

**PSR133  
 Phenolic Prepreg**

PSR133 is a high performance phenolic resin available in neat resin and prepreg form. Prepregs manufactured with PSR 133 meet the stringent requirements of MIL-R-9299C, Grade B. PSR133 is the most cost effective phenolic available and offers excellent char yield for carbon/carbon applications and does not exhibit micro-cracking in high modulus composite structures.

**Properties of 7781-PSR133, 7781 E-Glass Fabric  
 Tested per MIL-R-9299C, Grade B**

	<b>Required Ultimate Strength</b>	<b>Required Modulus</b>	<b>Actual Ultimate Strength</b>	<b>Actual Modulus</b>	<b>Test Status</b>
<b>FLEXURAL, psi</b>					
Standard Cond. (75°F)	73,000	3.5 x 10 <sup>6</sup>	88,560	4.5 x 10 <sup>6</sup>	<b>Pass</b>
24 Hr. H <sub>2</sub> O Boil (75°F)	70,000	3.0 x 10 <sup>6</sup>	91,440	4.6 x 10 <sup>6</sup>	<b>Pass</b>
1/2 Hr. @ 160°F	69,000	3.3 x 10 <sup>6</sup>	81,780	4.1 x 10 <sup>6</sup>	<b>Pass</b>
1/2 Hr. @ 500°F	52,000	3.1 x 10 <sup>6</sup>	64,990	3.5 x 10 <sup>6</sup>	<b>Pass</b>
100 Hrs. @ 500°F	45,000	2.9 x 10 <sup>6</sup>	52,220	3.3 x 10 <sup>6</sup>	<b>Pass</b>
<b>TENSILE, psi</b>					
Standard Cond. (75°F)	46,000	N/A	61,260	4.6 x 10 <sup>6</sup>	<b>Pass</b>
24 Hr. H <sub>2</sub> O Boil (75°F)	44,000	N/A	58,530	4.5 x 10 <sup>6</sup>	<b>Pass</b>
1/2 Hr. @ 500°F	39,000	N/A	44,310	N/A	<b>Pass</b>
<b>COMPRESSION, psi</b>					
Standard Cond. (75°F)	58,000	N/A	68,910	3.8 x 10 <sup>6</sup>	<b>Pass</b>
24 Hr. H <sub>2</sub> O Boil (75°F)	53,000	N/A	66,450	3.6 x 10 <sup>6</sup>	<b>Pass</b>
1/2 Hr. @ 500°F	32,000	N/A	47,280	N/A	<b>Pass</b>
<b>HYDRAULIC OIL</b>					
% Weight Change	+/- 0.20 (max)	0.02			<b>Pass</b>
% Thickness Change	+/- 0.20 (max)	0.00			<b>Pass</b>
Flexural Strength, psi	70,000	85,660			<b>Pass</b>
<b>ISOPROPANOL</b>					
% Weight Change	+/- 0.20 (max)	0.01			<b>Pass</b>
% Thickness Change	+/- 0.20 (max)	0.00			<b>Pass</b>
Flexural Strength, psi	70,000	89,880			<b>Pass</b>
<b>ETHYLENE GLYCOL</b>					
% Weight Change	+/- 0.20 (max)	0.00			<b>Pass</b>
% Thickness Change	+/- 0.20 (max)	0.00			<b>Pass</b>
Flexural Strength, psi	70,000	81,420			<b>Pass</b>

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**HYDAULIC FLUID**

% Weight Change	+/- 0.20 (max)	0.02	<b>Pass</b>
% Thickness Change	+/- 0.20 (max)	0.00	<b>Pass</b>
Flexural Strength, psi	70,000	86,540	<b>Pass</b>
Barcol Hardness	55	82	<b>Pass</b>
Water Absorption (%)	1.25 (max)	0.21	<b>Pass</b>
Flammability	1.0"/minute (max)	Self Exting.	<b>Pass</b>
Cured Resin Content	None	29.20%	<b>N/A</b>
Specific Gravity	None	2.01	<b>N/A</b>

T<sub>g</sub> via DMA, Tan Delta

542°F

**12K 2 by 2 Twill PSR133 or PSR133G (Carbon Filled)**

Fiber	Standard Modulus Graphite
Fabric Areal Weight	20 oz/sq yd
Press Grade	Resin Content: 34 to 40% % Volatiles: 2.5 to 4.5% % Flow: 3 to 15%
Bag Grade	Resin Content: 37 to 43% % Volatiles: 5.5 to 8% % Flow: 7 to 25%
Char Yield of PSR133	63 to 67%

**3K plain weave PSR133 or PSR133G (Carbon Filled)**

Fiber	Standard Modulus Graphite
Fabric Areal Weight	5.9 oz/sq yd
Press Grade	Resin Content: 39 to 45% % Volatiles: 4 to 6% % Flow: 9 to 19%
Char Yield of PSR133	63 to 67%

Other prepreg physicals available upon request

**Barrday Composite Solutions**

86 Providence Road, Millbury MA 01527

Toll Free 800-225-7725 Tel. 508-581-2100 Fax 508-865-0302

## **PROCESS INFORMATION**

### **Vacuum Bag in Autoclave Cycle**

- Draw Vacuum and apply 45 to 75 psi autoclave pressure
- 5°F/Minute Ramp to 200°F (Optional)
- Hold at 200°F for 30 to 45 Minutes
- 5°F/Minute Ramp to 325°F
- Hold at 325°F for 90 to 120 Minutes
- Cool to less than 180°F at 3 to 5°F/Minute
- Release Pressure/Vacuum and demold

### **Vacuum Bag in Oven Cycle**

- Draw Vacuum
- 5°F/Minute Ramp to 200°F
- Hold at 200°F for 30 to 45 Minutes
- 5°F/Minute Ramp to 325°F
- Hold at 325°F for 90 to 120 Minutes
- Cool to Less than 180°F at 3 to 5°F/Minute
- Release Pressure/Vacuum and demold

### **Press Molding Cycle**

- Apply 45 to 75 psi
- 300 to 325°F for 90 to 120 Minutes

Note: Temperatures are verified via implanted thermocouple

## **RECOMMENDED STORAGE**

Room Temperature (77°F)	3 Weeks
40°F	6 Months
0°F	12 Months

**NOTE:** PSR133 Prepreg is wound with a polyethylene film interliner for easy release. The rolls are sealed in polyethylene film bags to protect prepreg from moisture and other contaminants. The bags should remain sealed while the prepreg is under refrigeration and only removed when the prepreg has had sufficient time to warm to room temperature. When not in use, the prepreg should be returned to refrigerated storage. Care should be exercised to limit out-time of the prepreg in order to insure maximum shelf life. Torn bags should be replaced.

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