

**WHY FIBERGLASS?****Key Features**

- Good tensile strength & modulus
- Excellent thermal properties
- Good chemical resistance
- Good flame resistance
- Good electrical insulation

**Disadvantages**

- Low strength to weight ratio
- Brittle filaments
- Poor abrasion resistance

**FIBER-LINE® PROCESS FOR FIBERGLASS**

- Coating
- Pultrusion
- Extrusion
- Precision Winding

**FIBER-LINE® FIBERGLASS PRODUCTS**

- Strength Members
- Industrial Fabric Yarn
- FRP Pultruded Rod
- Strength Members
- Industrial Fabric Yarn

**Manufacturer**

Various Suppliers.

**History**

The mass production of glass fibers first began in the 1930's. Fiberglass is produced into several forms and utilized in a vast array of composite and industrial applications. It is often used in thermoset and thermoplastic applications where the fiber is used as reinforcement.

**Composition**

Large furnaces are used to melt silica sand, limestone, and various other minerals to liquid form. The liquid is then extruded through bushings and are coated (sized) to help bundle the filaments and prepare the fibers for composite resin interface. E-Glass typically is utilized for its high modulus properties as S-Glass has a higher breaking tenacity.

**Common Yields & Sizes**

Various sizes & yields available.

**Types**

E-Glass, S-Glass.



**FIBERGLASS BARE FIBER PERFORMANCE**

Abrasion Resistance	Yarn on Yarn Abrasion	Ultraviolet (UV) Resistance	Flame Resistance	Chemical Resistance (Acid)	Chemical Resistance (Alkali)	Chemical Resistance (Organic Solvent)
X	X	O	✓	✓	✓	✓

**FIBERGLASS DATA**

**E-Glass**

Property	UOM	Value
Breaking Tenacity	g/d	6.0 – 7.3
Specific Gravity	Ratio	2.58
Elongation @ Break	%	3.5
Tensile Modulus	g/d	200 – 275
Moisture Regain*	%	<0.03
Creep**	%	10.0 – 20.0
Shrinkage***	%	0.0
Melt Point	°C	846
Decomposition Temp.	°C	TBD

**S-Glass**

Property	UOM	Value
Breaking Tenacity	g/d	6.7 – 9.4
Specific Gravity	Ratio	2.48
Elongation @ Break	%	5.5
Tensile Modulus	g/d	140 – 170
Moisture Regain*	%	<0.03
Creep**	%	5.0 – 15.0
Shrinkage***	%	0.0
Melt Point	°C	1056
Decomposition Temp.	°C	TBD

\* Equilibrium moisture regain @ 55% RH    \*\* Creep @ 40%-58% ultimate tensile strength    \*\*\* Shrinkage in dry air @ 177 C for 30 minutes

**ABOUT FIBER-LINE®**

For over 25 years, FIBER-LINE® has provided science-driven expertise that improves the performance and the end-use processing of high performance fibers. Our products enable the search for new energy reserves and extend the life of fiber optic telecommunication cables. They also add important characteristics, such as SWELLCOAT® water-blocking, water repellence, adhesion, color, and wear and UV-resistance to these and many other applications. We believe that our ongoing commitment to protect the environment, to remain at the forefront of fiber and coating technology, and to 'treat others as we want to be treated' will continue to drive the success of our customers, shareholders, and employees.

**LOCATIONS****Headquarters, R&D, Manufacturing**

FIBER-LINE® LLC  
3050 Campus Drive  
Hatfield, PA 19440  
+1 215.997.9181  
fiber@fiber-line.com

**Manufacturing Operations**

FIBER-LINE® LLC  
280 Performance Drive SE  
Hickory, NC 28602  
+1 828.326.8700  
fiber@fiber-line.com

**EMEA & Asia Pacific Operations**

FIBER-LINE® INTERNATIONAL B.V.  
Uranusweg 3  
8938 AJ Leeuwarden  
The Netherlands  
+31(0) 58 216 75 99  
info@fiber-line.com