OUTSTANDING NEW MATERIALS
AIR FIBER MATTRESS

NINGBO OUTSTANDING NEW MATERIAL CO., LTD.
ADDRESS: NO. 79, WEISAN ROAD, BEILUN, NINGBO
ZIP CODE: 315803
WEBSITE: WWW.JIECHUXCL.COM
PHONE: 0574-56215718

NINGBO OUTSTANDING NEW MATERIAL CO., LTD

COMPANY PROFILE

Ningbo Outstanding New Material Co., Ltd. originated from the spinning project team of Ningbo Huaye Material Technology Co., Ltd., founded in 2004.

In 2009, we introduced three air-fiber production lines and became the first domestic manufacturer of air fiber in China.

In 2012, our products were exported to Nishikawa Co., Ltd. in Japan and entered more than 150 Ito-Yokado supermarkets. Since then, markets in South Korea, Southeast Asia, Taiwan, Hong Kong, and other regions have also been opened.

In 2015, the company jointly established a Mattress Core Laboratory with Dow Chemical, achieving major progress in improving process quality and reducing production costs.

We hold multiple inventions and utility model patents, including “3D-printed air-fiber filament” and “deionized-water cooling forming process.” The company is capable of compounding and processing a wide range of polymer materials such as EVA, POE, PE, TPU and TPEE.

Our advancements have enabled the development of innovative air-fiber core materials for industries including home textiles and furniture, medical mattresses, pet products, elderly-care products, and infant and children’s products.

Airnice 空气丝®
杰出新材料

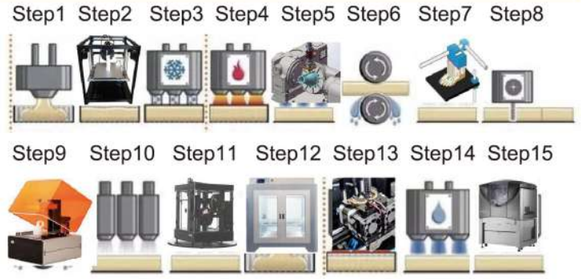
Research and Development

- Close cooperation with Ningbo Institute of Materials Chinese Academy of Sciences

- We are researching mattress core materials by cooperating with world-renowned technology companies like Dow

Original Shaping Technology

3D - Print Reticulum Tech



1. Formulation Generation 2. Extrusion Stretch Yarn 3. Draft Stretch Yarn 4. Silk Diameter Setting
5. Thickness Setting 6. Density Setting 7. Water Cooling Setting 8. Air Cooling Setting
9. Rough Cutting 10. Drying 11. Fine Cutting 12 . Heating
13. Finished Product Shaping 14. Molding 15. Packaging+ clean" .

Deionized Water Cooling Tech

The Outstanding air fiber molding process involves 15 steps, including high-temperature sterilization at over 200 degrees Celsius and deionized water cooling to shape the elastic air fibers. It meets food-grade hygiene standards, maintains its elasticity for a long time, and will never attract insects. This creates a mattress core material that combines "scientific support + breathability + cleanliness" in one.

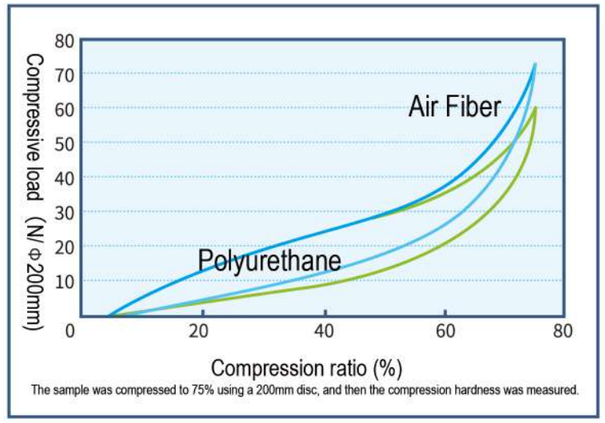
Our Mission, Vision and Values

- Outstanding mission: to manufacture outstanding mattress core materials.
- Outstanding vision: every piece of mattress in the world use our core materials!
- Outstanding values: conformity of profession and conduct, win-win and sharing.

