

Winkle Matte PLA

Matte Red

Material Engineering Report
MaterialID MAT0074

3DPiceland Engineering Platform
3DPiceland Labs

Generated with 3DPiceland Engineering Platform v60.0.6 WORKFLOW-
RELIABILITY - Bug Fixes and Workflow Reliability
Generated 2026-08-25 19:02:26

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

Partial

ENGINEERING AXES

5/6

PUBLIC MSRP

\$39.96 USD/kg

Material identity

MaterialID	MAT0074
Material	Winkle Matte PLA Matte Red
Manufacturer	Winkle
Product line	Matte
Base material	PLA
Category	Standard
Variant / finish	Matte
Reinforcement	—
Color	Red

Governed engineering profile

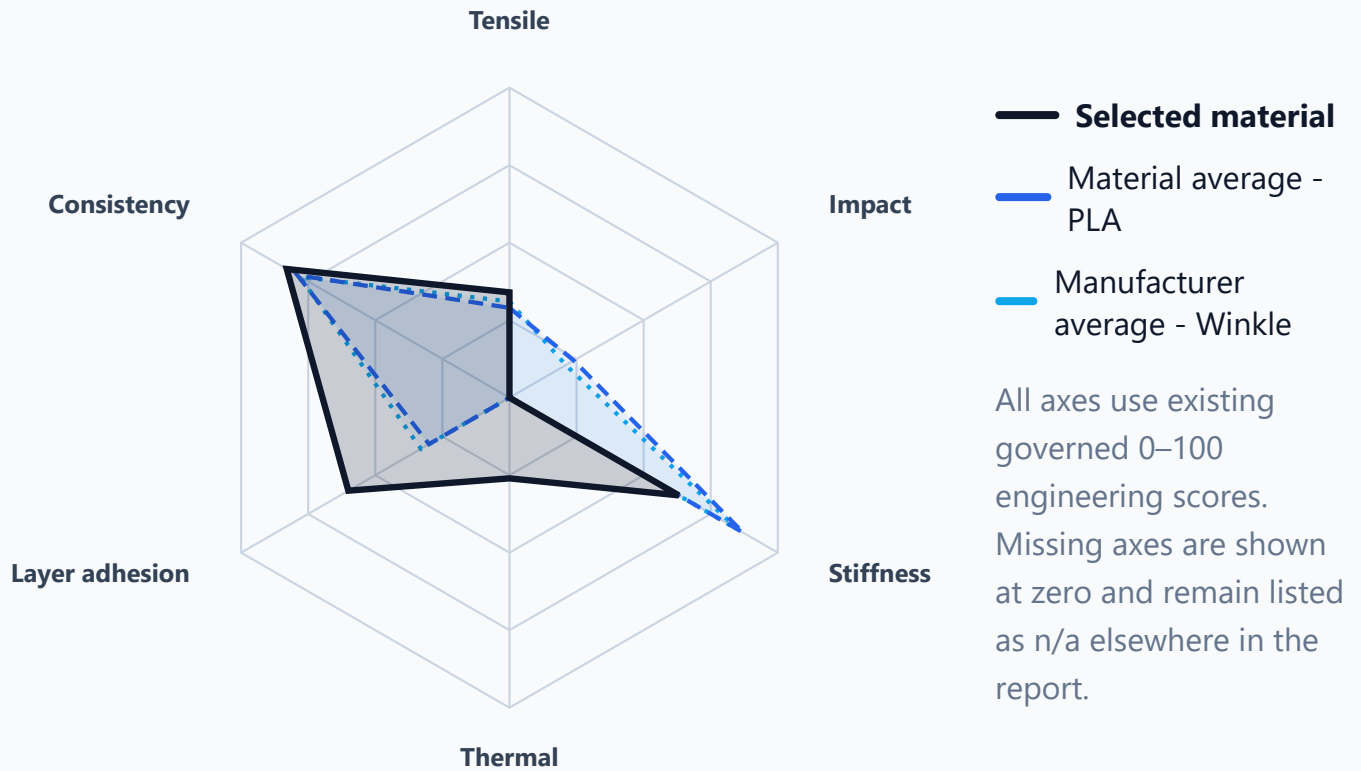
Overall	60/100
Tensile	34/100

Impact	—
Stiffness	63/100
Consistency	83/100
Layer adhesion	60/100
Thermal	26/100
Best available axis	consistency

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	60/100	50/100	49/100
Tensile	34/100	29/100	31/100
Impact	—	24/100	21/100
Stiffness	63/100	87/100	85/100
Consistency	83/100	79/100	78/100
Layer adhesion	60/100	30/100	33/100
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	20.559 MPa	3.041 MPa	14.8%	9	9/10
Tensile flat	34.345 MPa	1.058 MPa	3.1%	10	10/10
Impact upright	—	—	—	—	—
Impact flat	—	—	—	—	—
Stiffness modulus	1902.188 MPa	—	—	—	—
Stiffness deflection	2.853 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: Winkle Matte PLA Matte Red has a balanced mid-range engineering profile. It is above its material-family average by 10,1 points and above its manufacturer average by 11,1 points. Its strongest measured axis is Consistency, while the weakest axis is Tensile.

Data-driven review: Winkle Matte PLA Matte Red is best understood as a balanced material for general functional prototypes. Compared with the current verified dataset, it ranks better than 96% overall, is above the material-family average by 10,1 points, and is above the manufacturer average by 11,1 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 96%
10 / 234

Strengths

- Layer adhesion: 60/100. Z-axis bonding is better than the material-family context.
- Consistency: 83/100. Repeatability is one of the stronger signals in this material profile.

Limitations

- Tensile: 34/100. Avoid using this as the primary choice for tensile-loaded parts.
- Stiffness: 63/100. 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

- 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	60/100	10 / 234	Better than 96%
Tensile	34/100	52 / 226	Better than 77%
Impact	—	—	—

Metric	Score	Rank	Percentile
Stiffness	63/100	176 / 223	Better than 22%
Consistency	83/100	43 / 231	Better than 82%
Layer adhesion	60/100	11 / 226	Better than 96%
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.
- 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
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](#)