

TECHNICAL DATA SHEET

Nano Face Mask from nanostructured filtration material SPURTEX® PP, respiratory protective equipment against particles, bacteria, and viruses.

PRODUCT DESCRIPTION

Single-use Nano Face Mask SPURTEX® PP made of a unique nanostructured filtration material SPURTEX® PP provides an effective protection of respiratory system. The mask captures ultra-small particles of size 20–400 nm, including viruses of size 30–150 nm.

CONSTRUCTION AND USED MATERIALS

The Nano Face Mask SPURTEX® PP is produced using ultrasonic sewing technology. Its fixation on face is ensured by a pair of elastic ear loops and a thin metal belt which enable comfortable touch on nose.

Standard colour of Nano Face Mask SPURTEX® PP is both sides white or both sides black. Other colour versions are available upon request.



Approximate dimensions (mm)	Approximate thickness (µm)
175 x 90	400–500

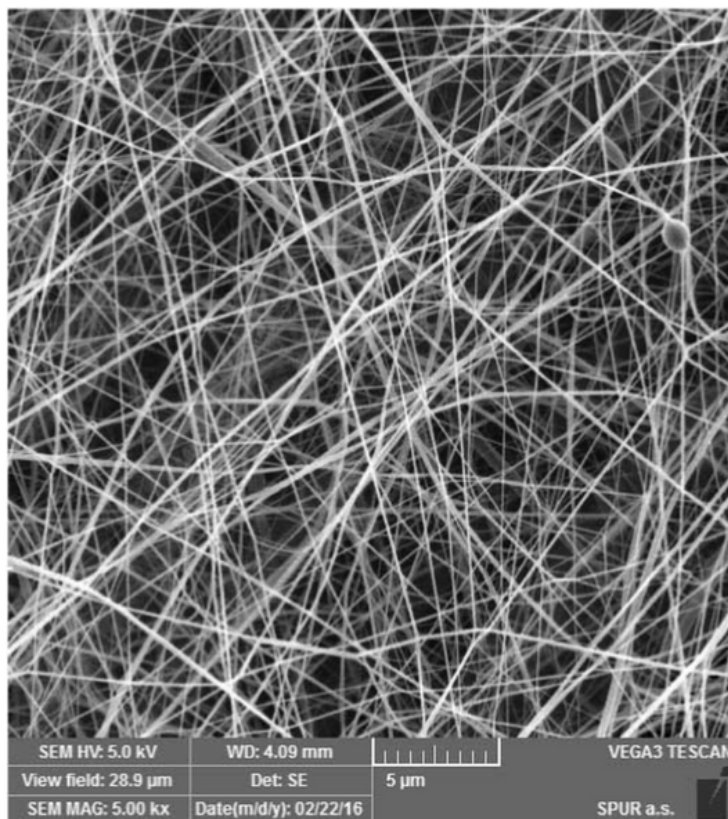
The Nano Face Mask SPURTEX® PP is produced from a material SPURTEX® PP which is a special four-ply fabric made up of polypropylene nonwoven textiles and specially developed active nanofiber filtration layer from PVDF polymer (polyvinylidene fluoride). The nanofiber membrane is produced by unique technology based on electrospinning of conductive polymer solution. The Nano Face Mask SPURTEX® PP is free of highly brittle borosilicate glass microfibers 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 fixed between outer layers which guarantees reasonable mechanical properties of the final product and eliminates damage of ultrafine polymeric nanofibers during manipulation and use.

Based on expert opinions, polypropylene based outer layers (non-woven textiles) are free of any significant skin irritants and are safe to use on skin.

MATERIAL SPECIFICATION

Filtration material SPURTEX® PP L2 V11 from which the Nano Face Mask SPURTEX® PP is produced meets EN 149:2001+A1:2009 requirements for filtration half-masks against particles and it can be classified as FFP2. However, unique nanofiber filtration layer of material SPURTEX® PP L2 V11 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 is of real size between 80 and 150 nm). Moreover, these filtration properties are reached at ultralow pressure drops which significantly increases breathing comfort while wearing the face mask and simultaneously decreases leakage between the respirator edge and face which further eliminates possible risk of unwanted particles penetration through this area.



Typical nanostructure of SPURTEX® PP L2 V11 filtration material
(SEM microscope, magnitude 5000x).

