CELANYL® XT1 GF50 BK 9005/W/FA

PPA compound, 50% glass fiber reinforced, heat stabilized.
Intended for engineering applications that require a maximum service temperature higher than that of normal aliphatic polyamides. In addition to the outstanding thermal and chemical resistance, it provides high and constant mechanical performance, unaltered even after moisture absorption. Excellent creep behavior and dimensional stability. Suitable for drinking water applications.

Product information

Part Marking Code	>PPA-GF50<		ISO 11469

Rheological properties

Moulding shrinkage range, parallel	0.1 - 0.3	%	ISO 294-4, 2577
Moulding shrinkage range, normal	0.3 - 0.5	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile Modulus	18500 / 18500	MPa	ISO 527-1/-2
Stress at break, 5mm/min	260 / 250	MPa	ISO 527-1/-2
Strain at break, 5mm/min	1.95 / 2	%	ISO 527-1/-2
Flexural Modulus	18000 / 18000	MPa	ISO 178
Flexural Strength	400 / 370	MPa	ISO 178
Charpy impact strength, 23°C	80 / 110	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	80 / 90	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	9.5 / 12.5	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	8.5 / 15	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	11 / -	kJ/m²	ISO 180/1A

Thermal properties

Melting temperature, 10°C/min	322	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	280	°C	ISO 75-1/-2

Flammability

Thickness tested	1.6	mm	UL 94
Burning Behav. at thickness h	HB	class	UL 94
Thickness tested	3.2	mm	UL 94

Electrical properties

	dry/cond.		
Volume resistivity	1E13 / -	Ohm.m	IEC 62631-3-1
Electric strength	22 / -	kV/mm	IEC 60243-1

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Other properties

Humidity absorption, 2mm	1	%	Sim. to ISO 62
Water absorption, 2mm	2.9	%	Sim. to ISO 62
Density	1640	kg/m³	ISO 1183

Additional information

Injection molding

The following conditions apply to the normal injection molding process of XT1 compounds. Machine temperatures: barrel 310-325 °C, nozzle and hot runners 325-340 °C. Mold temperatures: > 135 °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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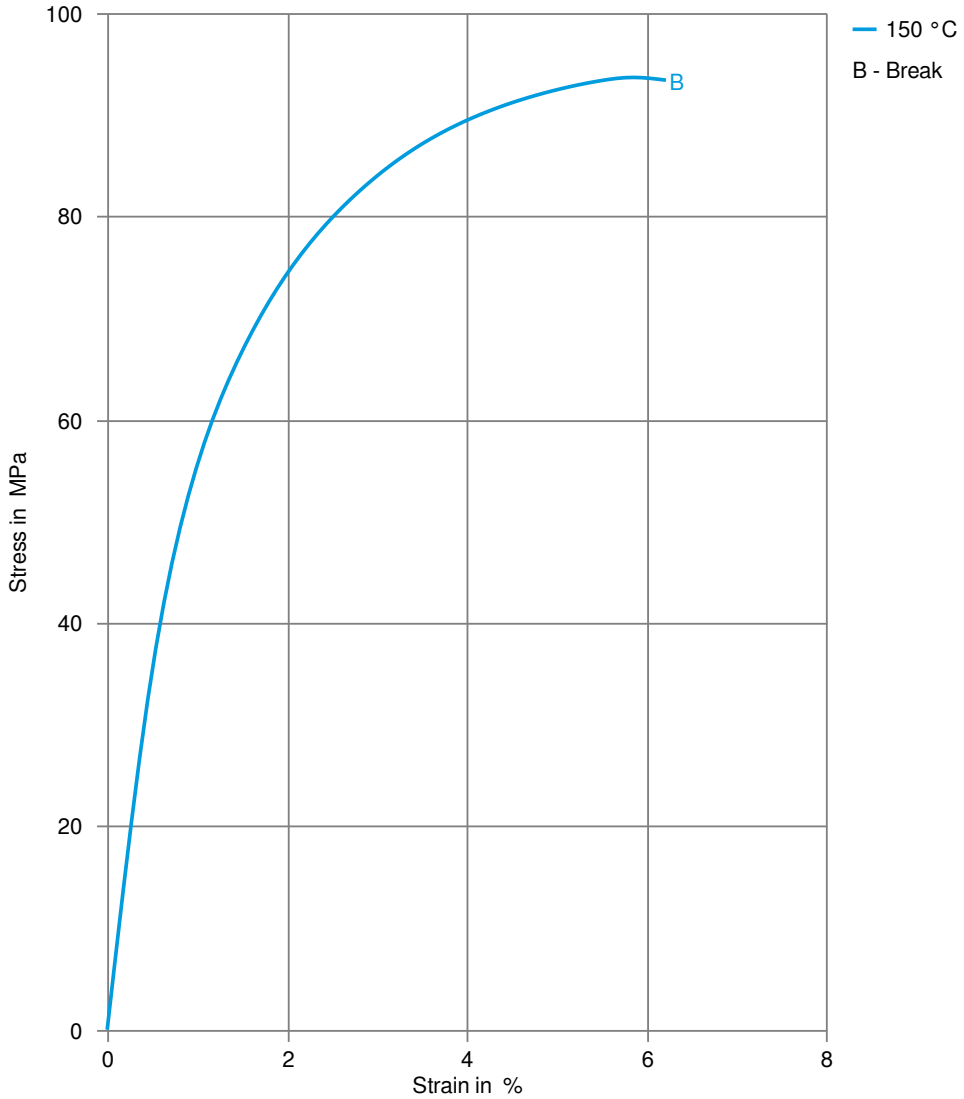
Stress-strain (dry)



