

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
-------------------	------------	-----------

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

	dry/cond.		
Tensile Modulus	13000 / 12800	MPa	ISO 527-1/-2
Stress at break, 5mm/min	185 / -	MPa	ISO 527-1/-2
Strain at break, 5mm/min	1.8 / -	%	ISO 527-1/-2
Flexural Modulus	12000 / -	MPa	ISO 178
Charpy impact strength, 23°C	40 / -	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	35 / -	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	9 / -	kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	8 / -	kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23°C	8.5 / -	kJ/m ²	ISO 180/1A

Thermal properties

Melting temperature, 10°C/min	325 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	295 °C	ISO 75-1/-2

Flammability

Burning Behav. at 1.5mm nom. thickn.	HB class	UL 94
Thickness tested	1.6 mm	UL 94
Burning Behav. at thickness h	HB class	UL 94
Thickness tested	0.4 mm	UL 94
UL recognition	yes	UL 94

Electrical properties

	dry/cond.		
Electric strength	21 / -	kV/mm	IEC 60243-1



CELANYL® XT4 HH GF35 BK 9005/C

Other properties

Humidity absorption, 2mm
Density

0.6 %
1470 kg/m³

Sim. to ISO 62
ISO 1183

Injection

Melt Temperature Optimum

335 °C

Internal

Additional information

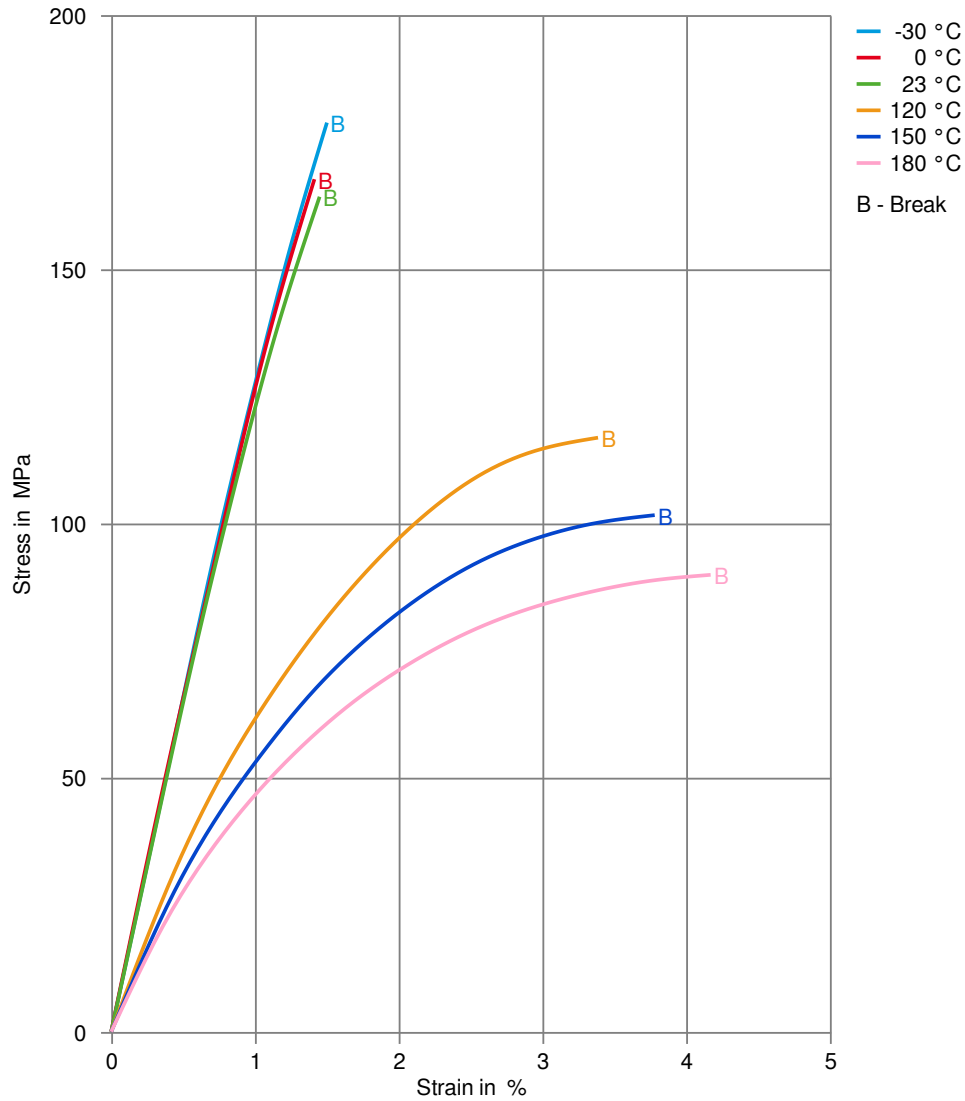
Injection molding

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.



