PEEK-Industrial

Technical Data Sheet

PEEK (Polyether Ether Ketone) is a semi crystalline thermoplastic special engineering plastic with excellent performance. It has excellent mechanical properties, and have good performance on bondability and fire resistance、chemical resistance、hydrolysis resistance、impact resistance、wear resistance、fatigue resistance、radiation resistance、insulation resistance.
PEEK is considered as one of the world' s highest performing functional thermoplastics. Its performance is so excellent that it can be used as a lightweight replacement for some metal parts. In industry, it is widely used in manufacturing, transportation, aerospace, automotive, electronic and electrical fields. In the medical field, PEEK has good compatibility with human body due to its non-toxic, light weight and corrosion resistance. It has the highest proximity to human bone among various materials, and can replace titanium metal to make artificial bone implants.

Material Status	Mass Production
Characteristics	• Green and environmental protection.
Applications	• Industry
Form	• Filament
Processing method	• 3D Print, FDM Print

	testing method	Typical value	
Physical Properties			
Density	GB/T 1033	1.3	g/cm³
Melt Flow Index	GB/T 3682	N/A	(190°C/2.16kg)
Mechanical Properties			
Tensile Strength	GB/T 1040	100	MPa
Elongation at Break	GB/T 1040	40	%
Flexural Strength	GB/T 9341	170	MPa
Flexural Modulus	GB/T 9341	4200	MPa
IZOD Impact Strength	GB/T 1843	6.5	kJ/m²
Thermal Properties			
Heat distortion Temperature	GB/T 1634	152	℃
Continuous Service Temperature	IEC 60216	N/A	
Maximum (short term) Use Temperature		N/A	
Electrical Properties			
Insulation Resistance	DIN IEC 60167	N/A	
Surface Resistance	DIN IEC 60093	N/A	

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Recommended printing parameters

Extruder Temperature	380-440°C
Build Platform Temperature	130-150°C
Fan Speed	0%
Printing Speed	20-30mm/s

Based on 0.4 mm nozzle and Simplify 3D v.4.1.2. Printing conditions may vary with different nozzle diameters

Drying Recommendations

80~100°C for 4 hours,not higher then 105°C

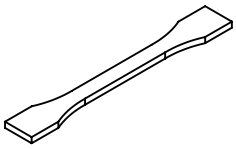
Annealing

150°C for 1 hour,then 200°C for 1 hour,then 150°C for 30 minutes

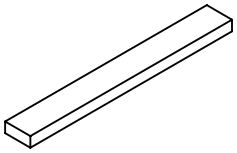
Precautions

When slicing, it is best to turn on the Z seam alignment and starting point alignment functions, turn off the Z-axis lift and exit, avoid passing through the shell when idling, optimize the slicing printing path, and appropriately reduce the printing speed to achieve the best printing effect.

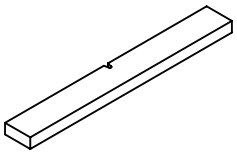
Mechanical Properties



Tensile testing specimen GB/T 1040



Flexural testing specimen GB/T 9341



Impact testing specimen GB/T 1043

The physical properties, mechanical properties, thermal properties, and electrical properties of the line are obtained based on the injection molding spline test.

Print test condition:

Extruder Temperature	380-440°C
Build Platform Temperature	80°C
Outline/Perimeter Shells	4
Top/Bottom Layers	4
Infill Percentage	20%
Fan speed	100%
Printing speed	20mm/s

Based on 0.4 mm nozzle and Simplify 3D v.4.1.2.

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