

CELANYL® XT4 HH GF35 BK 9005/C

PPA, 35% glass fiber reinforced, heat stabilized

Designed for engineering applications requiring a maximum service temperature higher than that of standard polyamides. The most relevant characteristics are: High stiffness and strength at elevated temperatures, excellent creep behavior, small influence on mechanical properties after moisture uptake, good dimensional stability and low warpage. XT4 grades show an easier processability compared with other PPAs.

Product information

Part Marking Code	>PPA-GF35<	ISO 11469
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Rheological properties

Moulding shrinkage range, parallel	0.3 - 0.4 %	ISO 294-4, 2577
Moulding shrinkage range, normal	0.7 - 0.9 %	ISO 294-4, 2577

Typical mechanical properties

Typical mechanical properties		dry/cond.	
Tensile Modulus	1.89E6 / 1.86E6	psi	ISO 527-1/-2
Stress at break, 5mm/min	26800 / -	psi	ISO 527-1/-2
Strain at break, 5mm/min	1.8 / -	%	ISO 527-1/-2
Flexural Modulus	1.74E6 / -	psi	ISO 178
Charpy impact strength, 23°C	19 / -	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30°C	16.6 / -	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	4.28 / -	ftlb/in²	ISO 179/1eA
Charpy notched impact strength, -30°C	3.81 / -	ftlb/in²	ISO 179/1eA
Izod notched impact strength, 23°C	4.04 / -	ftlb/in²	ISO 180/1A

Thermal properties

Melting temperature, 10°C/min	617 °F	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	563 °F	ISO 75-1/-2

Flammability

Burning Behav. at 1.5mm nom. thickn.	HB class	UL 94
Thickness tested	0.1 in	UL 94
Burning Behav. at thickness h	HB class	UL 94
Thickness tested	0.4 in	UL 94
UL recognition	yes	UL 94

