

PRODUCT TECHNICAL DESCRIPTION

Respirator SpurTex® V100 FFP2 NR made from nanostructured filtration material SpurTex® PP – product for protection of human respiratory system against solid particles, bacteria, and viruses

Product Description

Single-use respirator classified as FFP2 NR (according to EN 149:2001+A1:2009) made of unique nanostructured filtration material **SpurTex® PP** provides effective and active protection of human respiratory system especially in the capture of ultrafine particles in size from 20 to 400 nm, i.e. including viruses with size from 30 to 150 nm.

Construction and Used Materials

Respirator SpurTex® V100 FFP2 NR is produced by ultrasonic welding technology. The pair of elastic loops and a thin nose metal clip ensure that the respirator is fixed on face perfectly and comfortably fits on the nose.

Construction is convex type without exhalation valve.



Standard colour version is both-sides white.

Maximum dimensions in packed state (mm)	Thickness (mm)	Weight (g)
115x 165	2-4	5,8-6,8

Respirator SpurTex® V100 FFP2 NR is made of special 5-ply **SpurTex® PP** filtration material of which outer layers are based on polypropylene non-woven textiles and inner active nanofiber filtration membrane made from PVDF (polyvinilidenfluoride) polymer by special state-of-art technology based on electrospinning of conductive polymer solution. Respirator SpurTex® V100 FFP2 NR is free of highly brittle borosilicate glass microfibres sometimes used in standard respiratory protective equipment which have negative ecological and especially health impacts (small sharp needle-shaped particles possibly split off during their usage have potentially carcinogenic effect).

Nanofiber filtration polymer layer is tightly fixed between outer layers which guarantees reasonable mechanical properties of the final product and eliminates damage of ultrafine polymeric nanofibers during manipulation and using.

Based on expert opinions, outer layers which are in contact with skin (PP non-woven textiles) are free of any significant skin irritants.

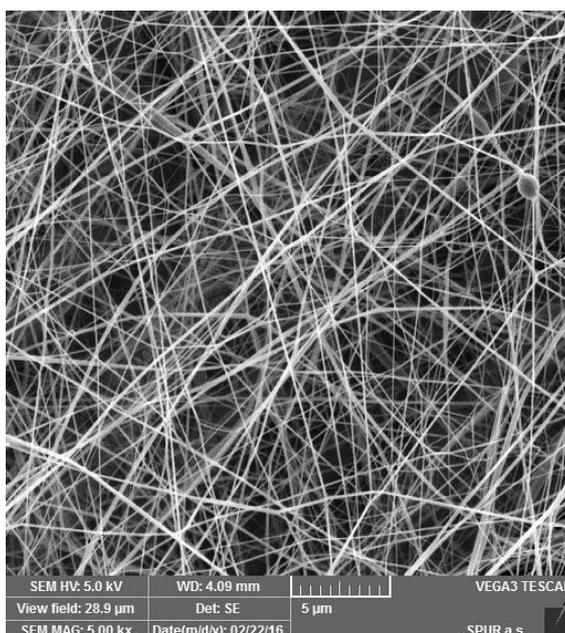
Material Specification

Material **SpurTex® PP L2 V1** from which the Respirator SpurTex® V100 FFP2 NR is produced fully meets EN 149:2001+A1:2009 requirements for filtration half-masks against particles and is categorized as FFP2 NR. However, unique nanofiber filtration layer of material **SpurTex® PP L2 V1** has outstanding filtration efficiency in the ultrafine particles area (20–400 nm) and thus, it is ideal for capturing of all sorts of bacteria or viruses (SARS-CoV-2 virus has real size between 80 and 150 nm). Moreover, these filtration properties are reached at ultralow pressure drops which significantly increases Respirator SpurTex® V100 FFP2 NR breathing comfort and simultaneously decreases leakage between the respirator edge and face which further eliminates possible risk of unwanted particles or microorganisms penetration through this area.

