product data carboline®

Carbomastic® 90

Selection & Specification Data

Generic Type Cycloaliphatic Amine Epoxy

Description Economical, aluminum-pigmented mastic with excellent performance properties. Designed for a broad range of applications, this material provides good corrosion resistance, film build and surface tolerance. Can be applied at low temperatures and cures faster than many other epoxy mastics.

Features
- Very good performance over minimal surface preparation of steel substrates
- Suitable as a tie-coat/topcoat for most tightly adhered existing coatings
- Excellent film build on edges
- Can be applied at temperatures as low as 40°F
- VOC compliant to current AIM regulations

Color Aluminum (C901),Red (M500)*
(Aluminum pigment yields a dull gray (or red) appearance)
Color variations within a batch or between batches may occur due to the metallic pigments and variations in application techniques and conditions.

*Red (M500) is available for use as a contrasting primer in multiple coat applications, but should be topcoated.

Finish Flat

Primer Self-priming. May be applied over most tightly adhering coatings and aged alkyds.

Dry Film Thickness 3 mils (76 microns) over existing coatings
5 mils (127 microns) over rusted steel substrates
8 - 10 mils (203 - 254 microns) in one or two coats for severe exposures and immersion conditions

Do not exceed 10.0 mils (250 microns) in a single coat.

Solids Content By Volume 90% +/- 2%

Theoretical Coverage Rate
1444 ft^2/gal at 1.0 mils (35.4 m^2/l at 25 microns)
481 ft^2/gal at 3.0 mils (11.8 m^2/l at 75 microns)
144 ft^2/gal at 10.0 mils (3.5 m^2/l at 250 microns)

Allow for loss in mixing and application.

VOC Values
Thinner 10 32 oz/gal 2.0 lbs./gal (240 g/l)
Thinner 2 32 oz/gal 2.0 lbs./gal (237 g/l)
Thinner 225 E 32 oz/gal:0.7 lbs./gal (84g/l)
Thinner 236 E 32 oz/gal: 0.7 lbs/gal (84 g/l)
Thinner 242 E 32 oz/gal 0.7 lbs./gal (84 g/l)
Thinner 33 32 oz/gal 2.0 lbs./gal (245 g/l)
As Supplied 0.7 lbs./gal (84 g/l)

These are nominal values. *Maximum thinning for 250 g/l restricted areas is 35 oz/gal for Thinner #2 and 33 oz/gal for Thinner #33. Use Thinner #76 up to 38 oz/gal where non-photochemically reactive solvents are required.

Dry Temp. Resistance
Continuous: 200 °F (93 °C)
Non-Continuous: 250 °F (121 °C)

Discoloration occurs above 200°F (93°C).

Limitations Epoxies lose gloss, discolor and eventually chalk in sunlight exposure.

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

Substrates & Surface Preparation

General Surfaces must be clean and dry. Employ adequate methods to remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating.

Steel Non-Immersion: SSPC-SP6 with a 2.0-3.0 mil (50-75 micron) surface profile for maximum protection. SSPC-SP2, SP3, SP7, SP12,or SP14 are also acceptable methods.

Galvanized Steel For optimum performance sweep blast cleaning is recommended. Consult your Carboline Sales Representative for specific recommendations.

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

Performance Data

Test Method	System	Results
ASTM B117 Salt Fog	2 coats CM 90 over rusted steel SP-2	1500 hours. No blistering, rusting. cracking or delamination, rust in scribe, no creepage from scribe
ASTM D 522 Flexibility	1 ct CM 90 over 0.125", grit blasted steel panel	No cracking 8” cylindrical mandrel
ASTM D1014 Outdoor Weathering	A.1 ct CM 90 over rusted steel (SP-2) B.1 ct. CM 90 Over abrasive blasted steel (SP-10)	No blistering and less than 1% rusting on either A & B systems.
ASTM D4060 Abrasion	2 coats CM 90	110 mg. loss; CS-17 wheel; 1,000 gram load; 1,000 cycles

Mixing & Thinning

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

Thinning **Spray/Brush/Roll:** Up to 32 oz/gal (25%) with appropriate thinner. Use Thinner #2 or #10 for cooler or normal temperatures and Thinner #33 for hot/windy conditions.
Carboline Thinner #236E or #242 E may also be used to thin this product to minimize HAP and VOC emissions. Thinner 225 E will shorten drytimes and is not recommended for brush and roll applications. Consult Carboline Technical Service for guidance. In extreme cases (consult Carboline) Thinner #230 may be used to "slow" the dry times. 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 4 Hours at 75°F (24°C) and less at higher temperatures. Pot life ends when coating loses body and begins to sag.

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Mixing & Thinning

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) The following spray equipment has been found suitable and is available from manufacturers.

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: 1800-2200
Filter Size: 60 mesh
*PTFE 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 re-erolling.

Brush Use a medium bristle brush.

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

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Minimum	50 °F (10 °C)	40 °F (4 °C)	40 °F (4 °C)	0%
Maximum	90 °F (32 °C)	130 °F (54 °C)	100 °F (38 °C)	95%

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. Special application techniques may be required above or below normal application conditions.

Curing Schedule

Surface Temp.*	Dry to Handle	Dry to Topcoat
40 °F (4 °C)	28 Hours	20 Hours
50 °F (10 °C)	24 Hours	18 Hours
60 °F (16 °C)	16 Hours	12 Hours
70 °F (21 °C)	10 Hours	8 Hours
80 °F (27 °C)	6 Hours	5 Hours
90 °F (32 °C)	4 Hours	3 Hours
100 °F (38 °C)	3 Hours	2 Hours

These times are based on a 5.0-8.0 mil (125-200 micron) dry film thickness. Higher film thickness, insufficient ventilation or cooler temperatures will require longer cure times and could result in solvent entrapment and premature failure. **Maximum recoat/topcoat times are 30 days for epoxies and 90 days for polyurethanes at 75°F (24°C).** 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. If the maximum re-coat time has been exceeded, the surface must be abraded by sweep blasting prior to the application of additional coats. **Note:** This product contains conductive pigments and cannot be holiday tested. ***Product may be topcoated with itself (wet-on-wet) with the same or contrasting color in as short as 60 min (flash-off) in accordance with all the above application conditions.**

Cleanup & Safety

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

Cleanup & Safety

Safety Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions. Hypersensitive persons should 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. The ventilation system should be capable of preventing the solvent vapor concentration from reaching the lower explosion limit for the solvents used. In addition to ensuring proper ventilation, appropriate respirators must be used by all application personnel.

Packaging, Handling & Storage

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

*Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.

Shipping Weight (Approximate) 2 Gallon Kit - 29 lbs (13 kg)
10 Gallon Kit - 143 lbs (65 kg)

Storage Temperature & Humidity 40° - 110°F (4°- 43°C)
0-95% Relative Humidity

Flash Point (Setaflash) Part A: 72°F (22°C)
Part B: 100°F (38°C)
Mixed: 93°F (34°C)

Storage Store Indoors

This product is solvent based and not affected by excursions below these published storage temperatures, down to 10°F, for a duration of no more than 14 days. Always inspect the product prior to use to make sure it is smooth and homogeneous when properly mixed.

carboline®
Coatings - Linings - Fireproofing

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