Electrical properties

Electrical properties	dry/cond.		
Electric strength	533 / -	kV/in	IEC 60243-1

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Other properties

Humidity absorption, 2mm	0.6 %	Sim. to ISO 62
Density	12 lb/gal	ISO 1183

Injection

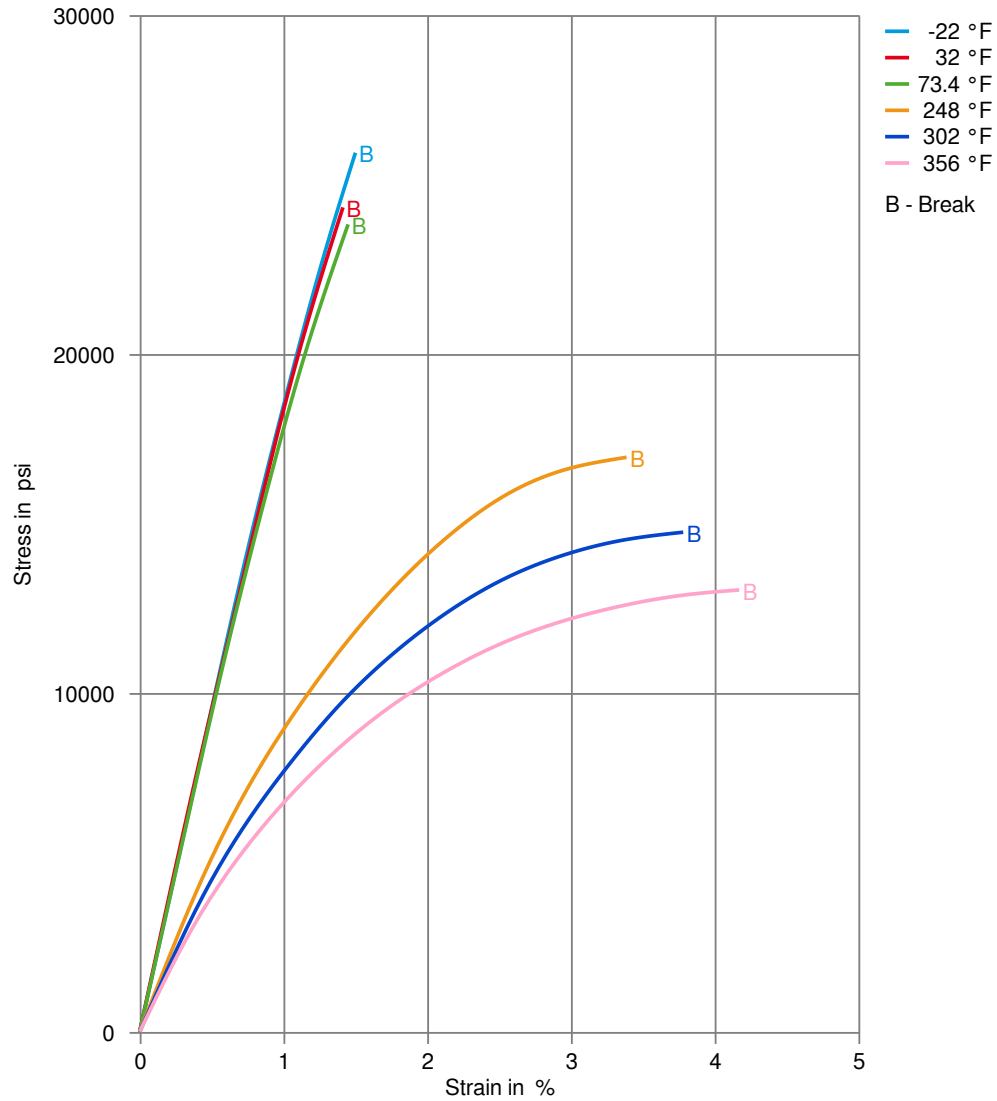
Melt Temperature Optimum	635 °F	Internal
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Additional information