Classification respirator SpurTex® V100 FFP2 NR according to EN 149:2001+A1:2009

Description	Class	Initial NaCl aerosol penetration at 95 l.min ⁻¹ (%)	Concentration of CO ₂ in exhalation air (vol. %)	Respiratory resistances						
				Inhalation resistance		Exhalation resistance at 160 l.min ⁻¹ at head position				
				at 30 l.min ⁻¹ (Pa)	at 95 l.min ⁻¹ (Pa)	forward (Pa)	down (Pa)	up (Pa)	on the left (Pa)	on the right (Pa)
Norma EN 149	FFP2	1–6	max. 1%	70	240	300	300	300	300	300
SpurTex® V100 FFP2 NR ¹	FFP2	1,60-1,81	0,34-0,38	48-51	160-169	256-264	249-257	255-262	253-260	255-263

¹Measured on three samples of the respirator at the Research Institute of Occupational Safety (RIOS) testing laboratory accredited Czech Accreditation Institute according to EN ISO/IEC 17025:2018 (testing protocol no. 495/2020 which was used for certification protocol no. VUBP/058/2020).



Typical nanostructure of SpurTex® PP L2 V1 filtration material (SEM microscope, magnitude 5000x).

Technical Parameters

Use	single-use (NR)
Ergonomic shape	yes
Fixation	two elastic loops on sides for fixation around ears
Exhalation valve	without
Protection class	FFP2
Filtration efficiency/capture	capture aerosols, dust, smog, or pollen particles, effectively blocks particles with size of 80–150 nm (viruses)
Meets standard EN 149:2001+A1:2009	yes
Medical harmless	yes (based on expert opinions for all components)

Risk Analysis

Respirator SpurTex® V100 FFP2 NR protects user against solid (dust, smoke) as well as liquid (droplets including bacteria and/or viruses) aerosols.

Usage		Important information
Cutting, drilling, painting	Cement	In the case of silicone dioxide particles, respirator FFP3 must be used
	Wood	
	Steel	
	Coating	
	Varnishing	
	Anti-corrosion coating	Respirator for special purpose may be required
Sprayed oil at low temperatures		
Soldering		In some countries FFP3 class may be required – see national rules
Work with glass and mineral fibres		
Waste sorting		Respirator for special purpose may be prioritized Mask with filters against gases or vapours may be required
Spraying	Paint spraying	Mask with filters against gases or vapours may be required
	Pesticides (water diluted)	
Allergy	Grain dust	
	Pollen	
Contact with:	Moulds/fungi	FFP3 class is normally required. However, unique SpurTex® PP nanofiber membrane of respirator SpurTex® V100 FFP2 NR effectively captures particles of 30–150 nm in size (viruses)
	Exhaust gases/smoke	
	Bacteria/viruses	

Note: This table provides basic information only. It should not be used as the sole source for respirator choice. Details on functional properties and limitations are given on the respirator package and in the user manual. Before using the respirator, the user must read and understand the instructions for use of the product. Local regulations must be complied. Please note that these uses indicate some of the risks that may be considered. The selection of the most appropriate respiratory protective equipment (ROP) depends on the specific situation and is always carried out exclusively by a qualified worker familiar with the actual working conditions and limitations of respiratory protective equipment.

