product data carboline®

Carboguard® 890

Selection & Specification Data

Generic Type
Cycloaliphatic Amine Epoxy

Description
Highly chemical resistant epoxy mastic coating with exceptionally versatile uses in all industrial markets. Self-priming and suitable for application over most existing coatings, and tightly adherent to rust. Serves as stand-alone system for a variety of chemical environments and is also designed for various immersion conditions.

Features
- Excellent chemical resistance
- Surface tolerant characteristics
- Conventional and low-temperature versions
- Self-priming and primer/finish capabilities
- Very good abrasion resistance
- VOC compliant to current AIM regulations
- Suitable for use in USDA inspected facilities

Color
Refer to Carboline Color Guide. Certain colors may require multiple coats for hiding. Note: The low temperature formulation will cause most colors to yellow or discolor more than normal in a short period of time.

Finish
Gloss

Primer
Self-priming.

Dry Film Thickness
4.0 - 6.0 mils (102 - 152 microns) per coat

6.0-8.0 mils (150-200 microns) over light rust and for uniform gloss over inorganic zincs. Don't exceed 10 mils (250 microns) in a single coat. Excessive film thickness over inorganic zincs may increase damage during shipping or erection.

Solids Content
By Volume 75% +/- 2%

Theoretical Coverage Rate
1203 ft^2 at 1 mil (30 m^2/l at 25 microns)
301 ft^2 at 4 mils (7 m^2/l at 100 microns)
200 ft^2 at 6 mils (5 m^2/l at 150 microns)

Allow for loss in mixing and application.

VOC Values

Thinner 2	13oz/gal=2.2lbs/gal (271g/l)
Thinner 2	7oz/gal=2.0lbs/gal (250g/l)
Thinner 33	16oz/gal=2.3lbs/gal (285g/l)
Thinner 33	7oz/gal=2.0lbs/gal (250g/l)
As Supplied	1.7lbs/gal (214 g/l)

*Use Thinner #76 up to 8 oz/gal for 890 where non-photochemically reactive solvents are required.

Dry Temp. Resistance
Continuous: 300 °F (149 °C)
Non-Continuous: 350 °F (177 °C)

Discoloration and loss of gloss occurs above 200 F (93 C) but does not affect performance.

Under Insulation Resistance
Continuous: 300 °F (149 °C)

Discoloration and loss of gloss occurs above 200 F (93 C) but does not affect performance.

Limitations
Do not apply over latex coatings. For immersion projects use only factory made material in special colors. Consult Technical Service for specifics.

Topcoats
May be coated with Acrylics, Epoxies, or Polyurethanes depending on exposure and need.

Substrates & Surface Preparation

General
Surfaces must be clean and dry. Remove all dirt, dust, oil and all other contaminant.

Steel
Immersion: SSPC-SP10
Non-immersion: SSPC-SP6
1.5-3.0 mils (38-75 microns) *SSPC-SP2 or SP3 are suitable cleaning methods for mild environments.*

Galvanized Steel
Prime with specific Carboline primers as recommended by your Carboline Sales Representative. Refer to the specific primer's Product Data Sheet for requirements.

Concrete or CMU
Concrete must be cured 28 days at 75°F (24°C) and 50% relative humidity or equivalent. Prepare surfaces in accordance with ASTM D4258 Surface Cleaning of Concrete and ASTM D4259 Abrading Concrete. Voids in concrete may require surfacing. Mortar joints should be cured a min of 15 days.

Drywall & Plaster
Joint compound and plaster should be fully cured prior to coating application.

Previously Painted Surfaces
Lightly sand or abrade to roughen surface and degloss the surface. Existing paint must attain a minimum 3A rating in accordance with ASTM D3359 “X-Cut” adhesion test.

Performance Data

Test Method	System	Results
ASTM B 117 Salt Fog	Blasted Steel 2 cts. 890	No effect on plane, rust in scribe. 1/16" undercutting at scribe after 2000 hours
ASTM B117 Salt Fog	Blasted Steel 1 ct. IOZ 1 ct 890	No effect on plane, no rust in scribe and no undercutting after 4000 hours
ASTM D 4060 Abrasion	Blasted Steel 1 ct Epoxy Pr. 1 ct 890	85 mg. loss after 1000 cycles, CS17 wheel 1000 gm. load
ASTM D1735 Water Fog	Blasted Steel 1 ct. Epoxy Pr. 1 ct. 890	No blistering, rusting or delamination after 2800 hours
ASTM D2486 Scrub Resistance	Blasted Steel 1 ct. 890	93% gloss retained after 10,000 cycles w/ liquid scrub medium
ASTM D3359 Adhesion	Blasted Steel 1 ct 890	5A
ASTM D3363 Pencil Hardness	Blasted Steel 2 cts 890	Greater than 8H
ASTM E84 Flame and Smoke	2 ct 890	5 Flame 5 Smoke Class A

Test reports and additional data available upon written request.