Injection molding	The following conditions apply to the normal injection molding process of FRIANYL XT4. Machine temperatures: barrel 310-325°C, nozzle and hot runners 325-340°C. Mold temperatures: 100°C. Back pressure: typically, < 5 bar (hydraulic pressure). Temperatures exceeding 340°C and long residence time could lead to 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 contact our technical support team.	
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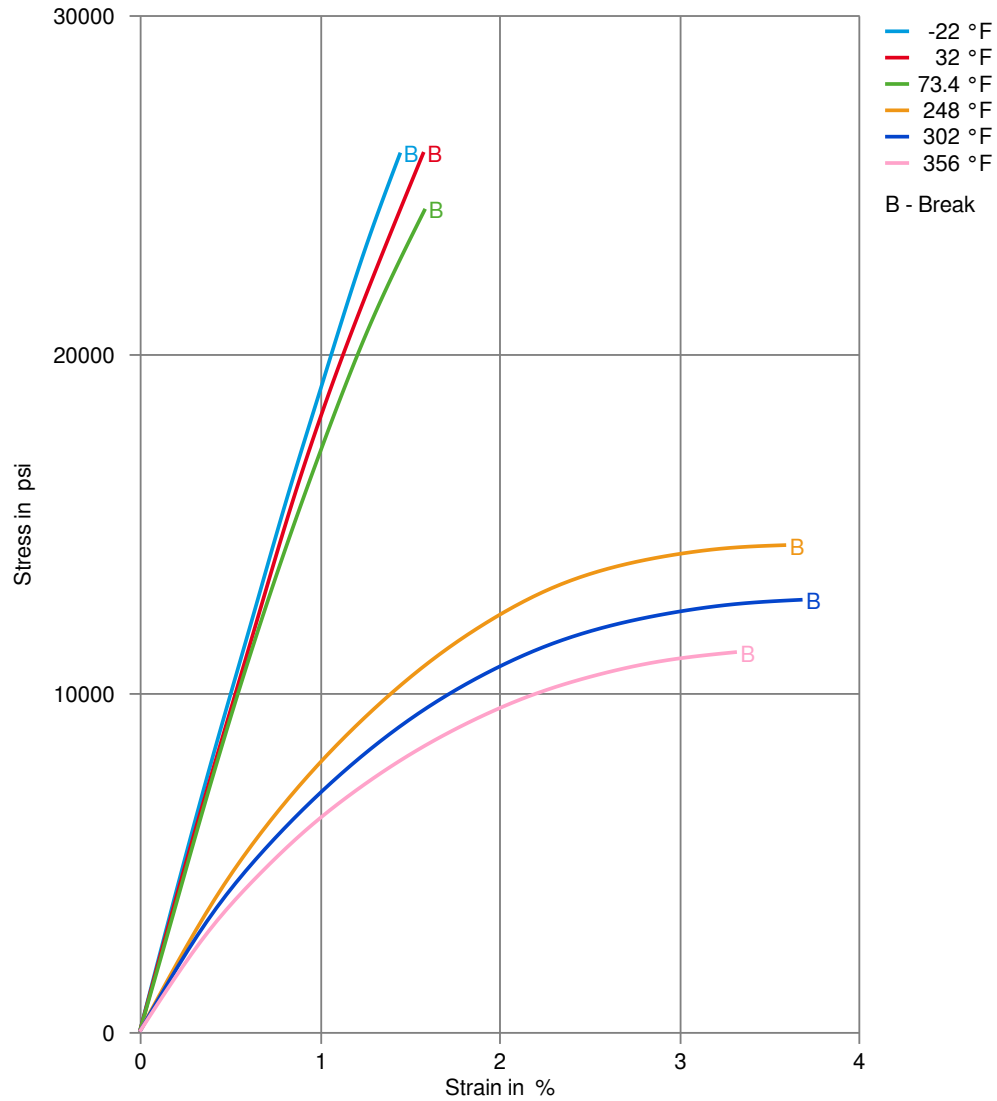
CELANYL® XT4 HH GF35 BK 9005/C

