

# PROTECT YOUR LUNGS CORRECTLY

## Safety Standards Guide

Respirators are tested to the relevant European and UK Designated standards and are CE and UKCA marked. All respirators carry the relevant standards mark and performance category markings.

EN149	– Filtering facepiece and particulate respirators
EN405	– Valved filtering half mask respirators for gases and/or particulates
EN140	– Half mask facepieces
EN136	– Full facepieces
EN137	– Self-contained open-circuit compressed air breathing apparatus
EN143	– Particulate filters
EN146	– Powered Respirators – Hoods & Helmets
EN147	– Powered – Full Face Masks
EN270	– Heavy Duty Supplied Air
EN402	– Escape Apparatus. SCBA with full face mask or mouthpiece assembly
EN529	– Respiratory selection, use and care
EN1146	– Compressed air escape apparatus with hood
EN1835	– Light Duty Supplied Air
EN12941	– Powered Respirators – Hoods and Helmets
EN12942	– Powered Respirator Full Face Masks
EN14387	– Gas & vapour filters

## Respiratory Terminology

### Workplace Exposure Limit (WEL)

Airborne concentration of a Hazardous Substance, averaged over a specified time period referred to as a Time Weighted Average (TWA).

### WEL Time Periods

There are two reference periods for which WELs may be set; 8 hour Time Weighted Average (TWA) and 15 minute Short Term Exposure Limit (STEL). A substance may be assigned WELs at either one or both reference periods.

- 8 hour TWA – some adverse health effects can occur after prolonged or accumulated exposure. The 8 hour TWA is set to restrict the total intake by inhalation over one or more shifts.
- 15 minute STEL – Some adverse health effects may be seen after short exposures. 15 minute STEL may be applied to control these effects.

### Immediately Dangerous to Life or Health (IDLH)

The IDLH concentration of a substance is defined as “that which poses a threat of exposure to airborne contaminants when that exposure is likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment”. The IDLH value represents a maximum concentration from which a worker would escape within 30 minutes without any impairing symptoms or irreversible health effects.

### Odour Threshold

The concentration of a substance at which the majority of individuals can smell or taste it.

## RPE Selection Calculation

For example: Woodworking

- 1 Measured Levels (Wood Dust) = 60mg/m<sup>3</sup> over 8 hours TWA.
- 2 Workplace Exposure Limit (WEL) for wood = 5mg/m<sup>3</sup>.
- 3 Divide 1 by 2 =  $\frac{60}{5} = 12$ .
- 4 This figure of 12 is the level at which the hazard is above the WEL, i.e. the Hazard Level is 12×WEL.
- 5 Assuming all other control measures have been considered, including the eight new principles of good practice, select a respirator with an Assigned Protection Factor (APF) greater than 12 (e.g. 3M Aura 9332+ which has an APF of 20).
- 6 Ask yourself the further question ‘Do I need to lower levels as far below the WEL as is reasonably practicable?’ i.e. is this substance one of the group of substances that can cause cancer, sensitisation or heritable genetic change? In this case, wood dust is a carcinogen and therefore levels should be lowered as far below the WEL as is reasonably practicable. Therefore, if all other control measures have been considered, an even higher performing respiratory protection product should be contemplated. However, always remember that RPE should be the last resort and that one of the main principles of RPE selection should be that it is “suitable to the job and the wearer”.

## Health & Safety

### Legislation Update Amended Standard

#### EN 149:2001+A1:2009

EN 149:2001 was superseded by an amended version, EN 149:2001+A1:2009 (EN 149+A1) in July 2009. Changes included the introduction of two usability classifications for disposable respirators; single shift only devices non-reusable (shown through marking ‘NR’) and reusable devices (marked ‘R’).

The amended European Standard EN 149:2001+A1:2009 states that all reusable devices (marked ‘R’) must withstand being cleaned and disinfected using a method provided by the manufacturer. This change, along with new performance requirements, is intended to give the user further confidence in respirators providing continuous respiratory protection in hazardous environments.

All particle filtering half masks featured fully conform to EN 149:2001+A1:2009

Disposable respirators that have passed the optional Dolomite clogging test have a suffix ‘D’ listed in their conformity standards.

