Celanese
The chemistry inside innovation™

CELANYL® XS3 GF40 TF10 NC 1102/A - PA*

Description

(NILAMID XS3 GF40 TF10 NC 1102/A)
Semi-aromatic polyamide blend, 40% glass fibre, with PTFE
Compound designed for tribological systems with high mechanical requirements, typically used to replace metal due to the high stiffness and strength, stable after conditioning. It shows better creep behavior and dimensional stability vs. an equivalent PA66 grade, with lower warpage and excellent surface finish.

Physical properties	Value	Unit	Test Standard
Density	**96.8**	lb/ft³	ISO 1183
Molding shrinkage, parallel (flow)	**0.1 - 0.2**	%	ISO 294-4, 2577
Molding shrinkage, transverse normal	**0.4 - 0.5**	%	ISO 294-4, 2577
Water absorption, 23°C-sat	**4.1**	%	Sim. to ISO 62
Humidity absorption, 23°C/50%RH	**1.1**	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	**1.89E6/-**	psi	ISO 527-1, -2
Tensile stress at break, 5mm/min	**29000/-**	psi	ISO 527-1, -2
Tensile strain at break, 5mm/min	**3/-**	%	ISO 527-1, -2
Flexural modulus, 23°C	**1.6E6/-**	psi	ISO 178
Charpy impact strength, 23°C	**38.1/-**	ft-lb/in²	ISO 179/1eU
Charpy impact strength, -30°C	**38.1/-**	ft-lb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	**6.66/-**	ft-lb/in²	ISO 179/1eA
Charpy notched impact strength, -30°C	**6.42/-**	ft-lb/in²	ISO 179/1eA
Izod impact notched, 23°C	**5.23/-**	ft-lb/in²	ISO 180/1A

Thermal properties	Value	Unit	Test Standard
Melting temperature, 20°C/min	**500**	°F	ISO 11357-1/-3
DTUL at 1.8 MPa	**446**	°F	ISO 75-1, -2
Flammability @3.2mm nom. thickn.	**HB**	class	UL 94
Flammability @1.6mm nom. thickn.	**HB**	class	UL 94
Flammability @0.8mm nom. thickn.	**HB**	class	UL 94
Flammability @0.4mm nom. thickn.	**HB**	class	UL 94

Electrical properties	Value	Unit	Test Standard
Volume resistivity, 23°C	**1E12/-**	Ohm*m	IEC 62631-3-1
Surface resistivity, 23°C	**1E13/-**	Ohm	IEC 62631-3-2
CTI 50 drops	**600**	V	IEC 60112

Other text information

Injection Molding Preprocessing

XS compounds, stored in a moisture-proof packaging, can be processed without drying; however, it is always recommended drying the product that comes from a large package (e.g. Octabin). The suggested moisture content for the process of injection molding is less than 0.15% for grades with low percentage of reinforcement; for grades with high percentage of fiber and to achieve the best surface quality, the moisture content should be lower than 0.10% . Flame retardant grades must be processed with a maximum moisture content of 0,10%. The drying time depends on the initial moisture content and the drying conditions. Typically 4-8 hours at 80-90C using dehumidified air (dew point of -20C) are suitable conditions for a starting moisture content of 0.20%-0.40%.

Injection molding

The following conditions apply to a standard injection moulding process of XS compounds. Machine temperatures: barrel 265-290C, nozzle and hot runners up to 300C (up to 290C products with flame retardants). Mould temperatures: 80-100C, (80-120C highly reinforced grades). Back pressure: typically 5-10 bar (hydraulic pressure). Temperatures exceeding 300C 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 moulded part characteristics. For further details, please refer to the document 'Instructions for injection moulding' or contact our technical support team.

CELANYL® XS3 GF40 TF10 NC 1102/A - PA*

Injection Molding Postprocessing

Part moulded with XS compounds reach their final performance with a water content of about 1,0% by weight, depending on the grade. This percentage corresponds to the point of equilibrium between the rates of absorption and desorption of moisture. After moulding, in favourable environmental conditions, a part can quickly absorbs moisture up to 0,3-0,5%, while the equilibrium will be reached during its life. Post-treatments of parts may also include the annealing (80-120C in oven, up to four hours). This procedure can be useful to relax any internal stresses.

Characteristics

Special Characteristics	Heat resistant, High gloss, Improved creep, Low warpage, Wear resistant
Product Categories	Glass reinforced, Tribological
Processing	Injection molding