



Innovators in 3D printing



Technical Data Sheet

Polylite™ PLA Pro



Polylite™  
PLA Pro

Polylite™ PLA Pro is a first of its kind combining high toughness and high rigidity, this professional PLA offers engineering properties with the ease of print of regular PLA.

### PHYSICAL PROPERTIES

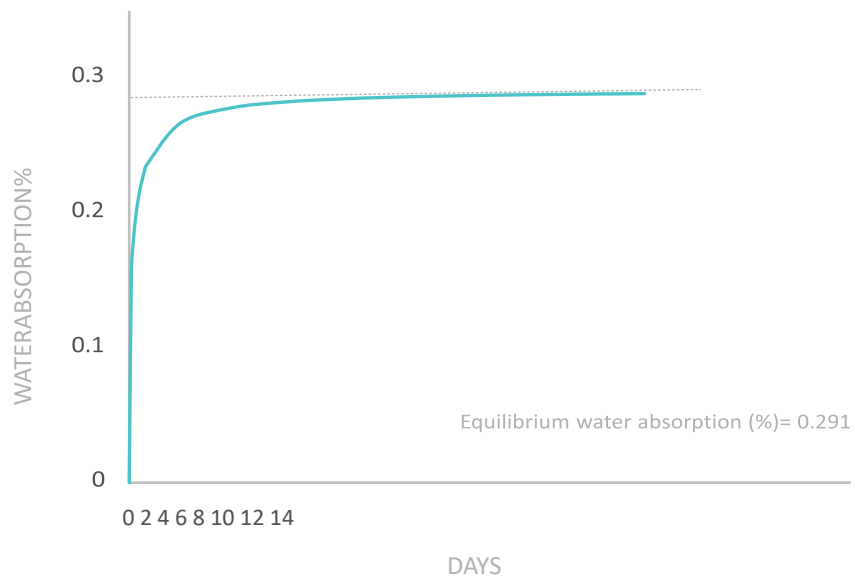
| Property           | Testing Method    | Typical Value                    |
|--------------------|-------------------|----------------------------------|
| Density            | ISO1183, GB/T1033 | 1.22 g/cm <sup>3</sup> at 21.5°C |
| Melt index         | 210°C, 2.16 kg    | 6 g/10min                        |
| Light transmission | N/A               | N/A                              |
| Flame retardancy   | N/A               | N/A                              |

### CHEMICAL RESISTANCE DATA

| Property                  | Testing Method    |
|---------------------------|-------------------|
| Effect of weak acids      | Not resistant     |
| Effect of strong acids    | Not resistant     |
| Effect of weak alkalis    | Not resistant     |
| Effect of strong alkalis  | Not resistant     |
| Effect of organic solvent | No data available |
| Effect of oils and grease | No data available |