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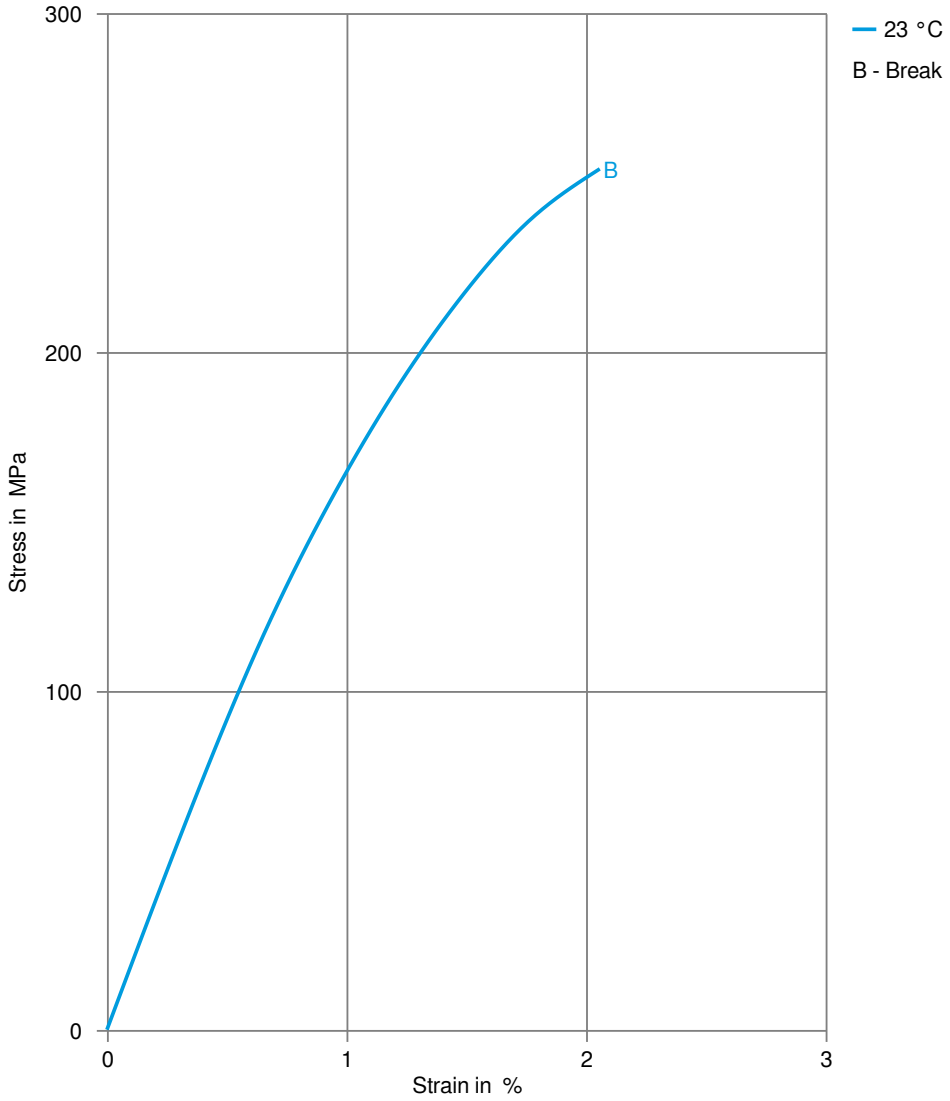
Stress-strain (cond.)



