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life's best moments.*

Face Fit Testing



Failing to face fit test can be deadly

Respiratory Protection Equipment (RPE) is the last line of defence in the hierarchy of control measures, but it's not very effective without face fit testing. [Hierarchy of Controls | NIOSH | CDC](#)

Face fit testing is required on all tight-fitting respirators, confirming whether ambient air enters when the user breathes. Air always follows the path of least resistance, and without this test, the respirator may not protect from hazardous particles.

Buying a respirator is easy, but understanding what is required to make it work can be complicated.

There are two types of [face fit testing](#), qualitative and quantitative.

■ Qualitative

The subjective qualitative test checks for leaks in disposable and half masks using a hood sprayed with a solution (Sweet - Saccharin / Bitter - Bitrex) placed over the worker's head and shoulders, relying on the user's sense of taste.

■ Quantitative

The quantitative test is the gold standard. It's a more precise and objective test that uses a machine like the PortaCount® Respirator Fit Tester 8048, [PortaCount® Respirator Fit Tester 8048 | TSI](#) OHD QuantiFit2, [QuantiFit2 - OHD \(ohdusa.com\)](#) or AccuFit9000® [AccuFIT 9000 Respirator Fit Test Machine - Accutec-IHS](#) to detect airborne particles passing through the mask and seals, providing a pass-or-fail result. If the machine determines that the concentration outside a full-face mask is 1000 and inside the mask is 2, the fit factor is $1000/2 = 500$, meaning that the air in your mask is 500 times purer than outside. [All you need to know about face fit testing \(vdp.com\)](#)



There's just a myriad of things with respirators that people don't really understand

- Lisa Brosseau, Industrial Hygiene Consultant and former professor
[Respirator fit test requirements | Safety+Health \(safetyandhealthmagazine.com\)](#)

During the quantitative test, workers must move with the respirator as they would at work, such as bending over, shaking their heads, and stretching. +This ensures that the seal won't break while performing duties. [Construction site safety: Does your mask pass the face fit test? \(pbctoday.co.uk\)](#) In the US, workplaces that require tight-fitting masks must conduct fit tests annually (biennially in the UK, unless specified otherwise by businesses). Additionally, fit tests should be conducted more frequently when there is a need to replace the respirator or when changes in the user's characteristics occur. Alarmingly, these tests usually fail to happen. The Occupational Safety and Health Association (OSHA) recorded 2,826 citations for lack of fit testing in the US in 2019 alone, so why are so many companies failing to provide face fit tests to workers? Respirator fit test requirements | [Safety+Health \(safetyandhealthmagazine.com\)](#)

Many companies, particularly small ones, are unaware it's required.

With some hazardous particles smaller than 100 nanometres, a tight-fitting respirator is useless if it doesn't fit correctly. OSHA believes there are several reasons why fit testing is only sometimes done. These reasons include:

- A feeling that standards are too cumbersome
- Uncertainty about testing methods
- Forgetting to do it
- A lack of time and money

A single qualitative or quantitative face fit test in the UK costs about £35, and in the US, a qualitative test costs \$35 [Pricing - We Fit RPE | Face Fit Testing & Training, Quantitative & Qualitative](#) , and a quantitative test is \$65 (includes a checkup by a physician). [Respirator Fit Testing | Qualitative and Quantitative Fit Testing Available \(otssafety.com\)](#). It's a small cost for worker health and more affordable than a fine. A healthcare facility in New Jersey was fined \$28,000 (£22,379.00) for failing to protect healthcare workers from COVID-19 in two serious citations. The facility was fined for not providing enough respirators for resident-care employees and failing to fit test the respirators it did provide. [OSHA Fines Facility \\$28,000 for Failure to Protect Workers from...](#) ([reliasmmedia.com](#)) An alternative to face fit testing is to eliminate the need for testing entirely by using loose-fitting respirators like the GVS Z-Link®, with Supplied Air (SAR) or Powered Air Purifying Respirators (PAPR)

Several physical characteristics help determine the seal of a mask, including:

- Weight
- Dental work
- Glasses
- Facial hair



**It's not just - I'll buy a respirator, and then it'll be OK.
That's like buying a car and not putting gas in it**

- James Johnson, Industrial Hygiene Consultant [Respirator fit test requirements | Safety+Health \(safetyandhealthmagazine.com\)](#)

Certain facial hair can compromise the seal of a respirator, necessitating some workers to shave during their lunch break. However, specific types of facial hair are permissible as long as they do not interfere with the mask's seal to the face.

Neatly trimmed, short moustaches, sideburns, and small goatees do not violate the standard. Once the respirator is fit tested for a specific worker, they must continue using that same respirator until the next fit testing session.

