

Brief Introduction 公司简介

江苏长海复合材料股份有限公司成立于 2000 年，是一家集科研、产品开发、生产、销售、服务于一体的民营科技型上市企业。

公司位于长三角极具活力和发展潜力的工业城市——常州市武进区，距常州机场 30 多公里，距常州火车站 16 公里，毗邻沪宁高速、沿江高速与 312 国道，交通极其方便。

通过多年发展与自主创新，长海玻纤在强手如林的市场竞争中脱颖而出，成为行业中的佼佼者。目前，公司已建成年产 3 万吨的无碱池窑和 7 万吨的 ECR 池窑，形成了以玻璃纤维纱、玻璃纤维短切毡、湿法薄毡、涂层毡为主的四大产品系列，品种覆盖各种无碱玻纤直接纱、喷射纱、SMC 片材用纱、车顶棚用纱、透明板用纱、缠绕挤拉纱、短切毡用纱及无碱玻纤短切毡、薄毡、蓄电池复合隔板、方格布、网格布、复合毡与缝编毡、新型墙体保温复合贴面材料系列等。近年来，公司又引进了玻璃纤维连续毡，玻璃纤维复合防火层压板等生产线。产品应用领域包括汽车制造、游艇、卫浴设施、储罐、管道包覆、冷却塔、透明板材、建筑装饰等。

一直以来，长海玻纤将“以质量求生存，以品种求发展”的经营理念渗透到生产过程中的每一个环节。公司现有国际先进的

多条玻璃纤维制品生产线，拥有拉力、厚度、可燃物含量等一系列高端质量检测设备和全电脑检测分析仪，保证玻纤生产的每一个环节都经过严格的检测。公司通过了 ISO9001:2000 质量管理体系认证，并获全国防水行业建设奖，被江苏省科学技术厅认定为江苏省高新技术企业；新型超细玻璃纤维复合隔板被命名为江苏省高新技术产品。2008 年公司通过 ISO14001 环境管理体系。2011 年 3 月 29 日江苏长海复合材料股份有限公司在深圳交易所创业板上市，股票代码 300196。

长海已然成为玻纤制品行业的重要代表之一。在国内，长海以其优异的品质，得到了国内多家企业的一致认可；在国外，北美、南美、欧洲、中东、东南亚、大洋洲、非洲……多个国家和地区打上了长海的标记。长海一贯坚持“用户满意是我们永恒的追求！贴心服务是我们一贯的宗旨”的服务方针，将自己的品牌形象随着不断拓展的营销网络推广到世界各个角落。长海，将以大海一样的辽阔胸襟和深远发展眼光，从容面对未来市场变化带来的机遇和挑战，始终不渝的坚持自己的目标——“成为国内外领先的新型复合材料行业领军人物！”

Changzhou Changhai Composite Materials Holding Co., Ltd., founded in 2000, is a large listed scientific and technical enterprise focusing on scientific research, product development, production, sales and service in the area of fiberglass products manufacture.

Through years of development and independent innovation, Changhai has been able to compete successfully in the fiberglass market and become the leader in the industry. Now, the company had successfully completed the first E-glass furnace with output of 30,000 tons and the second ECR furnace with output of 70,000 tons, the company has formed four main series of products for fiberglass roving, chopped strand mat, fiberglass tissue and coated mat, covering all kinds of E-glass roving for filament winding, spray-up roving, SMC roving, chopping roving for headliner, panel roving, roving for pultrusion, assembled Roving for Chopping and chopped strand mat, tissue, colored & printed tissue, battery separator, new insulation wall cover material, stitch combo mat, woven roving, mesh and so on. In recent years, Changhai introduced the new product lines for continuous filament mat, fiberglass high pressure laminate. Applications include automobile manufacturing, yachts, private facilities, storage tank, pipeline coating, cooling towers, architectural decoration, and so on.