Stress-strain (dry)



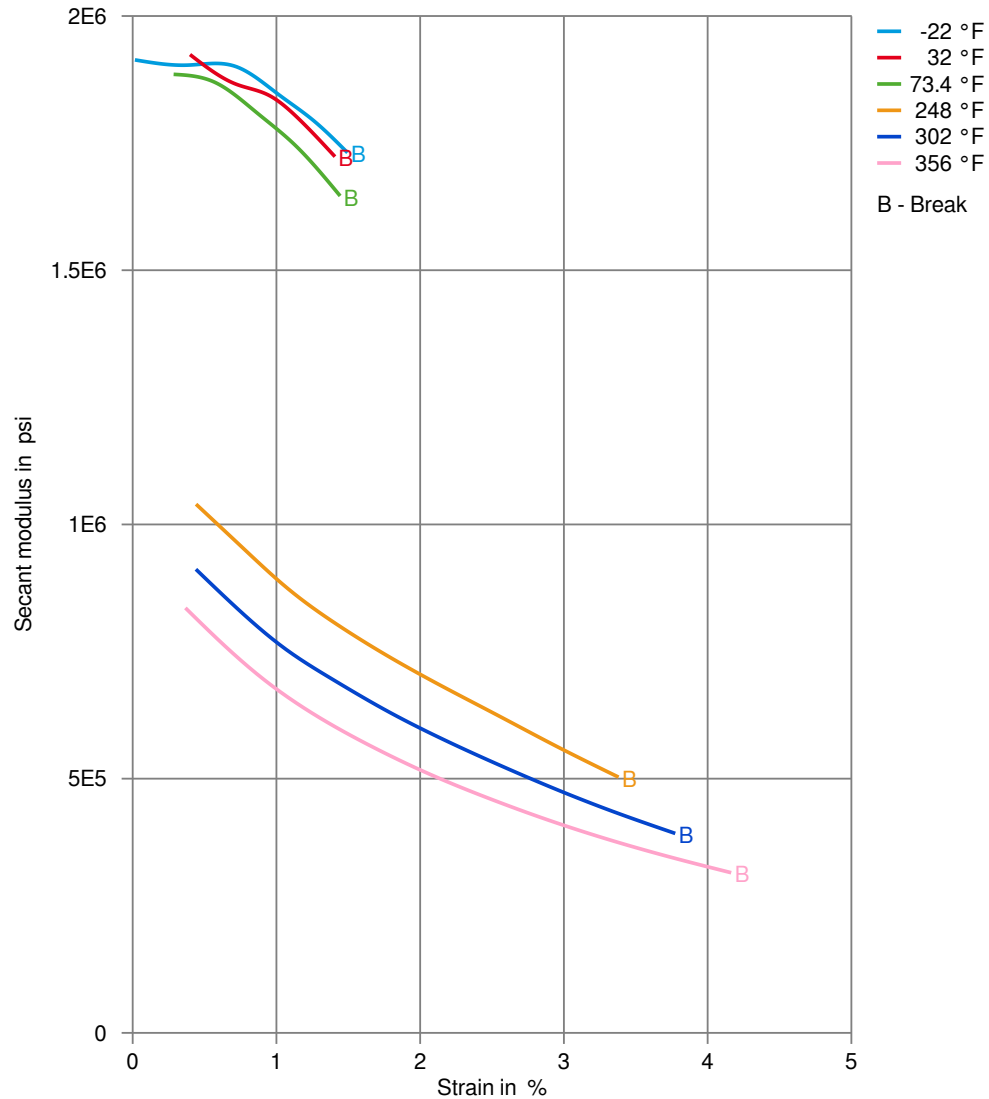
CELANYL® XT4 HH GF35 BK 9005/C

Stress-strain (cond.)