Companies must do their due diligence before purchasing respiratory masks. [Top OSHA Violations Remind Employers of the Need for Continued Attention to Respirators -- Occupational Health & Safety \(ohsonline.com\)](#) To determine which mask suits a workplace, several tests must be performed, including atmospheric monitoring and medical evaluations. While purchasing a cheaper, non-NIOSH-certified mask is tempting,

workers' health could suffer. When a respirator is approved by the National Institute for Occupational Safety and Health (NIOSH), United States Respiratory Protection Certification Body, users can expect a certain level of protection.

At the same time, other countries' masks might not meet expectations. [Understanding the Use of Imported Non-NIOSH-Approved Respirators | Blogs | CDC NIOSH](#) is trying to prove the efficacy of masks from other countries, like the most famous KN95 masks.

Still, early assessments show that some products claiming to meet **European** and **Chinese** standards do not provide the protection promised.

Many counterfeit respirators don't provide adequate protection, and companies should always check this list of approved respirators before purchasing. [Approved Particulate Filtering Facepiece Respirators | NPPTL | NIOSH | CDC](#)



Facial hair is allowed as long as it does not protrude under the respirator seal or extend far enough to interfere with the device's valve function.

- OSHA website [Facial hair and respirator fit | Occupational Safety and Health Administration \(osha.gov\)](#)



While **European** regulations do contain provisions on the design, manufacture, and marketing of PPE, [Respiratory protection equipment – requirements and selection - OSHwiki | European Agency for Safety and Health at Work \(europa.eu\)](#) there is no European-wide legislation requiring companies to conduct face fit tests.

European Union (EU) Directive 89/656/EEC from 1989 lays down minimum requirements for workers' personal protective equipment (PPE) and sets out the obligations for employers. [Directive 89/656/EEC - use of personal protective equipment | Safety and health at work EU-OSHA \(europa.eu\)](#)

According to 89/656/EEC, all personal protective equipment must:

- **be appropriate for the risks involved, without itself leading to any increased risk**
- **correspond to existing conditions at the workplace**
- **take account of ergonomic requirements and the worker's state of health**
- **fit the wearer correctly after any necessary adjustment**

Currently, face fit testing in **France** and the **Netherlands** is necessary only when removing asbestos.

Face fit testing was made mandatory in **Italy** in January 2022 for negative pressure respirators only (UNI 11719:2018.), requiring a test every three years. To date, few companies have observed the law.

Spain's Royal Decree 773/1997 states, 'the content of Directive 89/656/EEC, mentioned above, is transposed into Spanish Law'. It includes the guarantee of practical training through quantitative adjustment tests. [BOE-A-1997-12735 Real Decreto 773/1997, de 30 de mayo, sobre disposiciones mínimas de seguridad y salud relativas a la utilización por los trabajadores de equipos de protección individual.](#)

Looking to the future, ISO (International Organization for Standardization) standards may make fit tests compulsory for all of Europe. [Fit test \(icmsafety.com\)](#)

Using loose-fitting positive pressure respirators, such as PAPR, removes the need for a face fit test



Face Fit Testing is mandatory in **Australia** and **New Zealand** under standard AS/NZS1715 and compulsory in Canada (Z94.4). Face fit testing using the [INDG479](#) protocol is required in the **United Kingdom**, and companies must follow the [OSHA 1910.134](#) protocol in the **United States**.

In **India** and **China**, it is a recommended practice. For countries without legislation, it is suggested to use the OSHA or INDG protocols. [All you need to know about face fit testing \(vdp.com\)](#) For added protection, workers should conduct a user seal check (a fit check in the UK) each time they don their respirator. The manufacturers Instructions For Use (IFU) should show how this is performed on the mask. [DHHS \(NIOSH\) Publication No. 2018-130, Filtering out Confusion: Frequently Asked Questions about Respiratory Protection, User Seal Check \(cdc.gov\)](#)

The UK's Health and Safety at Work Act 1974 also places responsibility on workers for their own and others' health and safety while at work. [Fit testing basics \(HSE\)](#)

In the **US**, regulations do not require fit test administrators to be certified, and in the **UK**, the Control of Substances Hazardous to health regulations 2002 states that tight-fitting RPE should be face-fit tested by competent individuals.

Competency can be proven by accreditation to the BSIF Fit2Fit Fit Testers Accreditation Scheme; however, it isn't compulsory. [BSIF Fit2Fit Fit Testers Accreditation Scheme, Face fit testing for Respiratory Protective Equipment \(RPE\).](#)

Approximately 12,000 people die annually in the UK of lung diseases caused by past exposure to airborne hazards at work. [IPE - RPE: FACE FIT TESTING SAVES LIVES \(ipesearch.co.uk\)](#) **Research suggests that up to 50% of respirator users in the UK may still breathe harmful substances. That's a lot of workers who think they're protected but aren't.**



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Fit testing basics

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