Celanese
The chemistry inside innovation™

FRIANYL® B3 GF30 X V0 (PRELIMINARY)

Polyamide 6 compound, 30% 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.

Product information

Part Marking Code	>PA6-GF30 FR(40)<	ISO 11469

Rheological properties

Moulding shrinkage range, parallel	0.3 - 0.6	%	ISO 294-4, 2577
Moulding shrinkage range, normal	0.6 - 0.9	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile Modulus	10500 / 6000	MPa	ISO 527-1/-2
Stress at break, 5mm/min	140 / 85	MPa	ISO 527-1/-2
Strain at break, 5mm/min	3 / 7	%	ISO 527-1/-2
Charpy impact strength, 23°C	65 / >60	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	45 / 60	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	9.5 / 16	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	7.5 / 8.5	kJ/m²	ISO 179/1eA

Thermal properties

Melting temperature, 10°C/min	220	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	190	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	210	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 10N	210	°C	ISO 306
Ball pressure test	175	°C	IEC 60695-10-2

Flammability

Burning Behav. at 1.5mm nom. thickn.	V-0	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
FMVSS Class	SE		ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.		
Volume resistivity	>1E13 / -	Ohm.m	IEC 62631-3-1
Surface resistivity	>1E13 / -	Ohm	IEC 62631-3-2
Comparative tracking index	Group I		IEC 60112
Comparative tracking index	PLC 0 / -	PLC	UL 746A

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Other properties

Humidity absorption, 2mm	1.2	%	Sim. to ISO 62
Water absorption, 2mm	4.3	%	Sim. to ISO 62
Density	1420	kg/m³	ISO 1183

Characteristics

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

Additional information

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.

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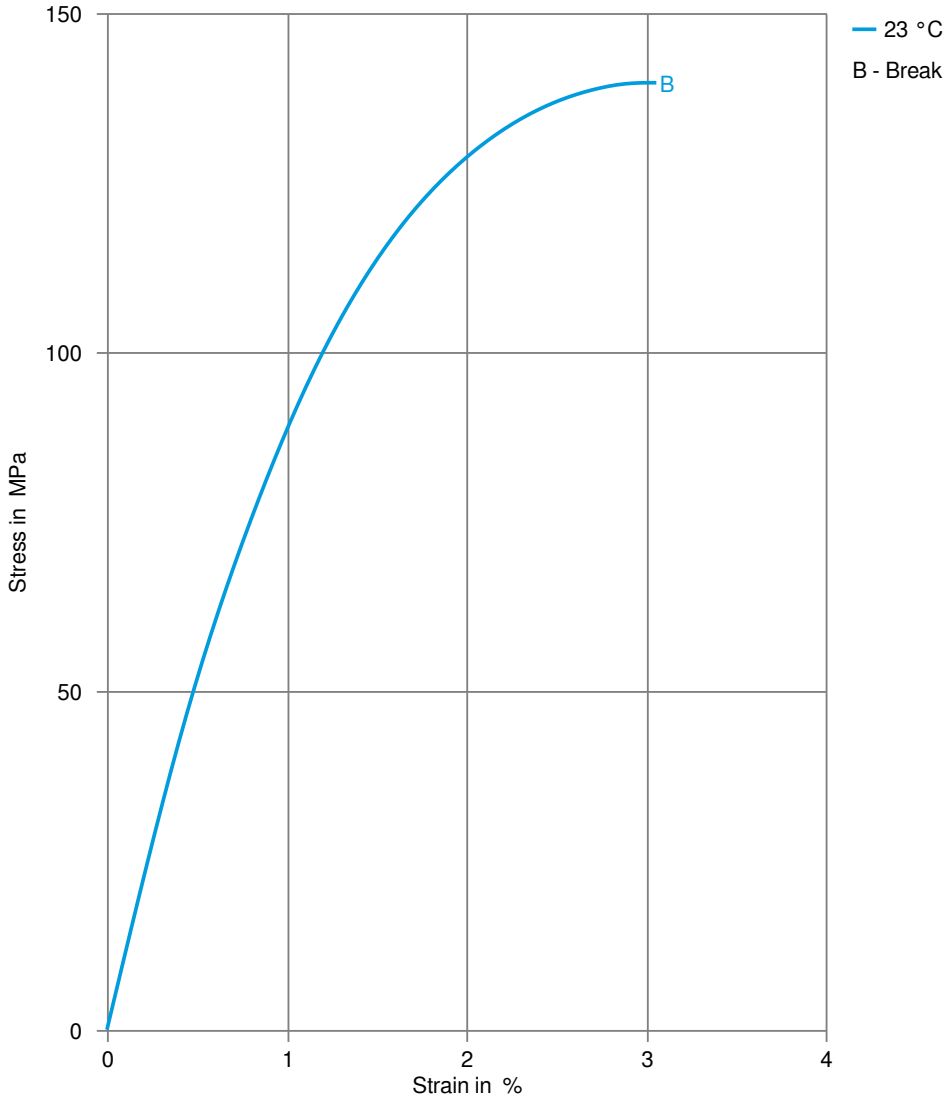
Stress-strain (dry)



