

HYPROOF
汉丞科技

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Hyproof Technology

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汉丞科技

聚焦膜技术 成就智能制造
Membrane Technology Smart Manufacture

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汉丞科技创立于2016年，公司以海归科学家为核心，高科技为先导，主要致力于研发、生产、销售特种含氟新材料、增强型纳米微孔膜及复合材料等产品，为专精特新企业、高新技术企业，并参与氢能车用燃料电池膜电极及批量制备技术、电解水制高压氢电解堆及系统关键技术等国家重大专项。

汉丞科技以“科技创新”作为核心竞争力，构建集研发、生产、销售与服务为一体的集团化发展企业。公司在增强型纳米微孔膜材料技术方面有着多年的高新技术积累，在氟膜材料应用领域已开发生产出多款材料并应用行业，有着丰富的产品设计开发及产业化经验。目前公司拥有各项发明专利、实用新型专利近50项，其中发明专利授权近30项（国外发明专利8项）。形成以自主原创核心技术、核心产品及系统解决方案为一体的完整产品及服务体系。

汉丞科技根据产品应用领域划分三大业务版块：新能源应用、工业应用、功能性纺织品。

“聚焦膜技术，成就中国智造”，诠释了汉丞人积极进取、锐意创新、科技报国的企业精神。全体汉丞人将秉持“科技强国，新材料为美丽中国保驾护航”的理念，争做新材料行业领导者！



Hyproof Tech. was founded in 2016. Focusing on overseas scientists and advanced technology, Hyproof Tech. is committed to research, development, production and sales of novel fluorinated materials for hydrogen energy use, reinforced nano-microporous membranes and other products. It is used in new energy, carbon neutrality, safety protection, industrial microelectronics and other fields, Hyproof Tech. is a high-tech enterprises, which is recognized as "specialized and new enterprise" by government, and participate in hydrogen energy vehicle fuel cell membrane electrode and batch preparation technology, water electrolysis to make high voltage hydrogen electrolytic reactor and key technologies of the system and other major national projects.

Hyproof Tech. takes "technological innovation" as its core competitiveness and builds a group development enterprise integrating R&D, production, sales and service. The company has accumulated many years of high-tech experience in the field of enhanced nano-microporous membrane materials. It has developed and produced a variety of materials in the application of fluorine membrane materials and applied them in various industries. It has rich experience in product design and development as well as industrialization. The company has about 50 invention patents and utility patents, including nearly 30 invention patents (8 foreign invention patents). Form a complete product and service system integrating independent original core technology, core products and system solutions.

Hyproof Tech. has three business division according to product application fields: Renewable energy, industrial, functional textile. "Membrane Technology, Smart Manufacture", perfectly shows the entrepreneurial spirit of Hyproof people's aggressiveness, innovation in science and technology to serve the world. All Hyproof people will uphold the conception of "powering better Earth with science and technology, and escorting a beautiful environment with new materials", striving to be the leader in the new material industry!

2017年

第二届中国军民两用技术创新应用大赛优胜奖
The winner of the Second China Military-civilian Dual Technology Innovation and Application Competition

2018年

获邀参加第四届军民融合应用成果展，受到国家领导人好评
It was invited to participate in the fourth Military-civilian Integration Application Achievements Exhibition and was well received by national leaders

2019年

国家重大专项：车用燃料电池膜电极及批量制备技术
National major projects: vehicle fuel cell membrane electrode and batch preparation technology

2020年

可消毒循环使用KN95防护口罩滤芯量产被征用，助力上海抗疫
The mass production of KN 95 protective mask filters was requisitioned to help Shanghai fight the epidemic

2021年

中国纺织工业联合会科学技术奖科技进步二等奖
Second prize of Science and Technology Progress Award of China National Textile Industry Federation Science and Technology Award

2022年

国家重大专项：电解水制高压氢电解堆及系统关键技术
National major projects: water electrolysis to make high voltage hydrogen electrolytic reactor and key technologies of the system

被评为上海市“专精特新”企业
It was rated as a "special and innovative enterprise" in Shanghai

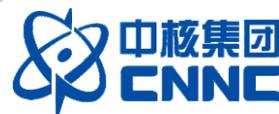
2025年

工信部“清洁氢”项目：可跨温区工作的燃料电池全氟磺酸树脂
Ministry of Industry and Information Technology "Clean Hydrogen" Project: Fuel Cell Perfluorosulfonic Acid Resin Capable of Operating Across Temperature Zones



汉丞科技核心专利多达50余项
Hyproof Tech.Has Over 40 Core Patents





继续开拓中……
Continue ...



产品说明 | Product Description

- 全氟磺酸树脂是一种特殊的含氟高分子材料聚合物，具有超常稳定性和耐化学介质性。广泛应用于燃料电池、液流电池、锂离子二次电池、制氢电解槽、氯碱工业电解装置、污水处理、化学催化、光催化、气体分离、功能复合材料等领域。
- Perfluorosulfonic Acid Ion-Exchange Resin is a special fluorine-containing polymer with excellent stability and chemical resistance, widely used in fuel cells, flow batteries, lithium-ion rechargeable batteries, hydrogen electrolyzer, chlor-alkali industry electrolyzer equipment, sewage disposal, chemical catalysis, photocatalysis, gas separation, functional composite materials and other fields.

规格 Specification	HMS-18-F (F型)	HMS-19-F (F型)	HMS-20-F (F型)	HLR-1890 (H型)	HLR-1990 (H型)	HLR-2090 (H型)
全氟磺酸树脂含量 (长支链) PFSA Content (Long side chain), wt%	≥95			≥90		
离子交换当量 Ionic Exchange Equivalent Weight, g/mol	800-900	900-1000	1000-1100	800-900	900-1000	1000-1100
IEC, mmol/g	1.1-1.25	1.0-1.1	0.9-1.0	1.1-1.25	1.0-1.1	0.9-1.0
其他含量 Other Content, %	水 Water ≤5%			水 Water ≤10%		
比表面积 (m ² /g) Specific Surface Area	/			/	/	15-30
熔融指数 Melt Flow Index(MFI)	<5 (g/10min)			/	/	/
外观 Appearance	粒料 Particle			粉料 Powder		

测试要求

- 产品测试前放置于实验室环境 (23±2°C/73.4±3.6°F, 50±5%RH) 至少24小时;
- 测试条件: 270°C/518°F, 配重砝码2160g;
- 树脂完成转型处理后进行测试, 测试方法遵循国标《GB/T20042.3-2022》。

Test requirements

- Place the product in a laboratory environment (23±2°C/73.4±3.6°F, 50±5% RH) for at least 24 hours before testing.
- Test temperature: 270°C/518°F, counter weight 2160g.
- Test after resin transformation treatment. Testing method follows the Chinese national standard "GB/T 20042.3-2022".



