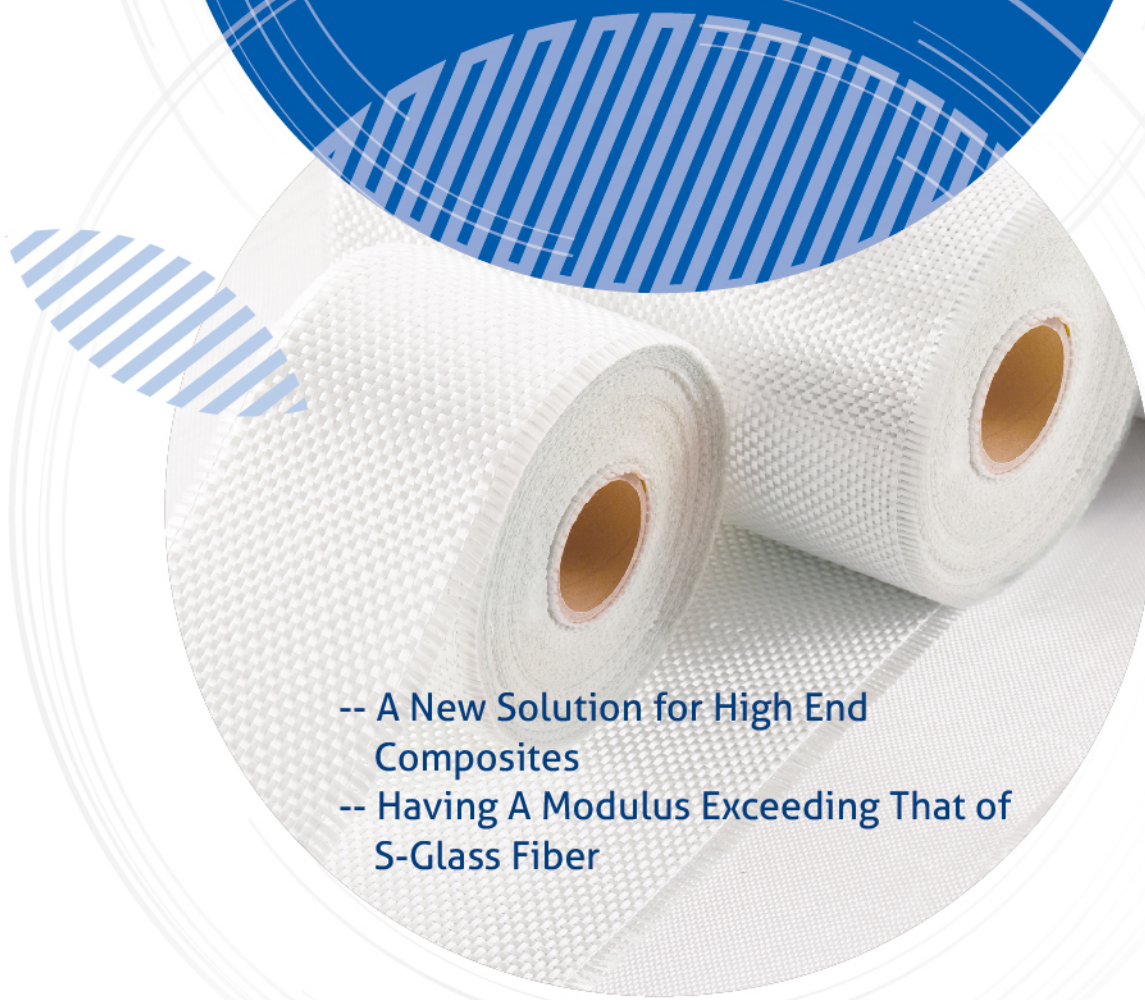




E8 HIGH MODULUS Glass Fiber



- A New Solution for High End Composites
- Having A Modulus Exceeding That of S-Glass Fiber

China Jushi Co.Ltd specializes in the production of glass fiber. The company has attained the leadership position in the global glass fiber industry in terms of Capacity, Technology, R&D, Quality and Marketing.

Jushi people adhere to our core values of "Behavior, Innovation, Responsibility, Learning, Enthusiasm" to build the company into an international corporation with the largest scale, leading technology, excellent team, lean management, powerful execution, outstanding operating results and high quality growth. China Jushi strives to lead the modernization of China's glass fiber industry and maintain the leadership position in the global glass fiber industry through endless pursuit of innovation and excellence.

