

CELANYL® XT1 HH GF45 BK 9005/C

PPA compound, 45% 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. Extended heat ageing resistance.

Product information

Part Marking Code	>PA6T/6I-GF45<	ISO 11469
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Rheological properties

Moulding shrinkage range, parallel	0.1 - 0.3 %	ISO 294-4, 2577
Moulding shrinkage range, normal	0.3 - 0.6 %	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.	
Tensile Modulus	2.47E6 / 2.47E6	psi
Stress at break, 5mm/min	33400 / 32600	psi
Strain at break, 5mm/min	1.8 / 1.8	%
Flexural Modulus	2.18E6 / -	psi
Charpy impact strength, 23°C	28.5 / >50	ftlb/in ²
Charpy impact strength, -30°C	>50 / -	ftlb/in ²
Charpy notched impact strength, 23°C	6.42 / -	ftlb/in ²
Charpy notched impact strength, -30°C	5.71 / -	ftlb/in ²
Ball indentation hardness, H 358/30	50000	psi

Thermal properties

Melting temperature, 10°C/min	612 °F	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	536 °F	ISO 75-1/-2

Flammability

Burning Behav. at 1.5mm nom. thickn.	HB class	UL 94
Thickness tested	0.126 in	UL 94
UL recognition	yes	UL 94

Other properties

Humidity absorption, 2mm	1.1 %	Sim. to ISO 62
Water absorption, 2mm	3.2 %	Sim. to ISO 62
Density	13 lb/gal	ISO 1183

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Injection

Melt Temperature Optimum

635 °F

Internal

Additional information

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.

Processing Texts

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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.