



**FORTUNE CORE**



**FORTUNE CORE**

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Nanotechnology

Making our world a more beautiful place





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## COMPANY PROFILE

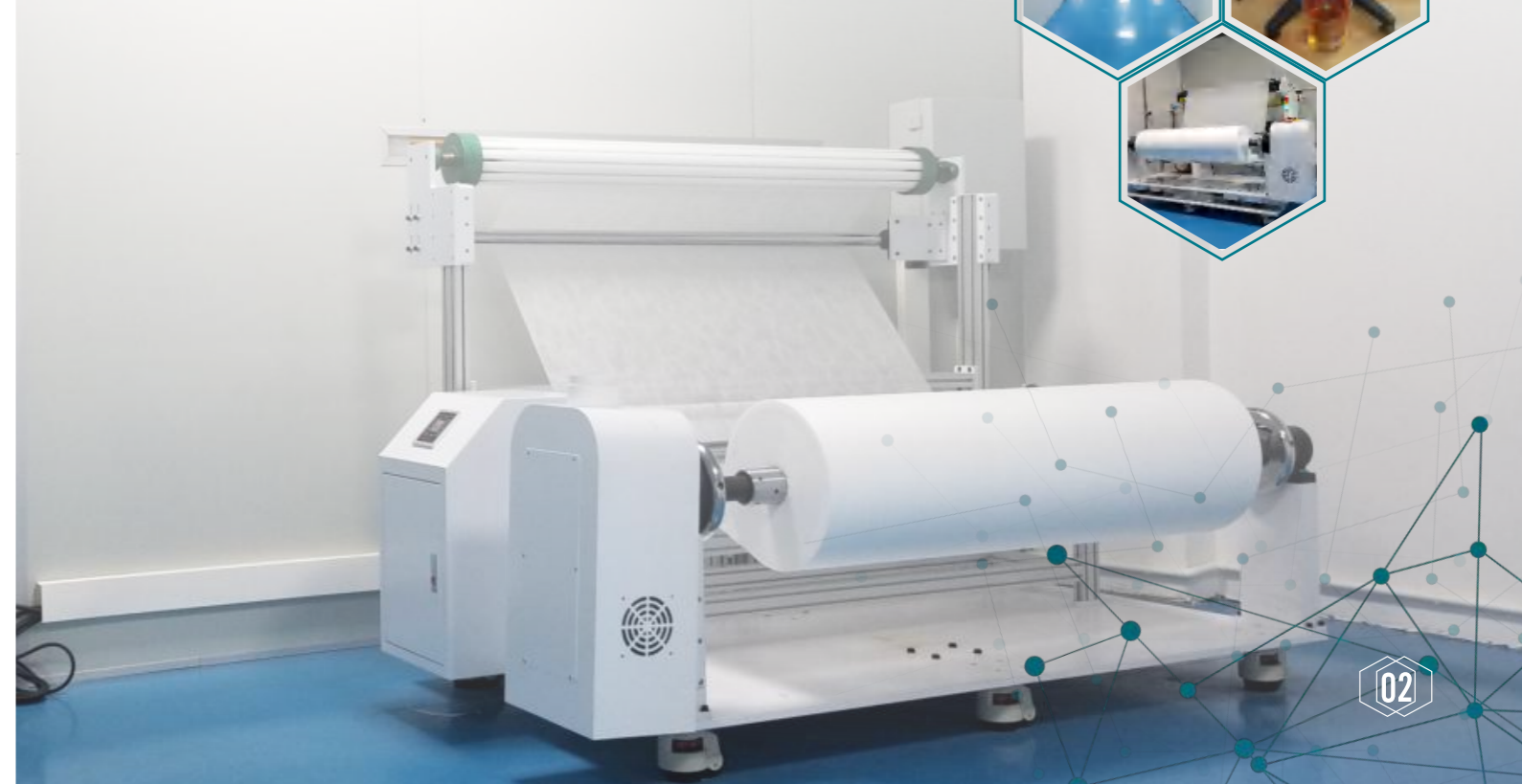
Since 2007, the founders of Shenzhen Fortune Core Technology Industry & Trade Co., Ltd. (SFCTIT) have been dedicated to the development, production, and improving performance of various wire materials, such as coils, voice coils, enameled wire, nanofiber filtration materials and nano sterilization materials. Benefit from our trusted experience, our team is committed to providing extensive and versatile portfolio of wire materials that address the widest range of applications for our customers.

In 2017, we built a research and development team to embark on a new strategic effort to develop nano fiber electrospinning technology. Our goal was to advance new applications for electrospinning technology and bring their designs from the laboratory to the manufacturing of large-scale production of washable nanofiber air filter replacements, nanofiber window screens, and washable nanofiber filtered protective mask, etc.

Beginning In 2020, we made the decision to increase our nanofiber production capacity and began to further concentrate on virus and dust filtration and air purification. We expanded our product line to include individuals and well as the expansion of industrial applications. Comparing to traditional filter media materials, our nano fiber materials are characterized by their lower resistance, higher efficiency, washable and reusable qualities which can be widely used in face masks, window screens, air conditioners, air purifiers, fresh air systems and other related filtering products.

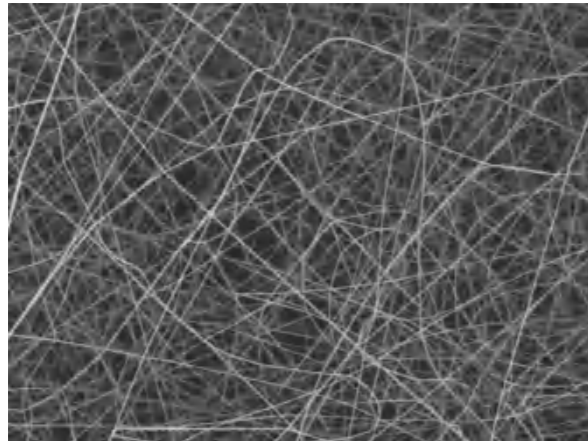
During the pandemic, we continually made more high-quality respirators and personal protective equipment than ever before to frontline workers, with the support from both government and commercial health organizations. Currently, our research and development team is actively engaged in designing more solutions for personal and home use, including HVAC, clean room and filtration for other medical applications.

Our mission is to help you to improve your products, reduce your business risk, help you improve your business, not just to sell you a product. We will always strive to invest our time and expertise.





