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PLA SILK MULTI-COLOR

Two to four silk colours running side by side in one strand, so a print shimmers a different shade from every angle — the most eye-catching PLA in the range and the most fragile.

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1 · In plain words

2 · Living with it

3 · How it is printed

4 · The numbers

5 · Compared with other brands

PLA Silk Multi-Color (sold in Dual Color and Gradient versions, and known on its datasheet as Silk Dual-Color) is made by extruding two or more silk filaments together so that they sit side by side in a single 1.75 mm strand, like the segments of a liquorice twist. As the printer lays the strand down, whichever colour faces outward on that line is the one you see, and because the strand slowly turns as it feeds, the visible colour drifts across the print. The result is a shimmering, two-tone surface that changes with the viewing angle and cannot be achieved any other way on a single nozzle. It is built on the original silk formulation rather than Silk+, which makes it the weakest material across layers in the whole PLA range — a display material, full stop.

FEELS LIKE

Glassy silk surface

Same slippery gloss as any silk

THE EFFECT

Colour shifts with viewing angle

Left side one colour, right side another, blends in between

STRENGTH

Weakest layers in the range

Z impact 4.6 kJ/m², a third of PLA Basic; snaps easily

COLOUR BUDGET

About 20 m per colour segment

40 m (≈125 g) guarantees at least one two-colour transition

COLOUR SETS

10 combinations

South Beach, Aurora Purple, Velvet Eclipse, Neon City, Gilded Rose and others

PRINTER NOTE

Not recommended on A-series

Higher chance of the strand twisting and the colours facing the wrong way

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)		27 MPa
Stiffness		1830 MPa
Toughness (impact)		24.5 kJ/m ²
Layer bonding		4.6 kJ/m ²
Heat tolerance		53 °C

■ PLA Silk Multi-Color ■ PLA Basic reference

Good for

- Vases, bowls and organic sculptures where curved walls show the colour shift
- Dragons, figures and busts printed for display

Not the right choice for

- Anything functional, structural or handled by children

- Decorative lamp bodies and candle holders
- Ornaments, gifts and market pieces that need to look expensive
- Any single-colour-slot print where you want a multi-colour result without a material system

- Small parts — under 65 g you see only one colour, under 125 g possibly no transition
- Prints that may be paused or resumed; every pause leaves a permanent colour seam
- A1 and A1 mini printers, per the manufacturer's own advice
- Large flat top surfaces, which show the effect poorly

How the colour shift happens, and why it cannot be controlled

Because the colours lie side by side rather than in sequence, the part's appearance depends on which face of the strand is outward at each moment. On the left and right sides of a vase the two colours are seen at different angles, so the vase looks predominantly one shade from one side and the other shade from the opposite side, with a blended zone between. The strand rotates gradually as it passes through the extruder, so the pattern also drifts up the print. None of this is adjustable in the slicer. What you can control is how much filament a print consumes: each colour segment is about 20 m long, so a print of 125 g or more is guaranteed to cross at least one transition, and about 250 g shows a full four-colour cycle on the Gradient versions. Because the colours are silk, all of the silk printing rules apply, with a strong recommendation to hold outer walls at 40 mm/s.

2 · Living with a PLA Silk Multi-Color print

This is the most delicate material in the series. Treat prints as you would a glass ornament.

Heat	Softens from about 50–55 °C — the lowest heat deflection in the PLA range (50 °C at 1.8 MPa). Keep well away from windowsills in summer, cars, radiators and hot water.
Sunlight	Gloss shows UV dulling; indoor display only.
Water and damp	Insoluble; the highest moisture uptake in the range (0.52 %), so store spare filament sealed and dry before printing.
Chemicals	As PLA; isopropyl alcohol is safe.
Food	Not certified for food contact.
Handling	Layers separate with little force. Thin features break in the hand.
Load over time	Not a load-bearing material at any temperature.
End of life	General waste or 3D-print recycling.

Looks and feel

A rich silk gloss with two or more colours blending across the surface like oil on water. From one angle a vase reads as purple, from another as teal, with iridescent transitions between. Layer lines add fine highlights. The effect is strongest on curved outer walls and weakest on flat tops.

Care

- Dust with a microfibre cloth; wipe fingerprints with isopropyl alcohol
- Display away from heat and sun
- Never sand; the effect is in the surface
- A clear gloss varnish adds protection without hiding the colour shift
- Handle by the base, not by thin features

The numbers behind "fragile"

Z-direction bending strength is 21 MPa and Z impact 4.6 kJ/m² — under a third of PLA Basic on both. This is the lowest layer strength published for any Bambu PLA.

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

Silk Multi-Color is printed like silk, only more carefully: slow, constant outer walls; a hotter nozzle for gloss and layer bonding; dried filament; and no interruptions. The manufacturer's datasheet window is below, and it explicitly recommends reducing outer-wall speed to 40 mm/s.