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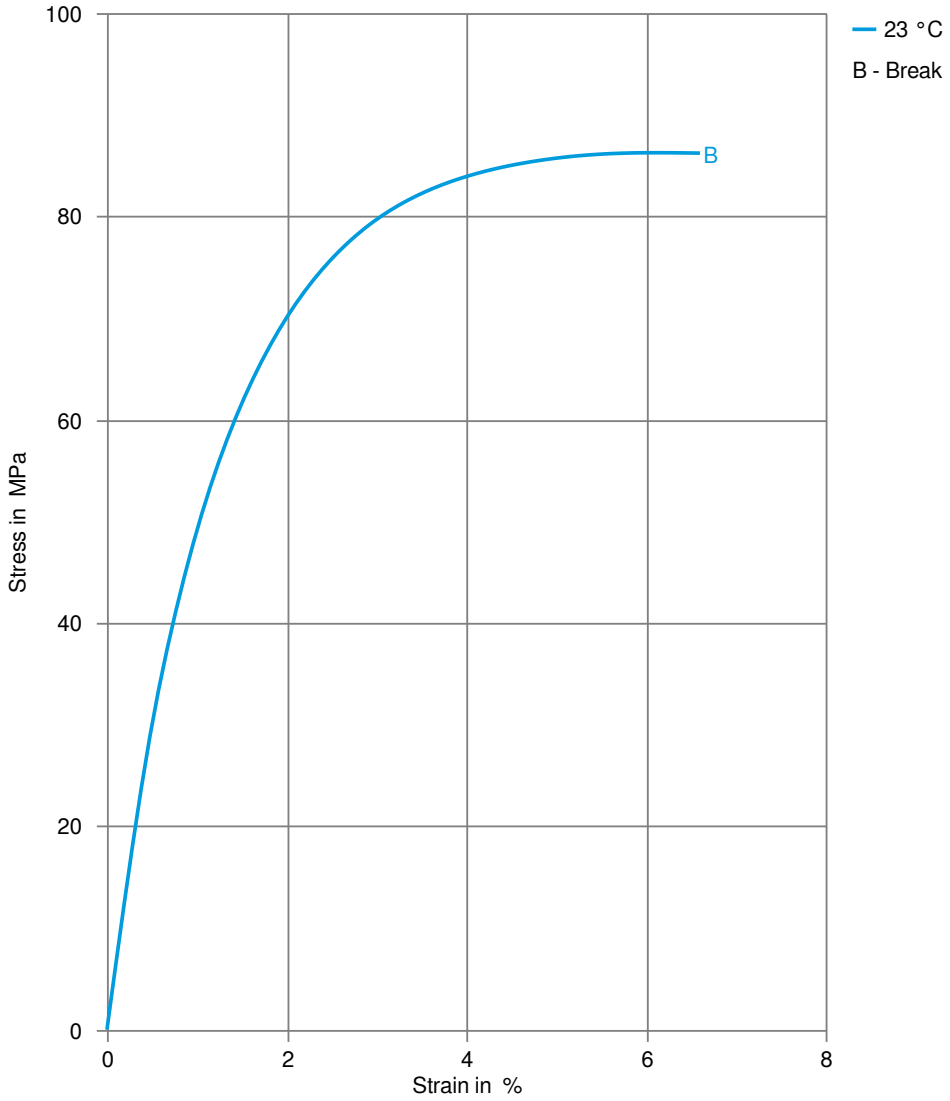
Stress-strain (cond.)



