

DERAKANE 8084 Epoxy Vinyl Ester Resin

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High Elongation Tough Epoxy Vinyl Ester Resin

DERAKANE 8084 epoxy vinyl ester resin is an elastomer modified resin designed to offer increased adhesive strength, superior resistance to abrasion and severe mechanical stress, while giving greater toughness and elongation. DERAKANE 8084 and DERAKANE 8090 resins are the only vinyl esters available that offer this exceptional combination of properties.

Typical Liquid Resin Properties

Property ⁽¹⁾	Value
Density, 25°C/77°F	1.02 g/mL
Dynamic Viscosity, 25°C/77°F	360 mPa·s
Kinematic Viscosity	350 cSt
Styrene Content	40%
Shelf Life ⁽²⁾ , Dark, 25°C/77°F	6 months

(1) Typical property values only, not to be construed as specifications.

(2) Unopened drum with no additives, promoters, accelerators, etc. added. Shelf life specified from date of manufacture.

Applications and Fabrication Techniques

- DERAKANE 8084 resin is the resin of choice as a primer to prepare a substrate surface (steel or concrete) for application of a corrosion resistant lining.
- DERAKANE 8084 resin can be use for RTM, hand-lay, spray-up, filament winding and other industrial FRP applications.

Benefits

- DERAKANE 8084 resin has exhibited chemical resistance across a broad range of acids, bases and organic chemicals.
- Resin of choice as a primer to prepare a substrate surface for application of a corrosion resistant lining. It exhibits outstanding adhesive strength on different types of steel, aluminum and concrete.
- Superior elongation and toughness provides FRP equipment with better impact resistance and less cracking due to cyclic temperature, pressure fluctuations and mechanical shocks providing a safety factor against damage during process upsets or during shipping and installation.
- Has exhibited superior property retention under dynamic fatigue conditions.
- Approved for use in the manufacture of ships under a DNV (Det Norske Veritas) certificate.



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Gel Time Formulations

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

MEKP Gel Time Table**Typical Gel Times⁽³⁾ Using NOROX⁽⁴⁾ MEKP-925H⁽⁵⁾ and Cobalt Naphthenate-6%⁽⁶⁾**

Temperature	15 +/-5 Minutes	30 +/-10 Minutes	60 +/-15 Minutes
18°C/65°F	3.0 phr ⁽⁷⁾ MEKP	3.0 phr MEKP	2.5 phr MEKP
	0.6 phr CoNap6%	0.4 phr CoNap6%	0.4 phr CoNap6%
	0.3 phr DMA	0.2 phr DMA	0.1 phr DMA
24°C/75°F	2.0 phr MEKP	2.0 phr MEKP	1.5 phr MEKP
	0.5 phr CoNap6%	0.4 phr CoNap6%	0.3 phr CoNap6%
	0.3 phr DMA	0.2 phr DMA	0.05 phr DMA
30°C/85°F	2.0 phr MEKP	1.5 phr MEKP	1.5 phr MEKP
	0.3 phr CoNap6%	0.3 phr CoNap6%	0.3 phr CoNap6%
	0.2 phr DMA	0.05 phr DMA	0.025 phr DMA

- (3) 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.
- (4) Registered trademark of Norac Inc.
- (5) Materials: NOROX MEKP-925H Methyl ethyl ketone peroxide (MEKP) or equivalent low hydrogen peroxide content MEKP, Cobalt Naphthenate-6% (CoNap6%), Dimethylaniline (DMA), and 2,4-Pentanedione (2,4-P). Use of other MEKP or other additives may result in different gel time results.
- (6) Use of cobalt octoate, especially in combination with 2,4-P can result in 20-30% slower gel times.
- (7) phr=parts per hundred resin molding compound

Casting Properties**Typical Properties⁽¹⁾ of Postcured⁽⁸⁾ Resin Clear Casting**

Property	SI	US Standard	Test Method
Tensile Strength	76 MPa	11,000 psi	ASTM D-638/ISO 527
Tensile Modulus	2.9 GPa	4.2 x 10 ⁵ psi	ASTM D-638/ISO 527
Tensile Elongation, Yield	8-10%	8-10%	ASTM D-638/ISO 527
Flexural Strength	130 MPa	19,000 psi	ASTM D-790/ISO 178
Flexural Modulus	3.3 GPa	4.8 x 10 ⁵ psi	ASTM D-790/ISO 178
Density	1.14 g/cm ³		ASTM D-792/ISO 1183
Volume Shrinkage	8.2%	8.2%	
Heat Distortion Temperature ⁽⁹⁾	82°C	180°F	ASTM D-648 Method A/ISO 75
Glass Transition Temperature, Tg2	115°C	239°F	ASTM D-3419/ISO 11359-2
IZOD Impact (unnotched)	480 J/m	8.9 ft.lbf/inch	ASTM D-256
Barcol Hardness	30	30	ASTM D-2583/EN59

- (1) Typical property values only, not to be construed as specifications. SI values reported to two significant figures; US standard values based on conversion.
- (8) Cure schedule: 24 hours at room temperature; 2 hours at 99°C (210°F)
- (9) Maximum stress: 182 MPa (264 psi)



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Laminate Properties**Typical Properties⁽¹⁾ of Postcured⁽¹⁰⁾ 6 mm (1/4") Laminate⁽¹¹⁾**

Property	SI	US Standard	Test Method
Tensile Strength	200 MPa	29,000 psi	ASTM D-3039/ISO 527
Tensile Modulus	9.8 GPa	14.0 x 10 ⁵ psi	ASTM D-3039/ISO 527
Flexural Strength	190 MPa	28,000	ASTM D-790/ISO 178
Flexural Modulus	7.8 GPa	11.0 x 10 ⁵ psi	ASTM D-790/ISO 178
Glass Content	40%	40%	ASTM D-2584/ISO 1172

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

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

(11) 6 mm (1/4") Construction – V/M/M/Wr/M/Wr/M

V = Continuous veil glass; M = Chopped strand mat, 450 g/m² (1.5 oz/ft²);

Wr = Woven roving, 800 g/m² (24 oz/yd²)

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.

Product Name
8084

Product Code
536-004

Standard Package*
55-Gal Drum, Net Weight 452 Lbs.
210 Liter, Net Weight 205 Kg
*Non-Returnable



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