

## TECHNICAL DATA SHEET

### KEXCELLED PLA K5

<b>Product code:</b>	<b>Revision Number:</b>	<b>Revision date:</b>	<b>TDS No.:</b>
PLA K5	02	2/04/2020	KT04.012.0121

### CHARACTERISTIC

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

#### IDENTIFICATION OF THE MATERIAL

<b>Trade name</b>	PLA K5
<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>	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>	7~15 g/10min	ISO 1133
<b>Heat deflection temperature(HDT)<sup>2</sup></b>	57 °C	ISO 75
<b>Vicat softening temperature(VST)<sup>3</sup></b>	57 °C	ISO 306
<b>density</b>	1.23~1.26 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.

**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

Infill	50%	100%	50%	100%
Tensile strength (Mpa)	18~25	32~35	32~38	44~48
Elongation at break (%)	3~5	3~5	4~6	4~6

**MECHANICAL PROPERTIES|IMPACT TEST**
**Test Method ISO 179**

The same conditions as tensile test.

1→impact direction



Infill	50%	100%	50%	100%
Impact strength (KJ/m <sup>2</sup> )	15~18	22~28	14~18	22~26
Notch impact strength <sup>1</sup> (KJ/m <sup>2</sup> )	2~4	4~6	2~4	4~6

**MECHANICAL PROPERTIES |FLEXURAL TEST**
**Test Method ISO 178**

The same conditions as tensile test.

1→bending direction



Infill	50%	100%	50%	100%
Maximum force (Mpa)	75~78	78~82	82~85	92~98
Flexural modulus (Mpa)	2700~2900	2900~3200	2700~2900	3200~3400

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