Public engineering report

Prusa3D Prusament PA11 CF Black

Material Engineering Report
MaterialID MAT0018

3DPIceland Engineering Platform
3DPIceland Labs
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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	ENGINEERING AXES	PUBLIC MSRP
Complete	**6/6**	**$204.00 USD/kg**

Material identity

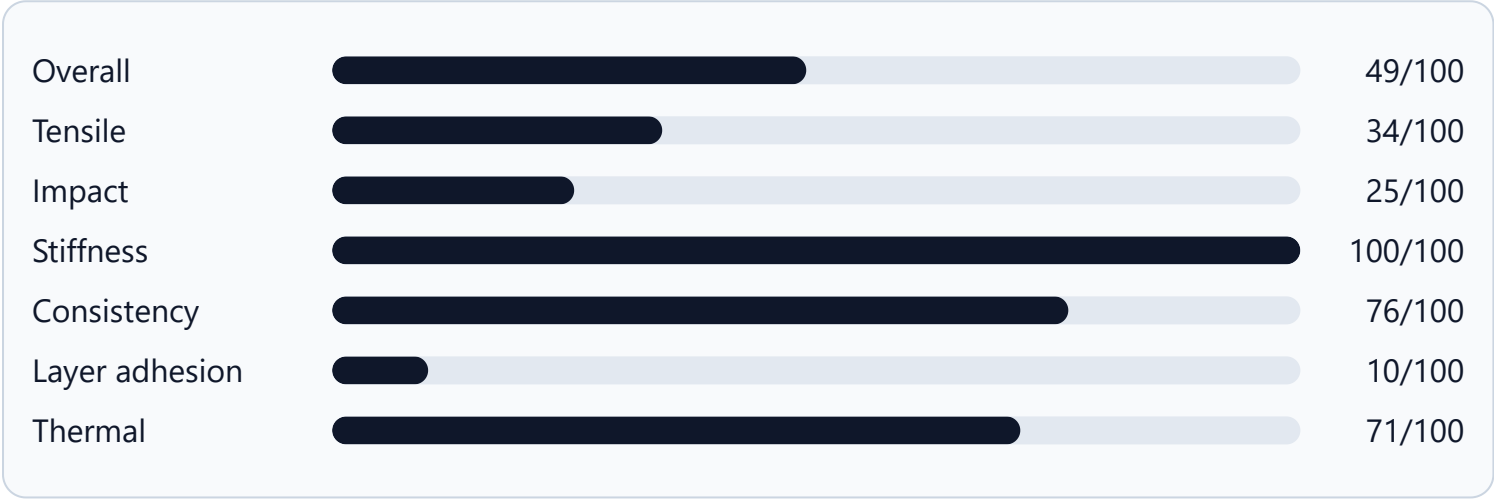
MaterialID	MAT0018
Material	Prusa3D Prusament PA11 CF Black
Manufacturer	Prusa3D
Product line	Prusament
Base material	PA11
Category	Engineering
Variant / finish	—
Reinforcement	CF
Color	Black

