

# Bedrock 3D Standard Natural PA6 Natural

Material Engineering Report  
MaterialID MAT0247

3DPiceland Engineering Platform  
3DPiceland Labs

Generated with 3DPiceland Engineering Platform v70.0.4 DIRECT-  
IMPACT-METHODOLOGY - Izod and Charpy Methodology  
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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.

## 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

**\$72.96 USD/kg**

## Material identity

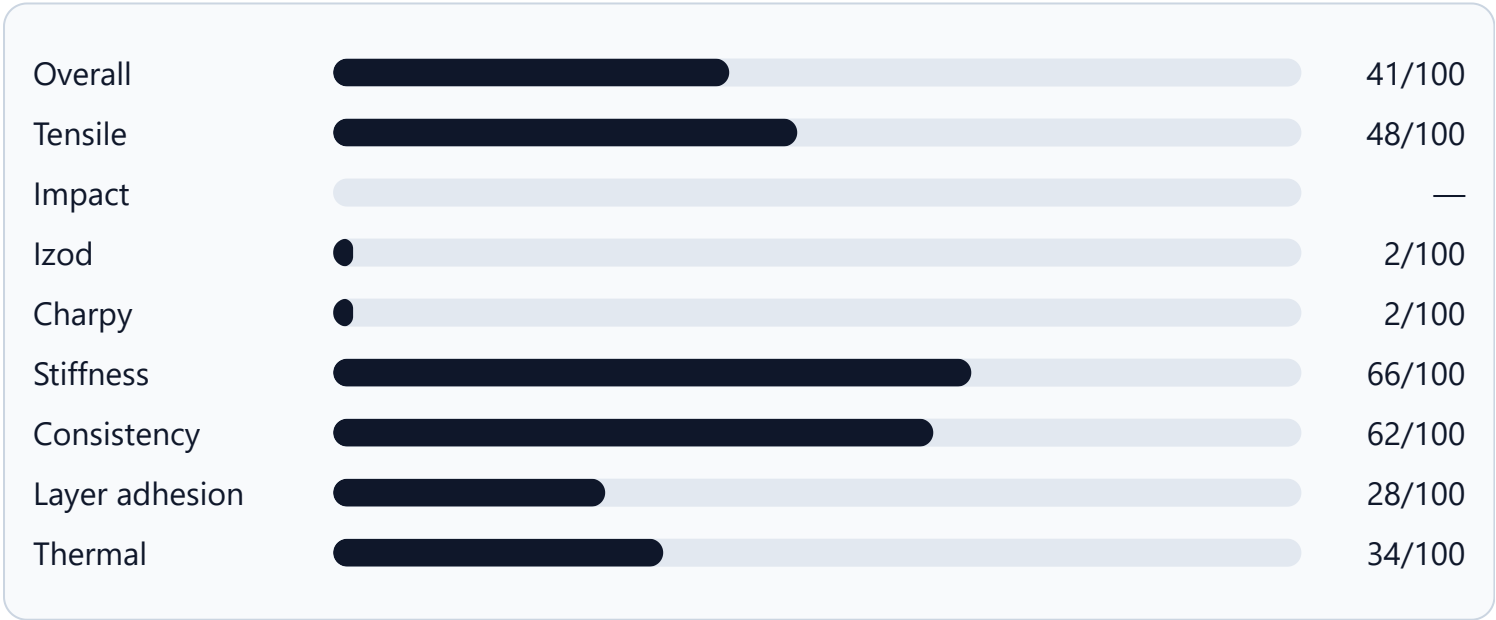
|                  |                                         |
|------------------|-----------------------------------------|
| MaterialID       | MAT0247                                 |
| Material         | Bedrock 3D Standard Natural PA6 Natural |
| Manufacturer     | Bedrock 3D                              |
| Product line     | Standard                                |
| Base material    | PA6                                     |
| Category         | Engineering                             |
| Variant / finish | —                                       |
| Reinforcement    | —                                       |

