



Epoxy Systems for Civil Engineering and Construction Industry

September 2021

HEXION INC –
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Epoxy Systems for Civil Engineering and Construction Industry

- ✓ *EPIKOTE™ Resins 235 and 240*
- ✓ *INFINIUM™ Lower Yellowing Epoxy System*
- ✓ *EPIKURE™ Curing Agents 580 and 3289*
- ✓ *AQUAREOUS™ Ultra-low VOC WB Systems*
- ✓ *EPI-REZ™ Resin 7521-WH-57*
- ✓ *Research Curing Agent RSC-4628 (w/EPOSIL™ Resin 5550)*

Bis-A / Bis-F Epoxy Resin Blends

EPIKOTE™ Resin 235
EPIKOTE™ Resin 240

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Suggested Applications



Bis-A / Bis-F Epoxy Resins

EPIKOTE™ Resins 235 and 240

- *Superior crystallization-resistance*
- *Lower viscosity*
- *Improved chemical resistance*
- *Combine with Hexion curing agents*



- Floor coatings
- Crack repair



- Adhesives
- Tank linings
- Secondary containment



Liquid Epoxy Resins



Typical Properties	EPON™ Resin 828	EPIKOTE™ Resin 235	EPIKOTE™ Resin 240
Description	<i>Bis-A liquid epoxy resin</i>	<i>A/F epoxy resin blend</i>	<i>A/F epoxy resin blend + Reactive diluent</i>
Weight per Epoxide (grams / equiv.)	185 - 192	177 - 182	185 - 196
Viscosity at 25 °C; Pa.s	11 – 15	6 – 8	0.7 – 1.1
(x10 = Poise)	(110 – 150 P)	(60 – 80 P)	(7 – 11 P)
Color, Pt-Co	100 max.	100 max.	200 max.

Advantages of Bis A / Bis F epoxy resins

- lower viscosity
- superior crystallization resistance
- Improved chemical- and heat- resistance



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INFINIUM™ Lower Yellowing Epoxy System

***EPON LY™ Resin 1810 with
EPIKURE LY™ Curing Agent 3801***

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The INFINIUM™ System saves time and money!

Use for indoor-durable coatings:

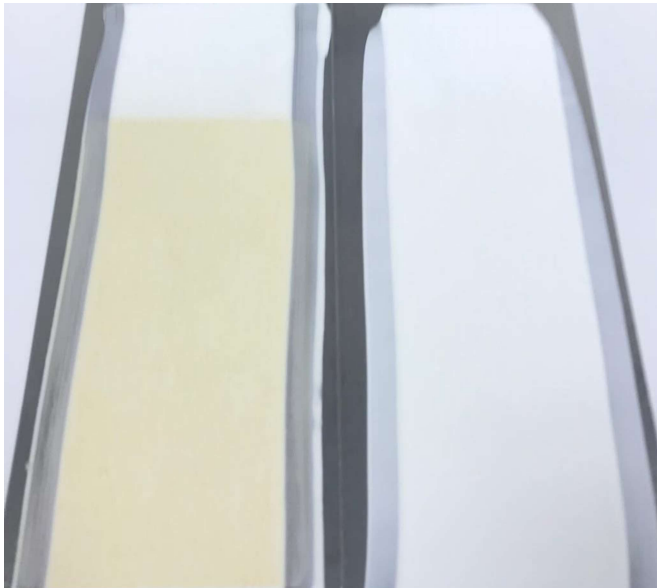
- replace two-layer systems with one lower yellowing, epoxy layer
- faster return to service
- reduces application costs
- non-isocyanate cure



Superior Yellowing Resistance



INFINIUM™ System;
Delta E = 5



Standard Epoxy System
(E8132, EK3388); **Delta E = 20**

QUV- A accelerated weathering

White enamel coatings were exposed UV light per ASTM G154 (cyclic). *The Delta E values after 250 hours* are a measure of yellowing change caused by this accelerated weathering test.

For INDOOR APPLICATIONS

- Open bay doors
- Areas with large window; especially those facing south.
- Intense indoor lights (e.g. warehouses, gymnasiums)

Starting Formulations

- **Gloss white enamel**
- **High gloss clear**

The INFINIUM™ System saves Time and Money!

Use as a single layer coating

Faster return to service

Reduces application costs

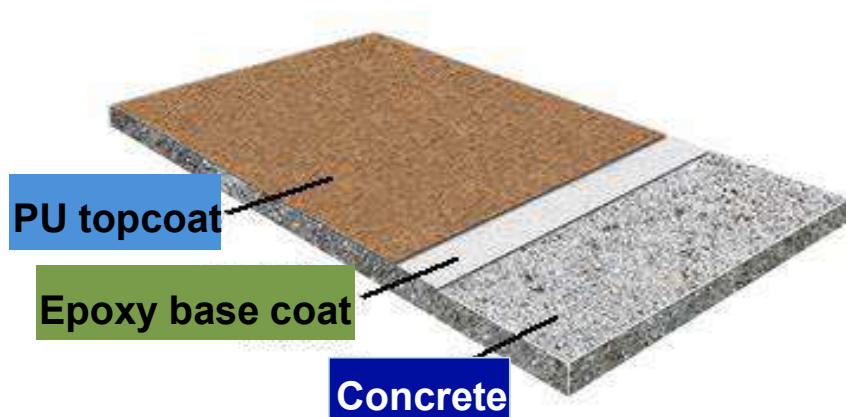
Non-isocyanate cure

Suggested Applications



Epoxy Floor Coatings

Epoxy floor coatings are normally made by combining a liquid epoxy resin with a cycloaliphatic amine. To protect the epoxy layer, a polyurethane topcoat is added but this means potential exposure to isocyanate monomer.



