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.

<table>
<thead>
<tr>
<th>Properties</th>
<th>Typical Values</th>
<th>Units</th>
<th>Test Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical</td>
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<tr>
<td>Tensile Modulus</td>
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<tr>
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<td>MPa</td>
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<td>Tensile Strain,brk,Type I ,5 mm/min</td>
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<td>Izod Impact, notched, 23°C</td>
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<td>XY Orientation</td>
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<td>J/m</td>
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<td>J/m</td>
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<td>J/m</td>
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### 3D Printing Solutions for High Performance Materials

#### Izod Impact, un-notched, 23°C
<table>
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<tr>
<th>Orientation</th>
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<td>ZX</td>
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#### THERMAL

**HDT, 1.82 MPa, 3.2 mm, unannealed**
<table>
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<tr>
<th>Orientation</th>
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#### Coefficient of Thermal Expansion - flow
<table>
<thead>
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<th>Orientation</th>
<th>μm/(m·°C)</th>
<th>ASTM E831</th>
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<tr>
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<td>ZX</td>
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#### Coefficient of Thermal Expansion -x-flow
<table>
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<td>XY</td>
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#### PHYSICAL

**Density**
<table>
<thead>
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<th>g/cm³</th>
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<tr>
<td>1.275</td>
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**Electrical**

**Volume Resistivity**
<table>
<thead>
<tr>
<th>Orientation</th>
<th>Ohm-cm</th>
<th>ASTM D257</th>
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<tr>
<td>XY</td>
<td>1.07E+15</td>
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<td>XZ</td>
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**Dielectric Constant - 100 MHz**
<table>
<thead>
<tr>
<th>Orientation</th>
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<tr>
<td>XY</td>
<td>2.54</td>
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<td>XZ</td>
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**Dissipation Factor - 100 MHz**
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<tbody>
<tr>
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<tr>
<td>XZ</td>
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**Dielectric Constant - 500 MHz**
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<tr>
<td>XY</td>
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<td>XZ</td>
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### Dissipation Factor - 500 MHz

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<td>XY</td>
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### Dielectric Constant - 1000 MHz

<table>
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<tr>
<td>XY</td>
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<tr>
<td>XZ</td>
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### Dissipation Factor - 1000 MHz

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<th>Source</th>
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<td>0.004</td>
<td>ASTM D150</td>
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<tr>
<td>XZ</td>
<td>0.004</td>
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### FLAME CHARACTERISTIC

#### FAA Flammability

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Thickness</th>
<th>Result</th>
<th>Source</th>
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</thead>
<tbody>
<tr>
<td>XY</td>
<td>1.5 mm</td>
<td>PASS</td>
<td>FAR 25.853</td>
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</table>

#### OSU total heat release (2 Minutes test)

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Thickness</th>
<th>Value</th>
<th>Source</th>
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</thead>
<tbody>
<tr>
<td>XY</td>
<td>1.5 mm</td>
<td>44 kW-min/m²</td>
<td>FAR 25.853</td>
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</tbody>
</table>

#### OSU total heat release (5 Minutes test)

<table>
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<th>Orientation</th>
<th>Thickness</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>XY</td>
<td>1.5 mm</td>
<td>45 kW-min/m²</td>
<td>FAR 25.853</td>
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</table>

### UL94 Flame Class Rating

<table>
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<tbody>
<tr>
<td>XY</td>
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<td>v-0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XZ</td>
<td>1.5 mm</td>
<td>v-0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZX</td>
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<tr>
<td>XY</td>
<td>3.0 mm</td>
<td>v-0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZX</td>
<td>3.0 mm</td>
<td>v-0</td>
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### Print Recommendation

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
<td>Nozzle Temperature</td>
<td>360 - 390 °C</td>
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<tr>
<td>Bed Temperature</td>
<td>130 - 150 °C</td>
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<tr>
<td>Print Speed</td>
<td>30 - 40 mm/s</td>
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<tr>
<td>Chamber Temperature</td>
<td>90 - 150 °C</td>
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<tr>
<td>Cooling Fan</td>
<td>OFF</td>
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