

## General

### Designation

S-Glass Fibre/Epoxy Composite, 0° Unidirectional Lamina

Density	1840	-	1970	kg/m <sup>3</sup>
Price	* 150.3	-	216.2	FRF/kg
Production Energy	* 107	-	118	
Recycle Fraction	0.01	-	0.02	

## Composition

### Composition (Summary)

Epoxy + S-Glass fibre reinforcement

Base	Polymer			
Glass (fibre)	65	-	70	%
Polymer	30	-	35	%
SiO <sub>2</sub> (Silica)	65	-	70	%

## Mechanical

Bulk Modulus	* 7.38	-	9.04	GPa
Compressive Strength	1158	-	1186	MPa
Elongation	3.5	-	3.7	%
Elastic Limit	1696	-	1758	MPa
Endurance Limit	* 339.2	-	527.4	MPa
Fracture Toughness	* 5.399	-	32.31	MPa.m <sup>1/2</sup>
Hardness - Vickers	* 10.8	-	21.5	HV
Loss Coefficient	2.9e-3			
Modulus of Rupture	1696	-	1758	MPa
Poisson's Ratio	* 0.27	-	0.28	
Shape Factor	4.1			
Shear Modulus	4.7	-	4.75	GPa
Tensile Strength	1696	-	1758	MPa
Young's Modulus	47.6	-	47.8	GPa

## Thermal

Maximum Service Temperature	* 140	-	220	°C
Minimum Service Temperature	* -43	-	7	°C
Specific Heat	* 938.1	-	1055	J/kg.K
Thermal Conductivity	* 0.66	-	0.83	W/m.K
Thermal Expansion	* 1.73	-	3.67	µstrain/°C

## Electrical

Breakdown Potential	* 11.8	-	19.7	MV/m
Dielectric Constant	* 4.511	-	4.782	
Resistivity	* 5.75e15	-	2.13e16	µohm.cm

## Optical

Transparency	Translucent
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## Environmental Resistance

Flammability	Good
Fresh Water	Very Good
Organic Solvents	Average
Oxidation at 500C	Very Poor
Sea Water	Very Good
Strong Acid	Poor
Strong Alkalis	Very Good
UV	Good
Wear	Average
Weak Acid	Good
Weak Alkalis	Average

## Notes