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PLA GALAXY

Glass microspheres suspended in glossy PLA give a deep, starfield shimmer — an easy-printing decorative filament that quietly wears ordinary nozzles.

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Glass microspheres suspended in glossy PLA give a deep, starfield shimmer — an easy-printing decorative filament that quietly wears ordinary nozzles.

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PLA Galaxy is PLA filled with tiny glass beads. Each sphere acts as a miniature lens and mirror inside a glossy, translucent-tinted matrix, so light entering the surface glints back from different depths and the print appears to have stars floating below its skin. The effect is subtler and deeper than glitter flake, and it moves as the viewer moves. Galaxy prints like an ordinary PLA on the standard profile with two caveats that come with any hard filler: it is mildly abrasive, so a hardened nozzle is advised for regular use, and it should not go through a 0.2 mm nozzle. Mechanically it is a soft, decorative grade — the least stiff PLA in the range — with excellent flat-direction toughness and poor layer bonding.

FEELS LIKE

Glossy, smooth, slightly soft

The glass is inside; the surface is ordinary PLA gloss

THE EFFECT

Deep sparkle, like a night sky

Best on dark, curved surfaces; shows at any layer height

STRENGTH

Soft and tough flat, weak across layers

Lowest stiffness in the range; Z impact 5.8 kJ/m²

NOZZLE

Hardened steel advised

Glass beads slowly abrade brass and stainless; no 0.2 mm

COLOUR RANGE

4 colours

Nebulae, Purple, Green, Brown

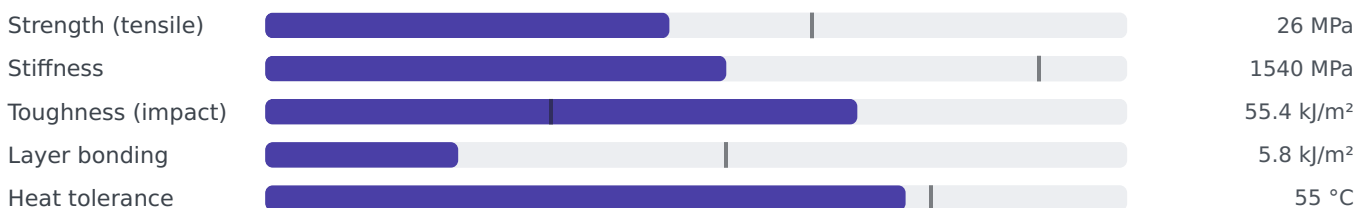
EASE OF PRINTING

Easy

Standard PLA settings; slightly slower flow than Basic

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).



■ PLA Galaxy ■ PLA Basic reference

Good for

- Vases, bowls, sculptures and dragons with large curved surfaces
- Cosmic, magical or fantasy-themed props and dice towers
- Christmas ornaments, gift pieces and market items

Not the right choice for

- Functional or load-bearing parts
- Tall thin features and anything loaded across layers
- 0.2 mm nozzles and unhardened nozzles in continuous use

- Jewellery boxes, coasters and desk ornaments
- Any decorative print that will be seen close up under good light

- Food contact, heat and sun: the general PLA limits
- Printers with worn or dirty extruder gears, which the filler can aggravate

Glass beads: what they add and what they cost

Solid glass microspheres are hard (they scratch steel), inert and optically bright. Dispersed in PLA they produce the sparkle without changing the colour, which is why Galaxy colours look saturated rather than glittery. The datasheet shows a lower density than plain PLA (1.19 g/cm³) — the beads are hollow or the loading is light — and a much thicker melt (MFI 11), which slows printing to 250 mm/s. The beads also interrupt the polymer, so stiffness and strength fall well below PLA Basic and layer toughness is among the lowest in the range, while flat-direction impact is unusually high, a sign of a softened matrix. The hardness of the filler is what wears nozzles: the current product page recommends hardened steel for regular use and rules out 0.2 mm, even though the older datasheet lists all nozzle sizes.

2 · Living with a PLA Galaxy print

Galaxy prints are ornaments and behave like PLA Basic ornaments, with slightly more care needed for thin sections.

Heat	Glass transition 52 °C — lower than PLA Basic. Keep out of parked cars, off radiators, away from hot lamps.
Sunlight	Indoor display is fine; the gloss dulls under years of direct UV.
Water and damp	Insoluble; moderate moisture uptake (0.45 %). Suitable as a decorative vase with a liner.
Chemicals	As PLA. Isopropyl alcohol cleans safely.
Food	Not certified for food contact.
Handling	The surface is normal PLA; the glass is not exposed unless sanded. Thin features snap along layers.
Load over time	Soft for a PLA and creeps; decorative use only.
End of life	General waste or 3D-print recycling; the glass is inert.

