Celanese
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FRIANYL® A3 GF25 V0XI - PA66

Description

Polyamide 66 compound, 25% glass fibre reinforced, heat stabilized, flame retardant with halogens, PBB and PBDE free. UL listed V0@0,35mm. *Designed for Electrical applications requiring self-extinguishing properties combined with excellent ignition resistance, this grade meets the most stringent safety requirements for insulating materials.*

Physical properties	Value	Unit	Test Standard
Density	**1600**	kg/m³	ISO 1183
Melt volume rate, MVR	**40**	cm³/10min	ISO 1133
MVR temperature	**270**	°C	ISO 1133
MVR load	**5**	kg	ISO 1133
Molding shrinkage, parallel (flow)	**0.2 - 0.5**	%	ISO 294-4, 2577
Molding shrinkage, transverse normal	**0.5 - 0.8**	%	ISO 294-4, 2577
Water absorption, 23°C-sat	**3.7**	%	Sim. to ISO 62
Humidity absorption, 23°C/50%RH	**1**	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	**9800/-**	MPa	ISO 527-1, -2
Tensile stress at break, 5mm/min	**145/-**	MPa	ISO 527-1, -2
Tensile strain at break, 5mm/min	**2.3/-**	%	ISO 527-1, -2
Flexural modulus, 23°C	**8300/-**	MPa	ISO 178
Flexural strength, 23°C	**190/-**	MPa	ISO 178
Charpy impact strength, 23°C	**>50/-**	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	**8/-**	kJ/m²	ISO 179/1eA
Izod impact notched, 23°C	**9/-**	kJ/m²	ISO 180/1A
Izod impact unnotched, 23°C	**45/-**	kJ/m²	ISO 180/1U

Thermal properties	Value	Unit	Test Standard
DTUL at 1.8 MPa	**230**	°C	ISO 75-1, -2
FMVSS	**SE**	-	ISO 3795 (FMVSS 302)
Flammability @3.2mm nom. thickn.	**V-0**	class	UL 94
Flammability @1.6mm nom. thickn.	**V-0**	class	UL 94
Flammability @0.8mm nom. thickn.	**V-0**	class	UL 94
Flammability at thickness h	**V-0**	class	UL 94
thickness tested (h)	**0.35**	mm	UL 94
UL recognition (h)	**UL**	-	UL 94
Glow wire ignition temperature, 0.8 mm	**825**	°C	IEC 60695-2-13
Glow wire ignition temperature, 3.2 mm	**875**	°C	IEC 60695-2-13
Glow wire flammability index, 0.8 mm	**960**	°C	IEC 60695-2-12
Glow wire flammability index, 3.2 mm	**960**	°C	IEC 60695-2-12

Electrical properties	Value	Unit	Test Standard
Comparative tracking index	**PLC 1/-**	-	UL 746
Comparative tracking index	**Group II**	-	IEC 60112
CTI 50 drops	**425**	V	IEC 60112
CTI 100 drops	**350**	V	IEC 60112

Typical injection molding processing conditions

Temperature	Value	Unit
Melt temperature	**≤290**	°C

Other text 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%.

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 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.

Characteristics

Special Characteristics	Flame retardant, Heat resistant, Laser markable
Product Categories	Glass reinforced
Processing	Injection molding
Delivery Form	Granules
Additives	Flame retarding agent

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