

CELANYL[®] XT1 GF50 BK 9005/W/FA

PPA compound, 50% glass fiber reinforced, heat stabilized.

Intended for engineering applications that require a maximum service temperature higher than that of normal aliphatic polyamides. In addition to the outstanding thermal and chemical resistance, it provides high and constant mechanical performance, unaltered even after moisture absorption. Excellent creep behavior and dimensional stability. Suitable for drinking water applications.

Part Marking Code>PPA-GF50ISO 1146Rheological properties $0.1 - 0.3 \ \%$ ISO 294-4, 257Moulding shrinkage range, parallel $0.1 - 0.3 \ \%$ ISO 294-4, 257Moulding shrinkage range, normal $0.3 - 0.5 \ \%$ ISO 294-4, 257Typical mechanical propertiesdry/cond.Tensile Modulus18500/18500MPaISO 527-1/-Stress at break, 5mm/min260/250MPaISO 527-1/-Strain at break, 5mm/min1.95/2%ISO 527-1/-Flexural Modulus18000/18000MPaISO 527-1/-Flexural Strength400/370MPaISO 177Charpy impact strength, 23°C80/110kJ/m²ISO 179/1eCharpy notched impact strength, 23°C9.5/12.5kJ/m²ISO 179/1eCharpy notched impact strength, 23°C8.5/15kJ/m²ISO 179/1eCharpy notched impact strength, 23°C9.5/12.5kJ/m²ISO 179/1eCharpy notched impact strength, 23°C11/-kJ/m²ISO 180/1	uct information			
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Izod notched impact strength, 23°C 11/- kJ/m ² ISO 180/1	by notched impact strength, -30 °C	8.5/15	kJ/m ²	ISO 179/1eA
	otched impact strength, 23°C	11/-	kJ/m²	ISO 180/1A
Thermal properties	nal properties			
Melting temperature, 10°C/min 322 °C ISO 11357-1/-	ng temperature, 10°C/min	322	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa280 °CISO 75-1/-	o. of deflection under load, 1.8 MPa	280	°C	ISO 75-1/-2
Flammability	mability			
Thickness tested 1.6 mm UL 9	ness tested	1.6	mm	UL 94
Burning Behav. at thickness h HB class UL 9	ng Behav. at thickness h	HB	class	UL 94
Thickness tested 3.2 mm UL 9	ness tested	3.2	mm	UL 94
Electrical properties dry/cond.	rical properties	dry/cond.		
Volume resistivity 1E13/- Ohm.m IEC 62631-3-	ne resistivity	1E13/-	Ohm.m	IEC 62631-3-1
Electric strength 22/- kV/mm IEC 60243-	ric strength	22/-	kV/mm	IEC 60243-1

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Other properties

Humidity absorption, 2mm Water absorption, 2mm Density

Additional information

Injection molding

1 % 2.9 % 1640 kg/m³ Sim. to ISO 62 Sim. to ISO 62 ISO 1183

The following conditions apply to the normal injection molding process of XT1 compounds. Machine temperatures: barrel 310-325°C, nozzle and hot runners 325-340°C. Mold temperatures: > 135°C. Back pressure: typically 5 bar (hydraulic pressure). Temperatures exceeding 340°C and long residence time could lead to degradation and brittleness of the material. In case of gas generation in the melt, please verify moisture content and processing temperatures. Usage of regrind is possible depending on the molded part characteristics. For further details, please contact our technical support team.

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Stress-strain (dry)



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Stress-strain (cond.)



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Secant modulus-strain (dry)



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Secant modulus-strain (cond.)



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Processing Texts	
Injection molding	The following conditions apply to the normal injection molding process of XT1 compounds. Machine temperatures: barrel 310-325°C, nozzle and hot runners 325-340°C. Mold temperatures: > 135°C. Back pressure: typically 5 bar (hydraulic pressure). Temperatures exceeding 340°C and long residence time could lead to degradation and brittleness of the material. In case of gas generation in the melt, please verify moisture content and processing temperatures. Usage of regrind is possible depending on the molded part characteristics. For further details, please contact our technical support team.
Injection molding Preprocessing	The XT1 compound is supplied in a moisture-proof package. The maximum humidity content allowed for the injection molding process is 0.10%, but in order to obtain the best performance and avoid possible degradation phenomena we recommend molding with a moisture content < 0.08%. The drying time depends on the initial moisture content and the drying conditions used. Generally 4-6 hours at 120 °C with dry air (dew point of about -30 °C) are sufficient to prepare a granule stored in unopened packages or with a moisture content of < 0.20-0.25%.
Injection molding Postprocessing	Parts made by XT1, do not change significantly their performance depending on the moisture uptake. Normally, a conditioning cycle is not necessary. After molding, with favorable environmental conditions, a piece can absorb moisture up to 0,2% in 24h and reach the equilibrium during its lifetime. The post-treatment of the parts may include annealing at 150-160°C in the oven, for two to four hours depending on the temperature. This treatment is useful to relax any internal stress and maximize thermomechanical performance.