### MOISTURE ABSORPTION CURVE

Polylite™ PLA Pro  
70% RH - 23 C

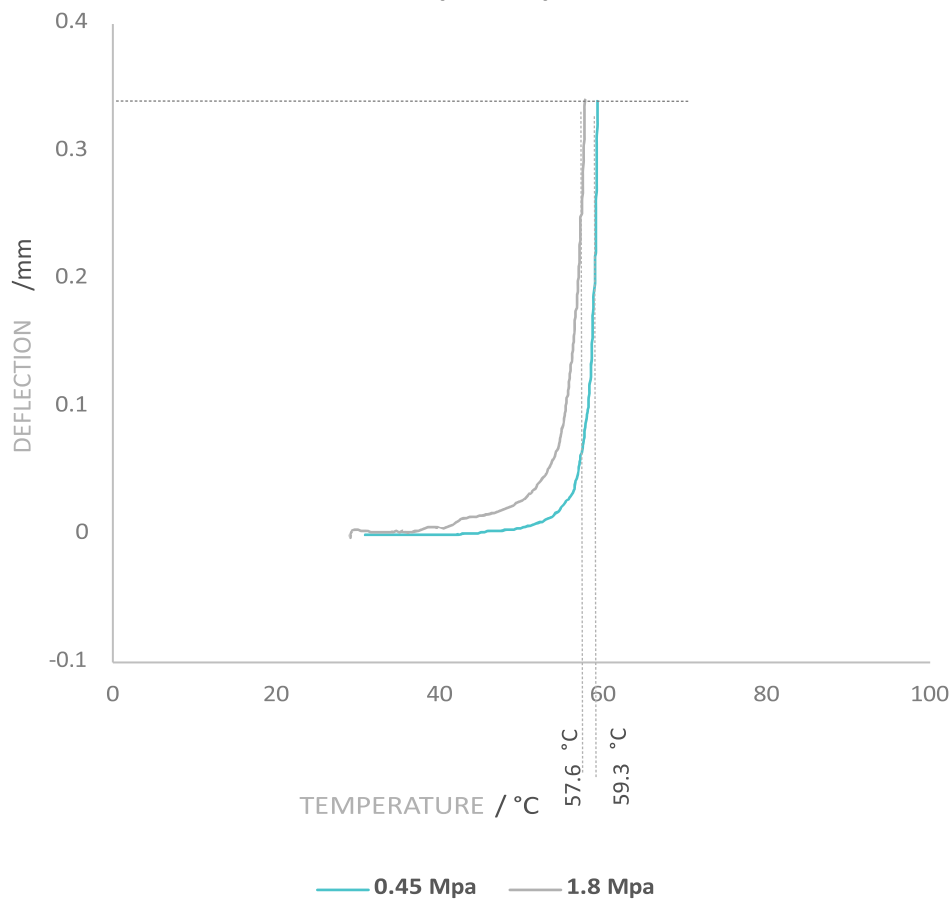


## THERMAL PROPERTIES

| Property                     | Testing Method     | Typical Value |
|------------------------------|--------------------|---------------|
| Glass transition temperature | DSC, 10°C/min      | 62 °C         |
| Melting temperature          | DSC, 10°C/min      | 150 °C        |
| Crystallization temperature  | DSC, 10°C/min      | N/A           |
| Decomposition temperature    | TGA, 20°C/min      | N/A           |
| Vicat softening temperature  | ISO 306, GB/T 1633 | 62.7 °C       |
| Heat deflection temperature  | ISO 75 1.8MPa      | 57.6 °C       |
| Heat deflection temperature  | ISO 75 0.45MPa     | 59.3 °C       |
| Thermal conductivity         | N/A                | N/A           |
| Heat shrinkage rate          | N/A                | N/A           |

## HDT CURVE

PolyLite™ PLA Pro  
0.45Mpa-1.8Mpa



## MECHANICAL PROPERTIES

| Property | Testing Method | Typical Value |
|----------|----------------|---------------|
|----------|----------------|---------------|

|                              |                    |                                |
|------------------------------|--------------------|--------------------------------|
| Young's modulus (X-Y)        | ISO 527, GB/T 1040 | 2681 ± 215 MPa                 |
| Young's modulus (Z)          |                    | 2551 ± 335 MPa                 |
| Tensile strength (X-Y)       | ISO 527, GB/T 1040 | 35.65 ± 0.93 MPa               |
| Tensile strength (Z)         |                    | 39.66 ± 0.60 MPa               |
| Elongation at break (X-Y)    | ISO 527, GB/T 1040 | 2.45 ± 0.61 %                  |
| Elongation at break (Z)      |                    | 6.02 ± 2.43 %                  |
| Bending modulus (X-Y)        | ISO 178, GB/T 9341 | 2700 ± 154 MPa                 |
| Bending modulus (Z)          |                    | N/A                            |
| Bending strength (X-Y)       | ISO 178, GB/T 9341 | 68.08 ± 2.21 MPa               |
| Bending strength (Z)         |                    | N/A                            |
| Charpy impact strength (X-Y) | ISO 179, GB/T 1043 | 13.44 ± 1.17 kJ/m <sup>2</sup> |
| Charpy impact strength (Z)   |                    | N/A                            |

