



3D Printing Filament

TECHNICAL DATA SHEET - PRO Series ESD-Safe ABS

Commercial Name: MatterHackers PRO Series ESD-Safe ABS

Raw Material: Acrylonitrile Butadiene Styrene (ABS) with multi-walled carbon nanotubes

Designation: Static-dissipative 3D printing filament material

Manufacturer: MatterHackers, Inc.

Product Description

PRO Series ESD-Safe ABS is a static-dissipative ABS compound made with multi-wall carbon nanotubes, for fixtures, enclosures, and end-use parts in ESD-sensitive work areas. It offers higher heat resistance than PLA or PETG and prints on most desktop and industrial 3D printers.

- Static-dissipative: 10^7 - 10^9 Ω /sq surface resistance (ASTM D257)
- Glass transition temperature of 105°C, higher than PLA or PETG
- Easier to print than most industrial-grade materials
- Suited to functional prototypes and end-use parts
- Made in the USA

Storage

PRO Series ESD-Safe ABS filament should be stored between 15 - 25°C, in its original packaging, in a clean and dry environment. When following these recommended storage procedures the minimum shelf life will exceed 12 months.

Dry at 80°C for 4 hours before printing.

Material Specifications

PROPERTY	VALUE	TEST METHOD
Density	1.09 g/cm ³	ISO 1183
Tensile Strength (Break)	58 MPa	ISO 527
Tensile Modulus	2130 MPa	ISO 527
Tensile Elongation (Break)	4%	ISO 527
Flexural Strength	80 MPa	ISO 178
Flexural Modulus	2275 MPa	ISO 178
Glass Transition Temperature (Tg)	105°C	DSC
Heat Deflection Temperature (0.45 MPa)	97°C	ISO 75
Surface Resistance	10^7 - 10^9 Ω /sq	ASTM D257



Test Specimen Conditions

CONDITION	VALUE
Printer	Open-source FDM/FFF, 0.4 mm nozzle
Layer Height	0.25 mm
Infill	100%, $\pm 45^\circ$
Extrusion Temperature	230°C
Bed Temperature	110°C
Specimen Orientation	XY flat

Typical values from printed test specimens. Actual results depend on printer, settings, and environment.

Filament Specifications

PROPERTY	VALUE
Diameter 1.75mm	$1.75 \pm 0.02\text{mm}$
Diameter 2.85mm	$2.85 \pm 0.02\text{mm}$
Net Weight	0.75 kg
Suggested Print Temperature	220-240°C
Suggested Bed Temperature	100-110°C
Heated Chamber	Recommended
Nozzle Material	Mildly abrasive. Hardened steel recommended for regular use
Layer Height	No special requirements
Drying	80°C for 4 hours

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