IEMAI®

3D printing solutions for high performance materials

PEI 9085 Technical Data Sheet (TDS)

PEI 9085 is a high-performance material that have excellent thermal properties, exceptional dimensional stability, good chemical resistance, and inherent flame retardancy.

IEMAI 3D high performance PEI 9085 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 9085 has a translucent colour of amber and it is widely used in application such as medical, electrical/electronic, automotive, and aerospace industries.

Properties	Typical Values	Units	Test Methods
Mechanical			
Tensile Modulus			
XY Orientation	2176	MPa	ASTM D638
XZ Orientation	2555	MPa	ASTM D638
ZX Orientation	2439	MPa	ASTM D638

Tensile Stress,brk,Type I ,5 mm/min			
XY Orientation	62	MPa	ASTM D638
XZ Orientation	80	MPa	ASTM D638
ZX Orientation	45	MPa	ASTM D638

Tensile Strain,brk,Type I ,5 mm/min			
XY Orientation	5.1	%	ASTM D638
XZ Orientation	5.8	%	ASTM D638
ZX Orientation	2.3	%	ASTM D638

Flexural Modulus, 1.3 mm/min			
XY Orientation	2126	MPa	ASTM D790
XZ Orientation	2550	MPa	ASTM D790
ZX Orientation	2070	MPa	ASTM D790

Izod Impact, notched, 23°C			
XY Orientation	104	J/m	ASTM D256
XZ Orientation	100	J/m	ASTM D256
ZX Orientation	33	J/m	ASTM D256

Izod Impact, un-notched, 23°C			
XY Orientation	763	J/m	ASTM D256
XZ Orientation	1003	J/m	ASTM D256
ZX Orientation	131	J/m	ASTM D256

THERMAL			
HDT, 1.82MPa, 3.2 mm , unannealed			
XY Orientation	175	°C	ASTM D648
XZ Orientation	175	°C	ASTM D648
ZX Orientation	165	°C	ASTM D648

Coefficient of Thermal Expansion - flow			
XY Orientation	57.1	µm/(m-°C)	ASTM E831
XZ Orientation	60.6	µm/(m-°C)	ASTM E831
ZX Orientation	62.1	µm/(m-°C)	ASTM E831

Coefficient of Thermal Expansion -x- flow			
XY Orientation	58.3	µm/(m-°C)	ASTM E831
XZ Orientation	61.1	µm/(m-°C)	ASTM E831
ZX Orientation	629.9	µm/(m-°C)	ASTM E831

PHYSICAL			
Density	1.275	g/cm^3	ASTM D792

Electrical			
Volume Resistivity			
XY Orientation	1.07E+15	Ohm-cm	ASTM D257
XZ Orientation	1.10E+15	Ohm-cm	ASTM D257

Dielectric Constant - 100 MHz			
XY Orientation	2.54	-	ASTM D150
XZ Orientation	2.73	-	ASTM D150

Dissipation Factor-100 MHz			
XY Orientation	0.00233	-	ASTM D150
XZ Orientation	0.003	-	ASTM D150

Dielectric Constant - 500 MHz			
XY Orientation	2.53	-	ASTM D150
XZ Orientation	2.72	-	ASTM D150

Dissipation Factor-500 MHz			
XY Orientation	0.005	-	ASTM D150
XZ Orientation	0.00567	-	ASTM D150

Dielectric Constant - 1000 MHz			
XY Orientation	2.52	-	ASTM D150
XZ Orientation	2.71	-	ASTM D150

Dissipation Factor-1000 MHz			
XY Orientation	0.004	-	ASTM D150
XZ Orientation	0.004	-	ASTM D150

FLAME CHARACTERISTIC			
FAA Flammability			
XY Orientation，1.5 mm	PASS	-	FAR 25.853

OSU total heat release (2 Minutes test)			
XY Orientation, 1.5 mm	44	kW-min/m^2	FAR 25.853

OSU total heat release (5 Minutes test)			
XY Orientation, 1.5 mm	45	kW-min/m^2	FAR 25.853

UL94 Flame Class Rating			
XY Orientation, 1.5 mm	v-0	-	-
XZ Orientation, 1.5 mm	v-0	-	-
ZX Orientation, 1.5 mm	v-0	-	-
XY Orientation, 3.0 mm	v-0	-	-
ZX Orientation, 3.0 mm	v-0	-	-

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