

# FIT-TESTING RESPIRATORY PROTECTIVE EQUIPMENT (RPE)

THE SELECTION,  
PROVISION, AND  
FIT-TESTING OF  
RESPIRATORY  
PROTECTIVE  
EQUIPMENT (RPE)  
IS AN IMPORTANT  
CONTROL TO  
PROTECT AGAINST  
RISKS FROM  
AIRBORNE  
CONTAMINANTS.

Australian WHS/OHS legislation prescribes that a person conducting a business or undertaking at a workplace must ensure that no person at the workplace is exposed to a substance or mixture in an airborne concentration that exceeds the exposure standard for the substance or mixture. This includes biological contaminants such as COVID-19.

To support these requirements, Greencap's experienced team of Occupational Hygienists and Health & Safety specialists provide assessment services to clients across all industries in relation to airborne contaminants. Greencap can also provide assistance to organisations in understanding the broad range of potential contaminants in the workplace, including implementing risk management strategies for mitigating potential exposure to COVID-19.

An important aspect to the control of risks associated with airborne contaminants across varying industry sectors, such as Health, Construction, and Government, is the selection, provision and Fit-Testing of Respiratory Protective Equipment (RPE), including the training of workers in the correct use, cleaning and maintenance of such equipment.

## Selection of RPE

**There are a number of important factors to consider when selecting RPE, including:**

- The contaminant/s workers may be exposed to (i.e. nature, toxicity, form and concentration)
- The tasks that workers perform (i.e. frequency and length of use, work environment, mobility)
- The characteristics of the worker (i.e. physiological considerations, facial features)
- Any limitations of the RPE supplied (i.e. vision, communication, mobility)
- Any medical conditions of workers that may impact the RPE effectiveness

Each of these factors are mutually inclusive and, as such, each must be given due consideration to ensure effective respiratory protection.

## Types of Respirators

**There are two main types of respirators:**

- *Air-Purifying Respirators* are either powered or non-powered, disposable or reusable, and protect the wearer by using a filter that purifies the air being breathed
  - Powered air-purifying respirators use a powered fan to draw air through the filter
  - Non-powered respirators draw air through the filter simply via the breathing rhythm of the wearer
- *Supplied-Air Respirators* provide clean air to the wearer via an external independent source, such as a compressed air cylinder or air compressor



AS/NZS 1715:2009 states fit-testing should be conducted when RPE is first issued, then at least annually and also following any change in the facial characteristics of the wearer.

## Fit-Testing

As every worker has varying facial features such as size and shape, it is important to determine if the RPE being provided fits correctly and is suitable for each worker.

To achieve this, a Fit-Test should be carried out to identify if any airborne contaminants have the potential to leak into the respirator through gaps in the seal between the respirator facepiece and face.

### There are two recognised methods for achieving this:

- *Qualitative* Fit Testing is easily performed, but is also subjective and relies on the worker's ability to taste or smell a test agent
- *Quantitative* Fit Testing is conducted using specialised equipment that measures the volume of test contaminant that leaks into the respirator

## Fit-Testing Requirements

The proper fitting of RPE requires the application of a suitable Fit-Test method to determine an adequate match between the facepiece of the RPE and the face of the wearer.

**Australian and New Zealand Standard – AS/NZS 1715:2009 *Selection, Use and Maintenance of Respiratory Protective Equipment, Respiratory Fit Testing in Australia* states fit-testing should be conducted:**

- Initially when the RPE is first issued
- At least annually
- Whenever there is a change in the facial characteristics of the wearer, for example:
  - Considerable change in weight, i.e. gain or loss
  - Loss of teeth or dental work
  - Change in cheek and/or nose structure

It is also important to ensure that RPE is checked for fit before each use.

### A written record of Fit Tests carried out should be kept for each worker, including:

- Type of test performed
- Make, model, style and size of respirators tested
- Date of the test
- Result of the test

## Tailored Respirator Fit-Testing Programs

**It is not safe to simply assume that RPE provided to workers provides appropriate control and there are many factors that impact its effectiveness, with appropriate 'fit' being just one.**

Greencap can tailor a Respirator Fit-Testing Program to assist our clients in understanding the effectiveness of RPE provided to workers. This is achieved by measuring the efficiency of RPE (utilising Greencap's PortaCount® machines) in preventing atmospheric contaminants from entering a worker's breathing zone.

For further information on these services go to:

[greencap.com.au](https://www.greencap.com.au)

Updated August 2022

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