

*Technical Data Sheet*

***PolyLite™ ASA***

[www.polymaker.com](http://www.polymaker.com)

V5.1



PolyLite™ ASA is an alternative to ABS with an improved weather resistance. Its UV resistance and excellent mechanical properties make it the perfect choice for real life applications.

### PHYSICAL PROPERTIES

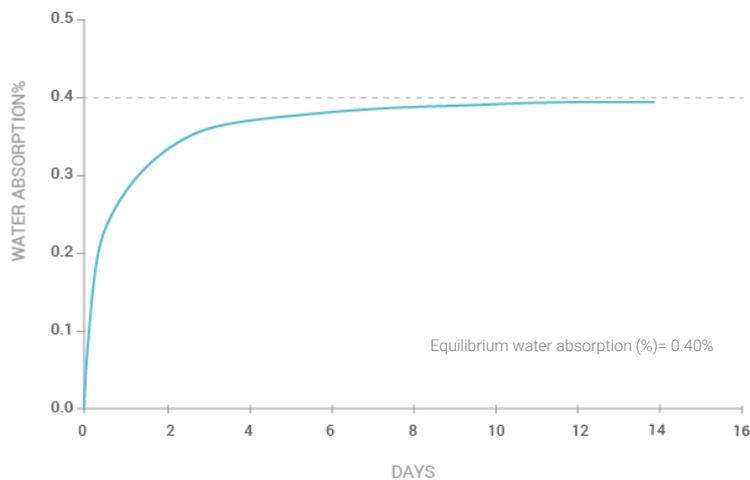
| Property           | Testing Method    | Typical Value                  |
|--------------------|-------------------|--------------------------------|
| Density            | ISO1183, GB/T1033 | 1.13 g/cm <sup>3</sup> at 23°C |
| Melt index         | 220°C, 10 kg      | 25 g/10min                     |
| Light transmission | N/A               | N/A                            |
| Flame retardancy   | N/A               | N/A                            |

### CHEMICAL RESISTANCE DATA

| Property                  | Testing Method     |
|---------------------------|--------------------|
| Effect of weak acids      | Resistant          |
| Effect of strong acids    | Slightly resistant |
| Effect of weak alkalis    | Resistant          |
| Effect of strong alkalis  | Slightly resistant |
| Effect of organic solvent | Not resistant      |
| Effect of oils and grease | Resistant          |

### MOISTURE ABSORPTION CURVE

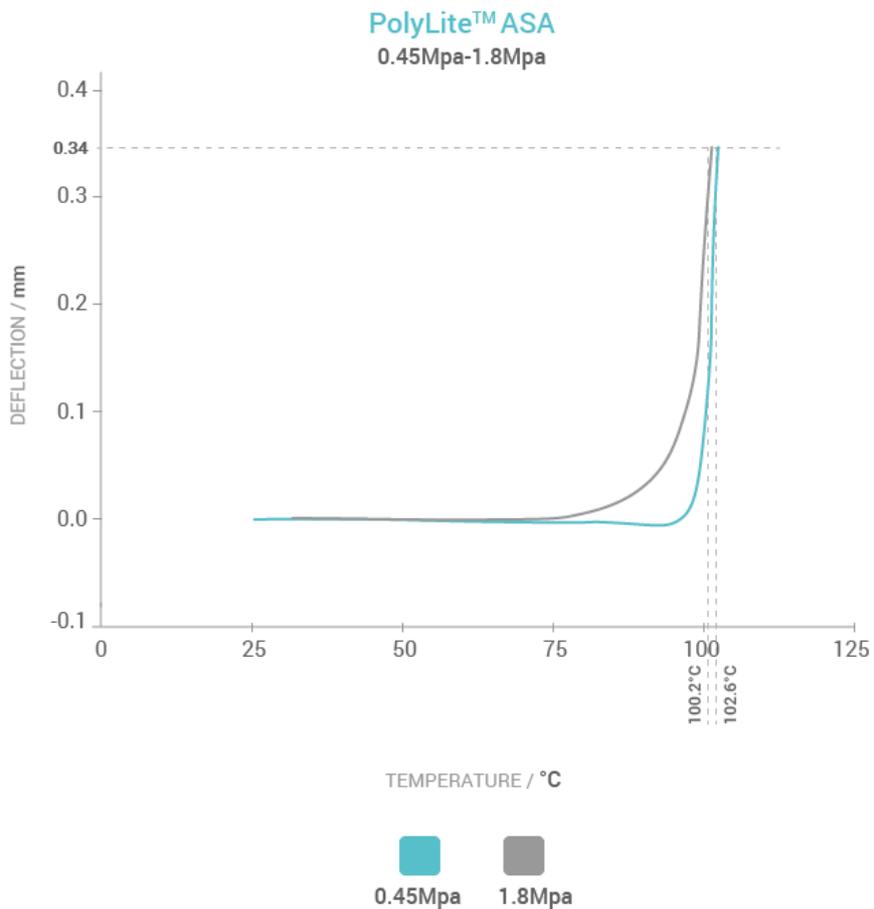
PolyLite™ ASA  
70%RH - 23°C



## THERMAL PROPERTIES

| Property                     | Testing Method     | Typical Value |
|------------------------------|--------------------|---------------|
| Glass transition temperature | DSC, 10°C/min      | 97.8 °C       |
| Melting temperature          | DSC, 10°C/min      | N/A           |
| Crystallization temperature  | DSC, 10°C/min      | N/A           |
| Decomposition temperature    | TGA, 20°C/min      | N/A           |
| Vicat softening temperature  | ISO 306, GB/T 1633 | 105.3 °C      |
| Heat deflection temperature  | ISO 75 1.8MPa      | 100.2 °C      |
| Heat deflection temperature  | ISO 75 0.45MPa     | 102.6 °C      |
| Thermal conductivity         | N/A                | N/A           |
| Heat shrinkage rate          | N/A                | N/A           |

