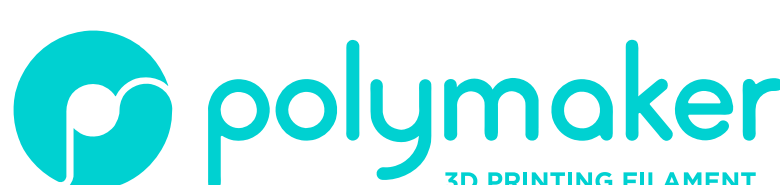


TECHNICAL DATA SHEET



V5.5



PolyMide™ CoPA

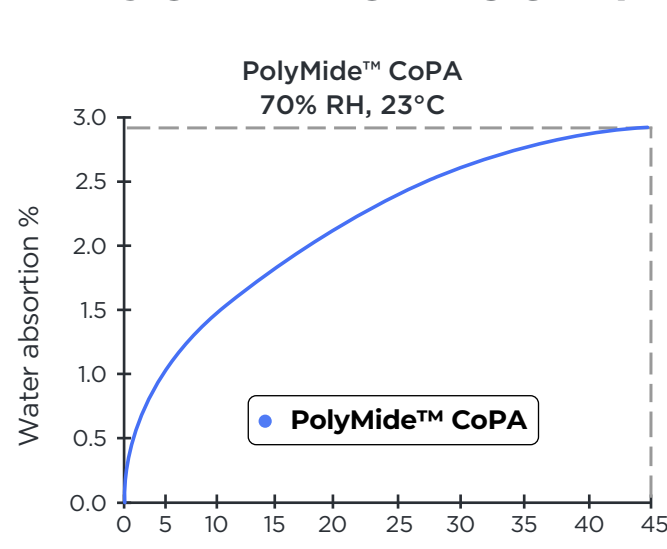
PolyMide™ CoPA is based on a copolymer of Nylon 6 and Nylon 6.6. The filament combines excellent strength, toughness, and heat resistance of up to 180 °C.

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PHYSICAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Density	ISO1183, GB/T 1033	1.12 g/cm ³ at 23°C
Melt index	260°C, 1.2kg	12 g/10min
Light transmission	N/A	N/A
Flame retardancy	N/A	N/A

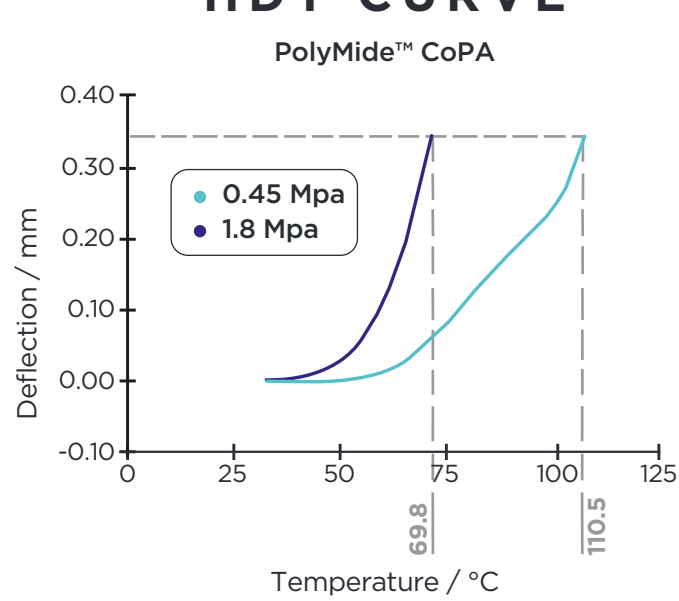
MOISTURE ABSORPTION CURVE



THERMAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Glass transition temp.	DSC, 10°C/min	66°C
Melting temp.	DSC, 10°C/min	189°C
Crystallization temp.	DSC, 10°C/min	148°C
Decomposition temp.	TGA, 20°C/min	370°C
Vicat softening temp.	ISO 306, GB/T 1633	180°C
Heat deflection temp. (1.8MPa)	ISO 75 1.8MPa	70°C
Heat deflection temp. (0.45MPa)	ISO 75 0.45MPa	111°C

HDT CURVE



MECHANICAL PROPERTIES (Dry Status)

PROPERTY	TESTING METHOD	TYPICAL VALUE
Young's modulus (X-Y)	ISO 527, GB/T 1040	2703 ± 259 MPa
Young's modulus (Z)		2209 ± 59 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	78.0 ± 0.7 MPa
Tensile strength (Z)		45.8 ± 1.5 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	12.7 ± 2.1 %
Elongation at break (Z)		1.3 ± 0.1 %
Bending modulus (X-Y)	ISO 178, GB/T 9341	2510 ± 25 MPa
Bending modulus (Z)		N/A
Bending strength (X-Y)	ISO 178, GB/T 9341	109.8 ± 1.3 MPa
Bending strength (Z)		N/A
Notched charpy impact strength (X-Y)	ISO 179, GB/T 1043	6.9 ± 1.4 kJ/m ²
Notched charpy impact strength (Z)		N/A

MECHANICAL PROPERTIES (Wet Status)

