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# High-Performance Marine Vinyl Ester Resin

Technical Data

T-18

**Description of Resin** • TAP Marine Vinyl Ester Resin is a pre-promoted, thixotropic, vinyl ester resin suitable for fabricating small to large FRP structures with high production rates at room temperature. TAP Vinyl Ester Resin is formulated for curing at room temperature with TAP MEKP Catalyst. Suitable for hand lay-up.

### Features

- Low water absorption rate
- Quick cure version
- High strength and toughness
- Tack-free surface
- Improved profile
- Wets out reinforcements rapidly
- High heat distortion temperature
- Stable gel time
- Manufactured using statistical process and quality controls

### Benefits

- Superior blister resistance
- Fast barcol development in skin coats
- Excellent resistance to impact, thermal, and de-molding cracks
- Faster lamination and buildup layers
- Minimized print-through for smooth surfaces
- Minimized voids and resin-starved areas
- Easy maintenance of resin-to-glass ratio
- Retention of physical properties at elevated temperatures
- Consistent gel and cure time at various catalyst levels
- Consistent performance batch to batch

### Typical Liquid Properties @ 25°C

Viscosity (Brookfield LVF#3 @ 60 RPM), cps	500
Non-Volatiles, %	55
Weight per gallon, lb	8.7
Thixotropic Index	3.0
Flash Point (Seta closed cup), °C (°F)	31.6 (89)
Shelf Life (minimum), months	3
Color	translucent amber

### Typical Mechanical Properties

	ASTM Test	Clear
	Method	Casting
Barcol Hardness	D-2583	44
Heat Distortion Temperature, °C (°F)	D-648	116 (241)
Flexural Strength, psi	D-790	21,000
Flexural Modulus, x 10 <sup>5</sup> psi	D-790	5.1
Tensile Strength, psi	D-638	12,000
Tensile Modulus, x 10 <sup>5</sup> psi	D-638	5.1
Tensile Elongation @ Break, %	D-638	4.0
Water Absorption 24 hr @ 25°C, % weight gain	D-570	0.17
Water Absorption 2 hr @ 100°C, % weight gain	D-570	0.59

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**Curing Conditions** • Cure initiated with 1.25 wt% TAP MEKP Catalyst. Clear casting cured overnight at room temperature. TAP Vinyl Ester Resin is formulated for use with TAP MEKP Catalyst. Use of another catalyst may result in inconsistent properties.

**Handling** • TAP Marine Vinyl Ester Resins are pre-promoted to cure at room temperature upon adding TAP MEKP Catalyst. As with all polyesters rate and degree of cure are functions of catalyst concentration and of temperature. Resin and work area should be between 24°C (75°F) and 35°C (95°F) to ensure satisfactory results. Catalyst levels should be within a range of 1.0-2.5% based on weight of resin. The use of catalyst levels outside of this range may result in inadequate cure, with laminates exhibiting moderate to severe post-cure after de-molding.

Certain precautions are required to ensure proper secondary bond performance. Secondary bonding will be adversely affected in resin-rich areas or in laminates that have been exposed to heat or direct sunlight for an extended period of time. Contamination of the primary laminate (e.g., grinding dust, oil, moisture, waxes, or release agents, etc.) will also adversely affect secondary bond performance. If any of these conditions occur, or if greater than 48 hours has lapsed, thorough sanding and cleaning of the substrate is recommended prior to secondary laminate application.

**Storage** • To ensure maximum stability and maintain optimum resin properties, resins should be stored in closed containers at temperatures below 75°F (25°C) and away from heat sources and sunlight.

For information on other TAP resins, contact your TAP salesperson.

**How Supplied** • TAP supplies High-Performance Marine Vinyl Ester Resin in quart, gallon, 5-gallon sizes.

**Safety** • Work only in well-ventilated areas. Wear protective chemical splash goggles and rubber gloves. Avoid contact with skin. Wash hands with soap and warm water after use.

Directly mixing any organic peroxide with a metal soap, amine, or other polymerization accelerator or promoter will result in violent decomposition.

**Important** • Work only in well-ventilated areas. Wear protective chemical splash goggles and rubber gloves. Avoid contact with skin. Wash hands with soap and warm water after use.

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