Mixing & Thinning

Mixing
Power mix separately, then combine and power mix. DO NOT MIX PARTIAL KITS.

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Mixing & Thinning

Thinning
Spray: Up to 13 oz/gal (10%) w/ #2
Brush: Up to 16 oz/gal (12%) w/ #33
Roller: Up to 16 oz/gal (12%) w/ #33
Thinner #33 can be used for spray in hot/windy conditions. Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.
*See VOC values for thinning limits.

Ratio
1:1 Ratio (A to B)

Pot Life
3 Hours at 75°F (24°C)

Pot life ends when coating loses body and begins to sag. Pot life times will be less at higher temperatures.

Application Equipment Guidelines

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

Spray Application (General)
This is a high solids coating and may require adjustments in spray techniques. Wet film thickness is easily and quickly achieved. The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco.

Conventional Spray
Pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, .070" I.D. fluid tip and appropriate air cap.

Airless Spray
Pump Ratio: 30:1 (min.)*
GPM Output: 3.0 (min.)
Material Hose: 3/8" I.D. (min.)
Tip Size: .017"-.021"
Output PSI: 2100-2300 Filter Size: 60 mesh
*Teflon packings are recommended and available from the pump manufacturer.

Brush & Roller (General)
Multiple coats may be required to obtain desired appearance, recommended dry film thickness and adequate hiding. Avoid excessive re-brushing or rerolling. For best results, tie-in within 10 minutes at 75°F (24°C).

Brush
Use a medium bristle brush.

Roller
Use a short-nap synthetic roller cover with phenolic core.

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Minimum	50 °F (10 °C)	50 °F (10 °C)	50 °F (10 °C)	0%
Maximum	90 °F (32 °C)	125 °F (52 °C)	110 °F (43 °C)	90%

This product simply requires the substrate temperature to be above the dew point. Condensation due to substrate temperatures below the dew point can cause flash rusting on prepared steel and interfere with proper adhesion to the substrate. Special application techniques may be required above or below normal application conditions.

Curing Schedule

Surface Temp. & 50% Relative Humidity	Dry to Recoat	Dry to Recoat & Topcoat w/ other finishes	Final Cure General	Final Cure Immersion
50 °F (10 °C)	12 Hours	24 Hours	3 Days	NR
60 °F (16 °C)	8 Hours	16 Hours	2 Days	10 Days
75 °F (24 °C)	4 Hours	8 Hours	1 Days	5 Days
90 °F (32 °C)	2 Hours	4 Hours	16 Hours	3 Days

Higher film thickness, insufficient ventilation or cooler temperatures will require longer cure times and could result in solvent entrapment and premature failure. Excessive humidity or condensation on the surface during curing can interfere with the cure, can cause discoloration and may result in a surface haze. Any haze or blush must be removed by water washing before recoating. During high humidity conditions, it is recommended that the application be done while temperatures are increasing. **Maximum recoat/topcoat times are 30 days for epoxies and 90 days for polyurethanes at 75°F (24°C).** If the maximum recoat times have been exceeded, the surface must be abraded by sweep blasting or sanding prior to the application of additional coats.

Cleanup & Safety

Cleanup
Use Thinner #2 or Acetone. In case of spillage, absorb and dispose of in accordance with local applicable regulations.

Safety
Read and follow all caution statements on this product data sheet and on the MSDS for this product. Wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.

Ventilation
When used as a tank lining or in enclosed areas, thorough air circulation must be used during and after application until the coating is cured. User should test and monitor exposure levels to insure all personnel are below guidelines.

Packaging, Handling & Storage

Shelf Life
Part A: Min. 36 months at 75°F (24°C)
Part B: Min. 15 months at 75°F (24°C)

*When kept at recommended storage conditions and in original unopened containers.

Shipping Weight (Approximate)
2 Gallon Kit - 29 lbs (13 kg)
10 Gallon Kit - 145 lbs (66 kg)

Storage Temperature & Humidity
40° -110°F (4°-43°C)
0-100% Relative Humidity

Flash Point (Setaflash)
89°F (32°C) for Part A
73°F (23°C) for Part B

Storage
Store Indoors.

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