

GPCF50

GENERAL PURPOSE CBRN FILTER CANISTER

The Avon GPCF50 Filter is a CBRN filter canister designed to meet the relevant criteria specified in the NATO Triptych for protection against chemical and biological warfare agents in aerosol, liquid and vapour form.

The canister also provides protection against a range of toxic industrial chemicals, and exceeds the capacity requirements of A1B1E1 in European standard EN14387:2004.

The Avon GPCF50 Filter has a unique conformal shape providing a low profile close fit with the mask.

When combined with an appropriate chemical protective mask, the GPCF50 filter canister protects the face, eyes and gastro-intestinal tract of the wearer against chemical and biological agents in aerosol, liquid and vapour form including:

a. Nerve Agents	c. Blood Agents
"G" Series	Hydrogen Cyanide
"V" Series	Cyanogen Chloride
Any thickened form of agent	Chloropicrin

b. Blister Agents	d. Riot Control Agents
Mustard	CS
Lewisite	CN
Any thickened form of agent	OC (Pepper Spray)

Protection against certain Toxic Industrial Chemicals (TICs) is also provided, including organic vapours with a boiling point over 65°C, chlorine, hydrogen sulphide, sulphur dioxide, and low level ammonia protection.



EFFECTIVENESS

Against Chemical and Biological Agents

The canister will meet the efficiency and adsorption capacity for CW agents as specified by NATO in A/C 225 (panel VII) D/103 (para IV.6-11).

Whilst the actual performance data achieved is classified, the following data gives a good indication of its performance against the classical test agents.

Threat	Protection Time
Nerve Agent	>175 mins
Hydrogen Cyanide	>40 mins
Cyanogen Chloride	>20 mins

The filter canister protection against particulate aerosols in accordance with NATO A/C 225 (Panel VII) D/103 para IV.4, using a salt aerosol method will be less than 1 in 105 for the particulate filter, and typically as low as 1 in 10⁶ (the canister is designed to achieve not greater than 0.003% penetration of dioctylphthalate aerosol when challenged at 85 l/min airflow rate).

The performance of the canister is, of course, dependent upon the actual concentration encountered. However, the GPCF50 will, in a typical NBC scenario, give a multi attack capability.

DESCRIPTION

Construction materials

- a) The canister body is made of a modified polyphenylene ether - polystyrene blend which is a high quality engineering construction polymer. It provides a very robust product which is extremely durable against shock and impact in operational use.
The canister body is black in colour.
- b) Gas adsorption is by activated charcoal granules impregnated with metallic salts of copper, zinc molybdenum and silver to react chemically with hydrogen cyanide and cyanogen chloride.
Protection against physically adsorbed gases such as the nerve agents ("G" and "V" series), mustard gases, phosgene and chloropicrin is fully effective (see overleaf).
- c) The high efficiency filter element is made of PTFE, PET/PE fibres.
- d) The GPCF50 is entirely non-ferrous and non-magnetic

Specification

Dimensions	Weight	Thread
113 mm diameter x 58mm height	<280 g	40 mm to NATO STANAG 4155 and EN148-1

PACKAGING

Each canister is packed to MIL-B131H Type 1 Class 1 in a foil bag.

The filter is packed into boxes containing 4 filters.

ADDITIONAL OPERATIONAL CONSIDERATIONS

The external surface of the GPCF50 is easily decontaminated.

The filter canister can be changed under all operational conditions in 9 seconds.

PERFORMANCE

Breathing resistance

45mm of water @ 85 l/min

Environmental

The materials used and the method of construction of the filter canister were designed for operation and storage in accordance with NATO Document AC 225 (panel VII)/D103. The filter canister retains its operational effectiveness and efficiency with no degradation to its performance under the following environmental conditions:

a) Temperature -15°C to 55°C

Tested in a wide range of environmental conditions by military forces.

The filters have been exposed to high ambient temperatures as part of a long running materials evaluation programme, without harmful effects.

b) Humidity range - 0% to 95% RH

The filter has been tested in high humidity environments and has found to be effective both in the laboratory and on human subjects under operational conditions.

c) Rain

The filter will retain its effectiveness in heavy rainfall conditions and it is not prone to water ingress.

d) Salt Breeze

The filter will not deteriorate with exposure to salt breezes for 24 hours.

e) Sand and Dust

The filter will not deteriorate when exposed to 24 hours of wind driven sand and dust conditions.

Shelf life

The predicted shelf life of the filter canister (sealed and packaged) is 10 years.