CELANYL® B3 GF30 NC 1102

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General purpose grade, suitable for any technical application, medium term heat ageing resistance. Improved flowability.

Product information

Resin Identification	PA6-GF30		ISO 1043
Part Marking Code	>PA6-GF30<		ISO 11469
Continuous Service Temperature	95	°C	IEC 60216-1

Rheological properties

	dry/cond.		
Viscosity number	145 / *	cm^3/g	ISO 307, 1628
Moulding shrinkage range, parallel	0.2 - 0.6	%	ISO 294-4, 2577
Moulding shrinkage range, normal	0.6 - 1	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	9400 / -	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	180 / -	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3.5 / -	%	ISO 527-1/-2
Charpy notched impact strength, 23°C	13.5 / -	kJ/m^2	ISO 179/1eA
Izod notched impact strength, 23°C	16 / -	kJ/m^2	ISO 180/1A
Poisson's ratio	0.34 / -[C]		

[C]: Calculated

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	225 / *	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	210 / *	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	220 / *	°C	ISO 75-1/-2

Flammability

	dry/cond.		
Burning Behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.8 / *	mm	IEC 60695-11-10

Electrical properties

	dry/cond.		
Volume resistivity	1E13 / -	Ohm.m	IEC 62631-3-1
Surface resistivity	* / 1E13	Ohm	IEC 62631-3-2
Comparative tracking index, 100 drops	525		IEC 60112

Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	1.8 / *	%	Sim. to ISO 62
Water absorption, 2mm	6.3 / *	%	Sim. to ISO 62
Density	1340 / -	kg/m^3	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	80	°C
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.15	%
Melt Temperature Optimum	260	°C

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Min. melt temperature	240	°C
Max. melt temperature	290	°C
Screw tangential speed	≤0.2	m/s
Mold Temperature Optimum	80	°C
Min. mould temperature	60	°C
Max. mould temperature	120	°C

Additional information

Injection molding

Preprocessing

PA materials, stocked 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 moisture content suggested for the injection molding process should be lower than 0.15%, according to the grade and to the molded part characteristics. The materials containing flame retardants should have moisture content below 0.10%. Red phosphorous containing grades must always be dried below 0.08%. The drying time depends on the moisture content and the drying conditions. Typically, 4-8 hours at 80-90°C using dehumidified air (dew point of -20°C) are suitable conditions for a starting moisture content of 0.20%-0.40%.

Processing

The following conditions apply to a standard injection molding process. Machine temperatures: barrel 265-290°C (PA66), 235-270°C (PA6), nozzle and hot runners up to 300°C (up to 290°C products with flame retardants). Mold temperatures: 60-80°C, (80-100°C highly reinforced grades). Back pressure: typically, 5-10 bar (hydraulic pressure). Temperatures exceeding 300°C and long residence time could lead to additives 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 refer to the document 'Instructions for injection molding' or contact our technical support team.

Postprocessing

PA materials reach their final performance with a water content of about 1.5 to 3.5% by weight, depending on the type. This percentage corresponds to the point of equilibrium between the rates of absorption and desorption of moisture. After molding, in favorable environmental conditions, a part can quickly absorbs moisture up to 0.5-1.0%, while the equilibrium will be reached during its life. A conditioning treatment can accelerate further the initial water absorption of the molded parts. Conditioning is usually carried out in hot and humid environment (for example 50°C, 100% RH), inside climatic chambers. Slight dimensional variations (increase in volume due to the water absorbed) must be considered, especially in unfilled grades. Post-treatments of parts may also include the annealing (60-80°C in oven, up to four hours). This procedure can be useful to relax any internal stresses.

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