All along, Changhai keeps its business philosophy- "survive by quality, development by variety", to infiltrate into the production

process in every link. By now, the company has several advanced glass fiber production lines. With kinds of international advanced quality testing equipments in tensile strength, thickness and binder content and computer analysis instruments, every progress of fiberglass is produced in rigorous testing. The company obtained the ISO9001: 2000 quality management system certification, and it received the awards of Construction of national waterproof industry and was identified as the high-tech enterprises in Jiangsu Province. New ultra-fine glass fiber compound separator was named the high-tech products in Jiangsu Province. On March 29, 2011, Jiangsu Changhai Composite Materials Holding Co., Ltd is listed on the Shenzhen Stock Exchange GEM, the stock code is 300196.

Changhai has become one of the important representatives in GFRP industry. Changhai has been unanimously approved by lots of countries with its excellent quality. Changhai will calmly face the future opportunities and challenges brought by market changes, and unswervingly stick to its goal - "became the domestic first and international advanced leader in new composite materials industry!"



玻璃纤维表面毡 Surfacing veil

玻璃纤维表面毡主要用于玻璃制品的表面层中。具体分为缠绕型 (S-SM) 系列和手糊型 (S-HM) 系列两大类。

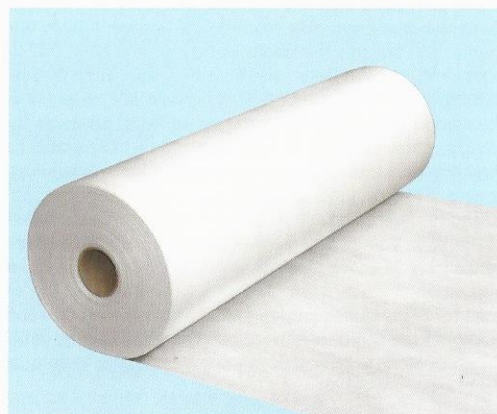
缠绕型玻璃纤维表面毡主要适用于缠绕管道和罐制品, 能改善制品表层的耐腐蚀性和增强抗压强度, 防渗漏, 延长使用寿命。

手糊型玻璃表面毡主要用于几何曲线复杂的手糊制品, 其覆模性好, 树脂渗透速度快, 能提高制品的强度和耐腐蚀性。

Surfacing veil is mainly used in the surface layers of FRP products. It is divided into winding S-SM series and hand lay-up S-HM series.

S-SM are mainly used on pipe and tank winding process. It can improve the product surface property on corrosion resistance, compressive strength, seepage resistance, and longer service life.

S-HM is chiefly used in the product with complicated geometric curve. It has the advantages of good pattern fitness, quick resin permeation. It can raise the intensity and corrosion resistance of products.



产品特点 Product Features

- 纤维分布均匀
- 制成品表面光滑、平整
- 耐腐蚀性
- 粘结剂含量低
- 伏模性好
- Excellent fiber distribution
- Smooth surface appearance of finished products
- Corrosion resistant
- Low binder content
- Good molding properties

技术参数 Technical Specification

产品代号 Product code	玻纤类型 Glass type	单位重量 Area weight	可燃物含量 Binder content	纵向拉伸强度 Tensile MD (N/5cm)	含水率 Moisture Content
S-SM 30	C/E/ECR-glass	30g/m ²	6.0	≥25	≤0.2
S-SM 50	C/E/ECR-glass	50g/m ²	6.0	≥40	≤0.2
S-HM 30	C/E/ECR-glass	30g/m ²	7.0	≥20	≤0.2
S-HM 50	C/E/ECR-glass	50g/m ²	6.0	≥30	≤0.2



