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PLA SPARKLE

Coarse reflective flakes in a glossy PLA for an overt glitter finish — tougher than most decorative grades, and the one where the datasheet and the marketing disagree about what is inside.

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Coarse reflective flakes in a glossy PLA for an overt glitter finish — tougher than most decorative grades, and the one where the datasheet and the marketing disagree about what is inside.

1 · In plain words

2 · Living with it

3 · How it is printed

4 · The numbers

5 · Compared with other brands

Where Galaxy hides tiny glass spheres beneath the surface, PLA Sparkle carries larger reflective flakes that catch the light as distinct glints — the difference between a night sky and a Christmas bauble. It is the loudest of the effect PLAs and the right choice when a print should visibly glitter. Its datasheet is one of the more interesting in the range: Sparkle has the highest flat-direction impact toughness of all the effect filaments and better layer toughness than most, so it is not as fragile as its decorative role suggests. The manufacturer's product page says the flakes are metal; its datasheet lists the composition as plain PLA and names no filler. A hardened nozzle and a 0.4 mm minimum are advised either way.

FEELS LIKE

Glossy with a fine grain

The flakes are just below the surface; smooth to the touch

THE EFFECT

Visible glitter

Discrete bright flecks; strongest on dark colours in direct light

STRENGTH

Tougher than it looks

Highest flat impact of the effect PLAs; Z impact 10.3 kJ/m²

NOZZLE

Hardened steel advised

0.2 mm not recommended — clogging

COLOUR RANGE

6 colours

Classic Gold, Slate Gray, Crimson Red, Royal Purple, Alpine Green, Onyx Black

WEIGHT

1.26 g/cm³

Densest of the effect filaments; slightly fewer metres per kilogram

Where it sits in the range

Each bar shows this material against the strongest value found anywhere in this series of guides, PLA and PETG together (bar full = best in the series). The dark tick marks plain PLA Basic, the material most people know, so you can see at a glance where this one gives up or gains something. Values come from the manufacturer's own datasheets, measured on test bars printed flat (X-Y).

Strength (tensile)		33 MPa
Stiffness		1940 MPa
Toughness (impact)		66.5 kJ/m ²
Layer bonding		10.3 kJ/m ²
Heat tolerance		55 °C

■ PLA Sparkle | ■ PLA Basic reference

Good for

- Christmas and festive ornaments, baubles and tree toppers

Not the right choice for

- Structural or load-bearing parts
- 0.2 mm nozzles

- Costume jewellery, brooches, hair accessories and cosplay gems
- Trophies, medals and celebration pieces
- Vases, bowls and decorative boxes with a jewelled look
- Gifts and market items that need to stand out from a distance

- Prints that need a smooth, uniform colour — the flakes make the surface visually busy
- Food contact, heat, sun: the general PLA limits
- Sanding — it exposes flakes and dulls the effect

Flake, not sphere — and the open question of what the flake is

A flat reflective flake acts as a tiny mirror: when its face is angled toward the viewer it flashes, otherwise it is invisible, which gives Sparkle its on-off glint as the part or the viewer moves. Flakes lie roughly parallel to the extruded line, so the effect is strongest on walls seen at a shallow angle. The manufacturer's marketing describes the flakes as metal particles; the technical datasheet gives the composition simply as PLA. The mechanical figures do not settle it, but they do show that whatever the flake is, it does not embrittle the matrix the way mineral fillers do: unnotched impact of 66.5 kJ/m² is two and a half times PLA Basic, and layer toughness of 10.3 kJ/m² is close to Basic's 13.8. Treat the flake as abrasive; the 0.2 mm exclusion is confirmed by the datasheet itself.

2 · Living with a PLA Sparkle print

Sparkle prints are ornaments with better-than-average resilience. Everyday limits are those of PLA.

Heat	Softens from about 55 °C. Do not hang ornaments near hot lights or on a tree with incandescent bulbs; LED is fine.
Sunlight	The gloss dulls with years of UV; the flakes themselves do not fade. Indoors preferred.
Water and damp	Insoluble; moderate moisture uptake (0.44 %).
Chemicals	As PLA. Isopropyl alcohol cleans safely.
Food	Not certified for food contact.
Handling	Better than most decorative PLAs — drops onto carpet are usually survived. Thin features still snap.
Load over time	Creeps like PLA; decorative use only.
End of life	General waste or 3D-print recycling.