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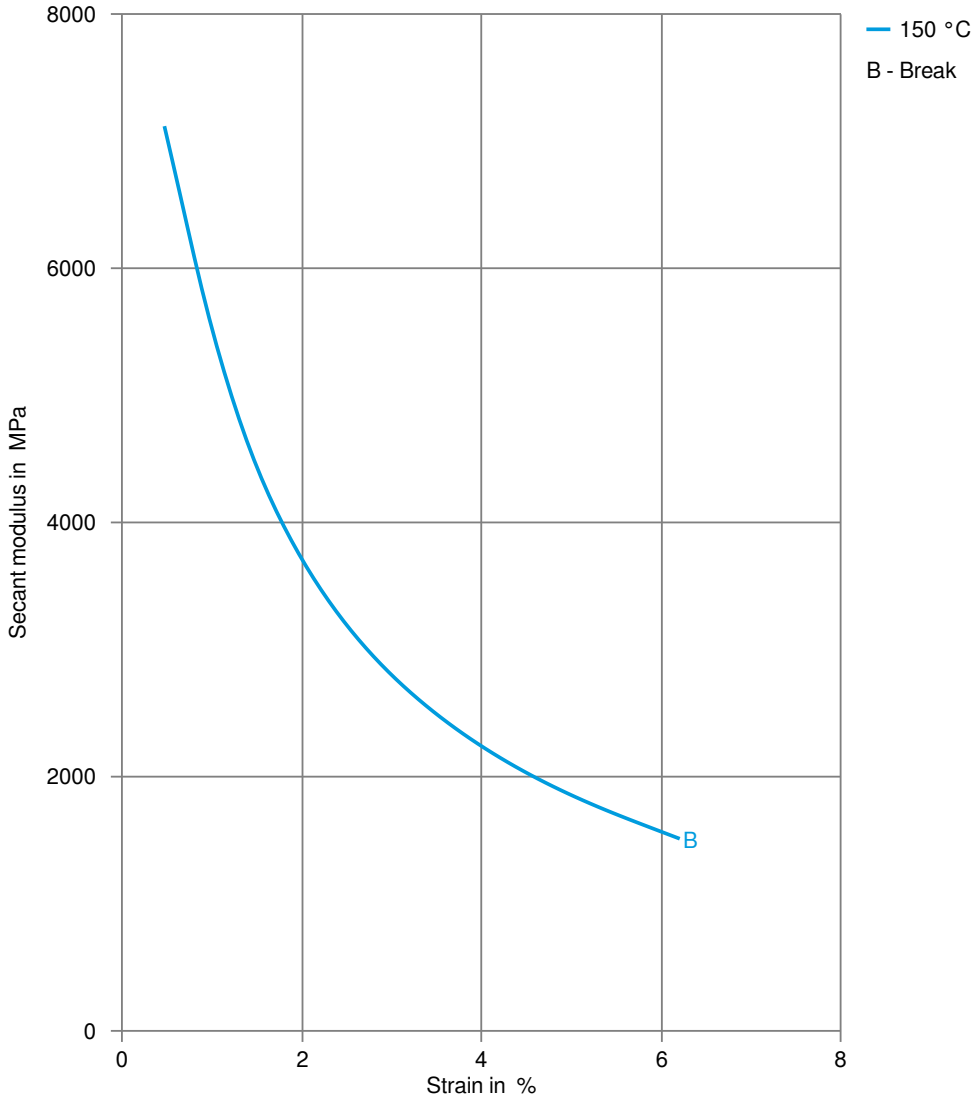
Secant modulus-strain (dry)



