Celanese
The chemistry inside innovation™

FRIANYL® DEV A3 GF25 X V0 - PA66

Description

Polyamide 66 compound, 25% glass fiber reinforced, heat resistant, based on flame retardants halogen and red phosphorous free, UL listed V0@0.38mm all color.
Designed for Electrical applications requiring self-extinguishing properties combined with good mechanical performances, this grade meets the most stringent safety requirements for insulating materials.
Preliminary Technical Datasheet

Physical properties	Value	Unit	Test Standard
Density	**85.5**	lb/ft³	ISO 1183
Molding shrinkage, parallel (flow)	**0.3 - 0.6**	%	ISO 294-4, 2577
Molding shrinkage, transverse normal	**0.6 - 0.9**	%	ISO 294-4, 2577
Water absorption, 23°C-sat	**4.5**	%	Sim. to ISO 62
Humidity absorption, 23°C/50%RH	**1.3**	%	ISO 62
Viscosity number (PA), H2SO4	**150**	ml/g	ISO 307 (PA)

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	**1.31E6/725190**	psi	ISO 527-1, -2
Tensile stress at break, 5mm/min	**17400/10900**	psi	ISO 527-1, -2
Tensile strain at break, 5mm/min	**3/7**	%	ISO 527-1, -2
Charpy impact strength, 23°C	**26.2/>60**	ft-lb/in²	ISO 179/1eU
Charpy impact strength, -30°C	**19/21.4**	ft-lb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	**3.33/5.71**	ft-lb/in²	ISO 179/1eA
Charpy notched impact strength, -30°C	**2.85/2.85**	ft-lb/in²	ISO 179/1eA

Thermal properties	Value	Unit	Test Standard
Melting temperature, 20°C/min	**500**	°F	ISO 11357-1/-3
DTUL at 1.8 MPa	**410**	°F	ISO 75-1, -2
DTUL at 0.45 MPa	**455**	°F	ISO 75-1, -2
Vicat softening temperature, 50°C/h 10N	**464**	°F	ISO 306
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)	**0.0150**	in	UL 94
UL recognition (h)	**UL**	-	UL 94
Continuous service temperature	**130**	°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
Ball pressure test	**347**	°F	IEC 60695-10-2

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
Comparative tracking index	**PLC 0/-**	-	UL 746
Comparative tracking index	**Group I**	-	IEC 60112
CTI 50 drops	**600**	V	IEC 60112
CTI 100 drops	**600**	V	IEC 60112

VDA Properties	Value	Unit	
FMVSS	**SE**		ISO 3795 (FMVSS 302)

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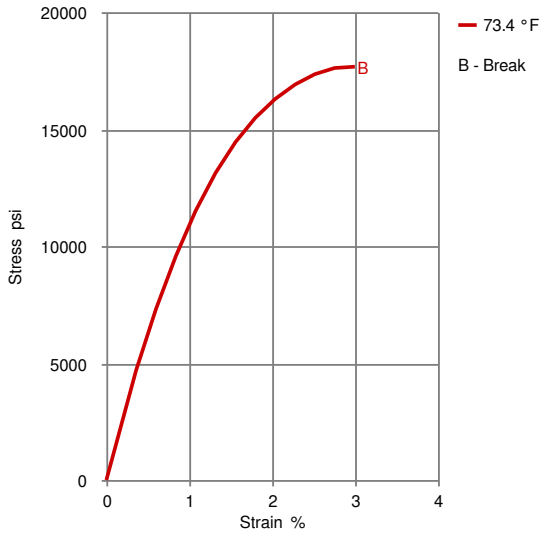
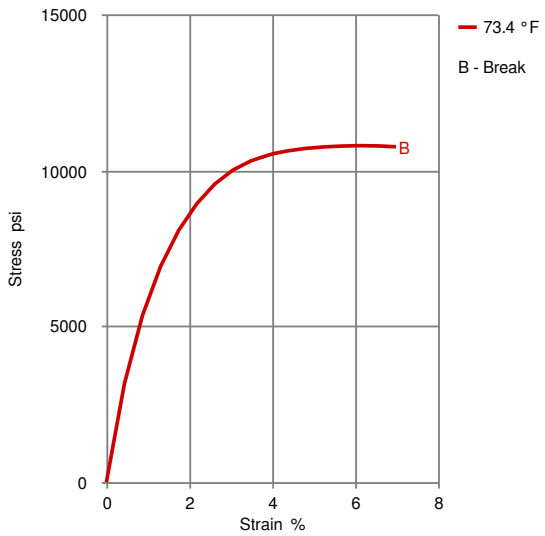
Diagrams

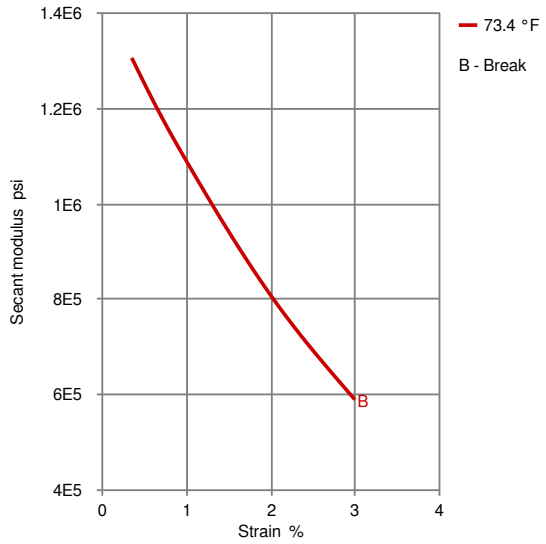
Stress-strain (dry)