Looks and feel

A glossy base colour dense with small bright glints, like glitter sealed under clear varnish. Classic Gold and Onyx Black are the most dramatic. Layer lines are visible but the glitter dominates. Flakes are more visible on walls than on top surfaces.

Care

- Dust with a soft cloth; isopropyl alcohol for fingerprints
- Keep away from heat and direct sun
- Do not sand; if a surface must be smoothed, seal it afterwards with clear gloss varnish to restore the glint
- Clear varnish or resin coating intensifies the effect
- Superglue and epoxy bond normally

What PLA actually is

PLA stands for polylactic acid. It is a polyester made by fermenting plant sugars — usually corn starch or sugarcane — into lactic acid and then linking those molecules into long chains. That plant origin is why PLA is often described as a bioplastic: the carbon in it was recently in a field, not in an oil well. It is the most widely used material in desktop 3D printing for a practical reason: it melts at a low temperature, barely shrinks as it cools, and therefore prints reliably on almost any machine without an enclosure.

Its two well-known limits follow from the same chemistry. PLA is a semi-crystalline polymer with a glass transition around 55–60 °C, so it starts to soften at temperatures a car dashboard or a sunny windowsill can reach. And although it is compostable in principle, that only happens in an industrial composting plant at around 60 °C with the right microbes; in a garden heap, in soil or in the sea it behaves like any other plastic for many years. Printed PLA should go into general waste or a dedicated 3D-print recycling stream, not the organic bin. Every variant in this series is a PLA base with something changed — a filler, a pigment system, an additive package or a foaming agent — and each guide explains what that change does to the material's behaviour.

3 · How it is printed

Sparkle prints on the standard PLA profile at up to 250 mm/s with the cooling fan at full. The datasheet itself warns against 0.2 mm nozzles; hardened steel is advised for regular use.

Manufacturer print window

Nozzle temperature	190–230 °C
Bed temperature	35–45 °C
Build plates	Cool Plate, High-Temperature Plate, Textured PEI; Engineering Plate not suitable
Bed adhesive	Glue stick or liquid glue
Chamber	25–45 °C, no enclosure
Print speed	Up to 250 mm/s
Part cooling fan	On, 100 %
Retraction	0.6–1.0 mm at 20–40 mm/s
Max overhang without support	About 55°
Max unsupported bridge	About 30 mm
Support material	Support for PLA

Hardware and compatibility

Nozzle sizes	0.4, 0.6 and 0.8 mm; 0.2 mm not recommended (clogging, per datasheet)
Nozzle material	Hardened steel recommended; stainless 0.4 acceptable for occasional use
Abrasive	Assumed yes; the manufacturer publishes no wear rate
Automatic material systems	Compatible with AMS; RFID-driven parameters

Spool identification	RFID tag
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Moisture, drying and storage

Standard PLA drying; Sparkle is not on the manufacturer's must-dry list, but a spool open for weeks benefits.

Forced-air oven or filament dryer	55 °C for 8 hours
Heated print bed method	65–75 °C for 12 hours, covered
Storage	Sealed with desiccant, below 20 % relative humidity
Annealing (optional)	50–60 °C for 6–12 hours; may warp

Tips that make a visible difference

- Dark colours and side lighting show the most glitter; photograph with a hard light source
- A 0.6 mm nozzle and 0.28 mm layers give wider walls that display more flake and reduce nozzle wear
- Keep extruder gears clean; filled filaments deposit fines on the gears over time
- Slightly slower outer walls (80–120 mm/s) give a smoother glossy base for the glitter to sit in

Known problems and their fixes

Mid-print clog with a 0.4 mm nozzle

Reported once in a forum thread and traced to filament ground into the extruder gears, not to the nozzle; several other users printed half a spool on 0.4 mm without trouble. Clean the gears, check for wear, and prefer hardened nozzles.

Clog on 0.2 mm

Not supported.

Effect looks weak

Light colour or diffuse lighting. Choose Onyx Black or Classic Gold; light from the side.

Part splits along a layer

Less likely than with other effect PLAs, but still weaker than Basic. Add walls and orient flat.

4 · The numbers — technical datasheet

Figures are from the PLA Sparkle Technical Data Sheet V3.0.