- Floor coatings
- Showroom coatings
- Adhesives
- Bar or counter top coatings



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EPIKURE™ Curing Agent 580

***Lower indoor air emissions
and save money!***

Properties and Suggested Applications



Green Building initiatives are important to the construction market. *Lower indoor air emissions* and *improved worker safety* are ways to gain LEED points in construction projects



- Self-leveling flooring
- Floor coatings
- Concrete patching systems
- Mortars
- Machinery grout
- Adhesives

EPIKURE™ Curing Agent 580 helps your customers!

Lower indoor air emissions

An economical cycloaliphatic amine

Performs better at cool temp. (50 °F)

Improved hardness development

EPIKURE™ Curing Agent 3289

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Properties and Suggested Applications **HEXION™**



Lower Temperature Cure and Improved Surface Appearance

This amine curing agent gives higher gloss films when used with liquid epoxy resin. It offers superior cure times and has excellent blush resistance.



- Self-leveling flooring
- Floor coatings
- Concrete patching systems
- Mortars & crack repair
- Adhesives
- Accelerator for amine-cured formulations



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AQUAREOUS™ Ultra-low VOC Epoxy Systems

**EPI-REZ™ Resin 7720-W-50 with
EPIKURE™ Curing Agent 6870-W-53 or
EPIKURE™ Curing Agent 8530-W-75**

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WB Epoxy Coatings

Typical waterborne epoxy coatings contain 5 – 10% weight of cosolvents to help film formation and decrease drying times.



Properties and Suggested Applications **HEXION™**

AQUAREOUS™

Ultra-low VOC Epoxy Systems

Combine **EPI-REZ™ Resin 7720-W-50** with
EPIKURE™ Curing Agents 6870-W-53 or 8530-W-75

*Formulate waterborne epoxy
coatings to protect concrete or metal
at <50 g/L VOC*



- **Concrete floor coatings**
- **Industrial coatings (metal)**
- **Anti-corrosion primers**
- **High gloss topcoats**

Preserve and Protect with AQUAREOUS™ Systems

For concrete coatings:

- **superior adhesion**
- **faster walk-on times**

For metal primers:

- **corrosion resistance
equal to, or better
than SB epoxies**

Starting Formulations **(< 50 g/L VOC)**

- **WB anti-corrosion white primer**
- **WB high gloss white enamel**
- **WB clear coat**



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EPI-REZ™ Resin 7521-WH-57

***“Coming to America –
US Production!”***

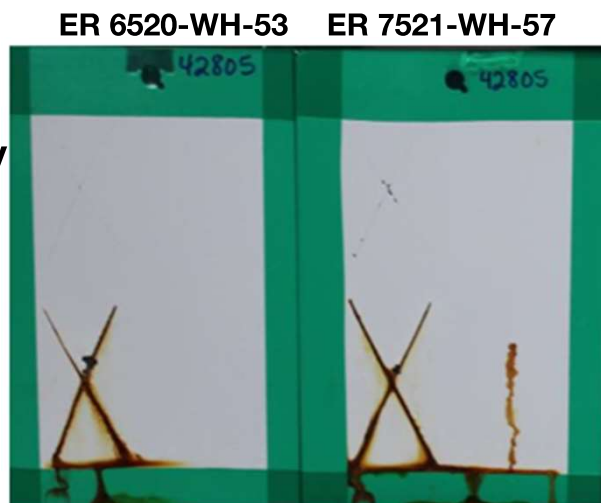
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2K Anti-Corrosive Primer

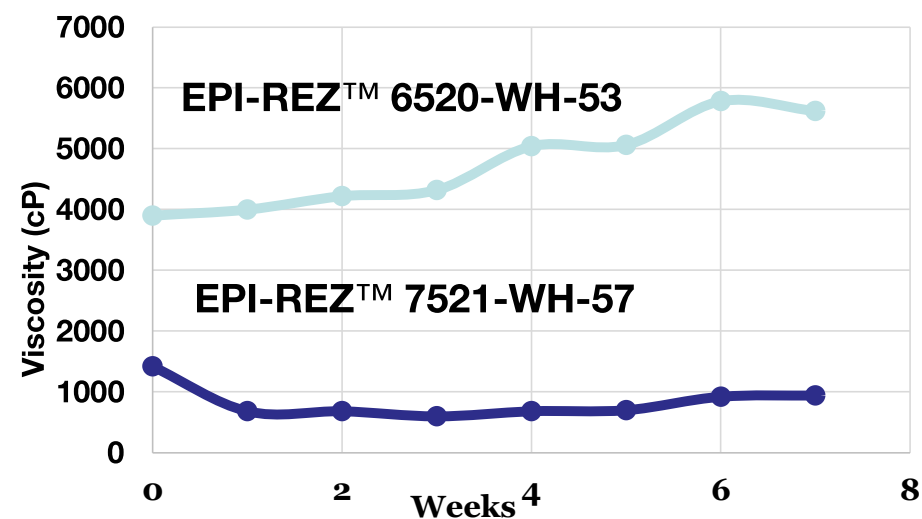
Cured with EPIKURE Curing Agent 6870 (Primer)	7-Day Testing					
	Pencil Hardness	Conical Mandrel (in.)	MEK 2x Rubs	Direct Impact	Reverse Impact	Adhesion
EPI-REZ™ 6520-WH-53	HB	1/2	84	24P	<8	5B/5A
EPI-REZ™ 7521-WH-57	HB	11/16	76	24P	<8	5B/5A

