

A GUIDE TO BUYING RESPIRATORY PROTECTIVE EQUIPMENT



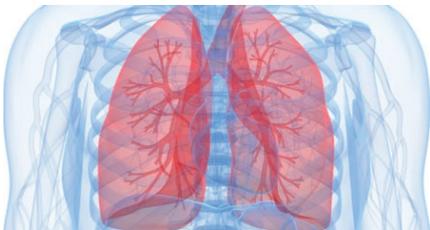
UK.RS-ONLINE (UK customers)
WWW.RS-COMPONENTS.COM (international customers)



INTRODUCTION

In today's world there are multiple concerns surrounding our lungs and general respiratory health, and in a work environment it is necessary for many people to wear respirators or breathing apparatus to protect their health. In simple terms, respirators work by filtering harmful substances from the air whilst breathing apparatus provide clean air to breathe.

This simple guide has been developed to provide an overview of the key points you need to consider when selecting Respiratory Protective Equipment (RPE) and explain the differences between respirator types. It will help you to shop the RS range so you can quickly and effectively find the products and parts you need to keep your staff safe in the workplace.



'Thousands of people die from work-related lung diseases every year, in many cases due to exposures that took place many years before. Breathing in certain dusts, gases, fumes and vapours in the workplace can cause serious, long-term lung damage.'

Health and Safety Executive (HSE)

WHY BUY FROM RS?

As industry experts we offer a wide range of Respiratory Protective Equipment for most requirements and environments, from professionally-approved RS products, to ones from the global market leader 3M, so you can find all the products you need from one source, with next-day delivery, competitive-pricing and bulk discounts.

WHEN IS RPE REQUIRED?

Some work activities can cause harmful substances to contaminate the air in a variety of forms, for example:

- **Dust** – airborne solid particles are present
- **Mists** – minute droplets are present (due to condensation or processes such as paint spraying)
- **Metal fumes** – airborne droplets of metals that have vaporised and condensed (e.g. through welding processes)
- **Gases** – can be odourless and/or invisible and spread quickly
- **Anaerobic atmosphere** – hazardous gas has been removed but there is insufficient air to breathe
- **Vapours** – evaporation of solids or liquids at room temperature

WHY IS RPE REQUIRED?

The Control of Substances Hazardous to Health (COSHH) EU regulations set out the requirements for minimising hazardous risks in the workplace. RPE should ONLY be used where ALL attempts have been made to remove or reduce the levels of hazard, for example by installing extraction equipment, or by putting up physical barriers before even considering the use of RPE.

COSHH regulations require that employers should:

- 1 Identify the hazard**
- 2 Assess the concentration of the hazard**
- 3 Provide only CE approved PPE/RPE**
- 4 Establish a documented training program** for all employees that are required to use RPE to ensure correct use, fitting and maintenance – which should include cleaning, replacement and storage



IMPORTANT NOTE

Respirators MUST NEVER be used in oxygen deficient atmospheres. Specialist breathing apparatus is required that is not covered in this guide.



STEP-BY-STEP GUIDE TO CHOOSING PROTECTION

Selecting adequate and suitable RPE can appear daunting at first. With so many factors to consider, plus such a variety of options, it can be difficult to know where to start.

1 IDENTIFY THE HAZARDS

a At a high level, there are two types of respiratory hazard:

Particulate Hazards: e.g. mists, fumes, dusts or fibres

Gas and Vapour Hazards: e.g. solvent vapours or acidic gases

b You need to understand the types of hazards that your workers encounter before you can make a decision on suitable RPE for the work environment.

Consider the type of work that is undertaken and identify:

Process Generated Hazards e.g. dust from sanding wood or gases released in a reaction. Some work activities, such as heating or cutting materials, could generate harmful substances which contaminate the air in the form of mists, dusts, fumes or gases.

Bought-in Hazards e.g. bottled gases, solvents or chemicals.

Any product that is classed as 'Dangerous for Supply' will come with a Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS) which should provide information on:

- health hazards (on product labelling)
- forms of the substances contained in the product
- the type of RPE required for its use

2 ASSESS THE RISK

To ensure the RPE you select is adequate to protect your workers against any harmful substances in the air around them, you need to understand the amount in the air and the form it takes (e.g. vapour or particles), to effectively assess the concentration of the hazard.

There are various types of respirator and breathing apparatus available and the protection they offer depends on a number of things, including the protection factor. To help you, each type and class of RPE is categorised by an Assigned Protection Factor (APF)

Things to check:

- a** Check MSDSs of bought-in hazards – do they provide guidance on the required APF?
- b** Does the substance have a prescribed Workplace Exposure Limit (WEL)?

If there is no advice on the required APF in the MSDS, you can calculate the required protection level using the WEL and quantity of substance in the air.