Airnice 空气丝®
杰出新材料

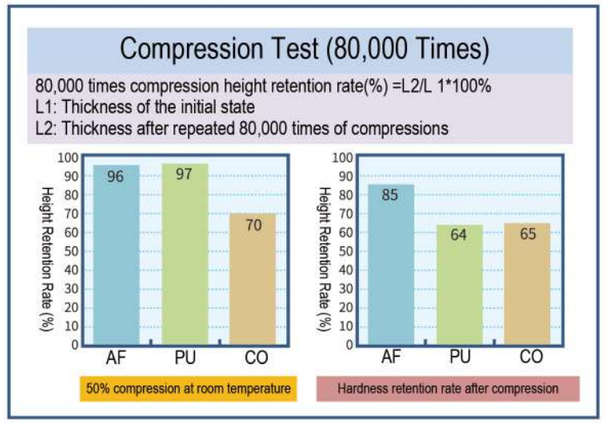
Compressibility

Air fiber is a type of cushioning material with low hysteresis loss and high resilience. When used in mattresses and mattress pads, it is a very easy-to-use cushioning material for turning over.



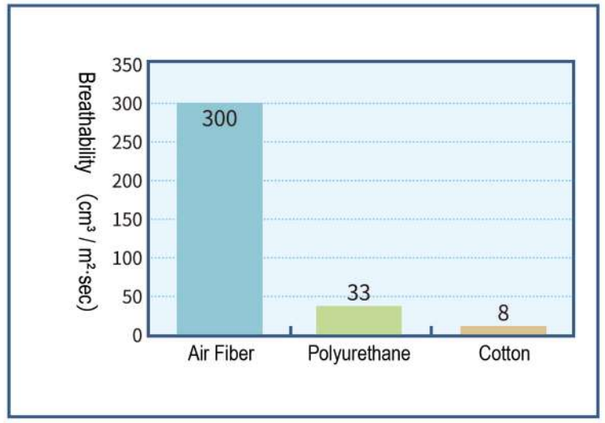
Durability

Air fiber is a type of cushioning material with low hysteresis loss and high resilience. When used in mattresses and mattress pads, it is a very easy-to-use cushioning material for turning over.



Breathability

Compared with polyurethane and hard cotton, air fiber has strong air



Dow Silvadur™ Antimicrobial Technology

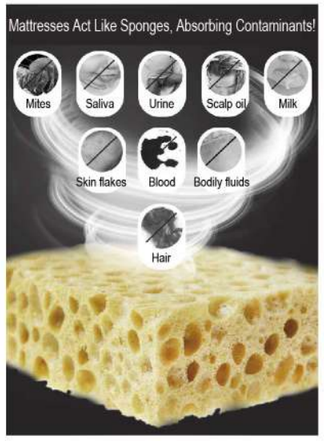
Powered by Dow's Silvadur™ antimicrobial technology, an R&D 100 Award–winning innovation, this advanced solution provides intelligent microbial control.
Using silver-ion technology, Silvadur™ releases a controlled, low concentration of silver ions onto the fiber surface to inhibit odor-causing bacteria.
By capturing odors and preventing the growth of bacteria and mold, the Silvadur™ silver-polymer system acts quickly and effectively to maintain long-lasting freshness and hygiene.

Fully Washable Core Inhibits Mites and Bacteria

Engineered with Dow's advanced air-fiber technology, the material is formed through a physical thermal bonding process in water. It does not absorb moisture, offers excellent water resistance, and maintains high vapor permeability.
The entire mattress core is fully washable, allowing dirt and impurities to be flushed away with water without residue. This ensures deep hygienic cleaning and effectively prevents the growth of mites and bacteria.

Antibacteria

Air-fiber has a continuous fiber loop structure, thus preventing the generation of fiber waste and reducing the likelihood of dust mite infestation.



Inhibition of Mites

Furthermore, it possesses excellent antibacterial properties that meet national standards.

Airnice 空气丝®
杰出新材料

Enviromental Protection

- Air fiber can be recycled in two different ways.

