

Selection & Specification Data

Generic Type	Modified Epoxy Phenolic
Description	<u>Highly cross-linked coating with exceptional chemical resistance.</u> Widely used as a tank lining system in the petrochemical industry as well as in other aggressive immersion conditions like jet fuel, municipal and industrial wastewater.
Features	<ul style="list-style-type: none"> ▪ Excellent overall chemical resistance ▪ Very good abrasion resistance ▪ VOC compliant to current AIM regulations ▪ Meets all performance requirements of: <ul style="list-style-type: none"> - DOD-P-23236 Type 1, Class 1 - Complies with FDA 21CFR 175.300 criteria for food contact
Color	Primer: Red (0500) Finish: Gray (C703); White (1898)
Finish	Flat
Primers	Self-priming
Topcoats	Epoxies, Phenolics
Dry Film Thickness	4.0-6.0 mils (100-150 microns) for 187 Primer 4.0-6.0 mils (100-150 microns) for 187 Finish A second coat of 187 Finish may be used to meet specifications or increase service life.
Solids Content	By Volume: 65% ± 2% Primer 63% ± 2% Finish
Theoretical Coverage Rate	1043 mil ft ² (26.0 m ² /l at 25 microns) Primer 1011 mil ft ² (25.0 m ² /l at 25 microns) Finish Allow for loss in mixing and application
VOC Values	As supplied: 2.50 lbs/gal (300 g/l) Primer 2.60 lbs/gal (312 g/l) Finish Thinned: 32 oz/gal w/ #2: 3.42 lbs/gal (410 g/l) Primer 16 oz/gal w/ #33: 3.50 lbs/gal (420 g/l) Finish These are nominal values and may vary slightly with color.
Dry Temp. Resistance	Continuous: 200°F (121°C) Non-Continuous: 250°F (149°C) Discoloration and loss of gloss is observed above 200°F (93°C).
Wet Temp. Resistance	Immersion temperature resistance depends upon exposure. Consult Carboline Technical Service for specific information. It is recommended that metal tanks operating above 140°F (60°C) be insulated.
Limitations	<ul style="list-style-type: none"> ▪ Do not use in water immersion over 130°F (54°C). ▪ Epoxies lose gloss, discolor and eventually chalk in sunlight exposure.

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	<u>Immersion:</u>	SSPC-SP10
	<u>Non-Immersion:</u>	SSPC-SP6
	<u>Surface Profile:</u>	2.0-3.0 mils (50-75 micron)
Concrete	<u>Immersion:</u>	Concrete must be cured 28 days at 75°F (24°C) and 50% relative humidity or equivalent. Prepare surfaces in accordance with ASTM D4258-92 Surface Cleaning of Concrete and ASTM D4259 Abrading Concrete. Voids in concrete may require surfacing.

Performance Data

Test Method	System	Results	Report #
ASTM D4541 Adhesion (Elcometer)	Blasted Steel 1 ct 187 Primer 1 ct 187 Finish	840 psi	02804
ASTM 4060 Abrasion	Blasted Steel 1 ct 187 Primer 1 ct 187 Finish	163.3 mg loss CS 17 Wheel 1000 gm load 1000 cycles	02804
ASTM D2794 Gardner Impact	Blasted Steel 1 ct 187 Primer 1 ct 187 Finish 180 inch lbs	Direct Impact: 5/16 inch diameter Reverse Impact: 1/16 inch diameter	01369
ASTM D522 Mandrel Bend test for Flexibility	Blasted Steel 1 ct 187 Primer 1 ct 187 Finish	7 3/8" – Average length of first continuous crack. 26.4% – Actual average maximum elongation.	01449
ASTM D1653 Permeability Method B Condition C	Blasted Steel 1 ct 187 Primer 1 ct 187 Finish	Permeability .0076; WVP: 0.29 metric perms, 0.44 perms; MVT 5.72	1446B
ASTM B117 Salt Spray	Blasted Steel 1 ct 187 Primer 1 ct 187 Finish	No blistering, rusting, cracking, or delamination; less than 1/16" rust creepage at the scribe at 1000 hrs.	02804

Test reports and additional data are available upon written request.

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Phenoline[®] 187 Primer & Finish

Application Equipment

Spray Application (General) 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, .055-.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: .015-.019"
Output PSI: 2100-2300
Filter Size: 60 mesh
Teflon packings are recommended and available from the pump manufacturer.

Brush & Roller (General) Not recommended for tank lining applications except when striping welds and touching up.

Brush Use a medium bristle brush.

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

Mixing & Thinning

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

Ratio 4:1 Ratio (A to B)

Thinning Primer may be thinned up to 32 oz/gal (25%) with #2. Finish may be thinned up to 16 oz/gal with #33. Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

Pot Life 4 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.

Cleanup & Safety

Cleanup Use #2 Thinner 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. 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.

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.

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Normal	65°-85°F (18°-29°C)	65°-85°F (18°-29°C)	65°-85°F (18°-29°C)	30-60%
Minimum	55°F (13°C)	50°F (10°C)	50°F (10°C)	0%
Maximum	90°F (32°C)	110°F (43°C)	100°F (38°C)	85%

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	Minimum Recoat Time	Maximum Recoat Time	Final Cure for Immersion
50°F (10°C)	4 Days	30 Days	N/R*
60°F (16°C)	2 Days	30 Days	30 Days
75°F (24°C)	24 Hours	15 Days	15 Days
90°F (32°C)	12 Hours	7 Days	7 Days

These times are based on a 4.0-6.0 mil (100-150 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. 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 recoat time is exceeded, the surface must be abraded by sweep blasting prior to the application of additional coats. *Note: Final cure temperatures below 60°F (16°C) are not recommended for tank linings.

Force Curing: Force curing is recommended for all tank linings, especially for storage of food grade products. The following schedule may be used to force cure the coating system after the final coat is applied. Elevate temperature no more than 30°F (-1°C) every 30 minutes.

Surface Temp. & 50% Relative Humidity	Final Cure for Immersion
75°F (24°C)	4 Hours, followed by
150°F (66°C)	8 Hours

Final cure requirement varies depending upon exposure. Contact Carboline Technical Service for additional force curing and safety information.

Packaging, Handling & Storage

Shipping Weight (Approximate) 1 Gallon Kit: 13 lbs (6 kg) 5 Gallon Kit: 63 lbs (29 kg)

Flash Point (Setaflash) Part A Primer: 46°F (8°C)
Part A Finish: 75°F (23°C)
Part B: 68°F (20°C)

Storage (General) Store Indoors.

Storage Temperature & Humidity 40° - 110°F (4°-43°C)
0-90% Relative Humidity

Shelf Life 24 months at 75°F (24°C)



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