

Bedrock 3D Standard Black PA6 HighTemp CF Black

Material Engineering Report
MaterialID MAT0248

3DPiceland Engineering Platform

3DPiceland Labs

Generated with 3DPiceland Engineering Platform v70.0.4

DIRECT-IMPACT-METHODOLOGY - Izod and Charpy

Methodology

Generated 2026-10-04 18:07:33

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.

RIGID TEST COVERAGE

Complete; 5/5 score families; Izod/Charpy 2/2 measured, 2/2 scored; Overall eligible; policy engineering-score-v70-1

ENGINEERING AXES

7/8

PUBLIC MSRP

\$109.49 USD/kg

Material identity

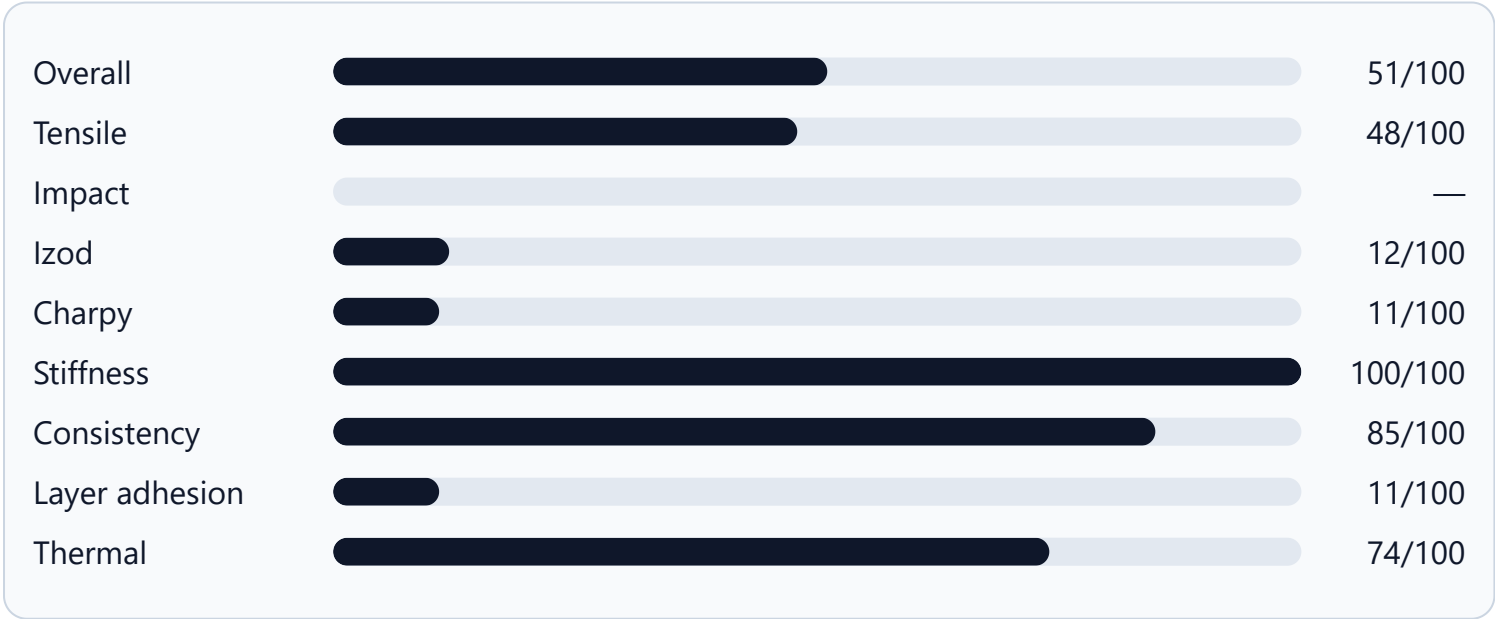
MaterialID	MAT0248
Material	Bedrock 3D Standard Black PA6 HighTemp CF Black
Manufacturer	Bedrock 3D
Product line	Standard
Base material	PA6
Category	Engineering
Variant / finish	HighTemp

