

## TECHNICAL DATA SHEET

### 3D3 FLAME RETARDANT PLA

<b>Product code:</b>	<b>Revision Number :</b>	<b>Revision date:</b>	<b>TDS No.:</b>
PLA FR	01	02/03/2020	KS04.012.0183

### CHARACTERISTIC

Environmentally friendly | good interlayer bond | no buckling deformation | high transparency.

#### IDENTIFICATION OF THE MATERIAL

<b>Trade name</b>	PLA FLAME RETARDANT
<b>Chemical name</b>	Polylactic Acid
<b>Use</b>	3D printing
<b>Origin</b>	3D3

#### GUIDELINE FOR PRINT SETTINGS

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

Settings are based on a 0.4mm nozzle.

#### MATERIAL PROPERTIES

		Test Method
<b>Melt temperature</b>	~160°C	ISO 11357
<b>Glass transition temperature</b>	~60°C	ISO 11357
<b>Melt flow rate (MFR)<sup>1</sup></b>	7~10 g/10min	ISO 1133
<b>Heat deflection temperature(HDT)<sup>2</sup></b>	55°C	ISO 75
<b>Vicat softening temperature(VST)<sup>3</sup></b>	57°C	ISO 306
<b>density</b>	1.28~1.30 g/cm <sup>3</sup>	ISO 1183
<b>Odor</b>	Odorless	/
<b>Solubility</b>	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.

<b>MECHANICAL PROPERTIES TENSILE TEST</b>	<b>Test Method ISO 527</b>
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All test specimens were printed using an 3D3- S1 under the

following conditions :  
 Printing temperature:205°C  
 Heated bed temperature:50°C  
 Print speed : 50mm/s

Shell thickness : 0.8mm  
 Infill under 45°



Printed horizontal

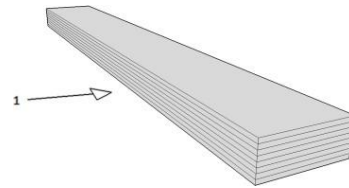
X,Y-axis

Infill	100%
Tensile strength (Mpa)	35-40
Elongation at break (%)	2-3

<b>MECHANICAL PROPERTIES IMPACT TEST</b>	<b>Test Method ISO 179</b>
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The same conditions as tensile test.

1→impact direction

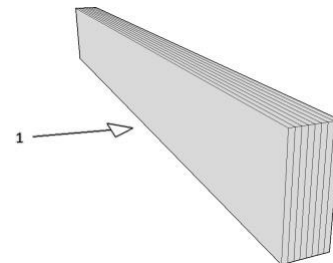


Infill	100%
Impact strength (KJ/m <sup>2</sup> )	34-40
Notch impact strength <sup>1</sup> (KJ/m <sup>2</sup> )	6-8

<b>MECHANICAL PROPERTIES  FLEXURAL TEST</b>	<b>Test Method ISO 178</b>
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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