



ISiComp®

The Ceramic Matrix Composite for Aerospace application
Operating temperature up to **1500°C** in inert atmosphere



ISiComp® is a carbon fiber reinforced CMC (Ceramic Matrix Composite) developed for a variety of applications which require both lightness and good mechanical properties. Both planar and complex shapes can be manufactured, depending on the specific needs. The standard product withstands up to 1500°C in inert atmosphere or vacuum. A protective ceramic coating was devised for this material which makes it suitable for higher temperatures applications (up to 1650°C) in low-oxygen atmospheres.

	Standard	Temperature	Unit	Average Value
Density	ASTM C-20	20°C	g/cc	1,9
Open porosity		20°C	%	4
Bending strength	ASTM C1341	20°C	MPa	230
Bending modulus		20°C	GPa	60
Tensile strength	ASTM C1275	20°C	MPa	170
Tensile modulus		20°C	GPa	80
Compressive Strength	ASTM C1358	20°C	MPa	260
Compressive Modulus		20°C	GPa	80
ILSS	ASTM C1292-10	20°C	MPa	25
Thermal conductivity (T.T.T*)	ASTM E1461	400°C	W/(m·K)	8 – 9
Thermal conductivity (in plane)				15 – 16
Thermal conductivity (T.T.T*)		600°C	W/(m·K)	8 – 9
Thermal conductivity (in plane)				16 – 18
Specific heat	ASTM E1461	400°C	J/(g·K)	1,15 – 1,30
		600°C		1,40 – 1,50
Coefficient of thermal expansion (in plane)	I.P.**	20-500°C	10 ⁻⁶ · °C ⁻¹	0,40 - 0,50
Coefficient of thermal expansion (in plane)	I.P.**	20-1000°C	10 ⁻⁶ · °C ⁻¹	0,81 – 0,93
Silicon Carbide (SiC)	I.P.**	--	Wt %	31 – 37
Silicon (Si)				1 – 4
Carbon (C)				61 - 67

All values are referred to a 0-90° lay-up. Sample were tested in the 0° direction

* T.T.T. = Through The Thickness

** I.P. = Internal procedure