**Salt-spray
on CRS:
500 hrs.**



**Equivalent
Performance in
an Anti-Corrosion
Primer**

Properties and Suggested Applications **HEXION™**



EPI-REZ™ 7521-WH-57 offers improved hot box stability



- Concrete floor coatings



- Industrial coatings (metal)



- Anti-corrosion primers

- High gloss topcoats



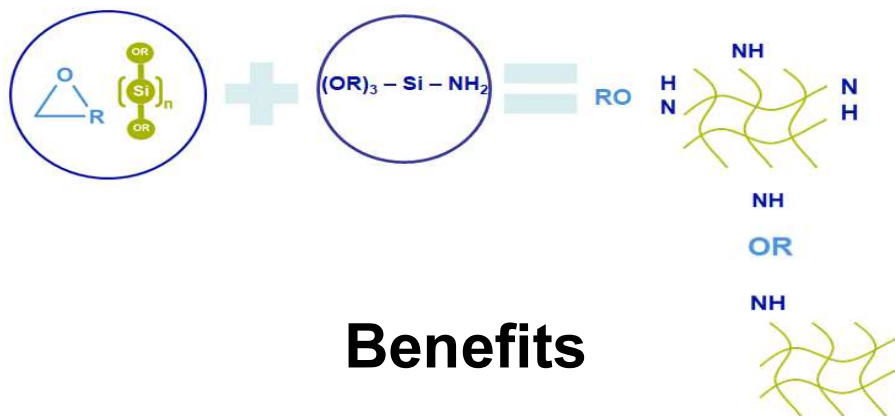
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***Research Curing Agent RSC-4628
and EPOSIL[™] Resin 5550***

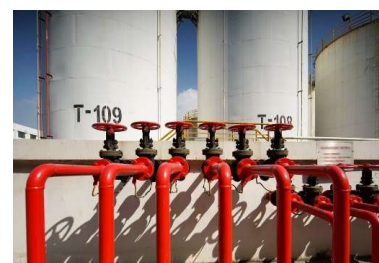
***“Hybrid Epoxy System for
improved flexibility”***

Properties and Suggested Applications



Benefits

- Premium Topcoat System (low yellowing)
- Longer Pot life and Low Mix Viscosity
- High crosslinking and low surface tension
- Higher temperature resistance (silicone content)
- Lower labor and less downtime (remove mid-coat)



- Anti-graffiti coatings or dry erase coatings
- Higher Temperature Coatings (<600 °F)
- Industrial and Protective coatings
- Amusement parks, pipes, concrete silos
- Infrastructure Coatings
- Bridges, airports, stadiums
- Marine and Defense Coatings

Epoxy Systems for Civil Engineering and Construction Industry Summary



Product	Key Selling Points	Target Applications
EPIKOTE™ Resins 235 and 240	Crystallization resistance Improved chemical resistance Lower resin viscosity	Flooring and adhesives Solvent-free coatings
INFINIUM™ Lower Yellowing Epoxy System	Replaces two layers PU systems QUV A 250 hrs Delta E = 5 Provides true epoxy protection	Floor coatings Bar and countertops
EPIKURE™ Curing Agent 3289 and EPIKURE™ Curing Agent 580 (NP & BA free)	Lower temperature cure (40 - 50F) Higher gloss Improved hardness	Self leveling flooring Industrial floor coatings Machinery grout Adhesives
EPI-REZ™ Resin 7720-W-50 AQUAREOUS™ Ultra-low VOC WB epoxy resin	Less than 50 g/L VOC Performs like solvent-borne system Superior asset protection	Concrete floor coatings Industrial metal coatings Anti corrosion primers High gloss topcoats
EPI-REZ™ Resin 7521-WH-57	Concrete formula <100 g/L VOC Metal formula <100 g/L VOC Long pot life w/high gloss profile	Institutional coatings Industrial Maintenance coatings
Research Curing Agent RSC-4628 (w/EPOSIL™ 5550)	Superior weatherability (UV-resist.) Superior gloss retention Improved flexibility and faster dry	Isocyanate free topcoats Anti-graffiti capability High temp resist. to 600 °F



We look forward to working with you!

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