

Technical Data Sheet

EPI-REZ™ Resin WD-510

Product Description

EPI-REZ™ Resin WD-510 is a liquid epoxy resin specifically designed for water dilution. In combination with epoxy curing agents and dilution with water it forms resin in water emulsions. It is useful as a modifier for Portland Cement, concrete, mortars, stuccos, and grouts. As a binder it is useful for trowel applied floor toppings, bond coats, base coats, membranecoatings and sealers.

Suggested Uses

EPI-REZ WD-510 forms uniform dispersions in water in combination with Aliphatic amine curing agents, including adducts, amidoamines, polyamides, and accelerated amines. To make these dispersions the EPI-REZ WD-510 and curing agent must first be thoroughly blended. Then water is added to the blend and stirred in, either manually or with an agitator powered by a motor. Resin/curing agent blends are diluted with water to a solids level of 40 to 80 percent by weight. This dispersion process is typically facilitated with glycol ether cosolvents and epoxy viscosity reducing modifiers. While batches of the water dispersed system exhibit long dispersion life (generally remain emulsified through gelation), the usable working life of some formulations is shorter than the dispersion life. The actual usable working life of a specific formulation should be determined in a laboratory by studying performance related properties as a function of time elapsed from mixing to application. EPI-REZ WD-510 can also be combined with acid-functional acrylic epoxy resin (e.g. ETERSOL G1182 - Eternal Chemical Corp) to produce two-package water reducible coatings. EPI-REZ WD-510 may be used in place of EPON Resin 828 for lower VOC's in combination with waterborne EPIKURE™ Epoxy Curing Agents for 2 package epoxy industrial finishes.

Sales Specifications

Property	Value	Unit	Test Method
Color	2	Gardner	ASTMD1259
Viscosity	8000 - 12000	cP	ASTMD2196
Weight per Epoxide	190 - 205	g/eq	ASTMD1652

Typical Properties

Property	Value	Unit
Pounds/Gallon	9.64	lbs/gal

Processing/How to use

General Information

EPI-REZ Resin WD-510 can be thinned with epoxy diluent modifiers including HELOXY™ Modifier 8, HELOXY Modifier 62 or CARDURA™ E-10 to facilitate mixing and handling. Ethylene glycol monopropyl ether may be used to lower viscosity of the resins during the water dispersing process. EPI-REZ Resin WD-510 does not contain alkylphenol ethoxylates.

Table 1 outlines the handling characteristics of water reducible systems incorporating EPI-REZ WD-510 with various amine curing agents. Substitution of up to 20 percent of EPI-REZ WD-510 with a flexibilizer or reactive diluent retains the water reducible feature in combination with amine curing agents. Flattening agents such as colloidal silica may be incorporated at levels up to 15 parts per hundred resin in the emulsions without building excessive thixotropy.

Cured state properties of EPI-REZ WD-510 amine systems are very similar to those of corresponding EPON™ Resin 828 compositions. Table 2 compares such systems prior to water reduction of the EPI-REZ WD-510 system.

Table 1/Handling Characteristics and Film Properties of Water-Thinned Epoxy Systems

EPI-REZ Resin WD-510
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Composition	Value	A	B	C	D
EPI-REZ Resin WD-510		100	100	100	100
EPIKURE™ Curing Agent 3274		38	–	–	–
EPIKURE Curing Agent 3046		–	48	–	–
EPIKURE Curing Agent 3270		–	–	72	–
EPIKURE Curing Agent 3072		–	–	–	33
Water		53	57	67	53
Colloidal Silica ¹		1	2	1	1
Blend Properties at 25 °C ²					
Gel Time, 100 g mass	hrs	9	8	0.5	5
Emulsion Life					
Solids	%	72	72	72	72
Film Properties ³					
Tack-Free Time	hrs	16	24	8	11
Film Continuity		Good	Craters	Good	Good
Clarity		Transparent	Cloudy	Cloudy	Cloudy
"Sweat-out"		None	Slight	None	Slight

¹ Cab-O Sil M-5 supplied Cabot Corporation.

² Emulsions prepared by first blending the resins, converter and colloidal silica, then adding water and agitating for 2 minutes using a portable electric drill and "Jiffy" agitator.

³ 5 mil wet films applied with doctor blade at 25 °C

Table 2/Comparison of Cured State Properties of Undiluted EPI-REZ™ Resin WD-510 versus EPON Resin 828

Composition	Value	A	B	C	D
EPI-REZ WD-510 Resin		100	–	100	–
EPON Resin 828		–	100	–	100
EPIKURE Curing Agent 3274		38	40	–	–
EPIKURE Curing Agent 3072		–	–	33	35

Cured State Properties¹

Ultimate Tensile Strength	psi	8,400	9,200	9,400	7,000
Tensile Elongation	%	3	4	4	1.6
Ultimate Flexural Strength	psi	12,900	–	14,500	15,000
Flexural Modulus	10 ⁶ psi	0.41	–	0.46	0.52
Compressive Yield Strength	psi	13,000	–	12,600	13,200
Izod Impact	ft.·lb./in. notch	0.49	0.53	0.52	0.45
Hardness	Shore D	85	83	85	88

Chemical Resistance ²					
Distilled Water		0.38	0.21	0.20	0.10
5% Acetic Acid		0.59	0.25	0.81	–
50:50 Xylene/Isopropanol		11.6	8	1.25	–

¹ All test specimens were cured for 2 weeks at 25 °C.

² Percent weight gain after immersion for 24 hours at 25 °C.

Safety, Storage & Handling

Please refer to the SDS for the most current Safety and Handling information.

Please refer to the Hexion web site for Shelf Life and recommended Storage information.

For ease of handling and optimum shelf life, epoxy dispersions should be stored in tightly sealed containers at temperatures between 50 °F (10 °C) and 100 °F (37.8 °C). Do not allow the product to freeze. To prevent skinning or surface drying, do not leave the product uncovered for extended periods of time. If the need arises to store partially filled drums, replace the plastic top-sheet onto the surface of the liquid product.

Exposure to these materials should be minimized and avoided, if feasible, through the observance of proper precautions, use of appropriate engineering controls and proper personal protective clothing and equipment, and adherence to proper handling procedures. None of these

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Packaging

Available in bulk and drum quantities.

Contact Information

For product prices, availability, or order placement, visit the "Contact Us" section of our website. For literature and technical assistance, visit our website at: www.Hexion.com/epoxy

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