product data carboline®

Phenoline® 350

Selection & Specification Data

Generic Type
Reinforced amine-adduct cured epoxy

Description
This product is a solvent free, flake-reinforced, high performance epoxy coating designed as an internal tank, valve and pipe lining for chemical or other commodity storage or transportation. It is crosslinked using a blend of aliphatic and aromatic amine adducts making it ideal to handle exposures typically seen in the oil and gas industries; crude oils, fuels, and ethanol. It is resistant to NGL condensates, produced water, brines, and industrial process water. It is applied at film thicknesses of 20-60 mils (500-1500 microns) in a non-blushing, single coat application.

Features
- High impact resistance
- Superior adhesion to steel
- Resistance to a broad range of fuels
- Excellent abrasion resistance
- Smooth film for low turbulence and hysteresis
- Can be applied as low as 35°F/2°C
- Can be applied as a one-coat 20-60 mil system
- Non-blushing, single or multi-coat system

Color
Standard: Grey (Z700) and Blue (0100)
Special Order: Red (0500) and White (0800)

Finish
Gloss

Primer
Coating is normaly applied direct to metal. May be applied over other primers as recommended by Carboline.

Dry Film Thickness
20 - 60 mils (508 - 1524 microns) per coat

Depends on service and existing condition of the substrate, product is typically applied in a one coat application at the appropriate film thickness depending on the application. Higher film thicknesses are used for more aggressive or abrasive conditions. DFT checked in accordance to SSPC PA2.

Solids Content
By Volume 100% +/- 0%

Theoretical Coverage Rate
1604 ft^2 at 1 mil (39 m^2/l at 25 microns)
80 ft^2 at 20 mils (2 m^2/l at 500 microns)
27 ft^2 at 60 mils (0.7 m^2/l at 1500 microns)

Allow for loss in mixing and application.

VOC Values
As Supplied 1 g/l

Topcoats
Not Applicable

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
Cleanliness: Abrasive blast to SSPS-SP10 (minimum)
Profile: Minimum 3 mil (75 micron) dense, sharp anchor profile free of peening, as measured by ASTM D 4417. Defects exposed by blasting must be repaired.

Concrete
Concrete: Clean and dry. Remove all loose, unsound concrete. Do not apply coating unless concrete has cured at least 28 days @ 70°F (21°C) and 50% RH or equivalent. Prepare surfaces in accordance with ASTM D4258 Surface Cleaning of Concrete and ASTM D4259 Abrading Concrete. Voids in concrete may require filling/surfacing.

Mixing & Thinning

Mixing
This product requires heated plural component spray equipment with multi-stage static mixers. It is recommended that two separate static mixers be used to ensure complete mixing. Small batch mixing (for touch-up) may be used provided the material is warmed to 100°F/38°C to facilitate catalyzation and cure.

For standard colors (Grey or Blue) the Part B is white and the Part A is grey or blue respectively. When using **non-standard colors** (White or Red) the Part A is clear and the Part B is White or Red respectively. Take care not to intermix components in hoppers of heated spray equipment especially if changing colors.

Thinning
NO THINNER IS RECOMMENDED
CLEANUP THINNER: Thinner #2

Ratio
1:1 by volume (Part A to Part B)

Pot Life
15-20 minutes @100°F(38°C)

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.

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 equipment manufacturers.

Airless Spray
The preferred application method utilizes a fixed ratio (1:1 by volume) plural component spray rig with heated hoppers, heated hoses to a mixer manifold through (at least two) static mixers to a 15 to 25 ft (¼" diameter) whip hose attached to an appropriate spray gun utilizing self-cleaning reverse-a-tips from 0.017-0.035 inches. Both the "A" and "B" side should be around 100-110°F/38-43°C. This will ensure proper catalyzation and spraying of product.
Note: For small jobs or touch-up, care must be taken when batch mixing (hot-potting) due to the short pot life.

Phenoline® 350

Curing Schedule

Surface Temp. & 50% Relative Humidity	Dry to Handle	Dry to Touch	Immersion Service, for crude oil, unblended gasoline, and fuel oils	Immersion Service; all other exposures	Maximum Recoat
35 °F (2 °C)	32 Hours	16 Hours	3 Days	14 Days	28 Days
55 °F (13 °C)	15 Hours	8 Hours	48 Hours	10 Days	21 Days
75 °F (24 °C)	7 Hours	4 Hours	24 Hours	7 Days	14 Days
90 °F (32 °C)	4 Hours	2 Hours	24 Hours	4 Days	7 Days

Cure for Service: Cure for service times are dependent on substrate surface temperatures and material temperatures. When the film hardness reaches a Shore D of 80 (min); or when the film passes a 25 solvent double-rub* (ex: ethanol or MEK); the lining is suitable for immersion service. Typically this can be from 24-72 hours or longer depending on the ambient temperatures. For recoating, if the product has exceeded the maximum recoat time, de-gloss and roughen by light sanding or mechanically abrade the surface and remove dust prior to topcoating.
*No significant color pick-up and some down-glossing is acceptable

Cleanup & Safety

Cleanup Thinner #2 is recommended for clean up.

Safety Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions.

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 12 months

Shipping Weight (Approximate) 12 lbs/gal (5.5 kg/gal)

Storage Temperature & Humidity 40° - 120°F (4°-49°C)
0-90% Relative Humidity

Packaging Available in 2-gal(7.6-lit) and 10-gal(37.8-lit) kits.

carboline®
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January 2015
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