



BSIF fit2fit accredited quantitative and qualitative Face Fit Testing



Face Fit Testing



If you are using RPE with tight-fitting facepieces you should make sure each wearer has a fit test. This is needed to ensure the selected facepiece can fit the wearer correctly.

You can use the fit test as a training opportunity, as it allows you to highlight to the wearer the consequences of poor fit and improper use on the effectiveness of the RPE device.

It is also good practice to have a system to ensure repeat fit testing is carried out on a regular basis. This is especially important when RPE is used frequently as a primary means of exposure control, eg annual testing for workers involved in licensed asbestos removal. If there are any changes to a person's face through, for example, weight loss/gain, scars etc, a repeat fit test will be necessary.

Qualitative fit testing

Qualitative fit testing is a pass/fail test based on the wearer's subjective assessment of any leakage from the face seal region, by sensing the introduction of a test agent. These tests are suitable for half masks. They are not suitable for full face masks.

Examples of qualitative fit testing methods are:

- method based on bitter- or sweet-tasting aerosol;
- method based on odour compounds.

We use the Bitrex (bitter tasting solution) to conduct our Qualitative Tests



Quantitative fit testing

Quantitative fit testing provides a numerical measure of the fit, called a fit factor. These tests give an objective measure of face fit. They require specialised equipment and are more complicated to carry out than qualitative methods. Quantitative methods are suitable for all face masks that require a seal.

Examples of quantitative fit testing methods are:

- laboratory test chamber;
- portable fit test devices, such as a particle counting device.

We use the TSI Portacount to conduct Quantitative Face Fit Testing

RPE fit testing should be conducted by a competent person. Competence can be demonstrated through achieving accreditation under the Fit2Fit RPE Fit Test Providers' Accreditation scheme. This scheme has been developed by the British Safety Industry Federation (BSIF) together with industry stakeholders and is supported by HSE. The scheme is not compulsory and you are free to take other action to comply with the law.

Qualitative Fit Testing Procedure

The wearer dons their RPE as per usual and then dons the test hood

The test solution is then sprayed via a nebuliser into the hood

The subject must perform a series of exercises in order; confirming whether they can taste/smell the test agent during each 60 second exercise. They are;

Normal Breathing

Deep Breathing

Turning head side to side

Moving head up and down

Talking

Bending Over

Normal Breathing



If at any point the subject detects the taste/smell of the test agent then the test must be stopped and noted as a failure.

The mask must be checked and if necessary adjusted accordingly; a period of 15 minutes should be left before re-testing.

If the re-test fails then a different type/size of RPE must be used and this must be fit tested.

Quantitative Fit Testing Procedure

The quantitative method of testing uses the same exercises but uses a particle counter (portacount) to determine the fit of the face mask.

The user dons the mask as normal and performs gentle exercises (using a stepper) while carrying out the same exercises as the qualitative method. The particle counter measures the particle ambience in the area and how many particles leak into the mask. This then calculates the Fit Factor to determine whether the mask fits the wearer correctly.

Fit Factor

The *Higher* the *Fit Factor*, the *Greater* the Level of Protection – the *lower* the percentage of leakage

Breathing Apparatus $FF \geq 2000$ i.e ~ 0.05% leakage

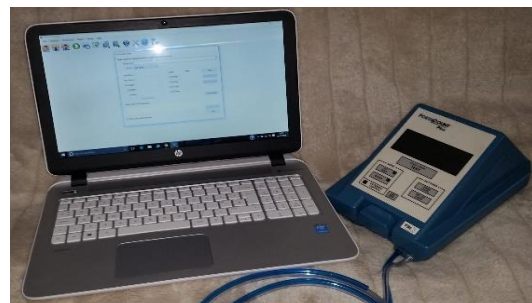
Full Face $FF \geq 2000$

Half Face $FF \geq 100$ i.e ~ 1% leakage

P3 Disposables $FF \geq 100$

P2 $FF \geq 100$ (25 if N95 Companion *not* used)

P1 $FF \geq *25$ (if N95 Companion used) i.e ~ 4% leakage



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