

ProtoPasta HTPLA Gloop! Purple PLA Purple

Material Engineering Report
MaterialID MAT0068

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

\$91.74 USD/kg

Material identity

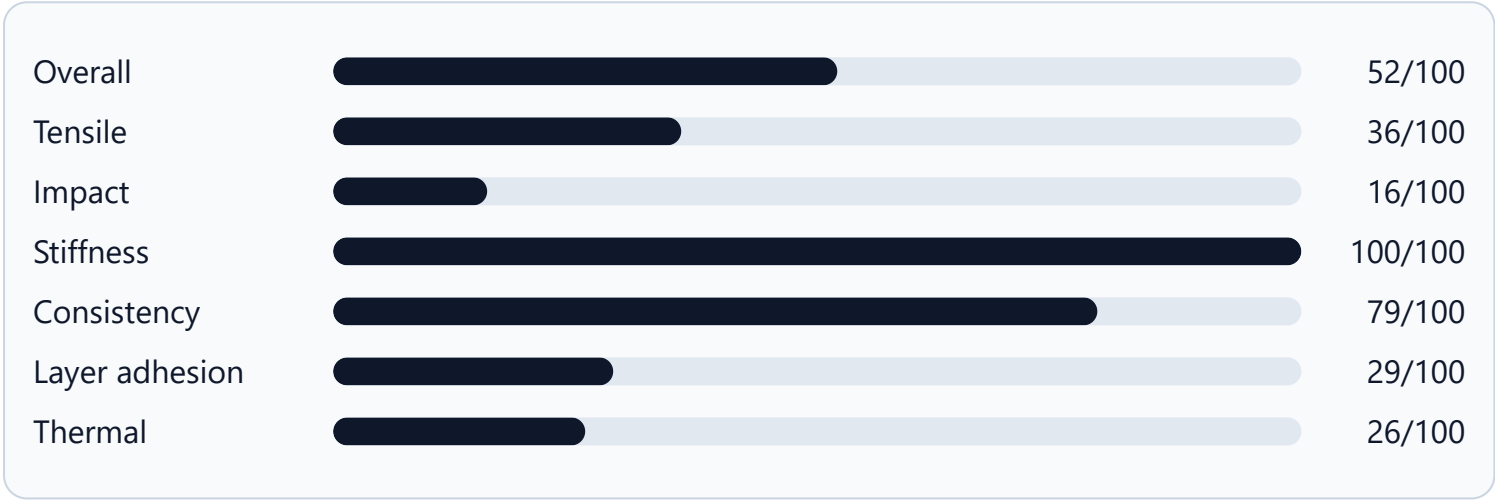
MaterialID	MAT0068
Material	ProtoPasta HTPLA Gloop! Purple PLA Purple
Manufacturer	ProtoPasta
Product line	HTPLA
Base material	PLA
Category	Standard
Variant / finish	—
Reinforcement	—
Color	Purple

