

Thorwell Standard Carbon Fiber-T PETG CF Black

Material Engineering Report
MaterialID MAT0151

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
\$40.00 USD/kg

Material identity

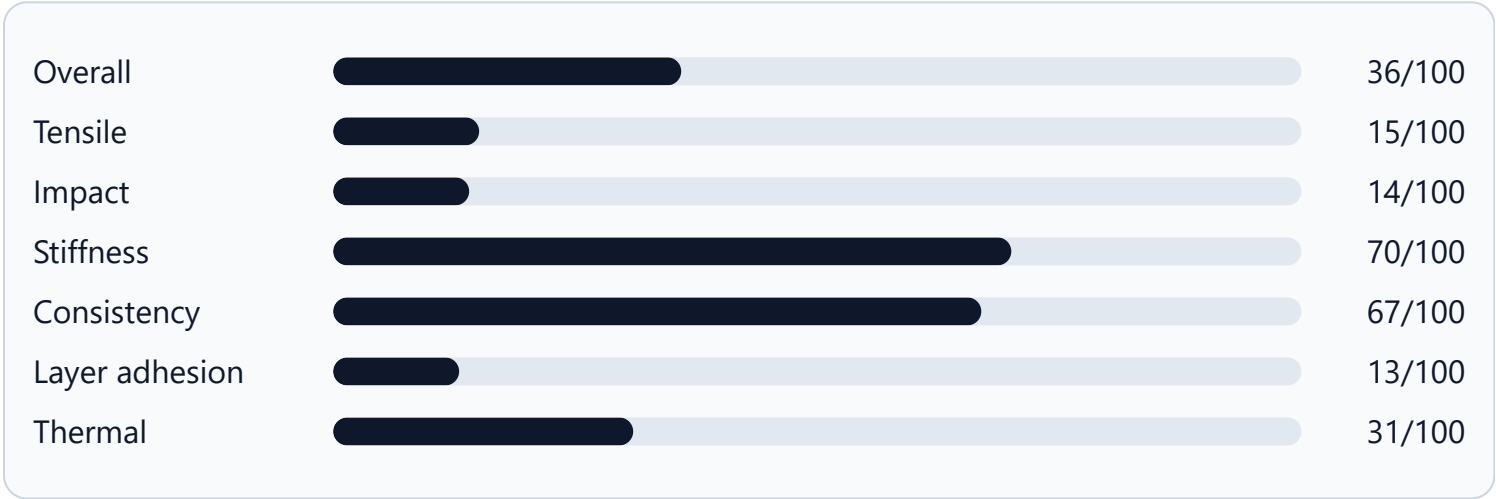
MaterialID	MAT0151
Material	Thorwell Standard Carbon Fiber-T PETG CF Black
Manufacturer	Thorwell
Product line	Standard
Base material	PETG
Category	Standard
Variant / finish	—
Reinforcement	CF
Color	Black

Governed engineering profile

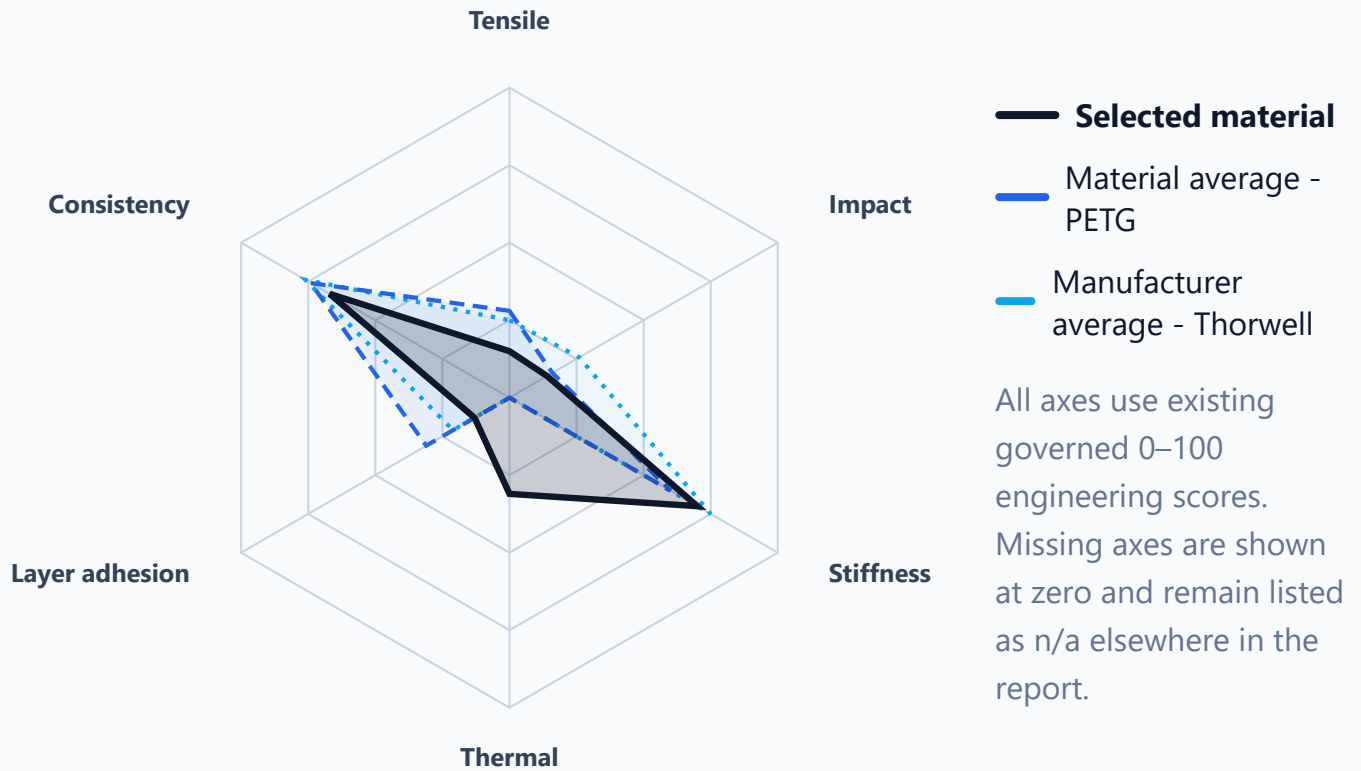
Overall	36/100
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Tensile	15/100
Impact	14/100
Stiffness	70/100
Consistency	67/100
Layer adhesion	13/100
Thermal	31/100
Best available axis	stiffness

