

# POLYAMIDE HT

## TECHNICAL DATA SHEET VERSION 1.0

Innovatefil PAHT is a polyamide-based filament with great mechanical resistance and toughness and excellent performance at high temperatures, especially indicated for industrial applications and for pieces that will have an end use, such as bearings or gears.

The main advantages of this filament are:

- Easy to print
- It can stand high temperatures up to 120°C
- High traction resistance up to 85 MP
- High mechanical and impact resistance
- Great adhesion between layers regardless of print position
- No warping
- Good resistance to moisture absorption (<0.3% 23-24h). But it has to be protected. 75% reduction in water catchment compared to PA 6
- Good quality on the surface of the working piece
- It is compatible in dual printing with support materials like Smartfil PVA, SUPPORT, HIPS or Innovatefil HYDROSOLUBLE.

	TYPICAL VALUE	UNITS	TEST METHOD
<b>PHYSICAL PROPERTIES</b>			
Chemical name	Polyamide		
Material density	1.20	g/cm <sup>3</sup>	ISO 1183
<b>MECHANICAL PROPERTIES</b>			
Tensile Strength	85	MPa	ISO 527
Modulus of Elasticity	3,4	GPa	ISO 527
Elongation	3,6	%	ISO 527
<b>THERMAL PROPERTIES</b>			
Continuous Service Temp	120	°C	UL 746B
Heat Distortion Temp. (HDT A)	90	°C	ISO 75
Maximum (short term) Use Temp	160	°C	
<b>ELECTRICAL PROPERTIES</b>			
Insulation Resistance	>10 <sup>12</sup>	Ω	DIN/IEC 60167
Surface Resistance	>10 <sup>12</sup>	Ω	DIN/IEC 60093
<b>PRINTING PROPERTIES</b>			
Print temperature	255-280	°C	
Bed temperature	>50	°C	
Fan layer	0-30	%	
Print speed	30-50	mm/s	

\* Values measured on molded test specimen

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## USE RECOMENDATIONS

### PROTECT FROM HUMIDITY

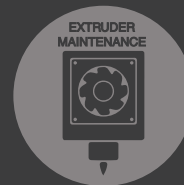
Innovatefil PA HT is delivered in a vacuum bag, with a great barrier against moisture so that the filament can not absorb humidity. Prior to bagging, the filament follows the strictest quality controls by dehumidifying the raw material until the moisture content of less than 0.02%. During the process, the filament is cooled with dry air and then pocketed to ensure that the product is of the best quality.

Once unpacked, we recommend to keep it in a dry and dark environment. If it is not maintained in a suitable environment the material can absorb up to 0.5% of the atmospheric moisture, this can create water vapor in the extrusion that confers a poor surface finish.

To maintain optimal printing conditions, it is recommended to dry the material before using it in a 3D printer filament. Many printing equipments already have these drying systems incorporated.

### KEEP THE EXTRUDER IN GOOD CONDITION

Once printing is finished it is necessary to clean the nozzle eliminating the excess of material to avoid seals and defects in the printing pieces, if several materials are used we recommend to have a nozzle for each material to avoid being mixed.



DISCLAIMER: The information provided in the data sheets is intended to be just a reference. It should not be used as design or quality control values. Actual values may differ significantly depending on the printing conditions. The final performance of the printed components does not only depend on the materials, also the design and printing conditions are important.

Smart Materials assumes no responsibility for any damage, injury or loss produced by the use of its filaments in any particular application.