Celanese
The chemistry inside innovation™

FRIANYL® A3 GF35 V0 BK 9005/M

FRIANYL®

Designed for Electrical applications requiring self-extinguishing properties combined with high stiffness, this grade meets the most stringent safety requirements for insulating materials.

Product information

Resin Identification	(PA66+PA6)-GF35 FR(40)	ISO 1043
Part Marking Code	>(PA66+PA6)-GF35 FR(40)<	ISO 11469
Continuous Service Temperature	266 °F	IEC 60216-1

Rheological properties

Molding shrinkage range, parallel	0.2 - 0.5 %	ISO 294-4, 2577
Molding shrinkage range, normal	0.5 - 0.8 %	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	1.81E6 / 1.23E6	psi	ISO 527-1/-2
Tensile stress at yield, 50mm/min	21000 / 14000	psi	ISO 527-1/-2
Tensile strain at yield, 50mm/min	2.1 / 4.2	%	ISO 527-1/-2
Tensile stress at break, 5mm/min	22500 / 15200	psi	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.5 / 4	%	ISO 527-1/-2
Flexural modulus	1.74E6 / 1.16E6	psi	ISO 178
Flexural strength	36300 / 23200	psi	ISO 178
Flexural strain at failure	2.5 / 3.5	%	ISO 178
Charpy impact strength, 23 °C	27.6 / 29.5	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, 23 °C	4.52 / 5.95	ftlb/in²	ISO 179/1eA
Ball indentation hardness, H 961/30	36300 / -	psi	ISO 2039-1

Thermal properties

	dry/cond.		
Melting temperature, 10 °C/min	500 / *	°F	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	410 / *	°F	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	428 / *	°F	ISO 75-1/-2
Ball pressure test	347 / -	°F	IEC 60695-10-2
Coefficient of linear thermal expansion (CLTE), parallel	0.12 / *	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	0.628 / *	E-4/°F	ISO 11359-1/-2

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	V-0 / *	class	IEC 60695-11-10
Burning Behav. at thickness h	V-0 / *	class	IEC 60695-11-10
Thickness tested	0.0157 / *	in	IEC 60695-11-10
UL recognition	yes / *		UL 94
Burning Behav. 5V at thickness h	5VA[1] / *	class	IEC 60695-11-20
Thickness tested	0.0630 / *	in	IEC 60695-11-20
Glow Wire Flammability Index, 0.75mm	1760 / -	°F	IEC 60695-2-12
Glow Wire Flammability Index, 1.0mm	1760 / -	°F	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	1760 / -	°F	IEC 60695-2-12
FMVSS Class	SE		ISO 3795 (FMVSS 302)
Railway classification	R22 / R26		EN 45545-2
Railway classification rating	HL3 / HL3		EN 45545-2

[1]: Tested internally - Not part of UL Yellow Card

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Electrical properties

	dry/cond.		
Electric strength	584 / -	kV/in	IEC 60243-1
Comparative tracking index	600 / -		IEC 60112

Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	1.1 / *	%	Sim. to ISO 62
Water absorption, 2mm	4.2 / *	%	Sim. to ISO 62
Density	0.0531 / -	lb/in³	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	176	°F
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.1	%
Melt Temperature Optimum	545	°F
Min. melt temperature	518	°F
Max. melt temperature	572	°F
Max. screw tangential speed	≤0.2	m/s
Mold Temperature Optimum	176	°F
Min. mold temperature	140	°F
Max. mold temperature	212	°F

Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
VW Group	VW 50133	*Best Fitting Grade To PA66-7-A, Not Officially Approved

