

CFsys[™] FDM Printing Material

Technical Data Sheet

CFsys[™] A ASA

CFsys[™] A ASA 3D打印材料。

CFsys[™] A ASA 3D Printing Material.

产品介绍 Product Description

CFSYS[™] A ASA是一款综合性能优异的3D打印材料，材料性质和机械性能与ABS接近，并具有低气味和耐紫外老化的特性，可代替ABS并应用于户外环境。

CFSYS[™] A ASA可以与CFSYS[™] S-Multi Quick-Remove Support Material 快速易剥离支撑材料配合使用，解决复杂模型支撑面成型效果差的难题。

CFSYS[™] A ASA has excellent all-round properties, featuring minimal odor and UV resistance. It is an alternative to ABS filaments due to its similar physical and mechanical properties with ABS.

CFSYS[™] S-Multi Quick-Remove Support Material is a good support material for CFSYS[™] A ASA, and it solves the question of poor support surface quality when CFSYS[™] ASA works as a self-support material.

产品亮点 Product Advantages

- **低气味**

ASA打印过程中的气味极小，相比打印时释放大量难闻气味的ABS材料，ASA更适合3D打印爱好者使用。

- **Low Odor**

CFsys[™] A ASA gives out minimal odor compared with other traditional ABS filaments during printing. It is more suitable for 3D printing hobbyists.

- **抗紫外老化**

PET分子链结构高度规整，并具有刚性的苯环结构。使得PET具有较好的力学性能，长期载荷下变形量较小，相比PA和PC材料具有更加优良的耐蠕变性能。

- **UV Resistance**

CFsys™ A ASA can resist material degradation, aging and color fading which are caused by UV. It is a good choice for outdoor application with its excellent aging resistance and weather resistance. Its aging resistance can be 10 times higher than that of traditional ABS filaments.

产品详情 Available

颜色 Color: 纯色Natural/白色White/黑色Black/红色Red/黄色Yellow/灰色Grey/蓝色Blue/绿色Green/
橙色Orange/棕色Brown

线径 Diameter: 1.75mm

净重 Net Wet: 1kg

物性表 Material Properties

| 测试项目 Property | 测试方法 Testing method | 典型值 Typical value |
|---|--------------------------------------|---------------------------------|
| 密度 Density | ISO 1183 | 1.07g/cm ³ |
| 玻璃化转变温度 Glass transition temperature | ISO 11357 | 98°C |
| 熔融指数 Melt index | 250°C, 2.16kg | 5.6 g/10min |
| 维卡软温度 Vicat softening temperature | ISO 306 | 101°C |
| 热变形温度 Determination of temperature | ISO 75: Method A ISO 75: Method B | 83°C (1.8MPa) 93°C (0.45MPa) |
| 拉伸屈服强度 (X-Y) Tensile yield strength | ISO 527 | 38.5±1.60 MPa |
| 屈服伸长率 (X-Y) Yield elongation | | 2.38±0.23 % |
| 杨氏模量 (X-Y) Young's Modulus | | 2317±246.0 MPa |
| 拉伸断裂强度 (X-Y) Tensile breaking strength | | 32.23±1.13 MPa |
| 断裂伸长率 (X-Y) Elongation at break | | 5.2±1.40 % |
| 拉伸断裂强度 (Z) Tensile breaking strength | ISO 527 | 27.87±0.42 MPa |
| 杨氏模量 (Z) Young's Modulus | | 2037±64 MPa |
| 断裂伸长率 (Z) Elongation at break | | 2.43±0.27 % |
| 弯曲强度 (X-Y) Bending strength | ISO 178 | 64.49±1.3 MPa |
| 弯曲模量 (X-Y) Bending Modulus | | 2399±147 MPa |
| 缺口冲击强度 (X-Y) Charpy impact strength | ISO 179 | 12.9±0.9 KJ/m ² |

试样打印参数: 喷嘴大小0.4mm, 喷嘴温度250°C, 底板加热105°C, 打印速度50mm/s, 填充率100%, 填充角度±45°

Specimens printed under the following conditions: Nozzle size 0.4mm, Nozzle temp 250°C, Bed temp 105°C, Print speed 50mm/s, Infill 100%, Infill angle ±45°

建议打印参数 Recommended printing conditions

| | |
|--|--|
| 喷头温度 Nozzle temperature | 240-260°C |
| 建议喷嘴大小 Recommended nozzle diameter | ≥0.2 mm |
| 建议底板材质 Recommended build surface | 玻璃、PEI膜或PC膜 Glass、PEI Film or PC Film |
| 底板温度 Build plate temperature | 100-110°C |
| Raft间距 Raft separation distance | 0.16-0.18mm |
| 冷却风扇 Cooling fan speed | 0-30% |
| 打印速度 Print speed | 30-120 mm/s |
| 回抽距离 Retraction distance | 1-5 mm |
| 回抽速度 Retraction speed | 1800-3600 mm/min |
| 建议支撑材料 Recommended Support Material | CFsys™ S-Multi Quick-Remove Support |

其他建议:

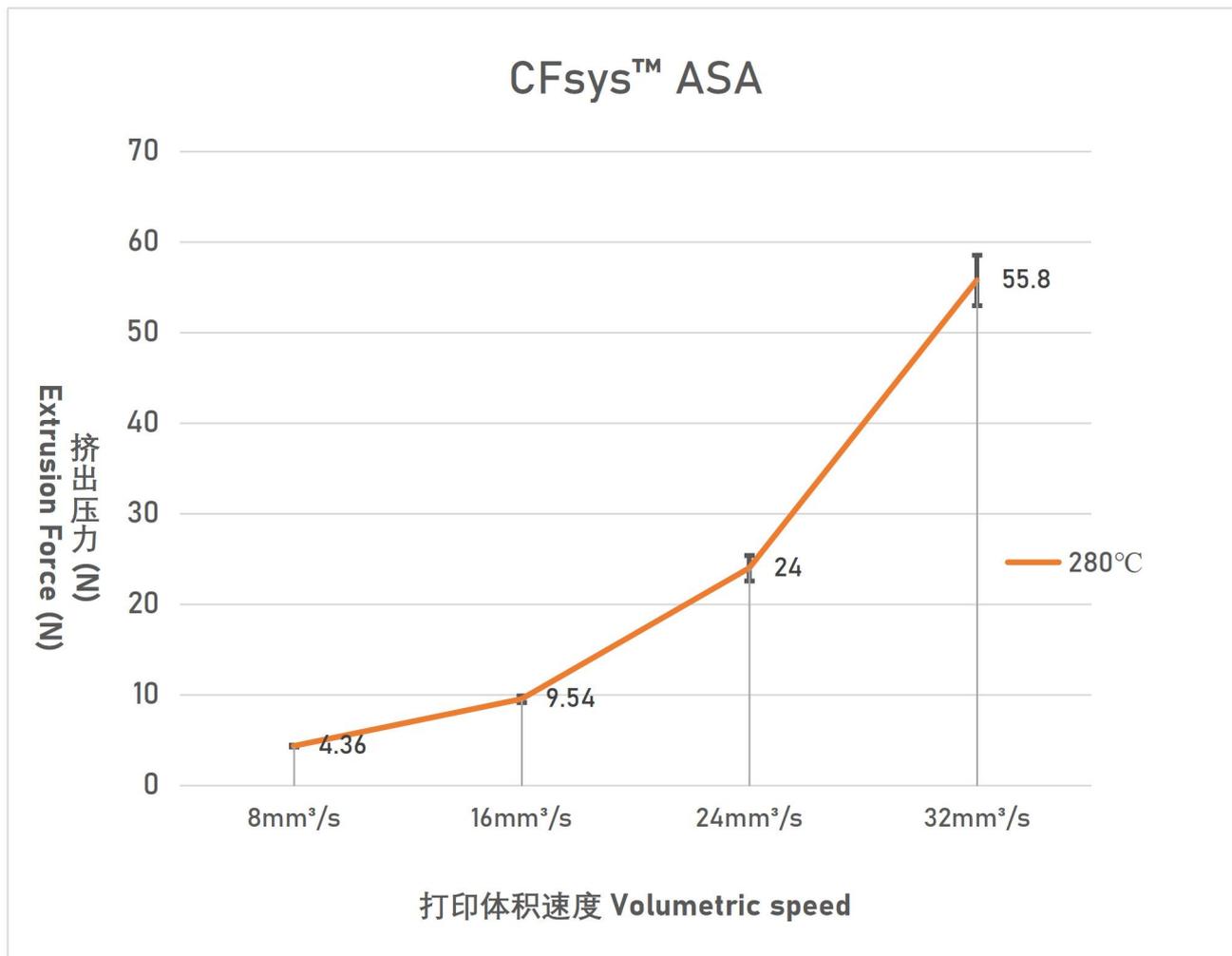
1. ASA材料相比PLA, PETG等材料在打印过程中需要有较高的环境温度来帮助释放零件成型过程中的残余应力, 在打印过程中请将打印机保持封闭状态, 可以有效避免打印零件出现翘曲和开裂现象。如果设备具有加热腔功能, 建议将加热腔温度设置在60-80°C之间。
2. 长期打开包装后的ASA线材, 如打印过程中发现打印质量下降, 请将线材置于70-80°C条件下干燥4-6h。

Additional Suggestions:

1. Compared with PLA and PETG filaments, ASA needs a higher environment temperature to release the residual stress during printing. Please keep the chamber closed to avoid warping and layer separation issues during the process. If your printer has a heated enclosure already, please keep the chamber temperature between 60-80°C.
2. If you find the printing quality decreases after ASA has been exposed in the air for a long time, please dry the filament at 70-80°C for 4-6h.

挤出压力与打印流量速度测试

Extrusion Force vs Print Volumetric Speed Test



测试参数：12mm长度铜制加热块，BMG挤出机，CFsys 硬化钢喷头，喷嘴大小0.4mm，层高0.2mm。

Test parameters: 12mm length brass heat block, BMG extruder, CFsys Hardened Steel Nozzle, Nozzle size 0.4mm, Layer Height 0.2mm.