Risk Assessment

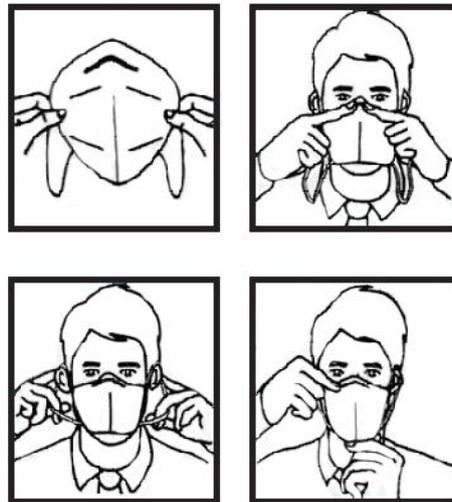
Respirator SpurTex® V100 FFP2 NR made of **SpurTex® PP** filtration membrane is classified as single-use product. The recommended usage is for medium levels of fine dust particles and water- or oil-based aerosols which usually occur at work with plasterboard, cement, at grinding, and work with wood sawdust. However, due to its unique filtration properties of ultrafine particles (20–400 nm), it is possible to use it also in microbiologically contaminated environment (bacteria/viruses). Nevertheless, in this case, its filtration properties are kept up for very limited time only, based on the contamination level. In such environment, significant number of dangerous microorganisms can be concentrated on the nanofiber filter and thus, it is necessary to change it frequently. Nanofiber filtration structure has no antibacterial or antiviral treatment.

Instruction for Use

Respirator as well as its package must be visually checked before use. In case of any damage, do not use.

Respirator SpurTex[®] V100 FFP2 NR must cover nose and mouth. Its fixation is ensured by two elastic ear loops and thin metal clip on the top of the mask which must be shaped by fingers around nose ridge.

Respirator SpurTex[®] V100 FFP2 NR provides no protection against gases. Oxygen amount in the environment where respirator is used must be at least 17%.



Standard use of respirator is limited on one shift (8 hours) only. However, in case of use in strongly microbiologically active environment (bacteria/viruses), based on the contamination level, this time can be significantly shortened due to significant concentration of bacteria/viruses on the special nanofiber filter.

Washing or ironing the Respirator SpurTex[®] V100 FFP2 NR is not recommended.

Product is declared as single-use however, in necessary cases (e.g. lack of respiratory protective equipment at epidemic or pandemic situations) during work in strong microbiologically active environment (bacteria/viruses) it is possible to sterilize it by germicidal (UV-C) lamps and use it repeatedly (3–5 times) when emergency. Other methods of sterilization at time of emergency are necessary to be discussed with the producer. Sterilization by hot steam is not recommended.

It is necessary to wear the Respirator SpurTex[®] V100 FFP2 NR on smooth (i.e. shaven) face only. Beards prevent from flawless fixation on face and thus significantly decrease filtration efficiency.

Producer does not guarantee listed filtration properties of the Respirator SpurTex[®] V100 FFP2 NR which is mechanically damaged (e.g. during transport or manipulation).

Respirator SpurTex[®] V100 FFP2 NR cannot be used in explosive environment.

Respirator in the original package can be stored for at least 5 years at temperatures of 10–30°C and humidity of maximum 50%. This is allowed due to special innovative solution based on primarily mechanical not electrostatic capturing of solid particles/microorganisms by nanofiber filtration membrane SpurTex[®]. Filtration efficiency of filtration materials based on electrostatic capturing (typically melt blown non-woven textiles) can significantly decrease in time.

Detailed instructions for use in language of the country where the respirator is placed on the market are attached to every single package.

Packaging

5, 10, 20, 50 pieces in polyethylene bag, 500 or 1000 pieces in original paper box (or possibly according to the agreement with customer).

Marking of the product:

Respirator SpurTex[®] V100 FFP2 NR, producer: SPUR a.s.

Convex type without exhalation valve in FFP2 NR class (single-use).

Categorized according to standard EN 149:2001+A1:2009.

Lifetime 10 years, storage at temperatures of 10–30°C and humidity of max. 50%. Expiration date is declared on each package. Do not store on sunlight.



10 years



10–30°C



max. 50%

Expiration date must be checked before use.

For proper use please read instructions for use attached to each package.

Disposal

Contaminated respirators SpurTex[®] V100 FFP2 NR must be disposed as dangerous waste in accordance with local regulations.

Notice

Producer has no liability (responsibility), either directly or indirectly, for any damages caused by incorrect application or use of respirator SpurTex[®] V100 FFP2 NR.

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