

# IMPROVED PROPERTIES BY ADDING CARBON FIBRES

▼ MECHANICAL	
- Tenacity	Tensile strength from 1.2 to 7.2 GPa
- Stiffness	Tensile modulus from 160 to 945 GPa
- Hardness	Tensity from 1.45 to 2.2
- Fatigue resistant	
- Vibration resistant	
- Vibration damping	
- Mono-filaments diameters	From 4.5 to 22 $\mu$
▼ THERMAL	
- Dimensional stability	CTE from 0 to $-1.45 \cdot 10^{-6} \cdot ^\circ\text{K}^{-1}$
- Absolutely infusible	
- Fire resistant and endothermic thermo-oxydization	
- High thermal conductivity	From 8.5 to 1120 $\text{W}\cdot\text{m}^{-1} \cdot ^\circ\text{K}^{-1}$
▼ CHEMICAL	
- PH 7	
- Any catalytic effect (many pyrotechnic and anti-deflagration applications)	
- Resistant to all bases	
- Resistant to almost all acids	
- Resistant to thermo-oxidization (variable following Carbon fibre types)	
- Resitant to all solvents	
▼ ELECTRO-MAGNETICAL	
- Conductivity	$R=1.2$ to $18 \cdot 10^{-6} \Omega \cdot \text{m}$ ( $= 18 \cdot 10^{-4} \Omega \cdot \text{cm}$ )
- Transparent to X-rays	
- Non-magnetic	
- Wave absorption or dissipation (depending on frequencies)	
▼ BIOLOGICAL	
- Absolute biological-compatibility	
- Prosthesis and implantations: artificial organs	