1. Material Recycling

2. Thermal Energy Recovery

Low Toxicity Under Combustion

	Air Fiber	Polyurethane	Cotton
Carbon Monoxide CO	269	1002	235
Carbon Dioxide CO2	1083	357	1683
Hydrogen Cyanide HCN	Not Detected	11	Not Detected
Hydrogen Chloride HCl	Not Detected	1,001 ppm	Not Detected
Nitric Oxides NOX	Not Detected	0.3	46
Sulfur Oxides SOX	Not Detected	0.9 ppm	Not Detected
Ammonia NH3	0.7 ppm	5.3	1 ppm

Based on JIS K 7217 (750°C * 0.5 L / min air * 10 min)

Based on JIS K 7217 (750°C * 0.5 L /min air * 10 min)

- Since Air Fiber is composed of polyester elastomer structure, it will not produce toxic gases such as hydrochloric acid during combustion.

- Since Air Fiber is composed of polyester elastomer structure, it will not produce toxic gases such as hydrochloric acid during combustion.

Comparison of the performance Different Core Materials

Comparison Category		Air Fiber	3D Mesh	PU Foam	Sponge	Latex	Polyester Fiber
Supportive	Fit to Body Contours	√	√	√	√	√	√
	Balances Firmness	√	√	×	√	×	×
	Adapts to Resilience	√	√	×	√	×	×
	Durability	√	√	×	√	×	×
	Zoning Configuration	√	√	×	√	×	√
	Moisture-Wicking Performance	√	√	×	√	×	√
	Noise	√	√	√	×	√	√
Air Permeability	Breathability	√	√	√	√	√	×
	Air Permeability Ratio	√	√	×	×	×	×
Cleanness	Harmful Substances	√	√	×	×	×	×
	Dust Mites	√	×	×	√	×	×
	Washable	√	√	×	√	×	×

Raw Materials

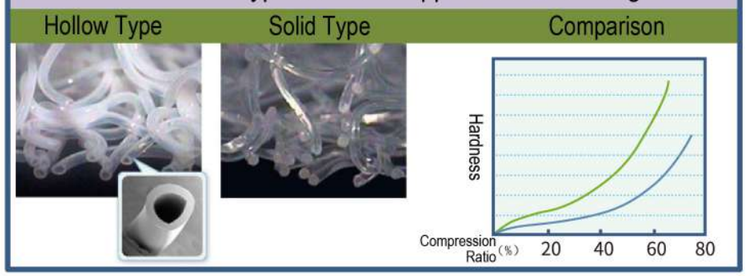
Thermoplastic elastomers developed by Dow Chemical in the United States possess the properties of both rubber and engineering plastics, making them durable and easy to process.

Various thermoplastic elastomers with different properties are available, such as PE/POE/TPU/TPEE/EVA, etc.

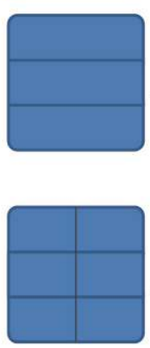
Conventional type
- Soft type •Flame retardant type
- Hard type •Colored type

Cross Section

The cross-sectional shape of the air fiber has two types: hollow and solid. Its hollow type can also support the same weight.



Partition Design



Three-fold

Six-fold

Three-Zone Ergonomic Design with High-Resilience Spinal Support

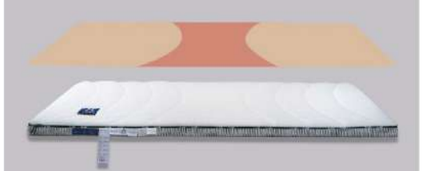
Featuring three internal core sections with three firmness levels.
A. For side sleepers: The head and shoulder zone is designed with a softer firmness to relieve pressure on the shoulders during side sleeping.
B. For back sleepers: The head and shoulder zone provides standard firmness to stably support the upper back, while the shoulder–lumbar zone is reinforced with double firmness to deliver strong lumbar spine support.

With flexible firmness combinations tailored to different sleeping positions, the mattress features a foldable design for easy movement, portability, and convenient cleaning.

