

FRIANYL® C3 H V0 GY 7035/TA - PA666
Description

Polyamide compound, unfilled, heat resistant, based on flame retardant halogen and red phosphorous free. UL listed V0@0,40mm
 Designed for Electrical applications requiring self-extinguishing properties combined with easy processability and excellent surface quality, this grade meets the most stringent safety requirements for insulating materials.
 PRELIMINARY DATA SHEET

Physical properties	Value	Unit	Test Standard
Density	72.4	lb/ft ³	ISO 1183
Molding shrinkage, parallel (flow)	1.1 - 1.5	%	ISO 294-4, 2577
Molding shrinkage, transverse normal	1.1 - 1.5	%	ISO 294-4, 2577
Water absorption, 23 °C-sat	7.5	%	Sim. to ISO 62
Humidity absorption, 23 °C/50%RH	1.9	%	ISO 62
Mechanical properties	Value	Unit	Test Standard
Tensile modulus	471374/-	psi	ISO 527-1, -2
Tensile stress at yield, 50mm/min	10900/-	psi	ISO 527-1, -2
Tensile strain at yield, 50mm/min	4/-	%	ISO 527-1, -2
Tensile strain at break, 50mm/min	16/-	%	ISO 527-1, -2
Flexural modulus, 23 °C	435000/-	psi	ISO 178
Flexural stress at max. force	16000/-	psi	ISO 178
Charpy impact strength, 23 °C	33.3/-	ft-lb/in ²	ISO 179/1eU
Charpy impact strength, -30 °C	26.2/-	ft-lb/in ²	ISO 179/1eU
Charpy notched impact strength, 23 °C	1.43/-	ft-lb/in ²	ISO 179/1eA
Charpy notched impact strength, -30 °C	1.28/-	ft-lb/in ²	ISO 179/1eA
Izod impact notched, 23 °C	1.66/-	ft-lb/in ²	ISO 180/1A
Izod impact notched, -30 °C	1.19	ft-lb/in ²	ISO 180/1A
Thermal properties	Value	Unit	Test Standard
Melting temperature, 20 °C/min	491	°F	ISO 11357-1/-3
DTUL at 1.8 MPa	176	°F	ISO 75-1, -2
DTUL at 0.45 MPa	392	°F	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 @0.4mm nom. thickn.	V-0	class	UL 94
UL recognition (0.4)	UL	-	UL 94
Continuous service temperature	110	°C	DIN/IEC 60216-1
Glow wire flammability index, 0.8 mm	1760	°F	IEC 60695-2-12
Glow wire flammability index, 3.2 mm	1760	°F	IEC 60695-2-12
Electrical properties	Value	Unit	Test Standard
Volume resistivity, 23 °C	1E13/-	Ohm*m	IEC 62631-3-1
Surface resistivity, 23 °C	1E13/-	Ohm	IEC 62631-3-2
Electric strength, 23 °C (AC)	457/-	kV/in	IEC 60243-1
Comparative tracking index	PLC 0/-	-	UL 746
VDA Properties	Value	Unit	
FMVSS	SE		ISO 3795 (FMVSS 302)

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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 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.

Characteristics

Special Characteristics	Flame retardant, Heat resistant
Processing	Injection molding