

SELECTION & SPECIFICATION DATA

Generic Type	Novolac Epoxy Phenalkamine Primer filled with Micaceous Iron Oxide
Description	A tank lining holding primer that has a variety of attributes including low-temperature cure, fast recoat times, moisture tolerance during application and cure, and excellent blast-hold protection. Phenoline 311 Primer is often used with thick film lining systems as a holding primer (maintain blast cleaning) and is suitable for both new tanks and relines. It exhibits excellent surface wetting characteristics and quick cure for handling. It contains high levels of inert flake reinforcement. Excellent for use as a bonding primer for linings when damp concrete or masonry substrates are encountered.
Features	<ul style="list-style-type: none"> • Low temperature cure (20°F) • Excellent blast-hold protection • Suitable for use over damp concrete • Excellent application characteristics • Fast recoat times • Moisture tolerance during application • Meets VOC restrictions • Low HAP's content • Certified by UL to meet the drinking water criteria of NSF/ANSI/CAN 600
Color	Red
Finish	Flat
Primer	Self-Priming
Dry Film Thickness	1 - 3 mils (25 - 76 microns) Typical Do not exceed 3 mils.
Solids Content	By Volume 47% +/- 2%
Theoretical Coverage Rate	754 ft ² /gal at 1.0 mils (18.5 m ² /l at 25 microns) 251 ft ² /gal at 3.0 mils (6.2 m ² /l at 75 microns) Allow for loss in mixing and application.
HAPs Values	1.64 lbs/solid gallon
VOC Value(s)	Per EPA Method 24: 1.93 lbs/gal (231 g/l) mixed 6 oz/gal of Thinner 225 E: 1.93 lbs/gal (231 g/l) These are nominal values and may vary slightly with color. Product contains VOC-exempt t-butyl acetate. Check local regulations regarding product usage.
Dry Temp. Resistance	Continuous: 180°F (82°C) Non-Continuous: 220°F (104°C)
Limitations	Epoxies lose gloss, discolor and eventually chalk in sunlight exposure.
Topcoats	Topcoat selection will depend on exposure

Phenoline® 311 Primer

PRODUCT DATA SHEET



SUBSTRATES & SURFACE PREPARATION

General	Steel: Remove any oil or grease from surface to be coated with clean rags soaked in Carboline Thinner #2, or toluol.
	Concrete: Do not apply coating unless concrete has cured at least 28 days @ 70°F (21°C) and 50% RH or equivalent.
Steel	For immersion applications: Abrasive blast to a Near-White Metal Finish in accordance with SSPC-SP 10 and obtain a 2.5-4 mil blast profile.
	For non-immersion applications: Abrasive blast to a Commercial Finish in accordance with SSPC-SP 6 and obtain a 1½-2 mil (40-75 micron) blast profile for moderate to severe exposures. For mild environments, Hand Tool or Power Tool clean in accordance with SSPC-SP 2, SSPC-SP 3, or SSPC-SP 11 to produce a rust-scale free surface. For applications over damp surfaces, brush and roller is the preferred method.
Concrete	Concrete: Remove all loose, unsound concrete. Can be applied to damp concrete with no visible water present. Consult Carboline Technical Service for more specific recommendations.

MIXING & THINNING

Mixing	Mix separately, then combine and mix in the following proportions (3:1 ratio): 1 Gal. Kit Part A: 0.75 gallon Part B: 0.25 gallon
	4 Gal Kit Part A: 3 gallons Part B: 1 gallon
Thinning	Thinning not normally required. May be thinned up to 6 oz/gal with Carboline exempt Thinner 225E to maintain VOC. Maintain constant agitation to ensure consistency due to settling. Tip: If spraying is stopped for more than 10 minutes it is advisable to recirculate the material lines.
Pot Life	3 hours at 75°F (24°C) and less at higher temperatures. Pot life ends when coating becomes too viscous to use.

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)	Hold gun 12-14 inches from the surface and at a right angle to the surface.
Conventional Spray	Pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, 0.070" I.D. fluid tip and appropriate air cap.
Airless Spray	Pump Ratio: 30:1 (min.)* Volume Output: 3.0 gpm minimum Material Hose: 3/8" I.D. min. Tip Size: 0.015-0.019" Output Pressure: 2000-2500 psi *PTFE packings are recommended and available from pump manufacturer.

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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-rolling. For best results, tie-in within 10 minutes at 75°F (24°C).
	Use a short-nap synthetic roller cover with solvent resistant core

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	45°F (7°C)	20°F (-7°C)	20°F (-7°C)	0%
Maximum	90°F (32°C)	120°F (49°C)	100°F (38°C)	95%

Industry standards are for substrate temperatures to be above the dew point. Phenoline 311 Primer is unique in that it can tolerate damp substrates. See Brush or Roller above. Special thinning and application techniques may be required above or below normal conditions.

CURING SCHEDULE

Surface Temp.	Dry to Handle	Dry to Topcoat Minimum	Maximum Recoat Time
20°F (-7°C)	36 Hours	24 Hours	45 Days
35°F (2°C)	16 Hours	2 Hours	45 Days
50°F (10°C)	10 Hours	1 Hour	30 Days
75°F (24°C)	3 Hours	30 Minutes	30 Days
90°F (32°C)	90 Minutes	30 Minutes	3 Days

These times are based on a 2 mil (50 micron) dry film thickness per coat. Higher film thickness, insufficient ventilation or cooler temperatures will require longer cure times and could result in solvent entrapment and premature failure. While this product can tolerate excessive humidity during curing, check for blush or haze and remove, if present, by water washing before recoating. 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. For force curing, contact Carboline Technical Service for specific requirements. For application and cure conditions below 35°F, dehumidify before, during, and after application to prevent ice formation on the surface. **Do not apply to substrates with ice or ice crystal formation.** Dehumidify or raise the temperature to eliminate ice on the substrate. Exposure to elevated temperatures (e.g. 80°F or greater) or sunlight can dramatically reduce the maximum recoat times. Contact Carboline Technical Service for specifics.

TESTING / CERTIFICATION / LISTING

Potable Water Certifications	Potable Water Use Limitations @ 75°F (24°C):
	<i>Meets drinking water criteria of NSF/ANSI/CAN 600</i> Max DFT: 3 mils (76.2 microns) # Coats: 1 Tank Rating: >200 gal (757.082 Liters) Pipe Rating: 24" or larger (60.96 cm) Valve Rating: Not Rated Thinning: Thinner 76 or 225 E at 5% by volume 7 Day Cure Required before service Approved Colors: 0500 (Red)

Phenoline[®] 311 Primer

PRODUCT DATA SHEET



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 SDS 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. User should test and monitor exposure levels to insure all personnel are below guidelines. If not sure or if not able to monitor levels, use MSHA/NIOSH approved supplied air respirator.
Caution	This product contains flammable materials. 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	Part A: 12 months at 76°F (24°C) Part B: 24 months at 76°F (24°C) *Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.
Storage Temperature & Humidity	40 -100°F (4°C-38°C) 0-95% Relative Humidity
Storage	Store Indoors. KEEP DRY.
Shipping Weight (Approximate)	Prices may be obtained from Carboline Sales Representative or Main Office. Terms – Net 30 days. 1 Gal Kit - 15.0 lbs. (6.8 kg) 4 Gal Kit - 65 lbs. (29.5 kg)
Flash Point (Setaflash)	Part A: 70°F (21°C) Part B: 92 °F (33°C)

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.