产品说明 | Product Description

- 1、拥有自主知识产权的全氟磺酸树脂及其分散液。
- 2、相关产品已经广泛应用于CCM膜电极浆料制作、质子交换膜生产、特种电化学粘结剂等多个领域。
- 3、支持为客户提供定制化的产品，客户可以选择不同的分散体系、固含量以及离子交换当量，实现最优的应用路线，满足下游客户的使用需求。

- 1.Hyprooff has independent intellectual property right of perfluorinated sulfonic acid resin.
- 2.Hyprooff's related products are widely used in CCM membrane electrode slurry production, PEM production, special electrochemical binders and other fields.
- 3.Hyprooff supports customization. Customers can choose different dispersion systems, polymer content and ion exchange equivalents to achieve the optimal selection to meet the needs of customers.

规格 Specification	HLD-1805	HLD-1820	HLD-1905	HLD-1920	HLD-2020
全氟磺酸树脂含量 (长支链) PFSA Content (Long side chain), wt%	5±0.1	20±0.1	5±0.1	20±0.1	20±0.1
VOC含量 VOC Content, wt%	55±1	45±1	55±1	45±1	45±1
水含量 Water Content, wt%	40±1	35±1	40±1	35±1	35±1
离子交换当量 Ionic Exchange Equivalent Weight, g/mol	800-900		900-1000		1000-1100
应用场景 Application Scenarios	用于制备各种电解装置、燃料/液流等电池中所需离子交换膜或膜电极，还可用于有机合成中使用的超强酸催化剂、超稳定性离子交换剂等。 Used to produce ion exchange conductive membranes and MEA required in various electrolysis units, fuel cells and flow batteries, and can also be used as super acid catalysts and ultra-stable ion exchangers during organic synthesis process.				



产品说明 | Product Description

ePTFE膜是以聚四氟乙烯为原料，采用特殊工艺，经压延、挤出、双向拉伸等方法制成的微孔性薄膜。该膜经工艺调节后每平方厘米有上亿个高强纳米级微孔，由于PTFE特殊的耐化学性及高强度等优异性能，可通过后加工复合不同的支撑材料，从而实现具有防水透气、过滤、化学试剂阻隔等特殊用途的复合膜产品。

The ePTFE membrane is a microporous membrane made from polytetrafluoroethylene by special process, including calendering, extrusion and bidirectional stretching. The membrane has hundreds of millions of high-strength nanoscale micropores per square centimeter after the process adjustment, due to the special chemical resistance and high strength and other excellent properties of PTFE, it can be processed through the composite of different support materials, so as to achieve the properties of waterproof, breathable, filtration, chemical reagent barrier and other special purposes of the composite membrane products.

产品优势 | Product Superiority

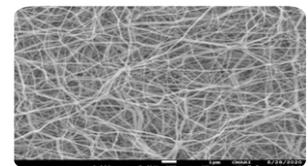
ePTFE膜具有高度化学稳定性、耐高温性、耐腐蚀、耐气候、高润滑等优良性能，同时可通过特殊工艺实现亲水或疏油改性，并通过客户特殊要求实现定制化，如透气量、孔径等性能及后加工过程中特殊支撑材料的复合。

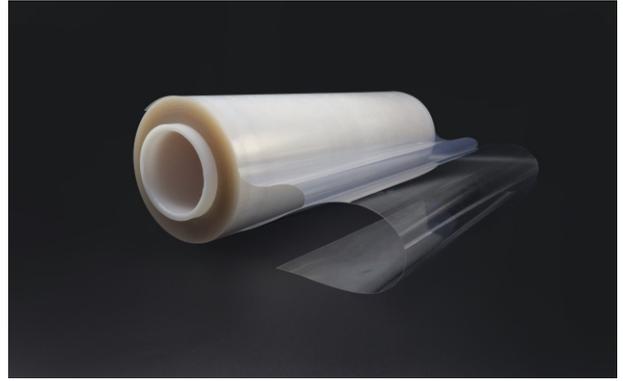
The ePTFE membrane possesses high chemical stability, high temperature resistance, corrosion resistance, weather resistance, high lubrication and other excellent properties, at the same time through special processes to achieve hydrophilic or oleophobic modification, and through the special requirements of customers to achieve customization, such as properties of air permeability, pore size and composite of special support materials during post-processing.

超薄高强纳米纤维微孔氟膜 Ultrathin and High-strength Nanofiber Microporous ePTFE Membrane

- 超高强度 >60MPa
- 成功国产：1000万平米产能
- 国家纺织工业技术鉴定
- 性能达国际先进水平
- 超越国外膜规格

- Ultra-high Strength > 60 MPa
- Successful domestic production: 10 million square meters of production capacity
- National textile industry technology appraisal
- The performance reaches the international advanced level
- Beyond state-of-art membrane specifications





产品说明 | Product Description

全氟磺酸质子交换膜是一种固体聚合物电解质，具有优良的耐热性能、力学性能、电化学性能以及化学稳定性能，可在强酸、强碱、强氧化剂介质等苛刻条件下使用。

广泛应用于PEM、AEM制氢、燃料电池、液流电池以及其它多个应用领域，可为客户定制个性化解决方案。

Perfluorosulfonic acid proton exchange membrane is a solid polyelectrolyte with excellent heat resistance, mechanical properties, electrochemical properties and chemical stability, which can be used under harsh conditions such as strong acid, strong alkali and strong oxidant medium.

Widely used in PEM, AEM hydrogen production, fuel cells, flow batteries and many other applications, can be customized for customers to customize personalized solutions.

产品优势 | Product Superiority

质子交换膜作为燃料电池、电解水制氢等新能源设备的核心部件，凭借多维度优势为能源转化与存储提供关键支撑。它能构建高效的质子传输通道，确保能源转化过程中核心的质子传递环节顺畅高效，为设备稳定输出高功率奠定基础，有效减少因传质效率不足导致的能源损耗。

在环境耐受性上，质子交换膜表现突出，面对设备运行中的强酸环境、氧化物质侵蚀以及温度波动等严苛工况，能长期保持稳定性能，不易出现结构损坏或性能衰减，大幅延长膜材自身及设备整体的使用寿命，降低后期运维成本。同时，其优化的结构设计可有效阻隔反应气体交叉渗透，既避免了气体浪费，又防范了因气体混合引发的安全风险，为设备安全高效运行筑牢防线。

As a core component of new energy equipment such as fuel cells and water electrolysis hydrogen production systems, proton exchange membranes provide crucial support for energy conversion and storage through multi-dimensional advantages. They can construct efficient proton transport channels, ensuring the smooth and high-performance operation of the core proton transfer process during energy conversion. This lays a solid foundation for the stable high-power output of equipment and effectively reduces energy loss caused by insufficient mass transfer efficiency.

