polymaker

Innovators in 3D printing

Technical Data Sheet

PolySmooth™

PolySmooth™

PolySmooth™ is a unique, easy-to-print filament designed for hands-free post processing. The surface can be smoothed with alcohol to achieve layer free models using the Polysher™.
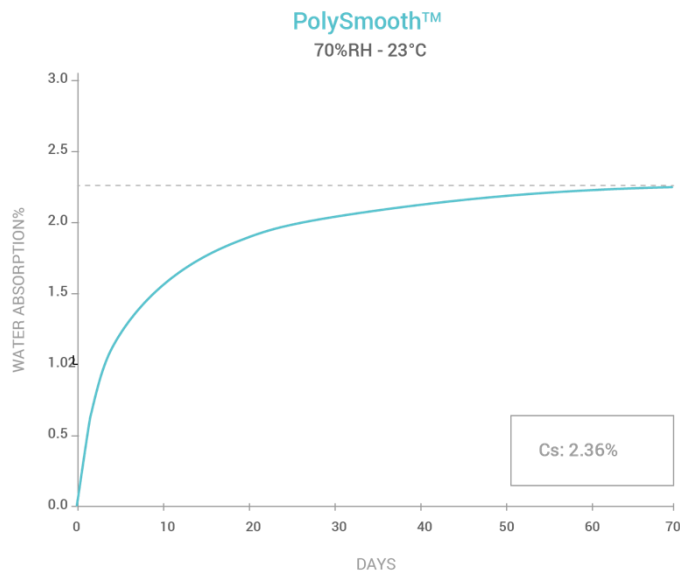
PHYSICAL PROPERTIES

Property	Testing Method	Typical Value
Density	ISO1183, GB/T1033	1.10 g/cm^3 at 21°C
Melt Index	210°C, 2.16kg	6.7 g/10min
Light Transmission	N/A	N/A
Flame retardancy V2	UL94	V2

CHEMICAL RESISTANT DATA

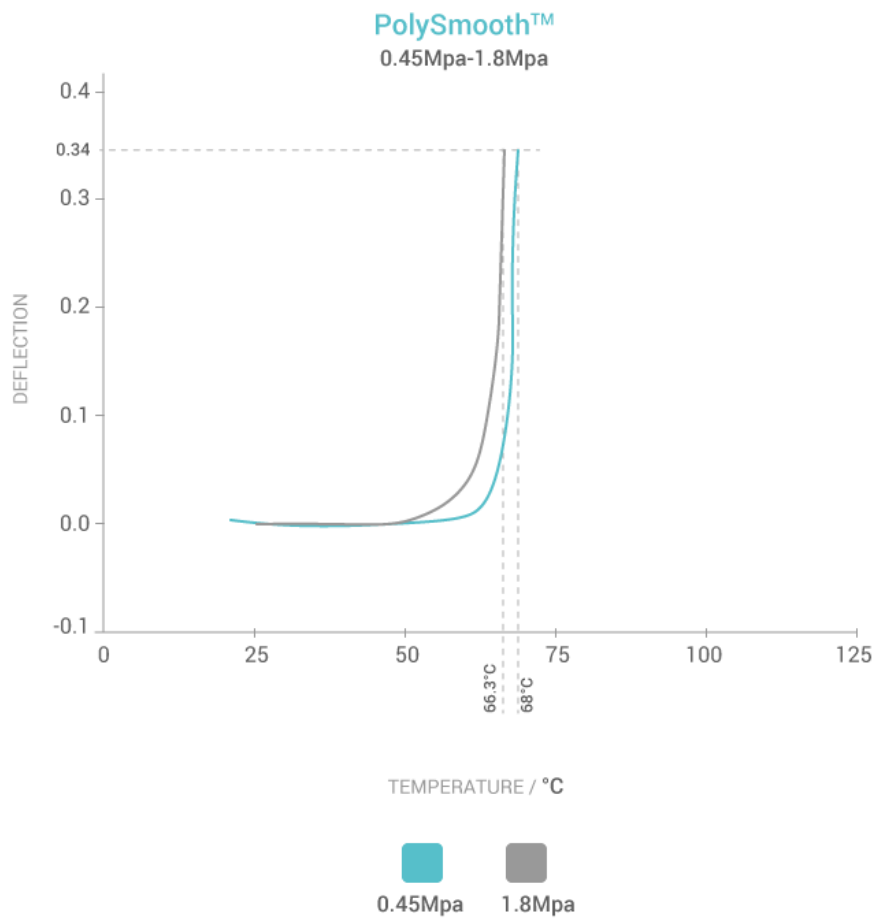| Property	Testing Method
Effect of weak acids	Not Resistant
Effect of strong acids	Not Resistant
Effect of weak alkalis	Not Resistant
Effect of strong alkalis	Not Resistant
Effect of organic solvent	No data available
Effect of oils and grease	No data available
Effect of Sunlight	No data available

