Chemical Specifications

HIPS Filaments

HIPS is a FFF 3D printing filament, which is produced with HIPS 1180 as the main raw material. HIPS has high toughness and high impact resistance, and has a certain temperature resistance, which is generally applicable to different FFF3D printers. HIPS is completely soluble in limonene and can be used as a support material.

Main Features：

High toughness/high impact resistance/support material

Main Parameters:

|  |  |  |  |
| --- | --- | --- | --- |
| Physical properties | Testing Method | Unit | Typical value |
| Density | ISO 1183 | g/cm3 | 1.04~1.06 |
| Melt Index MFR(220℃/5Kg) | ISO 1133 | g/10min | 6~9 |
| Water absorption(23℃/24h) | ISO 62 | % | 1% |
| Mechanical behavior | | | |
| Tensile strength（X-Y） | ISO 527 | Mpa | 28.5~29.5 |
| Elongation at break（X-Y） | ISO 527 | % | 6~6.5 |
| Elastic modulus（X-Y） | ISO 527 | Mpa | 1500~1650 |
| Bending strength（X-Y） | ISO178 | Mpa | 46.5~49 |
| Notched impact strength（X-Y） | ISO180 | KJ/m2 | 7~8 |
| Thermodynamic properties | | | |
| HDT@ 0.455 MPa(66 psi) | ISO75 | ℃ | 88 |

Test Spline Printing Conditions：

|  |  |
| --- | --- |
| Test conditions | Guider IIS （Flashforge technology） |
| Nozzle diameter | 0.4mm |
| Nozzle temperature | 230 °C |
| Printing speed | 50mm/s |
| Wall thickness | 1.2mm |
| Filling | 100% |
| Standard spline | The specific dimensions are as in appendix 1 |

Recommended Printing Parameters:

|  |  |
| --- | --- |
| Parameter |  |
| Nozzle temperature | 220~240℃(Recommended 230℃) |
| Print platform temperature | 80~110℃(Recommended 100℃) |
| Printing platform materials | Tempered glass, BuildTak, carbon fiber board |
| Nozzle Diameter | φ0.4/0.6mm(Recommendedφ0.4mm) |
| Model cooling fan | 0~50% |
| Layer thickness | 0.12~0.3mm |
| Printing speed | 40~60mm/s(Recommended 50mm/s) |
| Idle speed | 60~120mm/s |
| Printing ambient temperature | Room temperature ~40℃ |
| Withdrawal length | 1~3mm |
| Withdrawal speed | 30~50mm/s |
| Support materials | Self support |

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 filamentss should be resealed before storage.

HIPS is a polymer 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 HIPS filaments after opening need to be used up as soon as possible.

HIPS material is easy to absorb moisture. If the filament is damp, it is recommended to dry the filament in a hot air oven at 80°C for at least 5 hours to ensure the success rate and quality of the printed model.

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Annex 1: Test spline size and printing orientation

