

SELECTION & SPECIFICATION DATA

Generic Type	Polyamine Epoxy
Description	Single-coat, airless-applied, ultra-high build coating for use on steel and concrete substrates subject to aggressive chemical fume and spill exposure. Phenoline 309 provides exceptional resistance to thermal shock and abrasion, and has found wide acceptance in a broad variety of heavy industrial applications.
Features	<ul style="list-style-type: none"> • Single coat application reduces labor costs • Ultra-high build capabilities provides a void-free film and excellent edge protection • Wide chemical resistance to acids, caustics and aliphatic solvents • Can be mat reinforced where exposure conditions dictate • Application by airless spray equipment (plural component acceptable but not required) • VOC compliant to current AIM regulations
Color	White (0800), Gray (F744)
Finish	Eggshell
Primer	Self-priming
Dry Film Thickness	20 - 30 mils (508 - 762 microns) per coat Most applications are applied in a single coat at 20-30 mils (500-750 microns). May be applied at heavier thicknesses up to 60 mils (1500 microns) as needed or specified. See Shelf Life for film build limitations.
Solids Content	By Volume 100% +/- 2%
Theoretical Coverage Rate	1604 ft ² /gal at 1.0 mils (39.4 m ² /l at 25 microns) 80 ft ² /gal at 20.0 mils (2.0 m ² /l at 500 microns) 53 ft ² /gal at 30.0 mils (1.3 m ² /l at 750 microns) Allow for loss in mixing and application.
VOC Values	As Supplied : 0.0 lbs/gal (0 g/l) These are nominal values and may vary slightly with color.
Under Insulation Resistance	Continuous: 140°F (60°C) Non-Continuous: 180°F (82°C) Discoloration and loss of gloss is observed above 140°F (60°C).
Limitations	Epoxies lose gloss, discolor and eventually chalk in sunlight exposure. This coating commonly develops an <i>amine-blush</i> during cure. While this condition will not adversely affect performance of the coating, this blush must be removed before applying additional coats and may require removal before placing into service.

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	Immersion: SSPC-SP10 Profile: 2-4 mils (50-100 microns)

SUBSTRATES & SURFACE PREPARATION

Concrete or CMU	The concrete must be cured for 28 days (at 75°F/50% R.H.) or until the concrete reaches its designated compressive strength. Prepare and clean the surface in accordance with SSPC-SP13/ NACE No. 6 guidelines. Test for moisture by conducting a plastic sheet testing in accordance with ASTM D4263.
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MIXING & THINNING

Mixing	<p>For Single Component Spray: Use Jiffy type mixers for all mixing and stirring. When operating the mixer avoid plunging it up and down in the bucket, this can fold air into the resin, which may cause bubbles to form in the coating after it has been applied. Individually stir each separate Part A and Part B component to a smooth, uniform consistency and color. Any sediment in the container must be thoroughly scraped up and redispersed.</p> <p>To prepare the material for spraying, mix Part A with a jiffy type mechanical mixer for two minutes, mix Part B until color is well blended, then mix Part A and Part B together for two minutes using the jiffy mixer. When using a single leg sprayer, pour mixed material into a front-mounted, gravity feed, stainless steel hopper, continually pushing old material down the sides of the hopper and adding freshly mixed material on top of the old material. No more than 3-5 gallons of mixed material should be in the hopper at any given point during the application. If the bottom feed tube reaches 105 degrees F or if the ability to maintain a spray fan is diminished, the material should be chased with thinner and the pump should be completely solvent purged to minimize the chance to have material harden within the pump. When using a 45:1, set the mixed material under the pump (it is best to remove the siphon tube and pump directly from the bottom of the pump) and start spraying. The air pressure required will vary between 55-65 lbs.</p> <p>The mixed material temperature should be 75-85 °F (24-38 °C) for best spraying.</p>
Thinning	Not normally recommended. Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.
Ratio	4:1 Ratio (A to B)
Pot Life	45 minutes at 75°F (24°C). Pot life ends when material begins to thicken and starts to heat up. 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)	Recommended for application by single or plural component airless spray. 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.
Conventional Spray	Not recommended

