Shenzhen Elegoo Technology Co.,Ltd.
Technical Data Sheet

Basic Introduction

Product Name: ELEGOO Rapid TPU

Applicable Industry: Interior decorations, desktop ornaments and protective equipments etc.

Manufacturer: Shenzhen Elegoo Technology Co.,Ltd.

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Advantages

ELEGOO Rapid TPU is a filament optimised for high-speed printing, achieving speeds two to three times faster than conventional TPU. While prioritising speed, it retains the high elasticity, impact resistance, and tear resistance typical of standard TPU. The printed parts demonstrate soft yet resilient properties, exhibiting excellent elasticity and strong interlayer adhesion.

Recommended Printing Settings

Drying Settings Before Printing: 70 °C, 8 h (Air Drying Oven)

Printing Temperature and Humidity: ≤ 20% RH (sealed with desiccant)

Storage Temperature and Humidity: ≤ 20% RH (sealed with desiccant)

Printer Type: Enclosed-frame, open-frame

Nozzle Size: 0.4, 0.6, 0.8 mm

Plate Type: Textured PEI plate, smooth PEI plate or other plates

Plate Surface Pretreatment: Applying the glue

Nozzle Temperature: 200 - 230 °C

Bed Temperature: 30 - 45 °C

Printing Speed: < 200 mm/s

Chamber Temperature: 20 - 45 °C

Support Material: Self-generated support or TPU special support

Physical Properties

Subjects	Testing Methods	Data
Density	ρ = m / v	1.27 g/cm³
Saturated Water Absorption Rate	25 °C , 55% RH, Indoor air	1.05%
Melt Index	230 °C, 2.16 kg	48.3 ± 5.1 g/10 min
Glass Transition Temperature	DSC, 10 °C/min	N / A
Crystallization Temperature	DSC, 10 °C/min	N / A
Melting Temperature	DSC, 10 °C/min	190 °C
Vicar Softening Temperature	ISO 306, GB/T 1633	N / A
Heat Deflection Temperature 1	ISO 75, 1.80 MPa	N / A
Heat Deflection Temperature 2	ISO 75, 0.45 MPa	N / A

Mechanical Properties

Subjects	Testing Methods	Data
Tensile Strength (XY)	ISO 527, GB/T 1040	13 ± 2 MPa
Tensile Strength (Z)	ISO 527, GB/T 1040	8 ± 1 MPa
Young’s Modulus (XY)	ISO 527, GB/T 1040	10.1 ± 0.6 MPa
Young's Modulus (Z)	ISO 527, GB/T 1040	8.2 ± 0.4 MPa
Breaking Elongation Rate (XY)	ISO 527, GB/T 1040	> 500%
Breaking Elongation Rate (Z)	ISO 527, GB/T 1040	> 300%

Bending Strength (XY)	ISO 178, GB/T 9341	N / A
Bending Strength (Z)	ISO 178, GB/T 9341	N / A
Bending Modulus (XY)	ISO 178, GB/T 9341	N / A
Bending Modulus (Z)	ISO 178, GB/T 9341	N / A
Impact Strength (XY)	ISO 179, GB/T 1043	N / A
Impact Strength (Z)	ISO 179, GB/T 1043	N / A

Other Physical and Chemical Properties

Component: Thermoplastic polyurethane

Skin Irritation: No

Chemical stability: Stable at normal temperature

Resistance to Water: Resistant

Resistance to Oil and Grease: Resistant to most kinds of oil and grease

Resistance to Organic Solvent: Not resistant to some organic solvents

Resistance to Acid: Not resistant

Resistance to Alkali: Not resistant

Flammability: Yes

Odor During Printing: Odorless

Specimen Information

Size: Refer to the following pictures.

Nozzle Temperature: 230 ℃

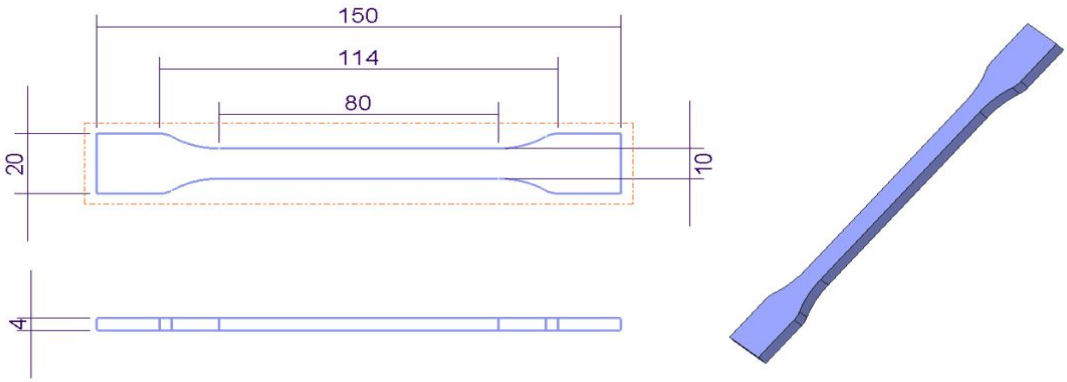
Bed Temperature: 35 ℃

Printing Speed: 150 mm/s

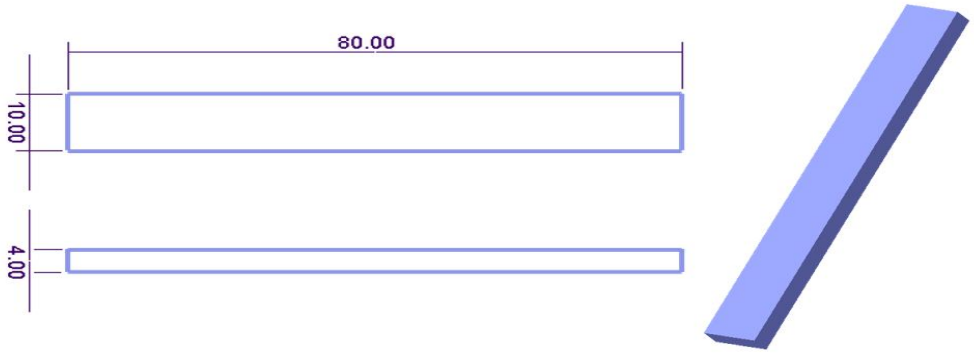
Infill Density: 100%

Infill Pattern: Concentric pattern

1. Tensile Testing



2. Bending Testing



3. Impact Testing



Disclaimer

The above properties data is obtained by ELEGOO through testing with standard samples, standard methods, and specific equipment, and is for reference and comparison only. The actual performance of 3D printed products depends not only on the characteristics used but also on many factors, such as the moisture absorption of the filaments, the printer, environmental conditions, model characteristics, printing parameters, etc.

When using the ELEGOO FDM 3D printing filaments, users are responsible for the legality, safety, and performance of the printing. ELEGOO is not responsible for the usage scenarios, or any damage or injury that occurs during using our filaments.