Celanese
The chemistry inside innovation™

CELANYL® XT1 GF40 BK 9005/W/FA

PPA compound, 40% 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.

Product information

Part Marking Code	>PPA-GF40<		ISO 11469

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	2.03E6 / -	psi	ISO 527-1/-2
Stress at break, 5mm/min	34800 / -	psi	ISO 527-1/-2
Strain at break, 5mm/min	2 / -	%	ISO 527-1/-2
Flexural Modulus	1.89E6 / -	psi	ISO 178
Flexural Strength	50800 / -	psi	ISO 178
Charpy impact strength, 23°C	38.1 / -	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30°C	33.3 / -	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	5.23 / -	ftlb/in²	ISO 179/1eA
Charpy notched impact strength, -30°C	4.76 / -	ftlb/in²	ISO 179/1eA
Ball indentation hardness, H 358/30	45000	psi	ISO 2039-1

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

Thickness tested	0.1	in	UL 94
Burning Behav. at thickness h	HB	class	UL 94
Thickness tested	0.126	in	UL 94
UL recognition	yes		UL 94

Other properties

Humidity absorption, 2mm	1.2	%	Sim. to ISO 62
Water absorption, 2mm	3.5	%	Sim. to ISO 62
Density	13	lb/gal	ISO 1183

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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.

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