Manufacturer print window

Nozzle temperature	210–240 °C (retailers quote 210–230 °C)
Bed temperature	35–45 °C
Build plates	Cool Plate, High-Temperature Plate, Textured PEI
Bed adhesive	Glue stick or liquid glue
Chamber	25–45 °C, no enclosure
Print speed	Up to 250 mm/s overall; outer walls 40 mm/s (manufacturer's strong recommendation)
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
Top surface	Concentric pattern recommended for flat areas

Hardware and compatibility

Nozzle sizes	0.2, 0.4, 0.6 and 0.8 mm; 0.4 mm recommended
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Nozzle material	Any; not abrasive
Abrasive	No
Printers	All printers, but not recommended on A1 / A1 mini because of filament rotation in the feed path
Automatic material systems	AMS-compatible with RFID profiles; AMS lite support not separately stated
Spool identification	RFID tag

Moisture, drying and storage

With the highest moisture uptake of any PLA in the range and a gloss that depends on clean extrusion, this filament should be dried before printing unless freshly opened.

Forced-air oven or filament dryer	55 °C for 8 hours
Heated print bed method	65–75 °C for 12 hours, covered
AMS 2 Pro / AMS HT	55 °C for 8 hours (general silk figure from the usage guide)
Storage	Sealed with desiccant, below 20 % relative humidity
Annealing (optional)	50–55 °C for 6–12 hours; may warp — rarely worth it on a display piece

Tips that make a visible difference

- Budget filament by weight: 65 g shows one colour, 125 g guarantees a transition, 250 g shows a full cycle
- Print one object at a time, in one sitting; a pause or a filament change leaves a hard colour line
- Vase mode with a 0.6 mm nozzle and a 0.6–0.8 mm wall gives the strongest and shiniest single-wall result
- Orient the piece so its most-viewed side is the side the colours favour — print a small test cylinder first to see the pattern
- Set outer walls to 40 mm/s and keep them there; slower is fine, faster shows as bands

A-series printers

The manufacturer states that the strand can rotate in the feed path so that the wrong colour faces outward, and that A-series printers are more prone to this. It does not recommend the filament for them. It will print; the colour pattern may simply not be what you expected.

Known problems and their fixes

Colour pattern looks wrong or one colour dominates

The strand rotated in the feed path. More common on A-series; otherwise unavoidable and part of the effect.

Hard line where the colour changes suddenly

The print was paused or the filament was changed. Reprint without interruption.

Part splits along a layer

Weakest layers in the range. Print hotter (230–240 °C), slower, with more walls; orient loads in X-Y; or accept it as a display-only piece.

Bands of dull and glossy surface

Outer-wall speed varied. Set constant wall speed, disable overhang slowdown on outer walls.

Stringing, dull finish

Moisture. Dry at 55 °C for 8 hours.

4 · The numbers — technical datasheet

Figures are from the PLA Silk Dual-Color Technical Data Sheet V3.0, which is the sheet that covers the Multi-Color SKUs; there is no separate Multi-Color datasheet. Values describe the original silk formulation, not Silk+.

Physical and thermal properties

Property	Test method	Value
Density	ISO 1183	1.32 g/cm ³
Melt flow index (210 °C, 2.16 kg)	ISO 1133	20.5 ± 1.2 g/10 min
Melting temperature	DSC, 10 °C/min	152 °C
Glass transition temperature	DSC, 10 °C/min	57 °C
Vicat softening temperature	ISO 306	56 °C
Heat deflection temperature, 0.45 MPa	ISO 75	53 °C
Heat deflection temperature, 1.8 MPa	ISO 75	50 °C
Saturated water absorption (25 °C, 55 % RH)	—	0.52 %

Mechanical properties

Property	Test method	X-Y (flat)	Z (across layers)
Young's modulus	ISO 527	1830 ± 210 MPa	1250 ± 140 MPa
Tensile strength	ISO 527	27 ± 4 MPa	18 ± 4 MPa
Elongation at break	ISO 527	3.5 ± 0.6 %	1.7 ± 0.2 %
Bending modulus	ISO 178	2370 ± 150 MPa	1840 ± 160 MPa
Bending strength	ISO 178	66 ± 4 MPa	21 ± 5 MPa
Charpy impact, unnotched	ISO 179	24.5 ± 1.7 kJ/m ²	4.6 ± 1.1 kJ/m ²
Charpy impact, notched	ISO 179	8.2 ± 0.5 kJ/m ²	not published

An earlier V1.0 of the PLA Silk sheet gave higher flat values (35 MPa tensile, 77 MPa bending) with identical physical and impact figures; V3.0 is used as current.

What the mechanical numbers mean in practice

Flat-direction toughness is actually respectable — 24.5 kJ/m² unnotched is close to PLA Basic — which is why a thick-walled vase survives being picked up. Every Z figure, however, is the lowest in the range: 18 MPa tensile, 21 MPa bending, 4.6 kJ/m² impact, 1.7 % elongation. The layers are, in effect, lightly glued together. The thermal numbers are also the weakest of any PLA here, with an HDT of 50 °C under load and a Vicat of 56 °C. Design accordingly: thick sections, curved rather than slender forms, and an assumption that the part will never be stressed across its layers.

