Chemical Specifications

ABS Filaments

ABS is a kind of FFF 3D printing filaments, produced with CHIMEI ABS 757 as the main raw material. ABS has high toughness and high impact resistance, and has a certain temperature resistance, which is generally suitable for different FFF3D printers.

Main Features：

Easy to print/high toughness/high impact resistance

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 | 2~4 |
| Water absorption(23℃/24h) | ISO 62 | % | 1% |
| Mechanical behavior | | | |
| Tensile strength（X-Y） | ISO 527 | Mpa | 35~40 |
| Elongation at break（X-Y） | ISO 527 | % | 12~17 |
| Elastic modulus（X-Y） | ISO 527 | Mpa | 1500~1650 |
| Bending strength（X-Y） | ISO178 | Mpa | 65~70 |
| Notched impact strength（X-Y） | ISO180 | KJ/m2 | 7~10.5 |
| Thermodynamic properties | | | |
| HDT@ 0.455 MPa(66 psi) | ISO75 | ℃ | 88 |

Test Spline Printing Conditions：

|  |  |
| --- | --- |
| Test conditions | Guider IIS （闪铸科技） |
| 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℃(Recommended100℃) |
| 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 supporting, HIPS |

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.

ABS 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 ABS filaments after opening need to be used up as soon as possible.

ABS material is easy to absorb moisture. If the filaments are damp, it is recommended to dry the filaments 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