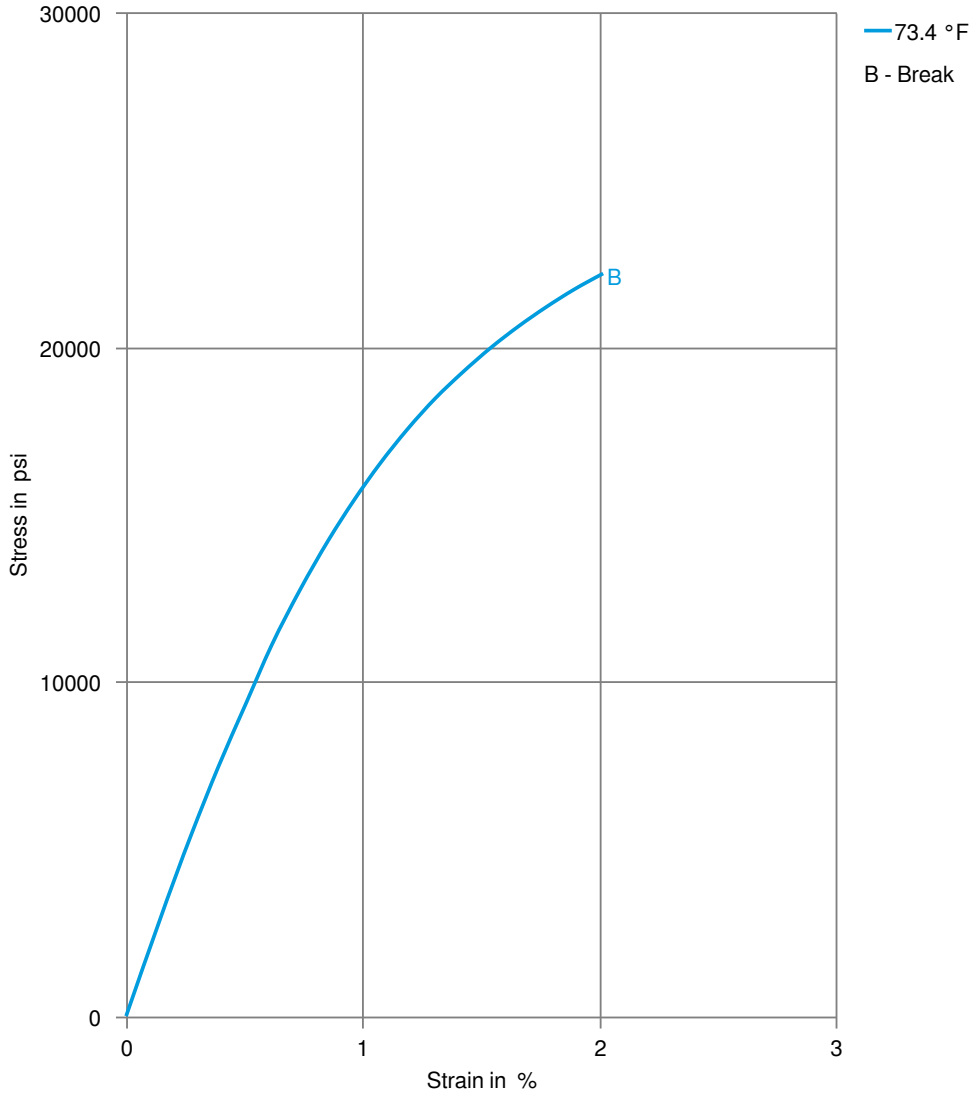
Characteristics

Processing	Injection Molding
Additives	Flame retardant, Non-halogenated/Red phosphorus free flame retardant
Special characteristics	Flame retardant, Heat stabilized or stable to heat

