

FIT TESTING OF RESPIRATORY PROTECTIVE EQUIPMENT (RPE) WITH TIGHT FITTING FACEPIECES

Introduction

The performance of tight-fitting facepieces depends on achieving a good contact between the wearer's skin and the face seal of the facepiece. As people come in all shapes and sizes there is no guarantee that one particular type, or size of RPE facepiece will fit everyone. Inadequate fit will significantly reduce the protection provided to the wearer. Any reduction in protection may lead to ill health or even put the RPE wearer's life in danger.

Fit testing is also useful for checking that a wearer can put on a respirator facepiece correctly. Correct fitting of the facepiece at all times is vital to prevent exposure to hazardous substances. A fit test is not a substitute for correct and careful day-to-day fitting of the facepiece, which should always include a pre-use fit check.

Respirator fit testing is a requirement of the approved code of practice and guidance to the COSHH Regulations 2002 (Section 7, paragraphs 147 – 151).

What is a tight-fitting facepiece?

These are filtering facepieces, half masks and full-face masks. Visors, helmets, hoods and blouses are loose fitting devices and do not require fit testing

When should a fit test be carried out and repeated?

A fit test should be carried out as part of the initial selection of RPE or where an untested facepiece is already in use. The test should be repeated:

- if the wearer loses or gains weight,
- undergoes substantial dental work
- develops any facial changes (e.g. scars, moles) around the face seal area or
- at intervals specified by the employer.

What if a wearer uses more than one type of facepiece?

Each type worn needs to be fit tested.

How is fit testing carried out?

A portable quantitative fit test device called a TSI Portacount is used - a particle counting device that measures the concentration of particles both inside and outside the respirator to give a numerical fit factor. This test gives an objective measure of face fit.

What is a fit factor?

This is a measure of how well a particular facepiece seals against the wearer's face. A higher fit factor means the facepiece achieved good contact between the face seal and the face during the test. Fit factor (FF) should not be confused with APF (assigned protection factor).

What is the recommended minimum fit factor?

This depends on the type of facepiece being tested:

FFP2 (disposable)	100 *
FFP3 (disposable)	100
Half-mask	100
Full face mask	2000

* To distinguish between particles which have leaked around the facepiece and those which have gone through the filter an additional piece of equipment, the N-95 Companion, is required for FFP2 masks.

Are there other methods of testing?

Disposable and half masks may also be tested by a qualitative method, which uses a bitter or sweet tasting aerosol to check if this can be detected by the wearer of the facepiece, due to leakage around the facepiece. Full face masks cannot be tested by this method.

How is testing carried out?

The testing involves wearing the respirator while carrying out a set of simple exercises to check the fit is good under a number of circumstances such as deep breathing, moving the head, bending down and talking; simulating a potential working environment. The wearer will also step up and down to generate a physical workload

Who can conduct respirator fit testing?

Testing should be conducted by a competent person with adequate knowledge - someone who has received adequate instruction and training.

What is the end result of the fit test?

When the fit test has been completed the Portacount will indicate a pass or a fail. A fit test report is issued.

A pass means that the facepiece is suitable, worn as it was during the test.

A failed fit test may indicate that the facepiece does not fit properly and depending on the work agreed with the client, the test may be repeated with the same mask or an alternative size or type may be tried.

*This information has been extracted from the HSE's Operational Circular **OC 282/28 - Fit Testing of Respiratory Protective Equipment Facepieces***

<http://www.hse.gov.uk/pubns/fittestesting.pdf>