

## 1110 General Purpose Vinyl Ester Resin

**Overview:** #1110 is formulated for maximum corrosion resistance to most fuels and vapors as well as both acidic and basic chemicals. Additionally, it is heat resistant and blended for toughness.

A properly fabricated part should last for years in the marine environment with no adverse effects. These qualities make it perfect for repairing tank linings, blistered boat hulls, as well as fabricating tough all-around parts.

Available in gallons, 5 gallon pails and drums.

### Features & Benefits:

- #1110 is a low viscosity, corrosion resistant vinyl ester resin.
- The raw materials used in the manufacture of this resin are listed as acceptable in FDA regulatory Title 21 CFR 177.2420 for repeated use in contact with food subject to user's compliance with the prescribed limitation of that regulation.
- #1110 has excellent impact strength and corrosion resistance
- #1110 also has high tensile elongation properties

### Typical Cure Schedule:

	#1110
Gel Time at 60 - 70°F	50 - 60 Mins*
Gel Time at 70 - 80°F	20 - 30 Mins*
Gel Time at 80 - 90°F	15 - 25 Mins*

\*Catalyzed with 1.25% MEKP

### Typical Product Properties:

	#1110
Viscosity	275 Cps
Flash point	73 - 100°F
Density	8.6 Lbs/Gal
Weight % NV	66%
Color	Cobalt - Promoted
Percent Solids	52%
Monomer	Styrene
Acidity, (solids) eq/100 G	0.02 Max

### Typical Mechanical Properties:

	#1110
Barcol Hardness	35
Tensile Strength at 77°F	12,000 PSI
Tensile Modulus at 77°F	5.4 PSI x 10 <sup>5</sup>
Tensile Elongation at Yield	4.60%
Tensile Elongation at Break	7.90%
Flexural Strength at 77°F	19,000 PSI
Flexural Modulus at 77°F	5.0 PSI x 10 <sup>5</sup>
Heat Deflection Temperature	209°F

### Typical Mechanical Properties of Laminates at Various Temperatures:

Laminate Thickness	Temperature °F	Tensile Strength PSI	Tensile Modulus PSI x 10 <sup>8</sup>	Flexural Strength PSI	Flexural Modulus PSI x 10 <sup>8</sup>
.125" (1 Veil, 2 Mats)* 25% Glass*	77	13,300	0.99	20,300	0.76
.25" (1 Veil, 5 Mats 2 W.R.)* 39% Glass*	77	20,600	1.38	30,600	1.26
	200	26,500	1.72	30,200	1.04
	250	20,900	1.23	22,600	0.87
	300	10,400	0.76	5,100	0.13
050" (1 Veil, 8 Mats 4 W.R.)* 42% Glass*	77	23,100	1.73	26,100	1.17
	200	21,400	2.22	30,400	1.16
	250	18,100	0.99	7,800	0.35
	300	8,600	0.76	3,300	0.2

\*Catalyzed with 1.25% MEKP

**Mixing Directions:** Shake contents of can before opening. Using clean plastic or paper cups, measure out the needed amount of resin. This resin has been blended to gel within 25-30 minutes after the hardener has been added, so only catalyze what can be used in that amount of time. Begin by mixing small batches and then let experience be your guide. Catalyze with 1.25% MEKP, and mix thoroughly for one minute. Be sure to scrape material from the edges and bottom of the container.

**Application:** Use a rubber squeegee, paint brush, or roller to apply the mixed Vinyl Ester Resin to the reinforcing fabric. Once the fibers are thoroughly saturated, remove as much excess resin as possible to lighten the laminate. When using multiple layers of reinforcement, it is not necessary to wait for one layer to cure before applying the next layer. For maximum chemical resistance in tank linings, leave the inside of the laminate resin rich.

Parts cured at room temperature can be de-molded in 4-8 hours, but should not be placed into service for at least 24 hours. In order to develop maximum physical properties, marine applications should cure for 7 days before being placed into the water.

**Safety and Handling:** #1110 General Purpose Vinyl Ester Resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn. Individuals should wash with soap and water before eating, or drinking. Individuals should observe conditions of good industrial hygiene and safe working practice. For more detailed instructions on handling, please see the MSDS sheet.

All containers should be properly labeled to prevent accidental ingestion or improper disposal. Individuals should reseal any partly used material back in the container. Store under cool, dry conditions away from open flames and high temperatures. For more detailed instructions on storage, please see the MSDS sheet.