RESPIRATORY PROTECTION
**PROTECT YOUR LUNGS CORRECTLY**

**Safety Standards Guide**

**European Standards**

Respirators are tested to the relevant European Standards and CE marked. All respirators carry the CE mark plus the European Standard 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
- EN36 – Full facepieces
- EN37 – 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/m3 over 8 hours TWA.
2. Workplace Exposure Limit (WEL) for wood = 5mg/m3.
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.


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 fume, 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 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….?**

Approximately 5.5million workers are exposed to respiratory hazards in the workplace and 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 can be conducted, which is normally carried out ‘in-house’.

For further information, please read the HSE document ‘Fit Testing of Respiratory Protective Facepieces HSE 282/28’.
Face Fit Testing

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

18,000 new cases of respiratory problems

12,000 lung disease deaths each year estimated to be linked to past exposures at work

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>290070</td>
<td>Half Day Quantitative Respiratory Fit Testing (Max 10)</td>
</tr>
<tr>
<td>290071</td>
<td>Full Day Quantitative Respiratory Fit Testing (Max 20)</td>
</tr>
<tr>
<td>290072</td>
<td>Half Day Qualitative Respiratory Training (Max 6)</td>
</tr>
<tr>
<td>290073</td>
<td>Full Day Qualitative Respiratory Training (Max 12)</td>
</tr>
</tbody>
</table>

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 train 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.