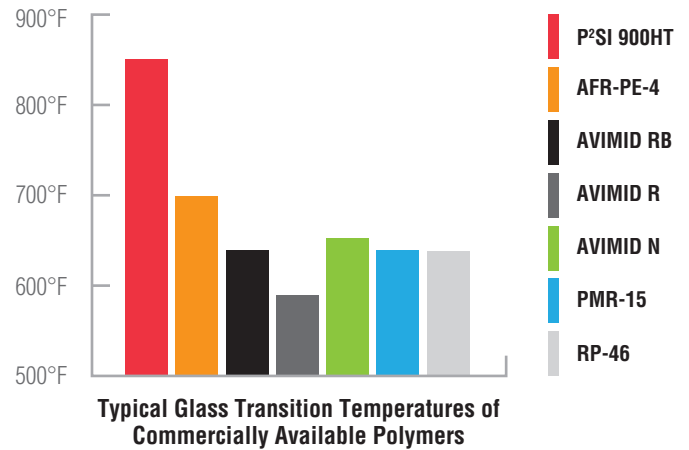


P<sup>2</sup>SI<sup>®</sup> 900HT is a high-temperature, structural thermosetting polyimide prepreg with short-term service temperatures up to 1500°F. P<sup>2</sup>SI<sup>®</sup> 900HT is an easily processable, thermally stable, addition cure polymer exhibiting the highest glass transition temperature of commercially available structural matrices. This system displays exceptional toughness, superb dielectric properties, low toxicity and maintains mechanical integrity even after exposures in excess of 1300°F (704°C). P<sup>2</sup>SI<sup>®</sup> 900HT was engineered for applications requiring mechanical integrity at temperatures above 1000°F (538°C) for limited times with good dielectric behavior. This system is available in a variety of product forms, including resin solution coated textiles and molding powder. P<sup>2</sup>SI<sup>®</sup> 900HT has been manufactured on carbon, quartz and glass textiles. It has a robust cure cycle, low-melt viscosity and good toughness. Void- and microcrack-free composites are easily fabricated into structural components with cross-sectional

thicknesses over 0.5 inches using a variety of reinforcements. P<sup>2</sup>SI<sup>®</sup> 900HT systems exhibit minor mechanical property knockdowns at elevated temperatures up to 1000°F (538°C).



## RESIN PROPERTIES

PROPERTY	VALUE	TEST METHOD
<b>Glass Transition Temperature, °F (°C)</b>		<b>ASTM D7028</b>
Storage Modulus, E'	<b>850 (454)</b>	
Loss Modulus, E''	<b>880 (471)</b>	
tanδ	<b>912 (489)</b>	
<b>Mass Density, g/cm<sup>3</sup></b>	<b>1.33</b>	<b>ASTM D792</b>

## TYPICAL THERMAL PROPERTIES FOR T300 / P<sup>2</sup>SI<sup>®</sup> 900HT (2X2 TWILL, 370 gsm)

PROPERTY	Value at Temperature 75°F (23°C)	Value at Temperature 700°F (371°C)	TEST METHOD
Heat Capacity (J/g-K)	0.425	1.649	ASTM E1269
Thermal Diffusivity (m <sup>2</sup> /s) [x-y]	2.45 x 10 <sup>-6</sup>	—	ASTM E1461/C714
Thermal Diffusivity (m <sup>2</sup> /s) [z]	4.50 x 10 <sup>-7</sup>	—	ASTM E1461/C714
Thermal Conductivity (W/m-K) [x-y]	1.62	6.27	ASTM E1461
Thermal Conductivity (W/m-K) [z]	0.297	1.152	ASTM E1461
Coefficient of Thermal Expansion (ppm/°C) [x-y]	2.54	2.54	ASTM E831
Coefficient of Thermal Expansion (ppm/°C) [z]	35.17	35.17	ASTM E831
Specific Thermal Conductivity (W/m-K) [x-y]	1.04	4.04	ASTM E1461/C714
Specific Thermal Conductivity (W/m-K) [z]	0.191	0.742	ASTM E1461/C714

