

TECHNICAL DATA SHEET

PLA Premium

BRIEF INTRODUCTION

PLA Premium, one of the most reliable 3D printing materials, after our improvements of the toughness and fluidity, it provides ease of printing with good mechanical properties, which is good for product design, toys, cosplay, prototyping and any aesthetic models.

CHARACTERISTIC

Environmentally friendly | Good inter-layer bond | No buckling deformation | High melt flow rate.

IDENTIFICATION OF THE MATERIAL

Trade name	PLA Premium
Chemical name	Polylactic Acid
Application	3D PRINTING

GUIDELINE FOR PRINT SETTINGS

Nozzle temperature	205±15°C
Bed temperature	0~60°C
Bed modification	Tape or glue below 60°C
Active cooling fan	ON / 100%
Layer height	0.2mm
Shell thickness	≥0.8mm
Printing speed	40-80mm/s

Settings are based on a 0.4mm

MATERIAL PROPERTIES

		Test Method
Melt temperature	~160°C	ISO 11357
Glass transition temperature	~60°C	ISO 11357
Melt flow rate (MFR)¹	29.3 g/10min	ISO 1133
Heat deflection temperature(HDT)²	57.4°C	ISO 75
Vicat softening temperature(VST)³	56.9°C	ISO 306
Density	1.26g/cm ³	ISO 1183
Odor	Odorless	/
Solubility	Insoluble in water	/

1. Test conditions: T= 190°C; m=2.16 kg.

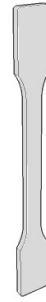
2. Test conditions:0.45MPa;120°C/h.

3. Test conditions:10N; 120°C/h.

MECHANICAL PROPERTIES|TENSILE TEST

All test specimens were printed using an FlashForge Guider 2s under the following conditions:

- Printing temperature: 205°C
- Heated bed temperature: 50°C
- Print speed: 50mm/s
- Shell thickness: 0.8mm
- Infill under 45°



Test Method ISO 527

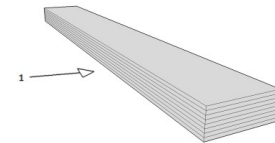
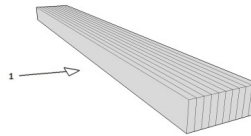


	Printed Vertical Z-axis		Printed horizontal X,Y-axis	
	50%	100%	50%	100%
Infill	50%	100%	50%	100%
Tensile strength (Mpa)	17.1	27.5	24.5	40.4
Force at break (Mpa)	17.1	27.5	24.5	40.4
Elongation at break (%)	3.6	4.1	7.1	4.1
Modulus (Mpa)	462	799	476	830

MECHANICAL PROPERTIES|IMPACT TEST

The same conditions as tensile test.

1→Impact direction

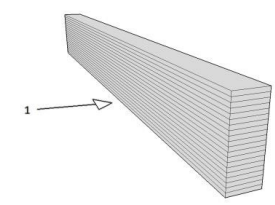
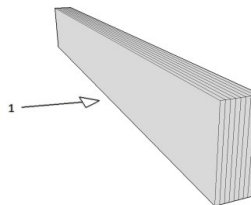


	Charpy(en)		Charpy(ep)	
	50%	100%	50%	100%
Infill	50%	100%	50%	100%
Impact strength (KJ/m ²)	9.6	21.4	12.6	18.9
Notch impact strength ¹ (KJ/m ²)	3.1	4.9	2.5	6.5

MECHANICAL PROPERTIES |FLEXURAL TEST

The same conditions as tensile test.

1→Bending direction



	Normal		parallel	
	50%	100%	50%	100%
Infill	50%	100%	50%	100%
Maximum force (Mpa)	77.2	78.2	82.1	95.8
Flexural modulus (Mpa)	2890	2976	2766	3460

1. Notch Type: type A

FILAMENT SPECIFICATION		Test Method
Diameter 1.75mm	1.75±0.03mm	EX1125
Diameter 2.85mm	2.85±0.03mm	EX1125
Diameter 3.00mm	3.00±0.03mm	EX1125
Max roundness deviation (1.75)	0.03mm	EX1125
Max roundness deviation (2.85)	0.03mm	EX1125
Max roundness deviation (3.00)	0.03mm	EX1125
Net weight on reel	1kg	EX1125

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