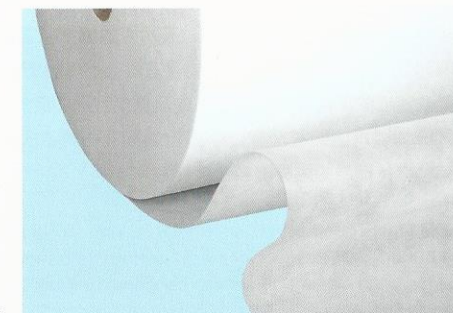
玻纤屋面毡 Roofing Tissue

S-RM 是制作 SBS、APP 改性沥青防水卷材和彩色沥青玻纤瓦的良好胎基, 并由于整幅毡的纵向加筋, 充分提高了毡的纵向拉伸强度和抗撕裂强度。用 S-RM 系列毡作基材制成的油毡, 能克服油毡高温流淌、低温脆裂、易于老化等缺点, 使油毡耐候性优异, 防渗透性增强, 并延长其使用寿命, 因此是用于屋面油毡等材料的理想基材。同时, S-RM 系列毡也可用作房屋隔热层的底衬材料。

针对此产品的特性和广泛应用, 我司推出 S-RM-M 系列 (玻璃纤维薄毡复合网格布) 和 S-RMT 系列 (玻璃纤维薄毡 + PVC 涂层)。此类产品抗张性强, 耐腐蚀性好, 是建筑材料的理想基材。

S-RM mat is mainly used as substrate for water-proof roofing materials. The asphalt mat that is made with S-RM series base material has an excellent weather-proofing, improved seepage resistance, and longer service life. Therefore, it is an ideal base material for roof asphalt mat etc. S-RM mat series can also be used as the housing heat insulation layer.

Based on the product's features and extensive usages, we have other related products, i.e. S-RM-M series (fiberglass tissue compound with mesh) and S-RMT series (fiberglass mat + coating). Those products are famous for their high tension and corrosion proof, so they are the ideal basic material for architectural stuff.



产品特点 Product Features

- 纤维分布均匀
- 拉力强度高
- 抗撕裂性好
- 适用于沥青
- Excellent fiber distribution
- Good tensile strength
- Good tear strength
- Good compatibility with asphalt

技术参数 Technical Specification

产品代号 Product code	单位重量 Area weight (g/m ²)	可燃物含量 Binder content (%)	筋距 Yarn distance (mm)	纵向拉伸强度 Tensile MD (N/5cm)	横向拉伸强度 Tensile CMD (N/5cm)
S-RM50	50	18	否	≥170	≥100
S-RM60	60	18	否	≥180	≥120
S-RM90	90	20	否	≥280	≥200
S-RM-C45	45	18	15,30	≥200	≥75
S-RM-C60	60	16	15,30	≥180	≥100
S-RM-C90	90	20	15,30	≥280	≥200
S-RM90/1	90	20	否	≥400	≥250
S-RM95/3	95	24	否	≥450	≥260
S-RM120	120	24	否	≥480	≥280



管道包覆毡 Pipe Tissue

S-PM 系列毡是用于运输石油、天然气的地下管道防腐的玻纤基材与煤焦油、沥青等和 S-PM 毡包覆的地下运输管道具有优异的防渗透和耐各种环境介质的能力，并延长管道的使用寿命，减少维修及更换费用，经对 S-PM 系列玻纤毡的各项技术指标测试均达到甚至超过中国相关标准中规定的各项技术指标。因此，S-PM 系列毡将是理想的内外缠绕带基材。

S-PM mat is used as basic material for anti-corrosion wrapping on steel pipelines that buried underground for oil or gas transportation. It has good compatibility with coal tar, pitch etc, so the underground transportation pipe wrapped with coal tar and pitch S-PM mat possesses excellent resistance to permeate and various mediums and has longer service life and less repairing and changing cost. All technical data of S-PM series can meet or even surpass the specification stipulated in the related standards in China. Therefore, S-PM series is the ideal basic material of internal and external wrapping strip.