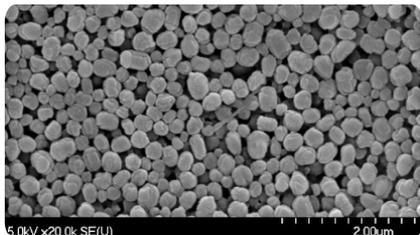
In terms of environmental durability, proton exchange membranes demonstrate outstanding performance. When facing harsh operating conditions such as strong acid environments, oxidative substance corrosion, and temperature fluctuations during equipment operation, they can maintain stable performance for a long time without easy structural damage or performance degradation. This significantly extends the service life of the membrane itself and the entire equipment, lowering long-term maintenance costs. Meanwhile, their optimized structural design can effectively block the cross-permeation of reactive gases, which not only avoids gas waste but also prevents safety risks caused by gas mixing, building a solid defense line for the safe and efficient operation of equipment.

核心原材料至最终成膜全链路国产化的企业

Proton Exchange Membrane Raw Materials, Technology, Core Products Fully Localization

超高分子量聚四氟乙烯

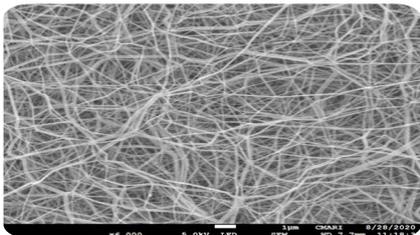
Ultra-high Molecular Weight PTFE



- $-\text{CF}_2\text{CF}_2-$ 纯度 > 99.9999%
- 分子量~1亿
- 耐高低温度: $-200\sim 400^\circ\text{C}$
- 产能: 600吨
- $-\text{CF}_2\text{CF}_2-$ Fineness > 99.9999%
- Formula Weight ~ 1 hundred million
- High and low temperature resistance: $-200\sim 400^\circ\text{C}$
- Capacity: 600 Tons

超薄高强纳米纤维微孔氟膜

Ultrathin and High-strength Nanofiber Microporous ePTFE Membrane



- 超高强度 > 100MPa
- 成功国产: 1000万平米产能
- 国家纺织工业技术鉴定
- 性能达国际先进水平
- 超越国外膜规格
- Ultra-high Strength > 100 MPa
- Successful domestic production: 10 million square meters of production capacity
- National textile industry technology appraisal
- The performance reaches the international advanced level
- Beyond state-of-art membrane specifications

含氟质子交换树脂

Fluo Proton Exchange Resin



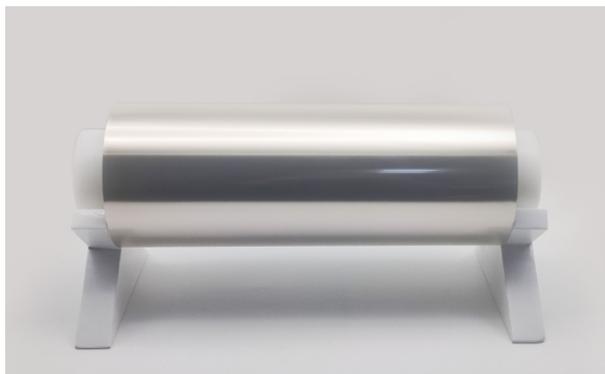
- 成功国产: 产业化规模
- 高质子传导率
- 纳米材料
- Successful domestic production: industrial scale
- High proton conductivity
- Nanomaterials

超薄增强含氟质子交换膜

Ultrathin Reinforced Fluorine-containing Proton Exchange Membrane



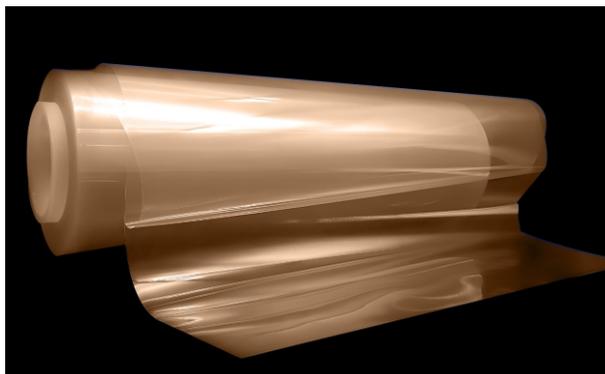
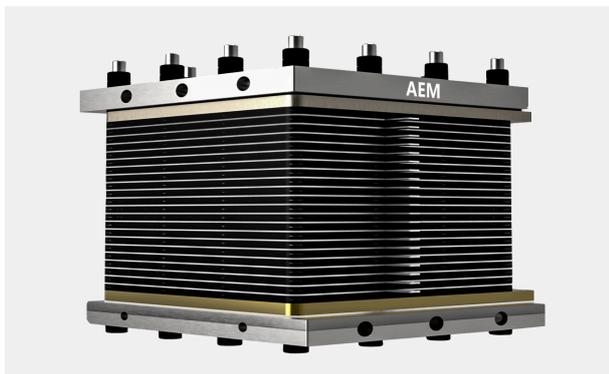
- 成功国产: 180万平米产能
- 运行6年: 设备产品稳定
- Successful domestic production: 1.8 million square meters of production capacity
- 6 years of operation: stable equipment products



产品说明 | Product Description

- HPM系列水电解质子交换膜为增强型全氟磺酸质子交换膜（PEM）。在酸性和腐蚀性环境中均具有高质子传导性、高选择性、高稳定性。广泛用于电解槽。膜规格如下表所示。
- The HPM series proton exchange membrane for water electrolysis is reinforced perfluorosulfonic acid proton exchange membrane (PEM). It has properties of high proton conductivity, high selectivity and high stability in both acidic and corrosive environments, and is widely used in electrolyzer. It is identified by membrane type and identification number (batch number).