**TYPICAL MECHANICAL PROPERTIES FOR UNIDIRECTIONAL TAPE LAMINATES**

PROPERTY	T650-35/6K	T40/800/6K	IM7 <sup>®</sup> /6K	TEST METHOD
<b>Compression Strength, [0°]<sub>48</sub> ksi (MPa)</b>				<b>ASTM D695</b>
75°F (23°C)	102 (707)			
600°F (316°C)	75 (521)			
<b>Tensile Strength, [0°]<sub>8</sub> ksi (MPa)</b>				<b>ASTM D3039</b>
75°F (23°C)	194 (1340)	268 (1850)	259 (1790)	
700°F (371°C)	199 (1370)	284 (1960)	258 (1780)	
800°F (427°C)	191 (1320)	287 (1980)	267 (1840)	
<b>Tensile Modulus, [0°]<sub>8</sub> msi (GPa)</b>				<b>ASTM D3039</b>
75°F (23°C)	17 (115)	20 (138)	21 (144)	
<b>Tensile Strength, [0°/±45°/90°]<sub>2s</sub></b>				<b>ASTM D3039</b>
75°F (23°C)	67 (465)	100 (688)	93 (639)	
700°F (371°C)	65 (451)	94 (652)	95 (657)	
800°F (427°C)	61 (418)	87 (597)	87 (598)	
<b>Tensile Strength, [±45°]<sub>2s</sub> ksi (MPa)</b>				<b>ASTM D3518</b>
75°F (23°C)	10 (72)	11 (75)	9.7 (67)	
700°F (371°C)	9.4 (65)	9.3 (64)	8.8 (61)	
800°F (427°C)	8.3 (57)	8.1 (56)	7.8 (54)	
<b>Pin Bearing Strength, [0°/±45°/90°]<sub>2s</sub> ksi (MPa)</b>				<b>ASTM D5961</b>
75°F (23°C)	134 (923)	138 (954)	137 (943)	
700°F (371°C)	93 (645)	99 (685)	96 (663)	
800°F (427°C)	86 (592)	95 (655)	89 (613)	
<b>Three-Point Flexural Strength, [0°/90°]<sub>6s</sub> ksi (MPa)</b>				<b>ASTM D790</b>
600°F (316°C)	199 (1371)	—	—	
650°F (343°C)	169 (1164)	—	—	
700°F (371°C)	159 (1095)	—	—	
<b>Double Notch Shear Strength, [0°]<sub>48</sub> ksi (MPa)</b>				<b>ASTM D3846</b>
75°F (23°C)	8.3 (57)	—	—	
600°F (316°C)	6.8 (47)	—	—	

**TYPICAL MECHANICAL PROPERTIES FOR MOISTURE SATURATED UNIDIRECTIONAL TAPE LAMINATES**

PROPERTY	T650-35/6K	T40/800/6K	IM7 <sup>®</sup> /6K	TEST METHOD
<b>Compression Strength, [0°]<sub>48</sub> ksi (MPa)</b>				<b>ASTM D695</b>
75°F (23°C)	76 (528)	—	—	
550°F (288°C)	58 (404)	—	—	

TYPICAL MECHANICAL PROPERTIES FOR TEXTILE COMPOSITE LAMINATES

PROPERTY	16781 S-2 GLASS	4581 ASTROQUARTZ <sup>®</sup> III	DESIZED T650-35/8HS	TEST METHOD
<b>Interlaminar Shear Strength, [0°]<sub>11</sub>, ksi (MPa)</b>				<b>ASTM D2344</b>
75°F (23°C)	<b>6.5 (45)</b>	<b>8.7 (60)</b>	<b>7.0 (48)</b>	
500°F (260°C)	<b>5.4 (37)</b>	—	—	
550°F (288°C)	—	—	<b>6.8 (47)</b>	
600°F (316°C)	<b>4.8 (33)</b>	—	—	
700°F (371°C)	<b>4.2 (29)</b>	—	—	
Exposure: 1300°F (704°C) x 1 min	—	<b>9.0 (62)</b>	—	
<b>Compression Strength, [0°]<sub>12</sub>, ksi (MPa)</b>				<b>ASTM D695</b>
75°F (23°C)	—	<b>79 (545)</b>	<b>80 (553)</b>	
550°F (288°C)	—	—	<b>66 (456)</b>	
<b>Tension Strength</b>				—
75°F (23°C)	—	—	<b>119 (820)</b>	
550°F (288°C)	—	—	<b>122 (842)</b>	
<b>Three-Point Flexural Strength, [0°]<sub>12</sub>, ksi (MPa)</b>				<b>ASTM D790</b>
75°F (23°C)	—	<b>98 (676)</b>	—	
Exposure: 1300°F (704°C) x 1 min	—	<b>71 (492)</b>	—	
<b>Tensile Strength, [0°]<sub>3</sub>, ksi (MPa)</b>				<b>ASTM D638</b>
500°F (260°C)	<b>38 (265)</b>	—	—	
600°F (316°C)	<b>47 (322)</b>	—	—	
700°F (371°C)	<b>38 (261)</b>	—	—	
800°F (427°C)	<b>35 (240)</b>	—	—	
900°F (482°C)	<b>34 (232)</b>	—	—	
1000°F (538°C)	<b>17 (117)</b>	—	—	
<b>Dielectric Properties</b>				—
Loss Tangent	—	<b>0.02</b>	—	
Dielectric Constant	—	<b>3.1</b>	—	

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