Head Zone
Standard firmness
Stable support for the upper back and shoulders

Lumbar Zone
Double-reinforced firmness
Powerful support for the lumbar spine

Leg Zone
Relatively softer firmness
Balances overall body pressure distribution



Airnice 空气丝®
杰出新材料

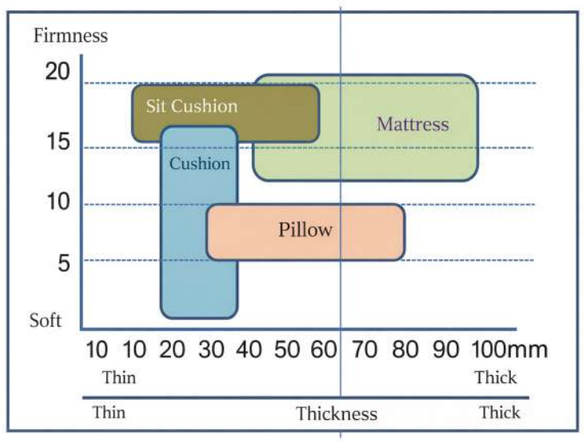
Size and Thickness

By adjusting density, thickness, and dimensions, the product can be customized to meet your specific preferences and design requirements.

Density: 30–150 kg/m³, Thickness: 15–200 mm, Width: 10–200 cm, Length: Continuous, no limitation

Softness, Hardness and Shape

The mattress is neither too soft nor too hard

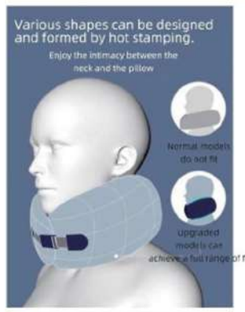


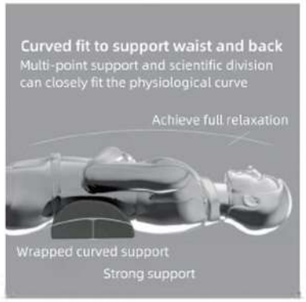
- Air fiber is manufactured in sheet form, but it can also be shaped and processed in subsequent processes.

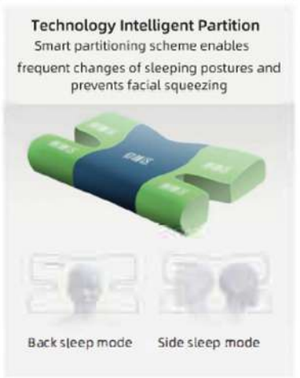
Stereotype Designs

• Various shapes can be designed and formed by hot stamping.