规格 Specification	HPM-2050		HPM-2080		HPM-20110	
厚度 Thickness, μm	50 \pm 2		80 \pm 3		110 \pm 4	
密度 Density, g/cm^3	2.0 \pm 0.05					
离子交换当量 Ionic Exchange Equivalent Weight, g/mol	900-1000					
质子传导率 Proton Conductivity, mS/cm	\geq 70					
拉伸强度 Tensile Strength, MPa	TD	MD	TD	MD	TD	MD
	\geq 35	\geq 35	\geq 35	\geq 35	\geq 30	\geq 30
断裂伸长率 Breaking Elongation, %	\geq 100					
线性溶胀率 Linear Swelling Rate (80 $^{\circ}\text{C}/1\text{h}$), %	\leq 5				\leq 6	
测试标准 Test Standards	GB/T 20042.3-2022					
使用建议 Suggestions	使用前需要活化 Need to activate before use					
注：其它厚度规格可定制 Note: Other thickness specifications can be customized						



产品说明 | Product Description

- 针对电解水制氢应用的需求，自主研发的HAM系列增强型阴离子交换膜（AEM）具有优秀的热、化学和机械稳定性，即使在低碱性浓度下也能达到较高的离子电导率，使得制氢过程能够更加稳定、经济、高效。
- In response to the demand for hydrogen production through electrolysis of water, the independently developed HPA series enhanced anion exchange membrane (AEM) has excellent thermal, chemical, and mechanical stability. Even at low alkaline concentrations, it can achieve high ion conductivity, making the hydrogen production process more stable, economical, and efficient.

规格 Specification	HAM-1320		HAM-1350		HAM-1380		HAM-13100	
干膜厚度 Thickness (Dry), μm	20 \pm 1.5		50 \pm 2.5		80 \pm 5		100 \pm 5	
离子交换容量 ¹ Ion Exchange Capacity, mmol/g	1.8-2.3		1.6-1.9		1.3-1.8		1.3-1.6	
面电阻 ² (25 $^{\circ}$ C Cl ⁻) Area Resistance, m Ω .cm ²	\leq 200		\leq 400		\leq 500		\leq 800	
面电阻 ² (25 $^{\circ}$ C OH ⁻) Area Resistance, m Ω .cm ²	\leq 100		\leq 210		\leq 400		\leq 500	
膜面电导率 ³ (25 $^{\circ}$ C Cl ⁻) In-Plane Cl ⁻ Conductivity, mS/cm	\geq 13		\geq 11		\geq 11		\geq 10	
膜面电导率 ³ (25 $^{\circ}$ C HCO ₃ ⁻) In-Plane HCO ₃ ⁻ Conductivity, mS/cm	\geq 7		\geq 6		\geq 5		\geq 5	
穿膜电导率(25 $^{\circ}$ C OH ⁻) Trans-membrance Conductivity, mS/cm	\geq 35		\geq 45		\geq 45		\geq 40	
吸水率 ⁴ Water soaking content, %	\geq 10		\geq 15		\geq 20		\geq 20	
拉伸强度 ⁵ Tensile Strength, MPa	TD	MD	TD	MD	TD	MD	TD	MD
	\geq 40	\geq 40	\geq 30	\geq 30	\geq 20	\geq 20	\geq 15	\geq 15
断裂伸长率 ⁵ Elongation at break, %	\geq 90		\geq 90		\geq 90		\geq 90	
线性溶胀率 ⁴ Swelling Rate(25 $^{\circ}$ C/24h), %	\leq 2		\leq 5		\leq 5		\leq 5	
预处理条件/测试条件 Pretreatment conditions Test conditions	HAM1320/HAM1350: 60 $^{\circ}$ C 0.1M KOH, 15-24h HAM1380: 60 $^{\circ}$ C 0.1M KOH, 12-16h HAM13110: 60 $^{\circ}$ C 0.1M KOH, 4-8h 测试条件: 1M-6M KOH, \leq 80 $^{\circ}$ C							



产品说明 | Product Description

- HPM系列燃料电池质子交换膜为增强型全氟磺酸质子交换膜（PEM）。在酸性和腐蚀性环境中均具有高质子传导性、高选择性、高稳定性。广泛用于电堆。通过膜类型和标识号（批号）来识别。
- The HPM series proton exchange membrane for fuel cell is reinforced perfluorosulfonic acid proton exchange membrane (PEM). It has properties of high proton conductivity, high selectivity and high stability in both acidic and corrosive environments, and is widely used in stack. It is identified by membrane type and identification number (batch number).

规格 Specification	HPM-1806		HPM-1809		HPM-1812		HPM-1815	
厚度 Thickness, μm	6 \pm 0.5		9 \pm 0.5		12 \pm 1.0		15 \pm 1.0	
密度 Density, g/cm^3	2.0 \pm 0.05							
离子交换当量 Ionic Exchange Equivalent Weight, g/mol	950-1050		950-1050		950-1050		950-1100	
拉伸强度 Tensile Strength, MPa	TD	MD	TD	MD	TD	MD	TD	MD
	≥ 55	≥ 55	≥ 50	≥ 50	≥ 45	≥ 45	≥ 40	≥ 40
断裂伸长率 Breaking Elongation, %	≥ 80		≥ 100		≥ 100		≥ 100	
线性溶胀率 Linear Swelling Rate (80°C/1h), %	≤ 3							
测试标准 Test Standards	GB/T 20042.3-2022							

测试要求

- 1、测试前请将膜样品在实验室环境（23 \pm 2°C/73.4 \pm 3.6°F，50 \pm 5%RH）放置24h再进行测试；
- 2、测试采用10mm的长方形样条进行测试，拉伸速率：50mm/min。

Test requirements

1. Before testing, please place the membrane samples in a laboratory environment (23 \pm 2°C/73.4 \pm 3.6°F, 50 \pm 5%RH) for 24h;
2. It is tested with 10mm rectangular sample, tensile rate: 50mm/min.



产品说明 | Product Description

- HPM系列液流电池质子交换膜为增强型全氟磺酸质子交换膜（PEM）。在酸性和腐蚀性环境中均具有高质子传导性、高选择性、高稳定性。广泛用于液流电池。通过膜类型和标识号（批号）来识别。
- The HPM series proton exchange membrane for flow battery is reinforced perfluorosulfonic acid proton exchange membrane (PEM). It has properties of high proton conductivity, high stability, and high vanadium ion barrier in both acidic and corrosive environments, and is widely used in flow batteries. It is identified by membrane type and identification number (batch number).

