

Winkle Standard PLA HD Blue

Material Engineering Report
MaterialID MAT0120

3DPiceland Engineering Platform
3DPiceland Labs
Generated with 3DPiceland Engineering Platform v60.0.6 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

Partial

ENGINEERING AXES

3/6

PUBLIC MSRP

\$44.67 USD/kg

Material identity

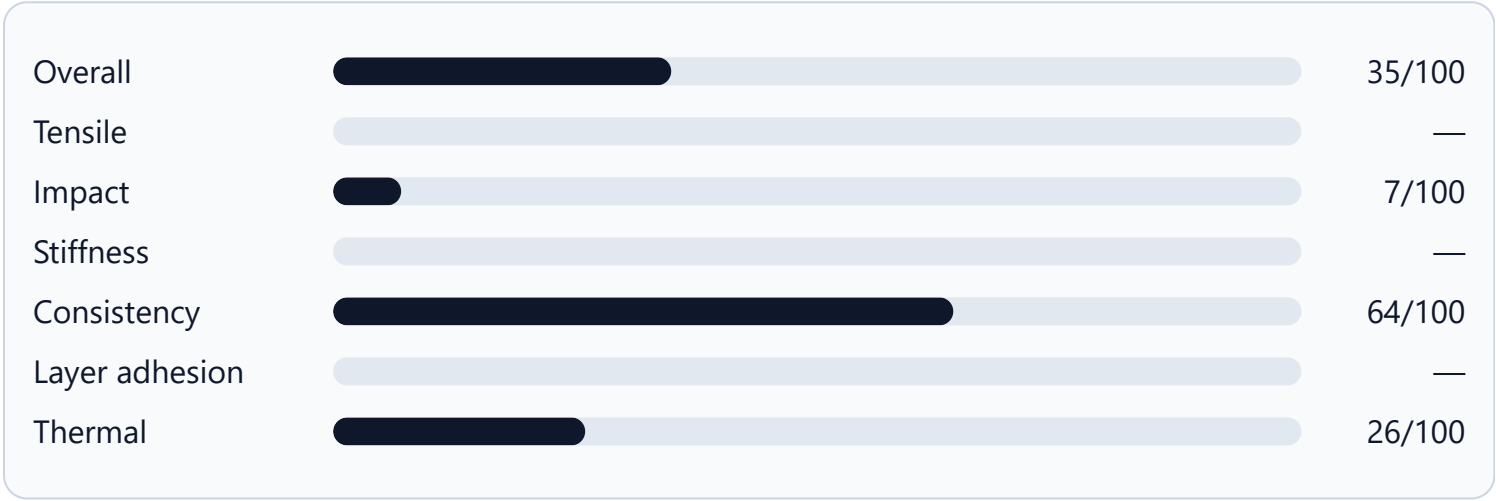
MaterialID	MAT0120
Material	Winkle Standard PLA HD Blue
Manufacturer	Winkle
Product line	Standard
Base material	PLA
Category	Standard
Variant / finish	HD
Reinforcement	—
Color	Blue

