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PRUSA POLYMERS by JOSEF PRUSA

Technical datasheet

Prusament PETG Tungsten 75% by Prusa Polymers

Identification

Trade Name	**Prusament PETG Tungsten 75%**
Chemical Name	**Polyethylene Terephthalate Glycol Copolymer filled with tungsten powder (75 % in mass)**
Usage	**FDM/FFF 3D printing**
Diameter	**1.75 ± 0.03 mm**
Manufacturer	**Prusa Polymers a.s., Prague, Czech Republic**

Recommended print settings

Nozzle Temperature [°C]	260 ± 10
Heatbed Temperature [°C]	80 ± 10
Print Speed [mm/s]	up to 200
Cooling Fan Speed [%]	50
Bed Type	satin sheet; powder coated sheet; smooth PEI sheet*
Additional Info	The brim is not necessary in general.

* with a glue stick

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Typical material properties

	Typical Value	Method
MFR [g/10 min]	not applicable	ISO 1133
MVR [cm3/10 min]	not applicable	ISO 1133
Density [g/cm3]	4	Prusa Polymers
Moisture Absorption in 24 hours [%](1)	0.07	Prusa Polymers
Moisture Absorption in 7 days [%](1)	0.1	Prusa Polymers
Heat Deflection Temperature (0.45 MPa) [°C]	94	ISO 75
Heat Deflection Temperature (1.80 MPa) [°C]	86	ISO 75
Tensile Yield Strength for Filament [MPa]	49 ± 1	ISO 527
Hardness – Shore D	79	Prusa Polymers
Interlayer Adhesion [MPa]	9 ± 2	Prusa Polymers

(1) 24 °C; humidity 22 %

Radiation shielding properties

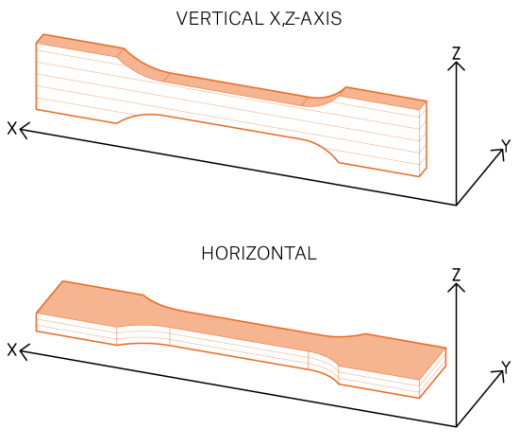
Half-value layer HVL [mm]	1.402	when applied 99mTc, 140 keV

Mechanical properties of 3D printed testing specimens(2)

Property\Print Direction	Horizontal	Vertical xz	Method
Tensile Yield Strength [MPa]	35 ± 4	39 ± 6	ISO 527-1
Tensile Modulus [GPa]	1.9 ± 0.2	2.1 ± 0.2	ISO 527-1
Elongation at Yield Point [%]	3.5 ± 0.4	3.1 ± 0.5	ISO 527-1
Flexural Strength [MPa]	59 ± 1	70 ± 2	ISO 178
Flexural Modulus [GPa]	2.8 ± 0.1	2.8 ± 0.2	ISO 178
Deflection at Flexural Strength [mm]	6.7 ± 0.2	6.1 ± 0.2	ISO 178
Impact Strength Charpy [kJ/m2](3)	22 ± 2	19 ± 3	ISO 179-1

(2) Original Prusa i3 MK3 3D printer was used to print the testing samples. To create the G-Code, we used PrusaSlicer 2.5.0 with the following settings:
• Prusament PETG Tungsten 75% filament;
• Print Settings 0.20 mm FAST (layers 0.20 mm);
• Solid Layers Top: 0, Bottom: 0;
• Perimeters: 2;
• Infill 100% rectilinear;
• Infill Print Speed 130 mm/s;
• Nozzle Temperature 260 °C all layers;
• Bed Temperature 90 °C all layers;
Other parameters are left at default values.

(3) 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).