Filazoo Filament

Technical Data Sheet V1.0

Marble PLA

Mineral-Filled Polylactic Acid — stone-effect finish

DOCUMENT NO.	REVISION	ISSUE DATE	DIAMETER	NET WEIGHT
FZ-TDS-MARBLEPLA-001	V1.0	01/09/26	1.75 mm	1 kg

1 Description

Filazoo Marble PLA blends a mineral-style filler into a PLA base so printed parts show natural, contrasting flecks reminiscent of real stone. The mineral content is mildly abrasive, so a hardened nozzle is recommended for sustained use, and it prints at standard PLA temperatures and speeds.

Typical applications — decorative vases and homeware, sculptural models, coasters and tabletop pieces, and any print wanting a stone-inspired finish without post-processing.

Processing summary — a hardened nozzle is recommended since the mineral filler is abrasive over extended printing; otherwise this filament processes like standard PLA with no special tuning required.

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	—	*White Marble, Gray Marble*

3 Recommended Printing Parameters

Table 2 — Recommended starting parameters

PARAMETER	UNIT	VALUE
Drying before printing	°C / h	*50 °C for 8 h*
Printing and storage humidity	—	`Dry storage; sealed with desiccant`
Nozzle size	mm	*≥ 0.4*
Nozzle type	—	`Hardened steel (recommended — abrasive mineral filler)`
Nozzle temperature	°C	`190 – 230`
Build plate type	—	*Cool Plate, Engineering Plate or Textured PEI*
Bed surface preparation	—	*Clean; no adhesive typically needed*
Bed temperature	°C	`35 – 45`
Part cooling fan	—	`High (80 – 100 %)`
Printing speed	mm/s	`60 – 200`
Enclosed chamber	—	`Not required`
Chamber temperature	°C	*Ambient*
Retraction length / speed	mm / mm·s⁻¹	*0.4 – 0.8 mm / 20 – 40 mm·s⁻¹*
Max overhang angle	°	*~ 50*
Max bridging length	mm	*~ 25*

Values are starting points. The mineral filler is abrasive — a hardened nozzle extends nozzle life significantly.

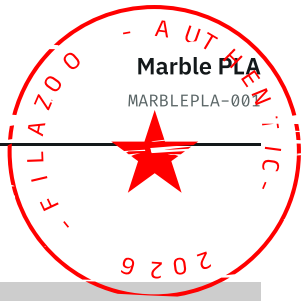
4 Material Properties

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	*~ 1.30*
Melt flow rate (MFR)	210 °C, 2.16 kg	g/10 min	`~ 7 ± 1`
Melting temperature	DSC	°C	`~ 155`
Glass transition temperature	DSC	°C	`~ 58`
Vicat softening temperature	ISO 306	°C	`~ 58`
Heat deflection temperature	ISO 75, 0.45 MPa	°C	`~ 53`
Heat deflection temperature	ISO 75, 1.8 MPa	°C	`~ 47`
Saturated water absorption	25 °C, 55 % RH	%	*~ 0.5*



4.2 Mechanical properties

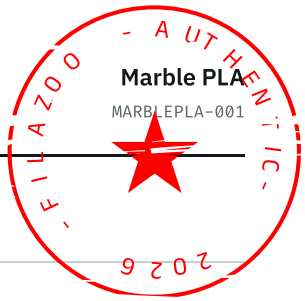
Table 4 — Mechanical properties

PROPERTY	TEST METHOD	UNIT	TYPICAL VALUE
Young's modulus (X–Y)	ISO 527 / GB/T 1040	MPa	~ 2500 ± 180
Young's modulus (Z)	ISO 527 / GB/T 1040	MPa	~ 2150 ± 180
Tensile strength (X–Y)	ISO 527 / GB/T 1040	MPa	~ 40 ± 4
Tensile strength (Z)	ISO 527 / GB/T 1040	MPa	~ 34 ± 4
Elongation at break (X–Y)	ISO 527 / GB/T 1040	%	~ 3
Elongation at break (Z)	ISO 527 / GB/T 1040	%	~ 2
Flexural modulus	ISO 178 / GB/T 9341	MPa	~ 2550 ± 160
Flexural strength	ISO 178 / GB/T 9341	MPa	~ 60 ± 5
Impact strength, notched	ISO 179 / GB/T 1043	kJ/m²	~ 2
Impact strength, unnotched	ISO 179 / GB/T 1043	kJ/m²	~ 7

4.3 Chemical and physical characteristics

Table 5 — General characteristics of Marble PLA

PARAMETER	VALUE
Composition	Polylactic acid (PLA) with mineral-effect filler
Odour	Mild, faintly sweet odour when printing
Skin hazard	No hazard in solid filament form
Chemical stability	Stable under normal storage and handling
Solubility	Insoluble in water
UV and weathering resistance	Poor — degrades and discolours with prolonged outdoor exposure
Acid resistance	Limited resistance
Alkali resistance	Limited resistance
Organic solvent resistance	Softened or dissolved by some solvents
Oil and grease resistance	Limited resistance
Flammability	Flammable
Combustion products	Carbon oxides



5 Test Conditions

5.1 Specimen printing conditions

Table 6 — Conditions used to produce test specimens

PARAMETER	UNIT	VALUE
Nozzle temperature	°C	*210*
Bed temperature	°C	*40*
Printing speed	mm/s	*120*
Infill density	%	*100*
Layer height	mm	*0.2*
Specimen conditioning / annealing	°C / h	*23 °C / 50 % RH for 24 h (ISO 291)*

5.2 Specimen geometry

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

Figure 1 — Tensile specimen

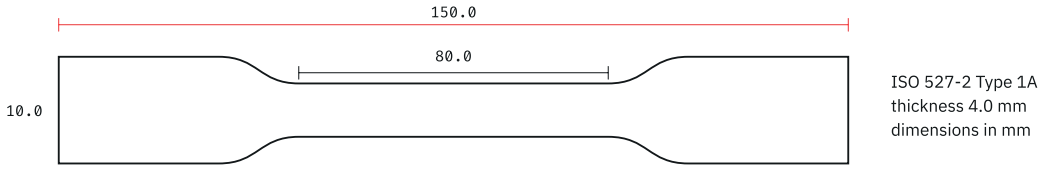


Figure 2 — Flexural specimen

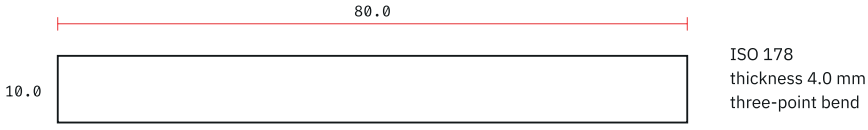
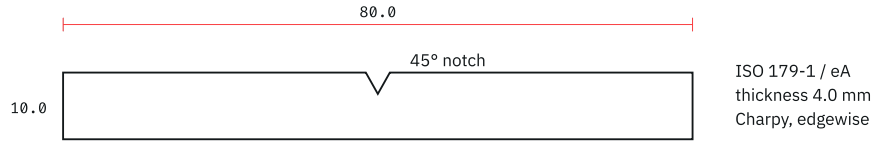


Figure 3 — Impact specimen



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.