Epoxy/HS Carbon Fibre, UD Composite, 0° Lamina

General

Designation

High Strength Carbon Fibre/Epoxy Composite, 0° Unidirectional Lamina

Density	1550	-	1580	kg/m^3
Price	* 283.6	-	349.5	FRF/kg
Production Energy	* 259	-	286	
Recycle Fraction	* 0.018	-	0.022	

Composition

Composition (Summary)

Epoxy + Carbon fibre reinforcement

Base	Polymer			
C (Carbon)	65	-	70	%
Carbon (fibre)	65	-	70	%
Polymer	30	-	35	%

Mechanical

Bulk Modulus	* 9.09	-	12.16	GPa
Compressive Strength	1407	-	1689	MPa
Elongation	1.2	-	1.4	%
Elastic Limit	1744	-	2165	MPa
Endurance Limit	* 959.2	-	1407	MPa
Fracture Toughness	* 10.83	-	82.6	MPa.m^1/2
Hardness - Vickers	* 10.8	-	21.5	HV
Loss Coefficient	* 1.4e-3	-	3.3e-3	
Modulus of Rupture	1744	-	2165	MPa
Poisson's Ratio	0.32	-	0.34	
Shape Factor	7			
Shear Modulus	3.74	-	6.3	GPa
Tensile Strength	1744	-	2165	MPa
Young's Modulus	128.9	-	154.4	GPa

Thermal

Glass Temperature	100	-	180	°C
Maximum Service Temperature	* 140	-	220	°C
Minimum Service Temperature	* -123	-	-73	°C
Specific Heat	* 901.7	-	1037	J/kg.K
Thermal Conductivity	* 3.9	-	6.6	W/m.K
Thermal Expansion	* -0.44	-	0.16	µstrain/°C

Electrical

Resistivity	* 9.71e4	-	2.87e5	µohm.cm

Optical

Transparency	Opaque

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