

Polymaker PolyTerra PLA Black

Material Engineering Report
MaterialID MAT0095

3DPiceland Engineering Platform
3DPiceland Labs

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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

5/6

PUBLIC MSRP

\$16.51 USD/kg

Material identity

MaterialID	MAT0095
Material	Polymaker PolyTerra PLA Black
Manufacturer	Polymaker
Product line	PolyTerra
Base material	PLA
Category	Standard
Variant / finish	—
Reinforcement	—
Color	Black

Governed engineering profile

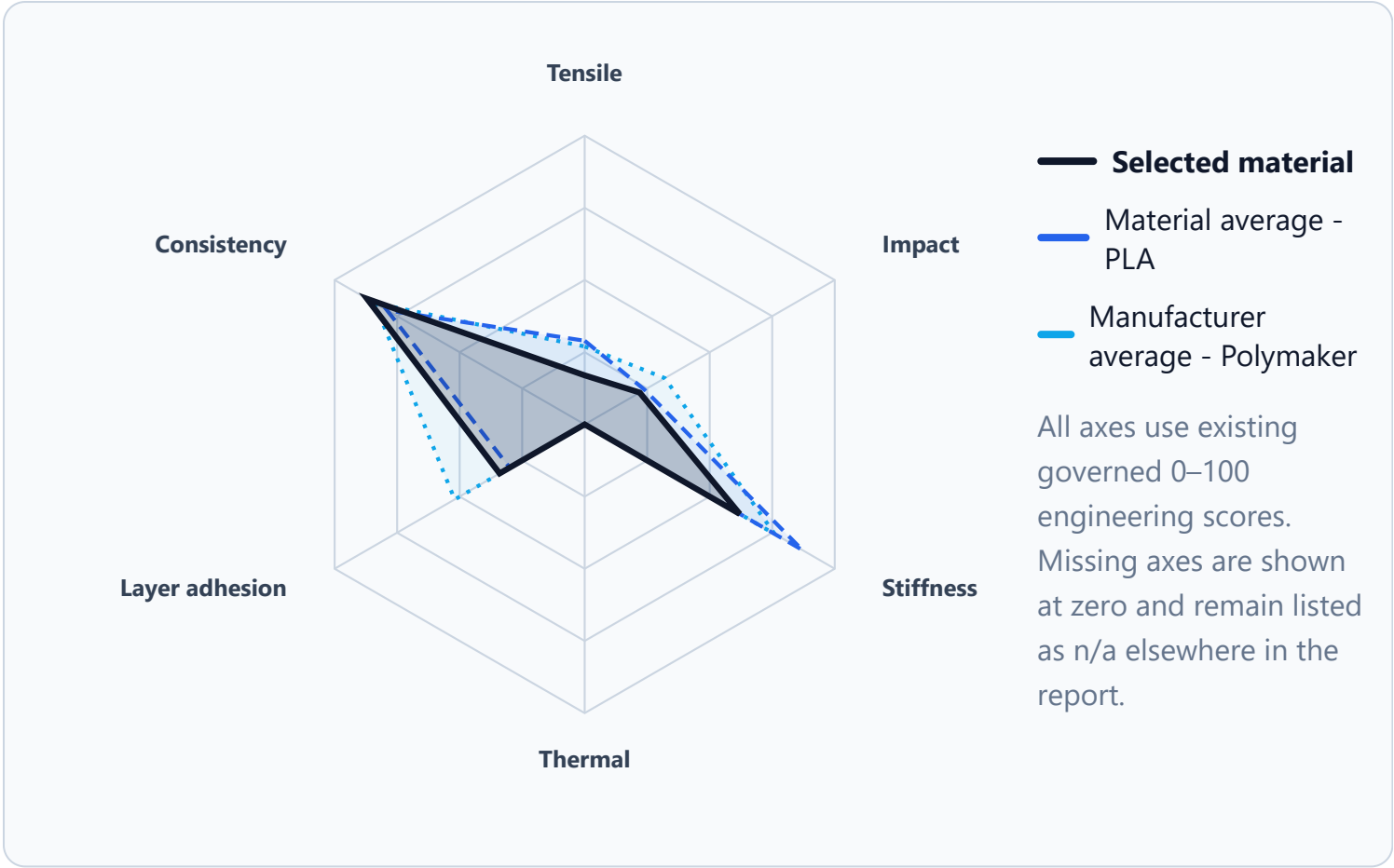
Overall	44/100
Tensile	17/100

Impact	22/100
Stiffness	62/100
Consistency	87/100
Layer adhesion	34/100
Thermal	—
Best available axis	consistency

