

XECARB 51-C20-3DP

20% carbon fiber reinforced PESU, 3D printing modified

Physical Properties

	Test Condition	Standard	Unit	Dam / Cond.
Density		ISO 1183	g/cm ³	1,41
Water absorption (Equilibrium value)	23 °C ; 50 % RH		%	
Water absorption (Saturation value)	23 °C ; water		%	
Post-shrinkage				
Parallel		Sim.ISO 294-4	%	
Normal		Sim.ISO 294-4	%	

Mechanical Properties

Tensile Modulus	1 mm/min	ISO 527	MPa	12000
Tensile Strength at break	5 mm/min	ISO 527	MPa	150
Tensile Elongation at break	5 mm/min	ISO 527	%	2,0
Flexural Modulus	2 mm/min	ISO 178	MPa	10500
Flexural Strength	2 mm/min	ISO 178	MPa	220
Flexural Stress at 3,5% strain	2 mm/min	ISO 178	MPa	
Flexural Strain at break	2 mm/min	ISO 178	%	2,6
Deflection at break			mm	
Deflection at 3,5% strain			mm	
Notched Izod Impact Strength	23 °C ; 50 % RH	ISO 180	kJ/m ²	7
Unnotched Izod Impact Strength	23 °C ; 50 % RH	ISO 180	kJ/m ²	38
Notched Izod Impact Strength	-30 °C	ISO 180	kJ/m ²	
Unnotched Izod Impact Strength	-30 °C	ISO 180	kJ/m ²	

Thermal Properties

Melting Point	10 °C/min	ISO 11357	°C	
HDT – heat deflection temperature	0,45 MPa a 120 °C/h	ISO 75	°C	
HDT – heat deflection temperature	1,80 MPa a 120 °C/h	ISO 75	°C	220
HDT – heat deflection temperature	8.00 MPa a 120 °C/h	ISO 75	°C	
VICAT - softening temperature	10 N a 120 °C/h	ISO 306	°C	
VICAT - softening temperature	50 N a 120 °C/h	ISO 306	°C	
Coefficient of linear thermal expansion				
30÷50°C Parallel			10 ⁻⁴ /K	
30÷50°C Normal			10 ⁻⁴ /K	
Maximum Usage Temperature				
Short Term			°C	
Long Term			°C	

Electrical Properties

Volume Resistivity		IEC 60093	Ohm*m	
Surface Resistivity		ISTR 18L	Ohm	

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Process Recommendation	Test Condition	Standard	Unit	Value
Drying temperature	desiccant dryer		°C	80–100
Drying time	desiccant dryer		h	6–8
Process temperature			°C	340–380

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Test values

Unless specified to the contrary, the values given have been established on standardized test specimens at room temperature. The figures should be regarded as guide values only and not as binding minimum values. Kindly note that, under certain conditions, the properties can be affected to a considerable extent by the design of the mould/die, the processing conditions and the coloring.

Processing note

Under the recommended processing condition small quantities of decomposition product may be given off during processing. To preclude any risk to the health and well-being of the machine operatives, tolerance limits for the work environment must be ensured by the provision of efficient exhaust ventilation and fresh air at the workplace in accordance with the Safety Data Sheet. In order to prevent the partial decomposition of the polymer and the generation of volatile decomposition products, the prescribed processing temperatures should not be substantially exceeded. Since excessively high temperatures are generally the result of operator error or defects in the heating system, special care and controls are essential in these areas.

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