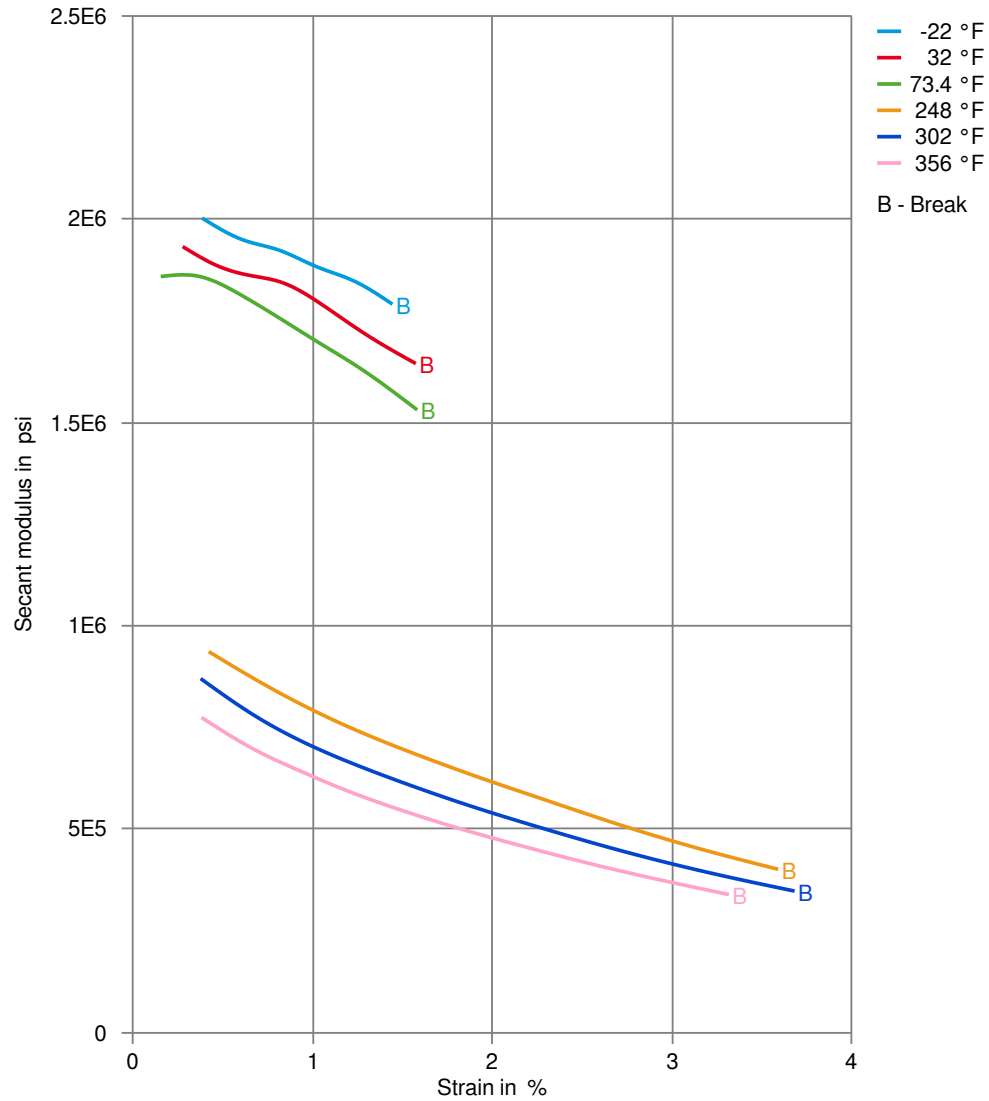
CELANYL® XT4 HH GF35 BK 9005/C

Secant modulus-strain (dry)



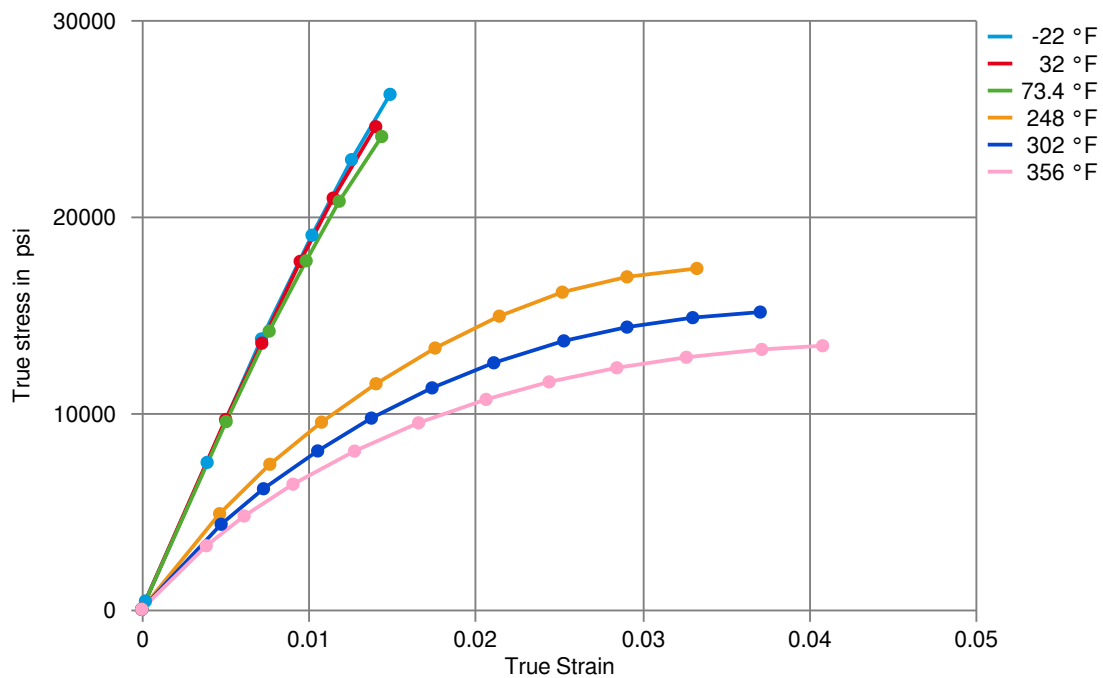
CELANYL® XT4 HH GF35 BK 9005/C

Secant modulus-strain (cond.)



