PVB PHENOLIC RESINS

PVB Phenolic resins are a family of thermoset resins that display outstanding structural rigidity, toughness, and adhesive strength. They are used primarily in ballistic helmet and vehicle applications once impregnated into high performance aramid fabrics. These fabrics offer exceptional ballistic performance in vehicle spall liner applications and versus fragmentation threats, as well as excellent structural and thermal properties. Standard configurations conform to MIL-DTL-62474 aramid fabric reinforced laminates for composite armor.

FEATURES AND BENEFITS

- Thermosetting: fast cycle time.
- Toughened: balanced structural and ballistic performance.
- Pigmented: variety of colors for improved paintability.
- Robust: easy molding, forgiving, managed flow.
- Product life: excellent environmental performance and durability.

PRODUCT FORMS

Barrday's PVB Phenolic resins are available:

- On many fabric substrates as double side coated prepreg, single side coated prepreg or film laminated prepreg. Typical resin content ranges are from 10 to 20% weight basis, dry prepreg.
- As a cast film in weights of 15 to 100 gsm.
- As liquid resins in 5 gallon containers, 55 gallon drums, or large totes.
- In standard clear (unpigmented) and green colours. Additional colors available upon request.

PROCESS INFORMATION

The following guidelines are provided to assist with general recommendations for successful processing. These are meant for review purposes only and process adjustments may be required to achieve optimum results in your specific manufacturing environment. All process temperature recommendations given below are meant to be verified by implanted thermocouple.

	High Performance	Mil Spec	Low Temperature
Resin	LC799	LC818	LC815
Temperature	260 – 350°F (127 – 177°C)	290 – 350°F (144 – 177°C)	250 – 280°F (121 – 137°C)
Pressure (psi)	150 – 3000	150 – 3000	150 – 3000
Time (min)	10 – 30	10 – 30	10 – 30
Shelf Life	2 Months < 80°F (27°C) 12 Months < 40°F (5°C)	2 Months < 80°F (27°C) 12 Months < 40°F (5°C)	2 Months < 80°F (27°C) 12 Months < 40°F (5°C)

PROCESS RECOMMENDATIONS

- Preformed parts can be placed directly on heated mold at appropriate temperature.
- Apply pressure based on manufacturing process.
- Degassing steps required to remove moisture during first 5 minutes of molding cycle
- Hold pressure until cured time is reached.
- Remove part from heated mold.
- Cooling under pressure can improve dimensional stability if needed.

COMMON PVB PHENOLIC CONFIGURATIONS

	Style 1013 LC799	Style 1007 LC799	Style 1013 LC818	Style 1013 LC818	Style 1117 LC818
Applications	Helmets	Helmets	Helmets/ Vehicles	Helmets/ Vehicles	Vehicles
Finished (Coated / Impregnated) Fabric Weight	7.5 oz/yd² 256 g/m²	13.6 oz/yd² 463 g/m²	15.4 oz/yd² 522 g/m²	16.0 oz/yd² 541 g/m²	20.1 oz/yd² 683 g/m²
Pick Count	31 x 31	31 x 31	17 x 17	17 x 17	21 x 21
Weave Type	Plain	2 x 2 Basket	Plain	Plain	2 x 2 Basket
Fiber Denier	850 Denier (940 Dtex)	1420 Denier (1580 Dtex)	3000 Denier (3300 Dtex)	3000 Denier (3300 Dtex)	3000 Denier (3300 Dtex)
Fiber Type	High Tenacity Aramid	High Tenacity Aramid	Standard Modulus Aramid	Standard Modulus Aramid	Standard Modulus Aramid
Typical Resin Content	12 ± 2%	12 ± 2%	12 ± 2%	15 ± 2%	20 ± 2%
Industry Reference	N/A	CT736	745 or CT750	745 or CT750	N/A
Meets MIL-DTL-62474F	N/A	N/A	N/A	Class D	Class A

Note: 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. The data presented herein has been developed under controlled manufacturing and test conditions and is considered accurate. No warranty is expressed or implied regarding the accuracy or use of this data or the use of this product. It is the responsibility of the end user to determine suitability for use.