Public engineering report

Extrudr DuraPro PA6 CF Black

Material Engineering Report
MaterialID MAT0023

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**	**$39.63 USD/kg**

Material identity

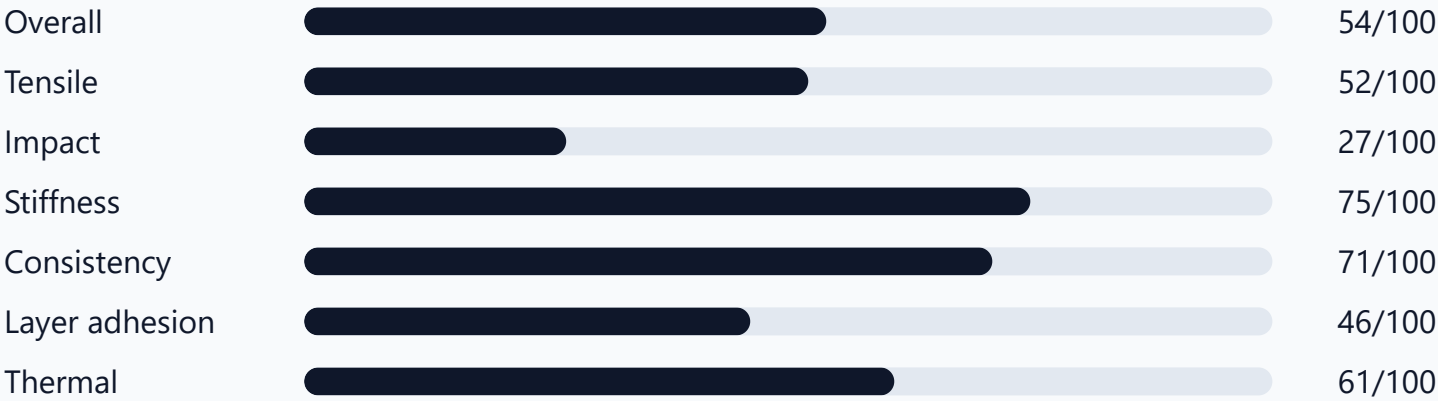
MaterialID	MAT0023
Material	Extrudr DuraPro PA6 CF Black
Manufacturer	Extrudr
Product line	DuraPro
Base material	PA6
Category	Engineering
Variant / finish	—
Reinforcement	CF
Color	Black

