

BambuLab Tough+ PLA Tough+ Black

Material Engineering Report
MaterialID MAT0076

3DPiceland Engineering Platform
3DPiceland Labs
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WORKFLOW-RELIABILITY - Bug Fixes and Workflow Reliability
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Public-data contract: This static report contains only allowlisted material identity, public links, canonical MSRP and existing Verified Material Summary / governed score outputs. It excludes raw specimen rows and non-public operational data.

TEST COVERAGE

Complete

ENGINEERING AXES

6/6

PUBLIC MSRP

\$47.92 USD/kg

Material identity

MaterialID	MAT0076
Material	BambuLab Tough+ PLA Tough+ Black
Manufacturer	BambuLab
Product line	Tough+
Base material	PLA
Category	Standard
Variant / finish	Tough+
Reinforcement	—
Color	Black

Governed engineering profile

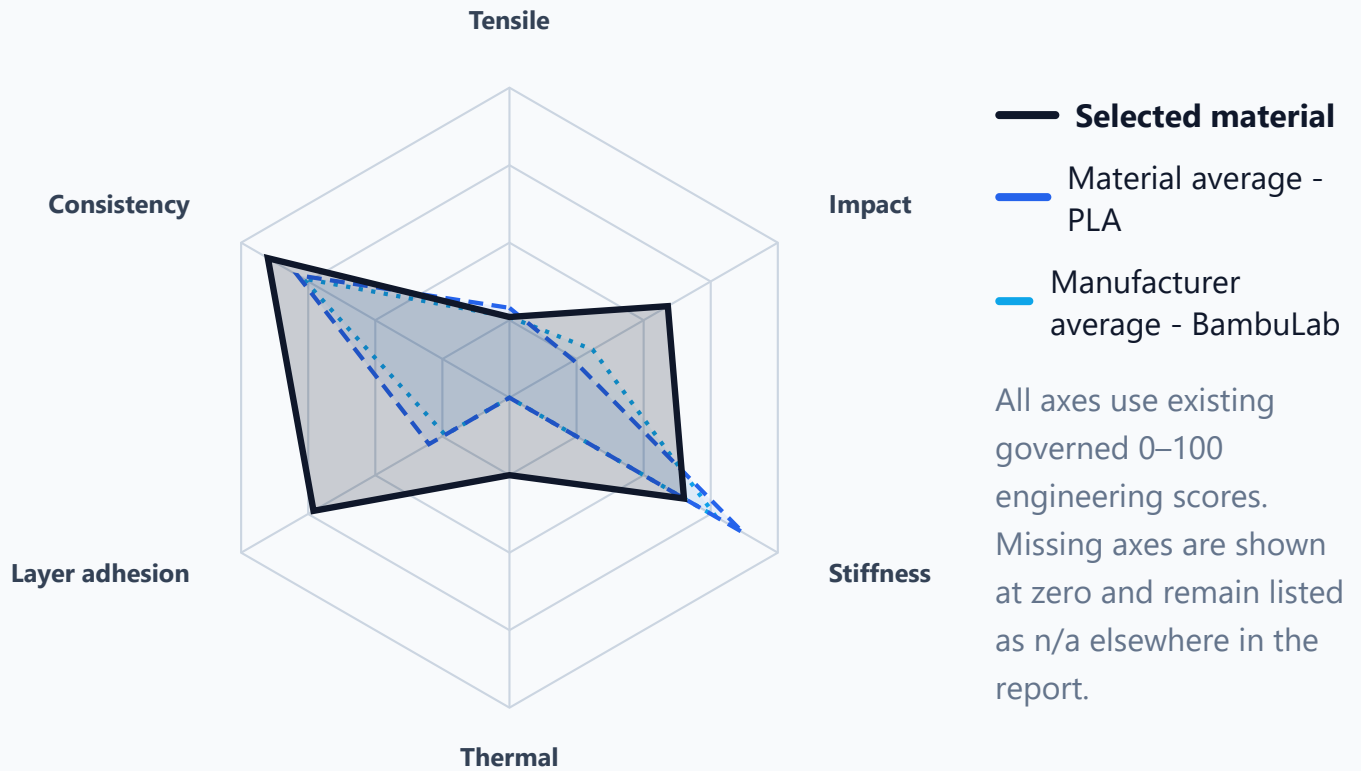
Overall	63/100
Tensile	26/100

Impact	59/100
Stiffness	65/100
Consistency	90/100
Layer adhesion	73/100
Thermal	25/100
Best available axis	consistency

Engineering score profile



Engineering radar



Fixture thermal result

50 °C · score 25/100 · method 3dp-thermal-deflection-fixture-v1

Nearby BlueDOT probe-indicated fixture temperature from a non-standard comparative 3DPlceland method; not ASTM D648, ISO 75, specimen temperature, certified HDT or a manufacturer limit.

Material and manufacturer context

Metric	Selected material	Material average	Manufacturer average
Overall	63/100	50/100	47/100
Tensile	26/100	29/100	26/100
Impact	59/100	24/100	31/100
Stiffness	65/100	87/100	77/100
Consistency	90/100	79/100	77/100
Layer adhesion	73/100	30/100	24/100
Thermal	25/100	—	—

Verified measurement results

Existing Verified Material Summary outputs. The public renderer does not read raw specimen rows or recalculate these values.

