

## DERAKANE MOMENTUM™ 510C-350 Epoxy Vinyl Ester Resin

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### Improved Reactivity Brominated Epoxy Vinyl Ester Resin

DERAKANE MOMENTUM 510C-350 epoxy vinyl ester resin is a brominated vinyl ester that offers a high degree of fire retardance<sup>(1)</sup> while providing the excellent chemical resistance and toughness typical of DERAKANE<sup>®</sup> resins. Optimum fire retardance is achieved when antimony compounds are added to the resin. DERAKANE MOMENTUM resins are a new generation of resins that can be used to improve fabrication efficiency and product quality. Their lighter color makes defects easier to see and correct while the resin is still workable. The resin's improved reactivity properties often permit an increase in the lay-up thickness per session. The long shelf life provides additional flexibility to fabricators in storage and handling.

### Typical Liquid Resin Properties

Property <sup>(2)</sup>	Value
Density, 25°C/77°F	1.140 g/mL
Dynamic Viscosity, 25°C/77°F	400-440 mPa·s
Kinematic Viscosity	350-380 cSt
Styrene Content	35%
Shelf Life <sup>(3)</sup> , Dark, 25°C/77°F	12 months

- (1) The fire retardancy and flame spread data were obtained from controlled and/or small-scale bench tests and the results apply specifically to the specimens tested, in the manner tested. They are not necessarily predictive of product performance in a real fire situation. DERAKANE resins are organic materials and the fabricated products constructed from them will burn under the right conditions of heat and oxygen supply. This numerical flame spread rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.
- (2) Typical property values only, not to be construed as specifications.
- (3) Unopened drum with no additives, promoters, accelerators, etc. added. Shelf life specified from date of manufacture.

### Applications and Fabrication Techniques

- DERAKANE MOMENTUM 510C-350 resin provides resistance to a wide range of acids, alkalis, bleaches and organic compounds for use in applications.
- Used extensively in FRP ductwork stacks and stack-liner applications.
- Suitable for equipment handling mixtures of air and hot gases, building panels, and flooring compounds where a degree of ignition-inhibiting properties is needed.
- The resin is designed for ease of fabrication using hand lay-up, spray-up, filament winding, compression molding, resin transfer molding techniques and pultrusion.
- For convenience, DERAKANE 510C-350 FR resin is available which is based on DERAKANE 510C-350 resin with an antimony additive pre-mixed such that laminates can meet ASTM E-84 Flame Spread "Class 1" rating (less than 25)<sup>(1)</sup>.

### Benefits

- Laminates made with DERAKANE 510C-350 resin have been certified to meet ASTM E-84 Flame Spread "Class 2" rating (less than 75). With the use of antimony synergists, Class 1 ratings can be achieved<sup>(1)</sup>.
- Retains its strength, heat- and chemical-resistant properties when exposed to hot gasses and flammable liquids. When using appropriate additives, this resin helps fabricators meet fire-retardant requirements.
- Resists mechanical and chemical damage to enable use in various caustic environments such as sodium hypochlorite, chlorine dioxide and alkaline hydrogen peroxide.
- Contains only 35 weight percent styrene, resulting in reduced styrene emissions.



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**Gel Time Formulations**

The following table provides typical gel times for MEKP. “Starting point” formulations for MEKP, non-foaming MEKP alternatives and BPO peroxides are available in separate product bulletins. These and other information are available at [www.derakane.com](http://www.derakane.com).

**MEKP Gel Time Table****Typical Gel Times<sup>(4)</sup> Using NOROX<sup>(5)</sup> MEKP-925H<sup>(6)</sup> and Cobalt Napthenate-6%<sup>(7)</sup>**

Temperature	15 +/-5 Minutes	30 +/-10 Minutes	60 +/-15 Minutes
15°C/59°F	1.5 phr <sup>(8)</sup> MEKP 0.30 phr CoNap6% 0.20 phr DEA	1.5 phr MEKP 0.12 phr CoNap6%	1.25 phr MEKP 0.05 phr CoNap6%
20°C/68°F	1.25 phr MEKP 0.20 phr CoNap6%	1.25 phr MEKP 0.05 phr CoNap6%	1.25 phr MEKP 0.10 phr CoNap6% 0.03 phr 2,4-P
25°C/77°F	1.0 phr MEKP 0.10 phr CoNap6%	1.0 phr MEKP 0.05 phr CoNap6% 0.01 phr 2,4-P	1.0 phr MEKP 0.05 phr CoNap6% 0.025 phr 2,4-P
30°C/86°F	1.0 phr MEKP 0.05 phr CoNap6%	1.0 phr MEKP 0.05 phr CoNap6% 0.02 phr 2,4-P	1.0 phr MEKP 0.05 phr CoNap6% 0.04 phr 2,4-P
35°C/95°F	1.0 phr MEKP 0.05 phr CoNap6% 0.02 phr 2,4-P	1.0 phr MEKP 0.05 phr CoNap6% 0.04 phr 2,4-P	1.0 phr MEKP 0.05 phr CoNap6% 0.07 phr 2,4-P

