

PROVEIL® Overview

Proveil® is a proprietary new filtration media developed by Bioinicia (patent pending), leaders in the field of nanofibers for health and medical applications. Proveil® addresses the shortcomings of existing face mask materials in the fight against COVID-19. Most face masks used today are based on meltblown polypropylene fibers, sandwiched between spunbond nonwoven layers. Their effectiveness at filtering small airborne particles relies on electrostatic surface charges, which attract and capture these particles from the air as it passes through the filter. This electrostatic filtering effect only works when the mask is dry and quickly wears off during use, as humidity in the breath eliminates the electrostatic charge. It is for this reason that spunbond/meltspun/spunbond (SMS) filters are not suitable for extended wear and should be replaced every 4 hours.

Proveil® is different. An extremely thin layer of nanofibers, with diameters more than ten times smaller than conventional meltblown fibers, provides highly effective filtration for small airborne particles with no reduction in efficiency over time. The larger surface area and smaller pore size within the Proveil® filter maximizes the likelihood of the particles being stopped by the fibers without relying on electrostatic attraction. Proveil® filters are even designed to allow washing and sterilization, so can be used all day, cleaned and then worn again.

Key properties of Proveil®

- Nanofiber filtration layer with pore size more than 10 times smaller than conventional materials, sandwiched between protective spunbond nonwoven layers (spunbond/nanofiber/spunbond).
- Effectively captures respirable airborne particles including viruses whilst maintaining good breathability for wearer comfort.
- Filtration performance does not degrade over time or when exposed to humidity.
- Designed to allow washing and steam sterilization.
- Proveil® filter material is extremely thin and lightweight and yet can be safely used for days instead of hours, without loss in performance.
- Available in rolls for face masks, respirators, or replaceable filter inserts.

TECHNICAL DATA SHEET PROVEIL® GRADE B

Spunbond/Nanofiber/Spunbond (S/NF/S) composite layer structure that can be used in high filtration efficiency applications as filter material for face masks and respirators or for replaceable filter inserts. Material is manufactured under ISO 9001 & 13485.

All material tests were performed according to the EN149 by the certified organisation AITEX, Spain

Attributes & Properties

Color	White
Basis Weight	61 grams / m ²
Thickness	0.35 mm
Efficiency (test area 53 cm ²)*	0.90 % penetration (0.3 µm paraffin oil at 95 l/min)
Breathing resistance (test area 53 cm ²)*	
Inhalation at 30 l/min	0.88 mbar
Inhalation at 95 l/min	4.19 mbar
Exhalation at 160 l/min	6.86 mbar

* Breathing resistance and filtration efficiency decrease with increasing filter area.

Roll Format

Inside Core Diameter	76 mm
Roll Diameter	250 mm
Roll Length	246 m
Roll Width	480 mm (460 mm usable area due to ultrasonic edge-bonding of 1 cm on each side)
Packaging	PE bag, 1 roll / bag
Roll Labeling Information	Product name: Proveil Grade B
Minimum order quantity	4,520 m ² (40 rolls, 1 pallet)