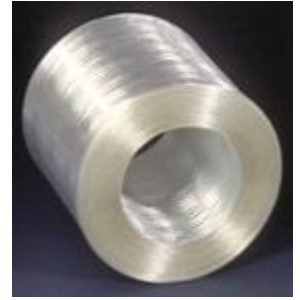


ECR Fiberglass Roving

What is ECR glass?

E-glass is a kind of "electronic" glass. It has with good water-resistance, insulation, and high mechanical strength. To simplify E-glass production, manufacturers add B₂O₃ and fluorine in the glass batch. During the process, particles with B₂O₃ & volatile fluorine get released into the atmosphere. To reduce environment pollution, ECR glass comes into being.



ECR Glass Advantage

1. ECR glass is like E-glass but without boron and fluorine. Friendly to the environment.
2. The B₂O₃ and fluorine removed in the glass formulation. So the chemical resistance (including water-resistance, acid-resistance and alkali-resistance) is better - especially acid-resistance.
3. Higher temperature resistance. The softening point of ECR glass is 40-500 degrees C higher than E-glass.
4. ECR Glass has better dielectric strength, lower electrical leakage, and higher surface resistance.
5. ECR glass has better mechanical properties when compared with E-glass.
6. ECR is good for all the e-glass applications, except for transparent FRP panel applications,
7. ECR glass is made under ASTM-D578-1999 standard since January 2005.

Outstanding Features In Some Applications Over E-Glass

Thermosetting Matrix Systems

- FRP pipe: Compared with E-glass the FRP pipe made from ECR glass enjoys better acid resistance. In many countries, especially in Middle East countries, the sewage pipes must be made with ECR glass or by OC's advantex glass fiber
- Marine: Compared with E-glass, some FRP products mainly made with ECR Glass (such as Chopped Strands Mat, Woven Roving, and Spray-up roving) enjoy better seawater resistance in marine applications made with these ECR materials.
- Rich resin FRP field such as the liners of FRP pipes, acid resistant storage tank mainly use surface veil ,chopped strand mat, woven roving and combo mat.
- Pultrusion FRP products: pultrusion products made by ECR glass enjoy better acid resistance, insulation, tensile strength and modulus. Acid-resistant epoxy insulation rod must be made by ECR glass or OC's Advantex glass fiber.

Thermoplastic Matrix Systems

- Lower harmful heavy metal volume than E-glass. Chopped strands, direct roving and multi-end roving made with ECR glass are therefore better for usage in cars, electronics, and electronic appliances.
- FRTP products enjoy a higher modulus than E-glass.
- Others: The softening point of ECR glass is higher than E-glass, so it is more suitable for the high temperature resistance products, such as muffler for cars

ECR Spray Up Roving - ECR-10K



ECR-10K spray up roving is made of standard ECR-glass multi-end fiberglass

- Designed for use in polyester and vinyl ester resin spray up systems
- Ideal for producing consumer products, corrosion and construction applications
- Can be used for filament winding process to make pipes and tanks.

Outstanding Process Properties

- High performance sizing, very low static, fuzz, and fiber fly
- Excellent chop ability, uniform glass dispersion, and lay down properties
- Ease of rollout and air release, excellent mold conformance
- Outstanding roving pay-out and package transfer
- Rapid wet-through, fast and complete wet-out

High Laminate Properties

- High laminate mechanical properties and wet strength retention
- For general polyester and vinyl ester resin, exhibit mechanical properties equal or better than E-glass roving
- Strong bonding between the glass fibers and the resin matrix due to the special designed sizing. The finished laminate has high wet strength retention because the laminate has high level resistance to hydrolytic attack.

Corrosion Resistance

- The final product made with ECR-10K roving has better acid and strain corrosion resistance than E-glass
- ECR-10K is the preferred choice over E-glass for sewer GRP pipe and chemical resistance applications
- The long-term strength retention of ECR-10K is significantly higher than E-glass.

Product Specifications

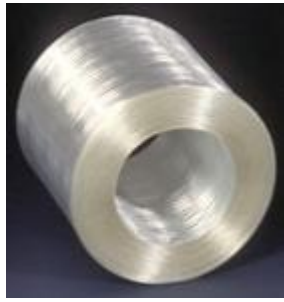
- Type of glass: ECR-glass
- Binder Type: Silane
- Roving Tex: 2400, 3100
- LOI: 1.1%
- Static: None
- Strand integrity: High
- Strand Breakup: High
- Ribbonization: High

ECR Spray Up Roving Products Available

Product code	Tex	Yield	Filament Diameter	Bundle Tex	No. Sub tex count
ECR-10K	2400	207	13um	54	44
ECR-10K	3100	160	13um	54	57
ECR-10K-P	2400	207	13um	39	60

Packing: Spray up roving is wrapped by shrink packing, then put into pallets or carton boxes. 48 or 64 rolls are packed on each pallet, 2 rolls per carton box, each roll weight is 18kgs or 24kgs. Carton box can't be stacked higher than 5 tiers, and pallets not higher than 2 tiers.

ECR Direct Roving - ECR 469L 2400



ECR-469L roving is continuous and single-end roving made of standard ECR-glass

- Ideal for filament winding and weaving
- Designed for composites that require maximum wet-out and wet-out consistency
- Compatible with polyester, vinyl ester and epoxy resin systems
- Epoxy resin systems it is recommended for general-purpose applications

Outstanding Process Properties

- Stable roving density
- Excellent abrasion resistance, lower fuzz and on sizing deposit on contact point
- Zero catenary, easily opened strands
- Low resin demand during process
- Excellent package transfer

High Laminate Properties

- High laminate mechanical properties and wet strength retention
- For general polyester and vinyl ester resin, exhibit mechanical properties equal or better than E-glass roving
- Strong bonding between the glass fibers and the resin matrix due to the special designed sizing. The finished laminate has high wet strength retention because the laminate has high level resistance to hydrolytic attack.

Corrosion Resistance

- The final product made with ECR-469L roving has better acid and strain corrosion resistance than E-glass
- ECR-469L is the preferred choice over E-glass for sewer GRP pipe and chemical resistance applications
- The long-term strength retention of ECR-469L is significantly higher than E-glass.

ECR Direct Roving Products Available

Product code	Tex	Yield	Filament Diameter	LOI (%)	Moisture
ECR-469L-200	200	2472	11um	0.40	0.1Max.
ECR-469L-300	300	1654	14um	0.40	0.1Max.
ECR-469L-600	600	827	14um	0.40	0.1Max.
ECR-469L-1200	1200	413	17um	0.40	0.1Max.
ECR-469L-2400	2400	207	24um	0.40	0.1Max.

ECR-469L-4400	4400	113	23um	0.40	0.1Max.
ECR-469L-4800	4800	103	24um	0.40	0.1Max.
<p>Packing: Spray up roving is wrapped by shrink packing, then put into pallets or carton boxes. 48 or 64 rolls are packed on each pallet, 2 rolls per carton box, each roll weight is 18kgs or 24kgs. Carton box can't be stacked higher than 5 tiers, and pallets not higher than 2 tiers.</p>					