Looks and feel

A glossy surface over a field of tiny bright points at varying depth, most striking on dark colours where the sparkle stands out. Nebulae mixes tones for a cosmic effect. Layer lines are visible but the sparkle draws the eye away from them. Larger nozzles and thicker layers show more depth.

Care

- Dust with a soft cloth; isopropyl alcohol for fingerprints
- Keep away from heat and direct sun
- Avoid sanding — it exposes glass beads, dulls the surface and produces glass dust; if unavoidable, wet-sand with a mask
- Clear gloss varnish deepens 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

Galaxy uses the standard PLA profile with a lower speed limit. The one hardware decision is the nozzle: hardened steel for anything more than the occasional spool, and never 0.2 mm.

Manufacturer print window

Nozzle temperature	190–230 °C
Bed temperature	35–45 °C
Build plates	Cool Plate, High-Temperature Plate, Textured PEI (current listings add SuperTack and Smooth PEI)
Bed adhesive	Glue stick or liquid glue
Chamber	25–45 °C, no enclosure
Print speed	Up to 250 mm/s
Part cooling fan	On
Retraction	0.6–1.0 mm at 20–40 mm/s
Max overhang without support	About 55°
Max unsupported bridge	About 30 mm

Hardware and compatibility

Nozzle sizes	0.4, 0.6 and 0.8 mm; 0.2 mm not recommended
Nozzle material	Hardened steel recommended for 0.4/0.6/0.8; stainless 0.4 acceptable for occasional use
Abrasive	Yes — glass microspheres; wear rate not published
Automatic material systems	Compatible with AMS and AMS lite
Spool identification	RFID tag

Extruder	Keep gears clean; powder from filled filaments accumulates on worn gears
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Moisture, drying and storage

Standard PLA drying applies; Galaxy is not on the manufacturer's list of variants that must be dried, but a long-open spool benefits from it.

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 show the most sparkle; light from the side brings it out in photographs
- A 0.6 mm nozzle with 0.3 mm layers gives more visible depth and less nozzle wear per part than 0.4 mm
- Add a wall on thin features; Z bonding is weak
- Vase mode works well and shows the effect on a continuous surface

Known problems and their fixes

Filament jams in the extruder; coloured powder on the gears

Worn or dry extruder gears grinding a filled filament. Clean and lubricate the gears, replace if worn, moderate retraction, and consider a 0.6 mm hardened nozzle.

Nozzle diameter opens up over time; extrusion gets sloppy

Abrasion of a brass or stainless nozzle. Fit hardened steel.

Clogs on a 0.2 mm nozzle

Not supported. Use 0.4 mm or larger.

Part splits along a layer

Low Z toughness. More walls, orient loads flat, slow slightly for better fusion.

4 · The numbers — technical datasheet

Figures are from the PLA Galaxy Technical Data Sheet V1.0 — a revision behind the other effect filaments, which are at V3.0. See data notes for where the current product page supersedes it.

Physical and thermal properties

Property	Test method	Value
Density	ISO 1183	1.19 g/cm ³
Melt flow index (210 °C, 2.16 kg)	ISO 1133	11.0 ± 1.7 g/10 min
Melting temperature	DSC, 10 °C/min	156 °C
Glass transition temperature	DSC, 10 °C/min	52 °C
Vicat softening temperature	ISO 306	56 °C
Heat deflection temperature, 0.45 MPa	ISO 75	55 °C

Property	Test method	Value
Heat deflection temperature, 1.8 MPa	ISO 75	52 °C
Saturated water absorption (25 °C, 55 % RH)	—	0.45 %

Mechanical properties

Property	Test method	X-Y (flat)	Z (across layers)
Young's modulus	ISO 527	1540 ± 190 MPa	1320 ± 150 MPa
Tensile strength	ISO 527	26 ± 3 MPa	21 ± 4 MPa
Elongation at break	ISO 527	9.3 ± 1.1 %	7.1 ± 0.9 %
Bending modulus	ISO 178	2200 ± 120 MPa	1850 ± 140 MPa
Bending strength	ISO 178	58 ± 3 MPa	37 ± 3 MPa
Charpy impact, unnotched	ISO 179	55.4 ± 3.7 kJ/m²	5.8 ± 1.2 kJ/m²
Charpy impact, notched	ISO 179	17.6 ± 2.2 kJ/m²	not published

What the mechanical numbers mean in practice

Galaxy is the softest PLA in the range: a modulus of 1540 MPa is 40 % below PLA Basic, and tensile strength is 26 MPa flat. Yet its flat-direction impact figures are among the highest here (55.4 unnotched, 17.6 notched), which says the matrix has been softened — perhaps by the same additive package that makes the beads disperse — and absorbs blows well in the plane of the layers. Across the layers the story reverses: 5.8 kJ/m², less than half of PLA Basic. So a thick Galaxy vase is hard to crack by squeezing but easy to snap at a thin neck. The thermal numbers are the second lowest in the range after Silk Multi-Color.