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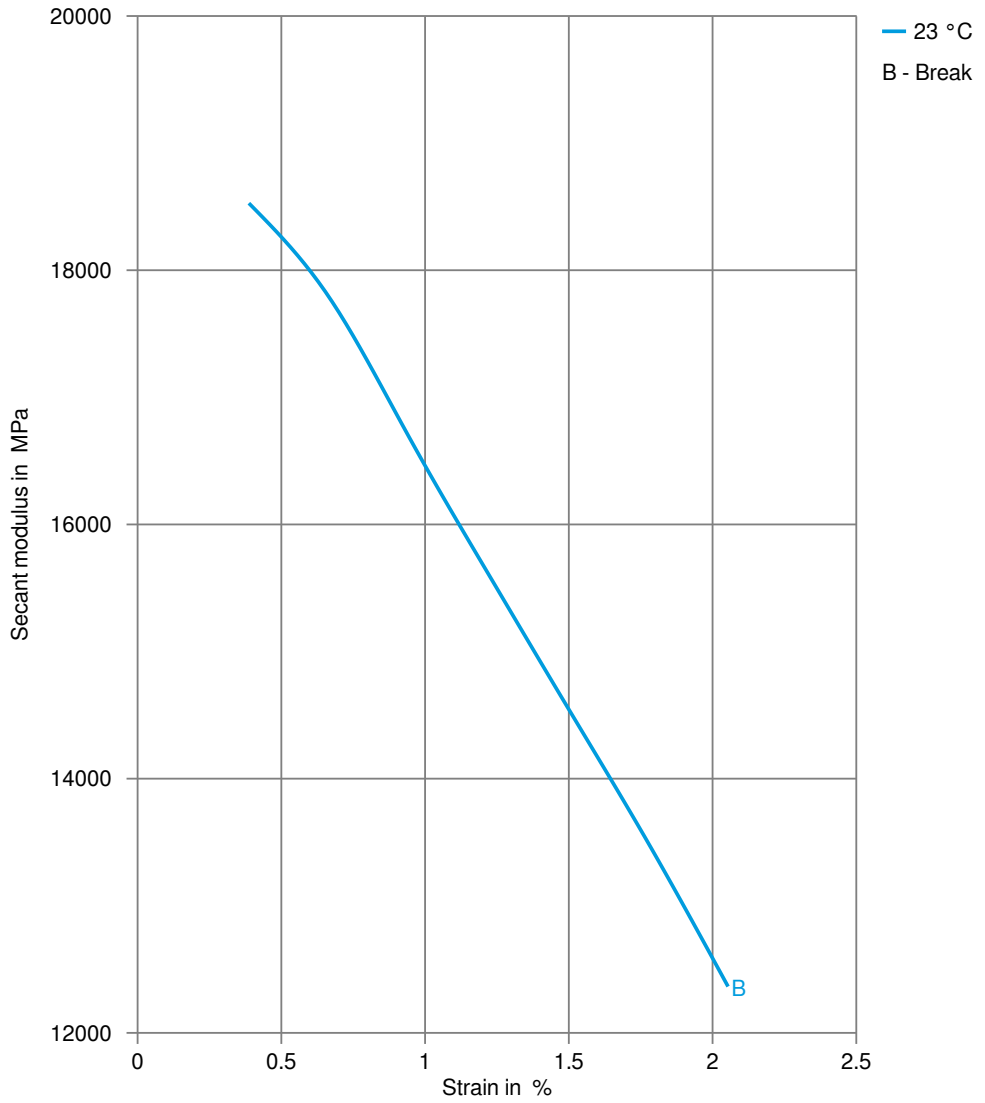
Secant modulus-strain (cond.)



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Processing Texts

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Injection molding Preprocessing	The XT1 compound is supplied in a moisture-proof package. The maximum humidity content allowed for the injection molding process is 0.10%, but in order to obtain the best performance and avoid possible degradation phenomena we recommend molding with a moisture content < 0.08%. The drying time depends on the initial moisture content and the drying conditions used. Generally 4-6 hours at 120 °C with dry air (dew point of about -30 °C) are sufficient to prepare a granule stored in unopened packages or with a moisture content of < 0.20-0.25%.
Injection molding Postprocessing	Parts made by XT1, 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 0,2% in 24h and reach the equilibrium during its lifetime. The post-treatment of the parts may include annealing at 150-160 °C in the oven, for two to four hours depending on the temperature. This treatment is useful to relax any internal stress and maximize thermomechanical performance.