Physical and thermal properties

Property	Test method	Value
Density	ISO 1183	1.26 g/cm ³
Melt flow index (210 °C, 2.16 kg)	ISO 1133	34.2 ± 3.3 g/10 min
Melting temperature	DSC, 10 °C/min	156 °C
Glass transition temperature	DSC, 10 °C/min	56 °C
Vicat softening temperature	ISO 306	57 °C
Heat deflection temperature, 0.45 MPa	ISO 75	55 °C
Heat deflection temperature, 1.8 MPa	ISO 75	53 °C

Property	Test method	Value
Saturated water absorption (25 °C, 55 % RH)	—	0.44 %

Mechanical properties

Property	Test method	X-Y (flat)	Z (across layers)
Young's modulus	ISO 527	1940 ± 230 MPa	1660 ± 210 MPa
Tensile strength	ISO 527	33 ± 3 MPa	28 ± 4 MPa
Elongation at break	ISO 527	11.7 ± 0.7 %	6.8 ± 0.6 %
Bending modulus	ISO 178	2310 ± 140 MPa	2040 ± 170 MPa
Bending strength	ISO 178	63 ± 4 MPa	48 ± 3 MPa
Charpy impact, unnotched	ISO 179	66.5 ± 3.6 kJ/m²	10.3 ± 0.7 kJ/m²
Charpy impact, notched	ISO 179	23.2 ± 2.4 kJ/m²	not published

What the mechanical numbers mean in practice

Sparkle reads like a toughened PLA with a filler rather than a filled PLA that happens to be tough: flat impact of 66.5 kJ/m² unnotched and 23.2 notched are far above PLA Basic, elongation is almost identical to Basic, and Z tensile holds 85 % of the flat value. Stiffness and bending strength are moderately below Basic (1940 MPa, 63 MPa). Layer toughness of 10.3 kJ/m² is the best among the effect filaments, though still 25 % below Basic. Of the glittering PLAs, this is the one that can stand a little handling. Thermal figures are ordinary.

Product format

Diameter	1.75 mm (± 0.03 mm per store convention; not stated on the datasheet)
Net weight	1 kg
Spool	ABS, 200 × 67 mm, rated to 70 °C; ships with desiccant
Colours	6: Classic Gold, Slate Gray, Crimson Red, Royal Purple, Alpine Green, Onyx Black
Identification	RFID tag
Datasheet version	V3.0

Safety, certifications and chemical resistance

- Datasheet composition: polylactic acid; product page: PLA with metal particles — the filler is not formally declared
- Odourless, no skin hazard listed; flammable; combustion products water and carbon oxides
- The datasheet notes the material can biodegrade under some industrial composting conditions
- RoHS and REACH compliance stated across the filament line
- No food-contact or toy certification; no emissions data published
- Avoid sanding dust; wet-sand with a mask if unavoidable
- Resistant to oils and greases; not to acids, alkalis or some organic solvents

5 · Compared with Polymaker and SUNLU

Glitter PLA goes by many names. Polymaker splits the effect across Panchroma Starlight and Panchroma Celestial; SUNLU calls its version PLA Twinkling.

Polymaker

Panchroma Starlight PLA · Panchroma Celestial PLA

Two glitter SKUs at different price points, neither with its own figures; the Panchroma "Others" column applies (denser, stiffer, stronger in a pull, much lower notched impact than Sparkle). Speed limited to 200 mm/s. Cardboard spool.

Density (Others)	1.32 g/cm ³
Tensile X-Y / Z (Others)	40.4 / 27.2 MPa
Charpy notched X-Y (Others)	6.76 ± 0.44 kJ/m ²
Max speed	up to 200 mm/s
Nozzle / bed	190–230 °C / 25–60 °C
Spool	cardboard, 1 kg

SUNLU

SUNLU PLA Twinkling

SUNLU's glitter grade posts the highest tensile of any SUNLU PLA (59 MPa) and a high bending strength, but also the lowest HDT in SUNLU's range at 50.8 °C. No impact, modulus or Z data. Cheapest of the three.

Density	1.25 g/cm ³
Tensile	59 ± 4 MPa
Bending strength	97 ± 3 MPa
HDT	50.8 ± 3 °C
Nozzle / bed	200–240 °C / 50–60 °C
Diameter	1.75 ± 0.02 mm
Spool	cardboard, 1 kg

Reading cross-brand numbers fairly

Manufacturer datasheets are produced by different labs on different printers, and two numbers are comparable only when the test standard, specimen orientation and impact method match. Charpy and Izod impact results are not interchangeable; notched and unnotched results differ by a factor of three or more; and Polymaker publishes Z-direction data where SUNLU publishes none. Treat cross-brand figures as an indication of class, not a ranking. Where a brand's marketing claim is not backed by its own datasheet, this guide says so.

