Other applicable standards:

EN371 (low boiling organic compounds and AX filters), **EN372** (specific named compounds and SX filters), **EN12941**—powered filtering devices incorporating helmets or hoods (protects against specified gases and vapours, particles or a combination of both. Incorporates a low air flow warning device and are classified as TH1, TH2 and TH3).

RPE Maintenance, Training and Use

- **Before Selection and Use**

⇒ RPE is only effective if fitted, used and maintained properly. Before use, the selected mask must be fitted to the wearer. Users must also be trained in why protection is needed i.e. nature of the hazard, what its limitations are, and how it should be used and maintained.

⇒ All RPE (except single use) should be inspected and tested monthly and test results recorded in a log book. Test records must include; department, unique identifier, date of examination and signature, filter expiry date and the condition of the equipment. If the RPE is used intermittently, an examination and test should be made before use or every 3 months; whichever is the sooner.

- **Pre-Use Check**

⇒ Each time the RPE is used it must be given a negative pressure test— close or cover the air inlet and inhale gently so that the face piece collapses slightly and hold breath for 10 seconds. If there is no inward leakage of air and the face piece remains collapsed the face piece fits satisfactorily. Otherwise it must be adjusted and the test repeated. If it fails for a second time, the face piece is unsuitable for the wearer.

- **After use**

⇒ RPE should be cleaned in accordance with the manufacturer's instructions, dried and stored to keep clean.

Face-Fit Tests

In order to check the fit, each user must have a face-fit test; this includes disposable RPE. Face fit testing should be carried out once every 3 years or more frequently if there is a change in the equipment design or the individual's face has altered shape e.g. extensive dental work, weight gain/loss, after an accident etc.

Inform your manager of any medical conditions that could be affected by the use of the RPE provided.

For further information:

https://warwick.ac.uk/services/healthsafetywellbeing/guidance/personalprotectiveequipment

Or Contact

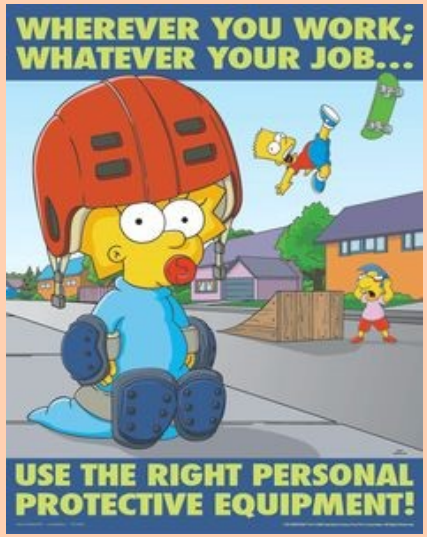
Healthsafetyhelpdesk@warwick.ac.uk

Notes -

WARWICK
Health & Safety Services

PPE.RPE. V1.0 May 2019

Respiratory Protective Equipment



Respiratory Protective Equipment (RPE)

RPE is a particular type of personal protective equipment (PPE) which is designed to protect the wearer from breathing in harmful substances or in oxygen deficient atmospheres when other controls are either not possible or insufficient on their own; it **must** only be used as a last resort. RPE use is covered in the Personal Protective Equipment Regulations 2002 and the Personal Protective Equipment at Work Regulations 1992 (as amended) which states that all PPE should be "**suitable and sufficient"** for the hazard identified. It is "**personal**" therefore it MUST fit and be worn by the user as it was designed.

Selection

Before selecting RPE **you** need to think about:

- **Do I need RPE?**

⇒ Do I need to perform this task? Can I substitute the substance for something less hazardous? Can I use an engineering control instead of RPE e.g. fume cupboard, glove box etc.

- **What hazard/s am I going to be exposed to?**

⇒ Dust, mist, vapour, gas, fumes

- **What options do I have?**

⇒ Respirators (filtering devices) which can be powered or non-powered and Breathing Apparatus (BA).

- **Are the options available suitable and sufficient?**

⇒ Is it offering protection from the hazard/s identified? Is it suitable for where I need to wear it— indoor or outside use, working temperature and conditions?

⇒ Is it meeting the correct British Standard? Is it CE marked?

⇒ Is it comfortable? Consider the size, fit and weight.

