

Bedrock 3D Standard Natural PET Natural

Material Engineering Report
MaterialID MAT0252

3DP Iceland Engineering Platform
3DP Iceland Labs

Generated with 3DP Iceland 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

\$30.49 USD/kg

Material identity

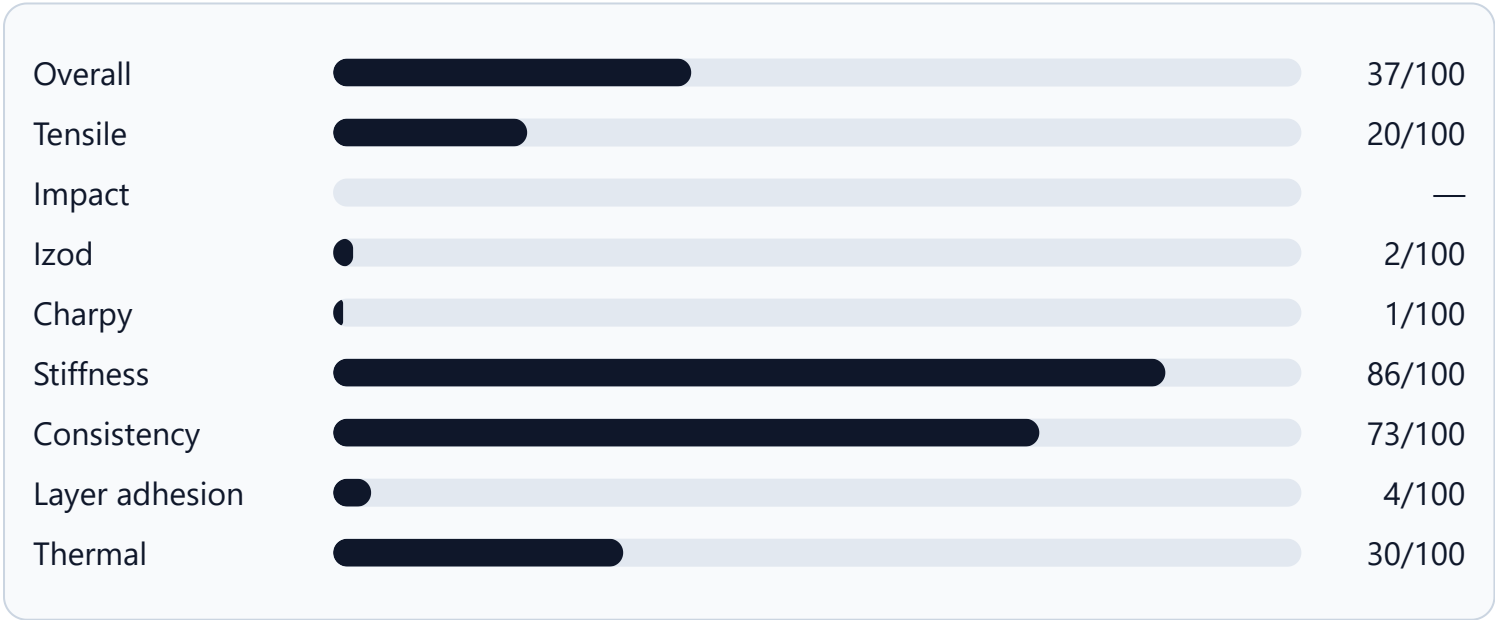
MaterialID	MAT0252
Material	Bedrock 3D Standard Natural PET Natural
Manufacturer	Bedrock 3D
Product line	Standard
Base material	PET
Category	Engineering
Variant / finish	—
Reinforcement	—

Color	Natural
-------	---------

Governed engineering profile

Overall	37/100
Tensile	20/100
Impact	—
Izod	2/100
Charpy	1/100
Stiffness	86/100
Consistency	73/100
Layer adhesion	4/100
Thermal	30/100
Best available axis	stiffness