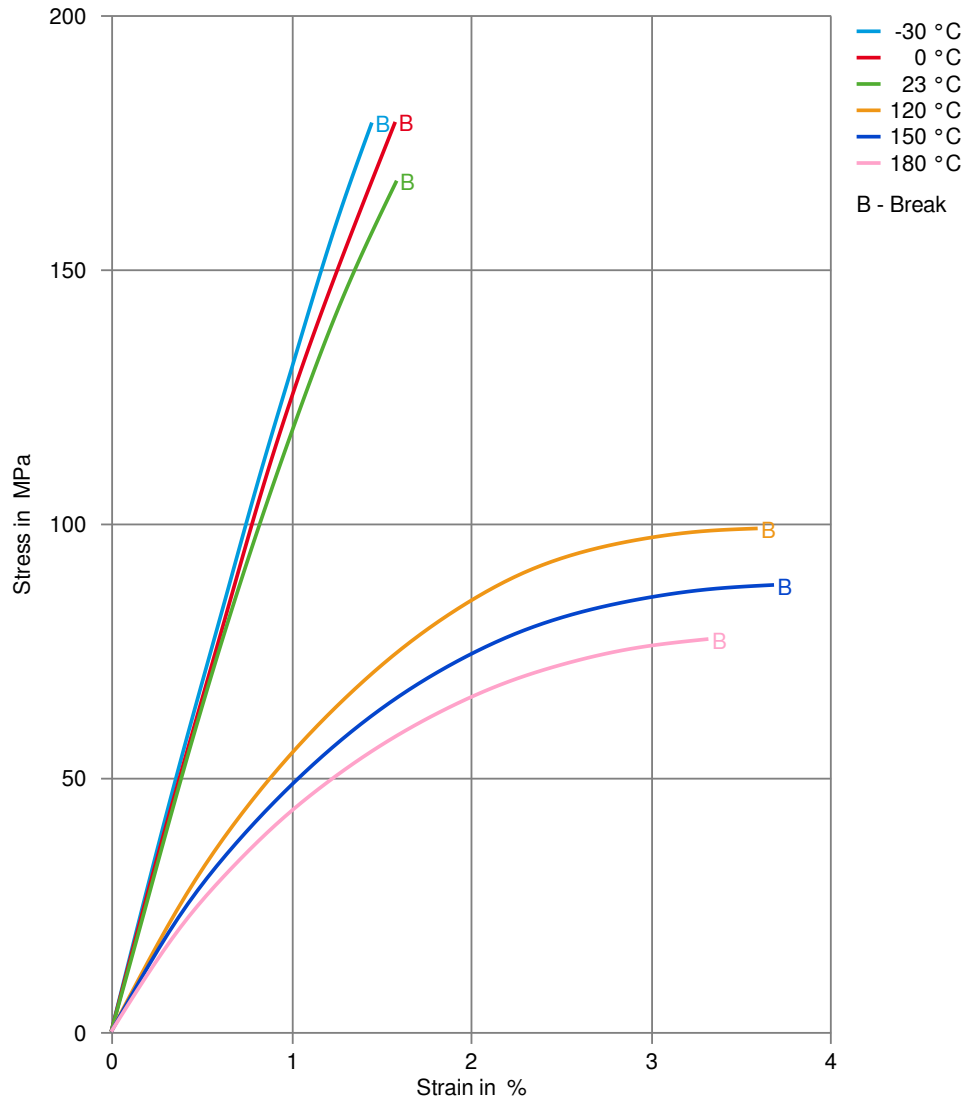
CELANYL® XT4 HH GF35 BK 9005/C

Stress-strain (dry)