Product format

Diameter	1.75 mm ± 0.03 mm
Net weight	1 kg
Spool	ABS, 200 × 67 mm, rated to 70 °C
Colours	4: Nebulae, Purple, Green, Brown
Identification	RFID tag
Datasheet version	V1.0

Safety, certifications and chemical resistance

- Declared composition polylactic acid with glass microsphere additive; odourless, no skin hazard listed
- Flammable; combustion products water and carbon oxides
- RoHS and REACH compliance stated across the filament line
- No food-contact or toy certification; no emissions data published
- Sanding exposes glass — wet-sand with respiratory protection, or avoid
- Resistant to oils and greases; not to acids, alkalis or some organic solvents

5 · Compared with Polymaker and SUNLU

Both other brands sell a product called Galaxy PLA. Polymaker's is now Panchroma Galaxy; SUNLU's is PLA Galaxy. Neither publishes as much as Bambu about the filler.

Polymaker

Panchroma Galaxy PLA (formerly PolyLite Galaxy)

Polymaker publishes no Galaxy-specific figures; it falls into the Panchroma "Others" column, which is denser (1.32 g/cm³), stiffer and stronger in a pull than Bambu's Galaxy but far less tough. Speed is limited to 200 mm/s. Polymaker flags hardened nozzles on its Luminous grade but not explicitly on Galaxy; glass or glitter fillers should be assumed abrasive regardless.

Density (Others)	1.32 g/cm ³
Tensile X-Y / Z (Others)	40.4 / 27.2 MPa
Young's modulus X-Y (Others)	3071 MPa
Charpy notched X-Y (Others)	6.76 ± 0.44 kJ/m ²
Max speed	up to 200 mm/s
Spool	cardboard, 1 kg

SUNLU

SUNLU PLA Galaxy

SUNLU's Galaxy has its own datasheet row: 43 MPa tensile, 80 MPa bending and an HDT of 54.6 °C, at a density of 1.22 g/cm³. No impact, modulus or Z data, and no abrasion warning — though the effect requires a hard glitter filler. Priced well below the other two.

Density	1.22 g/cm ³
Tensile	43.3 ± 6 MPa
Bending strength	80.3 ± 10 MPa
HDT	54.6 ± 3 °C
Nozzle / bed	200–230 °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 Galaxy is the softest and toughest of the three in the flat plane and the only one whose filler and nozzle requirements are documented; the others quote higher static strength on thinner datasheets. For any of them, fit a hardened nozzle and avoid 0.2 mm.

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, T_g (°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 T _g 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, T_m (°C)	Where the crystalline regions melt, measured by DSC (a calorimeter). Printing happens well above T _m 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/cm ³ material contains about 5 % less printable length than a 1 kg spool at 1.24 g/cm ³ — heavier fillers cost you metres.
Annealing	Baking a finished print at a temperature just above T _g 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

- Nozzle sizes: the V1.0 datasheet lists 0.2–0.8 mm with no warning; the current product page says 0.2 mm is not recommended and specifies hardened steel. The product page is treated as current.
- Nozzle material: the manufacturer's store restricts stainless to 0.4 mm; one reseller allows stainless at all sizes above 0.2 mm.
- Build plates: the datasheet predates the Cool Plate SuperTack; current listings include it.
- No refill (spool-free) format was found for this product.

Sources

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- Bambu Lab US Store, PLA Galaxy — <https://us.store.bambulab.com/products/pla-galaxy>
- Bambu Lab Wiki, PLA Usage Guide (nozzle compatibility table) — <https://wiki.bambulab.com/en/filament/pla>
- 3DJake, Bambu Lab PLA Galaxy (abrasion note) — <https://www.3djake.com/bambu-lab/pla-galaxy-purple-1>
- Bambu Lab Community Forum, PLA Galaxy keeps getting stuck in extruder — <https://forum.bambulab.com/t/pla-galaxy-keeps-getting-stuck-in-extruder/82810>
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- SUNLU, filament parameter table — <https://www.sunlu.com/wiki/43>

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