

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.

EN136	– Full facepieces
EN137	– Self-contained open-circuit compressed air breathing apparatus
EN140	– Half mask facepieces
EN143	– Particulate filters
EN146	– Powered Respirators – Hoods & Helmets
EN147	– Powered – Full Face Masks
EN149	– Filtering facepiece and particulate respirators
EN270	– Heavy Duty Supplied Air
EN402	– Escape Apparatus. SCBA with full face mask or mouthpiece assembly
EN403	– Filtering devices with hood for escape from fire
EN405	– Valved filtering half mask respirators for gases and/or particulates
EN529	– Respiratory selection, use and care
EN1146	– Compressed air escape apparatus with hood
EN1835	– Light Duty Supplied Air
EN12941	– Powered Respirators with hood or helmet requiring low flow indicator
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

- Measured Levels (Wood Dust) = 60mg/m³ over 8 hours TWA.
- Workplace Exposure Limit (WEL) for wood = 5mg/m³.
- Divide \square by $\square = \frac{60}{5} = 12$.
- This figure of 12 is the level at which the hazard is above the WEL, i.e. the Hazard Level is 12xWEL.
- 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).
- 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.

Selection & Usage

Legal Requirements

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.

Selecting the correct protection

The right respiratory protection is vital to prevent harmful exposure to particles, gases and vapours. Follow the steps below to help you make the right choice:

- **RISK:** Identify the hazard, is it – dust, metal fumes, gas, vapour?
- **ASSESS:** Assess the hazard level and other protection required – skin and eyes.
- **PRODUCT:** Select the proper respirator for the hazard – disposable, half mask, full face, powered, airline.
- **TRAINING:** Set up training so that every user is informed about correct fitting, maintenance and storage.

Types of Respiratory Protective Equipment

AIR PURIFYING RESPIRATORS

Negative Pressure

Maintenance free & reusable



Particulate



Gas & Vapour



Powered

SUPPLIED AIR RESPIRATORS

Positive Pressure



Airline

Respiratory Hazards

A workplace respiratory hazard is anything that impairs an employee's ability to breathe safely.

Such hazards might include:

Dusts

Produced when solid materials are broken down into finer, airborne 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

Often invisible and odourless, can spread freely and quickly through the air.

Vapours

Gaseous state of substances that are liquids or solids at room temperature. Formed when substances evaporate.



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.

To help you comply with regulations, we can provide a Face fit testing service accredited by the BSIF for all employees. See details overleaf or online at greenham.com/Wellbeing-FaceFit-Test