

TECHNICAL DATA SHEET

KEXCELLED THE K5™ PLA

| Product code: | Revision Number: | Revision date: | TDS No.: |
|---------------|------------------|----------------|----------|
| THE K5™ PLA | 05 | 12/02/2025 | KT001 |

Characteristic:

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

IDENTIFICATION OF THE MATERIAL

| | |
|---------------|-----------------|
| Trade name | THE K5™ PLA |
| Chemical name | Polylactic Acid |
| Use | 3D Printing |
| Origin | KEXCELLED |

GUIDELINE FOR PRINT SETTINGS

| | |
|--------------------|-------------------|
| Nozzle temperature | 200~240℃ |
| Bed temperature | 35~55℃ |
| Bed modification | PEI frosted board |
| Active cooling fan | ON,50%~100% |
| Layer height | 0.2mm |
| Shell thickness | ≥0.8mm |
| Print speed | ≤300mm/s |

Settings are based on a 0.4mm nozzle.

MATERIAL PROPERTIES

| | | Test Method |
|---|----------------------------|-------------|
| Melt temperature | ~160℃ | ISO 11357 |
| Glass transition temperature | ~60℃ | ISO 11357 |
| Melt flow rate (MFR) ¹ | 5~10g/10min | ISO 1133 |
| Heat deflection temperature(HDT) ² | 59℃ | ISO 75 |
| Vicat softening temperature(VST) ³ | 73℃ | ISO 306 |
| density | 1.21~1.23g/cm ³ | ISO 1183 |
| Odor | Odorless | / |
| Solubility | Insoluble in water | / |

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

2. test conditions:0.45MPa;120℃/h.

3. test conditions:10N; 120℃/h.

MECHANICAL PROPERTIES|TENSILE TEST **Test Method ISO 527**

All test specimens were printed using a BambuLab X1C under the following conditions:

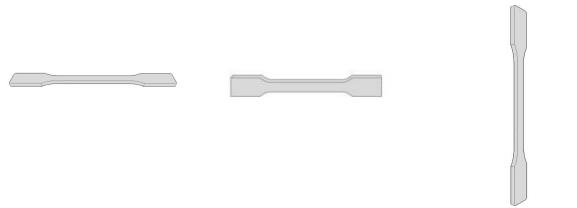
Printing temperature: 220°C

Heated bed temperature: 55°C

Print speed: 262.5mm/s

Shell thickness: 1.2mm

Infill under 45°

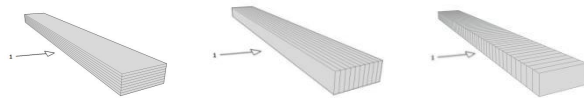


| | Printed horizontal X,Y-axis | Printed horizontal X,Z-axis | Printed horizontal Z,X-axis ^{1,2} |
|-------------------------|-----------------------------|-----------------------------|--|
| Infill | 100% | 100% | 100% |
| Tensile strength (Mpa) | 42~48 | 48~52 | 26~29 |
| Elongation at break (%) | 10~15 | 10~20 | 3~5 |
| Emodulus (Mpa) | 2800~3100 | 2900~3100 | 2300~2600 |

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

The same conditions as tensile test.

1→impact direction

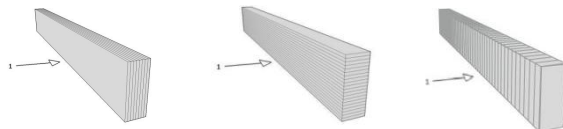


| | 100% | 100% | 100% |
|---|-------|-------|------|
| Infill | 100% | 100% | 100% |
| Impact strength (KJ/m ²) | 19~23 | 24~28 | 4~14 |
| Notch impact strength ³ (KJ/m ²) | 4~6 | 4~7 | 2~3 |

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

The same conditions as tensile test.

1→bending direction



| | 100% | 100% | 100% |
|------------------------|-----------|-----------|-----------|
| Infill | 100% | 100% | 100% |
| Maximum force (Mpa) | 73~80 | 81~84 | 46~54 |
| Flexural modulus (Mpa) | 3000~3200 | 3200~3300 | 2300~2700 |

1. Z,X-axis test data are for reference only
2. the stress range of the Z,X-axis modulus: 10~20MPa
3. notch type: type A

| FILAMENT SPECIFICATION | | Test Method |
|--------------------------------|-------------|-------------|
| Diameter 1.75mm | 1.75±0.03mm | EX1125 |
| Diameter 2.85mm | 2.85±0.03mm | EX1125 |
| Max roundness deviation (1.75) | 0.03mm | EX1125 |
| Max roundness deviation (2.85) | 0.03mm | EX1125 |
| Net weight on reel | 1kg | EX1125 |