

## TECHNICAL DATA SHEET

### 3D3 PETG

<b>Product code:</b>	<b>Revision Number :</b>	<b>Revision date:</b>	<b>TDS No.:</b>
PETG	01	19/06/2019	KT04.012.0131

### BRIEF INTRODUCTION

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

### CHARACTERISTIC

environmentally friendly | excellent effect applied to 3D printing | good interlayer bond | no buckling deformation | excellent toughness.

### IDENTIFICATION OF THE MATERIAL

<b>Trade name</b>	PETG
<b>Chemical name</b>	Poly (ethylene terephthalate-co-1,4-cyclohexylenedimethylene terephthalate)
<b>Use</b>	3D printing
<b>Origin</b>	3D3

### GUIDELINE FOR PRINT SETTINGS

<b>Nozzle temperature</b>	230~250°C
<b>Bed temperature</b>	55~85°C
<b>Bed modification</b>	NO
<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>	~200°C	ISO 11357
<b>Glass transition temperature</b>	~70°C	ISO 11357
<b>Melt flow rate (MFR) <sup>1</sup></b>	8.3 g/10min	/
<b>Heat deflection temperature(HDT)<sup>2</sup></b>	70.6°C	ISO 75
<b>Vicat softening temperature(VST)<sup>3</sup></b>	78.5°C	ISO 306
<b>density</b>	1.27g/cm <sup>3</sup>	ISO 1183
<b>Odor</b>	Odorless	/
<b>Solubility</b>	Insoluble in water	/

1.test conditions: T= 240°C; m=2.16 kg.

2. test conditions:0.45MPa;120°C/h.

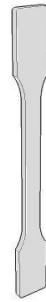
3. test conditions:10N; 120°C/h.

### MECHANICAL PROPERTIES|TENSILE TEST

Test Method ISO 527

All test specimens were printed using an Megamaker S1 under the following conditions :

- Printing temperature: 240°C
- Heated bed temperature : 70°C
- Print speed : 45mm/s
- Shell thickness : 0.8mm
- Infill under 45°



Printed Vertical Z-axis

Printed horizontal X,Y-axis

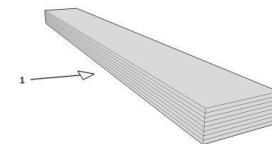
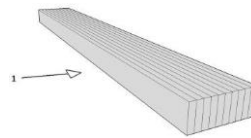
	50%	100%	50%	100%
Infill	50%	100%	50%	100%
Tensile strength (Mpa)	11.1	18.5	25.7	36.6
Force at break (Mpa)	11.1	18.5	25.7	36.6
Elongation at break (%)	3.6	4.0	10.0	10.9
Emodulus (Mpa)	316	568	405	488

### MECHANICAL PROPERTIES|IMPACT TEST

Test Method ISO 179

The same conditions as tensile test.

1→impact direction



Charpy(en)

Charpy(ep)

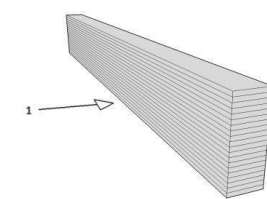
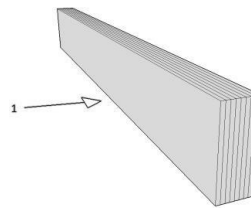
	50%	100%	50%	100%
Infill	50%	100%	50%	100%
Impact strength (KJ/m <sup>2</sup> )	21.1	23.4	9.0	53.0
Notch impact strength <sup>1</sup> (KJ/m <sup>2</sup> )	3.0	2.1	3.1	5.2

### 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)	50.1	62.2	61.6	65.0
Flexural modulus (Mpa)	1443	1669	1711	1747

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