

Polyalchemistry Elexir Fire PLA Silk Red

Material Engineering Report
MaterialID MAT0092

3DPiceland Engineering Platform
3DPiceland Labs
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WORKFLOW-RELIABILITY - Bug Fixes and Workflow Reliability
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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

Complete

ENGINEERING AXES

5/6

PUBLIC MSRP

\$25.00 USD/kg

Material identity

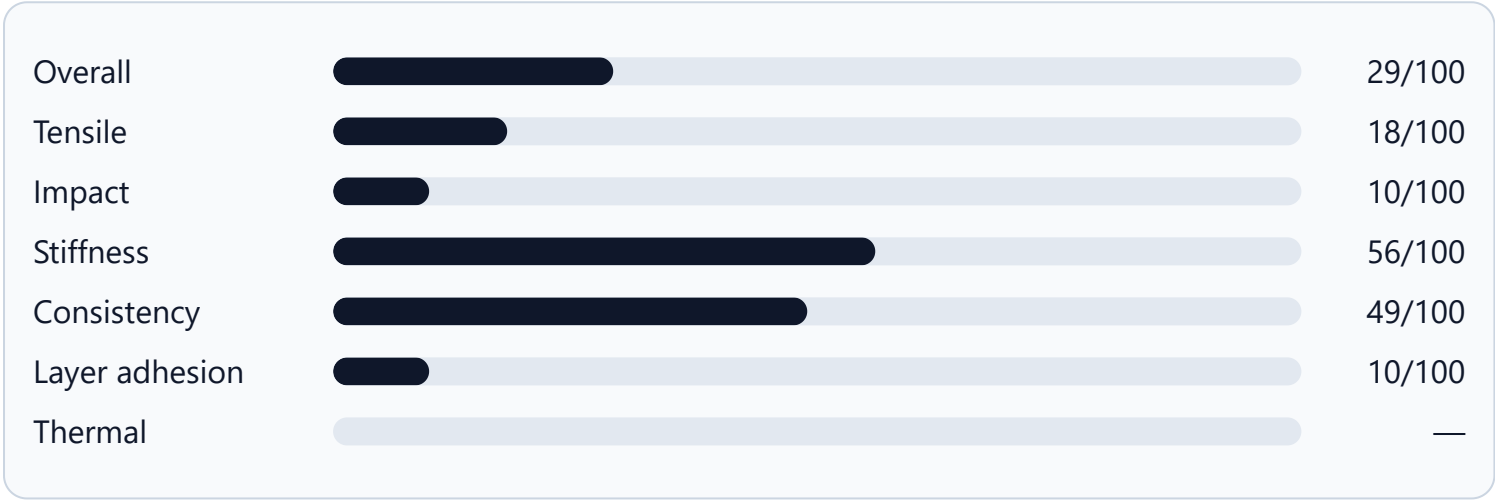
MaterialID	MAT0092
Material	Poyalchemistry Elexir Fire PLA Silk Red
Manufacturer	Poyalchemistry
Product line	Elexir
Base material	PLA
Category	Standard
Variant / finish	Silk
Reinforcement	—
Color	Red