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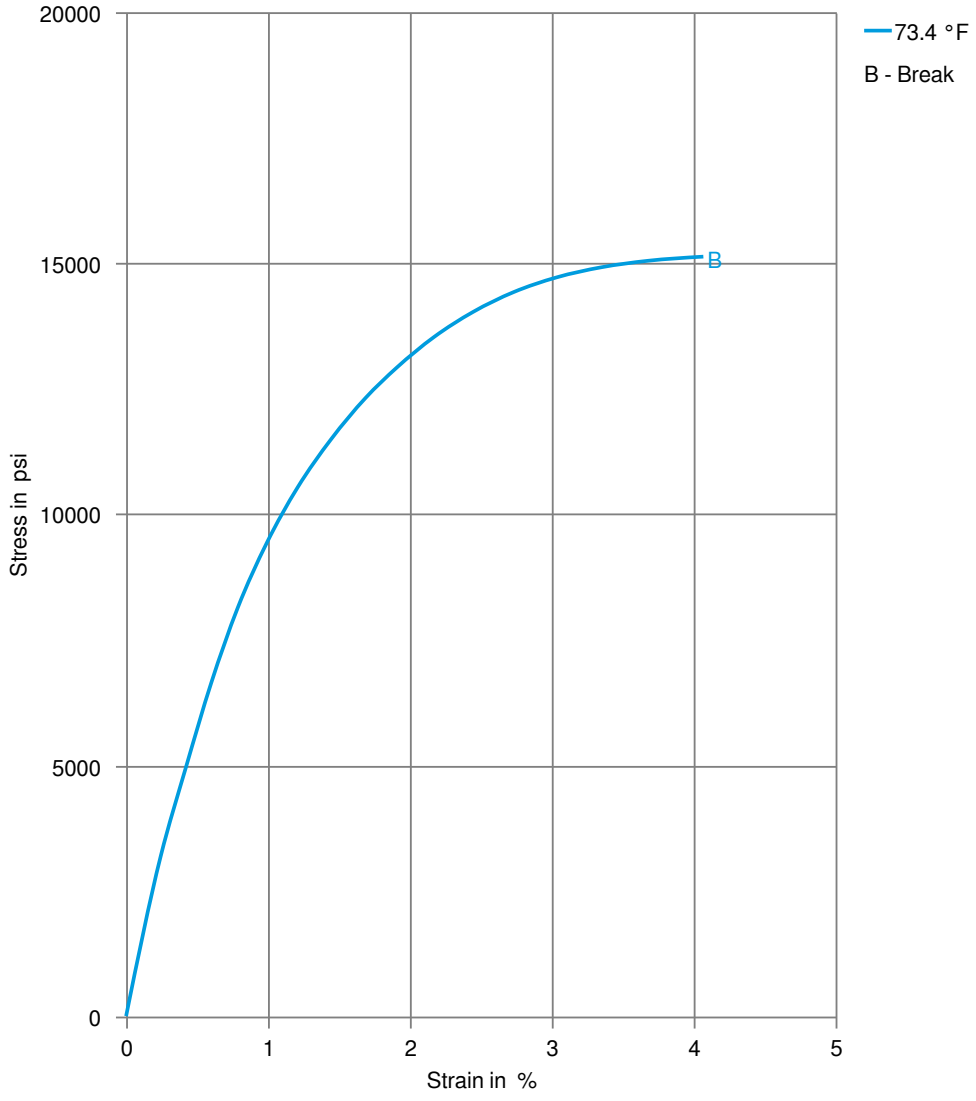
Stress-strain (dry)



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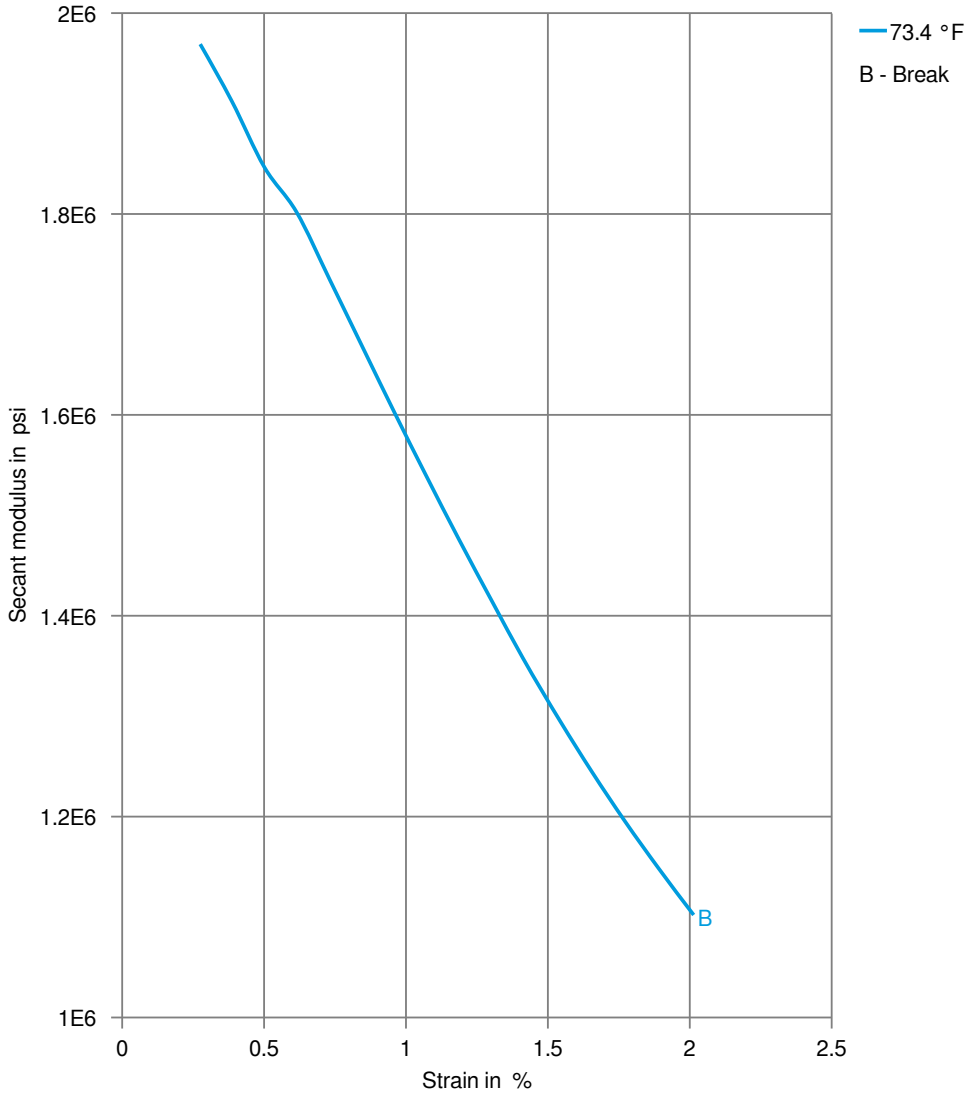
Stress-strain (cond.)