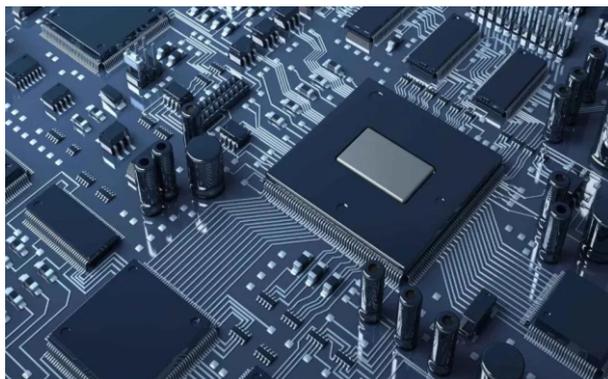
测试要求

测试前请将膜样品在实验室环境（ $23\pm 2^{\circ}\text{C}/73.4\pm 3.6^{\circ}\text{F}$ ， $50\pm 5\%\text{RH}$ ）放置24h再进行测试。

Test Requirements

Before testing, please place the membrane samples in a laboratory environment ($23\pm 2^{\circ}\text{C}/73.4\pm 3.6^{\circ}\text{F}$, $50\pm 5\%\text{RH}$) for 24h.

规格 Specification	HPM-2050LH	
厚度 Thickness, μm	52 \pm 3	
密度 Density, g/cm^3	1.95 \pm 0.05	
离子交换当量 Ionic Exchange Equivalent Weight, g/mol	900-1000	
拉伸强度 Tensile Strength, MPa	TD	MD
	≥ 25	≥ 25
断裂伸长率 Breaking Elongation, %	≥ 100	
线性溶胀率 Linear Swelling Rate (Hydrochloric Acid 3M, $25^{\circ}\text{C}/1\text{h}$)	≤ 5	
吸水率 Water absorption	$\leq 50\%$	
测试标准 Test Standards	GB/T 20042.3-2022	



产品应用 | Product Application

- 微电子半导体、生物医药、医疗、实验室分析、MBR、膜蒸馏等领域。
- Microelectronic semiconductors, biomedicine, laboratory analysis, medical devices, MBR, membrane distillation and other fields.



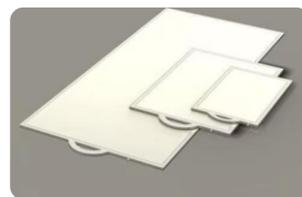
折叠滤芯
Fold the filter element



针式过滤器
Syringe filter



精密输液器
Precision infusion set



MBR

产品规格及性能 | Product specifications and performance

产品类型 Product type	疏水膜 Hydrophobic membrane	亲水膜 Hydrophilic membrane	亲水/疏水复合膜 Hydrophilic/Hydrophobic composite membrane	疏水疏油复合膜 Hydrophobic and oleophobic composite membrane
产品性能 Product performance				
厚度, μm Thickness, μm	5-100	5-50	依支撑材料定制 Customized according to support material	依支撑材料定制 Customized according to support material
过滤精度, μm Filtration accuracy, μm	0.05-5.0	0.03-5.0	0.03-5.0	0.03-5.0
支撑材料 Support material	N/A	N/A	PET, PP, PET/PE, PP/PE	PET, PP, PET/PE, PP/PE
复合方式 Composite mode	N/A	N/A	热复合/胶复合 Thermal compounding / glue compounding	热复合/胶复合 Thermal compounding / glue compounding
气体流量 $\text{mm/s}@300\text{Pa}$ Gas flow $\text{mm/s}@300\text{Pa}$	1-100	1-80	1-100 (疏水复合膜) 1-100(Hydrophobic composite membrane)	1-80
液体流量 $\text{ml/cm}^2/\text{min}@20\text{KPa}$ Liquid flow rate in $\text{ml/cm}^2/\text{min}@20\text{KPa}$	5-100	1-100	1-80	N/A



产品应用 | Product Application

- 汽车车载元件、户外照明、包装、防水透气阀、手持式电子设备等领域。
- Automotive on-board components, outdoor lighting, packaging, Waterproof vent, handheld electronic devices and other fields.



户外照明
Outdoor lighting



包装
Packaging



防水透气阀
Waterproof vent



手持式电子产品
Handheld electronics

产品规格及性能 | Product specifications and performance

产品性能 Product performance	产品类型 Product type	疏水膜 Hydrophobic membrane	疏水复合膜 Hydrophilic composite membrane	疏水疏油膜 Hydrophobic and oleophobic membrane	疏水疏油复合膜 Hydrophobic and oleophobic composite membrane
厚度, μm Thickness, μm		5-100	依支撑材料定制 Customized according to support material	5-50	依支撑材料定制 Customized according to support material
支撑材料 Support material		N/A	PET, PP, PET/PE, PP/PE	N/A	PET, PP, PET/PE, PP/PE
复合方式 Composite mode		N/A	热复合/胶复合 Thermal compounding / glue compounding	N/A	热复合/胶复合 Thermal compounding / glue compounding
透气量 $\text{ml}/\text{cm}^2/\text{min}@7\text{KPa}$ Breathable amount $\text{ml}/\text{cm}^2/\text{min}@7\text{KPa}$		100-15000	100-12000	100-12000	100-10000
防水等级 Waterproof grade		IPX5-IPX7-IPX9			

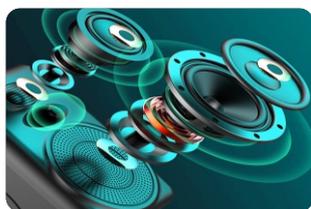


产品应用 | Product Application

- 麦克风、扬声器、耳机、手机等电子设备领域。
- Microphones, speakers, headphones, mobile phones and other electronic devices.



麦克风
Microphones



扬声器
Speakers



耳机
Earphones



手机
Mobile phone

产品规格及性能 | Product specifications and performance

产品类型 Product type	防水透声膜 Waterproof and sound permeable membrane	防水透声复合膜 Waterproof and sound-transparent composite membrane
产品性能 Product performance		
厚度, μm Thickness, μm	3-15	依支撑材料定制 Customized according to support material
防护等级 Degree of protection	IP65-IP68	
支撑材料 Support material	离型膜 From type membrane	涤纶网 (目数定制) Polyester mesh (custom mesh)
复合方式 Composite mode	N/A	热复合 Thermal compounding
透气量 $\text{ml}/\text{cm}^2/\text{min}@7\text{KPa}$ Breathable amount $\text{ml}/\text{cm}^2/\text{min}@7\text{KPa}$	≥ 12000	≥ 3000
疏油等级 Oleophobic grade	3-8	
声损 Sound artifacts	1-5dB	
耐水压 KPa Resistant to water pressure, Kpa	10-300	10-500



产品说明 | Product Description

采用膨体拉伸工艺制备，具备优异的耐化学性；
Prepared by expansion stretching process, no filler, with excellent chemical resistance;

优异的耐蠕变耐冷流特性和螺栓荷载的保持能力；
Excellent resistance to creep cold flow characteristic and the bolt load keep ability;

极佳的顺应性，适用于平整度不佳或损伤的法兰表面；
Excellent compliance, suitable for poor flatness or damaged flange surface;

材质柔韧强度高，密封时所需紧固力小，可裁切或冲切成形状复杂或尺寸要求高的垫片；
The material is flexible and strong, and the fastening force required for sealing is small. It can be cut or punched into gaskets with complex shapes or high size requirements.

