

Fillamentum FX256 PA12 Clear

Material Engineering Report
MaterialID MAT0022

3DPiceland Engineering Platform
3DPiceland Labs
Generated with 3DPiceland Engineering Platform v60.0.6 WORKFLOW-
RELIABILITY - Bug Fixes and Workflow Reliability
Generated 2026-08-25 19:02:26

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

Complete

ENGINEERING AXES

6/6

PUBLIC MSRP

\$46.74 USD/kg

Material identity

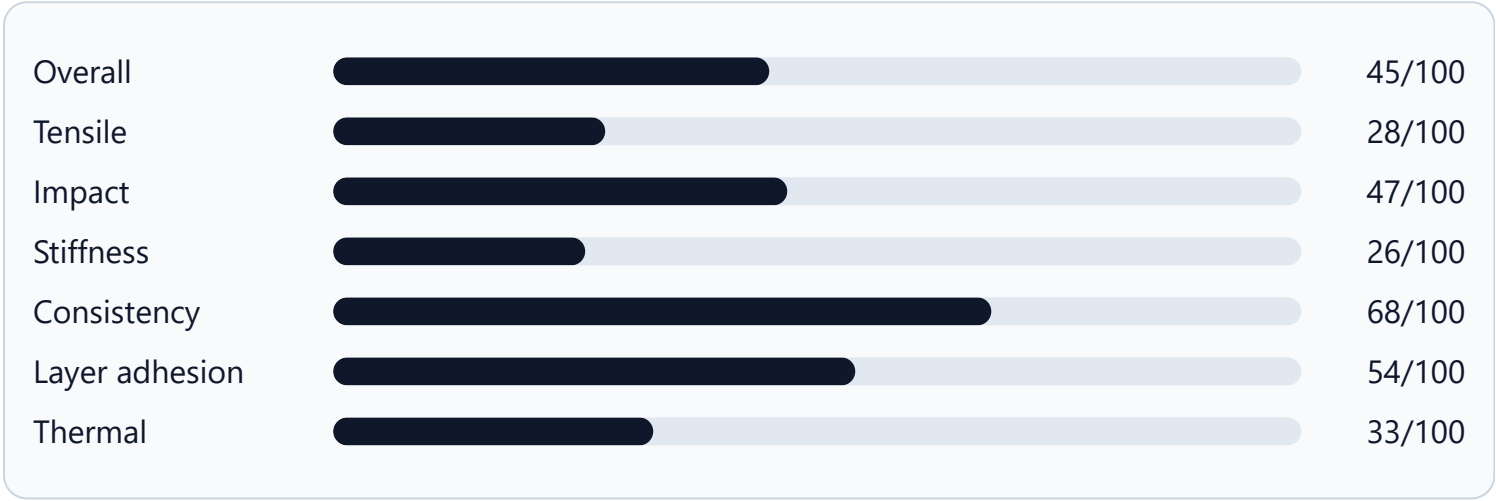
MaterialID	MAT0022
Material	Fillamentum FX256 PA12 Clear
Manufacturer	Fillamentum
Product line	FX256
Base material	PA12
Category	Engineering
Variant / finish	—
Reinforcement	—
Color	Clear

