

### PEI 1010 Technical Data Sheet (TDS)

PEI 1010 is an amorphous polymer that have excellent thermal properties, exceptional dimensional stability, good chemical resistance, and inherent flame retardancy. As the glass transition temperature can reach up to 217°C, which allows PEI to print parts with excellent property.

IEMAI 3D high performance PEI 1010 filament is based on FFF/FDM technology, with a diameter of 1.75 mm, 370°C -390°C printing temperature, 130°C-150°C hotbed temperature and 90°C-150°C chamber temperature which allow it to have excellent inter-layer adhesion, which greatly improve the strength, durability, and shock resistance of the prototype.

PEI 1010 has a translucent colour of amber and it is widely used in application such as medical, electrical/electronic, automotive, and aerospace industries.

Physical	Conditions	Test Method	Typical
Density		ISO 1183	1.27 g/cm <sup>3</sup>
Melt Volume-Flow Rate (MVR)		ISO 1183	
	360 / 5.0 kg		13.0 cm <sup>3</sup> / 10 min
	340 / 5.0 kg		13.0 cm <sup>3</sup> / 10 min
Molding Shrinking- Flow			0.50 to 0.70%
Water Absorption			ISO 62
	Saturation, 23	1.30%	
	Equilibrium, 23 ,50%RH	0.70%	

MECHANICAL			
Tensile modulus		ISO 527-2/1	3200 MPa
Tensile Stress		ISO 527-2/1	
Yield			105 MPa
Break			85.0 Mpa
Tensile Strain		ISO 527-2/50	
Yield			6.00%
Break			60%
Flexural Modulus		ISO 178	3300 Mpa
Flexural Stress		ISO 178	160MPa
Taber Abrasion Resistance		Internal Method	

	1000 cycles , 1000 g CS-17 Wheel		10.0mg
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**IMPACT**

Notched Izod Impact Strength	23	ISO 180/1U	5.0 KJ/m <sup>2</sup>
Unnotched Izod Impact Strength	23	ISO 180/1A	No Break

**Hardness**

Ball Indentation Hardness		ISO 2039-1	140MPa
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**Thermal**

Heat Deflection Temperature			
	0, 45 MPa, Unannealed, 100 mm Span	ISO 75-2/ Be	200°C
	1.8 MPa, Unannealed,100 mm Span	ISO 75-2/ Ae	190°C
Vicat Softening Temperature			
		ISO 306/A50	215°C
		ISO 306/B50	211°C
		ISO 306/B120	212°C
Ball Pressure Test	125°C	IEC 60695-10-2	Pass
CLTE		ISO 11359-2	
Flow	23°C to 150°C		5.0E-5 cm/cm/°C
Transverse	23°C to 151°C		5.0E-5 cm/cm/°C
Thermal Conductivity		ISO 8302	0 ,21 W/m/K
RTI Elec		UL 746	170°C
RTI Imp		UL 746	170°C
RTI STr		UL 746	170°C

**Electrical**

Surface Resistivity		IEC 60093	> 1.0 E + 15 ohms
Volume Resistivity		IEC 60093	1.0 E + 15 ohms.cm
Electric Strength		IEC 60243-1	
	0.800 mm, in Oil		33 kV/mm
	1.60 mm, in Oil		25 kV/mm
	3.20 mm, in Oil		16 kV/mm



3D printing solutions for high performance materials

Relative Permittivity		IEC 60250	
	50 Hz		
	60 Hz		
	1 MHz		
Dissipation factor		IEC 60250	
	50 Hz		5.0 E- 4
	60 Hz		5.0 E- 4
	1 MHz		6.0 E-3
	2.45 GHz		2.5 E-3
Comparative Tracking Index		IEC 60112	
	-		150V
	Solution B		100V

<b>Flammability</b>			
Flame Rating		UL94	
	1.50 mm		V-0
	3.00 mm		5VA
Glow Wire Flammability Index	3.20 mm	IEC 60695-2-12	960°C
Oxygen Index		ISO 4589-2	47%

<b>Print Recommendation</b>	
Nozzle Temperature	360 -390 °C
Bed Temperature	130 -150 °C
Print Speed	30-40 mm/s
Chamber Temperature	90-150 °C
Cooling Fan	OFF