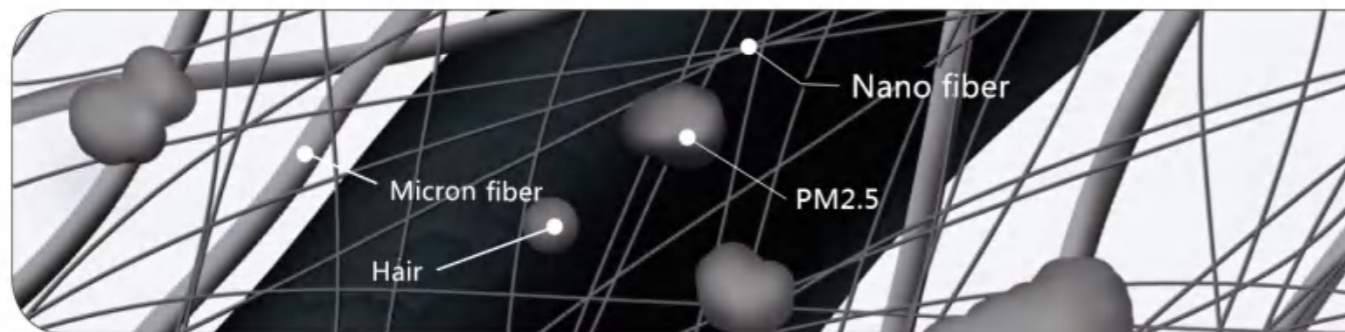
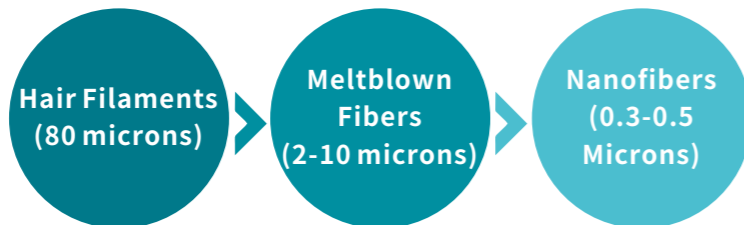
# Overview of Nanofiber Media



As one of the world's top fiber material authority, Fortune Core's R&D team always strives to integrate nanofibers into a full range of consumer products used in commerce, such as protective face masks, skin beauty masks, window screen, air purifier filter, clothing, sanitary and so on.

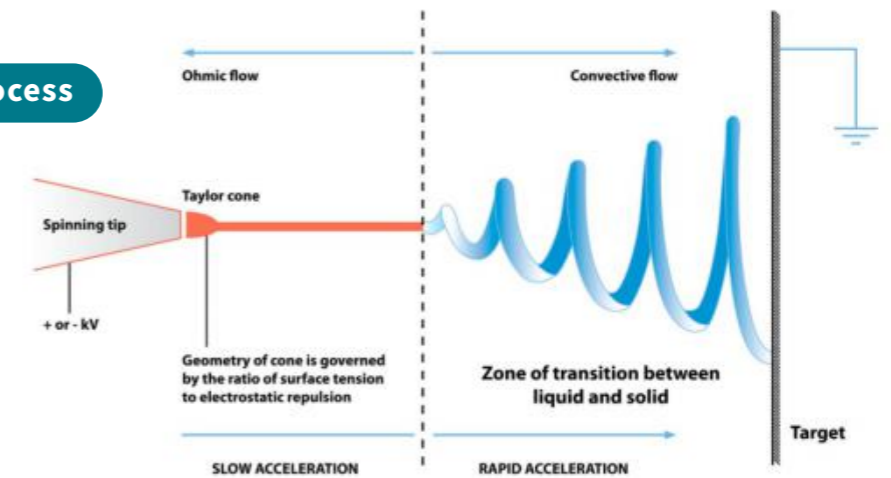
## Nanofiber Technology

- Electrospinning is a fiber production method.
- By controlling electric field and stretching the charged filament bundle of polymer solution,
- 300-500 nanometer diameter fibers are obtained.
- Nanometer is the unit of measurement. 1 micron = 1000 nm

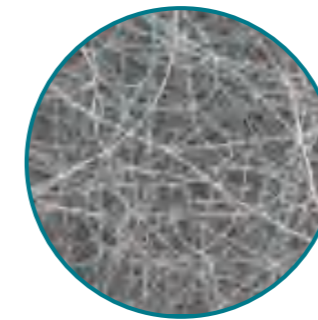


Nanofibers dense mesh can intercept particles of various sizes.

## Electrospinning Process



## Characteristics of Nanofiber



- **Small fiber aperture**  
The net is more dense, intercepting smaller particles
- **High porosity**  
Higher air permeability
- **High physical interception rate**  
Higher filtration efficiency, longer life

## Application of Nanofiber

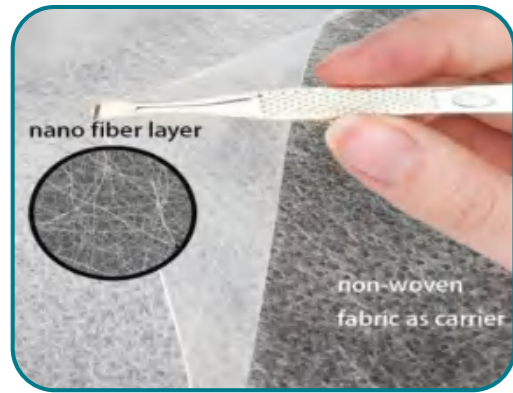
Nanofiber product diversifications can be achieved by adjusting formula ingredients, and by changing the nanofiber materials itself used in various products.

- **Air Filtration Industry**  
Mask/Filter element of air purifier / Window screen
- **Beauty Industry**  
Nano facial mask
- **Textile Industry**  
Baby diapers/sanitary pads
- **Medical Industry**  
Band aid





# Application of Nanofiber in Mask - N Series Nanofiber Media



## Solutions

Apply nanofiber media to respiratory masks instead of meltblown media to obtain superior performance

