XECARB® 40-C20-HT1-3DP

20% carbon fiber reinforced high heat PC, 3D printing modified

Physical properties	*Test condition*	*Standard*	*Unit*	*Dam / Cond.*
Density		ISO 1183	g/cm^3	**1,23**
Water absorption (Equilibrium value)	23 °C ; 50 % RH		%	
Water absorption (Saturation value)	23°C ; H_2O		%	
Post-shrinkage				
parallel		ISO 294-4	%	
normal		ISO 294-4	%	

Mechanical properties				
Tensile modulus	1 mm/min	ISO 527	MPa	**13000**
Tensile strength at break	5 mm/min	ISO 527	MPa	**140**
Tensile elongation at break	5 mm/min	ISO 527	%	**2,1**
Flexural modulus	2 mm/min	ISO 178	MPa	**11500**
Flexural strength	2 mm/min	ISO 178	MPa	**200**
Flexural stress at 3.5% strain	2 mm/min	ISO 178	MPa	
Flexural strain at break	2 mm/min	ISO 178	%	**2,3**
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	**27**
Notched Izod impact strength	-30 °C	ISO 180	kJ/m^2	
Unnotched Izod impact strength	-30 °C	ISO 180	kJ/m^2	

Thermal properties				
Glass transition temperature	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	**175**
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			Ω*m	
Surface resistivity		ISTR18L-A	Ω	

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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	**315–340**

Our advice does not release you from the obligation to verify the information currently provided - especially that contained in our safety data and technical information sheets, and to test our products as to their suitability for the intended processes and uses. The application, use and processing of our products and the products manufactured by you on the basis of our technical advice are beyond our control and, therefore, entirely your own responsibility. Our products are sold in accordance with the current version of our General Conditions of Sale and Delivery.

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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