TECHNICAL DATA SHEET

PEI Ultem 1010

BRIEF INTRODUCTION

PEI Ultem1010 is a polyetherimide plastic suitable for 3D printing. It has excellent heat resistance, high strength and toughness, excellent flame retardant, and extensive chemical resistance. PEI not only has high tensile strength and bending strength, but also outstanding impact strength. Thermal deformation temperature and veka softening temperature can reach about 200℃, at 180℃ can still maintain high strength and modulus. PEI has good resistance to gasoline, various hydrocarbon solvents, and even dilute acids and alkalis. PEI also has excellent flame retardant, flame retardant grade can reach UL94 V-0. This material can be used in food and pharmaceutical packaging, medical device manufacturing, from conceptual modeling, functional prototyping, to a wide range of end-use components.

CHARACTERISTIC

Excellent heat resistance|high strength|chemical resistance|excellent toughness|flame resistance

IDENTFICATION OF THE MATERIAL	
Trade name	PEI Ultem 1010
Chemical name	Polyetherimide
Use	3D Printing

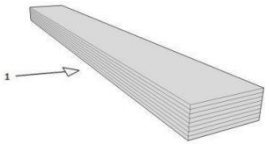
GUIDELINE FOR PRINT SETTINGS	
Nozzle temperature	375±15℃
Bed temperature	150~210℃
Chamber temperature	90~200℃
Bed modification	High temperature glue
Active cooling fan	OFF
Layer height	0.2mm
Shell thickness	≥0.8mm
Print speed	30~60mm/s

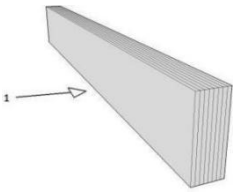
Settings are based on a 0.4mm nozzle.

MATERIAL PROPERTIES		Test Method
Melt temperature	~320℃	ISO 11357
Melt flow rate (MFR) [1]	~40 g/10min	ISO 1133
Heat deflection temperature(HDT)[2]	186 ℃	ISO 75
Vicat softening temperature(VST)[3]	210 ℃	ISO 306
Density	1.28 g/cm^3	ISO 1183
Odor	Odorless	/
Solubility	Insoluble in water	/

1. test conditions: T= 365 ℃; m= 5 kg.
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 an INTAMSYS FUNMAT HT， under the following conditions： Printing temperature: 375℃ Heated bed temperature：100℃ Chamber temperature: 90℃ Print speed：30 mm/s Shell thickness：0.8mm Infill under 45°	
Infill	100%
Tensile strength（Mpa）	90~100
Elongation at break（%）	2~4

MECHANICAL PROPERTIES|IMPACT TEST	Test Method ISO 179
The same conditions as tensile test. 1→impact direction	
Infill	100%
Impact strength（KJ/m²）	65~70
Notch impact strength[1]（KJ/m²）	4~8

MECHANICAL PROPERTIES |FLEXURAL TEST	Test Method ISO 178
The same conditions as tensile test. 1→bending direction	
Infill	100%
Maximum force（Mpa）	120~130
Flexural modulus（Mpa）	2200~2400

1. notch type: type A

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

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