Engineering score profile



Engineering radar



Fixture thermal result

61 °C · score 31/100 · 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	36/100	42/100	45/100
Tensile	15/100	28/100	25/100
Impact	14/100	16/100	26/100
Stiffness	70/100	60/100	75/100
Consistency	67/100	74/100	76/100
Layer adhesion	13/100	31/100	21/100
Thermal	31/100	—	—

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	2.692 MPa	1.042 MPa	38.7%	6	6/10
Tensile flat	21.241 MPa	7.35 MPa	34.6%	10	10/10
Impact upright	125.499 kJ/m ²	29.309 kJ/m ²	23.4%	10	10/10
Impact flat	161.414 kJ/m ²	44.958 kJ/m ²	27.9%	10	10/10
Stiffness modulus	2108.711 MPa	—	—	—	—
Stiffness deflection	2.573 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: Thorwell Standard Carbon Fiber-T PETG CF Black has a specialized or limited engineering profile. It is below its material-family average by 6,2 points and below its manufacturer average by 8,7 points. Its strongest measured axis is Stiffness, while the weakest axis is Layer Adhesion.

Data-driven review: Thorwell Standard Carbon Fiber-T PETG CF 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 4% overall, is below the material-family average by 6,2 points, and is below the manufacturer average by 8,7 points. Its strongest engineering signal is Stiffness, while Layer Adhesion is the main limitation to consider before using it for demanding applications.

BEST FEATURE

Stiffness

MAIN LIMITATION

Layer Adhesion

DATASET POSITION

Better than 4%
225 / 234

Strengths

- Stiffness: 70/100. Stiffness is a relative advantage in this comparison group.

Limitations

- Tensile: 15/100. Avoid using this as the primary choice for tensile-loaded parts.
- Impact: 14/100. Avoid high impact or shock-loaded components without additional validation.
- Layer adhesion: 13/100. 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.
- The report should be read as a suitability warning rather than a general-purpose recommendation.

Recommended applications

- Rigid brackets, fixtures and shape-stable prototypes
- 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	36/100	225 / 234	Better than 4%
Tensile	15/100	213 / 226	Better than 6%
Impact	14/100	186 / 226	Better than 18%
Stiffness	70/100	144 / 223	Better than 36%
Consistency	67/100	211 / 231	Better than 9%
Layer adhesion	13/100	183 / 226	Better than 19%
Thermal	31/100	95 / 209	Better than 55%

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
MAT0236	Yasin Standard Black PETG CF Black	Yasin	50/100	30/100	20/100
MAT0198	Siraya Tech Fiberheart Black PETG Pro CF Black	Siraya Tech	49/100	33/100	19/100
MAT0060	ColorFabb XT PETG Pink	ColorFabb	48/100	—	—

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
MAT0236	Yasin Standard Black PETG CF Black	Yasin	50/100	30/100	20/100

MaterialID	Material	Manufacturer	Overall	Tensile	Impact
MAT0198	Siraya Tech Fiberheart Black PETG Pro CF Black	Siraya Tech	49/100	33/100	19/100
MAT0060	ColorFabb XT PETG Pink	ColorFabb	48/100	—	—
MAT0062	IC3D Standard PETG Green-Yellow	IC3D	48/100	26/100	—
MAT0165	Winkle Standard Ash Gray PETG Gray	Winkle	46/100	30/100	14/100
MAT0225	Spectrum Premium Iceland Blue PETG Blue	Spectrum	46/100	33/100	17/100
MAT0063	IC3D Standard PETG Yellow	IC3D	46/100	26/100	—
MAT0235	Yasin Standard Black PETG GF Black	Yasin	45/100	27/100	21/100

Public links

[Manufacturer website](#) [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](#)