

**SPURTEX**<sup>®</sup>  
NANOTECHNOLOGY

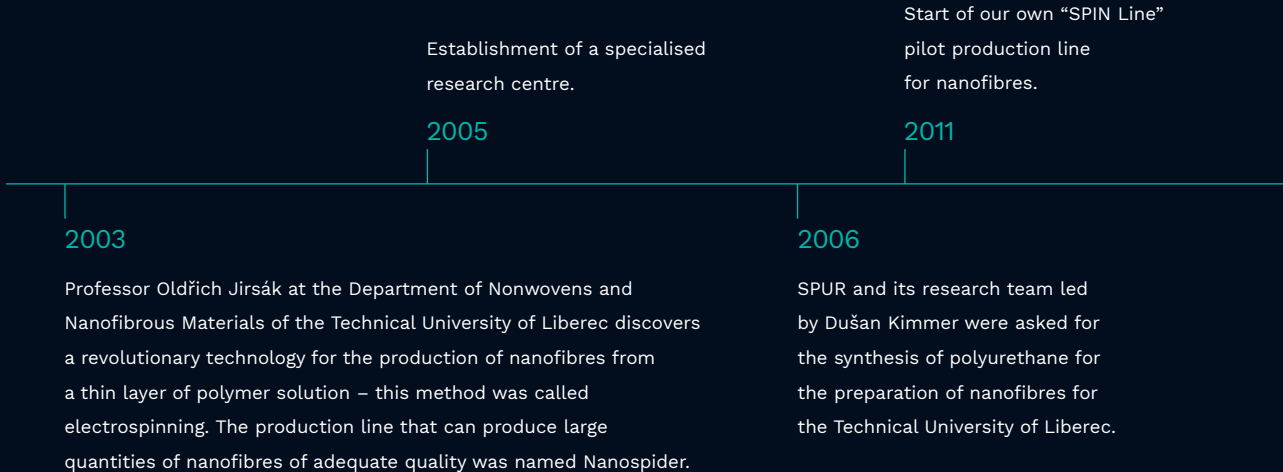


## About SPUR a.s.

SPUR a.s. is a family business that has been manufacturing plastic products since its establishment in 1992. Its production is based on own research and development activities, which reflect customer requirements and demand for new properties of plastics, including polymers. At present, SPUR a.s. has 240 employees and in 2019 it reached a turnover of more than CZK 1 billion. More than 70% of SPUR a.s. production is exported.



# NANO history of SPUR a.s.



2012

Participation in the NANOTECH 2012 trade fair in Japan, where the company presented the SPIN Line and for the first time its own filter materials with SPURTEX® nanostructures.

2013

Registration of a trademark for the SPURTEX® filter material containing nanofibres.

2014

The first small-batch production of the SPURTEX® filter material.

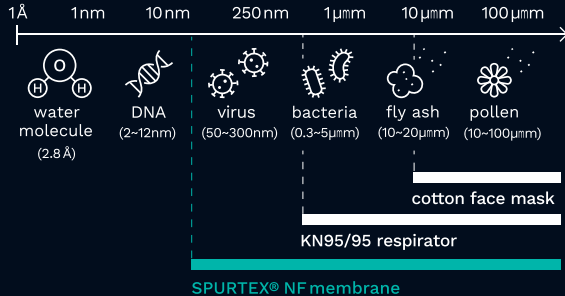
2016

SPUR is intensively engaged in research and development activities for the application of nanomaterials for various industrial uses.

2020

Start of large-scale production of SPURTEX® for filters, masks and respirators.

# SPURTEX® V305 FFP3 NR



The raw material used in the production of all SPURTEX Air Filter Medical Facemasks and Respirators is a multi-layered air-filter/mechanical two-way barrier manufactured with patented Nanofiber materials. (SPURTEX®) All Facemasks and respirators are manufactured with high air-filter performance and low air-leaks. The Nanofiber Mechanical Barrier is a two-way barrier that provides full protection both to the wearer and from the wearer. Nanofibre filters provide unique and effective protection of the respiratory system,

especially in the area of ultrafine particles with a size of 20–400 nm, including viruses such as Covid19 Coronavirus with a size of 30–150 nm. Conventional Facemasks including FFP3 Respirators are certified to pick up ultrafine particles with sizes 150–400 nm.

SPURTEX® does not use either Copper or Silver Oxid in the manufacturer of any of its facemasks or respirators, it is considered this method of producing Nano facemasks or respirators to be unsafe.



