



AS/NZS 1715:2009

Selection, Use and Maintenance of Respiratory Protective Equipment

This standard deals with the selection, use and maintenance of respiratory protective equipment. It offers information to employers and users on different types of respiratory protective equipment (RPE), how to select the right type for the job and how to correctly maintain it. Quantitative and Qualitative fit testing falls under this standard.



**Australian Standard
AS/NZS 1715:2009**

Types of Respiratory Hazards

Australian Standard AS/NZS 1715:2009 classifies contaminated air into the following categories:

Dust / Fibres

Particles generated by mechanical means such as crushing, cutting and sanding. Calcium carbonate, silica dust, sulphur, coal, clay, ferrous metals (steel, stainless steel, cast iron), wood dust and asbestos are all examples.

Mists

Airborne droplets of liquid usually formed by condensation of a vapour or by splashing, spraying or atomising. These can include oil mists, acid mists, condensation of water vapour to form fog and paint mist.

Fumes

Fine particles, usually less than 1.0µm in diameter, formed from a volatilised solid condensed in cool air. Fumes are often associated with molten metals, especially in welding practices and can also include soldering and bushfire smoke.

Gases

Formless fluids expand and occupy the space in which they are confined. These can include oxygen, carbon monoxide, nitrogen, and carbon dioxide.

Vapour

The gas form of a substance which is usually in the form of a solid or liquid when at room temperature and pressure. These can include toluene, methylene chloride and mineral spirits.

AS/NZS 1716:2012

Performance Requirements by Respiratory Type

This standard offers information to manufacturers, suppliers, employers and users by setting out performance requirements for different types of RPE according to type, with varying degrees of protection against atmospheres containing substances which may be harmful if breathed; also, with certain types, to protect against atmospheres which may be deficient in oxygen.



Types of Filters under AS/NZS 1716:2012

Particulate Filters

Particulate filters capture particulates in the air such as dusts, mists and fumes. They do not protect the user against gases or vapors. They are classified into three groups, relative to the particulate size filtration capacity and toxicity of the particulate.

Class P1 Filters

P1 filters protect against mechanically generated particles. P1 filters are available as the powered type, replaceable filter type and disposable type.

Class P2 Filters

P2 filters protect against mechanically or thermally generated particles. P2 filters are available as the powered type, replaceable filter type and disposable type.

Class P3 Filters

P3 filters are to protect against highly toxic or irritant particles. P3 filters are available as the powered type and replaceable filter type.

A full-face respirator is required to achieve P3 filter classification (for non-powered air), or a head covering or full-face respirator for a Powered Air Purifying Respirator (PAPR).

Note: When a P3 filter is used in conjunction with a half face piece, the protection level is equivalent to a P2 filter. Disposable respirators/dust masks are particulate filters, usually P1 or P2. They cover the mouth and nose and protect the wearer against airborne contaminants, including dust, mists, liquids and some fumes, but not gases or vapours.

Dust masks are not suitable where:

- Contaminant concentrations are dangerous to life or health, unknown or exceed the relevant exposure standard
- Toxic gases or vapours are present
- A satisfactory fit of the mask is not obtained due to facial hair or other characteristics that prevent a good seal between the edge of the mask and the wearer's face
- If the atmosphere is deficient in oxygen, a confined space or poorly ventilated area
- If there is a smell or taste of a contaminant and/or if persons in the area experience nose and/or throat irritation – some dust masks do have an active carbon layer added to reduce nuisance levels of organic vapours that can create unpleasant smells

Class	Efficiency	Penetration	Application
P1	80% (Particles to 1µm micron = 0.001mm size)	Not more than 20%	Dust
P2	94% (Particles to 0.3µm micron = 0.0003mm size)	Not more than 6%	Toxic dusts, including welding fumes and asbestos
P3	99.95% (Particles to <0.3µm micron = less than 0.0003mm size)	Not more than 0.05%	Toxic dusts including asbestos, welding fumes (Only achieved with PAPR or Full Face)

Gas Filters

Classes for gas filters are distinguished by how much gas they're able to absorb. Gas filters are classified by one of the following classes:

Class AUS

Low absorption capacity filters

Class 1

Low to medium absorption capacity filters

Class 2

Medium absorption capacity filters

Class 3

High absorption capacity filters

Gas and particle filters also use a colour coded system for identification. Multiple colours represent filter type protection:

 **A** - Organic Vapours (boiling point >65°C)

 **AX** - Organic Vapours (boiling point <65°C)

 **B** - Inorganic Gases

 **E** - Acid Gases

 **K** - Ammonia

 **Hg** - Mercury



Combination Filters

Combination filters are used when gases/vapours occur simultaneously with particles, e.g. in high pressure cleaning, spray painting, heating substances or gas condensation. Select an appropriate combination filter from the Corpro range when subject to this environment.

Protection Factors

Depending on the combination of cartridge/filter and respirator, different levels of protection may be achieved. The Protection Factor is the reduction in exposure expected with correct use of a respirator. e.g. A protection factor of 10 means the wearer can expect a 10 times reduction in exposure to the airborne concentration of contaminants. As per the table below - the higher the protection factor, the greater the reduction in exposure to airborne contaminants for the wearer.

Particulate Protection

Respirator	Filter	Protection Factor
Half Face Respirator	P2 Filter	Up to 10
Half Face Respirator	P3 Filter	Up to 10
Full Face Respirator	P2 Filter	Up to 50
Full Face Respirator	P3 Filter	Up to 100

Particulate Protection

Respirator	Filter	Protection Factor
Half Face Respirator	Class 1	Up to 10
Half Face Respirator	Class 2	Up to 10
Full Face Respirator	Class 1	Up to 50
Full Face Respirator	Class 2	Up to 100

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