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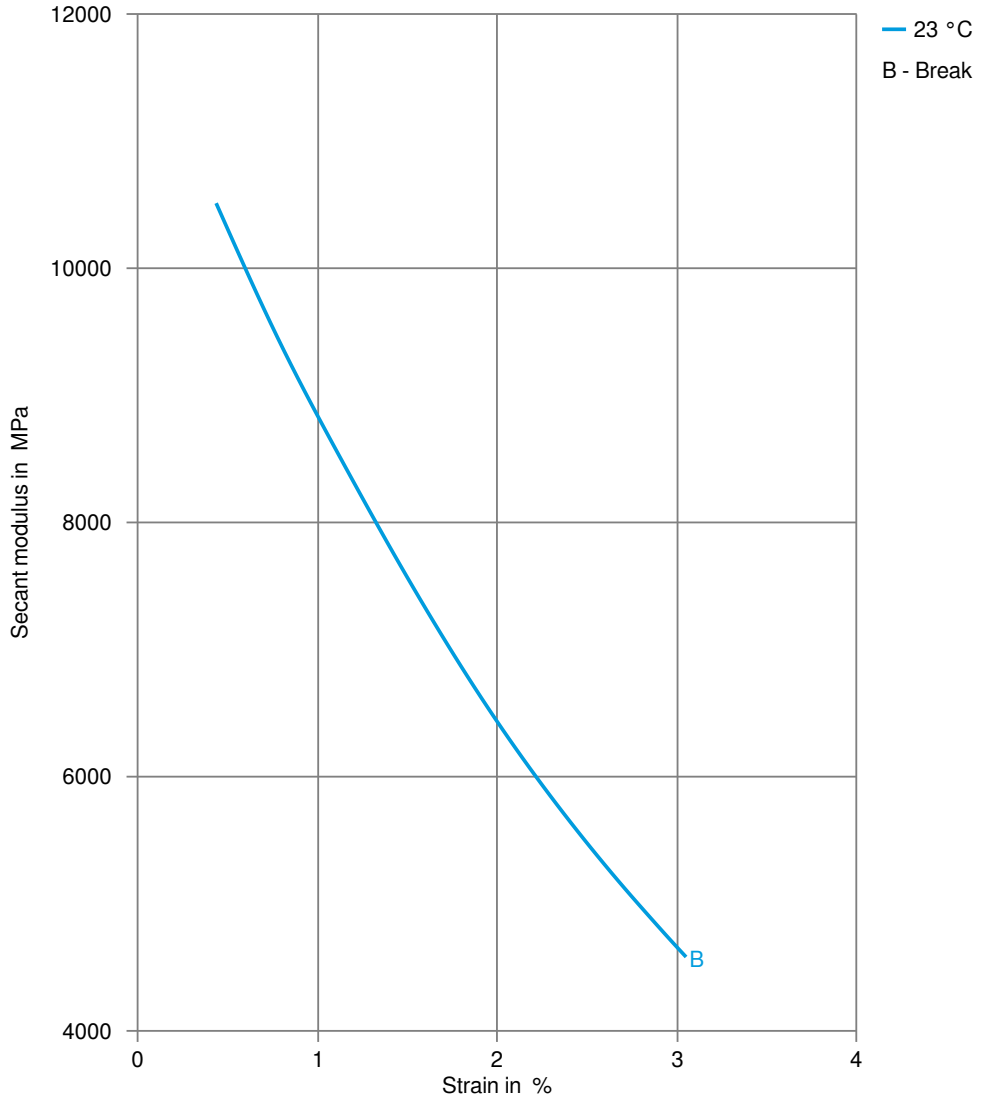
Secant modulus-strain (dry)



