**Epoxy + Carbon Fiber Reinforcement**

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| Composition overview |
| Material family | Plastic (thermoset) |
| Base material | EP (Epoxy resin) |
| % filler (by weight) | 60-65% |
| Filler/reinforcement | Carbon |
| Filler/reinforcement form | Woven fabric, Biaxial lay-up |
| Polymer code | EP-CF60 |
| Composition detail | Polymer 35-40%; Carbon (fiber) 60-65% |

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| Mechanical properties |
| Young's modulus | 62.7-68.7GPa |
| Specific stiffness | 39.6-43.8MN.m/kg |
| Yield strength (elastic limit) | 627-910MPa |
| Tensile strength | 627-910 MPa |
| Specific strength | 398-579kN.m/kg |
| Elongation  | 0.98-1.41% strain |
| Compressive modulus  | 57.2-63.4GPa |
| Compressive strength | 655-937 MPa |
| Flexural modulus | 63-69GPa |
| Flexural strength | 627-910MPa |
| Shear modulus | 3.5GPa |
| Bulk modulus | 7.86-10.2GPa |
| Poisson's ratio  | 0.058  |
| Shape factor | 8  |
| Hardness-Vickers  | 10.8-21.5HV |
| Hardness-Rockwell M | 80-110 |
| Hardness-Rockwell R  | 117-129  |
| Elastic stored energy (springs) | 3.08e3-6.14e3kJ/m^3 |
| Fatigue strength at 10^7 | 345-592MPa |
| Fracture toughness | 37.9-50.3MPa.m^0.5 |
| Toughness (G) | 22.2-38kJ/m^2 |
| Impact strength notched 23 °C | 109-137kJ/m^2 |

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| Thermal, Electrical and Magnetic properties |
| Glass temperature | 100-180°C |
| Heat deflection temperature 0.45MPa | 279-337°C |
| Heat deflection temperature 1.8MPa | 250-305°C |
| Maximum service temperature | 140-220°C |
| Minimum service temperature | -123--73°C |
| Thermal conductivity | 1.08-2.2W/m.°C |
| Specific heat capacity | 949-1.09e3J/kg.°C |
| Thermal expansion coefficient | 5.51-29.3μstrain/°C |
| Thermal shock resistance | 390-2.1e3°C |
| Thermal distortion resistance | 0.0511-0.288MW/m |
| Electrical resistivity | 1.71e5-5.64e5μohm.cm |
| Electrical conductivity | 3.06e-4-0.00101%IACS |
| Galvanic potential | 0.14-0.22V |
| Magnetic type | Non-magnetic |

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| Durability and Recycling and end of life |
| Water (fresh) | Excellent |
| Water (salt) | Excellent |
| Weak acids | Acceptable |
| Strong acids | Unacceptable |
| Weak alkalis | Limited use |
| Strong alkalis | Excellent |
| Organic solvents | Limited use |
| Oxidation at 500C | Unacceptable |
| UV radiation (sunlight) | Good |
| Flammability | Slow-burning |
| Recycle | × |
| Recycle fraction in current supply | 0.1% |
| Downcycle | √ |
| Combust for energy recovery | √ |
| Heat of combustion (net) | 31.2-32.8MJ/kg |
| Combustion CO2 | 3.11-3.27kg/kg |
| Landfill | √ |
| Biodegrade | × |

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| Energy, CO2 and water cost |
| Embodied energy, primary production | 616-679MJ/kg |
| CO2 footprint, primary production | 42.8-47.2kg/kg |
| Water usage | 1.25e3-1.38e3l/kg |
| Autoclave molding energy | 20.9-23MJ/kg |
| Autoclave molding CO2  | 1.67-1.84kg/kg |
| Autoclave molding water | 13.6-20.4l/kg |
| Compression molding energy | 3.33-3.68 MJ/kg |
| Compression molding CO2 | 0.266-0.294kg/kg |
| Compression molding water | 6.31-9.46l/kg |
| Matched die (preform) molding energy | 9.62-10.6MJ/kg |
| Matched die (preform) molding CO2 | 0.77-0.849kg/kg |
| Matched die (preform) molding water | 8.93-13.4l/kg |

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| Other properties |
| Price | 350-388CNY/kg |
| Price per unit volume | 5.4e5-6.25e5CNY/m^3 |
| Density  | 1.54e3-1.61e3 kg/m^3 |
| Water absorption @ 24 hrs | 0.0416-0.063% |
| Transparency | Opaque |
| Acoustic velocity | 6.29e3-6.62e3m/s |
| Mechanical loss coefficient (tan delta) | 0.0014-0.0033 |
| Contains >5wt% critical elements?  | No |