



## Technical Data Sheet

# PolyMax™ PETG-ESD

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V5.3



## PolyMax™ PETG-ESD

PolyMax™ PETG-ESD offers electrostatic discharge (ESD) safety with improved toughness making it a good candidate for applications in electronics industry.

### PHYSICAL PROPERTIES

Property	Testing Method	Typical Value
Density	ISO1183, GB/T1033	1.24 g/cm <sup>3</sup> at 23°C
Melt index	280°C, 5kg	14 g/10min
Light transmission	N/A	N/A
Flame retardancy	N/A	N/A

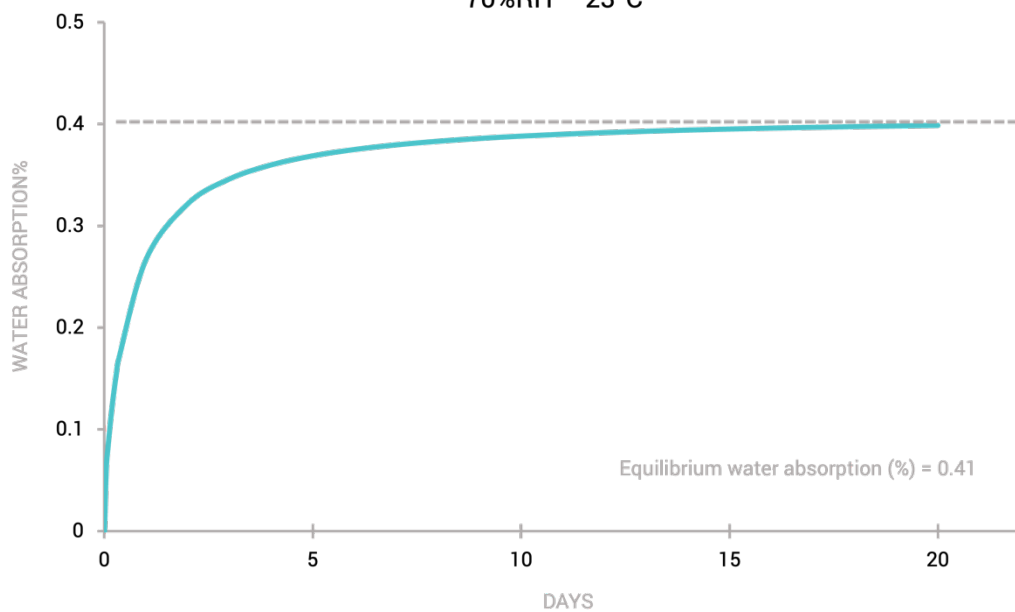
### CHEMICAL RESISTANCE DATA

Property	Resistance
Effect of weak acids	Good
Effect of strong acids	Fair-Poor
Effect of weak alkalis	Poor
Effect of strong alkalis	Poor
Effect of oils and grease	Good

### MOISTURE ABSORPTION CURVE

PolyMax™ PETG-ESD

70%RH – 23°C



## THERMAL PROPERTIES

Property	Testing Method	Typical Value
Glass transition temperature	DSC, 10°C/min	77 °C
Melting temperature	DSC, 10°C/min	N/A
Crystallization temperature	DSC, 10°C/min	N/A
Decomposition temperature	TGA, 20°C/min	373 °C
Vicat softening temperature	ISO 306, GB/T 1633	86 °C
Heat deflection temperature	ISO 75 1.8MPa	72 °C
Heat deflection temperature	ISO 75 0.45MPa	76 °C
Thermal conductivity	N/A	N/A
Heat shrinkage rate	N/A	N/A

