Specification of Silk PLA

①Background

The surface of FDM 3D printing finished product has obvious laminated striation. The solid color of model is too common and not bright enough. Customers need some filament that can create special effects.

②Main Ingredients

PLA, toner, toughener, brightening agent.

③Features

- Smooth surface, high gloss, little laminated striation.
- Wide applicable temperature range.
- Toughness, real silk texture.
- Silk PLA are close to standard PLA in material properties but it’ s tougher and glossier than PLA.

④Application and Target Audience

- Beginners and DIY players.
- Arts and crafts, 3D printing services.
- Groups having high requirements about the surface expression of prints.

⑤PLA Filament Technical Specification

- **Filament** Diameter: 1.75mm
- Tolerance: ±0.05mm
- Printing Temperature: 190°C-220°C
- Heated Bed Temperature: 55-70°C
- Printing Speed: 30 - 60mm/s

⑥Shortcomings

- The adhesive force is weak between layers of objects printed with silk filament. The printed product with thin wall will be easily torn horizontally when it gets a force.
- The hygroscopicity of silk PLA is stronger than that of standard PLA. Keep silk PLA dry and sealed.

⑦Relevant Parameters of Recommended Machine Types

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Type	**Extruder Type/Heated Bed Type**	**Parameter**
Creality Ender 3	Bowden/Flexible Bed Sticker	Printing Temperature: 200-220℃ Heated Bed Temperature: 55-65℃ Printing Speed: 30-60mm/s Retracting Length: 2-4mm Retracting Speed: 60-100mm/s
Creality CR-10	Bowden/Glass Bed	Printing Temperature: 200-220℃ Heated Bed Temperature: 65-70℃ Printing Speed: 30-60mm/s Retracting Length: 2-5mm Retracting Speed: 80-110mm/s
Anycubic Mega-S	Bowden/ Microporous Coating Glass Bed	Printing Temperature: 200-220℃ Heated Bed Temperature: 60-70℃ Printing Speed: 30-60mm/s Retracting Length: 2-4mm Retracting Speed: 70-100mm/s
Prusa i3	Direct Drive Extruder/PEI Bed Sticker	Printing Temperature: 200-220℃ Heated Bed Temperature: 55-70℃ Printing Speed: 30-60mm/s Retracting Length: 0.8mm Retracting Speed: 30-40mm/s
Eryone Thinker S	Bowden/PEI Bed Sticker	Printing Temperature: 200-220℃ Heated Bed Temperature: 55-70℃ Printing Speed: 30-60mm/s Retracting Length: 4mm Retracting Speed: 90-110mm/s
Eryone Thinker SE	Bowden/Glass Bed	Printing Temperature: 200-220℃ Heated Bed Temperature: 65-70℃ Printing Speed: 30-60mm/s Retracting Length: 4mm Retracting Speed: 80-110mm/s
Eryone Thinker ER-20	Bowden/Silk-Screen Glass Bed	Printing Temperature: 200-220℃ Heated Bed Temperature: 60-70℃ Printing Speed: 30-60mm/s Retracting Length: 2-5mm Retracting Speed: 80-110mm/s

⑧FAQ

1.Q: Why my object printed with silk filament has no glossy surface?

A: You need to make sure that the printing temperature matches well with the printing speed. You need to adjust the printing temperature to 200-220℃.

2.Q: I failed to print small models with silk PLA. Why?

A: Silk PLA has silk texture, smooth surface, and strong toughness, which is not suitable for printing high-precision or small-sized models.

3.Q: Why my filament tangles? How can I solve it?

A: The tangle of filament isn't caused by the disordered or the imperfect winding. According to the production technology of filament, the filament winds back and forth (from left to right and then from right to left). Normally, there is no overline tangle. A common cause of tangle is that the filament end is not fixed to the holes of spool. Overline tangle or the changed winding direction make filament tangle. So customers need to fix the filament end to the proper holes of the spool.

4.Q: Can PLA be used to print tableware?

A: Not recommended. Although PLA is degradable, food-grade raw material, the PLA with toughener is non-food grade. If you really want to print a set of tableware, transparent PLA is suggested.

5.Q: The nozzle is clogged by PLA, and how can I solve it?

A: Inconstant filament diameter, the lower nozzle temperature and frequent replacement with different kinds of filaments will lead to this problem. So, before you get started, clean the nozzle and turn up the temperature to a proper value.

6.Q: My prints have web-like strings (stringing) issues. How can I troubleshoot it?

A: Too high temperature makes the PLA filament melt and flow so fast. Please turn the temperature down to a proper value.

The retracting parameters are improper, so adjust the retracting length and speed.

7.Q: There are too much melted filament around the nozzle. What should I do?

A: This problem can be attributed to over-high temperature, low printing speed, and in the slice software, the nozzle diameter doesn't match with the extrusion output.

8.Q: The PLA filament was perfect when I opened the package. After several times of intermittent printing, my PLA filament snaps by accident during printing. Why?

A: Normally, the PLA filament in the printing process will not snap by themselves. However, after being affected by moisture, the degradable material PLA will be more brittle and easier to break, so you should pay attention to dampproof.

9.Q: The surface of my print isn't very smooth. Why?

A: The printing temperature is too high or too low. The temperature doesn't match well with the printing speed. You need to adjust the printing speed or temperature.

10.Q: Why my PLA-printed objects don't stick to the heated bed? How do I solve?

A: The distance between the nozzle and the bed is too far. Make sure your heated bed is leveled and it's clean. Then judge if the printing temperature and heated bed temperature are too low, and our customers should adjust them to correct ranges.