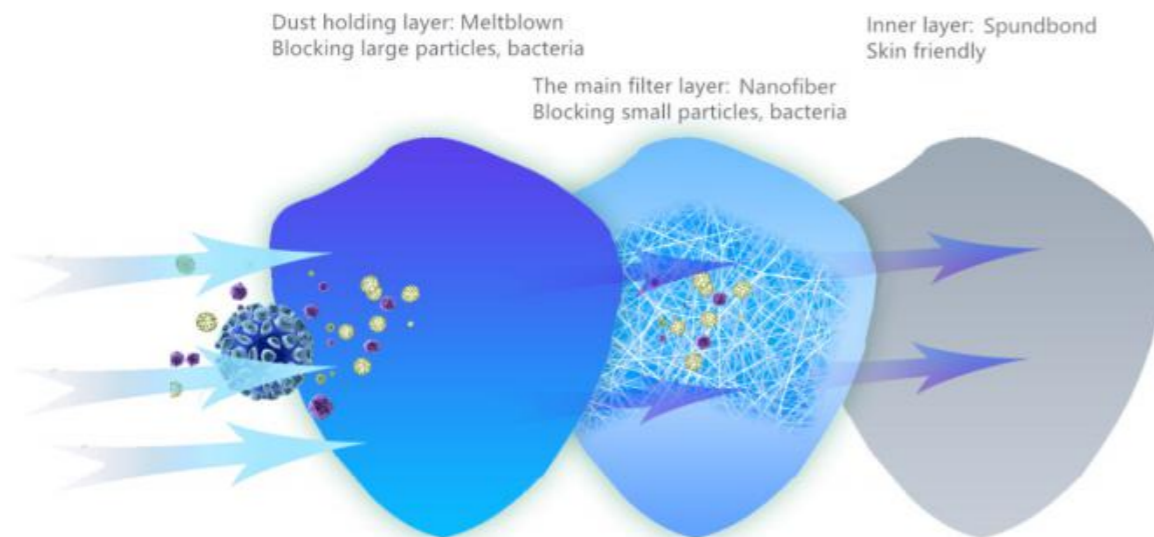
- ☑ Better filtration efficiency, block PM2.5, bacteria, viruses more efficient
- ☑ Lower resistance, more comfortable and breathable
- ☑ Washable, reusable, more eco-friendly



## Facemask Standards for N Series of Nanofiber Media

- America NIOSH Standards (Title 42 CFR Part 84)
- China GB2626-2019
- ☑ N90 / N95 / N99 / N100
- ☑ KN90 / KN95 / KN100

## The Structures of Compositd Nanofiber Media



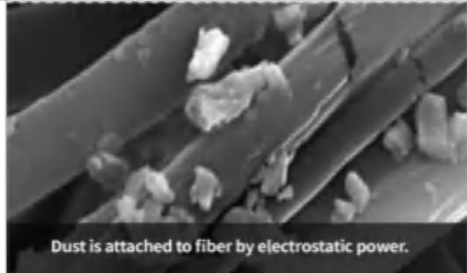
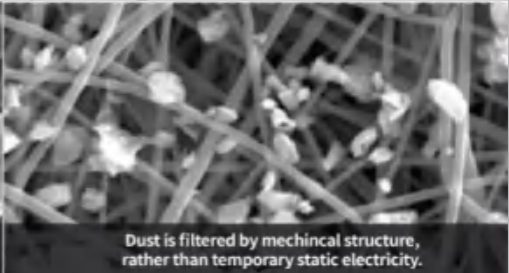
## Filter Efficiency and Resistance N Nanofiber Media

Model	Weight	Test Conditions	Air Flow	Filter Efficiency	Resistance
N95/KN95 Nano fibers	52g	Nacl 0.3µm Particulate	85L/min	>97%	<80Pa
N99 Nano fibers	57g			>99.5%	<105Pa
N100/KN100 Nano fibers	57g			>99.97%	<135Pa

## The advantages of N Series Nanofiber Media

- ☑ Higher breathability and filtration efficiency compared with commonly used meltblown
- ☑ High or low temperature-resistant during the pretreatment procedure
- ☑ Long life of using
- ☑ Washable, eco-friendly

## Parameters of N Series of Composite Nanofiber Media

Discriminate	Commonly sed meltblown	Nanofiber
Wire Diameter	3-10µm	0.3-0.5µm
Filter Principle	Electrostatic adherence	Mechanical
Filtrability	Coarse fibers can not effectively prevent small particles from flowing in	Nanofiber with small diameter and high density can block smaller particles µm 0.1
High efficiency	As the electrostatic effect weakens gradually, pollutants attached to the fiber can easily invade the respiratory system	Mechanical interception, not affected by static electricity, long life of materials, can be used for a long time
Breathability	Thick fiber, aperture, internal and external air conflict can enter less air, breathing difficulties	Superfine pores, solid structure, excellent permeability, comfortable use
Weight/M <sup>2</sup>	Heavier	Lightweight
SEM	 Dust is attached to fiber by electrostatic power.	 Dust is filtered by mechincal structure, rather than temporary static electricity.



# Application of Nanofiber in Mask - N Series Nano Mask

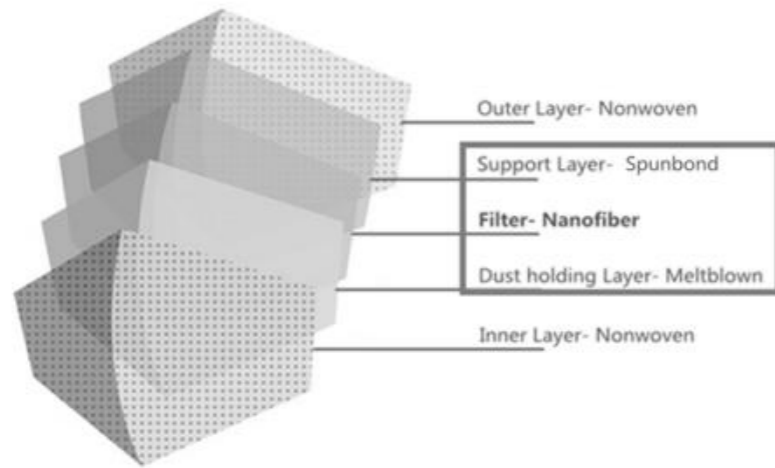


## Solutions

- ☑ N series of nano masks mainly meet the N95 particle test standards
- ☑ Nano patented products
- ☑ Applicable to Chinese and American markets
- ☑ Pretreatment / loading tests can meet the requirements of American NIOSH and National Standards.

## Face mask standards for N Series of Nanofiber Media

- America NIOSH Standards ■ China GB2626-2019 (Title 42 CFR Part 84)
- ☑N90 / N95 / N99/ N100 ☑KN90 / KN95 / KN100



Composited Nano Filter Media

## Filter Efficiency and Resistance of N Series Mask

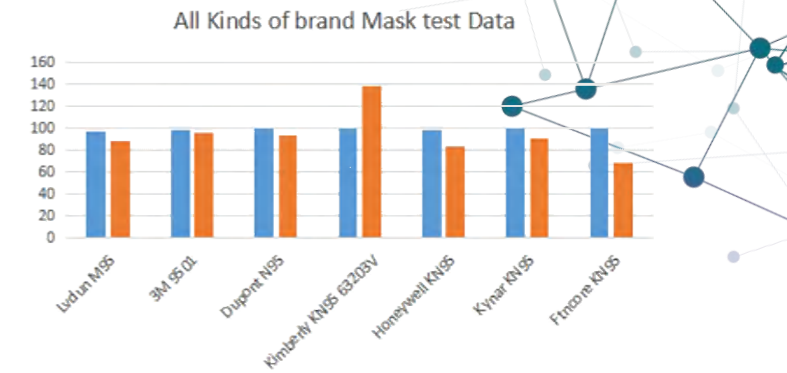
Model	Testing Conditions	Air Flow	Filter Efficiency	Resistance
N95/KN95	NaCl 0.3μm	85L/min	>97%	< 70Pa
N99			>99.5%	< 95Pa
N100/KN100			>99.75%	< 125Pa