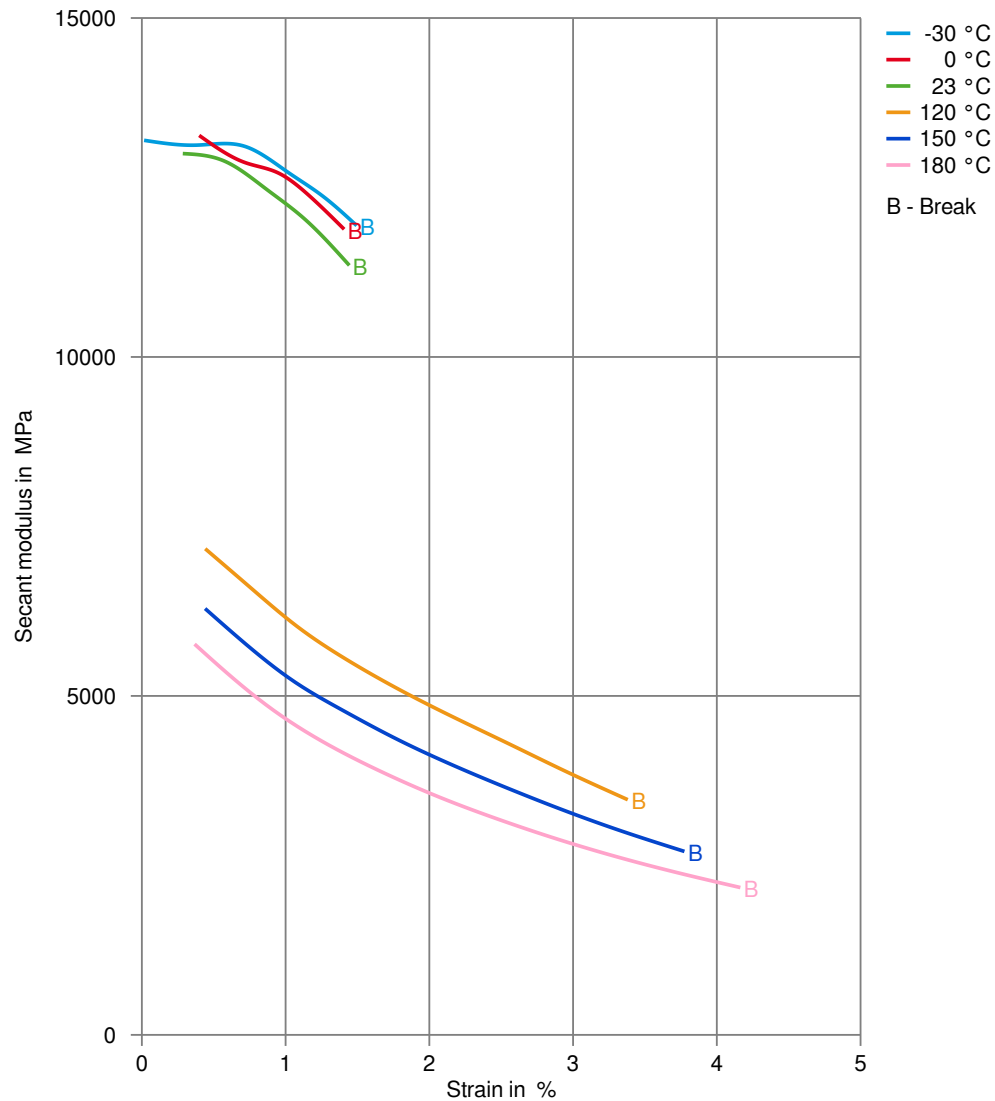
CELANYL® XT4 HH GF35 BK 9005/C

Stress-strain (cond.)