⇒ Does it maintain a good seal? Does the user have a beard? Facial hair **will** compromise the seal. Glasses may also affect the seal's efficiency and will need to be worn during the face-fit test.

⇒ Is it damaged? Is it clean? Is it durable?

Types of RPE

- The type of protection used must be appropriate for the hazardous substance and have an appropriate protection factor in relation to the anticipated hazardous substance (s) concentration. There are two main types of RPE; respirators and breathing apparatus.

⇒ **Respirators (filtering devices)** use filters to remove contaminants from the air being breathed in. They can be either: **non-powered respirators** – relying on the wearer's breathing to draw air through the filter; FFP1, FFP2, FFP3 or **powered respirators** – using a motor to pass air through the filter to give a supply of clean air. These types of respirators must not be used in low oxygen environments

⇒ **Breathing Apparatus** needs a supply of breathing-quality air from an independent source e.g. air cylinder or air compressor. Its use requires specialist training.

RPE Standards

PPE standards are separated into broad categories depending on the type of protection intended e.g. respiratory protection. Where possible, standards have been further subdivided according to the hazard e.g. mechanical hazard, heat, flame or component type e.g. filters; face pieces.

- **Masks**

⇒ **EN149**—Filtering half masks to protect against particles

⇒ **EN405**—Valved filtering half mask to protect against gases or gases and particulates

⇒ **EN140**—Half masks and quarter masks used as part of a respiratory protective device. These face pieces may be used in negative pressure systems, powered or supplied air systems. The mask may have filters conforming to EN141, EN143, EN371 or EN372.

⇒ **EN136**—Full face mask as part of a respiratory protective device; negative pressure systems, powered or supplied air systems. There are three classes: **Class 1** — light duty, not positive demand SCBA and low maintenance, **Class 2**—general use with maintainable parts, **Class 3**—special use.

⇒ **EN14387**—Gas filters and combined filters. Gas filters remove

Filter Types

- **Gas Filters—** Gas filters are classified according to the type of specified gas they remove. If the filter is a combination of types , it must meet each requirement type separately and will be marked with each colour code accordingly e.g. ABEK2P3 filter will be marked brown, grey, yellow, green and white.

Colour		Filter Type	Main field of application
brown		AX	Gases and vapours of organic compounds with boiling point ≤ 65 °C
brown		A	Gases and vapours of organic compounds with boiling point > 65 °C
grey		B	inorganic gases and vapours, e.g. chlorine, hydrogen sulphide, hydrogen cyanide
yellow		E	Sulphur dioxide, hydrogen chloride
green		K	Ammonia
black		CO	Carbon monoxided
red		Hg	Mercury vapour
blue		NO	Nitrous gases, including nitrogen monoxide
orange		Reactor	Radioactive iodine including radioactive methyl iodide
white		P	Particles

⇒ **Type A,B,E & K filters** are further classified according to filter capacity and efficiency: Class +1, (low: <1000ppm), Class +2 (medium: <5000ppm) or Class +3 (high: <10,000ppm).

⇒ **Type NO-P3:** Nitrogen oxides and also incorporates a particle filter. It must be colour coded Blue-White together with its filter class.

⇒ **Type Hg-P3:** Used against mercury and also incorporates a particle filter. It must be colour coded Red-White together with its filter class.

⇒ **P:** Particles, **R:** reusable, **NR:** not reusable (single shift), **D:** resistant to dolomite clogging test

- **Particulate Filters (EN143) -** are classified according to their filtering efficiency. All colour coded White.

⇒ **FFP1:** Low dust levels, solid and liquid aerosols. Occupational Exposure Limit (OEL): Protects against materials in concentrations **4x** limit.

⇒ **FFP2:** Moderate dust levels, solid and liquid aerosols. OEL: Protects against materials in concentrations **10x** limit.

⇒ **FFP3:** Higher dust levels, solid and liquid aerosols and can be used for handling hazardous powders. Protects against materials in concentrations **20x** limit.

- **Other applicable standards:**

⇒ **EN371** (low boiling organic compounds and AX filters), **EN372** (specific named compounds and SX filters), **EN12941**—powered filtering devices incorporating helmets or hoods (protects against specified gases and vapours, particles or a combination of both. Incorporates a low air flow warning device and are classified as TH1, TH2 and TH3).