



BREATHE FREELY Australia

Controlling exposures to prevent
occupational lung disease in
WELDING

Image courtesy of Arco/3M ©

RPE Programme for Welders

Respiratory protective equipment (RPE) may be needed to protect welders from exposure to welding fume and metal. However, it should only be used after all other reasonably practicable measures to prevent or control exposure have been considered. In the hierarchy of control under the OHS regulations, RPE is the last line of protection. RPE can only protect the wearer, and if it is inadequate, unsuitable, used incorrectly, or poorly maintained, it is unlikely to provide the required protection.

When selecting RPE, make sure that it is:

Adequate

Right for the hazard (eg welding fume and metal dust) and that it reduces exposure to the level required to protect the wearer's health. Check with your occupational hygienist and your RPE supplier.

Suitable

Right for the wearer, task and environment so the wearer must be able to work freely and without additional risks due to the RPE.

Note that the MPF (Minimum Protection Factor) is a number rating that indicates how much protection that RPE will provide if used correctly. For example, RPE with an MPF of 10 will reduce the wearer's exposure by at least a factor of 10.

Also note that If tight fitting RPE is selected, the user will need to be given a face fit test before it is worn for the first time.

Types of RPE

The table below shows suitable types of RPE for welding tasks in a **well ventilated** area. They should **NOT** be worn when welding in a confined space, where breathing apparatus is required.



The filter and fan are mounted on the waist belt of this battery powered welding kit. It delivers filtered air to the welder from the flexible hose at the back of the unit.

The filtered air can help to keep the welder cool and would be more comfortable to wear for longer periods of time.

This RPE is recommended for all types of arc welding in a well ventilated area.

A face fit test is not required for RPE with loose fitting headtops, like this one; the headtop is a welding visor.



This is a twin-filter respirator with welding visor. It has two P2 filters. The welding visor can be removed to allow the RPE to be worn with suitable PPE for other tasks, eg grinding.

It is not powered, therefore it is recommended that it is worn only for tasks lasting less than one hour at a time for comfort.

This RPE is recommended for short duration arc welding tasks in a well ventilated area

This RPE has a tight fitting facepiece and therefore the wearer will require a face fit test.



This is a disposable P2 mask which can be used for welding tasks that do not generate high concentrations of airborne gases.

The mask must be able to fit comfortably beneath the welding visor.

It is not powered RPE, therefore it is recommended that it is worn only for tasks lasting less than one hour at a time for comfort, eg repair jobs in a well ventilated area

This RPE has a tight fitting facepiece and therefore the wearer will require a face fit test.

Key points for the RPE programme

The selected RPE must fit the individual who will be wearing it in order to ensure that the RPE provides its maximum potential protection against the hazardous substance. Facial hair and facial features such as scars or acne that could affect the facial seal of the respirator need to be considered in the RPE suitability assessment. Powered and supplied air respirators with a welding visor and helmet should be used when it is not possible to achieve a good face seal with a tight fitting facepiece.

If the worker also wears glasses or must wear other personal protective equipment (PPE) such as hearing protection or a welding visor, then this must also be taken into account when selecting suitable RPE.

The management and administrative arrangements for the RPE Programme must include the following 3 points:

1. Information, instruction and training

RPE wearers must be informed of key roles and responsibilities, including their own responsibilities for pre and post use checking of the equipment and putting the equipment on correctly. The RPE wearers should be fully trained in:

- the hazardous substances present and their health hazards
- how RPE works
- how to fit and use the specific RPE
- maintenance procedures, including cleaning and fault/problem reporting.

2. Maintenance and testing

Provision should be made for pre-use checks, routine preventative maintenance as well as reporting of faults and ordering of spare parts and consumables. Records of the checks carried out on RPE should be made and kept for 5 years.

Powered RPE must be tested to ensure that the battery and blower unit are in good order and delivering the correct flow rate. Often flow testers are provided with the RPE.

If you are using a supplied air system, for example, as required in a confined space, the air must be of breathable quality and must be periodically tested in accordance with British Standards. Testing must be conducted at a frequency based upon the risk assessment, eg at 3 monthly intervals.

3. Storage

Suitable storage for the RPE must be provided, to ensure the equipment remains free from contaminants and moisture so that it is kept in good working order until it is next inspected and used. When not in use, RPE should not be left in the work area. Finally, make sure the way it is packed doesn't distort the facepiece and exhalation valve and do not hang up the equipment up by its straps.