

## 90 Isophthalic Polyester Resin

**Overview:** #90 Iso Polyester is perfect for making dimensionally stable polyester molds, corrosive service part fabrication, and as a durable repair material for tank linings. #90 permits fast wet-out in spray or hand laminates. Its 225°F service temperature also resists exotherm and post cure problems. Properly fabricated parts may be used in food contact applications. #90 is fully compatible with all Fibre Glast gel coats, pigments and fillers. Clean tools with #9 Acetone. Do not use on Styrofoam. Meets MIL-R-7575C.

Available in gallons, five gallon pails and drums as well as resin/hardener kits.

### Features & Benefits:

- High Molecular weight Isophthalic polymer
- Contains no esterification catalyst
- Chemical components listed under FDA 177.2420 Title 21
- Laminates based on #90 can meet BS 6920 requirements
- Laminates can meet MIL-R-7575C Grade A and B with Class 0 and 3 electrical properties
- Manufactured using statistical controls in ISO-9002 certified plants
- Corrosion resistance, Strength, Toughness Superior corrosion and blister resistance
- Can be used in food and beverage contact application
- Approved for use in military applications
- Consistent batch to batch performance

### Typical Cure Schedule:

	#90
Gel Time at 77°F	13.5 - 16.5 Min*
Time to Peak at 77°F	24 - 31 Min*
Peak Exotherm °F	330 - 360*

\*Catalyzed with 1.25% by weight with MEKP

### Typical Product Properties:

	#90
Viscosity	450-650 CPS
Thixotropic Index	2 - 3
Specific Gravity	1.04-1.08
Weight % NV	50 - 53

### Typical Mechanical Properties:

	#90		
	1/8" Clear Casting Resin	1/8" Laminate	Test Method
Barcol Hardness	40	45*	D-2583
Heat Deflection Temperature	225°F	N/A	D-648
Flexural Strength at 77°F	16,600 PSI	31,400*	D-790
Flexural Modulus at 77°F	0.52 x 106 PSI	1.3 x 106 PSI*	D-790
Tensile Strength at 77°F,	9,300 PSI	17,900 PSI*	D-638
Tensile Modulus at 77°F	0.59 x 106 PSI	1.2 x 106 PSI *	D-638
Tensile Elongation at Break	2.4%	N/A	D-638
Compressive Strength at 77°F	N/A	28,400 PSI*	D-695

\*Laminate construction: 4 plies of 1.5 oz/ft<sup>2</sup> chopped strand mat. Glass content: 35% by weight; Thickness: 0.125"

### Typical Mechanical Properties at -45°F:

	#90	
	1/8" Laminate	Test Method
Flexural Strength	36,200 PSI*	D-790
Flexural Modulus	1.391 x 106 PSI*	D-790
Tensile Strength	18,400 PSI*	D-638
Tensile Modulus	1.522 x 106 PSI *	D-638
Tensile Elongation at Break	1.79%*	D-638
Compressive Strength	28,900 PSI*	D-695
Compressive Modulus	1.925 x 106 PSI*	D-695

### Typical Mechanical Properties at -90°F:

	#90	
	1/8" Laminate	Test Method
Flexural Strength	38,400 PSI*	D-790
Flexural Modulus	1.363 x 10 <sup>6</sup> PSI	D-790
Tensile Strength	17,900 PSI*	D-638
Tensile Modulus	1.510 x 106 PSI *	D-638
Tensile Elongation at Break	2.12%*	D-638
Compressive Strength	32,900 PSI*	D-695
Compressive Modulus	2.190 x 106 PSI*	D-695

\*Laminate construction: 3 plies of 1.5 oz/ft<sup>2</sup> chopped strand mat. Glass content: 32.4% by weight; Thickness 0.090"

### Typical Laminate Performance at Elevated Temperatures:\*

Temperature °F	#90			
	Flexural Strength, PSI	Flexural Modulus x 10 <sup>8</sup> PSI	Tensile Strength PSI	Tensile Modulus x 10 <sup>6</sup> PSI
77	31,000	1.38	19,900	1.63
150	28,600	1.20	22,500	1.51
200	24,000	0.85	25,000	1.38
250	14,700	0.50	17,000	0.87
300	4,300	0.30	13,200	0.87

\*Properties reported in this bulletin are typical of those obtained in controlled laboratory test and are provided as guidelines. Laminate construction: v/m/m/wr/m/wr/m/m thickness; 0.25", Glass content: 40% by weight. (V = 10-mil C-glass veil, M= 1.5oz/ft<sup>2</sup> chopped strand mat, WR = 24 oz/yd<sup>2</sup> woven roving

**Coverage:**

	<b>#90</b>
<b>Coverage</b>	<b>Square Feet Per Gallon</b>
Laminate, 10 oz/sq-yd Fiberglass Fabric	90
Laminate, 4 oz/sq-yd fiberglass fabric	170
Laminate, 3/4 oz/sq-yd fiberglass mat	45
Laminate, 1-1/2 oz/sq-yd fiberglass mat	25
Laminate, 18 oz/sq-yd woven roving	30

**Mixing Directions:** Shake well before using. To initiate hardening add #69 MEKP Hardener in a ratio of 1%. For easy measure use one teaspoon (5cc) of hardener per pint (pound) of resin, two teaspoons (10cc) per quart, nine teaspoons (40cc) per gallon. For small quantities, add 13 drops of hardener per ounce of resin. Measure the components carefully!

At a temperature of 72°F the resin will begin to harden in about 24 minutes and be sandable in about 6 hours. Full cure will take at least 48hours. At cooler temperatures the mixture will take longer to harden and at warmer temperatures it will take less time. The ratio of hardener may be adjusted to compensate for temperature extremes. Add up to 50% more hardener when cooler temperatures exist and correspondingly less when warmer.

Do not attempt to use this resin when temperatures are below 55°F. Mix only small quantities when the temperature is above 85°F as hardening will occur very rapidly. Never apply in direct sunlight. Mix in clean glass, paper, plastic or metal containers. Do not use foam containers. Mix no more than you can use before the resin will begin to harden. Start with small batches and let experience be your guide thereafter. Do not return mixed (catalyzed) resin to container.