优异的耐高低温性能，可耐受高空寒冷的温度环境；
Excellent high and low temperature resistance, can withstand high altitude cold temperature environment;

根据要求，可赋予其耐环境、耐燃油等特性；
According to requirements, it can be given environmental resistance, fuel resistance and other characteristics;

更持久的使用寿命。
The service life of more durable.

产品应用 | Product Application

航空密封、表面保护、工业应用、石油应用等领域。
Aerospace sealing and surface protection, industrial applications and other fields.



航空密封
Aviation seals



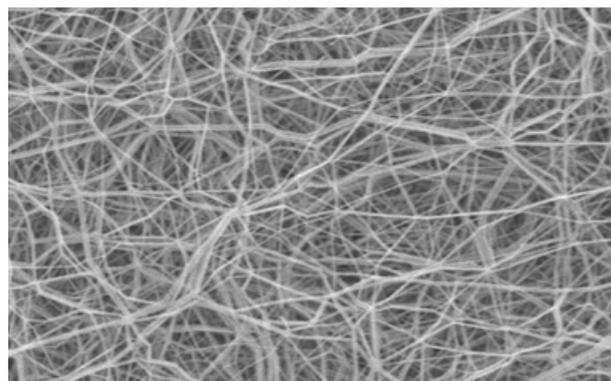
表面保护
Surface protection



工业应用
Industrial applications

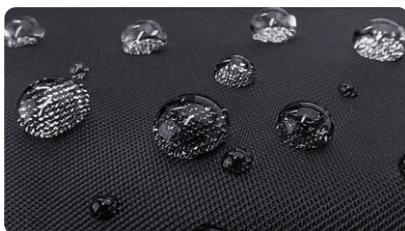


石油应用
Petroleum applications



产品说明 | Product Description

- 多功能纳米纤维呼吸膜，是一种具有微孔结构的特种薄膜材料，因以其优异的防水透湿性、防风保暖性、化学惰性和高阻燃性、耐高低温性，广泛应用于大众消费纺织品、军警、消防应急救援、公共事业等领域。
- Multifunctional nanofiber membrane is a special film material with a microporous structure. It is widely used in outdoor weather protection because of its excellent waterproof and moisture permeability, wind and heat preservation, chemical inertness and flame-retardant resistance, and natural high and low temperature resistance. Example use cases are in civilian or military rain and snow textiles, outdoor sports textiles, fire emergency rescue textiles, medical textiles, and other fields.



舒适性
Comfort

高透气、高透湿
High breathability and moisture permeability

科技性
Technology

高度防水、阻燃、防菌病毒
Highly waterproof, flame retardant, anti-bacterial and virus proof

耐候性
Weather Resistance

耐自然高低温最高可达150°C，低温-200°C
Resistance to high and low natural temperature
(high temperature up to 150°C, low temperature to -200°C)



低碳环保
Low Carbon
Environmental Protection

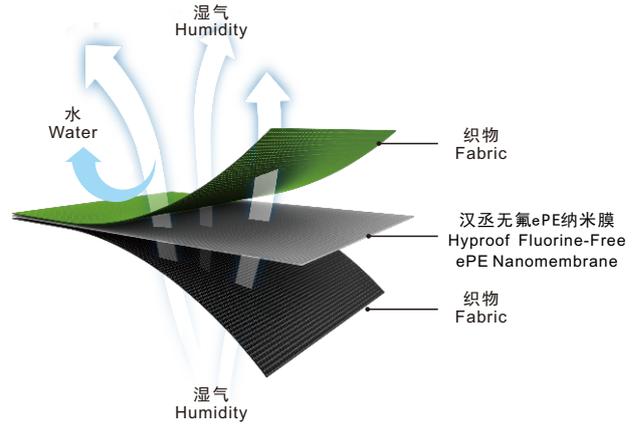
使用周期长
Long service life

时尚性
Fashion

复合现有各类纤维面料(棉、涤纶、尼龙、丝绸、芳纶...)
Compatible with all kinds of existing fiber fabrics (Cotton, polyester, nylon, silk, aramid, ect)

耐化性
Chemical Resistance

耐盐雾、强酸、强碱、各种有机溶剂、强氧化剂的腐蚀抗污性
Resistant to salt spray, strong acid and alkali, and corrosion of various organic solvents and strong oxidants



产品说明 | Product Description

汉丞无氟ePE纳米膜复合功能面料是专为日常通勤、轻户外及春秋露营场景研发的多层复合功能面料，以“三层贴”创新结构为核心，通过纳米级工艺将ePE（改性聚乙烯）纳米复合膜与上下层尼龙基材深度融合，主打“轻若无物、透湿不闷、防水抗潮”，精准解决传统户外面料“厚重闷汗”“防水不透气”的使用痛点，为用户提供“全天候舒适”的场景化体验。

Hyproof Fluorine-Free ePE Nanomembrane Composite Functional Fabric is a multi-layer composite functional fabric specially developed for daily commuting, light outdoor activities and spring/autumn camping scenarios. With the innovative "three-layer lamination" structure as its core, it deeply integrates the ePE (modified polyethylene) nanocomposite membrane with the upper and lower nylon substrates through nanoscale technology. It focuses on the features of "ultra-light as nothing, moisture-permeable without stuffiness, and water-resistant & moisture-proof", accurately solving the pain points of traditional outdoor fabrics such as "being heavy and causing stuffy sweat" and "waterproof but not breathable", and providing users with a scenario-based experience of "all-weather comfort".