\*\*Testing using United States TSI 8130A equipment

## High Breathability

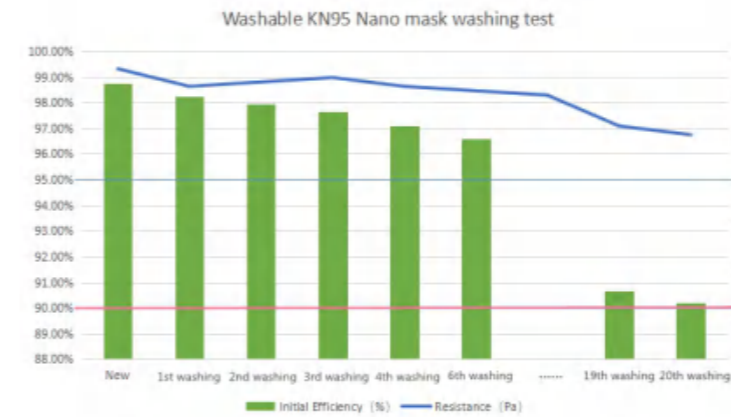
KN95 compared with other famous brands

Brand	Efficiency%	Resistance Pa
Lvdun M95	96.23	88
3M 9501	98.25	95
Dupont N95	99.35	93
Kimberly KN95 63203V	99.44	138
Honeywell KN95	98.51	83
Kynan KN95	99.79	91
Fortune Core KN95	99.66	68



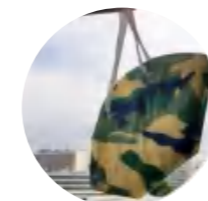
## Washable

Washable, reusable  
more eco-friendly

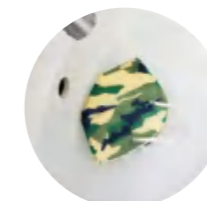


## Cleaning Procedure of Nano Mask

- 1 Clean the mask surface**  
Wash mask surfaces with running water  
To clean the large particles and dust on the surface of the mask
- 2 Clean the inside of the mask**  
Gently wash the inside of the mask with running water  
To Get rid of the smell of proteins that humans breathe



**4 Dried**  
Spray the inside and outside of the mask with alcohol  
To Sterilize with alcohol



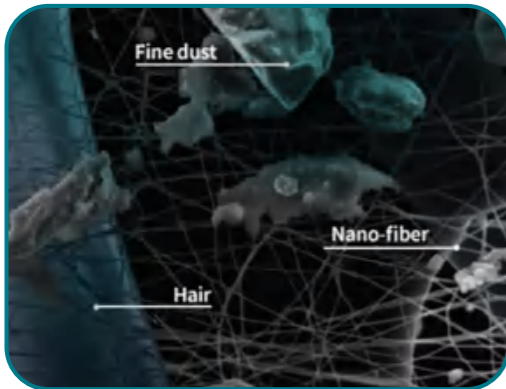
**3 Soak the mask**  
Soak the mask in clean water for about 10-20 minutes  
To thoroughly clean the inside and outside of the mask

# Application of Nanofiber in Masks -FFP Series Nanofiber Media



## Solutions

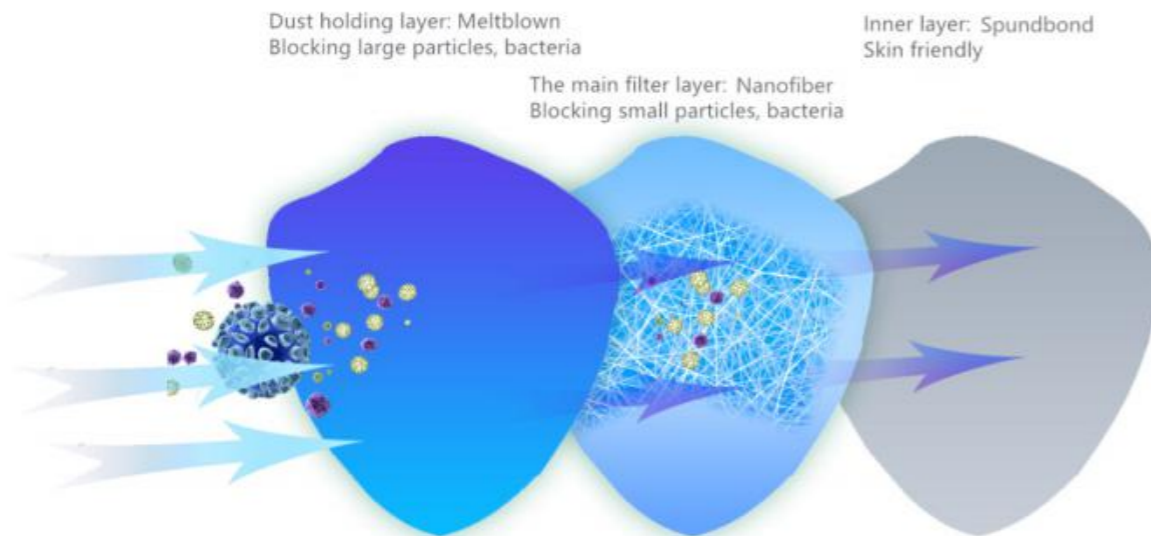
- Apply nanofiber media to respiratory masks instead of meltblown media to obtain superior performance
- ☑ Higher filtering efficiency and higher effective blocking of germs and virus
- ☑ Lower breath resistance, breathability for wear
- ☑ Washable, reusable and more eco-friendly



## The standards of the masks which FFP series nanofiber are applicable to

- ☑ EN149-2001+A1-2009
- ☑ FFP1 FFP2 FFP3

## The Structures of Composite Nanofiber Media



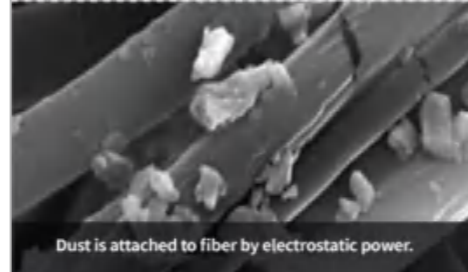
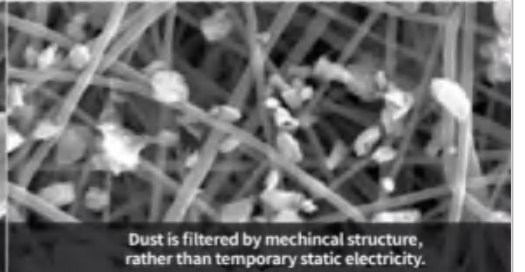
## Filtration Efficiency and Resistance of Nanofiber Media FFP Series

