

Technical Datasheet



DERAKANE™ 8084 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 resin is the resin of choice as a primer to prepare a substrate surface (steel or concrete) for application of a corrosion resistant lining. It exhibits outstanding adhesive strength on different types of steel, aluminium and concrete.

The superior elongation and toughness of DERAKANE 8084 resin provides FRP equipment with better impact resistance and less cracking due to cyclic temperature and pressure fluctuations and mechanical shocks providing a safety factor against damage during process upsets or during shipping installation. DERAKANE 8084 resin also exhibits superior property retention under dynamic fatigue conditions.

APPLICATIONS AND USE

DERAKANE 8084 resin has exhibited chemical resistance across a broad range of acids, bases and organic chemicals. DERAKANE 8084 resin can be used for RTM, hand-lay up, spray-up, filament winding and other industrial FRP applications.

DERAKANE 8084 resin is approved for use in the manufacture of ships under a DNV (Det Norske Veritas) certificate.

Recommendations for specific services and environments can be provided by contacting us at derakane@ineos.com.

Note: Contact us before using thixotropic agents and fillers. Addition of thixotropic agents and fillers can compromise corrosion resistance.

TYPICAL LIQUID RESIN PROPERTIES

Property ⁽¹⁾ at 25°C (77°F)	Value	Unit
Dynamic Viscosity	360	mPas (cps)
Kinematic Viscosity	350	cSt
Styrene Content	40	%

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Density	1.02	g/ml
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(1) Properties are typical values, based on material tested in our laboratories. Results may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

TYPICAL CURING CHARACTERISTICS

The following tables provide typical gel times for Methyl Ethyl Ketone Peroxide (MEKP). This and other information are available at www.derakane.com.

MEKP Cure System

Typical gel times⁽²⁾ using NOROX⁽³⁾ (ME)KP-925H catalyst (MEKP), Cobalt Naphthenate-6%⁽⁴⁾ (Co-nap6%) and Dimethylaniline (DMA).

Gel time at 18°C (65°F)	MEKP (phr) ⁽⁵⁾	Co-nap6% (phr)	DMA (phr)
15 +/- 5 minutes	3.00	0.60	0.30
30 +/- 10 minutes	3.00	0.40	0.20
60 +/- 15 minutes	2.50	0.40	0.10
Gel time at 24°C (75°F)	MEKP (phr)	Co-nap6% (phr)	DMA (phr)
15 +/- 5 minutes	2.00	0.50	0.30
30 +/- 10 minutes	2.00	0.40	0.20
60 +/- 15 minutes	1.50	0.30	0.05
Gel time at 30°C (86°F)	MEKP (phr)	Co-nap6% (phr)	DMA (phr)
15 +/- 5 minutes	2.00	0.30	0.20
30 +/- 10 minutes	1.50	0.30	0.05
60 +/- 15 minutes	1.50	0.30	0.025

(2) Thoroughly test any other materials in your applications before full-scale use. Gel times may vary due to the reactive nature of these materials. Always test a small quantity before formulating large quantities.

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(3) Registered trademark of United Initiators.; Norox (ME)KP-925H, (ME) used in NA name, but not elsewhere. Norox (ME)KP-925H or equivalent low hydrogen peroxide content MEKP. Use of other MEKP catalysts or additives may result in different gel times.

(4) Use of cobalt octoate, especially in combination with 2,4-pentanedione (2,4-P) can result in 20-30% slower gel times.

(5) phr = parts per hundred resin molding compound

TYPICAL MECHANICAL PROPERTIES Casting Properties

Property ⁽¹⁾ of clear casting ⁽⁶⁾ at 25°C (77°F)	Value (SI)	Method	Value (US)	Method
Tensile Strength	76 MPa	ISO 527	11,000 psi	ASTM D638
Tensile Modulus	2900 MPa	ISO 527	420 kpsi	ASTM D638
Tensile Elongation at Break	8-10%	ISO 527	8-10%	ASTM D638
Flexural Strength	130 MPa	ISO 178	19,000 psi	ASTM D790
Flexural Modulus	3300 MPa	ISO 178	480 kpsi	ASTM D790
IZOD Impact (unnotched)	480 J/m		8.9 ft·lbf/in	ASTM D256
Heat Distortion Temperature ⁽⁷⁾	82°C	ISO 75	180°F	ASTM D648
Glass Transition Temperature, T _g ²	115°C	ISO 11357	239°F	ASTM D3418
Volume Shrinkage	8.2 %		8.2 %	
Barcol Hardness	30	EN 59	30	ASTM D2583
Density	1.14 g/cm ³	ISO 1183		ASTM D792

(6) Cure schedule: 24 hours at room temperature and 2 hours at 99°C (210°F).

(7) Maximum stress: 1.8 MPa (264 psi)

Laminate Properties

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Property ⁽¹⁾ of 6 mm (1/4 in.) ⁽⁹⁾ laminate ⁽¹⁰⁾	Value (SI)	Method	Value (US)	Method
Tensile Strength	200 MPa	ISO 527	29,000 psi	ASTM D3039
Tensile Modulus	9800 MPa	ISO 527	1400 kpsi	ASTM D3039
Flexural Strength	190 MPa	ISO 178	28,000 psi	ASTM D790
Flexural Modulus	7800 MPa	ISO 178	1100 kpsi	ASTM D790
Glass Content	40%	ISO 1172	40%	ASTM D2584

(9) Cure schedule: 24 hours at room temperature and 6 hours at 80°C (175°F).

(10) Laminate construction of 6 mm (1/4") is V/M/M/Wr/M/Wr/M where V=Continuous veil glass, M=Chopped strand mat 450 g/m² (1.5 oz/ft²) and Wr=Woven roving 800 g/m² (24 oz/yd²).

CERTIFICATES AND APPROVALS

The manufacturing, quality control and distribution of products, by INEOS Composites, comply with one or more of the following programs or standards: ISO 9001, ISO 14001 and OHSAS 18001.

STANDARD PACKAGE

Non-Returnable Drum with Net Weight of 205 Kgs (452 Lbs)
Dot Label Required: Flammable Liquid

COMMERCIAL WARRANTY

Six months from date of manufacture, when stored in accordance with the storage conditions stated below.

STORAGE

Drums - Store at temperatures below 25°C (77°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. Mild mixing is recommended after prolonged storage. Rotate stock.

Bulk - See INEOS Composites's Bulk Storage and Handling Manual for Polyesters and Vinyl Esters. A copy of this may be obtained from INEOS Composites at +1.614.790.3333 or 800.523.6963.

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All things being equal, higher storage temperature will reduce product stability and lower storage temperature will extend product stability.

Notice

All information presented herein is believed to be accurate and reliable, and is solely for the user's consideration, investigation and verification. The information is not to be taken as an express or implied representation or warranty for which INEOS Composites assumes legal responsibility. Any warranties, including warranties of merchantability, fitness for use or non-infringement of intellectual property rights of third parties, are herewith expressly excluded.

Since the user's product formulations, specific use applications and conditions of use are beyond the control of INEOS Composites, INEOS Composites makes no warranty or representation regarding the results which may be obtained by the user. It shall be the sole responsibility of the user to determine the suitability of any of the products mentioned for the user's specific application.

INEOS Composites requests that the user reads, understands and complies with the information contained herein and the current Material Safety Data Sheet.