MOISTURE ABSORPTION CURVE

PolySmooth™
70%RH - 23°C

Cs: 2.36%

THERMAL PROPERTIES

Property	Testing Method	Typical Value
Glass transition	DSC, 10°C/min	70 °C
Melting temperature	DSC, 10°C/min	N/A
Crystallization temperature	DSC, 10°C/min	N/A
Decomposition temperature	TGA, 20°C/min	260 °C
Vicat softening temperature	ISO 306 GB/T 1633	70 °C
Heat deflection temperature	ISO 75 1.8MPa	66.3 °C
Heat deflection temperature	ISO 75 0.45MPa	68.0 °C
Thermal conductivity	N/A	N/A
Low temperature resistance	N/A	N/A
Heat shrinkage rate	N/A	N/A

HDT CURVE

PolySmooth™
0.45Mpa-1.8Mpa

0.45Mpa · 1.8Mpa

MECHANICAL PROPERTIES

Property	Testing Method	Typical Value
Young's modulus (X-Y)	ISO 527, GB/T 1040	2092 ± 652 MPa
Young's modulus (Z)		1614 ± 79 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	44.1 ± 0.8 MPa
Tensile strength (Z)		18.4 ± 1.2 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	3.4 ± 0.4 %
Elongation at break (Z)		1.3 ± 0.1 %
Bending modulus (X-Y)	ISO 178, GB/T 9341	2062 ± 200 MPa
Bending modulus (Z)		N/A
Bending strength (X-Y)	ISO 178, GB/T 9341	76.2 ± 5.7 MPa
Bending strength (Z)		N/A
Charpy impact strength (X-Y)	ISO 179, GB/T 9343	9.2 ± 0.7 kj/m^2
Charpy impact strength (Z)		N/A

HOW TO MAKE SPECIMENS

Printing temperature	220 °C
Bed temperature	60 °C
Shell	2
Top & bottom layer	4
Infill	100%
Environmental temperature	25 °C
Cooling fan	ON

Note:

- It is highly recommended to use the PolyBox™ when printing with PolySmooth™ and to store it in the resealable bag.
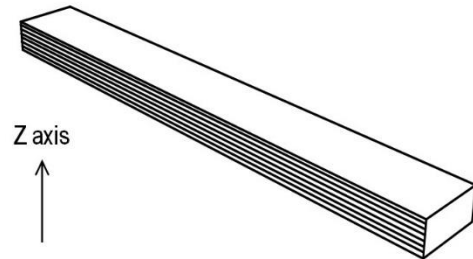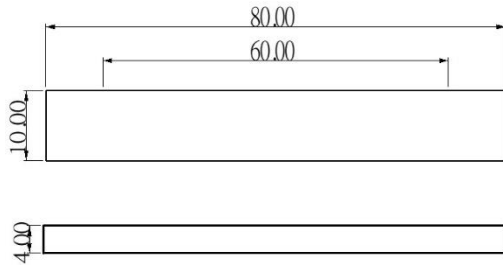
TENSILE TESTING SPECIMEN
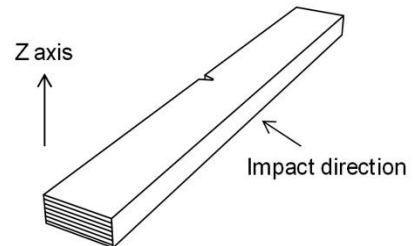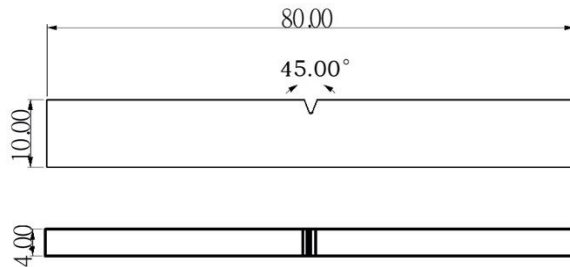## ASTM D638 (ISO 527, GB/T 1040)

150.00
114.00
80.00
20.00
10.00
4*R25
4.00

Z axis
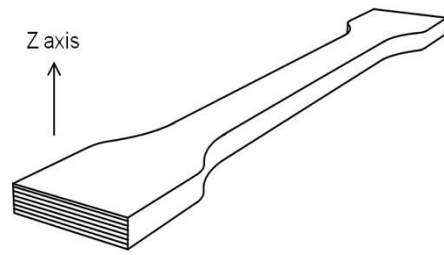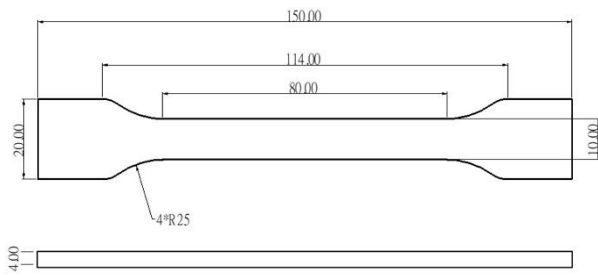
FLEXURAL TESTING SPECIMEN
ASTM D638 (ISO 527, GB/T 1040)

80.00
60.00
10.00
4.00

Z axis

IMPACT TESTING SPECIMEN
ASTM D638 (ISO 179, GB/T 1043)

80.00
45.00°
10.00
4.00

Z axis

Impact direction

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.