Hot stamping



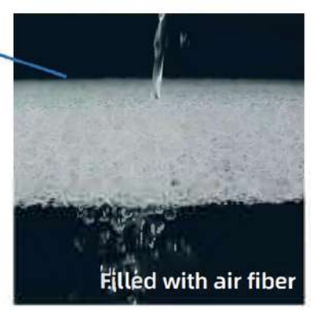


Medical Nursmg Mattress

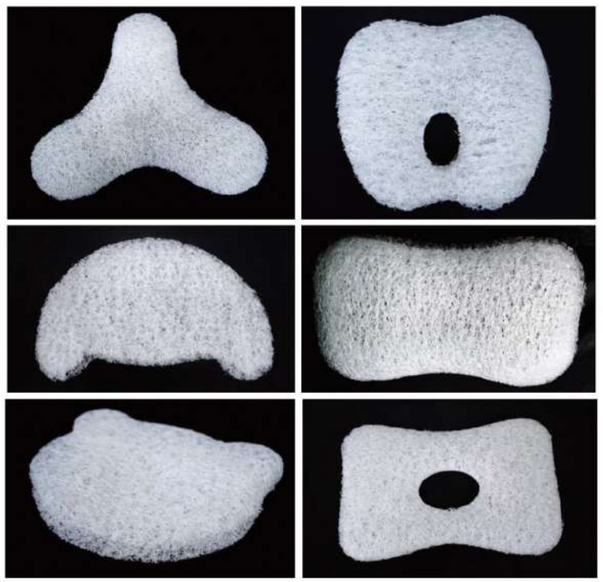
Stereotype Designs

Breathable and fit

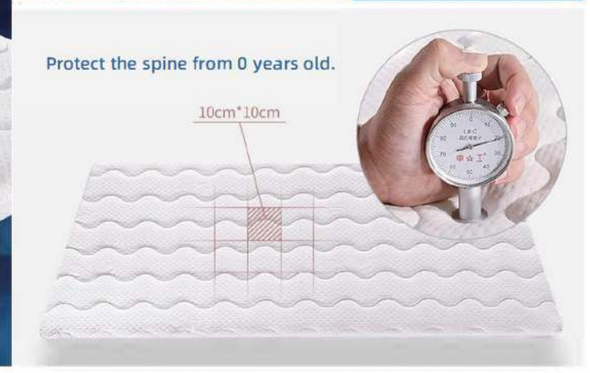
Can be washed directly with water



Baby Pillow

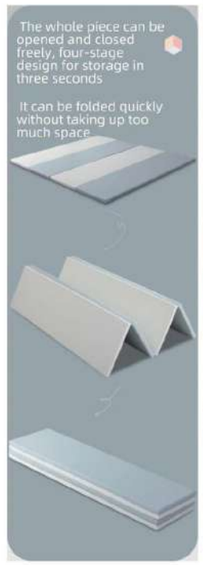


Baby Mattress

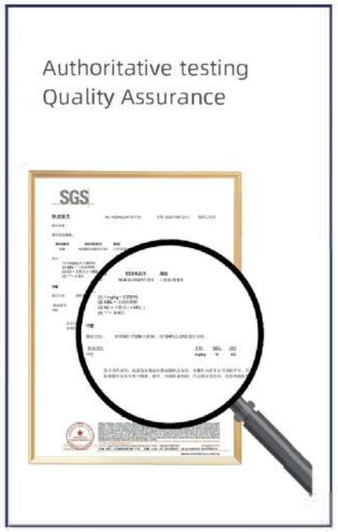


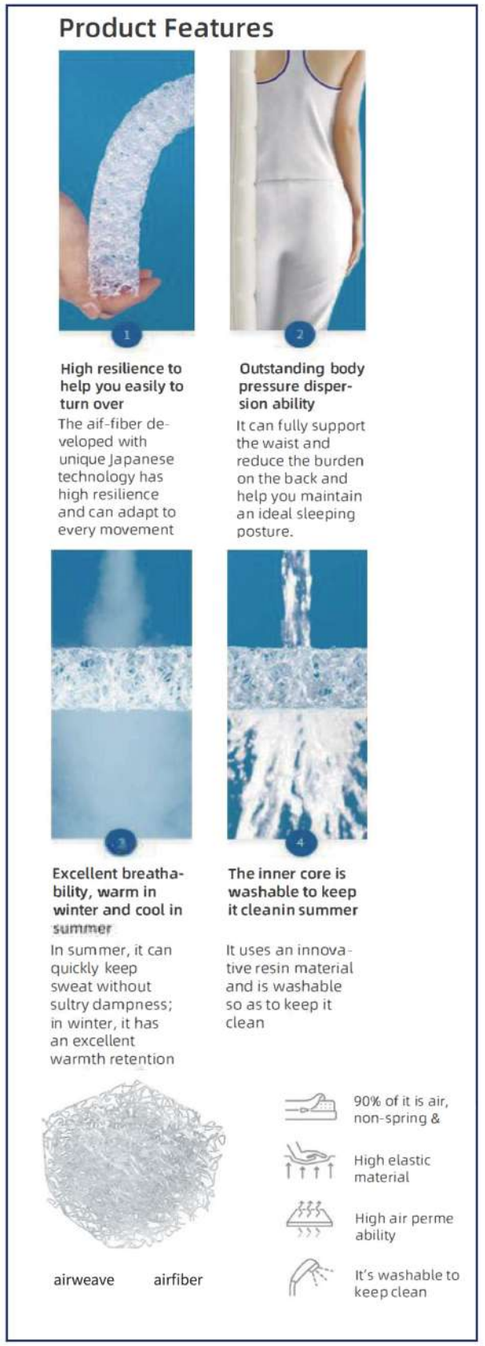
Office Nap Mat

Climbing Mat/Yoga Mat



Mattress

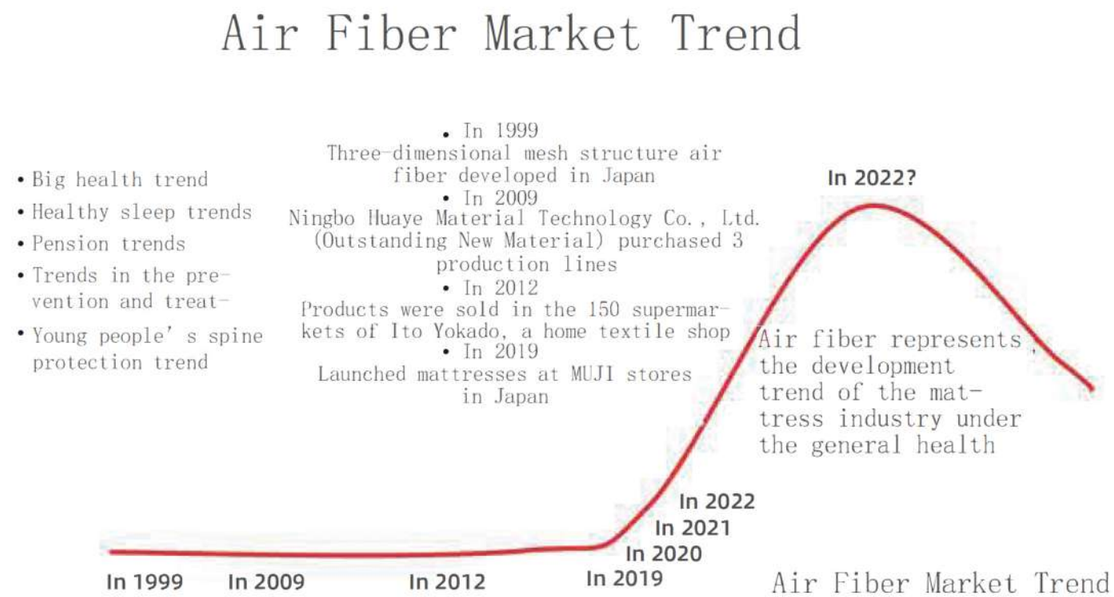




Mattress design

Air Fiber With Infinite Possibilities

Air Fiber is a durable, washable cushioning material formed by a tangled, three-dimensional filament structure. Its open mesh resembles a resilient, porous network that provides excellent airflow and support.
Air Fiber offers strong air permeability, cushioning ability, water permeability, long-term durability, environmental safety, and antibacterial performance. Mattresses and pillows made with Air Fiber remain breathable, easy to flip, and maintain a consistently comfortable sleeping environment. The material is also easy to clean and meets national antibacterial performance standards, making it suitable for hospitals and elderly-care facilities.
In seating applications, Air Fiber is used for high-durability automotive and public-transportation seats. It is also adopted in art and design projects for its unique structural qualities.
Overall, Air Fiber is a highly effective cushioning and shock-absorbing material with wide application potential.



