product data

carboline®

Phenoline® 373
Primer & Finish

Selection & Specification Data

Generic Type
Modified Phenolic

Description
High cross-linked coating with excellent organic solvent resistance. Used frequently as a tank lining system in the petrochemical industry for a variety of fuel oils. Also FDA approved for direct food contact in certain rail car applications.

Features
- Excellent caustic and solvent resistance
- Ambient cure produces a tough, hard film
- Very good thermal shock and abrasion resistance
- VOC compliant to current AIM regulations
- Meets requirements of:
  - **Complies with FDA 21CFR 175.300 criteria for food contact**

Color
Primer: White (0810); Blue (0100)
Finish: Gray (C703)

Finish
Semi-Gloss

Primers
Self-priming

Topcoats
Epoxies, Phenolics

Dry Film Thickness
4.0-5.0 mils (100-125 microns) for 373 Primer. A second coat of 373 Primer may be used when a 3-coat system is specified.
4.0-5.0 mils (100-125 microns) for 373 Finish

Solids Content
By Volume: 76% ± 2% Primer
73% ± 2% Finish

Theoretical Coverage Rate
1219 mil ft^2 (29.9 m^2/l at 25 microns) Primer
1171 mil ft^2 (28.7 m^2/l at 25 microns) Finish
Allow for loss in mixing and application

VOC Values
As supplied: 1.7 lbs./gal (204 g/l) Primer
1.9 lbs./gal (228 g/l) Finish
Thinned:*
23 oz/gal w/ Phenoline Thinner:
2.6 lbs./gal (312 g/l) Primer
2.8 lbs./gal (336 g/l) Finish
These are nominal values and may vary slightly with color.
*Maximum thinning for 250 g/l restricted areas is 9 oz/gal with Phenoline Thinner.

Dry Temp. Resistance
Continuous: 180°F (82°C)
Non-Continuous: 200°F (149°C)
Slight discoloration and loss of gloss is observed above 180°F (82°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
Do not use in exposure to strong mineral or organic acids

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-SP5 with a 2.0-4.0 mils (50-100 micron) blast profile
Non-Immersion: SSPC-SP6 with a 2.0-3.0 mils (50-75 micron) blast profile

Concrete
Immersion:
Concrete must be cured 28 days at 75°F (24°C) and 50% relative humidity or equivalent. Prepare surfaces in accordance with ASTM D4258 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)	1 ct. Phenoline 373 primer with 2 cts. Phenoline Finish	750 psi	02720
ASTM D870 Aerated Brine	Total immersion in a 5% synthetic sea salt solution which is continuously aerated at ambient temperature; 4000 hrs, 1 ct 373 Primer with 2 cts 373 Finish	No blistering or rusting on plane area; rust in scribe	02039
ASTM B117 Salt Fog	4000 hrs; 1 ct. 373 Primer with 2 cts. 373 Finish	No blistering or rust on plane area; rust in scribe; very slight undercutting in scribe.	02039
ASTM D4060 Abrasion	CS-17 Wheel, 1000 gm load, 1000 cycles; 1 ct. 373 Primer with 2 cts. 373 Finish	78 mg. Loss	03416

Test reports and additional data available upon written request.

December 2002 replaces June 2002

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Phenoline® 373 Primer & Finish

Application Equipment

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 Guidelines:

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, .070" I.D. fluid tip and appropriate air cap. Longer hose may require an increase in inside diameter to prevent pressure loss.

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:	2000-2400
Filter Size:	60 mesh

Teflon packings are recommended and available from the pump manufacturer.

Brush Recommended for touch up and striping of welds only. Use a natural bristle brush with full strokes. Avoid rebrushing.

Roller Not recommended.

Mixing & Thinning

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

Ratio 4:1 Ratio (A to B)

Thinning* May be thinned up to 23 oz/gal (18%) with Phenoline Thinner. Use of thinners other than those supplied by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.
*See VOC values for thinning limits.

Pot Life
Primer: 2 Hours at 75°F (24°C)
Finish: 1½ Hours at 75°F (24°C)
Pot life ends when material loses film build. Pot life times will be less at higher temperatures.

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 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	60°-85°F (16°-29°C)	60°-85°F (16°-29°C)	60°-85°F (16°-29°C)	30-40%
Minimum	55°F (13°C)	55°F (13°C)	50°F (10°C)	0%
Maximum	90°F (32°C)	90°F (32°C)	110°F (43°C)	80%

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 over Primer	Maximum Recoat Time over Primer & Finish	Final Cure for Immersion
50°F (10°C)	6 Days	30 Days	N/R*
60°F (16°C)	3 Days	14 Days	60 Days
75°F (24°C)	36 Hours	10 Days	30 Days
90°F (32°C)	12 Hours	4 Days	15 Days

These times are based on 5.0 mil (125 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 15 lbs (6 kg)	5 Gallon Kit 75 lbs (34 kg)
Flash Point (Setaflash)	Part A Primer: Part A Finish: Part B Primer: Part B Finish:	72°F (22°C) 66°F (19°C) 66°F (19°C) 61°F (16°C)
Storage (General)	Store Indoors.	
Storage Temperature & Humidity	40° - 110°F (4° - 43°C) 0-100% Relative Humidity	
Shelf Life	Part A & B: Min. 24 months at 75°F (24°C)	

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

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December 2002 replaces June 2002