Governed engineering profile

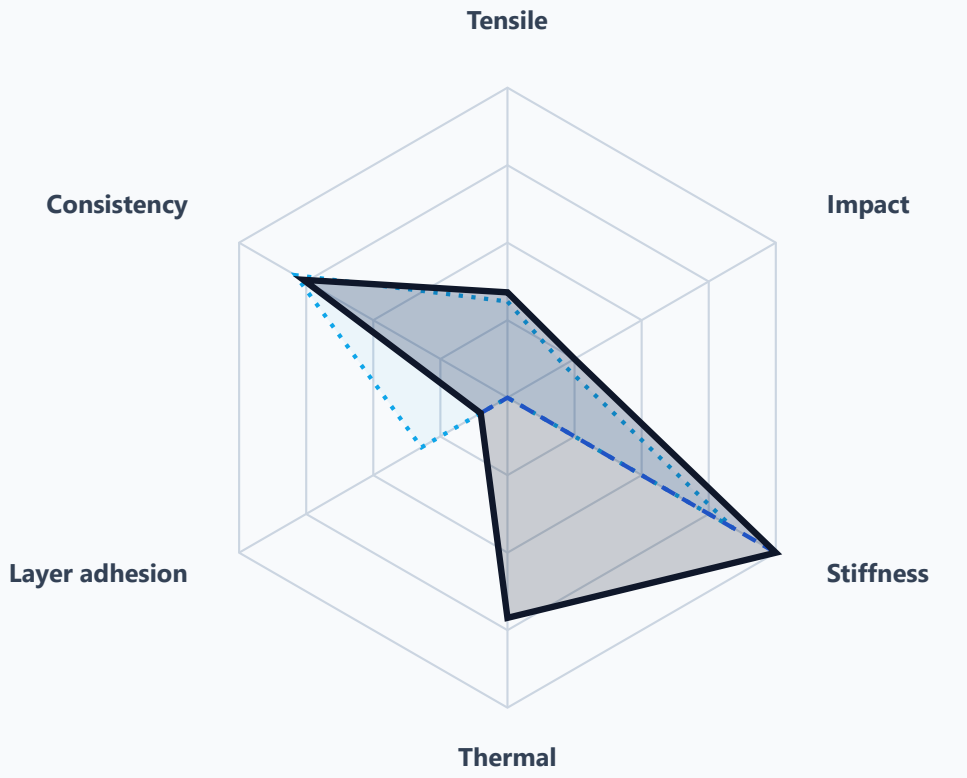
Overall	49/100
Tensile	34/100

Impact	25/100
Stiffness	100/100
Consistency	76/100
Layer adhesion	10/100
Thermal	71/100
Best available axis	stiffness

Engineering score profile



Engineering radar



All axes use existing governed 0–100 engineering scores. Missing axes are shown at zero and remain listed as n/a elsewhere in the report.

Fixture thermal result

142 °C · score 71/100 · 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	49/100	49/100	49/100
Tensile	34/100	34/100	31/100
Impact	25/100	25/100	21/100
Stiffness	100/100	100/100	84/100
Consistency	76/100	76/100	79/100
Layer adhesion	10/100	10/100	32/100
Thermal	71/100	—	—

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	4.7 MPa	1.982 MPa	42.2%	9	9/10
Tensile flat	49.111 MPa	5.071 MPa	10.3%	10	10/10
Impact upright	74.527 kJ/m²	10.886 kJ/m²	14.6%	10	10/10
Impact flat	433.368 kJ/m²	120.006 kJ/m²	27.7%	10	10/10
Stiffness modulus	3968.005 MPa	—	—	—	—
Stiffness deflection	1.368 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: Prusa3D Prusament PA11 CF Black has a specialized or limited engineering profile. It is above its material-family average by 0 points and below its manufacturer average by 0,5 points. Its strongest measured axis is Stiffness, while the weakest axis is Layer Adhesion.

Data-driven review: Prusa3D Prusament PA11 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 59% overall, is roughly aligned with the material-family average, and is roughly aligned with the manufacturer average. 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 59%
96 / 234

Strengths

- Consistency: 76/100. Repeatability is one of the stronger signals in this material profile.
- Stiffness: 100/100. Stiffness is a relative advantage in this comparison group.

Limitations

- Tensile: 34/100. Avoid using this as the primary choice for tensile-loaded parts.
- Impact: 25/100. Avoid high impact or shock-loaded components without additional validation.
- Layer adhesion: 10/100. 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	49/100	96 / 234	Better than 59%
Tensile	34/100	62 / 226	Better than 73%
Impact	25/100	88 / 226	Better than 62%
Stiffness	100/100	1 / 223	Better than 100%
Consistency	76/100	154 / 231	Better than 34%
Layer adhesion	10/100	212 / 226	Better than 7%
Thermal	71/100	5 / 209	Better than 98%

Decision guidance

- Use this material mainly for low-load, visual or experimental parts.
- 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
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
No same-material peers with governed score context are available.					

Public links

Manufacturer website Video review 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**