Airnice 空气丝®
杰出新材料

Certificates


浙江省科技型中小企业
证书
企业名称：宁波杰出新材料有限公司
证书编号：20213302000236
浙江省科学技术厅


高新技术企业
证书
企业名称：宁波杰出新材料有限公司
证书编号：GR202233100603
发证时间：2022年12月1日
有效期：三年
批准机关：


商标注册证
空气丝


国家知识产权局
专利登记簿副本


国家知识产权局
专利登记簿副本


国家知识产权局
专利登记簿副本

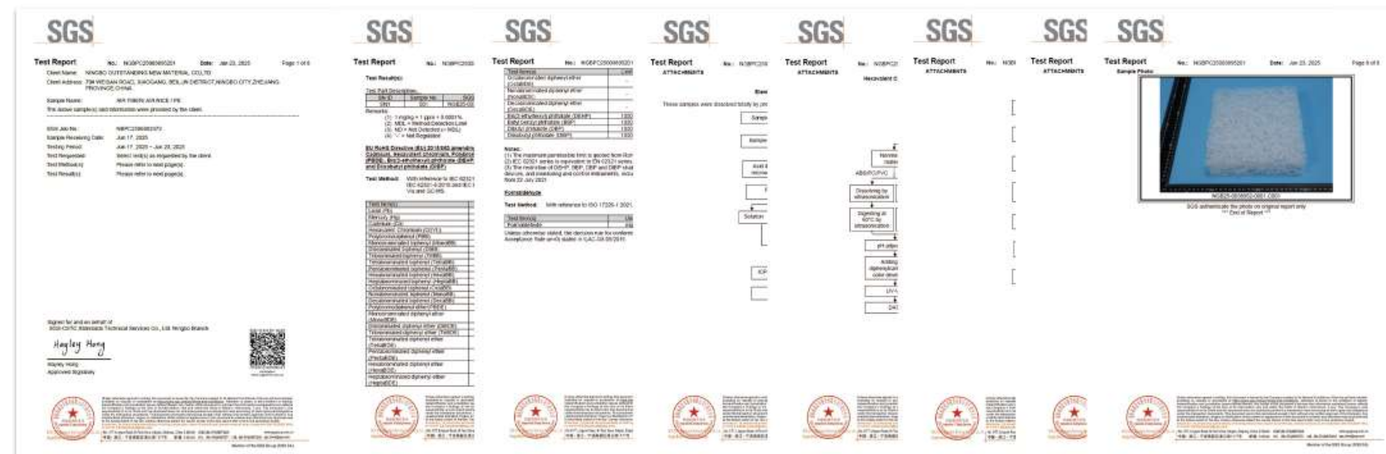

国家知识产权局
专利登记簿副本


国家知识产权局
专利登记簿副本

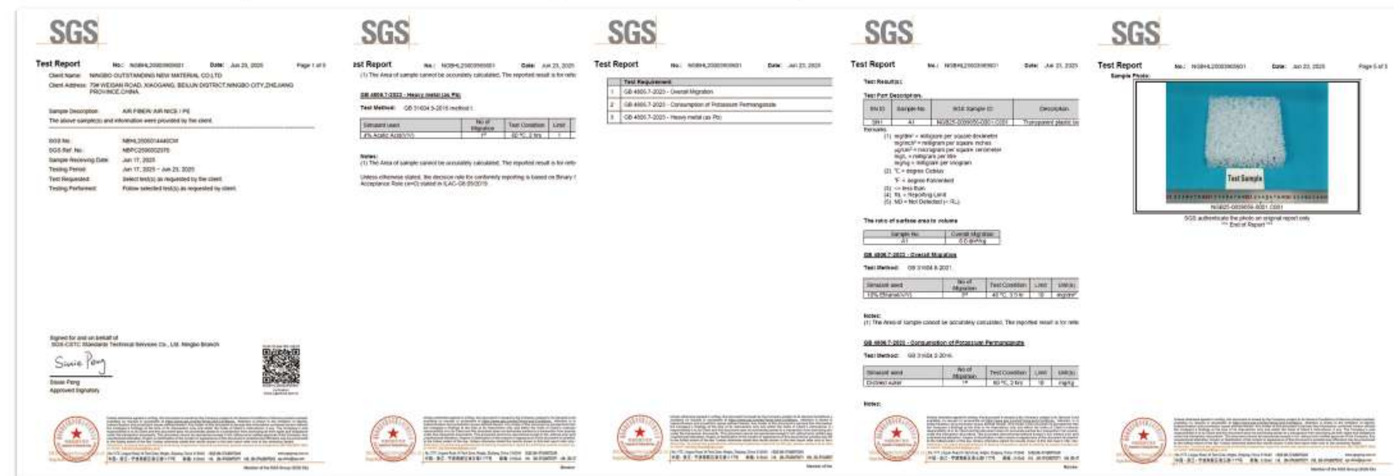

CERTIFICATE
OF QUALITY MANAGEMENT SYSTEM
NINGBO OUTSTANDING NEW MATERIAL CO.,LTD
GB/T 19001-2016 idt ISO 9001:2015
Date of issue: May 05,2022
Date of expiry: May 04,2025


医疗器械
质量管理体系认证证书
宁波杰出新材料有限公司
YY/T 0287-2017 idt ISO 13485:2016

Authoritative Certifications



Formaldehyde and RoHS Compliance Test Report



Food-Grade Material Test Report

Antibacterial Test Report