### HDT CURVE



## **MECHANICAL PROPERTIES**

| Property                     | Testing Method     | Typical Value                |
|------------------------------|--------------------|------------------------------|
| Young's modulus (X-Y)        | ISO 527, GB/T 1040 | 2379 ± 157 MPa               |
| Young's modulus (Z)          |                    | 1965 ± 136 MPa               |
| Tensile strength (X-Y)       | ISO 527, GB/T 1040 | 43.8 ± 0.8 MPa               |
| Tensile strength (Z)         |                    | 32 ± 1.8 MPa                 |
| Elongation at break (X-Y)    | ISO 527, GB/T 1040 | 6.7 ± 0.6 %                  |
| Elongation at break (Z)      |                    | 1.65 ± 0.2 %                 |
| Bending modulus (X-Y)        | ISO 178, GB/T 9341 | 3206 ± 108 MPa               |
| Bending modulus (Z)          |                    | N/A                          |
| Bending strength (X-Y)       | ISO 178, GB/T 9341 | 73.4 ± 2.1 MPa               |
| Bending strength (Z)         |                    | N/A                          |
| Charpy impact strength (X-Y) | ISO 179, GB/T 1043 | 10.3 ± 0.4 kJ/m <sup>2</sup> |
| Charpy impact strength (Z)   |                    | 6.7 ± 1.4 kJ/m <sup>2</sup>  |

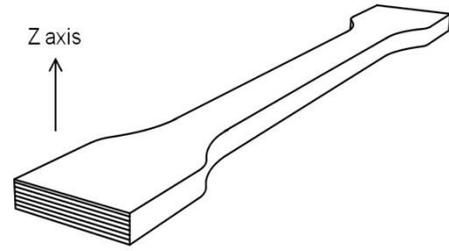
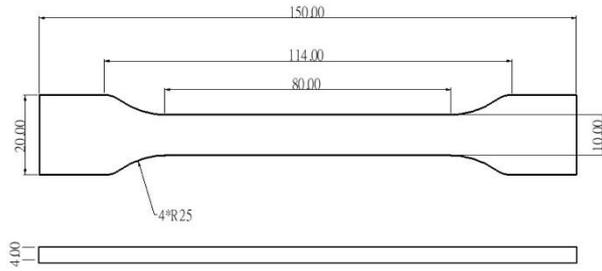
## **RECOMMENDED PRINTING CONDITIONS**

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

| Parameter                    |                            |
|------------------------------|----------------------------|
| Nozzle temperature           | 240 – 260 (°C)             |
| Build surface material       | BuildTak®                  |
| Build surface treatment      | Magigoo                    |
| Build plate temperature      | 75 - 95 (°C)               |
| Cooling fan                  | OFF                        |
| Printing speed               | 30-50 (mm/s)               |
| Raft separation distance     | 0.2 (mm)                   |
| Retraction distance          | 1 (mm)                     |
| Retraction speed             | 20 (mm/s)                  |
| Environmental temperature    | Room temperature - 90 (°C) |
| Threshold overhang angle     | 50 (°)                     |
| Recommended support material | PolyDissolve™ S2           |

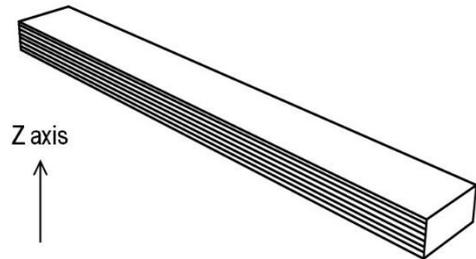
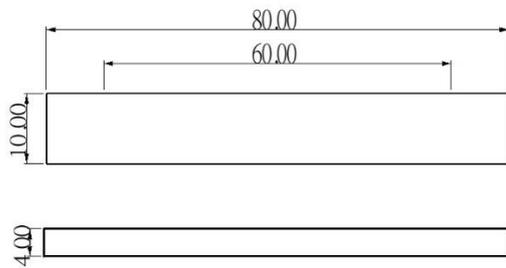
## TENSILE TESTING SPECIMEN

ISO 527, GB/T 1040



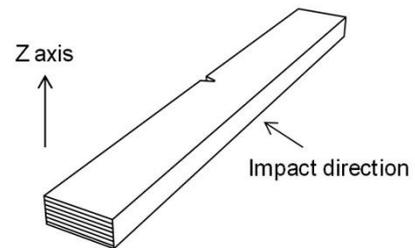
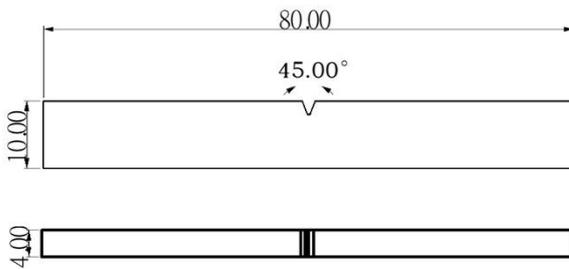
## FLEXURAL TESTING SPECIMEN

ISO 178, GB/T 9341



## IMPACT TESTING SPECIMEN

ISO 179, GB/T 1043



## HOW TO MAKE SPECIMENS

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

|                           |        |
|---------------------------|--------|
| Printing temperature      | 260 °C |
| Bed temperature           | 80 °C  |
| Shell                     | 2      |
| Top & bottom layer        | 4      |
| Infill                    | 100%   |
| Environmental temperature | 70 °C  |
| Cooling fan               | OFF    |

## 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.

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