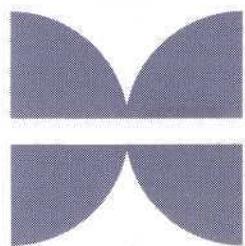
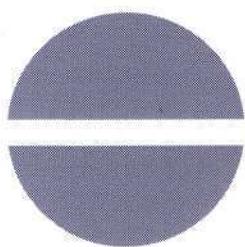
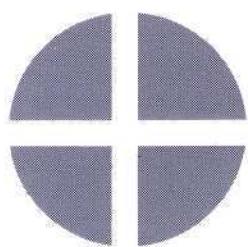


Personal  
Breathing  
Protection  
Training  
Course



General  
guide

## Personal breathing protection

Your work involves one or many procedures where you may be exposed to harmful dust or gas. That's why your employer has taken a number of steps to protect your health and well-being from adverse effects caused by these substances.

One of the steps is personal breathing protection.

But remember: your employer can only SUPPLY the breathing gear and instruct you how to use it correctly.

**It is up to YOU to use it, and to use it in the proper manner!**

In this booklet, we will answer some important questions about personal breathing protection. If you have any additional queries, please ask your supervisor or nurse, or contact Safety Equipment Australia Pty Ltd.

## Why should I use breathing protection?

Because your health and well-being may be at risk if you don't. It's as simple as that.

Depending on the substances present in the air you breathe, every single breath you take may increase the risk of:

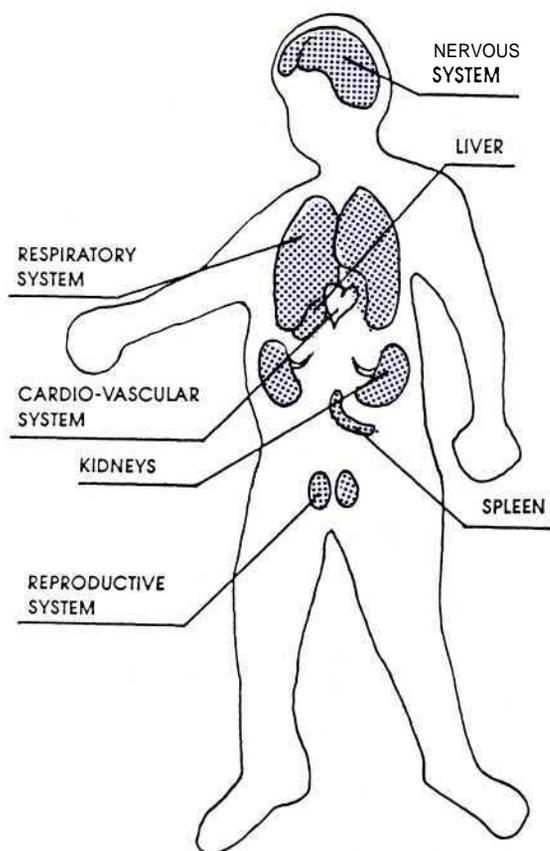
- Lung damage (*bronchitis, oedema, pneumonia etc.*)
- Damage to vital organs (*kidneys, liver, brain etc.*)
- Serious illness (*heart conditions, blood disease etc.*)
- Cancer
- Permanent disability and long-term disease (*asthma, silicosis etc.*)
- Death

That's only a brief outline of the problems you may encounter if you don't use your personal safety equipment.

**Remember that it is not only your own well-being that is at stake. Your health will also affect everyone around you: your family and friends, your work partners and colleagues.**

## How can something I breathe reach my body organs?

The lungs are a very vulnerable organ: this is where oxygen in the air enters the blood stream. If you breathe in harmful contaminants, these may also enter the blood stream and be transported to vital organs, including the kidneys, liver, spleen, heart, reproductive glands and the brain.