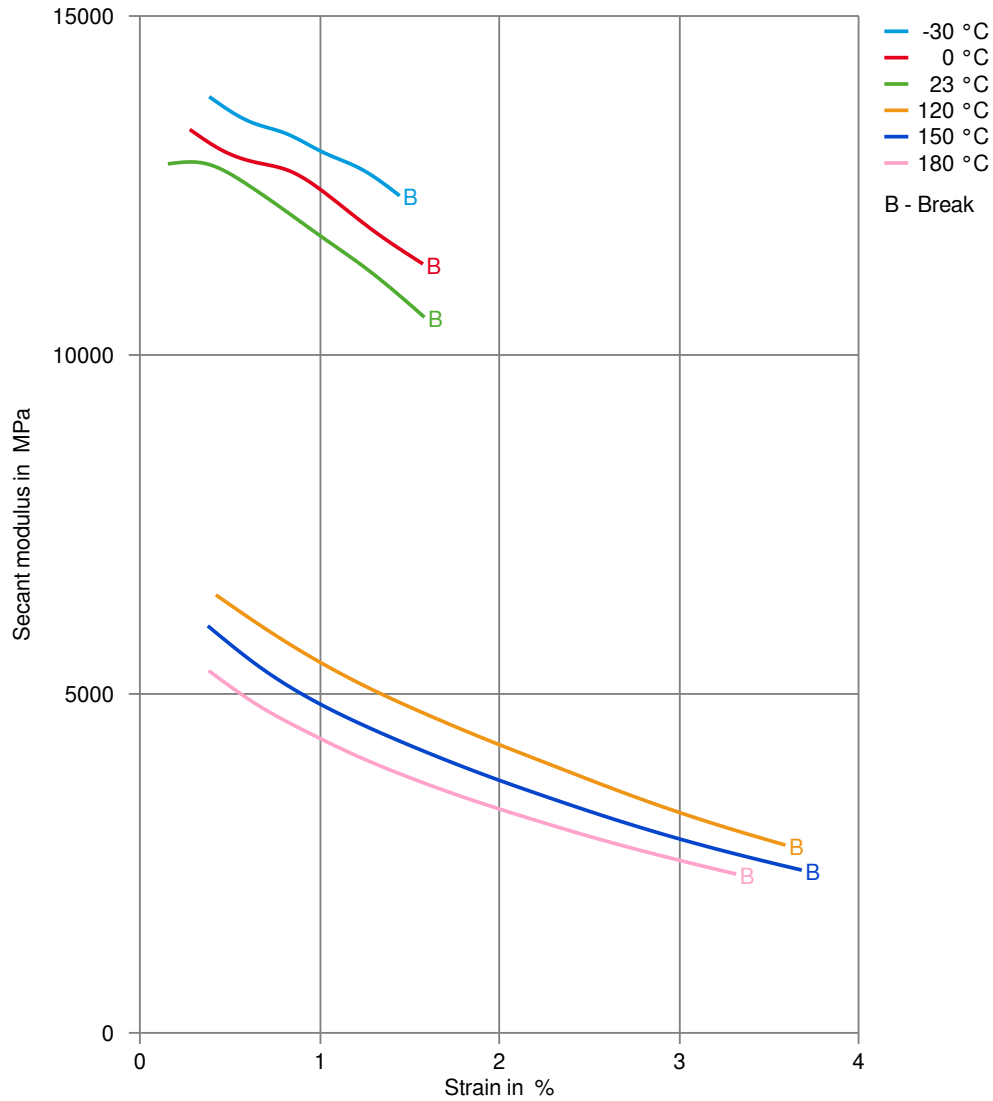
CELANYL® XT4 HH GF35 BK 9005/C

Secant modulus-strain (dry)