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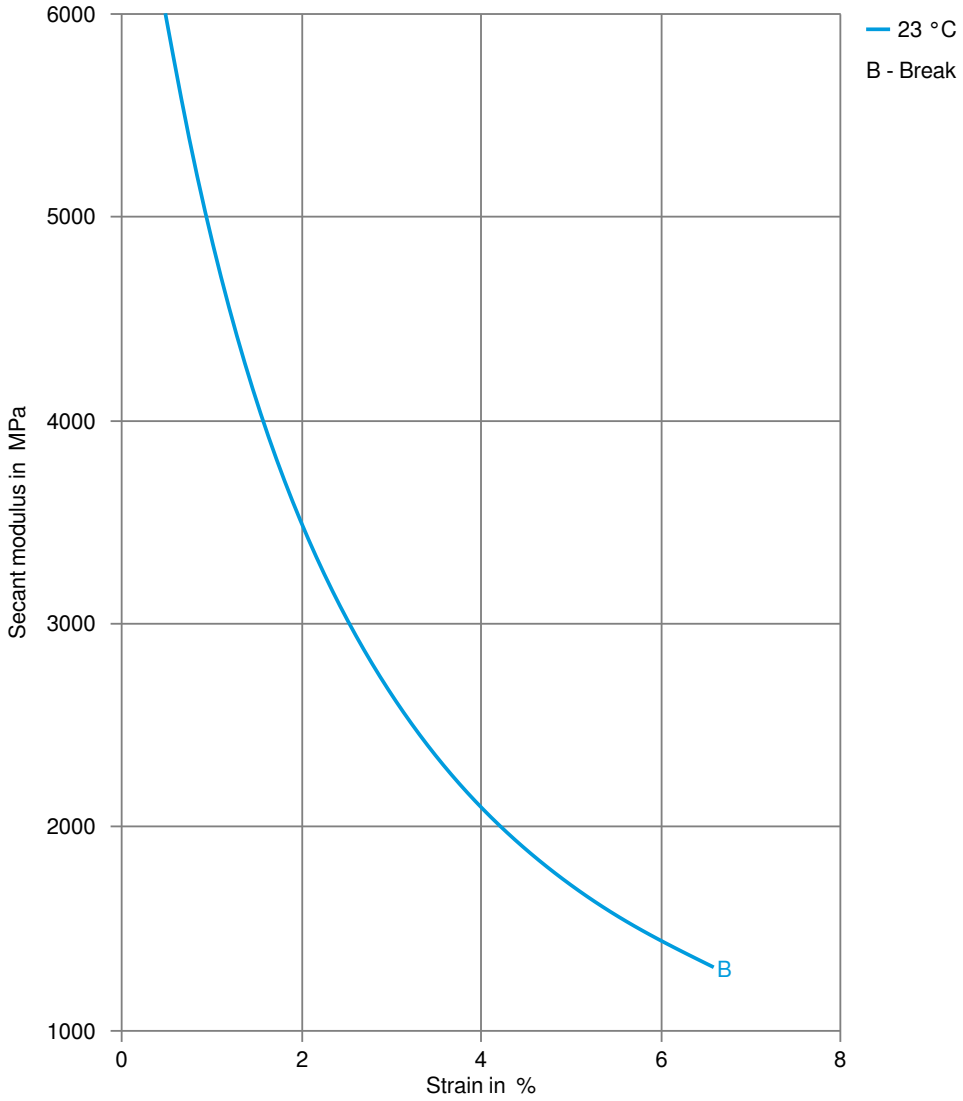
Secant modulus-strain (cond.)