产品特点 Product Features

- 玻纤分布好
- 较强的拉力强度
- 张力好
- 柔韧性好
- Excellent fiber distribution
- Excellent tensile strength
- Good tear strength
- Good flexibility

技术参数 Technical Specification

项目Item	单位Unit	型号Type		
		S-PM-50/30	S-PM-60/30	S-PM-90/30
单位面积质量Area weight	g/m ²	50	60	90
含胶率Binder content	%	16	16	16
加筋纱线密度Linear density of reinforcement yarn	Tex	34-68	34-68	34-68
筋距Yarns distance	mm	30	30	30
厚度Thickness	mm	0.55	0.63	0.78
纵向拉伸强度Tensile MD	N/5cm	≥200	≥180	≥280
横向拉伸强度Tensile CMD	N/5cm	≥75	≥100	≥200



地板毡 Flooring Tissue

S-FLM 系列毡主要用作塑料地板和壁纸的基材，用它作基材制成的软质塑料地板外观平整，不收缩变形，色彩鲜艳，铺设方便，是居民装饰地面的理想材料。该产品经过进一步加工可以制成各种彩色贴面材料，是装饰高档宾馆、饭店的理想材料。

S-FLM mat is mainly used as substrate for plastic flooring and wall covering materials. The PVC cushion and vinyl flooring made from this substrate is an ideal decorative material for floor decoration in domestic residence on account of their features such as smooth appearance, non-shrinkage, non-deformation bright color, convenient lay-up and renovation. By further processing, this mat can be manufactured into a variety of colorful facing materials to be used in the internal decoration in elegant hotels.

We can also supply Carpet tiles tissue and Wall covering tissue.

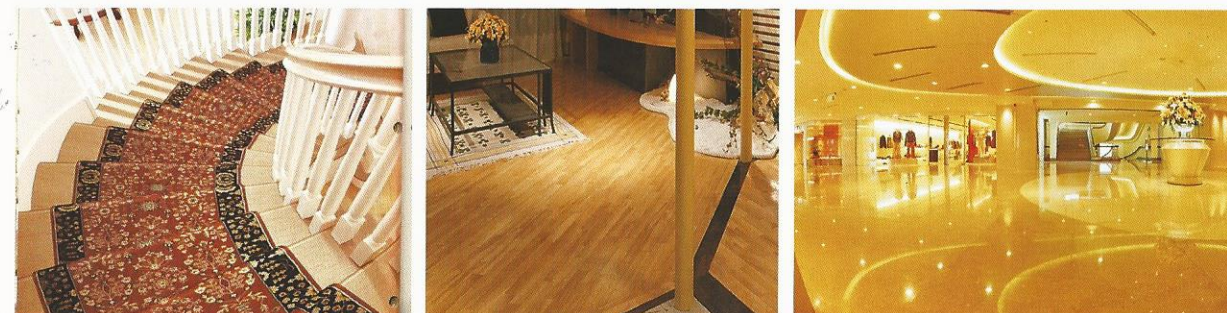


产品特点 Product Features

- 玻纤分布好
- 非常光滑的表面
- 柔韧性好，不翘曲
- 较好的拉力和张力，高温不变形
- 尺寸稳定性好
- Excellent fiber distribution
- Very smooth surface
- Excellent flexibility
- Good tensile and tear resistance
- Good dimensional stability

技术参数 Technical Specification

项目Item	单位Unit	型号Type		
		S-FLM0.3	S-FLM0.4	S-FLM0.5
含胶率 Binder content	%	25 ± 3	25 ± 3	23 ± 3
厚度 Thickness	mm	0.33 ± 0.03	0.42 ± 0.04	0.52
纵向拉伸强度 Tensile MD	N/5cm	≥120	≥136	≥175
横向拉伸强度 Tensile CMD	N/5cm	≥80	≥112	≥140
透气率 Air Permeability	m ³ /m ² *s	<4.5	<4.4	<3.8



地毯毡 Carpet Tissue

地毯毡系列主要用于方块地毯的基材。用玻璃纤维薄毡制作的方块地毯外观挺刮，不收缩变形，是室内地面装饰的理想材料

The carpet tissue mat is mainly used as substrates for the carpet tissue. The carpet tissue made from this substrate is an ideal decorative material for flooring decoration in domestic residences on account of their characteristics such as toughness appearance, non-shrinkage and non-deformation.