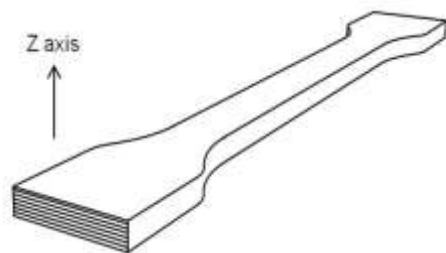
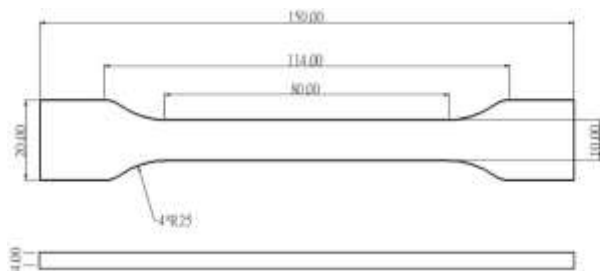
## RECOMMENDED PRINTING CONDITIONS

| Parameter                    |                                   |
|------------------------------|-----------------------------------|
| Nozzle temperature           | 190 – 220 (°C)                    |
| Build surface material       | BuildTak®, Glass, Blue Tape       |
| Build surface treatment      | Glue or Magigoo                   |
| Build plate temperature      | 30 - 60 (°C)                      |
| Cooling fan                  | ON                                |
| Printing speed               | 30-70 (mm/s)                      |
| Raft separation distance     | 0.2 (mm)                          |
| Retraction distance          | 1 - 3 (mm)                        |
| Retraction speed             | 30 - 60 (mm/s)                    |
| Environmental temperature    | 0 - 40 (°C)                       |
| Threshold overhang angle     | 60 (°)                            |
| Recommended support material | PolySupport™ and PolyDissolve™ S1 |

\* Based on 0.4 mm nozzle and Simplify 3D v.4.0. Printing conditions may vary with different nozzle diameters

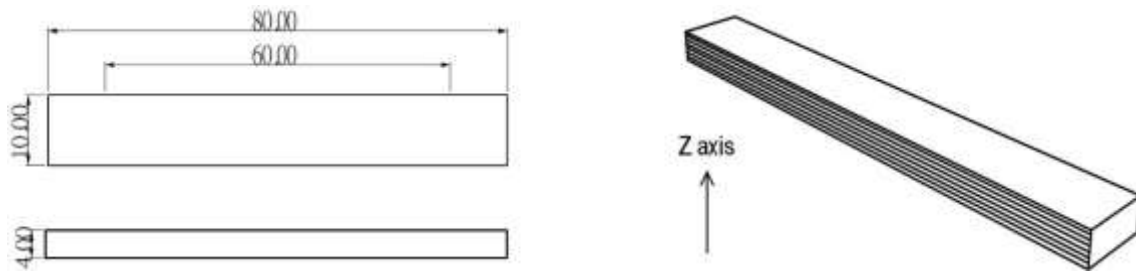
## TENSILE TESTING SPECIMEN

ISO 527, GB/T 1040



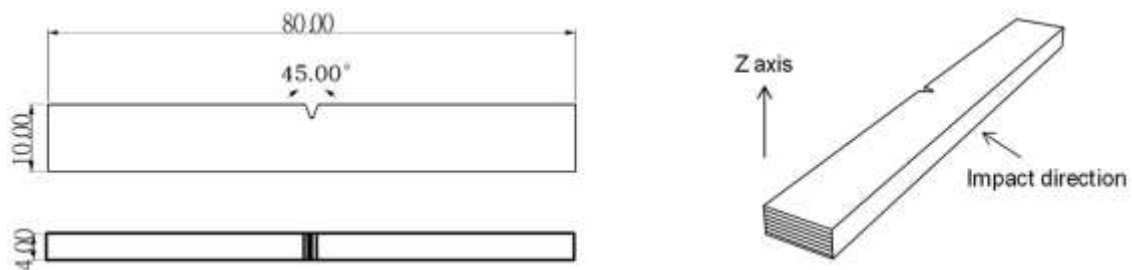
## FLEXURAL TESTING SPECIMEN

ISO 178, GB/T 9341



## IMPACT TESTING SPECIMEN

ISO 179, GB/T 1043



## HOW TO MAKE SPECIMENS

|                           |        |
|---------------------------|--------|
| Printing temperature      | 210 °C |
| Bed temperature           | 25 °C  |
| Shell                     | 2      |
| Top & bottom layer        | 4      |
| Infill                    | 100 %  |
| Environmental temperature | 25 °C  |
| Cooling fan               | ON     |

\*All specimens were conditioned at room temperature for 24h prior to testing

## 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. End- use 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.

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