PROPERTY	TESTING METHOD	TYPICAL VALUE
Young's modulus (X-Y)	ISO 527, GB/T 1040	724 ± 61 MPa
Young's modulus (Z)		660 ± 29 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	34.3 ± 2.5 MPa
Tensile strength (Z)		13.7 ± 1.2 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	13.2 ± 2.3 %
Elongation at break (Z)		1.7 ± 0.2 %
Bending modulus (X-Y)	ISO 178, GB/T 9341	636 ± 11 MPa
Bending modulus (Z)		N/A
Bending strength (X-Y)	ISO 178, GB/T 9341	22.6 ± 0.5 MPa
Bending strength (Z)		N/A
Notched charpy impact strength (X-Y)	ISO 179, GB/T 1043	27.7 ± 1.2 kJ/m ²
Notched charpy impact strength (Z)		N/A

CHEMICAL RESISTANCE DATA

PROPERTY	TYPICAL VALUE
Effect of weak acids	Poor
Effect of strong acids	Poor
Effect of weak alkalis	Fair
Effect of strong alkalis	Poor
Effect of oils and grease	Good

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 chemicals at ambient temperature

Poor: Material becomes unstable on contact with chemical at ambient temperature

RECOMMENDED PRINTING CONDITIONS

Nozzle temperature	250-270°C
Build plate temperature	25-50°C
Build surface treatment	PC and Textured PEI
Cooling fan	OFF
Closure chamber	Needed (ambient temp.)
Printing speed	50-200mm/s
Drying temp. and time	100°C/8H
Retraction distance	3-6 (mm)
Retraction speed	40-60 (mm/s)
Annealing setting	80°C/6H

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

NOTE:
 - Abrasion of the brass nozzle happens quite often when printing PolyMide™ CoPA. A wear-resistant nozzle, such as hardened steel and ruby nozzle, is highly recommended to be used with PolyMide™ CoPA.
 - PolyMide™ CoPA is sensitive to moisture and should always be stored and used under dry conditions (relative humidity below 20%).
 - If PolyMide™ CoPA is used as the support material for itself, please remove the support structure before excessive moisture absorption. Otherwise, the support structure can be permanently bonded to the model.
 - After the printing process, it is recommended to anneal the model in the oven at 80°C for 6 hours.



PolyDissolve™ S1
Recommended support material



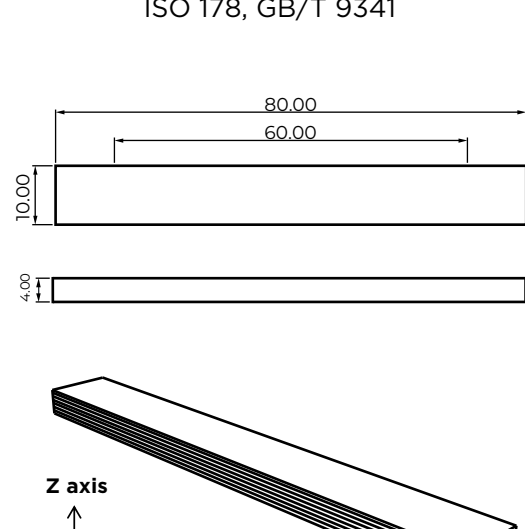
PolyBox™ or PolyDryer™ Box
Recommended storage for excellent printing quality

HOW TO MAKE SPECIMENS

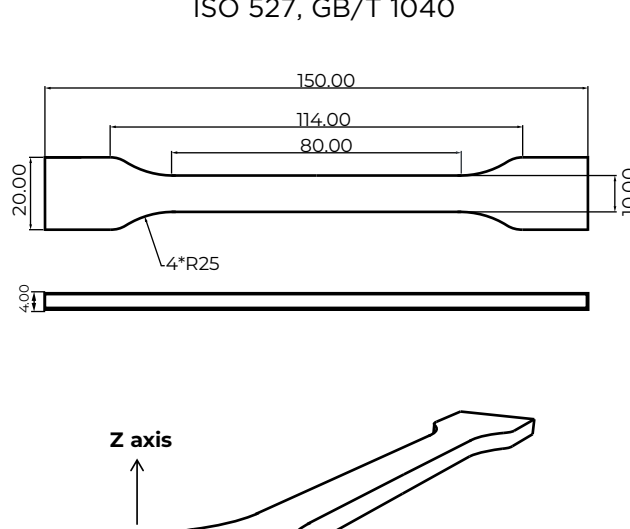
Printing temperature	260°C
Bed temperature	50°C
Top & bottom layer	3
Environmental Temperature	Ambient temp.

Infill	100%
Shell	2
Cooling fan	OFF

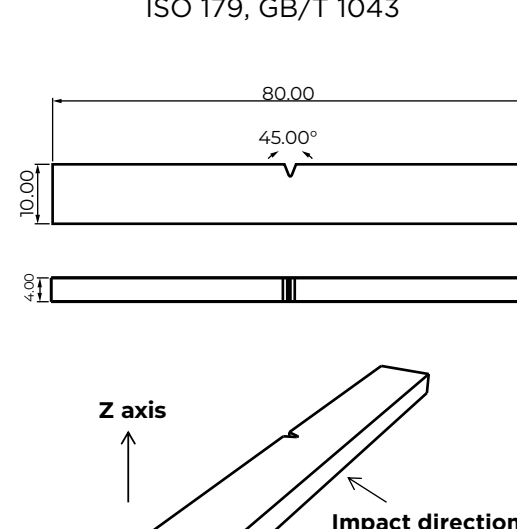
FLEXURAL TESTING SPECIMEN ISO 178, GB/T 9341



TENSILE TESTING SPECIMEN ISO 527, GB/T 1040



IMPACT TESTING SPECIMEN ISO 179, GB/T 1043



*Based on testing with PolyMide™ CoPA (SKU: PG05001)

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.