

# FRIANYL® B3 GF20 V2 BK 9005/D

Polyamide 6 compound, 20% glass fibre reinforced, flame retardant, halogen and red phosphorous free. UL listed V2@0.75mm all colors.

*Designed for Electrical applications requiring self-extinguishing properties combined with low warpage, good flowability and excellent surface quality.*

## Product information

Part Marking Code >PA6-GF20FR(30)< ISO 11469

## Rheological properties

Moulding shrinkage range, parallel 0.6 - 1.0 % ISO 294-4, 2577  
Moulding shrinkage range, normal 0.6 - 1.0 % ISO 294-4, 2577

## Typical mechanical properties

dry/cond.  
Tensile Modulus 5500/- MPa ISO 527-1/-2  
Stress at break, 5mm/min 75/- MPa ISO 527-1/-2  
Strain at break, 5mm/min 3.5/- % ISO 527-1/-2  
Charpy impact strength, 23°C 28/- kJ/m<sup>2</sup> ISO 179/1eU  
Charpy notched impact strength, 23°C 2.7/- kJ/m<sup>2</sup> ISO 179/1eA  
Izod notched impact strength, 23°C 2.5/- kJ/m<sup>2</sup> ISO 180/1A

## Thermal properties

Melting temperature, 10°C/min 225 °C ISO 11357-1/-3  
Temp. of deflection under load, 1.8 MPa 175 °C ISO 75-1/-2  
Temp. of deflection under load, 0.45 MPa 200 °C ISO 75-1/-2

## Flammability

Burning Behav. at thickness h V-2 class UL 94  
Thickness tested 3.2 mm UL 94  
Glow Wire Flammability Index, 1mm 960 °C IEC 60695-2-12  
FMVSS Class SE ISO 3795 (FMVSS 302)

## Electrical properties

Comparative tracking index Group II IEC 60112

## Other properties

Humidity absorption, 2mm 1.8 % Sim. to ISO 62  
Water absorption, 2mm 6.9 % Sim. to ISO 62  
Density 1310 kg/m<sup>3</sup> ISO 1183

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## Characteristics

Additives Flame retardant, Non-halogenated/Red phosphorous free flame retardant

## Additional information

Injection molding 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.

## Processing Texts

Injection molding 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.

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%.

Injection molding 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 absorb 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

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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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