



# TECHNICAL SPECIFICATIONS

NSN: 4240-16-001-8255

## OF-90 NBC+

### COMBINATION PROTECTIVE FILTER

- ✓ 10 years shelf life
- ✓ Civilian version of the army filter
- ✓ Capture of chemical warfare agents
- ✓ Very durable material



Chromium free

Compact size

Extremely low breathing resistance

**A2B1E1P3**

#### NOTICE:

The filter must not be used in an explosive atmosphere and with an oxygen concentration in the ambient atmosphere below 17%!

#### The OF-90 NBC+ combination filter complies with the requirements of standards EN 14387:2021

In combination with a suitable chemical protective mask, the **OF-90 NBC+** filter forms a perfect protection of the individual against organic gases and vapours of organic substances with a boiling point > 65 °C, inorganic gases and vapours, sulphur dioxide, hydrogen chloride and other acid gases and vapours. Other chemical substances and their compounds are listed on the website of SIGMA Výzkumný a vývojový ústav, s.r.o. (Research and development institute).

The particulate filter part of the combination filter removes harmful solid and liquid particles, biologically solid and liquid aerosols, radioactive aerosols, dusts, bacteria and viruses from the passing air.

The **OF-90 NBC+** filter can be used in the army, police and special rescue units, fire brigades, employees of different industries, also for vulnerable population in adjacent areas and last but not least, in hospitals and laboratories.

#### DESCRIPTION

The **filter body (1)** is made of a special, highly durable Noryl™ plastic, which is extremely resistant to shocks and damage during use. It is black and has a matte finish.

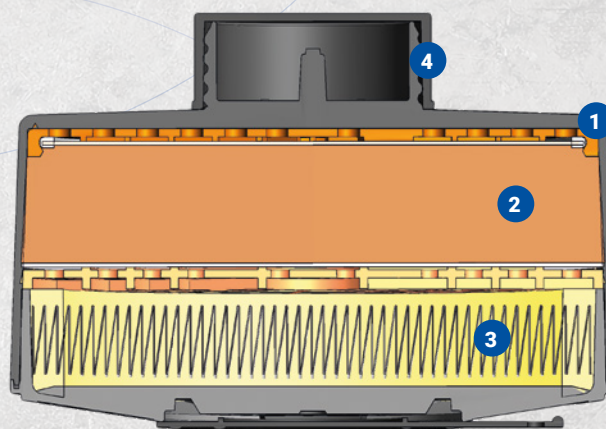
Gas adsorption is ensured by **active carbon (2)** with chemical impregnation, without chromium content, with metal salts Cu, Ag, Zn and other compounds that ensure the elimination of toxic gases.

The physical sorption of gases is ensured by the high specific surface of the sorbent with an area of up to 1500 m<sup>2</sup>/g.

The highly efficient **filter element (3)**, meeting the standard EN 143:2021 is made of a special hydrophobic filter material of the HEPA14 class, which is characterized by excellent filtration efficiency while maintaining extremely low breathing resistance.

The **filter thread (4)** Rd 40x1/7" meets the EN 148-1:2018 standard.

The **OF-90 NBC+** filter is non-metallic and non-magnetic.



- 1 – filter body; 2 – active carbon; 3 – filter element;  
4 – filter thread



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## SPECIFICATION

Parameters	
Diameter x Height	110 × 73mm
Weight	287 g
Thread	Rd 40×1/7"
Body shape	standard

## PERFORMANCE

### Respiratory resistance

- < 95 Pa at 30 l/min
- < 350 Pa at 95 l/min

### Permeability

Capture rate of dust, aerosol, bacteria and viruses of at least 99.95 %.

## EFFICIENCY

Examples of efficiency against gaseous substances, according to the NATO standard and EN 14387 are shown below.

Test gas		Test concentration (ppm)	Penetration time (minutes)
HCN	Hydrogen cyanide	1000	> 35
C <sub>6</sub> H <sub>12</sub>	Cyclohexane	5000	> 40
Cl <sub>2</sub>	Chlorine	1000	> 30
SO <sub>2</sub>	Sulphur dioxide	1000	> 30
ClCN	Chlorocyan	1200	> 50
H <sub>2</sub> S	Sulfan	1000	> 60
COCl <sub>2</sub>	Phosgene	2500	> 45
CH <sub>2</sub> Cl <sub>2</sub>	Dichlormethane	5000	> 30
CHCl <sub>3</sub>	Chloroform	5000	> 40
C <sub>6</sub> H <sub>5</sub> CH <sub>3</sub>	Toluene	5000	> 45

Please note that the penetration time is given for standard laboratory test conditions and does not determine the actual time of real use of the filter. THESE TIMES MUST BE TAKEN AS INDICATIVE AND CANNOT BE relied on! The actual period of use must be verified on the basis of an assessment of the risk of the likely hazards present in the area of intended use. In addition, it is necessary to take into account the gas concentration, the

presence of other gases, the effect of temperature, the direction and speed of the wind flow, the rate of breathing, the performance of strenuous activity and other circumstances.

The resistance time (performance) of the filter itself is mainly dependent on the actual concentration of the given gaseous substance in the specific conditions of use.

## SCOPE OF APPLICATION

### Temperature -30 °C to 70 °C

The filters were exposed to high and low ambient temperatures without harmful effects.

### Humidity 0 % to 95 % RH

The filter retains its production properties in a wide range of humidity thanks to the hydrophobic material of the filter element, which does not transmit moisture to the sorbent/active carbon.

### Rain

The filter retains its efficiency even in heavy rain conditions and is not prone to water ingress.

### Sand and dust

The filter is resistant to sand and dust, but due to the gradual clogging of the pores of the filter element during inhalation, the respiratory resistance has an increasing tendency. If breathing becomes difficult, replace the filter.

## STORAGE

The materials used and the method of construction of the filter were designed so that they retain their functionality and efficiency when stored in the original packaging.

The expected shelf life of the filter (closed and packaged) is 10 years when stored at -10 to +50 °C and < 95 % relative humidity.