USE

The Nano Face Mask SPURTEX® PP must cover nose and mouth. Its fixation is ensured by two elastic loops around ears and by thin metal belt on top of the mask which can be easily shaped around a nose ridge.

The Nano Face Mask SPURTEX® PP made from filtration material SPURTEX® PP L2 V11 is classified according to EN 14683:2019+AC:2020 as a medical face mask meeting the quality requirements for type II and anti-splash certification for surgical procedures, type IIR.

Classification of Nano Face Mask Spur SPURTEX® PP according to EN 14683:2019+AC:2020

Description	Type	Bacterial Filtration Efficiency (%)	Pressure resistance (Pa.cm-2)
Norm EN 14683	II	≥ 98	< 40
Nano Face Mask SPURTEX® PP1	II	99,73	39,95

1 Measured at testing laboratory HygCen (AT) accredited by AA (Akkreditierung Austria) according to EN ISO/IEC 17025:2018 (Test report No. B24819 issued on 22nd June 2020).

Due to its unique filtration properties of ultrafine particles (220–400 nm), i.e. high filtration efficiency with low pressure resistance, the Nano Face Mask SPURTEX® PP can be used in microbiologically contaminated environment (bacteria/viruses) also for the protection of its user. In this case the filtration properties are guaranteed for a limited time only depending on the level of contamination. In such contaminated environment a significant number of hazardous particles (bacteria, viruses) can be captured in the special nanofiber filter after 3-8 hours of use and the Nano Face Mask SPURTEX® PP must be changed frequently. Nanofiber structure has no anti-microbiological treatment.

It is not recommended to wash or iron the Nano Face Mask SPURTEX® PP.

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.

The Nano Face Mask SPURTEX® PP provides no protection against gases.

To increase the Nano Face Mask's tightness on skin, it is possible to stick the edges by an adhesive tape on face. It is necessary to apply the face mask on a clean, smooth (i.e. shaved) skin. Beards prevent from flawless fixation on face and thus significantly decrease filtration efficiency.

Producer does not guarantee listed filtration properties of the Nano Face Mask SPURTEX® PP which is mechanically damaged (e.g. during transport or manipulation).

PACKAGING

Small single package (individual packaging) contain 50 pieces in a polyethylene (PE) bag. Bulk packaging in paper box contains 1000 pieces. The boxes can be placed on pallets. Packaging can be modified according to customer's requirements.

Lifetime of the product is 5 years while keeping storage temperatures 10–30°C and maximum humidity 50%. Expiration date is declared on every single package. Do not store in direct sunlight.

Expiration date must be checked before use.

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



5 years



10–30 °C



max. 50 %

STORAGE

Polymer materials of which the nano face mask is produced (i.e. polypropylene – PP, polyvinylidene fluoride – PVDF) are generally very stable to degradation (deterioration of functional properties) caused by ambient gases (especially oxygen and ozone) and by humidity and thermal stress within the common laboratory temperatures. These materials are less resistant when exposed to UV light for a long time.

Storage areas must be without sunlight and other sources of UV light. It is also necessary to secure the storage area from insect and other animals. Packed face masks cannot be stored together with chemicals, sprays, fertilizers, contaminated materials, or other biologically dangerous materials which can express even minimal level of risk of contamination.

During a long-term storage of bulk packages of face masks, the packages must be stored on certified wooden EU pallets. The packaging must be properly secured by binding tapes to avoid a fall of boxes during manipulation. The face masks cannot be repacked or store individually without outer paper boxes. This could significantly shorten the lifetime of the face masks.

According to customer requirements it is possible to ensure 10 years lifetime due to special packaging. The material stability is guaranteed while keeping defined storage conditions and mechanically inviolate special bulk packaging. This packaging contains vacuum barrier foil based on ethylene vinyl alcohol (EVOH), or aluminium vaporized layer which together with directed crystallinity and orientation of polymer chains decrease diffusion coefficient. This packaging of face masks must also contain a pack with silica gel for damp absorption.

Persons which manipulate with packed Nano Face Masks SPURTEX® PP must be properly trained and during transport and manipulation (whole logistic process) must ensure and guarantee such transport conditions which are mentioned in the section “Storage”.

DISPOSAL

Contaminated Nano Face Masks must be disposed as a hazardous waste in accordance with local disposal rules.

WARNING

The manufacturer takes no direct or indirect responsibility for any damages caused by incorrect application or use of Nano Face Masks.

Issue date: 10th July 2020