
- Large weight gain or loss;
- Major dental work (such as new dentures);
- Facial surgery that may have changed the shape of your face; or
- Significant scarring in the area of the seal

Any of these changes could affect the ability of your respirator to properly seal to your face, which could allow contaminated air to leak into your respirator facepiece. Many workers need to wear prescription glasses or personal protective equipment, such as safety goggles or earmuffs, while performing a job. If you fall into this category, then you must wear these items during the fit test to be sure they don't interfere with the respirator's fit.

Quantitative Fit Testing

Quantitative fit testing can be used for any type of tight-fitting respirator and must be used for all full-face respirators. Quantitative fit testing uses a machine to measure the actual amount of leakage into the facepiece and does not rely upon your sense of taste, smell, or irritation in order to detect leakage. The respirators used during this type of fit testing will have a probe attached to the facepiece that will be connected to the machine by a hose. There are three quantitative fit test methods accepted by OSHA:

- Generated aerosol;
- Ambient aerosol; and
- Controlled Negative Pressure.

Ambient Aerosol Condensation Nuclei Counter

The ambient aerosol Condensation Nuclei Counter (CNC) quantitative fit testing protocol quantitatively fit tests respirators with the use of a probe. The probed respirator is only used for quantitative fit tests. A probed respirator has a special sampling device, installed on the respirator, that allows the probe to sample the air from inside the mask.

A probed respirator is required for each make, style, model, and size that the employer uses and can be obtained from the respirator manufacturer or distributor.

There are two primary CNC instrument manufacturer, TSI Incorporated and AccuFIT9000TM.

Both use probe attachments and sampling adapters that permit fit testing in an employee's own respirator. A minimum fit factor pass level of at least 100 is necessary for a half-mask respirator

(elastomeric or filtering facepiece), and a minimum fit factor pass level of at least 500 is required for a full-facepiece elastomeric respirator general industry and up to 3,000 for CBRNE first responders use.

Controlled Negative Pressure

Controlled Negative Pressure (CNP) technology uses pressure wave propagation instead of particle migration to measure mask leaks, so there are no aerosol particles to worry about losing before they can physically migrate to the sampling probe and particle detector. Instead, CNP technology gives you a direct measurement of respirator leakage quickly and accurately regardless of the source.

Note that the CNP REDON protocol requires the performance of three different test exercises followed by two re-donning of the respirator, while the CNP protocol approved previously by OSHA specifies eight test exercises, including one redonning of the respirator. In addition to amending the Standard to include the CNP REDON protocol, this rulemaking makes several editorial and non-substantive technical revisions to the Standard associated with the CNP REDON protocol and the previously approved CNP protocol.

Quantitative Fit Testing of N95's

AccuTec-IHS has posted an article reminding users that it is imperative that [fit testing](#) be done in accordance with 29 CFR 1910.134 and be performed for each user of the tight-fitting respirators which includes the N95 filtering face piece respirators.

Additionally, AccuTec-IHS posted this article to [Protect Against the Coronavirus with Respirator Fit Testing](#).

From personal experience, we can state that even though the techniques of donning, testing, and wearing an N95 filtering facepiece respirator appear to be logical and straightforward, in reality if the user has not been adequately trained, the mask is worse than useless because it imparts a false sense of security to the wearer. This training should incorporate a Quantitative Fit Testing device where real-time and completely objective measurements can show the user graphic proof of protection while the mask is being adjusted to fit. (This real-time information is for training purposes and does not constitute a fit test.)

Cross Contamination in Quantitative Fit Testing

Concerns have arisen about fit testing equipment and possible Coronavirus contaminations on both external and internal surfaces after fit testing. This turns out to be an easy explanation as OHD Quantifit has posted a [video](#) that reviews cross contamination concerns while fit testing and answers many relevant questions in regards to COVID-19.

TSI Incorporated has also recently posted [this article](#) discussing whether a person being fit tested with a PortaCount®Respirator Fit Tester can be exposed to exhaled moisture from a previous test subject.

Also reference this article by OHD regarding [Hygienic Safety with the Quantifit Respirator Fit Tester](#)

It is important that you follow manufactures guidelines and OSHA Regulations while conducting any fit testing.

Please Note: Every effort is made to have complete and accurate information regarding COVID-19, but this is an ever-changing situation. For the most up to date guidance, please visit the CDC's [COVID-19 website](#)