COMPANY PROFILE



GOALS

CREATION OF A NEW SOLUTION FOR HIGH-END COMPOSITES

China Jushi has developed E8 High Modulus Glass Fiber in 2016, achieving a revolutionary breakthrough in the glass fiber industry. E8 glass fiber offers higher modulus and better fatigue resistance than E7 high performance glass fiber and S-glass fiber, and now can be manufactured with tank furnaces in a stable and efficient way. E8 has much better cost performance than S-glass fiber, making it more competitive than the later. E8 is designed mainly for use in the wind blades and will create tremendous value for the wind energy market. It will be able to further promote the innovation and application of large-size wind blades. E8 will enable the wind blades of the same design to have higher modulus, less deformation under the same wind load and reduced blade weight. In the meantime, wind blade manufacturers can make longer blades with better fatigue resistance and higher adaptability in wind zone, which will reduce the unit cost of power generation and prolong the service life of wind blades.

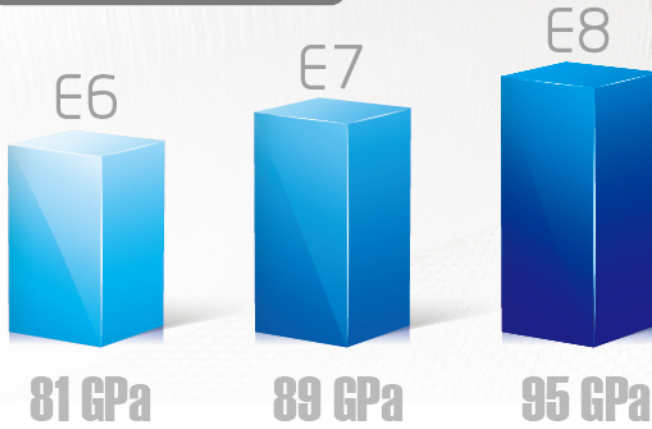


Compared with E6 and E7 glass, E8 offers the following unique benefits:

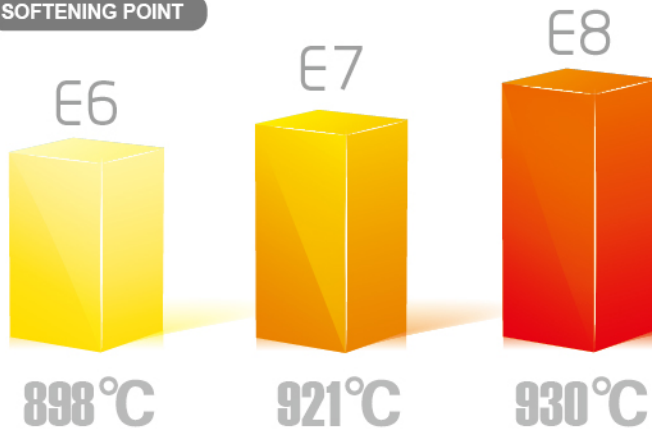
- Higher modulus, 17% higher than E6 glass, 7% higher than E7 glass;
- Higher softening point, 32°C higher than E6 glass, 9°C higher than E7 glass;
- The use of boron-free and fluorine-free raw materials enables clean production.

E8 is therefore more suitable for wind energy, high pressure and high temperature applications. In addition, E8 retains the excellent electrical properties of E6 glass fiber.

ELASTIC MODULUS COMPARISON



SOFTENING POINT



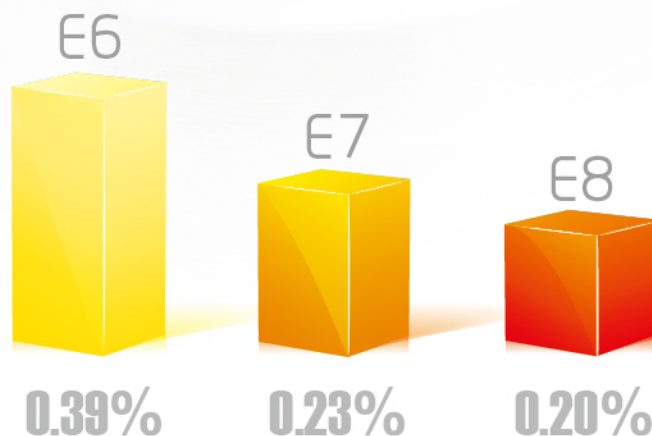
Property	Standard / Method	Unit	E6	E7	E8
Density	ASTM C693	g/cm ³	2.62-2.63	2.60-2.61	2.62-2.63
Refractive Index	ASTM C1648	/	1.566	1.562	1.568
Expansion Coefficient	ASTM D696	10 ⁻⁶ k ⁻¹	6.0	5.5	5.2
Softening Point	ASTM C338	°C	898	921	930
Elastic Modulus	ASTM E1876	GPa	81	89	95
Dielectric Constant (23°C, 1MHZ)	ASTM D150	/	7.1	7.0	6.9



E8 glass fiber is made from a unique glass composition which improves the corrosion resistance in a variety of circumstances. Compared with E6 and E7 glass fiber, E8 shows significant improvement in chemical corrosion resistance in neutral, acidic or alkaline solutions with especially superior corrosion resistance in acidic environments. E8 is therefore particularly suitable for applications which have special requirements on environment such as emissions control, chemical anticorrosion and desalination.