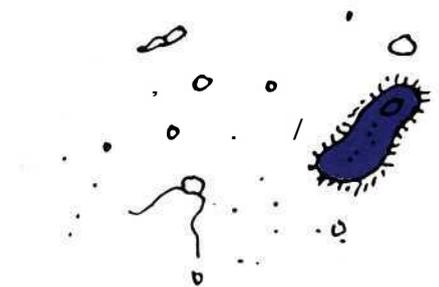
# What are the hazards?

## Dust

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Solid air-borne particles. Large amounts of dust are formed in drilling, sawing, milling, polishing, sandblasting and similar procedures. You are also exposed to dust when handling chemicals in powder form.

Dust usually causes irritation to the respiratory tract (resulting in coughing, sneezing, sore throat etc.), but may also contain harmful substances, such as asbestos, silica, lead and many others. These materials can cause serious disabilities.



## Aerosols

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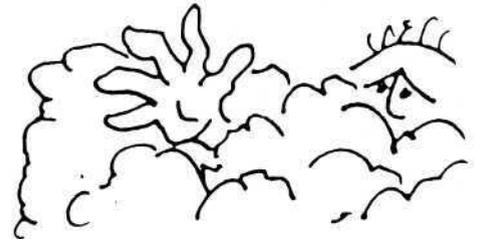
Liquid dust — in other words, spray and mist. Spray painting, pesticide spraying, surface treatment and many other procedures produce aerosols. The spray may contain a wide variety of toxic substances.



## Smoke and fume

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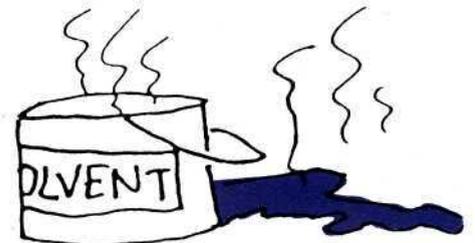
Smoke is the result of incomplete combustion; fumes are commonly formed when solids (especially metals) are heated. Welding and smelting are two common areas where fumes occur.



## Gas and vapour

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Gases and vapours may occur naturally at room temperature, or when heating various materials. Gases may be extremely toxic by themselves. Toxic compounds may also be formed when gases are heated or come into contact with other materials.



## Oxygen deficiency

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Some gases and vapours have the capacity to displace the air in a room, resulting in an atmosphere which doesn't contain enough oxygen to breathe. Burning may also consume the oxygen in the air.



## **But the fumes don't bother me — do I still have to wear a mask?**

**Y**es, you do. Many dusts and gases do not have any IMMEDIATE health effects, but can cause damage over a long period of repeated exposure.

Some substances have a delayed effect, and you may not notice anything while being exposed to the substance. Illness may occur at night or on the week-end.

Other materials may gather in your body and cause serious disease later in life.

## **Won't breathing through a mask hinder my work and make me feel uncomfortable?**

**N**ot necessarily. Your equipment has been specially designed for comfort and low breathing resistance. The safety gear is the result of many years' research and testing. The equipment you are using is the very best there is — both in terms of protection level and comfortable wear.

## **If you can't smell it, it's not dangerous, right?**

**W**rong! Many of the most hazardous contaminants are completely odourless. That means that it is possible to inhale large amounts of the harmful substance without even noticing.

Another consideration is that many chemicals have the power of dulling your sense of smell. After some time, you may not be able to detect even high concentrations by smell.

In addition, many highly dangerous compounds have very attractive odours. They may smell like fruit or food or perfume — but they may be extremely poisonous, even lethal.



## **Do I have to wear the breathing gear all the time?**

**Y**ou should not take off your respirator until you are well out of the work area. Even a very short break without a respirator means that you lose ALMOST ALL of your protection.

# Why should I keep wearing the mask after I've finished working?

Even if you can't see any dust or other contaminants, there will still be a lot of it left in the air. Dust and vapours may hang around for a long time, and you should wear the respirator for as long as you remain in the work area.

## What means of protection are there?

There are several ways of avoiding damage, including:

### Substitution

Using a harmless chemical instead of a hazardous one.