名称 Description	尼龙单布+ePE+可特 Nylon single layer fabric + ePE + Kete			
检测项目 Project	测试标准 Test Method	标准参数 Parameter	汉丞 Hyproof	美国进口 U.S.-Imported
克重 Weight	GB/T4669-2008	单位: g/m ²	70	70
有效门幅 The effective width	GB/T 4667-1995	单位: cm	150	150
水压 Water pressure	GB/T4744-2013	单位: KPa/cm ² ; 高水压法, 测试面积100cm ² , 加压速度 100Kpa/cm ²	150	100
透气 Permeability	GB/T5453-1997	单位: mm/s; 压差300pa, 测试面积20cm ²	0.6	0
透湿 Moisture Permeability	GB/T12704.1-2009 A法	单位: g/m ² /day	6000	3500
5次水洗水压 Five wash water pressure	GB/T4744-2013	单位: KPa/cm ² ; 高水压法, 测试面积100cm ² , 加压速度 6Kpa/cm ²	85	70

序号 NO.	规格型号 Specification	品名 Name	幅宽 Width (cm)	透气 Breathable (mm/s)100Pa	初始耐水压 (mmH ₂ O) 快压 (50D可特垫布) Initial water pressure resistance (mmH ₂ O) Fast pressure (50D tricot placemat)	10次水洗水压 (mmH ₂ O)慢压 (50D可特垫布) 10 times water pressure (mmH ₂ O) Slow pressure (50D tricot placemat)	透湿率 (吸湿法) 正杯 Water Vapour Transmission: Desiccant method	RET
1	HB-A01-ML	多功能纳米 纤维呼吸膜 Multifunctional Nanofiber Respiratory Membrane	162-220	>6	>10000	>2000	>10000	<1
2	HB-B01-ML			>1	>20000	>5000		
3	HB-C01-ML			>1	>20000	>10000		
4	HB-D01-ML			>0.5		>15000		
5	HA-A01-ML		180-220	>10	>10000	水洗后无水压 No water pressure after washing		
6	HA-B01-ML			>5	>15000			
7	HA-C01-ML			>2	>20000			
8	HA-D01-ML			>2	>25000			
9	HB-G01-ML	防生化膜 Biochemical resistant membrane						

多功能纳米纤维呼吸膜纺织品应用领域

Multifunctional Nanofiber Respiratory Membrane Textile Application Field

四大领域 Four areas



大众消费纺织品领域
Mass consumption textiles field



军警领域
Military and police field



消防应急救援领域
Fire emergency rescue field



公共事业领域
Public service field

产品说明 | Product Description

- 多功能纳米纤维呼吸膜，具有防风保暖、防水透气、轻便舒适、耐寒耐晒等功能，能满足冰雪运动类滑雪服、冲锋衣、休闲便服、裤子、帽子、手套和鞋子、帐篷、背包、睡袋、雨披、鞋靴透气垫、攀山服、钓鱼服、高尔夫服、透气性床品、高端汽车罩等产品的需求。
- Multifunctional nanofiber respiratory membrane has the functions of windproof and warm, waterproof and breathable, light and comfortable, resistance to cold and sun etc. It can meet the requirements of snow sports ski wear, storm jacket, casual casual clothes, pants, hats, gloves and shoes, tents, backpacks, sleeping bags, poncho, shoes and boots breathable mat, mountain clothing, fishing clothing, golf clothing, breathable bedding, high-end car cover and so on.

标准产品一 Standard product 1

T800涤纶布+C01+涤纶可特
T800 polyester fabric +C01+ polyester tricot

成品初始静水压 (mmH₂O) : >20000
Initial hydrostatic pressure of finished product (mmH₂O) : > 20000

10次水洗后静水压 (mmH₂O) : >10000
Hydrostatic pressure after 10 washes (mmH₂O) : > 10000

20次水洗后静水压 (mmH₂O) : >5000
Hydrostatic pressure after 20 washes (mmH₂O) : > 5000

RET : < 6

可根据客户需求定制
可匹配相应的止水条
Can be customized according to customer needs
Can match the corresponding sealing rod



标准产品二 Standard product 2

尼龙66(70D)+D01+尼龙可特
Nylon 66(70D)+D01+ Nylon tricot

成品初始静水压 (mmH₂O) : >20000
Initial hydrostatic pressure of finished product (mmH₂O) : > 20000

10次水洗后静水压 (mmH₂O) : >15000
Hydrostatic pressure after 10 washes (mmH₂O) : > 15000

20次水洗后静水压 (mmH₂O) : >10000
Hydrostatic pressure after 20 washes (mmH₂O) : > 10000

RET : < 9

可根据客户需求定制
可匹配相应的止水条
Can be customized according to customer needs
Can match the corresponding sealing rod



产品说明 | Product Description

- 多功能纳米纤维呼吸膜，基于优越的防水，防风和透气性能，在军警用纺织品先进的防护服装产品中发挥至关重要的作用。
- 军警研发机构可以从创新的功能性纺织品中受益，致力于研究世界各地恶劣苛刻环境中战士不断发展的功能需求。
- Multifunctional nanofiber respiratory membrane serves a vital role in military and police uniforms by offering superior water proof, wind proof and breathability.
- Military and police R&D organizations can benefit from innovative functional textiles and dedicated to the evolving functional needs of soldiers in harsh environments around the world.

标准军警产品 Standard military and police product

尼龙66(70D)+D01+尼龙可特

Nylon 66(70D)+D01+ Nylon tricot

成品初始静水压 (mmH₂O) : >20000
Initial hydrostatic pressure of finished product (mmH₂O) : > 20000

50次水洗后静水压 (mmH₂O) : >10000
Hydrostatic pressure after 50 washes (mmH₂O) : > 10000

可根据客户需求定制
可匹配相应的止水条
Can be customized according to customer needs
Can match the corresponding sealing rod



标准防生化产品 Standard bioprotection product

尼龙66(70D)+G01+尼龙可特

Nylon 66(70D)+G01+ Nylon tricot

成品初始静水压 (mmH₂O) : >20000
Initial hydrostatic pressure of finished product (mmH₂O) : > 20000

芥子气 HD < 4 μg/cm²/d
Mesonic gas HD < 4 μg/cm²/d

芥子气实毒耐穿透测试>24小时
Mustard gas penetration resistance >24 hours

GD, VX < 20 μg/cm²/d

可根据客户需求定制
可匹配相应的止水条
Can be customized according to customer needs
Can match the corresponding sealing rod



产品说明 | Product Description

- 多功能纳米纤维呼吸膜，具有卓越的阻燃性能、防血液渗透性能、耐酸碱性能、防水性能、轻便、透气、透湿性能，可多次洗涤后重复使用。在整个消防应急救援服务过程中，能够提供全面的防护性能，从而保障消防应急救援人员的职业健康。
- Multifunctional nanofiber respiratory membrane has excellent performance of flame retardant, anti-blood permeability, resistance to acid and alkali, waterproof, lightweight, air permeability, moisture permeability, and can be reused after multiple washing. During the whole fire rescue service, it can provide comprehensive protection performance, so as to protect the occupational health of fire emergency rescue personnel.

