Shenzhen Elegoo Technology Co.,Ltd.
Technical Data Sheet

Basic Introduction

Product Name: ELEGOO PC-FR

Applicable Industry: Automobile exterior, outdoor signage, functional components etc.

Manufacturer: Shenzhen Elegoo Technology Co.,Ltd.

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Advantages

ELEGOO PC-FR is specifically designed to endure extreme environments while adhering to strict safety standards. Leveraging the exceptional mechanical properties and heat resistance of PC materials, it also offers excellent flame retardancy, performing remarkably well in high-temperature and specialized scenarios.

Recommended Printing Settings

Drying Settings Before Printing: 80 °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

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: 260 - 290 °C

Bed Temperature: 90 - 110 °C

Printing Speed: < 300 mm/s

Chamber Temperature: 45 - 60 °C

Physical Properties

Subjects	Testing Methods	Data
Density	ρ = m / v	1.18 g/cm³
Saturated Water Absorption Rate	25 °C , 55% RH, Indoor air	0.23%
Melt Index	270 °C, 2.16 kg	26.2 ± 2.3 g/10 min
Glass Transition Temperature	DSC, 10 °C/min	145 °C
Crystallization Temperature	DSC, 10 °C/min	N / A
Melting Temperature	DSC, 10 °C/min	228 °C
Vicar Softening Temperature	ISO 306, GB/T 1633	115 °C
Heat Deflection Temperature 1	ISO 75, 1.80 MPa	107 °C
Heat Deflection Temperature 2	ISO 75, 0.45 MPa	112 °C

Mechanical Properties

Subjects	Testing Methods	Data
Tensile Strength (XY)	ISO 527, GB/T 1040	55 ± 3 MPa
Tensile Strength (Z)	ISO 527, GB/T 1040	26 ± 2 MPa
Young's Modulus (XY)	ISO 527, GB/T 1040	2596 ± 48 MPa
Young's Modulus (Z)	ISO 527, GB/T 1040	1468 ± 121 MPa
Breaking Elongation Rate (XY)	ISO 527, GB/T 1040	7.9% ± 0.6%
Breaking Elongation Rate (Z)	ISO 527, GB/T 1040	6.2% ± 0.7%
Bending Strength (XY)	ISO 178, GB/T 9341	103 ± 5 MPa

Bending Strength (Z)	ISO 178, GB/T 9341	47 ± 5 MPa
Bending Modulus (XY)	ISO 178, GB/T 9341	2707 ± 67 MPa
Bending Modulus (Z)	ISO 178, GB/T 9341	2569 ± 109 MPa
Impact Strength (XY)	ISO 179, GB/T 1043	70.9 ± 4.2 kJ/m²
Impact Strength (Z)	ISO 179, GB/T 1043	12.2 ± 1.2 kJ/m²

Other Physical and Chemical Properties

Component: Polycarbonate

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 kinds of organic solvents

Resistance to Acid: Resistant

Resistance to Alkali: Resistant

Flammability: No

Odor During Printing: Odorless

Specimen Information

Size: Refer to the following pictures.

Nozzle Temperature: 280 ℃

Bed Temperature: 100 ℃

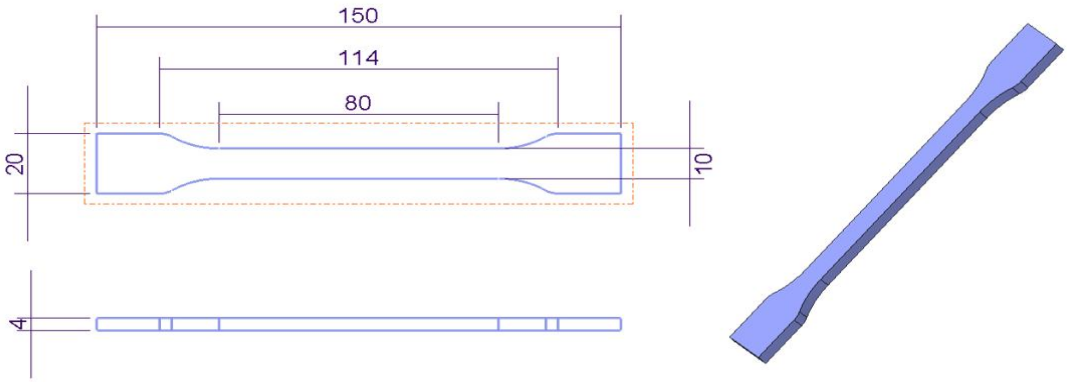
Printing Speed: 200 mm/s

Infill Density: 100%

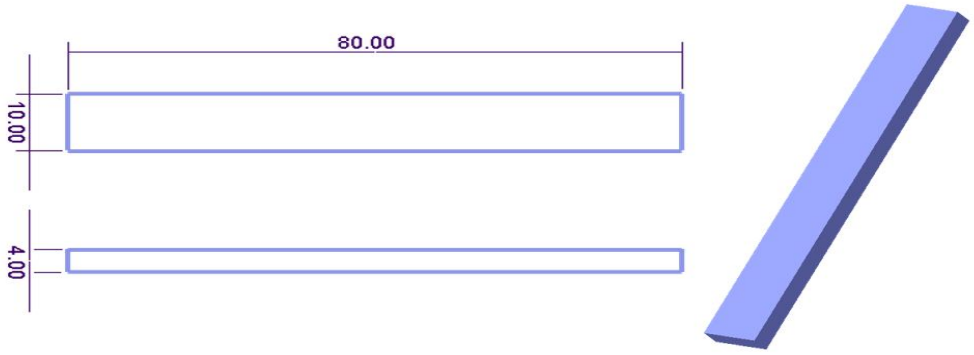
Infill Pattern: Concentric pattern

Statements: The test specimens were printed under the key parameters mentioned above. Before testing, all specimens were annealed at 80 ℃ for 8 hours and then placed in an indoor environment at approximately 25 ℃ for 24 hours.

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.