- c** If there is more than one hazard present, e.g. dust and gas, you will need to find out the protection factor for each and choose appropriate RPE based on the highest protection factor required.

continues...

What's APF? The APF is simply a numerical rating indicating how much protection a device can offer. So wearing RPE with an APF of 10 will reduce exposure to the wearer by at least a factor of 10 (as long as RPE is used correctly). In the simplest terms, the RPE wearer will breathe in one-tenth or less of the amount of substance present in the air.

	FFP1 Respirators	FFP2 Respirators	FFP3 Respirators	Speciality Respirators
Protection Factor	APF 4	APF 10	APF 20	APF 4 or 10
Typical Applications	Low level fine dust, oil or water-based mists (hand sanding, drilling and cutting)	Moderate level fine dust, oil or water-based mists (plastering, cement, sanding and wood dust)	Higher level fine dust, oil or water-based mists (hazardous pharmaceutical powders, biological agents and fibres)	Fine dust, oil or water-based mists for special applications, such as metal fumes
3M Products: Easy Identification	Identified by YELLOW straps	Identified by BLUE straps or valve lettering	Identified by RED straps or valve lettering	Identified by the strap colour or valve lettering

...continued

STEP-BY-STEP GUIDE TO CHOOSING PROTECTION

3 PROVIDE CE APPROVED RPE/PPE

Now you have identified the hazards and assessed the risks you understand what protection factor you need. Next you need to consider what type of device is right for your organisation, its environment and the individuals who work there. Here is an overview of the main respirator types, detailing the features and benefits of each type:



Disposable Respirators

In general, disposable respirators only protect the wearer from particulate hazards.

Features of disposable respiratory products:

- Different moulded shapes to suit individuals
- Valved or unvalved options – valved respirators reduce exhalation effort so they are cooler to wear and reduce misting of eyewear
- Most disposable respirators feature adjustable nose clips for added comfort

Benefits of using disposable respirators:

- Easy to use – no maintenance is required
- Hygienic – discard after use
- Cost-effective and versatile



Reusable Respirators

Available in full and half-mask options, reusable respirators protect the wearer from particulate and/or gas and vapour hazards depending on the filter type selected.

Features of reusable respiratory products:

- Wide variety of sizes, styles and filter types available to suit individual requirements
- Full and half-mask options – full face respirators also protect the eyes
- Hypoallergenic options also available

Benefits of using reusable respirators:

- Versatile; filters can be changed to protect from multiple hazards
- Can be recorded and used as part of the COSHH regulations relating to reusable RPE monthly inspection and maintenance records



Powered Respirators

One of the main benefits of using powered (or supplied air) over disposable or reusable respirators is that they don't require fit testing to be carried out. They use a battery powered fan and motor to draw contaminated air through a filter. The filter captures certain contaminants and clean air is fed to the wearer.

- Suitable for use over long shifts – no increase in breathing resistance
- Can offer integrated head, eye and face protection
- Allows the wearer to walk freely around without any trailing tubes

- ⊗ Cannot be used to protect against substances with poor warning properties (taste/smell)
- ⊗ Must not be used in conditions that are oxygen deficient or immediately dangerous to life or health (IDLH)



Air-fed Respirators

Like powered respirators, air-fed respirators don't require fit testing as the products are classed as loose fitting. They use breathable quality air supplied from a compressor via a tube. The compressed air is regulated to a gentle flow and fed to the wearer.

- Can be used to protect against substances with poor warning properties (taste/smell)
- Can offer integrated head, eye and face protection
- Suitable for use over long shifts – no increase in breathing resistance
- ⊗ Must not be used in conditions that are oxygen deficient or immediately dangerous to life or health (IDLH)

4 TRAIN IN FITTING AND USE

If RPE is not worn correctly it will not provide the required protection, so it is vital that you integrate RPE use into normal workplace activities and provide adequate training. It is often best, if possible, to give a choice of several adequate and suitable RPE to wearers so they can select the most comfortable.

All people involved in the selection, use, storage and maintenance (if necessary) of RPE require training. Ideally this needs should cover:

- Why RPE is necessary
- Hazards and their risks and effects
- The type of RPE being provided
- How it works
- Why fit testing is required (if relevant)
- How to wear and check equipment correctly
- Fit checking before use
- Details of maintenance required/when
- How to clean and store
- What to do if there's a problem with any RPE
- Responsibilities of both employer and employees
- RPE use and misuse

Fit testing

Face piece fit testing is a way of checking that a tight-fitting face piece (typically disposable and reusable respirators, although this can include half and full face masks, including those that form part of an air-fed or powered respirator) fits the wearer's facial features and forms an adequate seal. This is required by the Control of Substances Hazardous to Health Regulations (COSHH).

Further information about Fit Testing can be found at www.fit2fit.org – the Fit2Fit accreditation scheme for testers.