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Airless Spray	<p>A front-mounted, gravity feed hopper is highly recommended for optimum results. Pump Ratio: 45:1 (min.)*</p> <p>GPM Output: 3.0 (min.)</p> <p>Material Hose: ½" I.D. (min.)</p> <p>Tip Size: .021-.035"</p> <p>Output PSI: 2700-3000</p> <p>Filter Size: 60 mesh</p> <p>*PTFE packings are recommended and available from the pump manufacturer. Contact Carboline Technical Service for plural component equipment recommendations.</p>
Brush & Roller (General)	Not recommended for tank lining applications except when striping welds.
Brush	For touch up and limited areas only.
Roller	For touch up and limited areas only.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	75°F (24°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. To reduce outgassing when applying to concrete substrates, do not apply in direct sunlight or when surface temperatures are increasing. Best results are obtained when ambient and surface temperatures are decreasing or constant

CURING SCHEDULE

Surface Temp.	Final Cure General	Maximum Recoat Time	Minimum Recoat Time
50°F (10°C)	7 Days	7 Days	7 Days
60°F (16°C)	96 Hours	4 Days	24 Hours
75°F (24°C)	36 Hours	2 Days	12 Hours
90°F (32°C)	24 Hours	1 Day	4 Hours

These times are based on a 20.0 mil (500 micron) dry film thickness. Higher film thicknesses, insufficient ventilation or cooler temperatures will require longer cure times and could result in solvent entrapment and premature failure. This product has a tendency to amine blush; especially under cooler or damp conditions resulting in a surface haze or blush. 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. If the maximum recoat time is exceeded, the surface must be washed with detergent and water, then abraded by sweep blasting prior to the application of additional coats. For force curing, contact Carboline Technical Service for specific requirements.

CLEANUP & SAFETY

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

Safety	Read and follow all caution statements on this product data sheet and on the SDS for this product. Employ normal workmanlike safety precautions.
Ventilation	Vapors and/or spray mist may cause explosion. 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.
Caution	This product contains flammable solvents. Keep away from sparks and open flames. All electrical equipment and installations should be made and grounded in accordance with the National Electric Code. In areas where explosion hazards exist, workmen should be required to use non-ferrous tools and wear conductive and non-sparking shoes.

PACKAGING, HANDLING & STORAGE

Shelf Life	<p>The cure mechanism of this product is not affected for a minimum of 24 months. Film build (per coat) decreases with age. <i>Fresh:</i> Over 60 mils; <i>3-6 months:</i> 50-30 mils; <i>After 6 months:</i> less than 30 mils. Follow intercoat preparation requirements.</p> <p>*Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.</p>
Storage Temperature & Humidity	<p>40-110°F (4-43°C) 0-100% Relative Humidity</p>
Storage	Store Indoors.
Shipping Weight (Approximate)	<p>1 Gallon Kit - 12 lbs (5 kg) 5 Gallon Kit - 53 lbs (24 kg)</p>
Flash Point (Setaflash)	<p>Part A: >205°F (96°C) Part B: >205°F (96°C)</p>

WARRANTY

To the best of our knowledge the technical data contained herein is true and accurate on the date of publication and is subject to change without prior notice. User must contact Carboline to verify correctness before specifying or ordering. No guarantee of accuracy is given or implied. Carboline warrants our products to be free of manufacturing defects in accord with applicable Carboline quality control procedures. THIS WARRANTY IS NOT VALID WHEN THE PRODUCT IS NOT: (1) APPLIED IN ACCORDANCE WITH CARBOLINE'S SPECIFICATIONS, AND/OR (2) PROPERLY STORED, CURED, AND USED UNDER NORMAL OPERATING CONDITIONS. Carboline assumes no responsibility for coverage, performance, injuries, or damages resulting from use of the product. If this product is found not to perform as specified upon inspection by a Carboline representative during the warranty period, Carboline's sole obligation, if any, is to replace the Carboline product(s) proven to be defective or refund the purchase price thereof, at Carboline's sole option. Carboline shall not be liable for any other losses or damages. This warranty excludes (1) labor and costs of labor for the application or removal of any product, and (2) any incidental or consequential damages, whether based on breach of express or implied warranty, negligence, strict liability or any other legal theory. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY CARBOLINE, EXPRESS OR IMPLIED, STATUTORY, BY OPERATION OF LAW, OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. All of the trademarks referenced above are the property of Carboline International Corporation unless otherwise indicated. The whole text of this Product Data Sheet, as well as the documents derived from it, have been written in English, and for legal purposes the English version shall prevail.