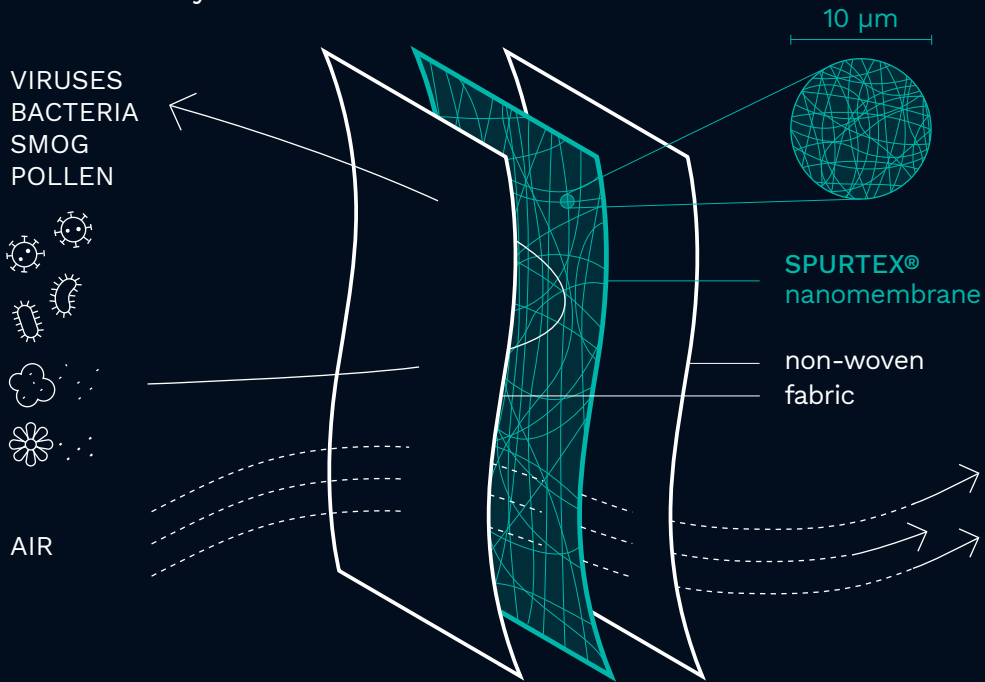
The unique SPURTEX® nanostructured material is developed and manufactured by SPUR a.s., a leading Czech expert in nanotechnology. The SPURTEX® nanofibre filter membrane forms a mechanical barrier with exceptional filtration capabilities. It prevents the penetration of harmful particles, which makes it particularly suitable for healthcare use. SPURTEX®, when used in masks or respirators, is extremely effective in protecting the wearer as well as others, as it has much smaller pores than the size of undesirable particles like smog, bacteria, aerosols, and even viruses.

Efficiency

95–99%\*

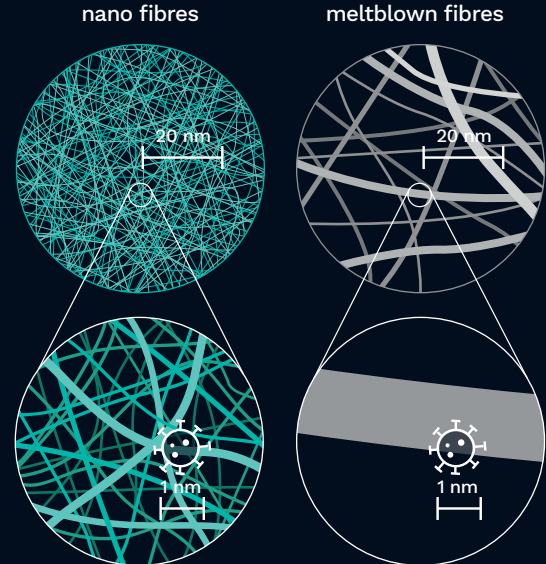
\*depending on the filter class of the materials used

# Functional filter layer



## What is a nanomaterial?

Nanofibre materials are textile products with a fibre diameter of less than 1 micrometre ( $\mu\text{m}$ ) = 1000 nanometres (nm). One nanometre is  $10^{-9}$  metres. It cannot be seen without an optical aid. By comparison, human hair is about 75,000 nanometres in diameter. Nanofibre has a thousand times larger surface area than, for example, microfibre. Nanofibre materials are characterized by high porosity. To improve the mechanical properties of the fibres, they are applied to a base material, usually polypropylene, which is created using the spunbond technology, or in the case of SPURTEX® VS also to natural viscose.



# Reliable protection against microbes



## NHS requirements (prerequisites)



Mask covers the nose and mouth and the chin and can be produced with or without exhalation valve



The mask consists entirely of filter material



Respirators are packaged in such a way that they are protected against mechanical damage and contamination before use



The mask has 2 elastic straps (non-adjustable) that go around the head and neck



We are ISO 9001 compliant

## SPURTEX® V305 FFP3 NR options



TWO SIZES: L AND M (and respected differences)

HEADSTRAP OR EARLOOPS

WITH OR WITHOUT BREATHING VALVE

# TECHNICAL DATA SHEET



property	test method	unit	nominal values for SPURTEX® PP materials L3V2 for nanofiber SPURTEX V305 and V325 FFP3
mass per unit area	EN ISO 9073-1	g/m <sup>2</sup>	68–75
thickness	EN ISO 9073-2	µm	0.4–0.5
bacterial filtration efficiency (BFE)*	EN 14683	%	≥ 99.9
Filtration efficiency (NaCL, 360 nm)**	EN 149 (EN 13274-7)	%	≥ 99.9
Filtration efficiency (NaCL, 150 nm)**	adapted from EN 149	%	≥ 96.7
Pressure drop (30l/min, 3.4 m/min)**	EN 149	Pa	70–80
Pressure drop (95l/min)**	EN 149	Pa	220–250
Pressure drop (160l/min)**	EN 149	Pa	270–290
Viral Filtration Efficiency (VFE)*	adapted from ASTM F2101 (EN 14683)	-	≥ 99.9
Particle filtration efficiency (PFE, 0.1 µm)*	ASTM F2299	-	≥ 99.9

\* Measured by Nelson Labs in USA

\*\* Decided on internal laboratory standards (ILS)

Pending certification for EN 1492001+A1:2009 in Notified body no. 2233, Hungary Estimated approval 7. 2. 2021

## CERTIFICATION



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