Reinforcement	CF
Color	Black

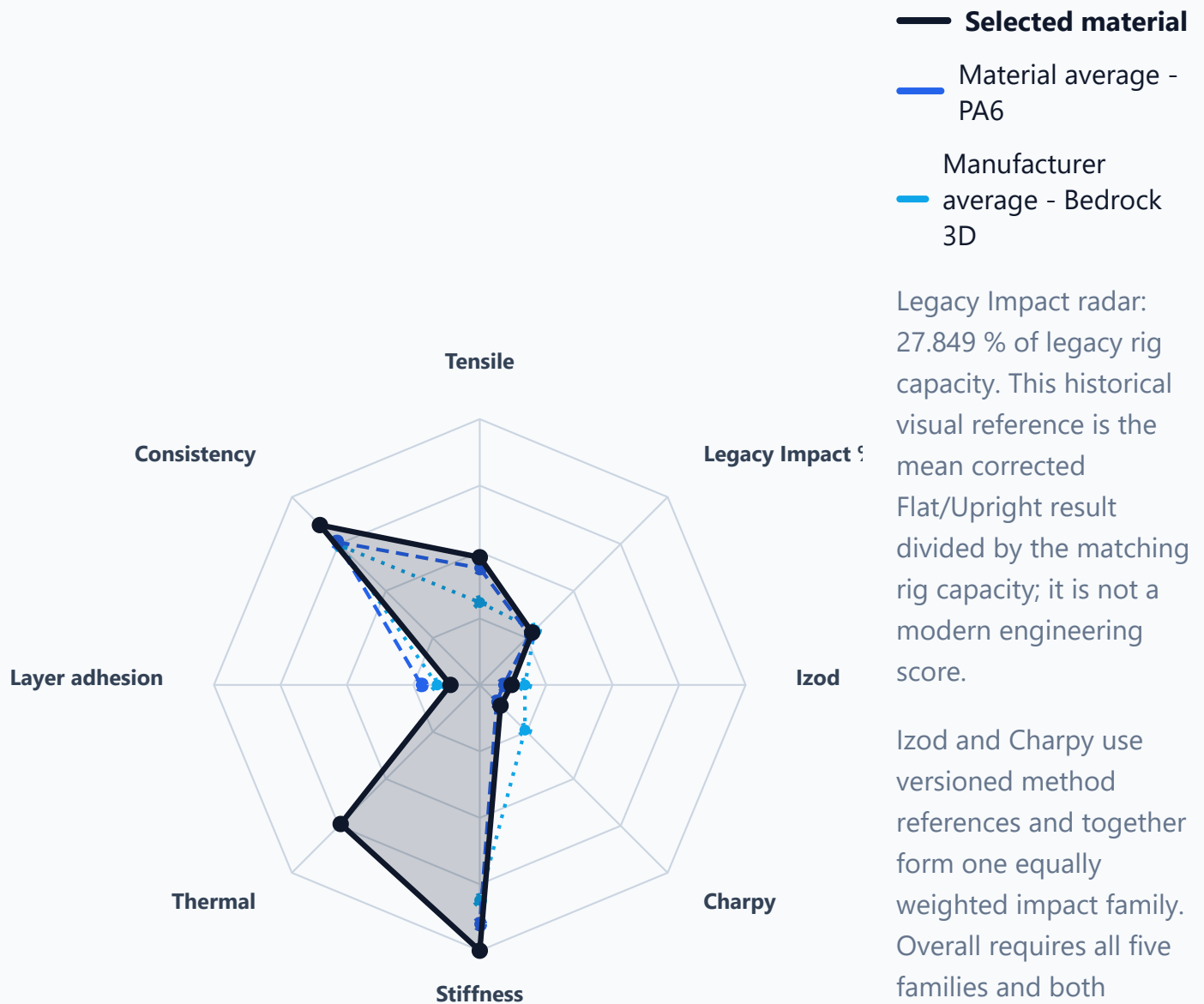
Governed engineering profile

Overall	51/100
Tensile	48/100
Impact	—
Izod	12/100
Charpy	11/100
Stiffness	100/100
Consistency	85/100
Layer adhesion	11/100
Thermal	74/100
Best available axis	stiffness

Engineering score profile



Engineering radar



Legacy Impact radar: 27.849 % of legacy rig capacity. This historical visual reference is the mean corrected Flat/Upright result divided by the matching rig capacity; it is not a modern engineering score.

Izod and Charpy use versioned method references and together form one equally weighted impact family. Overall requires all five families and both calibrated methods; incomplete profiles are not ranked. Legacy Impact and thermal are outside Overall. Missing axes have gaps with no marker or filled polygon; measured zero retains a centre marker.

