Filazoo Filament

Technical Data Sheet V1.0

PETG Basic

Polyethylene Terephthalate Glycol — impact-resistant, low-warp everyday filament

DOCUMENT NO.	REVISION	ISSUE DATE	DIAMETER	NET WEIGHT
FZ-TDS-PETGBASIC-001	V1.0	28/08/26	1.75 mm	1 kg

1 Description

Filazoo PETG combines the toughness and chemical resistance of PET with the easy printability of a low-warp amorphous polymer. It bridges the gap between PLA and ABS: tougher and more temperature-resistant than PLA, without the warping and fumes of ABS. With a heat deflection temperature of approximately 75 °C at 0.45 MPa and a glass transition of approximately 80 °C, it is a dependable choice for functional parts that see everyday handling and moderate heat.

Typical applications — mechanical parts and enclosures, protective covers, outdoor fittings, food-contact-adjacent housings, and general-purpose prototypes where impact resistance and durability matter more than fine surface detail.

Processing summary — PETG strings more than PLA, so tuned retraction and moderate cooling give the cleanest results. It bonds strongly to itself and to glass or PEI beds; keep the filament dry to avoid brittleness and surface bubbling.

2 Product Specification

Table 1 — Filament and packaging specification

PARAMETER	UNIT	VALUE
Filament diameter	mm	1.75
Diameter tolerance	mm	± 0.02
Net filament weight	kg	1
Spool material	—	*ABS (heat resistance 70 °C)*
Spool dimensions (ø × H)	mm	*ø 200 × 67 mm*
Colour range	—	*Wide standard colour range*

3 Recommended Printing Parameters

Table 2 — Recommended starting parameters

PARAMETER	UNIT	VALUE
Drying before printing	°C / h	*65 °C for 8 h*
Printing and storage humidity	—	`Dry storage; sealed with desiccant`
Nozzle size	mm	*≥ 0.4*
Nozzle type	—	`Brass or hardened steel`
Nozzle temperature	°C	`230 – 250`
Build plate type	—	*Glass or PEI*
Bed surface preparation	—	*Clean; light adhesive if needed*
Bed temperature	°C	`70 – 80`
Part cooling fan	—	`Low to medium`
Printing speed	mm/s	`40 – 100`
Enclosed chamber	—	`Not required`
Chamber temperature	°C	*35 – 50*
Retraction length / speed	mm / mm·s⁻¹	*0.8 – 1.4 mm / 30 – 60 mm·s⁻¹*
Max overhang angle	°	*~ 70*
Max bridging length	mm	*~ 30*

Values are starting points; PETG is sensitive to overheating and stringing — tune retraction and cooling per printer and hotend.

4 Material Properties

Values are typical results measured on standard printed specimens and are intended for design reference and comparison. They are not guaranteed minima.

4.1 Physical and thermal properties

Table 3 — Physical and thermal properties

PROPERTY	TEST METHOD	UNIT	TYPICAL VALUE
Density	ISO 1183	g/cm³	*~ 1.27*
Melt flow rate (MFR)	210 °C, 2.16 kg	g/10 min	`~ 3.0 ± 0.5`
Melting temperature	DSC	°C	`~ 230`
Glass transition temperature	DSC	°C	`~ 80`
Vicat softening temperature	ISO 306	°C	`~ 85`
Heat deflection temperature	ISO 75, 0.45 MPa	°C	`~ 75`
Heat deflection temperature	ISO 75, 1.8 MPa	°C	`~ 65`
Saturated water absorption	25 °C, 55 % RH	%	*~ 0.4 (moderate)*