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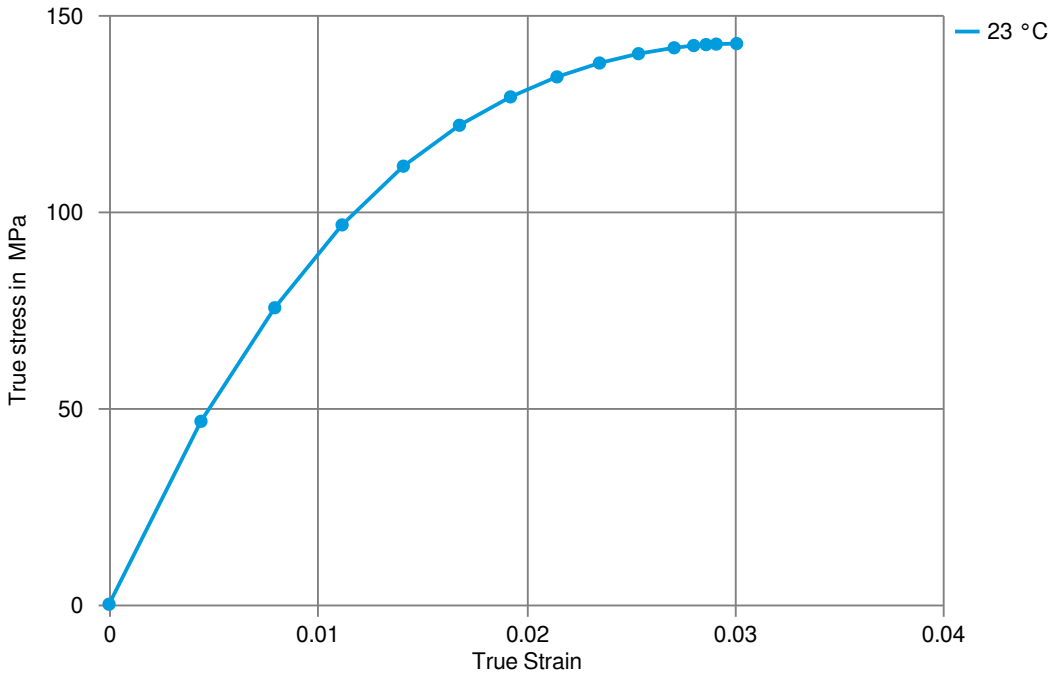
FRIANYL® B3 GF30 X V0 (PRELIMINARY)

True stress-strain (dry)



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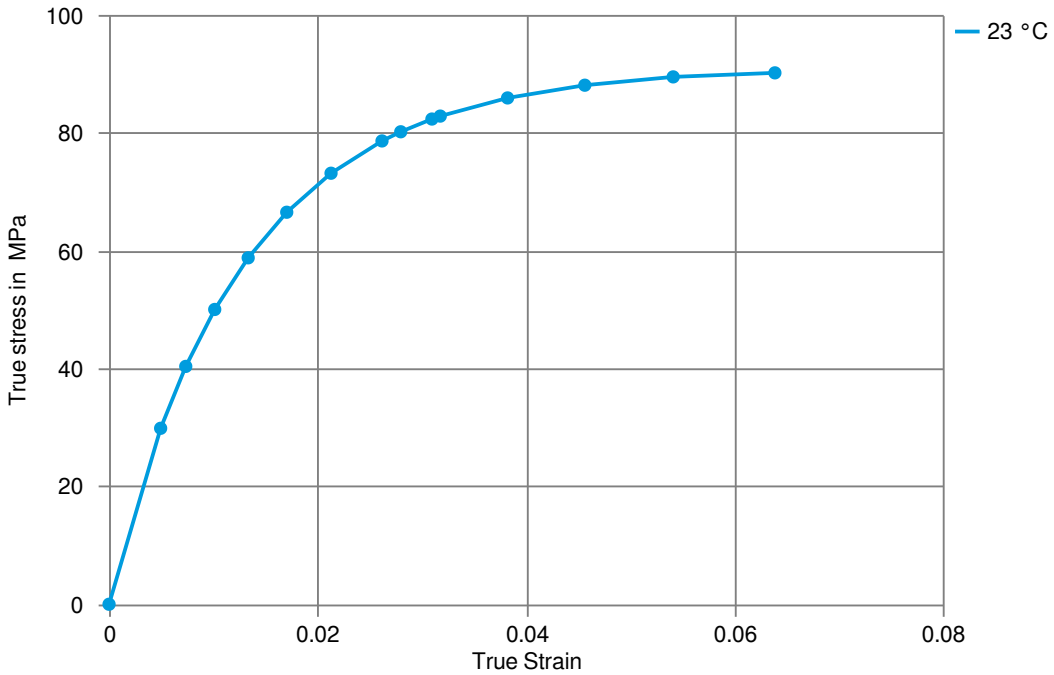
True stress-strain (cond.)



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Processing Texts

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 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 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.