EVOLUTIONARY GLASS SOLUTION FOR COMPOSITES

COMPARISON IN WEIGHT LOSS IN BOILING WATER AT 100°C FOR 24 HOURS



COMPARISON IN WEIGHT LOSS IN 10% H₂SO₄ SOLUTION AT 96°C FOR 24 HOURS



Item	Testing Method	Unit	E6	E7	E8
Weight loss in acidic solution	Soaking in 10% HCl solution at 23°C for 24 hours	%	0.08	0.07	0.06
Weight loss in alkaline solution	Soaking in 0.025M Na ₂ CO ₃ at 23°C for 24 hours	%	0.24	0.14	0.12
	Soaking in 0.5M NaOH solution at 23°C for 24 hours	%	0.43	0.22	0.20
Weight loss in boiling water	Boiling in water at 100°C for 24 hours	%	0.39	0.23	0.20

Note: The above tested products have a uniform filament diameter.

EXCELLENT MECHANICAL PROPERTIES

E8 is a high-performance glass fiber with higher modulus and higher strength. E8 glass fiber will offer more superior mechanical properties, dimensional stability and fatigue resistance, and can meet higher design requirements of composite materials to be used more demanding environments. E8 glass fiber can be widely used in the fields of large wind blades, military equipment, high pressure vessels and aerospace.

Test Sample	Property	Standard	E6	E7	E8
Tensile property of impregnated roving, Epoxy resin	Tensile strength (MPa)	ASTM D2343	2500-2700	2800-3000	3100-3500
	Tensile modulus (GPa)	ASTM D2343	81-83	89-91	95-98
1250 g/m ² UD fabric, (tested in 0° direction), Infusion process, Epoxy resin	Tensile strength (MPa)	ISO 527-5	/	1321.7	1332.3
	Tensile modulus (GPa)	ISO 527-5	/	48.5	51.6
	Fiber volume content (%)	ISO 1172	/	53.6	53.8
	Compressive strength (MPa)	ISO 14126	/	972.8	1043.9
	Compressive modulus (GPa)	ISO 14126	/	49.1	52.1
	Fiber volume content (%)	ISO 1172	/	54.4	54.2





CERTIFICATIONS

CHINA JUSHI ALWAYS ADHERES TO ITS FUNDAMENTAL MANAGEMENT PRINCIPLES:

- o Apply science and technology for development,
- o Build the brand name to expand market share,
- o Emphasize management to improve efficiency, and
- o Employ talented people to enable future growth.

China Jushi owns proprietary, world-class core technologies for large E-glass fiber furnaces, C-glass fiber furnaces and high-performance glass fibers. It has achieved management system certifications to ISO9001, ISO14001, OHSAS18001, ISO10012 and ISO17025. Its testing center has been certified by both China National Accreditation Board for Laboratories (CNAS) and Germanischer Lloyd (GL). The fiberglass rovings and chopped strand mats under the “Jushi” brand have been listed as “China Top Brand” products and the trademark “JUSHI” has been recognized as “China Famous Trademark”. The principal products of Jushi Group have been approved by DET NORSKE VERITAS (DNV), Lloyd’s Register(LR), China Classification Society (CCS), Germanischer Lloyd (GL) and Attestation De Conformité Sanitaire (ACS).

TECHNICAL COLLABORATION AND SUPPORT

China Jushi possesses world class core technologies and advanced testing and analysis capabilities for glass, organic chemistry, fiberglass and composites. Jushi has established a global network of marketing and technical service professionals to help customers solve problems in materials development and process optimization. Jushi collaborates closely with customers to address market challenges and promote the growth of the composites industry.

China Jushi will share our information on E8 glass fiber and our knowledge of compounding technologies and processes.

Website:

<http://www.jushi.com>

E-mail addresses:

wenzhong.xing@jushi.com	(Glass technology)
feiqifeng@jushi.com	(Composites)
qing.wei@jushi.com	(Business cooperation: domestic)
freeman.wang@jushi.com	(Business cooperation: foreign)
services@jushi.com	(Customer service)

★ All the data given in this brochure is preliminary and China Jushi reserves the right to update or modify the data without notice.



 **中国巨石股份有限公司**
CHINA JUSHI CO., LTD

Add: Tongxiang Economic Development Zone, Zhejiang 314500, China

Domestic Sales: Tel: +86-573-88181016 Fax: +86-573-88136248

International Sales: Tel: +86-573-88136318 Fax: +86-573-88181058

Customer Service: Tel: +86-573-88136325 Fax: +86-573-88136248

Http://www.jushi.com E-mail: info@jushi.com