Model	Weight	Test Conditions	Air Flow	Filter Efficiency	Resistance
FFP2 Nanofiber	52g	DOP 0.3µm Pafticle	95L/min	>98%	<105Pa
FFP3 Nanofiber	57g			>99.9%	<135Pa

## The advantages of FFP Nanofiber Media

- ☑ Higher breathability and filtration efficiency compared with commonly used meltblown
- ☑ High or low temperature-resistant during the pretreatment procedure
- ☑ Long life of using
- ☑ Washable, eco-friendly

## Comparison of Nanofiber and Meltblown

Discriminate	Commonly Used Meltblown	Nanofiber
Wire Diameter	3-10µm	0.3-0.5µm
Filter Principle	Electrostatic adherence	Mechanical
Filtrability	Coarse fibers can not effectively prevent small particles from flowing in	Nanofiber with small diameter and high density can block smaller particles µm 0.1
High efficiency	As the electrostatic effect weakens gradually, pollutants attached to the fiber can easily invade the respiratory system	Mechanical interception, not affected by static electricity, long life of materials, can be used for a long time
Breathability	Thick fiber, aperture, internal and external air conflict can enter less air, breathing difficulties	Superfine pores, solid structure, excellent permeability, comfortable use
Weight/M <sup>2</sup>	Heavier	Lightweight
SEM	 Dust is attached to fiber by electrostatic power.	 Dust is filtered by mechanical structure, rather than temporary static electricity.

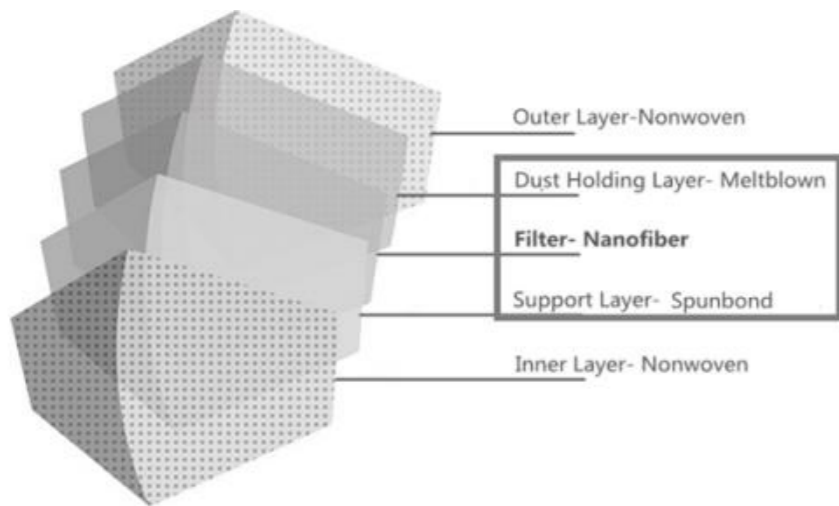
# Application of Nanofiber Media in Masks -FFP Series Nano Mask



## Solutions

**FFP series nanomasks meet or exceed the oil and NaCl particle resistance test standards:**

- Patented nano-tech products
- Applicable to EU and Korean markets. Suitable for foldable and cup masks.
- The pretreatment/loading test can meet the requirements of EN149 standard.



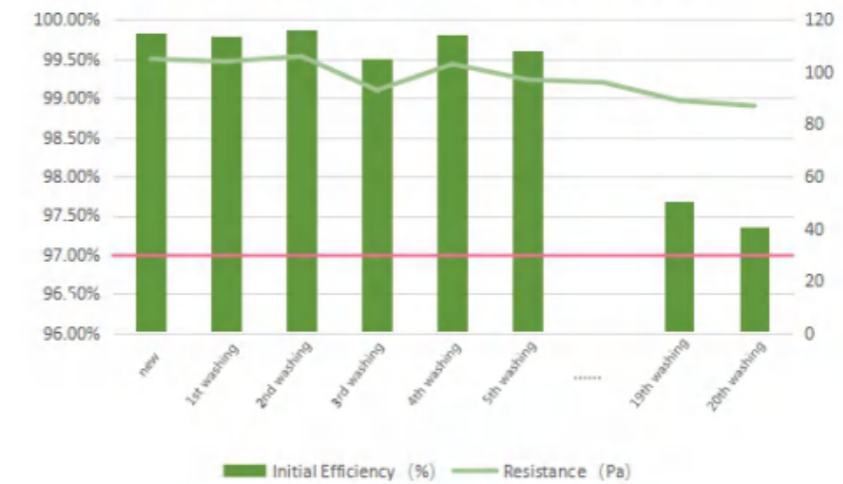
Composited Nano Filter Media

## Filtration Efficiency and Resistance of FFP Series Masks

Model	Test Conditions	Air Flow	Filtration efficiency	Resistance
FFP2 nano masks	DOP 0.3µm	95L/min	>98%	< 100Pa
FFP3 nano masks			>99.5%	< 125Pa

## Washable of FFP2 Mask

Washable FFP2 Nano mask washing test



## Third Party Test Reports



## What's the PLA?

It's produced from renewable feedstocks like corn, sugarcane, sugar beet and cassava. which is both biobased and biodegradable.

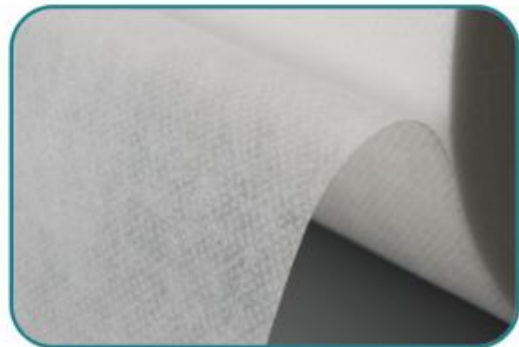


- ✓ Reduced carbon footprint
- ✓ Reduced dependency on fossil resources

It's a new generation of more sustainable and environmentally friendly materials.