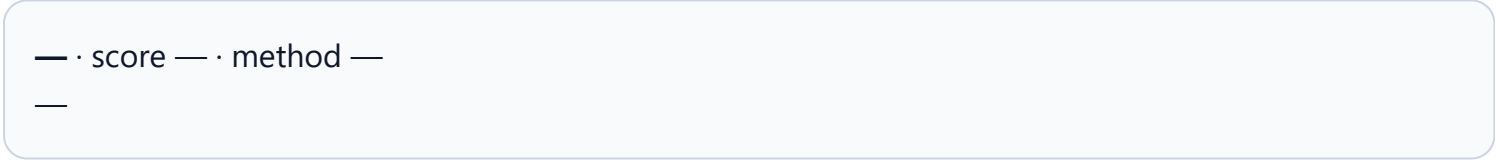
Engineering score profile



Engineering radar



Fixture thermal result



Material and manufacturer context

Metric	Selected material	Material average	Manufacturer average
Overall	44/100	50/100	54/100
Tensile	17/100	29/100	27/100
Impact	22/100	24/100	32/100
Stiffness	62/100	87/100	76/100
Consistency	87/100	79/100	84/100
Layer adhesion	34/100	30/100	52/100
Thermal	—	—	—

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	6.814 MPa	1.291 MPa	18.9%	10	10/10
Tensile flat	19.903 MPa	3.483 MPa	17.5%	10	10/10
Impact upright	119.487 kJ/m ²	12.564 kJ/m ²	10.5%	10	10/10
Impact flat	322.729 kJ/m ²	21.17 kJ/m ²	6.6%	10	10/10
Stiffness modulus	1845.122 MPa	—	—	—	—
Stiffness deflection	2.941 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: Polymaker PolyTerra PLA Black has a specialized or limited engineering profile. It is below its material-family average by 5,9 points and below its manufacturer average by 9,9 points. Its strongest measured axis is Consistency, while the weakest axis is Tensile.

Data-driven review: Polymaker PolyTerra PLA Black is best understood as a repeatable material for cosmetic, concept and low-load prototype work. Compared with the current verified dataset, it ranks better than 34% overall, is below the material-family average by 5,9 points, and is below the manufacturer average by 9,9 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 34%
155 / 234

Strengths

- Consistency: 87/100. Repeatability is one of the stronger signals in this material profile.

Limitations

- Tensile: 17/100. Avoid using this as the primary choice for tensile-loaded parts.
- Impact: 22/100. Avoid high impact or shock-loaded components without additional validation.
- Stiffness: 62/100. Expect less shape stability than the stronger materials in the same family.
- Layer adhesion: 34/100. Z-axis performance should be treated with caution.

Engineering trade-offs

- Good repeatability does not compensate for low tensile capability in load-bearing designs.
- The report should be read as a suitability warning rather than a general-purpose recommendation.

Recommended applications

- Repeatable print jobs and production-style batches
- Cosmetic parts, concept models or low-load prototypes
- Avoid high tensile load applications
- Avoid high impact components

Metric rankings and percentiles

Metric	Score	Rank	Percentile
Overall	44/100	155 / 234	Better than 34%
Tensile	17/100	206 / 226	Better than 9%
Impact	22/100	113 / 226	Better than 50%

Metric	Score	Rank	Percentile
Stiffness	62/100	181 / 223	Better than 19%
Consistency	87/100	11 / 231	Better than 96%
Layer adhesion	34/100	66 / 226	Better than 71%
Thermal	—	—	—

Decision guidance

- Use this material mainly for low-load, visual or experimental parts.
- Review the listed alternatives if the application needs stronger overall performance.
- Do not choose it as a tensile-strength benchmark material.
- Avoid selecting it for impact-focused testing or shock-loaded designs.

Better alternatives

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

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
MAT0076	BambuLab Tough+ PLA Tough+ Black	BambuLab	63/100	26/100	59/100
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

Public links

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

Methodology and limitations

Results are comparative 3DPlceland 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](#)