Engineering score profile



Engineering radar

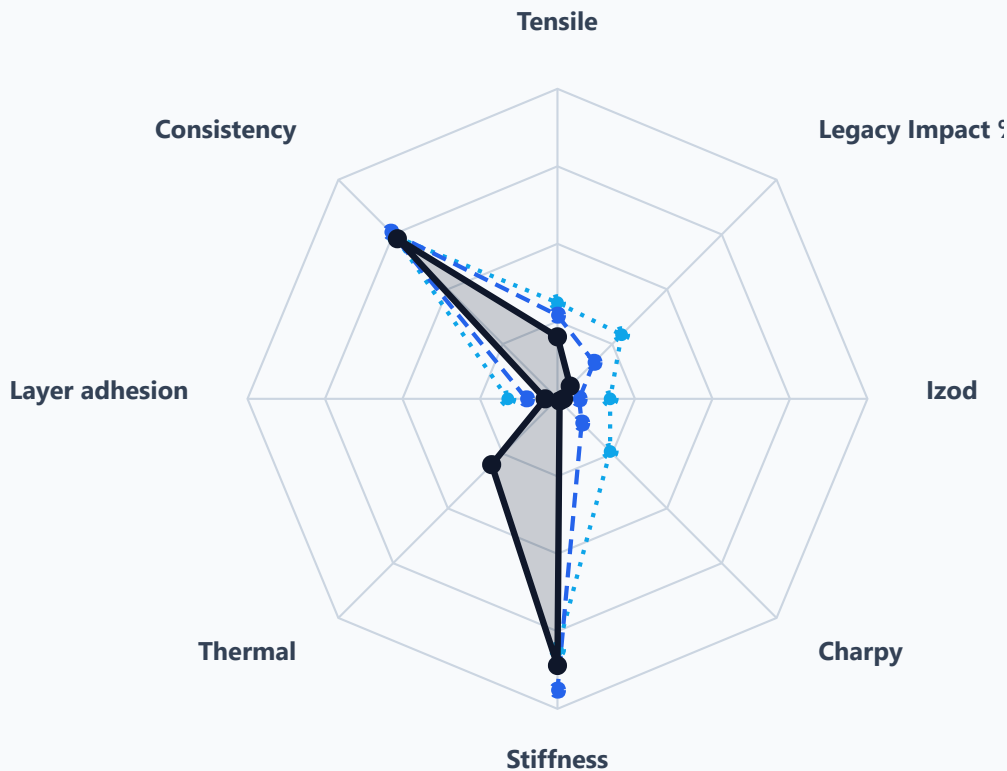
— Selected material

— Material average - PET

— Manufacturer average - Bedrock 3D

Legacy Impact radar: 5.84 % 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

60 °C · score 30/100 · 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	37/100	43/100	—
Tensile	20/100	27/100	31/100
Impact	—	—	—
Izod	2/100	7/100	17/100
Charpy	1/100	11/100	24/100
Stiffness	86/100	94/100	81/100
Consistency	73/100	76/100	74/100
Layer adhesion	4/100	10/100	16/100
Thermal	30/100	—	—

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	1.23 MPa	0.308 MPa	25%	3	3/10
Tensile flat	31.039 MPa	9.164 MPa	29.5%	10	10/10
Impact upright	2.535 kJ/m ²	0.787 kJ/m ²	31.1%	10	10/10
Impact flat	4.12 kJ/m ²	0.898 kJ/m ²	21.8%	10	10/10
Izod	1.648 kJ/m ²	0.132 kJ/m ²	8%	10	10/10
Charpy	0.841 kJ/m ²	0.28 kJ/m ²	33.3%	10	10/10
Stiffness modulus	2580.591 MPa	—	—	—	—
Stiffness deflection	2.103 mm	—	—	—	—

Measurement provenance

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

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

Engineering interpretation

Summary: Bedrock 3D Standard Natural PET Natural has a specialized or limited engineering profile. It is below its material-family average by 6,4 points and without enough manufacturer average context. Its strongest measured axis is Stiffness, while the weakest axis is Charpy.

Data-driven review: Bedrock 3D Standard Natural PET Natural 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 14% overall, is below the material-family average by 6,4 points, 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 14%

70 / 80

Strengths

- Consistency: 73/100. Repeatability is one of the stronger signals in this material profile.
- Stiffness: 86/100. Stiffness is a relative advantage in this comparison group.

Limitations

- Tensile: 20/100. Avoid using this as the primary choice for tensile-loaded parts.
- Izod/Charpy impact family: 2/100. Validate impact or shock-loaded components against their application requirements.
- Layer adhesion: 4/100. 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
- 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	37/100	70 / 80	Better than 14%
Tensile	20/100	198 / 243	Better than 19%
Impact	—	—	—
Izod	2/100	83 / 83	Better than 1%
Charpy	1/100	82 / 82	Better than 1%
Stiffness	86/100	98 / 240	Better than 60%

Metric	Score	Rank	Percentile
Consistency	73/100	153 / 243	Better than 37%
Layer adhesion	4/100	241 / 243	Better than 1%
Thermal	30/100	105 / 226	Better than 54%

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.
- Validate impact-focused or shock-loaded designs against the measured Izod/Charpy results.

Better alternatives

MaterialID	Material	Manufacturer	Overall	Tensile	Impact	Izod	Charpy
MAT0195	Siraya Tech Fiberheart Black PET CF Black	Siraya Tech	50/100	35/100	—		
MAT0166	BambuLab Basic PET CF Black	BambuLab	45/100	25/100	—		
MAT0251	Bedrock 3D Standard Black PET CF Black	Bedrock 3D	43/100	24/100	—		

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	Izod	Charpy
MAT0195	Siraya Tech Fiberheart Black PET CF Black	Siraya Tech	50/100	35/100	—	n/a	n/a
MAT0166	BambuLab Basic PET CF Black	BambuLab	45/100	25/100	—	n/a	n/a
MAT0251	Bedrock 3D Standard Black PET CF Black	Bedrock 3D	43/100	24/100	—	n/a	n/a

MaterialID	Material	Manufacturer	Overall	Tensile	Impact	Izod	Charpy
MAT0206	Siraya Tech Fiberheart Brown PET GF Brown	Siraya Tech	42/100	32/100	—	n/a	n/a

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](#)

Stable public path: reports/materials/MAT0252/ · Canonical HTML: index.html · PDF printed from this HTML.

Izod and Charpy Impact Strength

Izod Impact Strength · 2026-09-29
Instrument readings in kJ/m²
Mean 1.648 kJ/m²; Std. Dev 0.132 kJ/m²; CV 7.992%; Samples 10; Confidence 10
No break 0; invalid 0; excluded 0.
Comparative measurements; standard conformity unverified.

Charpy Impact Strength · 2026-09-29
Instrument readings in kJ/m²
Mean 0.841 kJ/m²; Std. Dev 0.28 kJ/m²; CV 33.34%; Samples 10; Confidence 10
No break 0; invalid 0; excluded 0.
Comparative measurements; standard conformity unverified.