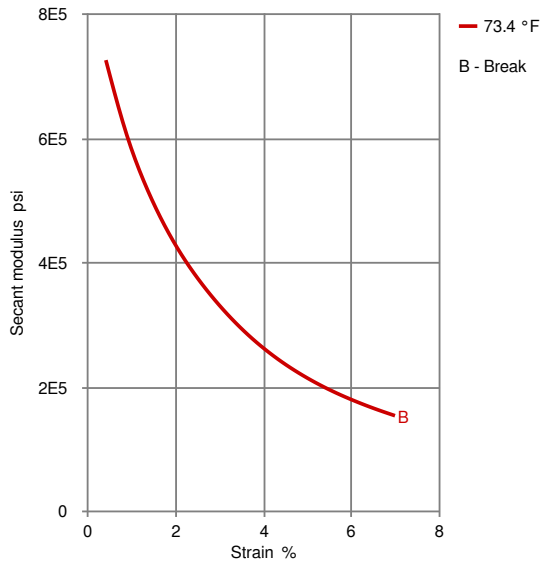
Stress-strain (cond.)



Secant modulus-strain (dry)



Secant modulus-strain (cond.)



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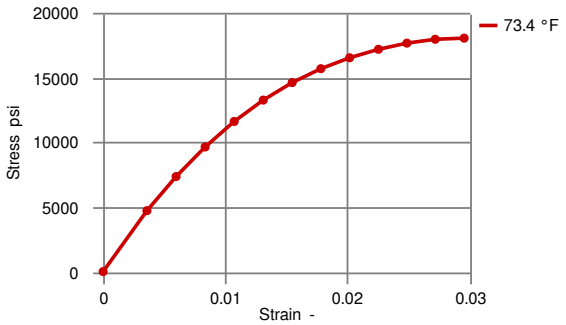
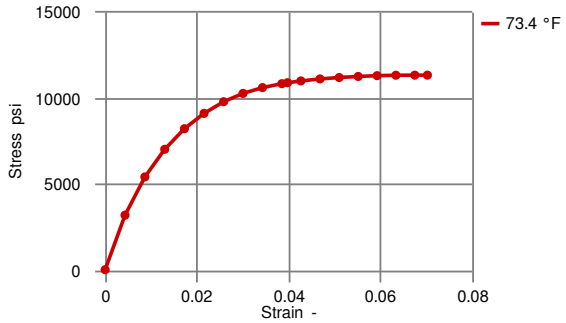
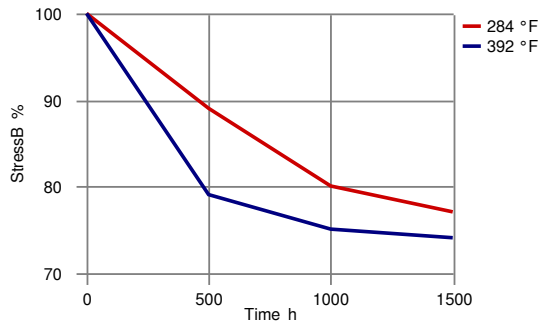
True Stress-strain (dry)



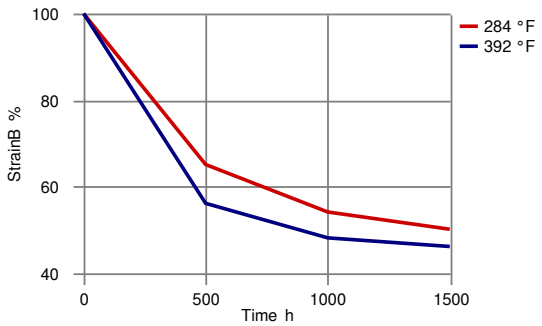
True Stress-strain (cond.)



LTHA-Stress at Break Retention 0.16in



LTHA-Strain at Break Retention 0.16in



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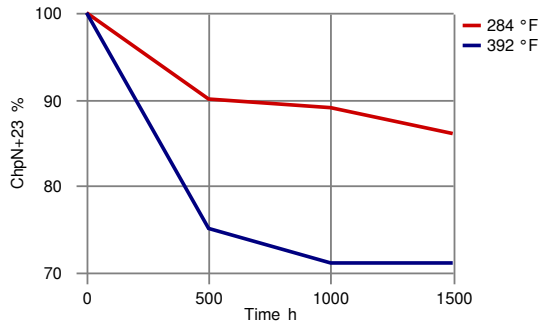
LTHA-Charpy Notched Impact Strength Retention 0.16in



Other text 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 80-90°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 moulding 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). Mould 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 moulded part characteristics. For further details, please refer to the document 'Instructions for injection moulding' 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 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 50°C, 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 (60-80°C in oven, up to four hours). This procedure can be useful to relax any internal stresses.

Characteristics

Special Characteristics	Flame retardant, Heat resistant
Product Categories	Glass reinforced
Processing	Injection molding
Delivery Form	Granules