Chemical Specifications

PLA Pro Filaments

PLA Pro is an FFF 3D printing filament produced with a specially toughened polylactic acid modified material, which is twice as tough as ordinary PLA filaments. PLA Pro has excellent dimensional stability and very good toughness, does not warp, does not crack, and is easy to print. PLA Pro filament achieves 100% neat arrangement, no bending, no knotting, and smooth wire feeding. It is a very suitable filament for FFF3D printers.

Main Features：

Easy to print / dimensionally stable / high toughness / neatly arranged.

The Main Parameters:

|  |  |  |  |
| --- | --- | --- | --- |
| Physical properties | Testing method | Unit | Typical value |
| Density | ISO 1183 | g/cm3 | 1.25~1.26 |
| Melt index MFR(190℃/2.16Kg) | ISO 1133 | g/10min | 3~6 |
| Water absorption(23℃/24h) | ISO 62 | % | ＜0.3 |
| Mechanical behavior | | | |
| Tensile strength（X-Y） | ISO 527 | Mpa | 45.5~49 |
| Elongation at break（X-Y） | ISO 527 | % | 14.5~16.5 |
| Elastic modulus（X-Y） | ISO 527 | Mpa | 950~1050 |
| Bending strength（X-Y） | ISO178 | Mpa | 73~76 |
| Notched impact strength（X-Y） | ISO180 | KJ/m2 | 9.5~10.5 |
| Thermodynamic properties | | | |
| HDT@ 0.455 MPa(66 psi) | ISO75 | ℃ | 53 |
| Continuous use temperature | IEC 60216 | ℃ | 50 |

Test Spline Printing Conditions：

|  |  |
| --- | --- |
| Test equipment | Guider IIS （Flashforge technology） |
| Nozzle diameter | 0.4mm |
| Nozzle temperature | 210 °C |
| Printing speed | 60mm/s |
| Wall thickness | 1.2mm |
| Filling | 100% |
| Standard spline | The specific dimensions are as in appendix 1 |

Recommended Printing Parameters:

|  |  |
| --- | --- |
| Parameters |  |
| Nozzle temperature | 190~220℃(Recommended 210℃) |
| Print platform temperature | Room temperature~60℃(Recommended40℃) |
| Printing platform materials | Tempered glass, BuildTak, Carbon fiber board |
| Nozzle diameter | φ0.4/0.6mm(recommendedφ0.4mm) |
| Model cooling fan | 50~100% |
| Layer thickness | 0.12~0.3mm |
| Printing speed | 60~90mm/s(Recommended 60mm/s) |
| Idle speed | 60~120mm/s |
| Printing ambient temperature | Room temperature ~40℃ |
| Withdrawal strength | 1~2mm |
| Withdrawal speed | 30~50mm/s |
| Support materials | Self supporting,PVA,BVOH |

Precautions：

To prevent moisture absorption and contamination, the packaging of filaments should be kept airtight and undamaged until they are opened for use. For the same reason, some used filaments should be resealed before storage.

PLA Pro is a biodegradable material. Moisture and oxygen in the air and ultraviolet rays will accelerate the aging of the material. In order not to affect the final printing quality, the PLA Pro filaments after opening need to be used up as soon as possible.

Desclaimer：

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Annex 1: Test spline size and printing orientation