## Application of Nanofibers in PLA Mask Bio Series Nanofiber Media

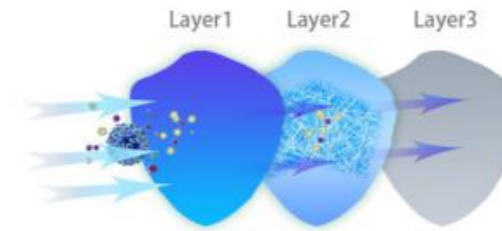


### Solutions

- Apply nanofiber media to PLA masks instead of PLA meltblown to obtain superior performance
- ✓ Better filtration efficiency, block PM2.5, bacteria and viruses more efficient
- ✓ Lower resistance, more comfortable and breathable
- ✓ Biodegradable, more eco-friendly made by advanced electrospinning technology
- Facemask Standards for BIO Series of Nanofiber Media
- ✓ EN14683 EN149
- ✓ GB32610 YY/T 0969



## The Structures of Compositd Bio Nanofiber Media





Layer1: PLA Spunbond  
 Layer2: Electrospun Nanofibers  
 Layer3: PLA Spunbond

## Filter Efficiency and Resistance of Bio Nanofiber Media

NO.	Model	Weight	Structures	Test Standard	Efficiency	Resistance
1	PLA-BFE95	52g	PLA SPB+Nano+PLA SPB	EN14683	BFE > 95%	< 40Pa
2	PLA-BFE98	52g		EN14683	BFE > 98%	< 40Pa
3	PLA-FFP2	62g		EN149	PFE > 98%	< 160Pa

## Comparison of Bio Nanofiber Media and PLA Meltblown

Discriminate	PLA Meltblown	Bio Nanofiber filter
Initial Filtration Efficiency	BFE95	BFE99/PFE99
Filtration Efficiency after pretreatment	BFE60	BFE98/PFE98
High temperature pretreatment	Badly deformed 	No impact 
Filter Principle	Electrostatic adherence	Mechanical
High humidity pretreatment	Electrostatic loss	No impact
Resistance	Slightly higher	Really low





# Application of Nanofibers in PLA Mask Bio Series Nano Mask

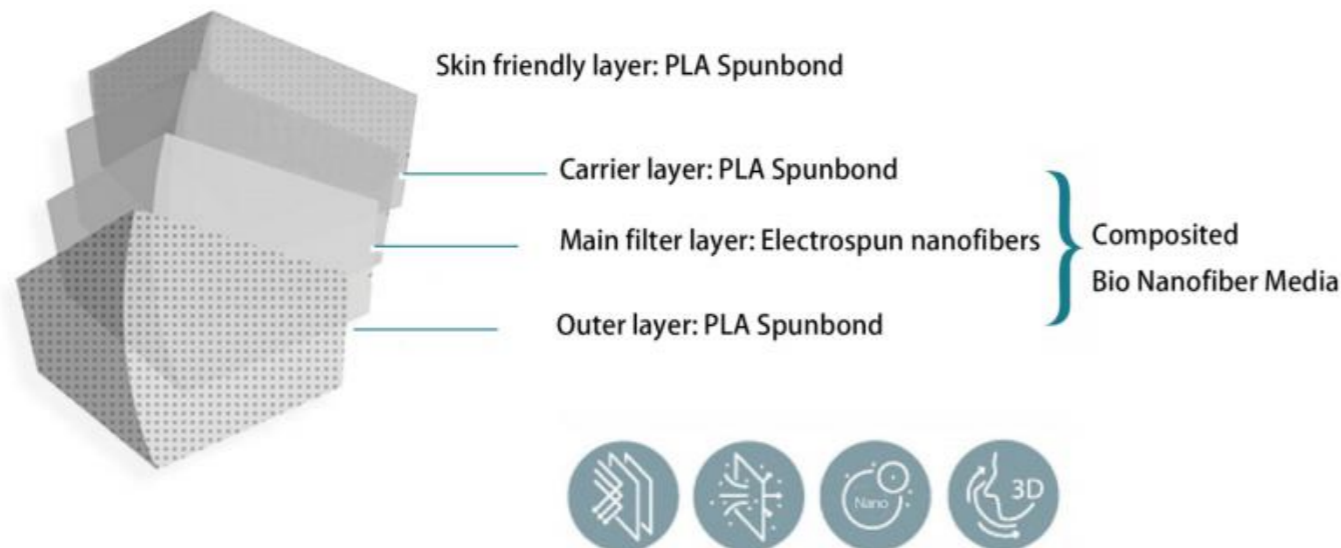


## Solutions

- Bio Series PLA Nano Mask won't be affected by high temperature or humidity
- ✓ Passed the CE standard pretreatment of 85% humidity
- ✓ Passed the GB standard pretreatment of 70°C high temperature/-30°C low temperature/85% humidity
- ✓ Bio Series PLA Nano Mask in line with the GB standard of degradable products which is compostable

## The Structures of Bio Nanofiber Mask

One layer of Fortunecore bio filter media could meet the requirements of filtration efficiency, you just need to add 1 layer of skin friendly PLA spunbond to manufacture the masks. That's why it is more breathable and cost-saving.



## Parameters of PLA nano Mask

Model	Mask Type	Test Standard	Efficiency	Resistance
Bio BFE95	Flat mask	EN14683	BFE > 95%	< 40Pa
Bio BFE98	Flat mask	EN14683	BFE > 98%	< 40Pa
Bio PFE98	FFP2/KF94; Foldable/Fish shaped mask	EN149	PFE > 98%	< 150Pa