Bottom line. Bambu's Sparkle is the toughest of the three by a wide margin on the published figures and the only one with impact and Z data at all. SUNLU's Twinkling is stronger in a pull and cheaper but softens earlier; Polymaker's two glitter grades sit between them on a shared, less specific datasheet.

How to read the datasheet

X-Y vs Z

A 3D print is a stack of layers. X-Y describes a test bar printed lying flat, where the load runs along the extruded lines. Z describes a bar printed standing up, where the load tries to pull the layers apart. Z values are always lower, and the ratio between them tells you how well the layers have fused. Real parts fail along layer lines far more often than through them.

Tensile strength (MPa)

The stress at which a bar pulled from both ends breaks. Megapascals are newtons per square millimetre: a 10 mm × 10 mm cross-section of a 35 MPa material holds roughly 3.5 kN, about 350 kg, before it snaps in a slow pull.

Young's modulus (MPa)

Stiffness — how much force it takes to stretch the material by a given amount. Higher means more rigid. It says nothing about strength: a stiff material can still be brittle.

Elongation at break (%)	How far the bar stretched before it broke, as a percentage of its original length. Low values (under 5 %) mean the material snaps with little warning; higher values mean it yields and bends first.
Bending (flexural) strength and modulus	The same two ideas measured by pressing down on the middle of a bar supported at both ends — closer to how brackets, clips and shelves are actually loaded.
Charpy impact (kJ/m²)	A pendulum hammer strikes the bar; the energy it absorbs before breaking is divided by the fracture area. This is the best single indicator of toughness — resistance to drops and knocks. Unnotched bars measure the bulk material; notched bars have a small cut that concentrates stress and give much lower numbers. Never compare a notched figure with an unnotched one, or a Charpy figure with an Izod one (a different test geometry).
Glass transition, Tg (°C)	The temperature at which the polymer's chains gain enough mobility for it to change from glassy and rigid to leathery and soft. Above Tg a loaded part will slowly creep and deform. For PLA and PETG this is the single most important thermal number.
Heat deflection temperature, HDT (°C)	The temperature at which a bar under a fixed bending load sags by a set amount. Quoted at 0.45 MPa (light load) and 1.8 MPa (heavy load); the light-load figure is always the higher of the two. Practical rule: keep loaded parts well below the 0.45 MPa figure.
Vicat softening point (°C)	The temperature at which a needle under load penetrates 1 mm into the material. Another measure of when the surface stops being hard.
Melting temperature, Tm (°C)	Where the crystalline regions melt, measured by DSC (a calorimeter). Printing happens well above Tm so the polymer flows freely.
Melt flow index, MFI (g/10 min)	How much molten material flows through a standard die in ten minutes under a fixed weight (210 °C for PLA; PETG sheets use 210–250 °C, so compare only at equal temperature). Higher means runnier and easier to push at speed; lower means more viscous, which is why some variants have lower speed limits.
Water absorption (%)	How much moisture the filament takes up from air at 55 % relative humidity. Absorbed water boils in the nozzle, causing pops, bubbles, stringing and rough surfaces — hence the drying recommendations.
Density (g/cm³)	Mass per volume. A 1 kg spool of a 1.31 g/cm³ material contains about 5 % less printable length than a 1 kg spool at 1.24 g/cm³ — heavier fillers cost you metres.
Annealing	Baking a finished print at a temperature just above Tg to let it crystallise further. It can raise heat resistance and stiffness but usually shrinks and sometimes warps the part.

Data notes and sources

Where sources disagree

- Filler identity: product page says metal particles; datasheet composition field says PLA only. Unresolved; the material is treated as abrasive.
- Diameter tolerance is not printed on the Sparkle datasheet; ± 0.03 mm is the manufacturer's standard for the PLA line.
- No refill (spool-free) format was found for this product.

Sources

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- Bambu Lab Wiki, PLA Usage Guide (nozzle compatibility table) — <https://wiki.bambulab.com/en/filament/pla>
- Bambu Lab Community Forum, PLA Sparkle with 0.4 mm nozzle — <https://forum.bambulab.com/t/pla-sparkle-with-4mm-nozzle/124129>
- Polymaker, Panchroma product data sheet V2.1 — https://cdn.shopify.com/s/files/1/0548/7299/7945/files/TDS_PANCHROMA_V2.pdf
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