Product format

Diameter	1.75 mm ± 0.03 mm
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Net weight	1 kg (about 315 m)
Colour segment length	About 20 m per colour
Spool	ABS, 200 × 67 mm, rated to 70 °C
Colour sets	10: South Beach, Aurora Purple, Dawn Radiance, Mystic Magenta, Phantom Blue, Velvet Eclipse, Neon City, Midnight Blaze, Gilded Rose, Blue Hawaii — as two-colour Dual Color or two-to-four-colour Gradient
Identification	RFID tag
Datasheet version	V3.0 (Silk Dual-Color)

Safety, certifications and chemical resistance

- Declared composition polylactic acid; odourless, no skin hazard listed
- Flammable; combustion products water and carbon oxides
- RoHS report available; REACH compliance stated across the filament line
- No food-contact or toy certification
- Resistant to oils and greases; not to acids, alkalis or some organic solvents

5 · Compared with Polymaker and SUNLU

Co-extruded multi-colour silk is a small category that both other brands also serve. Polymaker's Panchroma Dual Silk carries two colours; SUNLU's Silk PLA+ range goes to four.

Polymaker

Panchroma Dual Silk PLA (formerly PolyLite Dual Silk)

Two co-extruded silk colours on Polymaker's silk base, which on the Panchroma sheet is stronger than Bambu's original silk (41 MPa tensile flat, 24 MPa across layers) with a better notched impact. No dual-silk-specific data is published; the silk column applies. Cardboard spool; priced above the single-colour silk.

Colours per strand	2
Tensile X-Y / Z (silk base)	41.1 / 23.8 MPa
Charpy notched X-Y (silk base)	13.8 ± 1.3 kJ/m²
Density	1.24 g/cm³
Max speed	up to 250 mm/s
Spool	cardboard, 1 kg

SUNLU

SUNLU Silk PLA+ Dual-Color · Tri-Color · Quad-Color

SUNLU offers the widest choice — two, three or four colours per strand — and publishes the same figures for all of them: 50 MPa tensile, 11 % elongation, 78 MPa bending, 57 °C HDT. No Z-direction or impact data, so the layer fragility cannot be compared from the sheet. Usually the least expensive per kilogram.

Colours per strand	2, 3 or 4
Tensile	50 ± 4 MPa
Elongation	11 ± 3 %
Bending strength	78 ± 5 MPa
HDT	57 ± 3 °C
Nozzle / bed	210-230 °C / 50-60 °C
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. All three are display materials with the same rules: slow outer walls, hot nozzle, thick sections, no interruptions. Bambu's version has the most complete (and most sobering) datasheet and RFID profiles; Polymaker's silk base tests stronger on paper; SUNLU offers three- and four-colour strands at the lowest price.

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

- There is no Multi-Color datasheet; the Silk Dual-Color V3.0 sheet applies to all Multi-Color SKUs, and retailers quote its figures under the Multi-Color name.
- The Silk sheet V1.0 and V3.0 share identical physical and impact values but differ on tensile and bending; the V3.0 values (lower) are used.
- Colour segment lengths (≈20 m per colour, 40 m for a guaranteed transition, 80 m for a full four-colour cycle) come from retailer listings.
- The A-series recommendation against use is stated on retailer and marketplace listings quoting the manufacturer, not on the datasheet.

Sources

- Bambu Lab, PLA Silk Dual-Color Technical Data Sheet V3.0 — https://store.bblcdn.com/s6/default/df1aa6ebbea44095a5bb936f1264be17/Bambu_PLA_Silk_Dual_Color_Technical_Data_Sheet.pdf
- Bambu Lab, PLA Silk Technical Data Sheet V1.0 (comparison) — https://www.solidprint3d.co.uk/wp-content/uploads/2023/08/Bambu-PLA-Silk_Technical-Data-Sheet.pdf
- Bambu Lab Wiki, Printing with silk filaments — <https://wiki.bambulab.com/en/x1/manual/printing-with-silk-filaments>
- Bambu Lab Wiki, PLA Usage Guide — <https://wiki.bambulab.com/en/filament/pla>
- GigaParts, Bambu Lab PLA Silk Multi-Color listing (segment lengths, A-series note) — <https://www.gigaparts.com/bambu-lab-pla-silk-multi-color-3d-printer-filament.html>
- filament2print, PLA Silk Multi-Color Bambu Lab (colour list, figures) — <https://filament2print.com/en/pla/3485-pla-silk-multi-color-bambu-lab.html>
- Filamino, Bambu Lab filament guide (pause seam, concentric infill) — <https://filamino.com/blog/bambu-lab-filament-guide-best-spools-refills-and-settings-by-material>
- Polymaker, Panchroma product data sheet V2.1 — https://cdn.shopify.com/s/files/1/0548/7299/7945/files/TDS_PANCHROMA_V2.pdf
- Polymaker, Panchroma family page — <https://shop.polymaker.com/pages/panchroma>
- SUNLU, filament parameter table — <https://www.sunlu.com/wiki/43>

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