## Third Party Test Reports

The Bio Series Nano Masks have passed both standard of CE and GB

EN14683 EN149 SGS GB32610 YY/T0969



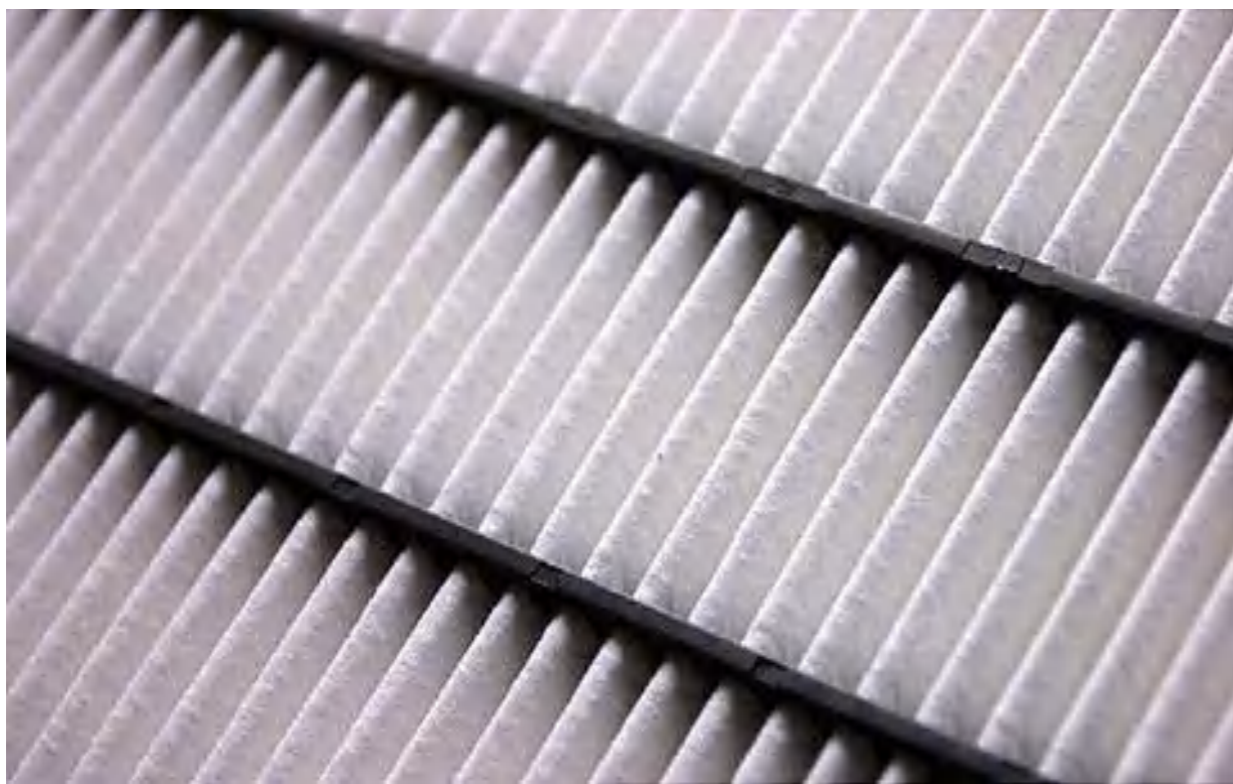
## The advantages of Bio Series Nano Mask

- ✓ Higher breathability and filtration efficiency compared with masks filtered by PLA meltblown
- ✓ High or low temperature-resistant during the pretreatment procedure
- ✓ Degradable and compostable, eco-friendly





# Application of Nanofiber in Filter -HEPA Nanofiber Filter



## Solutions

Nanofiber can be an effective replacement in auto filters and household air purifier filters due to their properties of high efficiency and low resistance.

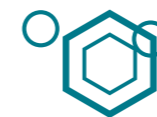
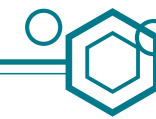
- ☑ High CADR value of particulate matter
- ☑ High CCM of particulate matter
- ☑ Washable, more environmentally friendly
- ☑ Resistance to high temperature and humidity

## Principles

Nanofibers and frames are integrated to make filters with different various specifications. meanwhile, anti-bacterial and anti-allergic substances can also be added to the nanofibers to enable the filters to have better resistance performance.

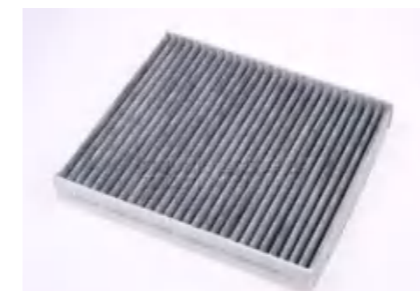
## Applicable Standards

GBT 18801-2015  
GBT 6165-2008



## Washable Nano Filter Replacement

Model	Weight	Filtration Efficiency(%)	Resistance (Pa)	Test Conditions
Nano-H10	65±3	≥90%	20±3	32L/min 100CM <sup>2</sup> NaCl,0.3μm
Nano-H11	65±3	≥95%	20±3	
Nano-H12	65±3	≥99.5%	20±3	
Nano-H13	65±3	≥99.97%	20±3	
Nano-H10-SL	70±3	≥90%	20±3	
Nano-H11-SL	70±3	≥95%	20±3	
Nano-H12-SL	70±3	≥99.5%	20±3	
Nano-H13-SL	70±3	≥99.97%	20±3	



Car Filter



Air Purifier Filter

# Application of Nanofiber Media -Window Screen



## Solutions

**Household:** Purifying the indoor air. Effectively filtering particulate matter (PM2.5), pollen, and germs for protection at home during the smog and pollen seasons.

**Commercial Use:** Hotel lounge area screen, restaurant table screen. The nano window screen can block germs, and the filtration efficiency is over 99%.

- ☑ Better light transmittance
- ☑ High filtration efficiency
- ☑ Low air resistance
- ☑ Washable, more eco-friendly

## Structural Principle

**Structure:** Wired netting + nanofiber + wired netting  
Nanofibers provide effective protection and high air permeability

## Applicable Standard

Grade II standard for Anti-smog window screen



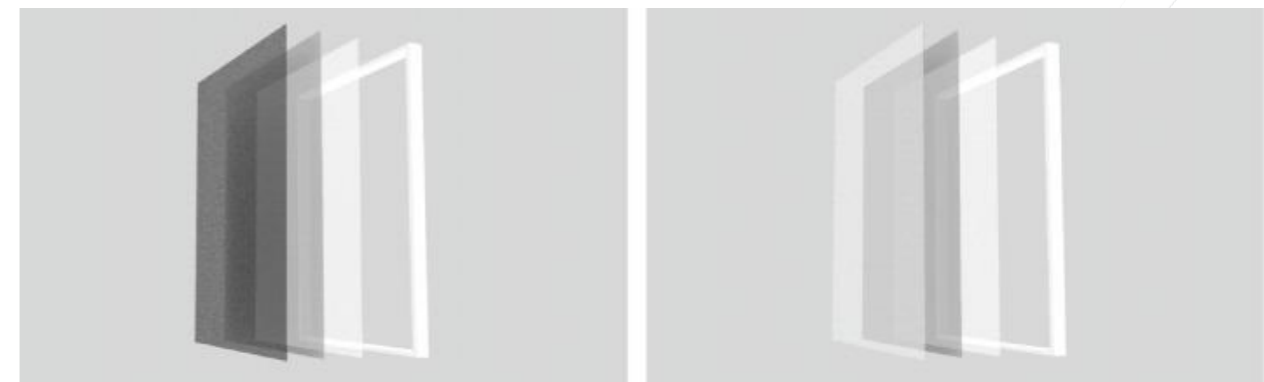
## Nano L Pinzun Series

0.3µm particulate matter filtration efficiency (%)*	2.5µm particulate matter filtration efficiency (%)**	Resistance (Pa) *	Light transmittance (%)***
70±10	70±10	8±5	45±10