Governed engineering profile

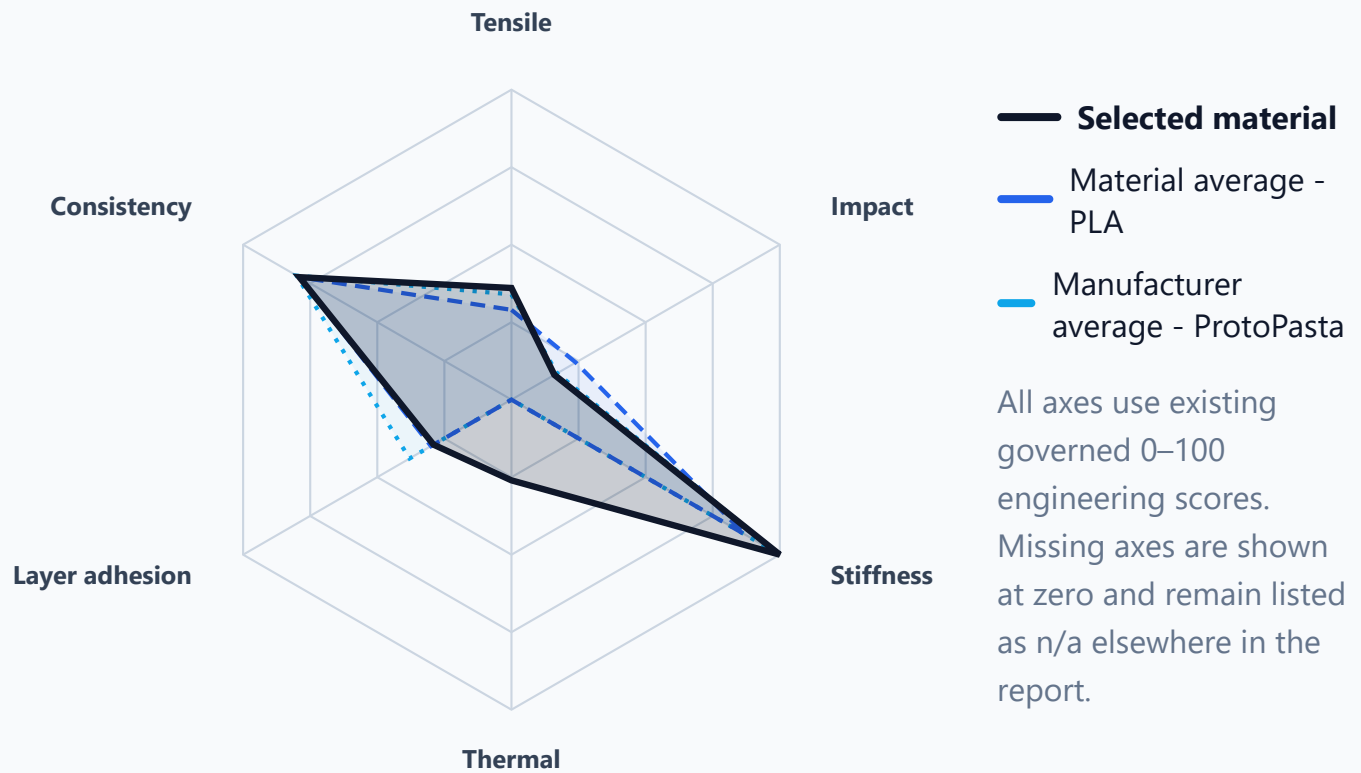
Overall	52/100
Tensile	36/100

Impact	16/100
Stiffness	100/100
Consistency	79/100
Layer adhesion	29/100
Thermal	26/100
Best available axis	stiffness

Engineering score profile



Engineering radar



Fixture thermal result

51 °C · score 26/100 · method 3dp-thermal-deflection-fixture-v1

Nearby BlueDOT probe-indicated fixture temperature from a non-standard comparative 3DPIceland 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	52/100	50/100	63/100
Tensile	36/100	29/100	34/100
Impact	16/100	24/100	17/100
Stiffness	100/100	87/100	100/100
Consistency	79/100	79/100	80/100
Layer adhesion	29/100	30/100	38/100
Thermal	26/100	—	—

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	12.705 MPa	3.836 MPa	30.2%	10	10/10
Tensile flat	44.348 MPa	5.583 MPa	12.6%	9	9/10
Impact upright	165.62 kJ/m ²	21.418 kJ/m ²	12.9%	10	10/10
Impact flat	158.821 kJ/m ²	41.539 kJ/m ²	26.2%	10	10/10
Stiffness modulus	3354.768 MPa	—	—	—	—
Stiffness deflection	1.618 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: ProtoPasta HTPLA Gloop! Purple PLA Purple has a specialized or limited engineering profile. It is above its material-family average by 1,8 points and below its manufacturer average by 11 points. Its strongest measured axis is Stiffness, while the weakest axis is Impact.

Data-driven review: ProtoPasta HTPLA Gloop! Purple PLA Purple 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 74% overall, is roughly aligned with the material-family average, and is below the manufacturer average by 11 points. Its strongest engineering signal is Stiffness, while Impact is the main limitation to consider before using it for demanding applications.

BEST FEATURE

Stiffness

MAIN LIMITATION

Impact

DATASET POSITION

Better than 74%
63 / 234

Strengths

- Consistency: 79/100. Repeatability is one of the stronger signals in this material profile.
- Tensile: 36/100. Tensile behavior is competitive against the material-family context.
- Stiffness: 100/100. Stiffness is a relative advantage in this comparison group.

Limitations

- Tensile: 36/100. Avoid using this as the primary choice for tensile-loaded parts.
- Impact: 16/100. Avoid high impact or shock-loaded components without additional validation.
- Layer adhesion: 29/100. Z-axis performance should be treated with caution.

Engineering trade-offs

- Good repeatability does not compensate for low tensile capability in load-bearing designs.
- Stiffness is useful for shape stability, but impact tolerance is a separate limitation.

Recommended applications

- Rigid brackets, fixtures and shape-stable prototypes
- Repeatable print jobs and production-style batches
- Cosmetic parts, concept models or low-load prototypes
- Avoid high impact components

Metric rankings and percentiles

Metric	Score	Rank	Percentile
Overall	52/100	63 / 234	Better than 74%

Metric	Score	Rank	Percentile
Tensile	36/100	39 / 226	Better than 83%
Impact	16/100	174 / 226	Better than 23%
Stiffness	100/100	1 / 223	Better than 100%
Consistency	79/100	96 / 231	Better than 59%
Layer adhesion	29/100	93 / 226	Better than 59%
Thermal	26/100	176 / 209	Better than 16%

Decision guidance

- Use this material for moderate requirements after checking the weakest axis.
- Review the listed alternatives if the application needs stronger overall performance.
- 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

MaterialID	Material	Manufacturer	Overall	Tensile	Impact
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
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](#)