# PLA-Cast

Technical Data Sheet

PLA-Cast is a material for conventional casting that is easy to print, has excellent molding results, a smooth surface, and a neat layer. Balanced strength, stiffness, toughness, and low ash content, it is ideal for casting part printing and can be used for concept models and rapid prototyping.

## Basic Information

| | | |
|---|---|---|
| Characteristics | • Good toughness<br>• Low ash content<br>• High forming accuracy | • Smooth surface and neat layer lines<br>• Esay to print<br>• Hard to break |
| Applications | • Prototyping<br>• Cosplay | • Decoration<br>• Other mechanical parts |
| Forming Method | • Filament | |
| Processing Method | • 3D Printing | |

| Physical Properties | Testing Method | Data |
|---|---|---|
| Density | GB/T 1033 | 1.24g/cm$^3$ |
| Melt Flow Index | GB/T 3682 | 22(190℃/2.16kg) |
| Ash Content | ASTM D2584 | 0.06% |

| Thermal Properties | Testing Method | Data |
|---|---|---|
| Heat Distortion Temperature | GB/T 1634 | 55.55℃(0.45Mpa) |
| Glass Transition Temperature | | N/A |
| Continuous Service Temperature | IEC 60216 | N/A |
| Maximum(short term)Use Temperature | | N/A |

| Electrical Properties | Testing Method | Data |
|---|---|---|
| Insulation Resistance | DINIEC 60167 | N/A |
| Surface Resistance | DINIEC 60093 | N/A |

15AB, Microsoft Ketong Building, No. 55, Gaoxin South Nine Road, Yuehai Street, Nanshan District, Shenzhen, China
Tel: (086)-0755-86581960 Fax: (086)-0755-26031982 Email: bright@brightcn.net
www.esun3d.com

| Mechanical Properties | Testing Method | Data |
|---|---|---|
| Tensile Strength (X-Y) | GB/T 1040 | 53.51Mpa |
| Tensile Strength (Z) | GB/T 1040 | 30.55MPa |
| Elongation at Break (X-Y) | GB/T 1040 | 4.6% |
| Elongation at Break (Z) | GB/T 1040 | 3.12% |
| Flexural Strength (X-Y) | GB/T 9341 | 78.9MPa |
| Flexural Strength (Z) | GB/T 9341 | 52.6Mpa |
| Flexural Modulus (X-Y) | GB/T 9341 | 3072.34MPa |
| Flexural Modulus (Z) | GB/T 9341 | 2743.65Mpa |
| IZOD Impact Strength (X-Y) | GB/T 1843 | 4.55KJ/m² |
| IZOD Impact Strength (Z) | GB/T 1843 | 2.62KJ/m² |

| Chemical Properties | Data |
|---|---|
| Acid and Alkali Resistance | NO |
| Grease Resistance | N/A |
| UV Resistance | NO |
| Water Repellency | N/A |

| Recommended Printing Parameters | Data |
|---|---|
| Drying Preparation | 50℃ > 8H |
| Nozzle Size | 0.2,0.4,0.6,0.8mm |
| Nozzle Temperature | 200~220℃ |
| Build Platform Type | PEI |
| Build Platform Temperature | 55~65℃ |
| Fan Speed | 100% |
| Printing Speed | ≤250mm/s |

## Printing Tips

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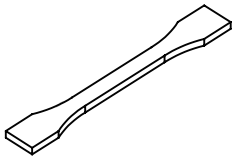
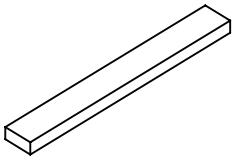
When slicing, it is best to turn on the Z seam alignment and starting point alignment functions, turn off the Z-axis lift and exit, avoid passing through the shell when idling, optimize the slicing printing path, and appropriately reduce the printing speed to achieve the best printing effect.

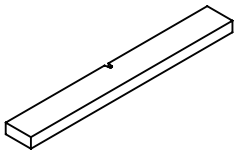
## Test Conditions of Mechanical Properties



Tensile testing specimen GB/T 1040



Flexural testing specimen GB/T 9341



Impact testing specimen GB/T 1843

The performance of the filament is evaluated based on standard samples printed by eSUN, while the actual printing performance is influenced by various factors such as printer type, printing parameters, and print environment.

## Printing Test Conditions

| | |
|---|---|
| Extruder Temperature | 220℃ |
| Build Platform Temperature | 65℃ |
| Outer Layer Number | 2 |
| Top/Bottom Layer Number | 3 |
| Infill Density | 100% |
| Fan Speed | 100% |

*Based on Bambu P1S 0.4mm nozzle and Orcaslicer 2.1.0 Beta.

## Notice

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