|       |         |
|-------|---------|
| Color | Natural |
|-------|---------|

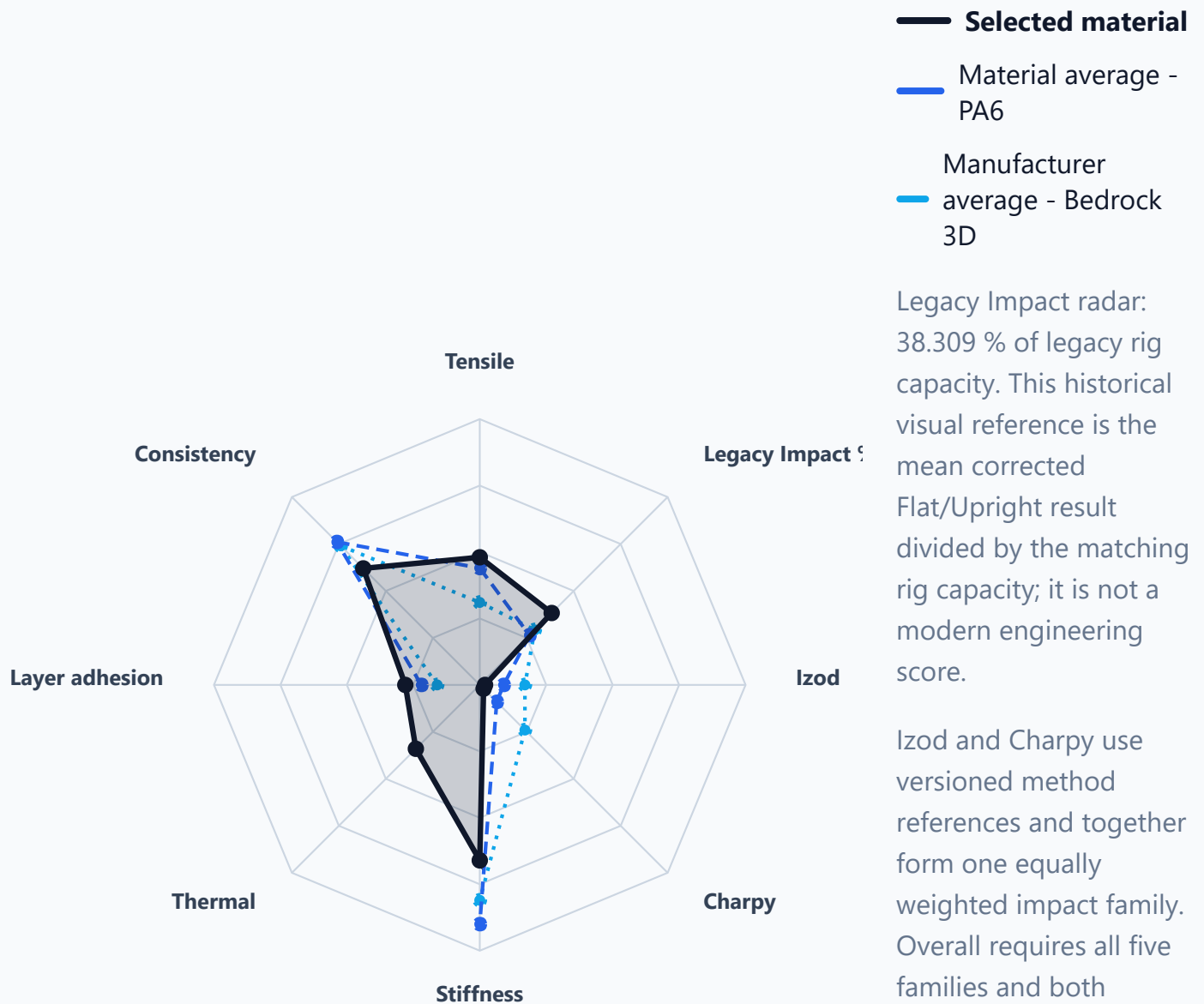
## Governed engineering profile

|                     |           |
|---------------------|-----------|
| Overall             | 41/100    |
| Tensile             | 48/100    |
| Impact              | —         |
| Izod                | 2/100     |
| Charpy              | 2/100     |
| Stiffness           | 66/100    |
| Consistency         | 62/100    |
| Layer adhesion      | 28/100    |
| Thermal             | 34/100    |
| Best available axis | stiffness |

## Engineering score profile



## Engineering radar



Legacy Impact radar: 38.309 % 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

**68 °C** · score 34/100 · 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        | 41/100            | —                | —                    |
| Tensile        | 48/100            | 44/100           | 31/100               |
| Impact         | —                 | —                | —                    |
| Izod           | 2/100             | 9/100            | 17/100               |
| Charpy         | 2/100             | 9/100            | 24/100               |
| Stiffness      | 66/100            | 90/100           | 81/100               |
| Consistency    | 62/100            | 76/100           | 74/100               |
| Layer adhesion | 28/100            | 22/100           | 16/100               |
| Thermal        | 34/100            | —                | —                    |