## Buying Guide

### Selecting the correct protection

The selection of Respiratory Protection follows a basic four-step method:

- Identify the hazards – dust, metal fumes, gas, vapour
- Assess the hazards – assess the hazard level/other protection – skin and eye
- Select the proper respirator – disposable, half mask, full face, powered, airline
- Training in fitting and use – to optimise respiratory protection

Under current legislation, employers are responsible for providing suitable respiratory protection to employees who need it, however they must also provide training in its use, maintenance of the equipment and keeping maintenance documents.

### Types of Respiratory Protective Equipment (RPE)

Each type of RPE has specific limitations which dictate the types of application for which it may be used. RPE is tested to relevant European and UK Designated Standards which determines the product performance.



### Respiratory Hazards



#### Dusts

Produced when solid materials are broken down into finer particles, the longer the dust remains in the air the easier it is to inhale.



#### Mists

Tiny liquid droplets formed by atomisation and condensation processes such as spraying. Mists are often combinations of several hazardous ingredients.



#### Metal fumes

Occur when metals are vaporised under high heat. The vapour is cooled quickly and condenses into very fine particles that float in the air.



#### Gases

Airborne at room temperature. Able to diffuse or spread freely, can travel very far very quickly



#### Vapours

Gaseous state of substances that are liquids or solids at room temperature. Formed when substances evaporate in the way water vapour evaporates from water.



### DID YOU KNOW....?

17,000 estimated new cases of breathing or lung problems are caused or made worse by work each year. Research by both BSIF and HSE has highlighted concerns that RPE is not being effectively selected, used and maintained in a significant proportion of workplaces where a respiratory hazard exists, leaving workers at risk.

### Fit testing of RPE facepieces

Current COSHH regulations and associated ACOP require employers of wearers of tight fitting facepieces to conduct a fit test to assess the degree of face seal leakage of that respirator to the wearer.

Tight fitting facepieces include disposable particulate respirators, half and full face masks with filters. A fit test should also be conducted on powered and airfed respirators which include a tight fitting facepiece.

If a full facepiece is being used the HSE recommend a Quantitative fit test be conducted. This is usually carried out by a suitably qualified outside agency or competent person. If any other device is used, e.g. filtering facepieces FFP1/2/3 or half face mask respirators fitted with a particulate or combined filter, a Qualitative test this must be carried out by a competent fit tester.

For further information, please read the HSE document 'Fit Testing of Respiratory Protective Facepieces HSE 282/28' which can be found at <https://www.fit2fit.org/resources/>



## Why is it so important?

Respirators do not always provide adequate protection. Poor fitting masks cause leakage which can harm the individual. Every face is unique; Face Fit Testing carried out by a qualified person will help ensure that the RPE selected fits the wearer effectively.

*Around 5 million wearers of RPE in the UK*

*50% under-protected (Poor selection/fit/training)*

*65 - 70% of the UK workforce have still never been fit tested*

*12,000 deaths each year are due to occupational respiratory disease*

*Over 20,000 new cases of respiratory problems reported each year*

*92% of total annual lung disease deaths are estimated to be linked to past exposure*

*2/3rds of all workplace deaths caused by respiratory diseases are due to asbestos related diseases and COPD*

Source: HSE

## The Solution

We have access to over 26 BSIF Fit2Fit accredited associates in the UK and Ireland who provide unbiased, professional guidance in the correct selection of RPE requirements.

## Qualitative Face Fit Testing

- Subjective testing
- Restricted to disposables and half masks with particulate filters only
- Not accurate enough for high efficiency masks

## Quantitative Face Fit Testing

- Scientific approach
- Statistical accuracy
- Ability to test all tight fitting masks

Code	Description
290070	Half Day Quantitative Respiratory Fit Testing (Max 10)
290071	Full Day Quantitative Respiratory Fit Testing (Max 20)
290072	Half Day Qualitative Respiratory Training (Max 6)
290073	Full Day Qualitative Respiratory Training (Max 12)

