

## TECHNICAL DATA SHEET

### KEXCELLED PLA<sup>k5</sup>

<b>Product code:</b>	<b>Revision Number:</b>	<b>Revision date:</b>	<b>TDS No.:</b>
PLA <sup>k5</sup>	01	19/06/2019	KT04.012.0121

### BRIEF INTRODUCTION

Filament suitable for all commercially available leading brands FDM/FFF Printers.

### CHARACTERISTIC

environmentally friendly | good interlayer bond | no buckling deformation | high melt flow rate.

#### IDENTIFICATION OF THE MATERIAL

<b>Trade name</b>	PLA <sup>k5</sup>
<b>Chemical name</b>	Polylactic Acid
<b>Use</b>	3D printing
<b>Origin</b>	KEXCELLED

#### GUIDELINE FOR PRINT SETTINGS

<b>Nozzle temperature</b>	205±15°C
<b>Bed temperature</b>	0~60°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>	29.3 g/10min	ISO 1133
<b>Heat deflection temperature(HDT)<sup>2</sup></b>	57.4°C	ISO 75
<b>Vicat softening temperature(VST)<sup>3</sup></b>	56.9°C	ISO 306
<b>density</b>	1.26g/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.

**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°



	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
E modulus (Mpa)	462	799	476	830

**MECHANICAL PROPERTIES|IMPACT TEST**

**Test Method ISO 179**

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 <sup>2</sup> )	9.6	21.4	12.6	18.9
Notch impact strength <sup>1</sup> (KJ/m <sup>2</sup> )	3.1	4.9	2.5	6.5

**MECHANICAL PROPERTIES |FLEXURAL TEST**

**Test Method ISO 178**

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

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