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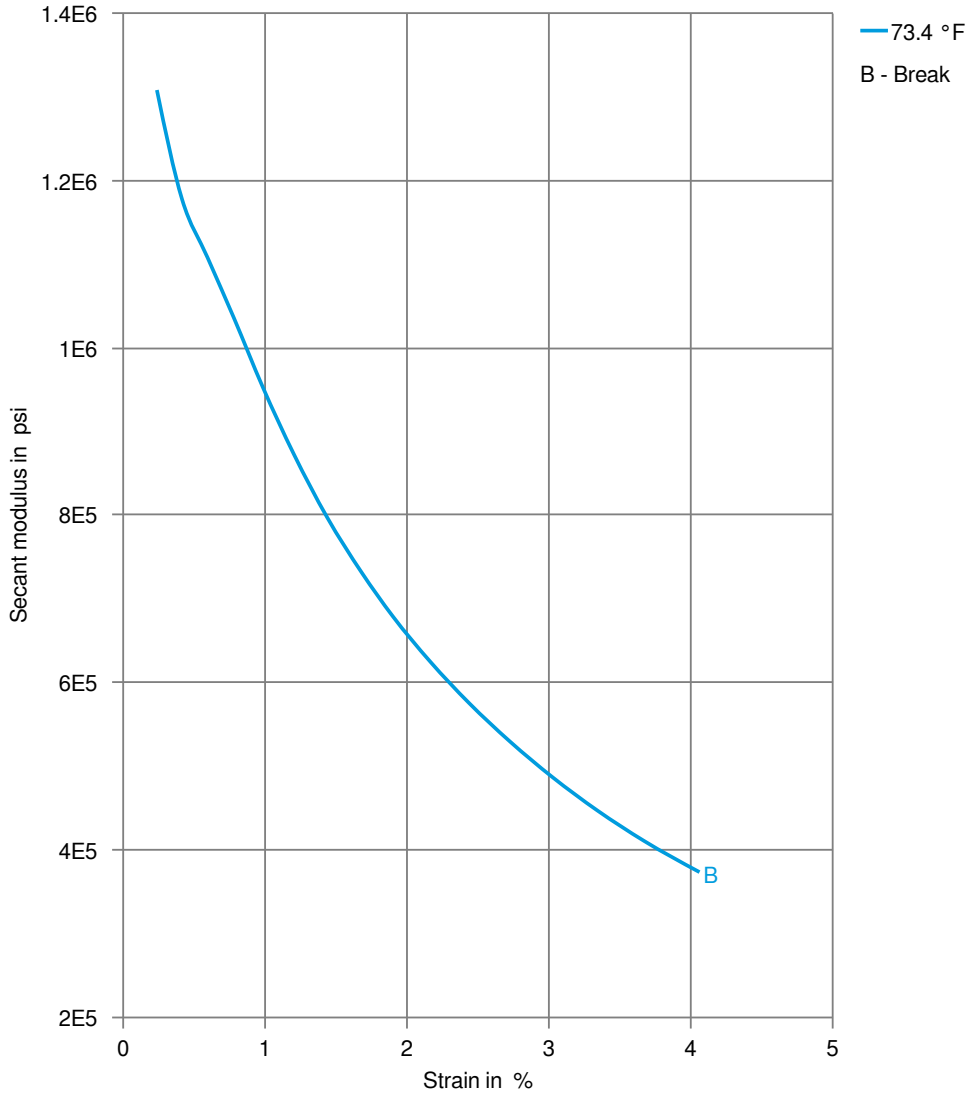
Secant modulus-strain (dry)



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Secant modulus-strain (cond.)



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