### Automation

Avoiding human contact altogether, by using machines (e.g. pumps) or enclosed systems, such as pipelines.

### Ventilation

Fans, floor exhausts, point exhausts, chemical hoods and spray booths.

### Supplied air

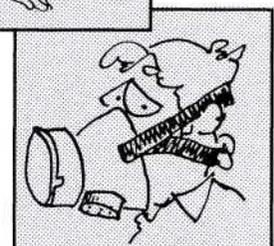
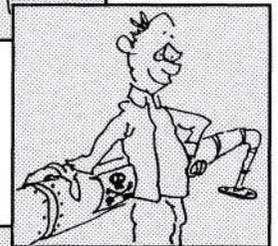
Pumping clean air from a remote source through a hose to a mask or hood around your head.

### Self-contained breathing apparatus

Scuba gear: you carry a bottle of clean oxygen on your back.

### Air purifying filter respirator

Filtering the contaminated air before it reaches your lungs.



# Advantages and drawbacks

## ADVANTAGES

## DRAWBACKS

### Substitution

Getting rid of harmful substances altogether

Work may be slower or more difficult

Efficiency of material may be lower

Substitutes may not be available

### Automation

Shielding workers from hazardous materials

May be noisy

May be costly

### Ventilation

No respirator needed

May cause other health hazards, such as noise

Free breathing

May be costly.

Easy to move around

Good communication

### Self-contained breathing apparatus

May be used where there is no oxygen (oxygen deficient atmospheres)

Limited operation time

No hose dragging behind

More weight to carry

Safe even in highly toxic atmospheres

Limited communication

May need specialist service or maintenance

### Supplied air

Efficient protection against high concentrations

May be cumbersome to handle

Constant supply of clean air

Limited mobility; hose dragging behind

Hood types may be used by bearded people

Limited communication

Cost-efficient to run

Constant air flow may disturb user, cause noise, dry out eyes etc.

### Air purifying filter respirator

Light and easy to use

Cannot be used in low-oxygen areas

Flexible — filters may be attached for gas, fumes, particles etc.

Cannot be used in highly toxic environments

Long lasting use

Users must be clean shaven

Relatively good communication

Very cost-efficient

Easy to maintain

## Can anyone wear a respirator?

**N**o. Certain facial features may prohibit perfect leakage-free fit. However, most people can achieve adequate protection using a face mask.

One of the biggest obstacles to adequate protection is beard growth. Even a one-day stubble can ruin the performance of your respirator: the tiny hairs cause the rim of the mask to let contaminated air in as you breathe. **SHAVE EVERY DAY** before putting on the respirator.

If you have a permanent beard, filter respirators aren't for you. You must wear another type of breathing protection, such as a supplied air hood.

There may be other reasons why you should not wear a respirator, including:

**Respiratory conditions (asthma, emphysema, skin allergies)**

**Circulatory disease (high blood pressure, heart conditions)**

**Psychological distress (claustrophobia, anxiety)**

**Skin problems (severe acne, scarring, missing teeth)**

### Summary

Take advantage of the available protection. Use it correctly for your own sake — and for your family and friends.

Inadequate protection may mean serious illness now and in the future.

Contaminants may not only cause damage to your lungs, but to vital organs and almost all other parts of your body.

Many chemicals can't be detected in the first instance. They make you ill when it's already too late.

A correctly used respirator of good quality will not hinder you in your work.

Dangerous chemicals are often odourless, or may even have an attractive smell.

**Wear your breathing protection ALL THE TIME.**

A short break without breathing gear may rob you of almost all protection.

**DO NOT** wear a filter respirator if you have a beard — even a stubble. Either shave or wear another type of breathing gear.

Report all mechanical problems and physical discomfort to your supervisor — neglect could ruin your health.

Make sure you know **EXACTLY** how to fit, test, inspect, maintain, clean and store your breathing equipment.



