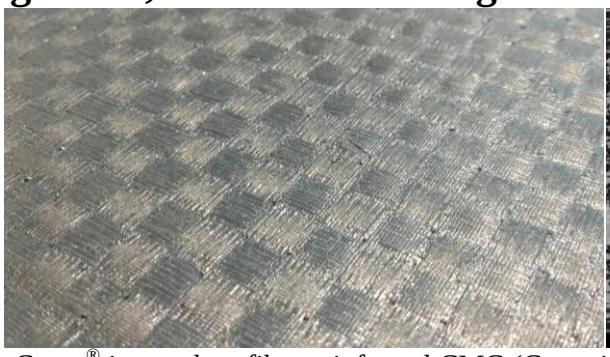
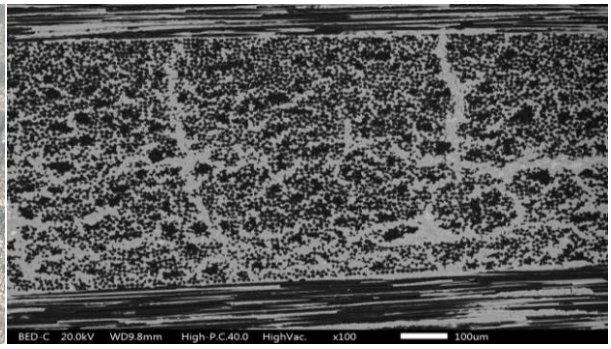
PETROCERAMICS

Turn natural complexity into technology ®

OxyComp®

The high-temperature Ceramic Matrix Composite that combines lightness, mechanical strength and resistance to oxidative conditions





OxyComp® is a carbon fiber reinforced CMC (Ceramic Matrix Composite) specifically designed for mid-to-long term high-temperature applications (in air). Thanks to its peculiar microstructure and a devised anti-oxidation post-treatment, this composite can withstand prolonged exposures to oxidative environments (tested up to 650°C). Both planar and complex shapes can be manufactured, depending on your specific requirements. Some physical, mechanical and thermal properties of the standard product are below listed.

	Standard	Temperature	Unit	Average Value
Density	ASTM C-20	20°C	g/cc	2,35
Open porosity		20°C	%	1 – 2
Bending strength	ASTM C1341	20°C	MPa	170
Bending modulus		20°C	GPa	75
Tensile strength	ASTM C1275	20°C	MPa	115
Tensile modulus		20°C	GPa	118
Compressive Strength	ASTM C1358	20°C	MPa	250
Compressive Modulus		20°C	GPa	40
Thermal conductivity *(T.T.T*)*	ASTM E1461	400°C	W/(m·K)	24-28
Thermal conductivity *(in plane)*				75-80
Thermal conductivity *(T.T.T*)*		600°C	W/(m·K)	18-20
Thermal conductivity *(in plane)*				65-70
Thermal conductivity *(T.T.T*)*		900°C	W/(m·K)	20-22
Thermal conductivity *(in plane)*				50-55
Specific heat	ASTM E1461	400°C	J/(g·K)	1.15 - 1.20
		600°C		1.26 - 1.30
		900°C		1.28 - 1.32
Coefficient of thermal expansion *(in plane)*	I.P.**	20-500°C	$10^{-6} \cdot °C^{-1}$	0,3
Coefficient of thermal expansion *(in plane)*	I.P.**	20-1000°C	$10^{-6} \cdot °C^{-1}$	1,0
Silicon Carbide (SiC)	I.P.**	--	Wt %	47-53
Silicon (Si)				1-5
Carbon (C)				44-45

** T.T.T. = Through The Thickness* *** I.P. = Internal procedure*

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