

NILAMID XT1 HH GF30 BK 9005/C - PPA

Description

PPA, 30% glass fiber reinforced, high heat & hydrolysis stability, high rigidity and creep resistance

NILAMID XT1 compounds are designed for engineering applications requiring a maximum service temperature higher than that of standard polyamides. The most relevant characteristics are the following: High stiffness and strength at elevated temperatures Excellent creep behavior Small influence on mechanical properties after moisture uptake Good dimensional stability Low warpage

Physical properties	dry / cond	Unit	Test Standard
Density	1430 / -	kg/m ³	ISO 1183
Molding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Molding shrinkage, normal	0.7	%	ISO 294-4, 2577
Humidity absorption, 23 °C/50%RH	0.2 / *	%	ISO 62

Mechanical properties	dry / cond	Unit	Test Standard
Tensile modulus	12000 / 12000	MPa	ISO 527-2/1A
Tensile stress at break, 5mm/min	190 / -	MPa	ISO 527-2/1A
Tensile strain at break, 5mm/min	2.1 / -	%	ISO 527-2/1A
Flexural modulus, 23 °C	10500 / 10500	MPa	ISO 178
Flexural stress at max. force	280 / 260	MPa	ISO 178
Charpy impact strength, 23 °C	50 / -	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30 °C	45 / -	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23 °C	6.5 / -	kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30 °C	5.5 / -	kJ/m ²	ISO 179/1eA
Izod impact notched, 23 °C	7.5 / -	kJ/m ²	ISO 180/1A

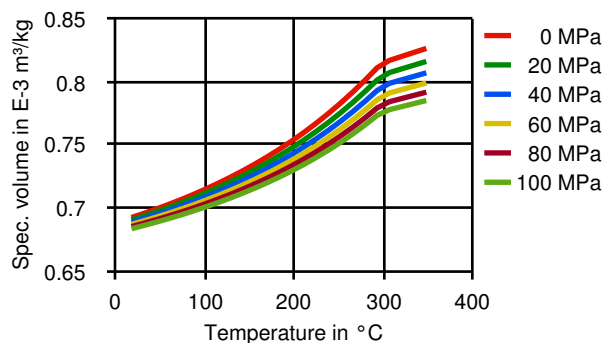
Thermal properties	dry / cond	Unit	Test Standard
Melting point, peak	322	°C	ISO 3146
DTUL at 1.8 MPa	265 / *	°C	ISO 75-1, -2
Flammability @3.2mm nom. thickn.	HB / *	class	UL 94
Flammability @1.6mm nom. thickn.	HB / *	class	UL 94
Flammability @0.8mm nom. thickn.	HB / *	class	UL 94
Flammability @0.4mm nom. thickn.	HB / *	class	UL 94
Continuous service temperature	140 / *	°C	DIN/IEC 60216-1

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity	1E13 / -	Ohm*m	IEC 60093
Electric strength	21 / -	kV/mm	IEC 60243-1
Comparative tracking index	500 / -	-	IEC 60112

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Diagrams

Moldflow Specific volume-temperature (pvT)



Typical injection moulding processing conditions

Temperature	Value	Unit	Test Standard
Melt temperature	≤350	°C	-

Other text information

Injection Molding Preprocessing

NILAMID XT1 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 120°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

The following conditions apply to the normal injection molding process of NILAMID XT1. 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.

Injection Molding Postprocessing

Parts made by NILAMID XT1 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 0,1-0,2% in 24h and reach the equilibrium during its lifetime. The post-treatment of the parts may include annealing at 130-140°C in the oven, up to four hours. This treatment is useful to relax any internal stress.