

PETG Basic Filament

DURABLE MEX MATERIAL FOR FUNCTIONAL PARTS TOOLS AND OUTDOOR USE

PETG Basic is a 1.75 mm glycol-modified PET filament developed for structural and functional parts that require strength with useful toughness. Its published resistance to water, ultraviolet exposure, and elevated temperature makes it a strong candidate for outdoor accessories, tools, fixtures, and everyday-use components.

Why PETG Basic

- PLA-level published strength with greater toughness and functional durability
- Improved resistance to water, ultraviolet exposure, and temperature compared with standard PLA
- Refined printability intended to reduce stringing and improve surface finish
- Useful for housings, brackets, tools, fixtures, outdoor accessories, and everyday-use parts

Product Specifications

ITEM	PUBLISHED VALUE
Filament diameter	1.75 mm
Net filament weight	1 kg
Spool material	ABS with 70 C temperature resistance
Spool size	200 mm diameter x 67 mm height

Recommended Printing Settings

SETTING	RECOMMENDATION
Drying before printing	Forced-air oven 65 C for 8 h; printer heatbed 80 C for 12 h; AMS 2 Pro or AMS HT 65 C for 8 h
Printing and storage humidity	Below 20% RH sealed with desiccant
Cooling fan	0 to 60%
Printing speed	Below 200 mm/s
Retraction	0.4 to 0.8 mm at 30 to 60 mm/s
Chamber temperature	35 to 50 C
Overhang and bridging	Approximately 70 degree maximum overhang; approximately 30 mm bridge
Support material	Support for PLA or PETG
Glue	Recommended: glue stick or liquid glue

Physical and Thermal Properties

PROPERTY	TEST METHOD	PUBLISHED VALUE
Density	ISO 1183	1.25 g/cm ³
Melt index	245 C at 2.16 kg	22.9 +/- 2.4 g/10 min
Melting temperature	DSC at 10 C/min	Not reported
Glass transition temperature	DSC at 10 C/min	69 C
Crystallization temperature	DSC at 10 C/min	Not reported
Vicat softening temperature	ISO 306 and GB/T 1633	69 C
Heat deflection at 1.8 MPa	ISO 75	68 C
Heat deflection at 0.45 MPa	ISO 75	71 C
Saturated water absorption	25 C and 55% RH	0.45%

Mechanical Properties

PROPERTY	TEST METHOD	PUBLISHED VALUE
Young's modulus X Y	ISO 527 and GB/T 1040	2,780 +/- 65 MPa
Young's modulus Z	ISO 527 and GB/T 1040	2,550 +/- 100 MPa
Tensile strength X Y	ISO 527 and GB/T 1040	51 +/- 1 MPa
Tensile strength Z	ISO 527 and GB/T 1040	35 +/- 6 MPa
Elongation at break X Y	ISO 527 and GB/T 1040	9.5 +/- 0.7%
Elongation at break Z	ISO 527 and GB/T 1040	5.2 +/- 1.4%
Flexural modulus X Y	ISO 178 and GB/T 9341	1,950 +/- 50 MPa
Flexural modulus Z	ISO 178 and GB/T 9341	1,740 +/- 40 MPa
Flexural strength X Y	ISO 178 and GB/T 9341	75 +/- 3 MPa
Flexural strength Z	ISO 178 and GB/T 9341	56 +/- 4 MPa
Impact strength X Y	ISO 179 and GB/T 1043	34.2 +/- 4.1 kJ/m ²
Impact strength Z	ISO 179 and GB/T 1043	10.5 +/- 1.8 kJ/m ²

Representative values from Bambu Lab standard specimens. Actual printed-part performance depends on equipment, geometry, orientation, parameters, conditioning, and service conditions.

Other Physical and Chemical Characteristics

CHARACTERISTIC	PUBLISHED INFORMATION
Composition	PETG
Odor and skin hazards	Odorless; source reports no skin hazard
Chemical stability	Stable under normal storage and handling conditions
Water solubility	Insoluble
Acid and alkali resistance	Not resistant
Organic solvent resistance	Not resistant to some organic solvents
Oil and grease resistance	Resistant to most kinds of oil and grease
Flammability	Flammable; combustion products are water and carbon oxides

Source Specimen Conditions

PARAMETER	SOURCE CONDITION
Printer	Bambu Lab X1 Carbon
Nozzle temperature	255 C
Bed temperature	70 C
Printing speed	150 mm/s
Infill density	100%

Design and Validation Considerations

- Keep sustained-use temperatures below the published 68 to 71 C heat-deflection and Vicat range unless the final part has been validated.
- Account for orientation effects: the source reports lower Z-direction strength, elongation, flexural performance, and impact strength than X/Y values.
- Dry and store filament below 20% RH with desiccant when consistent processing, surface finish, and mechanical performance are important.
- Bambu Lab does not recommend annealing PETG Basic because property improvement is limited and non-simple parts may deform significantly.
- If annealing is required, the source suggests 60 to 70 C for 6 to 12 hours in a controlled forced-air oven. Do not use a microwave or household kitchen oven.

Data Provenance

The numerical values, printing recommendations, and material statements in this sheet are reproduced or summarized from Bambu Filament Technical Data Sheet V3.0 for PETG Basic. The source states that results were generated from standard samples at Bambu Lab and are intended for design reference and comparison. Lucent Additive has not independently generated the published material values.

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Send Lucent Additive your CAD model, quantity, performance requirements, inspection needs, environmental conditions, color preferences, and target schedule. Our team can review material fit, print strategy, production requirements, and validation needs before quoting.

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