Raise3D Industrial PETG ESD Technical Data Sheet

Raise3D Industrial PETG ESD filament is an electrostatic discharge-safe printing material based on carbon nanotube-filled PETG. Thanks to its excellent printability, chemical resistance and electrostatic dissipative properties, PETG ESD is ideal for applications in automotive, aerospace, general manufacturing and electronic industry. Industrial PETG ESD filament is ideal for uses such as housings, casings, jigs and fixtures where electrostatic discharge (ESD) protection is required.

Filament Properties

Property	Testing Method	Typical Values
Density	ASTM D792 (ISO 1183, GB/T 1033)	1.24 (g/cm^3 at 21.5 °C)
Glass transition temperature	DSC, 10°C/min	77 (°C)
Vicat transition temperature	ISO 306 GB/T 1633	86 (˚C)
Melt index	280 °C, 5 kg	14 (g/10 min)
Odor	/	Almost odorless
Solubility	/	Insoluble in water
Surface resistance	ANSI ESD S11.11	See Electrical Properties

Note:

1. Tested with 3D printed specimen of 100% infill.

Electrical Properties

Surface Resistivity (Ω/sq)		Testing Method: ANSI ESD S11.11		
		250C°	270C°	290C°
Specimen Type	0˚	(1.6 ± 0.3) * 10^7	(4.7 ± 0.8) * 10^5	< 10^4
	45˚	(7.0 ± 0.9) * 10^6	(3.4 ± 1.2) * 10^5	< 10^4
	90˚	(0.8 ± 0.8) * 10^6	(3.2 ± 1.0) * 10^5	< 10^4

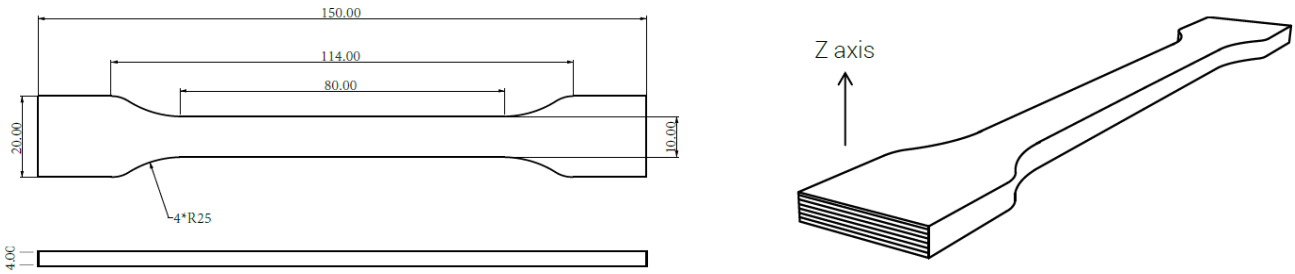
Mechanical Properties

Property	Testing Method	Typical value
Young's modulus (X-Y)	ISO 527, GB/T 1040	1983± 66 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	36 ± 1 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	7.3± 0.5 %
Bending modulus (X-Y)	ISO 178, GB/T 9341	1658 ± 164 (MPa)
Bending strength (X-Y)	ISO 178, GB/T 9341	54 ± 3 (MPa)
Charpy impact strength (X-Y)	ISO 179, GB/T 1043	5.7 ± 0.6 (kJ/m^2)

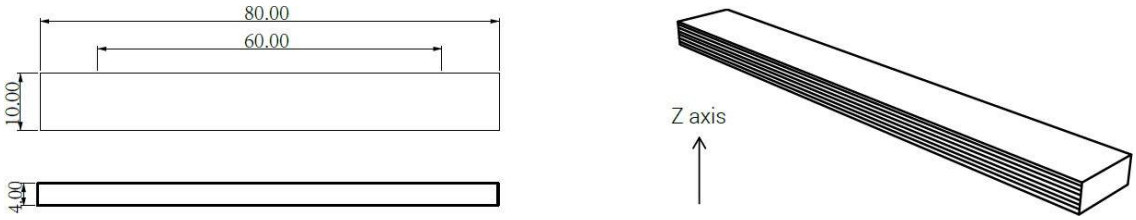
Note:

1. *All testing specimens were printed under the following conditions:*
   nozzle temperature = 245 °C, printing speed = 45 mm/s, build plate temperature = 80 °C, infill = 100%.

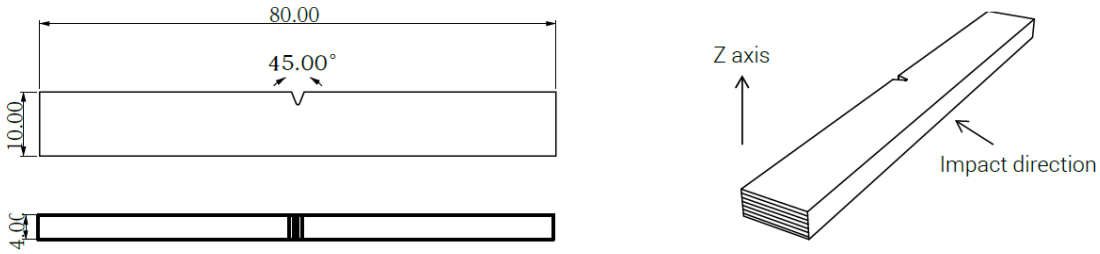
Testing Geometries



Tensile testing specimen; ASTM D638 (ISO 527, GB/T 1040)



Flexural testing specimen; ASTMD790 (ISO 178, GB/T 9341)



Impact testing specimen; ASTM D256 (ISO 179, GB/T 1043)

Disclaimer

The typical values presented in this data sheet are intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. Actual values may vary significantly with printing conditions. End-use performance of printed parts depends not only on materials, but also on part design, environmental conditions, printing conditions, etc. Product specifications are subject to change without notice.

Each user is responsible for determining the safety, lawfulness, technical suitability, and disposal/recycling practices of Raise3D materials for the intended application. Raise3D makes no warranty of any kind, unless announced separately, to the fitness for any particular use or application. Raise3D shall not be made liable for any damage, injury or loss induced from the use of Raise3D materials in any particular application.