

Technical Data Sheet

PLA Crystal Filament

PLA Crystal is an FFF 3D printing filament, which is produced using a toughened, high-transparency modified PLA material. PLA Crystal offers excellent transparency with a light transmittance of over 90%. It also maintains the same dimensional stability, bending strength, and rigidity as standard PLA filament. It does not warp or crack and is easy to print, suitable for various FFF 3D printers.

Features:

Easy to print/Dimensional stability/High transparency.

Properties:

Physical Properties	Test Method	Units	Typical Value
Density	ISO 1183	g/cm ³	1.25~1.26
Melt Index (MFR) (190°C/2.16Kg)	ISO 1133	g/10min	4~8
Water Absorption (23°C/24h)	ISO 62	%	<0.3
Mechanical Properties			
Tensile Strength (X-Y)	ISO 527	Mpa	48.2~50.8
Elongation at Break (X-Y)	ISO 527	%	5.5~5.9
Bending Modulus (X-Y)	ISO 178	Mpa	2700~2835
Bending Strength (X-Y)	ISO 178	Mpa	85~87
Izod Impact Strength (X-Y)	ISO 180	KJ/m ²	3.3~4.6
Thermal Properties			
HDT@ 0.455 MPa (66 psi)	ISO 75	°C	50
Continuous Service Temperature	IEC 60216	°C	45

Testing Specimen Printing Conditions:

Test Equipment	Flashforge AD5X
Nozzle Diameter	0.4mm
Nozzle Temperature	210 °C
Printing Speed	200mm/s
Infill Density	100%
Infill Pattern	Concentric
Standard Testing Specimen	Specific dimensions are shown in Attachment 1.

Recommended Printing Conditions:

Parameter	
Nozzle Temperature	190~220°C (210°C recommended)
Build Platform Temperature	Room temperature~60°C (50°C recommended)
Build Surface Material	Tempered glass, BuildTak, Carbon fiber board
Nozzle Diameter	φ0.4/0.6mm (φ0.4mm recommended)
Cooling Fan	50~100%
Layer Thickness	0.12~0.3mm
Printing Speed	60~250mm/s (Higher speeds require higher temperatures.)
Travel Speed	60~350mm/s
Ambient Temperature for Printing	Room temperature~40°C
Retraction Length	0.5~2mm
Retraction Speed	30~50mm/s
Recommended Support Material	Self-supporting, PVA, BVOH



Cautions:

In order to prevent moisture absorption and contamination, supplied packaging should be kept closed and undamaged. For the same reason, partially used filaments should be re-sealed before storage.

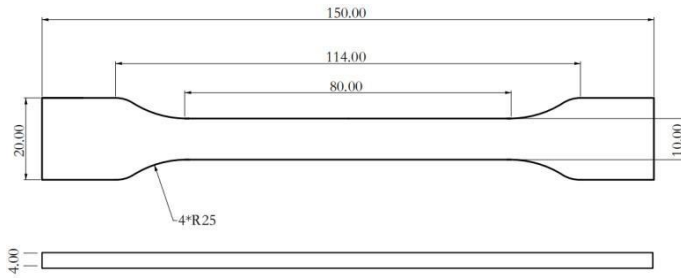
PLA Crystal is a biodegradable material. Exposure to moisture, oxygen in the air, and UV light will accelerate its aging. In order not to affect the final printing quality, the PLA Crystal filament after its package being opened should be used up as soon as possible.

Disclaimer:

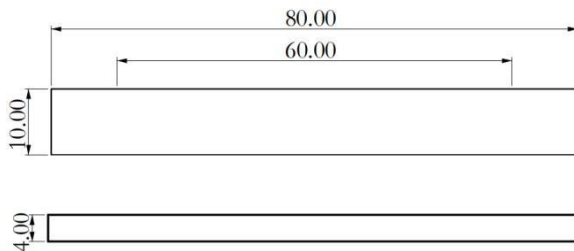
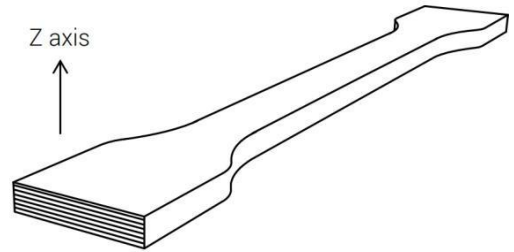
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Attachment 1:

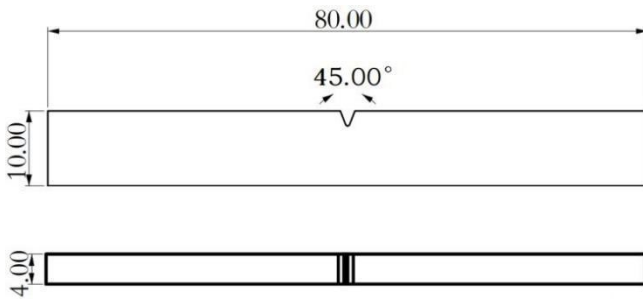
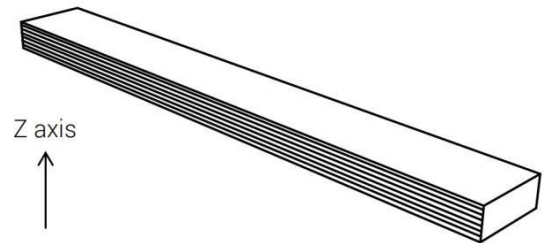
Testing Specimen Size and Printing Direction



Tensile testing specimen; ASTM D638 (ISO 527, GB/T 1040)



Flexural testing specimen; ASTM D790 (ISO 178, GB/T 9341)



Impact testing specimen; ASTM D256 (ISO 179, GB/T 1043)

