

Raise3D Premium PLA Technical Data Sheet

Raise3D Premium PLA is a premium PLA designed for all desktop FDM/FFF printers. It ensures consistent extrusion and prevents nozzle jams.

Physical Properties¹

| Property | Testing Method | Typical Value |
|--|---------------------------------|---------------|
| Density (g/cm ³ at 21.5 °C) | ASTM D792 (ISO 1183, GB/T 1033) | 1.2 |
| Melt index (g/10 min) | 210 °C, 2.16 kg | 7.0 - 11.0 |
| Glass transition temperature (°C) | DSC, 10 °C /min | 61 |
| Crystallization temperature (°C) | DSC, 10 °C/min | 114 |
| Softening temperature of filament (°C) | Custom method | 129 - 132 |
| Melting temperature (°C) | DSC, 10 °C/min | 150 |

Note:

1. Tested with 3D printed specimen of 100% infill.

Mechanical Properties¹

| Property | Testing Method | Typical Value |
|---|--------------------------------|---------------|
| Young's modulus (MPa) (X - Y) | ASTM D638 (ISO 527, GB/T 1040) | 2636 ± 330 |
| Tensile strength (MPa) (X - Y) | ASTM D638 (ISO 527, GB/T 1040) | 46.6 ± 0.9 |
| Elongation at break (%) (X - Y) | ASTM D638 (ISO 527, GB/T 1040) | 1.90 ± 0.2 |
| Bending modulus (MPa) (X - Y) | ASTM D790 (ISO 178, GB/T 9341) | 3283 ± 132 |
| Bending strength (MPa) (X - Y) | ASTM D790 (ISO 178, GB/T 9341) | 85.1 ± 2.9 |
| Charpy Impact strength (KJ/m ²) (X - Y) | ASTM D256 (ISO 179, GB/T 1043) | 2.7 ± 0.2 |

Note:

1. All testing specimens were printed using a Raise3D Pro2 under the following conditions:
Printing temperature=205 °C, printing speed=60 mm/s.



Recommended Printing Conditions¹

| Parameter | Recommended Setting |
|---|-----------------------|
| Nozzle temperature (°C) | 190 - 220 |
| Recommended build surface | BuildTak®, Blue Tap |
| Build plate temperature (°C) | 40 - 55 |
| Model cooling fan | Turned on |
| Printing speed (mm/s) | 50 - 70 |
| Raft separation distance (mm) | 0.1 - 0.2 |
| Retraction distance (mm) | 1 - 3 |
| Retraction speed (mm/s) | 20 - 40 |
| Recommended environmental temperature (°C) | Room temperature - 45 |
| Threshold overhang angle (°) | 45 |
| Recommended support materials | Raise3D Premium PVA |
| Other Comments | |
| Premium PLA can be printed under conditions similar to most other PLA filaments | |

Note:

- Based on 0.4 mm nozzle and ideaMaker. Printing conditions may vary with different nozzle diameters.

Testing Geometries

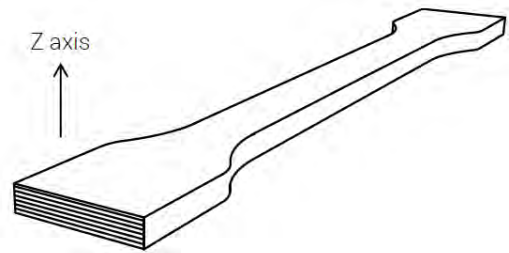
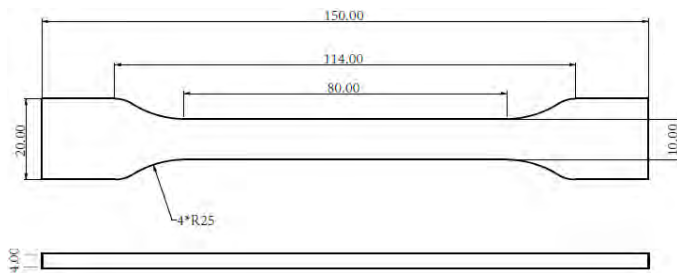


Fig 1. Tensile testing specimen

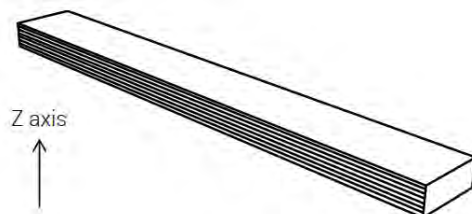
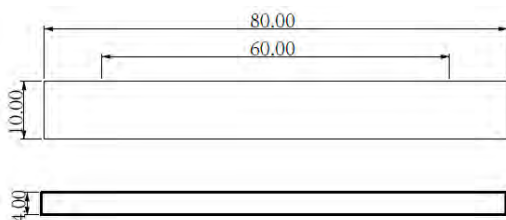


Fig 2. Flexural testing specimen



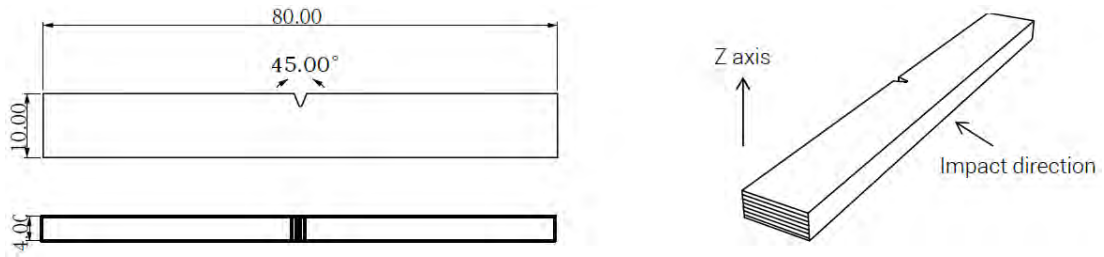


Fig 3. Impact testing specimen

Disclaimer

The typical values presented in this data sheet are intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. Actual values may vary significantly with printing conditions. Enduse performance of printed parts depends not only on materials, but also on part design, environmental conditions, printing conditions, etc. Product specifications are subject to change without notice.

Each user is responsible for determining the safety, lawfulness, technical suitability, and disposal/recycling practices of Raise3D materials for the intended application. Raise3D makes no warranty of any kind, unless announced separately, to the fitness for any particular use or application. Raise3D shall not be made liable for any damage, injury or loss induced from the use of Raise3D materials in any particular application.

