

Technical Data Sheet

*PolyFlex™ TPU90*

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

V5.1



PolyFlex™ TPU90, created from Covestro's Addigy® family, is a thermoplastic polyurethane (TPU) based filament designed to provide great flexibility without compromising on printing speed. It also has the ability to resist ultra-violet (UV) light or sunlight.

### PHYSICAL PROPERTIES

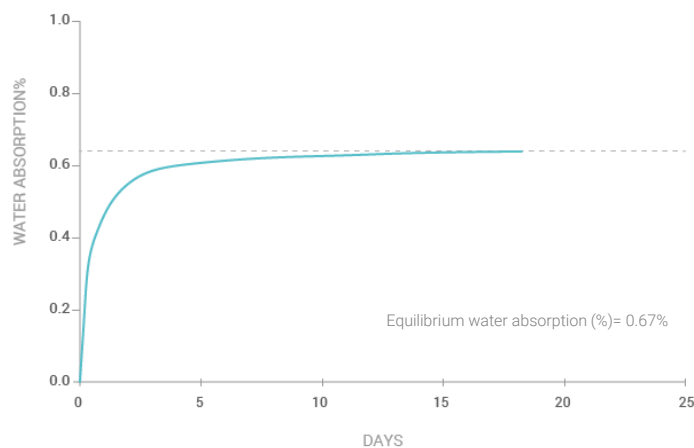
Property	Testing Method	Typical Value
Density	ISO1183, GB/T1033	1.12 g/cm <sup>3</sup> at 23 °C
Melt index	185°C, 1.2 kg	6.1 g/10min
Light transmission	N/A	N/A
Flame retardancy	N/A	N/A

### 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

PolyFlex™ TPU90  
70%RH - 23°C



## MECHANICAL PROPERTIES

Property	Testing Method	Typical Value
100% modulus (X-Y)	ISO 37, GB/T 528	6.17 ± 0.19 MPa
Tensile strength (X-Y)	ISO 37, GB/T 528	30.0 ± 0.66 MPa
Elongation at break (X-Y)	ISO 37, GB/T 528	586.8 ± 15.3 %
Shore hardness	ISO 7619-1, GB/T 531.1	90A

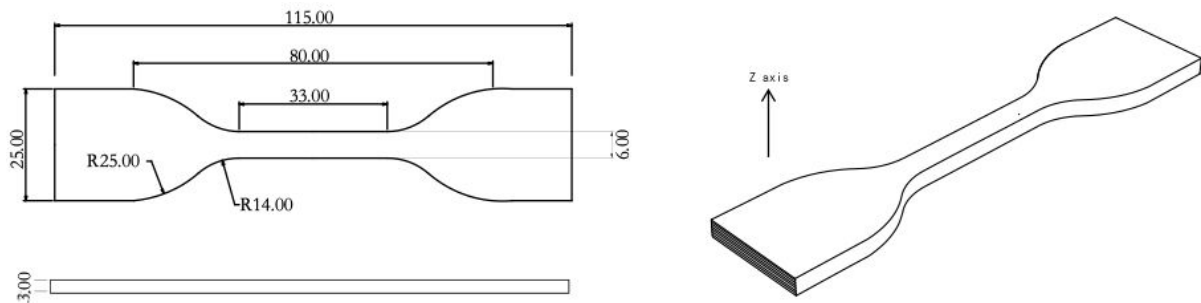
## RECOMMENDED PRINTING CONDITIONS

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

Parameter	
Nozzle temperature	210 – 230 (°C)
Build surface material	BuildTak®, Glass, Blue Tape
Build surface treatment	PVA or PVP glue, Magigoo
Build plate temperature	25 - 60 (°C)
Cooling fan	ON
Printing speed	30-60 (mm/s)
Raft separation distance	0.2 (mm)
Retraction distance	3 (mm)
Retraction speed	40 (mm/s)
Environmental temperature	Room temperature
Threshold overhang angle	35 (°)
Recommended support material	PolySupport™ and PolyDissolve™ S1

## TENSILE TESTING SPECIMEN

ISO 37, GB/T 528



## HOW TO MAKE SPECIMENS

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

Printing temperature	220 °C
Bed temperature	50 °C
Shell	2
Top & bottom layer	4
Infill	100%
Environmental temperature	25 °C
Cooling fan	ON

## 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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