Governed engineering profile

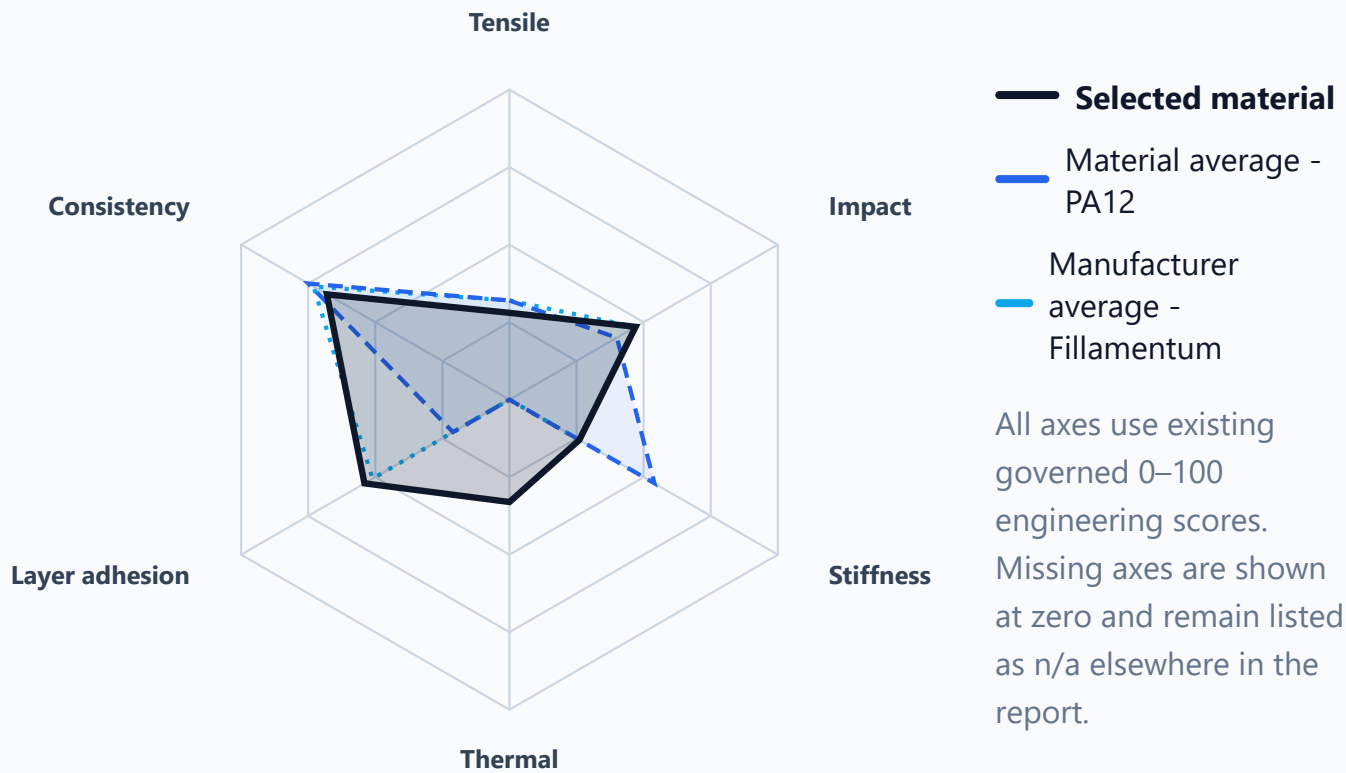
Overall	45/100
Tensile	28/100

Impact	47/100
Stiffness	26/100
Consistency	68/100
Layer adhesion	54/100
Thermal	33/100
Best available axis	consistency

Engineering score profile



Engineering radar



Fixture thermal result

65 °C · score 33/100 · 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	45/100	45/100	49/100
Tensile	28/100	32/100	32/100
Impact	47/100	40/100	47/100
Stiffness	26/100	54/100	26/100
Consistency	68/100	75/100	73/100
Layer adhesion	54/100	21/100	51/100
Thermal	33/100	—	—

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	15.704 MPa	4.843 MPa	30.8%	10	10/10
Tensile flat	28.901 MPa	2.545 MPa	8.8%	10	10/10
Impact upright	166.508 kJ/m ²	93.981 kJ/m ²	56.4%	10	10/10
Impact flat	773.533 kJ/m ²	230.259 kJ/m ²	29.8%	8	8/10
Stiffness modulus	768.801 MPa	—	—	—	—
Stiffness deflection	7.058 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: Fillamentum FX256 PA12 Clear has a specialized or limited engineering profile. It is above its material-family average by 0 points and below its manufacturer average by 4,6 points. Its strongest measured axis is Consistency, while the weakest axis is Stiffness.

Data-driven review: Fillamentum FX256 PA12 Clear 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 36% overall, is roughly aligned with the material-family average, and is below the manufacturer average by 4,6 points. Its strongest engineering signal is Consistency, while Stiffness is the main limitation to consider before using it for demanding applications.

BEST FEATURE

Consistency

MAIN LIMITATION

Stiffness

DATASET POSITION

Better than 36%
150 / 234

Strengths

- Layer adhesion: 54/100. Z-axis bonding is better than the material-family context.
- Impact: 47/100. Impact behavior is competitive against the material-family context.

Limitations

- Tensile: 28/100. Avoid using this as the primary choice for tensile-loaded parts.
- Stiffness: 26/100. Expect less shape stability than the stronger materials in the same family.

Engineering trade-offs

- Good repeatability does not compensate for low tensile capability in load-bearing designs.
- Layer bonding may be acceptable, but stiffness is still a limiting design factor.
- 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 tensile load applications

Metric rankings and percentiles

Metric	Score	Rank	Percentile
Overall	45/100	150 / 234	Better than 36%
Tensile	28/100	120 / 226	Better than 47%

Metric	Score	Rank	Percentile
Impact	47/100	35 / 226	Better than 85%
Stiffness	26/100	223 / 223	Better than 0%
Consistency	68/100	209 / 231	Better than 10%
Layer adhesion	54/100	14 / 226	Better than 94%
Thermal	33/100	73 / 209	Better than 66%

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.

Better alternatives

MaterialID	Material	Manufacturer	Overall	Tensile	Impact
MAT0214	Eryone Standard Black PA12 CF Black	Eryone	53/100	43/100	46/100
MAT0167	BambuLab Basic PA12 PAHT CF Black	BambuLab	51/100	39/100	41/100
MAT0020	Extrudr DuraPro PA12 Black	Extrudr	50/100	34/100	50/100

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
MAT0214	Eryone Standard Black PA12 CF Black	Eryone	53/100	43/100	46/100
MAT0167	BambuLab Basic PA12 PAHT CF Black	BambuLab	51/100	39/100	41/100
MAT0020	Extrudr DuraPro PA12 Black	Extrudr	50/100	34/100	50/100
MAT0209	Eryone Standard Black PA12 GF Black	Eryone	49/100	33/100	67/100
MAT0019	MatterHackers NylonX PA12 CF Black	MatterHackers	42/100	32/100	22/100

MaterialID	Material	Manufacturer	Overall	Tensile	Impact
MAT0239	Yasin Standard Black PA12 CF Black	Yasin	41/100	33/100	25/100
MAT0196	Extrudr DuraPro Black PA12 CF Black	Extrudr	40/100	28/100	44/100
MAT0021	Yasin Standard Black PA12 Black	Yasin	31/100	22/100	13/100

Public links

[Manufacturer website](#) [Video review](#) [Download PDF](#)

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](#)