Governed engineering profile

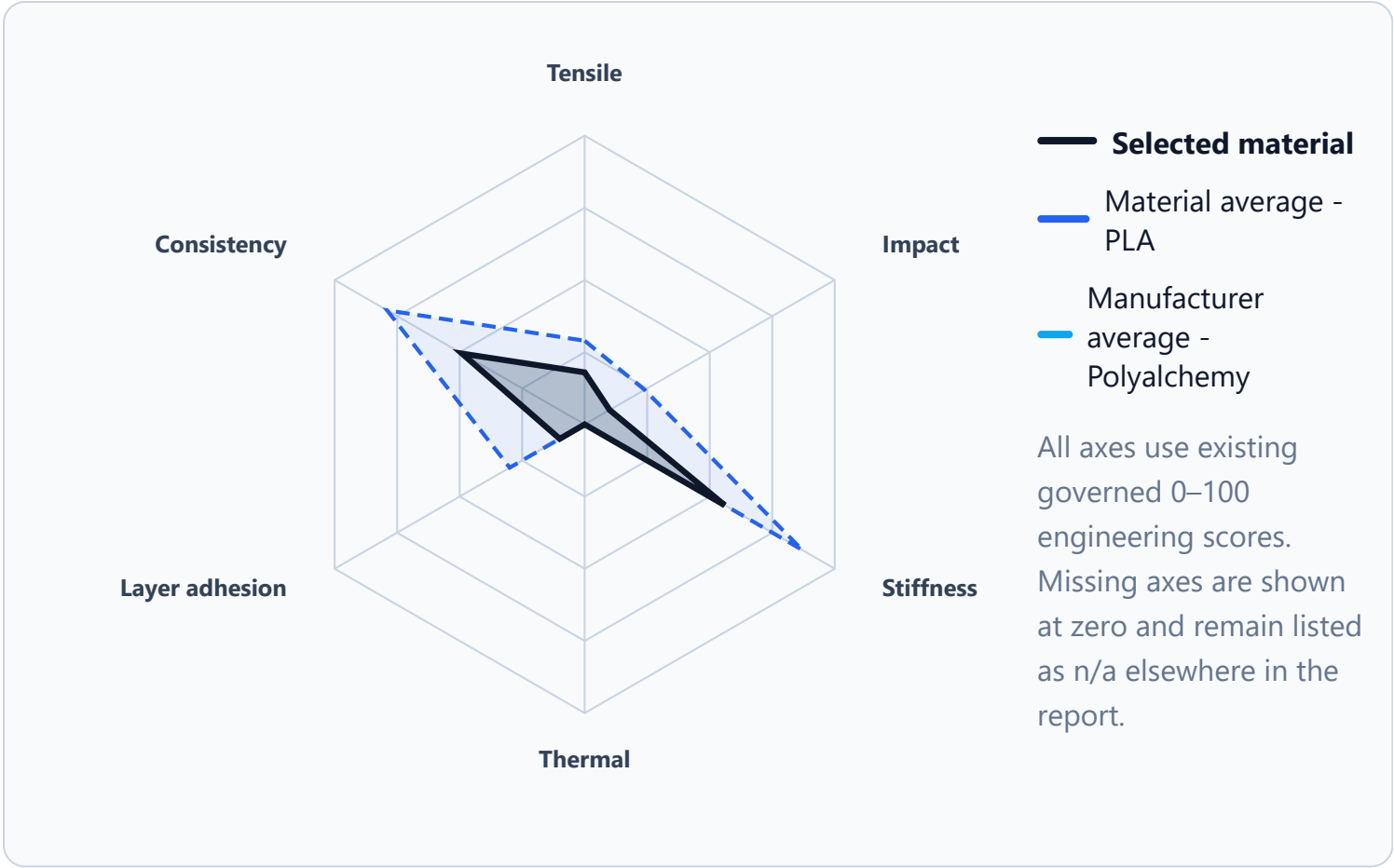
Overall	29/100
Tensile	18/100

Impact	10/100
Stiffness	56/100
Consistency	49/100
Layer adhesion	10/100
Thermal	—
Best available axis	stiffness

Engineering score profile



Engineering radar



Fixture thermal result

— · score — · method —
—

Material and manufacturer context

Metric	Selected material	Material average	Manufacturer average
Overall	29/100	50/100	29/100
Tensile	18/100	29/100	18/100
Impact	10/100	24/100	10/100
Stiffness	56/100	87/100	56/100
Consistency	49/100	79/100	49/100
Layer adhesion	10/100	30/100	10/100
Thermal	—	—	—

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	2.492 MPa	0.831 MPa	33.4%	5	5/10
Tensile flat	25.548 MPa	1.147 MPa	4.5%	10	10/10
Impact upright	20.805 kJ/m ²	13.242 kJ/m ²	63.6%	10	10/10
Impact flat	179.058 kJ/m ²	168.011 kJ/m ²	93.8%	10	10/10
Stiffness modulus	1692.773 MPa	—	—	—	—
Stiffness deflection	3.206 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: Polyalchemistry Elixir Fire PLA Silk Red has a low engineering profile. It is below its material-family average by 21,5 points and above its manufacturer average by 0 points. Its strongest measured axis is Stiffness, while the weakest axis is Layer Adhesion.

Data-driven review: Polyalchemistry Elixir Fire PLA Silk Red 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 0% overall, is below the material-family average by 21,5 points, 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 0%

234 / 234

Strengths

- Best available signal: Stiffness at 56/100.

Limitations

- Tensile: 18/100. Avoid using this as the primary choice for tensile-loaded parts.
- Impact: 10/100. Avoid high impact or shock-loaded components without additional validation.
- Stiffness: 56/100. Expect less shape stability than the stronger materials in the same family.
- Consistency: 49/100. Repeatability may not be the best reason to choose this filament.

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 tensile load applications
- Avoid high impact components

Metric rankings and percentiles

Metric	Score	Rank	Percentile
Overall	29/100	234 / 234	Better than 0%
Tensile	18/100	201 / 226	Better than 12%
Impact	10/100	214 / 226	Better than 6%
Stiffness	56/100	195 / 223	Better than 13%
Consistency	49/100	231 / 231	Better than 0%

Metric	Score	Rank	Percentile
Layer adhesion	10/100	210 / 226	Better than 8%
Thermal	—	—	—

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.
- Avoid selecting it for impact-focused testing or shock-loaded designs.

Better alternatives

MaterialID	Material	Manufacturer	Overall	Tensile	Impact
MAT0069	ProtoPasta HTPLA Blood of My Enemies PLA Red	ProtoPasta	100/100	—	—
MAT0079	Polymaker PolyLight PLA Pro Black	Polymaker	65/100	35/100	52/100
MAT0109	Polymaker PolyMax PLA Black	Polymaker	64/100	32/100	62/100

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
MAT0069	ProtoPasta HTPLA Blood of My Enemies PLA Red	ProtoPasta	100/100	—	—
MAT0079	Polymaker PolyLight PLA Pro Black	Polymaker	65/100	35/100	52/100
MAT0109	Polymaker PolyMax PLA Black	Polymaker	64/100	32/100	62/100
MAT0080	Polymaker PolySonic PLA Pro Blue	Polymaker	64/100	30/100	58/100
MAT0076	BambuLab Tough+ PLA Tough+ Black	BambuLab	63/100	26/100	59/100
MAT0108	Polymaker PolyLight PLA Black	Polymaker	61/100	33/100	14/100

MaterialID	Material	Manufacturer	Overall	Tensile	Impact
MAT0074	Winkle Matte PLA Matte Red	Winkle	60/100	34/100	—
MAT0122	Add:North Enhanced PLA Clear	Add:North	59/100	40/100	10/100

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](#)