

TECHNICAL DATA SHEET

KEXCELLED PLA^{k5}

Product code:	Revision Number:	Revision date:	TDS No.:
PLA ^{k5}	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

Trade name	PLA ^{k5}
Chemical name	Polylactic Acid
Use	3D printing
Origin	KEXCELLED

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
Print speed	40-80mm/s

Settings are based on a 0.4mm nozzle.

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

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 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

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

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