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## Technical datasheet

### Prusament PEI 1010 by Prusa Polymers



## Identification

Trade Name	Prusament PEI 1010
Chemical Name	Polyetherimide
Usage	FDM/FFF 3D printing
Diameter	1.75 ± 0.05 mm
Manufacturer	Prusa Polymers a.s., Prague, Czech Republic

## Recommended print settings

Nozzle Temperature [°C]	410 ± 10
Heatbed Temperature [°C]	140-160
Chamber Temperature [°C]	90
Print Speed [mm/s]	up to 40
Cooling Fan Speed [%]	50
Bed Type	PA Nylon sheet; powder coated sheet with HT glue
Additional Info	Heat chamber required. Drying at 150°C for 6-8 hours. It is recommended that the filament be kept dry for the best results.

## Typical material properties

	Typical Value	Method
MFR [g/10 min](1)	17	ISO 1133
MVR [cm <sup>3</sup> /10 min](1)	13	ISO 1133
Density [g/cm <sup>3</sup> ]	1.27	ISO 1183
Moisture Absorption in 24 hours [%](2)	0.4	Prusa Polymers
Moisture Absorption in 7 days [%](2)	0.7	Prusa Polymers
Heat Deflection Temperature (0.45 MPa) [°C]	207	ISO 75
Heat Deflection Temperature (1.80 MPa) [°C]	194	ISO 75
Tensile Yield Strength for Filament [MPa]	111.5 ± 1.4	ISO 527
Hardness - Shore D	83.5	Prusa Polymers
Interlayer Adhesion [MPa]	13.97 ± 1.47	Prusa Polymers

(1) 5 kg; 340 °C

(2) 24 °C; humidity 22 %

## Mechanical properties of 3D printed testing specimens(3)

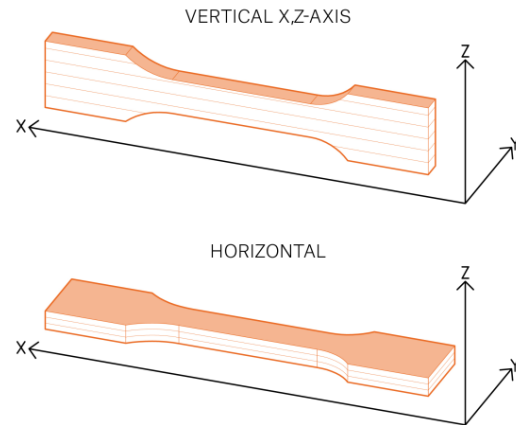
Property\Print Direction	Horizontal	Vertical xz	Method
Tensile Yield Strength [MPa]	95 ± 3.5	72 ± 5	ISO 527-1
Tensile Modulus [GPa]	2.3 ± 0.1	2.1 ± 0.1	ISO 527-1
Elongation at Yield Point [%]	6.6 ± 0.7	4.8 ± 0.6	ISO 527-1
Flexural Strength [MPa]	98 ± 6.5	138 ± 5.3	ISO 178
Flexural Modulus [GPa]	2.3 ± 0.1	2.7 ± 0.3	ISO 178
Deflection at Flexural Strength [mm]	11.9 ± 0.3	13.3 ± 0.3	ISO 178
Impact Strength Charpy [kJ/m <sup>2</sup> ](4)	19.7 ± 4.3	39 ± 10	ISO 179-1
Impact Strength Charpy Notched [kJ/m <sup>2</sup> ]	3.4 ± 0.9	3.6 ± 0.4	ISO 179-1

(3) Prusa Pro HT90 3D printer was used to print the testing samples. To create the G-Code, we used PrusaSlicer 2.8.0 with the following settings:

- Prusament PEI 1010 filament;
- Nozzle 0.6 mm
- Print Settings 0.30 mm FAST (layers 0.30 mm);
- Solid Layers Top: 0, Bottom: 0;
- Perimeters: 2;
- Infill 100% rectilinear;
- Infill Print Speed 40 mm/s;
- Nozzle Temperature 410 °C all layers;
- Bed Temperature 150 °C all layers;
- Chamber Temperature: 90 °C;
- Extrusion Multiplier 1.0;
- Print Cooling Off;

Other parameters are left at default values.

(4) Charpy Unnotched – 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 experiences, and surrounding conditions. Everyone has to consider 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 properly all the details in the available safety data sheet (SDS).