## 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      | 16.95 MPa                | 11.78 MPa               | 69.5% | 10      | 10/10      |
| Tensile flat         | 60.293 MPa               | 2.768 MPa               | 4.6%  | 10      | 10/10      |
| Impact upright       | 11.49 kJ/m <sup>2</sup>  | 2.286 kJ/m <sup>2</sup> | 19.9% | 10      | 10/10      |
| Impact flat          | 32.162 kJ/m <sup>2</sup> | 7.436 kJ/m <sup>2</sup> | 23.1% | 10      | 10/10      |
| Izod                 | 1.965 kJ/m <sup>2</sup>  | 0.697 kJ/m <sup>2</sup> | 35.5% | 9       | 9/10       |
| Charpy               | 1.667 kJ/m <sup>2</sup>  | 0.676 kJ/m <sup>2</sup> | 40.6% | 10      | 10/10      |
| Stiffness modulus    | 1984.002 MPa             | —                       | —     | —       | —          |
| Stiffness deflection | 2.735 mm                 | —                       | —     | —       | —          |

## Measurement provenance

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

| Module    | Measured date |
|-----------|---------------|
| Tensile   | 2026-09-06    |
| 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 Natural PA6 Natural 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 Natural PA6 Natural 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 39% 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 39%**  
50 / 80

## Strengths

- Layer adhesion: 28/100. Z-axis bonding is better than the material-family context.

## Limitations

- Izod/Charpy impact family: 2/100. Validate impact or shock-loaded components against their application requirements.
- Stiffness: 66/100. Expect less shape stability than the stronger materials in the same family.
- Consistency: 62/100. Repeatability may not be the best reason to choose this filament.
- Layer adhesion: 28/100. Z-axis performance should be treated with caution.

## Engineering trade-offs

- 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 impact components

## Metric rankings and percentiles

| Metric      | Score  | Rank      | Percentile       |
|-------------|--------|-----------|------------------|
| Overall     | 41/100 | 50 / 80   | Better than 39%  |
| Tensile     | 48/100 | 2 / 243   | Better than 100% |
| Impact      | —      | —         | —                |
| Izod        | 2/100  | 80 / 83   | Better than 5%   |
| Charpy      | 2/100  | 78 / 82   | Better than 6%   |
| Stiffness   | 66/100 | 175 / 240 | Better than 28%  |
| Consistency | 62/100 | 214 / 243 | Better than 12%  |

| Metric         | Score  | Rank      | Percentile      |
|----------------|--------|-----------|-----------------|
| Layer adhesion | 28/100 | 101 / 243 | Better than 59% |
| Thermal        | 34/100 | 73 / 226  | Better than 68% |

## Decision guidance

- Use this material mainly for low-load, visual or experimental parts.
- Review the listed alternatives if the application needs stronger overall performance.
- Validate impact-focused or shock-loaded designs against the measured Izod/Charpy results.

## Better alternatives

| MaterialID | Material                                        | Manufacturer | Overall | Tensile | Impact | Izod | Charpy |
|------------|-------------------------------------------------|--------------|---------|---------|--------|------|--------|
| MAT0023    | Extrudr DuraPro PA6 CF Black                    | Extrudr      | 52/100  | 52/100  | —      |      |        |
| MAT0025    | Extrudr DuraPro PA6 GF Black                    | Extrudr      | 52/100  | 47/100  | —      |      |        |
| MAT0248    | Bedrock 3D Standard Black PA6 HighTemp CF Black | Bedrock 3D   | 51/100  | 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 | 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    |
| MAT0248    | Bedrock 3D Standard Black PA6 HighTemp CF Black | Bedrock 3D   | 51/100  | 48/100  | —      | n/a  | n/a    |

| MaterialID | Material                           | Manufacturer | Overall | Tensile | Impact | Izod | Charpy |
|------------|------------------------------------|--------------|---------|---------|--------|------|--------|
| 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    |
| MAT0027    | Yasin Standard Clear PA6 Clear     | Yasin        | —       | 42/100  | —      | 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](#)

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## Izod and Charpy Impact Strength

Charpy Impact Strength · 2026-09-29  
Instrument readings in kJ/m<sup>2</sup>  
Mean 1.667 kJ/m<sup>2</sup>; Std. Dev 0.676 kJ/m<sup>2</sup>; CV 40.568%; 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  $\text{kJ/m}^2$

Mean  $1.965 \text{ kJ/m}^2$ ; Std. Dev  $0.697 \text{ kJ/m}^2$ ; CV 35.483%; Samples 9; Confidence 9

No break 0; invalid 0; excluded 0.

Comparative measurements; standard conformity unverified.