Celanese
The chemistry inside innovation™

CELANYL® B3 J GF30 BK 9005/X

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Car industry, Household appliances, Electrical devices.

Product information

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

Rheological properties

	dry/cond.		
Viscosity number	140 / *	cm^3/g	ISO 307, 1628
Moulding shrinkage range, parallel	0.2 - 0.5	%	ISO 294-4, 2577
Moulding shrinkage range, normal	0.8 - 1.1	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	7800 / -	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	115 / -	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3 / -	%	ISO 527-1/-2
Charpy impact strength, 23°C	65 / -	kJ/m^2	ISO 179/1eU
Charpy impact strength, -30°C	55 / -	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	12 / -	kJ/m^2	ISO 179/1eA
Poisson's ratio	0.34 / -[C]		

[C]: Calculated

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	225 / *	°C	ISO 11357-1/-3

Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	1.5 / *	%	Sim. to ISO 62
Water absorption, 2mm	6.5 / *	%	Sim. to ISO 62
Density	1280 / -	kg/m^3	ISO 1183

Characteristics

Processing	Injection Moulding

Additional information

Injection molding

Preprocessing

PA materials, stocked in a moisture-proof packaging, can be processed without drying; however, it is always recomended drying the product that comes from a large package (e.g. Octabin). The moisture content suggested for the injection moulding process should be lower than 0.15%, according to the grade and to the moulded 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 80-90C using dehumidified air (dew point of -20C) are suitable conditions for a starting moisture content of 0.20%-0.40%.

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Processing

The following conditions apply to a standard injection moulding process. Machine temperatures: barrel 265-290C (PA66), 235-270C (PA6), nozzle and hot runners up to 300C (up to 290C products with flame retardants). Mould temperatures: 60-80C, (80-100C highly reinforced grades). Back pressure: typically 5-10 bar (hydraulic pressure). Temperatures exceeding 300C 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 moulded part characteristics. For further details, please refer to the document 'Instructions for injection moulding' 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 moulding, in favourable 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 moulded parts. Conditioning is usually carried out in hot and humid environment (for example 50C, 100% RH), inside climatic chambers. Slight dimensional variations (increase in volume due to the water absorbed) must be taken into account, especially in unfilled grades. Post-treatments of parts may also include the annealing (60-80C in oven, up to four hours). This procedure can be useful to relax any internal stresses.