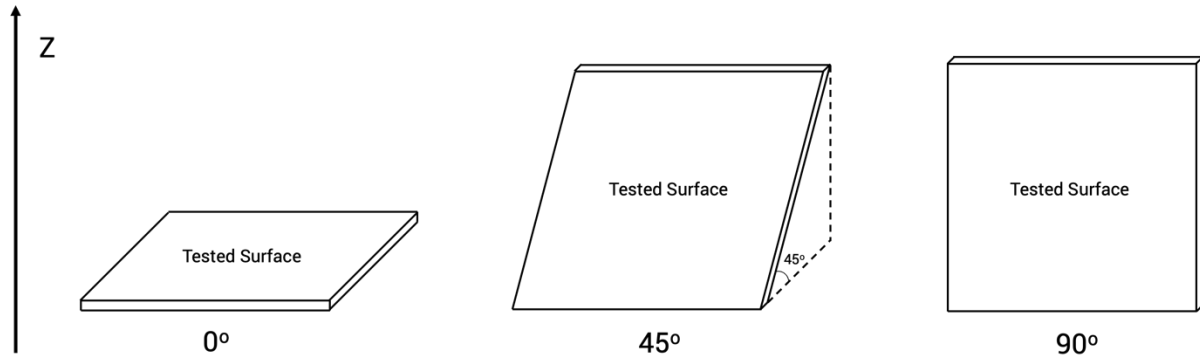
## MECHANICAL PROPERTIES

Property	Testing Method	Typical Value
Young's modulus (X-Y)	ISO 527, GB/T 1040	1983 ± 66 MPa
Young's modulus (Z)		1626 ± 34 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	36.1 ± 0.7 MPa
Tensile strength (Z)		20.7 ± 0.6 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	7.3 ± 0.5 %
Elongation at break (Z)		1.8 ± 0.1 %
Bending modulus (X-Y)	ISO 178, GB/T 9341	1658 ± 164 MPa
Bending strength (X-Y)	ISO 178, GB/T 9341	54.0 ± 3.0 MPa
Notched charpy impact strength (X-Y)	ISO 179, GB/T 1043	5.7 ± 0.6 kJ/m <sup>2</sup>

## ELECTRICAL PROPERTIES

Surface Resistivity ( $\Omega$ )		Nozzle Temperature		
		250 °C	270 °C	290 °C
Specimen Type	0°	(1.6 ± 0.3)E+7	(4.7 ± 0.8)E+5	< 1E+4
	45°	(7.0 ± 0.9)E+6	(3.4 ± 1.2)E+5	< 1E+4
	90°	(8.8 ± 0.8)E+6	(3.2 ± 1.0)E+5	< 1E+4

\* The test method is ANSI ESD S11.11



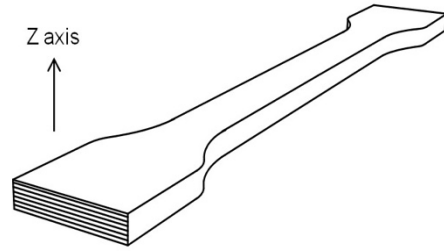
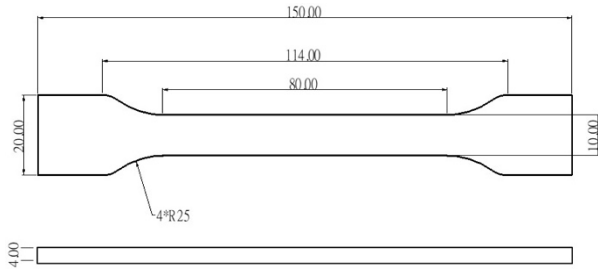
## RECOMMENDED PRINTING CONDITIONS

Parameter	
Nozzle temperature	250-290 (°C)
Build surface material	BuildTak®, PC film
Build surface treatment	Glue, Magigoo
Build plate temperature	70-80 (°C)
Cooling fan	OFF-20%
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-50 (°C)
Threshold overhang angle	70 (°)
Recommended support material	NA
Drying temperature	65 (°C)
Drying time	6 (h)

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

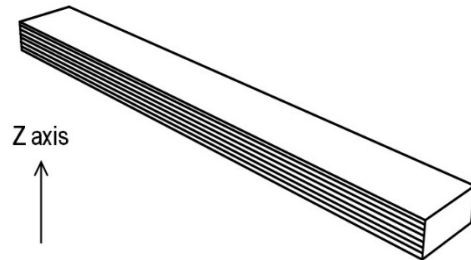
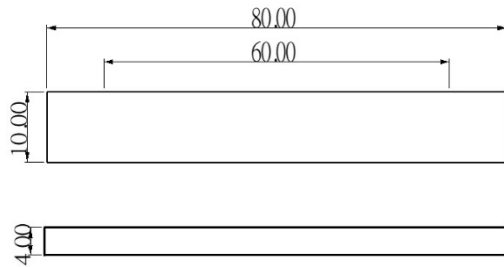
## TENSILE TESTING SPECIMEN

ISO 527, GB/T 1040



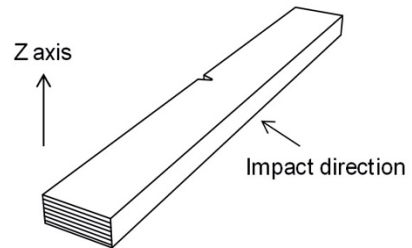
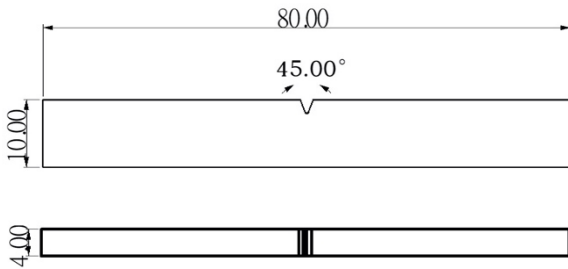
## FLEXURAL TESTING SPECIMEN

ISO 178, GB/T 9341



## IMPACT TESTING SPECIMEN

ISO 179, GB/T 1043



## HOW TO MAKE SPECIMENS

Printing temperature	270 °C
Bed temperature	80 °C
Shell	2
Top & bottom layer	4
Infill	100%
Environmental temperature	25 °C
Cooling fan	OFF

\*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.

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.