产品特点 Product Features

- 玻纤分布好
- 非常光滑的表面
- 柔韧性好，不翘曲
- 较好的拉力和张力，高温不变形
- 尺寸稳定性好
- Excellent fiber distribution
- Very smooth surface
- Excellent flexibility
- Good tensile and tear resistance
- Good dimensional stability

技术参数 Technical Specification

项目 Item	单位 Unit	型号 Type	
		S-FM0.4	S-FM0.3
单重Area weight	g/m ²	40	35
含胶率Binder content	%	22±3	22±3
厚度Thickness	mm	0.42±0.04	0.33±0.03
纵向拉伸强度Tensile MD	N/5cm	≥136	≥120
横向拉伸强度Tensile CMD	N/5cm	≥112	≥80
水劲强度Wet strength MD	N/5cm	≥49	≥35
透气率Air Permeability	m ³ /m ² *s	≤4.40	4.0±0.5



蓄电池隔板毡 Battery separator tissue

蓄电池隔板毡主要用作铅酸蓄电池隔板的基材，用含 S-BM 制成的复合隔板具有较好的耐振动性能和机械强度，用此隔板装配的蓄电池起动能力强，使用寿命也较长。

The battery separator tissue is chiefly used as the base material of lead acid battery separator. The compound battery separator with S-BM series mat possesses a good vibration resistance with a good starting ability and longer service life.



产品特点 Product Features

- 非常平整的表面
- 吸液能力强
- 耐酸性好
- 厚度均匀
- Excellent level and smooth surface
- Good liquid absorption
- Well acid resistance
- Even thickness

技术参数 Technical Specification

产品代号 Product code	含胶率 Binder content	厚度 Thickness (mm)	纵向拉伸强度 Tensile strength MD (N/5cm)	72小时耐酸性 Acid resistance/72hrs (%)	浸透时间 Wetting time (s)	15分钟耐酸性 Acid resistance/15min (%)
S-BM0.30	16	0.30	≥60	<3.00	<100	<2.00
S-BM0.40	16	0.40	≥80	<3.00	<25	<2.00
S-BM0.60	15	0.60	≥120	<3.00	<10	<2.00
S-BM0.80	14	0.80	≥160	<3.00	<10	<2.00



石膏板涂层毡

Coated Tissue for Gypsum Sheathing

玻纤贴面石膏板可以广泛应用于商用和居住用房，与建筑外墙组成节能型保温复合墙体，具有隔音、抗震、防火、抗撞击、防霉菌和潮气等优点。还可以应用于外墙、内墙、隔墙、电梯和楼梯通道，可以在各种墙体、柱上做贴面，是目前国内外建筑装饰和民用家装的理想装饰装修材料。玻纤贴面石膏板还能增强结构抗力，耐火性，并可以保证在正常气候条件下暴露在外 12 个月。有 1/2" 和 5/8" 厚度，48" 宽，8"，9"，10"，12" 长等各种规格。另外它比其他玻璃纤维贴面石膏板更轻更易搬运，给工程建设和环境体系认证带来极大便利。

Fiberglass-faced gypsum sheathing provides the mold and moisture resistance to both protect your next project from the elements and provide the high recycled content to contribute to LEED points as well. Developed for use in commercial and residential applications under a broad range of exterior veneers including brick, stone, metal, wood and vinyl as well as EIFS and curtainwall systems. This kind of gypsum also adds structural strength, fire resistance and a warranty for up to 12 months of exposure in normal weather conditions. It is available in 1/2" and 5/8" thicknesses, a 48" width and lengths of 8', 9', 10', and 12'. Plus, it's lighter and easier to handle than other glass-faced gypsum sheathing. It is the glass mat-faced gypsum that offers the most benefits in your project's construction process and contributes the most value toward environmental certification.