Governed engineering profile

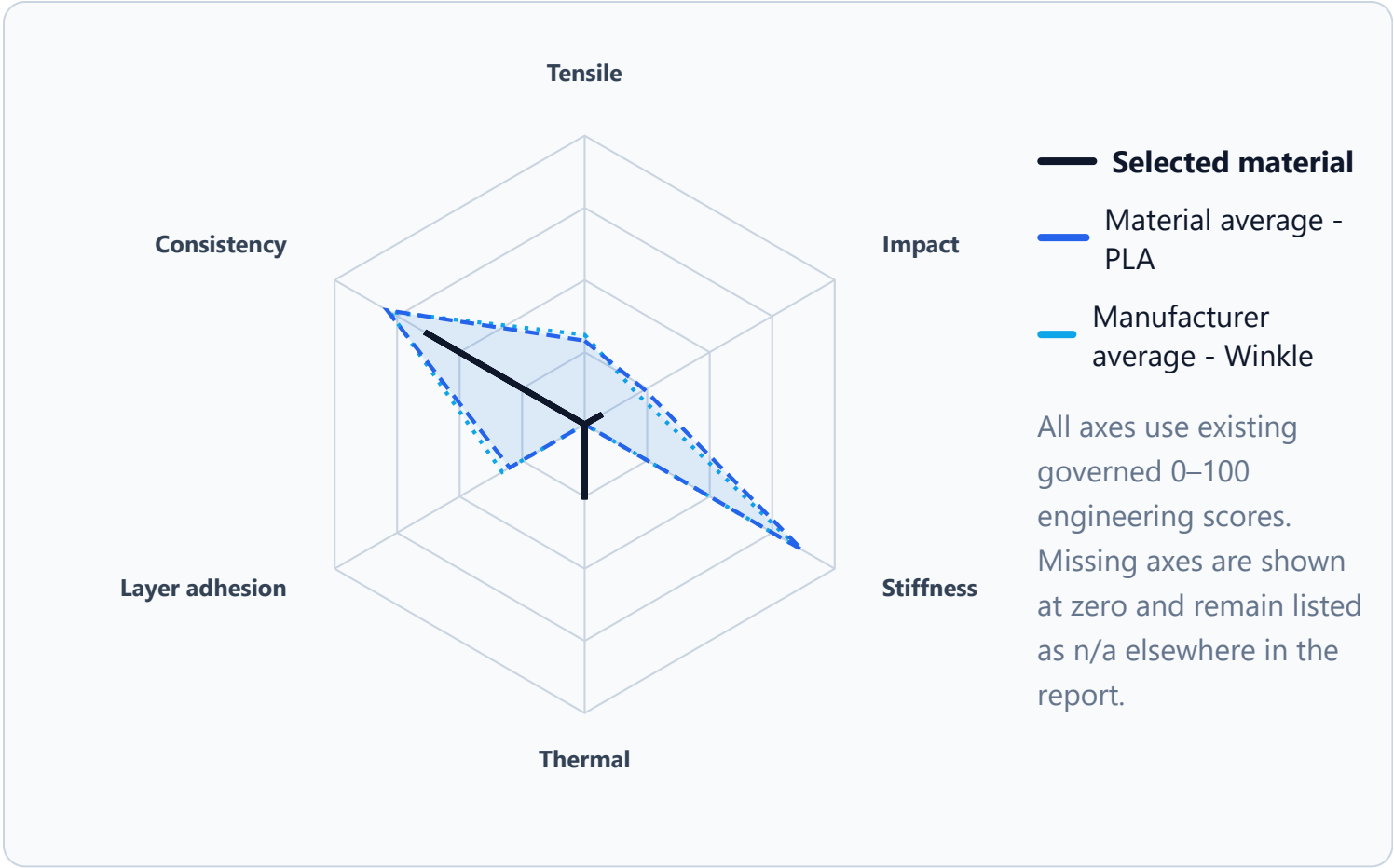
Overall	35/100
Tensile	—

Impact	7/100
Stiffness	—
Consistency	64/100
Layer adhesion	—
Thermal	26/100
Best available axis	consistency

Engineering score profile



Engineering radar



Fixture thermal result

52 °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	35/100	50/100	49/100
Tensile	—	29/100	31/100
Impact	7/100	24/100	21/100
Stiffness	—	87/100	85/100
Consistency	64/100	79/100	78/100
Layer adhesion	—	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	—	—	—	—	—
Tensile flat	—	—	—	—	—
Impact upright	33.343 kJ/m ²	15.797 kJ/m ²	47.4%	10	10/10
Impact flat	98.232 kJ/m ²	9.84 kJ/m ²	10%	10	10/10
Stiffness modulus	—	—	—	—	—
Stiffness deflection	—	—	—	—	—

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 Standard PLA HD Blue has a specialized or limited engineering profile. It is below its material-family average by 14,9 points and below its manufacturer average by 13,9 points. Its strongest measured axis is Consistency, while the weakest axis is Impact.

Data-driven review: Winkle Standard PLA HD Blue is best understood as a limited-use material that should be validated carefully before functional use. Compared with the current verified dataset, it ranks better than 2% overall, is below the material-family average by 14,9 points, and is below the manufacturer average by 13,9 points. Its strongest engineering signal is Consistency, while Impact is the main limitation to consider before using it for demanding applications.

BEST FEATURE

Consistency

MAIN LIMITATION

Impact

DATASET POSITION

Better than 2%
230 / 234

Strengths

- Best available signal: Consistency at 64/100.

Limitations

- Impact: 7/100. Avoid high impact or shock-loaded components without additional validation.
- Consistency: 64/100. Repeatability may not be the best reason to choose this filament.

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

- 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	35/100	230 / 234	Better than 2%
Tensile	—	—	—
Impact	7/100	221 / 226	Better than 3%

Metric	Score	Rank	Percentile
Stiffness	—	—	—
Consistency	64/100	224 / 231	Better than 3%
Layer adhesion	—	—	—
Thermal	26/100	155 / 209	Better than 26%

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](#)