4.2 Mechanical properties

Table 4 — Mechanical properties

PROPERTY	TEST METHOD	UNIT	TYPICAL VALUE
Young's modulus (X–Y)	ISO 527 / GB/T 1040	MPa	~ 2200 ± 200
Young's modulus (Z)	ISO 527 / GB/T 1040	MPa	~ 1200 ± 150
Tensile strength (X–Y)	ISO 527 / GB/T 1040	MPa	~ 50 ± 5
Tensile strength (Z)	ISO 527 / GB/T 1040	MPa	~ 45 ± 6
Elongation at break (X–Y)	ISO 527 / GB/T 1040	%	~ 5
Elongation at break (Z)	ISO 527 / GB/T 1040	%	~ 3
Flexural modulus	ISO 178 / GB/T 9341	MPa	~ 2100 ± 150
Flexural strength	ISO 178 / GB/T 9341	MPa	~ 80 ± 10
Impact strength, notched	ISO 179 / GB/T 1043	kJ/m²	~ 5.5
Impact strength, unnotched	ISO 179 / GB/T 1043	kJ/m²	~ 15

4.3 Chemical and physical characteristics

Table 5 — General characteristics of PETG

PARAMETER	VALUE
Composition	Polyethylene terephthalate glycol (PETG)
Odour	Slight odour when printing; low relative to ABS
Skin hazard	No hazard in solid filament form
Chemical stability	Stable under normal storage and handling
Solubility	Insoluble in water
UV and weathering resistance	Moderate — resists yellowing better than ABS
Acid resistance	Resistant to dilute acids
Alkali resistance	Resistant to dilute bases
Organic solvent resistance	Not resistant to some organic solvents
Oil and grease resistance	Resistant to common oils and greases
Flammability	Flammable
Combustion products	Water, carbon oxides

5 Test Conditions

5.1 Specimen printing conditions

Table 6 — Conditions used to produce test specimens

PARAMETER	UNIT	VALUE
Nozzle temperature	°C	*240*
Bed temperature	°C	*70*
Printing speed	mm/s	*200*
Infill density	%	*100*
Layer height	mm	*0.2*
Specimen conditioning / annealing	°C / h	*75 °C for 8 h (annealed and dried)*

5.2 Specimen geometry

Test specimens follow the geometry defined by the referenced standards. All dimensions in millimetres.

Figure 1 — Tensile specimen

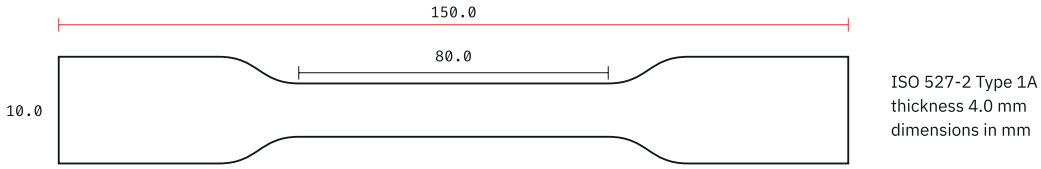


Figure 2 — Flexural specimen

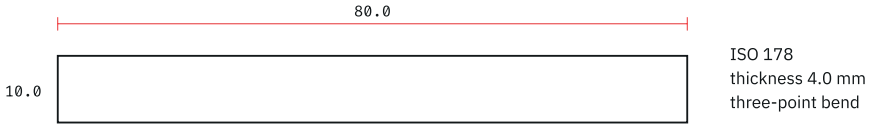
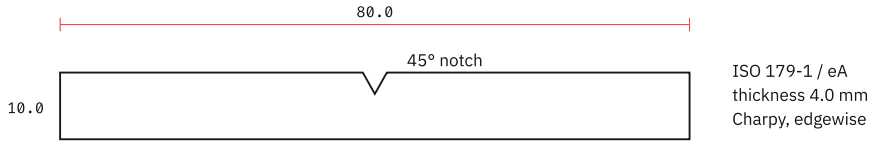


Figure 3 — Impact specimen



6 Disclaimer

The performance values in this document are typical values obtained from standard printed specimens. They are provided for design reference and comparison only and do not constitute a specification or a warranty of performance. Actual printed part performance depends on many further factors, including the printer, hotend and nozzle, slicer settings, part geometry, wall count and infill, build orientation, and ambient conditions.

Users are responsible for the legality, safety and suitability of anything they print. Filazoo accepts no responsibility for the use of its materials in any particular application, or for any damage arising in the course of using them.