\*TSI 8130 Standard Test \*\* Laboratory Standard Tester \*\*\* Integrating Sphere Transmittance Tester

## Pure White Prestige Series

0.3µm particulate filtration efficiency (%)*	2.5µm particulate filtration efficiency (%)**	Resistance (Pa) *	Light transmittance (%)***
70±10	70±10	8±5	60±10



## Characteristics of Nano Window Screen (Characteristics + Comparison)

Competitors	Technique	0.3µm Efficiency	PM2.5 Efficiency	Resistance	Transmittance
A	Porous membrane	0.80%	54.00%	22	40.50%
B	Static adsorption	0.00%	20.00%	0	53%
C	Static adsorption	5.20%	37.00%	0	31%
D	Nanotechnology	4.65%	28.00%	1.5	22%
E	Nanotechnology	15.00%	59.00%	18	9%
Fortune core	Nano L	70.00%	98.50%	15	60%
Fortune core	Nano S	55.00%	71.00%	6	50%



# Application of Nanofiber in Skin Care Products - Nano Facial Mask

## Solutions

**Turning the mask essence into nano-grade solid fibers, as a change to traditional mask industry.**

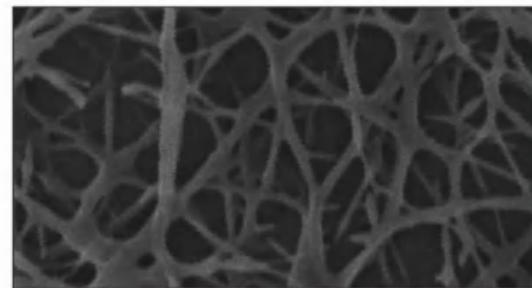
- High purity, no preservatives and no additives
- Portability
- Operation convenience and time-saving
- Nano fibers permitting faster permeability

## Principle

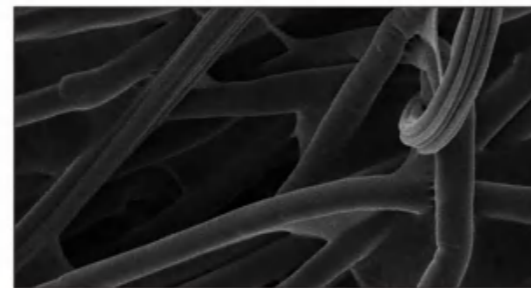
High-quality essence substances such as collagen peptide, fibroin, sodium hyaluronate, VC and nicotinamide are mixed together to make 500nm fibers under the electrospinning process, compacted into net in a solid state. When exposed to water, they dissolve quickly.



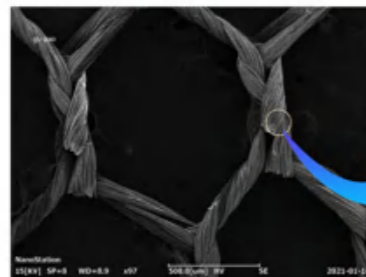
## Structure Comparison of Nano Facial Mask



SEM x25,000 times  
The line diameter of our nanofiber beauty mask essence is 0.3µm



SEM x1,500 times  
The line diameter of traditional beauty mask essence is 10µm



SEM x100 times  
Observing the carrier mesh of nanofiber beauty mask after it dissolved in water



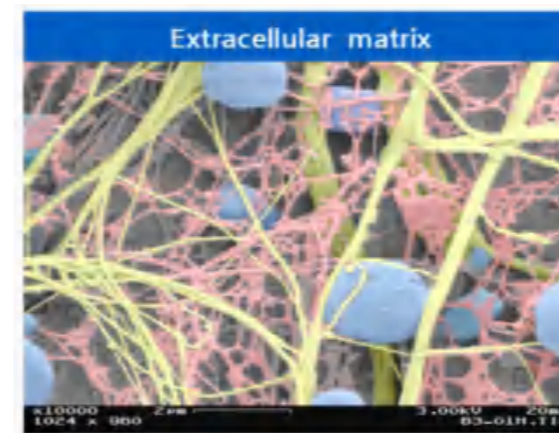
Partially x 1,000 times  
The line diameter of our nanofiber beauty mask is less than 0.1µm

- ☑ The diameter of the pores in face skin is about 2 µm
- ☑ Traditional beauty mask with diameter of 10 µm is hard to absorb to skin
- ☑ Nano facial mask with diameter of 0.1 µm is much easier to absorb

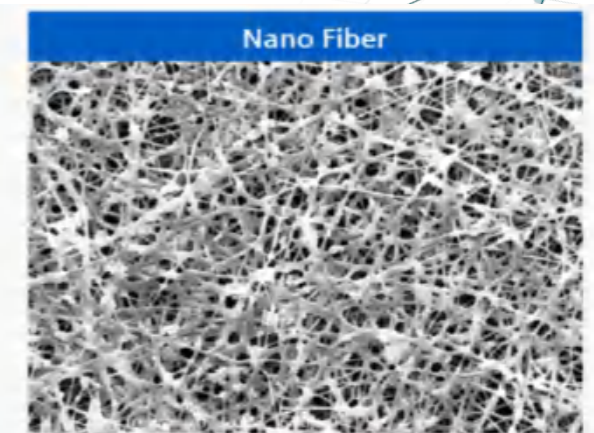


## Facial Mask Series

Series	Composition	Function
Moisturizing nano mask	Collagen, silk fibroin and hyaluronic acid, etc.	Moisturizing the skin and leaving the skin tender and smooth, with ultra-small molecules penetrating into the corium layer of skin
Brightening nano facial mask	VC, nicotinamide, and collagen	Improving the skin recovery ability, brightening the skin and relieving skin fatigue through a scientific proportion of composition.



Note nerves and nerve bundles (yellow), extracellular supporting matrix (red), and ganglion cells (blue).



Structure extremely similar to the extracellular matrix of biomimetics

The adhesion and water retention are excellent as it is extremely similar to the skin structure of human being.

## Comparison of Nano Facial Mask and Traditional Facial Mask

Mask Material	Essence Diameter	Essence Absorptive Capacity	Essence Absorption Qualities	Degree of Fit	Antiseptic Content	Absorption Rate
Non Woven Fabric	> 10µm	Easy dripping	3-5 times	Bad fit	High	Low
Natural Silk	> 10µm	No dripping	Over 8 times	Perfect fit	Low	Low
Sol-gel	> 10µm	Only attached to the surface of the carrier	No more than surface area	Good fit	Low	Low
Nanofiber	0.3 µm	Spinning the essence into nanofibers	The whole mask itself	Anti-stretching when it's dry Perfect fit when it's wet	None	Maximum