- (4) Thoroughly test any other materials in your application before full-scale use. Gel times may vary due to the reactive nature of these products. Always test a small quantity before formulating large quantities.  
 (5) Registered trademark of Norac Inc.  
 (6) Materials: NOROX MEKP-925H Methyl ethyl ketone peroxide (MEKP) or equivalent low hydrogen peroxide content MEKP, Cobalt Napthenate-6% (CoNap6%), Diethylaniline (DEA), and 2,4-Pentanedione (2,4-P). Use of other MEKP or other additives may result in different gel time results.  
 (7) Use of cobalt octoate, especially in combination with 2,4-P can result in 20-30% slower gel times.  
 (8) phr=parts per hundred resin molding compound

**Casting Properties****Typical Properties<sup>(2)</sup> of Postcured<sup>(9)</sup> Resin Clear Casting**

Property	SI	US Standard	Test Method
Tensile Strength	86 MPa	12,000 psi	ASTM D-638/ISO 527
Tensile Modulus	3.2 GPa	4.6 x 10 <sup>5</sup> psi	ASTM D-638/ISO 527
Tensile Elongation, Yield	5-6%	5-6%	ASTM D-638/ISO 527
Flexural Strength	150 MPa	22,000 psi	ASTM D-790/ISO 178
Flexural Modulus	3.4 GPa	4.9 x 10 <sup>5</sup> psi	ASTM D-790/ISO 178
Volume Shrinkage	7.8%	7.8%	
Heat Distortion Temperature <sup>(10)</sup>	105°C	220°F	ASTM D-648 Method A/ISO 75
Glass Transition Temperature, Tg2	120°C	250°F	ASTM D-3419/ISO 11359-2
Barcol Hardness	35	35	ASTM D-2583/EN59

- (2) Typical property values only, not to be construed as specifications. SI values reported to two significant figures; US standard values based on conversion.  
 (9) Cure schedule: 24 hours at room temperature; 2 hours at 120°C (250°F)  
 (10) Maximum stress: 1.8 MPa (264 psi)



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**Laminate Properties****Typical Properties<sup>(2)</sup> of Postcured<sup>(11)</sup> 6 mm (1/4") Laminate<sup>(12)</sup>**

Property	SI	US Standard	Test Method
Tensile Strength	150 MPa	22,000 psi	ASTM D-3039/ISO 527
Tensile Modulus	12 GPa	1.7 x 10 <sup>6</sup> psi	ASTM D-3039/ISO 527
Flexural Strength	210 MPa	30,000 psi	ASTM D-790/ISO 178
Flexural Modulus	8.1 GPa	1.2 x 10 <sup>6</sup> psi	ASTM D-790/ISO 178
Glass Content	40%	40%	ASTM D-2584/ISO 1172

(2) Typical property values only, not to be construed as specifications. SI values reported to two significant figures; US standard values based on conversion.

(11) Cure schedule: 24 hours at room temperature; 6 hours at 80°C (175°F)

(12) 6 mm (1/4") Construction – V/M/M/Wr/M/Wr/M  
V = Continuous veil glass; M = Chopped strand mat, 450 g/m<sup>2</sup> (1.5 oz/ft<sup>2</sup>);  
Wr = Woven roving, 800 g/m<sup>2</sup> (24 oz/yd<sup>2</sup>)

**Safety and Handling Consideration**

This 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.

Ashland maintains Material Safety Data Sheets on all of its products. Material Safety Data Sheets contain health and safety information for your development of appropriate product handling procedures to protect your employees and customers.

Our Material Safety Data Sheets should be read and understood by all of your supervisory personnel and employees before using Ashland's products in your facilities.

**Recommended Storage:**

Drums - Store at temperatures below 27°C/80°F. Storage life decreases with increasing storage temperature. Avoid exposure to heat sources such as direct sunlight or steam pipes. To avoid contamination of product with water, do not store outdoors. Keep sealed to prevent moisture pick-up and monomer loss. Rotate stock.

Bulk - See Ashland's Bulk Storage and Handling Manual for Polyesters and Vinyl Esters. A copy of this may be obtained from Composite Polymers at 1.614.790.3333.

<u>Product Name</u>	<u>Product Code</u>	<u>Standard Package*</u>
MOMENTUM 510C-350	536-010	55-Gal Drum, Net Weight 452 Lbs. 210 Liter, Net Weight 205 Kg *Non-Returnable



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