

# TECHNICAL DATA SHEET

## PLA FR (Flame retardant )

### BRIEF INTRODUCTION

PLA-FR is a flame retardant PLA composite material (UL94-V0), features excellent toughness, strength and heat resistance. PLA-FR can reduce the intensity of a fire or slow the spread of fire. An ideal material for automotive, railway, and any models require flame retardant and higher engineering performance property.

### CHARACTERISTIC

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

### IDENTIFICATION OF THE MATERIAL

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

### GUIDELINE FOR PRINT SETTINGS

Nozzle temperature	210±10℃
Bed temperature	30~60℃
Bed modification	Tape or glue below 60℃
Active cooling fan	ON, 100%
Layer height	0.2mm
Shell thickness	≥0.8mm
Print speed	40-80mm/s

Settings are based on a 0.4mm nozzle.

### MATERIAL PROPERTIES

### Test Method

Melt temperature	~160℃	ISO 11357
Glass transition temperature	~60℃	ISO 11357
Melt flow rate (MFR) <sup>1</sup>	7~10 g/10min	ISO 1133
Heat deflection temperature(HDT) <sup>2</sup>	55℃	ISO 75
Vicat softening temperature(VST) <sup>3</sup>	57℃	ISO 306
density	1.28~1.30 g/cm <sup>3</sup>	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

Test Method ISO 527

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°

Infill

Tensile strength (Mpa)

Elongation at break (%)



Printed horizontal

X,Y-axis

100%

35-40

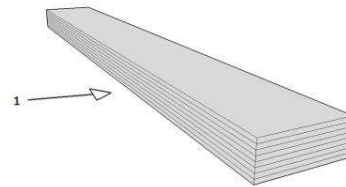
2-3

### MECHANICAL PROPERTIES|IMPACT TEST

Test Method ISO 179

The same conditions as tensile test.

1→Impact direction



Infill

100%

Impact strength (KJ/m<sup>2</sup>)

34~40

Notch impact strength<sup>1</sup> (KJ/m<sup>2</sup>)

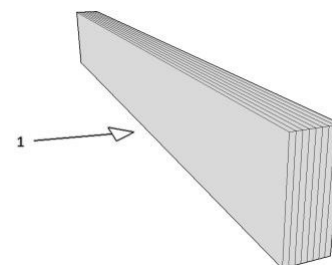
6~8

### MECHANICAL PROPERTIES |FLEXURAL TEST

Test Method ISO 178

The same conditions as tensile test.

1→bending direction



Infill

100%

Maximum force (Mpa)

60~65

Flexural modulus (Mpa)

1800~2000

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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