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Technical datasheet

Prusament PA11 by Prusa Polymers

OpenPrintTag
compatible



Identification

Trade Name	Prusament PA11
Chemical Name	Polyamide 11
Usage	FDM/FFF 3D printing
Diameter	1.75 ± 0.02 mm
Manufacturer	Prusa Polymers a.s., Prague, Czech Republic

Recommended print settings

Nozzle Temperature [°C]	275 ± 10
Heatbed Temperature [°C]	100 ± 10
Chamber Temperature [°C]	55 ± 5
Maximum Volumetric Speed [mm ³ /s]	10
Cooling Fan Speed [%]	15-20
Bed Type	PA Nylon sheet

Typical material properties

	Typical Value	Method
MFR [g/10 min]	N/A	ISO 1133
MVR [cm ³ /10 min]	N/A	ISO 1133
Density [g/cm ³]	1.02	ISO 1183
Moisture Absorption in 24 hours [%](1)	0.26	Prusa Polymers
Moisture Absorption in 7 days [%](1)	0.46	Prusa Polymers
Heat Deflection Temperature (0.45 MPa) [°C]	58.7	ISO 75
Heat Deflection Temperature (1.80 MPa) [°C]	49.9	ISO 75
Tensile Yield Strength for Filament [MPa]	44.8 ± 0.5	ISO 527
Hardness – Shore D	70	Prusa Polymers
Interlayer Adhesion [MPa]	32 ± 1	Prusa Polymers
Tensile strength anisotropy coefficient (2)	0.84	Prusa Polymers

(1) 25 °C; humidity 30 %

(2) Tensile strength anisotropy coefficient characterizes the ratio between tensile strength in the Z axis and in the XY axis. The higher the ratio (max. 1), the more even the tensile strength in every direction.

Mechanical properties of 3D printed testing specimens(3)

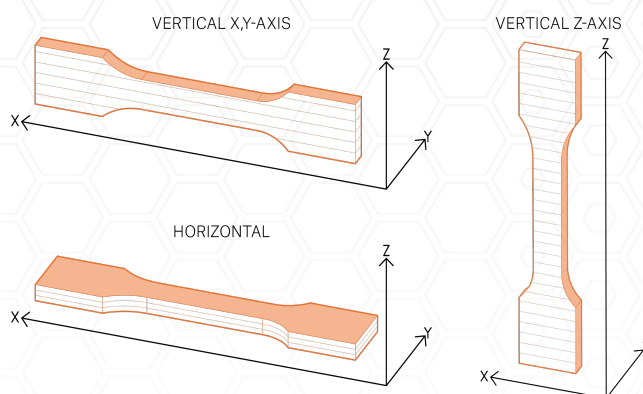
Property\Print Direction	Horizontal xy	Vertical xz	Method
Tensile Yield Strength [MPa]	38.3 ± 0.8	39.5 ± 0.5	ISO 527-1
Tensile Modulus [GPa]	1.2 ± 0.0	1.2 ± 0.0	ISO 527-1
Elongation at Yield Point [%]	5.6 ± 0.1	5.6 ± 0.1	ISO 527-1
Flexural Strength [MPa]	41.4 ± 0.8	47.2 ± 0.7	ISO 178
Flexural Modulus [GPa]	1.1 ± 0.0	1.0 ± 0.0	ISO 178
Deflection at Flexural Strength [mm]	11.0 ± 0.5	11.6 ± 0.3	ISO 178
Impact Strength Charpy [kJ/m ²](4)	N/A	N/A	ISO 179-1
Impact Strength Charpy Notched [kJ/m ²](5)	12.9 ± 2.1	11.7 ± 1.2	ISO 179-1

(3) The Prusa CORE One+ printer with firmware 6.4.0 and a 0.4mm High-Flow CHT nozzle was used to make testing specimens. Prusa Slicer 2.9.6 was used to create G-codes with the following settings:

- Prusament PA11;
 - Print Settings: 0.20 mm (layers 0.20 mm);
 - Solid Layers: Top: 0, Bottom: 0;
 - Perimeters: 2;
 - Infill: 100% rectilinear;
 - Maximum Volumetric Speed: 10 mm³/s;
 - Nozzle Temperature: 275 °C for all layers;
 - Bed Temperature: 100 °C for all layers;
 - Chamber Temperature: 55 °C for all layers;
 - Extrusion multiplier: 1.0;
- Other parameters are left at default values.

(4) Charpy unnotched – Edgewise direction of blow according to ISO 179-1

(5) Charpy notched – Edgewise direction of blow according to ISO 179-1



Disclaimer:

The results presented in this data sheet are just for your information and comparison. Values are significantly dependent on print settings, operator experience, and surrounding conditions. Everyone has to consider the suitability and possible consequences of printed parts usage. Prusa Polymers can not carry any responsibility for injuries or any loss caused by using Prusa Polymers material. Before using Prusa Polymers material, read all the details in the available safety data sheet (SDS) properly.