

## TECHNICAL DATA SHEET

### KEXCELLED PLA K5Silk

|                      |                         |                       |                 |
|----------------------|-------------------------|-----------------------|-----------------|
| <b>Product code:</b> | <b>Revision Number:</b> | <b>Revision date:</b> | <b>TDS No.:</b> |
| PLA K5Silk           | 04                      | 12/01/2022            | KT04.20.1005    |

### BRIEF INTRODUCTION

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

#### Characteristic:

high gloss finish and silk-like surface | higher impact strength than normal PLA | non-irritating odor.

### IDENTIFICATION OF THE MATERIAL

|                      |                 |
|----------------------|-----------------|
| <b>Trade name</b>    | PLA K5Silk      |
| <b>Chemical name</b> | Polylactic Acid |
| <b>Use</b>           | 3D Printing     |
| <b>Origin</b>        | KEXCELLED       |

### GUIDELINE FOR PRINT SETTINGS

|                           |                         |
|---------------------------|-------------------------|
| <b>Nozzle temperature</b> | 210~230°C               |
| <b>Bed temperature</b>    | 30~60°C                 |
| <b>Bed modification</b>   | Tape or glue below 60°C |
| <b>Active cooling fan</b> | ON, 50%~100%            |
| <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>             | 5~10g/10min           | ISO 1133    |
| <b>Heat deflection temperature(HDT)<sup>2</sup></b> | 53°C                  | ISO 75      |
| <b>Vicat softening temperature(VST)<sup>3</sup></b> | 60°C                  | ISO 306     |
| <b>Density</b>                                      | 1.24g/cm <sup>3</sup> | ISO 1183    |
| <b>Odor</b>   | Odorless              | /           |
| <b>Solubility</b>                                   | Insoluble in water    | /           |

1. test conditions: T= 190°C; m= 2.16kg.

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: 220°C

Heated bed temperature: 60°C

Print speed: 50mm/s

Shell thickness: 1.2mm

Infill under 45°



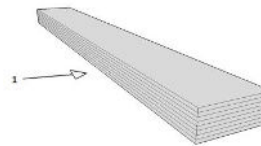
Printed horizontal X,Y-axis

|                         |           |
|-------------------------|-----------|
| Infill                  | 100%      |
| Tensile strength (Mpa)  | 31~33     |
| Elongation at break (%) | >30       |
| Emodulus (Mpa)          | 3900~4100 |

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

The same conditions as tensile test.

1→impact direction

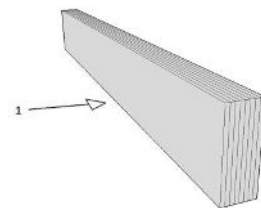


|   |       |
|---|-------|
| Infill  | 100%  |
| Impact strength (KJ/m <sup>2</sup> )                    | 17~22 |
| Notch impact strength <sup>1</sup> (KJ/m <sup>2</sup> ) | 4~6   |

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

The same conditions as tensile test.

1→bending direction



|                        |           |
|------------------------|-----------|
| Infill                 | 100%      |
| Maximum force (Mpa)    | 55~65     |
| Flexural modulus (Mpa) | 2000~2200 |

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      |