Governed engineering profile

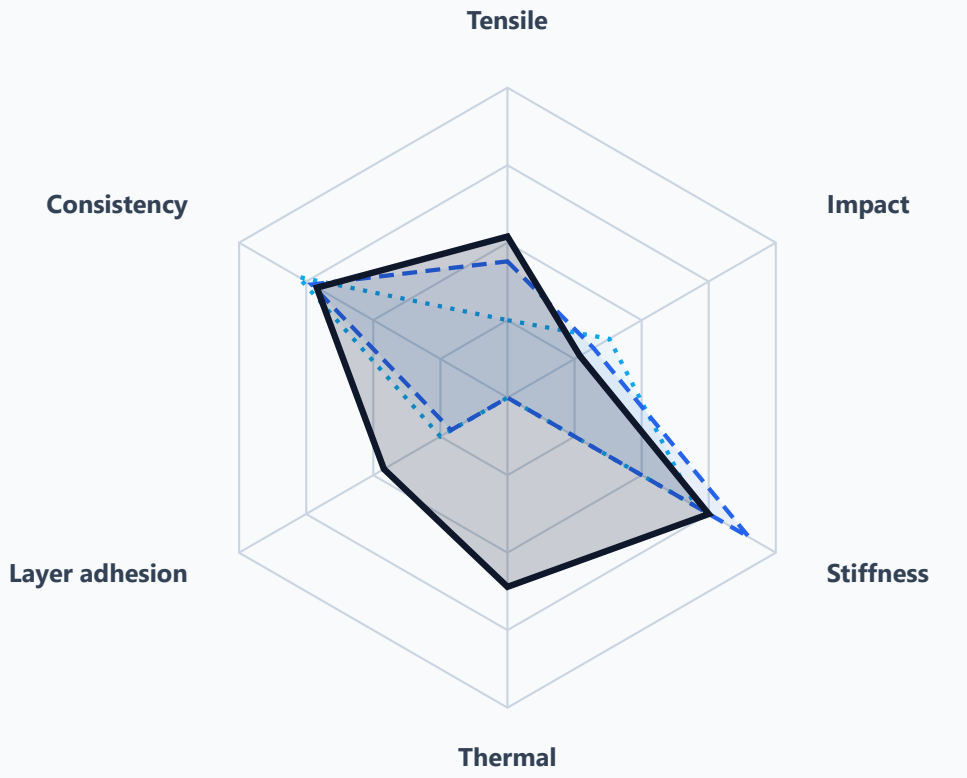
Overall	54/100
Tensile	52/100

Impact	27/100
Stiffness	75/100
Consistency	71/100
Layer adhesion	46/100
Thermal	61/100
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

122 °C · score 61/100 · 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	54/100	53/100	47/100
Tensile	52/100	44/100	25/100
Impact	27/100	32/100	38/100
Stiffness	75/100	90/100	70/100
Consistency	71/100	73/100	78/100
Layer adhesion	46/100	21/100	25/100
Thermal	61/100	—	—

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	25.978 MPa	9.326 MPa	35.9%	10	10/10
Tensile flat	56.986 MPa	4.927 MPa	8.6%	10	10/10
Impact upright	123.077 kJ/m²	68.262 kJ/m²	55.5%	10	10/10
Impact flat	416.869 kJ/m²	71.819 kJ/m²	17.2%	10	10/10
Stiffness modulus	2250.149 MPa	—	—	—	—
Stiffness deflection	2.412 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: Extrudr DuraPro PA6 CF Black has a specialized or limited engineering profile. It is above its material-family average by 1,3 points and above its manufacturer average by 6,8 points. Its strongest measured axis is Stiffness, while the weakest axis is Impact.

Data-driven review: Extrudr DuraPro PA6 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 83% overall, is roughly aligned with the material-family average, and is above the manufacturer average by 6,8 points. Its strongest engineering signal is Stiffness, while Impact is the main limitation to consider before using it for demanding applications.

BEST FEATURE
Stiffness

MAIN LIMITATION
Impact

DATASET POSITION
Better than 83%
41 / 234

Strengths

- Layer adhesion: 46/100. Z-axis bonding is better than the material-family context.
- Consistency: 71/100. Repeatability is one of the stronger signals in this material profile.
- Tensile: 52/100. Tensile behavior is competitive against the material-family context.
- Stiffness: 75/100. Stiffness is a relative advantage in this comparison group.

Limitations

- Impact: 27/100. Avoid high impact or shock-loaded components without additional validation.
- Stiffness: 75/100. Expect less shape stability than the stronger materials in the same family.

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	54/100	41 / 234	Better than 83%
Tensile	52/100	1 / 226	Better than 100%
Impact	27/100	79 / 226	Better than 65%
Stiffness	75/100	126 / 223	Better than 44%
Consistency	71/100	198 / 231	Better than 15%
Layer adhesion	46/100	32 / 226	Better than 86%
Thermal	61/100	8 / 209	Better than 97%

Decision guidance

- Use this material for moderate requirements after checking the weakest axis.
- Review the listed alternatives if the application needs stronger overall performance.
- Avoid selecting it for impact-focused testing or shock-loaded designs.

Better alternatives

MaterialID	Material	Manufacturer	Overall	Tensile	Impact
MAT0210	Eryone Standard Black PA6 GF Black	Eryone	72/100	—	40/100
MAT0025	Extrudr DuraPro PA6 GF Black	Extrudr	59/100	47/100	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
MAT0210	Eryone Standard Black PA6 GF Black	Eryone	72/100	—	40/100
MAT0025	Extrudr DuraPro PA6 GF Black	Extrudr	59/100	47/100	48/100
MAT0026	Yasin Standard Black PA6 GF Black	Yasin	51/100	44/100	21/100
MAT0024	Yasin Standard Black PA6 CF Black	Yasin	51/100	41/100	24/100

MaterialID	Material	Manufacturer	Overall	Tensile	Impact
MAT0027	Yasin Standard Clear PA6 Clear	Yasin	48/100	42/100	30/100
MAT0212	Eryone Standard Black PA6 CF Black	Eryone	34/100	39/100	—

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