性能

玻纤贴面石膏板两面都采用了天然防霉玻璃毡。通过 ASTM D3273 测试（防霉性测试），测试结果为 10。通过 ASTM C473 测试，它的水吸附性也低于 10%。

耐气候腐蚀性

经过 ASTM E331 测试，玻纤贴面石膏板可以防止水的渗透并使用沥青条来连接接缝处。

玻纤贴面石膏板是按照 ASTM C1177 标准生产的，阻燃性通过 ASTM E119 测试，能达到 1 个小时以上的阻燃。可回收物质含量通过 ISO14021 标准认证，高达 90%。

Performance, durability & Green building credits

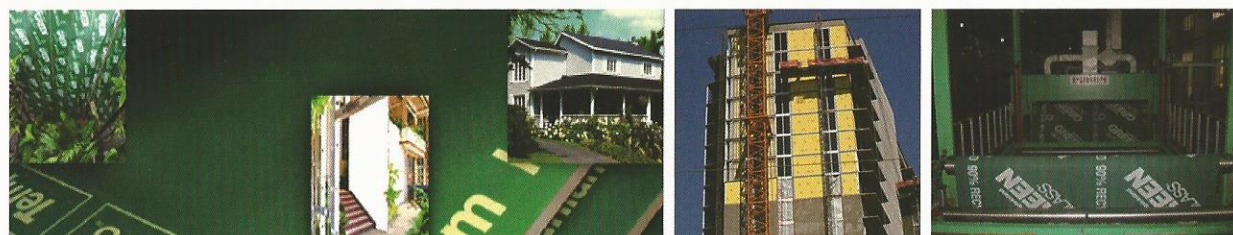
Fiberglass-faced gypsum sheathing features an enhanced gypsum core sandwiched between naturally mold- and moisture-resistant fiberglass-mat facers. This provides excellent exposure durability for up to 12 months. In addition, the high recycled content of this kind of product contributes valuable credits to LEED and other green-building system certifications.

Mold and Moisture resistance

It scored a 10, the highest value possible, when tested in accordance with ASTM D3272, the standard test for mold resistance. Its water absorption of less than 10 percent was tested in accordance with ASTM C473.

Building Code Approval

Fiberglass-faced gypsum sheathing is manufactured to comply with ASTM C1177.



聚氨酯板涂层毡

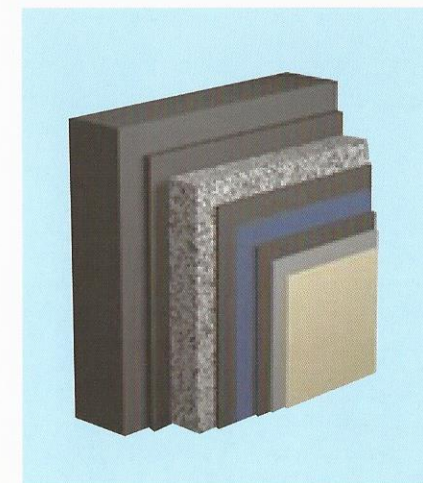
Coated Tissue For Polyurethane Foam

聚氨酯板涂层毡以玻璃纤维制品强大技术为依托，采用增强型玻璃纤维薄毡作为基底，经过先进的生产工艺开发除了阻燃，保温，隔热的 ST-SRM 系类贴面材料，代替传统水泥网格布。

该产品与聚氨酯发泡更有亲和力，粘结强度高，不渗漏，便于连续生产，可用于各种发泡材料面层，屋面隔热保温，外墙装饰贴面等具有很强的实用性。

This kind of glass fiber products, with strong technical support, as the reinforced glass fiber mat as the substrate after the development of production technology advanced in addition to flame retardant, insulation, insulation class ST-SRM system facing material, instead of the traditional cement grid cloth.

The product and the polyurethane foam more affinity, high bonding strength, no leakage, and is suitable for continuous production, can be used for a variety of foaming material layer, roof insulation, wall decoration veneer and has very strong practicability.



产品特点 Product Features

- 玻璃纤维无定向分布
- 均匀性好
- 强度高
- 重量轻
- Glass fiber without directional distribution
- Good uniformity
- High strength
- Light weight

阻燃等级 Flame retardant grade

阻燃等级经国家玻璃纤维产品质量监督检验中心检测达到 B1 级。

Flame retardant grade by the national glass fiber product quality supervision and inspection center detection to achieve the B1 level.

