

FRIANYL® A3 GF20 V2XI NC 1101/E

PA66, 20% glass fibre reinforced, flame retardant, with halogens, antimony trioxide, PBB and PBDE free, GWIT 775C.
 Designed for Electrical applications requiring self-extinguishing properties combined with ignition resistance, this grade meets the most stringent safety requirements for insulating materials for the household appliance industry.

Product information

Part Marking Code	>PA66-GF20 FR(16+72)<	ISO 11469
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Rheological properties

Moulding shrinkage range, parallel	0.3 - 0.6 %	ISO 294-4, 2577
Moulding shrinkage range, normal	0.5 - 0.8 %	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.	
Tensile Modulus	6800/-	MPa
Yield strain, 50mm/min	2.5/-	%
Stress at break, 5mm/min	115/-	MPa
Flexural Modulus	6100/-	MPa
Flexural Strength	150/-	MPa
Charpy impact strength, 23°C	40/-	kJ/m ²
Izod notched impact strength, 23°C	8/-	kJ/m ²

Thermal properties

Temp. of deflection under load, 1.8 MPa	225 °C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	250 °C	ISO 75-1/-2
Ball pressure test	175 °C	IEC 60695-10-2

Flammability

Burning Behav. at 1.5mm nom. thickn.	V-2 class	UL 94
Burning Behav. at thickness h	V-0 class	UL 94
Thickness tested	0.4 mm	UL 94
UL recognition	yes	UL 94
Glow Wire Flammability Index, 0.75mm	960 °C	IEC 60695-2-12
Glow Wire Flammability Index, 3mm	960 °C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	900 °C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3mm	900 °C	IEC 60695-2-13
FMVSS Class	SE	ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.	
Comparative tracking index	Group IIIa	IEC 60112
Comparative tracking index	PLC 2/-	UL 746A



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Other properties

Humidity absorption, 2mm	1.1 %	Sim. to ISO 62
Water absorption, 2mm	4 %	Sim. to ISO 62
Density	1490 kg/m³	ISO 1183

Injection

Melt Temperature Optimum	270 °C	Internal
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Characteristics

Additives	Flame retardant
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Additional information

Injection molding	<p>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.</p>
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Processing Texts

Injection molding	<p>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.</p>
Injection molding Preprocessing	<p>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</p>



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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 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.

