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Technical datasheet

Prusament TPU 95A by Prusa Polymers

Identification

Trade Name	**Prusament TPU 95A**
Chemical Name	**Thermoplastic Polyurethane**
Usage	**FDM/FFF 3D printing**
Diameter	**1.75 ± 0.06 mm**
Manufacturer	**Prusa Polymers a.s., Prague, Czech Republic**

Recommended print settings

Nozzle Temperature [°C]	230 ± 10
Heatbed Temperature [°C]	65 ± 10
Print Speed [mm/s]	up to 30
Cooling Fan Speed [%]	30 – 50
Bed Type	PA Nylon, PP, Satin, Textured, and PEI smooth* sheet
Additional Info	The brim is necessary for very small or very large objects.

* with a glue stick as a separate layer

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Typical material properties

	Typical Value	Method
MFR [g/10 min](1)	N/A	–
MVR [cm3/10 min](1)	N/A	–
Density [g/cm3]	1.25	ISO 1183
Moisture Absorption in 24 hours [%](2)	0.02	Prusa Polymers
Moisture Absorption in 7 days [%](2)	0.04	Prusa Polymers
Vicat A [°C]	101.6	ISO 306
Heat Deflection Temperature (1.80 MPa) [°C]	78.6	ISO 75
Tensile Strength for Filament [MPa]	64 ± 3	ISO 527
Maximum Elongation for Filament [%]	7264 ± 76	ISO 527
Modulus at Maximum Elongation for Filament [MPa]	4.3 ± 1	ISO 527
Hardness – Shore A	92 ± 0.4	Prusa Polymers
Hardness - Shore D	39 ± 0.7	Prusa Polymers
Interlayer Adhesion [MPa]	9.5 ± 0.2	ISO 527

(1) –
(2) 25 °C; humidity 20 %

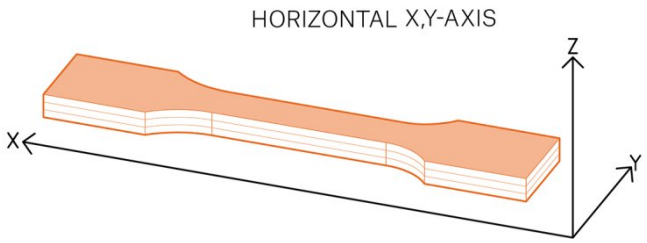
Mechanical properties of 3D printed testing specimens(3)

Property\Print Direction	Horizontal	Method
Tensile Strength [MPa]	41.4 ± 1.3	ISO 37
Modulus at 100 % Elongation [MPa]	8.9 ± 0.2	ISO 37
Modulus at 200 % Elongation [MPa]	14.7 ± 0.2	ISO 37
Modulus at 300 % Elongation [MPa]	21.3 ± 0.4	ISO 37
Maximum Elongation [%]	563.3 ± 13.1	ISO 37
Compression Set under Constant Deflection at 23 °C [%]	33.5 ± 0.1	ISO 815-1
Compression Set under Constant Deflection at 40 °C [%]	42.2 ± 1.9	ISO 815-1
Compression Set under Constant Deflection at 55 °C [%]	59.7 ± 2.3	ISO 815-1
Compression Set under Constant Deflection at 70 °C [%]	70.4 ± 0.7	ISO 815-1
Compression Set under Constant Deflection at 85 °C [%]	82.7 ± 2.7	ISO 815-1
Abrasion Resistance [%]	0.21 ± 0.04	ISO 4649

(3) Original Prusa i3 MK4S printer was used to make testing specimens. Prusa Slicer 2.8.1 was used to create G-codes with the following settings:

- Prusament TPU 95A Filament;
- Print Settings 0.20 SPEED (Layers 0.20 mm);
- Brass Nozzle 0.4 mm;
- Solid Layers: Top: 0, Bottom: 0;
- Perimeters: 2;
- Infill: 100% rectilinear;
- Infill Print Speed: 36 mm/s;
- Nozzle Temperature: 220 °C all layers;
- Bed Temperature: 75 °C all layers;
- Extrusion multiplier: 1.08;
- Cooling: 50 %
- Travel ramping lift;
- Retraction Length 3,5 mm;
- Retraction Speed 70 mm/s;
- Deretraction Speed 40 mm/s;
- Minimum Travel after Retraction 2 mm;
- Retract on Layer Change;
- Wipe while Retracting;
- Seam Gap Distance 15 %;
- Enable Dynamic Overhang Speeds;
- Speed for 0% Overlap (Bridge) 100 mm/s;
- Speed for 25% Overlap 30 mm/s;
- Speed for 75% Overlap 100 mm/s

Other parameters are left at default values.



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).