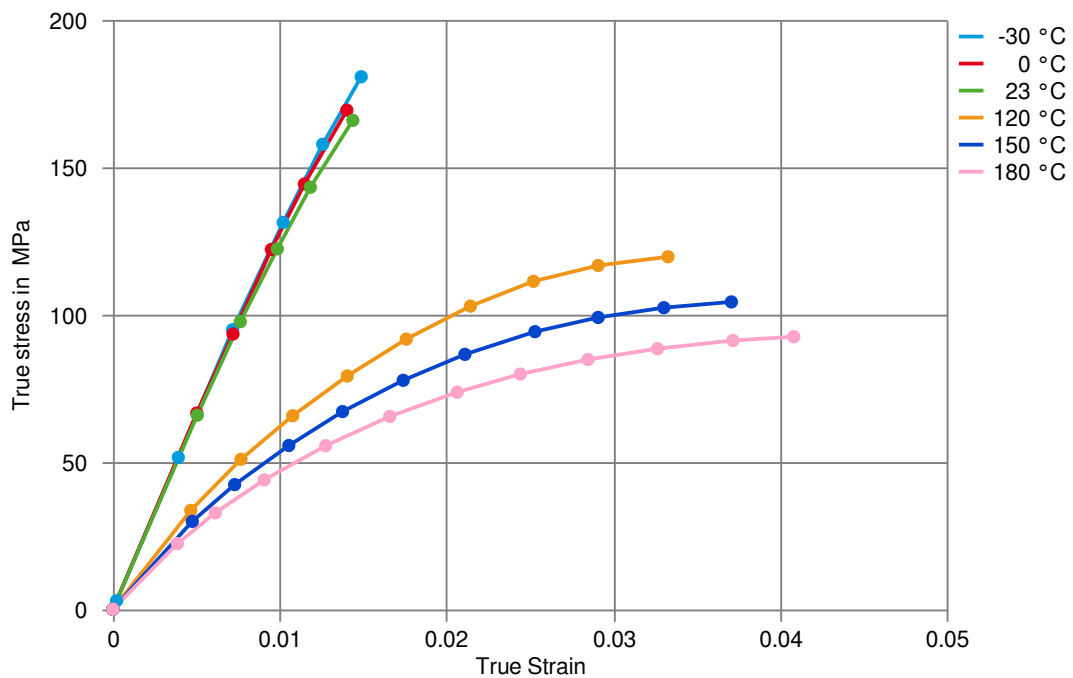
CELANYL® XT4 HH GF35 BK 9005/C

Secant modulus-strain (cond.)



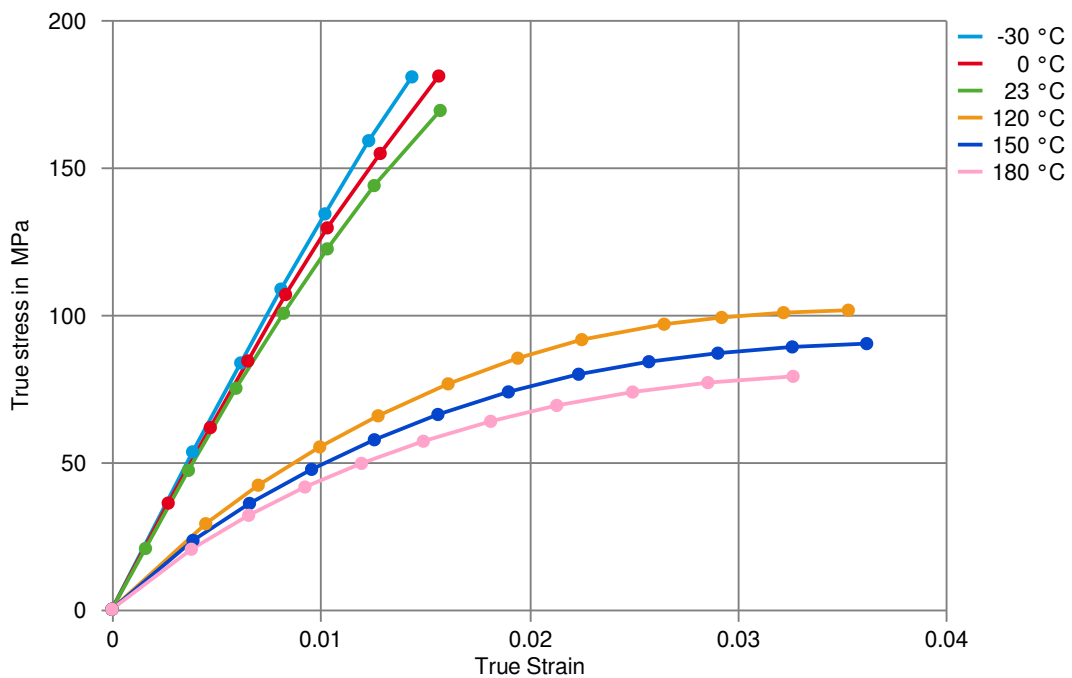
CELANYL® XT4 HH GF35 BK 9005/C

True stress-strain (dry)



CELANYL® XT4 HH GF35 BK 9005/C

True stress-strain (cond.)



CELANYL® XT4 HH GF35 BK 9005/C

Processing Texts

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.

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.