Measurement	Average	Std. deviation	CV	Samples	Confidence
Tensile upright	17.396 MPa	3.052 MPa	17.5%	10	10/10
Tensile flat	23.933 MPa	1.434 MPa	6%	10	10/10
Impact upright	201.636 kJ/m ²	25.203 kJ/m ²	12.5%	10	10/10
Impact flat	975.075 kJ/m ²	42.651 kJ/m ²	4.4%	10	10/10
Stiffness modulus	1962.896 MPa	—	—	—	—
Stiffness deflection	2.765 mm	—	—	—	—

Measurement provenance

Canonical per-module measured dates from SQLite, shown in unambiguous ISO format. Missing dates are not inferred.

Module	Measured date
Tensile	Not recorded
Impact	Not recorded
Stiffness	Not recorded
Thermal	Not recorded

Engineering interpretation

Summary: BambuLab Tough+ PLA Tough+ Black has a balanced mid-range engineering profile. It is above its material-family average by 12,4 points and above its manufacturer average by 15,5 points. Its strongest measured axis is Consistency, while the weakest axis is Tensile.

Data-driven review: BambuLab Tough+ PLA Tough+ Black is best understood as a balanced material for general functional prototypes. Compared with the current verified dataset, it ranks better than 98% overall, is above the material-family average by 12,4 points, and is above the manufacturer average by 15,5 points. Its strongest engineering signal is Consistency, while Tensile is the main limitation to consider before using it for demanding applications.

BEST FEATURE

Consistency

MAIN LIMITATION

Tensile

DATASET POSITION

Better than 98%
6 / 234

Strengths

- Layer adhesion: 73/100. Z-axis bonding is better than the material-family context.
- Consistency: 90/100. Repeatability is one of the stronger signals in this material profile.
- Impact: 59/100. Impact behavior is competitive against the material-family context.

Limitations

- Tensile: 26/100. Avoid using this as the primary choice for tensile-loaded parts.
- Stiffness: 65/100. Expect less shape stability than the stronger materials in the same family.

Engineering trade-offs

- Good repeatability does not compensate for low tensile capability in load-bearing designs.

Recommended applications

- Parts where Z-axis bonding is important
- Repeatable print jobs and production-style batches
- Cosmetic parts, concept models or low-load prototypes
- Avoid high tensile load applications

Metric rankings and percentiles

Metric	Score	Rank	Percentile
Overall	63/100	6 / 234	Better than 98%

Metric	Score	Rank	Percentile
Tensile	26/100	142 / 226	Better than 38%
Impact	59/100	7 / 226	Better than 97%
Stiffness	65/100	168 / 223	Better than 25%
Consistency	90/100	4 / 231	Better than 99%
Layer adhesion	73/100	2 / 226	Better than 100%
Thermal	25/100	190 / 209	Better than 10%

Decision guidance

- Use this material for moderate requirements after checking the weakest axis.
- Review the listed alternatives if the application needs stronger overall performance.
- Do not choose it as a tensile-strength benchmark material.

Better alternatives

MaterialID	Material	Manufacturer	Overall	Tensile	Impact
MAT0069	ProtoPasta HTPLA Blood of My Enemies PLA Red	ProtoPasta	100/100	—	—

Peer context

Highest-scoring same-base-material peers from the current governed dataset. This context is descriptive and is not recalculated by the public renderer.

MaterialID	Material	Manufacturer	Overall	Tensile	Impact
MAT0069	ProtoPasta HTPLA Blood of My Enemies PLA Red	ProtoPasta	100/100	—	—
MAT0079	Polymaker PolyLight PLA Pro Black	Polymaker	65/100	35/100	52/100
MAT0109	Polymaker PolyMax PLA Black	Polymaker	64/100	32/100	62/100
MAT0080	Polymaker PolySonic PLA Pro Blue	Polymaker	64/100	30/100	58/100

MaterialID	Material	Manufacturer	Overall	Tensile	Impact
MAT0108	Polymaker PolyLight PLA Black	Polymaker	61/100	33/100	14/100
MAT0074	Winkle Matte PLA Matte Red	Winkle	60/100	34/100	—
MAT0122	Add:North Enhanced PLA Clear	Add:North	59/100	40/100	10/100
MAT0096	Prima Creator PrimaValue Light Gray PLA Plus Gray	Prima Creator	58/100	33/100	58/100

Public links

[Manufacturer website](#) [Video review](#) [Download PDF](#)

Methodology and limitations

Results are comparative 3DPIceland measurements from home-built test equipment. Thermal is a nearby BlueDOT probe-indicated fixture temperature, not ASTM D648, ISO 75 or specimen temperature. Missing evidence remains n/a. Scores and test results are not recalculated by this publishing layer and do not replace certified manufacturer datasheets or accredited laboratory testing.

- [Testing methodology](#)
- [Engineering methodology whitepaper](#)