

Technical Data Sheet

PolyFlex™ TPU90

www.polymaker.com

V5.4



PolyFlex™
TPU90

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 ³ 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

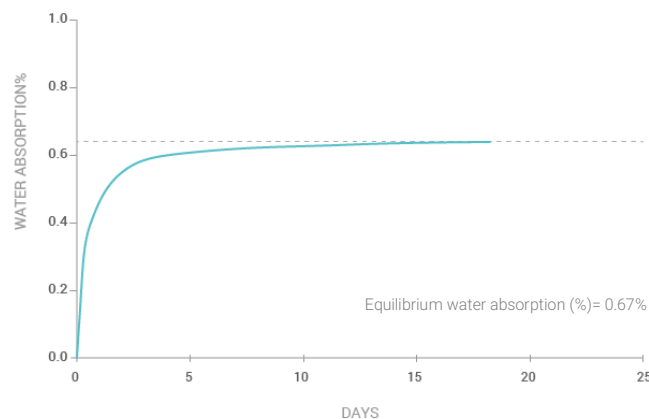
Property	Typical Value
Effect of weak acids	Fair
Effect of strong acids	Poor
Effect of weak alkalis	Fair
Effect of strong alkalis	Poor
Effect of oils and grease	Good

Note:

- Good: Material may get minor attack after long periods of storage with chemical at ambient temperature
- Fair: Material can be used for short time contact with chemical at ambient temperature
- Poor: Material becomes unstable on contact with chemical at ambient temperature

MOISTURE ABSORPTION CURVE

PolyFlex™ TPU90
70%RH - 23°C



MECHANICAL PROPERTIES

Property	Testing Method	Typical Value
Stress at 100% strain (X-Y)	ISO 37, GB/T 528	7.1 ± 0.3 MPa
Stress at 200% strain (X-Y)	ISO 37, GB/T 528	9.0 ± 0.9 MPa
Stress at 300% strain (X-Y)	ISO 37, GB/T 528	13.2 ± 0.6 MPa
Stress at 400% strain (X-Y)	ISO 37, GB/T 528	19.0 ± 0.9 MPa
Tensile strength (X-Y)	ISO 37, GB/T 528	30.1 ± 2.4 MPa
Elongation at break (X-Y)	ISO 37, GB/T 528	592.1 ± 32.9 %
Shore hardness	ISO 7619-1, GB/T 531.1	90A

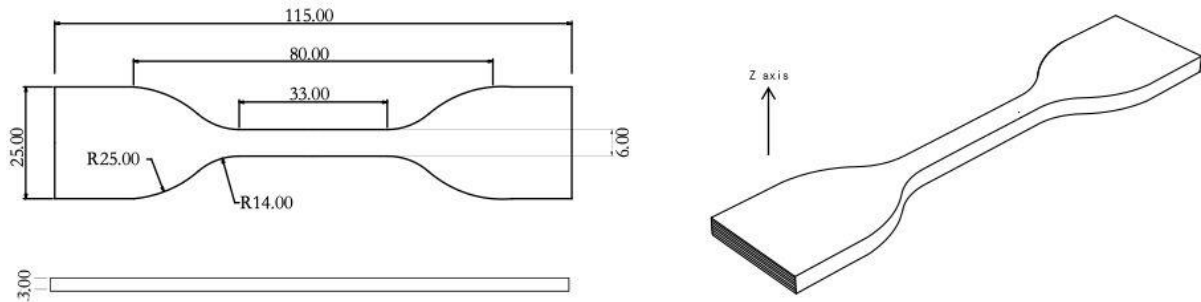
RECOMMENDED PRINTING CONDITIONS

Parameter	
Nozzle temperature	210 – 230 (°C)
Build surface treatment	PC and Texture PEI (Glue when needed)
Build plate temperature	25 - 60 (°C)
Cooling fan	ON
Printing speed	30 – 70 (mm/s)
Retraction distance	3 - 6 (mm)
Retraction speed	40 - 60 (mm/s)
Closure Chamber	No Needed
Recommended support material	PolySupport™ and PolyDissolve™ S1
Drying setting	70°C for 8h
Annealing setting	-

* Based on 0.4 mm nozzle. Printing conditions may vary with different nozzle diameters

TENSILE TESTING SPECIMEN

ISO 37, GB/T 528



HOW TO MAKE SPECIMENS

Printing temperature	230 °C
Bed temperature	50 °C
Shell	2
Top & bottom layer	3
Infill	100%
Environmental temperature	Ambient temperature
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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