



Scott Safety Filters

For Respiratory Protective Equipment

Scott Safety's extensive half and full face mask respirator range combines comfort and protection, with a comprehensive choice of filters that protect against a wide variety of respiratory hazards.

The Scott's filter range offers a wide choice of **particle**, **gas** and **combined filters** for specific respiratory challenges, providing high quality and cost efficient protection. Highest specification filter media and materials ensure durability and reliability in the most demanding applications.

EN143:2000 & EN14387:2004 approved



Particle Filters

- Scott particle filters use only microfibre 'paper' media and do not use any electrostatic filtering method. They are marked 'R' for "reusable" (EN 143/A1:2006)
- PF10 P3 features a high capacity filter element; it removes even the smallest particles with efficiency better than 99,99%

Gas Filters

- Use the highest grade active carbon materials, additionally treated for best performance
- Less carbon provides low weight and less resistance – real benefits for the user

Combined Filters

- Combined filters remove hazardous gases and vapours as well as solid and liquid particles
- The particle filter removes aerosol-based particles such as paint droplets.
When spraying liquid substances (e.g. spray-painting) a combined filter should be used.

Particulate Contaminents

Particle Forms

Dusts are airborne solid particles, which are generated during the processing of organic and inorganic substances. Solid particles can be mineral, metal, coal, wood or crop dusts, as well as various fibres.

Fumes, evaporating metal creates fumes during cooling.

Smoke consists of small coal and soot particles and potentially other partly incinerated materials. It can include both liquid droplets and solid particles.

Mists are airborne droplets which are created when a fluid disperses in air in the form of small particles.

Micro-organisms, e.g. bacteria and viruses.

Radioactive particles are generated from radioactive material.

Particulate classification and efficiency EN 143		
Class	Description	Efficiency
P1	Low efficiency (against coarse and minor solid particles)	80%
P2	Medium efficiency (against solid and liquid hazardous particles)	94%
P3	High efficiency (against solid and liquid toxic particles, and radioactive particles and microorganisms)	99.95%

Scott Safety filters are typically 99.9995% = 100 times more efficient

Particle filter operation life

- Shelf life: PF10, Pro² P3 & PF251/2 = 10 Years
- When opened, dispose after 6 months
- The filter does not wear out but gets clogged with particles and/or moisture.
A particle filter must be replaced when breathing resistance has increased.
- When used against radioactive substances and micro-organisms a particle filter is recommended for single use only.

The risk caused by particles depends on:

- The physical, biological and chemical properties of the contaminant
- Particle size and form
- Concentration in the ambient air and exposure time
- Work pace; the more rapid respiration, the more particles are inhaled

Physiological effects of particulates on the human body	
Inert dusts	Minor effects of concentration: e.g. <5 mg/m³ slight irritation, > 30 mg/m³ high irritation.
Mineral dusts, e.g. silica dust, quartz	Detrimental, hazardous effects; changes in lung tissues, cancer
Metal fumes and dusts, e.g. lead, chromium, cadmium, mercury, poisonous particles	Pneumoconiosis, bronchitis, asthma, inflammation, cancer.
Manufactured fibres, e.g. asbestos and other fibres	Pulmonary fibrosis, mesothelioma, cancer.
Airborne radioactive substances	Can cause severe damages, e.g. cancer.
Micro-organisms, e.g. bacteria and viruses	Biological agents can cause diseases, e.g. farmer's lung.

Gaseous Contaminants

EN14387 Gas Filters and Combined Filters

EN14387 standard specifies the minimum requirements for gas filters and combined filters for use as part of a respiratory protective device. Gas filters remove specified gas and vapours. Combined filters remove solids and/or liquid particles and specified gases and vapours. According to their application and protection, capacity gas and combined filters are classified in types and classes.

Gas Filter Capacity EN 14387	
Filter Type	Description
A	Organic gases and vapours with a boiling point higher than 65°C
B	Inorganic gases and vapours (excluding Carbon Monoxide (CO))
E	Acidic gases (e.g. Sulphur Dioxide (SO ₂), Hydrogen Chloride (HCl))
K	Ammonia (NH ₃)
AX	Organic gases and vapours with a boiling point lower than 65°C
Hg	Mercury
P	Particulates
Reactor	Radioactive agents
Class	Type A, B, E, K, AX are further classified according to their filter capacity
Class 1	Low capacity - up to 1000ppm
Class 2	Medium capacity - up to 5000ppm
Class 3	High capacity - up to 10,000ppm

The service life of a gas filter depends on:

- Concentration and characteristics of the workplace contaminant
- Filter capacity, e.g. filter class, compare workplace concentrations to test values
- Breathing volume and work rate
- Humidity of the air
- Temperature of the atmosphere

Gases and vapours have various effects on health:

- They can irritate the membranes of respiratory organs, the eyes and skin
- They can reach the lungs and cause damage there
- They can be absorbed in the blood and cause temporary or permanent damage to various parts of the body
- They can cause irreparable damage to the nervous system
- The most hazardous gases can intoxicate or suffocate, and even destroy individual bodily organs
- They can be lethal

Effects of gaseous substances depend on:

- The characteristics of the gas or vapour; e.g. toxicity
- The concentration of the contaminant in the air
- Duration of exposure to the contaminant
- The chemical compound or mixture of substances making up the contaminant
- The ability to react chemically with organic tissue as well as the propensity to be absorbed in the blood
- Personal characteristics, e.g. rate of respiration, blood circulation and sensitivity



Filter Combinations

If a filter is a combination of types, it shall meet the requirements of each type separately. the filter must also be marked with each colour code. For example an ABEK2P3 filter will be marked Brown, Grey, Yellow, Green and White