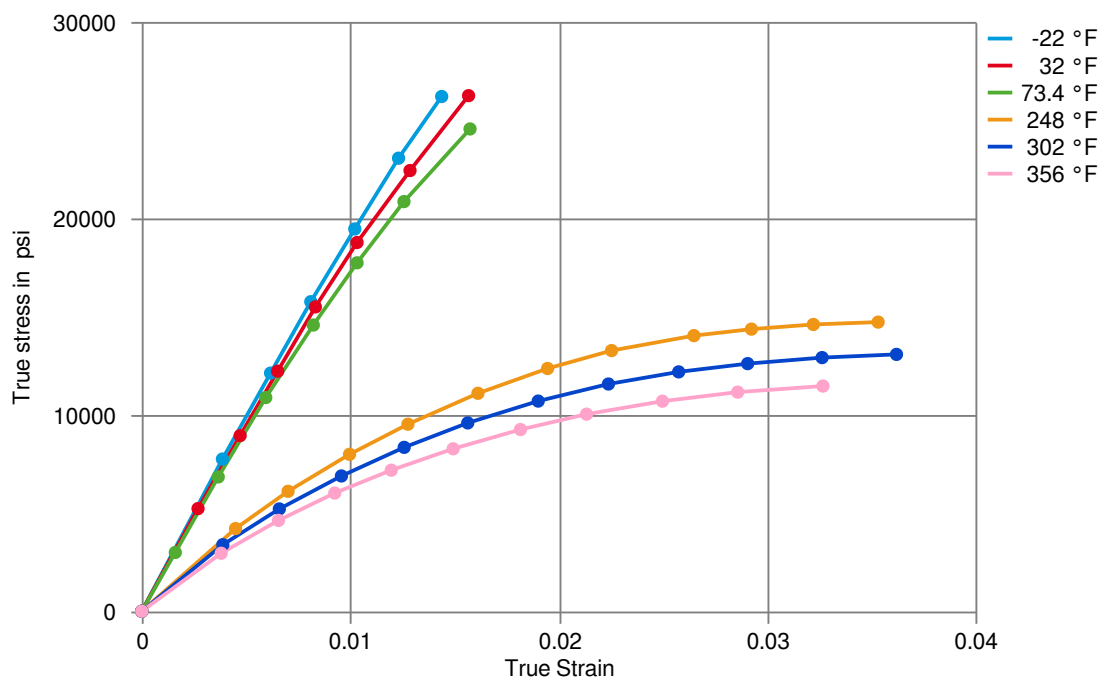
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True stress-strain (dry)



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True stress-strain (cond.)



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Processing Texts

Injection molding

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Injection molding Preprocessing

FRIANYL XT4 compound is supplied in moisture-proof packaging. The maximum moisture content allowed for the process of injection molding is 0.10%, but to get the maximum performance and reduce possible degradation phenomena is recommended molding with a moisture content < 0.08%. The drying time depends on the initial moisture content and the drying conditions used. Typically 4-6h hours at 110°C with dry air (dew point of <-30°C) are sufficient for the material stored in unopened packs or with moisture content < 0.20-0.25%.

Injection molding Postprocessing

Parts made by FRIANYL XT4 compound, do not change significantly their performance depending on the moisture uptake. Normally, a conditioning cycle is not necessary. After molding, with favorable environmental conditions, a piece can absorb moisture up to 0,1-0,3% in 24h and reach the equilibrium during its lifetime. The post-treatment of the parts may include annealing at 100-110°C in the oven, up to four hours. This treatment is useful to relax any internal stress.