## Step-by-Step Process for organising Face Fit Testing

- 1 Contact your local Greenham representative.
- 2 Greenham representative will require the following information:
  - a) Is it training for the tester or testing which is required?
  - b) How many tests are required?
  - c) Have you selected and have stock of the mask(s) being used?
  - d) If not, do you need assistance in selection?
  - e) Where is the testing required to be done?
  - f) What are your preferred dates? (ask for 3 dates and ask Greenham representative to establish availability)
- 3 Greenham representative will check availability with Fit Test providers and offer you a date for testing.
- 4 Discuss and agree on suitable dates for both the customer and the Face Fit Engineer.
- 5 The customer should have the masks available for testing for the Engineer arriving. If this is not possible, this must be discussed beforehand, giving the Engineer adequate time to obtain the selected RPE for the day of testing. (There may be additional costs for supplying RPE).
- 6 The customer will then receive an email with relevant paperwork including the Booking Form, GDPR and Joining Instructions. These must be read, completed, signed and returned to Julia.jaconelli@outlook.com.
- 7 Once all paperwork has been returned and a PO has been raised, the customer will receive a final confirmation of booking.
- 8 During the course of Face Fit Testing, any non-compliance (facial hair/inappropriate facilities etc) could result in being unable to Fit Test, whereby the customer would still be liable for charges.
- 9 Once the tests are completed, the customer will receive type written reports on all tests made or Attendance Certificates for Training.

## 3M™ Face Fit Test Kits & Accessories

Each kit contains a hood and collar assembly, two nebulisers, one bottle of sensitivity solution, one bottle of fit test solution, detailed user instructions and CD ROM, spare atomiser heads for the nebuliser, and a pin for unblocking nebulisers.

Qualitative RPE Face Fit Test Kit for:

- FFP1, FFP2, FFP3 filtering facepieces
- Half facemask respirators fitted with particulate or combined filters

**3M™ FT10 Face Fit Test Kit (Sweet)**

Code: **290128**



**3M™ FT11 Face Fit Test Kit Replacement Sweet Sensitivity Solution**

Code: **290139**

**3M™ FT30 Face Fit Test Kit (Bitter)**

Code: **290129**



**3M™ FT32 Face Fit Test Kit Replacement Bitter Solution**

Code: **290138**

# A GUIDE TO DISPOSABLE FACE MASKS

The following disposable masks can be found in the market and fall into two groups, Medical / Surgical and Safety. They both have very different protection levels.

## MEDICAL / SURGICAL

Resistance to the expulsion of fluids, droplets and particles. There are three levels.

Type	Description
Type I	Do not have resistance to fluids and are not suitable for use.
Type II	Do not have resistance to fluids and are not suitable for use.
Type IIR	Do have resistance to fluids and droplets (as tested to EN14683:2019) and will have a Declaration of Conformity to the Medical Devices Directive (MDD) 93/42/EEC and a supporting test report.



In use, the purpose and function of the Type IIR mask is to help prevent large particles expelled by the wearer (spittle and mucus) from reaching the patient or work environment.

As PPE specialists, we will only supply as a minimum standard of face covering a Type IIR disposable face mask.

### NOTE

This type of mask is designed to limit the expulsion of fluids, droplets and particles. It does not offer any respiratory protection to the wearer for incoming fluids, droplets or particles. Once the mask becomes wet, it is recommended to be replaced immediately and disposed of in a hygienic way.

## SAFETY

If fitted correctly these offer protection to the respiratory system of the wearer (in the UK a Face Fit Test is required to be carried out). There are three levels.



Type	Description
FFP1	Not recommended for use against the Coronavirus.
FFP2	<b>Have a minimum 94% filtration and mainly used in: construction, agriculture, healthcare against influenza viruses. They are currently used for protection against the Coronavirus.</b>
FFP3	Have a minimum 99% filtration and protect against very fine particles such as asbestos.

P1, P2 and P3 masks all fall under the PPE safety regulations and will be tested and marked as such (EN149: 2001) on the product itself.

In use the purpose and function of FFP respirator masks is to prevent the wearer from inhaling aerosols (dust, smoke, mists), vapours and gases as well as fine dust particles.

For full respiratory protection, we would always recommend FFP2 or FFP3 masks which have a 94% and 99% filtration as a minimum and will protect against Coronavirus.

For all mask usage, masks must be fitted in a correct and secure way to ensure a minimum level of protection.