标准单贴产品 Standard sheet product

芳纶(200g) +C01

Aramid(200g) +C01

阻燃：阴燃、续燃 0 (秒)
Flame retardant: smouldering, continuous burning 0 (seconds)

25次水洗后静水压 (mmH₂O) : >5000
Hydrostatic pressure after 25 washes (mmH₂O) : > 5000

透湿性能 > 8000
Moisture permeability > 8000

满足：EN 469(消防服标准)
Meet: EN 469 (Fire clothing standard)

RET < 13

可根据客户需求定制
可匹配相应的止水条
Can be customized according to customer needs
Can match the corresponding sealing rod



标准三合一产品 Standard three layer lamination product

芳纶(200g) +D01+阻燃可特

Aramid fabric(200g) +D01+ Flame retardant tricot

阻燃：阴燃、续燃 0 (秒)
Flame retardant: smouldering, continuous burning 0 (seconds)

20次水洗后静水压 (mmH₂O) : >8000
Hydrostatic pressure after 20 washes (mmH₂O) : > 8000

RET < 13

满足：EN 469(消防服标准)
Meet: EN 469 (Fire clothing standard)

可根据客户需求定制
可匹配相应的止水条
Can be customized according to customer needs
Can match the corresponding sealing rod



产品说明 | Product Description

- 多功能纳米纤维呼吸膜，具有优越的防酸碱、防水火、防蒸汽烫伤、轻便、优质的透气透湿性能，可多次洗涤后重复使用。可用于电网、石油、石化、气象、矿山、铁道、冶炼、勘探、海洋等行业应用。
- Multifunctional nanofiber respiratory membrane has superior performance in acid and alkali resistance, water and fire proof, steam scald resistance, lightweight, high air permeability and moisture permeability, and can be reused after multiple washing. It can be used in power grid, petroleum, petrochemical, meteorological, mining, railway, smelting, exploration, ocean and other industrial applications.

标准单贴产品一 Standard sheet product 1

锦棉布 (240g) +C01

Cotton brocade(240g)+C01

初始静水压 (mmH₂O) : >10000
Initial hydrostatic pressure (mmH₂O) : > 10000

10次水洗后静水压 (mmH₂O) : >5000
Hydrostatic pressure after
10 washes (mmH₂O) : > 5000

透湿性能 > 7000
Moisture permeability > 7000

可根据客户需求定制
可匹配相应的止水条
Can be customized according to customer needs
Can match the corresponding sealing rod



标准单贴产品二 Standard sheet product 2

阻燃布 (240g) +D01

Flame retardant cloth(240g)+D01

初始静水压 (mmH₂O) : >15000
Initial hydrostatic pressure (mmH₂O) : > 15000

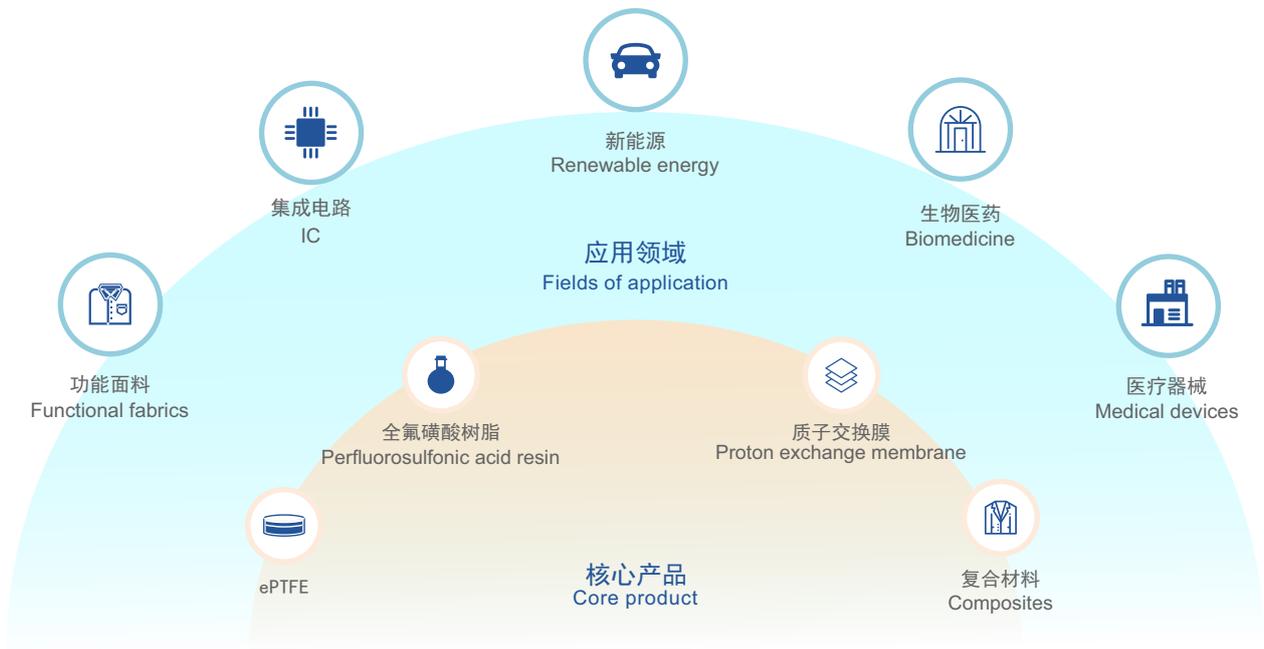
10000次曲折后静水压 (mmH₂O) : >10000
Hydrostatic pressure after 10000 twists
and turns (mmH₂O) : > 10000

透湿性能 > 7000
Moisture permeability > 7000

阻燃: 阴燃、续燃 <2 (秒)
Flame retardant: smouldering, continuous
burning < 2 (seconds)

可根据客户需求定制
可匹配相应的止水条
Can be customized according to customer needs
Can match the corresponding sealing rod





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新能源增量市场增速极快
仍有其他亟待拓展场景

Broad application market and space
The incremental market of new energy is growing rapidly
There are still other scenarios that need to be expanded

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公司网址/http://www.hyproof.com

