

## Phepreg® FP-920

239-250°F (115-120°C) Curing Phenolic Prepreg

### Description

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Phepreg® FP-920 is an advanced fast cure phenolic prepreg designed to meet the highest FST (Fire, Smoke Toxicity) regulations for all mass transit and aerospace industries. It has a medium tack, which can be activated by subjecting the prepreg to heat, up to 50-60°C, using infrared lamp or air drier, and provides very good adhesion to core materials such as Nomex® honeycomb, Balsa, Armaform PET, and Corecell™ T / K-foams. Phepreg® FP-920 is an excellent choice to manufacture composite laminates or sandwich panels with outstanding flame retardant performance.

### Features

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#### • Prepreg

- ❖ Excellent flexibility and handling, with medium tack.
- ❖ Weight loss out of the bag: < 1% (even after long exposure time at ambient air).
- ❖ Fast curing cycle: only **20 min** @ 239-250°F (115-120°C).
- ❖ Suitable for low pressure: 1-3 bar.
- ❖ Self adhesive for core materials and secondary bonding.
- ❖ If reduced during lamination, tack could be activated by subjecting the prepreg to heat using infrared lamp or hair drier.

#### • Laminate

- ❖ Excellent surface finish.
- ❖ Outstanding FST performance.
- ❖ Higher mechanical performance compared to FP-721.

### Physical Properties on 7781 E-Glass Fabric

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- Standard weight: 0.092 lbs/sq. ft. (484 g/m<sup>2</sup>).
- Standard resin content: 38% by weight.
- Standard tack: medium tack on both sides.
- Cured ply thickness: 0.010" (0.254 mm).

### Typical Applications

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- Laminates and sandwich panels for aircraft and mass-transit interiors.
- Any other applications where:
  - ✓ High temperature resistance and mechanical performance are required;
  - ✓ Electrical properties are needed;
  - ✓ Wear resistance is important;
  - ✓ Good chemical resistance and dimensional stability are essential.

### Prepreg Storage Life

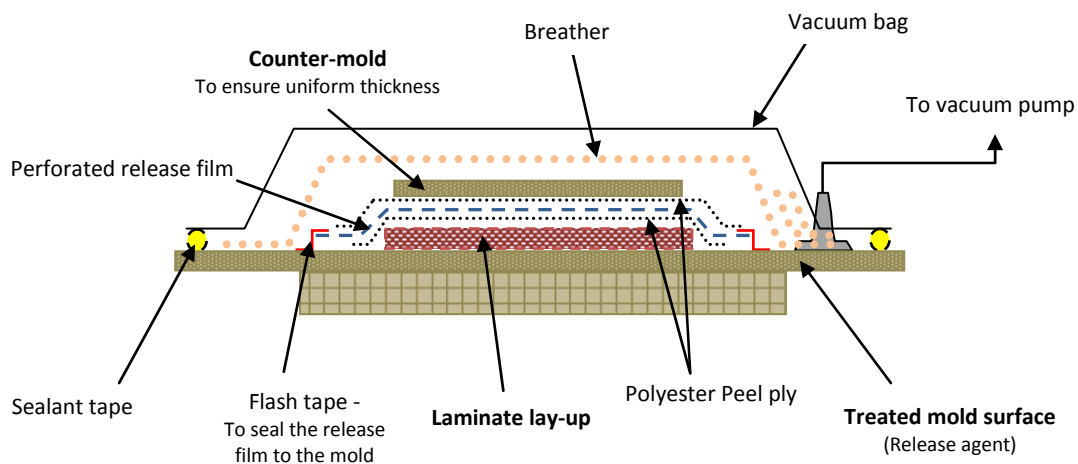
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- 6 months @ 64-68°F (18-20°C).

## Oven/Vacuum Cure Cycle

- Apply 24" Hg vacuum for 5-10 minutes before beginning heat cycle.
- Raise laminate temperature from room temperature to 250°F (120°C) within 30-45 min.
- Hold laminate at 250°F (120°C) for 20 min.
- Cool the laminate to 150°F (65°C), at no more than 8°F/min, prior to release vacuum pressure.

### Recommended Bagging Arrangement



### Note down

In case of vacuum bag processing, one ply of lightweight breather, 120 gsm, is recommended. A heavyweight breather, 340 gsm, has to be used in case of Autoclave processing. In both cases, two or three additional layers of breather have to be applied locally beside the vacuum ports.

## Cured Laminate FST Performance [E-Glass WR, 38% R.C. by weight - 4 mm thick, 20 min. @ 120°C & 2 hrs. @ 150°C]

### *Protocol: FAR 25.853 - Appendix F/ISO 5659 - 2 1994*

- Flammability

✓ Extinguishing time	<b>Nil</b>
✓ Burn length	<b>Nil</b>
✓ Drip extinguishing time	<b>No dripping</b>

- Smoke and Toxicity

	<i>Smoke Density</i>	<i>Toxicity (concentration in ppm @ 4 minutes)</i>						
	/4 min	CO	NO / NO <sub>2</sub>	HCN	HCl	HF	SO <sub>2</sub> /H <sub>2</sub> S	HBr
<b>FAA requirements</b>	< 150	< 1000	< 100	< 150	< 150	< 100	< 100	-
<b>Phepreg® FP-721</b>	11.35* / 8.45**	40	0	0	0	0	0	0
<b>Comment</b>	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

\* With pilot flame / \*\* without pilot flame

## Cured Laminate Mechanical Properties [cured @ 120°C for 20 min.]

@ 73°F

	Method	<i>Reinforcement</i>	
		<i>E-Glass 8H Satin*</i>	<i>UD Stitched Carbon T700</i>
	ASTM	300 g/m <sup>2</sup>	300 g/m <sup>2</sup>
<b>Tensile Strength, MPa</b>	D 648	<b>350</b>	<i>TBD</i>
<b>Tensile Modulus, GPa</b>		<i>TBD</i>	<i>TBD</i>
<b>Flexural Strength, MPa</b>	D 790	<b>470</b>	<i>TBD</i>
<b>Flexural Modulus, GPa</b>		<i>TBD</i>	<i>TBD</i>
<b>Inter laminar Strength, MPa</b>	D 2344	<b>38</b>	<i>TBD</i>
<b>Compression Strength, MPa</b>	D 695	<b>450</b>	<i>TBD</i>

\* Post-cured 2 hrs. @ 160°C.

## Storage and Handling

All Phepreg® preregs are wrapped in a shrink film immediately after impregnation, and then wrapped in a barrier film.

Phepreg® preregs should be stored in their original packaging barrier film, or an equivalent film, and maintained air-tight at less than **64-68°F (18-20°C)**, and in a dry place.

## Safety Precautions

The usual precautions should be observed. The prepreg contains mainly uncured synthetic resins. The operator has to use an appropriate mask/respirator and work in a clean, dry (R.H. = 50% or less), and ventilated area. The use of clean disposable inert gloves provides protection for the operator and avoids contamination of material and components.

## Important Notice

The data reported in this sheet are based on representative samples. Since the method and circumstances of handling and processing are keys to the material performance, Gulf Composite Materials L.L.C. does not guarantee this data. Users should make their own assessment of the suitability of any product for the performance required.