Fixture thermal result

147 °C · score 74/100 · 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	51/100	—	—
Tensile	48/100	44/100	31/100
Impact	—	—	—
Izod	12/100	9/100	17/100
Charpy	11/100	9/100	24/100
Stiffness	100/100	90/100	81/100
Consistency	85/100	76/100	74/100
Layer adhesion	11/100	22/100	16/100
Thermal	74/100	—	—

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	7.383 MPa	1.912 MPa	25.9%	9	9/10
Tensile flat	68.633 MPa	10.728 MPa	15.6%	9	9/10
Impact upright	8.761 kJ/m ²	1.421 kJ/m ²	16.2%	10	10/10
Impact flat	22.973 kJ/m ²	3.691 kJ/m ²	16.1%	10	10/10
Izod	9.935 kJ/m ²	0.655 kJ/m ²	6.6%	10	10/10
Charpy	8.43 kJ/m ²	0.595 kJ/m ²	7.1%	10	10/10
Stiffness modulus	5271.778 MPa	—	—	—	—
Stiffness deflection	1.029 mm	—	—	—	—

Measurement provenance

Canonical per-module measured dates from SQLite, shown in unambiguous ISO format. Missing dates are not inferred.

Module	Measured date
Tensile	2026-09-07
Impact	2026-09-11
Izod	2026-09-29
Charpy	2026-09-29
Stiffness	2026-09-06
Thermal	2026-09-07

Engineering interpretation

Summary: Bedrock 3D Standard Black PA6 HighTemp CF Black has a specialized or limited engineering profile. It is without enough material-family average context and without enough manufacturer average context. Its strongest measured axis is Stiffness, while the weakest axis is Charpy.

Data-driven review: Bedrock 3D Standard Black PA6 HighTemp 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 88% overall, is missing enough context for the material-family average, and is missing enough context for the manufacturer average. Its strongest engineering signal is Stiffness, while Charpy is the main limitation to consider before using it for demanding applications.

BEST FEATURE

Stiffness

MAIN LIMITATION

Charpy

DATASET POSITION

Better than 88%
11 / 80

Strengths

- Consistency: 85/100. Repeatability is one of the stronger signals in this material profile.
- Stiffness: 100/100. Stiffness is a relative advantage in this comparison group.

Limitations

- Izod/Charpy impact family: 11/100. Validate impact or shock-loaded components against their application requirements.
- Layer adhesion: 11/100. Z-axis performance should be treated with caution.

Engineering trade-offs

- 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	51/100	11 / 80	Better than 88%
Tensile	48/100	3 / 243	Better than 99%
Impact	—	—	—
Izod	12/100	21 / 83	Better than 76%
Charpy	11/100	33 / 82	Better than 61%
Stiffness	100/100	1 / 240	Better than 100%
Consistency	85/100	27 / 243	Better than 89%
Layer adhesion	11/100	210 / 243	Better than 14%
Thermal	74/100	5 / 226	Better than 98%

Decision guidance

- Use this material for moderate requirements after checking the weakest axis.
- Validate impact-focused or shock-loaded designs against the measured Izod/Charpy results.

Better alternatives

MaterialID	Material	Manufacturer	Overall	Tensile	Impact	Izod	Charpy
No stronger same-base-material alternatives were identified in the current governed dataset.							

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	Izod	Charpy
MAT0023	Extrudr DuraPro PA6 CF Black	Extrudr	52/100	52/100	—	n/a	n/a
MAT0025	Extrudr DuraPro PA6 GF Black	Extrudr	52/100	47/100	—	n/a	n/a
MAT0212	Eryone Standard Black PA6 CF Black	Eryone	49/100	30/100	—	n/a	n/a
MAT0026	Yasin Standard Black PA6 GF Black	Yasin	48/100	44/100	—	n/a	n/a
MAT0024	Yasin Standard Black PA6 CF Black	Yasin	48/100	41/100	—	n/a	n/a
MAT0210	Eryone Standard Black PA6 GF Black	Eryone	48/100	39/100	—	n/a	n/a
MAT0247	Bedrock 3D Standard Natural PA6 Natural	Bedrock 3D	41/100	48/100	—	n/a	n/a
MAT0027	Yasin Standard Clear PA6 Clear	Yasin	—	42/100	—	n/a	n/a

Public links

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](#)

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Izod and Charpy Impact Strength

Charpy Impact Strength · 2026-09-29

Instrument readings in kJ/m^2

Mean 8.43 kJ/m^2 ; Std. Dev 0.595 kJ/m^2 ; CV 7.053%; Samples 10; Confidence 10

No break 0; invalid 0; excluded 0.

Comparative measurements; standard conformity unverified.

Izod Impact Strength · 2026-09-29

Instrument readings in kJ/m^2

Mean 9.935 kJ/m^2 ; Std. Dev 0.655 kJ/m^2 ; CV 6.594%; Samples 10; Confidence 10

No break 0; invalid 0; excluded 0.

Comparative measurements; standard conformity unverified.